WESTERN EL DORADO COUNTY
COMMUNITY WILDFIRE PROTECTION PLAN

January 2026



Prepared By:

In Partnership With:

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ACKNOWLEDGMENTS

The following organizations and agencies represent the project steering committee and provided invaluable time, resources, and feedback in the development of the update to Western El Dorado County Community Wildfire Protection Plan (CWPP), as well as support during site visits, public outreach and other engagement activities.

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  - » Cool Pilot Hill FSC
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  - » Cedar Grove FSC
  - » Diamond Springs FSC
  - » Fort Jim FSC
  - » Gallagher Road FSC
  - » Georgetown Divide FSC
  - » Gold Hill FSC
  - » Gold Ridge Forest FSC
  - » Greater Cameron Park Area FSC
  - » Greenstone Country FSC
  - » Grizzly Flats FSC
  - » Lakehills FSC
  - » Logtown FSC
  - » Mosquito FSC
  - » Oak Hill FSC
  - » Omo Ranch FSC
  - » Patterson Ranch FSC
  - » Placerville FSC
  - » Rancho Del Sol FSC
  - » Rescue FSC
  - » Royal Equestrian Estates FSC
  - » Sandridge FSC
  - » Serrano FSC
  - » Sierra Springs Regional FSC
  - » Strawberry FSC
  - » Texas Hill Estates FSC
  - » Volcanoville FSC
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DISCLAIMER

This CWPP is not a legal document and is not intended to be an all-encompassing fire planning, wildfire resiliency or disaster risk management plan for the west slope of El Dorado County. The CWPP is considered a living document that serves as a road map for planning and prioritizing wildfire mitigation activities throughout the region, while also providing a resource to help increase public awareness and engagement in wildfire safety principles and preparedness at the individual, household, and neighborhood levels. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view(s) of any governmental agency, organization, corporation or individual with which the authors may be affiliated.

As a living document, the CWPP is a work in progress and is anticipated to be monitored, evaluated and updated over the next several years, as wildfire hazards and risks change, human development increases, community needs evolve, and the social, economic, and regulatory landscape changes with time.

Recommended actions identified in this CWPP should not be interpreted as a project "activity" as defined under the "Community Guide to the California Environmental Quality Act, Chapter Three; Projects Subject to CEQA [California Environmental Quality Act]." Because the CWPP does not legally commit any public agency to undertake a specific course of action or conduct, the plan and associated recommendations are not a project subject to CEQA or NEPA (National Environmental Policy Act). However, if and once grant funding is received from state or federal agencies and prior to work performed pursuant to this CWPP, or prior to issuance of discretionary permits or other entitlements by any public agencies to which a project is under CEQA or NEPA, if the lead agency makes a determination that the proposed activity is a project subject to CEQA or NEPA, the lead agency must perform environmental review pursuant to CEQA or NEPA.

EXECUTIVE SUMMARY

The Community Wildfire Protection Plan (CWPP) for the west slope of El Dorado County (EDC) provides a road map and guiding document to assist agencies, organizations, communities, and the public to better prepare for, mitigate against, respond to, and recover from future wildfire threats. This plan is a significant update to the existing Western El Dorado County CWPP dated February 15, 2022. This CWPP update has been developed for the specific needs, local context, and scales needed to be effective, manageable, and locally relevant for the various stakeholders in the Planning Area (see Section 3.1).

In accordance with the 2003 Healthy Forest Restoration Act (HFRA), the CWPP was developed through a collaborative process involving the Office of Wildfire Preparedness and Resilience (OWPR), the EDC Fire Safe Council (EDC FSC) and associate Fire Safe Councils, CAL FIRE Amador-El Dorado Unit, EDC Sheriff's Office of Emergency Services (EDSO-OES), USDA Eldorado National Forest, El Dorado & Georgetown Divide Resource Conservation Districts (RCD), Fire Chiefs Association and Fire Prevention Officers, surrounding fire agencies, the City of Placerville, county officials, county-, state-, and federal-land management agencies, community groups, and the general public. In addition, the plan also satisfies, at a minimum, the CWPP requirements set forth in the HFRA, including:

- Identifying and prioritizing areas for fuel reduction
- Collaborating with stakeholders
- Addressing structural ignitability

Wildfires have historically been a major risk to El Dorado County's natural ecosystem. The climate, rugged topography, seasonal winds, and fire-adapted vegetation create an environment which burns periodically. Wildfires are made more impactful by the abundant risks associated with a population of nearly 200,000, 22 Communities at Risk identified by CAL FIRE, rural settings, limited access/egress routes, increasing effects of changing climate (e.g., increasing frequency and severity of droughts, extreme storms, flooding, and an increasing number of fire danger days). This is further complicated by the presence of not only local, but regional and national assets such as the Eldorado National Forest, recreation areas, ecological services, water resources, and lands that are pivotal to the County's economy and the well-being of its residents.



To better understand, assess, and develop recommended actions for the unique set of hazards, assets at risk, and vulnerabilities across the west slope of El Dorado County, this CWPP was developed using the latest tools, resources, and best practice guidance on wildfire resiliency planning and preparedness, particularly in the wildland-urban- interface (WUI). This includes science and engineering- based hazard, risk, and vulnerability assessments using high resolution topography, fuels, weather, and values at risk data. The assessment was focused on identifying areas of concern throughout the region and within four sub- regional planning units, and prioritizing areas where wildfire threat and hazard potential pose the greatest risk to communities. Hazard and risk mitigation efforts and other action items were specifically tailored to address the unique issues in the areas of greatest concern (see Chapters 5.0 and 6.0), using a range of strategies, including:

- Pre-fire planning.
- Wildfire resiliency planning using holistic fire safety principles and strategies for protecting life, property, natural resources, and other community assets.
- Public education and outreach to promote and implement fire adapted community practices.
- Vegetation management and fuel reduction at the community level, including the enforcement of defensible space requirements on private lands.
- Reducing structure ignitability by promoting and enforcing building codes, ordinances, and statutes.

This document provides a framework that can be used to identify, prioritize, implement, and monitor hazard and risk reduction activities throughout the region. This document is intended to support the California Fire Plan, the El Dorado County General Plan Safety Element, and the 2024 and 2025 Strategic Fire Plans — CAL FIRE Amador-El Dorado Unit. While this CWPP covers the entire west slope, the plan also supports and encourages wildfire protection actions at community and neighborhood scales.



SIGNATURES

The 2024 Community Wildfire Protection Plan (CWPP) for Western El Dorado County was developed in accordance with the Healthy Forests Restoration Act. The plan was developed collaboratively among El Dorado County stakeholders including the Office of Wildfire Preparedness and Resilience (OWPR), associate El Dorado County Fire Safe Councils, El Dorado County Sheriff's Office of Emergency Services, federal-, state- and county-fire agencies, county and local government, private-landowners, residents, community groups and other interested parties. The plan includes a prioritized list of hazardous fuel reduction strategies, measures that community members can take to reduce structural ignitability, as well as recommendations on additional studies, policy changes, educational programs and other initiatives that can be undertaken to provide a more holistic wildfire mitigation strategy in all stages of wildfire disaster risk management (i.e., prevention/mitigation, preparedness, response and recovery).

The undersigned have reviewed the CWPP and accepted this document as the final version .

12/19/2025

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2/10/2026

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for

1-9-2026

Eldorado National Forest, Forest Supervisor David Fournier — Date

1-6-2026

El Dorado County Sheriff, Sheriff Jeff Leikauf — Date

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CAL FIRE Amador El Dorado Unit Chief, Chief Dave Wood — Date

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El Dorado County, Interim Chief Administrative Officer Sue Phillips — Date

2/3/26

El Dorado County Board of Supervisors, Chair Brooke Laine — Date

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LIST OF ACRONYMS

AHJ	Authority Having Jurisdiction
BMP	Best Management Practices
CAL FIRE	California Department of Forestry and Fire Protection
CAR	Communities at Risk
CEQA	California Environmental Quality Act
CCR	California Code of Regulations
CPFD	Cameron Park Fire Department
CWPP	Community Wildfire Protection Plan
EDC	El Dorado County
EDCFPD	El Dorado County Fire Protection District
EDHFD	El Dorado Hills Fire Department
EDSO	El Dorado County Sheriff's Office
ENF	Eldorado National Forest
ESHA	Environmentally Sensitive Habitat Areas
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FPU	Fire Planning Unit
FRA	Federal Responsibility Area
FRAP	Fire and Resource Assessment Program
GFPD	Georgetown Fire Protection District
GIS	Geographic Information System
GVFPD	Garden Valley Fire Department
HFRA	Healthy Forest Restoration Act
HVRA	Highly Valued Resources or Assets
HIZ	Home Ignition Zone

LIST OF ACRONYMS

IBHS	Insurance Institute for Business and Home Safety
LANDFIRE	Landscape Fire and Resource Management Planning Tools
LRA	Local Responsibility Area
MFPD	Mosquito Fire Protection District
MTT	Minimum Travel Time
NFP	National Fire Plan
NFPA	National Fire Protection Association
NIMS	National Incident Management System
NPS	National Park Service
OWPR	El Dorado County Office of Wildfire Preparedness and Resilience
PFPD	Pioneer Fire Protection District
PRC	Public Resources Code
RAWS	Remote Automatic Weather Station
RFPD	Rescue Fire Protection District
RCD	El Dorado & Georgetown Divide Resource Conservation Districts
SRA	State Responsibility Area
SWIFT	Southwest Interface Team
USFS	United States Forest Service
WFDSS	Wildland Fire Decision Support System
WIMS	Weather Information Management Systems
WUI	Wildland Urban Interface

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INTRODUCTION



1.0 INTRODUCTION

El Dorado County and surrounding areas have an extensive history of large wildfires that have caused substantial impacts to human health and life safety, the built environment, local economies, the natural environment, and cultural & historical resources. Impacts from wildfire have included numerous other short and long-term costs to social capital, human psychology, vulnerable groups, and recovery capacities. While government agencies can play an important role in developing and implementing a range of wildfire hazard and risk mitigation activities, programs, and policies, wildfires are not fully preventable. Thus, it is critical that the whole community works collectively to build individual and societal capacities to prevent, prepare for, respond to, and recover from major wildfire incidents. As wildfires are an inevitable part of life in El Dorado County and surrounding counties (e.g., Placer, Sacramento, Amador, and Alpine Counties), it is not a question of if a wildfire will occur, but when it will burn and how prepared and resilient communities will be to minimize potential impacts.

The plan contained in this report serves as the 2024 Community Wildfire Protection Plan (CWPP) for Western El Dorado County, which is defined by Amador County to the south, Sacramento County on the west, Placer County on the north and the Eldorado National Forest/Tahoe Basin Management unit boundary on the east. This CWPP is the result of a region-wide planning effort to quantify and evaluate the wildfire threat to the Planning Area and to develop mitigation strategies that enhance protection of human life safety and a range of community values from wildfire. Note: While this plan does not address the Tahoe Basin, it has been informed and complements the Tahoe Basin CWPP, CALFIRE Amador El Dorado Unit (AEU) Fire Plan, the County Local Hazard Mitigation Plan and the County General Plan Safety Element.

Fundamental to any CWPP is the engagement and collective action of all community stakeholders in protecting things that are of value, addressing specific challenges of the local context, and developing comprehensive risk management strategies that work for the whole community.

This plan meets the requirements of the 2003 Healthy Forests Restoration Act and better positions El Dorado County and partner agencies and organizations to apply for and obtain state and federal grants for additional studies and implementation activities identified in the action plan. This plan incorporates the latest wildfire science and engineering tools, as well as industry best practices, to holistically mitigate the risks of wildfires across the region.

1.1 Purpose of Plan

The primary purpose of the CWPP is to minimize the wildfire threat to human life and wellbeing and reduce the wildfire risk to community values/assets such as residential structures, critical infrastructure, businesses, the natural environment, recreation and historic/cultural resources across the west slope of the County.

The CWPP provides guidance for future actions for local stakeholders including the Office of Wildfire Preparedness and Resilience (OWPR), local Fire Districts, CAL FIRE, EDSO-OES, county and associate Fire Safe Councils, local residents, businesses, homeowner associations, community groups, and other interested parties to collectively reduce the wildfire threat to the communities in the Planning Area. Successful implementation and long-term sustainability are subject to available funding, the collective action and engagement of all community stakeholders, other County priorities, collaboration between stakeholder groups on private and public lands, and environmental review under the California Environmental Quality Act (CEQA) or National Environmental Protection Act (NEPA).

1.2 Goals & Objectives

The goals and objectives of the CWPP were developed in collaboration with the OWPR and the Project Steering Committee and other stakeholders through a combination of meetings, open forum workshops, and an online feedback survey. The goals represent broad visions for the CWPP and provide general long-term guidelines to drive towards desired conditions for communities across the west slope. The objectives define strategies or implementation steps to attain the identified goals. They are specific to El Dorado County, measurable and will have defined completion dates as determined by the responsible parties. The goals and objectives for the CWPP for Western El Dorado County are summarized in Table 1.

Table 1. Goals & Objectives of the 2025 CWPP for Western El Dorado County

Goals	Objectives
To enhance **life safety and preparedness** for responders and the public	• Reduce human caused ignitions. • Assess wildfire hazards, risks, and vulnerabilities in the CWPP Area and use results to set priorities to reduce threat to life safety. • Identify areas of strategic and tactical advantage for wildfire suppression. • Review the existing public alert programs and evacuation resources for wildfires. • Improve collective action in reducing wildfire risk through enhancements to community engagement, participation, and education programs. • Assess individual and community-level coping capacities to prevent, mitigate, respond and recover from wildland fire disaster events (e.g., communication systems, evacuation planning, people management, emergency power supplies, short-/long-term recovery resources).
To reduce the wildfire threat to **values and assets at risk**	• Identify values and assets at risk from wildfire across the west slope. • Utilize the wildfire hazard, risk, and vulnerability assessments to develop prioritized mitigation strategies to reduce the threat to physical, social, environmental, and economic assets. • Identify and promote citizen-based actions that enhance structure hardening and the development of effective defensible space. • Restore and maintain healthy, resilient landscapes in all ecotypes. • Identify, plan, prioritize, and coordinate fuels reduction projects and funding sources to ensure smart investments based on risk and potential effectiveness. • Develop fuel treatment methods and strategies for agencies that provide guidance for adequate defensible space for structures, critical infrastructure, facilities and other assets in all types of wildland fuels.

Goals	Objectives
To **set priorities** to mitigate risks and hazards identified, collectively and collaboratively	• Create a CWPP that meets the requirements of the 2003 Healthy Forest Restoration Act and FEMA's Local Hazard Mitigation Plan. • Facilitate on-going collaboration between land managers, residents, City and County agencies, OWPR, EDC Fire Safe Council, associate FSCs, fire agencies, state and federal agencies, local businesses, utilities and other relevant stakeholders to address potential wildfire hazards and risks. • Identify opportunities to further build community and regional partnerships for the west slope. • Develop a public education strategy to inform the public of findings and mitigations. • Identify initiatives to support and engage vulnerable groups.
To create healthy and **productive fire adapted communities**	• Plan, fund, and implement wildland urban interface (WUI) fuel reduction treatments. • Identify measures that homeowners, businesses, and communities can take to reduce the ignitability of structures. • Identify existing community preparedness programs and activities that provide community wildfire safety and planning. • Promote wildfire awareness, understanding of fire behavior, structure and site assessments, evacuation planning, emergency communication and safe individual and community practices. • Identify community-focused entities and programs that can address the immediate needs of residents throughout a wildland fire incident (from prevention to response and recovery). • Create collaborative partnerships for all lands treatments (large scale). • Provide communities with the opportunity to compete for federal, state, and local grants.
To enhance the resiliency of the west slope of El Dorado County to future **climate change impacts**	• Determine potential impacts of climate change on the local fire environment and how these impacts may influence wildfire hazard and risk into the mid-21st century. • Provide recommendations to assist in mitigating potential future increases in wildfire hazard, risk, and vulnerabilities. • Identify post-wildfire hazards and post-fire recovery priorities.
To improve **accountability, public trust, and efficiency** in implementation of action items identified in the CWPP	• Establish a plan and project dashboard to monitor and evaluate progress in implementing action items and achieving the goals identified in the CWPP. • Identify responsible parties for carrying out action items and establishing accountability for actions through annual reporting to an Advisory Committee.

To help manage the implementation of the action items and achieve the goals identified in the CWPP, an action plan and an implementation and monitoring plan have been developed in Chapters 7 and 8 of this document.

1.3 Development Team

This section identifies the agencies, parties, and other organizations who were involved and/or provided input into the development of this CWPP. Their roles and responsibilities are indicated in the table below.

CWPP Development Entities	Roles/Responsibilities
Lead Organization: » El Dorado County Office of Wildfire Preparedness and Resilience (OWPR)	• Manage day-to-day CWPP development • Form and coordinate Steering Committee • Identify members of the Broader Stakeholder Group and coordinate outreach • Coordinate engagement with EDCFSC and associate FSC's • Provide guidance and support for CWPP • Distribute media releases about CWPP • Coordinate with neighboring jurisdictions • Develop CWPP implementation and monitoring plan (and associated dashboard)
Steering Committee: » CAL FIRE Amador-El Dorado Unit » EDC Fire Safe Council » EDC OWPR » EDC Sheriff's Office of Emergency Services » Fire Prevention Officers » El Dorado/Georgetown Resource Conservation District (RCD) » Fire Chiefs Association » USFS Eldorado National Forest	• Represent key government agencies and community organizations • Approve CWPP goals and objectives and planning unit boundaries • Provide local context and subject matter expertise • Support public outreach and site visits (as needed) • Provide feedback on key CWPP products • Develop, implement, and maintain long-term operations of CWPP strategy and actions
Stakeholder Working Group: » 158 representatives across 119 organizations & agencies (See Section 2.2.3 for full list of members)	• Represent a wide range of agencies, organizations, and entities in the County • Provide general feedback, expertise, and local context for CWPP development and associated products • Support public outreach activities and site visits (as requested)
General Public and Other Interested Parties	• Attend public workshops • Provide responses to online survey • Provide input on values to protect, areas of concern, community projects and ongoing grassroots initiatives

CWPP Development Entities	Roles/Responsibilities
CWPP Consultant: » Jensen Hughes	• Development of the CWPP • Provide fire science, engineering and subject matter expertise, data analysis, and guidance on current wildfire research • Facilitate and support stakeholder outreach and engagement • Provide supporting materials and content for public outreach activities (e.g., public workshops) • Produce CWPP development webpage format & content

1.4 Policy & Regulatory Framework

The following codes, standards, policies, and regulations at the federal, state and local levels were consulted and evaluated for consistency and plan alignment in the development of this CWPP. A more detailed summary of these policies and regulations are provided in Appendix B.

Federal:

» Disaster Mitigation Act (2000)
» National Cohesive Wildland Fire Management Strategy (2009)
» National Fire Plan (2000)
» National Fire Protection Association Codes and Standards (NFPA 1, NFPA 1140)
» National Incident Management System (NIMS)

County:

» El Dorado County General Plan Public Health, Safety, and Noise Element (2004)
» El Dorado County Local Hazard Mitigation Plan (2018)
» El Dorado County Master CWPP (2017)
» Western El Dorado County Community Wildfire Protection Plan Update (2022)
» El Dorado County Multi-Jurisdictional Hazard Mitigation Plan Public Review Draft (2024)
» El Dorado County Emergency Operations Plan (2023)
» County of El Dorado Wildfire Strategy (2023)
» El Dorado County 2024 Strategic Plan
» El Dorado County Safety Element Update 2024

State:

» California State Hazard Mitigation Plan (2023)
» CAL FIRE California Strategic Fire Plan (2018)
» California's Wildfire and Forest Resilience Action Plan (2021)
» California Environmental Quality Act (CEQA) Guidelines (updated 2018)
» California Fire Code (2022)
» California Building Code Chapter 7A (2022)
» California Code of Regulations Title 24 (2022)
» California Residential Code Chapter 3 (2022)
» Public Resource Code Sections 4125-4137, 4201-4204, 4291, 4292-93, 4296, 4421-4446, 4741
» California Code of Regulations (CCR) Title 14 Section 1256, 1290, 1299.1
» Government Codes: 51175-51189, 51189, 65302.5
» California Health and Safety Code: Division 12. Fires and Fire Protection; Chapter 1 Liability in Relation to Fires; Section 13000
» California Civil Code 1103.C.3
» California Emergency Services Act - Chapter 7, Section 8550-8551 (CESA)
» Senate Bills: 160, 167, 190, 465, 560, 670, 901, 979, 1260
» Assembly Bills: 38, 836, 1054, 1877, 1956, 2911

Regional:

- Pacific Gas & Electric Wildfire Mitigation Plan Report (2021)
- SMUD 2023-2025 Wildfire Mitigation Plan
- 2024 and 2025 Strategic Fire Plans — CAL FIRE Amador-El Dorado Unit
- Eldorado National Forest Land and Resource Management Plan (1989)

Neighboring Counties:

- Lake Tahoe Basin Community Wildfire Protection Plan (2025)
- Placer County CWPP (2012)
- Alpine County CWPP (2018)
- Amador County CWPP (under development)

Local:

- City of Placerville Community Wildfire Resiliency Strategy (2025)
- Diamond Springs — El Dorado Fire Protection District Long-Range Master Plan (2022)
- El Dorado Hills Fire Department Strategic Plan 2017-2022
- El Dorado Hills Fire Department Community Risk Assessment, Standards of Cover Study, and Strategic Plan and Training Facilities Review (2016)
- El Dorado Hills Fire Department Community Wildfire Safety Plans
- Mosquito Fire Protection District Strategic Plan 2019-2023
- Cameron Park Community Services District Parks and Recreation Master Plan Update (2014)
- El Dorado County Transportation Commission Evacuation Study (2024)

1.5 Funding for CWPP Development

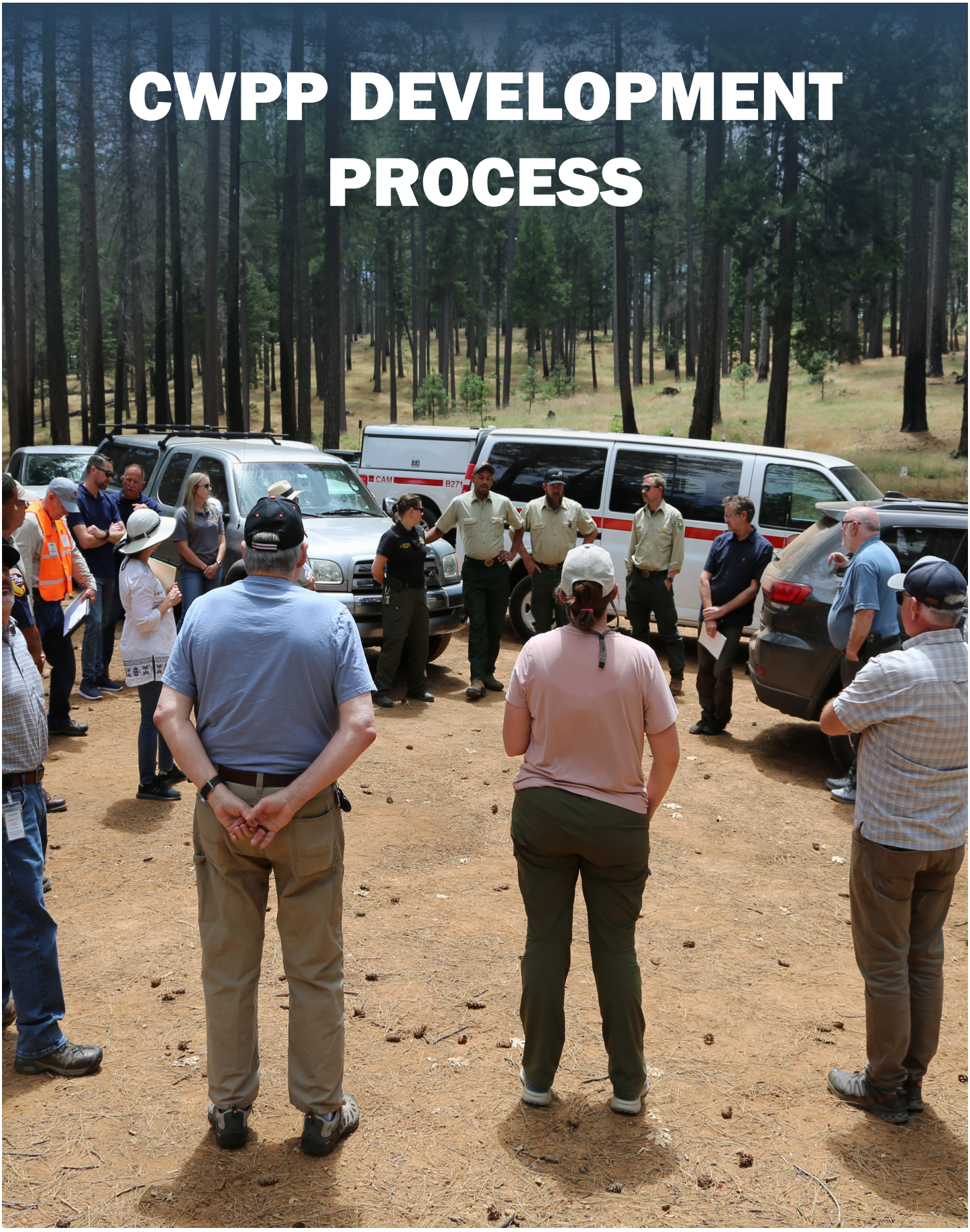
Funding for the preparation of this CWPP was provided by the County of El Dorado.

1.6 Glossary of Terms

A glossary of terms can be found in Appendix A.

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CWPP DEVELOPMENT PROCESS



2.0 CWPP DEVELOPMENT PROCESS

2.1 Overview

The development of a CWPP is a collaborative process where community stakeholders assess the wildfire threat, identify community values at risk, and ultimately develop prioritized mitigation measures and actions to increase community resilience to wildfire threats. The language in the 2003 HFRA provides maximum flexibility for communities to determine the substance and detail of their CWPP action plan and the procedures they use to develop them. The CWPP planning process provides communities with the opportunity to develop locally relevant plans that influence where and how federal agencies implement fuel treatment activities on federal land and the distribution of federal funds for projects on non-federal lands. In addition, development of a CWPP also positions communities to access other funding sources from State and Local resources for wildfire mitigation projects.

The CWPP planning process brings together broad and diverse local interests to holistically identify common concerns and values related to public safety, sustainability of environmental and natural resources, and long-term resiliency and sustainability of the whole community. The process should provide a positive, solution-oriented environment in which to address the challenges of living in a community at risk to wildfire. Because not all community members will attend workshops or meetings, it is important to provide multiple opportunities for the whole community to provide input, voice issues and concerns, and participate in the process of developing a CWPP.

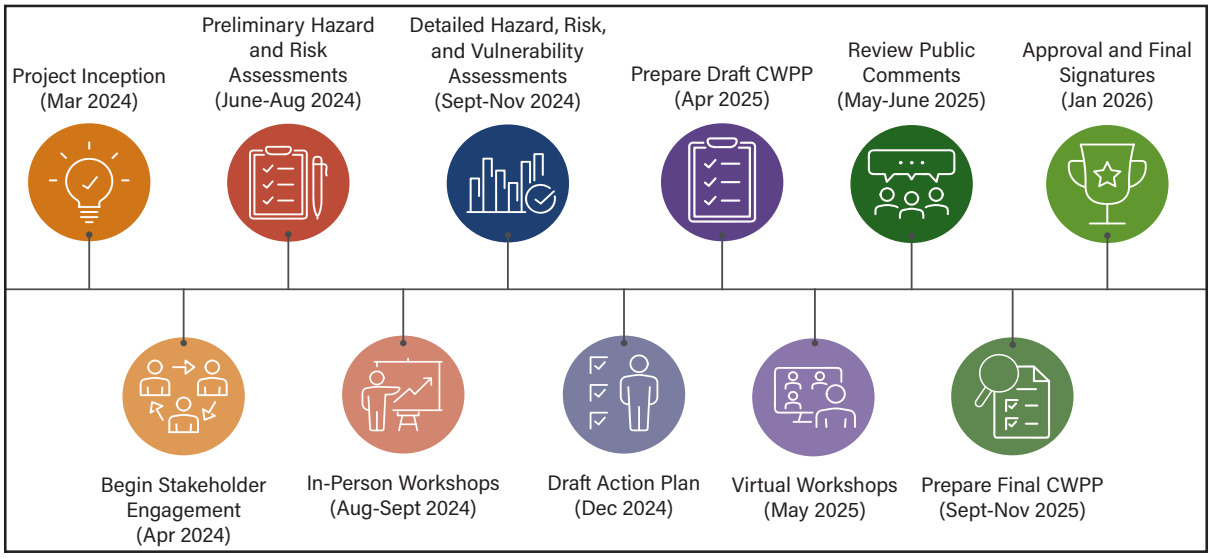


Figure 1. CWPP Development Process

As Part of the 2003 HFRA, there are three minimum requirements for the CWPP.

- **Collaboration** — A CWPP must be collaboratively developed. Local and state officials must meaningfully involve federal agencies that manage land in the vicinity of the community and other interested parties (particularly non-governmental stakeholders) that can work collectively to implement and manage wildfire risk mitigation measures and can help build a "culture of resiliency" at an individual and community-level.
- **Prioritized Fuel Reduction** — A CWPP must identify and prioritize areas for hazardous fuel reduction treatments on non-federal lands and recommend the types and methods of treatment that, if completed, would reduce risk to the community.

- **Treatment of Structural Ignitability** — A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

In the development of a CWPP, the more inclusive the group and the greater the diversity of interests involved, the more likely the plan will represent the community as a whole. These three basic requirements, however, do not preclude the community from developing broader wildfire disaster risk management and capacity building efforts (e.g., evacuation/shelter-in-place planning, community emergency communications, early warning detection systems, post-fire recovery services, etc.).

2.2 Western El Dorado County Collaborative Approach

The Western El Dorado County CWPP was developed as a collaborative process by the OWPR with guidance, support, and input from El Dorado County Fire Safe Council, 32 Associate Fire Safe Councils, El Dorado & Georgetown Divide Resource Conservation Districts, El Dorado County Sheriff's Office of Emergency Services (EDSO-OES), CAL FIRE, Eldorado National Forest, local Fire Departments, and numerous local agencies, organizations, and the general public. As the CWPP is intended to be a "living" document, the various CWPP coordination and development groups and the Fire Safe Council engagement plan was designed to reinforce existing regional relationships, establish networks to implement, maintain and monitor the CWPP actions, and integrate mechanisms to obtain community input, promote widespread community education, and enable the ongoing monitoring and evaluation of the ever evolving wildfire risk landscape (e.g., impacts of changing climate, changes in development, impacts of mitigation activities etc.).

2.2.1 Core Project Team

The CWPP core project team was formed in April 2024, and refers to a smaller group of key representatives from:

- Office of Wildfire Preparedness and Resilience (OWPR)
- El Dorado County Fire Safe Council (EDCFSC)
- Jensen Hughes (Consultant)

This group was responsible for the day-to-day development of the CWPP, organizing the engagement and participation of a broad range of stakeholders, agencies, organizations, and individuals (e.g., federal/state/local government agencies, fire authorities, landowners and stewards, community groups, residential/commercial owners, infrastructure, general public), forming the Steering Committee and Broader Stakeholder Group, engaging with associate Fire Safe Councils, monitoring project progress, and reviewing key documents and project deliverables.

The group considered input from all relevant plans, community groups, agencies, and local organizations. The objective was to organize city, county, regional, state, and federal participation through Core Project Team to help protect life, property, and natural resources from wildfires. Once the Core Project Team was satisfied that the CWPP document captured the goals, objectives, and needs identified by the public and other key stakeholders, the group presented the Plan for adoption.

2.2.2 Steering Committee

The Steering Committee was identified and formed at the start of the project in April 2024. The group included representatives of key government agencies and community organizations who are relevant to the development, implementation, and long-term operations of the CWPP. This group approved the goals and objectives for the CWPP and planning area boundaries. The Steering Committee served as an advisory group to provide local context and subject matter expertise, identify gaps, support public outreach activities (as needed), support site visits, and provide general feedback on the CWPP development process and CWPP products (as requested).

Members:

- EDC OWPR
- EDC Fire Safe Council
- CAL FIRE Amador – El Dorado Unit
- EDC Sheriff's Office of Emergency Services
- EDC Fire Prevention Officers
- El Dorado/Georgetown Resource Conservation Districts (RCD)
- EDC Fire Chiefs Association
- USFS Eldorado National Forest

The Steering Committee met twelve (12) times over the course of the project. Key meetings included a kickoff meeting (held April 25, 2024), a 3-day site visit (held June 25-27, 2024), prior to the draft CWPP (Oct/Nov 2024) and when the draft CWPP was produced (Feb/March 2025).

2.2.3 Stakeholder & Public Engagement Approach

Participation and engagement of a broad range of community stakeholder groups was a critical component in the development of a comprehensive CWPP for Western El Dorado County. As such, a Stakeholder and Public Outreach Plan was developed to help guide how community members, project partners, and other stakeholders would be engaged throughout the CWPP development process This was intended to encourage a sense of ownership and a vested interest in the future safety and well-being of individuals, families, businesses, agencies, community groups, and other interested parties across the west slope of the County. This process also helped ensure that recommendations developed as part of the CWPP update will be implemented and sustained over time.

The primary goals and objectives of the outreach process were as follows:

(1) Provide various opportunities for community stakeholders and the general public to participate, collaborate and engage throughout the CWPP development process.

(2) Gather feedback on a broad range of concerns regarding wildfire hazards, risks, and vulnerabilities at various scales (e.g., county-wide, community, FSC-specific, neighborhood, parcel, individual).

(3) Gather feedback from community members that will guide goal setting, action items and prioritization across the whole west slope and within each Planning Unit.

(4) Identify key project participants and working group members as part of the process.

(5) Identify appropriate levels and methods of stakeholder engagement.

(6) Develop a Fire Safe Council engagement implementation plan incorporating key initiatives, activities and formats specifically tailored for each FSC or set of FSCs.

(7) Raise awareness of wildfire hazards and risks across the west slope, as well as the range of existing, planned, and proposed wildfire resiliency plans, programs, and projects.

Framing the Stakeholder and Public Outreach Plan were a set of guiding principles, based upon discussions with the Steering Committee and informed by best practice guidance.

- **Accessible** — Stakeholders must be aware and be provided with a variety of engagement opportunities and formats to participate in the process.
- **Participatory** — Creating an environment to facilitate the expression and the participation of different and diverse actors, such as oral communication, written communication, and schematic or visual representations Promote a culture of participation with programs and activities that support ongoing engagement and ownership.
- **Informative** — Help all involved to listen to each other, explore new ideas, learn, and apply information in ways that generate new solutions, methods, or opportunities.
- **Collaborative** — Support and encourage participants, government and civil society groups, and other interested parties to work together to advance the common good.
- **Representative** — Equitably incorporate diverse people, voices, ideas, and information to lay the groundwork for quality outcomes and democratic legitimacy.

To effectively engage the various categories of stakeholders (e.g., infrastructure, governmental agency, landowners & stewards, and community groups) and the general public, various engagement tactics and implementation methods were identified to solicit the desired input or feedback specific to the targeted audience. See following sections below for overview of engagement for different groups.

2.2.4 Broader Stakeholder Group

The Broader Stakeholder Group consisted of representatives from a wider range of agencies and community organizations than those that made up the Steering Committee. This group provided additional local context, challenges, and concerns, as well as identification of their organizations' current and proposed projects. The Broader Stakeholder Group served as an advisory group of interested parties to provide subject matter expertise, support public outreach activities (as needed), support site visits (as needed), and provide general feedback on the CWPP development process and CWPP products (as requested).

Broader Stakeholder Group outreach began in August 2024 via a feedback form. Follow up with individual members of the group continued through October 2024. The Broader Stakeholder Group had the opportunity to review and agree on CWPP recommendations and actions in November 2024 and January 2025.

The Broader Stakeholder Group included 158 individuals representing 119 organizations and agencies. Due to the size of this group, several sub-groups were identified based on their primary focus area (e.g., associations, education, fire agencies, fire safe councils, land stewards, infrastructure, government and tribal agencies, community groups).

Members:

- El Dorado County Association of Realtors (EDCAR)
- El Dorado Winery Association
- Prescribed Burn Association
- Marshall Hospital and Medical Center
- Shingle Springs Health & Wellness Center/Tribal Health
- El Dorado Community Foundation
- El Dorado County Chamber of Commerce
- Marshall Foundation of Community Health
- New Morning Youth and Family Services
- Black Oak Mine Unified School District
- Buckeye Union School District
- Camino Union School District
- Hope House
- Pollock Pines Community Center/First Baptist Church
- Cameron Park Fire Department
- Diamond Springs - El Dorado Fire Protection District
- El Dorado County Fire Protection District
- El Dorado Hills Fire Department
- Georgetown Fire Protection District
- Mosquito Fire Protection District
- Pioneer Fire Protection District
- Rescue Fire Protection District
- Auburn Lake Trails FSC
- Aukum Fairplay FSC
- Camino FSC
- Cedar Grove FSC
- Coloma Lotus FSC
- Cool Pilot Hill FSC
- Diamond Springs FSC
- El Dorado County FSC
- Fort Jim FSC
- Gallagher Road FSC
- Georgetown Divide FSC
- Gold Hill Estates FSC
- Gold Ridge Forest FSC
- Greater Cameron Park Area FSC
- Greenstone Country FSC
- Grizzly Flats FSC
- Lakehills FSC
- Logtown FSC
- Mosquito FSC
- Oak Hill Area FSC
- Omo Ranch FSC
- Patterson Ranch FSC
- Placerville FSC
- Rancho Del Sol FSC
- Rescue FSC
- Royal Equestrian Estates FSC
- SandRidge FSC
- Serrano FSC
- Sierra Springs FSC
- Strawberry FSC
- Texas Hill FSC
- El Dorado County Office of Education (EDCOE)
- El Dorado Union High School District
- Folsom Lake College
- Folsom Lake College – Placerville
- Gold Oak Union School District
- Gold Trail Union School District
- Indian Diggings School District
- Latrobe School District
- University of California Cooperative Extension
- County Supervisor District Representatives
- Senator Alvarado-Gil's Office
- Green Valley Community Church/Common Ground
- California Department of Fish and Wildlife
- California State Parks
- Cameron Park CSD
- El Dorado County Ag Commissioner
- El Dorado County Air Quality Management District
- El Dorado County Chief Administrative Office
- El Dorado County Department of Transportation
- El Dorado County Health and Human Services Agency
- El Dorado County OWPR-Biomass
- El Dorado County Planning Dept
- El Dorado County Sheriff's Office - Office of Emergency Services
- El Dorado County Transportation Commission
- El Dorado Hills CSD
- Eldorado National Forest
- Firewise Communities Liaison - CAL FIRE
- Firewise Communities Liaison – OWPR
- Grizzly Flats CSD
- Placerville City Representatives
- Shingle Springs Band of Miwok Indians
- Sierra Nevada Conservancy
- Tahoe Fire And Fuels Team
- Tahoe RCD
- USDA Forest Service Pacific Southwest Research Station
- CalTrans
- El Dorado County Water Agency
- El Dorado Irrigation District
- El Dorado Transit
- Georgetown Divide Public Utility District
- PG&E
- Pioneer Community Energy
- Sacramento Municipal Utility District
- American River Conservancy
- Sierra Pacific Industries
- All About Equine Animal Rescue, Inc.
- American Red Cross - Northern California Chapter
- California Farmland Trust
- El Dorado Habitat for Humanity
- Farm Bureau
- Food Bank of El Dorado County
- Salvation Army

- Volcanoville FSC
- Wrights Lake/Dark Lake FSC
- Bureau of Land Management
- Bureau of Reclamation
- CA Dept. of Fish & Wildlife - North Central Region
- CAL FIRE Amador-El Dorado Unit
- The Fire Restoration Group
- Sierra Business Council
- Sierra Forest Legacy
- South Fork American River Cohesive Strategy
- Tahoe Central Sierra Initiative
- West Slope Foundation
- CA Native Plant Society- El Dorado Chapter

2.2.4.1 Stakeholder Survey

An online Stakeholder Survey was designed to gather information on each agency or organization's major wildfire-related concerns, active and proposed activities/projects (including fuels reduction projects, emergency planning, outreach, and others), suggested action items or strategies to be included in the CWPP, and any organizational geospatial data and/or relevant plans/reports.

The survey was administered over a two-month period during the CWPP development process. A total of 67 agencies and organizations provided responses to the stakeholder survey, either through an online survey, paper form or through 1:1 calls with CWPP development staff. A summary of stakeholder comments is provided in Appendix I.

2.2.5 Fire Safe Council Outreach

A central part of the CWPP development process included targeted engagement with the 32 associate Fire Safe Councils (FSCs) across the west slope. The associate FSCs are organized under the umbrella of the El Dorado County Fire Safe Council, but cover a range of geographic areas, environmental settings, populations, local cultures, construction practices, engagement levels, number of homes and number of residents. Due to these differences, they each have a unique set of challenges, key concerns, strengths, and vulnerabilities. To fully capture the priorities of the associate FSCs, as well as identify opportunities for collaboration and coordination, targeted outreach was undertaken throughout the CWPP update process.

Initial outreach with the FSCs occurred during the June 2024 site visit. Over the three-day site visit, approximately 25 of the associate FSCs met with the Project Team to provide initial feedback on areas of concern, existing and planned projects, and desired outcomes for the CWPP. After completion of preliminary fire hazard analysis, a dedicated workshop for the associate FSCs was hosted on August 21, 2024 at the American Legion Hall, Placerville to provide an update on the CWPP development process, review initial results of the hazard and vulnerability analysis, and provide an opportunity for further FSC feedback. FSC representatives were also provided with fire hazard and asset maps specific to their FSC boundaries, as well as other meeting materials to assist them in gathering input from their respective communities. Approximately 63 representatives of associate FSCs attended the workshop. An additional meeting was held on February 19, 2025, to give the FSCs the opportunity to provide feedback on the Recommended Actions (Chapter 7.0).



Figure 2. Initial Fire Safe Council Workshop Held on August 21, 2024.

2.2.6 General Public Outreach

2.2.6.1 Workshops & Community Events

A priority for El Dorado County was to get broad community participation and engagement in the development of the CWPP. The initial step was to organize workshops to introduce the CWPP planning process, encourage participation, and solicit input from the public. Five (5) workshops were held during the early CWPP planning process, between October 2 and 5, 2024, at different locations across the west slope (Somerset, Garden Valley, Pollock Pines, Diamond Springs, and Cameron Park).

Members of the public were invited to the workshops via public announcements on OWPR's website, TV, social media accounts and calendar, banners, static signs at fire stations around the West Slope, full- and half-page ads in the Mountain Democrat and Georgetown Gazette, as well as direct communications from key stakeholders and community group leaders.



Figure 3. Public Workshop Held in October 2024

Approximately 114 individuals attended the workshops in total and the range of stakeholders who took part in the initial workshops included residents, business owners, fire safe councils and other interested parties. In addition to learning about and providing feedback on the CWPP process, participants also had the opportunity to examine the results of initial wildfire hazard and risk assessments, identify areas of specific concern, provide feedback on what worked and didn't work during previous wildfires, and confirm CWPP goals and objectives.

Following the formal presentation, an informal phase of the workshop provided stakeholders with the opportunity to talk in breakout groups on specific topics of interest or concern.

A summary of all workshops, meeting notes, and comments received are available in Section 5.4 and Appendix G.

2.2.6.2 Public Survey

An online survey was developed to solicit additional input from members of the public. Questions focused on several topics relating to wildfire concerns, mitigations, and recommended actions. The poll was open between 8/19/2024 to 11/01/2024. A summary of public responses has been synthesized with comments received during the workshops in Section 5.4. Appendix H provides the raw data collected.

2.3 CWPP Plan Alignment

California counties must maintain and update numerous planning documents to meet a range of State and Federal requirements in order for the county and the jurisdictions within it to maintain eligibility for various types of aid, both fiscal and otherwise. Beyond statutory requirements and fiscal needs, counties and other jurisdictions develop these plans to address various needs (such as fire safety) and other goals for their respective planning areas. These plans oftentimes overlap, and in some cases may not align or may have competing objectives due to the specific needs, statutory requirements and circumstances that helped inform their development at the time under which they were prepared. As such, periodic evaluation of the various planning documents within a jurisdiction is necessary to identify any alignment challenges and then to develop actions to help reconcile conflicts, where feasible.

For wildfire preparedness and safety, the ultimate goal for plan alignment is to ensure that the respective plans provide complementary visions, priorities and actions to achieve wildfire resilience collectively and collaboratively. For Western El Dorado County, several planning documents have recently been developed and/or updated to address, in while or in part, wildfire hazards and associated safety needs in the County. These documents include:

- El Dorado County General Plan Safety Element (2024 Update)
- El Dorado County Multi-Jurisdiction Hazard Mitigation Plan (2024 Update)
- Western El Dorado County Wildfire Protection Plan, 2025 Update (hereafter, CWPP), and
- CAL FIRE Amador-El Dorado Unit Fire Plan, 2024 Update (hereafter, AEUFP)
- Tahoe Basin Community Wildfire Protection Plan (Updated 2025)

A detailed plan alignment analysis and recommendations is provided in Appendix J of this document.

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COMMUNITY OVERVIEW



3.0 COMMUNITY OVERVIEW

3.1 Overview

The Planning Area, with an estimated population of 175,000 residents, geographically represents the majority of El Dorado County and is located east of Sacramento and west of Lake Tahoe (Figure 4). The Planning Area boundaries are the El Dorado County borders to the north, west, and south, and the Sierra Crest to the east. It is approximately 1,568 square miles in area and 35 miles high by 60 miles wide. Most residents located within the Planning Area live along the major transportation routes – U.S. Route 50 (US-50), State Route 49 (SR-49), and SR-193. There are many communities along these routes with limited options for access and egress and significant wildfire risk primarily due to topography and vegetation. Among other challenges, this can present difficulties for firefighters and other emergency responders conducting operations, and for residents (and visitors) evacuating or seeking refuge in an emergency event (wildfire-related or other). The limited access/egress routes, coupled with rugged terrain, can also present communication challenges for first responders, residents, and visiting populations.

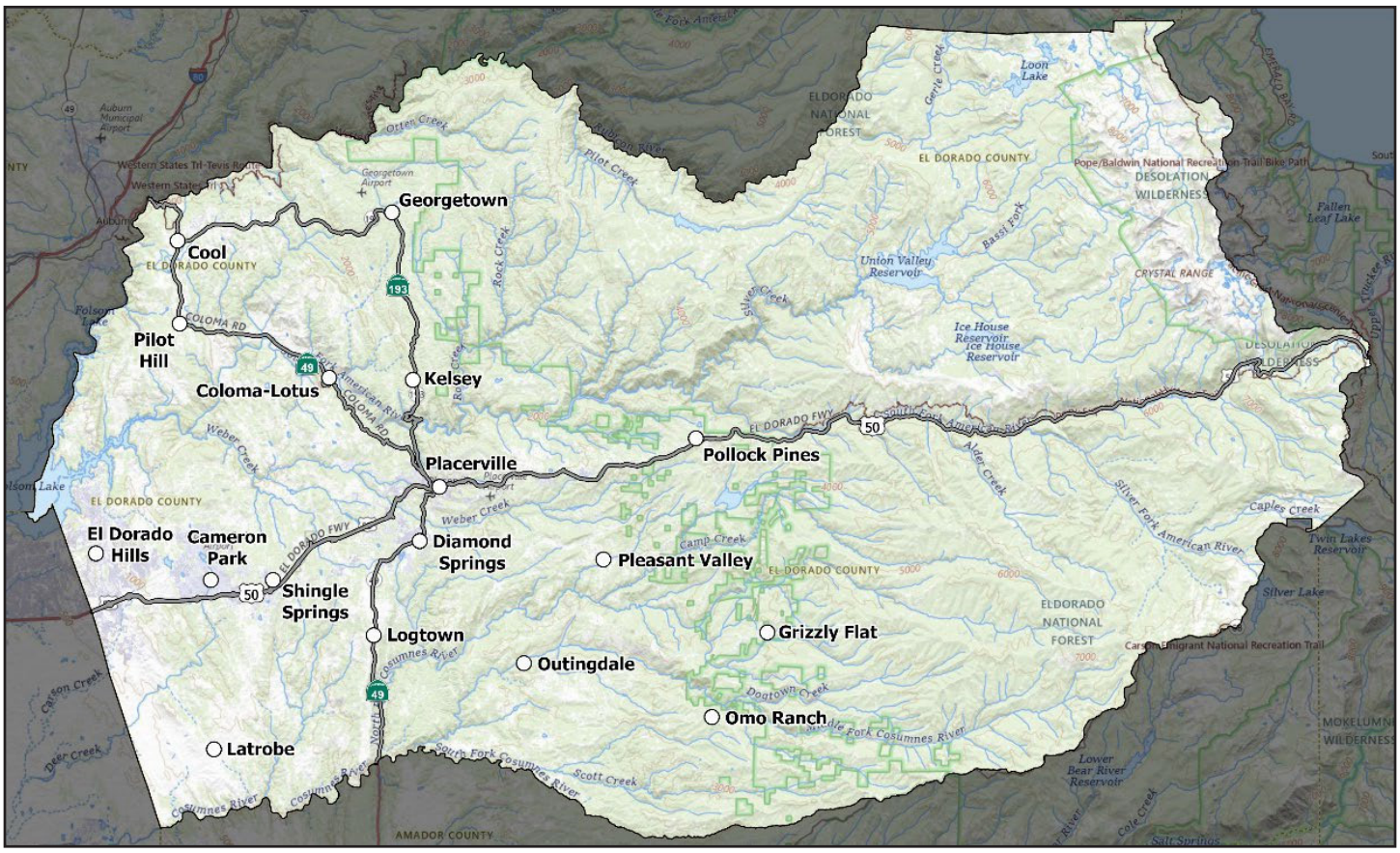


Figure 4. Planning Area for the CWPP

3.2 Fire Hazard Severity Zones

Fire Hazard Severity Zone (FHSZ) maps identify geographic areas of significant fire hazard in both State and Local Responsibility Areas and are produced by CAL FIRE. Designation of areas into FHSZs is based on parameters including vegetation, terrain, weather, and other factors relevant to wildfire behavior. There are three categories of FHSZs based on relative degree of severity: moderate, high, and very high. All State Responsibility Areas (SRA) and Local Responsibility Areas (LRA) are classified into one of these three categories. (For more information about fire protection responsibility areas, see 3.6). FHSZs are based on wildfire hazards over a 30- to 50-year period, but do not consider how recent wildfire activity or fuel modification actions may have influenced potential fire severity. CAL FIRE is required to produce FHSZ maps under California Public Resources Code 4201-4204, California Code of Regulations Title 14, Section 1280, and California Government Code 51175-89.

FHSZs are based on wildfire hazards over a 30- to 50-year period, but do not consider how recent wildfire activity or fuel modification actions may have influenced potential fire severity.

While FHSZs do not predict when or where a wildfire may occur, they do identify areas where wildfire hazards are likely more severe and of greater concern. As such, FHSZs identify areas where increased wildfire safety provisions for various building and site components (e.g., maintained defensible space, fire, or ignition resistant materials, including vents, decks, and windows) are required for all new construction per California Building Code Chapter 7A. The FHSZ designation of a property is used by local governments to support wildfire risk analysis and hazard mitigation planning (https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/). The seller of properties in a high or very high FHSZ must also obtain an inspection report that shows the property meets the County's hazardous space and defensible space requirements (https://www.eldoradocounty.ca.gov/Public-Safety-Justice/Wildfire-Disaster/Office-of-Wildfire-Preparedness-and-Resilience/Real-Estate).

Based on the currently adopted FHSZ maps – 2024 SRA map and 2025 LRA maps – approximately 40.7% of the Planning Area is classified as Very High FHSZ (VHFHSZ) of which 40.3% is in SRA and 0.4% is in LRA. Approximately 10.8% of the remaining SRA land is in a High FHSZ, with 1.9% in moderate and 5.5% as non-burnable. See Table 2 and Figure 5. Note: A large percentage of the land in the Planning Area (36.6%) is in Federal Responsibility Area (FRA), and therefore not classified into FHSZs[1] by CAL FIRE.

Table 2. Percentage Breakdown of Fire Hazard Severity Zones in the Planning Area

Responsibility Area	Fire Hazard Severity Zone (% of Total Planning Area)				Direct Protection Area in Acres (% of Total Area)
	Very High	High	Moderate	Non-Burnable	
FRA[1]	N/A	N/A	N/A	N/A	420,112 (41.9%)
SRA	40.3%	10.8%	1.9%	5.5%	572,567 (57.1%)
LRA	0.4%	-	-	0.7%	10,396 (1.0%)
Total	***40.7%***	***10.8%***	***1.9%***	***10.0%***	***1,003,075 (100%)***

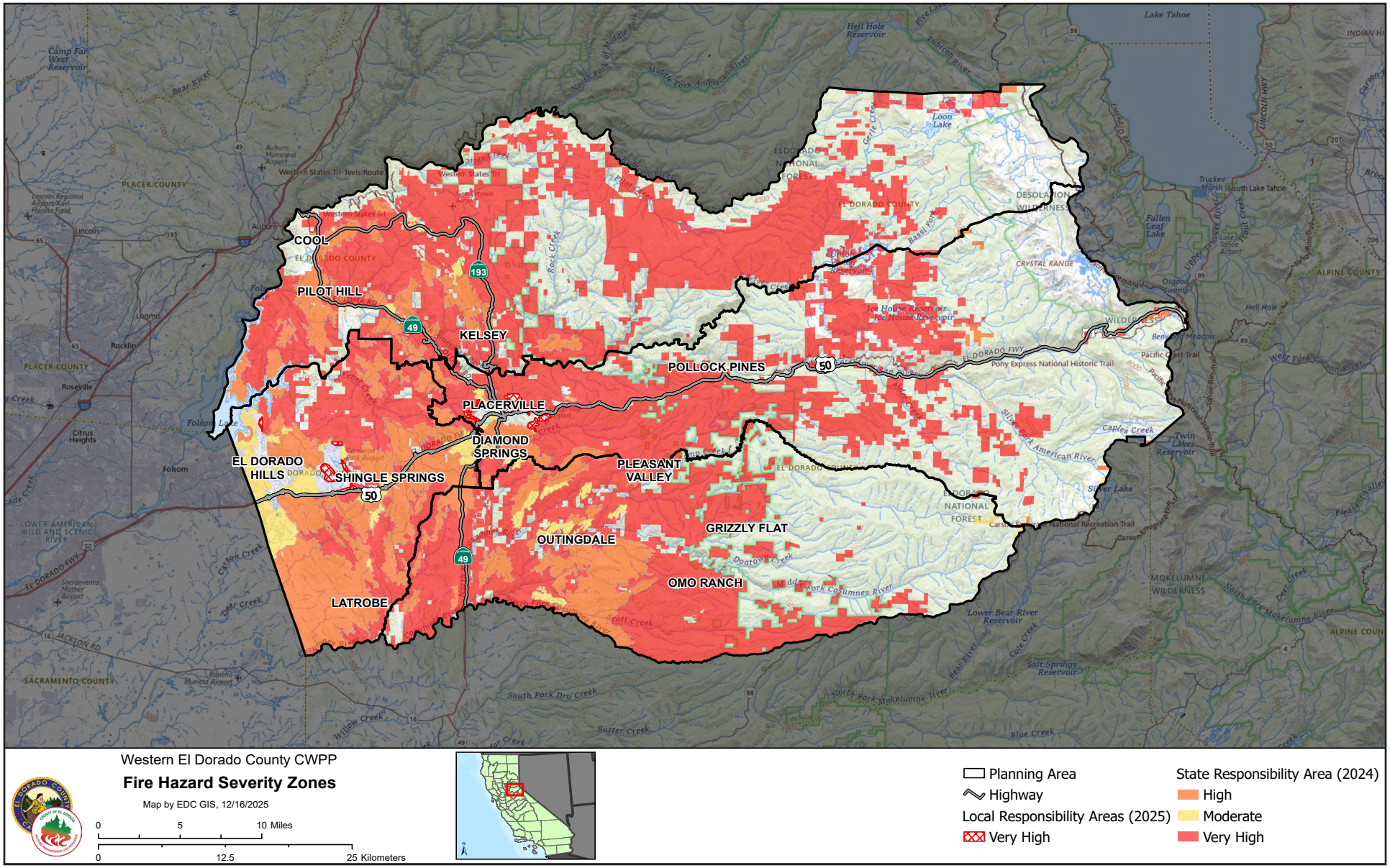


Figure 5. Fire Hazard Severity Zones for SRA and LRA Land Across the Planning Areas. Note: SRA designations are based on the 2024 maps, while the LRA designations on the 2025 maps.

Understanding the Difference Between CWPP Risk Maps and CAL FIRE Fire Hazard Severity Zone ("FHSZ") Maps

The CWPP risk maps and CAL FIRE's Fire Hazard Severity Zone (FHSZ) maps are often viewed side by side, but they serve different purposes and are built on different data and assumptions.

CWPP risk maps provide a snapshot in time of current on-the-ground conditions. These maps highlight where people, structures, and other community values are most at risk from wildfire. They incorporate ignition history, fuel conditions, topography, structure density, access limitations, and recent mitigation work. The goal is to identify areas where wildfire could have the greatest impact on assets and to support project planning, community protection efforts, and prioritization of resources.

FHSZ maps, on the other hand, model long-term wildfire Hazard under extreme conditions. The model evaluates two primary components: (1) the probability of an area burning and (2) the expected fire behavior if it does. It does not include the location of homes or community assets, nor does it reflect recent fuel treatments. Instead, it is based on factors such as fire history, terrain, fuel loading, local wind patterns, and ember exposure potential, projected over a 50-year period. In State Responsibility Areas (SRA), FHSZ maps inform regulatory requirements such as building codes and defensible space standards.

While both maps may highlight similar areas of concern, they are not interchangeable. CWPP risk maps are asset-based and planning-focused. FHSZ maps are hazard-based and regulatory. Together, they offer complementary perspectives that support both local wildfire preparedness and long-term land use planning.

Table 3. Summary Comparison: CWPP Risk Maps vs. FHSZ Maps

Feature	CWPP Risk Maps	CAL FIRE FHSZ Maps
Primary Purpose	Project planning and prioritizing protection of people and assets	Regulatory designations for long-term wildfire hazard
Focus	Risk to structures, communities, and infrastructure	Wildland fire behavior under extreme conditions
Includes Structures/ Assets	Yes	No
Includes Mitigation Work	Yes	No
Timeframe	Snapshot of current conditions	50-year hazard projection
Key Factors	Ignition history, fuels, topography, access, structure density	Fire history, fuel loading, terrain, wind, ember exposure
Use Case	Grant applications, project development, local decision-making	Building codes, defensible space regulations in SRA
Map Type	Risk-based (values + threat)	Hazard-based (likelihood + behavior)

Quick Look: Risk vs. Hazard

CWPP risk maps show *what's at risk right now* – people, homes, roads, and other assets based on current conditions and recent mitigation work.

FHSZ maps show *where extreme wildfire behavior is likely over time* – based on fuels, slope, wind, and ember exposure, without considering structures or recent treatments.

Both maps are useful – they just answer different questions.

3.3 The Wildland Urban Interface (WUI)

The wildland-urban interface, commonly called the WUI, is defined as the line, area, or zone where structures and other man-made development meet or intermingle with undeveloped wildland or vegetative fuels (NWCG, 2018). Oftentimes, the WUI is perceived as rural areas where uninhabited wildlands (primarily timbered forests) meet individual structures or homes. This perception has led many who live in more suburban and urban areas "near the WUI" to believe they are not at risk from wildfire because they are not exactly at the interface of wildlands, or they live adjacent to large open spaces of primarily grass and shrub-lands (instead of forestlands) [FEMA, 2022].

To help protect people and property from potential catastrophic wildfire, the 2000 National Fire Plan (NFP) required the identification of communities in the wildland-urban interface (WUI). As seen in Figure 6, most if not all the populated areas of the West Slope (i.e., along the SR- 49, SR-193 and western half of the US-50 highway corridors) are considered in the WUI per CAL FIRE, whether in the interface, intermix or influence zones.

The National Wildfire Coordinating Group (NWCG, 2009) defines the WUI as "the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels."

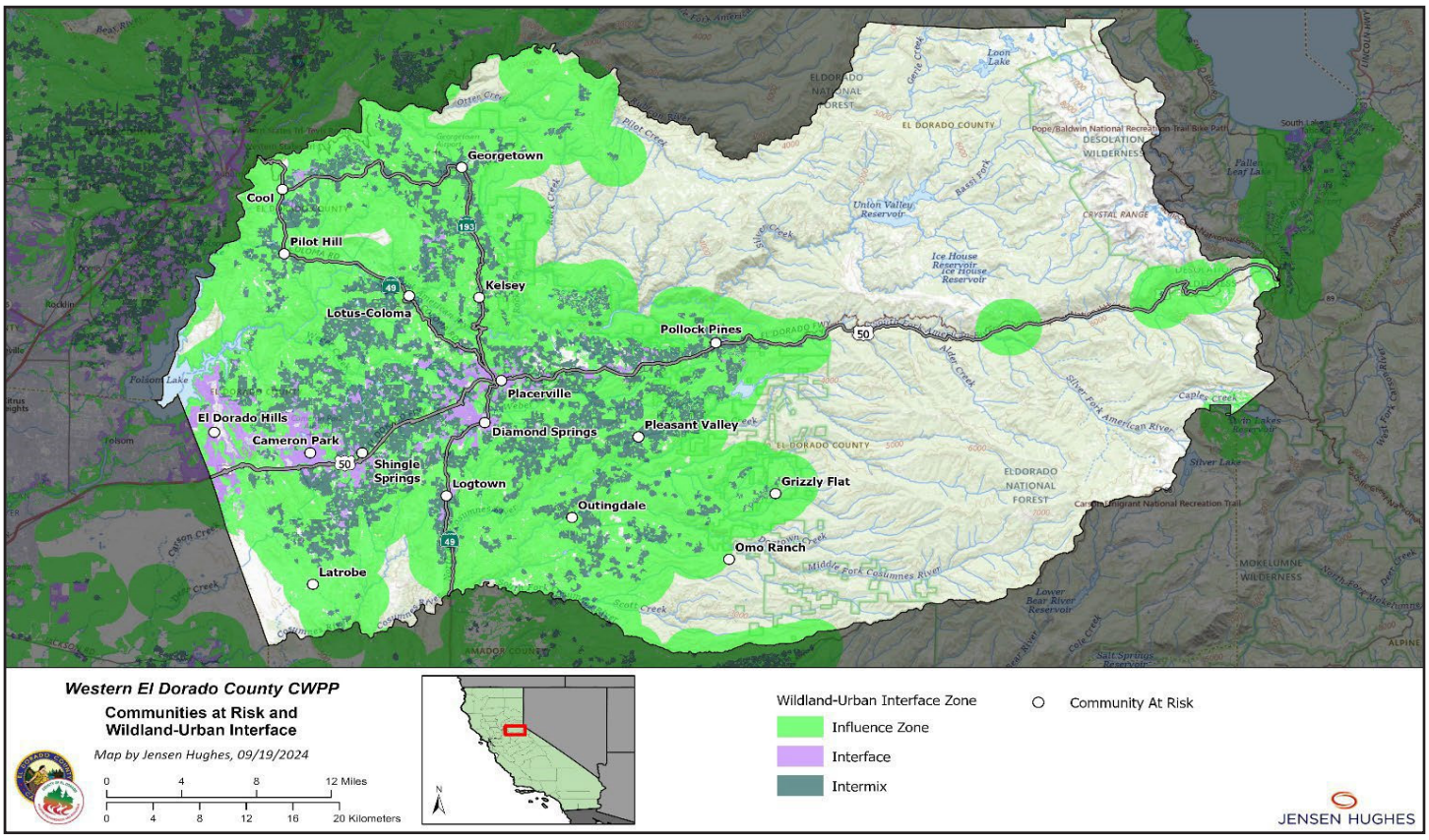


Figure 6. CAL FIRE – Identified WUI Areas in El Dorado County

All three WUI designations are considered at risk and susceptible to wildland fires. Below is a brief description of each of the WUI zones:

1. **Wildland-Urban Interface:** dense housing development adjacent to vegetation that can burn in a wildland fire.
2. **Wildland-Urban Intermix:** housing development interspersed within an area dominated by wildland vegetation subject to wildfire.
3. **Wildland-Urban Influence Zone:** wildfire susceptible vegetation up to 1.5 miles from Wildland-Urban Interface and/or Intermix areas.

As seen in Table 4, the WUI interface and intermix zones – the most at-risk zones – comprise a relatively small fraction of the west slope's total land area (i.e., 2% and 9.7% of the Planning Area, respectively). However, in terms of where structures are located, approximately 75.2% of homes and other structures are located in the interface and intermix zones. Much of these high risk WUI lands are clustered along the western half of the Highway 50 corridor (e.g., Placerville, Diamond Springs, El Dorado Hills). Considering the WUI influence zone, this adds another 35.6% of the county land area and 14.5% of the homes/structures in the West Slope of the County in the WUI (totaling 47.3% of County land area and 89.7% of the structures in the west slope). The influence zone, while not in the interface or intermix of wildlands, is at risk to wildfire threats primarily from embercast originating from wildland or structure-to-structure fires. ***Note: Embercast from wildfires are known to travel anywhere from 100s of feet to upwards of 2 miles from the fire front, whether from vegetative fuels or man-made, urban fuels.*** See Section 5.3.3 for more details.

Table 4. Wildland Urban-Interface Zone Acreage

WUI Zone	Acres	% of Area in Western County	# of Structures	% of Structures in Western County
Interface	20,400	2.0%	30,069	35.6%
Intermix	97,468	9.7%	33,420	39.6%
Influence	357,042	35.6%	12,230	14.5%
Non-WUI	528,029	52.7%	8,700	10.3%
Total	***1,002,940***	***100.0%***	***84,419***	***100.0%***

Understanding the Wildland-Urban-Interface ("WUI")

Why is the WUI a Major Concern?

- A fire in the WUI poses the greatest potential impact to people, property, and livelihoods.
- The WUI has an unpredictable mixture of native vegetation, non-natives, and man-made fuels that are oftentimes the primary sources of structure ignition.
- Man-made fuels include combustible structures (e.g., homes, businesses, outbuildings), combustible non-structural features (e.g., decks, fences, ornamental landscaping) and other items (e.g., vehicles, fuel tanks, ornamental landscaping, yard waste). These fuels can burn at greater intensities and longer fire durations than wildland fuels.
- WUI fuels and their associated fire behavior are not well understood and therefore ignored in most fire models.
- Most structures in the WUI pre-date modern WUI building codes and standards, and therefore have limited fire resistance making them highly vulnerable to fire.

Why Should I Care? I Don't Live in the WUI. Here are the Facts:

- Nearly 89.7% of residential / commercial structures in the West Slope are located in the WUI. See Figure 6 and Table 4.

Go to Section 5.3.3 for more details

3.3.1 Communities-At-Risk (CARs)

Communities at Risk (CARs) are a special designation originating with the Federal government to identify communities that are at high risk of damage and/or loss from wildfire, and which abut Federal lands. These lands were identified as CARs in the Federal Register in 2001 (National Archives and Records Administration Federal Register, 2001), which was intended to help facilitate fuel treatments on Federal lands and adjacent lands to help protect local communities from wildfires. Over time, responsibility for maintaining this list was then turned over to the states.

In California, CAL FIRE is responsible for managing the CARs list and uses three main factors to determine inclusion on the list as follows: 1) high fuel hazard, 2) probability of a fire, and 3) proximity of intermingled wildland fuels with urban environments[2]. CAL FIRE has also expanded the definition to include communities which are not adjacent to federal lands.

[2] *https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://bof.fire.ca.gov/media/0x5eysuw/ada-communities-at- risk.pdf&ved=2ahUKEwjU-t4i23YWMAxV3AzQIHQhpDhMQFnoECCEQAQ&usg=AOvVaw13ZEXZmZ5EYNPPQ8Tqazpl*

In the west slope of El Dorado County, the following communities are considered CARs by CAL FIRE.

- Cameron Park
- Coloma
- Cool
- Diamond Springs
- El Dorado Hills
- Georgetown
- Grizzly Flats
- Kelsey
- Latrobe
- Logtown
- Omo Ranch
- Outingdale
- Pilot Hill
- Placerville
- Pleasant Valley
- Pollock Pines
- Shingle Springs

As seen in Figure 7, the majority of the CARs are located along Highways 50, 49 and 193. A smaller grouping of CARs is located south of Highway 50 and east of Highway 49 in more remote/rural parts of the western county.

Note: Additional communities may be added to the list of CARs by CAL FIRE based on changes in risk and understanding of risk. Existing and new communities on land designated as WUI or very high FHSZ may also be added as CARs.

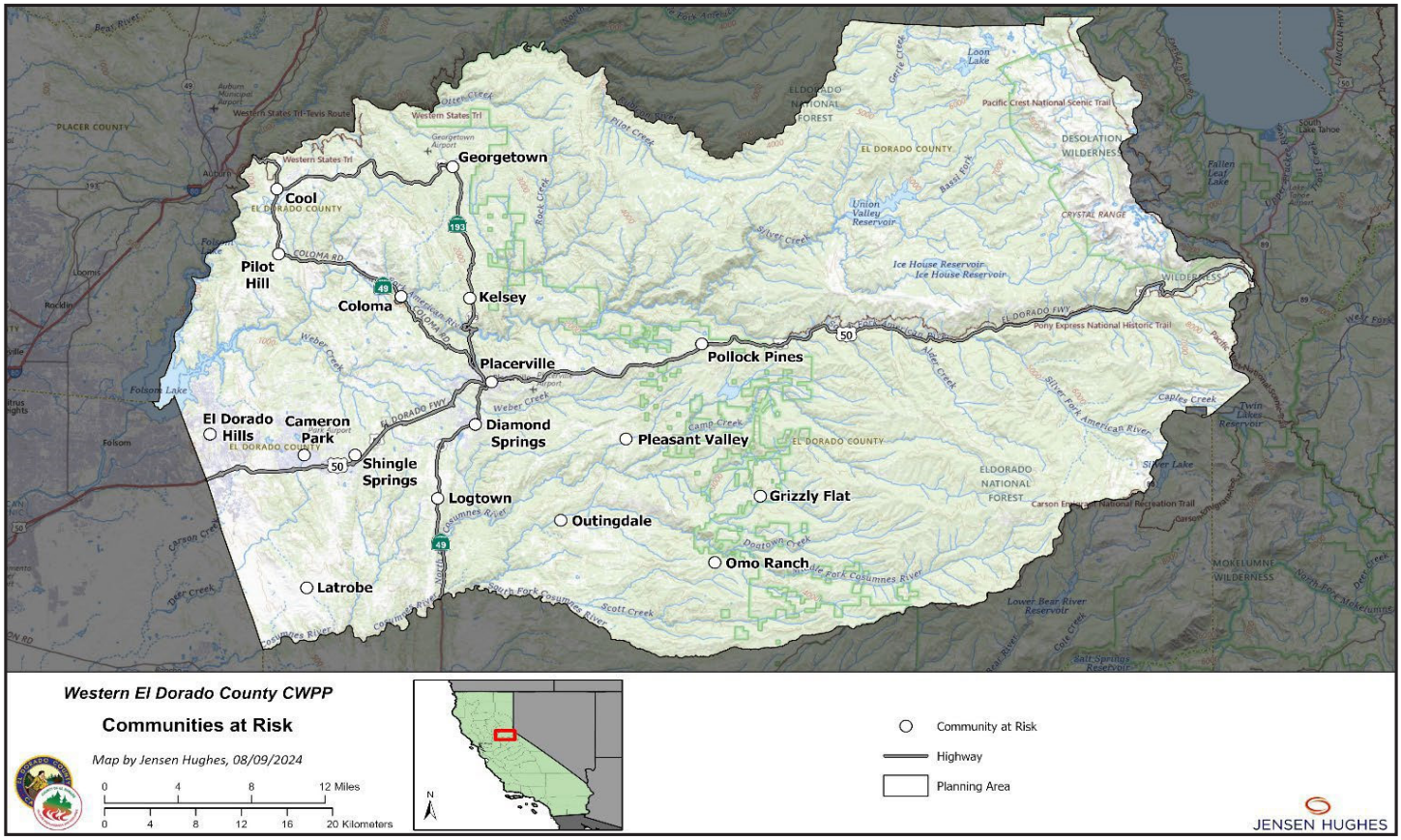


Figure 7. CAL FIRE – Identified Communities at Risk in West Slope of El Dorado County

3.4 Values at Risk

The west slope of El Dorado County is an important location for both locals and visitors with its trailheads, access to the Eldorado National Forest, shopping and dining opportunities, agriculture and livestock operations, historic and cultural places, government facilities and services, and educational facilities. Attempts to capture all the West Slope of the County's many measurable and intrinsic values are difficult; therefore, this plan only considers those values that can be most readily compromised by wildfire.

Community values at risk to wildfires are often considered to be life safety, buildings, and critical infrastructure. However, values can also include human health, natural resources, sensitive species and habitats, cultural and historical resources, viewscapes and other intangibles (e.g., social capital, community culture, livelihood). Although not all values can be protected directly through wildfire mitigation measures, actions can be taken to indirectly protect those values by developing strategies that reduce the wildfire threat overall. An ongoing challenge is to balance the level of hazard mitigation work required to protect one set of values without compromising others.

In public meetings and through community surveys (Appendix G through Appendix I), West El Dorado County residents and stakeholders emphasized the importance of the following values:



Human Life and Health | Critical Infrastructure | Private Property | Environment and Natural Resources | Cultural and Historical Resources | Recreation | Local Economy

3.4.1 Human Life & Health



The highest priority for agencies, organizations, and other entities in El Dorado County is life safety. Past fires in the region, including the 2022 Mosquito Fire, 2021 Caldor Fire, and 2014 King Fire, resulted in injuries to both firefighters and civilians, in addition to other devastating impacts to human health and property.

The west slope of El Dorado County presents numerous direct and indirect life safety challenges related to wildfires including:

- Large number of people, both residents and visitors, and structures in very high fire risk areas.
- Various access and functional needs population(s) and other vulnerable groups (e.g., limited English proficiency, low income, elderly, unhoused, medical baseline persons).
- High percentage of existing building stock with deficient structural hardening and resistance to ember and smoke/ash infiltration.
- Limited and/or deficient defensible space in certain neighborhoods.

Life Safety includes principles, regulations, and practices designed to protect people from harm during emergencies, particularly fires and other hazards, ensuring a safe evacuation and minimizing risks to occupants.

- Limited infrastructure for early warning detection and public notification of wildfires.
- Limited number, capacity, and separation of travel routes for use during evacuations.
- High number of neighborhoods with poor access/egress for citizens, firefighters, law enforcement, and other first responders.
- Areas which have limited or no cell service for emergency notifications and other emergency communications.

While all these factors contribute in varying degrees to the risk wildfires present to life safety in the west slope, the factors that are foundational to life safety risks relate to people characteristics (e.g., how many people are at risk, where people are located relative to hazards, what vulnerabilities people may have to preparedness, response, and recovery).

Based on 2020 U.S. Census Bureau data, El Dorado County has a population of just under 200,000 people with the highest concentrations of individuals located along US-50, SR-49, and SR-193. The most populated areas include Placerville, El Dorado Hills, Cameron Park, Auburn Lake Trails, Georgetown, Pollock Pines, and Diamond Springs. All these areas border or are intermixed with areas of wildland vegetation, which increases their wildfire exposure. See Figure 8.

In addition to the number of people at risk, many residents live and work in areas that are not only distant from major access/egress routes but also have limited evacuation route options in the event of a fire. The limited number of routes into and out of the County (i.e., US-50 and SR-49) is a particular vulnerability for both access and egress. Other limitations include narrow, winding, and/or steep roads, vegetation encroachment into roadways, locked gates, poorly labeled addresses, and other speed limiting factors such as unlit roads, intersections, speed bumps, street signage, and limited turnaround capabilities. The topography and past development practices in El Dorado County have resulted in limited access for emergency services and challenging evacuation conditions for residents and visitors in the event of a wildfire. These conditions, along with the higher concentrations of residents in these areas, can result in roadways that become congested. Recent fire history underscores the need for residents to be prepared to evacuate with a clear plan, including alternate routes out of neighborhoods, as well as a need for agencies to manage transit capacities and controls and explore increased shelter-in-place options.

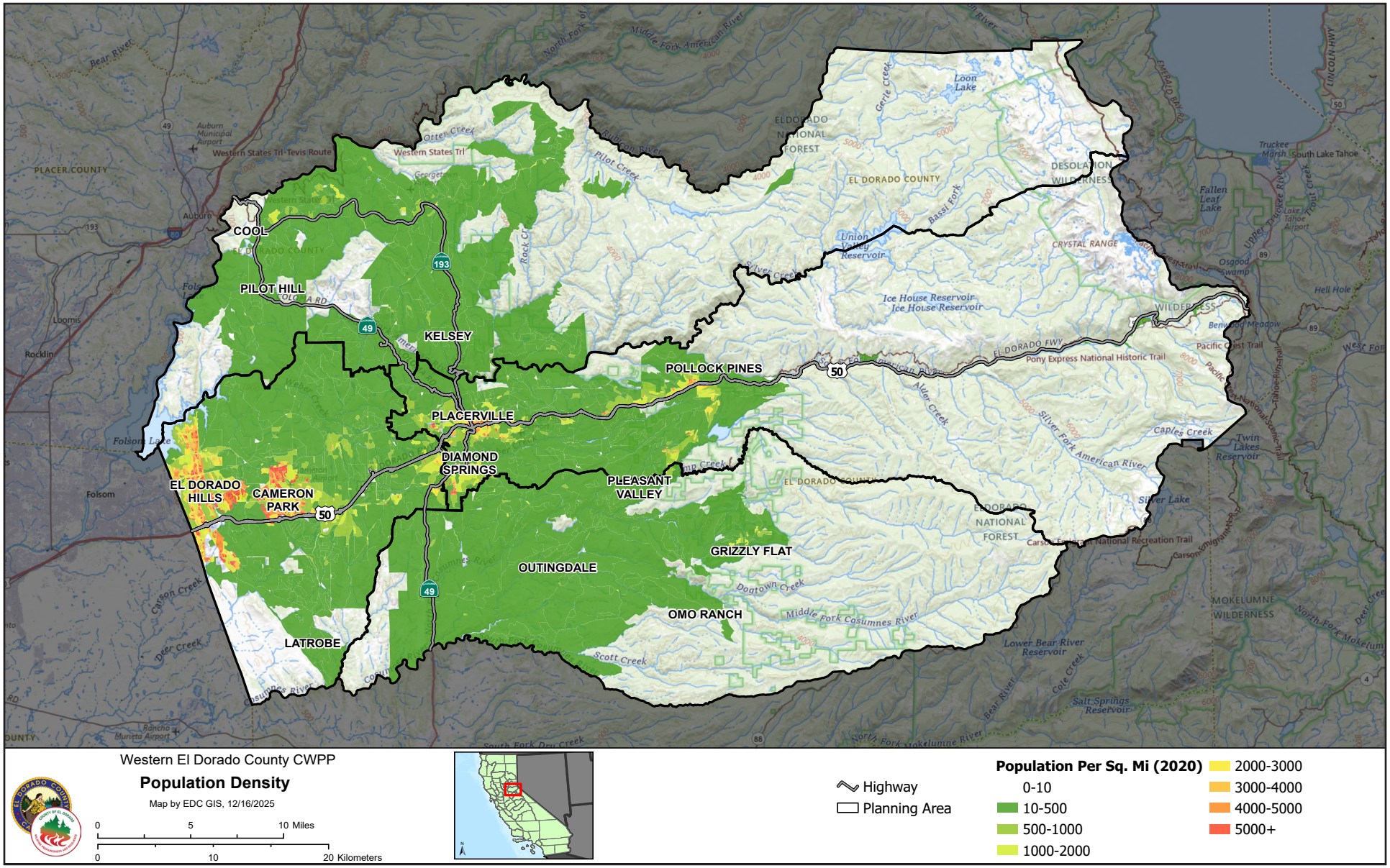


Figure 8. Population Density Map

In addition to baseline access/egress challenges, vulnerable or functional needs populations have special needs and may have limited capacities to prepare for, respond to, and recover from a wildfire incident. These individuals are also less likely to be involved in wildfire mitigation activities (Ojerio, 2008). As a proxy for individual-level vulnerability data, key demographic and population statistics for El Dorado County from the 2020 U.S. Census (U.S. Census Bureau, http://data.census.gov) were assessed to identify potential vulnerable populations:

- **Population:** 191,185 and 93,467 housing units
- **Average Population Density:** ~112 people/square mile
- **Racial Makeup:** 76.7% White, 1.0% American Indian or Alaska Native, 4.8% Asian, 0.8% Black or African American, 0.2% Native Hawaiian/Pacific Islander, 16.5% Other/Two or More Races
- **Hispanic Population:** 14.7% (under the U.S. Census Bureau methodology, Hispanics may be of any race, so this population is also included in race categories above)
- **Language other than English Spoken at Home:** An estimated 12.1% of the population
- **Disabilities:** 13.4% of the population
- **Vulnerable Age Groups:** 4.5% of the population under 5 years, 24.2% 65 years and older
- **Poverty:** 6.3% of the population live below the federal poverty level

Vulnerable or functional needs populations include those who are physically and/or mentally disabled (e.g., blind, cognitive disorders, limited mobility), limited or non- English speaking, culturally isolated, medically or chemically dependent, homeless, Deaf or hard-of-hearing, of vulnerable ages (e.g., elderly or young), or lack digital services.

These population statistics suggest that parts of the population have vulnerabilities which may affect their ability to prepare, respond, and/or recover from a wildfire event. Physical and cognitive limitations can potentially reduce these individuals' capacities to independently evacuate in a disaster. Limited access to financial resources may hinder the ability of lower-income populations to invest in emergency preparedness and mitigation measures, as well as to recover from losses. Language barriers can present major challenges to effectively receiving emergency notifications, evacuation instructions, and/or support services. In addition, visitors to the west slope can be particularly vulnerable to wildfire incidents, as they are less likely to be familiar with the risks of wildfires, local response management practices, emergency resources, public communication channels and other support services. Planning for vulnerable or functional needs populations is critical to providing a holistic wildfire mitigation preparedness plan that works for the entire community.

3.4.2 Critical Facilities & Infrastructure



Critical facilities and infrastructure are the structures, facilities, systems, and networks, whether physical or virtual, that are considered essential to maintaining the normalcy of daily life and overall functionality of a community or society. As such, they are essential for the efficient functioning, and delivery, of basic services provided in cities, towns, and rural areas. According to United Nations Office for Disaster Risk Reduction (UNISDR), California Office of Emergency Services (CAL OES) and FEMA, destruction, disruptions, or interruptions in critical facilities and infrastructure, including health and education facilities, could lead to cascading effects across sectors and sometimes across borders.

Per CAL OES, critical facilities and infrastructure consist of nine sectors:

1. Emergency Services
2. Government Facilities
3. Healthcare and Public Health
4. Energy
5. Water and Wastewater Systems
6. Communication Systems
7. Chemical
8. Transportation
9. Food and Agriculture

As the facilities and infrastructure supporting these sectors can be located in close proximity to high fire prone areas, the potential direct and indirect impacts of wildfires can cause significant damage, destruction and/or disruption to these essential public services. These major facilities and infrastructure are priority locations for hazard reduction and wildfire hardening projects. Note: Wildfire mitigation actions to protect critical infrastructure is often the responsibility of the entity operating these facilities or services.

The following is a brief description of critical infrastructure identified as part of the CWPP planning process. Figure 13 depicts critical infrastructure sectors within and adjacent to the Planning Area.

3.4.2.1 Emergency Services

The emergency services sector is defined by dispatch centers, law enforcement facilities (e.g., police stations, sheriff offices), fire stations, emergency operations centers, and office of emergency services.

- **Law Enforcement:** El Dorado County Sheriff's Office provides service to the unincorporated parts of the County and maintains four (4) stations, with the headquarters in Placerville and substations in El Dorado Hills, Cameron Park, and Georgetown, along with a resident deputy assigned to south county. The Sheriff's Office maintains 170 sworn officers dispatched by the El Dorado County Sheriff's Office Central Dispatch Unit.

  The City of Placerville has a separate police department with the office located in Placerville, but not collocated with the Sheriffs. Placerville PD has 20 sworn officers dispatched to incidents by the Placerville Police Department Dispatch Office to calls within the city limits.

  Finally, the Shingle Springs Rancheria Police Department enforces both Tribal ordinances and applicable federal laws on the reservation. The tribe operates a stand-alone dispatch for incidents on the Rancheria.

- **Fire Stations:** The Planning Area has a complex mix of fire agencies and stations that includes both paid and volunteer firefighters. CAL FIRE and the Forest Service provide the primary wildland fire coverage for the Planning Area, but some of these stations are closed in the winter as the wildland fire threat is mitigated by the onset of winter weather conditions.

  The OWPR maintains an interactive map of the various Fire Districts/Community Service Districts which also provide fire and EMS services to the local communities.



Figure 9. El Dorado County Fire Station 49 in Diamond Springs, CA. Source: EDCFPD

  This interactive map can be found at the El Dorado County Mapping Tool Site: (https://www.eldoradocounty.ca.gov/Public-Safety-Justice/Wildfire-Disaster/Office-of-Wildfire-Preparedness-and-Resilience/Online-Mapping-Tool).

- **Emergency Operations Center:** In 1994, the El Dorado County Board of Supervisors designated the Sheriff's Office the responsibility for managing the County's Office of Emergency Services (OES). Sheriff's Office employees assigned to the OES work in collaboration with Fire Services, Emergency Medical Services, hospitals, schools, and public and private agencies to coordinate the multi-agency response. In the event of a disaster, OES activates the County's Emergency Operations Center (EOC), a centralized location for coordinating county-wide emergency response activities, supporting field operations, and coordinating damage assessments and cost recovery from state and federal governments.

  In collaboration with local fire districts and CAL FIRE, OES developed a publicly accessible mapping program to access critical data such as evacuation zones, routes, road closures, shelter locations, and more (https://www.eldoradocounty.ca.gov/Public-Safety-Justice/Safety-Justice/sheriff/operations/oes). This interactive map via the Perimeter Platform can be found at https://perimetermap.com/).

- **Emergency Medical Services:** All EMS units in El Dorado County are dispatched from two 911 emergency communication centers. On the west slope, 911 calls for medical emergencies received by the Sheriff's Department are routed to the CAL FIRE CICC dispatch center in Camino. In the South Lake Tahoe area, calls are received directly by the South Lake Tahoe Police Department dispatch center in South Lake Tahoe. A list of services/equipment providing EMS services on the west slope of El Dorado County can be found at https://www.edcjpa.org/resources.

- **Search and Rescue:** Search and Rescue is provided by the Sheriff's Office with approximately 150 skilled volunteers who work directly with sworn deputies. The SAR teams in the west slope of the county operate east of the Sacramento County line to Strawberry, and north of the Amador County line to the Placer County line. The Tahoe Office serves the east slope of the county from Strawberry east to the Nevada State line.

3.4.2.2 Government Facilities

The government facilities sector is defined by schools, city/county government buildings, military facilities, jails and prisons, homeless shelters, community centers, senior centers, independent living centers (as defined by the California Department of Rehabilitation), voting centers and vote tabulation facilities.

- **Schools:** Western El Dorado County is home to 14 school districts with approximately 58 schools. See Table 5. Note: Headquarters for home school and online learning programs are not included in this summary or in the list below.

Table 5. Private and Public Schools Across Western El Dorado County

District	School	Type	Location
Black Oak Mine Unified School District, K-12	Georgetown School Northside School Otter Creek School Divide Continuation High School Golden Sierra Junior Senior High School American River Charter School	TK – 6 TK – 6 TK – 5 9 – 12 7 – 12 TK – 12	Georgetown Cool Georgetown Georgetown Garden Valley Georgetown
Buckeye Union School District, K-8	Blue Oak School Buckeye School Buckeye Union Mandarin Immersion Camerado Springs School Oak Meadow School Rolling Hills School Silva Valley School Valley View, Charter Montessori Williams Brooks School	K – 5 K – 5 6 – 8 K – 5 6 – 8 K – 5 K – 8 K – 5	Cameron Park Shingle Springs El Dorado Hills Cameron Park El Dorado Hills El Dorado Hills El Dorado Hills El Dorado Hills El Dorado Hills
Camino Union School District, K-8	Camino School Camino Polytechnic	K – 8 K – 8	Camino Camino
Charter Alternative Programs, K-12	Charter Home Study Academy Mountainside Middle College High School Charter Connections Academy Charter University Prep Charter College and Career Prep Extended Day Programs	K – 8 7 – 12 9 – 12 7 – 12 K – 12 K – 8	El Dorado Placerville El Dorado El Dorado Placerville Placerville
El Dorado County Office of Education	Rite of Passage Golden Ridge	9 – 12 K – 12	Placerville Placerville
El Dorado Union High School District	El Dorado High School Independence Continuation High School Oak Ridge High School Ponderosa High School Pacific Crest Academy Union Mine High School	9 – 12 9 – 12 9 – 12 9 – 12 9 – 12 9 – 12	Placerville Diamond Springs El Dorado Hills Shingle Springs El Dorado El Dorado

District	School	Type	Location
Folsom Lake College and El Dorado Center		College	Placerville
Gold Oak Union School District	Gold Oak School Pleasant Valley School	K – 5 6 – 8	Placerville Placerville
Gold Trail Union School District	Gold Trail School Sutter's Mill School	4 – 8 K – 3	Placerville Placerville
Indian Diggings School District	Indian Diggings School	K – 8	Somerset
Latrobe School District	Latrobe School Miller's Hill School	K – 3 4 – 8	Shingle Springs Shingle Springs
Mother Lode Union School District	Charles Brown Learning Academy Herbert Green Middle School Indian Creek School	K – 8 5 – 8 K – 4	El Dorado Placerville Placerville
Pioneer Union School District	Walt Tyler Elementary School Mountain Creek School Pioneer School	TK – 3 6 – 8 TK – 5	Grizzly Flats Somerset Somerset
Placerville Union School District	Edwin Markham School Louisiana Schnell School Sierra School	6 – 8 TK – 5 K – 5	Placerville Placerville Placerville
Pollock Pines School District	Pinewood Elementary School Sierra Ridge Middle School	K – 4 5 – 8	Pollock Pines Pollock Pines
Rescue Union School District	Green Valley School Jackson School Lake Forest School Lakeview Elementary Marina Village School Pleasant Grove School Rescue School	K – 8 K – 5 K – 5 K – 5 6 – 8 6 – 8 K – 5	Rescue El Dorado Hills El Dorado Hills El Dorado Hills El Dorado Hills Rescue Rescue
Silver Fork School District	Silver Fork School	K – 8	Kyburz

- **City and County Government Buildings:** There are several county and city government buildings or centers that provide essential administrative services across the West Slope. The primary locations for these facilities are in City of Placerville (e.g., Placerville Government Center Complex, Health Department, Department of Transportation), Diamond Springs (e.g., West Slope Animal Shelter) and El Dorado Hills (e.g., El Dorado Hills Community and Senior Center) with additional buildings in Cameron Park (e.g., Cameron Park Library), Pollock Pines (Pollock Pines Library), Georgetown (e.g., Georgetown airport), and Somerset (e.g., Pioneer Park Community Center). Refer to following link for more details and map links: https://www.eldoradocounty.ca.gov/County-Government/Contact-Us/Maps
- **Military Facilities:** There are no military facilities in the County.
- **Jails and Prisons:** There is one County Jail in City of Placerville which serves the west slope. There are no other known correctional facilities in the west slope of the County
- **Homeless Shelters:** There are several homeless, transitional, battered women's and other shelters across the west slope. The El Dorado Navigation Center is located in Placerville. All other locations are confidential.
- **Community Centers:** There are a variety of community centers, public meeting rooms, halls and courtyards located in the west slope of the County, providing a range of facilities and services for socializing, participating in recreational or educational activities, gaining information, and seeking counseling or support services.
- **Senior Centers, Independent Living Centers and Retirement Communities:** There are numerous senior care centers, independent living centers or retirement communities located in the west slope of the County – e.g., Placerville Senior Center, Gilmore Senior Center, Senior Helpers of Cameron Park, Your Elder Care and Placement Assisted Living, El Dorado Hills Senior Care Village, El Dorado Estates Gracious Living. These facilities are primarily located along the western portion of the Highway 50 corridor in or near El Dorado Hills and Placerville. https://www.eldoradocounty.ca.gov/Services/Assistance-Programs/Seniors/Senior-Services
- **Voting Facilities:** There are typically several voting centers located throughout the west slope of the County during elections. However, the specific location of these facilities can change. The El Dorado County Elections Department in Shingle Springs is the only voting location that is known to be fixed. https://www.eldorado-county.ca.gov/County-Government/Elections

3.4.2.3 Healthcare & Public Health

The healthcare and public health sector is defined by public health departments, cooling (or warming) centers, temporary facilities established for public health emergencies, medical facilities, including hospitals, skilled nursing facilities, nursing homes, blood banks, healthcare facilities, dialysis centers, and hospice facilities, but excludes doctor offices and other nonessential medical facilities.

West Slope El Dorado County has one hospital, the Marshall Hospital in Placerville, as well as the El Dorado Community Health Centers with locations in Placerville and Cameron Park, and the Shingle Springs Health & Wellness Center. The El Dorado County Public Health Department has an office in Placerville as well. Although there is hospice care available, the services provided are in home care.

3.4.2.4 Energy

The energy sector is defined by public and private facilities vital to maintaining or restoring normal service, including but not limited to interconnected, publicly owned utilities and electric cooperatives.

- **Electrical Utilities:** Pacific Gas and Electric (PG&E) is the primary service provider in the County. There are approximately 13 power plants and 18 substations located within the Planning Area with 189 miles of electrical transmission lines ranging from 60 kV to 230 kV with most of the lines providing 115 kV service to the communities and rural residents in the West Slope of the County. Many of these transmission lines occur in forested vegetation types on steep slopes. Sacramento Municipal Utility District (SMUD) and Pioneer Community Energy also serve small portions of the West Slope of the County.
- **Gas Pipelines:** The county contains very few gas transmission or hazardous liquid pipelines according to the National Pipeline Mapping System from the US Department of Transportation. There are small portions of gas transmission pipelines in the communities of Franciscan Village and Clarksville.

3.4.2.5 Water & Wastewater Systems

The water and wastewater sectors are defined by facilities associated with the provision of drinking water or processing of wastewater, including facilities used to pump, divert, transport store, treat, and deliver water or wastewater.

- **Water Infrastructure:** The primary municipal water service providers within the West Slope of the county are (in order of largest to smallest):
  - » **El Dorado Irrigation District:** El Dorado Irrigation District is the largest service provider in El Dorado County. The District service area largely exists along Highway 50. The District also operates multiple wastewater treatment facilities, and a hydroelectric power project that includes dams, reservoirs, and 23 miles of flumes, canals, siphons, and tunnels.
  - » **Georgetown Divide Public Utility District:** The Georgetown Divide Public Utility District serves communities in Northwestern El Dorado County. The District provides raw and treated water supplies and on-site wastewater disposal. Its main source of water is Pilot Creek and other tributaries, with the cornerstone of the system being Stumpy Meadows Reservoir.
  - » **City of Placerville:** The City of Placerville Public Works Division maintains approximately 45 miles of water main pipelines within the city limits.
  - » **Grizzly Flats Community Services District:** Grizzly Flats Community Services District is located in the foothills of the Sierra Nevada, in the southeast area of the County. The District provides treated water for domestic use and fire suppression. It owns a water treatment plant and reservoir, along with two diversions on North Canyon Creek and Big Canyon Creek as its sole source.
  - » **Wastewater Treatment Facilities:** There are currently three primary wastewater collection systems that include El Dorado Irrigation District, Georgetown Divide Public Utility District, and the City of Placerville. The El Dorado Irrigation District operates and maintains a sanitary sewer system serving a population of approximately 62,000. The system is divided into two larger shed areas, El Dorado Hills and Deer Creek, in addition to two smaller sheds, Gold Ridge and Camino Heights. The total system has approximately 647 miles of collection system pipeline owned and maintained by the District. The Georgetown Divide Public Utility District is the managing entity for the on-site wastewater disposal system in the Auburn

Lake Trails Subdivision. Treatment from these systems is limited to septic tank treatment and disposal is mainly via leach fields. The City of Placerville Public Works Division provides wastewater treatment for the city limits of Placerville. In addition to the three primary wastewater collection systems, the County also operates the Union Mine Landfill and Liquid Waste Treatment Facility. Currently, it processes septic tank waste, portable toilet waste and liquid waste from the landfill.

Table 6. Water Purveyors Located in the Planning Area

Water Provider	Type	Location
El Dorado Irrigation District	WP	Western El Dorado County
Georgetown Divide Public Utility District	WP	Georgetown, Greenwood, Garden Valley, Cool
City of Placerville Public Works Division	WP	Placerville
Grizzly Flats Community Services District	WP	Grizzly Flats
Sacramento Municipal Utility District	WP*	Western El Dorado County
U.S. Bureau of Reclamation	WP*	Folsom Reservoir

WP – Water Purveyor
WP – Water Purveyor with infrastructure located in planning area but does not serve the planning area*

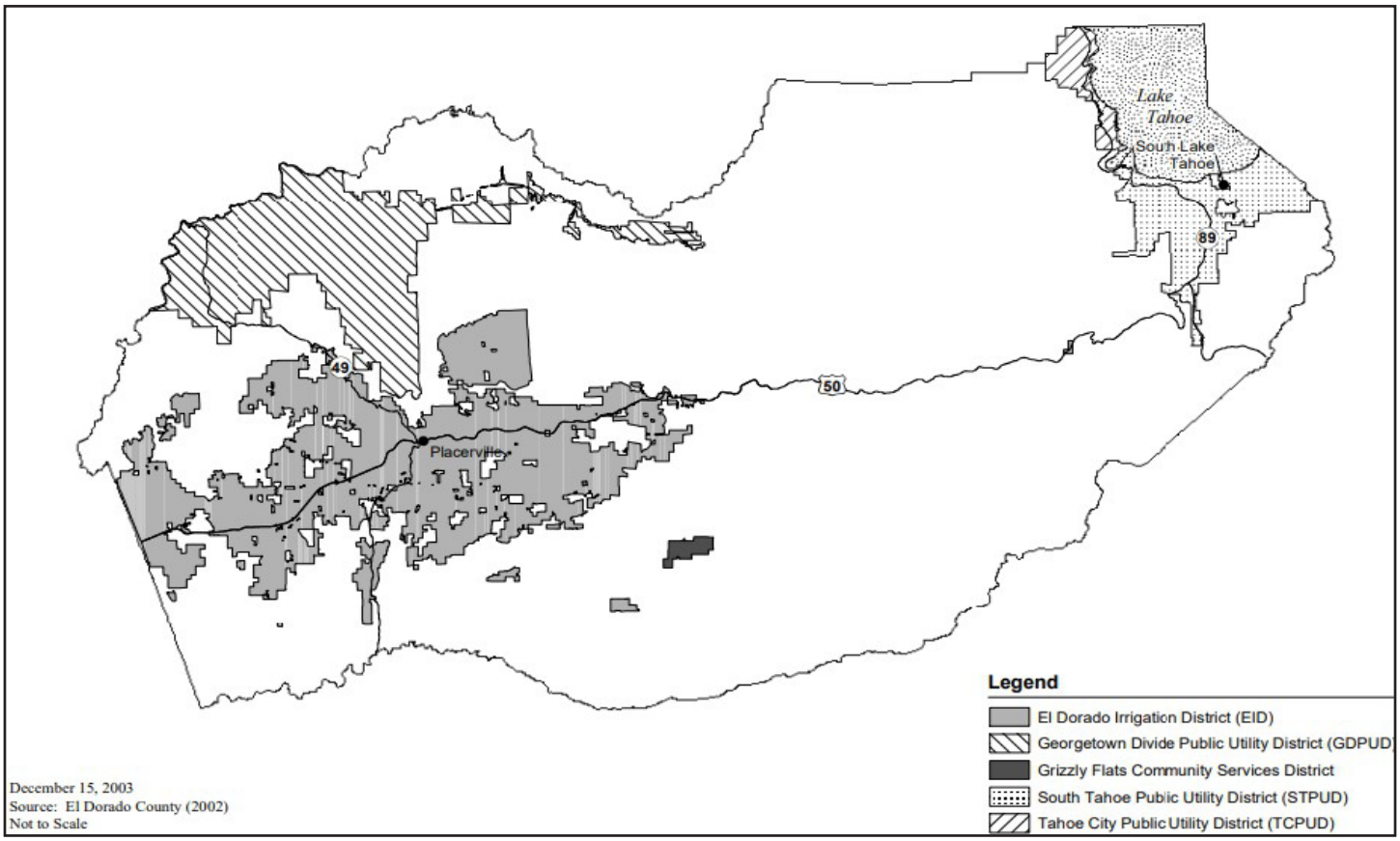


Figure 10. Service Areas of El Dorado County Public Water Providers. Source: General Plan

3.4.2.6 Communication Systems

The communication sector is defined by carrier infrastructure, including selective routers, central offices, head ends, cellular switches, remote terminals, and cellular sites.

Cellular communication coverage is generally considered sufficient for most of the urban/sub-urban areas within the west slope of the county. Outside of the urban/suburban areas, service coverage can range from a poor to limited-service level. Additionally, there are over 200 public and private communication towers throughout the west slope. Most of these towers are near urban areas, but several are in remote areas. Due to the steep topography and numerous canyons throughout the area, cell communication is currently considered unreliable as a primary method for first responders to alert and inform the public concerning wildfire threats. Alternative methods of communication to notify the public should be considered during wildfires.

3.4.2.7 Chemical, Industrial, & High Hazard Facilities

The chemical sector is defined by facilities associated with the provision, manufacture, maintenance, or distribution of hazardous materials and chemicals.

There are a limited number of hazardous, chemical, or manufacturing facilities located in the west slope of the County. There are three waste management sites two located in or near Placerville (i.e., El Dorado Disposal Service Inc., El Dorado Disposal / Materials Recovery Facility) and one located in Cameron Park (i.e., El Dorado Hills Disposal Station). https://www.eldoradodisposal.com/services/landfill-and-transfer-stations/recycling-centers

Refer to the County General Plan EIR for more details on the range of hazardous materials facilities.
https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Planning-Division/Adopted-General-Plan/General-Plan-Supporting-Documents/Final-Environmental-Impact-Report-EIR

3.4.2.8 Transportation

The transportation sector is defined by facilities associated with automobile, rail, aviation, major public transportation, and maritime transportation for civilian and military purposes, as well as traffic management systems. Transportation and the movement of individuals to safety ahead of a wildfire is typically a major challenge for City, County and State governments.

US-50, SR-49, and SR-193 are the major transportation routes for residents of western El Dorado County and provide east/west and north/south egress in the event of a wildfire. However, due to the narrow and winding nature of SR-49, SR-193, and other secondary roads that feed into the major routes, they may have limited capacity and become significantly congested during evacuations. Depending on the ignition location and progression of a fire, certain routes may be blocked or unpassable.

In addition to challenges with the major access/egress routes into and out of western El Dorado County, there are also many communities which only have access to major routes via a single point and which may have narrow local roads, one-lane bridges, or other transportation route limitations. These features cause additional evacuation challenges in the event of a wildfire. Protecting the viability of road systems in the Planning Area is critical to the safety of the public and emergency responders. Though Caltrans and El Dorado County DOT are

responsible for maintaining many of the roads in the Planning Area, a large portion of the roads are not publicly maintained and are the responsibility of private landowners and road associations. The maintenance of roadside rights-of-way and prevention of neighborhood landscape vegetation from encroaching onto the road networks will be imperative not only for the resiliency of the physical transportation network, but also the capacity to provide access and egress for the first responders and the public during a major wildfire event.

3.4.3 Critical Community Centers

While not classified under the CAL OES as critical infrastructure, there are numerous small community centers located throughout western El Dorado County that serve as central meeting locations, support local economies, and provide essential goods and services such as fuel, food, and water.

Although these areas are not formally designated as community centers, they often serve as the known gathering place and center within the rural communities. Without these centers, rural communities will lose the ability to support local needs for sharing information, sheltering and necessary supplies to reside in the area.



Figure 11. Pleasant Valley Community Hall in Placerville, CA. (Credit: Pleasant Valley Grange #675)



Figure 12. Gold Trail Grange in Coloma, CA. (Credit: Coloma Gold Trail Grange #452)

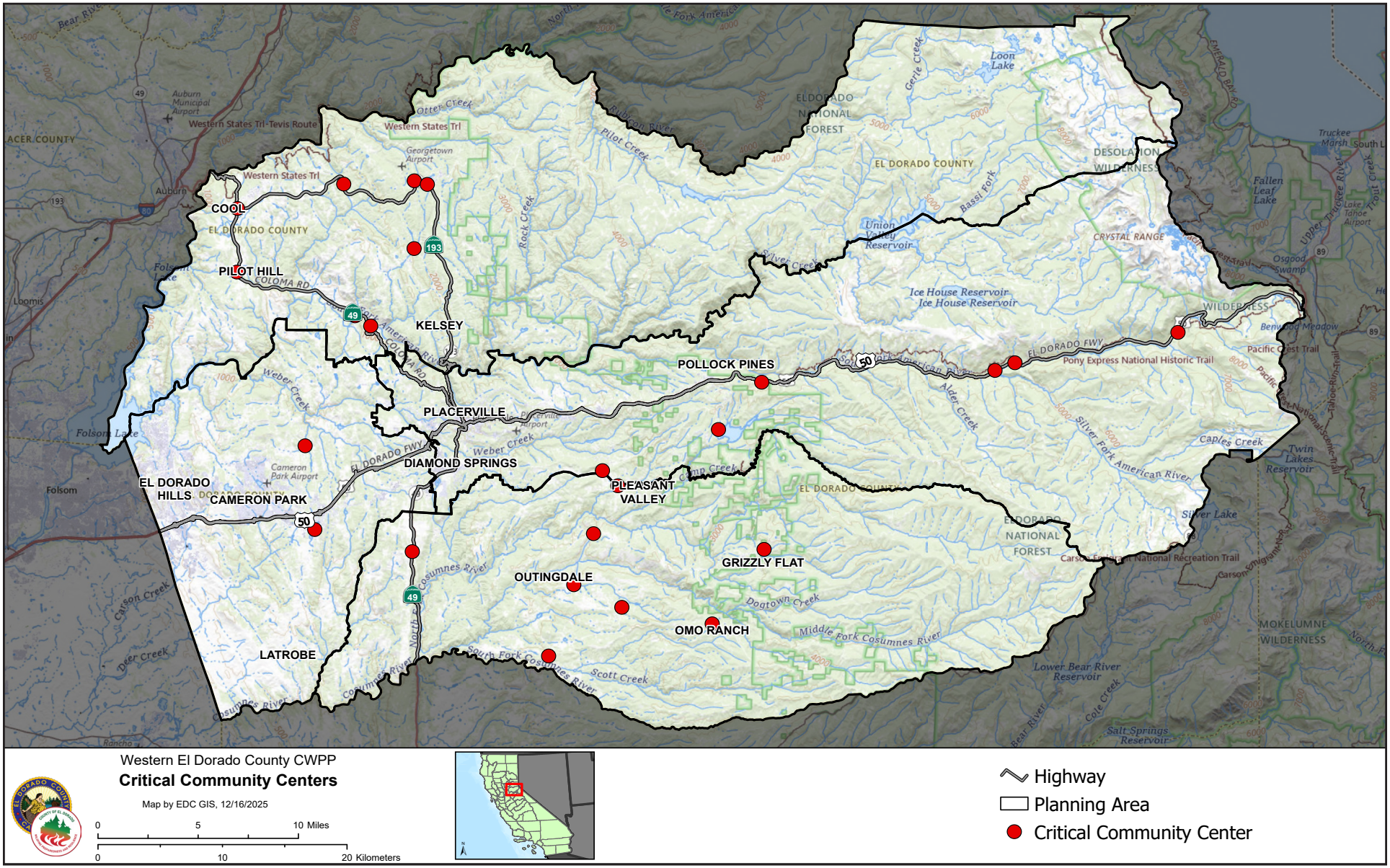


Figure 13. Critical Facilities and Infrastructure

3.4.4 Private Residential Property, Commercial Businesses, & Schools

Most housing in El Dorado County consists of single-family detached homes (~88.7%) with more than 65% built before the 1990s on parcels of varying sizes, dimensions, and topographic conditions. The total number of housing units in the County in 2020 is approximately 93,467 with ~22,000 located in incorporated cities (e.g., Placerville, South Lake Tahoe) and the remaining – 71,441 – located in unincorporated areas[3,4]. Of these housing units approximately 18,147 (~19%) are vacant, which is indicative of the substantial percentage of units that are used seasonally, recreationally or as second homes. Multi-family housing complexes with five or more units make up ~4.3% of total housing units, with two- to-four-unit multi-family complexes making up ~2.2%[4]. In addition, mobile homes make up 4.7% of total housing units[4]. Note: The above data is for the whole county, as data for the western slope only is not available.

The majority of housing is concentrated along the western half of US-50, as well as along the SR-49 and SR- 193 corridors in El Dorado Hills, Cameron Park, Diamond Springs, Placerville and Pollock Pines with pockets of smaller communities farther out from the main highway corridors. In general, housing density is highest in El Dorado Hills, Cameron Park, Placerville and Diamond Springs with lower densities in the rest of the County.

As most of the existing building stock in western County was built before 2008 – when Chapter 7A of the California Building Code was first adopted – most structures are likely not constructed to modern wildfire building construction standards making them more susceptible to ignition. This presents a major challenge for the County due to the high loss potential, but also the increase in urban fuel loads and higher likelihood of structure-to-structure fire spread. In 2020, the value of homes within the County ranged from approximately $500k – $1M per the US Census and the median value was estimated to be $657,000 in 2024 (www.redfin.com accessed September 24, 2024). With approximately 82.7% of County structures located in Moderate, High or Very High Fire Hazard Severity Zones, the potential property value loss resulting from a wildfire could be substantial.

Most structures in Western El Dorado County are not constructed to modern wildfire building construction standards making them more susceptible to ignition. This presents a major challenge due to the high loss potential, but also an increase in urban fuel loads and higher likelihood of structure-to-structure fire spread.

In addition to housing, the Planning Area also has 6,584 acres of commercial and industrial land-uses, which accounts for less than 0.6% of all land-uses. Similar to the distribution of housing units, the majority of commercial and industrial properties are located along the US-50/SR-49/SR-193 Highway system, with El Dorado Hills representing the commercial core of the County and City of Placerville as the County seat. There are scattered pockets of standalone commercial and industrial uses outside of the city limits. In many cases, commercial and industrial developments are either immediately adjacent to wildland vegetation or within 0.5 miles of wildland space (i.e., the WUI), resulting in commercial/industrial buildings having a high chance of direct exposure to wildfire or being located within embercast range. As with residential developments, the majority of commercial and industrial developments lie within designated Moderate, High or Very High Fire Hazard Severity Zones.

[3]2021-2029 El Dorado County Housing Element Report.
[4]2020 Decennial Census Data. US Census Bureau. https://data.census.gov/profile/El_Dorado_County,_Cal...?g=050XX00US06017

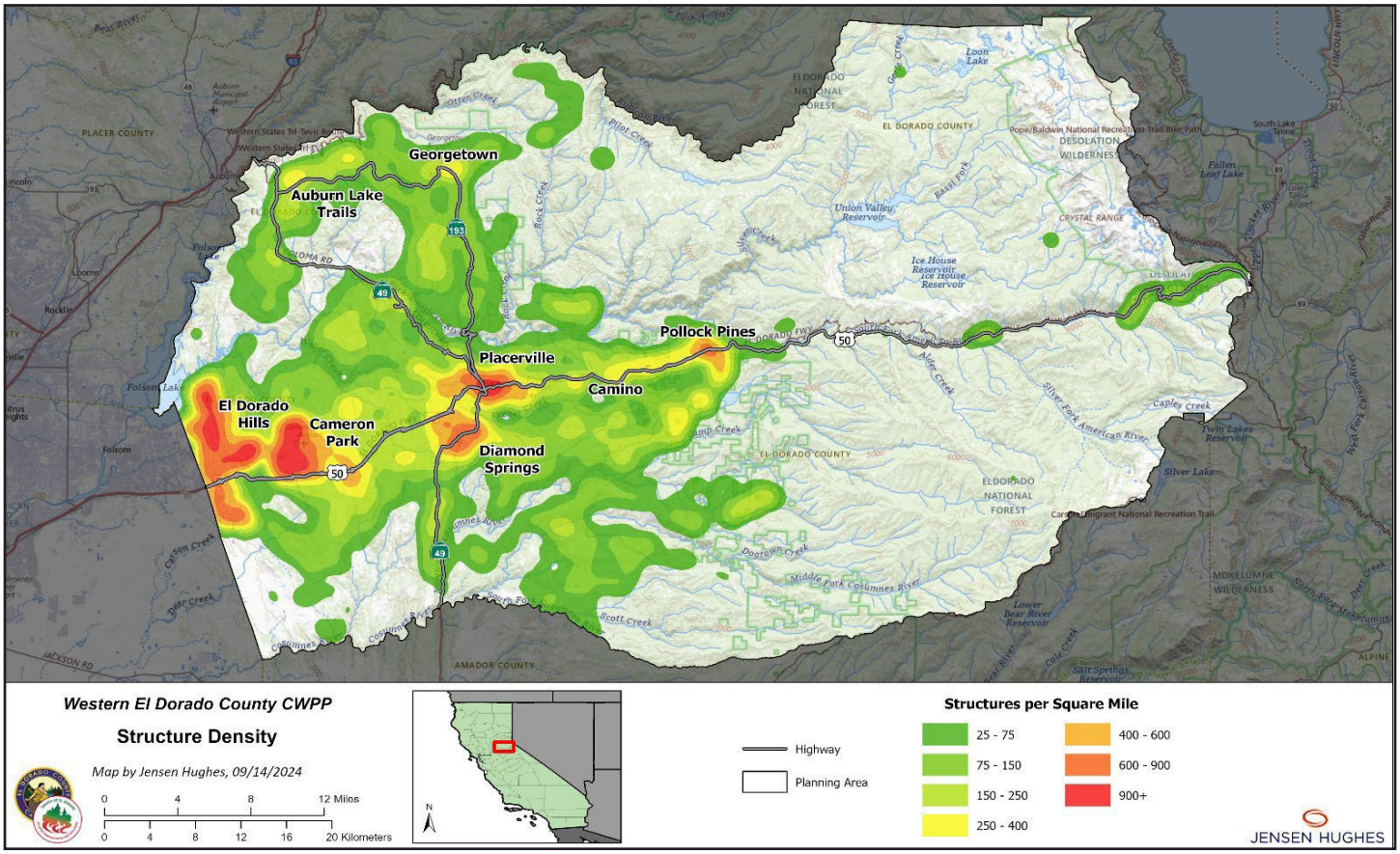


Figure 14. Structure Density Map

3.4.5 Environmental & Natural Resources

Environmental and natural resources consist of a variety of components including biological resources, historical and cultural resources, air quality, water, recreation, geological and archaeological resources.

The value of natural resources in El Dorado County is hard to overstate. From timber production to clean water, recreational activities and habitat for a variety of game, threatened and endangered species, the County's natural resources influence the employment and enjoyment of local residents and touch the lives of people who have never set foot inside the County. It is impossible to quantify all the natural resource values of the Planning Area. The following topics touch on natural resource values at risk to damage or destruction from wildfire.

Timber: The timber industry has been a significant part of El Dorado County's economy for many years, playing a crucial role in shaping the region's history and character. With timber being produced on National Forest System lands and private industrial timber lands, wood products from the local area reach communities far from these lands. Just some of the key considerations when looking at timber as a value at risk include:

- **Job Creation:** The timber industry provides employment opportunities for a wide range of workers, including professional foresters, resource managers, loggers, mill workers, truck drivers, and all the associated support staff. These jobs are important to the local economy and help to sustain communities.

- **Property Taxes:** Private landowners in the timber industry pay property taxes, which contribute to the overall tax base of the County.
- **Forest Management:** Sustainable timber harvesting practices can help to maintain healthy forests and prevent wildfires. By thinning dense stands of trees, or through commercial timber harvesting, hazardous fuels can be managed and the risk of catastrophic fires reduced (Brown, 2022).
- **Carbon Sequestration:** The proper management of forests can play a vital role in capturing and storing carbon dioxide from the atmosphere.
- **Sustainability:** The future of the timber industry in El Dorado County will depend on its ability to adopt sustainable practices and adapt to changing environmental and economic conditions. Through proper land stewardship both ecological and economic benefits can be sustained into the future.

In 2022 the Secretary of Agriculture launched a comprehensive response to the nation's growing wildfire crisis – Confronting the Wildfire Crisis: A Strategy for Protecting Communities and Improving Resilience in America's Forests (https://www.fs.usda.gov/sites/default/files/Confronting-Wildfire-Crisis.pdf). The strategy outlines the need to significantly increase fuels and forest health treatments to address the escalating crisis of wildfire danger that threatens millions of acres and numerous communities across the United States (USDA, 2022). The strategy calls for the Forest Service to treat up to an additional 20 million acres on national forests and grasslands and support treatment of up to an additional 30 million acres of other federal, state, Tribal, private, and family lands. The Bipartisan Infrastructure Law provides nearly $3 billion towards this end.

Water: El Dorado County, California, relies primarily on surface water resources from the Sierra Nevada Mountains to meet its water needs (El Dorado Irrigation District, 2024). The primary sources of water in the County include:

- **Jenkinson Lake (Sly Park):** This is a major reservoir providing water for residents in the eastern part of El Dorado Hills, Shingle Springs, Diamond Springs, Placerville, Camino, and Pollock Pines.
- **Folsom Lake:** The El Dorado Irrigation District (EID) draws water from Folsom Lake to supply El Dorado Hills.
- **Other reservoirs:** EID also manages several other reservoirs, including Caples, Silver, Echo, and Forebay, which are used for both water storage and recreation. GDPUD also manages Stumpy Meadows reservoir.

Ground-water and surface-water recapture also provides water to the communities within and adjacent to the Planning Area. Much of the south county area, and parts of the north county area are reliant on wells and groundwater. In other areas, while groundwater is not as extensively used as surface water in El Dorado County, it can be a supplementary source in some areas, especially during dry periods. El Dorado County is primarily drained by the South Fork American River and its tributaries, including the Cosumnes River. These river systems are a significant part of the greater Sacramento River watershed (Figure 15).

The Upper American River Watershed originates at the crest of the Sierra Nevada near Lake Tahoe. The upper watershed has three forks: the North, Middle, and South Fork. Like most major western U.S. rivers, the American River has been extensively dammed and diverted for hydroelectricity production. There are five power plants on the Middle Fork and 11 on the South Fork. Water quality in the Upper American is considered very good, although the South Fork is listed on the Clean Water Act Section 303(d) list for mercury. National Wild and Scenic River status has been proposed for reaches of the North and Middle Forks.

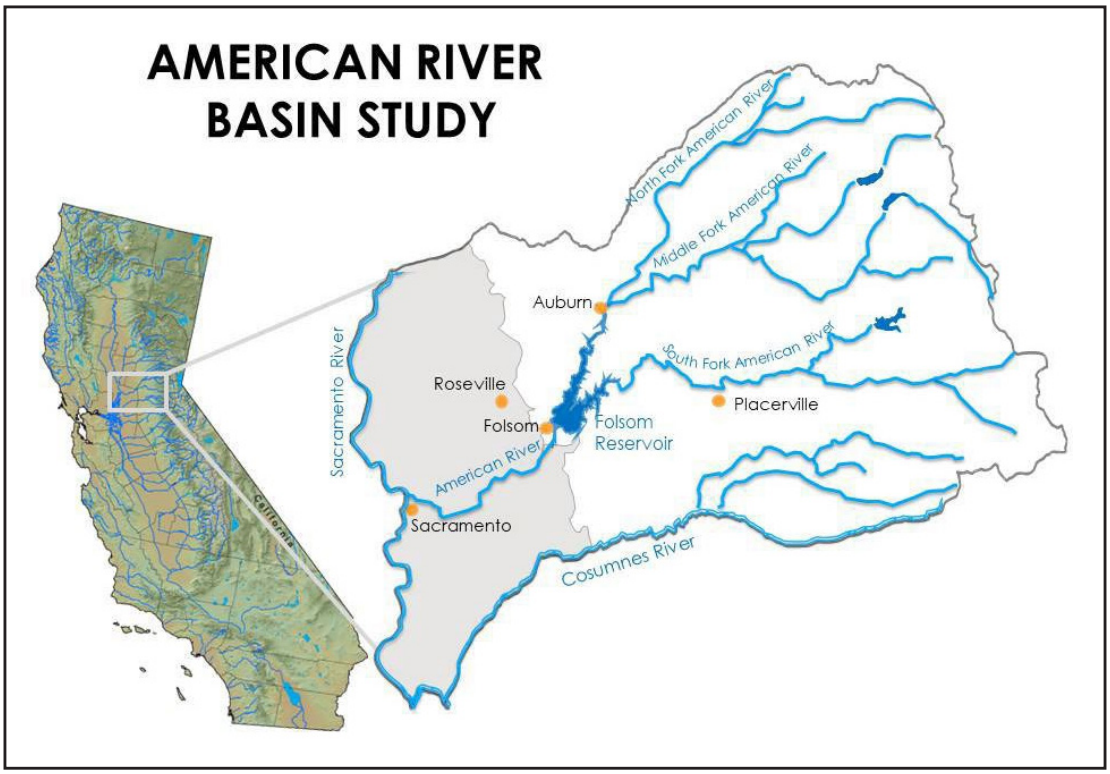


Figure 15. American River Basin Study

An Integrated Regional Water Management Plan for the Cosumnes, American, Bear, and Yuba Rivers was adopted by the State of California in December 2006. The plan was developed by a diverse group of stakeholders throughout the region and includes several goals and objectives for the four watersheds (California Department of Water Resources, 2024):

- Achieve sustainable surface and groundwater supply;
- Provide multiple benefits from management of water resources, diversions, and infrastructure;
- Reduce impacts from catastrophic fire;
- Protect infrastructure, equipment, and property from flooding;
- Protect and improve watershed resources through land use practices;
- Manage sediment for water quality and habitat value;
- Reduce mercury contamination in waterways;
- Reduce contamination of surface and groundwater resources; and
- Protect and improve fisheries and aquatic biota through water resources management.

The El Dorado Water Agency (EDWA) is a County agency that coordinates with local, regional, state, and federal partners for integrated management of water resources. EDWA's Water Resources Development and Management Plan was updated in October 2024 and outlines goals, strategies and programs the policies and actions of local water entities are aligned (https://www.eldoradocounty.ca.gov/edwateragency/Programs-Projects/EDWA-Programs-Projects/Water-Resources-Development-and-Management-Plan).

Vegetation: Seven distinct plant communities are encountered from El Dorado Hills in the west to the mountain passes in the east. Precipitation, both amount and kind (rain or snow), and the length of the growing season determine these zones. Grassland, dominated by annual plants, extends from the Central Valley into El Dorado Hills. Woodlands, distinguished by blue oak and gray pine, occur on cooler north-facing slopes with chaparral on warmer south slopes as one ascends to Shingle Springs. These woodlands give way to widespread Mixed Coniferous Forest, from Placerville to beyond Kyburz. Lodgepole Pine-Red Fir Forest extends from 5,000 to 7,000 feet. Above this forest is the Subalpine Forest, adapted to shallow soils and a short growing season. Above tree line is the Alpine community dominated by perennial grasses and forbs. (Figure 16) (El Dorado Chapter, California Native Plant Society, https://eldoradocnps.org/, accessed August 2024).

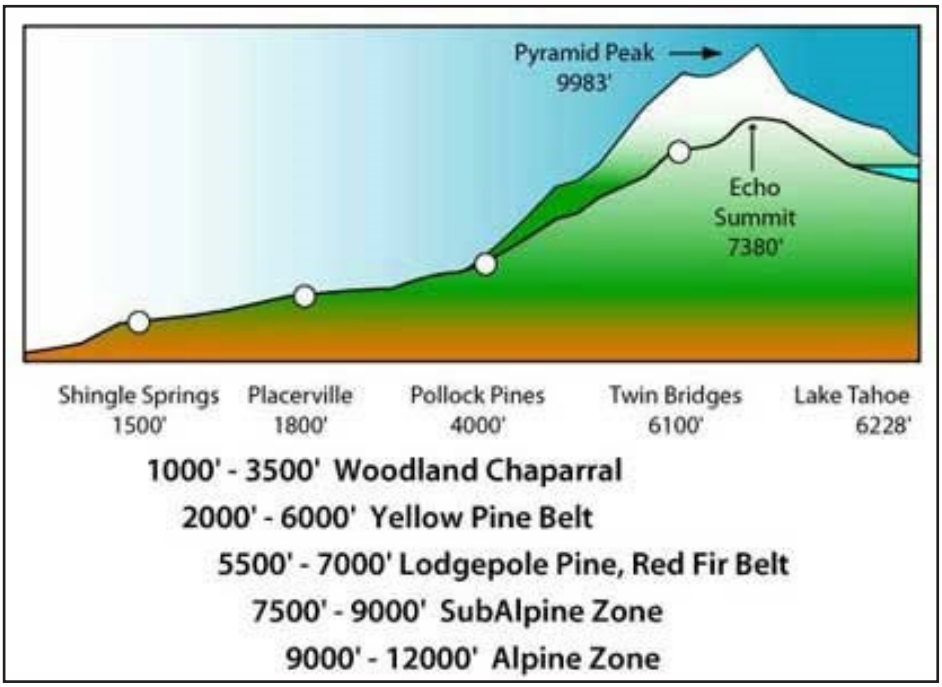


Figure 16. Plant Communities Found in El Dorado County

A subset of vegetation are rare plants. These plants and their protected status make them of importance as they can affect the design and implementation of hazardous fuel reduction projects. Some of the key protected species include:

- Pine Hill ceanothus - federal endangered and state rare plant
- Stebbins' morning glory - state and federal endangered plant
- Layne's butterweed - federal threatened and state rare plant
- Pine Hill flannelbush - federal endangered and state rare plant
- El Dorado bedstraw - federal endangered and state rare plant
- El Dorado mule ears - federal species of concern and BLM sensitive plant
- Red Hills soaproot - BLM sensitive plant

This list is not intended to be all inclusive and there is a need for ground surveys to identify the presence or absence of protected plants during the planning phase of any hazardous fuel reduction project.

Wildlife: The County offers suitable habitats for a wide variety of wildlife. In general wildlife is divided in two primary categories, game and non-game-species. The Game Management Program within the California Department of Fish and Wildlife identifies bear, bighorn sheep, deer, elk, pronghorn, pigs, upland gamebirds (10 species), and waterfowl (21 species) as game species (https://wildlife.ca.gov/, accessed August 2024).

El Dorado County is also home to a variety of threatened, endangered, and sensitive animal species. These species are protected by both federal and state laws. Examples of threatened, endangered, and sensitive animal species found in El Dorado County include:

- Mountain yellow-legged frog - Federally endangered
- Sierra Nevada bighorn sheep - Federally endangered species
- Pacific spotted owl - State species of special concern
- California red-legged frog - Federally threatened
- Bald eagle - State listed endangered species
- Sierra Nevada golden trout - State species of concern
- Mountain lion - State specially protected mammal
- Western gray squirrel - State species of concern

It is important to note that this is not an exhaustive list of all the threatened, endangered, and sensitive animal species. As with rare plants, there is a need for ground surveys to identify the presence or absence of protected animals during the planning phase of any hazardous fuel reduction project. See Figure 18 on the following page for the Environmentally Sensitive Habitat Areas in El Dorado County.



Figure 17. Bald Eagle Over Water

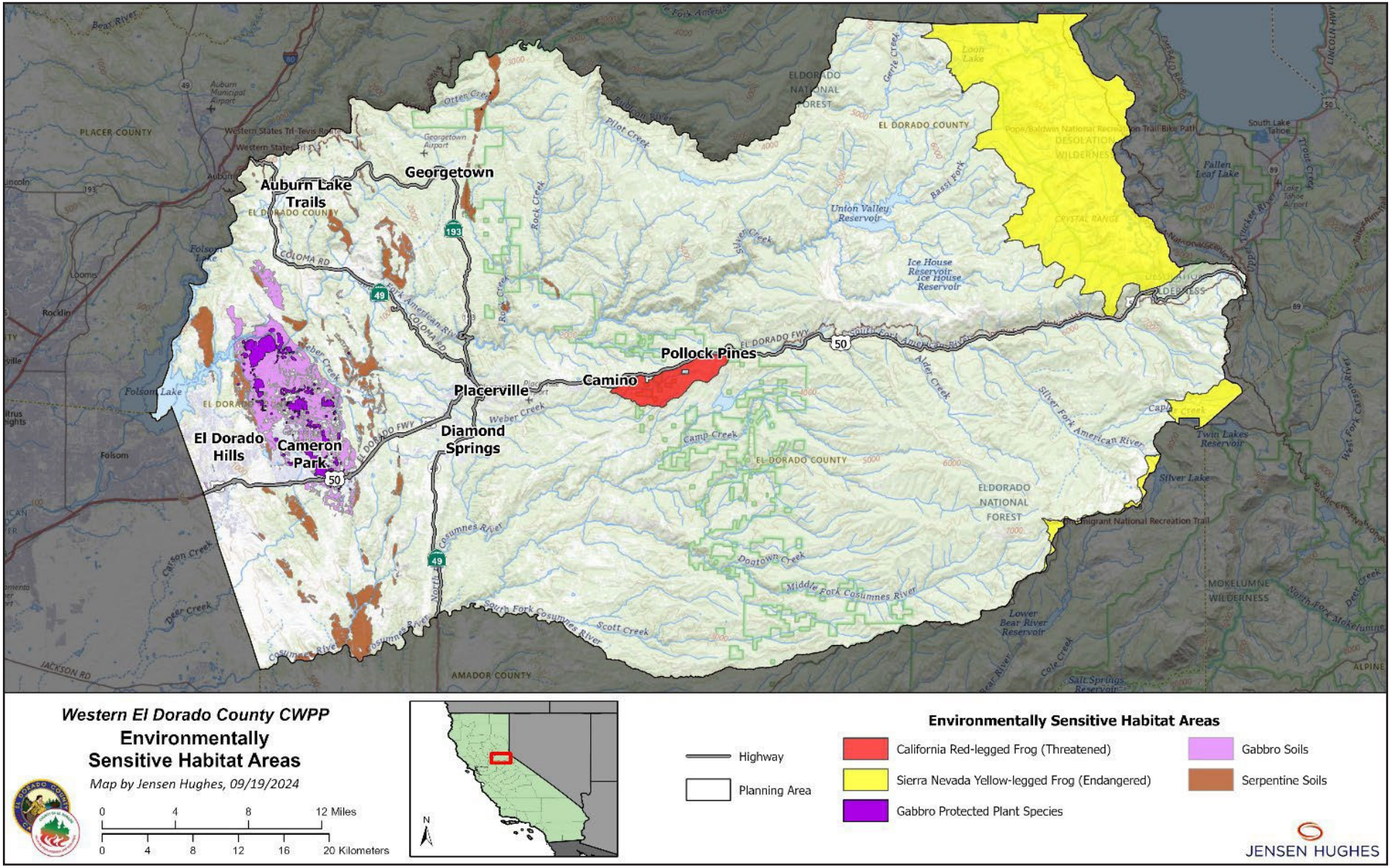


Figure 18. Environmentally Sensitive Habitat Areas

3.4.6 Cultural & Historical Resources

El Dorado County is laden with points of cultural importance varying from artifacts associated with the first peoples of California and their use of the land, to the impacts of white settlement and the gold rush, to early timber operations, and even a Pony Express route. These cultural features are scattered throughout the Planning Area and may not be easily recognized by those without professional backgrounds in cultural resources identification and preservation. The California State Office of Historic Preservation reviews and comments on thousands of federally sponsored projects annually pursuant to Section 106 of the National Historic Preservation Act and state programs and projects pursuant to Sections 5024 and 5024.5 of the Public Resources Code. Any proposed projects should be assessed by these cultural resource professionals and tribal entities to assure compliance with State and Federal requirements for the protection of cultural resources.

The following sections are a brief summary of some known cultural resource values.

- **Indigenous Peoples:** Prior to European settlement in the 19th century, what is now El Dorado County was home to several indigenous tribes. These tribes, including the Miwok, Maidu, Nisenan, and Washoe, have lived in the region for thousands of years, developing deep connections to the land and its resources. The Miwok is one of the most prominent tribes in the area, with a 160-acre rancheria located in Shingle Springs. The Indian Grinding Rock State Historical Park located near Jackson in Amador County provides a living example of a Miwok village.

  Other major tribes with historic roots in El Dorado County include the Maidu and the Nisenan, a subgroup of the Maidu who lived primarily in the Sierra Nevada Mountains, while the Nisenan inhabited areas near the Sacramento River. The Washoe tribe was primarily found in Nevada, but had settlements in parts of El Dorado County, particularly near the Sierra Nevada (https://nahc.ca.gov/, accessed August 2024). It is important to note that these tribes were not isolated from one another. They often interacted, traded, and intermarried, forming a complex social and cultural network. Figure 19 is a depiction of the historic California Native American ancestral lands in the vicinity of the Planning Area.

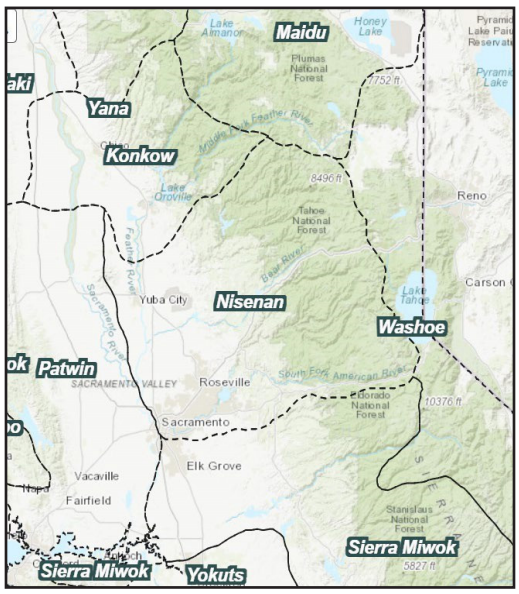


Figure 19. California Native American Ancestral Lands in the vicinity of the Planning Area.

- **The Gold Rush:** Prior to the gold discovery in 1848, the lands in El Dorado County legally belonged to Mexico as indigenous people's rights to land "ownership" were not recognized by government entities. Most people who lived in Northern California prior to 1849 were Mexican and Native American with a few intermixed European settlers. James Marshall, one of these Europeans and an employee of John Sutter, discovered gold while developing a sawmill near the confluence of the Sacramento and American rivers near Coloma.

  The earliest miners to arrive in the County were most successful at finding gold along the rivers. When panning was no longer profitable, some miners turned to dry digging, while others mined into hillsides. Later, the miners resorted to hydraulic mining. Because the easiest location to find gold was in rivers, mining towns developed along rivers. However, as quickly as these towns were built, they were deserted as miners moved on to more profitable mining area. Some mining boomtowns still exist including Placerville, Coloma, Georgetown, Cool, and Fairplay (El Dorado Historical Museum, eldorado,ca.gov, access August 2024).

  The historical remnants of these mining activities still exist in many areas and will require appropriate mitigation actions to protect them during any hazardous fuels reduction projects.

- **Historic Logging Operations:** Prior to the Gold Rush, logging was one of the principal industrial operations in the County. It was the developing timber industry which supplied wood to support the growth of Sacramento and led John Sutter to develop a mill site near Coloma, where gold was discovered in 1849. The gold rush only increased the need for wood products to support the development of mining communities, fuel for industrial and residential use, mine shoring, flumes, and railroads ties.

  The need to move trees from the harvest sites to mills led to the development of narrow-gauge railroad systems in the County. The historic Southern Pacific Placerville Branch tracks, an extension of the oldest railroad west of the Mississippi, was completed in 1888 and carried passengers and freight between Sacramento and Placerville. Lumber, fruit, and other produce was hauled to distribution centers in Sacramento and then sent throughout the country by rail (eldoradocounty.ca.gov, accessed August 2024).

  Figure 20. Replica of John Sutter's Mill at Marshall Gold Discovery State Historic Park in Coloma, CA. (Credit: Courtesy of California State Parks, 2025)

  Remnants of old mill sites, logging and railroad equipment and flumes can be found throughout the Planning Area. These logging operation remnants will require protection when developing future hazardous fuel reduction projects.

- **Pony Express:** A unique historic feature in the Planning Area is a portion of the Pony Express Trail. From April 4, 1860 to June 30, 1861, a relay station for the Pony Express Trail was operated in Placerville. Placerville was the western terminus of the Pony Express until the express was discontinued on October 26, 1861. The Pony Express National Historic Trail (NHT) was designated by Congress in 1992 and is administered by the National Park Service as a component of the National Trails System.

Despite the name, the Pony Express NHT is not a continuous traditional trail from end to end, but consists of many trail traces, structures, graves, landmarks, and markers left on the landscape. Trail sites are in private, municipal, tribal, federal, or state ownership (Figure 21) (https://www.nps.gov/poex/index.htm, accessed August 2024). These trail traces will require protection when developing future hazardous fuel reduction projects.

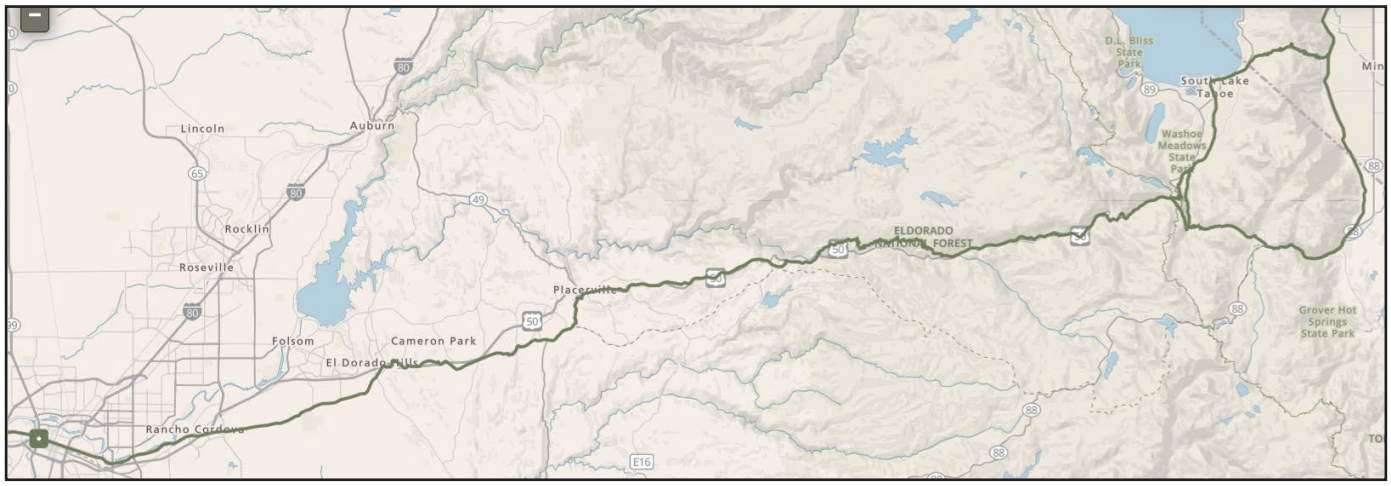


Figure 21. Pony Express Trail

3.4.7 Recreation

El Dorado County is considered one of the most diversified recreational areas in California, with El Dorado National Forest being one of the most heavily used wilderness areas in the nation. The Sierra Nevada Mountains, the north and middle forks of the American River and nearby Lake Tahoe are just some of the natural attractions for recreation and tourism.[5] In addition, El Dorado County Parks and Trails maintains many recreational facilities across the Planning Area, such as Henningsen Lotus Park, Bradford Park, El Dorado Trail, and Rubicon Trail. The National Forest Service, National Park Service, Bureau of Land Management, and California State Parks and Recreation are additional agencies that have jurisdiction over parks and other recreational areas, including the Folsom and Auburn State Recreational Areas, within the Planning Area.[6]

In addition to County, State and Federal recreational areas, there are a number of regional parks and trails providers. El Dorado Irrigation District manages several recreational facilities such as Sly Park Recreation Area. The American River Conservancy also operates multiple recreational areas such as the South Fork American Trail.[6]



Figure 22. Union Valley Reservoir.

[5] *https://labormarketinfo.edd.ca.gov/geography/eldorado-county.html*
[6] *https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/land-use/parks-amp-trails/parks-and-trails-master-plan-final-2012.pdf*

The County's residents and visitors also have access to recreational facilities run by local agencies including the City of Placerville, El Dorado Hills Community Services District, Cameron Park Community Services District, Georgetown Divide Recreation District, and the Rolling Hills Community Services District.[6]

Other popular recreational activities include camping, biking, whitewater rafting, horseback riding, off-highway vehicle use, fishing & boating, and winter activities such as over snow vehicle use, skiing and snowboarding. There are a variety of trail opportunities related to these popular recreational activities throughout the County.



Figure 23. El Dorado County Jeep on the Rubicon Trail. (Credit: Courtesy of El Dorado County Parks Division)



Figure 24. Parks Division Program Coordinator & EDSO Sheriff on the South Fork of the American River. (Credit: Courtesy of El Dorado County Parks Division)

3.4.8 Local Economy

The potential short and long-term impact of wildfires in El Dorado County can be devastating to finances and local economies across all areas of the built and natural environments.

El Dorado County's local economy is highly concentrated along the West Slope of HW-50 and along SR-49 and SR-193 corridors with a heavy dependency on seasonal tourism and recreation. The majority of employment is in government and government enterprises (12.5%), followed by health care (9.9%), retail trade (9.8%), accommodation/food services (9.1%), and construction (8.3%).[7] Public sector employment includes county and city government, local public schools, and federal and state government (national forests, BLM, national park, CAL FIRE, and Highway Patrol). Tourism connected to Eldorado National Forest, which attracts more than two million visitors annually, is expected to remain one of the County's primary major economic generators.



Figure 25. Apple Hill in Placerville, CA. (Source: applehillca.com)

Note: While the local economy has shifted to tourism and other recreational uses, historically the county's economy was driven by mining, lumber, and ranching, which can be seen in the % of land-use still being dominated by these categories. Refer to Section 3.5 for more details.

[6] *https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/land-use/parks-amp-trails/parks-and-trails-master-plan-final-2012.pdf*
[7] *https://www.eldoradohillschamber.org/images/documents/2018ElDoradoEconomicDemographicProfile2.pdf*

3.5 Land Use / Zoning

The Land Use Element of the 2019 El Dorado County General Plan serves as a framework for the County's forthcoming growth. It is intended to establish a land use pattern that makes the most efficient and feasible use of existing infrastructure and public services, define characteristics which make the County "rural" and provide strategies for preserving these characteristics, provide opportunities for positive economic growth, and provide guidelines for new and existing development that maintains or enhances the quality of the County.

Table 7 and Figure 26 illustrate the current composition and spatial distribution of various land use categories in the Planning Area. Covering 666,834 acres, natural resources and open space stand as the Planning Area's predominant land use designations, constituting roughly 66.5% of the Planning Area. Rural residential land emerges as the second-largest land use category, encompassing 129,608 acres and occupying 12.9% of the Planning Area's total land area. Other residential land uses (122,097 acres) and agricultural land (57,958 acres) contribute 12.1% and 5.8%, respectively, to the Planning Area's land use composition.

Table 7. Land Uses Across the Planning Area

Land Use Category	Area (Acres)	% of Planning Area
Agricultural Lands	57,958	5.8%
Adopted Plan	15,206	1.5%
Commercial	3,333	0.3%
Industrial	2,208	0.2%
Research and Development	1,023	0.1%
High Density Residential	12,134	1.2%
Medium Density Residential	30,152	3.0%
Low Density Residential	78,366	7.8%
Multi-Family Residential	1,445	0.1%
Rural Residential	129,608	12.9%
Natural Resource	633,429	63.2%
Open Space	33,405	3.3%
Public Facilities	2,181	0.2%
Tourist Recreational	2,302	0.2%
Total	***1,002,750***	***100.0%***

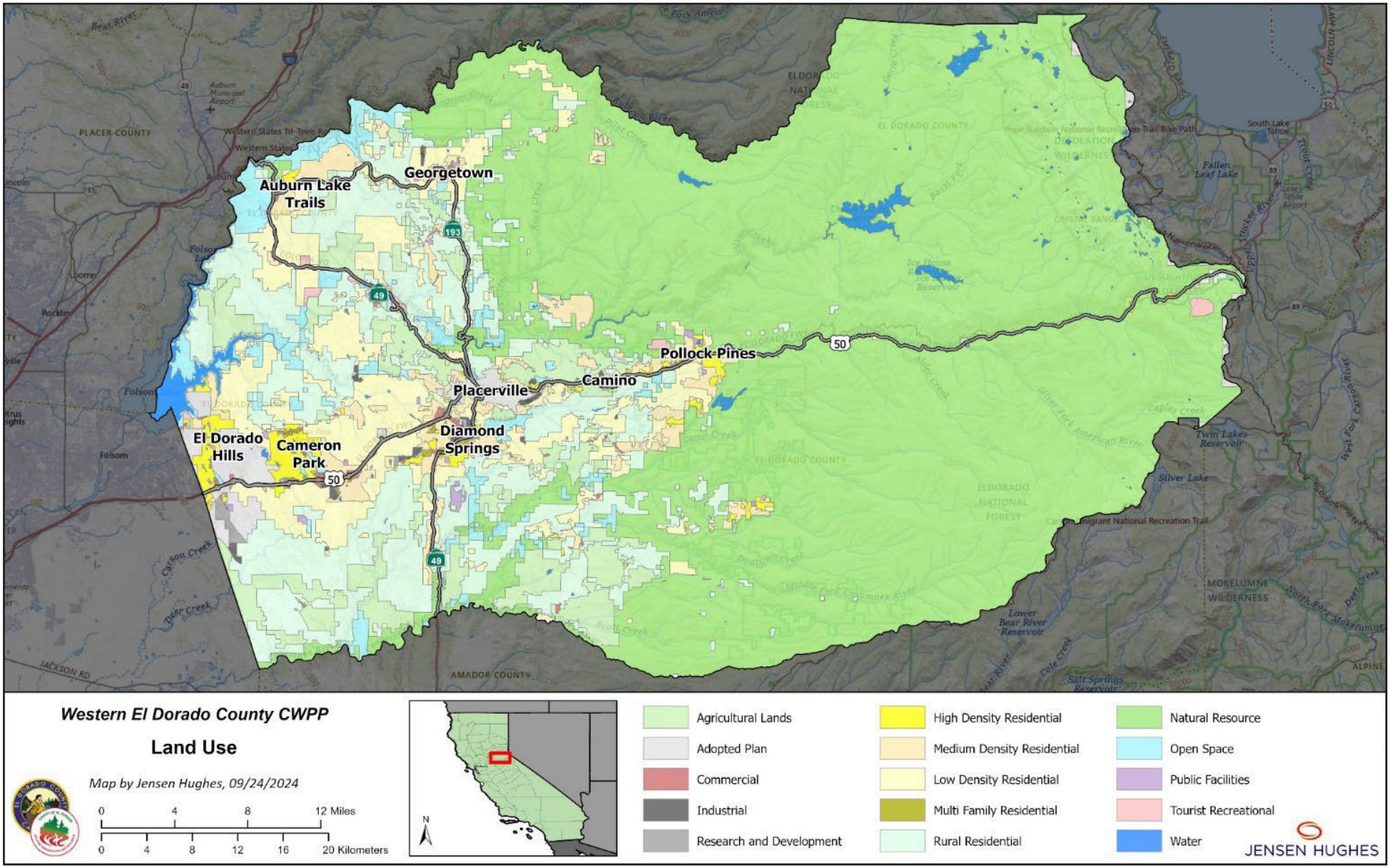


Figure 26. El Dorado County Land Use Map and Zoning

3.6 Fire Protection Responsibility

Wildland fire protection in the State of California is the responsibility of State, Local, and Federal government fire agencies. The ability to organize a timely and robust response to a wildland fire can influence the eventual impact of that fire on a community. The Western El Dorado County Planning Area has wildland fire protection provided primarily by CAL FIRE on State Responsibility Areas. CAL FIRE, under cooperative agreement with the Cameron Park Community Services District, staffs additional stations to augment the coverage provided directly by CAL FIRE. Wildland fire protection responsibilities for federal lands are provided by the United States Forest Service. CAL FIRE also provides fire protection for BLM and BOR lands through cooperative agreement. National Forest system lands are the protection responsibility of the Forest Service.

Direct Protection Area (DPA): Fire suppression responsibilities within the County are defined by Direct Protection Areas (DPAs). DPAs also define who has the primary responsibility for the initial response and management of a wildland fire. DPA boundaries do not depict land ownership, are not static and can be changed by agreement between jurisdictional agencies. Three DPAs exist within the Planning Area – Local Responsibility Area (LRA), State Responsibility Area (SRA) and Federal Responsibility Area (FRA) (Figure 27). On a statewide basis, CAL FIRE and the federal agencies attempt to balance the acreage totals of these tradeoffs so that no single agency is protecting more of the other agency's land than the reciprocating agency. In many cases DPA swaps have been agreed to where agency jurisdictions border and is guided by the California Master Cooperative Wildland Fire Management Agreement (CFMA).

- **Local Responsibility Area (LRA):** These areas are private lands outside of watershed areas designated by the state or lands incorporated into cities. Local fire protection districts and CAL FIRE under contract to local governments typically provide wildland fire protection for these areas. LRA lands are principally located within and adjacent to the communities of Cameron Park, El Dorado Hills and the City of Placerville. Cameron Park Fire Department, El Dorado Hills Fire Protection District and El Dorado County Fire Protection District are the lead agencies for the protection of these LRA lands. These agencies receive augmented resources by agreement with CAL FIRE and the Forest Service to support fire suppression operations on LRA lands.
- **State Responsibility Area (SRA):** SRA are the areas where the State of California is jurisdictionally and financially responsible for the prevention and suppression of wildfires. SRA, typically, does not include lands within incorporated city boundaries, or in federal ownership, and is where CAL FIRE has the jurisdictional responsibility for the suppression of wildfires. SRA lands are located primarily on the West Slope, however, protection responsibility within El Dorado County is highly complex with an intermix of federal and state protection responsibility. CAL FIRE can bring to bear substantial fire resources when a wildfire burns or threatens to burn SRA lands with fire resources available from adjacent Units and through agreement with the Forest Service.
- **Federal Responsibility Area (FRA):** The primary financial responsibility for wildfire suppression and prevention on federal lands is that of the federal government through the United States Forest Service (USFS), Department of the Interior – Bureau of Land Management, National Park Service, Fish and Wildlife Service, Bureau of Indian Affairs, Bureau of Reclamation, and Defense Department for military lands. FRA lands are located primarily in the eastern portion of the Planning Area within the El Dorado National Forest. However, these FRA lands are also highly intermixed with SRA and extend to the Bureau of Land Management and Bureau of Reclamation lands near Folsom Lake. Because a wildfire spreading from these federal lands can represent a threat to burn SRA or LRA lands, a Cooperative Fire Protection Agreement exists between CAL FIRE and the Forest Service. This agreement provides for initial attack wildfire suppression support within a mutually agreed to "threat zone." Through this agreement, CAL FIRE and the federal fire agencies are able to rapidly access fire suppression equipment from adjoining jurisdictions.

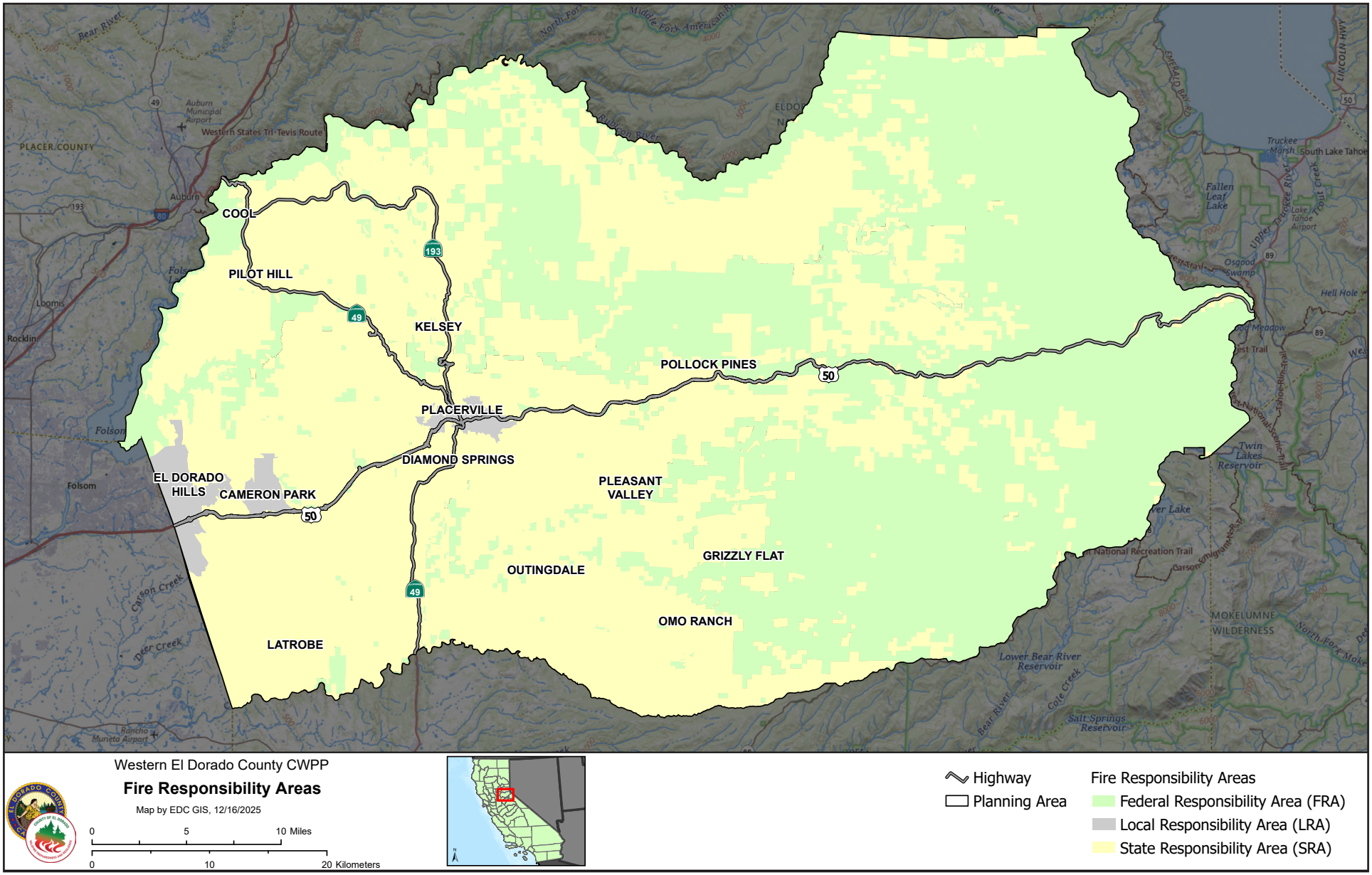


Figure 27. Fire Protection Responsibility Areas in El Dorado County

3.6.1 Fire Agencies in El Dorado County

The current Emergency Service Plan for El Dorado County has identified objectives that pertain to identification of fire jurisdictions and organizations that require planning and emergency response coordination. As Identified in Table 8, several fire agencies can provide fire suppression resources to wildfires burning within the Planning Area. Either through direct protection responsibilities, or through agreements with CAL FIRE and the United States Forest Service the following agencies assist in suppression operations. Within each of these organizations, there are numerous fire stations, units, and resources that contain both paid and volunteer firefighters to provide fire protection throughout the County. There are also numerous combinations of engines, crews, heavy equipment, and aviation utilized to effectively implement tactical fire suppression operations.

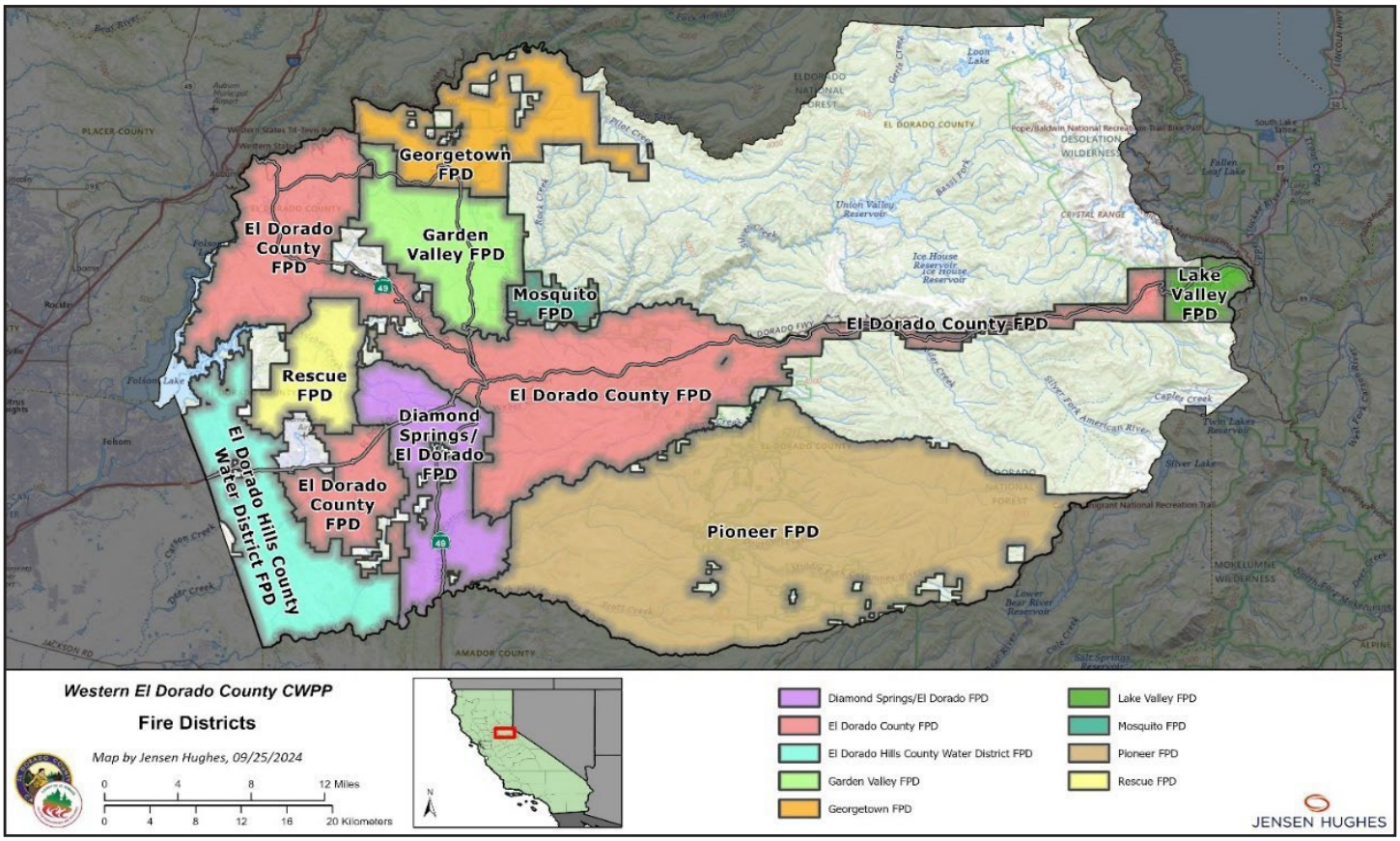


Figure 28. Fire Districts Across El Dorado County

Table 8 summarizes the information below.

Table 8. El Dorado County Fire Agencies, Equipment and Personnel Capacities

Fire Agency	Stations	Fire Apparatus	Personnel
CAL FIRE – Amador-El Dorado Unit These CAL FIRE resources can be rapidly augmented from adjacent Units and from the East and South Division within AEU of the AEU which includes the majority of Alpine and Amador County and portion of the Lake Tahoe Basin. As well as augmentation from adjacent Units.			
North Division	NP	8 Type III Engines 2 Reserve Type III Engines 1 Dozer	5 Crews (staffing varies) – Growlersburg Conservation Camp
Central Division (Cameron Park Fire Department through cooperative agreement)	NP	2 Type I Engines 2 Reserve Type I Engines 1 Type III Engine	7 Crews (staffing varies) – Ponderosa Camp - Paid CAL FIRE Employees
East Division	NP	1 Type III Engine	2 Crews, 3 Project Crews – Tahoe Meyers Fire Center
South Division	NP	6 Type III Engines 1 Dozer	4 Crews (staffing varies) – Pine Grove Youth Camp
United States Forest Service – Eldorado National Forest Forest Service resources can be rapidly augmented with equipment located on the Lake Tahoe Basin Management Unit and Stanislaus National Forest.			
	NP	10 Type III Engines 2 Water Tenders 1 Dozer	4 Crews (one interagency Hotshot crew)
El Dorado County Fire Protection District The District maintains 14 station locations, with 5 stations staffed 24/7/365. Fire Station 16, unstaffed by the Fire Protection District hosts a Forest Service type III engine. Fire Station 27, unstaffed by the District, hosts the Bureau of Land Management Folsom Lake Veterans Hand Crew. The District maintains an Amador plan contract with CAL FIRE to staff a Type III fire engine year-round within the community of Camino. The City of Placerville acquires their fire protection under a contract with the District.			
	14 Station Locations	7 Type I Engines 4 Type III Engines 1 Type IV Engine 2 Water Tenders 1 Ladder Truck	NP
El Dorado Hills Fire Department The Department maintains 5 stations, staffed with a variety of fire apparatus. Type 1 engines are utilized for structure fires, while type 3 engines are deployed to wildfires.			
	5 Stations	6 Type I Engines 2 Type III Engines 2 Water Tenders Ladder Truck	NP

Fire Agency	Stations	Fire Apparatus	Personnel
Diamond Springs – El Dorado County Fire Protection District			
Diamond Springs - El Dorado County Fire Protection District	5 Stations	2 Type I Engines 1 Type II Engine 1 Type III Engines 1 Water Tender 1 Ladder Truck	NP
Rescue Fire Protection District			
Rescue Fire Protection District	2 Stations (1 FT/1 Volunteer)	4 Type III Engines 1 Water Tender	NP
Pioneer Fire Protection District The District is a combination of paid and volunteer firefighters and maintains a single station staffed 24/7/365.			
Pioneer Fire Protection District	1 Station	1 Type I Engine 1 Type III Engine	NP
Garden Valley Fire Protection District The district maintains 3 stations, 1 staffed 24/7/365, while 2 are unstaffed volunteer stations.			
Garden Valley Fire Protection District	3 Stations	2 Type I Engines 1 Water Tender	NP
Georgetown Fire Protection District The district maintains 5 stations, 1 staffed 24/7/365, 1 staffed by a Forest Service engine through cooperative agreement, and 3 volunteer stations.			
Georgetown Fire Protection District	5 Stations	1 Type I Engine 1 Type III Engine	NP
Mosquito Fire Protection District The district operates from a single location with a combination of paid and volunteer personnel.			
Mosquito Fire Protection District	1 Station	1 Type I Engine 1 Type II Engine 1 Type IV Engine 1 Water Tender	NP
Shingle Springs Rancheria The department consists of 10 permanent and eight-10 seasonal firefighters.			
Shingle Springs Rancheria	NP	NP	1 Type 2IA Crew

NP = Not provided

- **Aviation Resources:** Both CAL FIRE and the Forest Service maintain a fleet of airtankers and helicopters that are positioned across the state during fire season. The closest CAL FIRE air bases to the Planning Area are McClellan, Grass Valley and Columbia, CA. CAL FIRE's fleet of more than 60 fixed and rotary wing aircraft make it the largest civil aerial firefighting fleet in the world. The Forest Service primarily relies on contracting aircraft for fire suppression, with equipment available during fire season in California, but also moved nationally to support firefighting efforts across the United States.

- **Helicopters:** Firefighting helicopters can be in high demand during an active wildfire season and may not always be available at their assigned bases. The nearest CAL FIRE helicopter to the Planning Area is stationed at Columbia. The Forest Service has a helicopter stationed at Pacific, CA, just east of Pollock Pines, with the next closest helicopter assigned to the Tahoe National Forest at Grass Valley.



Figure 29. CAL FIRE Helicopter Working on the 2024 Boyles Fire.
(Credit: CAL FIRE Amador-El Dorado Unit)

- **Airtankers:** CAL FIRE owns a fleet of 23 S-2 airtankers capable of delivering 1,200 gallons of fire retardant to the firelines. They have recently added two C-130H airtankers to the fleet, with a capability of carrying up to 4,000 gallons of retardant. One aircraft is assigned to McClellan. Five additional C-130H's are planned to come on-line in the near future.

  The Forest Service uses aircraft of many types and sizes to manage wildland fires. Some are owned by the Forest Service, many are leased or contracted and during times of high fire activity. Airtanker capabilities vary from the small airtankers, which can deliver 800 gallons of retardant, to the Very Large Airtankers (VLAT) with a capacity of more than 9,600 gallons.



Figure 30. CAL FIRE C-130H.
(Credit: CAL FIRE Amador-El Dorado Unit)



Figure 31. CAL FIRE Air Tanker.
(Credit: CAL FIRE Amador-El Dorado Unit)

3.6.2 Fire Protection Agreements & Plans

Several local, state, and federal agreements are in place to assist in the efficient utilization of firefighting resources across jurisdictional and political boundaries. Many of these agreements can be found in Chapter 80 of the California Interagency Standards for Resource Mobilization, commonly referred to as the "California Mob Guide". More specific information regarding agreements can be found at https://www.fire.ca.gov/what-we-do/fire-protection/cooperative-efforts. Table 9 is a brief summary of important agreements pertaining to fire resource coordination in Western El Dorado County.

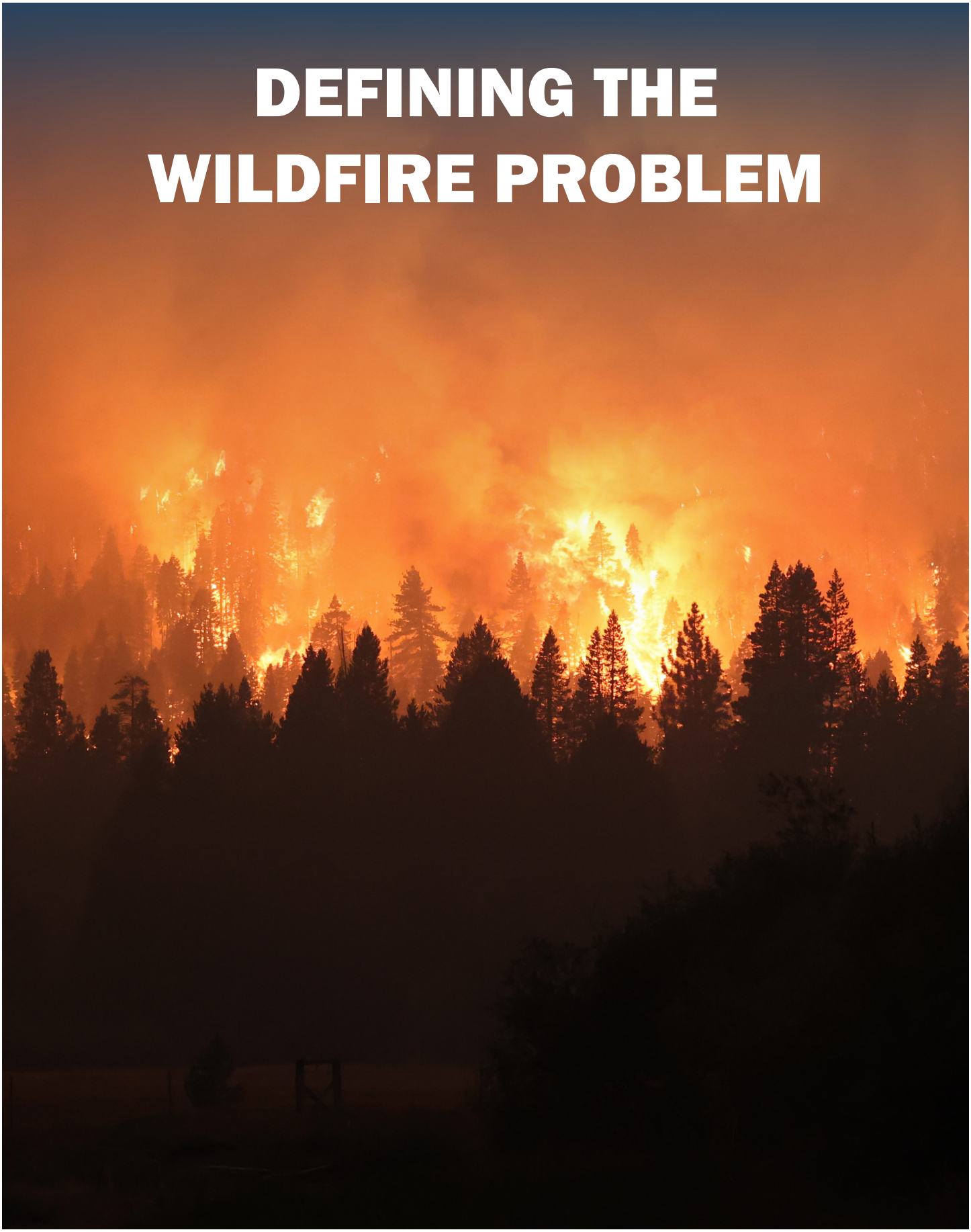
Table 9. Fire Protection Agreements and Plans

Agreement	Description
Interagency Facilities Agreements	
Camino Interagency Command Center (CICC)	This agreement combines the Eldorado National Forest, Lake Tahoe Basin Management Unit and CAL FIRE Amador-El Dorado Unit into one cooperating unit. CICC utilizes the closest resource concept when dispatching to assure that the nearest resources are sent to a reported wildland fire. Local government resources, when statused with CICC, are also dispatched through the command center.
Cooperative Fire Protection Agreements	
Cameron Park Cooperative Fire Protection Agreement	Through this agreement the Cameron Park Fire Department as part of the greater Cameron Park Community Service District provides full- service fire protection for the local community. The Department covers two stations on the West Slope and is considered part of AEU Battalion 5.
California Master Cooperative Wildland Fire Management and Stafford Act Response Agreement (CFMA)	This is an agreement between the five federal fire agencies and CAL FIRE for the purpose of facilitating the coordination and exchange of personnel, equipment, supplies, services, information, and funds between the signatories. Only wildland fires and presidentially declared non- wildland fire emergencies or disasters are covered under this agreement. LRA lands are not part of this agreement.
Master Mutual Aid Agreements	
California Master Mutual Aid Agreement	The California Disaster and Civil Defense Master Mutual Aid Agreement is an agreement between the state of California, its departments and agencies, and local governments. The agreement's purpose is to provide resources and services to help prevent and fight emergencies and disasters and includes three key features: • Shared Resources, which ensures efficient resource deployment, • Scope of Assistance, which defines the type and extent of aid, • Cost Reimbursement, detailing financial arrangements for post-emergency cost.

Agreement	Description
Fire Assistance Agreements	
California Fire Assistance Agreement (CFAA)	Under this agreement, the State of California (CAL FIRE and CAL OES) and the five federal fire agencies may request emergency apparatus and personnel from the California Fire and Rescue Mutual Aid System. The State of California and federal fire agencies use this agreement as the primary fiscal authority for reimbursing local government agencies for the use of their resources.
Fire Management Assistance Grant (FMAG)	Managed through the Federal Emergency Management Agency (FEMA), FMAG provides reimbursement to local government agencies for costs they may incur during a wildfire emergency. CAL OES will process FMAG requests for local government who must meet specific criteria to qualify for this cost reimbursement. As a rule of thumb, FMAG will cover 75% of local government cost incurred during a wildfire emergency.
Assistance by Hire	Where agreements do not exist to share firefighting resources, requests for additional suppression capabilities can be placed by field Incident Commanders through the unified ordering point of an incident. The equipment ordered under “assistance by hire” will be paid for by the requesting fire agency, or the cost of the equipment may be shared in an incident specific Cost Share Agreement between the jurisdictionally involved fire agencies.

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DEFINING THE WILDFIRE PROBLEM



4.0 DEFINING THE WILDFIRE PROBLEM

The nature of the wildfire problem is a product of natural and/or man-made ignition sources, vegetative fuels, topography, and weather. Understanding the wildfire problem requires an understanding of how these factors interact. Each year only a small fraction of wildfires becomes large enough to result in significant negative impacts. These low percentages can be attributed to a combination of favorable environmental conditions and availability of firefighting resources to effectively respond to fire incidents, especially during the incipient stages of fire development. However, this does not imply that large catastrophic fires are not possible. Wildfires have historically been a major part of the west slope's ecosystem and will continue to be.

To effectively develop a mitigation strategy to address the potential negative effects of a wildfire within the Planning Area requires an understanding of the fire history, fire ecology, climatology, and human interactions with these various facets.

4.1 Fire History

Fire history provides a useful tool for fire prevention and preparedness as it can provide an understanding of fire frequency, fire season, fire behavior and characteristics, major sources of ignition and portions of the landscape that are the most vulnerable.

4.1.1 Overview

Early fire history in the Planning Area is difficult to determine in part because of a limited number of trees available for fire-scar sampling as a result of early logging, range improvement, and firewood cutting operations. Prehistoric fires in the Sierra Nevada foothills are estimated to have burned in a variety of sizes, severities, intervals, and seasons.[8]

Prior to Euro-American settlement, Native Americans influenced the fire regime through land management practices such as purposefully ignited fires. Native Americans did this for a number of reasons- plant material used by most tribes of the Sierra Nevada for basket making came from shoots that are produced only after fire or pruning. Additionally, fires were ignited to reduce the loss of acorns to insects such as filbert worms and weevils. It is believed that many of the Native American-ignited fires spread extensively through the foothills of the Sierra Nevada.[9]



Figure 32. Historic Image of the Aftermath of the Georgetown Fire of 1869. Source: Placer County Museums.

Significant Euro-American settlement started in the late 1840s after the discovery of gold, which significantly modified the landscape of the Planning Area, introducing large numbers of livestock and non-native plants.

[8]Stephens, S. "Fire History of a Mixed Oak-Pine Forest in the Foothills of the Sierra Nevada, El Dorado County, California". USDA Forest Service Gen. Tech. Rep. PSW-GTR-160. 1997. Accessed at: https://www.fs.usda.gov/psw/publications/documents/psw_gtr160/psw_gtr160_04_stephens.pdf

[9]Stephens, S. "Fire History of a Mixed Oak-Pine Forest in the Foothills of the Sierra Nevada, El Dorado County, California". USDA Forest Service Gen. Tech. Rep. PSW-GTR-160. 1997. Accessed at: https://www.fs.usda.gov/psw/publications/documents/psw_gtr160/psw_gtr160_04_stephens.pdf

Burning was a common practice from 1900 to 1940, as ranchers burned woodlands to maintain forage production. Intervals between fires were typically between 8 and 15 years.[10]

Over the years, some of the major wildfires that have occurred in and around the Planning Area include the 2022 Mosquito Fire, 2021 Caldor Fire, 2014 King Fire, and the 1960 Volcano Fire. See Table 10 and Figure 33. The majority of the largest and most recent wildfires have occurred in the east/northeastern portion of the Planning Area (See Figure 35). The western portion of the planning area has experienced numerous smaller wildfires (See Figure 34 and Figure 35) at a cadence of about 8-9 fires every 10 years between 1900 and 2004. Note: The number of structures reported in Table 10 as "destroyed" were provided directly by the CAL FIRE dataset.

Table 10. Historical Wildfires Within and Adjacent to Western El Dorado County

Fire Name	Date	Fire Size (acres)	Structures Destroyed
Crozier	8/6/2024	1,938	0
Mosquito	9/7/2022	76,788	78
Caldor	8/15/2021	221,786	1,005
King	9/13/2014	97,684	80
Sand	7/25/2014	4,240	47
Cleveland	9/29/1992	22,518	41
Quarry	6/23/1976	20,869	Unknown
Kelsey Mill	9/2/1961	11,815	Unknown
Volcano	8/20/1960	42,596	Unknown
Unnamed	1960	11,212	Unknown
Ice House (USFS #8)	10/29/1959	19,099	Unknown
Unnamed	1954	14,710	Unknown

While the majority of ignitions occur in more populated areas (e.g., Placerville, Cameron Park), ignitions that have led to larger wildfires are concentrated near the South Fork American River, close to Pollock Pines. This can be seen in the "hot spot" or fire cluster map in Figure 34. Two different types of hot spot analyses were performed – "unweighted" which includes all ignition points, regardless of the size of the resulting fire, while the "weighted" identifies ignitions that resulted in large fires (i.e., 1,000 acres or more). Note: The confidence levels indicate how certain a location is a hot spot (e.g., 99% confidence is the highest for this calculation).

[10] *Stephens, S. "Fire History of a Mixed Oak-Pine Forest in the Foothills of the Sierra Nevada, El Dorado County, California". USDA Forest Service Gen. Tech. Rep. PSW-GTR-160. 1997. Accessed at: https://www.fs.usda.gov/psw/publications/documents/psw_gtr160/psw_gtr160_04_stephens.pdf*

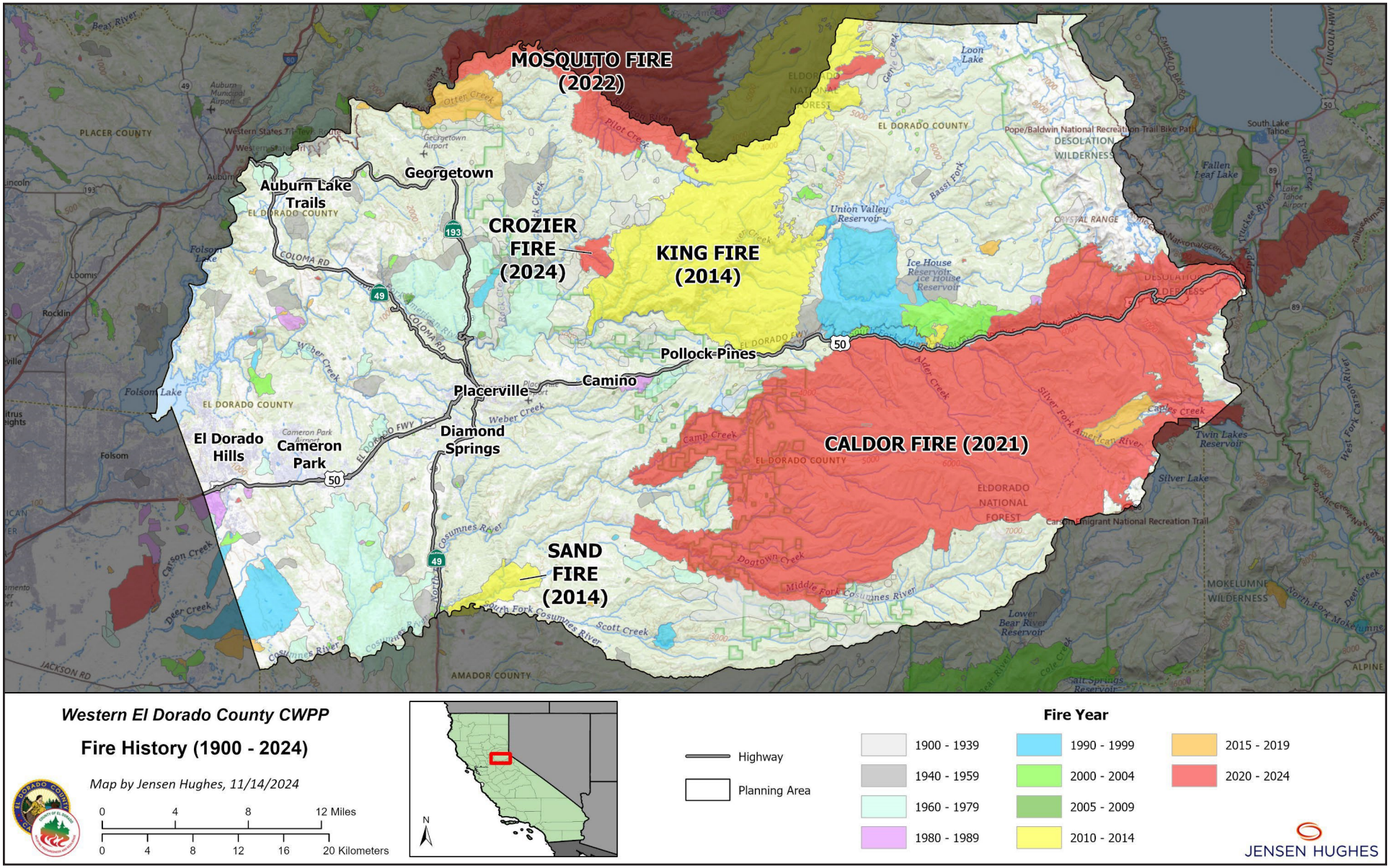


Figure 33. Fire History in El Dorado County

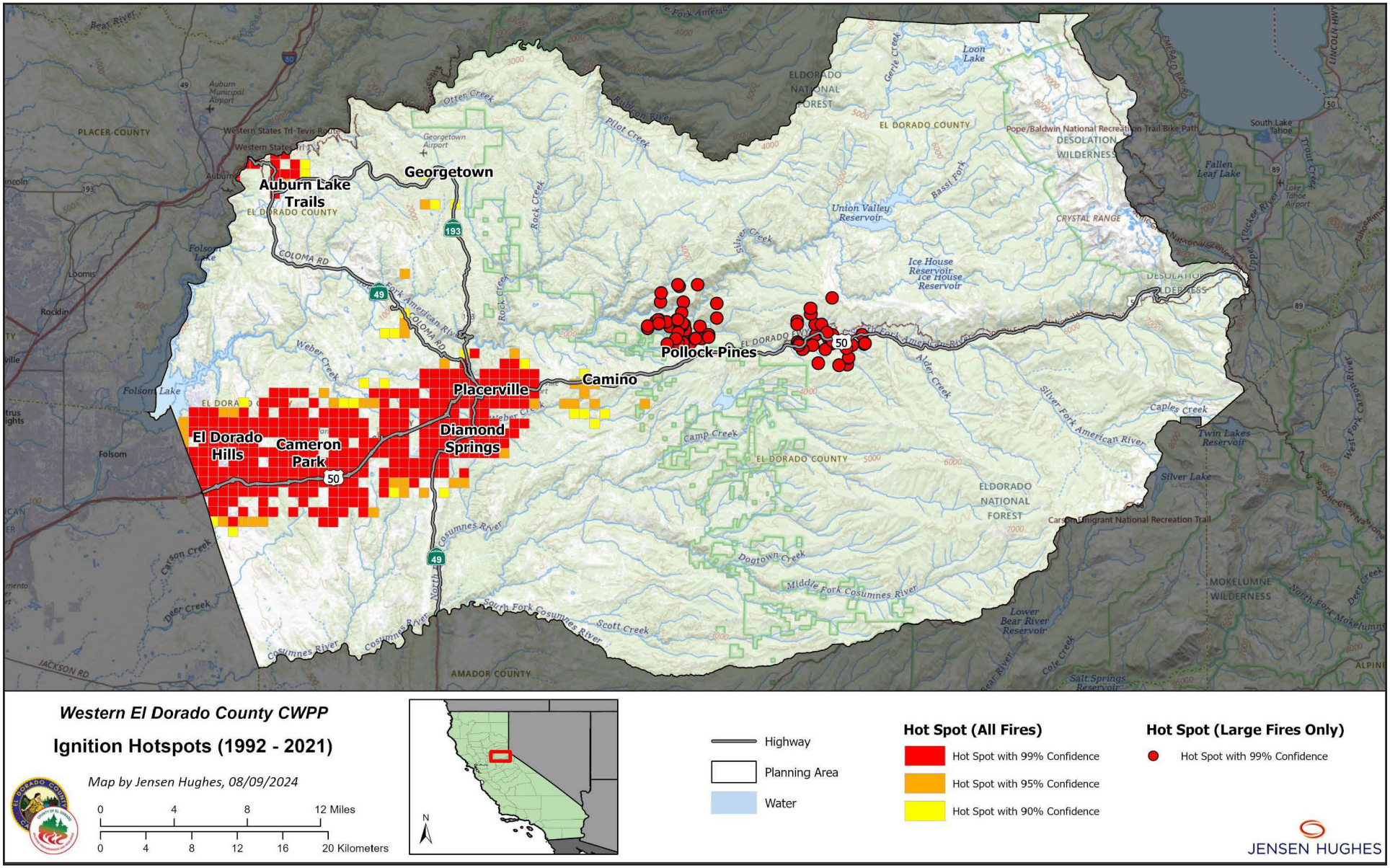


Figure 34. Ignition History "Hot Spot" in El Dorado County

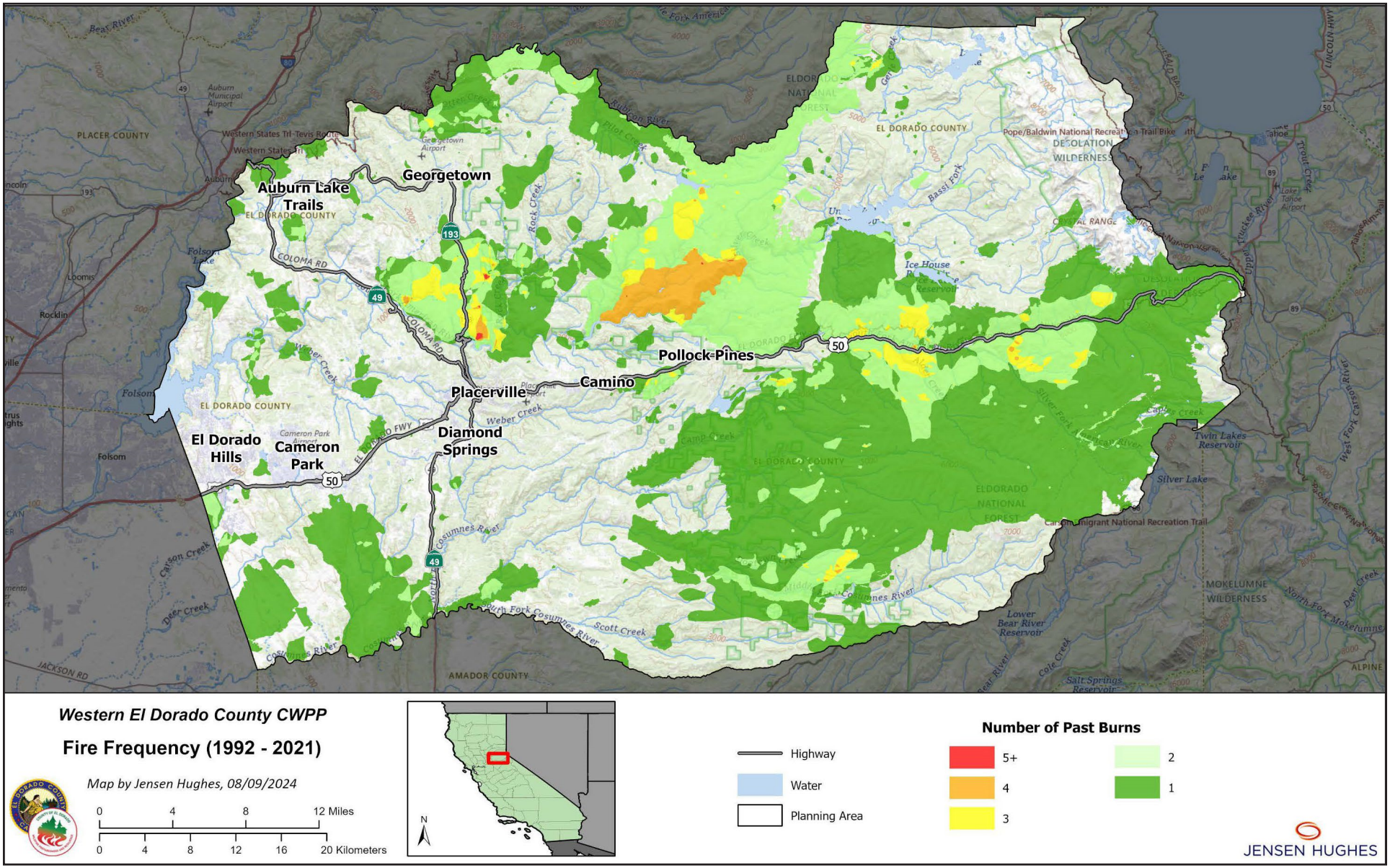


Figure 35. Historical Fire Frequency in El Dorado County

4.1.2 Caldor Fire

The 2021 Caldor Fire is the largest fire in recent history and resulted in catastrophic impacts to natural resources, watersheds and associated water services, homes and other structures in the built environment, air quality, local/regional economies and more. This major fire started south of the Grizzly Flats community and was deemed to have been started by a bullet on August 14, 2021, resulting in approximately 221,786 acres (346 sq mi) burned in largely remote areas of the Sierra Nevada, across three counties (El Dorado, Amador, and Alpine) and effectively leveling the community of Grizzly Flats. The fire was not fully contained until 67 days later. At the time of occurrence, the Caldor Fire was the third largest fire in state history.[11]

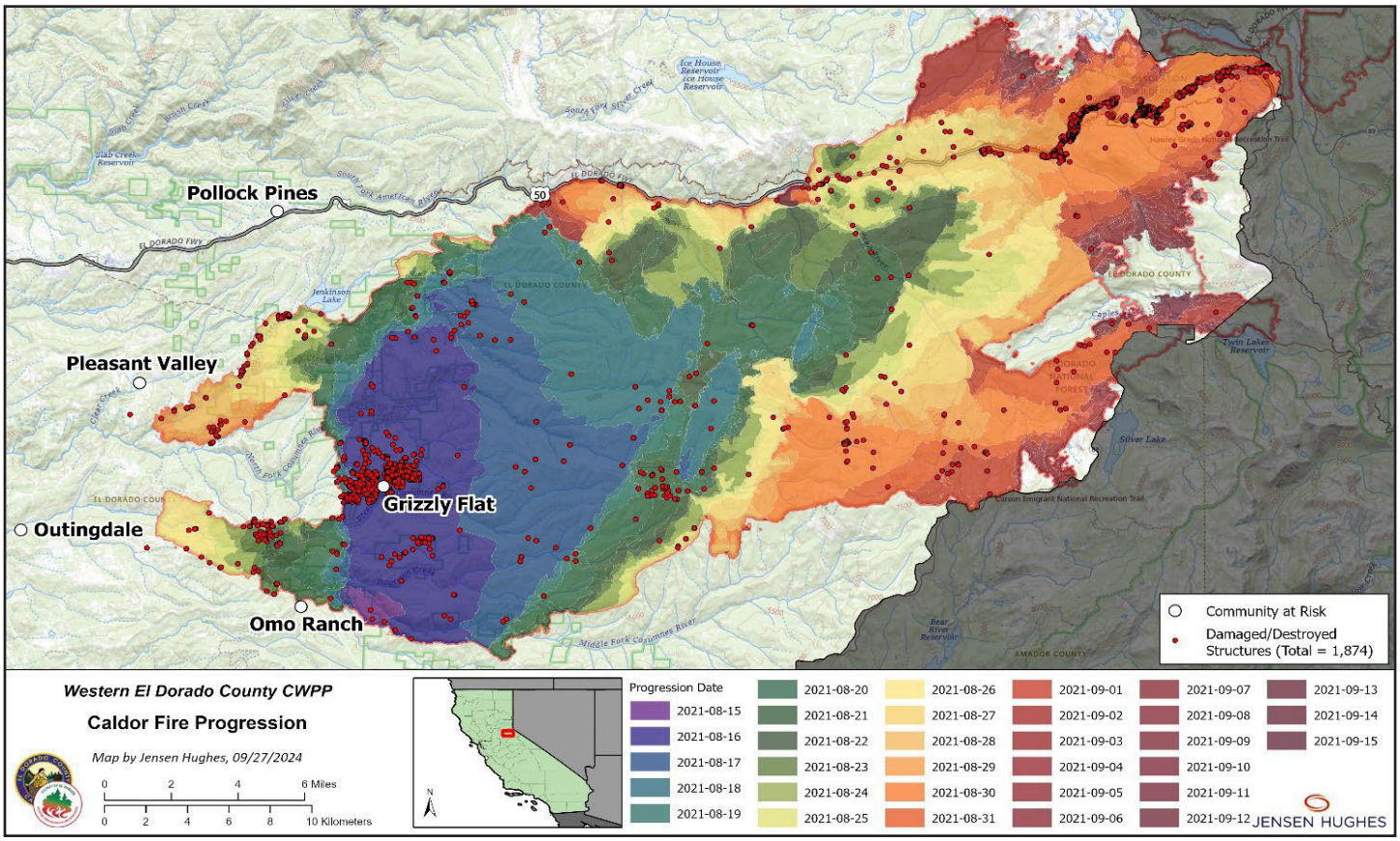


Figure 36. Caldor Fire Progression



Figure 37. Caldor Fire Night Flight (Credit: CAL FIRE Amador-El Dorado Unit)

[11] *https://www.kcra.com/article/caldor-fire-one-year-later/40874998*



Figure 38. Caldor Fire Destruction (Credit: CAL FIRE Amador-El Dorado Unit)

Detailed accounts indicate that the fire ignited near Little Mountain just before 7 pm on August 14, 2021. By August 16th, evacuation orders were issued to the community of Grizzly Flats, and by August 17th, most of the community had been decimated by the fire. A state of emergency was declared in El Dorado County as the area was under red flag conditions. The fire continued to burn, and by August 20th, there were concerns that the fire might cross Highway 50, which resulted in parts of the highway being closed. A day later, the fire jumped north of Highway 50 and threatened more communities. Firefighter crews were able to protect most structures in the town of Strawberry, however by August 30th, the fire jumped east of Highway 89 towards South Lake Tahoe. This forced over 50,000 people to evacuate, leading to major traffic delays. By September 2nd, the fire began to slow. By October 5th, all evacuation warnings and orders were lifted, and on October 21, the fire was deemed fully contained.[12]

4.1.3 Mosquito Fire



Figure 39. Mosquito Fire Seen from a Firefighting Helicopter Shortly After Ignition (Credit: USFS Tahoe National Forest)

The Mosquito Fire is another major fire that has impacted the Planning Area. Like the Caldor Fire, it had catastrophic impacts to natural resources, the built environment, local/regional economies and more. Named for the location where it was ignited, near Mosquito Ridge Road, the fire started around 6:30 pm on September 6, 2022, and by the time it was contained, had burned approximately 76,771 acres (120 sq mi) across Placer and El Dorado Counties. The Mosquito Fire impacted both the Tahoe and Eldorado National Forests, and the communities of Michigan Bluff and Foresthill in Placer County, and Volcanoville in El Dorado County. The fire was contained by October 22nd.

Detailed accounts indicated that the Mosquito Fire overall exhibited similar fire behavior as the 2014 King Fire, which burned in the same region.[13] The exact cause of the fire is still officially under investigation, however it is believed to be utility related.[14] Firefighting crews arrived shortly after the fire ignited and reported that the fire had already burned four to five acres of brush and timber.

[12] *https://www.kcra.com/article/caldor-fire-one-year-later/40874998*
[13] *https://web.archive.org/web/20221117072216/https://www.latimes.com/california/story/2022-09-14/mosquito-fire-northern-california- mckinney-fire*
[14] *https://yubanet.com/regional/pge-submits-electrical-incident-report-re-the-mosquito-fire/*

Firefighting efforts were hindered by the difficult terrain, which made it challenging for larger air tankers to drop water or fire retardant.[15] The fire continued to spread as winds turned gustier, resulting in the fire jumping the North Fork of the Middle Fork American River. The fire reached a size of 100 acres before midnight, resulting in evacuations for the community of Michigan Bluff.[16] As the fire continued to grow over the coming days, additional evacuations occurred for several communities such as Stumpy Meadows. Eventually, the fire was slowed by an early Pacific storm. By September 21, all evacuation orders were lifted, and the fire was declared 100% contained 46 days after its ignition.[17]

4.1.4 Sand Fire

The Sand Fire started on August 25th, 2014 and was active for 8 days, burning approximately 4,249 acres (6.6 sq mi) across Amador and El Dorado counties. The fire was ignited by a vehicle driving over dry vegetation and resulted in the destruction of 47 structures and 2 injuries. The fire was contained by September 2, 2014.[18]

Detailed accounts indicate that the fire grew very quickly after ignition. One day after ignition, the fire had grown to 1,300 acres and caused the evacuation of 1,200 people north of Plymouth. Firefighters had to deal with difficult terrain, as the fire burned in a rural area with steep drainages. Heavy smoke from the fire impacted much of Sacramento and air quality in the region.[19] The fire was eventually contained 8 days later.

4.1.5 King Fire

The King Fire was another major fire that impacted the Planning Area. The fire was ignited by an act of arson on September 13, 2014 along King of the Mountain Road in the community of Pollock Pines.[20] By the time the fire was contained, approximately 97,864 acres (153 sq mi) and 80 structures were destroyed.[21] The fire displaced a total of 2,830 people and was finally contained on October 9, 2014.[22]



Figure 40. King Fire near Pollock Pines, CA (Credit: CAL FIRE Amador-El Dorado Unit)

The fire had spread quickly after ignition, reaching 28,466 acres in size within the first 3 days of burning.[23] By September 17th, the fire had rapidly spread an additional 50,000 acres.[24] Due to the fire's threat to water and power infrastructure, a state of emergency was declared in El Dorado County. Firebrands and embers were reported to have created spot fires more than 3 miles downwind of the main fire.[25] Over time, the fire's spread was slowed and eventually contained 26 days later. At the time, the King Fire was the second largest wildfire of the 2014 season.

[15] *https://yubanet.com/uncategorized/mosquitofirepart1/*
[16] *https://yubanet.com/uncategorized/mosquitofirepart1/*
[17] *https://www.fire.ca.gov/incidents/2022/9/6/mosquito-fire/updates/dd73005f-8de2-49a3-9fa9-96082fbf5b87/*
[18] *https://www.fire.ca.gov/incidents/2014/7/25/sand-fire*
[19] *https://www.sacbee.com/news/california/fires/article2605008.html*
[20] *https://wildfiretoday.com/tag/king-fire/*
[21] *https://www.fire.ca.gov/incidents/2014/9/13/king-fire*
[22] *https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd566026.pdf*
[23] *https://web.archive.org/web/20150419023250/http://www.verticalmag.com/digital_issue/2015/shownews/files/48.html*
[24] *https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd566026.pdf*
[25] *https://www.washingtonpost.com/news/post-nation/wp/2014/09/19/massive-king-fire-in-california-continues-to-grow/*

4.2 Fire Ecology

The Planning Area is a diverse and complex landscape characterized by a 10,000-foot elevation gradient from the lowest to highest points and bisected by the South Fork American River. At the lowest elevations, north-south geologic fault lines along the western edge of the county create linear valleys and rolling hills dominated by grasslands, with the occasional oak tree. Fires at this elevation occur frequently along roads and anywhere humans utilize the land at higher densities. From 1,000 to approximately 3,000 feet in elevation, the grasslands transition to a foothill Mediterranean biome of oak savannas, with the gray pine (Pinus sabiniana) and four main species of oak dominating across this elevation band: blue oak (Quercus douglasii), valley oak (Q. lobata), canyon live oak (Q. chrysolepis), and interior live oak (Q. wislizeni). Numerous chapparal species and scrub oaks grow at this elevation band as well, with patches of chamise (Adenostoma fasciculatum), deer brush (Ceanothus spp.), and manzanita (Arctostaphylos spp.) dominating on more south-facing aspects where the soil and geology don't support trees. Prior to colonization, the biomes of the Sierra foothills were characterized by frequent low severity fires primarily set by the Miwok, Nisenan, and Washoe Indigenous people, who sought to promote certain beneficial plants and uses of the landscape. The native species thus evolved with regular fire and are relatively resilient to the flames. The native grasses are primarily perennials that go dormant during the dry season and will often regrow almost immediately after fire. Similarly, the oaks are resprouters that draw from belowground reserves to easily regenerate post-fire, even before receiving any rain.



Figure 41. Low Elevation Oak Savanna Grassland in El Dorado County

The oak savanna becomes mixed conifer forest between approximately 3,000 to 6,000 feet in elevation. Dominant tree species at this elevation are the conifers Ponderosa pine (Pinus ponderosa), sugar pine (P. lambertiana), Douglas fir (Pseudotsuga douglasii), white fir (Abies concolor), incense cedar (Calocedrus decurrens) deciduous black oak (Q. kelloggii) and valley oak (Q. lobata). Prior to the Gold Rush, this landscape experienced frequent fire (approximately 5–30-year fire return interval at this elevation) due to both Indigenous burning and abundant lightning ignitions.

The two pine trees and the black oak are highly adapted to regular fire, with thick bark and self-pruning of lower limbs
that reduce tree damage by fire. Black oaks further benefit when fire removes other trees, opening up the canopy and providing greater access to sunlight; the suppression of cultural burning and regular fire has contributed to the decline of black oak in the mixed conifer forest.



Figure 42. Sample Oak Savannas Found Between 1,000 to 3,000 ft Throughout El Dorado County. Source: Las Pilitas Nursery

By contrast, the fir and cedar trees are more vulnerable to fire and were historically a relatively small portion of the forest, with seedlings easily killed by regular fire. The extensive fir and cedar populating mid-elevation Sierra Nevada forests today is a symptom of fire suppression but also problematically contribute to increased fuel loading and more extreme fire behavior, such as was observed on the 2022 Mosquito Fire.



Figure 43. Sample Mixed Conifer Forest Found Between 3,000 to 6,000 ft Throughout El Dorado County. Source: California Outdoor Properties

Above the mixed conifer belt is the sub- alpine forest. This is an elevation dominated initially by white (A. concolor), red (A. magnifica), and Jeffrey pine (P. jeffreyi) that gives way to monocultures of lodgepole pine (P. contorta). At this elevation, summer thunderstorms have always produced a high frequency of lightning ignitions, and prior to colonization these ignitions produced frequent small fires that burned from a single tree to several acres over weeks to months of slow smoldering. In particularly dry years with a coinciding wind event, a larger fire might burn, but the mosaic of smaller burn scars and overall lower productivity at this elevation generally precluded large, high severity fires. The 2021 Caldor Fire, which ignited at mid-elevation, burned into the alpine zone over a week after initial ignition and exhibited uncharacteristic fire behavior compared to a pre-colonization subalpine fire, stemming from the high density of relatively even-aged trees. This extreme fire behavior contributed to challenges trying to contain the fire to the west slope of the county.



Figure 44. Sample Sub-Alpine Forest Found Throughout El Dorado County. Source: U.S. Forest Service

El Dorado County harbors a diverse climate that influences fire seasonality and behavior. Given the substantial elevation gradient of the County and the effects of orographic lifting of incoming storm systems over the western Sierra Nevada, there is a considerable gradient of temperature and precipitation. The County has a cool-to-cold and wet winter and a hot, dry summer, and it is sufficiently inland that there is no marine or coastal effect. The historical climatology and future projections for Placerville are provided in the Climate and Climate Change (Section 4.3). While west winds dominate the region most of the time, the area can and does infrequently experience autumn katabatic winds that produce incredible fire danger. The two major river canyons of the Middle Fork American and South Fork American Rivers run generally perpendicular to the Sierra Nevada crest and can align with east winds generated by an unusual but strong pressure gradient with high pressure in the Great Basin and low pressure offshore. The resulting downslope wind events have contributed to catastrophic fire behavior further north (e.g., the 2018 Camp Fire in Butte County) and along the coast to the west (e.g., in Sonoma and Napa counties), and contributed to extremely rapid spread of the 2004 Freds Fire near Kyburz.

As such, while the primary fire season in El Dorado County is centered on summer, infrequently fires can burn under extreme conditions into the autumn. At lower elevations, fires are possible as soon as the fine fuels cure and will easily spread until autumn rains end fire season. Pre-colonization indigenous burning likely occurred across all seasons. By contrast, the higher elevations are susceptible to fire primarily from July through September when soil moistures are low enough for ground fuels to carry fire, and occasionally an autumn fire will burn when an ignition holds over into October and a downslope, east wind event occurs.

Throughout the County, the legacy of Gold Rush-era mining, extensive logging of the largest trees, and fire suppression has fundamentally altered the composition of the forests and woodlands, substantially increasing fuel loads, with up to ten times the tree density that was present pre-colonization. Changing climate has further exacerbated the fuel loading through recent multi-year, intense droughts (such as the 2012- 2017 drought) that killed millions of trees across the Sierra Nevada, adding to the amount of woody fuel available to burn.

The legacy of Gold Rush-era mining, extensive logging of the largest trees, and fire suppression has fundamentally altered the composition of the forests and woodlands, substantially increasing fuel loads, with up to 10x the tree density during pre-colonization

As such, a key facet of managing the fire ecology of this region is using prescribed fire and active forest management to both reduce the excess fuel load and restore a natural process to the forests. Despite recent increases in area burned and large, high-severity fires (e.g., 2014 King Fire), there is substantial scientific evidence supporting the need to continue expanding low-intensity prescribed fire use to restore natural forest resilience and reduce risk of future catastrophic wildfires (Prichard et al., 2021; Arkle et al., 2012; Fernandes & Botelho, 2003). This is most pronounced in the mid-latitude mixed conifer forest, but also applies to the lower elevation oak savanna, which is predominantly private lands. Thus, fuel treatments that include mechanical fuel reduction and grazing with regular prescribed fire are scientifically supported for ecological restoration for most of the county at broad scales.

4.2.1 Vegetation & Fuels



Vegetation is the primary fuel source for wildfires and, along with weather, is a key factor in determining the risk of wildfire hazards. However, in the case of El Dorado County, both wildland vegetation and urban fuels present a hazard. Urban sources of fuel such as combustible structures (e.g., homes, businesses, industrial facilities, outbuildings), combustible non-structural features (e.g., decks, fences, ornamental landscaping), vehicles, fuel tanks, etc., can contribute to the fire environment and significantly influence the fire behavior and overall hazards in the Planning Area. Locally, the abundance of non-native trees and shrubs used as landscaping vegetation and screening has a negative effect on the overall wildland fire environment. Thus, the potential risk of a large- scale, destructive wildland fire can be linked to the proximate vegetation and associated characteristics.



Figure 45. Wood Siding Home Surrounded by Vegetation in Placerville, CA.

Table 11 provides a summary of the vegetation types and percentages that occur within the County, while Figure 46 shows their spatial distribution. The County consists of a range of timbered forest, shrublands and grasslands, with a relatively large percentage of barren land (i.e., exposed granite across the higher elevation Sierra). The vegetative types in the higher elevation eastern regions primarily consist of conifer forest and barren land. The middle elevation regions consist primarily of hardwood (oak) and mixed conifer/hardwood forest, especially in the mountain valleys. The western (lower elevation) portion of the County consists mainly of shrubland, grassland, herbaceous land, hardwood forest, and a minor amount of urban land. The conifer forests contain approximately 60% more area than that of the hardwood forests (47.3% to 29.4%, respectively) and are mostly concentrated in the eastern mountains, generally above the hardwood forests. Barren land is found mainly in the north and east at high elevations, consisting of rocky or snow-covered areas (2.6% of the total area). By area, 3.2% of the Planning Area is mixed conifer/hardwood forest, primarily in the middle elevation areas and near the edges of the WUI zones. Shrubs, grassland, and herbaceous land combine to 15.0% of the vegetation. Human development, including agriculture, makes up 4.3% of the total area and is centered around El Dorado Hills, Placerville, US-50, and SR-49.

Table 11. Existing Vegetation Types in the West Slope of the County

Vegetation Type	Acres	Percent of County
Alpine-Dwarf Shrub	123	< 0.1%
Annual Grassland	72,718	7.2%
Aspen	37	< 0.1%
Barren	26,072	2.6%
Blue Oak-Foothill Pine	64,153	6.4%
Blue Oak Woodland	46,109	4.6%
Chamise-Redshank Chaparral	445	< 0.1%
Closed-Cone Pine-Cypress	376	< 0.1%
Cropland	3,216	0.3%
Deciduous Orchard	666	0.1%
Douglas Fir	6,746	0.7%
Eucalyptus	9	< 0.1%
Evergreen Orchard	210	< 0.1%
Fresh Emergent Wetland	1,532	0.2%
Irrigated Hayfield	297	< 0.1%
Irrigated Row and Field Crops	119	< 0.1%
Jeffrey Pine	554	0.1%

Vegetation Type	Acres	Percent of County
Juniper	1,547	0.2%
Lacustrine	13,174	1.3%
Lodgepole Pine	17,140	1.7%
Mixed Chaparral	31,025	3.1%
Montane Chaparral	23,040	2.3%
Montane Hardwood	175,435	17.5%
Montane Hardwood-Conifer	31,773	3.2%
Montane Riparian	784	0.1%
Pasture	257	< 0.1%
Perennial Grassland	19,870	2.0%
Ponderosa Pine	120,450	12.0%
Red Fir	23,100	2.3%
Riverine	1,197	0.1%
Sierran Mixed Conifer	250,573	25.0%
Subalpine Conifer	5,788	0.6%
Urban	36,855	3.7%
Valley Foothill Riparian	4,845	0.5%
Valley Oak Woodland	3,762	0.4%
Vineyard	1,337	0.1%
Wet Meadow	1,031	0.1%
White Fir	16,710	1.7%
Total	***1,003,074***	***100%***

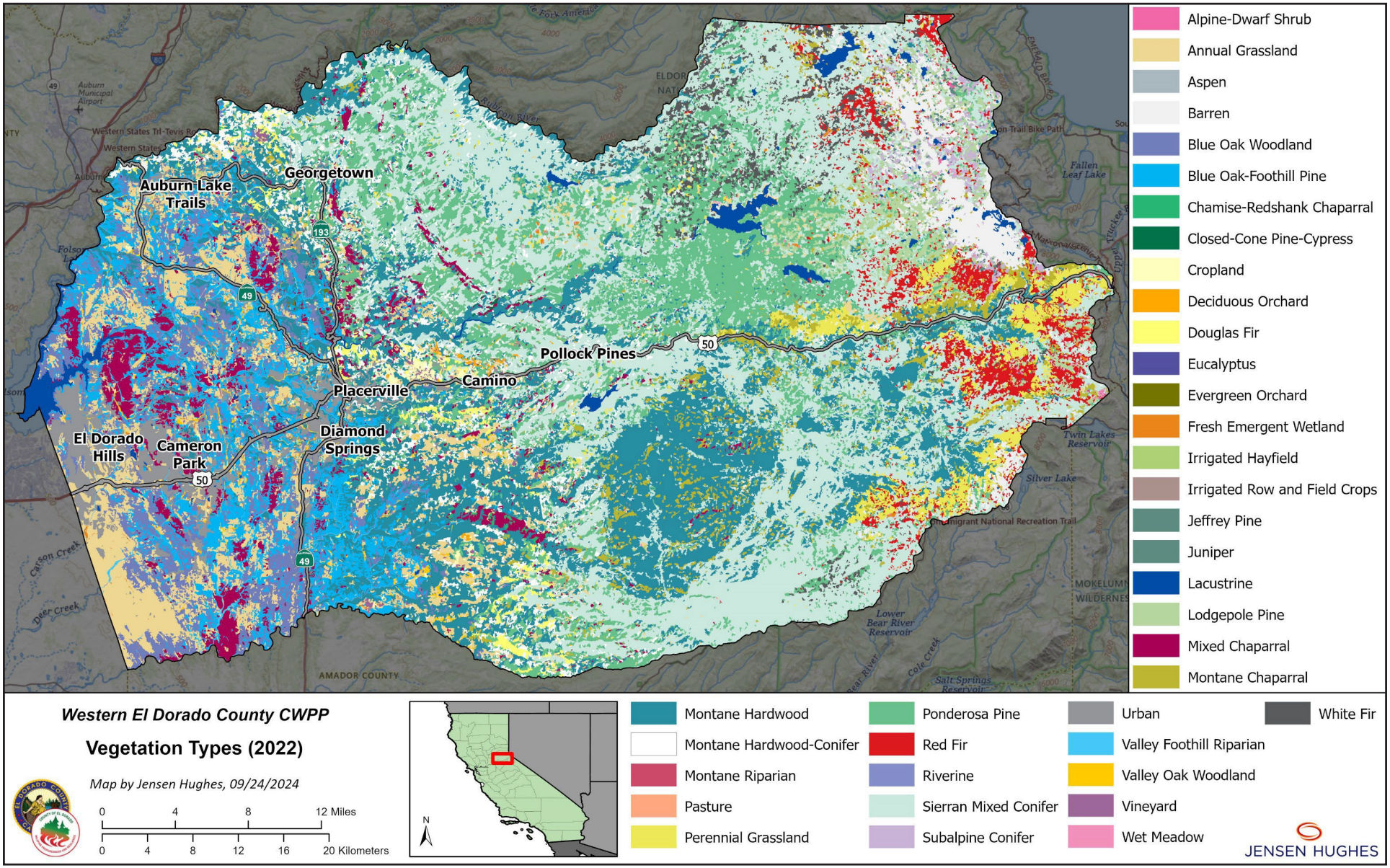


Figure 46. Vegetation across and outside the Planning Areas (Source: California Wildlife Habitation Scheme)

4.3 Climate & Changing Climate

The Planning Area is primarily characterized as a Mediterranean climate, but the higher elevations of El Dorado County are too cold to be considered Mediterranean and are instead characterized as a sub-alpine climate. As the focus of this CWPP is on wildfire risk in communities in the lower and mid-altitudes, Placerville was selected as the focal point for the climatological analysis given its status as the county seat, central location, extreme wildfire risk, and mid-elevation of the community within the county. Placerville sees an average of 39.4" of annual precipitation falling primarily in the winter and early spring (Figure 47). The elevational gradient is clear when comparing Placerville (1,867 feet elevation) to Kyburz (4,058 feet elevation), which receives over a foot more precipitation each year with an average of 53.4" (Figure 48). The lowest elevations of the Planning Area have no recorded snowfall in the observed record, while the upper elevations routinely receive over 20 feet of snow annually, with at least 10 feet of snowfall even during drought years. For Placerville, the average daily high temperature during summer (93 °F) versus the average winter low (36 °F) represents a relatively moderate range of mean temperatures of approximately 57 °F. Placerville is occasionally subject to extreme temperatures, however, with recorded historical maximum temperatures of over 100 °F from May into early October. This supports a moderate climate that occasionally sees extreme temperature and extreme rain and snowfall events. At higher elevation, the range is much greater due to the extremely cold winter low temperatures, while lower elevations experience even more moderate season fluctuations in temperature.

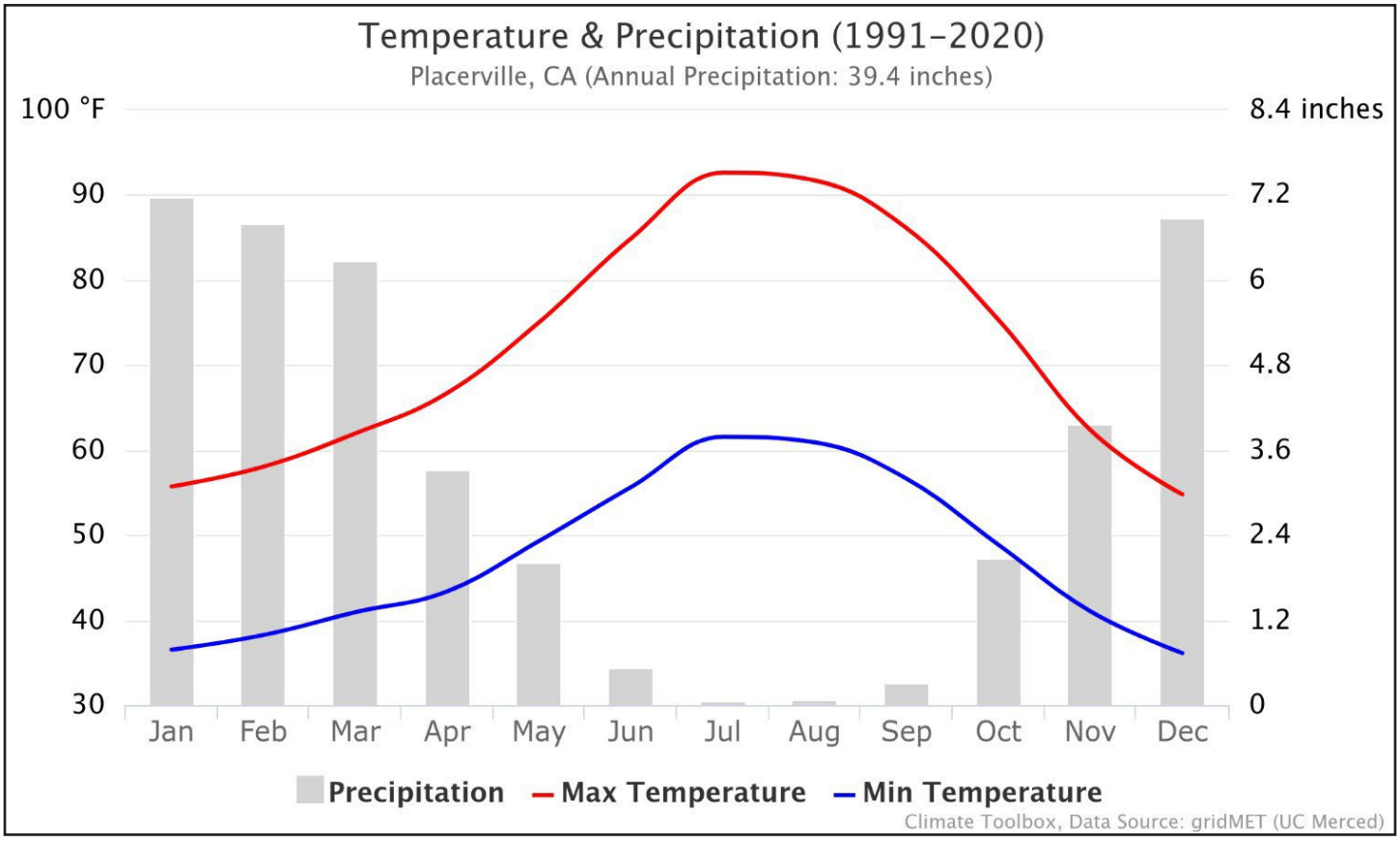


Figure 47. Annual mean climatology over the 1991 – 2020 reporting period for Placerville (1,867 ft Elevation).

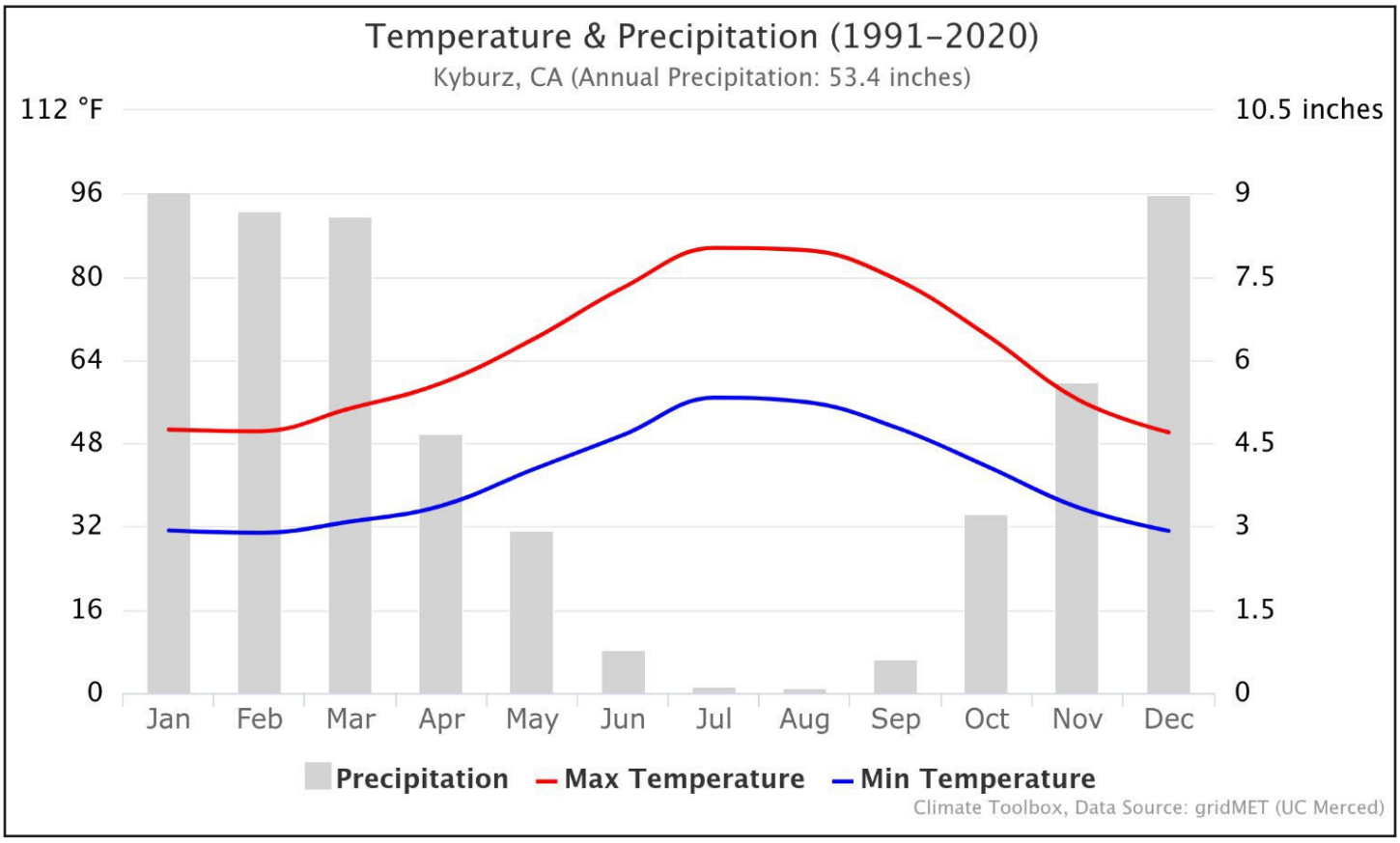


Figure 48. Annual mean climatology over the 1991 – 2020 reporting period for Kyburz (4,038 ft Elevation).

While global climate change is often reported as an average rise in temperature (i.e., warming) for the entire planet, the observed changes are highly variable across the globe and even within states, such as California. Changes in temperature, precipitation, and other meteorological phenomena are also variable both across the seasons of the year, and in terms of the intensity of extreme events. As wildfire tends to occur under extreme conditions in the Planning Area, namely extreme heat events concurrent with abnormally dry fuels, it is critical to understand how climate change specifically impacts both the frequency and intensity of these extreme weather events, as well as how it affects the vegetation fueling the fire.

Placerville has warmed 3.9° F overall in the last 100 years (Figure 49). While temperatures are highly variable from year-to-year, five of the ten hottest years on record for Placerville since 1895 have occurred in the last decade. Peak fire season months (July-September) are much hotter than historically, especially at night (Figure 50), with an average increase in nighttime low temperatures of almost 7 degrees F. These trends are consistent with reduced nighttime relative humidity recovery, where it remains dry at night rather than becoming more humid and support anecdotal observations from fire suppression personnel that fires are more active at night now than they have been in the past. Reduced nighttime humidity recovery across spring, summer, and fall seasons is a contributing factor to an observed trend towards increased fire danger, specifically because fuel aridity is higher and fuels are less resistant to fire spread (Abatzoglou and Williams 2016, Goss et al. 2020).

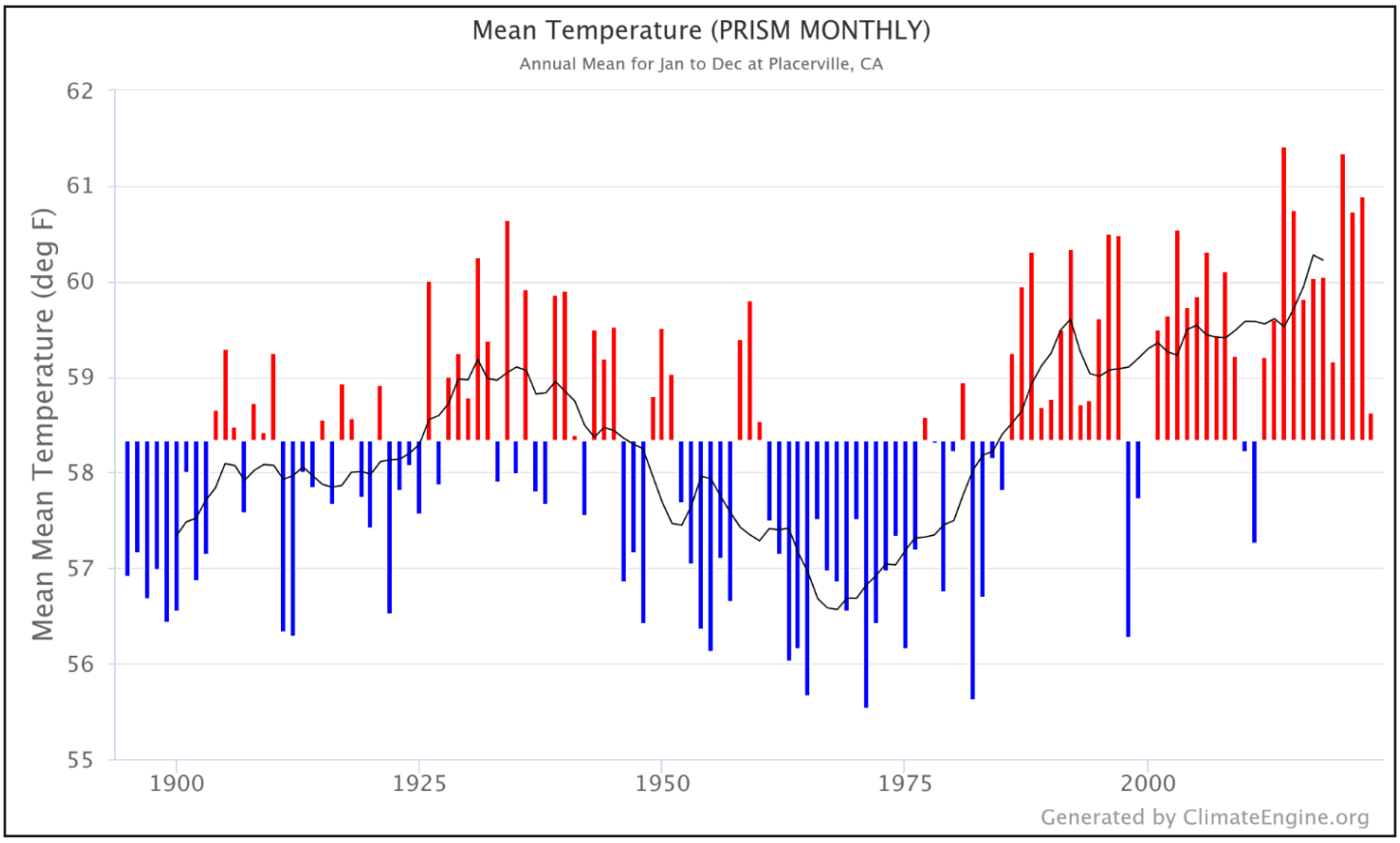


Figure 49. Mean (average) annual mean daily temperature for the Planning Area from 1895 – 2023 for the entire year (Jan-Dec), showing departure from the long-term average of 58 F.

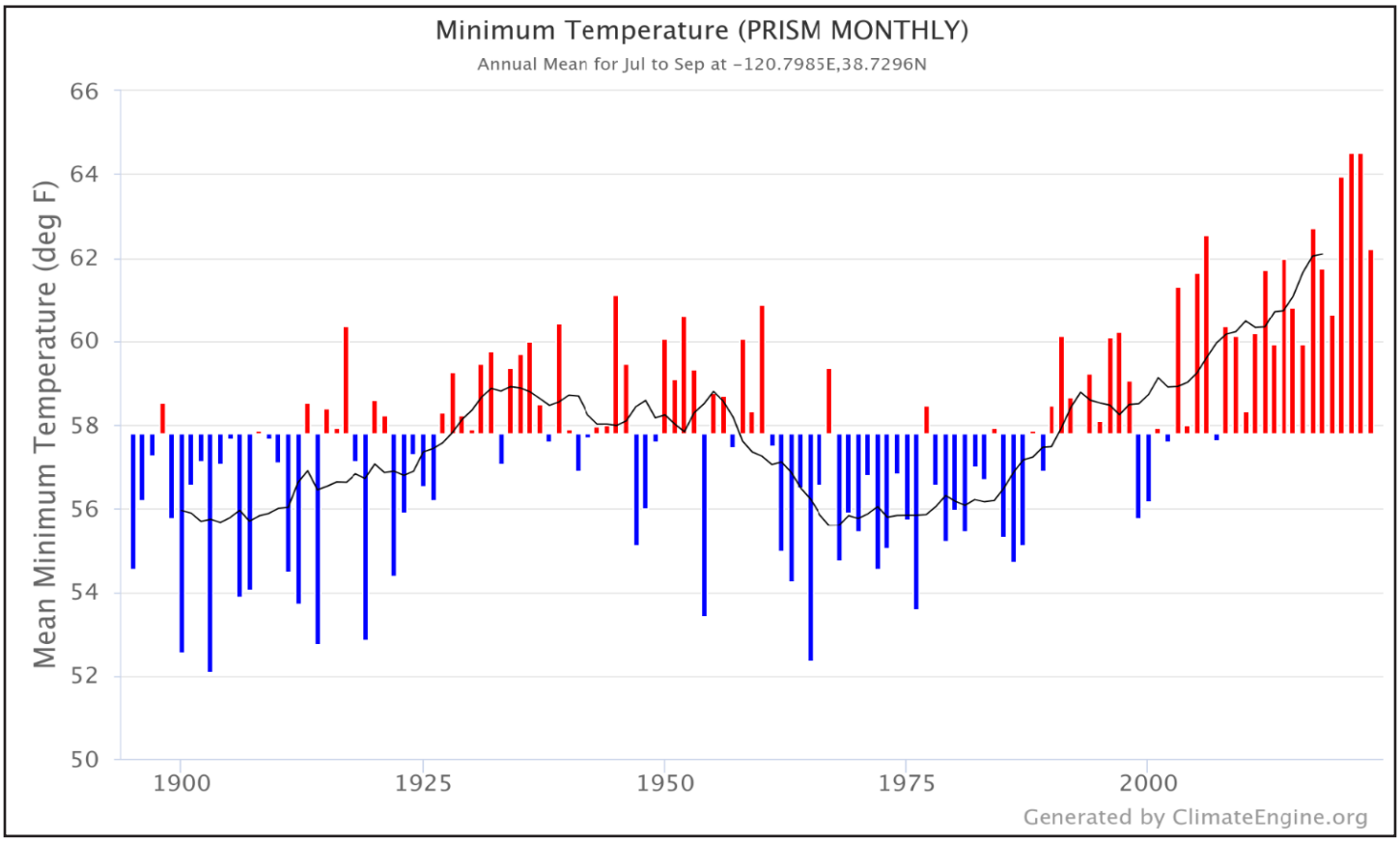


Figure 50. Peak fire season (July-August-September) average minimum daily temperature (overnight lows) for the Planning Area from 1895 – 2023 (the black line is an 11-year moving average) showing departure from the long-term average of 58 F and an increase of almost 7 F over the last century.

In contrast to a clear warming trend, annual precipitation in the planning area has not changed significantly over the past century (Figure 51). Notably, however, precipitation has declined approximately 37% in the last four decades in Autumn (Figure 52). Overall, the rising temperatures and the declining autumn precipitation have altered fire potential in the Planning Area, as indicated in trends of Fire Danger indices. Notably the peak fire season (July-August-September) maximum Energy Release Component (ERC; Figure 53) has increased over 20 percent since 1980. ERC is a good proxy for fire intensity and is utilized by fire management agencies to identify days when the most extreme fire behavior, such as blow ups and the formation of pyrocumulonimbus clouds can occur. Such fire behavior defies suppression and is often associated with loss of structures and fatalities. This trend is consistent with increasing disastrous fire days over the last four decades, when fires make large runs, consume homes, and are nearly impossible to control.

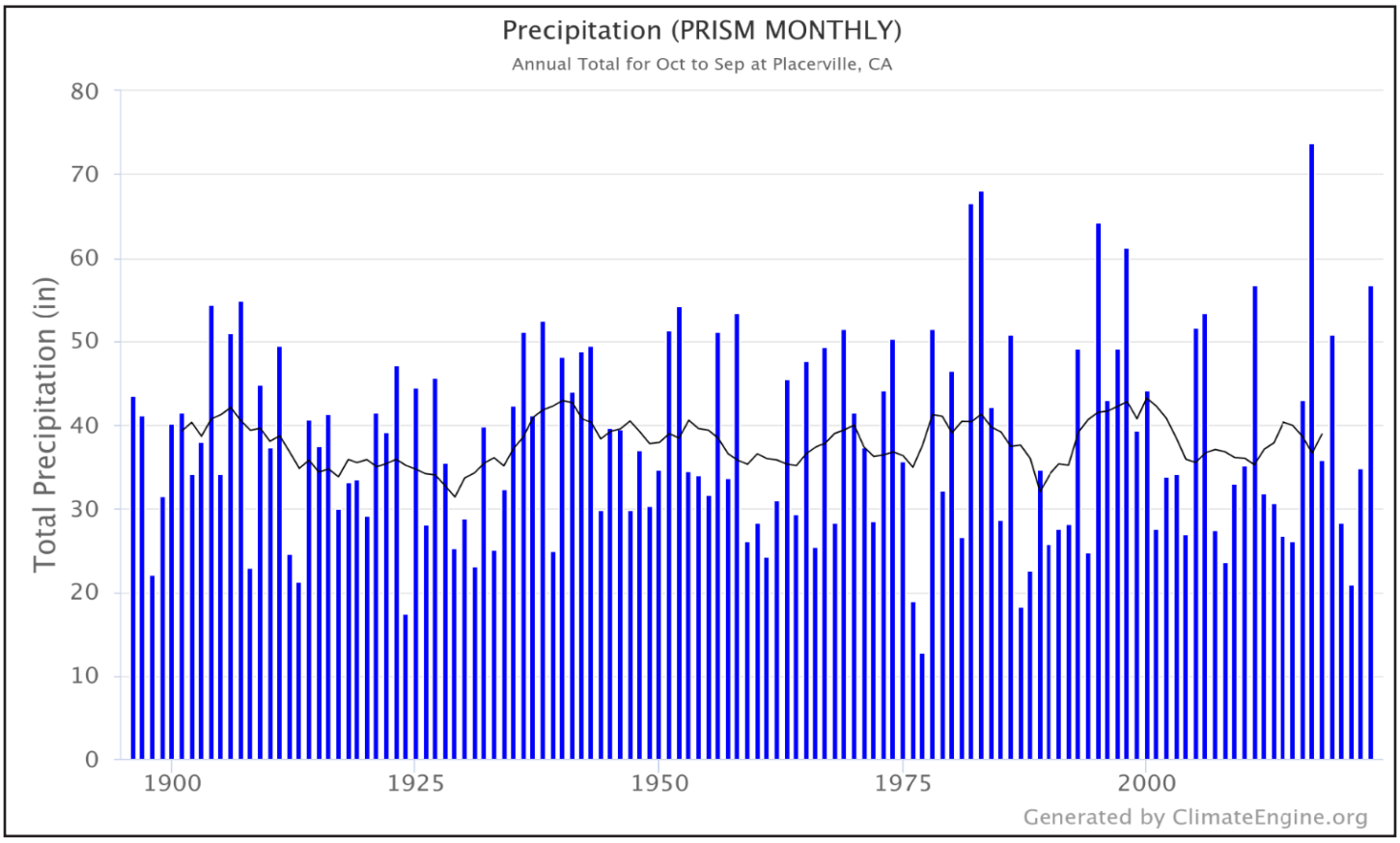


Figure 51. Mean annual water year (Oct. – Sept.) total precipitation for the Planning Area from 1895 – Present. The black line represents an 11-year moving average.

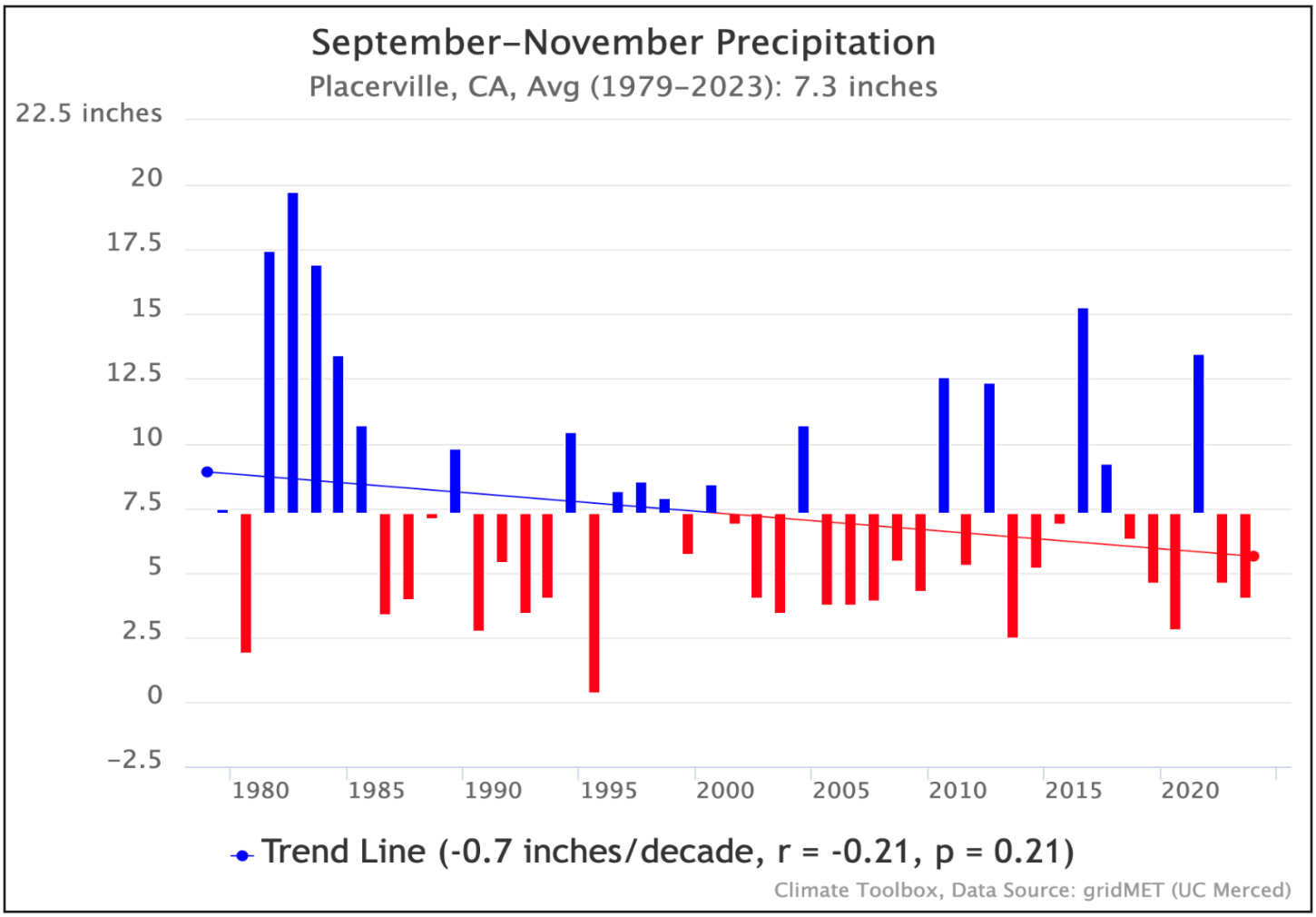


Figure 52. Decline in autumn precipitation from 1979 – 2023. While this decline is primarily driven by a several consecutive wet autumns in the early 1980s, it is striking that no such multi-year wet autumn period has been observed since.

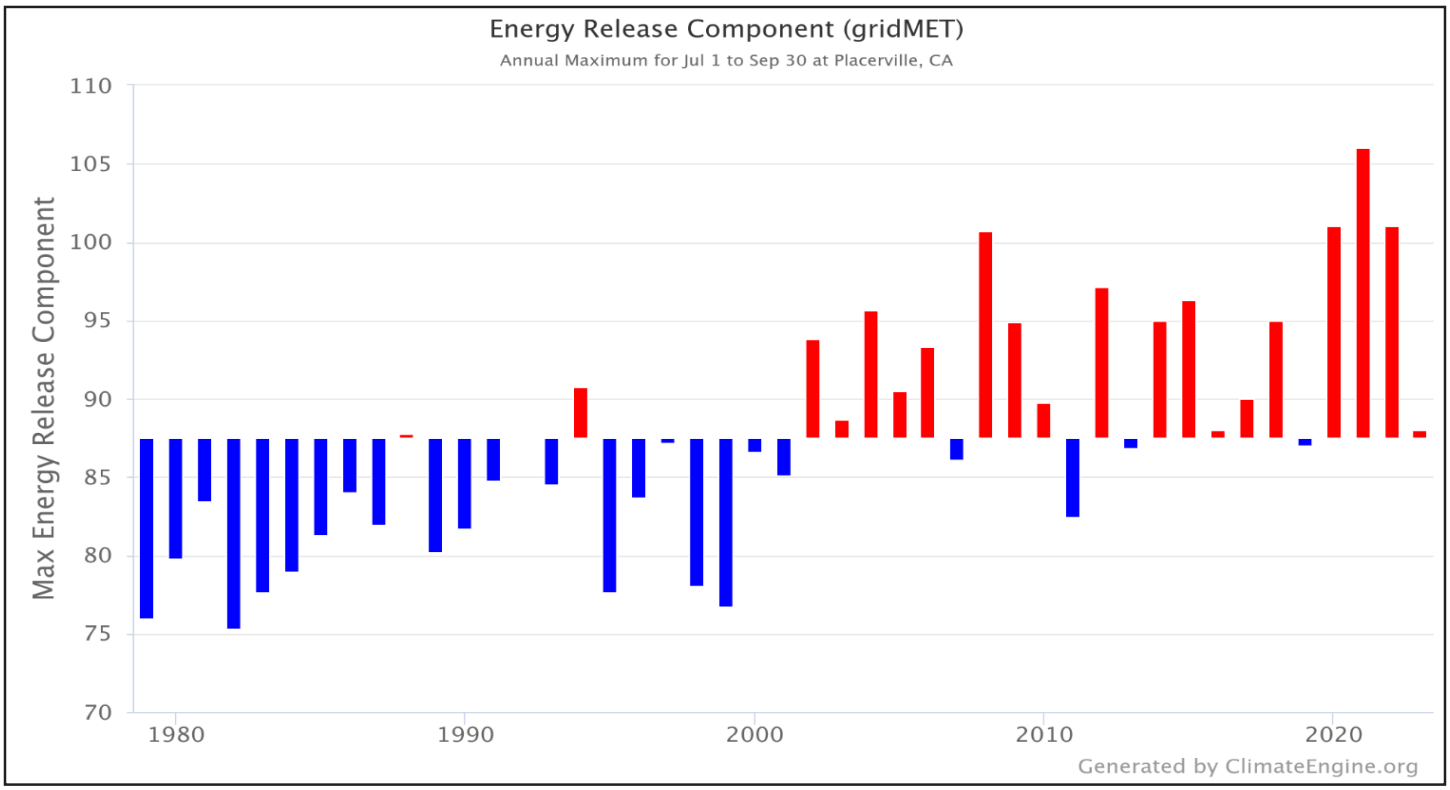


Figure 53. Peak fire season (July – September) daily maximum energy release component (ERC) for Placerville shows the increase in extreme fire danger days from 1980 – 2023. ERC is considered a proxy for fire intensity, with higher daily max ERC facilitating extreme fire behavior such as blow ups and pyrocumulonimbus formation.

Projections of future climate change are modeled based on anthropogenic (i.e., human) emissions of greenhouse gases, but also account for natural climate variability. Increases in fire activity across the western United States have been definitively partially attributed to anthropogenic climate change (Abatzoglou and Williams 2016), so there is high confidence that projections of future climate will have implications for fire. These trends aren't just part of Earth's natural climate variability.

In Placerville, as representative of the Planning Area, warming is projected not only to continue but to accelerate. **For daily high temperatures, the most extreme fire behavior days, there is a projected increase of an additional 8° F in summer and 9° F in autumn by 2100** (Figure 54 and Figure 55), although this is a conservative projection – the most extreme heat waves are likely to produce even hotter days. Nighttime low temperatures are similarly projected to increase (Figure 56), making it more difficult to apply effective suppression tactics at night due to more active fire behavior. In contrast to the high relative certainty that temperatures will continue to increase, precipitation trends are relatively difficult to predict into the future, and projections of precipitation show no trend. What is certain about future precipitation is that extreme precipitation events with high rates of rainfall will become more frequent, even if precipitation ultimately declines. The projected temperature increases, especially the increasing nighttime lows, reduced relative humidity, and the increasing frequency of extreme events, such as heatwaves and droughts, drive a substantial increase in the number of days per year where there is Extreme Fire Danger (Figure 57 and Figure 58). Although global climate models vary widely, they generally agree on an increase in the number of days of Extreme Fire Danger compared to the historic period, with the most extreme models projecting a doubling of Extreme Fire Danger days. **It is worth noting that historically most climate model projections have turned out to be fairly conservative and underestimated what has actually happened.**

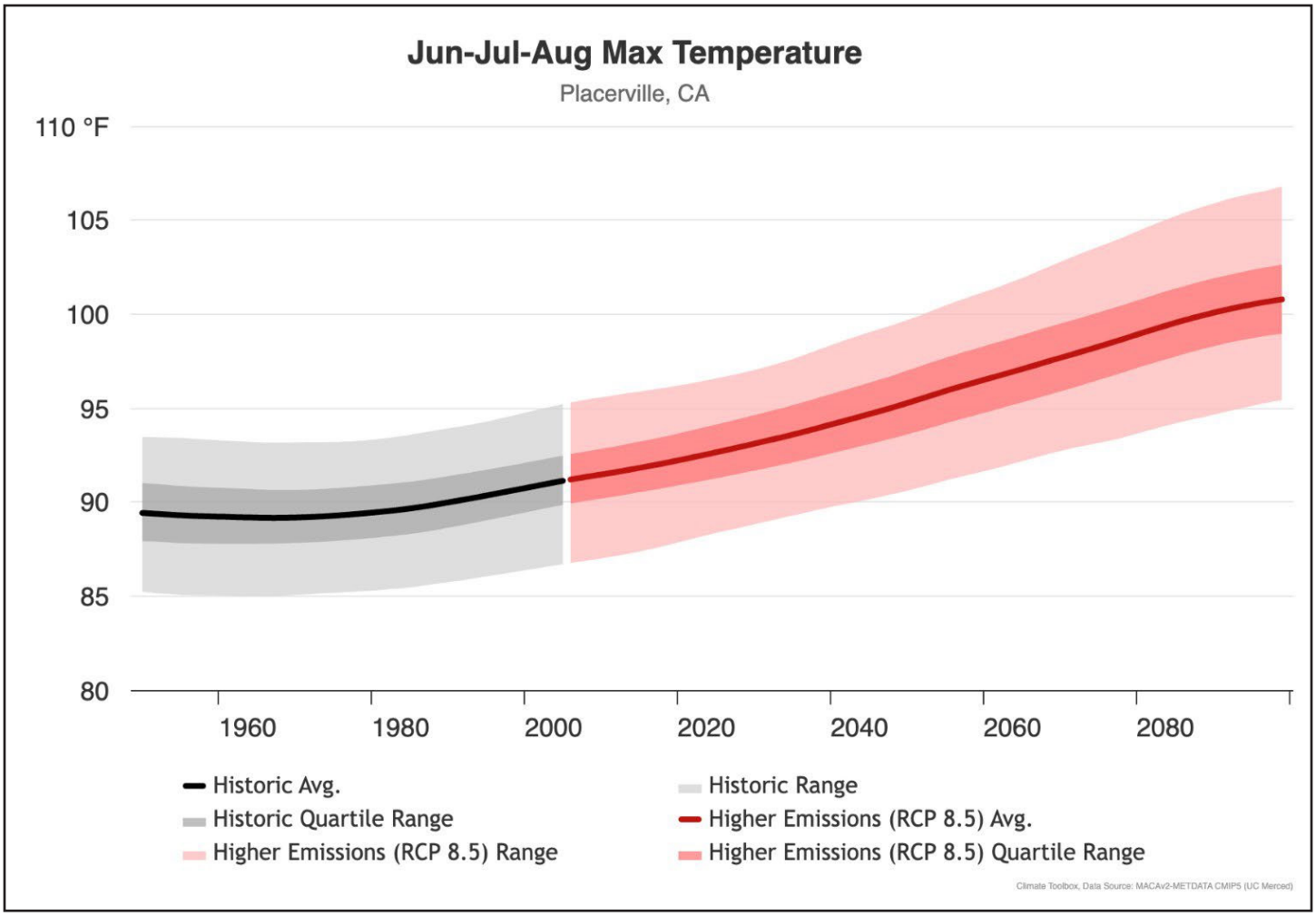


Figure 54. Increasing trends in average daily high summer (Jun-Jul-Aug) temperature for Placerville as representative of the Planning Area from 1950 – 2006 (in gray) and projected into the future to 2100 (pink). The projected increase in maximum daily temperature is approximately 10 degrees F hotter than historical conditions, meaning that the highest temperatures, usually occurring during heat waves, may be 10 degrees F higher than the historical hottest temperatures by the end of the century.

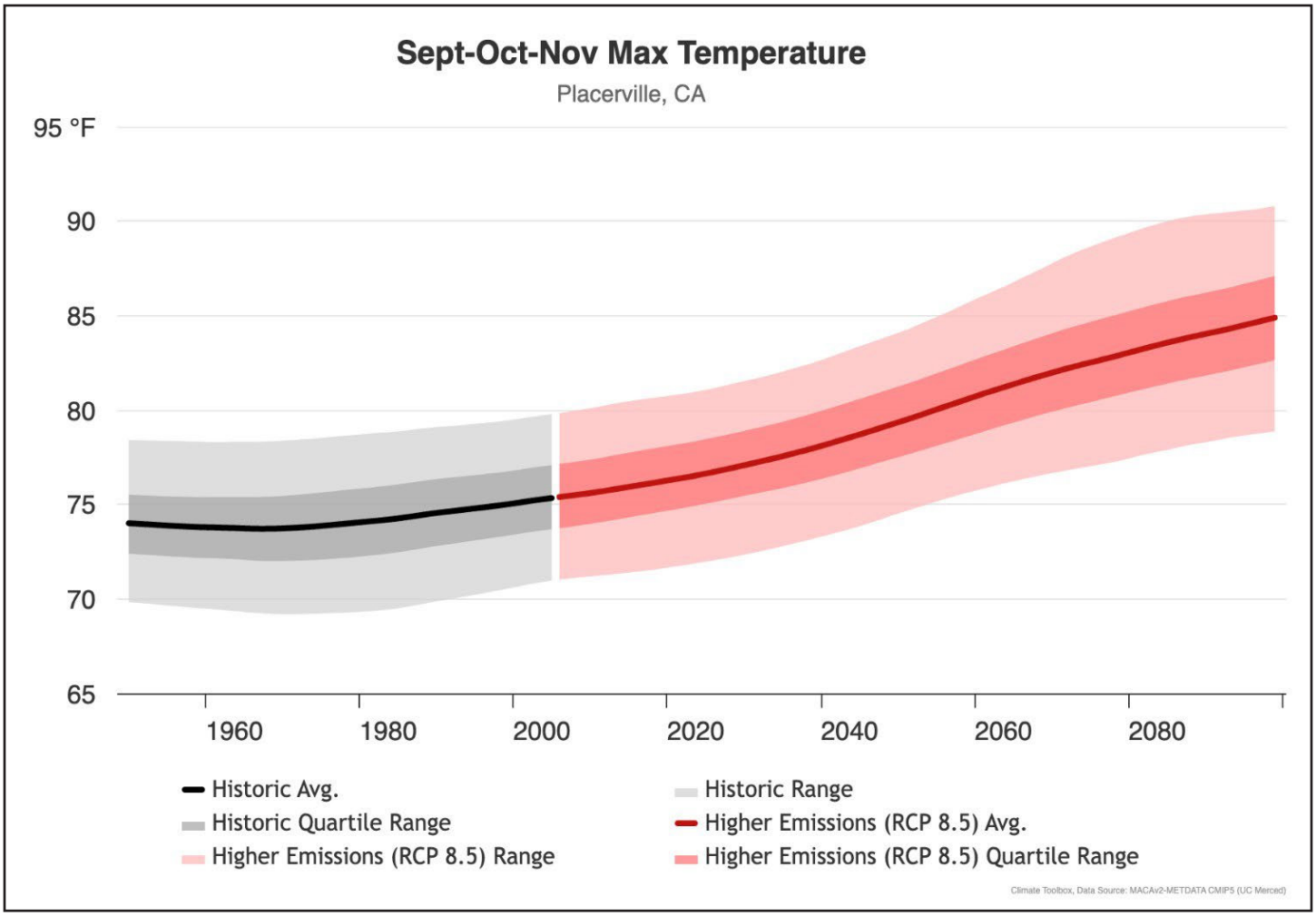


Figure 55. Increasing trends in average daily high autumn (Sept-Oct-Nov) temperature for Placerville as representative of the Planning Area from 1950 – 2006 (in gray) and projected into the future to 2100 (pink). The projected increase in maximum daily temperature is approximately 10 degrees F hotter than historical conditions, meaning that the highest temperatures, usually occurring during heat waves, may be 10 degrees F higher than the historical hottest temperatures by the end of the century.

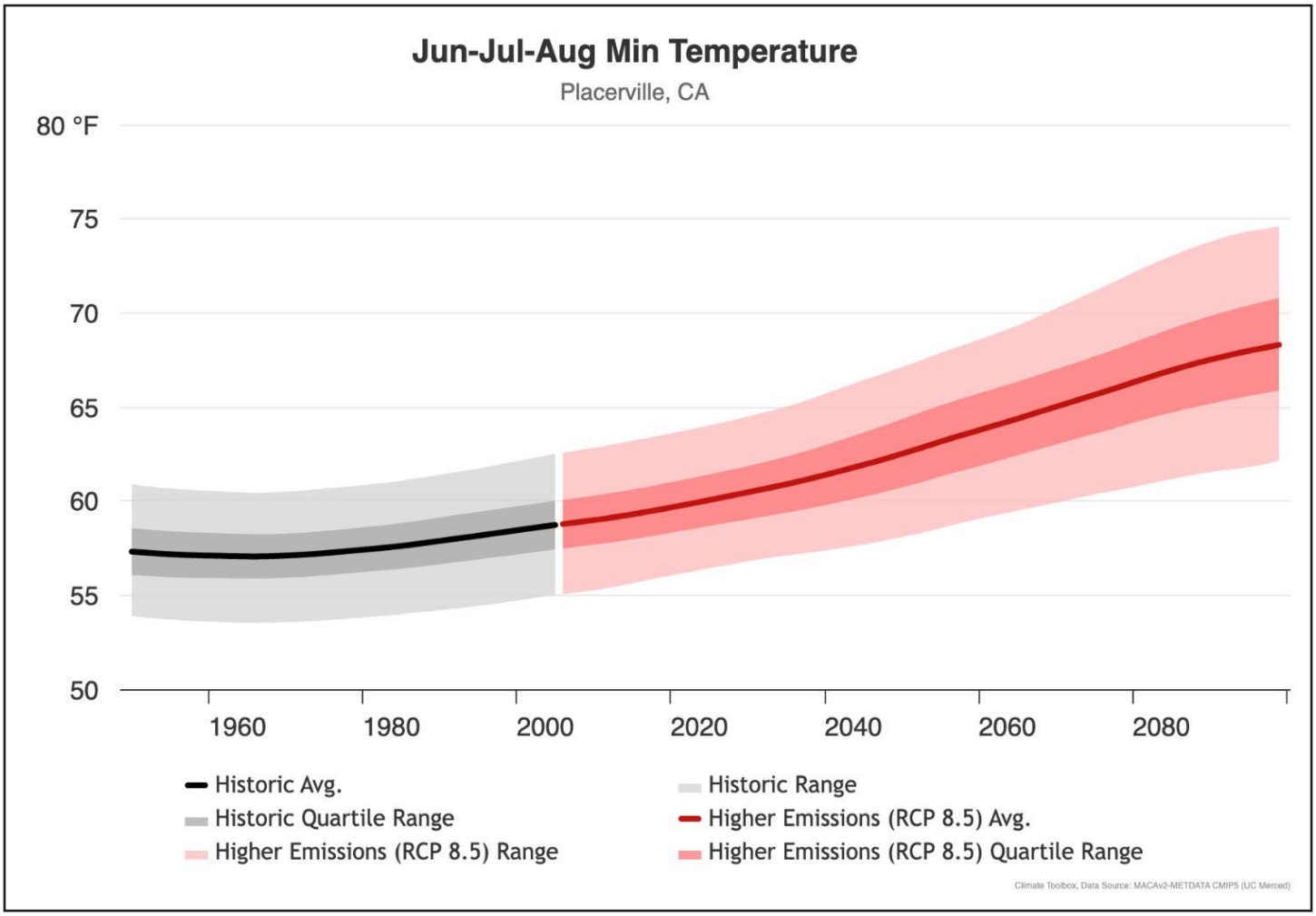


Figure 56. Increasing trends in average daily nighttime minimum summer (Jun-Jul-Aug) temperature for Placerville as representative of the Planning Area from 1950 – 2006 (in gray) and projected into the future to 2100 (pink). The projected increase in minimum daily temperature is approximately 11 degrees F hotter than historical conditions, meaning that the warmest nights, usually occurring during heat waves, may be 11 degrees F hotter than the historical hottest nights by the end of the century.

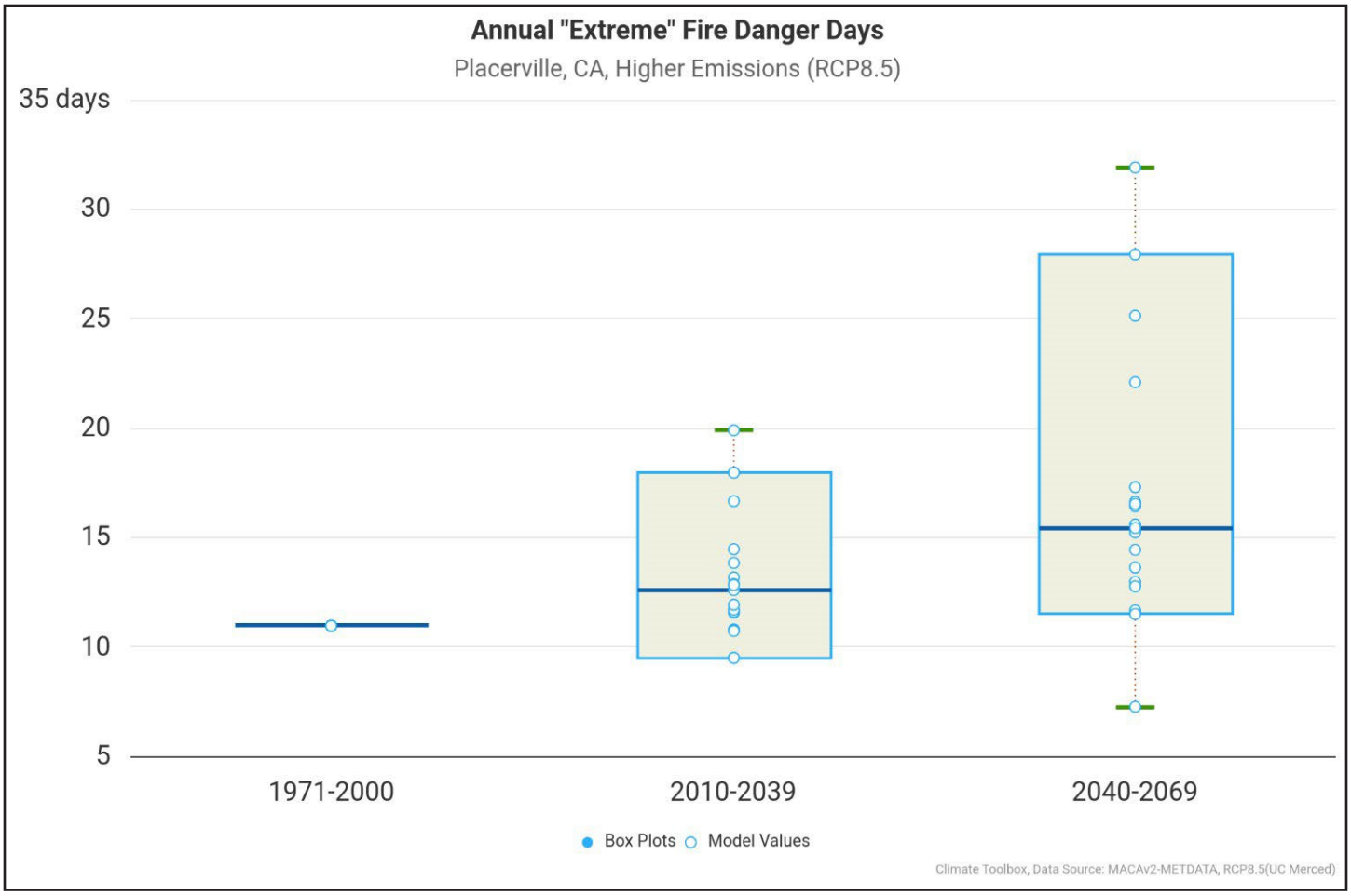


Figure 57. Projected change in number of days of extreme fire danger annually for Placerville based on global climate model outputs, for both the early 21st century (the current period) and the mid-21st century (future period 2040-2069) as compared to the historical period of 1971-2000. Each future boxplot represents a range of projections from different climate models, with the white dots representing the projection of a specific model, and the dark blue line in the middle representing the median (middle) projection. For the future period (2040-2069), the highest projections are for an average of 16 days per year of Extreme (97th percentile) fire danger (but up to 28 days in the most extreme model projections), a nearly 50% increase over the 11 days per year observed in the historic period.

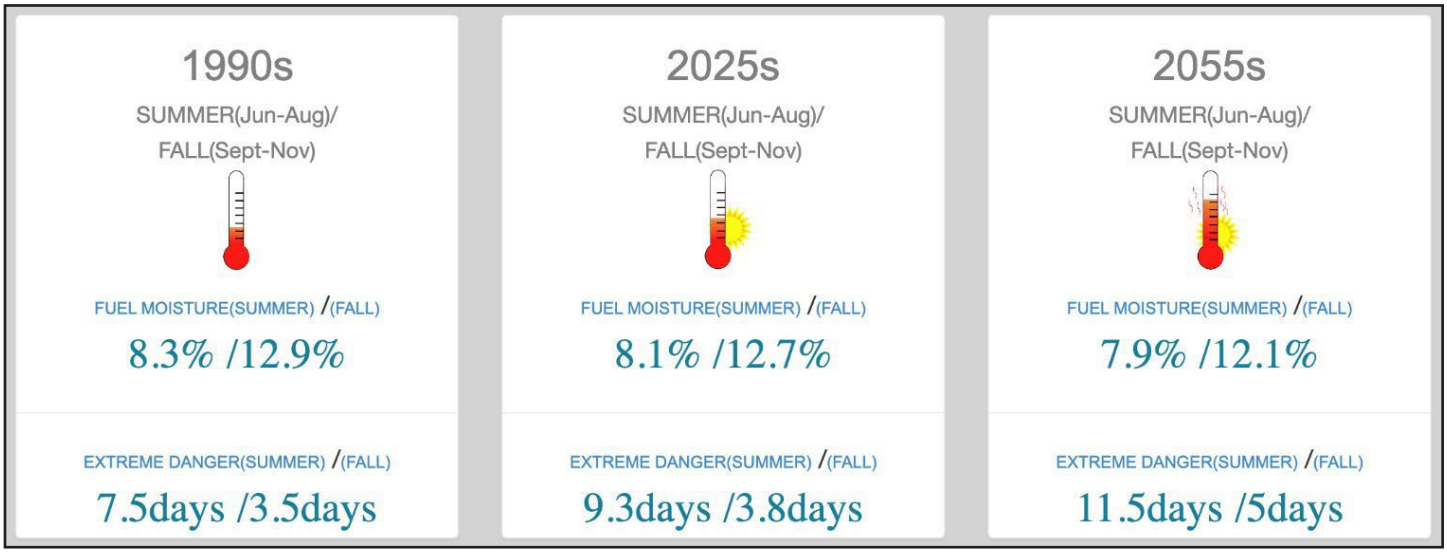


Figure 58. Projected reduction in average 100-hr fuel moisture and increase in the average number of days of extreme fire danger for the summer/autumn months for Placerville based on global climate model outputs.

4.4 Topography

Topography is the configuration of the earth's surface and is the most stable of the elements in the fire environment. Topography plays a significant role in wildland fire behavior by sheltering areas from the prevailing wind or by channeling wind through prominent canyons and drainages. Specific elements of topography that affect fire behavior include slope, aspect, terrain features, and elevation with the steepness of slope being the most influential.

The majority of the County lies along the west slope of the Sierra Nevada and is characterized by rolling hills and mountainous terrain. The county ranges in elevation from 470 feet above sea level in the west adjacent to Folsom Lake, to 9,000 feet above sea level in the northeast in the Eldorado National Forest. The Western EDC is topographically considered the western side or slope of the Sierra Crest with varying terrain as seen in Figure 59.

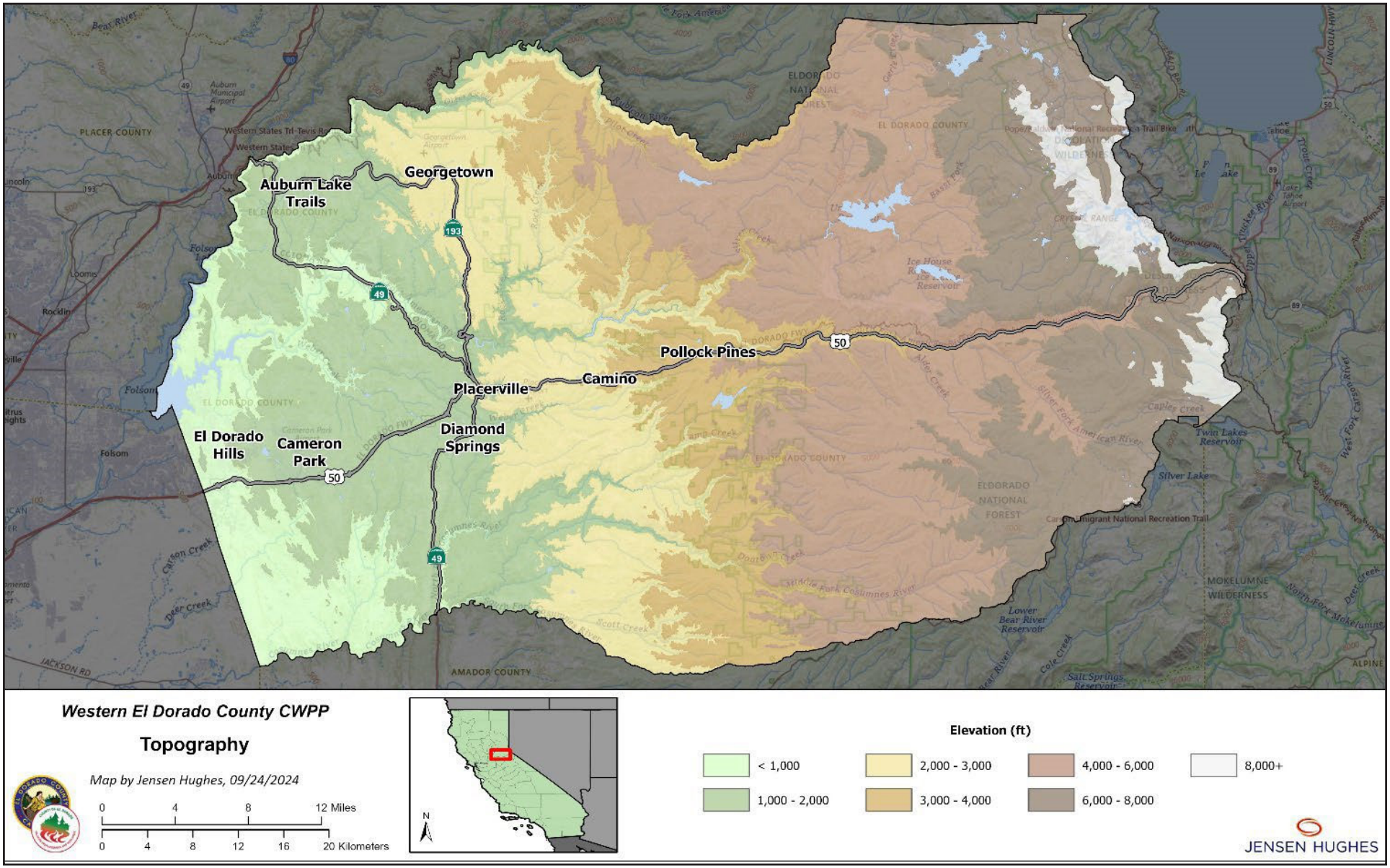
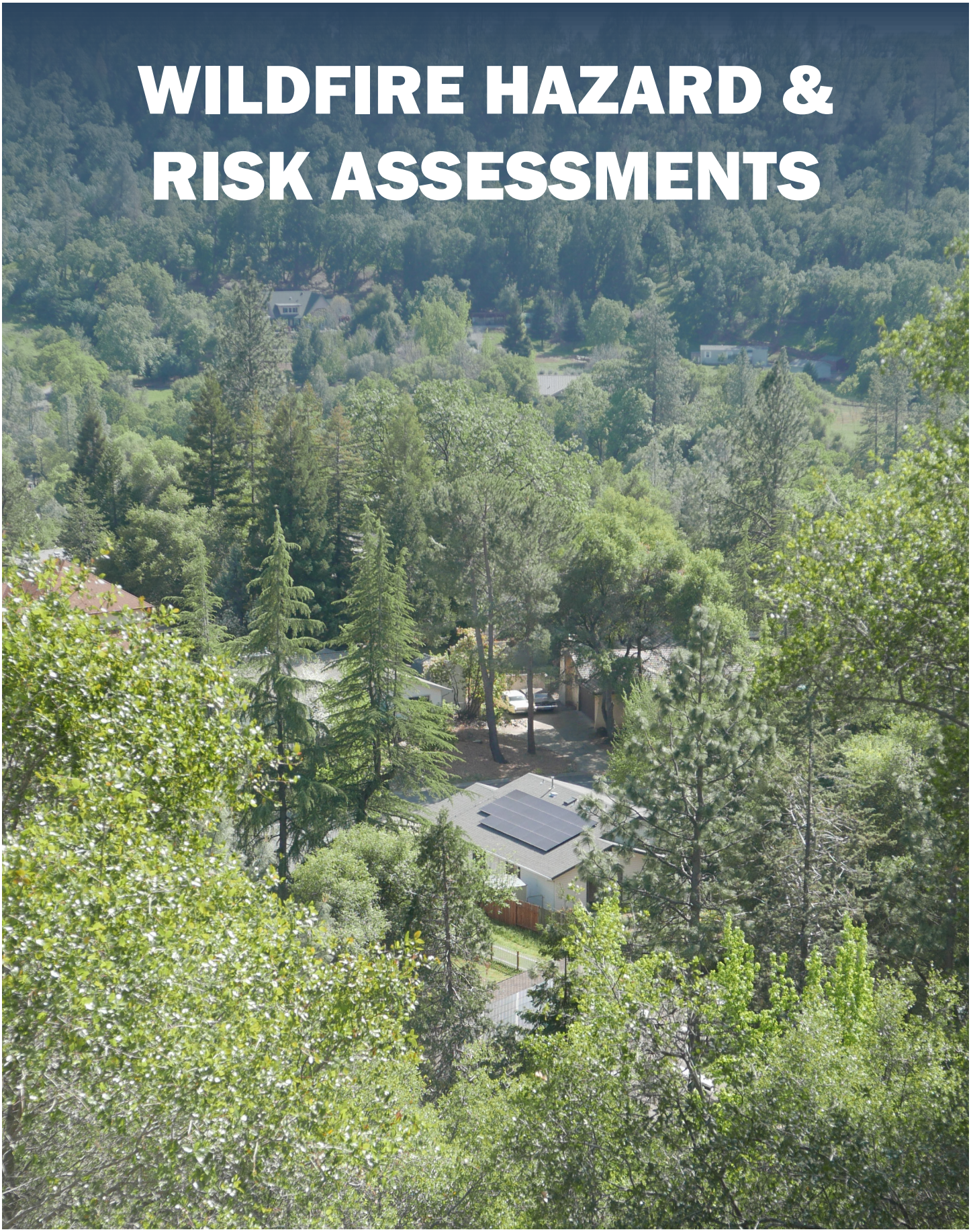


Figure 59. Topography Across the Planning Area

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WILDFIRE HAZARD & RISK ASSESSMENTS



5.0 WILDFIRE HAZARD & RISK ASSESSMENTS

Given the high fire prone nature of western El Dorado County and surrounding areas, a wildfire risk assessment comprised of hazard, exposure and vulnerability analyses has been undertaken to help identify and prioritize the most at-risk communities, as well as inform strategic planning and preparedness efforts. See Figure 60. The assessment used a combination of methods – field visits, wildfire behavior modeling, geospatial analytics, current research and best practices – in collaboration with OWPR, the Steering Committee, fire safe council members, CAL FIRE and numerous county/local officials and subject matter experts. The assessment provides a framework for prioritizing a range of wildfire mitigation strategies across the West Slope of the County.

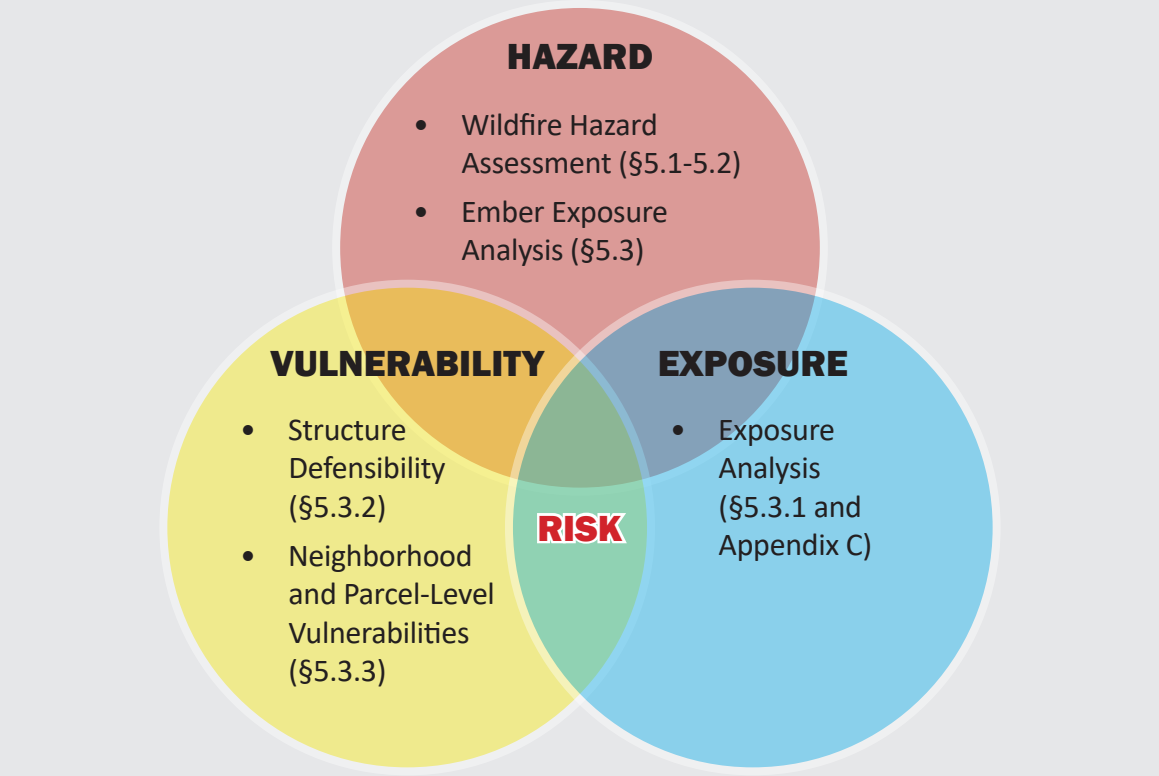


Figure 60. Key Components of Wildfire Hazard and Risk Assessment for this CWPP

5.1 Wildfire Behavior Modeling

Fire behavior modeling is performed to estimate several fire behavior characteristics. There are three main categories of inputs to fire behavior modeling: weather, fuels, and topography. These inputs are described in more detail below.

Established wildland fire behavior models provided the basis for evaluating the wildfire hazard, threat, defensibility and ember exposure. These models included FLAMMAP (Version 6.0), Behave Plus 5.0.4 (Build 305), and FireFamily Plus (Version 5.0)[26]. These models are the most widely adopted tools for analyzing wildfire potential. Data used in the models came from state and federal sources, including LANDFIRE, Weather Information Management System (WIMS), and the Fire Resource and Assessment Project (FRAP).

[26] *Fire Family Plus is a software package used to calculate fuel moistures and indices from the National Fire Danger Rating System (NFDRS) using weather observations from a system of Remote Automated Weather Stations (RAWS).*

5.1.1 Weather Data & Analysis

Weather is the most variable element of the wildland fire environment. Important components of fire weather that influence fire behavior are temperature, relative humidity, precipitation, wind, and atmospheric stability. These elements have the potential to enhance or retard wildfire spread and intensity.

The Pacific high dominates summertime weather causing hot temperatures, moderately dry humidity, and very low fine fuel moisture (2-5%). Summer rainfall is non-existent except for precipitation from thunderstorms, which mainly occur at higher elevations.

Several times throughout the fire season the Pacific high is intruded upon by tropical moisture from the Gulf of Mexico or the Pacific that brings thunderstorms to the Sierras. Thunderstorms that start fires have occurred as early as April but are more likely to pass through between June and September. These thunderstorms generally carry some precipitation with them and can happen at any elevation in the Forest. Front country lightning storms are less frequent but typically more of a concern than back country storms due to the exposure to higher populations and values at risk.

Wildland fires begin to occur in May in the grass oak woodlands and savanna vegetative communities while the mixed conifer stands in the eastern portion of the planning area are in full green-up. July through September are the months of highest fire danger when the largest fires of the season occur. The Pacific high is at its greatest expanse and strength in August and begins to weaken in September as an Aleutian low reappears in the Gulf of Alaska and pushes south.

The ending of fire season is more variable than the start. Although dwindling sunlight and lessened sun angles provide less ground heating, season ending moisture is dependent on Pacific storm systems. The location of the jet stream plays a major role in determining the path of the storms. Generally, the rainy season begins rather suddenly in October to November as the Pacific high weakens and retreats south for the winter and the jet stream moves with it.

Weather information was obtained from https://famauth.wildfire.gov/index.html/ for a selected number of Remote Automated Weather Stations (RAWS) 2003 through 2023 and analyzed in Fire Family Plus Version 5.0 (USDA Forest Service 2020) to compare historical and current fire weather parameters associated with temperature, wind, and precipitation. The Energy Release Component (ERC) is a measure of the energy released at the flaming front of a fire and is in units of energy (BTU) per unit area (square foot) (Bradshaw and others 1983). An ERC index, as used in the US National Fire Danger Rating System (NFDRS), provides an approximation of dryness based on estimates of fuel moisture. Thus, the larger the ERC value, the 'hotter' and potentially more severe the fire. Values typically range from 0 to 100, though they can be higher depending on weather extremes and fuel model. Specifically, ERC is used to describe fire danger trends because it is sensitive to wetting rains that change fuel conditions. The ERC calculation is also affected by fuel loadings in different size classes. Fuel model G, which includes both live and dead fuels, has a significant portion of the fuel load driven by large dead fuels.

See Figure 61. Seasonal trends for ERCs that no longer support fire growth are used to inform the fire season dates for a given area and capture the necessary fire modeling inputs for fuel moisture values.

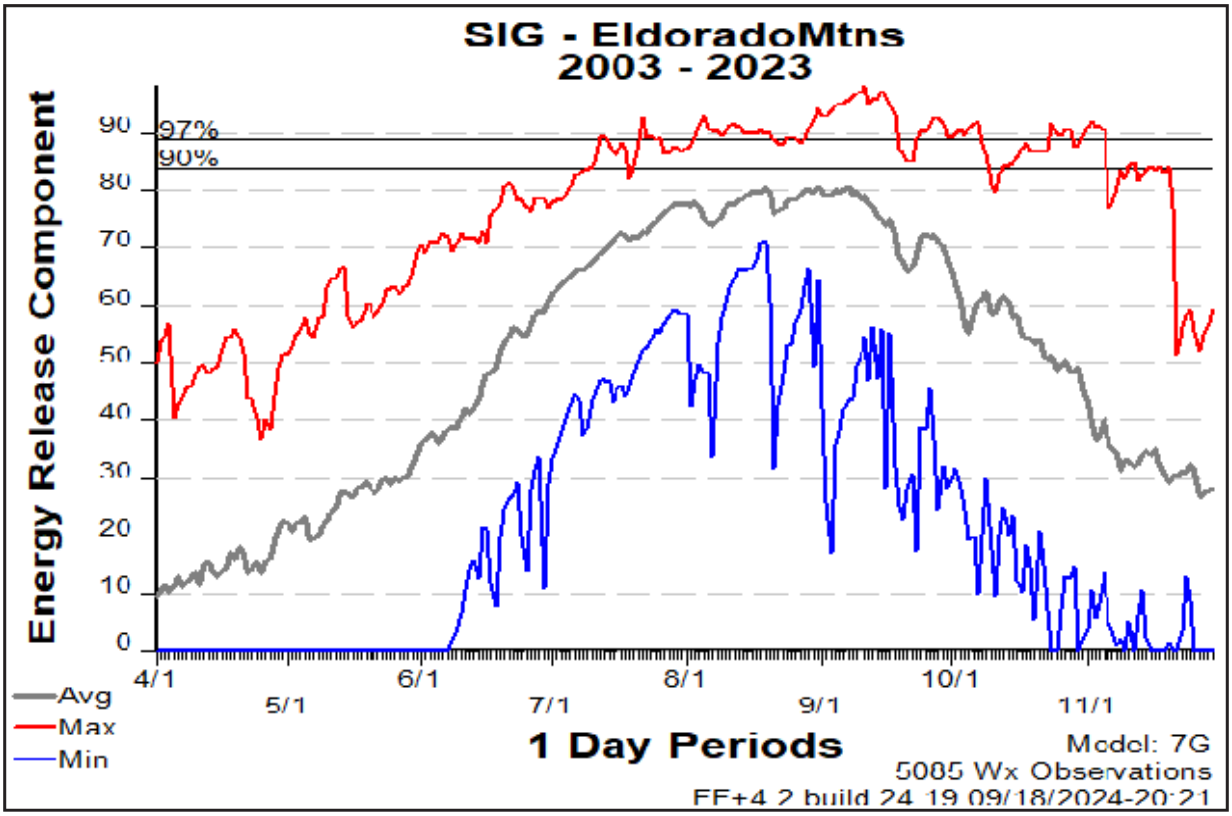


Figure 61. Seasonal Trends in ERC for El Dorado County

5.1.2 Fuel Characteristics & Fuel Models

The key characteristics of vegetative fuels that affect fire behavior include fuel moisture, fuel type, fuel loading, chemical properties, horizontal continuity, and vertical arrangement. These characteristics are combined to create fuel models that describe fire behavior when used in combination with weather and topography. Understanding fuel models, their effects on fire behavior, and how the models change after the implementation of a fuel treatment can help fire managers design effective wildfire mitigation strategies.

5.1.2.1 Fuel Moisture

Fuel moisture is a dynamic variable controlled by seasonal and daily changes in the weather and is an important component influencing wildland fire behavior. Simply stated, vegetation is most flammable when fuel moisture levels are low and less flammable when they are high. Fuel moisture levels will largely determine if a fire will ignite and spread. Fuel moisture is typically categorized into dead and live fuel moisture.

- **Dead Fuels:** Dead fuels act like a sponge absorbing or giving up moisture to the air and ground which surrounds them. The moisture exchange rate between dead fuels and their surrounding environment varies by the size of the dead fuel particle, with fuels less than ¼ in diameter reaching equilibrium with their surroundings within one-hour. Because of this rapid exchange rate, these smaller size class fuels exert significant control over wildfire burning characteristics, especially in the grass and shrub dominated fuels associated with the Planning Area.
- **Live Fuels:** Live fuel moisture is the moisture in living, growing vegetation and is controlled by the internal physiological mechanisms of the vegetation and external influences such as rainfall, drought, aspect, elevation, and seasonal drying patterns. Typically, live fuel moistures are highest in the spring through early summer and at their lowest in late summer through early winter when seasonal rains typically begin.

Live fuel moisture of 60% or below is a "critical" threshold where live fuels display similar burning characteristics as dead fuels.

For the weather analysis, specific to the planning area two weather analysis areas or special Interest groups (SIGs) were identified to refine the fuel moisture parameters based on weather patterns, fuel type and topography The Front Country SIG represents the West Slope of El Dorado County to capture fire danger and fuel moisture inputs in the Grass/Oak woodlands, Savannah, and Chaparral vegetative communities. The Back Country/Mountains SIG was developed to represent fuel moisture and fire danger in the eastern portion of the planning area representative of the mixed conifer and timbered vegetative communities. For the Front Country SIG, Ben Bolt (042612) and Pilot Hill (046209) weather stations were utilized and weighted evenly for the analysis. For the Mountains SIG, Steely Fork (042615), Owens (042611), Hell Hole (042608) and Bald Mountain (042605) were evenly weighted to analyze and compare the fuel moisture inputs to the Front Country SIG.

Fire Family Plus version 5 software was used to determine historical fuel and weather conditions at the 90th and 97th percentile (hottest, driest 10% and 3% of the period analyzed) specific to the weather analysis areas. An annual filter of May 1 through October 31 was selected to represent the historic fire season based on the ERC analysis. The following tables Table 12 and Table 13 are the result of the analysis, which was utilized in the fire spread model to evaluate the potential fire behavior and effects across the planning area.

Table 12. El Dorado County Mountains SIG Fuel Moisture and Weather Outputs

Fuel Moisture/Weather Inputs El Dorado Mountains SIG	90th Percentile	97th Percentile
1 Hour Fuel Moisture %	3	2
10 Hour Fuel Moisture %	4	3
100 Hour Fuel Moisture %	5	5
Herbaceous Fuel Moisture %	30	30
Woody Fuel Moisture %	60	60
20-ft Wind Speed Direction	WSW	SW
20-ft Wind Speed MPH	6	8
20-ft Wind Gust	16	19

Table 13. Front Country SIG Fuel Moisture and Weather Outputs

Fuel Moisture/Weather Inputs Front Country SIG	90th Percentile	97th Percentile
1 Hour Fuel Moisture %	3	2
10 Hour Fuel Moisture %	4	3
100 Hour Fuel Moisture %	6	6
Herbaceous Fuel Moisture %	3	2
Woody Fuel Moisture %	60	60
20-ft Wind Speed Direction	WSW	WSW
20-ft Wind Speed MPH	8	10
20-ft Wind Gust	17	20

Figure 62 shows the wind rose data for the El Dorado Mountains (left) and Foothills SIG (Right). The wind rose displays the dominant direction the wind is blowing from and windspeed associated with the weather analysis areas that was utilized for the analysis.

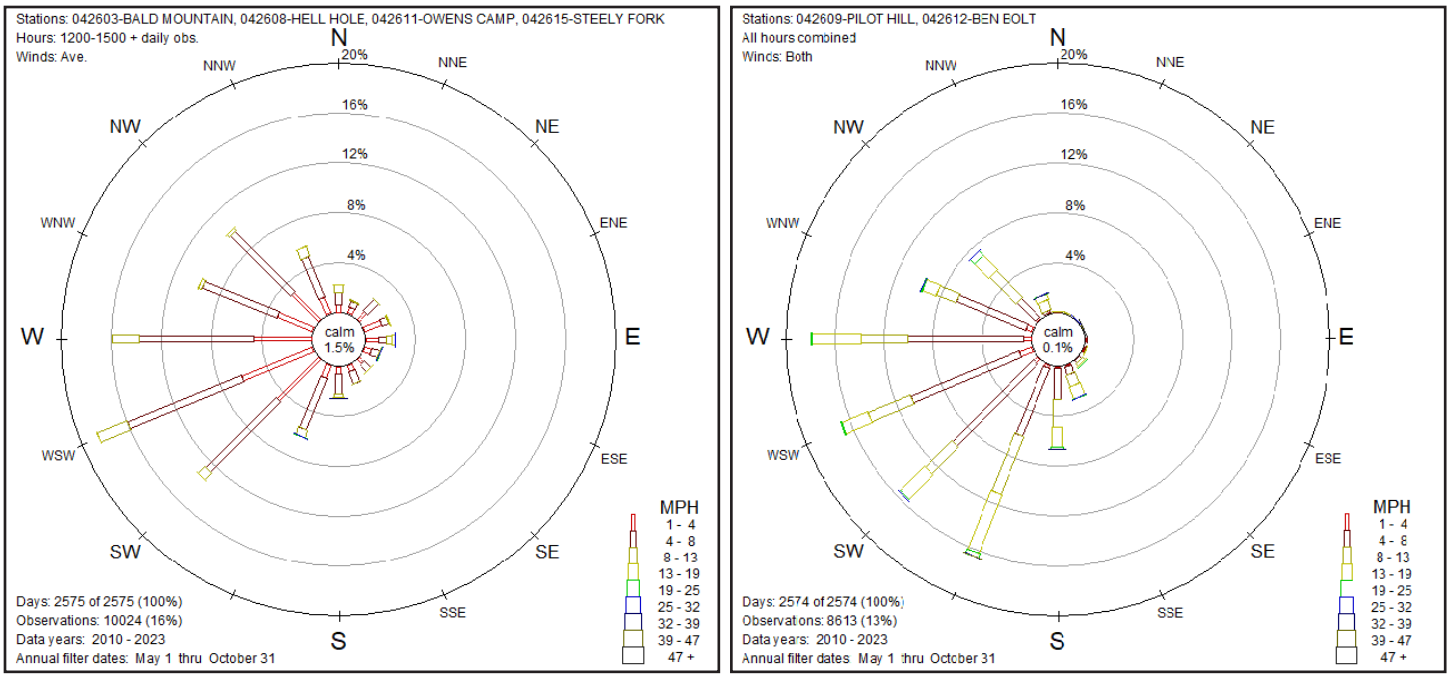


Figure 62. Wind Rose for the El Dorado Mountains (left) and Foothills SIG (right)

5.1.2.2 Fuel Types / Fuel Models

Fuel types associated with the El Dorado Planning Area include grasslands, chaparral, broadleaf and conifer forest. These fuel types are categorized into specific fuel models (e.g., non-burnable, grass, grass-shrub, shrub, timber-understory, timber-litter, and slash- blowdown), which describe the physical properties of the vegetation that support fire. Fuel models are grouped by fire-carrying fuel type and the number of fuel models within each fuel type varies. Each fuel type has been assigned a mnemonic two-letter code.

- **Non-Burnable Fuel Models (NB):** Land areas that are considered non-burnable portions of the landscape are displayed on a fuel model map as NB. Urban development, barren land and water, all considered unburnable in fire behavior models. There are approximately 105,612 acres represented by this fuel type within the Planning Area.
- **Grass (GR):** The primary carrier of fire in the GR fuel models is grass. Grass fuels can vary from heavily grazed grass stubble or sparse natural grass to dense grass more than 6 feet tall. Fire behavior varies from moderate spread rate and low flame length in the sparse grass to extreme spread rate and flame length in the tall grass models. There are approximately 79,038 acres represented by this fuel type within the Planning Area.

IMPORTANT NOTE: Traditional wildfire behavior models do not capture fire spread into urban fuels and thus will show as "unburnable". However, we know that fire can readily burn through man-made fuels and into the built environment, particularly under conditions of high wind and low relative humidity.

- **Grass-Shrub (GS):** The primary carrier of fire in the GS fuel models is grass and shrubs combined; both components are important in determining fire behavior. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model. There are approximately 104,572 acres represented by this fuel type within the Planning Area.
- **Shrub (SH):** The primary carrier of fire in the SH fuel models is live and dead shrub twigs and foliage in combination with dead and down shrub litter. A small amount of herbaceous fuel may be present, especially in SH1. There are approximately 116,434 acres represented by this fuel type and represents the bulk of the fuels within the Planning Area.
- **Timber-Understory (TU):** The primary carrier of fire in the TU fuel models is forest litter in combination with herbaceous or shrub fuels. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model. There are approximately 400,163 acres represented by this fuel type within the Planning Area.
- **Timber-Litter (TL):** The primary carrier of fire in the TL fuel models is dead and down woody fuel. Live fuel, if present, has little effect on fire behavior. There are approximately 197,223 acres represented by this fuel type within the Planning Area.
- **Slash-Blowdown (SB):** The primary carrier of fire in the SB fuel models is activity fuel or blow down. Forested areas with heavy mortality may be modeled with SB fuel models. There are approximately 30 acres represented by this fuel type within the Planning Area.

To quantify the potential fire behavior characteristics across the planning area, a fuel model is one of the primary inputs for fire behavior modeling. A fuel model is chosen by the primary carrier of the fire (e.g. grass, brush, timber litter, slash) and its fuel characteristics (e.g. fuel loading, surface area to volume ratio, fuel depth, etc.). Table 14 on the following page provides a breakdown of vegetative fuels by fuel type for the El Dorado Planning Area.

In addition, Figure 64 shows the spatial distribution of fuel models across the planning area. As shown in the figure the existing fuel conditions are variable across the landscape, with a high percentage of the project area containing fuel models with potentially high to very high fuel loading characteristics (Timber-Understory).

Note: Refer to Appendix C for spatial distribution of fuel models at the sub-county level (i.e., fire planning units).



Figure 63. Sly Park Before Forest Treatment.

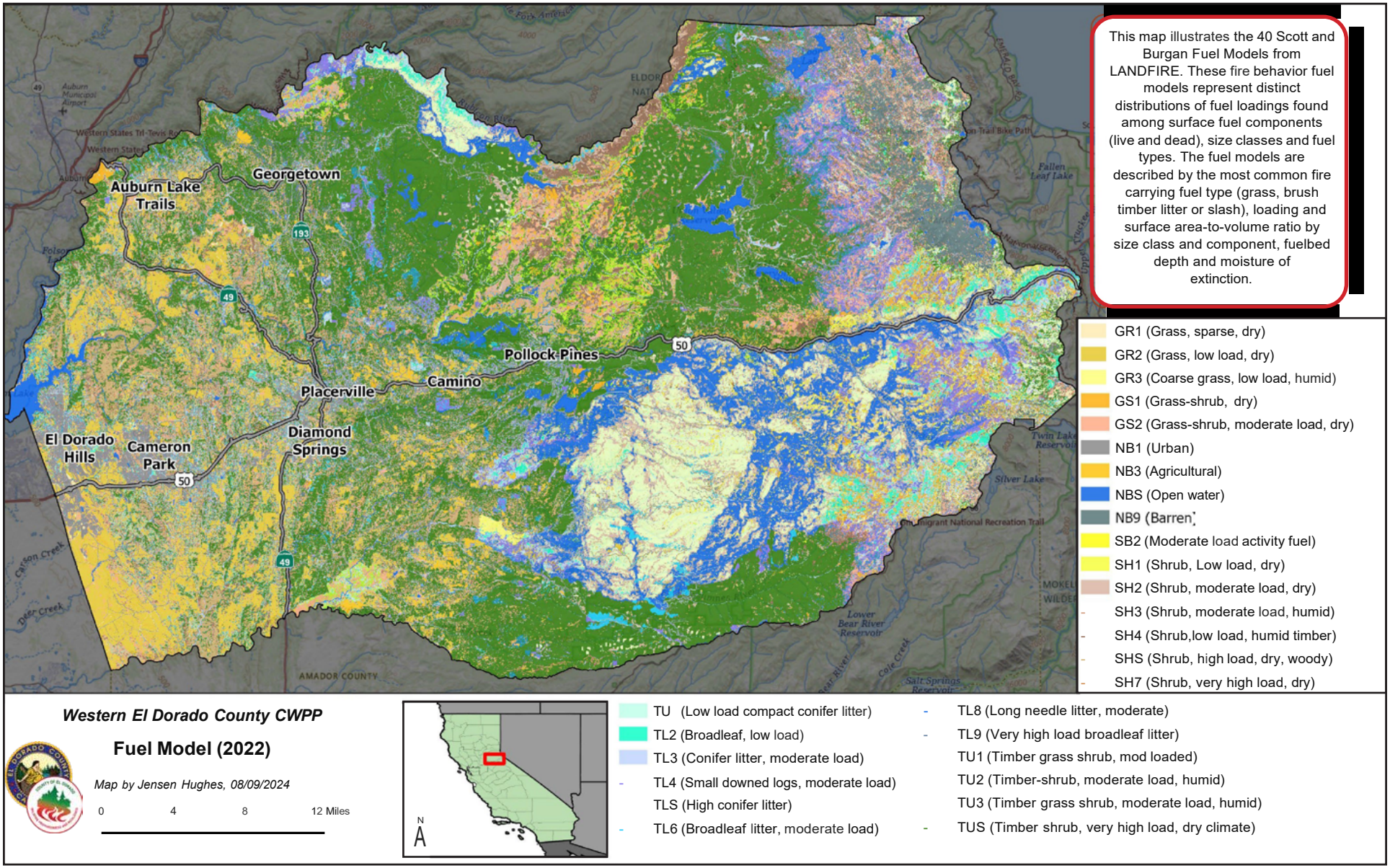


Figure 64. Fuel Types / Models Within the Planning Area

Table 14. Breakdown of Generalized Fuel Types/Fuel Models within the Planning Area

Fuel Type	Vegetation Group	Fuel Type Acres	% Coverage
Non-Burnable – Fuel Models (NB1-NB9)	Non-burnable	105,612	18%
Grass – Nearly pure grass and/ or forb types are represented by grass fuel models (GR1- GR9)	Grassland/Forb	79,038	8%
Grass-Shrub – Up to about 50 percent shrub coverage are represented by grass shrub fuel models (GS1-GS4)	Grassland/Forb Broadleaf Forest and Wood-land	104,572	10%
Shrubs – Cover at least 50 percent of the site; grass sparse to non-existent are represented by shrub fuel models (SH1-SH9)	Chaparral	116,434	12%
Timber-Understory – Grass or shrubs mixed with litter from forest canopy are represented by timber understory fuel models (TU1-TU5)	Conifer Forest and Woodland	400,163	40%
Timber-Litter – Dead and down woody fuel (litter) beneath a forest canopy is represented by timber litter fuel models (TL1-TL9)	Broadleaf Forest and Woodland Conifer Forest and Woodland	197,223	20%
Slash-Blowdown – Activity fuel (slash) or debris from wind damage (blowdown) are represented by slash blowdown fuel models (SB1-SB4)	Conifer Forest and Woodland	30	< 0.1%

5.2 Wildfire Hazard Assessment

The objective of the wildfire hazard assessment is to identify areas within the Planning Area that are prone to severe fire conditions, and to use this as the basis for designing and prioritizing fuel treatments and other mitigation strategies. The main body of the report summarizes the wildfire hazard analysis at the County level. **Detailed maps at sub-regional scales are provided in Appendix C. Evaluating hazard and risk (in Section 5.3) at various scales is central to obtaining a nuanced understanding of the threat of wildfire and to develop both regional and sub-regional projects and priorities.**

Note: Refer to Appendix C for detailed maps of the wildfire hazard assessment at sub-county scales (i.e., fire planning units).

For the purpose of this CWPP, four Fire Planning Units (FPUs) (A-D) were identified by the Steering Committee during the CWPP development process to allow interested parties at a more localized level to focus efforts on their specific subregion and community. See Appendix C.

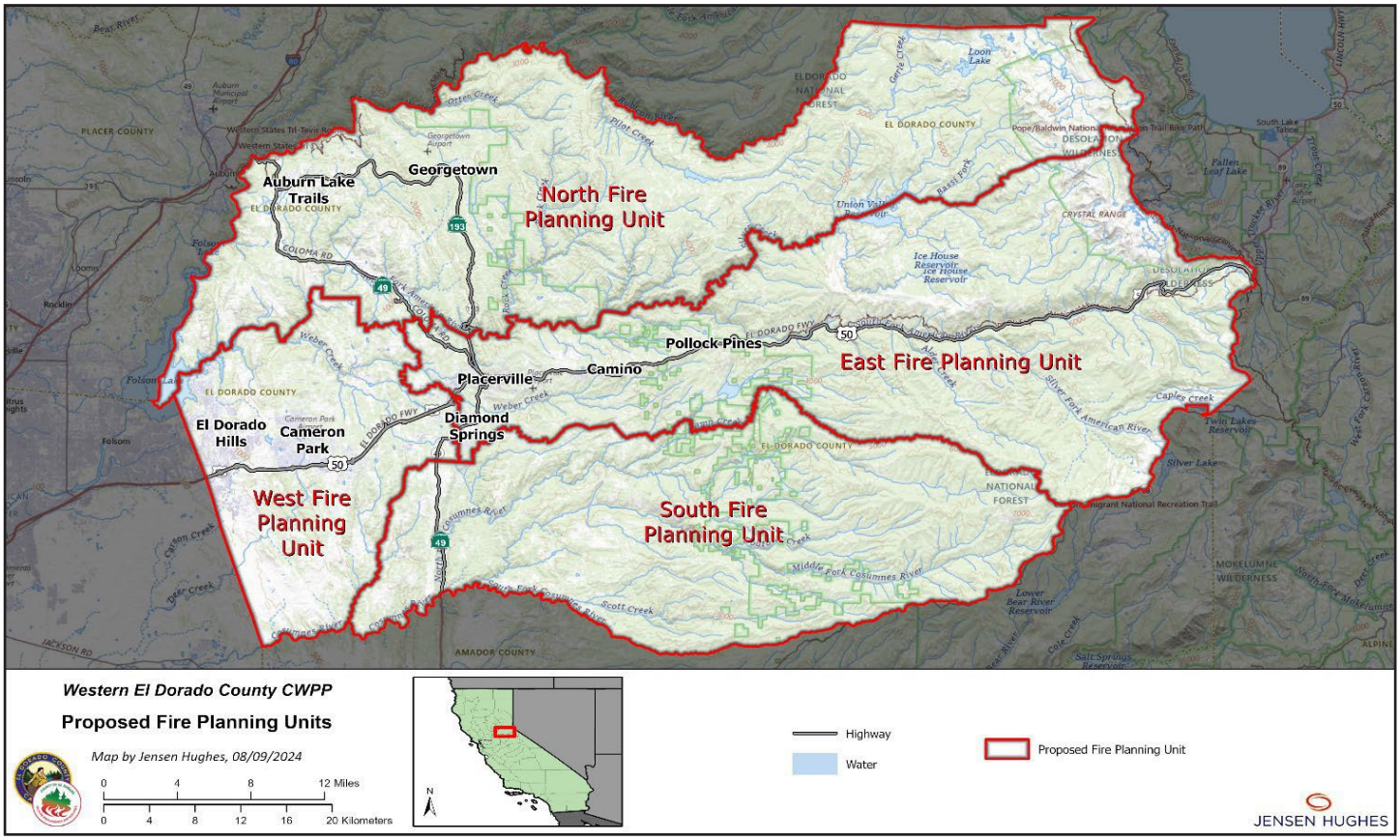


Figure 65. Planning Units Identified by the Steering Committee to Sub-Divide Western El Dorado County for the Purposes of Evaluating, Designing and Implementing Potential Actions from the CWPP

The four FPUs are as follows:

- FPU A – North County
- FPU B – West County (HWY 50)
- FPU C – East County (HWY 50)
- FPU D – South County

5.2.1 Overview

FlamMap (Version 6.0) – a fire behavior model based on static fuel and weather conditions – was used to understand potential fire characteristics (e.g., fire severity, rate-of-spread, flame length), potential impacts to community values or assets at risk, and then prioritize various hazard-based mitigation activities. The Wildfire Hazard Assessment was performed to identify where on the landscape unwanted ignitions are likely to be most problematic for the Planning Area. This type of approach is not intended to prioritize current and existing projects but rather take a holistic approach to having readily available data and prioritized landscapes to rapidly respond to potential opportunities and project requests by individual landowners, community groups, partners, federal, state, and local agencies. Additionally, this type of information can be utilized to develop proposals and respond to different types of funding sources as they become available.

The Wildfire Hazard Assessment performed to support the CWPP include:

(1) Ignition Density
(2) Simulated Fire Threat
(3) Fire Hazard
(4) Fire Flow Paths
(5) Potential Crown Fire
(6) Flame Length
(7) Exposure Assessment
(8) Cumulative Risk

The landscape spatial files (LCP) used in the assessment were obtained from the LANDFIRE program. For this analysis, LCP files were constructed to represent current conditions and fuel conditions as they existed post-Caldor and Mosquito fires.

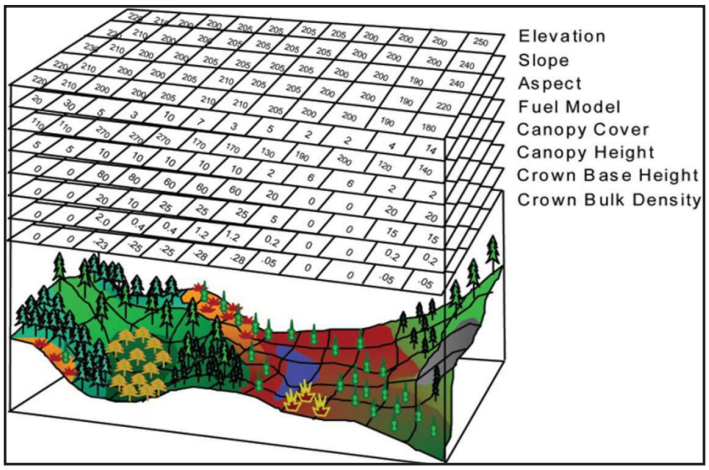


Figure 66. Landscape Spatial Files (LCP) Used in Wildfire Hazard Assessment. Data Obtained Primarily from LANDFIRE.

An LCP file contains eight spatial layers (slope, aspect, elevation, fuel model, canopy cover, canopy height, canopy bulk density, and canopy base height) and is a required input into the fire behavior models used in the analysis (Figure 66).

5.2.2 Ignition Density

Key Issue – In the last 28 years there have been 6,852 fires recorded within the planning area.

Question – Which areas of County have the highest to lowest ignition density?

Ignition density is defined as the number of fires that occurred over a ten-year period for a given thousand-acre area.

This can be formulated as follows:

$$Ignition\ Density = \frac{\frac{N}{T} \times 10\ years}{\frac{Area}{1{,}000\ acres}}$$

Where,

N = Number of Ignitions (6,852)
T = Number of Years of Data (28 years)
Area = Total Acreage in Analytical Area (e.g., 1,003,377 acres for West Slope of El Dorado County)

$$Ignition\ \ Density = \frac{\frac{6{,}852}{28\ \ years} \times \ 10\ \ years}{\frac{1{,}003{,}377\ \ acres}{1{,}000\ \ acres}} = \ \ 2.44$$

The following table shows the results of the analysis and displays the ignition risk for the overall planning area and for reach of the sub-regional units, (i.e., Fire Planning Units or FPUs). This information is useful to establish overall priorities for a wide range of fuels mitigation and fire prevention activities such as targeted messaging, fire prevention campaigns etc.

Table 15. Ignition Density Across the Planning Area and by FPU

Planning Area	Ignition Density
Western El Dorado County	2.44
FPU A	1.91
FPU B	5.28
FPU C	2.55
FPU D	1.61

5.2.3 Simulated Fire Threat ("Simulated Fire Frequency")

Key Issue – In review of the historical fire occurrence and density of ignition locations, the area has a very high fire occurrence and ignition history.

Question 1 – To reduce ignitions and associated fires from impacting values at risk, where on the landscape should fuel reduction/mitigation measures be considered?

Question 2 – In comparison of the Fire Planning Units, which units has the highest to lowest occurrence of Fire Threat?

Simulated Fire Threat was created using the Minimum Travel Time module in FlamMap to better understand where on the landscape wildfire has the greatest likelihood of occurring, converging on the landscape and threatening values at risk. The minimum travel time (MTT) feature is a two-dimensional fire growth model that calculates fire growth and behavior by searching for the set of pathways with minimum fire spread times from an ignition source.

For the Simulated Fire Threat representation, historic ignitions that occurred within and adjacent to the Western El Dorado Planning area from 1992-2020 were utilized (Figure 67). The United States Forest Service's Fire Program Analysis data set provided ignition locations for all ownerships and all agencies. These ignitions were simultaneously simulated on an annual basis for 12-hours of active burning and over-laid in GIS to develop a frequency of where fires would likely impact the analysis area with no suppression activities. This type of analysis can help delineate areas of potential fire threat to values at risk and where fuel reduction activities may be considered to interrupt or alter the spread, direction, and intensity of fire. ***This type of analysis does not determine the level of fuel reduction or types of treatments but rather address the question of where on the landscape would fuels reduction or mitigation measure provide beneficial impacts to reduce fire movement across the landscape. Simulated fire threat does not determine or pinpoint the level of or potentially hazardous fuels conditions.***

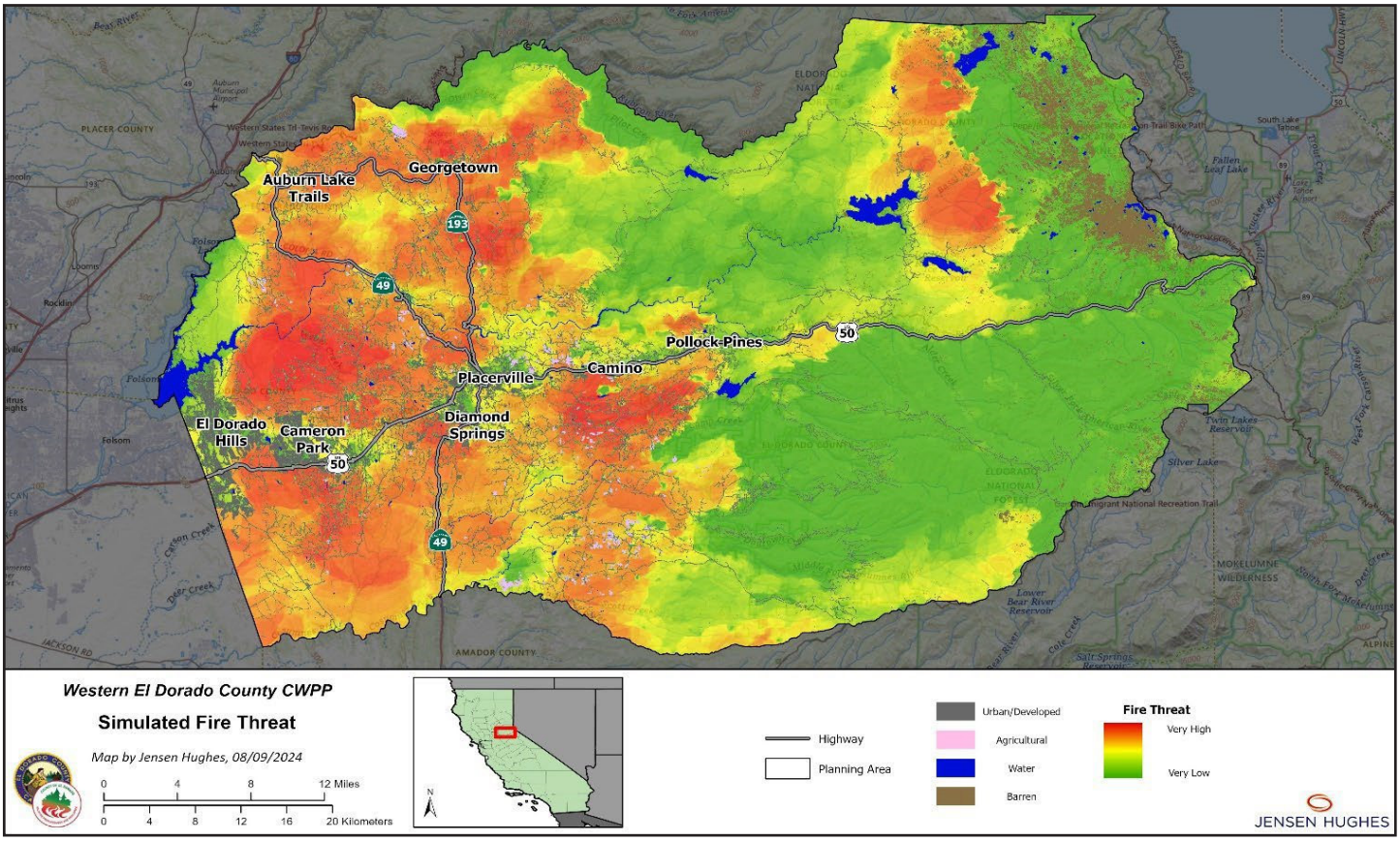


Figure 67. Simulated Fire Threat ("Simulated Fire Frequency") across the West Slope of the County.

5.2.4 Fire Hazard ("Severity")

Key Issue – Fire exclusion, invasive species, and past management activities have resulted in areas with dense vegetation and high fuel loading conducive to an increasing potential for high severity wildland fire and increased potential for large fire growth. Accumulated fuels through time heightens these concerns over fire effects to highly valued resources and assets, public and firefighter safety, and fire behavior potential within the planning area.

Question 1 – To reduce the potential for high severity fire, reduce the impacts to values at risk, and provide a zone of reduced fire potential to improve firefighter safety, firefighting efficiencies and public safety on the landscape, where should fuel reduction/mitigation measures be considered?

Question 2 – Which FPUs have the highest to lowest Hazardous Fuels Conditions that would lead to potentially high severity wildland fire?

Fire Hazard can be characterized by how severe a fire will burn or behave. Fire behavior is the product of the natural environment or the unique combination of topography, weather and fuels. Topography and weather are factors on which humans have little effect but, fuels can be altered through human intervention or natural processes such as fire (rapid) or decomposition (very slow). Therefore, when assessing fire hazard, the focus can be on fuels and the associated fire behavior and how severe those conditions may be. This can be determined by fire behavior characteristics such as rate of spread, flame length, fireline intensity, torching, crowning, spotting, fire persistence and resistance to control.

The fire hazard analysis that was conducted for the CWPP Planning Area represents a combination of six fire behavior and fire effects outputs merged into one representation to display the alignment of potential problematic areas on the landscape that would exhibit high severity fire. The six modeling outputs used to develop this analysis are:

- Flame Length
- Potential Spotting Distance
- Particulate Matter 10 Micrometers or Less (PM10) Emissions
- Fuel Loading
- Potential Crown Fire
- Canopy Cover

Each layer is classified into five rating classes (Low to Very High) and merged to display the alignment of these fire behavior and fuel characteristics to highlight areas on the landscape where the highest potential or hazardous conditions exist. The intent of this analysis is to assist land managers in 1) prioritizing fuel treatments on the basis of predicted fire behavior and fire effects and 2) assessing the effectiveness of fuel treatment proposals in a geospatial context. Data was leveled across the Planning Area using the least to the highest possible score.

Figure 68 displays the Fire Hazard for the planning area and Table 16 summarizes the Fire Hazard ratings for the Planning Area and Fire planning units. Locations shown in red have the highest potential for high severity/ Hazard and indicate areas where fuel treatments would provide beneficial effects to reduce the potential impacts to high value resources and assets while improving firefighter and public safety and enhance fire suppression efficiencies.

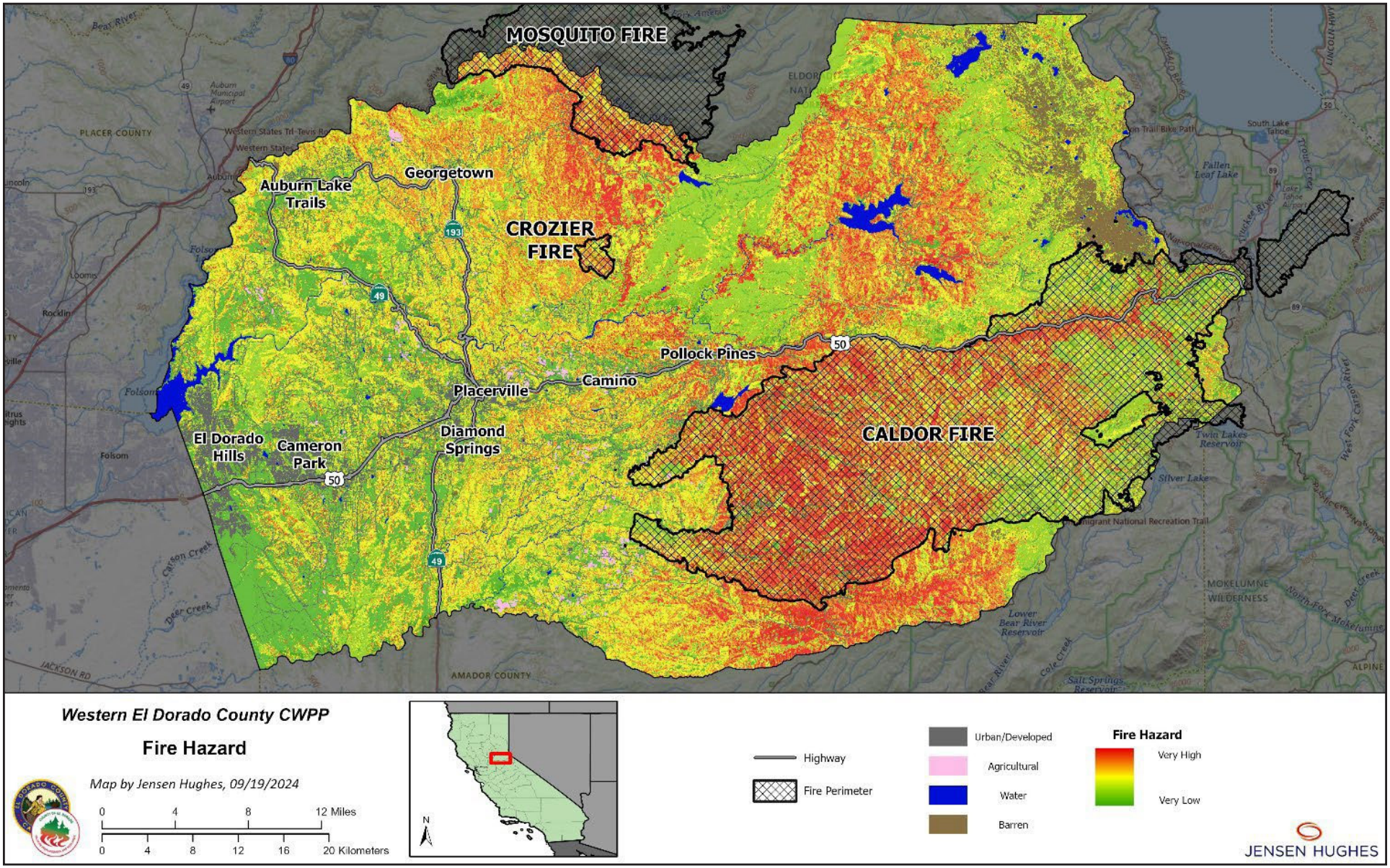


Figure 68. Fire hazard ("severity") across the Planning Area. This map illustrates the combined effect of size fire behavior characteristics (i.e., flame length, spotting distance, PM10 emissions, fuel loading, potential crown fire, canopy cover)

Table 16. Fire Hazard Severity by % Acres Across the Planning Area and by FPU

Planning Area	Low	Moderate	High	Very High
Western El Dorado County	43%	27%	18%	12%
FPU A	43%	30%	18%	10%
FPU B	73%	20%	5%	2%
FPU C	44%	25%	19%	12%
FPU D	27%	31%	23%	19%

To ensure precision and improve confidence in the Fire Hazard representation, landscape files prior to the Caldor and Mosquito fires were utilized to generate the Fire Hazard rating, as seen in Figure 69. The figure is a side-by-side comparison of the Caldor Fire and simulated Fire Hazard representation for the CWPP planning area. This is a snapshot of a portion of the Caldor fire that burned under similar weather conditions at which the Fire Hazard representation was simulated under. The intent is to not attempt an exact match due to the numerous circumstances at which the fire burned such as time of day and tactics but to rather forecast the potential.

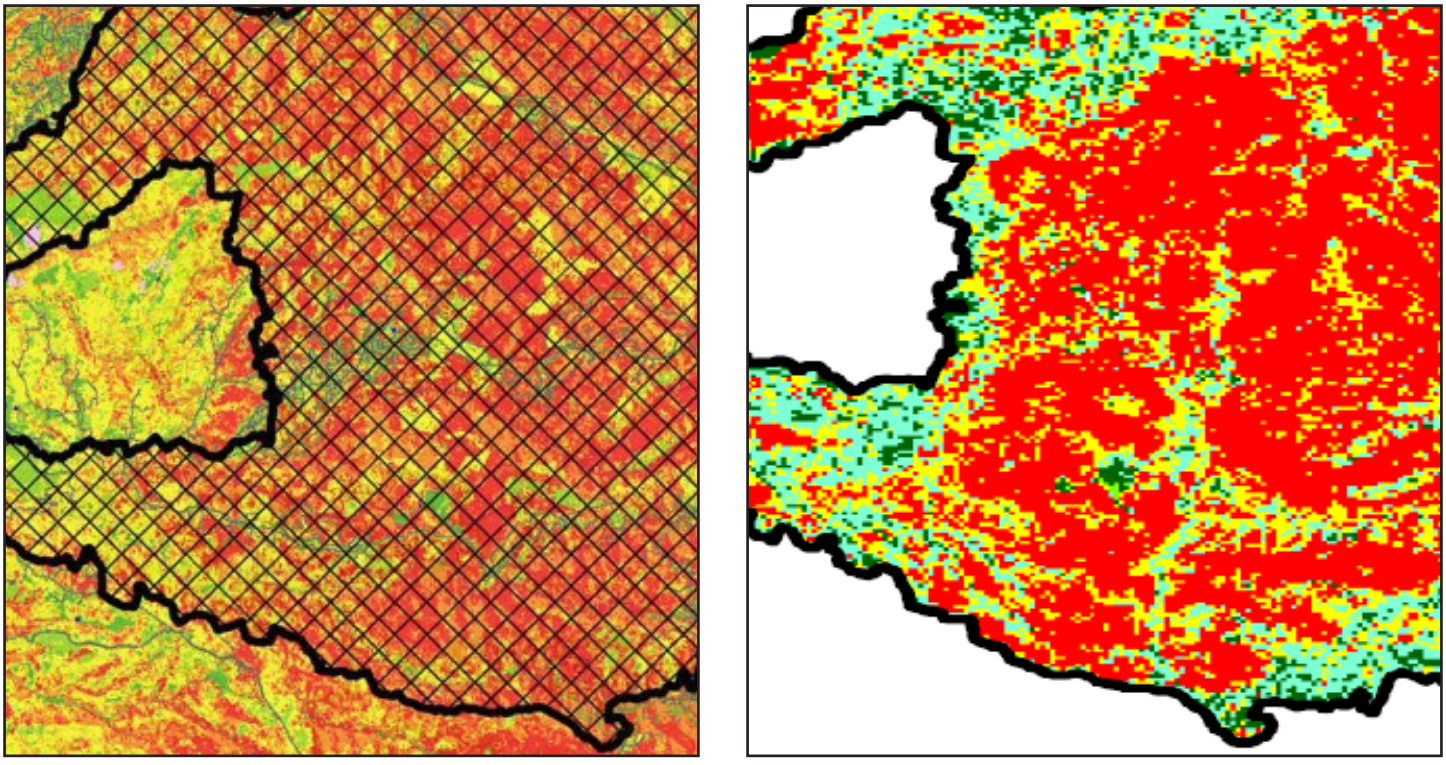


Figure 69. Side by Side Comparison of the Simulated Fire Hazard (left) to the Burn Severity Data from the Caldor Fire (right)

This was done to calibrate the outputs of the model against actual fire severity. Additionally, these fire scars overtime will begin to recover through natural ecological processes resulting in a dramatic increase in surface fuels as well as increased grass and brush growth. Current conditions in these areas provide for a zone of reduced potential in the short term, but over time (7-10) years will present challenges to fire suppression resources and once again support large fire growth.

As part of the long-term fuels management strategy previous large fires such as the Caldor and Mosquito fires should be considered for active fuels management to maintain these landscapes in a state of reduced fire potential.

5.2.5 Fire Flow Paths

Key Issue – Approximately 300,000 acres within the CWPP planning area falls within a high to very high fire hazard rating and approximately 85,000 acres are subject to passive and active crown fire. Fuels mitigation and treatment strategies need to be optimized to provide the most efficient use of funding and personnel while providing the greatest reduction in fire hazard and threat to provide for zones of reduced fire behavior that promote enhanced landscape conditions, which promote firefighter and public safety and protection of values at risk and ecological resources.

Question 1 – Where can treatments be strategically placed to help reduce the likelihood of fire impacting access/egress routes?

Question 2 – To reduce the spread and intensity of large fires in undeveloped lands or large landscapes that are in high to very high hazard areas, limited funds, visual constraints and ecological considerations exist that limit the ability to treat the entire landscape. How can the use of fire flow paths be utilized to provide for zones of reduced fire behavior to alter the spread and direction of fire and provide for opportunities to implement fire suppression tactics?

Fire Flow Paths are an additional output captured from the Fire Threat Analysis described above. These fire behavior outputs were developed to examine the intersection and concentration of where fires originating from different parts of the landscape would converge or intersect at near or adjacent to areas of concern. Figure 70 is an illustration of a single fire Wildland Fire Flow Path. The Fire Flow Paths Analysis follows the same methodology as described above in the simulated fire frequency. While the fire behavior outputs are not absolute and are bound by the assumptions and limitations of data and individual models, the model outputs allow for the evaluation of multiple fires burning under identical conditions on a large landscape highlighting areas where these fires would converge into central locations that would benefit from fuels mitigation strategies.

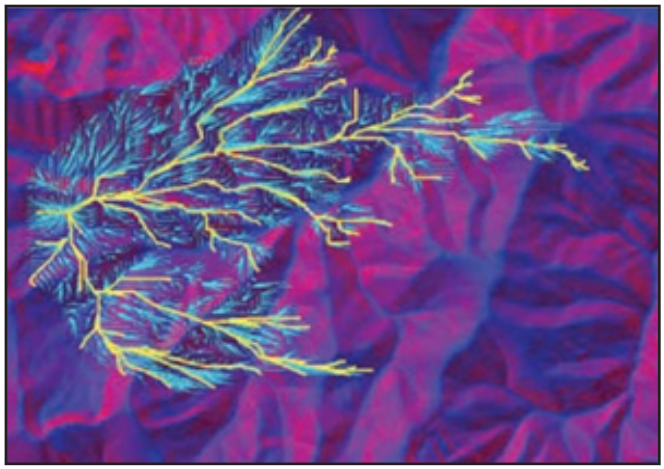


Figure 70. Generic Example of Fire Flow Paths

The following Figure 71 is a graphic illustration of the frequency or concentrations of the fire flow paths intersecting the travel routes across the CWPP planning area. This information can be helpful to evaluate the need as determined by Fire Hazard and prioritize fuel mitigation opportunities along travel routes to improve access/egress or implement ignition reduction measures or other types of strategies.

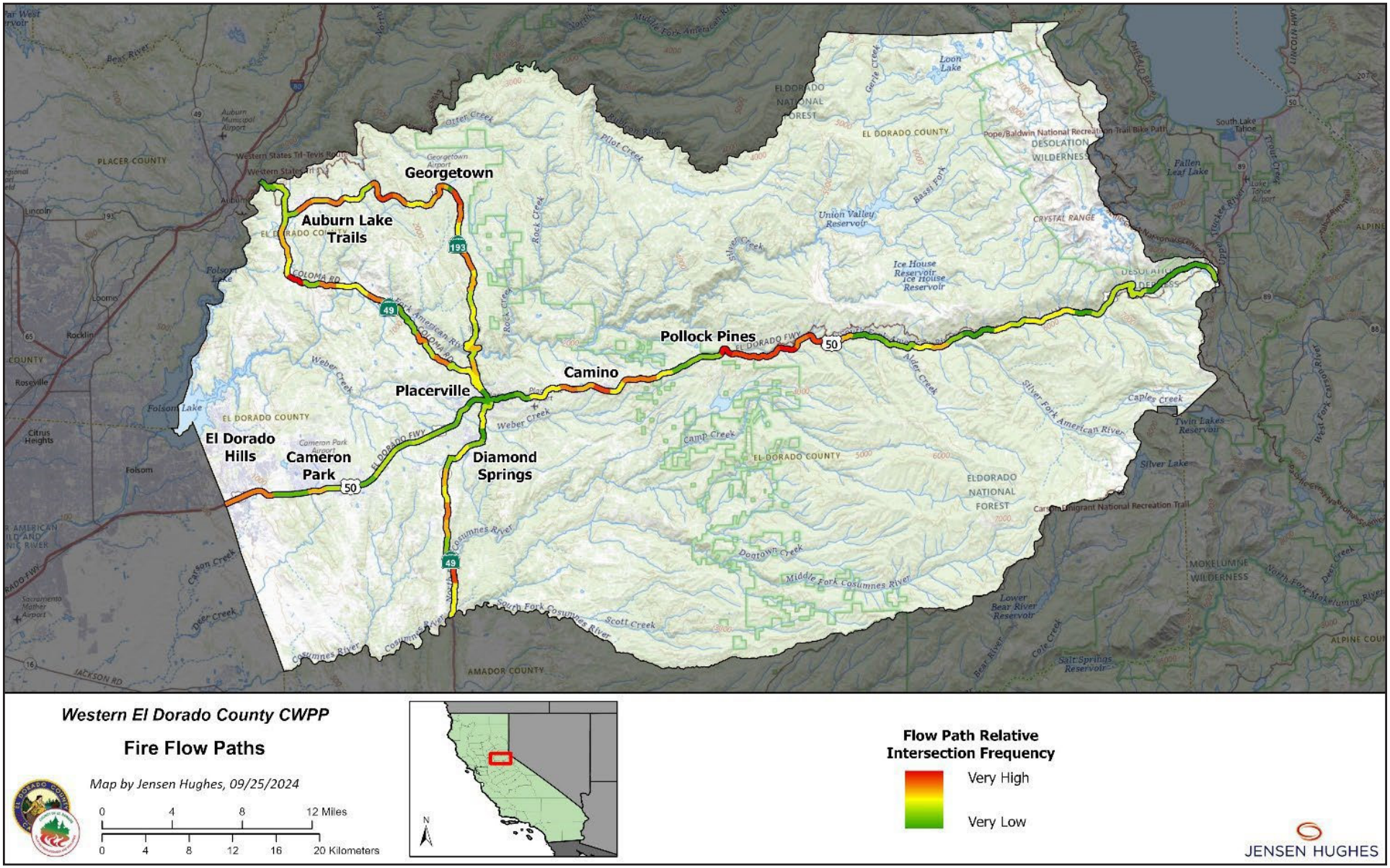


Figure 71. Major Fire Flow Paths Intersecting Major Travel Corridors (HW 50, SR-49, SR-193)

Utilization of fire flow paths to interrupt the spread and intensity of fire is based on the premise that disconnected fuel treatment areas overlapping the general direction of fire spread or fire flow paths, are theoretically effective in changing fire spread. Research conducted by Dr. Mark Finney (1999) suggests that fire spread rates can be reduced, even outside of treated areas, if a fire is forced to flank areas where fuels have been reduced or otherwise modified. Hence, the treated areas would function as "speed bumps," slowing the spread and reducing the intensity of oncoming fires and thereby reducing damage to both treated and untreated areas and the impacts of large wildfires.

Dr. Finney's research findings indicate that, given an effective treatment area shape and pattern, only a fraction of the landscape needs to be treated and maintained to produce the desired modifications in wildfire behavior over the entire landscape. Figure 72, Figure 73, and Figure 74 is a thought process behind this concept. This hypothesis underpins an effective fire/fuels strategy and recognizes that two criteria that must be met for the strategy to be effective: the pattern of treatments across the landscape must interrupt fire spread (Figure 73) and treatment prescriptions must be designed to significantly modify fire behavior within the treated area (Figure 74). This criterion will sufficiently enable fire management personnel to safely and effectively manage fire.

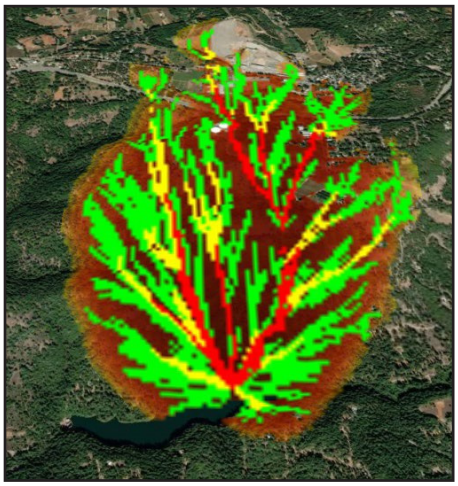


Figure 72. Simulated Fire Flow Paths

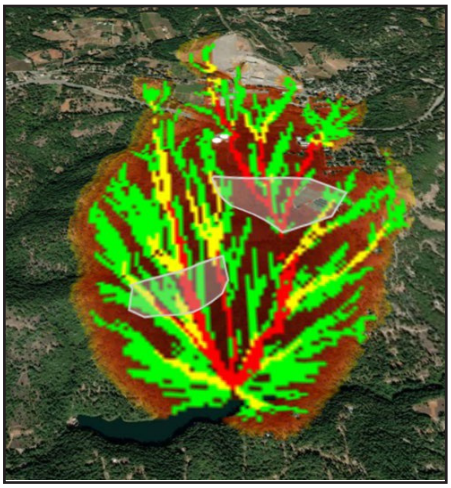


Figure 73. Design Fuel Treatments to Intersect the Major Fire Flow Paths



Figure 74. Simulation with a Modified Fuels Profile

5.2.6 Potential Crown Fire

In addition to flame length, the type of predicted fire can provide a strong correlation to the potential for extreme fire behavior characteristics such as how fires spread (surface or crown). The type of predicted fire also governs the potential strategic and tactical operations alternatives by fire agencies during a wildfire. Examples could include the use of aircraft or the potential for indirect attack methods based on crown fire potential or fast- moving brush fires.

The following are fire types and how they can influence potential fire behavior:

- **Surface Fire:** A surface fire burns in the surface fuel layer, which lies immediately above the ground fuels, but below the canopy. Surface fuels consist of needles, leaves, grass, dead and down branch wood, logs, shrubs, low brush, and short trees (<3 feet). Surface fire behavior varies widely depending on the nature of the surface fuel complex (vertical and horizontal arrangement). Surface fires are generally easier to contain than any type of crown fire.

- **Crown Fire:** A crown fire burns in the elevated canopy fuels. Canopy fuels normally consumed in crown fires consist of the live and dead foliage, lichen, and very fine live and dead branch wood found in the forest canopy. Reducing the potential for crown fire is very important in reducing the risk of lofted fire brands that may threaten structures and the WUI.

As a crown fire is dependent on a surface fire for both its initial emergence and continued existence, its advancement is linked to both the fuel layers and fire phases of the surface and tree canopy (Alexander and Cruz 2016). Based on the crown fire potential, fire managers can estimate how successful suppression efforts would be or how resistant the fire is to control. It can also highlight the potential increased risk of lofted firebrands. In addition, widespread crown fire can decrease forest health because of lost habitat structure and variability. Van Wagner (1977) defines the three types of crown fire as passive, active and independent crown fire. Passive crown fires are observed when crown fire is entirely dependent on the surface fire, that is the surface fire results in torching of individual or groups of trees but fire does not spread from tree crown to tree crown. Active crown fires are similar in that they are concurrent with a surface fire, however active fires also demonstrate fire transmission from crown to surface fuel. Independent crown fire occurs when the crown fire spreads through the canopy without contribution from a surface fire. Independent crown fire is rare, so the two most common types, passive and active crown fire, are simulated.

The potential fire type for future fires across the Planning Area is summarized in Table 17. Based on the current fuel conditions, there is approximately 364,000 acres across the planning area with the potential to experience a crown fire, given the current fuel loading, if a fire were to occur during a period when the fuel moisture/weather conditions are high or extreme. Figure 75 is a graphic illustration to display the spatial distribution of potential Crown Fire across the planning area.

Table 17. Fire Type Potential Under High to Extreme Weather and Fuel Conditions

Fire Classification	Acres Within Planning Area	Percent of Planning Area
Non-Burnable	105,542	10.5%
Surface Fire	533,797	53.2%
Passive Crown Fire	357,069	35.6%
Active Crown Fire	6,963	0.7%

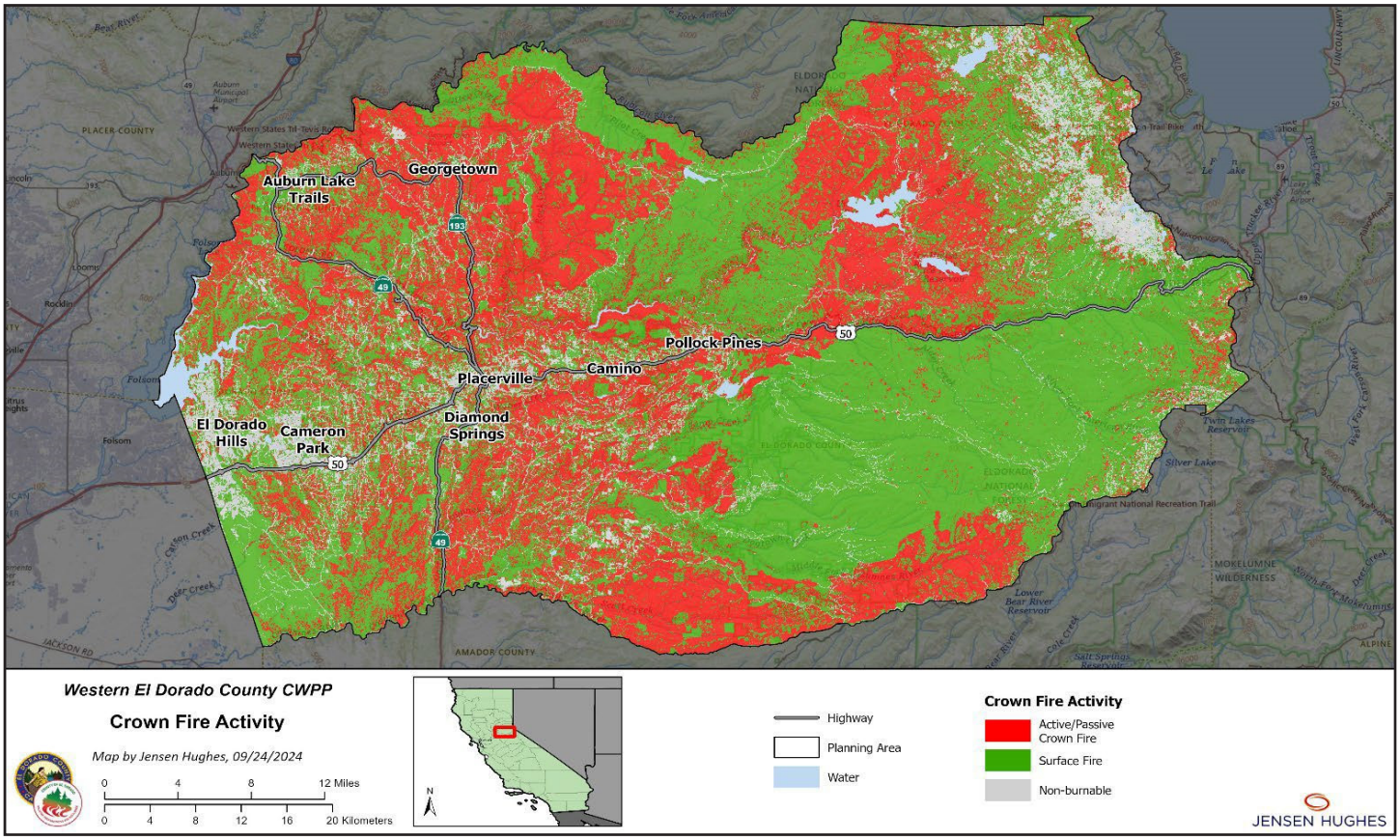


Figure 75. Crown Fire Activity

5.2.7 Flame Length

Flame Length is a measurement of the average distance from the base of the flame to its highest point and is a common standard oftentimes used to evaluate the potential of firefighting resources to succeed at fire suppression per the Wildland Fire Incident Management Field Guide (NWCG, 2014). Generally, these interpretations evaluate what type of firefighting resources would be required to successfully suppress the head of a wildland fire based on the observed fire length. Since flame lengths can be directly related to potential firefighting success, these breakpoints are used for classifying modeled fire behavior across the Planning Area.

As seen in Table 18, approximately 90.5% of the acres across the planning area are subject to flame lengths greater than 4 feet. Figure 76 is an Illustration of the spatial distribution across the planning area post-Caldor, Mosquito and King fires.

Table 18. Flame Lengths Across the Planning Area

Flame Length (feet)	Acres Within Planning Area	Percent of Planning Area
Non-burnable	95,385	9.5%
> 0-2 ft	115,129	11.5%
> 2-4 ft	71,393	7.1%
> 4-8 ft	179,427	17.9%
> 8-12 ft	84,412	8.4%
> 12 ft	457,634	45.6%

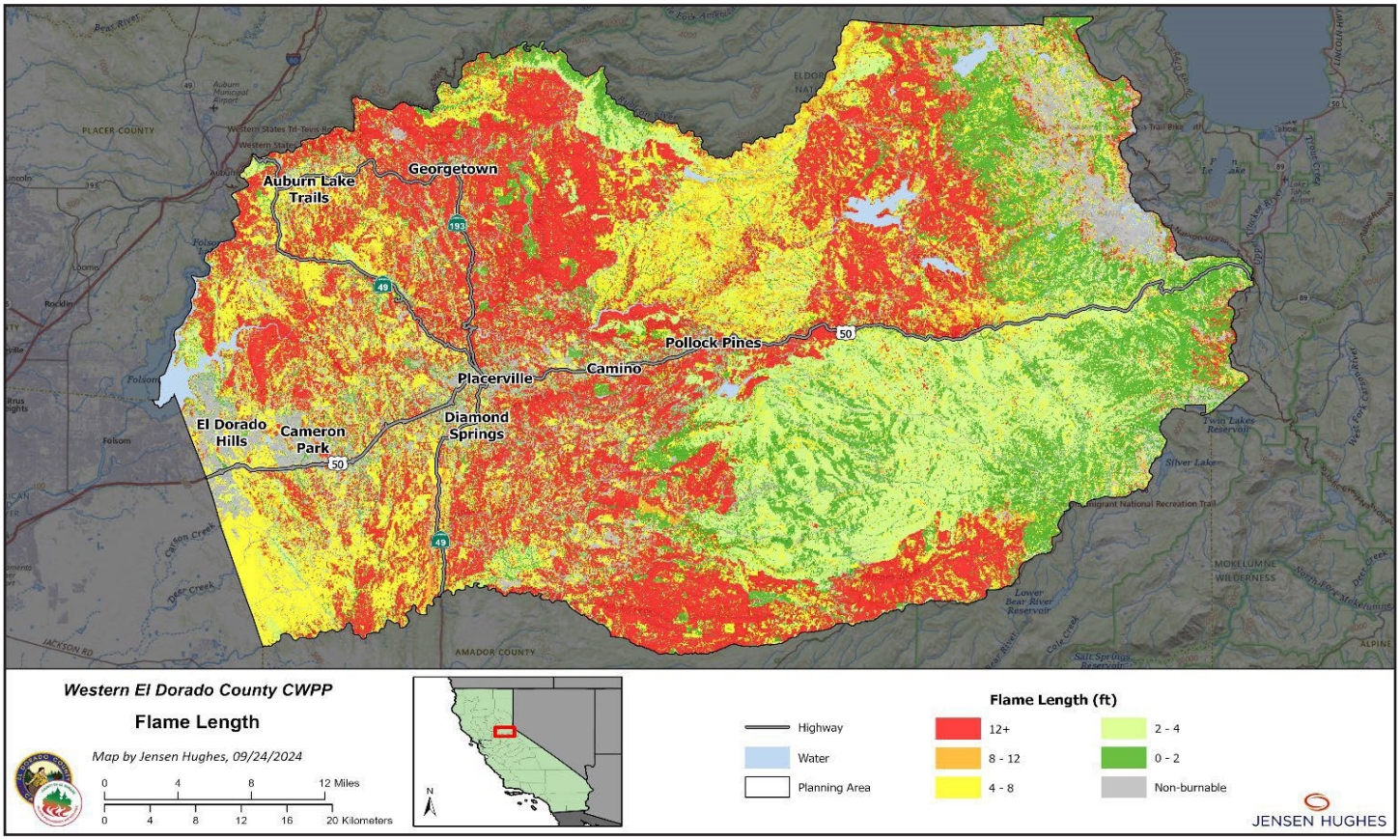


Figure 76. Flame Length Post-Caldor, Post-Mosquito, and Post-King Fire

IMPORTANT NOTE: Although there appears to be areas on the flame length map that are not at risk from a wildfire, this reflects the limitations of the fire model. With most wildfire modeling tools, wildfire behavior is limited to lands with vegetative fuel loads. As developed areas within the County consist mostly of structures and other man-made fuel loads (e.g., infrastructure, ornamental vegetation, propane tanks or high concentrations of non- burnable fuels (such as granite mountains), the fire behavior model does not account for fire spread in urban fuels, and thus will show as "unburnable". However, as was evident in many WUI fires, wildfire will spread readily through developed areas, particularly under conditions of high wind and low relative humidity.

5.2.8 Ember Exposure Analysis

Embers constitute one of the greatest threats to homes and other structures as they may be carried for long distances (from hundreds of feet to upwards of two miles) ahead of the main fire front or from burning urban fuels (e.g., structures), igniting receptive fuel beds in and around structures. See Figure 77 for general transport mechanism for embers or firebrands during a wildfire incident. For this plan, fire modeling was used to evaluate the potential ember exposure expected under the 97th percentile conditions scenario from the previous section.

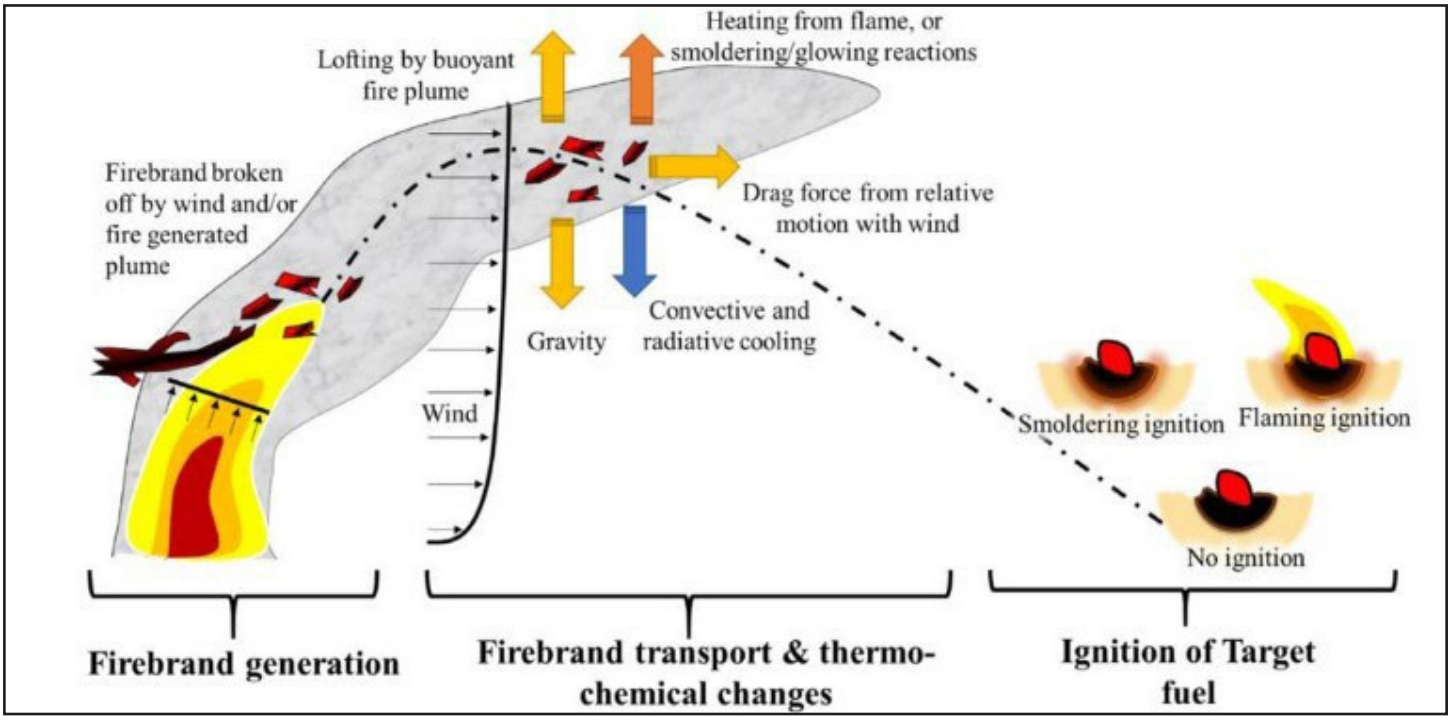


Figure 77. General Generation, Transport and Ignition Mechanisms for Embercast in a Wildfire

To develop an Ember Exposure maps (Figure 78), the maximum spotting distance of each pixel on the digital landscape was determined from FlamMap using a 10-mph west-southwest wind and the "dry" fuel moisture scenario (i.e., 3, 4, 5, 40, 80 percent). Using the outputs from FlamMap, each pixel on the landscape was buffered in ArcGIS to represent the maximum spotting distance. For example, a pixel with a 300-foot MAXSPOT distance was buffered 300 feet in all directions from the center of the pixel. This creates a circle on the digital landscape with a 300-foot radius. When all pixels on the landscape are buffered, the outcome is a series of overlapping circles that represent how many surrounding pixels might contribute embers to the pixel in the middle. The number of potentially contributing pixels is then divided by the total number of pixels that could contribute within a radius equivalent to the maximum spotting distance observed for the Planning Area. This yields a percentage that represents the proportion of surrounding pixels (i.e., the surrounding landscape) that would potentially provide embers to a given pixel: the Ember Exposure.

As spotting from embers is highly erratic and very difficult to model accurately with the current best available science and modeling, it is best to assess these percentages relative to each other, rather than as a direct probability. For example, the maximum probability of Ember Exposure for the Planning Area is 15%. Rather than interpreting this as a 15% probability that a location will be exposed to embers, interpret it as 15% of the surrounding landscape will contribute embers in a wildfire. A location that received embers from 15% of the surrounding landscape will have nearly 3x the Ember Exposure level of a location that only receives embers from 5% of the surrounding landscape

It is extremely important to recognize that it only takes a single ember to create a spot fire or burn down a home; therefore, areas characterized by Low Ember Exposure are still at risk during a wildfire, and mitigation measures, such as defensible space and home hardening, can reduce the probability of ignition and spread.

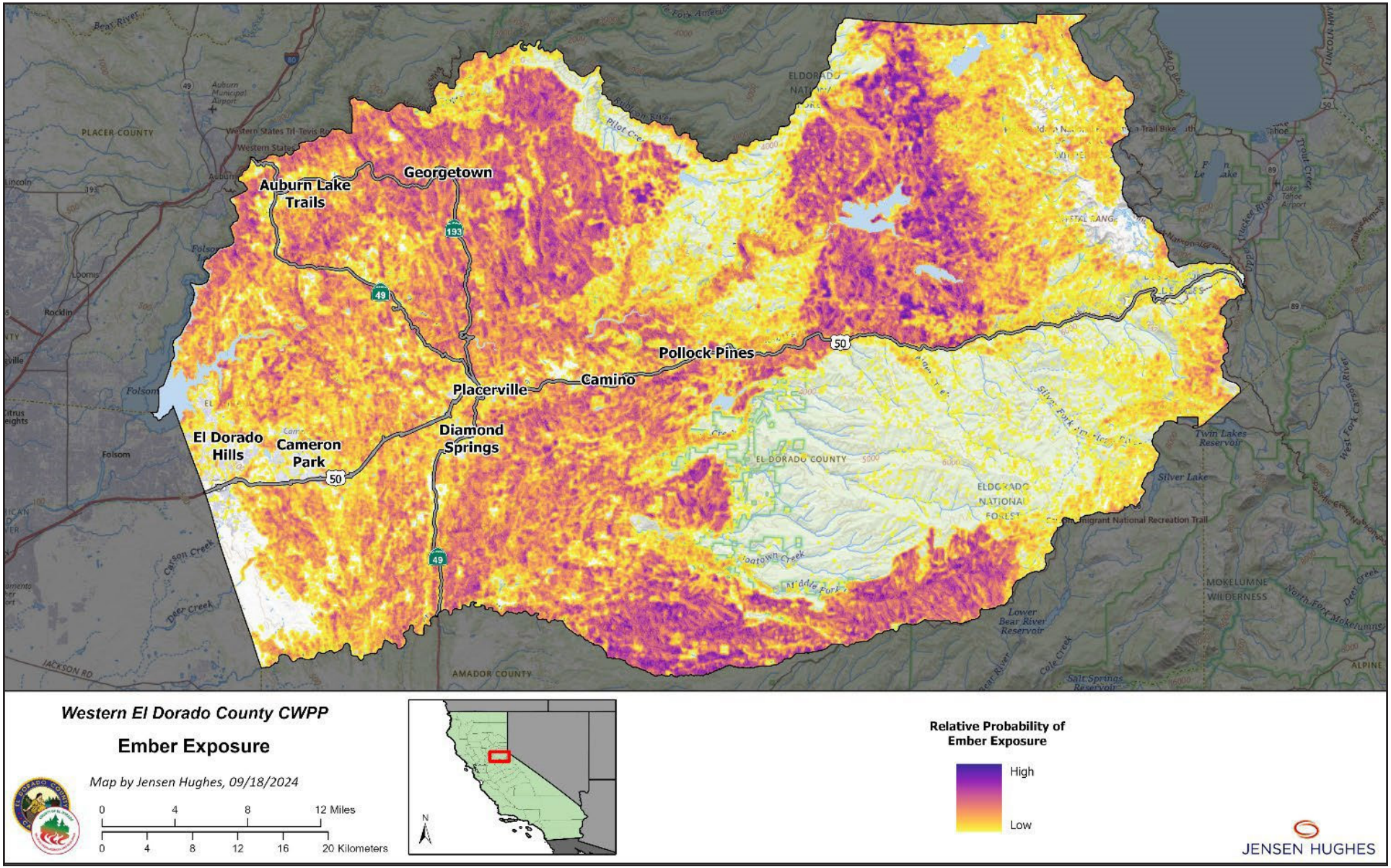


Figure 78. Ember exposure probability across the Planning Area in summer months. Note: The percentage represents the proportion of the surrounding area that would contribute embers to a given location, rather than the probability of the location being exposed to embers.

5.3 Community Risk Assessment

In its simplest form, community wildfire risk is the likelihood of a fire and its potential consequences on the community. It includes the identification of potential fire hazards and associated characteristics such as location, intensity, frequency and probability; the analysis of exposure and vulnerability of physical, social, health, environmental and economic assets or values in the community; and the evaluation of the effectiveness of coping capacities in response to and recovery from potential wildfire impacts. This provides a basic framework to not only identify potential risks but, more importantly, determine various strategic actions for individuals, communities, agencies and other stakeholders to implement to better prepare for, mitigate, respond to and recover from future wildfire threats.

For the purposes of this Plan, the community risk assessment is based on a combination of approaches – both quantitative and qualitative – to determine the nature and extent of wildfire risks across the Planning Area. In addition to the quantified risk assessment in Section 5.3.1, various physical and social vulnerability analyses – structure defensibility, neighborhood- and parcel-level vulnerabilities, community-level vulnerabilities, vulnerable populations – were conducted to help further inform prioritization and development of more targeted mitigation actions (see Section 5.3.3).

5.3.1 Quantified Risk Assessment

To understand the potential wildfire risks across the west slope, a quantified risk assessment was performed in collaboration with the Steering Committee using a combination of the following:

- **Hazard Analysis:** The potential and characteristics of wildfire hazards across the Planning Area including location, severity and frequency of wildfires. The “fire hazard” (or “fire severity”) component of the hazard analysis includes an evaluation and combination of various fire characteristics (e.g., flame length, crown fire, spotting, canopy cover, PM10 emissions). See Section 5.2.4 for more details. The “fire threat” or “simulated fire frequency” component represents the frequency of fire across the Planning Area given historical fire starts. See Section 5.2.3 for details.
- **Exposure Analysis:** Identification, quantification and evaluation of a variety of values or assets that are at risk of being negatively impacted by potential wildfire hazards including people, property, critical infrastructure and facilities, natural resources, economic resources, health, etc.
- **Vulnerability Analysis:** Evaluation of the inherent susceptibility of people, property and economic assets to suffer loss and/or damage. This may include socio-economic attributes, physical construction of buildings, spatial arrangements of neighborhoods, firefighting response capacities and water supplies.

These components were combined using the following general equation:

$$(0.6 \bullet Fire\ \ Hazard + 0.4 \bullet Fire\ \ Threat) \times (Asset\ \ Count + Vulnerability)$$

Where,

Fire Hazard – is a combination of various fire characteristics, as described above [Scale: 0-5]

Fire Threat – is the simulated fire frequency, as described above. [Scale: 0-5]

Asset Count – is the density of values or assets at risk from fire exposure. [# of assets]

Vulnerability – is an additional term(s) to account for the potential increase in damage or loss due to social or physical susceptibilities to wildfire impacts. [1 – 2.5]

As seen in the generalized risk equation, there are two components describing the fire: (1) fire hazard and (2) fire threat. The reason for combining these two components is to acknowledge that wildfire risk is not only a function of how severe a fire is, but also how frequently it occurs. In other words, some of the most concerning fires are those that occur less often AND are severe (low frequency high intensity), particularly if they occur near high value assets or in vulnerable areas. High frequency-low intensity fires (such as those that occur in grasslands in the western part of the county), may occur more often but they tend to be low intensity and therefore more manageable from a firefighting perspective.

Some of the most concerning fires are those that occur less often AND are severe (low frequency high intensity), particularly if they occur near high value assets or in vulnerable areas. High frequency-low intensity fires (such as those that occur in grasslands in the western part of the county), may occur more often but they tend to be low intensity and therefore more manageable from a firefighting perspective and are closer to resources.

Refer to Figure 79 for the combined hazard and threat components of the risk equation, showing how the balancing of fire severity (or “hazard”) and fire frequency (or “threat”) impact the spatial distribution of potential concerning fires throughout the Planning Area.

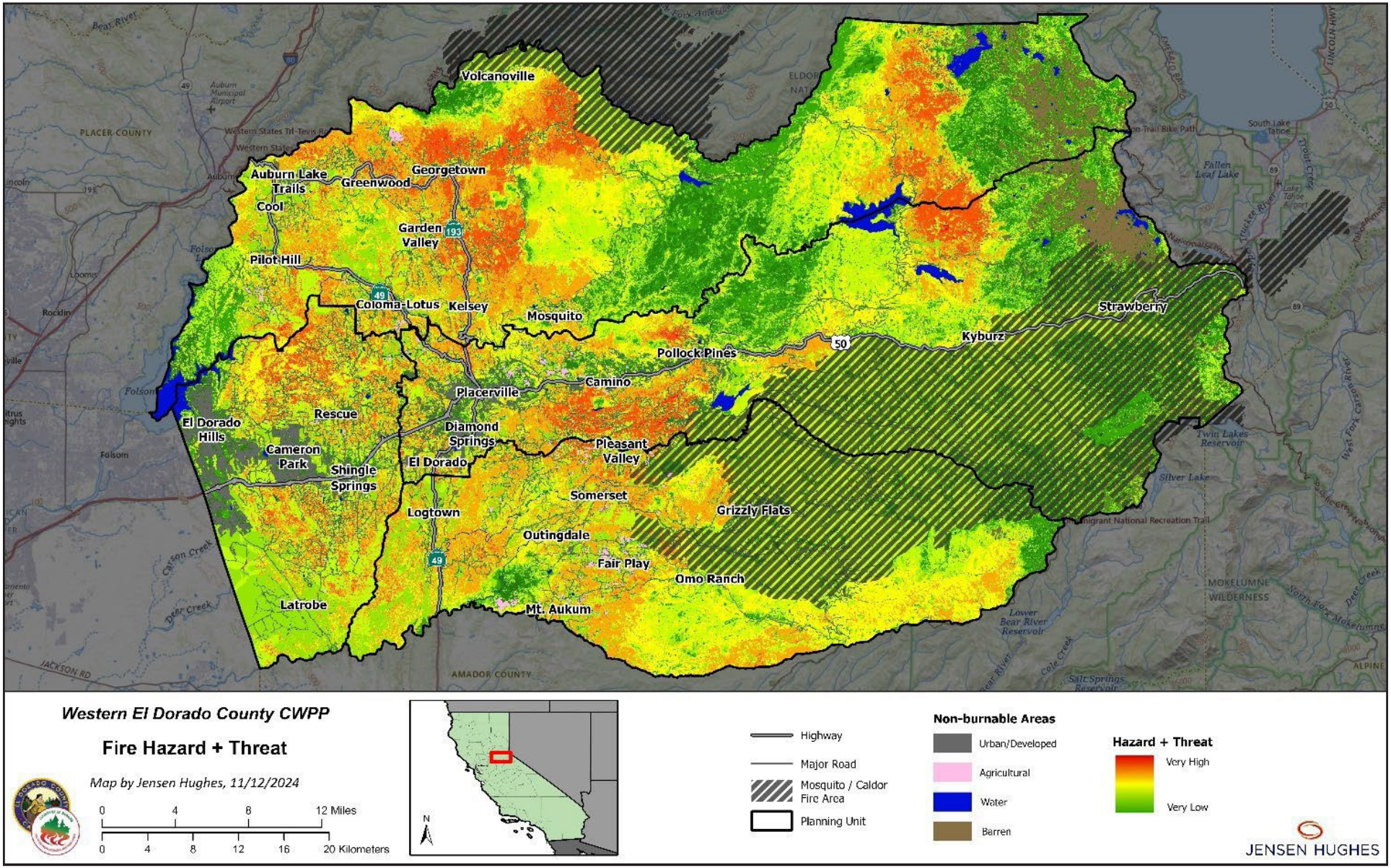


Figure 79. Hazard component of Risk Assessment (0.6 Hazard + 0.4 Threat). This map provides a spatial understanding of where the potentially more severity and frequent fires may occur across the Planning Area.

As wildfire risk is not just a function of the fire itself, but also whether there are community values at risk, the general risk equation also includes a component for "assets" and "vulnerability." For this plan, four (4) different measures of risk were evaluated to better understand different aspects of risk. These are as follows:

(1) Risk to People, Property, and Infrastructure

(2) Risk to Natural Resources

(3) Risk to Economic Resources

Note: Refer to Appendix C for risk maps at the Fire Planning Unit (FPU) Level.

(4) Comprehensive Risk – A combination of risk to physical assets, natural resources and economic values.

As each of the four (4) measures evaluates risk from a different perspective, the types of assets or values, and the vulnerabilities included in each analysis are specific to that perspective. For example, risk to people, property and infrastructure focuses more on potential impacts to physical, built environment assets particularly as these assets are also where populations are likely to reside. Risk to economic resources includes physical infrastructure, but also non-physical assets in the landscape that provide the County with economic value, tourism and other recreation areas (e.g., Sierra-at-Tahoe ski resort, Apple Hill and agricultural land).

An indication of the various asset categories and asset types that were included in each risk assessment are provided in Table 19 below. For the comprehensive risk map, all asset types were included.

Table 19. Values/Assets Included in the Risk Assessment

Critical Infrastructure	**Other Physical Assets**	**Economic Assets**
C: Communications	S: Structures / Buildings	Critical Infrastructure + Facilities + Structures
E: Transmission Lines		Cg: Campgrounds
R: Roads	**Natural Assets**	A: Agriculture
W: Water Infrastructure	CH: Critical Habitat	Pk: Parks
	GPS: Gabbro Protected Spec	Sk: Ski
Critical Facilities	GSS: Gabbro Serpentine Soils	
F: Fire Stations		**Vulnerabilities**
P: Police Stations		M: Mobile Home Parks
H: Hospitals		
S: Schools		

Refer to Figure 80 for risk maps of the four different measures of risk across the planning area. Note: The Mosquito and Caldor fire footprints are hatched out for reference, but also because the impact of those recent fires will underestimate the hazard component of the risk equation in those areas. Risk is displayed from green to red, with red indicating areas of high risk. "Non-burnable" regions (i.e., urban areas, agriculture, water and barren lands) are also indicated on the risk maps. These areas, with the exception of the water features, are a limitation of the wildfire behavior models, which do not include a burnable fuel model for these areas. This does not mean they cannot burn; they just have a lower likelihood of burning and/or fire science has yet to credibly define the burn characteristics.

IMPORTANT NOTE: "Non-burnable" regions (i.e., urban areas, agriculture, water and barren lands) in the following risk maps are not truly "non-burnable" with exception of the water features. The "non-burnable" areas are only a limitation of the wildfire behavior models, which currently do not have fuel models for these land-type uses. This does not mean they cannot burn. It just means that fire science has yet to develop credible burn models to describe the fire characteristics (e.g., flame length, rate of spread) through these spaces. That said, these areas can be considered to have a lower likelihood of burning as a wildland fire. In some cases, for the urban areas, these are no longer wildland fuels, but urban fuels.

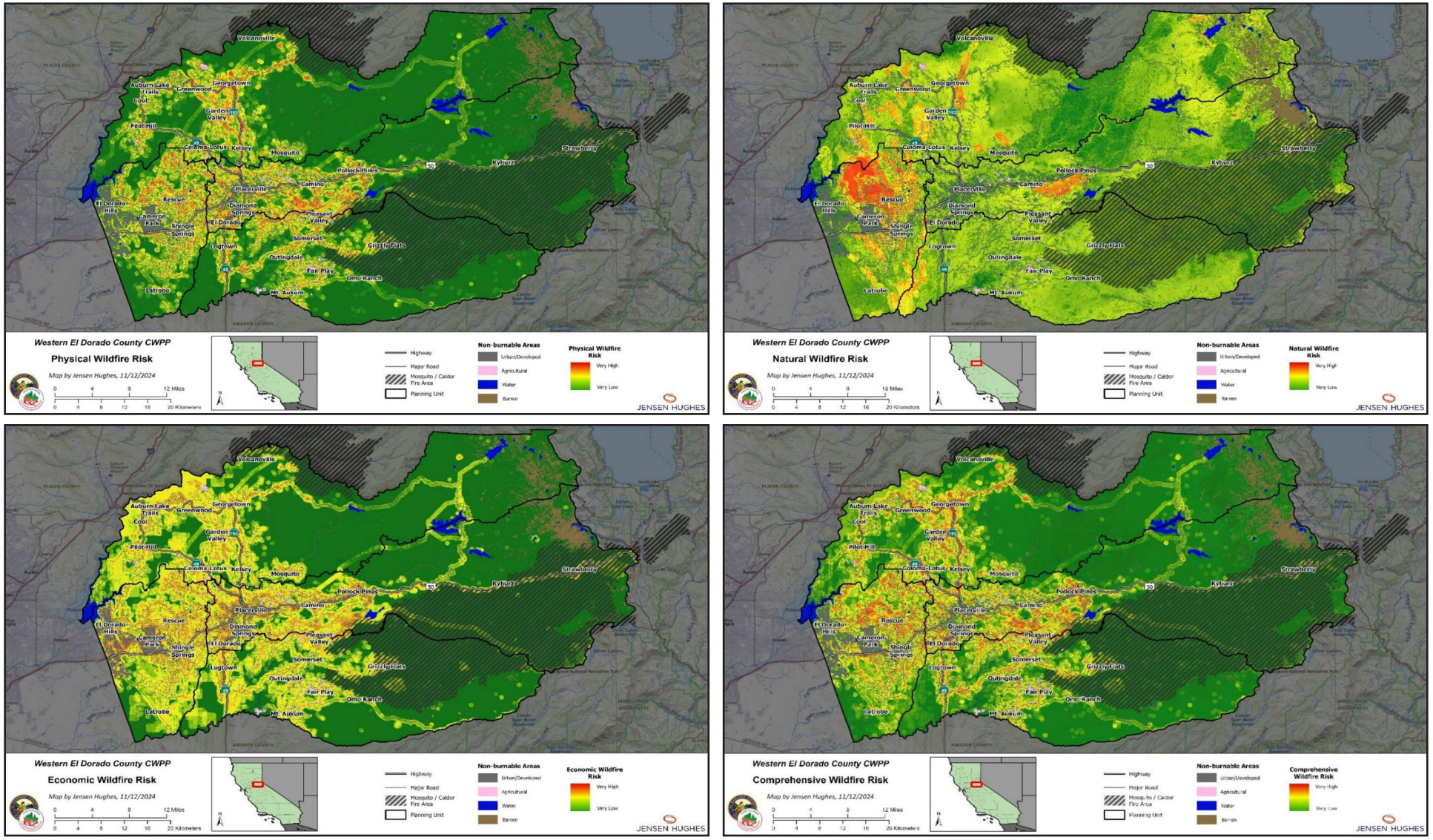


Figure 80. Quantified wildfire risk across the planning area from four different risk perspectives. (top left) – Potential wildfire risks to people, property and infrastructure; (top right) – Potential wildfire risks to natural resources; (bottom left) – Potential wildfire risks to economic resources (bottom right) - Comprehensive wildfire risk across the West Slope. Refer to the County GIS Interactive Dashboard and the CWPP Storymap for full-size maps.

5.3.2 Structure Defensibility

Research studies of structure loss during wildfires have shown that one of the key determinants influencing building survivability, both community and residential, is whether firefighters are able to have sufficient operational space to safely defend a structure from wildfire (e.g., direct flaming, embers, or flying debris). In reality, defining the degree to which a structure might be defendable is highly complex and typically requires an onsite inspection of an individual property to assess the range of factors that can influence risk (e.g., site layout, local topography, proximate vegetation, building materials and construction, local landscaping, outbuildings, access, water supplies). The Incident Response Pocket Guide by the National Wildfire Coordinating Group (NWCG), provides a list of broader tactical challenges of fighting fire in the WUI, almost all of which occur in western El Dorado County (NWCG, 2014). Below is a list of some of these challenges:

- Narrow roads, unknown bridge limits, and septic tank locations
- Ornamental plants and combustible debris next to structures
- Poor driveway access and low clearances
- Limited opportunities to observe the main fire
- Wooden siding and/or wooden roof materials
- Structural components, such as open vents, eaves, decks, and other ember traps
- Fuel tanks, propane tanks, and hazardous materials
- Powerlines
- Limited water sources or low water flow rates
- Property-owners remaining on-site

For this plan, a more generalized approach to defensibility has been adopted to help identify areas of the Planning Area where structure defensibility may be challenging. In this analysis, defensibility has been defined as a function of both wildfire hazard (i.e., flame length) and fireline production rate criteria. Fireline production rate is based on how quickly firefighters can establish a fireline given various vegetative fuel types. Generally, grasses and low brush have faster fireline production rates than do heavy brush or timber-based fuel models.

Table 20 summarizes the matrix used to determine how fireline production rates and wildfire hazard combine to create a defensibility potential. In general, the higher the hazard class and the slower the fireline construction rate, the lower the defensibility. A “Low Defensibility” rating means that the location is relatively more difficult to defend than a “High Defensibility” rating.

Table 20. Defensibility Matrix

Defensibility Potential			
Wildfire Hazard (i.e., flame length)	**Fireline Production Rate**		
	Slow	*Medium*	*Fast*
Low	Medium	High	High
Moderate	Low	Medium	Medium
High	Low	Low	Low
Very High	Low	Low	Low

As the Planning Area was extensively impacted by the Caldor Fire in 2021 and the Mosquito Fire in 2022, it is critical to plan for rapidly changing Defensibility and identify where mitigation efforts are most critical. To aid in this assessment, a Defensibility assessment was conducted for the same scenario as described above. Figure 81 shows the results of the defensibility analysis for the Planning Area.

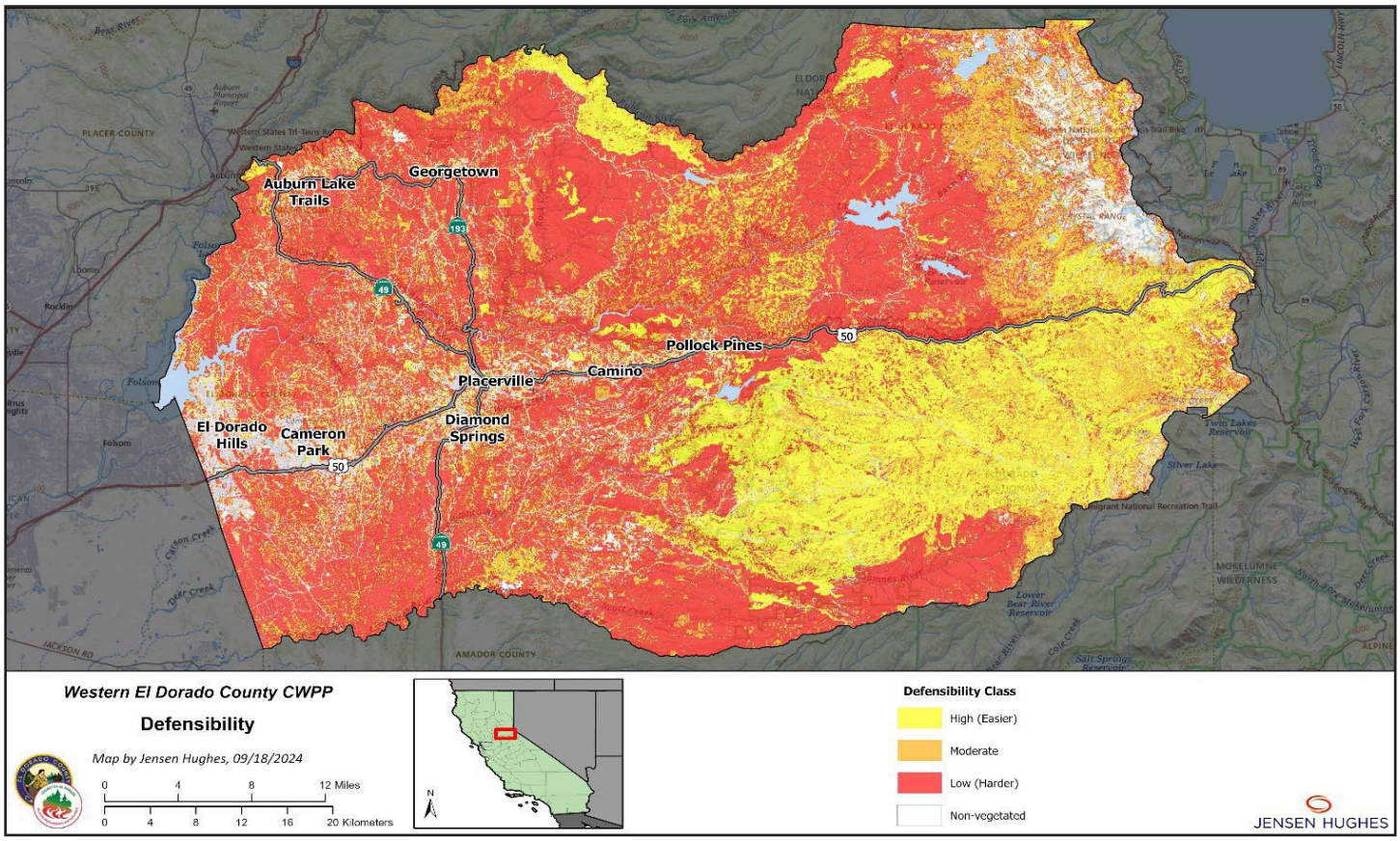


Figure 81. Defensibility Rating Across the Planning Area – Summer Months

The defensibility analysis demonstrates that the proportion of the landscape that would currently be difficult to defend under 97th percentile conditions is still substantial at 70% of the Planning Area (Table 21). Only 17% of the Planning Area is currently Highly Defensible, primarily the footprints of the Caldor and Mosquito fires, and that will only decrease as the vegetation regenerates.

Table 21. Structure Defensibility in acres and percent of the Planning Area for three different fire scenarios. Low defensibility is the most difficult to successfully protect, while High Defensibility has the highest probability of successful resource-at-risk protection.

Defensibility Classes by Acreage and Percent of Planning Area		
Defensibility Class	**97th Percentile Fire Scenario**	
	Acres	*% of Planning Area*
High	144,560	17%
Moderate	77,176	9%
Low	505,538	61%
Unburnable or Urban	105,687	13%

IMPORTANT NOTE: Property owners and other stakeholders should recognize that locations classified as having "Not Flammable/Non-Combustible" or having a "High Potential of being defendable" during a wildfire are still at risk of damage or destruction. Vegetation classifications focus on wildland vegetation and classify areas where there are homes as "developed and not flammable", even though both the homes and the landscaping around the homes can be highly flammable if the homes are not hardened and defensible space requirements are not followed. Past wildfires in the area have damaged and destroyed structures even in more moderate burning conditions. Ultimately, maintaining proper defensible space and appropriate structural hardening techniques will provide the best chances for a structure to survive a wildfire than its "Defensibility" classification alone.

These scenarios estimate defensibility in the absence of risk reduction and vegetation management activities, which can be strategically placed to promote High Defensibility immediately adjacent to structures and the community. The most effective strategic fuel reduction activities to support structure Defensibility would be placed in locations that are currently low or moderate Defensibility and are places that can be easily accessed by fire suppression resources. Even locations with High Defensibility see poor outcomes if fire suppression resources are unable to access the site due to steep or narrow roads, low visibility, lack of turnaround, gates, or other barriers to safely placing engines or crews at a location.

5.3.3 Neighborhood & Parcel-Level Vulnerability

5.3.3.1 Technical Background

In 2023, wildfires destroyed 4,318 structures across the United States, 2,317 of which were in northern California. Of the destroyed structures, over 3,000 were residences.[27] In 2018, these figures were at catastrophic levels with wildfires destroying 25,790 structures, 18,137 of which were residences. Of the destroyed residential structures 17,133 were in California, primarily due to the Camp and Woolsey Fires.[28]

While earlier research focused on the home ignition zone as providing the primary sources of structure vulnerability (e.g., construction materials, home hardening and defensible space features immediately around the home), current research and technical guidance also highlights the significance of landscape level features and neighborhood designs on influencing structure vulnerability to wildfires. That is, a structure's vulnerability is determined by a complex interaction of vulnerabilities at different scales – building, parcel, neighborhood, and community. Ways in which these scales influence vulnerability include:

[27]www.predictiveservices.nifc.gov/intelligence/intelligence.htm, 2023
[28]www.predictiveservices.nifc.gov/intelligence/intelligence.htm, 2018

- **Potential Neighborhood and Community Design Vulnerabilities:** Key influences on vulnerability include housing density or separation distances with other structures, zoning and land-use planning, access/egress routes, setbacks to hazardous topographic features both natural and man-made (e.g., steep slopes, ridges, gullies, drainage ditches, open spaces/parks), integration of greenbelts and recreational uses within the built environment, and road placement. These characteristics impact the likelihood of (1) wildfire spreading into a community, (2) frequency and/or intensity of fire exposure, (3) structure-to-structure ignitions and associated fuel loads and intensities. Figure 82 shows an example of how neighborhood or community design can lead to fire flowing into a neighborhood and influence structure vulnerability.

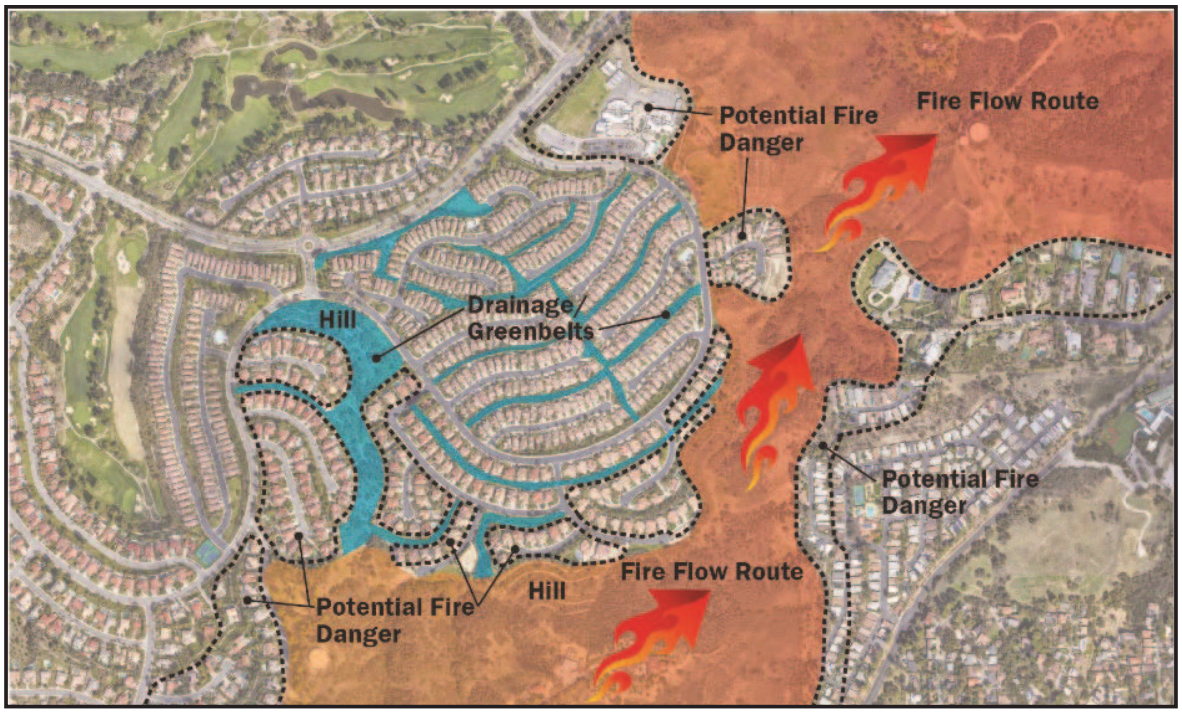


Figure 82. Example of a Fire Flow Path via a Greenbelt Into a Community (Source: FEMA)

- **Potential Vulnerabilities from Adjacent Vegetated Open Space:** Large, uninterrupted, mostly unmanaged open space (e.g., parks, greenbelts, riparian areas, undeveloped lots, absentee landowners, and recreational use spaces) can provide a potential source of wildland fire or fuel bed for ember ignitions proximate to homes.

- **Potential Vulnerabilities from Human Activities Adjacent to Communities:** Human activities occurring in or near communities, including those associated with unhoused populations, can increase the potential for unwanted ignitions.

  The El Dorado County Sheriff's Department Homeless Outreach Team will continue to coordinate with CAL FIRE and the County Office of Wildfire Preparedness and Resilience, along with local fire districts, the Shingle Springs Band of Miwok Indians Tribal Fire Department, fire safe councils, and other partners, to identify ignition trends and proactively reduce transient-related fire risk and associated impacts.

- **Potential Vulnerabilities from Adjacent Non-WUI Designed Structures or Neighborhoods:** Neighborhoods with older construction located within the WUI or proximate to the WUI are generally not designed to meet modern building and fire code standards for wildfire resistance. This makes these neighborhoods and structures more easily ignitable and they can ultimately become a fire source and ember generator that may present a threat to adjacent homes and neighborhoods – whether those neighboring structures are designed to WUI standards or not.

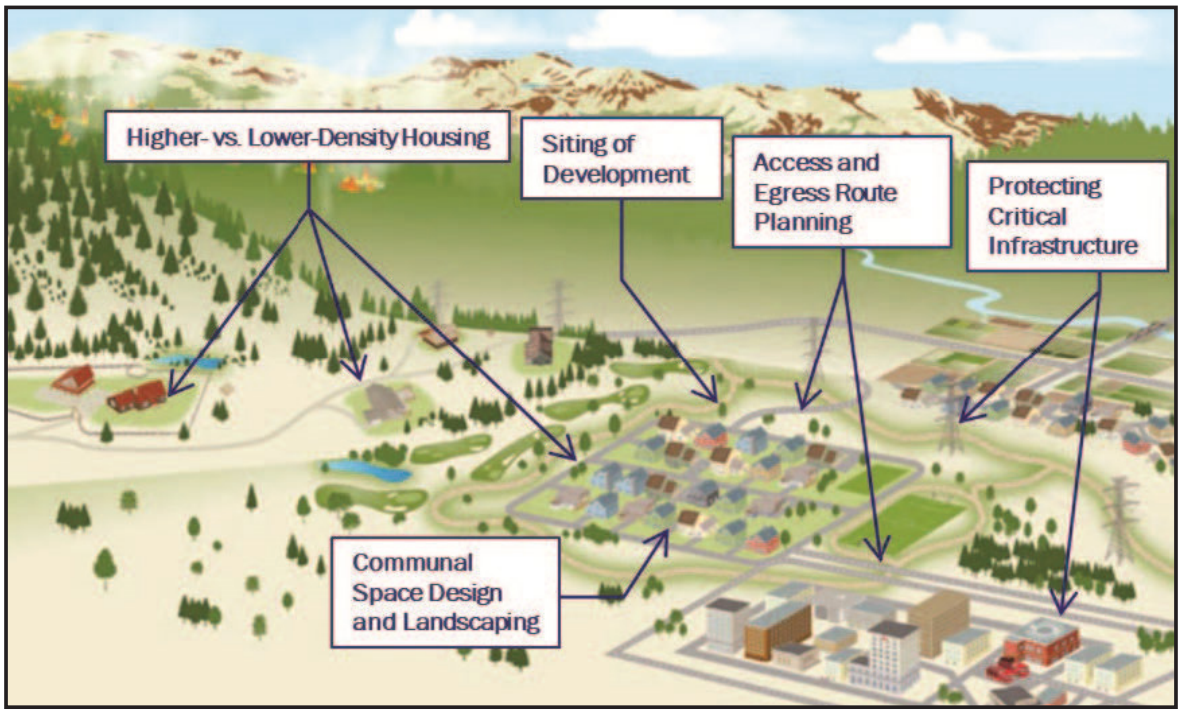


Figure 83. Various Community and Neighborhood Level Features that Can Influence Wildfire Exposure at a Local Level (Source: FEMA)

- **Building Component and Parcel Details:** Non-WUI-compliant building construction, lack of vent protection, combustible siding, combustible decking and fencing, non-fire resistant roofing, the location of structure on site (e.g., mid-slope, hilltop), maintenance practices of structure and landscaping, and proximate fuels (e.g., flammable materials, sheds, other structures) within 30-100 feet all impact ignitability. The heat transfer mechanisms which ignite structures occur due to fire from wildlands, open spaces, greenbelts, and communal spaces to structures, but also from fire spreading from structure-to-structure and from other items in the built environment. This phenomenon is known as an urban conflagration.

Figure 84 provides a high-level overview of the various heat transfer mechanisms that cause structure ignition regardless of the characteristics of the community, neighborhood, parcel, or building.

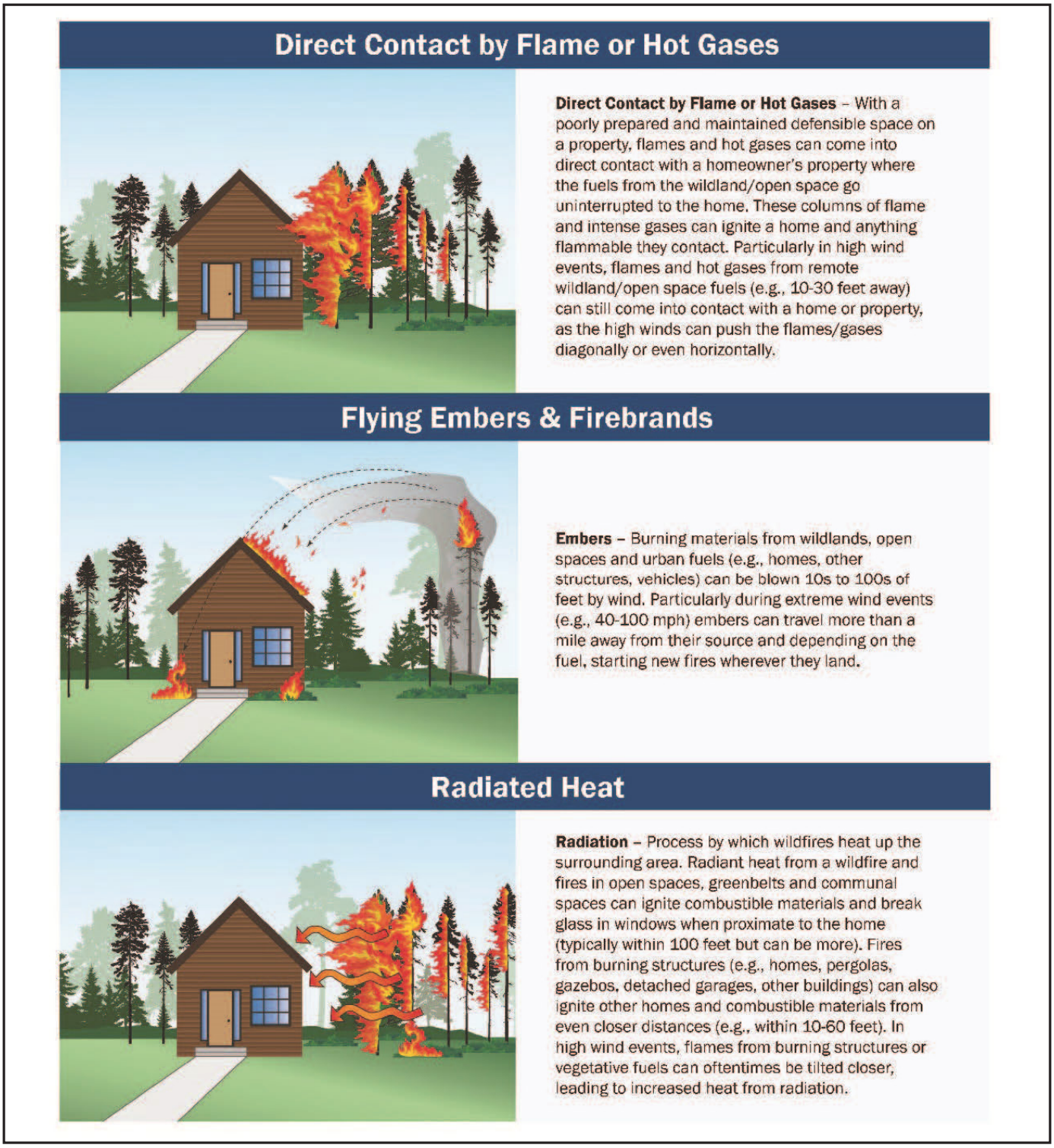


Figure 84. A structure can ignite during a wildfire due to direct contact, flying embers, and radiated heat. (Source: FEMA)

5.3.3.2 Observations of Neighborhood- & Parcel-Level Vulnerabilities

Most communities in western El Dorado County are vulnerable to wildfires due to their proximity to wildland vegetation, including in the Eldorado National Forest and other large open spaces throughout the western slope, and general intermixing throughout the Planning Area of man-made and wildland fuels, as evidenced by their classification as WUI lands by CAL FIRE (See Section 3.3). Even structures more remote from large areas of continuous vegetation, such as in parts of El Dorado Hills, are also vulnerable due to embers or firebrands that can be carried large distances from the fire front. Receptive fuel beds can include ornamental landscaping, dead vegetation, litter, debris built up in rain gutters, and mulch beds. Enclaves, islands, and riparian corridors of wildland vegetation and ornamental vegetation are also found in neighborhoods and interspersed with structures throughout the community. These create significant opportunities for wildfires to ignite, establish, and destroy structures.

Numerous residential communities throughout western El Dorado County have varying degrees of structure ignitability vulnerabilities to wildfire, including:

- **Roofing:** Roof construction and maintenance is a key factor influencing structure loss in wildfire. Vulnerability is not just related to roofing material, but also design, construction details, condition, and whether the roof is clear of combustible material (e.g., pine needles and other debris) (Figure 85). Older homes in the region have more vulnerable roofing materials and areas with overhanging vegetation were observed to have more vegetative debris on roofs.



Figure 85. Roof with an accumulation of pine needles at the roof valley, creating a potential fuel bed for ember ignition.

- **Garages:** Gaps at the top, bottom and edges of garage doors allow firebrands to enter. Garages often contain combustible materials that enhance ignition potential. Garages also usually have vents at various locations, especially if the garage contains a gas furnace or hot water heater. These vents can be easy entry points for embers.
- **Siding:** Combustible siding can provide a pathway for flames to reach vulnerable portions of a structure, such as eaves or windows. Siding is especially vulnerable when combustible materials (e.g., vegetation, wooden decks and fences, stacked firewood) are near a structure's siding and can provide a heat source to ignite siding. (Figure 86)



Figure 86. El Dorado County home with combustible wood siding and with stacked firewood in close proximity to the structure

- **Vents:** Soffit vents in eaves are an easy entry point into a structure for wind-driven embers during a wildfire. Attic fires are not easily detected from the outside and structures have been lost when fire personnel have left the scene unaware that a fire has ignited in the attic.
- **Windows:** Unprotected and inadequate windows can be a major entry point for fire. Windows broken by airborne materials or cracked by thermal expansion during a wildfire provide an access point for materials in the structure to be ignited through radiation, convection, and/or firebrands. Older homes with single-pane windows, which pose a higher risk, were observed throughout the County.
- **Nooks and Crannies:** Grooves, inside corners, and roof valleys are areas where flammable debris (e.g., pine needles, bird nests) collect over time. Embers can land on this debris and ignite it. These areas can also be a collection point for multiple embers which creates a larger ignition threat to underlying and adjacent materials.
- **Crawlspace Vents:** If not adequately screened, these areas, not just vents under a structure but also those under decks and other attachments, are difficult to protect. Much like vents in the attic, embers and firebrands can enter these areas and ignite combustible materials underneath a structure or attachment (Figure 87).

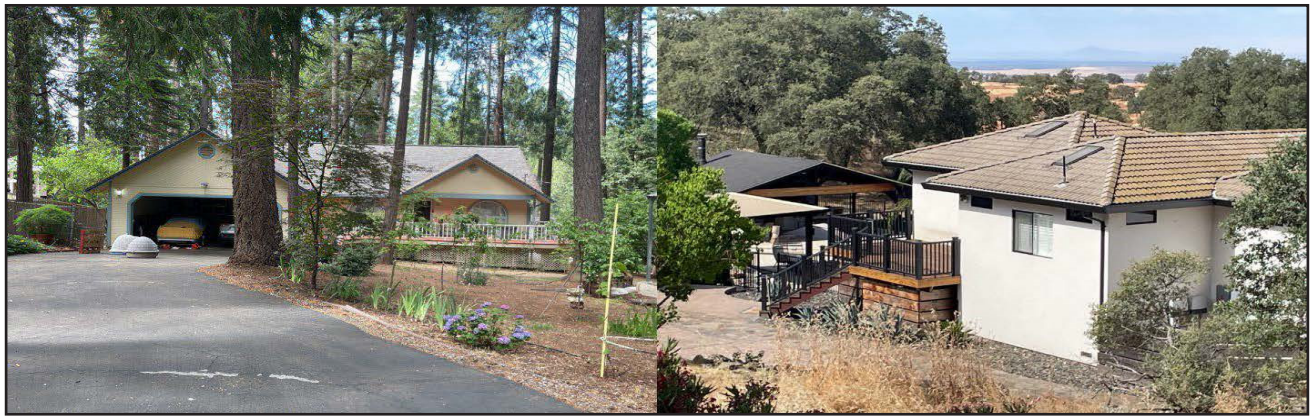


Figure 87. Crawlspaces under decking screened in with combustible materials.

- **Wood Fences:** Wood fences act as a fuel source that can carry fire to a structure. Wooden fences attached to homes present a major threat to the structure (Figure 88).



Figure 88. Two homes in El Dorado County with wood fences that are both attached to each home and near to one another. This situation can lead to fences acting like a "wick" that brings fire to structures.

- **Wood Decks:** Decks act as a source of fuel that is attached or directly adjacent to structures. When ignited by wildfire the radiant and convective heat output of decks can ignite structures. In addition, most decks are adjacent to large windows or glass sliding doors and the heat from a deck fire can cause the glass to fail allowing the wildfire to enter a structure. Wood decks, often adjacent to sliding doors and/or with combustible materials or vegetation under them, were found throughout the CWPP area (Figure 89).



Figure 89. Wood deck attached to a home in El Dorado County, adjacent to sliding doors, and with stacked firewood stored underneath.

- **Landscape Vegetation/Debris: F**lammable landscaping and other combustible items such as firewood or debris piled near a structure pose an ignition threat. Structures are more susceptible to ignition when exposed to significant radiant and convective heat from burning material. Many of the neighborhoods across the west slope with lower housing density have significant flammable landscaping in close proximity to structures (Figure 90).



Figure 90. Many structures around El Dorado County were observed to have vegetation around the structure, including under eaves and roof overhangs, as well as between neighboring structures.

- **Defensible Space:** Space around a structure that, under normal conditions, creates a sufficient buffer to modify or arrest the spread of a wildfire to a structure. Defensible space can protect a structure from direct flame impingement and radiant heat, reduce exposure to embers, and is essential for structure survivability during wildfires. Refer to Section 6.2.2 for details.

Wildfire will continue to threaten the communities of western El Dorado County. However, residents and homeowners can and should take proactive measures to mitigate this threat. Current land use planning, zoning regulations, and codes adopted by the State of California and local fire departments provide the regulatory basis for preparedness, but these alone will not protect life safety and other community values.

5.3.3.3 Community-Level Vulnerability

Community-level vulnerability refers to the physical resilience of various built environment characteristics to wildfire threats over both the short and long-term. While there are numerous values or assets in the natural, built and human environments that may be exposed to the same wildfire, how much loss or damage is experienced by those values can vary dramatically depending on the inherent physical resiliency of those assets to wildfire – individually or as a collective. Some examples of physical vulnerability are inherent qualities which include age of construction, code compliant structural hardening and defensible space, limited access/egress routes, and structure separation distances. Physical vulnerabilities may also include coping capacities of the community (i.e., the availability of resources to effectively respond to or recover from a wildfire threat). Some coping capacity proxies may include fire service response times, firefighting water supplies, emergency power supplies, communication dead zones, etc. Note: As vulnerability assessments are often limited by the availability, quality and scale of the datasets, the corresponding analyses will be governed by these limitations. For example, it is recognized that many areas around the western slope of El Dorado County have limited ingress and egress but did fall within the criteria analyzed by CAL FIRE as shown in the following map.

Figure 91 illustrates a range of maps with various community-scale physical vulnerabilities: (1) limited access egress communities, (2) structure separation distance, (3) fire hydrant coverage.

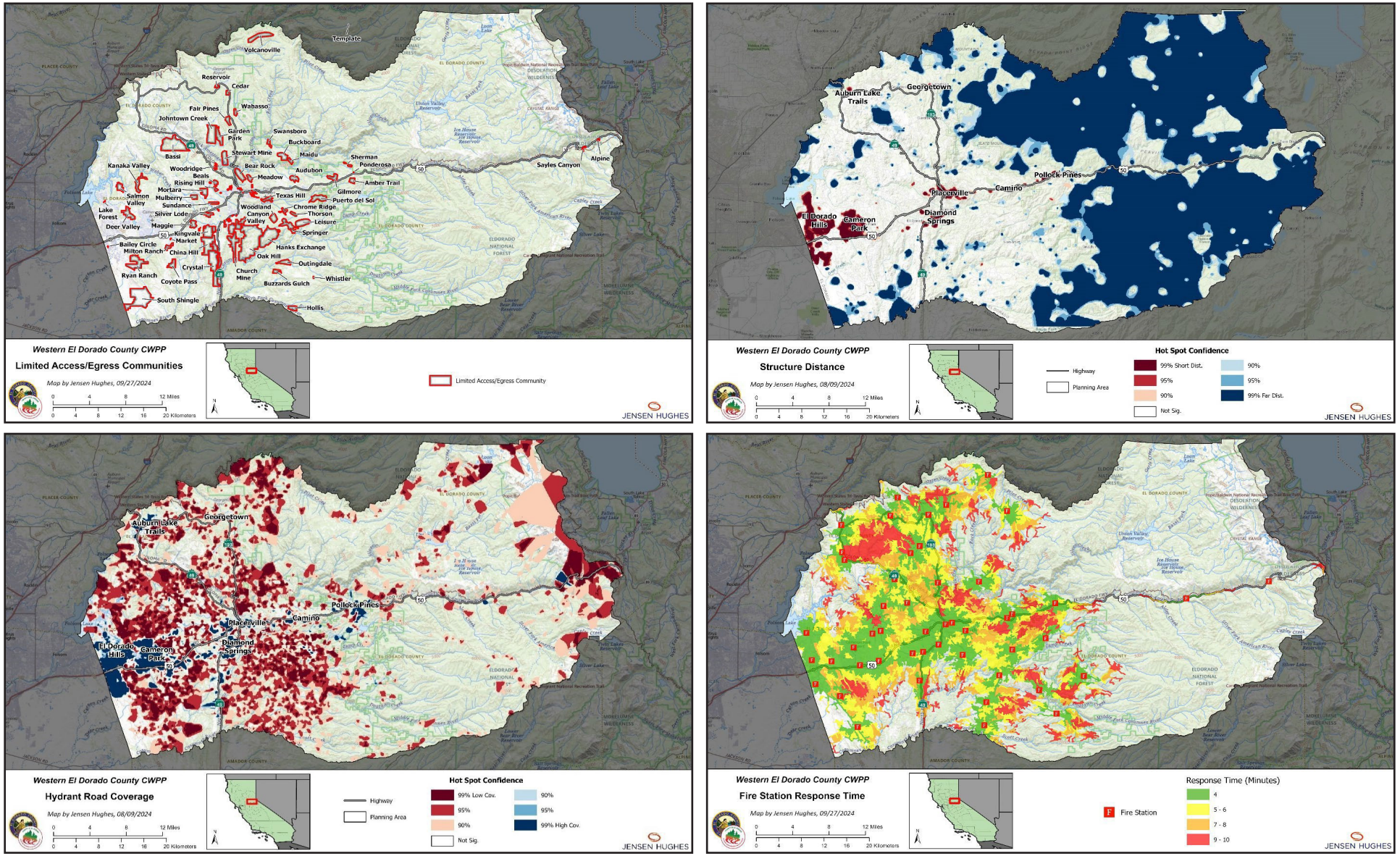


Figure 91. Various Community-Scale Physical Vulnerabilities (top left) – Limited access/egress communities; (top right) – Structure separation distance hot spot, where reds indicate pockets of closely spaced structures; (bottom left) – Fire hydrant spatial coverage hot spots, where reds indicate areas with poor coverage and greens with higher coverage (bottom right)- Fire service response time coverage

5.3.3.4 Social Vulnerability

Social vulnerability refers to the resilience of social capital for individuals and communities when impacted by stressors including natural hazards or human-caused disasters. In a wildfire context, while many people might be exposed to the same fire, their different demographic and socioeconomic characteristics mean their outcomes may be very different. These characteristics may influence their ability to plan and prepare in advance of a wildfire, respond quickly and independently during a wildfire, and recover following a wildfire. For example, older individuals are likely to have difficulty undertaking defensible space maintenance around their properties and may also need assistance evacuating. Those with limited English proficiency may need emergency communications, as well as information about wildfire preparedness, shared in a language other than English. Other characteristics, and combinations of different characteristics, impact social vulnerability in different ways.

Understanding where socially vulnerable populations are geographically is important to targeting outreach and interventions to reduce impacts. A small sample of the many attributes that contribute to social vulnerability are shown and described below. The data used comes from the US Census Bureau's American Community Survey 2022 estimates at the census tract scale (the most recent release available as of Sept. 2024). The selected variables show an array of types of social vulnerability and are not intended to be all encompassing, these maps are a starting point for understanding how social vulnerability varies across the west slope and should be combined with other, more locally specific, information. Areas in darker colors on each of the maps represent a higher proportion of the population with the associated social vulnerability characteristic.

Figure 92 shows the proportion of the population that is age 65 or above, Figure 93 shows the proportion of the population with some type of disability, and Figure 94 shows the proportion of the population with an annual income below the federal poverty level. These individuals are more likely to have greater challenges with all aspects of wildfire preparedness including preparation, response, and recovery. Areas with a greater proportion of these vulnerable populations may need additional and targeted resources.

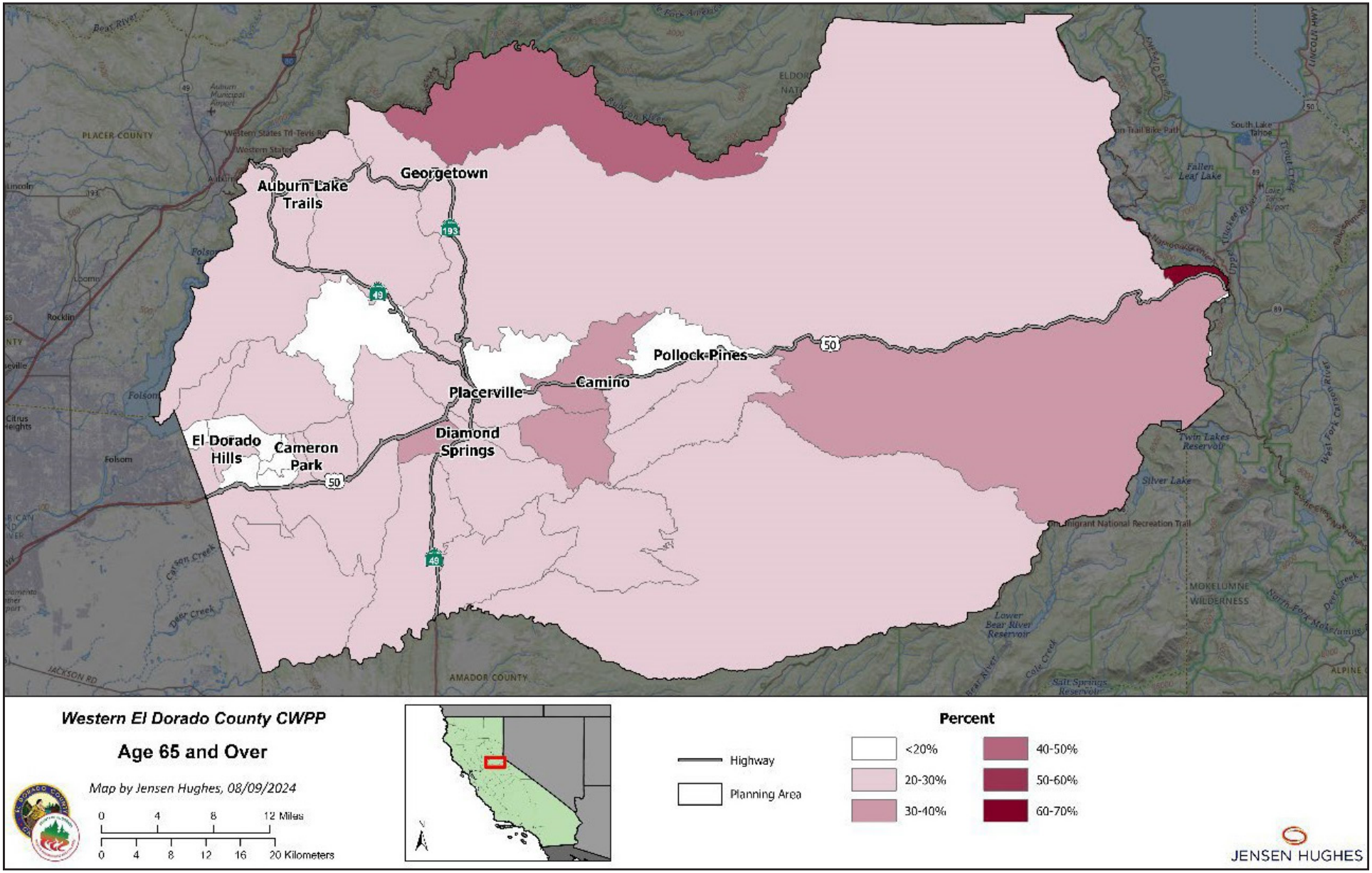


Figure 92. Proportion of the Population in Each Census Tract Age 65 or Over

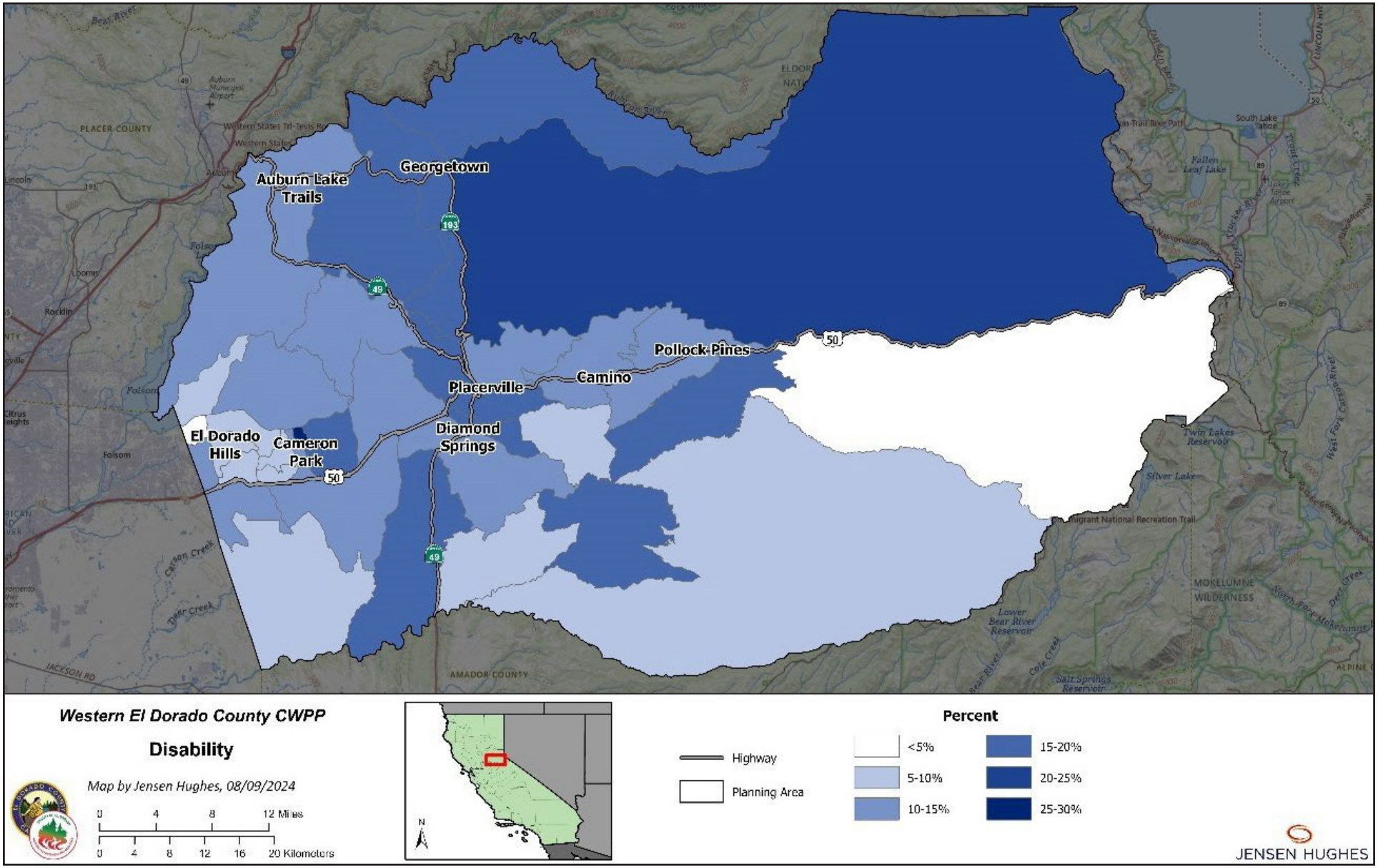


Figure 93. Proportion of the Population in Each Census Tract with a Disability

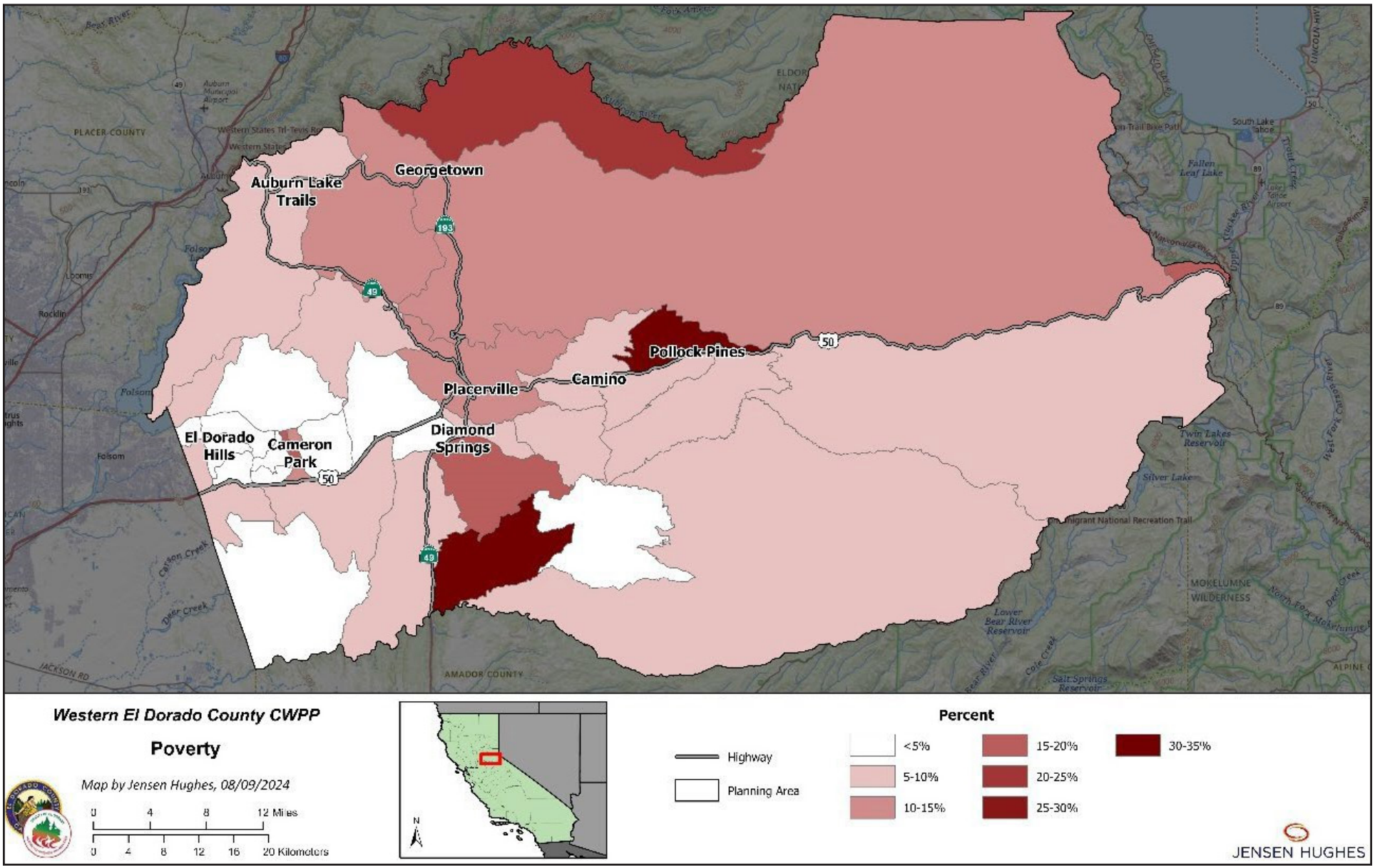


Figure 94. Proportion of the Population in Each Census Tract with an Annual Income Below the Federal Poverty Level

Figure 95 shows the proportion of residents who speak English less than “very well” and Figure 96 shows the proportion of households without a broadband internet subscription. These characteristics are potentially relevant to emergency communications and notices as well as to education and outreach efforts. In these areas, communications in additional languages beyond English and/or different media/outreach methods may be appropriate.

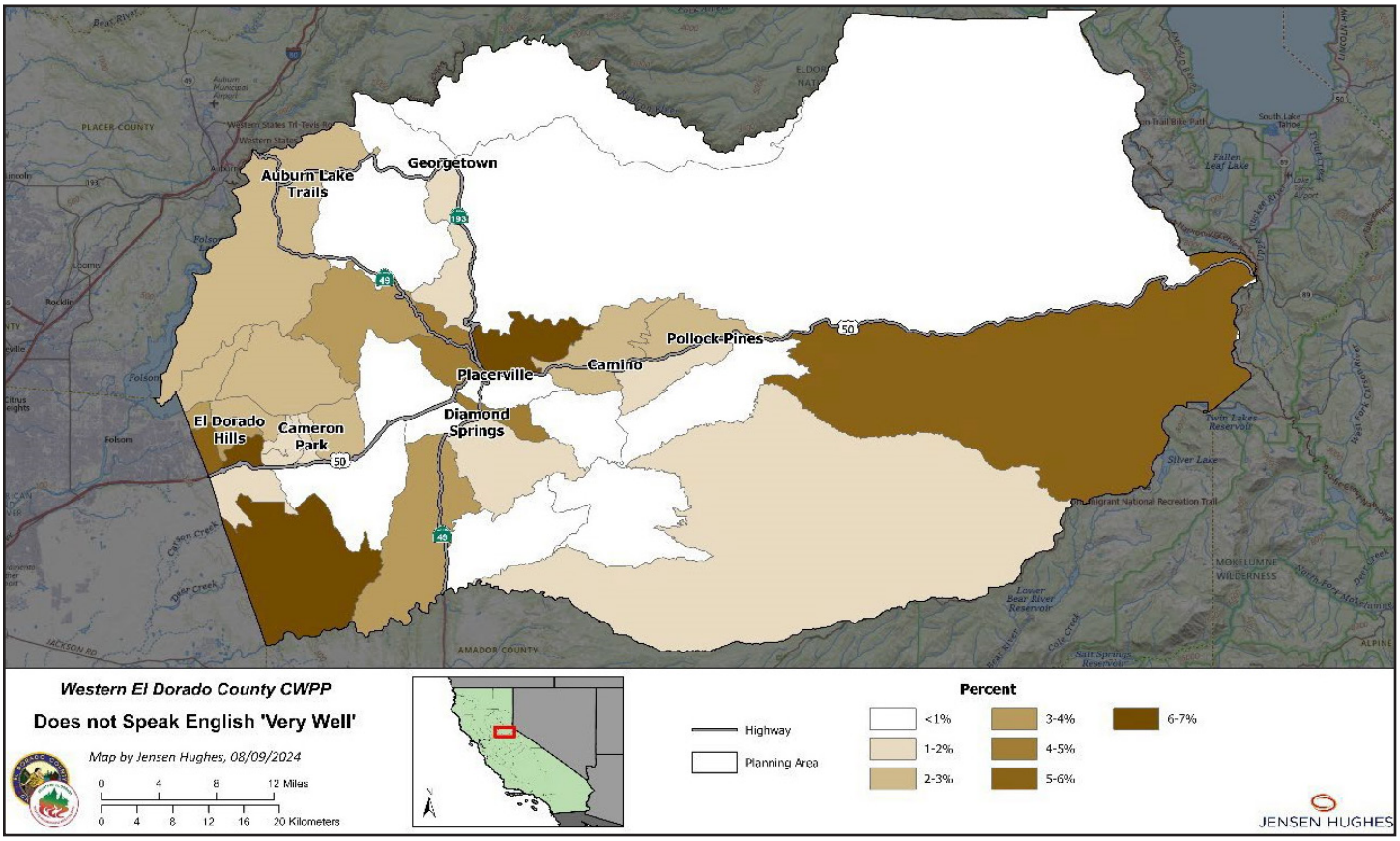


Figure 95. Proportion of the Population in Each Census Tract that Speaks English less than "Very Well"

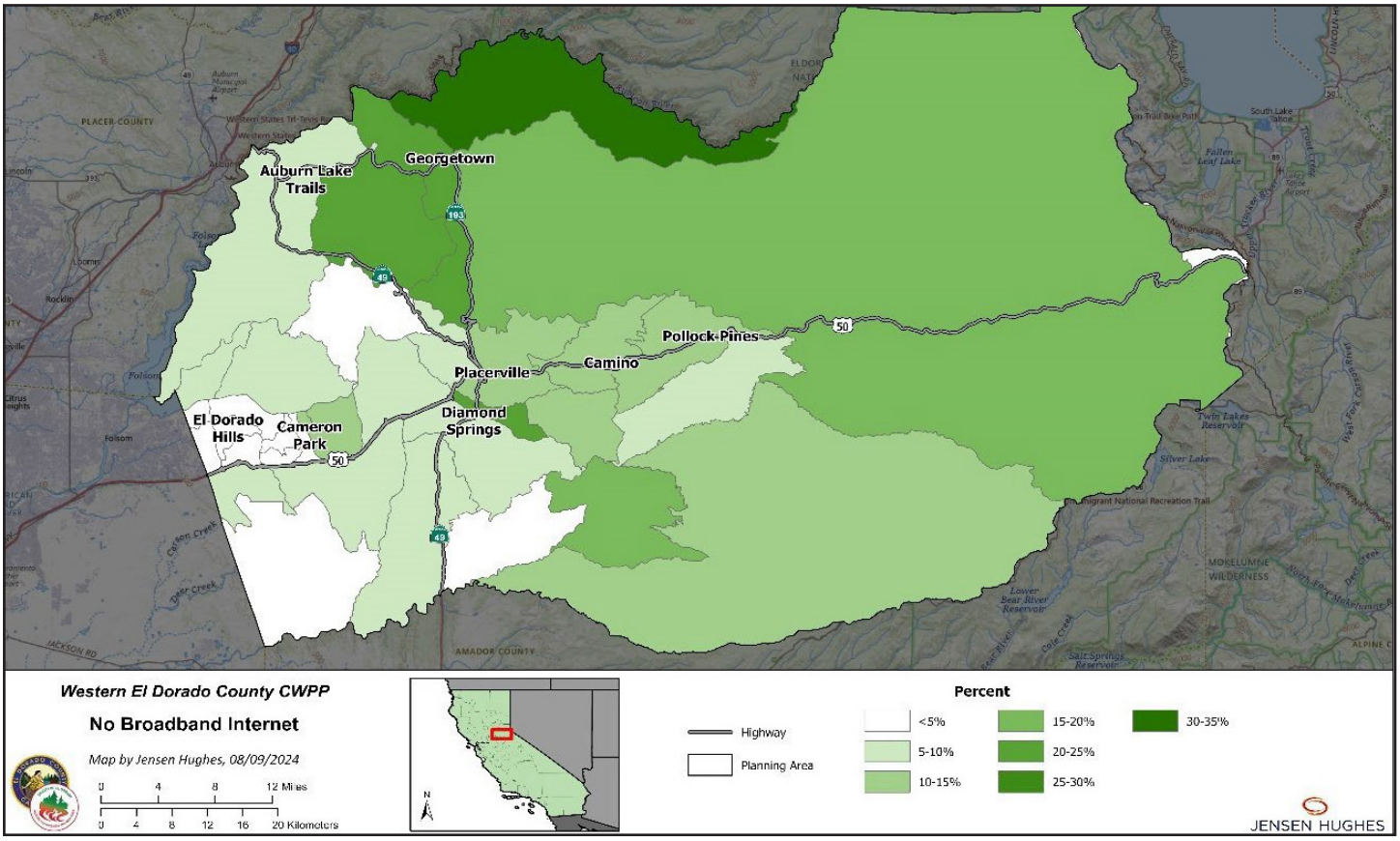


Figure 96. Proportion of the Population in Each Census Tract without a Broadband Internet Connection

Taken together, these maps show that vulnerable populations are found in different areas of the west slope, that different characteristics influence vulnerability in different ways (e.g., preparedness, response, recovery), and that these different vulnerabilities may benefit from different mitigations and recommendations.

5.4 Community Input on Hazards & Risks

As part of the CWPP process, a community survey was administered from August 23, 2024, through October 31, 2024. The intent of the digital poll was to understand the experiences, perceptions, needs and concerns of local residents, agencies, organizations, and other interested parties to past and future wildland fire threats in and around the west slope. Additionally, the poll was intended to gather broader and more nuanced information to better tailor community-based activities, educational programs, services, policies, and other action items that not only help mitigate wildland fire risks but are also locally relevant, inclusive, and sustainable. Full public survey results are available in Appendix H.

5.4.1 Community Input – Households

Approximately 1,652 households responded to the digital poll. This survey provided a forum for households to express their biggest wildfire-related concerns, past experiences with evacuations, and recommend action items for the CWPP.

Additionally, 5 public workshops were held near the start of the CWPP development process (October 2-5, 2024). The workshops overall had approximately 114 attendees represented from various agencies, organizations, interested parties and general public across the County (e.g., CAL FIRE, HOAs). The workshops included a breakout session where facilitated groups discussed concerns, recommendations, and improvements.

The following are common themes that arose from the site visit, public survey, and public workshops:

- When respondents and attendees were prompted to describe their major concerns, common themes observed were:
  - Need for fuel treatments and long-term maintenance of treated areas
  - Human behavior (e.g., absentee owners/vacant and vegetated lots, privacy-minded residents, visitor populations)
  - Egress and evacuation challenges (e.g., one-way-in-one-way-out communities, single lane bridges, communication and notification challenges)
  - Collaboration and coordination between neighboring land managers/owners/involved entities
  - Limited resources (funding & time)
  - Insurance availability and cost
- When respondents and attendees were prompted to describe opportunities and strategies as action items in the CWPP, common themes observed were:
  - Various fuel treatments
  - Resident education (e.g., home hardening product guidance, outreach programs, community events)
  - Inspection/enforcement of defensible space
  - Simplification and/or clarification of defensible space requirements
  - Increased home hardening
  - Access/egress improvements (e.g., roadside fuel treatments, designated shelter-in-place/TRA locations, communications improvements)

5.4.2 Community Input – Community Groups

Approximately 28 community stakeholders responded to the digital poll. This survey provided a forum for stakeholders to express their biggest wildfire-related concerns, what they are currently doing to increase wildfire resiliency, and what opportunities the CWPP should consider as action items.

Additionally, 1 Fire Safe Council workshop was held near the start of the CWPP development process (August 21, 2024). The workshop overall had approximately attendees representing various Fire Safe Councils. The workshops included a breakout session where facilitated groups discussed concerns, recommendations, and improvements.

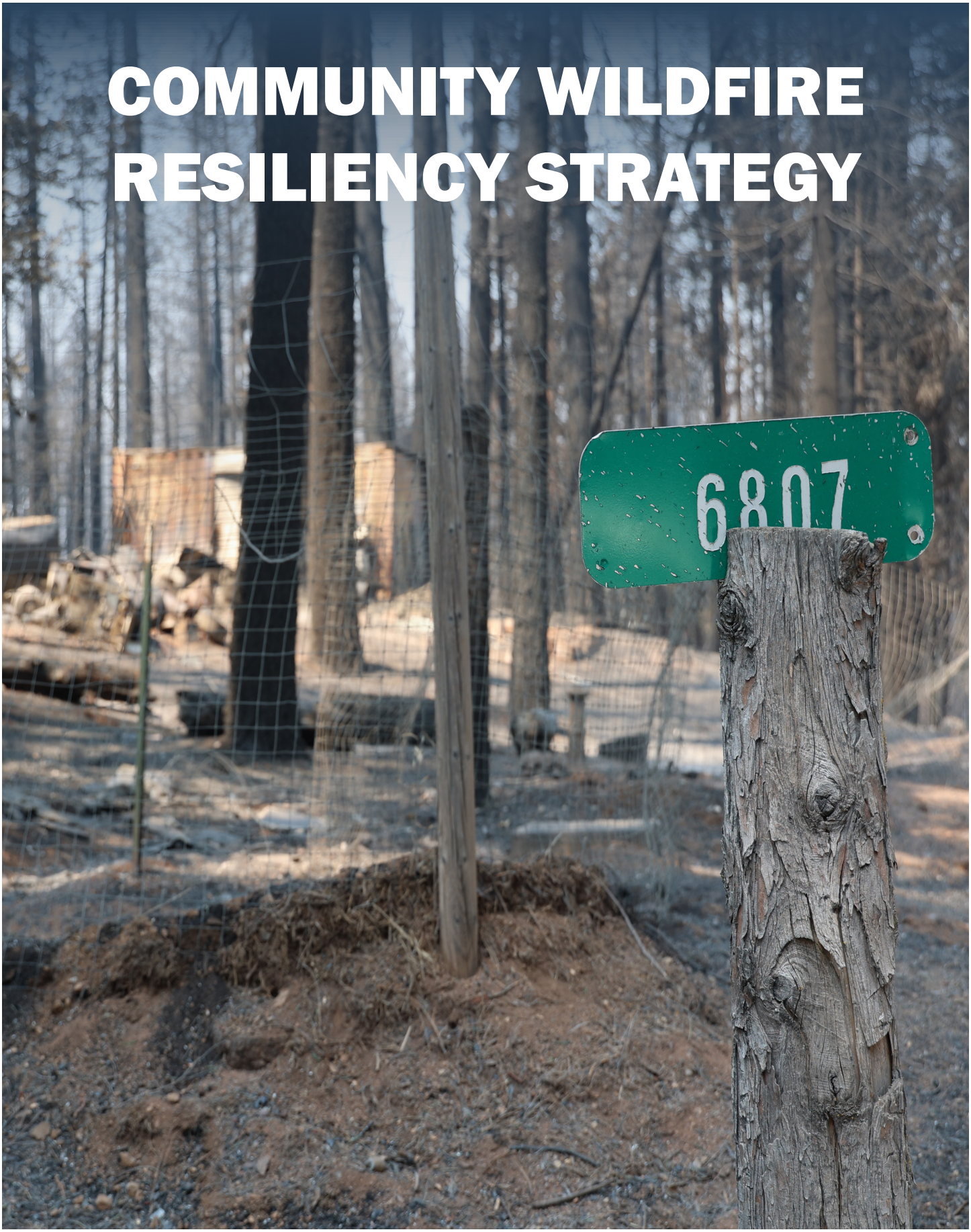
The following are common themes that arose from the site visit, stakeholder polling, and workshops:

- When respondents and attendees were prompted to describe their major concerns, common themes observed were:
  - Protection of valuable assets/infrastructure (e.g., hospitals, water infrastructure, schools)
  - Need for fuel treatments and long-term maintenance of treated areas
  - Availability of funding to pursue WUI-related projects
  - Egress and evacuation challenges (e.g., one-way-in-one-way-out communities, evacuation planning, vulnerable populations)
- When respondents and attendees were prompted to describe opportunities and strategies as action items in the CWPP, common themes observed were:
  - Various fuel treatments (e.g., prescribed burn engagement)
  - Resident education
  - Inspection/enforcement of defensible space
  - Agency coordination

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COMMUNITY WILDFIRE RESILIENCY STRATEGY



6.0 COMMUNITY WILDFIRE RESILIENCY STRATEGY

While wildfires are part of the natural landscape and cannot be completely eliminated, their devastating impacts to community assets, the environment, social infrastructure, and local economies can be reduced through the collective action of all stakeholders, both government and non-government. As wildfires have been increasing in frequency, scale, and severity over the past two decades, traditional approaches to mitigating wildfire risk – e.g., government policies, programs, planning codes, zoning regulations, firefighting operations, and vegetation management – are no longer sufficient. The complexity and breadth of impacts highlight the need to take a more comprehensive and proactive approach to managing those risks. Resiliency to wildfires means engaging and collaborating across the whole community, across all scales and sectors to more holistically build individual and community-level capacities to prevent/mitigate, prepare, respond to and recover from wildfire incidents.

As such, a Community Wildfire Resiliency Strategy and Action Recommendations have been developed to help mitigate the hazards and risks of wildfires in the Planning Area for the next 5-10 years. This is based on the results of the fire hazard, risk, and vulnerability analyses in Chapters 3.0 – 5.0 and the conceptual framework for fire adapted communities (FAC). FAC provides a general framework to address a broad range of individual and societal capacities to build community wildfire resilience, which is a major goal of this CWPP.

Figure 97 shows the key components of the Community Wildfire Resiliency Strategy for Western El Dorado County based on the FAC framework. Additional information for the FAC framework can be found at https://www.fs.usda.gov/managing-land/fire/fac and https://fireadaptednetwork.org/.



Fire Adapted Communities: "There is no one silver bullet that reduces risk; there are many tools that, when used together and strategically, reduce risk. And it's not the responsibility of one agency or group to mitigate; it's the responsibility of everyone who lives and works in the community. Fire adaptation happens when local multi-jurisdictional stakeholders work together to identify risk, mitigate it, and maintain the work over time." USDA

Figure 97. Key Components of Community Wildfire Resiliency Strategy for western El Dorado County

For this CWPP, the key components of the strategy include protecting life safety, property, critical infrastructure, as well as having a robust fuels mitigation strategy, early warning detection, public notification and communications, evacuation preparedness and public education. These strategic components are described in the following sections and consist of existing, planned, and proposed activities that are considered essential for increasing wildfire resiliency in the west slope of the County. Where areas of improvement are considered needed, they are indicated in the sections below and summarized in more detail in the Action Recommendations section (Section 7.0).

6.1 Protecting Life Safety

The Office of Wildfire Preparedness and Resilience (OWPR), El Dorado County Fire Safe Council (EDC FSC), local fire districts, CAL FIRE, County OES, and other key federal, state, and local stakeholders' first priority is the life safety of residents and first responders.

6.1.1 Public Safety

As with any natural hazard, minimizing the risk wildfire poses to public safety necessitates a comprehensive approach from prevention and mitigation to preparedness, response, and recovery. Collectively, the wildfire resiliency strategy and proposed action items, described in this plan, aim to help reduce the potential risk to human life – both for the general public and first responders. At a minimum, individual community members can become aware and actively engaged in understanding the various wildfire hazards and risks that may impact where they live and work, and take the necessary steps to prepare themselves, their homes, and their family members to minimize risk. The educational information and resources provided by OWPR, EDC FSC, County OES, CAL FIRE and other fire agencies in the County are available to aid individuals and community groups in this effort, such as "Ready-Set-Go". See Section 6.9.

These informational materials cover the key concepts of fire life-safety for residents:

(1) **Prevent Ignition –** Reducing ignition sources and fire hazards in and around your property.

(2) **Control Ignition –** In the event fire occurs, minimize the potential for fire spread and growth (e.g., structural hardening provisions, vegetation management, defensible space).

(3) **Notification and Communication –** Knowing and being familiar with public notifications systems and their limitations and signing up for county emergency alert systems.

(4) **Evacuation –** Be familiar with evacuation routes from your home and place of work. Sign up for El Dorado County Emergency Alerts Powered by Rave to get timely alerts to evacuate. Save or bookmark perimetermap.com on your mobile devices and computer for quick access to real-time information during an emergency on evacuation zone and available routes. Be prepared, using Ready-Set-Go, visit https://readyforwildfire.org/, and https://ready.eldoradosheriff.gov/ for more information.

Often in wildfire situations, it is extremely unsafe and/or impossible for firefighters, let alone the general public, to safely defend structures. Therefore, structures and other values must be able to survive on their own. Fighting wildfires and protecting structures are extremely complex and dangerous. It is highly recommended that the general public evacuate when directed to do so.

6.1.2 Firefighter Safety

There are many factors that affect the ability of firefighters to protect structures and other community assets. Firefighters arriving on scene quickly perform an assessment or "triage" to determine whether a structure or

asset is safely defendable. Prior to engaging in structure defense activities, firefighters look for access and egress issues, whether a structure or improvement has vulnerability characteristics, hazardous material issues, adequate water sources, adequate defensible space, and whether the defensible space provides safe operational space. State law for defensible space, Public Resources Code (PRC) 4291 and Government Code Sections 51175-51189, require that any property within a designated Fire Hazard Severity Zone within State Responsibility Areas or within the Local Responsibility Areas Very High Fire Hazard Severity Zones, Wildland Urban Interface Areas (WUIs), and any property as determined by the Fire Department, requires 100-feet of maintained defensible space from all sides of any structure, but not beyond the property line unless specifically required depending on surrounding terrain (also refer to El Dorado County Ordinance Chapter 8.09). While largely following state requirements, Chapter 8.09 goes beyond state requirements where related to driveway clearance and the "Good Neighbor" policy regarding communal defensible space. Research suggests that even the 100-feet of defensible space may not be sufficient for firefighters to engage in structure defense safely (See Section 5.3.2 for more details). It is important to maintain and improve roadway clearance in WUI areas, specifically identifying, not only driveways, but also private and public roadways.

Guidelines established for wildfire safety zones can enhance safe operational space for firefighters and the public. However, the additional element of burning structures and other "non-native" fuels can significantly increase fire intensities that can threaten the life safety of firefighters and the public. Safe separation distance (SSD) calculations can provide a better estimate for whether a structure can be defended with lower risk of thermal injury. This distance is often greater than 100 feet. Onsite consultation with OWPR, EDC FSC, CAL FIRE or a local fire agency in the County is recommended to determine whether the clearance around a structure or other improvement is sufficient to provide a safer structure defense environment.

6.2 Private Property Protection

Most actions to increase the resiliency of a structure or property to wildfires can be categorized into two groups:

1. **Structural Hardening:** Mitigation actions associated with the structure from top of the building down to the foundation.
2. **Defensible Space:** Mitigation actions associated with natural and man-made features anywhere from 0 ft to 100+ feet around the structure.

In general, the primary responsibility for protecting a structure from wildfires is with the property owner.

6.2.1 Structural Hardening

As highlighted in Section 5.3.3, structures can be compromised by fire through numerous pathways. There are many parts of a structure that are vulnerable to ignition, such as roofing, siding, and vents, among others. Structural hardening is the term used to broadly describe any actions that are done to the structure to protect these vulnerable areas from ignition. Structural hardening adds another layer of passive fire protection in addition to vegetation management and defensible space measures. See Section 6.2.2 for defensible space guidance. In general, buildings constructed before the adoption of Chapter 7A into the California Building Code in 2008 are more likely to lack modern, wildfire-resistant construction features. Thus, older structures are likely to be less hardened and more vulnerable to wildfire impacts.

In the event of a fast-moving, large-scale wildfire, firefighting resources may be quickly overwhelmed. This means that active structure defense by firefighters may not be available for most structures or may be considered unsafe for a variety of factors (e.g., intensity of the fire, weather conditions, local topography, access issues, lack of water supplies). Thus, the survivability of a structure in a major wildfire event can depend on

where the property or structure is situated relative to local topography, the presence and condition of structural hardening provisions, condition of defensible space and proximity to other combustible fuels/structures in the built environment.

Several guidance documents and technical resources are available to provide property owners with best practices to further increase the resiliency of new properties or developments to wildfires. See below.

El Dorado County Guidance (Accessed at: https://www.eldoradocounty.ca.gov/Public-Safety-Justice/Wildfire-Disaster/Office-of-Wildfire-Preparedness-and-Resilience/Home-Hardening)

- Home Hardening Webpage/Defensible Space Program

El Dorado County Fire Safe Council Guidance (Accessed at: https://www.edcfiresafe.org/resources#docaccess-30659ac8301a6e2e6c784ad74c4bae4441e613db7ce95bb6b569c53acbb34861)

- El Dorado County Fire Safe Council Wildfire Preparedness Workbook

Full-Scale Research on Wildfire Resiliency of Joints and Building Detailing

- Insurance Institute for Business & Home Safety (IBHS) Full-Scale Fire Testing https://ibhs.org/risk-research/wildfire/
- Fire Safety Research Institute (FSRI) https://fsri.org/about
- National Institute of Standards and Testing (NIST) https://www.nist.gov/fire

Design Guidance for New and Existing Construction

- FEMA Marshall Fire MAT Products https://www.fema.gov/emergency-managers/risk-management/building-science/mitigation-assessment-team
- SFPE Foundation Virtual Handbook on WUI Risk Assessments https://www.sfpe.org/wuihandbook/home
- University of Nevada, Reno Wildfire Home Retrofit Guide https://extension.unr.edu/publication.aspx?PubID=3810
- Maranghides, A., et al, WUI Structure/Parcel/Community Fire Hazard Mitigation Methodology https://www.nist.gov/el/fire-research-division-73300/wildland-urban-interface-fire-73305/hazard-mitigation-methodology-1
- FM Global, Data Sheet 9-19: Wildland Fire https://www.fm.com/resources/fm-data-sheets
- Hedayati, F. et al, Wildland Embers and Flames: Home Mitigations that Matter https://ibhs.org/wildfire/wildland-fire-embers-and-flames-home-mitigations-that-matter/

Databases for Fire-Listed Products and Assemblies

- FM Approvals, Approval Guide https://www.approvalguide.com/
- Intertek Directory of Building Products https://bpdirectory.intertek.com/pages/DLP_Search.aspx
- UL Product iQ https://productiq.ulprospector.com/en
- CAL FIRE Building Materials Listings https://osfm.fire.ca.gov/what-we-do/fire-engineering-and-investigations/building-materials-listing

In addition to new construction, the guidance documents and technical resources listed above can also provide helpful recommendations to retrofit existing properties for increased resiliency to wildfires. Table 22 provides further guidance on mitigation actions that can enhance protection of life safety and improve the survivability of existing structures in the community.

Table 22. Structural Hardening Measures for Existing Properties

Structural Component	Mitigation Measures
Roof	Replace wood-shake or shingle roofs with a Class-A material (Ordinance 2019-0056) suitable for extreme fire exposure. Plug openings in roofing materials, such as the open ends of barrel tiles, to prevent ember entry and debris accumulation. Regardless of the type of roof, keep it free of bird's nests, fallen leaves, needles and branches.
Chimney	Screen chimney and stovepipe openings with an approved spark arrestor cap with a 5/8-inch screen.
Eaves	Cover the underside of the eaves with a soffit, or box in the eaves, which will reduce the ember threat. Enclose eaves with fiber cement board or 5/8-inch thick, high-grade plywood. If enclosing the eaves is not possible, fill gaps under open eaves with caulk.
Exterior Siding	Noncombustible siding materials (e.g., stucco, brick, cement board, and steel) are better choices. If using noncombustible siding materials is not feasible, keep siding in good condition and replace materials in poor condition. Caulk or plug gaps greater than 1/8-inch in siding.
Windows and Skylights	Single-pane windows and large windows are particularly vulnerable in older homes built prior to current fire codes. Recommend installing windows that are at least double-glazed and that utilize tempered glass for the exterior pane. The type of window frame (e.g., wood, aluminum, or vinyl) is not as critical; however, vinyl frames can melt in extreme heat and should have metal reinforcements. Keep skylights free of leaves and other debris and remove overhanging branches. If using skylights in the WUI, they must be flat skylights constructed of double-pane glass and must be kept free of vegetation.
Vents	All vent openings should be covered with 1/8-inch or smaller wire mesh. Another option is to install ember-resistant vents. Do not permanently cover vents, as they play a critical role in preventing wood rot.
Rain Gutters	Always keep rain gutters free of bird's nests, leaves, needles, and other debris. Roof gutters shall be provided with a means to prevent accumulation of leaves, needles, and debris, such as a noncombustible gutter cover. Check and clean them several times during the year.
Decks	Keep all deck materials in good condition. Consider using fire-resistant rated materials or heavy timber construction. Routinely remove combustible debris (e.g., pine needles, leaves, twigs, and weeds) from the gaps between deck boards and under the deck. Enclosing the sides of the deck may reduce this type of maintenance. Do not store combustible material under the deck.

Structural Component	Mitigation Measures
Combustible Items	Keep the porch, deck, and other areas of the home free of flammable materials (e.g., baskets, newspapers, pine needles, and debris). Keep firewood, bales of hay or straw, and other combustible/flammable materials at least 30-feet away from a structure.
Residential Fire Sprinkler Systems	Automatic residential fire sprinkler systems are required in all new residential structures. An automatic residential fire sprinkler system is not required for additions or alterations to existing building that are not already provided with an automatic residential sprinkler system. Annual maintenance service or inspection of these systems is strongly recommended to ensure operability.
Detached Accessory Structures	All detached accessory structures should ideally follow the same provisions as the main structure. Detached accessory structures should be constructed of non-combustible materials or of ignition-resistant materials.

More detailed information on reducing structural ignitability can be found in Chapter 7A of the California Building Code (Ordinance 2019-0056), Public Resources Code 4291, and Chapter 49, of the California Fire Code. Utilize versions adopted and amended by jurisdiction (e.g., El Dorado Hills Fire Department, El Dorado County) as applicable.

6.2.2 Defensible Space

Defensible space is an area – either natural or man-made within the perimeter of a parcel – where basic wildfire prevention practices and measures are implemented and maintained. These measures include but are not limited to removing brush, flammable vegetation, or combustible growth within 100 feet of a building or structure as measured from the eaves, porches, decks and balconies to the property line. The proper implementation and enforcement of hazardous fuel regulations and landscaping requirements have been proven to reduce the impact from destructive wildfires through the mitigation of hazardous fuel conditions around homes and roadways (El Dorado County Hazardous Vegetation Ordinance Chapter 8.09). Defensible space, coupled with structural hardening (Section 6.2.1 above), is essential to increasing a structure's likelihood of surviving a wildfire.

Defensible space is generally subdivided into three zones, whereby the highest priorities and most restrictive measures are required for the area closest to the structure. CAL FIRE defines the three zones as follows (See Figure 98):

- **Zone 0** or "Immediate Zone", "Ember-Resistant Zone", or "Noncombustible Zone" (0–5 feet). Zone 0 is considered the most important and includes areas immediately surrounding a structure, as well as areas under any attached decks or overhangs.

- **Zone 1**, "Intermediate Zone", or "Lean, Clean and Green" (5–30 feet). Zone 1 adds a defensible zone that extends between Zone 0 and Zone 2. The goal of this area is to reduce the connectivity between garden beds, shrubs, and trees; removing lower branches of trees and shrubs; and creating areas of irrigated and mowed grass or hardscape between lush vegetation islands so that wildfire does not burn to the house or into the crown of trees. Plants should be properly irrigated and maintained to remove dead/dry material (Valachovic, et al., 2021). This designation also applies to the area within 10 feet of driveways, access roads, or public roads adjacent to the property.

- **Zone 2**, "Extended Zone" or "Reduce Fuel Zone" (30– 100 feet). The goal of Zone 2 is to create a fuel break that interrupts the continuous vegetative fuel path of a wildfire, minimize flame length, and keep fires on the ground by reducing ladder fuels and crown clustering.

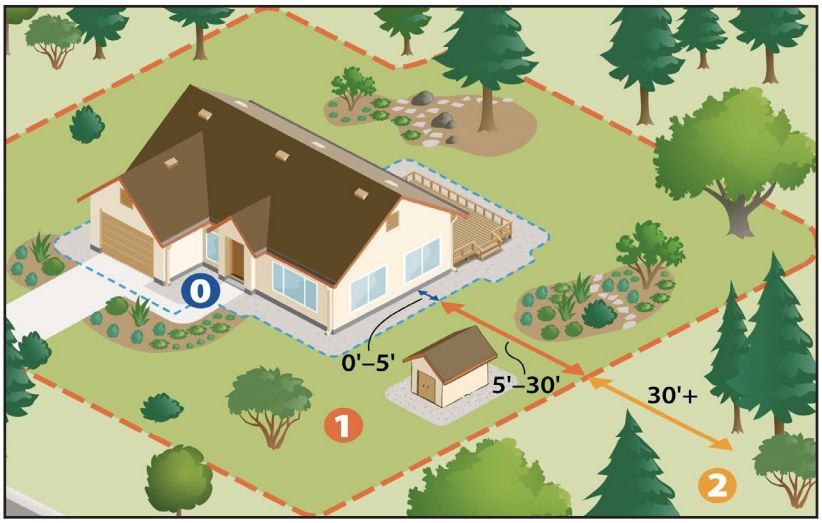


Figure 98. Defensible Space Zones (Valachovic, et al., 2021)

Reach out to your local Fire Safe Council for information on availability of Defensible Space / Home Hardening Assessments. The list of Fire Safe Councils can be accessed at https://edcfiresafe.org/associate-council-locations/. The El Dorado Fire Safe Council also has a county-wide defensible space program. See Section 6.9 for more information. Reach out to your local Firewise community for Parcel Level Risk Assessments (aka Home Ignition Zone Assessments) in your neighborhood.

Table 23 details basic recommendations for each defensible space zone. This table contains some County-specific requirements, however, is not intended to be a complete list. Consult with the local fire department, OWPR, or Authority-Having-Jurisdiction (AHJ) for more detailed guidance.

Table 23. Defensible Space Mitigation Measures

Hazard Mitigation Zone	Mitigation Measures
Zone 0 (0 – 5 ft)	• Use hard surfaces, such as concrete or noncombustible rock mulch around the home. • Clean roof and gutters of dead leaves, debris, and pine needles. • Store firewood and other combustible materials away from the home, garage, or attached deck. • Trim back touching or overhanging branches from the roof to a distance of at least 10 feet. • Avoid anything combustible in this area, including woody plants, mulch, woodpiles, combustible trellises, wood fences, and stored items. This is an excellent location for walkways, or hardscaping with pavers, rock mulch, decomposed granite, or pea gravel. This should include a six-inch noncombustible zone between the ground and the start of the building's exterior siding. • Herbaceous non-woody ground cover should not exceed 3-inches high. • In general, plants should have clearance 2 times their height from other plants and exterior openings. • Use non-combustible pots and planting boxes at the ground level. • Remove artificial or synthetic grass; they should not be located in this zone.
Zone 1 (5 – 30 ft)	• Use non-woody, low-growing herbaceous vegetation. Succulent plants and ground covers are good choices. • Create vegetation groups, or "islands" to break up continuous fuels around the home • Remove "ladder fuels" to create a separation between low-level vegetation and tree branches to keep fire from climbing trees. • Remove leaf and needle debris from the yard. • Keep grass and wildflowers under 4 inches in height. • Move trailers/recreational vehicles, storage sheds and other combustible structures out of the zone and over 30 feet from the home. If unable to move, create defensible space around them.

Hazard Mitigation Zone	Mitigation Measures
Zone 2 (30 – 100 ft+)	• Create and maintain a minimum of 10 feet between the tops of trees. • Remove "ladder fuels" to create a separation between low-level vegetation and tree branches to keep fire from climbing trees. • Remove dead trees and shrubs.

More detailed information on defensible space can be found in El Dorado County Ordinance Chapter 8.09, Public Resources Code 4291, and Chapter 49, of the California Fire Code. Utilize versions adopted and amended by jurisdiction (e.g., El Dorado Hills Fire Department, El Dorado County) as applicable.

Additional Details on El Dorado County Regulations

- El Dorado County Code of Ordinances Chapter 8.09. El Dorado County adopted updates to its Defensible Space requirements on July 16, 2024, which replaced the previous Ordinance No. 5101. The updated requirements expand upon those contained in the previous ordinance. The updated ordinances can be accessed at this website: https://www.eldoradocounty.ca.gov/Public-Safety-Justice/Wildfire-Disaster/Office-of-Wildfire-Preparedness-and-Resilience/Defensible-Space/Defensible-Space-Ordinance

6.2.3 Communal Defensible Space

Mitigating risks within the Home Ignition Zone (HIZ) is important but requires a joint effort if a neighbor's structure or residence is closer than the 100-foot distance for which defensible space should be maintained (as determined by the inspecting agency). Figure 99 depicts a representative example of neighboring homes with overlapping defensible space zones. Whether these property owners properly maintain their defensible space, their activities or lack of activity can influence the survivability of a neighbor's property. Closely spaced homes and smaller parcels (i.e., smaller than 100 feet in all dimensions) can cause an overlap issue. Risk reduction efforts by all neighbors are beneficial to multiple properties. This concept is referred to as communal defensible space and is one of the main drivers for the establishment of Firewise Communities. For more information, refer to Section 6.9.

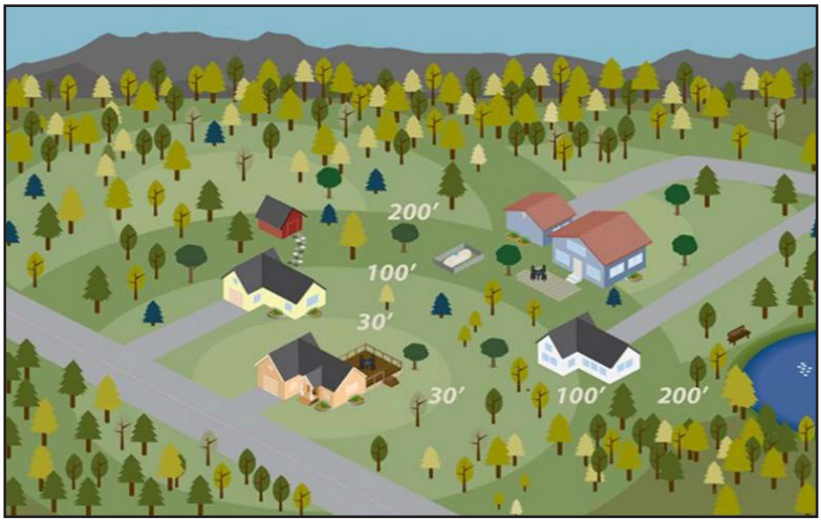


Figure 99. Communal Defensible Space or Home Ignition Zone Overlap (courtesy: www.firewise.org).

In most urban and suburban residential neighborhoods, many property owners will have difficulty establishing the required 100' of defensible space within their individual property lines. Establishing high quality defensible space regardless of the parcel size or ownership should be a priority for all residents of the Planning Area. El Dorado County Code of Ordinances Chapter 8.09 does briefly address communal defensible space (referenced as a "Good Neighbor" Policy), where an Investigative Official will determine appropriate clearance distances.

In reality, achieving appropriate defensible space may require a combination of strategies including:

Communal Defensible Space: Where adjacent landowners coordinate to maintain fuel treatments to protect groups of homes or structures. Treatments are designed to consider how vegetation and topography affect fire behavior regardless of property boundaries. When combined with structural hardening, the development of communal defensible space is the best practice to reduce damage and loss from wildfire in the WUI.

Top Priority: Numerous properties across the County have overlapping defensible space zones, with owners that either do not know they have communal defensible space, or do not have the resources to address communal defensible space practices. This necessitates the availability of public education, guidance, and resources for residents to undertake communal defensible space actions.

1. Work with neighbors and other adjacent property owners to ensure the common defensible space considerations are implemented between and adjacent to structures on both properties.
2. Prioritize home hardening measures on the sides of the structure with insufficient separation to adjacent properties (e.g., vent covers, replace combustible siding, remove combustible non-vegetative features).
3. Provide structural hardening measures for the entire home (e.g., upgrading to a Class A roof). Refer to "Structural Hardening" section above.
4. Prioritize the reduction of receptive fuel beds around the entire home from ember attack.

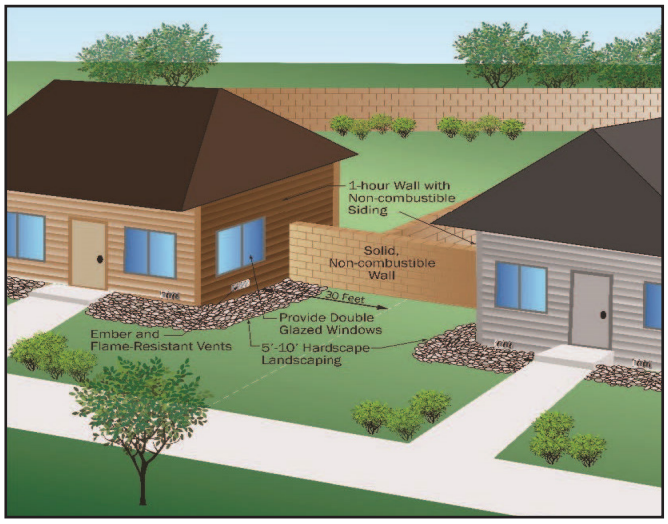


Figure 100. Examples of additional structural hardening and defensible space features where 30 feet of setback to the property line is not feasible (FEMA).

In some circumstances, structures may not be able to achieve 30 feet of setback to other structures. See Figure 100. In these instances, property owners are encouraged to consider the following strategies:

1. Install solid, noncombustible property line walls or fences to minimize ember transmission and heat transfer.
2. Install 5-10 feet of hardscaping and/or noncombustible landscaping around the home. Note: Where hardscaping is introduced, ensure proper drainage is provided.
3. Prioritize localized structural hardening measures on the side of the structure with less than 30 feet of setback.
4. Provide additional structural hardening such as installing or upgrading exterior walls, windows, vents, and under-eaves areas of the home to be fire-resistance rated.

5. Refer to FEMA's recently published fact sheets on defensible space and home hardening for more detail:

   - https://www.fema.gov/sites/default/files/documents/fema_marshall-fire-mat-homeowners-guide-defensible-space.pdf
   - https://www.fema.gov/sites/default/files/documents/fema_marshall-fire-mat-decreasing-structure-fire-spread.pdf

6.3 Critical Infrastructure Protection

The protection of critical infrastructure (e.g., communication systems, water supplies/infrastructure, electrical power infrastructure) from wildfire hazards, as well as limiting the potential source of wildfire ignitions due to these features, is an important planning consideration while developing a community wildfire resiliency strategy.

The following guidance and best practices (Sections 6.3.1 through 6.3.4) should be considered in the community wildfire resiliency strategy. Critical infrastructure may span across multiple jurisdictions and may have multiple communications sectors (e.g., public utilities, city, county) so coordination with all responsible parties is key. Critical infrastructure is also subject to requirements of the El Dorado County Defensible Space Ordinance (Chapter 8.09), Section 8.09.070(E).

6.3.1 Water Infrastructure

Wildfire can affect water infrastructure in a variety of ways. Operations during wildfire scenarios, water quality, recovery of communities, and other elements related to water infrastructure can all be impacted by a wildfire. It is imperative that the authorities with the responsibility of maintaining water infrastructure take actions to maintain operations during a wildfire wherever possible, and work towards restoration of services in a timely manner to facilitate overall community recovery efforts. There are several proactive actions that can be taken as part of a community wildfire resiliency strategy to aid these efforts.

The University of California Agriculture and Natural Resources (UC ANR), California Institute for Water Resources and the Luskin Center for Innovation (LCI) at the University of California, Los Angeles (UCLA) produced a detailed report (https://innovation.luskin.ucla.edu/wp-content/uploads/2021/12/Wildfire-and-Water-Supply-in-California.pdf) on wildfire & water supply in California. Some key recommendations contained in this report are:

Top Priorities for Water Infrastructure:

- **Invest in debris management basins.**
- **Plan for treatment technologies and techniques to protect water systems under varied wildfire impact and contamination scenarios.**
- **Proactively invest (e.g., in forest restoration projects) to help avoid accumulation of reservoir cleanup costs.**
- **Invest in backup power supply to maintain operation of treatment facilities and pump stations during an emergency.**
- **Invest in offsite operations of water systems to reduce risk to water system employees and maintain water operations for emergency use.**
- **Develop specific wildfire mitigation plans that include local or regional partnerships with surrounding water systems or water wholesalers with inter-tying supply connections.**

Additional guidance focused on water infrastructure related specifically to fire-protection equipment can be obtained from FEMA documentation:

- *(Required by County Ordinances Chapter 8.09)* As a minimum, 30 feet of brush clearance should be maintained around water infrastructure components that are critical fire protection equipment, such as water storage. This distance may vary based on review and discussion with the local fire department. Refer to NFPA 1 and local ordinances for detail.
- Minimum water storage requirements should be considered to provide protection for dwellings and other structures where adequate public/private water supply is not available. Property owners are encouraged to consult with the local fire department for further guidance.

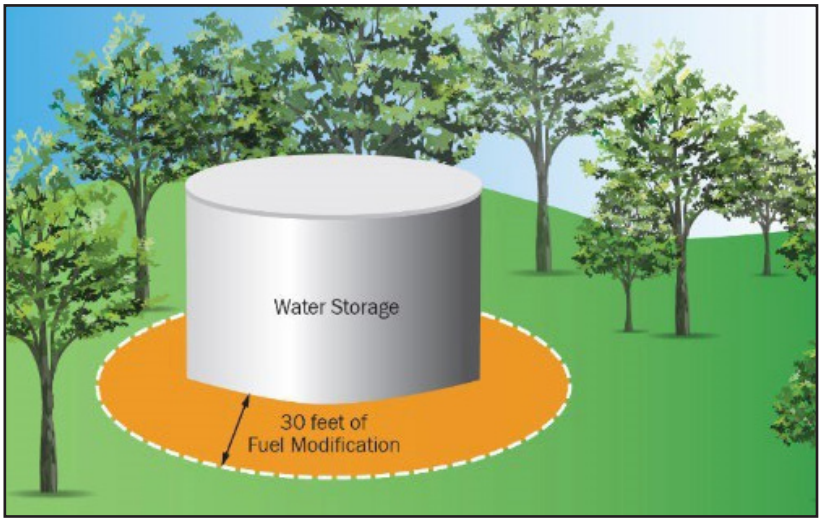


Figure 101. Providing appropriate vegetation clearance around critical water infrastructure and associated equipment is key for increasing wildfire resiliency.

6.3.2 Communications Infrastructure

The preservation of communication systems during a wildfire emergency is vital to the safety of residents and first responders. As such, actions should be taken to protect this important infrastructure in the event of a wildfire. County-enforced requirements (Chapter 8.09) include the following protective measures for communication systems such as communication towers and associated equipment:

- Provide 30 feet of hardscaping or brush clearance around communication towers (Refer to the photo below for an example of sufficient hardscaping and clearance around communication towers).
- Provide a minimum 100-foot clearance around accessory buildings 120 square feet in size or larger that support the operations of the facility.



Figure 102. Wildfire Approaching Critical Communication Infrastructure Located in High Fire Hazard Topography.

6.3.3 Electrical Infrastructure

Electrical utilities are not only important to maintain in a wildfire as critical infrastructure and lifeline facilities, but they can also pose a wildfire hazard or ignition sources themselves. While wildfire mitigation and protection of investor-owned electrical utility infrastructure is the responsibility of the electrical corporation that owns and/or operates it (e.g., PG&E) and is subject to the requirements of the California Public Utilities Commissions (CPUC) and Office of Energy Infrastructure Safety (OEIS), other electrical systems and infrastructure also require protection and wildfire safety measures. The following are general actions that can be taken to protect electrical infrastructure:

- Where possible, place all electrical distribution equipment in conduit underground.
- Regular vegetation maintenance should be planned to maintain appropriate clearances, and should take into consideration species' growth rates, trim cycle, and line sway (NFPA 1, Chapter 17, Office of Energy Infrastructure WMP Guidelines, CPUC General Orders)
- Maintain a combustible free zone around poles and towers of not less than 10 feet in each direction. For distribution lines, vegetation clearances are defined as a function of line voltage and time of trimming (e.g., a 4160V line requires a minimum of 4 feet clearance, so trimming requirements are triggered when vegetation is 4 feet from the line and must be trimmed to 6 feet clearance, to allow for growth in between trimming cycles).

Pacific Gas & Electric (PG&E), the main investor-owned utility providing electricity to the area, is required to maintain a Wildfire Mitigation Plan (WMP). Refer to PG&E's WMP and website for details: https://www.pge.com/en_US/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan.page?WT.mc_id=Vanitywildfiremitigationplan. Though the Sacramento Municipal Utility District (SMUD) does not provide services to the west slope, they do operate ten hydroelectric powerhouses connected with transmission lines as well as manage fuel and fire risk at the asset level and also the landscape level in some cases. SMUD's WMP contains additional details: https://www.smud.org/In-Our-Community/Safety-Tips/Wildfire-safety/Wildfire-Mitigation-Plan.

See Section 7.0 for recommendation actions to increase the resiliency of electrical infrastructure to wildfires.

6.3.4 Road Infrastructure

Physical resiliency of road infrastructure to wildfire exposure and post-fire debris flows is critical to protecting the transportation network throughout the County not only for access/egress during a wildfire, but also as a lifeline facility for maintaining local/regional economies and livelihoods. A wildfire exposure and post-fire debris flow assessment of the road infrastructure across the County should be undertaken to better understand and mitigate against any physical threats to the road infrastructure to wildfires. This is inclusive of private roads and state highways.

Top Priority: A wildfire exposure and post-fire debris flow assessment should be undertaken across the County to better understand and mitigate any physical threats to the road network.

Roadside fuel treatments are a key mitigation strategy to help reduce structural damage to the road network particularly for bridges and overpasses that are of combustible construction or have limited inherent fire resistance (e.g., steel structures), but also to maintain the roadways free of extreme fire conditions such that they are useable. Roadside fuel treatments are discussed further in the next section.

6.4 Natural Resources Protection

The Planning Area hosts an abundance of natural resources that contribute to the quality of life in El Dorado County. Many of these resources were discussed in Section 3.4.4 of this Plan. A key to protecting these resources from the negative impacts of high intensity wildfire lies in the ability to manage wildfire intensity though strategically placed fuel treatments which address fuel loading, vertical arrangement (ladder fuels) and horizontal continuity of fuels. This is especially true in the mid-elevation, mixed conifer forests. In grass and shrub dominated fuel types, addressing the frequency with which fire burns in these vegetation types is important to assure the long-term health of these systems, as high frequency fire return intervals can lead to the ecological degradation of these ecosystems.

For reference, the mean pre-European settlement Fire Return Interval for local habitat types ranges from 11 years for dry mixed conifer sites, 12 years for oak-woodland to 29 years for mixed-evergreen conifers (Safford and Van de Water, 2014). Much of the Planning Area is currently out of alignment with these intervals; either burning too frequently or too seldom to maintain prime ecological health.

The lack of low or mixed severity fire in the mid-elevations of the Planning Area, combined with changes in land use and land management practices has led to a general increase in fuel loads and stand densification across the landscape. Researchers have noted that high-severity wildfire is increasing in Sierra Nevada and Southern Cascade forests compared to the years before Euro-American settlement. They found that in low- and middle-elevation forest types, the average annual area that burned at low-to-moderate severity has decreased from more than 90% before 1850 to 60-70% today. At the same time, the area burned annually at high severity has nearly quintupled, rising from less than 10% to 43% today. High- severity burns are those where more than 95% of aboveground tree biomass is killed by fire (Kerlin, 2023).

Figure 103 shows the soil burn severity map for the 2021 Caldor Fire where 54.3% of the fire area burned at moderate to high fire severity.

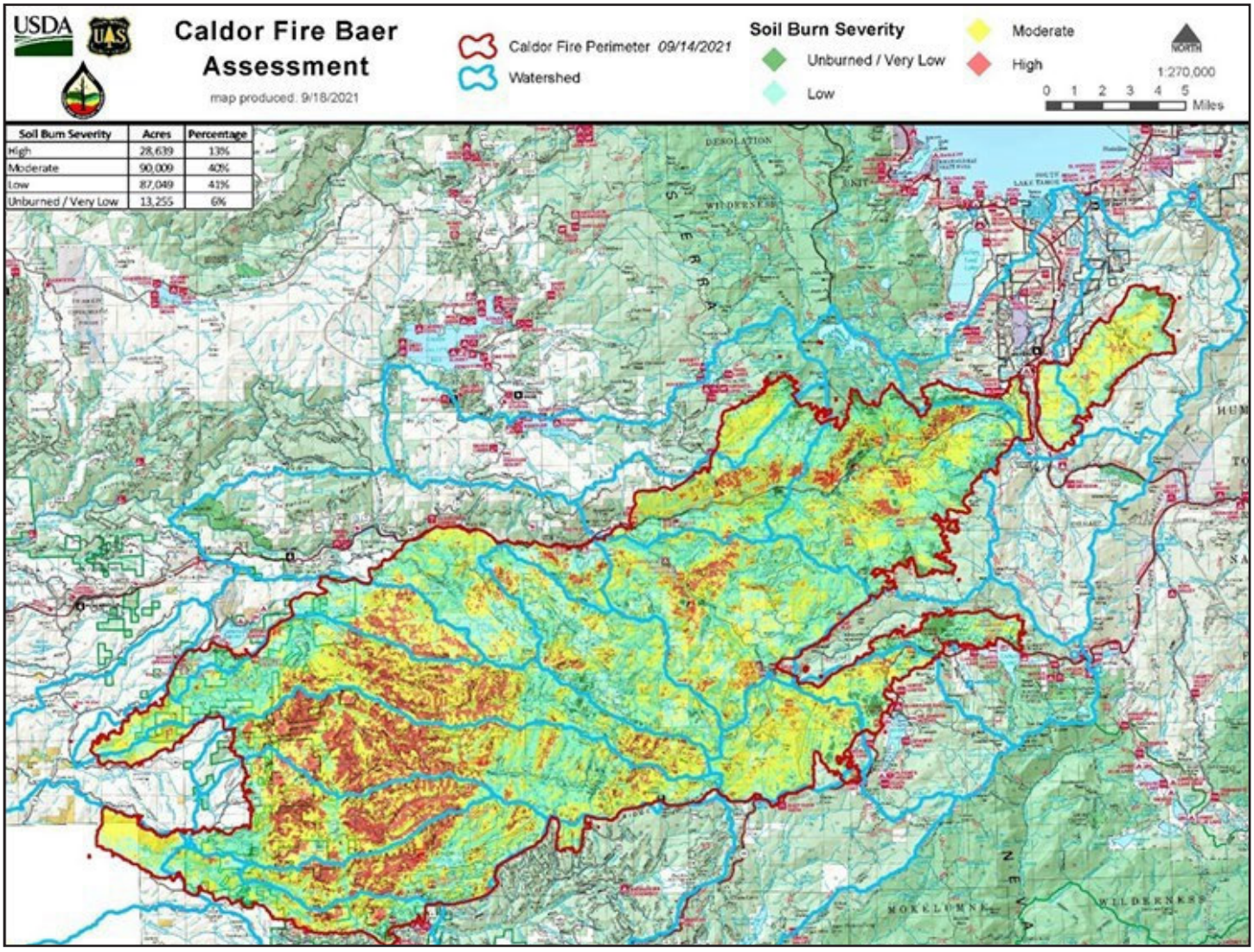


Figure 103. Soil Burn Severity of the Caldor Fire (2021)

Mixed-severity wildfire is the natural fire regime of the central Sierras, and no attempt to manage such a diverse landscape of vegetation types and ownership patterns will eliminate areas of high severity wildfire in the future. However, actions that protect important human improvements and critical natural resources are possible through the management of surface fuel loads, reducing ladder fuels and increasing crown spacing to mitigate crown fire develop.

Protection of natural resources can be simplified to a strategy which assures soil productivity and surface cover. By maintaining soil cover, water quality can be enhanced and erosion of productive forest soils reduced. Through maintaining soil productivity natural habitats, timber production and general forest health can be better protected, thus supporting the complex mix of flora and fauna found in the Planning Area.

Specific vegetation treatment standards are proposed in Section 6.5, Fuel Mitigation Strategy.

6.5 Fuels Mitigation Strategy

Fuel treatment, also referred to as vegetation management, is the act of removing or manipulating vegetation to reduce fire intensity, therefore increasing the probability that values at risk will be unaffected in a wildland fire. Fuel removal generally occurs by prescribed fire, grazing or the physical cutting and hauling away of vegetative matter. Modifying fuels by chipping, mastication or weed whipping can also reduce fire behavior by creating a less flammable fuel arrangement.

Multiple agencies have a role in developing a comprehensive fuel treatment strategy for the Planning Area, including CAL FIRE, the United States Forest Service, Sierra Pacific Industries, the Bureau of Land Management, Bureau of Reclamation, the El Dorado County and Georgetown Divide Resource Conservation Districts, Fire Safe Councils, and individual property owners. These entities have different policy directions that guide their actions on the ground, but leveraging the work that has occurred in the past with planning that enhances the effectiveness of these existing treatments provides a road map to enhanced wildfire resilience across the West Slope of El Dorado County.

Purpose of Fuels Treatment: Wildfires have been a significant component of the Northern California landscape for thousands of years, and no level of vegetation management will eliminate the potential negative impacts of a wildfire on local communities. Focusing fire mitigation efforts on individual structures and communities where social costs are highest shows the greatest promise to decrease overall fire suppression costs, prevent community losses through increased efficiency of firefighting resources, and reduce impacts on native plant communities which serve as a source of plant and animal diversity (Lombardo, 2012).

6.5.1 Existing & Planned Treatment Activities Under the 2022 CWPP

Figure 104 represents projects under the 2022 Western El Dorado County CWPP that are completed, active or planned. By understanding the location of past fuel treatments, the process of identifying gaps or weaknesses in the network of the treatments is made simpler and can assist in identifying where new actions are needed.

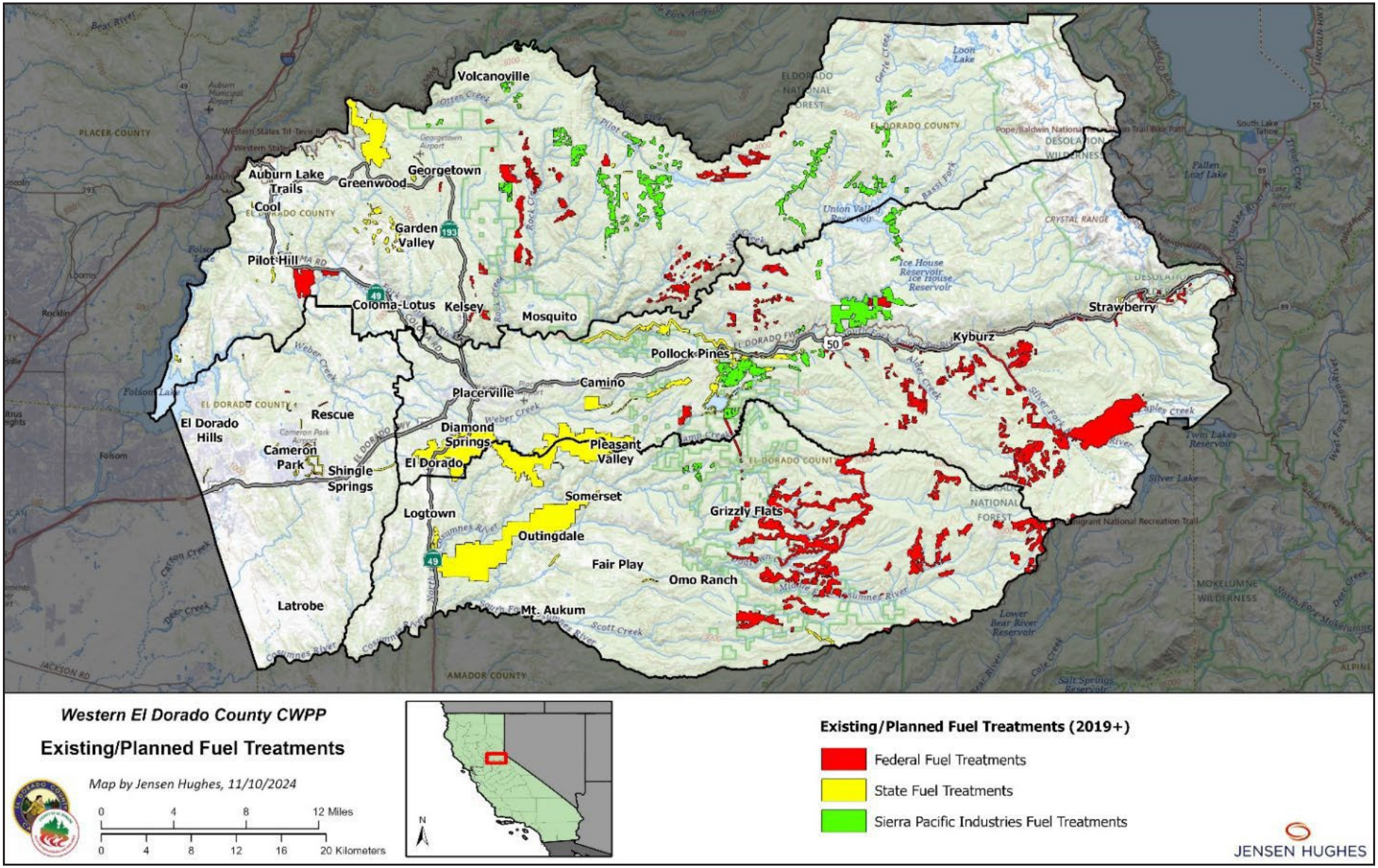


Figure 104. 2022 CWPP Fuel Treatments

6.5.2 Updated (2026) CWPP Project Planning & Coordination

A fuels treatment strategy for the Planning Area will require coordination between all the jurisdictional agencies and private landowners. In order to increase the landscape level effectiveness of the various actions, this plan includes a broader set of stakeholders involved in the planning and implementation process. Through a project coordination working group, project activities, funding opportunities and resources are evaluated to consider priority needs and locations. Priority treatment locations consider the hazard and threat assessment performed as part of this document (See Section 5.3.1).

Current and proposed project activities across landscapes and organizations are displayed on the CWPP story map: https://storymaps.arcgis.com/stories/a05cf68ea9b5496e90dd55ad05f4808d

6.6 Wildfire Detection Systems

Wildfires in El Dorado County are currently detected and reported using a variety of methods – public reporting, fire service personnel observations, monitoring cameras, and infrared technologies. Unlike interior building fires where fire is often detected using devices such as smoke-, heat- or flame-detectors, most wildland fires are still detected and reported by human observations.

- **Public Reporting:** Public wildfire reports have resulted in immeasurable reductions in impacts to life-safety, property, natural environment resources and services, fire suppression costs, and many other community assets/values.

If you see a wildfire, please call 911.

When reporting a wildfire, provide the following information:

- Your phone number
- Location of the fire
- Whether there are lives or values at risk
- What is burning? (Trees, Grass, Structures)
- Size of the fire
- How quickly the fire is spreading
- Color of the smoke

The details you provide are critical in determining the type of response the fire will receive from fire suppression authorities. Your help is greatly appreciated, as it helps allocate resources more efficiently and quickly determine the appropriate response to wildland fire activity.



- **Air Patrols:** Air patrols over remote areas of the County during periods of high fire danger or following lightning activity are understood to be conducted by CAL FIRE in the Planning Area.
- **Infrared Technologies:** Once a wildfire has occurred, CAL FIRE fire uses ground personnel and aircraft with thermal imaging technology to assist in fire operations. Thermal imaging is utilized for detecting hot spots and areas of residual fire on larger fires during mop up, boundary establishment, fire mapping and fire progression.

- **Monitoring Cameras:** ALERTWildfire is a program developed and operated through a partnership between the University of Nevada Reno, University of California San Diego, and the University of Oregon. It provides public access to a state-of-the-art camera network that assists first responders such as CAL FIRE and the public with information about current weather and fire conditions. Live feeds can be accessed at the ALERTCalifornia website: https://alertca.live/.
- **Fire Lookout Towers:** There is a series of fire lookout towers (approx. 16 towers via Peakbagger.com) located throughout El Dorado County. These towers are staffed by volunteers during fire season to assist in early detection/reports of wildfires at initial attack status.

6.7 Public Notification & Communication

Public notification systems and communication strategies are an evolving process. These systems benefit greatly from the investment of resources into the pre-, during- and post-fire stages, particularly during and after fire incidents to monitor and take stock of both shortcomings and successes in the effectiveness of communications in reaching intended audiences. During an event, having a single source of information is strategic both from the perspective of communications clarity as well as for minimizing resource strain. Further, in all communications phases, employing an active and reliable channel for communications and operations is one of the most valuable investments that can be made to improve communications in real-time.

Given El Dorado County's vulnerable and remote populations combined with limited public communications infrastructure, the imperative is that no audience is left behind. There should be a reliable method for reaching everyone, and ideally multiple methods that allow for a quick and coordinated response in the event of a time-sensitive event. The more redundancy that can be built into reaching all audiences, the more investment that can be made in the infrastructure to do so, and the more that those resources can be front-loaded in anticipation of an event, the more successful communications will be in achieving its goals in the case of an emergency.

Top Priority: Additional technologies, physical infrastructure, detailed analysis/design and enhancements to practices and procedures for public communication and messaging will need to be further developed and implemented to increase the physical resiliency of emergency communication infrastructure to wildfires, as well as to ensure complete, consistent, timely, and effective emergency messaging.

As experienced in recent wildfires and indicated in public workshops and digital polling, several aspects of public notification and communication will need to be further developed. This includes additional technologies, physical infrastructure, detailed analysis and enhancements to practices and procedures of public communication and messaging. Implementation of these developments will increase the physical resiliency of communication infrastructure to wildfires, as well as ensure complete, consistent, timely, and effective emergency messaging. Refer to Section 7.0 for recommended actions.

Currently, the County has a variety of public notification and communication systems to help inform the public of a wildfire incident such as area notification systems, social media, radio/TV broadcasting, door-to-door communications, etc.). These existing systems and technologies are identified and described in the sections below.

6.7.1 Area Notification Systems

- **Alert Notification System "RAVE":** RAVE Mobile Safety is contracted by the County to allow for immediate mass distribution of critical information and instructions in case of large-scale disasters, such as earthquakes, wildfires, major road closures, evacuations, or other catastrophic incidents.

  All residents and visitors are able to receive alerts issued by the El Dorado County Sheriff's Office of imminent threats and emergency warnings via the Smart911 Alert system. The system allows for multiple methods of notification – home or work phones and email addresses can receive time-sensitive emergency messages on multiple devices. The County has recently switched from the "Code Red" system to the Smart911 System. Residents that registered for the "Code Red" system will have their information transferred to the new system automatically.



Visit here to register: https://ready.edso.org/

Note: This system is separate from the County's traffic and emergency alerts, which are used for lane closures and low-level emergencies.

- **National Weather Service:** The NWS transmits continuous weather information on the 162.550 MHz frequency serving El Dorado County. NWS severe weather broadcasts are preceded with a 1050 Hz tone that activates weather monitor receivers equipped with decoders. The NWS can also access the National Warning System to announce severe weather information.
- **Integrated Public Alert and Warning System (IPAWS):** IPAWS is a FEMA communications system made accessible to federal, state, local, tribal, and territorial (FSLTT) officials for warning the public of an imminent threat and/or public safety incident and providing information on corresponding protective actions. County of El Dorado Sheriff's Office of Emergency Services is an Alerting Authority under this program. https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/public
- **Neighborhood Radio Watch:** Due to potential for land lines and mobile phone infrastructure failure during a wildfire event, several neighborhood-based radio watch groups have been established throughout the County. To enable local area or county-wide communications without physical infrastructure, residents can participate with Family Radio (FRS), General Mobile Radio (GMRS), or Ham Radio. Information and links to these groups can be found at: https://www.cerafund.org/neighborhood-radio-watch

6.7.2 Social Media

El Dorado County is actively connected via social networks including Facebook, Twitter (now known as X), and Instagram. Local agencies use social media to keep stakeholders up to date on events, advisories, and alerts.

Table 24 summarizes some of the primary social network links for emergency preparedness in El Dorado County. Note: Only county-wide entities are listed. For individual fire authorities, check their individual websites.

Table 24. Social Media and Media Programs

Source	Weblink
El Dorado County	
El Dorado County Facebook	https://www.facebook.com/ElDoradoCountyNews/
El Dorado County Twitter/X	https://x.com/CountyElDorado
El Dorado County OWPR Facebook	https://www.facebook.com/EDCOWPR
El Dorado County Sheriff Facebook	https://www.facebook.com/eldoradosheriff/
El Dorado County Sheriff Twitter/X	https://x.com/ElDoradoSheriff
El Dorado County Sheriff Instagram	https://www.instagram.com/accounts/login/?next=https%3A%2F%2Fwww.instagram.com%2Feldoradosheriff%2F&is_from_rle
CAL FIRE	
CAL FIRE Amador-El Dorado Unit Facebook	https://www.facebook.com/CALFIREAEU/
CAL FIRE AEU Twitter/X	https://x.com/calfireaeu
CAL FIRE AEU Instagram	https://www.instagram.com/accounts/login/?next=https%3A%2 F%2F-www.instagram.com%2Fcalfire_aeu%2F%3Fhl%3Den&i s_from_rle
City of Placerville	
City of Placerville Police Department Facebook	https://www.facebook.com/PlacervillePolice/
City of Placerville Police Department Twitter/X	https://x.com/placervillepd
City of Placerville Facebook	https://www.facebook.com/historichangtown/

6.8 Evacuation

The west slope of El Dorado County has major access and egress challenges which can impact emergency response and public evacuation capabilities. These challenges include the limited number of routes which traverse the County; narrow, winding, and/or steep roads; vegetation growth encroaching on roads; communities with only one way in/out; and complicated public and private road networks. This is highlighted by Highway 49, which is the only paved route exiting the western slope of the County to the north. This environment is made more complex by topography driven communication challenges, high numbers of visitors, and vulnerable populations and communities.

The El Dorado County Transportation Commission produced a Wildfire Evacuation Preparedness Study for the Greater Placerville area (June 2024, https://www.edctc.org/greater-placerville-wildfire-evacuation-preparedness-community-safety-and-resiliency-study) and the El Dorado County Sheriff's Office produced a Wildfire Evacuation Study as part of the Multi-Jurisdictional Hazard Mitigation Plan (May 2024, https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/public-safety-amp-justice/public-safety/sheriff/operations/oes/edc_mjhmp_wildfire_evac_study_final_052824.pdf. Each of these studies includes more detailed information about challenges and opportunities related to evacuation for specific areas of the County (e.g., Golden Bear Trail, Lake Hills, Logtown, Outingdale, Placerville, Rancho del Sol).

6.8.1 Before a Wildfire Event

Prior to a wildfire event, a variety of preparatory policies, pre-disaster communication strategies, and wildfire hazard mitigations may help reduce the size and impact of an evacuation. Maintaining road and shoulder vegetation management and clearance programs, particularly for secondary roads and communities with only one access road, can both reduce wildfire impacts and keep evacuation routes open during an event.

Pre-disaster communications can help residents prepare for an evacuation and develop an evacuation plan. Residents can prepare for an evacuation by developing an individualized evacuation plan which includes a packing list, different route options, and options for where they will go. For additional guidance for individuals and families see information from https://ready.edso.org/, the FSC Wildfire Preparedness Workbook (https://www.edcfiresafe.org/resources#docaccess-30659ac8301a6e2e6c784ad74c4bae4441e613db7ce95bb6b-569c53acbb34861), and OWPR's Wildfire Preparation Tool Kit (https://www.eldoradocounty.ca.gov/files/assets/county/v/2/documents/public-safety-amp-justice/wildfire-amp-disaster/wildfire-preparedness/fire-preparation-tool-kit-owpr-version.pdf). There are a variety of improvements to planning, communication, and infrastructure which could further improve pre-wildfire evacuation preparations. See Section 7.0 for recommended actions.

6.8.2 During a Wildfire Event

The El Dorado County Sheriff's Office is the agency with authority to order an evacuation during a wildfire event. This decision is made in consultation with relevant fire agencies and the Incident Commander for the emergency. California law authorizes law enforcement to restrict access to any area where a menace to public health or safety exists due to a calamity such as flood, storm, fire, earthquake, explosion, accident, or other disaster. Refusal to comply is a misdemeanor (Penal Code 409.5).

6.8.2.1 Real-Time Evacuation Information

El Dorado County publishes public alerts and notifications via RAVE mobile safety to notify the community of emergency alerts. Evacuation information is also published to Perimeter, which serves as a centralized hub for information during an emergency (https://perimetermap.com/El-Dorado-CA). Refer to El Dorado County Emergency Alerts for additional information (https://ready.edso.org/).

Because no single method of notification would accomplish complete public notification, communication methods, which may be employed by fire agencies, EDSO-OES, and other emergency response and law enforcement entities include:

- RAVE Mobile Safety
- Emergency Alert System (EAS) supported by the National Weather Service broadcast
- Radio and television announcements
- Door-to-door notifications
- Watch Duty (mobile app and website)
- Social media, such as X, Facebook and Instagram

In the event of power outages, additional notification strategies may include:

- Phone hotline
- Radio PSA
- Flyers for in-person distribution
- Press releases to the media
- Loudspeakers in vehicles
- Deployment of information stations (i.e., large wooden sandwich boards with posted information at preidentified locations, temporary refuge areas, and additional locations identified during the event)



Figure 105. Sandwich Board Containing the 2024 Crozier Fire Incident Map and Fire Information.

6.8.2.2 Potential Access / Egress Routes

The west slope of El Dorado County has two major access/egress routes into and out of the region – US-50, which bisects the Planning Area east-west, and SR-49, which runs north-south and crosses US-50 near Placerville. These are the major routes through or out of the planning area and additional routes may be identified as evacuation routes within the west slope during a specific emergency.

It is important to note that during a wildfire event, fire behavior and road conditions may necessitate changes. It is recommended that everyone in the community become familiar with the preferred evacuation routes, identify potential alternatives should fire behavior and/or road conditions require a change and stay connected with emergency notification systems for instructions.

6.8.2.3 Temporary Refuge Areas / Evacuation Points

Temporary Refuge Areas or Evacuation Points may be identified within the west slope of El Dorado County by fire agencies and law enforcement in response to a specific wildfire event. These areas may serve as temporary staging areas, as well as to assist in traffic management, based on specifics of the emergency event and the communities impacted or threatened (e.g., temporary refuge areas may be utilized when the evacuation route for a one-way-in-one-way-out community is impacted).

6.8.2.4 Potential Evacuation Issues

Outlined below are some issues that may be encountered during an evacuation and should be considered by emergency operations planning staff responsible for evacuation planning:

- Residents and business-owners will not have established evacuation preparedness plans.
- Individuals often delay their evacuation with the intent of defending their property, sheltering-in-place, or are slow to leave their homes due to packing personal items. This delay jeopardizes their life safety.
- Residents and business-owners may choose not to evacuate but to stay and defend their homes/businesses or decide to shelter-in-place until the fire danger passes. These residents and business-owners can put their lives, as well as those of emergency personnel, at risk.

- Research in social behavior during wildfire evacuations indicates that people tend to take multiple vehicles when evacuating. This can introduce additional demands on the transit networks and should be considered as part of an evacuation management plan. Of CWPP survey respondents who indicated that their household evacuated by driving during either the Caldor or Mosquito Fires, approximately 60% took two or more vehicles.
- Vulnerable populations and/or individuals with limited mobility may be less able to respond to, cope with, or recover from wildfire. Approximately 13% of respondents to the CWPP survey indicated that someone in their household has a disability or impairment that would make it hard to leave during a wildfire.
- Evacuating pets, service animals, and large animals pose significant problems since panicked animals behave unpredictably and may refuse to respond to normal handling approaches. In addition to evaluating these potential evacuation issues, regular evacuation field drills are recommended to identify any additional physical, social behavioral, operational, communications, and management challenges to the safe and efficient execution of an evacuation order.

Research in social behavior during wildfire evacuations indicates that people tend to take multiple vehicles when evacuating. This can introduce unnecessary demands on the transit network and impacting life safety.

6.9 Public Education & Awareness

6.9.1 County / Regional Programs

Wildfire Preparedness – Office of Wildfire Preparedness and Resilience (OWPR)

The Office of Wildfire Preparedness and Resilience webpage (https://www.eldoradocounty.ca.gov/OWPR) details extensive information on wildfire preparedness for residents of El Dorado County.

Included are pages on:

- Defensible Space Program: This page includes a link to the current El Dorado Defensible Space Ordinance, details County Emphasis Areas, active CAL FIRE Defensible Space Inspection Areas, and includes links for assistance programs and the defensible space complaint form. The defensible space complaint form allows County residents to report defensible space concerns within unincorporated areas of the County.
- Home Hardening: This page includes basic home hardening measures, and links to additional guides related to home hardening.
- Online Mapping Tool: El Dorado County has developed a mapping tool in conjunction with the El Dorado Water Agency for the public and organizations to view fire prevention and vegetation treatment projects and activities. This page links to the mapping tool: https://www.eldoradocounty.ca.gov/Public-Safety-Justice/Wildfire-Disaster/Office-of-Wildfire-Preparedness-and-Resilience/Online-Mapping-Tool.
- Firewise Communities: This page details what Firewise communities are and lists the contact information for the different coordinators across El Dorado County.
- CWPP: The Office of Wildfire Preparedness and Resilience is the main sponsor of the CWPP. This page includes basic information about CWPPs, and a link to the CWPP website.

- Insurance Information: This page includes important information about insurance discounts under the Safer from Wildfires Initiative.
- Resources: This page includes numerous links to additional resources at the local and regional, state, and national levels.

El Dorado County Fire Safe Council

Fire Safe Councils are grassroots, community-led organizations that mobilize and empower residents to protect their homes, communities, and environments from catastrophic wildfire. Throughout California FSCs educate homeowners about community wildfire preparedness activities, typically working directly with local fire officials to design and implement projects that increase the wildfire preparedness and response efforts. El Dorado County has many Fire Safe Councils registered in the program under the wider umbrella of the El Dorado Fire Safe Council. These are documented as "Associate Councils" on the El Dorado Fire Safe Council website (https://edcfiresafe.org/associate-council-locations/).

The El Dorado Fire Safe Council sponsors several programs available to residents. This includes:

- Chipping Program: The El Dorado Fire Safe Council provides chipping services for neighborhoods and individual homeowners on the West Slope of El Dorado County. This can be requested through the El Dorado Fire Safe Council website: https://edcfiresafe.org/chipping-program-details/
- Defensible Space Program: The El Dorado Fire Safe Council provides aid to seniors, veterans, low income and disabled residents living on the West Slope of El Dorado County for creating defensible space around their primary homes. This can be requested through the El Dorado Fire Safe Council website: https://edcfiresafe.org/defensible-space-program-details/
- Residential Hazardous Tree Removal Program: The El Dorado Fire Safe Council offers free assessments of hazardous trees on residents' properties. If hazardous trees are identified, the El Dorado Fire Safe Council will provide subsidized removal of trees. Residents can enroll in this program via the El Dorado Fire Safe Council website: https://www.edcfiresafe.org/hazardous-tree-removal-program

El Dorado County Animal Services

The El Dorado County Animal Services webpage has a disaster preparedness section that contains useful information about emergency planning with animals. The page links to brochures with focus on pets, livestock, and horses. The webpage can be accessed at: https://www.eldoradocounty.ca.gov/Services/Animal-Services/Disaster-Preparedness-Pet-and-Animal-Emergency-Planning

In addition, the South County Large Animal Rescue, is a dedicated group of volunteers who are trained and work under the direction of El Dorado County OES and Animal Services to help facilitate the evacuation of large animals. More information can be found at: https://www.sclar.org/

American Red Cross – California Gold Country Region

The California Gold Country Region of the American Red Cross seeks to help people prevent, prepare for, and respond to natural and human-caused disasters through the immediate mobilization of people and resources and the provision of community, workplace, and school-based training. In addition to disaster relief, the Region delivers Community-Disaster Education, First Aid/CPR, and other types of life-saving health & safety training to thousands of people across our region to help people prevent, prepare, and respond to emergencies. American Red Cross California Gold Country Region website is available at: https://www.redcross.org/local/california/gold-country.html

American Red Cross
California Gold Country Region

Sierra Forest Legacy

The Sierra Forest Legacy is an organization that uses best practices of science, advocacy, and grassroots engagement to safeguard forest lands throughout the Sierra Nevada. The Sierra Forest Legacy is involved in several Fire Safe Councils to increase the overall protection, education, and involvement of Sierra Nevada communities. The website can be accessed at: https://www.sierraforestlegacy.org/index.php

The Fire Restoration Group

The Fire Restoration Group is an organization dedicated to expanding efforts to integrate fire policy with fire ecology. The Fire Restoration Group has partnered with other organizations to provide aid in many projects, including those located in the Tahoe National Forest. The website can be accessed at: https://firerestorationgroup.org/

American River Conservancy

The American River Conservancy is dedicated to protecting the upper American and upper Cosumnes River watersheds through land conservation, stewardship, and education. Their work focuses on connecting people with the outdoors, fostering environmental literacy, and strengthening community relationships through collaboration, cultural and ecological respect, organizational integrity, and high-performance practices. The website can be accessed at: https://arconservancy.org/

West Slope Foundation

The West Slope Foundation was founded after the 2021 Caldor Fire to aid in community recovery. In the time since, the Foundation has worked to ensure that proper pre-planning and education for disaster preparedness and response is done to improve future outcomes for communities in the region. The website can be accessed at: https://www.westslopefoundation.org/

6.9.2 Local / Neighborhood Programs

Firewise Communities

The Firewise USA Program encourages local solutions for safety by involving homeowners in taking individual responsibility for preparing their homes for the risk of wildfire. The program provides resources to help homeowners learn how to adapt to living with wildfire while encouraging and empowering neighbors to work together to reduce their wildfire risk and prevent losses. The website can be accessed at: https://www.eldoradocounty.ca.gov/Public-Safety-Justice/Wildfire-Disaster/Office-of-Wildfire-Preparedness-and-Resilience/Firewise-Communities

Community Emergency Response Team (CERT)

Community Emergency Response Training (CERT) is a 36-hour course designed for the average citizen so that they can be of help to their neighborhood or business where they work in times of a disaster.

The CERT program was developed in 1985 by the Los Angeles City Fire Department to provide basic training in safety and lifesaving skills to the general public. It has since been adopted by and enhanced by the Federal Emergency Management Agency (FEMA) and the National Fire Academy.

There is one official FEMA/CalOES program within the Planning Area: El Dorado Hills Fire Department CERT. The website can be accessed at: https://www.edhfire.com/how-do-i/get-involved/cert

6.10 Fiscal Resources

Fiscal resources, budgetary constraints and a broad range of federal, state, and local stakeholders may make it difficult to implement recommendations found in this plan. However, working together as a collaboration of stakeholders and other interested parties across the County through a variety of sources (public, private, volunteer, non-profit, etc.) will be essential. Establishing local priorities for available staffing and funding while still seeking additional funding sources will allow countywide stakeholders to continue enhancing wildfire protection for residents, businesses, visitors, and other interested parties.

6.10.1 Potential Grant Funding Sources

Implementation funding may come from a variety of sources. The most common source for large projects is through federal, state, and local grant sources. This list below represents some of the more common grant sources used for wildfire related projects and activities but is not intended to be all inclusive).

Fire Service Grants and Funding (AFGP)

Provides direct assistance on a competitive basis to fire departments of a State or tribal nation for protecting the health and safety of the public and firefighting personnel against fire and fire-related hazards.

Fire Service Grants and Funding (AFGP)

Through the Federal Emergency Management Agency's Assistance to Firefighters Grant Program (AFGP), career and volunteer fire departments and other eligible organizations can receive funding through three different grants to enhance a fire department's organization's ability to protect the health and safety of the public first responders and to increase or maintain the number of trained, "front-line" firefighters available in communities.

Staffing for Adequate Fire & Emergency Response Grant (SAFER)

The Staffing for Adequate Fire and Emergency Response Grant (SAFER) was created by FEMA to provide funding directly to fire departments and volunteer firefighter interest organizations to help them increase or maintain the number of trained, "front line" firefighters available in their communities. The goal of SAFER is to enhance the local fire departments' abilities to comply with staffing, response and operational standards established by the National Fire Protection Association (NFPA 1710 and/or NFPA 1720).

Fire Prevention & Safety Grants (FP&S)

The Fire Prevention and Safety (FP&S) Grants are part of the Assistance to Firefighters Grants (AFG) and support projects that enhance the safety of the public and firefighters from fire and related hazards. The primary goal of this grant program is to reduce injury and prevent death among high-risk populations. In 2005, Congress reauthorized funding for FP&S and expanded the eligible uses of funds to include Firefighter Safety Research and Development. https://www.fema.gov/grants/preparedness/firefighters/safety-awards

Building Resilient Infrastructure and Communities (BRIC)

Authorized by Section 203 of the Stafford Act, Building Resilient Infrastructure and Communities (BRIC) will support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program. The BRIC program aims to categorically shift the federal focus away from reactive disaster spending and toward research-supported, proactive investment in community resilience. FEMA anticipates BRIC funding projects that demonstrate innovative approaches to partnerships, such as shared funding mechanisms, and/or project design. https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities

CAL FIRE Grant Program(s)

CAL FIRE offers a number of grant opportunities that can be used to fund various action items and initiatives developed as part of this CWPP. A full description of these grants can be found here: https://www.fire.ca.gov/grants/

- California Climate Investments (CCI) Forest Health Program
- California Climate Investments (CCI) Urban & Community Forestry Grant Program
- California Climate Investments (CCI) Fire Prevention
- California Forest Improvement Program (CFIP)
- Volunteer Fire Assistance

PG&E Vegetation Management Fuel Reduction Program

PG&E provides several grant programs to support Fire Safe Councils, agencies and other organizations with fire prevention and fuel reduction efforts. This includes Wildfire Safety and Preparedness grants and Fire Safe Council Fuel Reduction Program grants.

California Fire Safe Council, USFS State Fire Assistance (SFA) Grant Program

Funding is provided through a master grant to California Fire Safe Council (CFSC) by the U.S. Forest Service to administer the Grants Clearinghouse program, with CFSC issuing sub-awards to successful applicants to support fire risk reduction activities by landowners in at-risk communities to restore and maintain resilient landscapes and create fire adapted communities. Funds should be utilized in the following categories: Hazardous fuels reduction and maintenance projects on non-federal land; Community Wildfire Protection Plans (CWPP) and other community hazard mitigation and planning; and Prevention and mitigation education and outreach opportunities for landowners and residents in at-risk communities

Sustainable Transportation Planning Grants

The California Department of Transportation (Caltrans) provides two planning grant programs that could be used to support any transit system wildfire evacuation studies and/or evacuation planning.

- Sustainable Communities Grants – to encourage local and regional planning that furthers state goals, including, but not limited to, the goals and best practices cited in the Regional Transportation Plan Guidelines adopted by the California Transportation Commission.
- Strategic Partnerships Grants – to identify and address statewide, interregional, or regional transportation deficiencies on the State highway system in partnership with Caltrans. A sub-category funds transit-focused planning projects that address multimodal transportation deficiencies.

CAL OES Hazard Mitigation Grant Program (HMGP)

Hazard Mitigation Grant Program (HMGP) funds plans and projects that reduce the effects of future natural disasters. In California, these funds are administered by the CAL OES HMGP Unit. Eligible sub-applicants include state agencies, local governments, special districts, and some private non-profits.

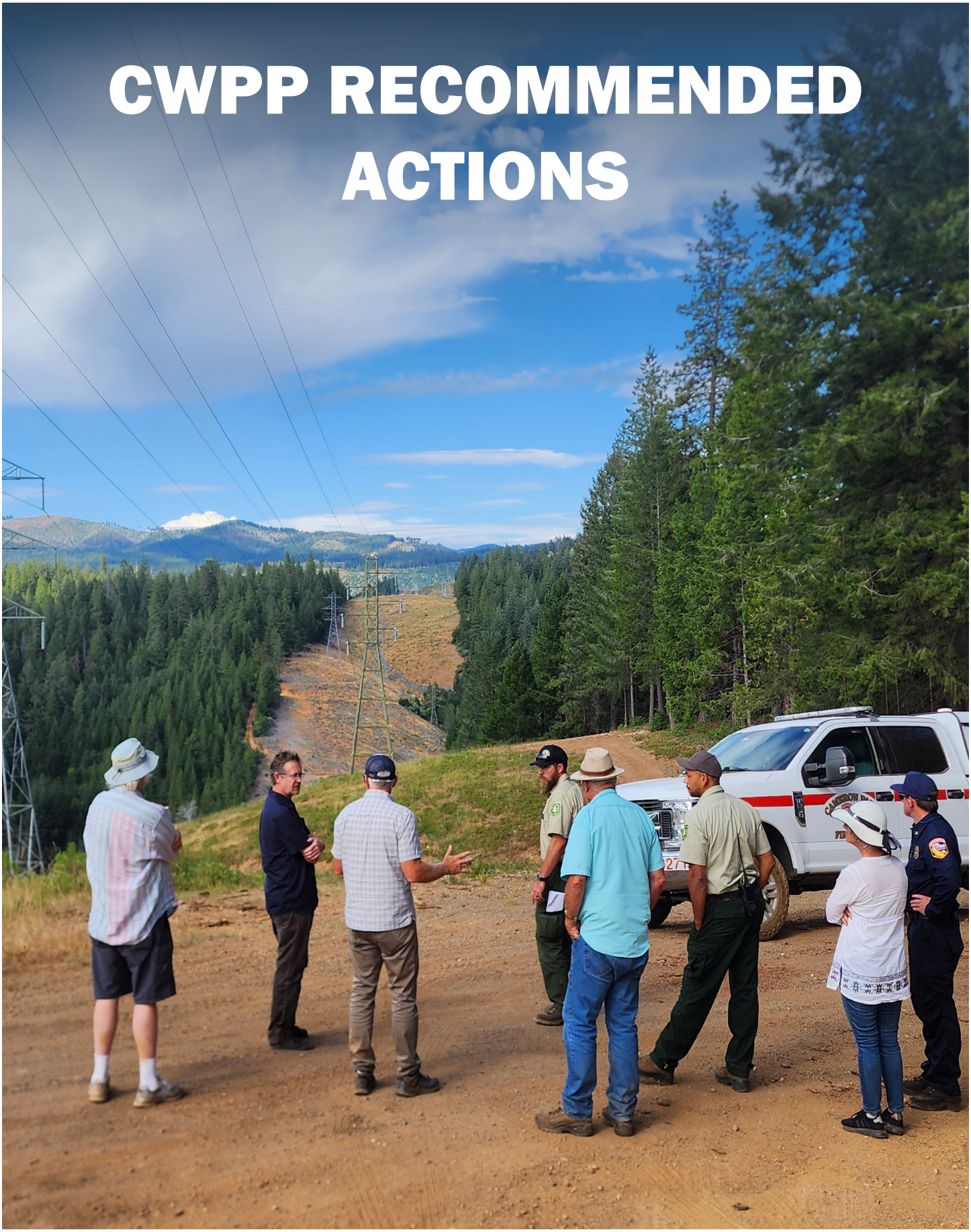
Community Wildfire Defense Grants (CWDG)

Community Wildfire Defense Grants (CWDG) funds communities and Tribes to plan for and reduce wildfire risk and implement the National Cohesive Wildland Fire Management Strategy. These funds are administered by the USDA and U.S. Forest Service. Eligible sub-applicants include communities that are in an area identified as having high or very high wildfire hazard potential, are low income, or have been impacted by a severe disaster in the last 10 years which increased wildfire risk and/or hazard. These funds can be used to develop and revise CWPPs, or implement projects described in a CWPP that is less than 10 years old.

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CWPP RECOMMENDED ACTIONS



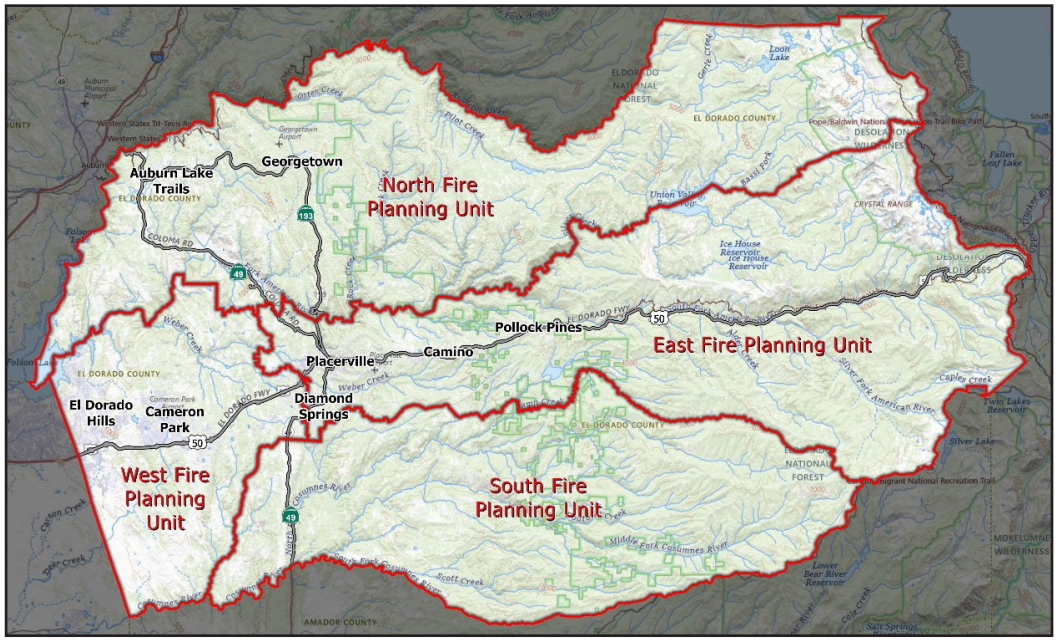
7.0 CWPP RECOMMENDED ACTIONS

This chapter provides a set of recommended actions for the west slope of El Dorado County that resulted from the CWPP development process. It is a collection of regional- and sub-county level recommendations and priorities that can be taken by property owners, agencies, and jurisdictional land managers to increase the fire resiliency of local communities across the west slope. Due to the scale of the CWPP and associated analysis presented in this report, the recommended actions are primarily focused on activities applicable to the entirety of the west slope to help inform the development of large-scale projects that will involve coordination and collaboration between multiple stakeholders. Some additional actions are designed to focus on home- and/or human-scale initiatives. These recommendations are intended to provide state, county, and local stakeholders with guidance to inform and direct future projects and actions in reducing wildfire hazards and risks at various scales. In combination with Chapter 8, the tool is also intended to provide a method to systematically monitor, track and evaluate progress on individual projects and overall CWPP programmatic goals.

Recommendations have been organized into regional-level actions and Fire Planning Unit (FPU) level actions. The four FPUs in the Planning Area were identified by the CWPP Steering Committee at the start of the development process to allow interested parties at a more localized level to focus efforts on their specific subregion and community. The four FPUs are:

- FPU A – North County
- FPU B – West County (HWY 50)
- FPU C – East County (HWY 50)
- FPU D – South County

No single individual, group or agency is responsible for enacting the recommendations or projects identified in this chapter. Using a collaborative approach, multiple agencies and interested parties can come together to address fire hazard concerns across the west slope of the County more effectively and efficiently.



Section 7.1 provides recommended actions at the Planning Area-level, while Section 7.2 – Section 7.5 provide recommended actions at the FPU level. *Note: These items were developed from results of public polling, stakeholder input, wildfire hazard and risk assessments in the CWPP, public workshops, FSC workshops, Steering Committee meetings, existing reports, and documents. This list of actionable items is intended to assist with decision-making, project tracking, accountability, and planning outcomes for this Plan.*

The following acronyms are used in the Recommended Actions tables that follow:

Acronym	Meaning	Acronym	Meaning	Acronym	Meaning
AFFSC	Aukum Fairplay Fire Safe Council	EDCPB	El Dorado County Planning and Building	PDOT	Placerville Department of Transportation
AFSCs	Associate Fire Safe Councils	EDCTC	El Dorado County Transportation Commission	PFD	Pioneer Fire Department
ALTFSC	Auburn Lake Trails Fire Safe Council	EDD	El Dorado Disposal	PFSC	Placerville Fire Safe Council
BLM	Bureau of Land Management	EDH Fire	El Dorado Hills Fire Department	PG&E	Pacific Gas and Electric
BOR	Bureau of Reclamation	EDSO-OES	El Dorado County Sheriff- Office of Emergency Services	POWG	Public Outreach Working Group
BWG	Biomass Working Group	EDWA	El Dorado Water Agency	PPD	Placerville Police Department
CAL FIRE	California Department of Forestry and Fire Protection	EID	El Dorado Irrigation District	Road Assoc.	Road Associations
Caltrans	California Department of Transportation	ENF	Eldorado National Forest	RCD	Resource Conservation District
CERA	Community Emergency Radio Association	FPO	Fire Prevention Officers	SMUD	Sacramento Municipal Utility District
CSD	Community Service District	GFCSD	Grizzly Flats Community Services District	SOFAR	South Fork of the American River
DSWG	Defensible Space Working Group	GFD	Georgetown Fire Department	SPI	Sierra Pacific Industries
EDC CAO	El Dorado County Chief Administrative Office	GFFSC	Grizzly Flats Fire Safe Council	SSBMI	Shingle Springs Band of Miwok Indians
EDCDOT	El Dorado County Department of Transportation	GDPUD	Georgetown Divide Public Utility District	STR	South Tahoe Refuse
EDC FPD	El Dorado County Fire Protection District	GVFPD	Garden Valley Fire Protection District	UCCE	University of California Cooperative Extension
EDCFSC	El Dorado County Fire Safe Council	HOA	Homeowners Association/Property Owners Associations	ZOB	Zone of Benefit
EDC GIS	El Dorado County Geographic Information Systems	OWPR	Office of Wildfire Preparedness and Resilience		
EDCHHS	El Dorado County Health and Human Services	PCWG	Project Coordination Working Group		

The following timeframes are used in the Recommended Actions below:

Short-term	12 months
Mid-term	24 months
Long-term	36 months

* Timeframes will be reviewed and updated by the CWPP Steering Committee/Project Coordination Working Group during regular meetings, based on project progress and planning updates. (See Chapter 8- Implementation and Monitoring)

7.1 Recommended Actions – Regional

Table 25. Regional Recommendations for the West Slope

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
A. Codes and Enforcement Keep local codes, standards, and guidance documents up to date with the latest developments in wildfire resiliency research	CW-1	**Review recently published wildfire risk mitigation recommendation reports, testing and research** (e.g., FEMA, NIST, IBHS), and update local codes, standards, and guidance, as needed. Resources to be reviewed include FEMA Marshall Fire MAT, IBHS Home Mitigations that Matter, NIST Technical Note 2205 & 2228	OWPR	FPO DSWG	Review: Short-term Update Codes: Mid-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-2	**Undertake public education to increase awareness of and encourage the importance of maintaining defensible space** in accordance with El Dorado County Ordinance No. 5186 (Chapter 8.09). Education should include recommending keeping the "ember- resistant zone" (0-5 feet from a structure) free of any combustible fuels and guidance on how residents should apply defensible space requirements for existing conditions.	POWG	DSWG EDCFSC AFSCs OWPR HOAs CSDs	Short-term/ Ongoing	
	CW-3	**Expand resources for coordinating, conducting, inspecting, enforcing, and tracking current Defensible Space requirements** for all parcels. Resources may include, but are not limited to, inspectors, technologies, and data collection and management tools for tracking and metrics.	OWPR	DSWG FPO	Mid-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-4	Ensure that relevant codes, standards, and local ordinances are up-to-date, consistent (as appropriate) and easily accessible to residents. Identify and address barriers to accessibility including language, format (e.g., digital and hard copies), and where resources can be accessed (e.g., online, community centers). User-friendliness to be improved via a map of county fire jurisdictions, flow diagram of where to go for relevant information, and common-language descriptions for residents to understand what regulations and planning information are relevant to specific properties.	OWPR	DSWG PCWG FPO	Relevant Codes: Short-term Barriers: Short-term Map: Mid-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
B. Fuels Mitigation Manage landscape vegetation to promote the return of fire resilient species and lower vegetation densities.	CW-5.1	**Undertake coordinated, prioritized landscape level fuel modifications to reduce vegetation density and dead fuel loadings and establish and maintain fuel breaks. Build upon projects identified or initiated under previous CWPPs.** Use locally appropriate methods for vegetation management (e.g., prescribed fire, grazing, etc.). Consider options to encourage participation of landowners and land managers. In prioritizing fuel modification projects, refer to section 6.5 of the CWPP for planned and proposed fuel treatments and other priority areas to be targeted for treatment (based on the risk assessment described in section 5.3.1).	PCWG	RCD CAL FIRE ENF BLM	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-5.2	**Undertake coordinated, prioritized parcel level fuel modifications to reduce vegetation density and dead fuel loadings, coordinated with strategic fuel breaks.** Use locally appropriate methods for vegetation management (e.g., prescribed fire, grazing, individual pile burning, etc.). Consider options to encourage participation of landowners. This includes defensible space, community green belts, and other community-level fuel treatments. Connect landowners with available assistance programs, including Environmental Quality Incentives Program (EQIP) and California Forest Improvement Program (CFIP). Include specific needs of mobile homes and multi-family dwellings.	PCWG	OWPR EDCFSC CAL FIRE FPO RCD	Short-term/ Ongoing	
	CW-5.3	**Undertake post fire treatments** to remove standing dead and dying trees along roadways, public areas, trails and other areas that pose a fire and life safety risk.	PCWG	OWPR EDCFSC RCD ENF CAL FIRE BOR	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-6	**Utilize the CAL FIRE AEU Ignition Management Plan and input from federal, state, and local law enforcement to identify and provide recommendations for mitigating common ignition sources across the County.** This would include common sources of ignition in the public and private sectors and developing strategies for reducing the number and frequency of ignitions. Work with the El Dorado County Sheriff's Office and Placerville Police Department to identify and provide recommendations for mitigating common ignition sources from unauthorized campers.	CAL FIRE	OWPR EDSO-OES PPD ENF FPO BLM BOR	Mid-term	
	CW-7.1	**Work with Caltrans for the prioritized removal of overgrown fuels** along their rights-of-way, including the removal of hazardous and non-native plant species. Priority routes should include primary access/egress routes throughout the West slope, those in highly populated neighborhoods, and those in neighborhoods with only one access/egress route.	OWPR	PCWG Caltrans EDCDOT PDOT	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-7.2	**Increase capacity and resources for El Dorado County Department of Transportation and City of Placerville** to conduct roadside fuels treatments and other wildfire resiliency projects & activities. Priority routes should include primary access/egress routes throughout the Western Slope, those in highly populated neighborhoods, and those in neighborhoods with only one access/egress route.	OWPR	EDCDOT PDOT PCWG	Short-term/ Ongoing	
	CW-7.3	**Support the development of a standard of maintenance for all non-county-maintained roads.** Increase capacity and resources for the removal of overgrown fuels along these routes.	OWPR	EDCFSC AFSCs EDCDOT PDOT PCWG RCD ZOB HOAs Road Assoc.	Mid-term	
	CW-7.4	Work with utility companies to address clean up of residual material left behind during right-of-way maintenance activities.	OWPR	PGE AFSCs HOAs	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-8	Conduct an annual review to identify additional fuel treatments, maintenance needs, new projects, and reprioritization of identified projects. Incorporate into tracking outlined in Chapter 8. Following a fire, projections of future risk should be updated based on burned areas.	PCWG	OWPR RCD CAL FIRE EDCFSC AFSCs	Annually	
	CW-9	**Support and participate in regional studies evaluating the long-term impacts of climate change at the landscape- and stand-level to help support** planning and prioritization of landscape-level fuels mitigation projects in the future.	OWPR	PCWG EDWA CAL FIRE ENF RCD	Ongoing	
	CW-10	**Develop guidelines for landowners** that will educate them regarding the **proper vegetation density, species composition, and treatment maintenance on their land for the purposes of wildfire preparedness**. These guidelines should be specific to different elevations and vegetation types in the County.	DSWG	OWPR CAL FIRE RCD UCCE EDCFSC POWG	Short-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
C. Property Protection (Defensible Space) Improve fuel treatment strategies for defensible space around structures	CW-11	**Develop programs to facilitate additional/ expanded community green waste disposal** programs throughout the County, including procuring and maintaining shared resources, such as a tool lending library, with a focus on underserved and resource-limited communities.	OWPR	EDD STR EDCFSC	Green Waste: Short-term Tool Library: Mid-term	
	CW-12	**Develop localized list(s) of high- hazard species (e.g., invasive, non-drought resistant, flammable species) and guidance on appropriate methods for removal or maintenance** within each defensible space zone. Consider using the El Dorado County Native Plant List for Gardening maintained by the California Native Plant Society to educate residents. Provide education and awareness materials and activities on best practices (e.g., expand prescribed grazing initiatives).	DSWG	POWG EDCFSC UCCE	Short-term	
	CW-13	**Support & expand funding for the EDCFSC assistance program** for removal of hazardous trees, defensible space maintenance, chipping, and other programs.	EDCFSC	OWPR	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-14	Provide community workshops, informational videos, demonstration landscapes and other educational methods to **increase the general public's understanding of best practices around fire-resistant and drought-resistant plant species, and best practices for landscaping and maintenance**.	POWG	OWPR CAL FIRE EDCFSC UCCE DSWG	Short-term/ Ongoing	
	CW-15	**Incentivize and encourage property-owners and residents to establish and maintain defensible space and roadside fuel treatments along private roads/driveways**. Incentives could include cost sharing and/or provisions for physical assistance and assistance may be provided through EDCFSC and other grants as appropriate.	OWPR	EDCFSC PCWG POWG	Mid-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-16	Identify communities where high parcel density and fire hazard indicate that communal defensible space should be prioritized. Include specific needs of mobile homes and multifamily dwellings. Develop strategies for landowners with abutting properties and agencies with easements to work together to achieve compliance with the County's **Good Neighbor Policy (Section 8.09.070)** where overlapping defensible space zones occur. The intent is for adjacent property owners to design and implement fuel treatments to protect homes collectively.	DSWG	OWPR CAL FIRE EDCFSC HOAs	Mid-term Mid-term/ Ongoing	
	CW-17	Develop strategies to address maintenance of vegetation clearance of vacant/ undeveloped lots across the Western Slope. Existing policies in El Dorado Hills and Cameron Park should be considered for broader adoption. Strategies should include connecting owners of vacant lots with reference materials and resources (e.g., list of contractors, available assistance programs).	DSWG	OWPR POWG EDCFSC FPO HOAs	Short-term Short-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-18	Follow up on defensible space inspections and assessments in all the County Emphasis Areas as well as CAL FIRE and local fire district inspection areas.	OWPR	AFSCs DSWG CAL FIRE Local Fire Districts	Short-term/ Ongoing	
D. Property Protection (Home Hardening) Improve hardening of existing building stock	CW-19	**Continue to utilize CAL FIRE's Qualified Entities program for training of volunteers under the El Dorado County Fire Safe Council's assessment program**. The training should include curriculum for new assessors as well as continuing education for existing assessors. **Provide ongoing education and outreach for residents**. Information should include defensible space and home hardening standards to assist homeowners with implementing firesafe practices as well as meeting or exceeding requirements of State, County and Local codes and ordinances.	OWPR	EDCFSC POWG DSWG CAL FIRE FPO	Annually/ Ongoing Annually/ Ongoing	
	CW-20	Develop and implement training curriculum geared towards contractors, real estate agents, insurance representatives, and others to educate and inform on defensible space requirements and ignition resistant construction.	OWPR	EDCFSC POWG DSWG CAL FIRE FPO	Short-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-21	**Explore funding opportunities to aid property owners to retrofit existing structures** to current WUI building construction standards. Prioritize providing financial resources and other assistance to vulnerable populations (e.g., elderly, fixed-income, low-income). Consider the specific needs of mobile homes and multifamily dwellings. Develop clear program guidelines, criteria, and management strategies, building upon lessons learned from the Weber Creek Pilot Project.	OWPR	EDCFSC DSWG	Long-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-22	Develop education and other programs to **increase availability of and access to materials for home hardening and improved understanding of methods for home hardening**. These programs should be targeted at suppliers and hardware stores, design professionals, contractors, homeowners, real estate professionals, and other industry professionals. Implement shared resource programs, such as a tool lending library. Educate property owners on existing incentives and insurance carrier discounts related to home hardening.	POWG	OWPR EDCFSC DSWG AFSCs	Short-term Short-term Mid-term Short-term	
	CW-23	**Educate public about availability of standardized signage that identifies residences with static water sources** that can be used during suppression operations should the pressurized system fail. Make these locations available on ADL and other response systems used by fire agencies to ensure that all fire agencies can access map of these locations. Update at a regular interval.	POWG	OWPR FPO	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-24	Provide technical guidance to HOAs supporting best home hardening practices.	OWPR	EDCFSC EDSO CAL FIRE Local Fire Districts	Mid-term	
	CW-25	Develop public/private partnerships with utility providers to fund community-scale wildfire mitigations. Examples may include: • Funding to support home hardening • Homeowner self-assessments • Demonstration projects focused on home hardening and defensible space • Maintenance of landscape-scale community projects	PCWG	OWPR EDCFSC CAL FIRE RCD EID GDPUD SMUD PG&E City of Placerville	Long-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-26	Identify and implement a process to analyze **parcel and neighborhood level WUI risk** across the West Slope. This analysis should incorporate wildfire hazard and exposure, home hardening and defensible space deficiencies (including mapping of buildings constructed pre-Chapter 7A requirements), social and socioeconomic vulnerabilities of residents, and neighborhood access/egress limitations. The combination of these components will allow for the **identification and prioritization of communities** for directing mitigation funding, education, and other resources. Build on the Weber Creek Pilot Project, applying lessons learned and expanding data management and mapping components of the project.	PCWG	OWPR CAL FIRE EDC GIS EDCFSC	Mid-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-27	**Work with insurance industry** and California Insurance Commissioner's office to recognize **risk reduction efforts at landscape, parcel and neighborhood-scales** in insurance coverage, premiums, and deductibles. Coordinate and collaborate with county and local stakeholders, subject matter experts, and academics to systematically identify and quantify the risk reducing measures at various scales to help support insurance needs.	OWPR	DSWG EDCFSC CAL FIRE FPO	Ongoing	
E. Wildfire Resiliency of Critical Infrastructure	CW-28	Work to develop agreements with agencies and private landowners to establish and maintain fuel treatments along major routes and roadways, with a primary focus on access/egress- constrained communities and communities with vulnerable populations. As a component of this action, assess the percentage of all roads and roads serving access/egress constrained communities under each type of responsibility (Caltrans, EDC DOT, private).	PCWG	OWPR RCD EDC DOT PDOT EDCFSC EDCTC Caltrans	Mid-term Short-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-29	Water resource managers, in partnership with relevant County stakeholders, should **identify, map, and prioritize all available fire water draft-points** to provide additional sources and volumes of water for fire suppression, while also reducing fire suppression water demands on the potable water system. Identify areas deficient in water and explore appropriate alternatives including improvement of existing systems, restoring water supply points, adding water tenders, additional water tanks and/or gas-powered water pumps, and other methods.	OWPR	EDWA FPO EDCFSC EID GDPUD Local Fire Districts GFCSD CAL FIRE BOR	Short-term Mid-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-30	**Conduct a study to evaluate the wildfire resiliency of critical infrastructure and facilities** across the county (e.g., water infrastructure, public and private communication systems, electrical infrastructure). Make an inventory of key local community resource infrastructure, which are not covered under the OES definition of critical infrastructure (e.g., gas stations, markets, post office) Prioritize and implement resiliency improvements, including defensible space, hardened infrastructure, and undergrounding of utility lines. Coordinate and collaborate with relevant fire, law enforcement, government, private sector, and other subject matter experts to ensure programs, policies and systems are evaluated, designed, and maintained for quality, fire resistance, durability, functionality, efficiency, and sustainability.	PCWG	OWPR CAL FIRE EDSO PPD PG&E SMUD EID GDPUD EDWA City of Placerville SSBMI GFCSD	Mid-term Long-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-31	**Develop Emergency Operations Support Areas**. Strategically placed sites used for staging, base camps, and other incident support functions, ensuring that firefighting and emergency personnel have safe and effective locations to operate. This includes developing and maintaining areas sufficient to serve as helicopter landing zones for medical evacuations.	CAL FIRE	ENF Local Fire Districts EDSO-OES	Mid-term	
F. Public Notification and Communication	CW-32	**Analyze, design, install, monitor, and maintain enhancements and redundancies to current emergency communication systems** such as generator backups, increased cellular coverage via traditional cell towers, repeaters, and other technologies to improve communications. Identify “dead zones” within the County and prioritize improvements to these areas. Build relationships and collaborate with providers to maintain generators and power backups.	PCWG	OWPR EDSO-OES PPD CAL FIRE	Long-term Mid-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-33	Seek funding to **expand the training, use, and associated infrastructure of local radio systems** or other distributed technologies (e.g., NOAA weather transceivers, HAM/ GMRS radios) to community groups such as the Community Emergency Radio Association (CERA), CERT members, Fire Safe Councils, Firewise Communities, and HOAs, particularly where cellular communication is poor or vulnerable to wildfire. Assist Associate Fire Safe Councils in communicating with their residents and property owners through newsletters, mailings, and social media support. May include construction of sign boards, maintenance of social media and websites, etc.	OWPR	EDCFSC EDSO-OES CERA	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-34	Work with emergency responders and other government agencies (e.g., Fire, Law Enforcement, EDSO) in the County to **conduct a review and alignment of current public emergency communication systems and messaging policies**, protocols, and procedures. This would include evaluation of the range of target audiences (e.g., residents, visitors, limited English proficiency, elderly, secondary homeowners), with the intent to provide more reliable, timely, informative, and consistent information during/after a major wildfire incident. Consideration of those with only landlines should be included in outreach planning. This may also include the need for training/drills and evaluation/ adoption of newly available technologies.	EDSO-OES	OWPR POWG PPD	Short-term	
	CW-35	Continue to use the National Fire Danger Rating System (NFDRS) to develop a Fire Danger Rating Plan that outlines acceptable actions on High and Very High Fire Danger Rating days. This may include restrictions on the use of certain equipment or limiting operating hours for high-risk activities.		CAL FIRE ENF	Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-36	Develop and support local community-level notification networks before and during emergencies. This may include phone trees, text chains, and door to door communication.	EDCFSC	AFSCs OWPR	Short-term/ Ongoing	
G. Evacuation Planning and Preparedness	CW-37	Develop criteria to identify communities with limited access/egress routes. Develop a strategy for assessing **wildfire evacuation vulnerability** which may include quantifying evacuation capacities, surveying residents and stakeholders, and identifying and prioritizing improvements to ensure life safety of the public and emergency responders in the event of a major wildfire in the County.	OWPR	EDSO-OES POWG CAL FIRE Local Fire Districts EDCPB AFSCs	Mid-term	
	CW-38	**Review recommendations in recent local wildfire evacuation studies and other planning documents** and coordinate/ collaborate with relevant local and state agencies on identifying priority projects and funding needs. The assessment should be reviewed every 5 years and formally updated every 10 years, at a minimum. The reviews and updates should coincide with the reviews and updates for the countywide CWPP.	PCWG	OWPR EDCTC EDSO-OES EDCPB	Mid-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-39	Encourage **private/public schools, retreats, resorts, organizational camps, and nursing homes** to update and exercise site-specific evacuation plans.	EDSO-OES	CAL FIRE POWG EDCFSC Local Fire Districts OWPR	Short-term	
	CW-40	**Develop publicly accessible evacuation planning materials** including maps of major access/egress routes, information on the evacuation notification process, and education that evacuation routes and specifics will be unique to each emergency. Provide a centralized method for residents to log egress/route, and evacuation concerns with agencies.	EDSO-OES	OWPR POWG	Short-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-41	**Post permanent signage at major intersections and along major travel routes** identifying directions and destinations to assist tourists and visitors with navigation in the event of an emergency. Post signage along secondary routes pointing towards major routes. Post signage in areas with only one egress route indicating the route to the major travel route. This signage will not use terms like "evacuation route" but will refer to numbered routes, cardinal directions, and/or towns/cities/key location names.	EDSO-OES	EDC DOT EDCFSC Caltrans PDOT ENF	Short-term	
	CW-42	Identify and address **evacuation needs and resources for vulnerable populations** at local levels across the County.	EDSO-OES	OWPR EDC HHS AFSCs	Mid-term	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-43	**Identify specific areas and communities where secondary means of egress** are needed to increase evacuation capacity and access for first responders in a wildfire. Where possible, work towards developing and maintaining secondary egress routes for constrained communities. Identify other strategies as appropriate (e.g., policies to open locked gates).	PCWG	OWPR CAL FIRE Local Fire Districts ENF EDC DOT PDOT HOA ZOB	Short-term Mid-term	
	CW-44	Continue to hold **multi-agency tabletop exercise to address evacuation** traffic flow bottlenecks.	EDSO-OES	OWPR POWG	Ongoing	
H. Public Education and Awareness Educate the public on how to mitigate wildfire hazards and risks, as well as appropriately preparing and responding to wildfires.	CW-45	**Expand the existing Home Assessment Program** where residents can request assistance from the trained assessors (See CW-17) to get detailed, individualized information on home hardening techniques, defensible space, and fire safe landscaping.	EDCFSC	OWPR DSWG FPO CAL FIRE POWG AFSCs	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
A challenge for all communities is how to generate interest and maximize awareness of the wildfire threat and encourage participation in preparing for a wildfire at an individual and community level. Public education is critical to community preparedness and citizens need to know where to obtain accurate information before, during and after an event occurs.	CW-46	Continue to enhance a **"one-stop shop" website for local guidance and best practices** for wildfire safety. This should focus on practical guidance that is local to the County and sub-regions. This may include information on structural hardening and retrofitting, recommended plant lists, landscape design and maintenance, defensible space, evacuation preparedness, and post-fire effects due to flooding and soil erosion. Provide links to other materials that individuals may want to reference (e.g., IBHS fire testing, FEMA guidance). Refer to CW-4 for recommendations on providing pertinent codes and standards and planning information for the public.	OWPR EDCFSC	EDCFSC CAL FIRE POWG	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-47	Review and refresh public outreach materials for **community workshops, "conversations"**, informational videos, demonstrations, and other interactive educational outreach to increase the general public's understanding and capacity to **prepare for, respond to and recover from wildfires** in the County. Recognize the differences in outreach and education and local information specific to different parts of the West Slope. Provide marketing/social media training to organizations (e.g., Fire Safe Councils) to help improve their public outreach efforts and motivate communities to action. Utilize a variety of information sources and tools such as EDCFSC's Fireflash Newsletter to share success stories and ideas for being fire safe.	OWPR	POWG CAL FIRE RCD EDCFSC	Short-term/ Ongoing	
	CW-48	**Ensure public education and communication materials on wildfire preparedness, planning and response are generally accessible.** This may include translation into different languages, common- language descriptions, ADA compliance, and format/availability.	OWPR	POWG EDCFSC AFSCs	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-49	Establish i**mproved communications with Homeowners Associations** concerning wildfire mitigation actions – home hardening, defensible space, and maintenance of any common areas within their jurisdiction.	OWPR	POWG EDCFSC AFSCs	Mid-term	
	CW-50	Develop outreach programs geared toward specific population demographics including school aged youth, seniors, etc.	POWG	EDCFSC OWPR AFSCs CAL FIRE Local Fire Districts EDSO-OES	Mid-term	
I. Community and Regional Partnerships, Collaboration and Coordination	CW-51	Establish and maintain a **spatial database of all wildfire mitigation programs and initiatives** (such as all existing, planned and completed fuel treatments across the County) that CWPP stakeholders and interested parties can readily use as a common repository and tool for ongoing coordination and collaboration. Include other entities within and adjacent to the County that should also be coordinating their efforts. A data management strategy should be developed to establish appropriate protocols, such as public vs private facing data, access and update permissions, and frequency of updates.	OWPR	EDC GIS PCWG RCD AFSCs	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-52	**Annual CWPP Strategic Meeting – Establish a CWPP Steering Committee** of key stakeholders in the County to meet at minimum on an annual basis to review the CWPP document to develop and coordinate on strategic planning and priorities for the upcoming year. The Working Group should determine a meeting schedule for monitoring and tracking progress on specific projects, coordination, and collaboration needs (including neighboring counties), and other CWPP programmatic objectives.	PCWG	OWPR CAL FIRE RCD ENF FPO Local Fire Districts EDCFSC	Short-term/ Ongoing	
	CW-53	Support and **increase engagement and participation with the El Dorado Fire Safe Council**, Associate Fire Safe Councils and Firewise communities by organizations, agencies, and the public. This includes community banners and signs encouraging local participation and announcing events.	OWPR	POWG EDCFSC	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-54	Encourage, promote, and assist **grassroots, community wildfire mitigation and preparedness organizations** such as Firewise Communities, radio groups, non- profits, etc. Support may include marketing, outreach, recruitment efforts, GIS support, and others. Ensure consistent communications, tools, and outreach provided by these organizations.	OWPR	POWG EDCFSC AFSCs	Short-term/ Ongoing	
	CW-55	Continue coordination with relevant state and local partners on **updating the countywide Emergency Operations Plan**.	EDSO-OES	OWPR	Ongoing	
	CW-56	Continue coordination with relevant state and local partners on **updating the General Plan Safety Element, Hazard Mitigation Plan, and other wildfire mitigation related plans and ensuring that the West slope CWPP** is included in the update. Undertake a quantitative alignment assessment prior to or during the next update cycle to for these plans to ensure goals, objectives, and priorities are in agreement between them.	OWPR	EDSO-OES EDCPB CAL FIRE	Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-57	**Coordinate with appropriate tribal governments** on new and updated hazard mitigation-related documents and plans.	OWPR	EDSO-OES SSBMI	Short-term	
	CW-58	**Continue to conduct emergency response training, drills and exercises**. Schedule wildfire- focused emergency response training, drills and exercises that are required by regulations, policies and/or best practices. This should include and be coordinated with state/county/local agencies, private entities, community groups (CERT), and other public entities (e.g., electrical utilities, water utilities). These exercises should be used as opportunities for lessons-learned, improvements, and other feedback.	Public Safety Agencies	EDSO-OES CAL FIRE PPD Local Fire Districts	Short-term/ Ongoing	

Regional Recommendations for the West Slope						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	CW-59	**Improve the cost-efficiency of fuel reduction and fuel maintenance through:** • Support local supply chain for forest products and bioenergy production • Improve and increase wildfire risk reduction workforce skills & capacity • Coordination between neighboring private landowners so that economies of scale are increased for fuel reduction actions (i.e., coordinating timing and type of fuel reduction on neighboring properties) • Include feedstock for DOT and other road clearance work • Long-term service agreements • Programmatic CEQA approaches • Investment in pre-planning	OWPR	BWG RCD SOFAR	Short-term/ Ongoing	
J. Emergency Response Reduce and stabilize fire response times to FPPA rural standards	CW-60	Identify necessary fire station locations and staffing based on the outcomes of El Dorado County's Standards of Coverage evaluation.	Local Fire Districts	EDC CAO CAL FIRE	Ongoing	
	CW-61	Work with local fire districts for opportunities to recruit and retain volunteer firefighters.	Local Fire Districts	AFSCs	Ongoing	

7.2 Recommended Actions – Fire Planning Units

The success of wildfire mitigation efforts within each planning area relies on strong collaboration among all stakeholders. While individual Fire Safe Councils (FSCs) retain the ability to pursue funding for localized projects, the greatest impact will come from coordinated, strategic efforts that address wildfire risk across broader landscapes.

Fire Safe Councils and other local groups in each planning area are encouraged to work together to identify and prioritize projects that enhance wildfire resilience at a regional scale. By aligning efforts and seeking funding collaboratively when appropriate, councils can maximize the effectiveness of their mitigation strategies.

The Regional Recommendations for the Western Slope include actions that all Fire Safe Councils should consider implementing. While recognizing the unique challenges and priorities within different areas of the West Slope, the following Recommended Actions are tailored to each of the four planning areas. These actions should be used in collaboration with all Fire Safe Councils to help prioritize projects and secure funding for wildfire mitigation efforts.

7.2.1 Fire Planning Unit A – North

The following Fire Safe Councils are located in FPU-A:

- Auburn Lake Trails
- Coloma Lotus
- Cool Pilot Hill
- Gallagher Landowners
- Georgetown
- Gold Hill Estates
- Mosquito
- Volcanoville

Recommended Actions – Fire Planning Unit A – North						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
A. Codes and Enforcement Keep local codes, standards, and guidance documents up to date with the latest developments in wildfire resiliency research		No Action				
B. Fuels Mitigation Manage landscape vegetation to promote the return of fire resilient species and lower vegetation densities.	A-1	Evaluate and develop plans to address access in specific areas identified as having vulnerable egress routes, including but not limited to, Hwy 49, Hwy 193, Auburn Lake Trails, Kelsey, Coloma-Lotus Valley, Thompson Hill, Arrowbee, Salmon Falls, Rattlesnake Bar, and Gallagher Road.	PCWG	OWPR EDCFSC AFSCs RCD CAL FIRE BLM BOR State Parks	Short-term/ Ongoing	
	A-2	Continue to implement and maintain roadside fuels treatments in areas including but not limited to Spanish Dry Diggins, Greenwood, Garden Valley, Georgetown, Auburn Lake Trails, Black Oak Mine, Shoo Fly, Traverse Creek, Rock Creek, Mosquito, Quintette, and Volcanoville, Salmon Falls, Rattlesnake Bar, and Gallagher.	PCWG	OWPR DOT Caltrans RCD AFSCs	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit A – North						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	A-3	Continue to implement and maintain fuels mitigation work with the Bureau of Reclamation within/near the Auburn State Recreation Area.	ALTFSC	BOR State Parks	Short-term/ Ongoing	
	A-4	Continue to implement and maintain fuels mitigation work in the area around Bacchi Ranch.	GRFSC	BOR BLM CAL FIRE	Short-term/ Ongoing	
	A-5	Incorporate recommendations from the Auburn Lake Trails Fire Safety and Improvement Council.	ALTFSC	EDCFSC OWPR CAL FIRE	Short-term/ Ongoing	
	A-6	Continue to implement and maintain fuels mitigation work in areas including but not limited to Garden Valley, Chili Bar, Georgetown, Kelsey, Salmon Falls, Rattlesnake Bar, and Gallagher Road, Volcanoville, and Quintette.	GDFSC	EDCFSC BLM ENF RCD OWPR CAL FIRE State Parks	Short-term/ Ongoing	
C. Property Protection (Defensible Space) Improve fuel treatment strategies for defensible space around structures	A-7	Incorporate recommendations from the Auburn Lake Trails Fire Safety and Improvement Council.	ALTFSC	EDCFSC OWPR	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit A – North						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
D. Property Protection (Home Hardening) Improve hardening of existing building stock	A-8	Incorporate recommendations from the Auburn Lake Trails Fire Safety and Improvement Council.	ALTFSC	EDCFSC OWPR	Short-term/ Ongoing	
E. Wildfire Resiliency of Critical Infrastructure	A-9	Develop water storage infrastructure for Volcanoville.	VFSC	GFD OWPR	Mid-term	
	A-10	Evaluate the Marshall Grange and the Gold Trail Grange for use during emergencies. Implement infrastructure needs.	GVFPD	OWPR CAL FIRE EDSO-OES	Mid-term	
	A-11	Evaluate the wildfire risk and develop mitigation strategies for critical community/commerce centers, such as Cool, Pilot Hill, Lotus, Greenwood, Georgetown Market Area and Mainstreet, Garden Valley, and Coloma.	PCWG	Local Fire Districts AFSCs OWPR CAL FIRE EDSO-OES	Mid-term	
F. Public Notification and Communication		No Action				

Recommended Actions – Fire Planning Unit A – North						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
G. Evacuation Planning and Preparedness	A-12	Conduct evacuation exercises unique to the communities in the North Fire Planning Unit. Provide scenarios where major roads are closed or blocked, including Hwy 49, Hwy 193, Mount Murphy Road Bridge, Mosquito Bridge, Rock Creek Road and Luneman Road.	EDSO-OES	AFSCs CAL FIRE Local Fire Districts	Short-term/ Ongoing	
	A-13	Incorporate recommendations from the Auburn Lake Trails Fire Safety and Improvement Council.	EDSO-OES	ALTFSC CAL FIRE County Fire	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit A – North						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
H. Public Education and Awareness Educate the public on how to mitigate wildfire hazards and risks, as well as appropriately preparing and responding to wildfires. A challenge for all communities is how to generate interest and maximize awareness of the wildfire threat and encourage participation in preparing for a wildfire at an individual and community level. Public education is critical to community preparedness and citizens need to know where to obtain accurate information before, during and after an event occurs.	A-14	Incorporate recommendations from the Auburn Lake Trails Fire Safety and Improvement Council.	ALTFSC	POWG OWPR EDCFSC	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit A – North						
Objective	*Number*	*Action*	*Lead Agency*	*Partners*	*Timeframe*	*Status*
I. Community and Regional Partnerships, Collaboration and Coordination		No Action				
J. Emergency Response Reduce and stabilize fire response times to FPPA rural standards		No Action				

7.2.2 Fire Planning Unit B – West

The following Fire Safe Councils are located in FPU-B:

- Greater Cameron Park
- Heritage
- Lakehills
- Rescue
- Royal Equestrian Estates
- Serrano

Recommended Actions – Fire Planning Unit B – West						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
A. Codes and Enforcement Keep local codes, standards, and guidance documents up to date with the latest developments in wildfire resiliency research		No Action				
B. Fuels Mitigation Manage landscape vegetation to promote the return of fire resilient species and lower vegetation densities.	B-1	Address access in specific areas identified as having **vulnerable egress routes**, including but not limited to, South Shingle Road, Latrobe Road, Green Valley Road, Cameron Park Drive, Cambridge Road, Serrano Parkway, Lake Hills Drive, Salmon Falls Road.	OWPR	PCWG DOT AFSCs	Short-term	
	B-2	Continue to implement and maintain fuels mitigation work with BLM and the El Dorado County Pine Hill Preserve Management Committee in and around the Pine Hill Preserve.	GCPFSC	PCWG BLM OWPR CAL FIRE	Short-term/ Ongoing	
	B-3	Continue to implement and maintain fuels mitigation work with California Department of Parks and Recreation in Lake Hills adjacent to the Folsom Recreation Area.	LHFSC	State Parks OWPR PCWG	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit B – West						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	B-4	**Mitigate fuels** in the open space areas next to developments beyond 100 feet from structures.	AFSCs	OWPR Local Fire Districts CAL FIRE Army Corps of Engineers	Short-term/ Ongoing	
C. Property Protection (Defensible Space) Improve fuel treatment strategies for defensible space around structures	B-5	Help homeowners comply with Ordinance 5186, Wildland Fire Safe Plans, and recognized IBHS (or NIST) best practices. Educate homeowners on why Zone 0 will keep embers and flames from entering their house. Conduct AFSC assessments and FD inspections. Compensate AFSCs for assessments. Work with HOA's to revise their design review guidelines when the Zone 0 regulation takes effect.	AFSCs	Local Fire Districts HOAs CSDs OWPR DSWG	Short-term/ Ongoing	
	B-6	Provide technical guidance to HOAs supporting best practices and requirements on defensible space.	DSWG	AFSCs OWPR HOAs CSDs Local Fire Districts CAL FIRE	Mid-term	

Recommended Actions – Fire Planning Unit B – West						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
D. Property Protection (Home Hardening) Improve hardening of existing building stock	B-7	Provide technical guidance to HOAs supporting best home hardening practices. Retrofit existing homes to Building Code 7A, including vents, eves, and decks. Also eliminate wooden fencing in zone zero. Provide homeowners with a list of approved home hardening contractors. Provide homeowners with a list of materials meeting the criteria under the home hardening standards.	AFSCs Fire Districts	DSWG OWPR EDCPB	Mid-term Mid-term Short-term Short-term	
E. Wildfire Resiliency of Critical Infrastructure	B-8	Evaluate the Shingle Springs Community Center for use during emergencies. Implement infrastructure needs.	EDSO-OES	CAL FIRE EDC FPD	Mid-term	
	B-9	Evaluate the wildfire risk and develop mitigation strategies for critical community/ commerce centers, such as Rescue (fire station, post office and community center), and the Shingle Springs Community Center.	OWPR	Local Fire Districts EDSO-OES CAL FIRE	Mid-term	
F. Public Notification and Communication	B-10	Expand of CERA coverage to Cameron Park and El Dorado Hills.	OWPR	CERA EDCFSC EDSO-OES	Short-term	

Recommended Actions – Fire Planning Unit B – West						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
G. Evacuation Planning and Preparedness	B-11	Conduct evacuation exercises unique to the communities in the West Fire Planning Unit.	EDSO-OES HOAs	Local Fire Districts CAL FIRE OWPR AFSCs	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit B – West						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
H. Public Education and Awareness Educate the public on how to mitigate wildfire hazards and risks, as well as appropriately preparing and responding to wildfires. A challenge for all communities is how to generate interest and maximize awareness of the wildfire threat and encourage participation in preparing for a wildfire at an individual and community level. Public education is critical to community preparedness and citizens need to know where to obtain accurate information before, during and after an event occurs.	B-12	Establish **improved communications and collaboration between the various Homeowners Associations, Zones of Benefits, Community Services Districts and Road Associations within the West Planning area concerning wildfire mitigation actions**. This includes home hardening, defensible space, and maintenance of any common areas within their jurisdictions.	OWPR	EDCFSC AFSCs Local Fire Districts	Short-term	
	B-13	**Community Level mitigation to prevent house-to-house fires.**			Ongoing	

Recommended Actions – Fire Planning Unit B – West						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
I. Community and Regional Partnerships, Collaboration and Coordination	B-14	Establish a structure in the greater El Dorado Hills area that brings together the over 60 HOA's, multiple fire safe councils, and the CSD into a structure that supports collaboration and information sharing.	AFSCs	HOAs EDH Fire CSD EDCFSC OWPR	Mid-term	
J. Emergency Response Reduce and stabilize fire response times to FPPA rural standards		No Action				

7.2.3 Fire Planning Unit C – East

The following Fire Safe Councils are located in FPU-C:

- Camino
- Cedar Grove
- Diamond Springs
- Fort Jim
- Gold Ridge Forest
- Greenstone
- Patterson Ranch
- Placerville
- Rancho del Sol
- Sierra Springs
- Strawberry
- Texas Hill
- Wrights-Dark Lake

Recommended Actions – Fire Planning Unit C – East						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
A. Codes and Enforcement Keep local codes, standards, and guidance documents up to date with the latest developments in wildfire resiliency research		No Action				

Recommended Actions – Fire Planning Unit C – East						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
B. Fuels Mitigation Manage landscape vegetation to promote the return of fire resilient species and lower vegetation densities.	C-1	Evaluate and develop fuel modification plans to address the areas impacted by the Martinez Creek watershed.	PCWG	AFSCs EDCFSC BLM CAL FIRE RCD OWPR	Short-term	
	C-2	Implement fuels mitigation in the Martinez Creek watershed, including strategic fuel breaks and roadside hazardous fuels reduction.	PCWG	CAL FIRE RCD AFSCs BLM OWPR EDCFSC DOT	Mid-term	
	C-3	Continue to implement new and maintain existing fuels modification activities along the Hwy 50 corridor, east of Placerville, as part of the coordinated Fire Adapted 50 Project.	PCWG	RCD AFSCs ENF CAL FIRE Caltrans DOT EDCFSC	Short-term/ Ongoing	
	C-4	Incorporate recommendations from the Placerville Wildfire Resiliency Strategy.	PCWG	RCD PFSC City of Placerville EDC FPD	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit C – East						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	C-5	Evaluate and develop plans to address access in specific areas identified as having vulnerable egress routes, including but not limited to, Lumsden Park, Eskaton Village, and the Placerville Jail.	OWPR	PFSC City of Placerville EDC FPD	Short-term	
	C-6	Develop and implement fuel modification plans in and around the community of Strawberry in collaboration with the Eldorado National Forest.	SFSC	RCD ENF EDC FPD	Short-term	
C. Property Protection (Defensible Space) Improve fuel treatment strategies for defensible space around structures	C-7	Implement the Weber Creek Community Wildfire Mitigation Program defensible space and home hardening project.	OWPR	City of Placerville EDC FPD PFSC CAL FIRE PCWG POWG	Mid-term	
	C-8	Identify opportunities to replicate the Weber Creek Community Wildfire Mitigation efforts in other communities.	PCWG	OWPR AFSCs EDCFSC	Mid-term/ Ongoing	
	C-9	Implement defensible space and home hardening efforts in the communities surrounding the Martinez Creek watershed, including but not limited to, Fowler Lane, Great View Lane, Patterson Drive and Tulles Mine Road.	PCWG	OWPR AFSCs DSWG EDC FPD CAL FIRE	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit C – East						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
D. Property Protection (Home Hardening) Improve hardening of existing building stock	C-10	Implement the Weber Creek Community Wildfire Mitigation Program defensible space and home hardening project.	OWPR	City of Placerville PFSC EDC FPD CAL FIRE PCWG POWG	Mid-term	
	C-11	Identify opportunities to replicate the Weber Creek Community Wildfire Mitigation efforts in other communities.	PCWG	OWPR AFSCs EDCFSC	Mid-term/ Ongoing	
	C-12	Implement defensible space and home hardening efforts in the communities surrounding the Martinez Creek watershed, including but not limited to, Fowler Lane, Great View Lane, Patterson Drive and Tulles Mine Road.	PCWG	OWPR AFSCs DSWG EDC FPD CAL FIRE	Short-term/ Ongoing	
E. Wildfire Resiliency of Critical Infrastructure	C-13	Evaluate the accessibility and availability of water supply in and around the Strawberry community and implement improvements to meet firefighting needs.	SFSC	EID EDC FPD OWPR	Short-term	

Recommended Actions – Fire Planning Unit C – East						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	C-14	Evaluate the wildfire risk and develop mitigation strategies for critical community/ commerce centers, such as Fresh Pond, Silver Fork, Kyburz, Strawberry Lodge, and Sly Park Service Station.	PCWG	CAL FIRE EDSO-OES OWPR EDC FPD	Mid-term	
F. Public Notification and Communication		No Action				
G. Evacuation Planning and Preparedness	C-15	Conduct evacuation exercises unique to the communities in the East Fire Planning Unit. Including lessons learned from the Pay and Moccasin Fires.	EDSO-OES	CAL FIRE EDC FPD OWPR	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit C – East						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
H. Public Education and Awareness Educate the public on how to mitigate wildfire hazards and risks, as well as appropriately preparing and responding to wildfires. A challenge for all communities is how to generate interest and maximize awareness of the wildfire threat and encourage participation in preparing for a wildfire at an individual and community level. Public education is critical to community preparedness and citizens need to know where to obtain accurate information before, during and after an event occurs.		No Action				

Recommended Actions – Fire Planning Unit C – East						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
I. Community and Regional Partnerships, Collaboration and Coordination		No Action				
J. Emergency Response Reduce and stabilize fire response times to FPPA rural standards		No Action				

7.2.4 Fire Planning Unit D – South

The following Fire Safe Councils are located in FPU-D:

- Aukum Fairplay
- Grizzly Flats
- Logtown
- Oak Hill Area
- Omo Ranch
- Sandridge

Recommended Actions – Fire Planning Unit D – South						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
A. Codes and Enforcement Keep local codes, standards, and guidance documents up to date with the latest developments in wildfire resiliency research		No Action				
B. Fuels Mitigation Manage landscape vegetation to promote the return of fire resilient species and lower vegetation densities.	D-1	Maintain roadside clearance for ingress and egress in Outingdale.	AFFSC	OWPR DOT PFD RCD PCWG	Short-term/ Ongoing	
	D-2	Maintain strategic Outingdale fuel break.	AFFSC	OWPR RCD PCWG	Short-term/ Ongoing	
	D-3	Evaluate and develop fuel modification plans to address the areas impacted by the Martinez Creek watershed and the North Fork Cosumnes River canyon.	PCWG	AFSCs EDCFSC BLM CAL FIRE RCD OWPR	Short-term	

Recommended Actions – Fire Planning Unit D – South						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	D-4	Implement fuels mitigation in the Martinez Creek watershed and North Fork Cosumnes River canyon, including strategic fuel breaks and roadside hazardous fuels reduction.	PCWG	CAL FIRE RCD AFSCs BLM OWPR EDCFSC DOT	Mid-term	
	D-5	Work with the ARC to identify and mitigate ignitions along the Cosumnes River where there is public access.	LFSC	ARC Diamond Springs Fire CAL FIRE	Mid-term	
	D-6	Complete and maintain fuel reduction efforts along primary travel routes, including Pleasant Valley Road, Sand Ridge Road, Highway 49, Bucks Bar Road, E-16, Fairplay Road, Omo Ranch Road, and Grizzly Flat Road.	PCWG	AFSCs DOT RCD OWPR	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit D – South						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	D-7	Evaluate and develop plans to address access in specific areas identified as having vulnerable egress routes, including but not limited to, Nielson Ranch, Mica Street, Hwy 49, Union Mine, Crystal Boulevard, Sand Ridge, Vintage Trail, Puma Point, High View, Ladies Valley, Rancho Montes, Pleasant Valley, Oak Hill, Zandonella, Hanks Exchange, Big Oak, Ringold, Victory Mine, Yearling Trail, Grizzly Flat, String Canyon, and Cosumnes Mine roads, and their tributaries.	OWPR	AFSCs DOT RCD	Short-term	
	D-8	Evaluate and develop fuel modification plans to address the areas impacted by the North Fork Cosumnes River watershed, including vulnerable egress routes, such as Happy Valley Girl Scout Camp and the route from Bucks Bar Bridge through Happy Valley into the Eldorado National Forest, and Sweeney Road between Grizzly Flats Road and East Ridge Happy Valley. Create a shaded fuel break/buffer zone around the community of Grizzly Flats.	PCWG	AFSCs RCD DOT OWPR CAL FIRE ENF Local Fire Districts	Mid-term Mid-term	

Recommended Actions – Fire Planning Unit D – South						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
	D-9	Consider fuels management strategies that take into consideration previous fire footprints in order to maintain these landscapes in a state of reduced fire potential.	PCWG	AFSCs RCD OWPR CAL FIRE ENF Local Fire Districts	Mid-term	
C. Property Protection (Defensible Space) Improve fuel treatment strategies for defensible space around structures	D-10	Implement defensible space efforts in the communities surrounding the Martinez Creek watershed from the confluence of the North Fork Cosumnes River northward, including but not limited to Oak Hill Road, Big Oak Road, Fowler Lane, and all of their associated tributary roads.	AFSCs	DSWG OWPR CAL FIRE EDCFSC Local Fire Districts	Short-term/ Ongoing	
D. Property Protection (Home Hardening) Improve hardening of existing building stock	D-11	Implement home hardening efforts in the communities surrounding the Martinez Creek watershed from the confluence of the North Fork Cosumnes River northward, including but not limited to Oak Hill Road, Big Oak Road, Fowler Lane, and all of their associated tributary roads.	AFSCs	DSWG OWPR CAL FIRE EDCFSC Local Fire Districts	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit D – South						
Objective	*Number*	*Action*	*Lead Agency*	*Partners*	*Timeframe*	*Status*
E. Wildfire Resiliency of Critical Infrastructure	D-12	Restore and enhance water storage in Grizzly Flats including Woodpecker Acres Reservoir rehabilitation project.	OWPR	GFFSC GFCSD Pioneer Fire District	Mid-term	
	D-13	Identify existing firefighting water sources and determine gaps. Develop new water storage facilities. Provide clear guidance to homeowners on approved firefighting water sources.	OWPR	FPO AFSCs	Short-term	
	D-14	Evaluate Pioneer Park Community Center to ensure sufficiency for evacuation center, large animal temporary evacuation center, and emergency incident use. Implement infrastructure upgrades.	EDSO-OES	OWPR CAL FIRE PFD	Short-term	
	D-15	Evaluate the Pioneer Fire District Firefighter's Hall and the Pleasant Valley Grange for use during emergencies. Implement infrastructure needs.	EDSO-OES	OWPR CAL FIRE PFD EDC FPD	Short-term	
	D-16	Evaluate the wildfire risk and develop mitigation strategies for critical community/ commerce centers, such as Omo Ranch, Mt. Aukum, Gray's Corner, Four Corners, Grizzly Flats, Logtown, Pleasant Valley Junction, and Tiger Lily.	OWPR	CAL FIRE Local Fire Districts	Mid-term	

Recommended Actions – Fire Planning Unit D – South						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
F. Public Notification and Communication		No Action				
G. Evacuation Planning and Preparedness	D-17	Conduct evacuation exercises unique to the communities in the South Fire Planning Unit, identified in D-7 as having limited ingress and egress. Conduct evacuation exercises specific to the closure of the Bucks Bar Bridge during construction.	EDSO-OES	Local Fire Districts AFSCs CAL FIRE OWPR	Short-term/ Ongoing	
	D-18	Continue to work with the USFS and SPI to improve access and egress routes for the greater Grizzly Flat area, including Leoni and Capps Crossing Roads.	GFFSC	ENF SPI	Short-term/ Ongoing	

Recommended Actions – Fire Planning Unit D – South						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
H. Public Education and Awareness Educate the public on how to mitigate wildfire hazards and risks, as well as appropriately preparing and responding to wildfires. A challenge for all communities is how to generate interest and maximize awareness of the wildfire threat and encourage participation in preparing for a wildfire at an individual and community level. Public education is critical to community preparedness and citizens need to know where to obtain accurate information before, during and after an event occurs.		No Action				

Recommended Actions – Fire Planning Unit D – South						
Objective	***Number***	***Action***	***Lead Agency***	***Partners***	***Timeframe***	***Status***
I. Community and Regional Partnerships, Collaboration and Coordination		No Action				
J. Emergency Response Reduce and stabilize fire response times to FPPA rural standards		No Action				

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IMPLEMENTATION & MONITORING



8.0 IMPLEMENTATION & MONITORING

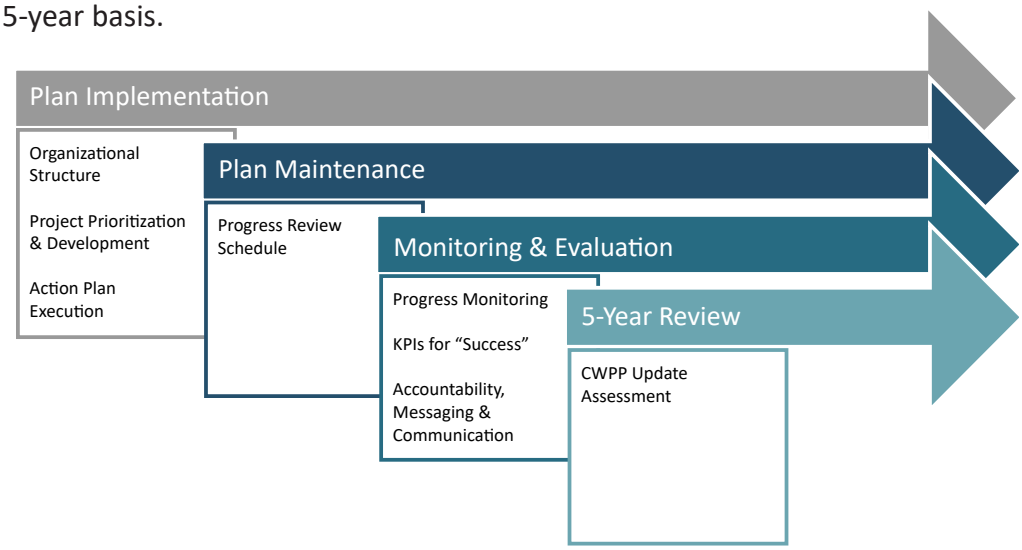
A CWPP's strength depends on its local relevance, the continued, collective engagement and action of a broad range of stakeholders, and its ability to guide the implementation of a diverse set of actions leading to measurable change. The CWPP provides a foundation to guide the community on wildfire risk mitigation activities based on input from stakeholders, current policy, the latest science and research, and best practices. The plan's utility does not end with its adoption, but continues and evolves through collaborative planning, implementation, monitoring and adaptive strategies based on lessons learned.

This section provides a CWPP implementation and monitoring strategy describing a systematic approach to accomplishing the goals and objectives of the plan. This includes outlining how each aspect of the plan will be executed – responsible parties, timelines and associated funding sources – as well as capacities of the designated CWPP management team. In addition, a successful plan entails establishing monitoring protocols and key performance indicators (KPIs) to evaluate the effectiveness of the plan in reducing wildfire risk at different levels of activity (e.g., project activity level, overall project level, and CWPP programmatic level).

8.1 Overview

Implementing the recommended actions in Section 7.0 and establishing a systematic, yet dynamic, framework for monitoring & evaluating plan activity is foundational to achieving the overall goals and objectives identified in the CWPP. As such, the implementation and monitoring strategy includes the following components:

- **Plan Implementation:** describes how the CWPP actions will be operationalized, including a discussion on organizational structure of the CWPP management team (i.e., the convener, advisory committee, and committee membership), project prioritization, the project development process, and action plan execution.
- **Plan Maintenance:** describes how the CWPP will be maintained and updated, including a discussion on annual and semi-annual meetings.
- **Monitoring and Evaluating:** describes how the CWPP actions will be monitored for progress, the metrics used and means to verify successful and timely execution of actions (i.e., projects, programs and policies), the indicators and means to verify CWPP actions are achieving measurable results, and how these metrics are documented and communicated for accountability.
- **Five-Year Review & Update of the CWPP:** describes the methods in which the CWPP will be updated on a minimum 5-year basis.



Framing the approach for implementation and monitoring are a set of guiding principles:

Guiding Principles	Concepts
Collaborative	• Support and encourage all participants to work together to advance the common good • Review feedback from a representative and balanced set of stakeholders (i.e., government agencies, private sector, non-profits, academia) • Recognize that time is needed to build trust and understanding • Be flexible, adaptable and responsive to changing needs and related indicators as staff, people and organizations respond to change
Participatory	• Stakeholders must be aware of and provided with a variety of ongoing engagement opportunities • Create an environment which facilitates the participation of different and diverse actors • Remove barriers to participation
Learning & Feedback Mechanisms	• Help all involved to listen to each other, explore new ideas, learn, and apply information in ways that generate new solutions, methods, or opportunities • Foster collective and responsive learning through structured checkpoints to allow for the evaluation of new data, new technologies, changes in risk landscape, etc. on CWPP goals, objectives and action plan • Measuring results, and understanding change, takes time and investment • Education, awareness and behavioral changes are cultural, socially and temporarily contingent • Learning should be feedback into all processes and future work
Resiliency & Patience	• Recognize non-linearity and complexity, including tracking and capturing negative impacts, resistance, holding ground and unexpected outcomes • Acknowledge that transformative change processes often include backlash • Ensure ongoing risk analysis and risk management
Diversity	• Equitably incorporate diverse people, voices, ideas, and information to lay the groundwork for quality outcomes • Foster the implementation of a diverse set of projects to achieve both social and technical needs for wildfire resiliency • Use quantitative and qualitative approaches for measuring success • Use methods that assess value-added through a variety of lenses (social, technical, administrative, environmental, life-safety, property protection)

8.2 Plan Implementation

The following sections describe some considerations for operationalizing the CWPP including organizational structure, project prioritization and development process, and action plan execution.

8.2.1 Organizational Structure

8.2.1.1 Convener – Office of Wildfire Preparedness and Resilience (OWPR)

OWPR will serve as the Convener overseeing the Plan's implementation and maintenance, as well as serve as the chair of the Advisory Committee described below. The Convener's key roles are:

- Coordinate Advisory Committee meeting dates, times, locations, agendas, and member notification.
- Document decisions and outcomes of Advisory Committee meetings.
- Serve as a communication conduit between the Committee and other key stakeholders (e.g., general public, associate fire safe councils, land resource managers, utilities, Caltrans, Sierra Pacific Industries, other federal/state/local agencies, businesses). Section 7 lists some relevant groups that have been identified as key to the project implementation process.
- Serve as facilitator to the project prioritization process

8.2.1.2 Advisory Committee

The Steering Committee for the CWPP will become the Advisory Committee and will oversee the implementation, management and maintenance of the Plan. In addition to OWPR, the Steering Committee consists of the following members (Refer also to Section 2.2.2):

- EDC Fire Safe Council
- CAL FIRE Amador – El Dorado Unit
- EDC Sheriff's Office of Emergency Services
- EDC Fire Prevention Officers
- El Dorado / Georgetown Resource Conservation Districts (RCD)
- EDC Fire Chiefs Association
- USFS Eldorado National Forest

Other key stakeholders can be added, either as permanent or ad hoc members. Future potential Committee members include the City of Placerville, El Dorado County Supervisors, and citizen representatives. Additional roles and responsibilities of the Committee include:

- Establishing a schedule for periodic review and updating of the CWPP.
- Developing and coordinating ad hoc and/or standing committees as needed.
- Designing or supporting the design of projects based on the recommended actions and assigned parties identified in Section 7.0.
- Identifying funding sources and supporting the coordination and preparation of grant applications.
- Recommending and prioritizing funding of wildfire risk reduction projects.

- Monitoring and tracking the progress of existing, planned and proposed projects.
- Documenting and disseminating successes and lessons learned.
- Maintaining a CWPP project implementation dashboard, Story map and/or other forms of public-facing communications.
- Evaluating and updating the CWPP in accordance with the prescribed maintenance schedule.

8.2.2 Project Development & Prioritization Process

In accordance with the Healthy Forests Restoration Act (HFRA), the Advisory Committee will establish community hazard reduction priorities to determine the order of project implementation. However, as this CWPP recognizes a broad range of actions that go beyond fuels reduction initiatives, the Committee will establish an evaluation and prioritization system such that a balanced set of community-based wildfire resiliency projects at different scales are evaluated and ranked for implementation and scheduling. Below are the ten (10) different thematic areas identified in Section 7:

A. Codes and Standards
B. Fuels and Mitigation
C. Property Protection (Defensible Space)
D. Property Protection (Structural Hardening)
E. Wildfire Resiliency of Critical Infrastructure
F. Public Notification and Communication
G. Evacuation Planning & Preparedness
H. Public Education & Awareness
I. Community and Regional Partnerships, Collaboration and Coordination
J. Emergency Response

To prioritize various actions and priorities, the Committee will identify a set of evaluation criteria based on primary and secondary considerations. In general, life safety and property protection are universally considered primary criteria for fire safety and wildfire risk mitigation programs. Secondary considerations may include environmental protection, economic benefits, costs, duration, feasibility, technical quality, and others. Table 26 provides descriptions of potential primary and secondary criteria the Committee may consider as part of their evaluation process.

Table 26. Description of Potential Project Prioritization Criteria

Criteria	Description
Sample Primary Criteria	
1. Life Safety	The primary goal of wildfire risk mitigation is to protect life safety of the public and first responders. As people continue to live in the WUI, life safety from wildfire threats is considered the foremost priority. Life safety consideration includes not only loss of life and/or injury as a direct result of wildfire incidents, but also safety of residents during wildfire evacuations, loss of power, and other related impacts.

Criteria	Description
Sample Primary Criteria	
2. Property Protection	Buildings and critical infrastructure are often vulnerable to wildfire, particularly in the WUI. Mitigating the ignition and spread of wildfire is critical to limiting the loss and damage of structures and critical facilities. Property loss and damage can devastate communities by displacing residents, disrupting business continuity and impairing local economies, and resulting in significant costs to re-build.
Sample Secondary Criteria	
3. Environmental Protection	One primary means of protecting the environment is mitigating the risk of wildfires that are accidentally initiated by human sources (e.g., electrical utility faults, dragging trailer chains). In addition, environmental protection may also include evaluating wildfire mitigation projects to ensure that project activities are in balance with other environmental objectives, minimize negative impacts to the environment and ecological systems and protect critical environmental services.
4. Cost	Cost considerations may include total project implementation costs, cost burdens or pass-through costs to taxpayers, costs to County agencies to operate and maintain a project or program long-term. Other costs may include availability of resources, personnel, equipment, among others.
5. Technical Feasibility	Recommended actions may be evaluated for their practicality given available data, technologies, science or ability to validate or verify the quality of technical system or products.
6. Scientific/Engineering/Data Driven	Recommended actions may be evaluated for their basis in science, engineering or data-driven merit, and are substantiated based on recognized consensus standards and/or industry-recognized peer-review process.
7. Timeline	Recommended actions may be evaluated based on the time necessary to analyze, design, construct, implement, maintain and/or operate. Other considerations may include an anticipated return on investments and when outcomes can be expected to produce measurable results.
8. Scale	Recommended actions may be evaluated for the scale of application (e.g. countywide, local community) and who the primary beneficiaries of the project would be.
9. Permanency	The ability of the project to sustain is purpose over time.

Because of the wide variety of relevant criteria to be synthesized for each action or project, the Committee should develop a simple priority ranking system to assist in the decision-making process. There should be a balance of projects prioritized to satisfy a range of secondary objectives, target audiences or beneficiaries and scales of application (e.g., countywide, neighborhood).

The projects that are presented to the Committee will often come from a variety of sources. Therefore, the project prioritization process needs to be flexible.

8.2.3 Operationalizing the Action Plan

Once the recommended actions are prioritized, the Committee will establish a project execution matrix building on those provided in Section 7.0 at the regional- and FPU-level. The Action Plan matrix is developed as a "tear out" and has a simple, high-level monitoring system built within it. Individual actions are assigned a responsible individual, target completion date and status update.

The Action Plan matrix should be reviewed and updated annually. As new practices and projects are identified they can be added to this matrix.

8.3 Plan Maintenance

Plan maintenance is a critical component of the CWPP for the Plan to reflect the current wildfire risk landscape, human development patterns, climate change, and relevant needs of the community to support reducing wildfire hazards and risks.

The Committee shall be responsible for maintaining and updating the CWPP through a series of meetings. A sample outline of plan maintenance meetings is provided in Table 27.

Table 27. Plan Maintenance Meeting Schedule

Semi-Annual Meeting	Annual Meeting	Five-Year Review
Review current Action Plan	Update risk assessment data and findings (as needed)	Review Plan update questions
Identify new issues and needs	Discussion of methods of continued public engagement	Update Action Plan as necessary
Prioritize/reprioritize potential projects	Document successes and lessons learned	Update risk assessment data and findings

8.3.1 Semi-Annual Meeting

The Committee will meet on a semi-annual basis to:

- Review existing Action Plan to determine readiness and status
- Review and prioritize funding of wildfire risk reduction projects
- Identify new issues that may not have been identified when the Plan was initially developed
- Develop or support the development of specific projects based on the recommended actions
- Prioritize potential wildfire mitigation projects
- Identify funding sources and support the coordination and preparation of grant applications
- Identify and coordinate any ad hoc and/or standing committees
- Monitor and track the progress of existing, planned and proposed projects
- Document and disseminate successes and lessons learned

8.3.2 Annual Meeting

The Committee shall meet annually to review any necessary updates to the risk assessment data and findings, get updates on local CWPP planning efforts, discuss methods of continued public engagement, and document success and lessons learned based on actions that were accomplished during the past year.

The Committee shall coordinate with County GIS on the development and maintenance of a county-wide Wildfire Preparedness and Resilience Digital Dashboard to ensure that maps, data, mitigation projects and status of projects in the Plan are current and updated as necessary and as appropriate.

8.3.3 5-Year Review

The Committee shall conduct a review of the CWPP at a minimum of 5-year intervals to ensure its continued relevance. Significant changes in policy, budget, or environmental conditions should trigger more frequent reviews.

The review process allows participating parties to update accomplishments, consider new projects and evaluate the effectiveness of past actions across the Planning Area. See more detail in Section 8.5.

8.4 Monitoring & Evaluation (M&E)

Monitoring and Evaluation (M&E) is a systematic process used in project- and program-management to track performance, assess progress, and ensure that objectives are met efficiently and effectively. It involves collecting, analyzing, and evaluating data to improve decision-making, accountability, and project or programmatic outcomes.

8.4.1 Overview

Effective wildfire risk mitigation programs require the ability to measure the level of success. This is done by identifying key performance indicators (KPIs) that can measure outcomes at various CWPP programmatic scales – i.e., at the overall CWPP level, objective/thematic level, individual project level and project activity level. See Figure 106 for a graphical representation of the different levels, along with the associated objective at the different levels. For each level of objective, there will be at least as many KPIs as there are activities or tasks, results, purposes and goals at the respective level.

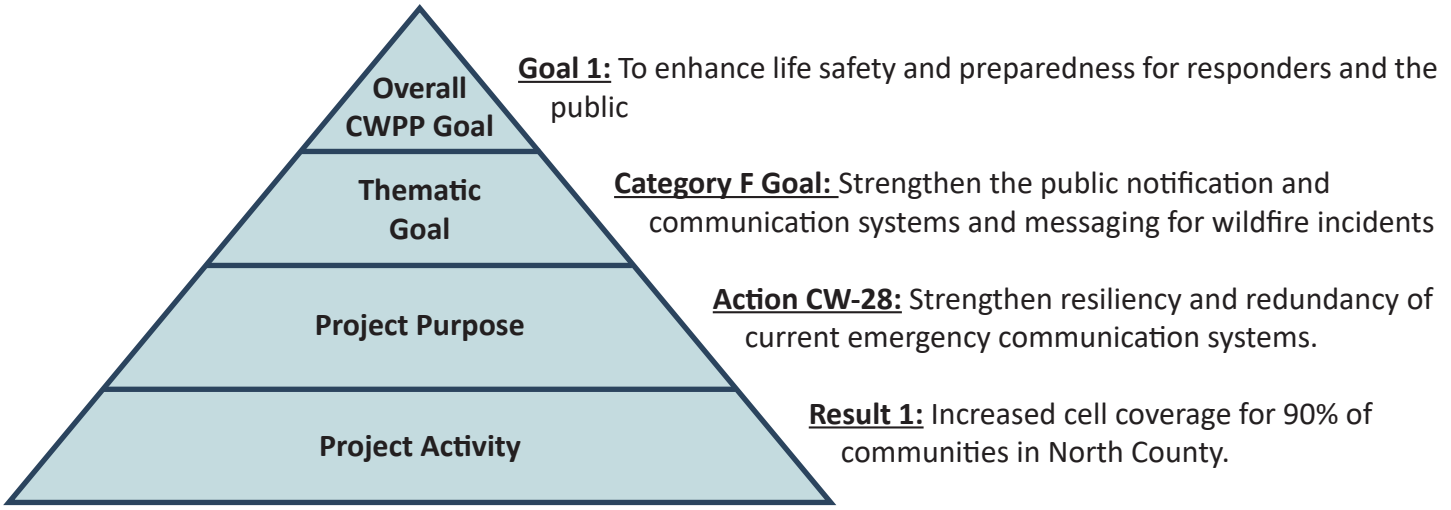


Figure 106. Schematic representation of the different CWPP programmatic levels with sample goals and objectives identified at each level

There are several approaches to developing KPIs. Ideally, the indicators will include a mixture of measures that each serve one of the following purposes:

(1) Monitoring and Tracking Progress – Indicators that verify the completion status of the program, project, task or activity

(2) Measuring Effectiveness – Indicators that provide a measure or proxy for desired outcome or result

Framing Questions for M&E

- **What is the measure of improvement (indicators) for each action item?**
- **Who is the target group for the improvement?**
- **Where is the improvement intended to take place?**
- **What is the intended change in terms of quality and/or quantity?**
- **When is the improvement intended to take place?**

Some sample framing questions for M&E are provided in the callout box. For example, indicators can measure the quantity and/or quality of what a project intends to achieve, and in what specific period the improvements are intended to take place (i.e., employing the SMART concept – specific, measurable, attainable, relevant and time-bound – for goal setting 29). To be able to determine if improvements have taken place, it is often necessary to have baseline data to compare with. Note: Often it is challenging to develop KPIs that directly correlate the effectiveness of an individual project in achieving overall CWPP programmatic goals, due to the complexity and influence of numerous external factors.



Figure 107. SMART concept for informing the development of indicators at various programmatic scales of the CWPP action plan.

Note: As KPIs are specific to individual projects and overall programs, the following sections provide general guidance to help inform the development of KPIs for both aspects of M&E, and what they might look like at various project and programmatic levels through some sample templates and examples.

8.4.2 Monitoring & Tracking Progress

Indicators for monitoring and tracking the progress of the overall CWPP program and at the individual project level should follow common project management practices. These are measurable values used to assess progress, efficiency, and impact during project execution. They help in tracking whether a project is on course and meeting its objectives. Indicators can be categorized into different types and forms of measurement such as the following:

Process Indicators

- **Budget Utilization (%) –** Tracks the percentage of the budget spent versus the total budget.
- **Project or Task Completion Rate (%) –** Percentage of projects or tasks completed versus planned.
- **Timeliness of Project or Task Completion (%) –** Measures how many projects or activities are completed on time.
- **Stakeholder engagement levels (# of meetings, feedback received) –** Tracks collaboration and participation of stakeholders.

Output Indicators

- **Number of Deliverables Completed (#) –** Tracks tangible outputs (e.g., acres treated, reports, trainings, software developed).
- **Training Sessions Conducted (#) –** Tracks capacity-building initiatives.

8.4.2.1 CWPP Programmatic Level

Through the operationalization of the action plan process described above, the Advisory Committee shall develop an overall CWPP programmatic timeline for all projects, programs and policies that will be undertaken in the next 5 years. This will serve as the primary monitoring and tracking tool for CWPP progress and completion of recommended actions. Indicators for progress updates and/or project completion will vary depending on the nature of the project but can be based on the deliverables identified in the scope of work for each project (e.g., monthly progress reports, interim and final reports).

Sample progress monitoring metrics provided in this section can be tailored to reflect CWPP programmatic level progress. The Advisory Committee should consider coordinating with County GIS to include the programmatic level progress indicators on a CWPP data dashboard for accountability and reporting out to the general public.

8.4.2.2 Project Level

At the project level, indicators for monitoring project processes should be defined by the scope of work, associated deliverables and deliverable schedule.

8.4.3 Measuring Effectiveness

Measuring the effectiveness of the overall CWPP and associated projects in achieving impact requires a structured approach using KPIs, data collection, stakeholder feedback, cost-effectiveness analysis, and sustainability assessments. Measuring intended impact is challenging for a variety of reasons including that the timeframe in which measurable changes are observed may not occur for years or decades and that impacts may intangible such as human behavioral changes or broad-scale changes in public awareness, and so are difficult to measure.

To determine whether a CWPP program or individual project has successfully achieved its intended impact, it is crucial to use a combination of qualitative and quantitative assessment methods and indicators. The specific indicators will depend on the goals & objectives identified at each objective level. Refer to Figure 106. In addition, each indicator should include some means of verification.

Below are some sample indicators and suggested means of verification:

Output Indicators – These measure the short- to medium-term effects of project implementation.

- **Improvement in Resident Skills or Knowledge about Wildfire Preparedness & Resiliency (%) –** Measured through assessments or surveys.
- **Satisfaction Rate of Implemented Programs (%) –** Assessed through surveys and feedback from beneficiaries.
- **Adoption Rate of New Processes, Technologies, Codes, Standards, and/or Policies (%) –** Tracks how many users embrace project interventions.

Impact Indicators – These measure the long-term changes brought about by the project.

- **Reduction in High Hazard or High Risk Areas (%) –** Measures reduction in high fire severity or high risk areas (by acres and by % change).
- **Increase in Number of Hardened Homes with Compliant Defensible Space (#) –** Quantifies the number of homes with compliant home hardening and defensible space features.
- **Reduction in Number of Human-Caused Ignitions (#) –** Tracks the annual ignition rates for various forms of ignitions by human and natural sources.
- **Policy Changes Influenced (#) –** Tracks whether the project led to changes in wildfire codes, standards, local ordinances or other policies.
- **OWPR and CWPP Database Traffic (#) –** Tracks the number of visitors engaging with OWPR website, CWPP data dashboard and other online wildfire resiliency resources in the County.
- **Number of Firewise Communities and/or Associate Fire Safe Councils (#) –** Tracks the number of new communities or councils formed, the formation of other wildfire resiliency community groups, and/or an increase in the number of participants in existing groups.

8.4.3.1 Sample M&E Templates

Monitoring, evaluating and learning are key aspects at all levels of the CWPP program to effect change and lead to sustainable wildfire resiliency. The Advisory Committee should integrate these concepts into every grant proposal, project RFP and/or project scope of work. At the project level, M&E indicators should be explicit activities that the project team develops to measure project progress as well as medium to long-term measures of project impact effectiveness. The Committee can adopt these medium-to-long term impact indicators for M&E of the overall CWPP program.

The following matrix provides an example of M&E indicators to verify that a project meets its intent by leading to changes in wildfire risk reduction or resiliency. This matrix is intended to serve as a roadmap for continued success after completion of the project activities, and how the impact of the project can be evaluated against CWPP programmatic level goals and objectives.

CWPP Program Objective(s)		Indicators	Means of Verification
Overall Goal	Goal 1: To enhance life safety and preparedness for first responders and the public.	• Reduced number of human-related wildfire ignitions. • Reduced number of catastrophic wildfires. • Reduced wildfire impacts on life, property, environment and critical infrastructure. • Reduced high hazard or high risk areas (%). • Increased number of hardened homes with compliant defensible space (#).	• Adoption of CWPP. • Implementation of x% of CWPP Action Plan projects by Year 1; x% by Year 2; x% by Year 5. • Annual statistics and trends on the # of human- related wildfire ignitions, of catastrophic wildfires, # of casualties, # of loss/damaged structures, # loss/damaged critical infrastructure. • Reduce high hazard areas by x% and # acres by Year 5. • Reduce high risk areas by x% and # acres by Year 5. • Achieve 500 hardened homes with compliant defensible space by Year 2; 1250, by Year 5.

CWPP Program Objective(s)		Indicators	Means of Verification
Project Objective/ Thematic Category	**Category F – Public Notification and Communication:** Strengthen the public notification and communication systems and messaging for wildfire incidents.	• Expansion of cell tower grid, associated equipment, power supplies and other technologies (90% coverage Planning Area wide). • Expansion of user base of the local radio system and other forms of distributed communication technologies (e.g., NOAA weather transceivers, HAM/GMRS radios). • Alignment of public emergency communication and messaging operations and plans. • Agencies coordinate on training/drills and evaluation/ adoption of newly available communication technologies.	• Final reports from Actions CW-28 to CW-30. • Creation of cell coverage mapping system. • Strategy for achieving 90-100% coverage Planning Area wide. • County level training materials and guidance document on use of local radio systems during a wildfire event. • Public polling indicates increased resiliency and quality of cell coverage, emergency communications and messaging during normal and emergency situations. • Countywide Public Emergency Comms. Operating Plan for Wildfires. • Training schedule and statistics of trained staff by agency.

CWPP Program Objective(s)		Indicators	Means of Verification
Project Objective/ Thematic Category	**Action CW-28:** Strengthen resiliency and redundancy of current emergency communication systems.	• Identification of "dead zones" within Planning Area. • Evaluation of cell tower and repeater vulnerabilities to wildfire exposure or loss of power during a wildfire incident. • Design of new cell tower and repeater locations in spatial optimized locations for coverage and costs. • Installation of x# of cell towers and x# of repeaters to achieve 90% coverage in North County. • Build relationships and collaborate with providers to maintain generators and power backups.	• "Dead zone" mapping and improvement plan with prioritizations. • Vegetation management plan for cell towers. Maintenance schedule and completed task orders. • Administering of x # of public surveys in North County to evaluate cell coverage before and after implementation. • Purchase orders and invoices for installations. • Memorandum of understanding for providers of generators and power backups.
Specific Project Results		• Specified by Project Team.	• Deliverables specified in scope of work/contract.

8.4.3.2 Specific Topic – M&E for Fuel Treatments

Monitoring of fuel treatments is the only way to know if activities on the ground are resulting in a more fire resilient landscape and increased safety for people and property. Committing to a monitoring plan can lead to a more effective program by providing an understanding of how implemented actions affect wildland fire and protect values at risk. In general, federal and state agencies have their own requirements for monitoring fuel treatment effectiveness and changes to the existing environment because of implemented actions. Sierra Pacific Industries has specific monitoring requirements for actions taken on privately held forest lands. The recommendations for monitoring presented below can be used by individuals and groups that do not have specific internal monitoring requirements.

Monitoring information should be used to:

- Review the efficacy and cost effectiveness of a treatment.
- Identify if modifications to treatment prescriptions are required.
- Collect information regarding species response to treatments.
- Document outcomes on what happens when a wildfire moves through a treatment.

The Colorado Forest Restoration Institute has developed simplified guidelines for plot monitoring which can be applied to any treatment unit, but which are most appropriate when applied to treatments which have some spatial extent, https://cfri.colostate.edu/wp-content/uploads/sites/22/2018/10/2018-Simple-Plot-Protocol.pdf. A method to augment plot monitoring involves the establishment of photo points to evaluate changes to the landscape over time. A guide to photo point monitoring can be found at https://pacificeducationinstitute.org/wp-content/uploads/2020/08/1.-Photo-Point-Monitoring.pdf.

8.5 5-Year Review & Update

The wildfire environment of the Planning Area is dynamic and constantly evolving. To keep the CWPP relevant and accurate, a complete Plan update should be set at five-year intervals. This interval is also consistent with the requirements of the Disaster Mitigation Act of 2000 applicable to local hazard mitigation plans. During the Plan updates, certain questions should be asked to determine what actions are necessary to update the Plan. Table 28 provides a sample list of questions that can be used by the Committee to update the CWPP.

Table 28. Five-Year Plan Review Questions

5-Year Plan Review Questions
Background Data – Section 1
Has the wildfire protection framework at the local, state, or federal level changed? Have responsibilities of partner agencies changed? Has recent fire occurrence been accurately reflected in the Plan? If not, are these occurrences significant?
Risk Assessment Data – Section 2
Has the wildfire risk across the Planning Area changed? If so, has the risk changed significantly? Have new tools emerged to better evaluate the wildfire hazard and/or risk? Have communities in the Planning Area developed plans and implemented activities that might change the overall risk for the Planning Area?
Outreach Data – Section 3
Are there new stakeholders that should be brought to the table?
Action Plan Data – Section 4
Do the goals, objectives, and actions of the CWPP adequately address current or expected conditions? Do the goals, objectives, and actions of the CWPP still accurately reflect the values and needs of the community? Have actions been effectively implemented? Are there new funding sources available to address the wildfire hazards, risks and vulnerabilities? Are there actions that should be added or removed from the Action Plan matrix?
Plan Implementation Data – Section 5
Are the structures and methods established for implementing the Plan still relevant and effective? Have there been any lessons learned from wildfires in other parts of the state that are applicable to the Planning Area? Has implementation occurred as anticipated? What obstacles and challenges have arisen that have prevented or delayed implementation? (e.g., legal, financial, institutional) What opportunities have arisen that could accelerate implementation?

9.0 REFERENCES

1. Abatzoglou J.T. and Brown T.J. A comparison of statistical downscaling methods suited for wildfire applications, International Journal of Climatology (2012), 32, 772-780. https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/joc.2312.

2. Abatzoglou, J.T. and Williams, A.P., 2016. Impact of anthropogenic climate change on wildfire across western US forests. Proceedings of the National Academy of Sciences, 113(42), pp.11770-11775.

3. Abatzoglou, J.T., Redmond, K.T. and Edwards, L.M., 2009. Classification of regional climate variability in the state of California. Journal of Applied Meteorology and Climatology, 48(8), pp.1527-1541.

4. American Society for Testing and Materials, ASTM C1055, Standard Guide for Heated Systems Surface Conditions That Produce Contact Burn Injuries, 4:6, ASTM West Conshohocken, PA, 1997

5. ANSI (American National Standards Institute). 2017. ANSI A300 Standards. https://www.tcia.org/ TCIA/BUSINESS/ANSI_A300_Standards_/TCIA/BUSINESS/A300_Standards/A300_Standards.aspx? hkey=202ff566-4364-4686-b7c1-2a365af59669.

6. Bradshaw, L.; McCormick, E. 2000. FireFamily Plus, Version 4.1. Gen. Tech. Rep. RMRS-GTR- 67WWW.Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research

7. Butler, B. 2014. Preliminary Firefighter Safety Zone Guidelines. < http://1.usa.gov/1HKfhJ5 >; (11 October 2015)

8. Butler, B. W. (2014) Wildland firefighter safety zones: a review of past science and summary of future needs. International Journal of Wildland Fire 23, 295-308.

9. CAL FIRE, Fire and Resource Assessment Program, (https://frap.fire.ca.gov/mapping/maps/). Fire Hazard Severity Map, Los Angeles County, accessed December 23, 2019

10. CAL FIRE. 2019a. “Top 20 Most Destructive California D Wildfires.” August 8, 2019. Accessed April 30, 2020. https://www.fire.ca.gov/media/5511/top20_destruction.pdf.

11. CAL FIRE. 2019b. Fuel Treatment. http://www.calfire.ca.gov/resource_mgt/resource_mgt_EPRP_FuelsTreatment.

12. CAL FIRE. 2020a. “Wildfire Hazard Real Estate Disclosure.” https://frap.fire.ca.gov/frap-projects/wildfire-hazard-real-estate-disclosure/.

13. CAL FIRE. 2020b. Fire and Resource Assessment Program. GIS Data Set: Fire Perimeters Version 19_1. https://frap.fire.ca.gov/media/10969/fire19_1.zip.

14. Cohen, J. D., 2000. Preventing disaster: home ignitability in the wildland-urban interface. Journal of Forestry 98 (3): pp 15-21.

15. Cohen, J. and J. Saveland. 1997. “Structure Ignition Assessment Can Help Reduce Fire Damages in the Wildland-Urban Interface,” Fire Management Notes 57(4): 19 – 23.

16. Colorado Forest Restoration Institute (2018). 2018 Simple Plot Protocol. CFRI-1809.

17. Crockett, J.L. & Westerling, A.L. 2018. “Greater Temperature and Precipitation Extremes Intensify Western U.S. Droughts, Wildfire Severity, and Sierra Nevada Tree Mortality.” Journal of Climate 31(1): 341–354.

18. Domitrovich, J.W., G.A. Broyles, R.D. Ottmar, T.E. Reinhard, L.P. Naeher, M.T. Kleinman, K.M. Navarro, C.E. Mackay, and O. Adetona. 2017. Wildland Fire Smoke Health Effects on Wildland Firefighters and the Public. Joint Fire Science Program Project ID: 13-1-02-14. June 2017. Accessed April 30, 2020. https://www.firescience.gov/projects/13-1-02-14/project/13-1-02-14_final_report.pdf.

19. Finney, M.A. 1998. FARSITE: Fire Area Simulator—Model Development and Evaluation. Research Paper RMRS-RP-4, Ogden, Utah: U.S. Forest Service, Rocky Mountain Research Station.

20. Finney, M.A., S. Brittain, R.C. Seli, C.W. McHugh, and L. Gangi. 2015. FlamMap: Fire Mapping and Analysis System. Version 5.0 [software]. http://www.firelab.org/document/flammap-software.

21. FireFamilyPlus. 2019. FireFamily Plus, version 5.0. U.S. Department of Agriculture, U.S. Forest Service, Rocky Mountain Research Station. https://www.firelab.org/document/firefamilyplus-software.

22. Goss, M., Swain, D.L., Abatzoglou, J.T., Sarhadi, A., Kolden, C., Williams, A.P. and Diffenbaugh, N.S., 2020. Climate change is increasing the risk of extreme autumn wildfire conditions across California. Environmental Research Letters.

23. Hatchett, B.J., Smith, C.M., Nauslar, N.J. and Kaplan, M.L., 2018. Brief Communication: Synoptic-scale differences between Sundowner and Santa Ana wind regimes in the Santa Ynez Mountains, California. Natural Hazards & Earth System Sciences, 18(2).

24. Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Nongame Heritage Program report. California Department of Fish and Game (Sacramento), 156 pages.

25. Insurance Information Institute. Facts + Statistics: Wildfires (2020). https://www.iii.org/fact-statistic/facts- statistics- wildfires#:~:-text=Aon%20estimates%20that%20insured%20losses%20from%20the%20Woolsey%20Fire%20totaled,acres%20and%20de-stroyed%20four%20structures

26. Kolden, C.A. and Abatzoglou, J.T., 2018. Spatial distribution of wildfires ignited under katabatic versus non- katabatic winds in mediterranean Southern California USA. Fire, 1(2), p.19

27. LANDFIRE. 2019. LF 200 lcp file [GIS data]. https://www.landfire.gov/getdata.php.

28. National Institute of Standards and Technology, United States Department of Commerce. Engineering Laboratory. (2016). <www.nist.gov/%3Cfront%3E/fire-dynamics>. [Verified Last 28 July 2019].

29. NFPA (National Fire Protection Association). 2011. “Understanding Fire Behavior in the Wildland/Urban Interface.” Accessed April 2020. https://youtu.be/pPQpgSXG1n0.

30. National Wildfire Coordinating Group, 2006. Fireline Handbook, Appendix B, Fire Behavior.

31. National Wildfire Coordinating Group Operations and Workforce Development Committee. Incident Response Pocket Guide. PMS 461. 2014.

32. National Wildfire Coordinating Group. 2013. Wildland fire incident management field guide. < http://1.usa.gov/1M9qOW8 >; (27 October 2015)

33. NWCG (National Wildfire Coordinating Group). 2020. “NWCG Glossary of Wildland Fire, PMS 205.” Accessed April 2020. https://www.nwcg.gov/glossary/a-z.

34. Rolinski, T., Capps, S.B., Fovell, R.G., Cao, Y., D’Agostino, B.J. and Vanderburg, S., 2016. The Santa Ana wildfire threat index: methodology and operational implementation. Weather and Forecasting, 31(6), pp.1881-1897.

35. Scott, Joe H., Burgan, R.E., 2005. Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model, General Technical Report RMRS-GTR-153. USDA Forest Service.

36. State of California. 2019. Wildfires and Climate Change: California's Energy Future. A Report from Governor Newsom's Strike Force. April 12, 2019. Accessed June 10, 2019. https://www.gov.ca.gov/wp-content/ uploads/2019/04/Wildfires-and-Climate-Change-California%E2%80%99s-Energy-xFuture.pdf.

37. USDA Forest Service, Rocky Mountain Research Station - www.firelab.org/project/flammap, accessed 12/23/2019.

38. USDA Forest Service, Pacific Southwest Research Station - https://www.fs.fed.us/psw/topics/fire_science/ecosystems/chaparral.shtml, accessed 01/02/2020.

39. USFS (U.S. Forest Service). 2020a. "Quercus agrifolia." Fire Ecology, Index of Species Information. Accessed April 2020. https://www.fs.fed.us/database/feis/plants/tree/queagr/all.html.

40. USFS. 2020b. "Eucalyptus globulus." Fire Ecology, Index of Species Information. Accessed April 2020. https://www.fs.fed.us/database/feis/plants/tree/eucglo/all.html.

41. Wildland Fire Decision Support System, (https://wfdss.usgs.gov/wfdss/WFDSS_About.shtml). Disturbance History accessed December 28, 2019.

42. Williams, A.P., Gentine, P., Moritz, M.A., Roberts, D.A. and Abatzoglou, J.T., 2018. Effect of reduced summer cloud shading on evaporative demand and wildfire in coastal southern California. Geophysical Research Letters, 45(11), pp.5653-5662.

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APPENDIX A. GLOSSARY

The following provides terms or words found in or relating to this plan (additional terms are available at http://www.nwcg.gov/glossary):

- **1-Hour Timelag Fuels (a.k.a., one-hour fuels):** Fuels consisting of dead herbaceous plants and roundwood less than about ¼ inch (6.4 mm) in diameter. Also included is the uppermost layer of needles or leaves on the forest floor.
- **10-Hour Timelag Fuels (a.k.a. ten-hour fuels):** Dead fuels consisting of roundwood ¼ to l inch (0.6 to 2.5 cm) in diameter and, very roughly, the layer of litter extending from immediately below the surface to ¾ inch (1.9 cm) below the surface.
- **100-Hour Timelag Fuels (a.k.a., hundred-hour fuels):** Dead fuels consisting of roundwood in the size range of 1 to 3 inches (2.5 to 7.6 cm) in diameter and very roughly the layer of litter extending from approximately ¾ of an inch (1.9 cm) to 4 inches (10 cm) below the surface.
- **1,000-Hour Timelag Fuels (a.k.a., thousand-hour fuels):** Dead fuels consisting of roundwood 3 to 8 inches in diameter and the layer of the forest floor more than 4 inches below the surface.
- **Active Crown Fire:** A fire in which a solid flame develops in the crowns of trees, but the surface and crown phases advance as a linked unit dependent on each other.
- **Aspect:** Direction a slope faces.
- **Canopy Spacing:** The distance from the edge of one tree canopy to another. Crown spacing varies from open (with 10 feet or more of space between tree canopies) to closed (where trees may be growing in very close proximity with little space between them).
- **Crown Fire:** A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire.
- **Dead Fuels:** Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.
- **Direct Attack:** A method of fire suppression where actions are taken directly along the fire's edge. In a direct attack, burning fuel is treated directly, by wetting, smothering, or chemically quenching the fire or by physically separating burning from unburned fuel.
- **Fire Apparatus Access Roads:** The means for emergency apparatus to access a facility or structure for emergency purposes. Roadways must extend to within 150 feet of all portions of the exterior of the first floor of any structure and must meet specified criteria for width, pavement characteristics, roadway gradient, turning radius, etc. Fire apparatus access roads are also referred to as fire lanes.
- **Fire Behavior:** The manner in which a fire reacts to the influences of fuel, weather, and topography.
- **Fire Frequency:** Temporal fire occurrence described as a number of fires occurring within a defined area within a given time period.
- **Fire Intensity:** A general term relating to the heat energy released by a fire.

- **Fire Lane Identification:** Signs or curb markings that allow fire apparatus access roads to be readily recognized so that they will remain unobstructed and available for emergency use at all times.
- **Fire Potential:** The likelihood of a wildland fire event measured in terms of anticipated occurrence of fire(s) and management's capability to respond. Fire potential is influenced by a sum of factors that includes fuel conditions (fuel dryness and/or other inputs), ignition triggers, significant weather triggers, and resource capability.
- **Fire Regime:** The characterization of fire's role in a particular ecosystem, usually characteristic of particular vegetation and climatic regime, and typically a combination of fire return interval and fire intensity (i.e., high frequency, low intensity/low frequency, high intensity).
- **Fire Return Interval:** The length of time between fires on a particular area of land.
- **Fire Weather:** Weather conditions that influence fire ignition, behavior, and suppression.
- **Flame Length:** The distance from the base to the tip of the flaming front. Flame length is directly correlated with fire intensity.
- **Flaming Front:** The zone of a moving fire where combustion is primarily flaming. Behind this flaming zone combustion is primarily glowing. Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front.
- **Fuel:** Any combustible material, which includes but is not limited to living or dead vegetation, human-built structures, and chemicals that will ignite and burn.
- **Fuelbed:** An array of fuels usually constructed with specific loading, depth, and particle size to meet experimental requirements; also, commonly used to describe the fuel composition.
- **Fuel Loading:** The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.
- **Fuel Model:** Mathematical descriptions of fuel properties (e.g., fuel load and fuel depth) that are used as inputs to calculations of fire danger indices and fire behavior potential.
- **Fuel Moisture Content:** The quantity of moisture in fuels expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit.
- **Fuel Type:** An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.
- **Gates and Barriers:** Devices that restrict pedestrian and vehicle ingress and egress to and from a facility.
- **Gate and Barrier Locks:** Devices that are installed on gates and barriers to secure a property or facility.
- **Goals:** A goal is a broad statement of what you wish to accomplish, an indication of program intentions.
- **Ground Fire:** Fire that consumes the organic material beneath the surface litter ground, such as a peat fire.
- **Hose Pull:** The effective distance (150 feet is standard) that firefighters can drag a hose from fire apparatus to attack a fire. Hose pull is measured along a simulated path of travel accounting for obstructions and not "as the crow flies."

- **Intensity:** The level of heat radiated from the active flaming front of a fire, measured in British thermal units (BTUs) per foot.
- **Ladder Fuels:** Fuels that provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. Ladder fuels help initiate and ensure the continuation of crowning.
- **Local Responsibility Area (LRA):** Land where a city/county has primary financial responsibility for the prevention and suppression of wildland fires. LRA land is generally located within city boundaries.
- **Live Fuels:** Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.
- **Mid-flame Windspeed:** The speed of the wind measured at the midpoint of the flames, considered to be most representative of the speed of the wind that is affecting fire behavior.
- **Objectives:** They contribute to the fulfillment of specified goals and are measurable, defined, and specific.
- **Passive Crown Fire:** Also called torching or candling. A fire in the crowns of trees in which single trees or groups of trees torch, ignited by the passing front of the fire.
- **Safety Zone:** A preplanned area of sufficient size and suitable location in the wildland expected to prevent injury to fire personnel without using fire shelters.
- **Red Flag Warning:** Term used by fire weather forecasters to alert forecast users to an ongoing or imminent critical fire weather pattern.
- **Riparian:** Situated or taking place along or near the bank of a watercourse.
- **Spotting:** Refers to the behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire.
- **State Responsibility Area (SRA):** Land where the State of California (i.e. CAL FIRE) has primary financial responsibility for the prevention and suppression of wildland fires. All SRA land is located within County unincorporated areas; SRA does not include lands within city boundaries or in federal ownership.
- **Strategy:** The general plan or direction selected to accomplish incident objectives.
- **Surface Fire:** Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation.
- **Surface Fuels:** Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants.
- **Topography:** Referred to as “terrain.” The term also refers to parameters of the “lay of the land” that influence fire behavior and spread. Key elements are slope (in percent), aspect (the direction a slope faces), elevation, and specific terrain features such as canyons, saddles, “chimneys,” and chutes.
- **Understory:** Term for the area of a forest which grows at the lowest height level below the forest canopy. Plants in the understory consist of a mixture of seedlings and saplings of canopy trees together with understory shrubs and herbs.

- **Values at Risk:** People, property, ecological elements, and other human and other intrinsic values within the City. Values at Risk are identified by stakeholders as important to the way of life in the City and are particularly susceptible to damage from undesirable fire outcomes.

- **Very High Fire Hazard Severity Zone (VHFHSZ):** A designated area in which the type and condition of vegetation, topography, fire history, and other relevant factors increase the possibility of uncontrollable wildland fire. Structures within a VHFHSZ require special construction features to protect against wildfire hazards; please consult with the local building department and refer to CBC Chapter 7A for specific requirements.

- **Wildland Fire Environment:** The surrounding conditions, influences, and modifying forces of fuels, topography, and weather that determine wildfire behavior.

- **Wildfire Risk Area:** Land that is covered with vegetation, which is so situated or is of such an inaccessible location that a fire originating upon it would present an abnormally difficult job of suppression or would result in great or unusual damage through fire, or such areas designated by the fire code official. For purposes of this document, Wildfire Risk Area includes Very High Fire Hazard Severity Zones (see above), Wildland-Urban Interfaces (WUI), and similarly hazardous areas.

APPENDIX B. RELEVANT FEDERAL, STATE, & LOCAL REGULATIONS & POLICIES

This appendix provides a detailed list and summary of the federal, state, county, and city level policies and regulations that pertain to this CWPP.

B.1 Federal Level Policy

Disaster Mitigation Act (2000-present)

Section 104 of the Disaster Mitigation Act of 2000 (Public Law 106-390) enacted Section 322 - Mitigation Planning of the Robert T. Stafford Disaster Relief and Emergency Assistance Act - that created incentives for state and local entities to coordinate hazard mitigation planning and implementation efforts and is an important source of funding for fuels mitigation efforts through federal hazard mitigation grants.

National Cohesive Wildland Fire Management Strategy (2009)

The National Cohesive Wildland Fire Management Strategy is a strategic push to work collaboratively among all stakeholders and across all landscapes, using best science to make meaningful progress towards the three goals: resilient landscapes, fire adapted communities, and safe and effective wildfire response. Its vision is to safely and effectively extinguish wildfire when needed; use wildfire where allowable; manage our natural resources; and as a nation, to live with wildland fire.

National Fire Plan (NFP) 2000

In 2000, dry climatic conditions resulted in a historic number of wildland fires within the United States (mainly the Western U.S.). It is estimated that 7.2 million acres, nearly double the 10-year average burned. Costs in damages including fire suppression activities were approximately 2.1 billion dollars. Congressional direction called for substantial new appropriations for wildland fire management. This resulted in action plans, interagency strategies, and the Western Governor's Association's, “A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment - A 10- Year Comprehensive Strategy - Implementation Plan”. This collectively became known as the National Fire Plan. This plan places a priority on collaborative work within communities to reduce their risk from large-scale wildfires.

National Fire Protection Association

The NFPA maintains numerous codes and standards that provide direction on development in the WUI including:

- NFPA 1, Fire Code, Chapter 17
- NFPA 1140, Standard for Wildland Fire Protection
    - » NFPA 1140 is a combination of Standards NFPA 1051 (Standard for Wildland Firefighting Personnel Professional Qualifications), NFPA 1141 (Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas), NFPA 1143 (Standard for Wildland Fire Management), and NFPA 1144 (Standard for Reducing Structure Ignition Hazards from Wildland Fire).

National Incident Management System (NIMS)

NIMS provides a systematic, proactive approach to guide government agencies, nongovernmental organizations, and the private sector to work together to prevent, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment. The NIMS improves a community's ability to prepare for and respond to potential incidents and hazard scenarios.

B.2 State Level Policy

California State Hazard Mitigation Plan (Version 2023)

The purpose of the State Hazard Mitigation Plan (SHMP) is to significantly reduce deaths, injuries, and other losses attributed to both natural and human-caused hazards in California. The SHMP provides guidance for hazard mitigation activities emphasizing partnerships among local, state, and federal agencies as well as the private sector.

California Strategic Fire Plan 2018

The Strategic Fire Plan is one of the preeminent policies specified by the Board of Forestry and Fire Protection's (Board). The Board has adopted these Plans since the 1930s and periodically updates them to reflect current and anticipated needs. Over time, as the environmental, social, and economic landscape of California's wildlands has changed, the Board has evolved the Strategic Fire Plan to better respond to these changes and to provide CAL FIRE with appropriate guidance "…for adequate statewide fire protection of state responsibility areas" (PRC § 4130). This 2018 Plan reflects CAL FIRE's focus on (1) fire prevention and suppression activities to protect lives, property, and ecosystem services, and (2) natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation.

California's Wildfire and Forest Resilience Action Plan (2021)

This plan was created by the California Forest Management Task Force (established in 2018) and strategically accelerates efforts to restore the health and resilience of California forests, grasslands, and natural places, improve the fire safety of California communities, and sustain the economic vitality of rural forested areas. This plan integrates recommendations from existing state and federal plans regarding forest health and the wildfire crisis.

California Environmental Quality Act (CEQA)

The 1970 CEQA has evolved into one of the most prominent components of community planning in California. It requires state and local agencies to follow a protocol of analysis and public disclosure of environmental impacts in proposed projects and to include feasible measures to mitigate those impacts. Any proposed hazardous fuel treatment project recommended in this CWPP must comply with CEQA regulations.

2022 California Fire Code

This code establishes regulations affecting or relating to structures, processes, premises and safeguards regarding residences and historic buildings. The code includes: 1) hazards of fire and explosion arising from the storage, handling or use of structures, materials or devices; 2) conditions hazardous to life, property or public

welfare in the occupancy of structures or premises; 3) fire hazards in the structure or on the premises from occupancy or operation; 4) matters related to the construction, extension, repair, alteration or removal of fire suppression or alarm systems; and 5) conditions affecting the safety of fire fighters and emergency responders during emergency operations.

California Building Code 2022 Chapter 7A (includes section 705A – roofing)

Establishes minimum standards for the protection of life and property by increasing the ability of a building located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area to resist the intrusion of flames or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses.

California Code of Regulations Title 24

California's building regulations and standards are contained within Title 24 of the California Code of Regulations (CCR) published by the California Building Standards Commission. These are regulations passed by California agencies charged with enforcing the state's various laws and requirements for builders and property owners. Title 24 includes all regulations for how buildings are designed and constructed and are intended to ensure the maximum structural integrity and safety of private and public buildings. It contains requirements for the structural, mechanical, electrical and plumbing systems, and requires measures for energy conservation, green design, construction and maintenance, fire and life safety, and accessibility.

California Residential Code 2021 Chapter 3 Building Planning, Section R 337 Material and Construction Methods for Exterior Wildfire Exposure

Establishes minimum standards for the protection of life and property by increasing the ability of a building located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area to resist the intrusion of flames or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses.

Public Resource Code Sections 4125-4137 – Fire Protection Responsibilities

This policy defines suppression and prevention roles and responsibilities of agencies within and across administrative boundaries. Fire protection responsibility area designations directly correlate to specific financial responsibility for wildfire prevention and suppression actions. Area mutual aid agreements and assistance agreements are reviewed on a regular (annual) basis, to ensure accuracy in updates and procedures.

Public Resource Code Sections 4201-4204 – Fire Hazard Severity Zones

Requires CAL FIRE to classify lands within State Responsibility Areas in accordance with the severity of fire hazard present for the purpose of identifying measures to be taken to slow wildfire rates of spread and to reduce the potential intensity of uncontrolled fires that threaten to destroy resources, life, or property.
These measures are part of an overall strategy to implement community adaptability in the wildfire environment.

Public Resources Code Section 4291 and California Code of Regulations (CCR) 1299.1

A state law, effective in January 2019, this section requires 100-foot defensible space clearance around homes and structures for wildfire protection, but not beyond the property line. The code applies to all lands that have

flammable vegetation. The regulations include several requirements for how the vegetation surrounding buildings and structures should be managed to create defensible space.

Public Resources Code 4292-93, 4296 and 14 CCR 1256: Fire Prevention for Electrical Utilities

These statutes and regulations address the vegetation clearance standards for electrical utilities. They include the standards for clearing around energy lines and conductors such as power line hardware and power poles. These regulations are critical to wildland fire safety because of the substantial number of power lines in wildlands, the historic source of fire ignitions associated with power lines, and the extensive damage that results from wildfires caused by power lines in severe wind conditions.

Public Resources Code Section 4296.5 – Railroads – CCR 1290 Railroad Right-Of-Ways

Established in 1999, this code empowers the Board Director to adopt regulations establishing fire prevention and hazard reduction standards that any Railroad Corporation or person owning a Railroad in this state must abide by. The resulting formulated PRC 4296.5 regulations are found in the California Code of Regulations (CCR's), Title 14; Article 2; Sections 1290 through 1295.

Public Resources Code Section 4421-4446 – Prohibited Activities

This series of codes specifies the prohibited human actions regarding setting fire or causing fire to be set to any forest, brush, or other flammable material which is on any land that is not his own, or under his legal control, without the permission of the owner, lessee, or agent of the owner or lessee of the land. Proper burn permitting needs are identified. Prohibited actions involving use of non-compliant industrial and/or mechanical equipment is also cited.

Public Resources Code 4741 – Wildland Fire Prevention and Vegetation Management

In accordance with policies established by The Board, CAL FIRE shall assist local governments in preventing future wildland fire and vegetation management problems by making its wildland fire prevention and vegetation management expertise available to local governments to the extent possible within the department's budgetary limitations. The Department of Forestry recommendations shall be advisory in nature and local governments shall not be required to follow such recommendations.

Government Code 51175-51189: Chapter 6.8 – Very High Fire Hazard Severity Zones

This code defines Very High Fire Hazard Severity Zones (VHFHSZ) and designates lands considered by the State to be a very high fire hazard. The purpose of this chapter is to classify lands in the state in accordance with whether a very high fire hazard is present so that public officials are able to identify measures that will retard the rate of spread, and reduce the potential intensity, of uncontrolled fires that threaten to destroy resources, life, or property, and to require that those measures be taken. For more detail and a discussion regarding wildland fire hazard severity in general and VHFHSZ's specifically, see Section 5.1.

Government Code 51189: WUI Building Standards (referenced from Ch. 6.8 in paragraph above, for emphasis)

This code directs the Office of the State Fire Marshal to create building standards for wildland fire resistance. The code includes measures that increase the likelihood of a structure withstanding intrusion by fire (such as building design and construction requirements that use fire-resistant building materials) and provides protection

of structure projections (such as porches, decks, balconies and eaves) and structure openings (such as attics, eave vents, and windows). For more details and further discussion on WUI building standards, see Section 5.4.

Government Code 65302.5: General Plan Fire Safety Element Review

This statute requires the Board to provide recommendations to a local jurisdiction's General Plan fire safety element at the time that the General Plan is amended. While not a direct and binding fire prevention requirement for individuals, General Plans that adopt the Board's recommendations will include goals and policies that provide contemporary fire prevention standards for the jurisdiction.

California Health and Safety Code: DIVISION 12. Fires and Fire Protection; Chapter 1 Liability in Relation to Fires; Section 13000

Every person is guilty of a misdemeanor who allows a fire kindled or attended by him to escape from his control or to spread to the lands of any person other than the builder of the fire without using every reasonable and proper precaution to prevent the fire from escaping.

California Civil Code 1103.C.3 : Law Governing Natural Hazard Disclosure

This code deals with the Transfer of Real Property and the Disclosure of Natural and Environmental Hazards: Article (3) states "A transferor of real property that is located within a very high fire hazard severity zone, designated pursuant to Section 51178 of the Government Code, shall disclose to any prospective transferee the fact that the property is located within a very high fire hazard severity zone and is subject to the requirements of Section 51182 of the Government Code". Details go on to include information regarding property transferor, information regarding agency, county assessor and map documentation.

California Emergency Services Act – Chapter 7, Section 8550-8551 (CESA)

The CESA ensures preparations within California will be adequate to deal with natural, manmade, or war- caused emergencies. It declares it necessary to give the Governor, chief executives and governing bodies of political subdivisions of the state emergency powers to provide for state assistance in the organization and maintenance of emergency programs The Act created the Office of Emergency Services, within the office of the Governor, and gave it the powers and duties to (1) provide for the assignment of functions to state entities to be performed during an emergency and for the coordination and direction of the emergency actions of those entities; (2) provide for the rendering of mutual aid by the state government and all its departments and agencies and by the political subdivisions of the state in carrying out the purposes of this chapter; and (3) authorizes the establishment of organizations and directing actions necessary to protect the health and safety and preserve the lives and property of the people of the state.

It further declared the purpose of Chapter 7 and the policy of the state that all emergency services functions of the state be coordinated, as far as possible, with the comparable functions of its political subdivisions, of the federal government including its various departments and agencies, of other states, and of private agencies of every type, to the end that the most effective use may be made of all manpower, resources, and facilities for dealing with any emergency that may occur.

SB 160 – Emergency Services. Cultural Competence. Chapter 402, 2019

Measure requires cities and counties to integrate cultural competency in the next regular update to their

emergency plan. It requires city and county local emergency managers to incorporate cultural competence into emergency plans, upon its next update, and at a minimum, describe how all cultural populations within its jurisdiction are served by emergency notifications, evacuations, sheltering, mitigation, prevention, planning, and preparedness. It requires cities and counties, when updating emergency plans, to provide a forum for community engagement in geographically diverse locations to engage with culturally diverse communities.

SB 167 – Electrical Corporations. Wildfire Mitigation Plans. Chapter 403, 2019

Measure requires each electrical corporation, as part of submitting their wildfire mitigation plans to the CPUC, to additionally include the impacts on customers who are receiving medical baseline allowances as part of their protocols related to mitigating the public safety impacts of disabling reclosers and de-energizing portions of the electrical distribution system.

SB 190 – Fire Safety. Building Standards. Defensible Space Program. Chapter 404, 2019

Measure requires the SFM to develop both a model defensible space program and a WUI Fire Safety Building Standards Compliance training manual. It requires the SFM; to develop a model defensible space program for use by a city or county in the enforcement of existing defensible space provisions in law and consult with representatives from local, state, and federal fire services, local governments, building officials, utility companies, the building industry, and the environmental community. If a defensible space program is adopted, the local agency for enforcement of this program must have the authority to recover the actual cost of abatement and must have the authority to place it as a special assessment or lien on the property. In addition, it requires the SFM to develop, and update on a regular basis, a WUI products handbook listing products and construction systems that comply with the WUI Fire Safety building standards for: Exterior wall siding and sheathing; Exterior windows; Under eaves, including eave and cornice vents; Decking; Treated lumber and ignition-resistant materials; and Wood shakes and shingles roofing materials.

SB 465 – Property Assessed Clean Energy Program. Wildfire Safety Improvements. Chapter 837, 2018

Measure expands, until January 1, 2029, Property Assessed Clean Energy (PACE) financing to allow cities and counties in very high fire hazard severity zones to authorize contractual assessments for property owners to finance wildfire safety improvements. Eligible wildfire safety improvements are improvements identified by CAL FIRE that can be fixed to an existing residential, commercial, industrial, agricultural or other building or structure, including ember-resistant roofs, dual-paned windows, driveways, and various ignition-resistant products such as walls, decks, and patio covers. This measure outlines a procedure to be taken by the local agency before PACE financing can be used for wildfire improvements.

SB 560 – Wildfire Mitigation Plans. De-energizing of Electrical Lines. Notifications. Mobile Telephony Service Providers. Chapter 410, 2019

Measure requires public and private utilities to notify all public safety offices, critical first responders, health care facilities, and operators of telecommunications infrastructure with premises within the footprint of potential de-energization for a given event. This measure also requires telecommunications providers to designate points of contact within the company to receive notifications from public and private utilities in anticipation of possible de-energization events and to notify stakeholders, such as public safety offices and emergency response offices, about the impacts to communications capabilities during such events.

SB 670 – Telecommunications. Community Isolation Outage. Notification. Chapter 412, 2019

Measure requires telecommunications providers to notify the Governor's Office of Emergency Services (CalOES) whenever there is an outage limiting the ability for customers to make 911 calls or receive emergency notifications within 60 minutes of discovering the outage. It also requires CalOES to notify the affected county office(s) of emergency services, the sheriff of any county, and any public safety answering point affected by the outage.

SB 901 – Wildfires. Chapter 626, 2018

Measure provides numerous changes concerning wildfire prevention and recovery. These include changes to: forest management and fuel reduction; mutual aid; wildfire mitigation planning by electric utilities; cost recovery for wildfire-related damages; funding opportunities from the Greenhouse Gas Reduction Fund (GGRF) for forest health; fire prevention and fuel reduction projects; a $200 million annual appropriation for forest health and fire prevention programs; and comprehensive streamlining of landscape and forestry management practices to enhance fire prevention activities.

SB 979 – Water Quality, Supply, and Infrastructure Improvement Act of 2014: Protecting Rivers, Lakes, Streams, Coastal Waters, and Watersheds

This Act is a useful reference during planning and implementation of fuel treatment projects to reduce wildfire risk, because it can help to ensure those projects account for the protection and restoration of California's rivers, lakes, streams and watersheds, protect watersheds tributary to water storage facilities, and promote watershed health. It also determines priorities for water security, climate, and drought preparation.

SB 1260 – Fire Prevention and Protection. Prescribed Burns. Chapter 624, 2018

This measure is an omnibus fire prevention and forestry management bill with the intent of promoting long-term forest health and wildfire resiliency. It makes various changes related to local fire planning, prescribed fire requirements, and broader fire prevention efforts.

AB 38 – Defensible Space Inspections, 2021

Measure requires the seller of a residential property located in specified zones must submit documentation of compliance with locally adopted defensible space requirements prior to the close of escrow.

AB 836 – Wildfire Smoke Clean Air Centers for Vulnerable Populations Incentive Pilot Program. Chapter 393, 2019

Measure establishes the Wildfire Smoke Clean Air Centers for Vulnerable Populations Incentive Pilot Program. The grant program creates a network of clean air centers by providing funding to public facilities for smoke-protective filtration systems. The grant program prioritizes applications for projects located in a documented high smoke exposure area to mitigate the adverse public health impacts that result from wildfires and other smoke events. This measure sunsets on January 1, 2025.

AB 1054 – Chapter 79 – Public utilities: wildfires and employee protection

- Existing law authorizes the commission, in a proceeding on an application by an electrical corporation to recover costs and expenses arising from a catastrophic wildfire occurring on or after January 1, 2019, to allow cost recovery if the costs and expenses are just and reasonable, after consideration of the conduct of the utility, including consideration of specified factors.
- This bill would establish the California Wildfire Safety Advisory Board consisting of 7 members appointed by the Governor, Speaker of the Assembly, and Senate Committee on Rules, as provided, who would serve 4-year staggered terms. The bill would require the board, among other actions, to advise and make recommendations related to wildfire safety to the Wildfire Safety Division or, on and after July 1, 2021, the Office of Energy Infrastructure Safety, as established pursuant to AB 111 or SB 111 of the 2019–20 Regular Session.

AB 1877 – Office of Emergency Services. Communications. Notifications. Translation. Chapter 630, 2018

Measure requires the California Office of Emergency Services (CalOES) and the governing body of each political subdivision of the state to translate to the public any emergency communication into the most commonly spoken language other than English in the impacted county or counties. The measure authorizes CalOES to require a city, county, or city and county to translate emergency notifications as a condition of approving its application to receive any voluntary grant funds in connection to emergency management performance.

AB 1956 – Fire Prevention Activities. Local Assistance Grant Program. Chapter 632, 2018

The measure establishes a local assistance grant program through CAL FIRE to improve fire prevention in California and ensure that fire prevention activities happen year-round. This bill also requires local agencies, resource conservation districts, fire safe councils, the California Conservation Corps, certified local conservation corps, University of California (UC) Cooperative Extension, Native American tribes, and qualified nonprofit organizations to be eligible for grants.

AB 2911 – Fire Safety. Chapter 641, 2018

Measure makes changes to fire safety planning efforts, defensible space requirements, and electrical transmission or distribution lines' vegetation clearance requirements with the intent to improve the fire safety of California communities. Specifically, this measure:

- Requires a local agency to transmit a copy of its adopted ordinance designating very high fire hazard severity (VHFHS) zones to the Board of Forestry and Fire Protection (Board);
- Removes exemptions from requirement that a local agency designate, by ordinance, very high fire hazard severity zones in its jurisdiction within 120 days of receiving recommendations from the director of CAL FIRE;
- Requires the Office of State Fire Marshal (OSFM), in consultation with CAL FIRE and the Director of Housing and Community Development (HCD) to recommend building standards that provide for comprehensive site and structure fire risk reduction to protect structures from fire risk;
- Requires the OSFM, in consultation with CAL FIRE and HCD to develop a list of low-cost retrofits that provide for comprehensive site and structure fire risk reduction to protect structures from fire risk;
- Requires CAL FIRE to incorporate the list in its fire prevention education and outreach efforts;

- Requires, before July 1, 2020, the Office of Planning and Research to update the guidance document entitled "Fire Hazard Planning General Plan Technical Advice Series" and update not less than once every eight years;
- Authorizes the Board, within 15 days of receipt of notification that its fire prevention recommendations will not be accepted by the local government, to request a consultation, prior to approval of the draft element or amendment, conducted in person, electronically, or by phone;
- Requires on or before July 1, 2021, and every five years thereafter, the Board, in consultation with the SFM, to survey local governments to identify existing subdivisions in SRA or VHFHS zones without a secondary egress route that are at significant fire risk; and
- Authorizes owners of any electrical transmission or distribution line to traverse land as necessary, regardless of land ownership or permission from the owner, after providing notice and an opportunity to be heard to the land owner, to prune trees to maintain and to abate, by pruning or removal, any hazardous, dead, rotten, diseased, or structurally defective live trees.

B.3 County Level Policy & Regulations

El Dorado County General Plan Safety Element (2024)

The Public Health, Safety, and Noise Element of the El Dorado County General Plan is consistent with requirements set forth in the California Government Code Section 65302 and other applicable sections. It sets forth planning strategies for fire hazards, seismic hazards, flood hazards, noise, hazardous materials, air quality, airport safety, and highway safety.

El Dorado County Local Hazard Mitigation Plan (2018)

This Local Hazard Mitigation Plan is an update to the 2012 Federal Emergency Management Agency (FEMA) approved El Dorado County Multi-Hazard Mitigation Plan. The purpose of this plan is to guide hazard mitigation planning to better protect the people and property of the County from the effects of hazard events. The El Dorado LHMP update is a multi-jurisdictional plan that geographically covers the entire area within El Dorado County's jurisdictional boundaries. The following jurisdictions participated in the planning process: El Dorado County, El Dorado County Office of Education and all school districts in El Dorado County, El Dorado Irrigation District, South Lake Tahoe Public Utility District (STPUD).

Western El Dorado County Community Wildfire Protection Plan Update (2022)

The Update to the 2017 El Dorado County CWPP provides the communities an opportunity to update their previous projects and plans as well as input from the stakeholder, local fire protection districts, CAL FIRE and federal land management agencies to give input and recognize the needs of the communities that surround their property responsibilities for protecting their land as well as the homes and private properties adjacent to them.

El Dorado County Multi-Jurisdictional Hazard Mitigation Plan Public Review Draft (2024)

This Multi-Jurisdictional Hazard Mitigation Plan is an update to the 2019 El Dorado County Local Hazard Mitigation Plan approved by FEMA. See "El Dorado County Local Hazard Mitigation Plan (2018)" for the purpose of the plan. The following jurisdictions participated in the planning process: El Dorado County, City of Placerville, Cameron Park Community Services District, El Dorado County Office of Education, Georgetown Divide Public Utilities District.

El Dorado County Emergency Operations Plan (2023)

The El Dorado County / Operational Area Emergency Operations Plan addresses El Dorado County's planned response to extraordinary situations, associated with natural disasters, technological (man- made) emergencies, acts of war and terrorism. The operational concepts reflected in this plan focus on large-scale emergencies and disasters that often generate situations requiring planned and coordinated responses by multiple disciplines.

El Dorado County 2024 Strategic Plan

El Dorado County's Strategic Plan outlines goals, objectives, and priorities in five critical areas: Safe & Healthy Communities, Public Infrastructure, Workforce Excellence, Thriving Economy, and a new focus on Strategic Innovation.

B.4 Regional Level Policy & Regulations

Pacific Gas & Electric Wildfire Mitigation Plan Report (2021)

The 2021 Plan continues many of the actions undertaken in PG&E's 2019 and 2020 WMPs. It includes a focus on more precise, technology-based approaches to measure and mitigate wildfire risk, lessons learned implementing the 2020 WMP, and feedback received from the Wildfire Safety Division, PG&E's Federal Monitor, and others as to areas that can be improved and gaps that should be addressed. This Plan has three overarching goals: reducing wildfire ignition risk, enhancing wildfire risk situational awareness, and reducing the impact of PSPS events.

SMUD 2023-2025 Wildfire Mitigation Plan

SMUD's Wildfire Mitigation Plan (WMP) builds on successes with implementing best practices and lessons learned from prior revisions and reflects continued progress made on risk reduction projects and programs. SMUD's service area is outside of CPUC's High Fire Threat District's (HFTD) Tier 2 and Tier 3 areas. SMUD does own and operate transmission lines and hydro power plants located in El Dorado County, which is within HFTD Tier 2 and Tier 3.

2024 and 2025 Strategic Fire Plans — CAL FIRE Amador-El Dorado Unit

The Unit Strategic Fire Plan aims to reduce the loss of life, property, watershed values, and other assets at risk from wildfire through a focused pre-fire management program and increased initial attack success. It identifies and prioritizes pre-fire and post fire strategies and tactics meant to reduce the loss of values at risk within the Unit.

Eldorado National Forest Land and Resource Management Plan (1989)

The Forest Plan's intent is to direct the management of the Eldorado National Forest and set long-range goals and objectives. Forest lands are assigned to different resource uses, and the location and occurrence of forest practices are scheduled. Environmental protection is gained by applying the management requirements to the approved Forest activities. The Plan meets legal requirements and deals with local, state, and national issues. There have been a number of amendments to the plan since 1989, most recently in June 2020.

B.5 Local Level Policy

City of Placerville Community Wildfire Resiliency Strategy (2025)

This strategy will serve as a blueprint for reducing property damage and saving lives from the effects of future wildfire disasters in and around Placerville. This is accomplished by developing, prioritizing, and implementing wildfire mitigation programs and projects to achieve community wildfire resilience.

Diamond Springs – El Dorado Fire Protection District Long-Range Master Plan & Strategic Plan (2022)

El Dorado Hills Fire Department Strategic Plan 2017-2022

Mosquito Fire Protection District Strategic Plan 2019-2023

The Fire Projection Districts and Fire Departments of El Dorado County have each produced a Strategic Plan to guide the department and for implementation of the key improvements and enhancements over the next three to five years. Each plan includes an evaluation of current conditions, projects of future demand, and recommendations for enhancements as well as an assessment of and recommendations around staffing, apparatus, and other resources.

El Dorado Hills Fire Department Community Risk Assessment, Standards of Cover Study, and Strategic Plan and Training Facilities Review (2016)

This study reviews the adequacy of the current fire station deployment system and other strategic plans to support the Board of Directors policy decisions. The assessment included a Standards of Coverage (deployment) assessment and the Strategic Plan and Training Facility review, along with maps that display fire unit travel time coverage.

El Dorado Hills Fire Department Community Wildfire Safety Plans

Wildland Fire Safe Plans (WFSPs) are produced for residential developments to assess the wildfire hazards and risks and protect lives, property, and native vegetation. These WFSPs build on basic rules and provide additional fire hazard reduction measures customized to the topography and vegetation of the development. Wildland Fire Safe Plans do not guarantee that wildfire will not threaten, damage or destroy natural resources, homes or endanger residents. The full implementation of mitigation measures will greatly reduce the exposure of homes to potential loss from wildfire and provide defensible space for Firefighters and residents as well as protect the native vegetation.

APPENDIX C. FIRE PLANNING UNIT STRATEGIES

As indicated in the main body of the report, wildfire hazard and community risk assessments were conducted to evaluate the threat of wildfire based on current fuel conditions and the location of highly valued resources and assets. The outputs of these analyses are key to understanding the current state of wildfire hazard and risk and prioritizing activities to reduce future impacts. See Sections 5.2 and 5.3 in the main body of the report for more detail about these analyses at the Planning Area scale.

In addition to considering hazard and risk across the entirety of the west slope, the Planning Area was subdivided into four (4) Fire Planning Units (FPU). The primary purpose of developing FPUs in fire management planning is to assist in organizing information on complex landscapes. FPUs divide the Planning Area into smaller geographic areas used to describe wildfire exposure to communities. Figure 108 shows the FPUs that were identified by the Steering Committee for the purpose of subdividing the county for the CWPP.

- FPU A – North
- FPU B – West
- FPU C – East
- FPU D – South

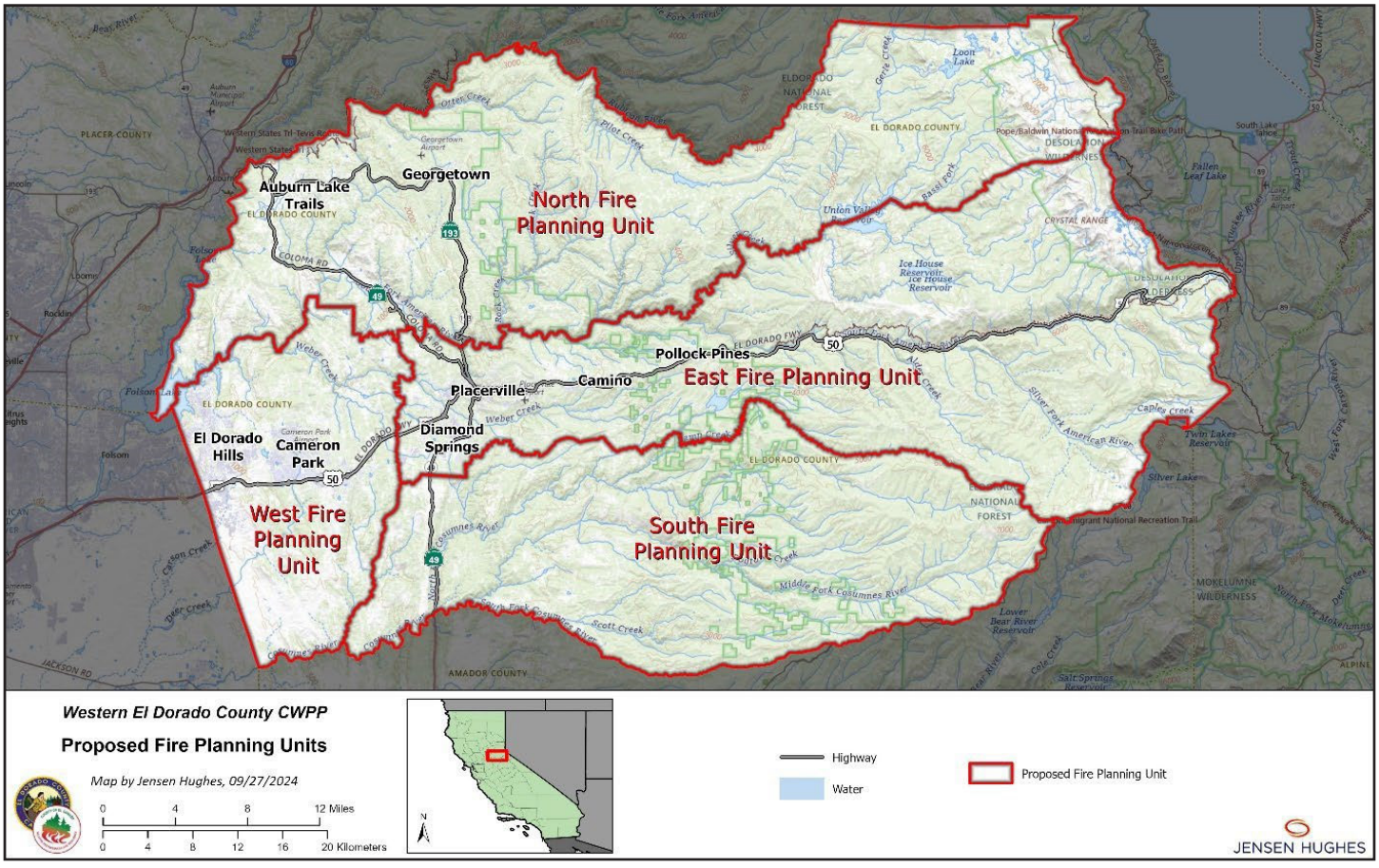


Figure 108. FPU Boundaries within the Planning Area

Table 29. Wildland Urban Interface Zone by Fire Planning Unit

FPU	WUI Zones	Acres	% of Area in FPU	# of Structures	% of Structures in FPU
North	Interface	774	0.2%	816	6.3%
	Intermix	23,808	7.15%	7,863	61.0%
	Influence	130,878	39.25%	2,957	22.9%
	Non-WUI	178,058	53.4%	1,263	9.8%
	Total	333,518	100.0%	12,899	100.0%
South	Interface	273	0.1%	211	2.2%
	Intermix	18,712	7.9%	5,294	54.8%
	Influence	99,844	42.0%	3,115	32.3%
	Non-WUI	118,595	50.0%	1,036	10.7%
	Total	237,424	100.0%	9,656	100.0%
West	Interface	14,056	11.8%	20,989	53.0%
	Intermix	32,173	27.0%	10,021	25.3%
	Influence	59,630	50.0%	3,358	8.5%
	Non-WUI	13,298	11.2%	5,222	13.2%
	Total	119,157	100.0%	39,590	100.0%
East	Interface	5,298	1.7%	8,053	36.1%
	Intermix	22,775	7.3%	10,242	46.0%
	Influence	66,685	21.3%	2,800	12.6%
	Non-WUI	218,075	69.7%	1,179	5.3%
	Total	312,833	100.0%	22,274	100.0%

C.1 Fire Planning Unit A – North

FPU A is the northern portion of the Planning Area and is approximately 333,518 acres. The west and north boundaries of this FPU follow the El Dorado County borders with Sacramento and Placer counties. The east boundary of the FPU is the Planning Area boundary at the Sierra Crest. The south boundary follows the South Fork of the American River from the county line east to the Rescue/Coloma Lotus FSC boundary. The boundary then follows the Rescue/Coloma Lotus Boundary south and east, and follows the southern boundaries of the Coloma Lotus, Georgetown and Mosquito FSCs. The boundary then follows the Slab Creek Reservoir and Brush Creek and continues northeast following multiple drainages to Union Valley Reservoir, then northeast to the Planning Area boundary (Sierra Crest).

The FPU includes interface (0.2% by area), intermix (7.15% by area), and influence zone (39.25% by area) WUI (as categorized by CAL FIRE). 90.2% of structures in the FPU are in one of these WUI zones, with the majority (61.0%) in intermix WUI. The majority of the eastern part of this FPU is Forest Service land (Figure 109). Figure 109 and Figure 110 show fire hazard and fire threat in this FPU where reds and oranges are areas at higher risk. See Sections 5.2.4 and 5.2.3 for a detailed description of these assessments.

Figure 111 shows important community assets in this FPU including government and community service buildings, recreation areas, transportation routes, utility infrastructure, agricultural lands, and environmentally sensitive and protected habitats. Figure 112 and Figure 113 show combinations of fire hazard, threat, and assets at risk and can be used to prioritize future projects in the FPU. Figure 114 shows current and planned fuel treatments.

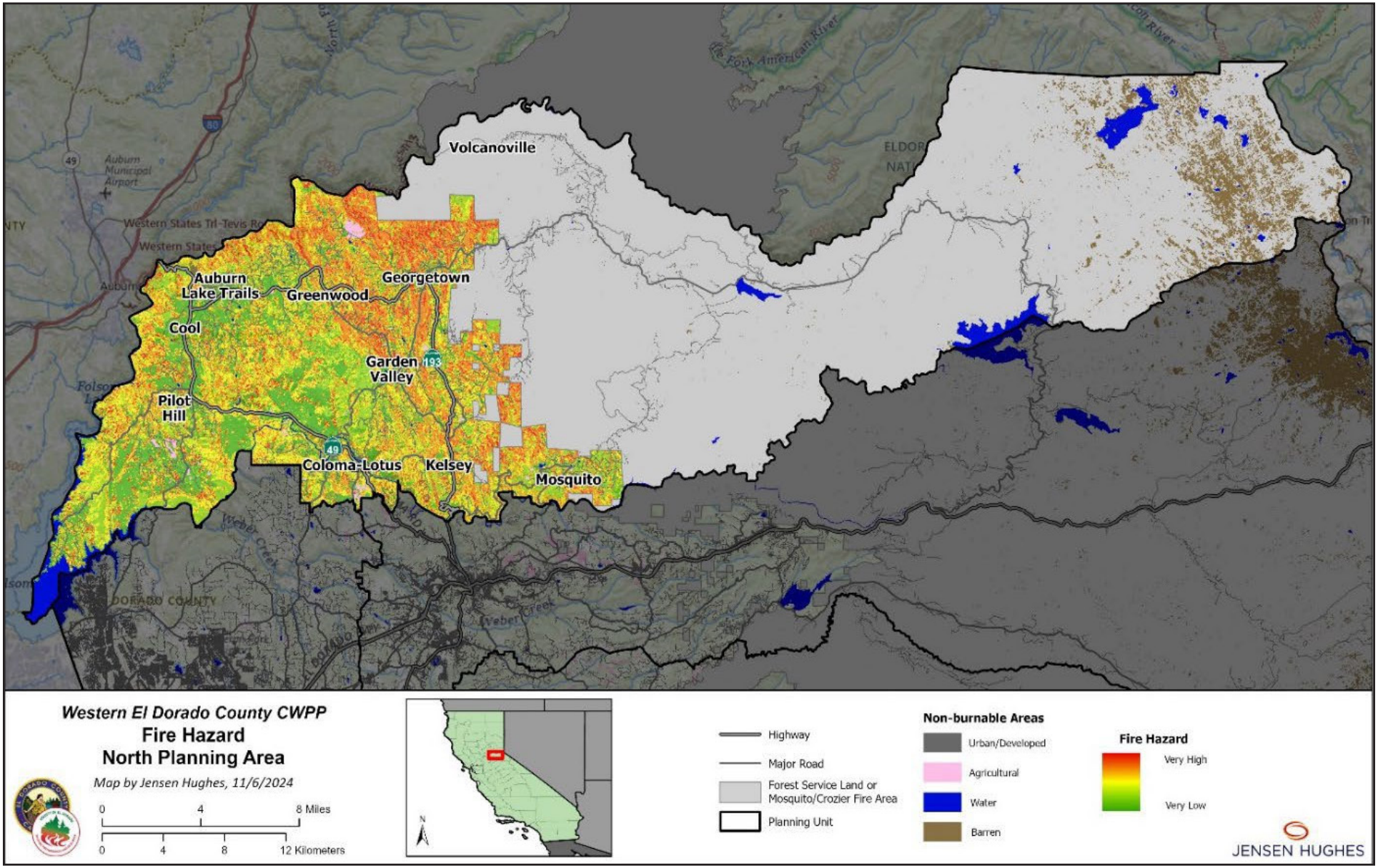


Figure 109. Fire Hazard in FPU A – North

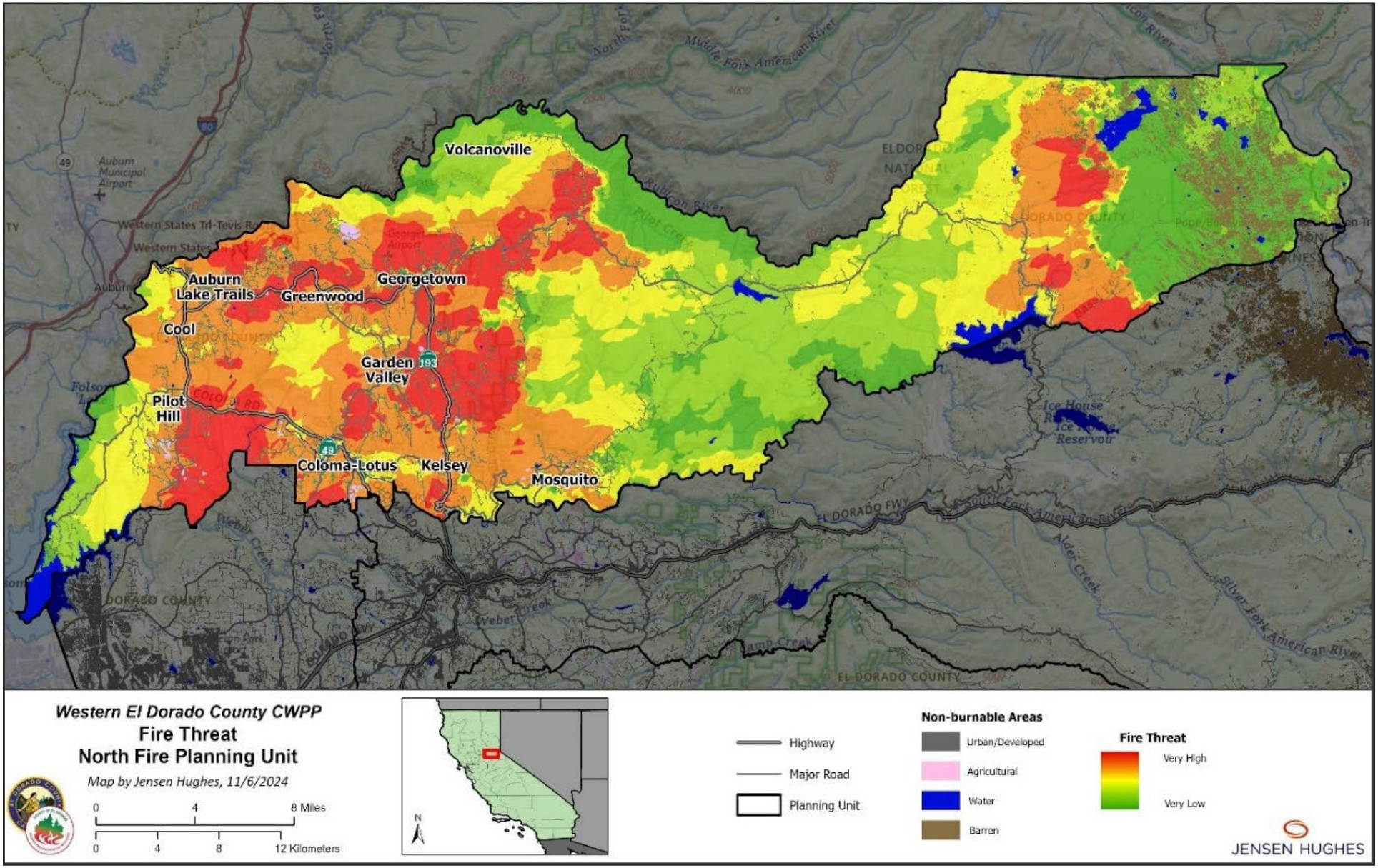


Figure 110. Fire Threat in FPU A – North

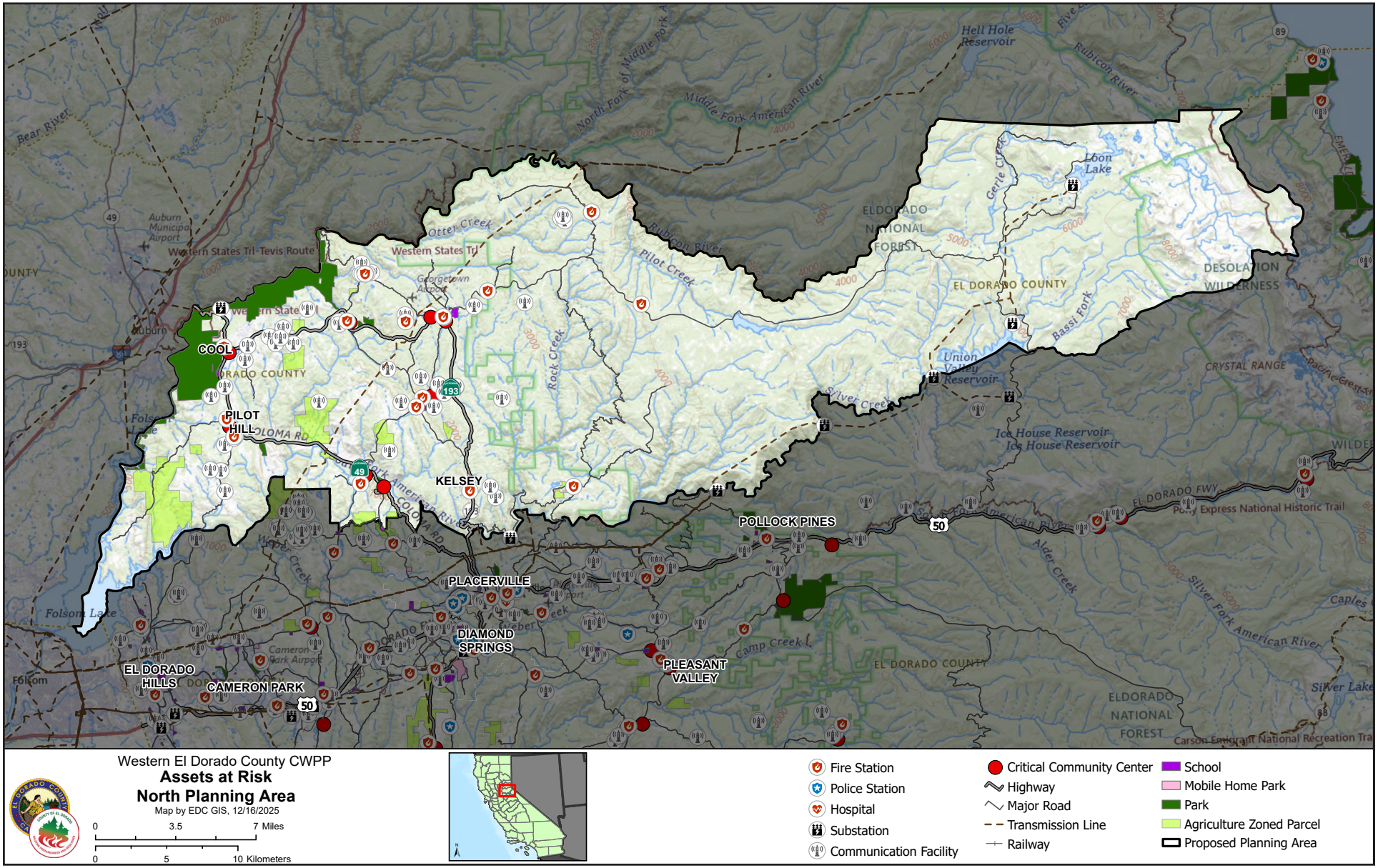


Figure 111. Assets at Risk in FPU A – North

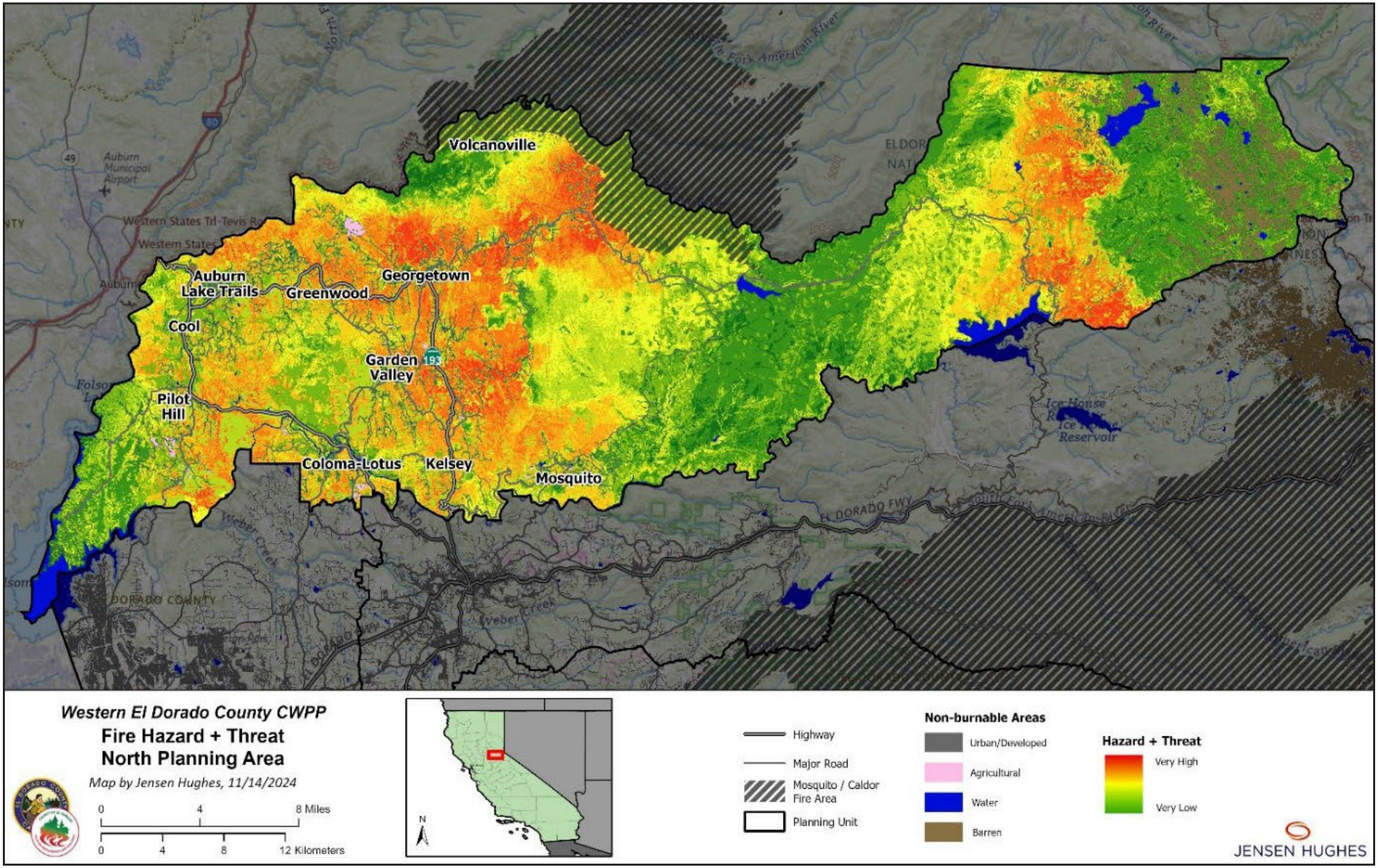


Figure 112. Fire Hazard + Threat in FPU A – North

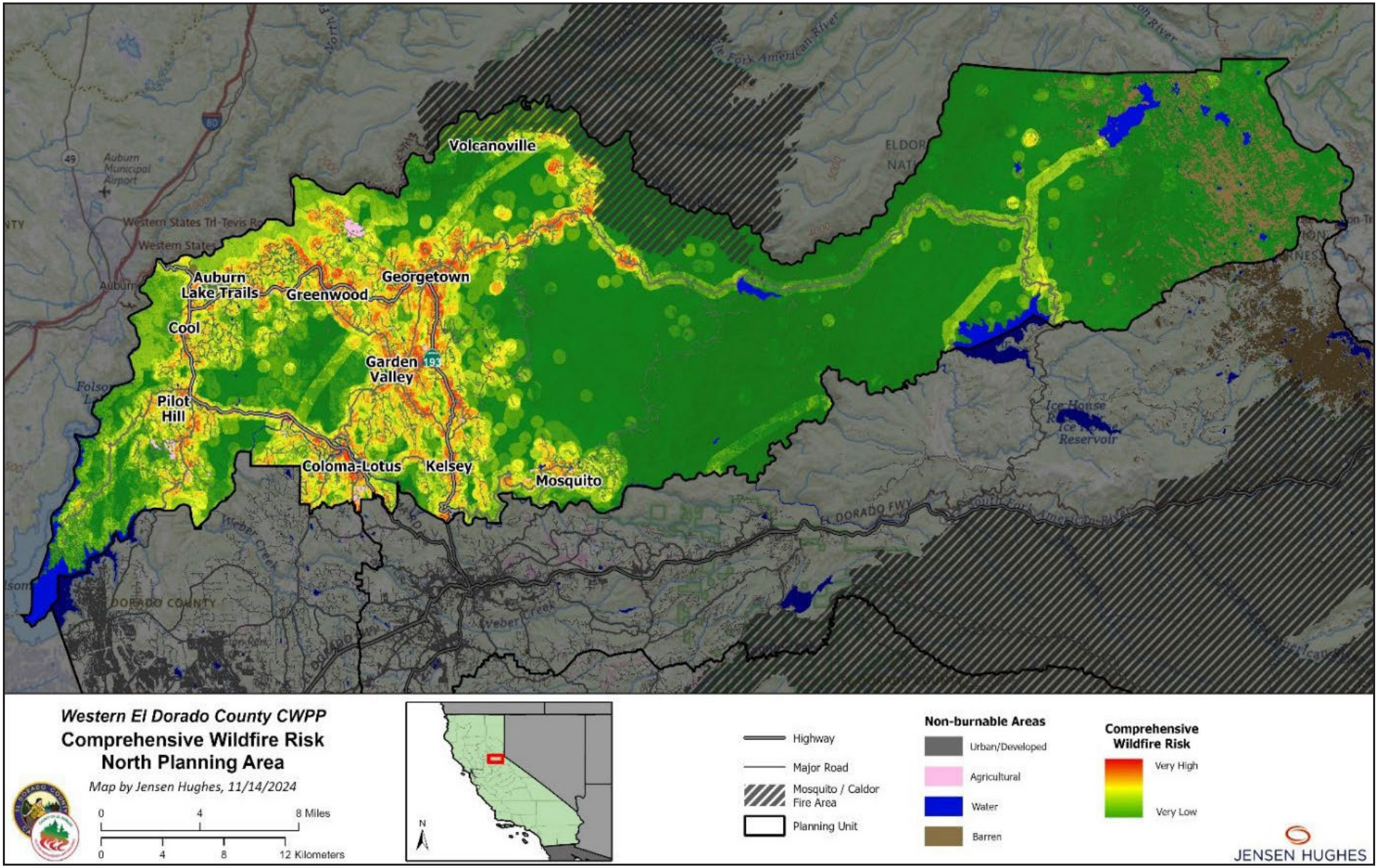


Figure 113. Comprehensive Fire Risk in FPU A – North

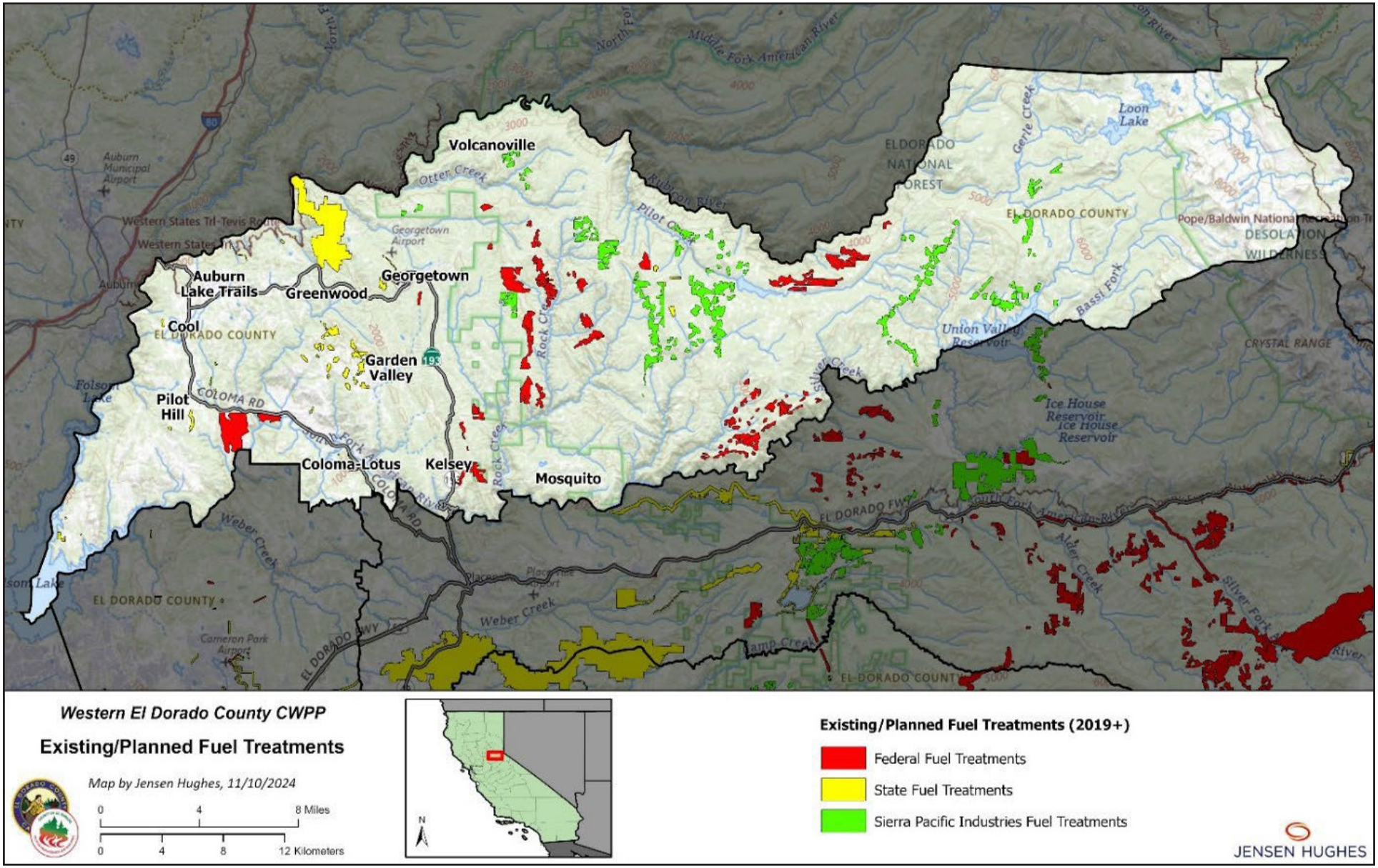


Figure 114. Existing / Planned Fuel Treatments in FPU A – North

C.2 Fire Planning Unit B – West

FPU B is the West portion of the Planning Area and is approximately 119,157 acres. The West boundary of the FPU is the boundary between El Dorado and Sacramento Counties. The northern boundary is the border with FPU A, described above. The West boundary extends south from the southwestern edge of the North Planning Area. The northeastern corner of this FPU is located at the Coloma-Lotus FSC boundary, bordered by Cold Springs Road and the West edge of the Placerville and Diamond Springs FSCs. The West boundaries of the Diamond Springs and Patterson Ranch FSCs form the eastern boundary of FPU B. The northern portion of the eastern boundary of FPU B is defined by Greenstone Road, between the intersection of Greenstone Road with Green Valley Road and with Motherlode Drive. The southern portion of the eastern boundary of FPU B is defined by Big Canyon Creek, from Motherlode Drive to the boundary between El Dorado and Amador County, which forms the southern boundary of FPU B. The FPU includes interface (11.8% by area), intermix (27.0% by area), and influence zone (50.0% by area) WUI (as categorized by CAL FIRE). 86.8% of structures in the FPU are in one of these WUI zones, with the majority (53.0%) in interface WUI. Figure 115 and Figure 116 show fire hazard and fire threat in this FPU where reds and oranges are areas at higher risk. See Sections 5.2.4 and 5.2.3 for a detailed description of these assessments.

Figure 117 shows important community assets in this FPU including government and community service buildings, recreation areas, transportation routes, utility infrastructure, agricultural lands, and environmentally sensitive and protected habitats. Figure 118 and Figure 119 show combinations of fire hazard, threat, and assets at risk and can be used to prioritize future projects in the FPU. Figure 120 shows current and planned fuel treatments.

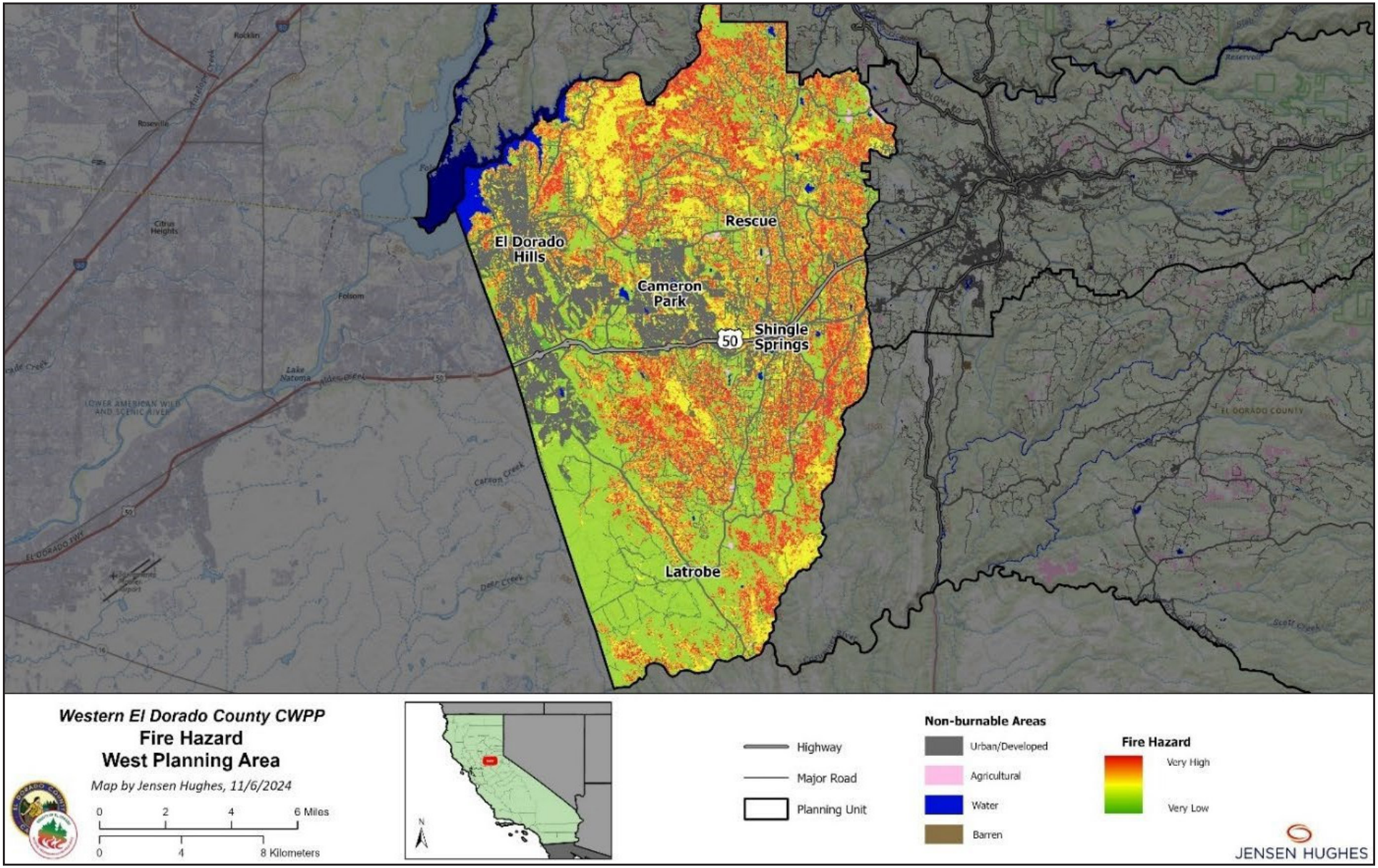


Figure 115. Fire Hazard in FPU B – West

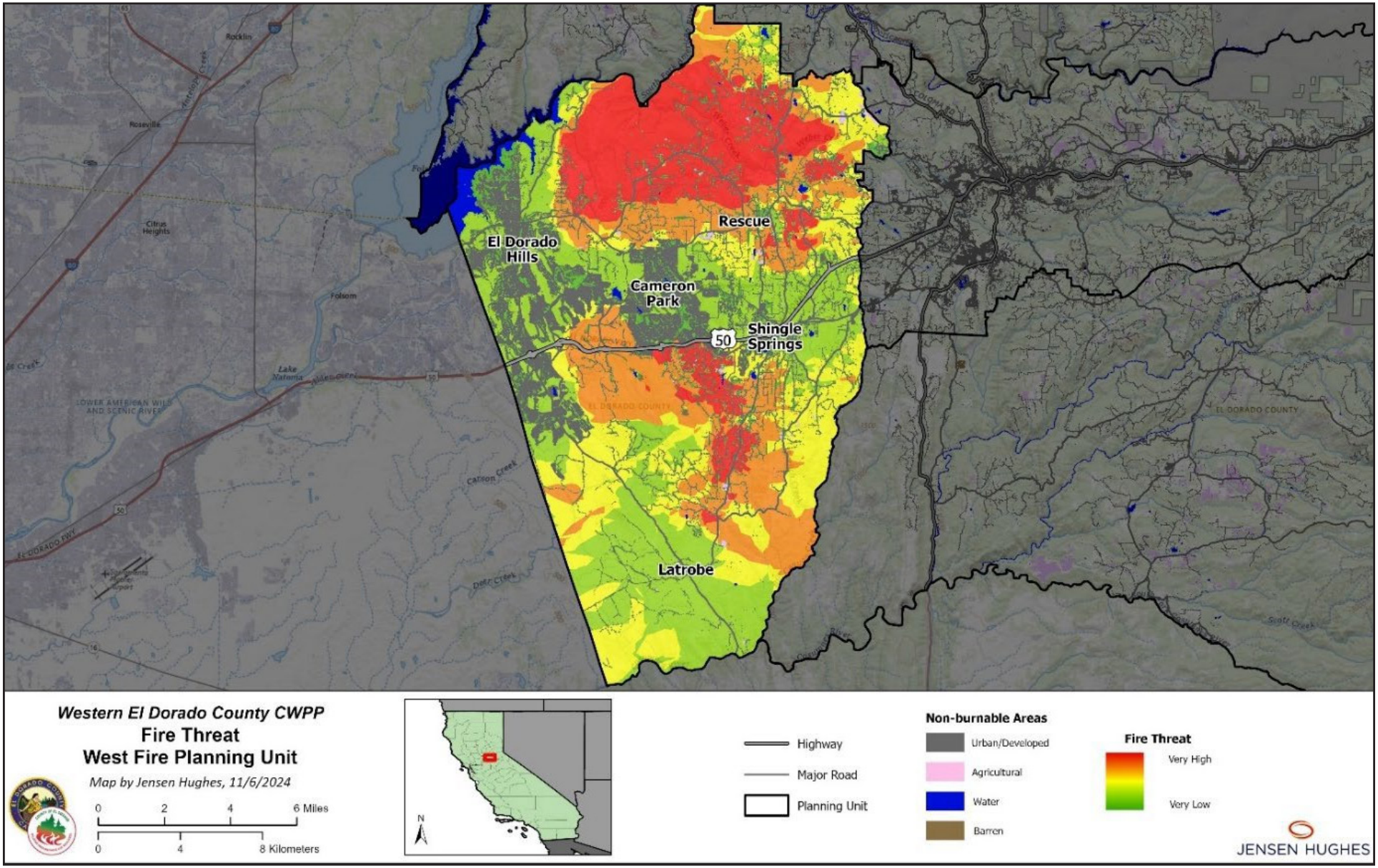


Figure 116. Fire Threat in FPU B – West

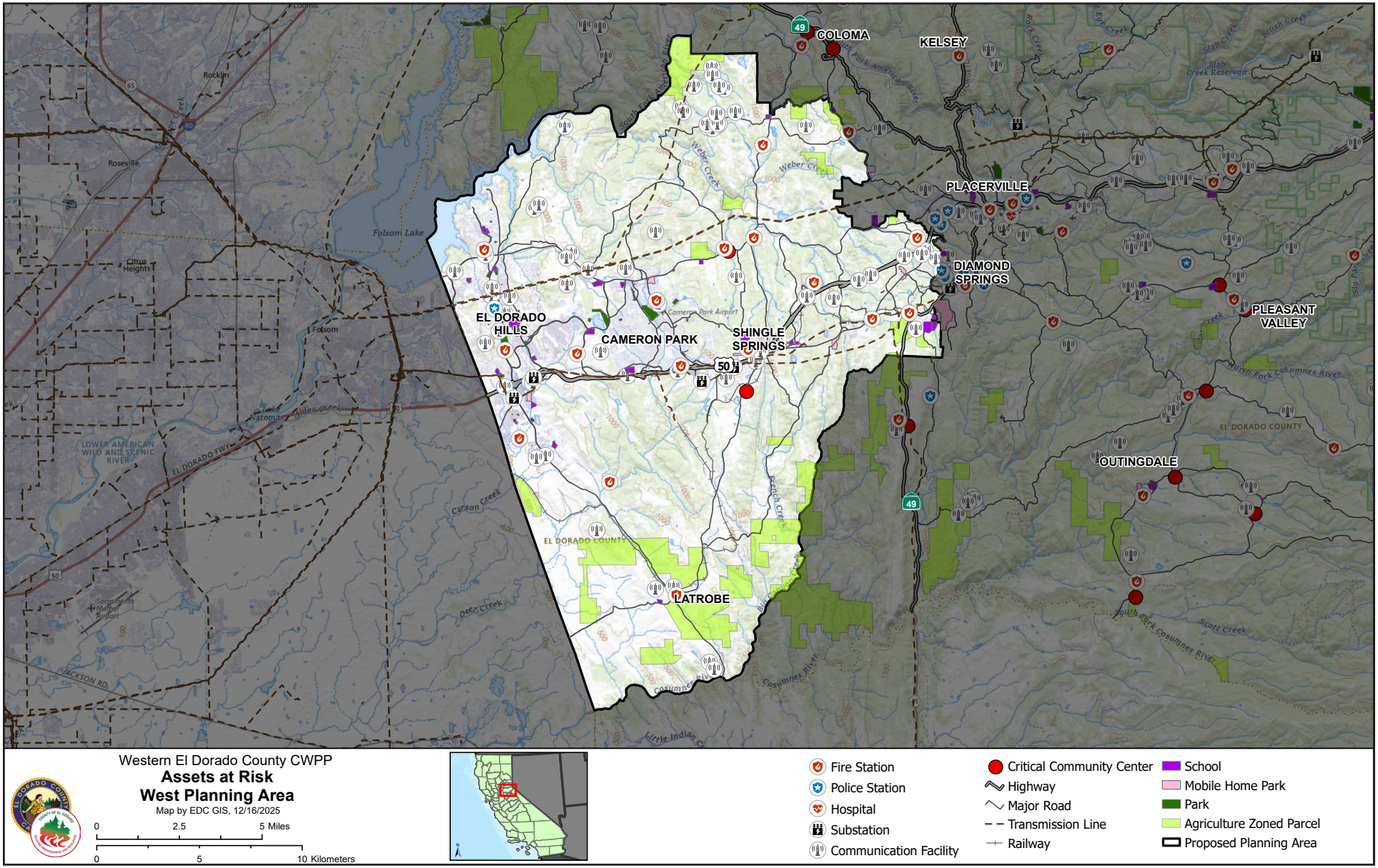


Figure 117. Assets at Risk in FPU B – West

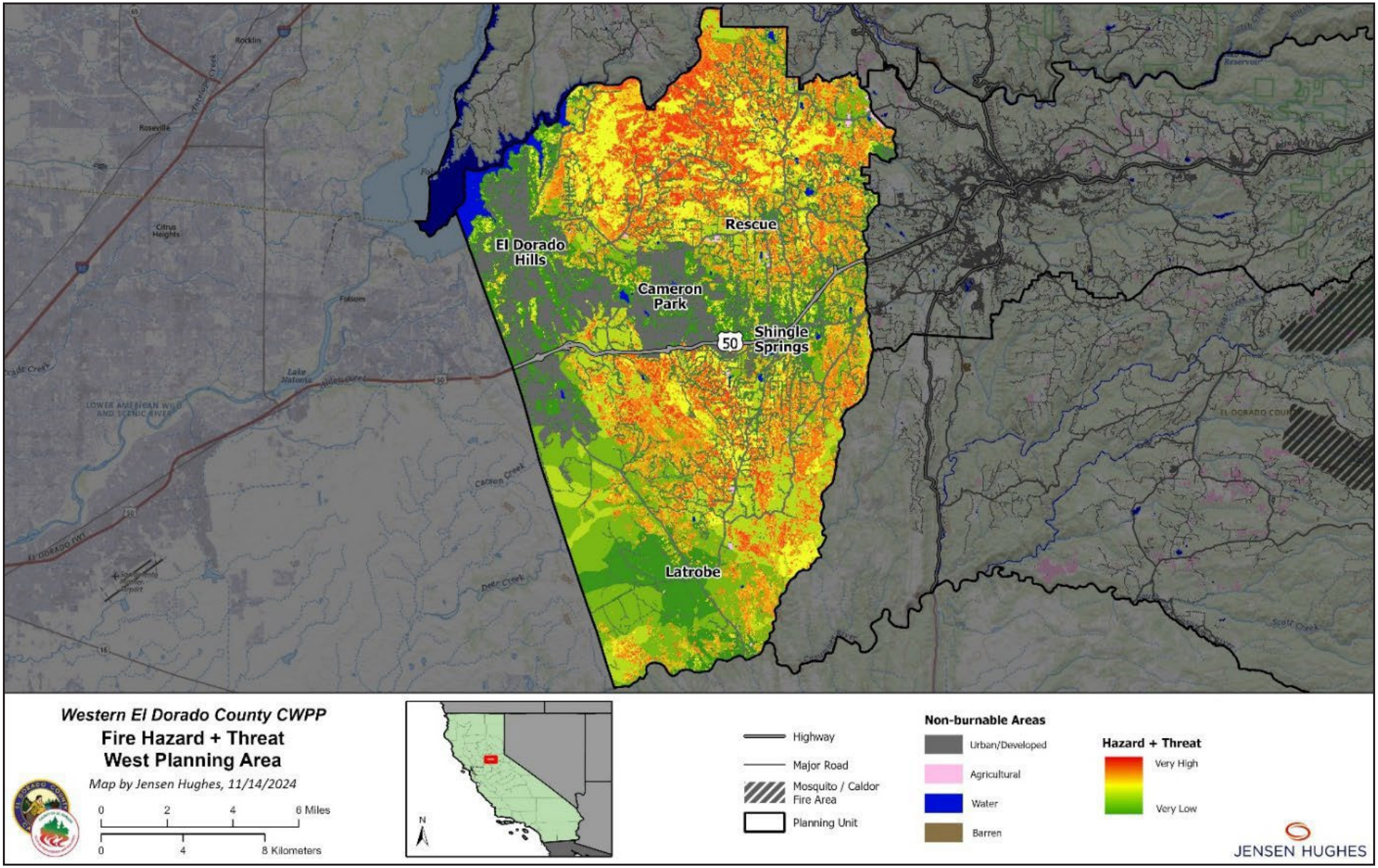


Figure 118. Fire Hazard + Threat in FPU B – West

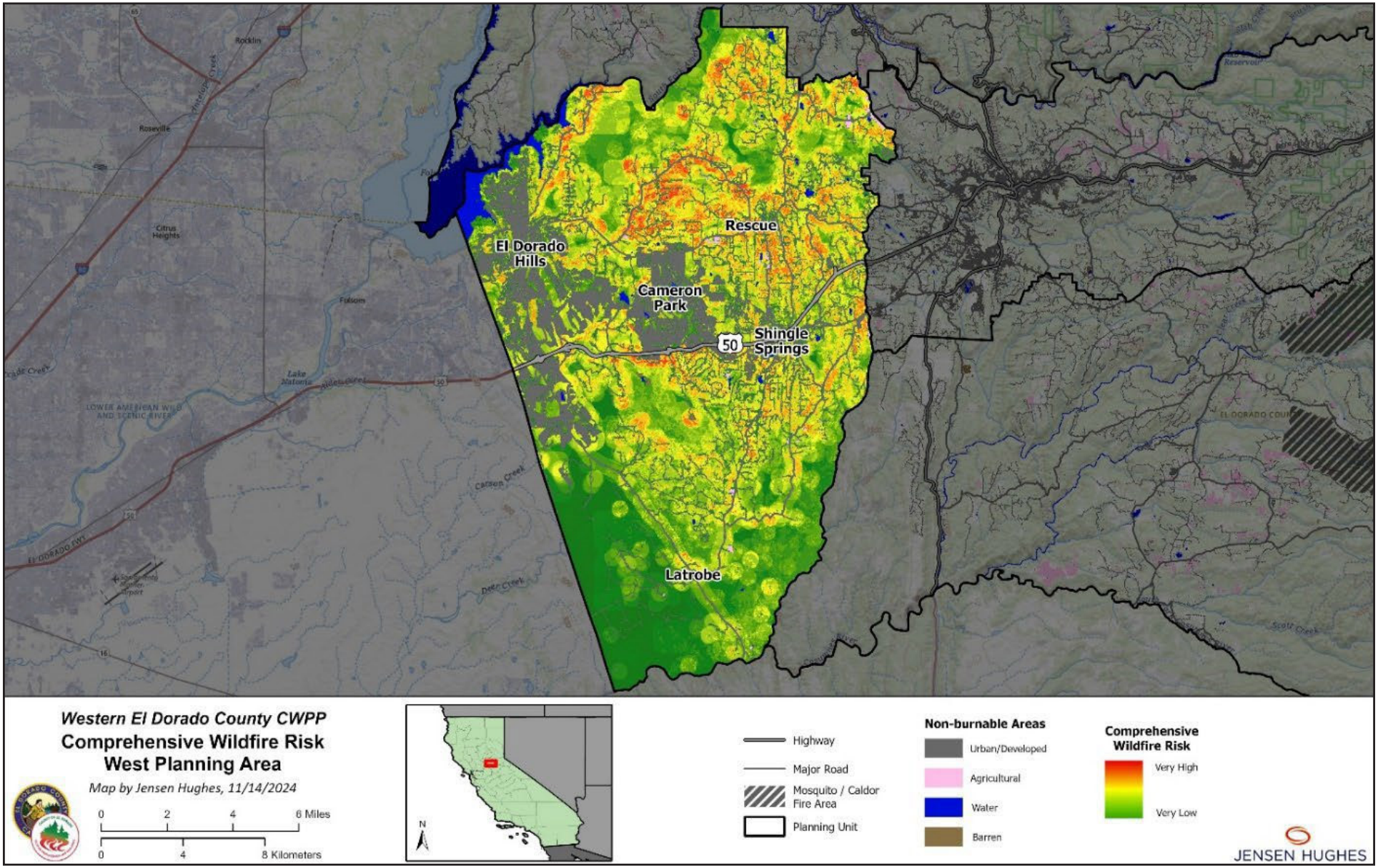


Figure 119. Comprehensive Fire Risk in FPU B – West

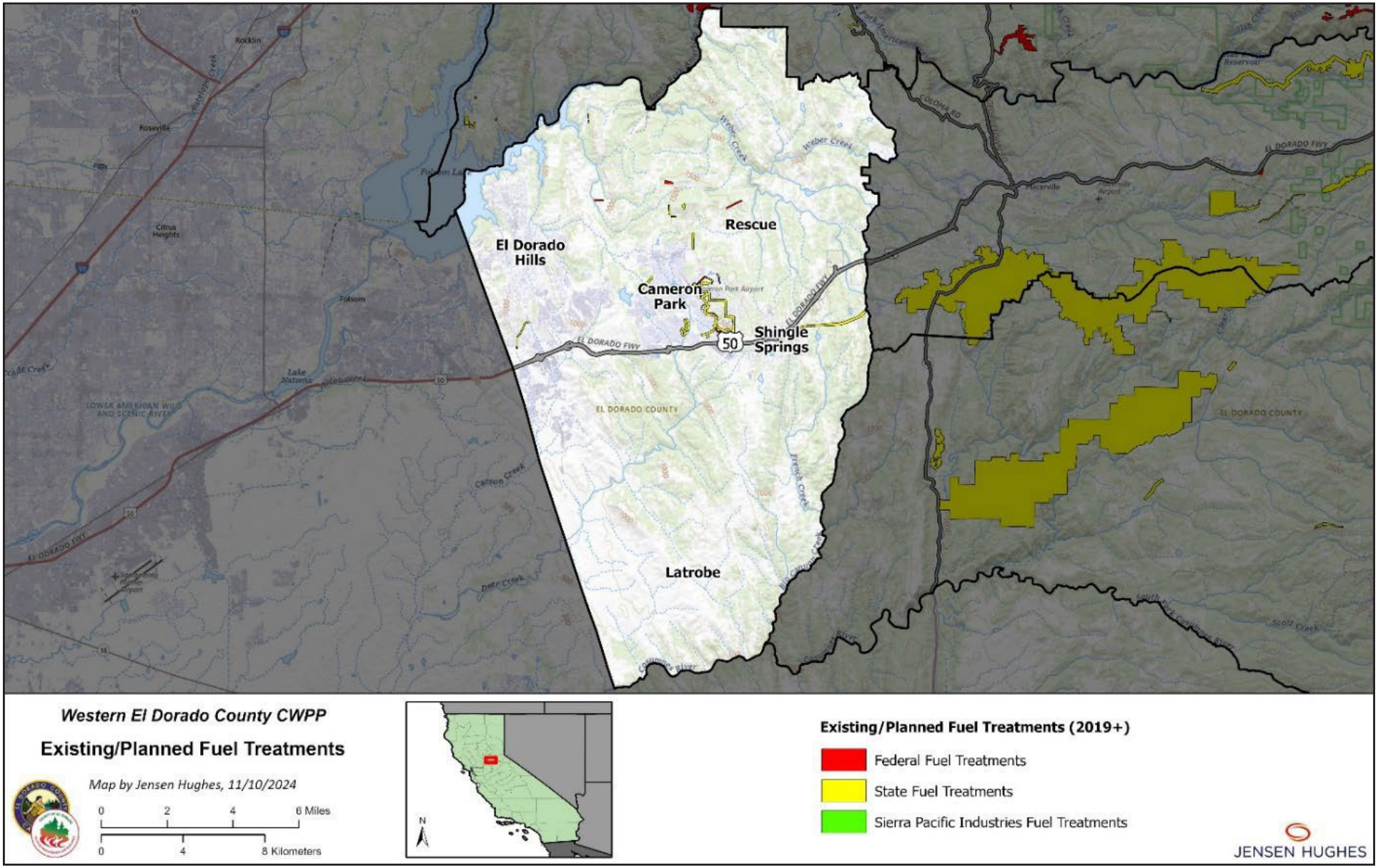


Figure 120. Existing / Planned Fuel Treatments in FPU B – West

C.3 Fire Planning Unit C – East

FPU C is the eastern planning unit, approximately 312,833 acres, and is located primarily between FPU A to the north, FPU B to the west, and FPU D to the south. The northern boundary of FPU C is defined by the southern boundary of FPU A from its departure from Cold Springs Road. The southern boundary of FPU C begins at west at the intersection of Gilmore Creek and Big Canyon Creek, then follows Gilmore creek east, before cutting east to follow the boundary between Patterson Ranch FSC and Oak Hill FSC. It then follows the northern boundary of Oak Hill FSC before connecting to Pleasant Valley Road and continuing east, then following Sly Park Road east to the southern boundary of Sierra Springs FSC, where it follows Camp Creek, to the Mormon Emigrant Trail south and east to the Planning Area boundary. The West edge of FPU C is defined by the northeastern boundary of FPU B. The eastern border of FPU C is the Planning Area boundary at the Sierra Crest.

The FPU includes interface (1.7% by area), intermix (7.3% by area), and influence zone (21.3% by area) WUI (as categorized by CAL FIRE). 94.7% of structures in the FPU are in one of these WUI zones, with the largest share (46%) in intermix WUI. The majority of this FPU is Forest Service land (Figure 121). Figure 121 and Figure 122 show fire hazard and fire threat in this FPU where reds and oranges are areas at higher risk. See Sections 5.2.4 and 5.2.3 for a detailed description of these assessments.

Figure 123 shows important community assets in this FPU including government and community service buildings, recreation areas, transportation routes, utility infrastructure, agricultural lands, and environmentally sensitive and protected habitats. Figure 124 through 125 show combinations of fire hazard, threat, and assets at risk and can be used to prioritize future projects in the FPU. Figure 126 shows current and planned fuel treatments.

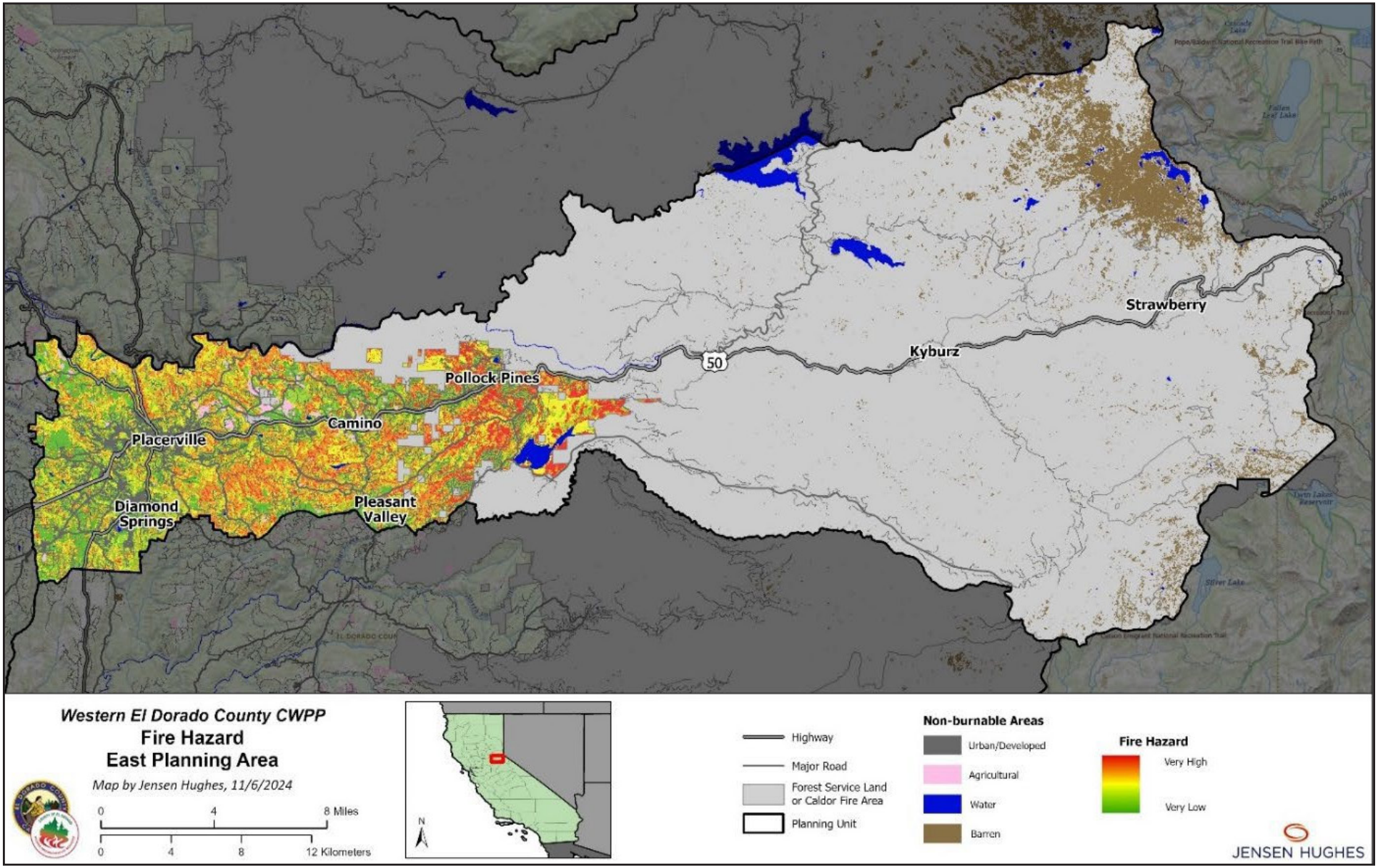


Figure 121. Fire Hazard in FPU C – East

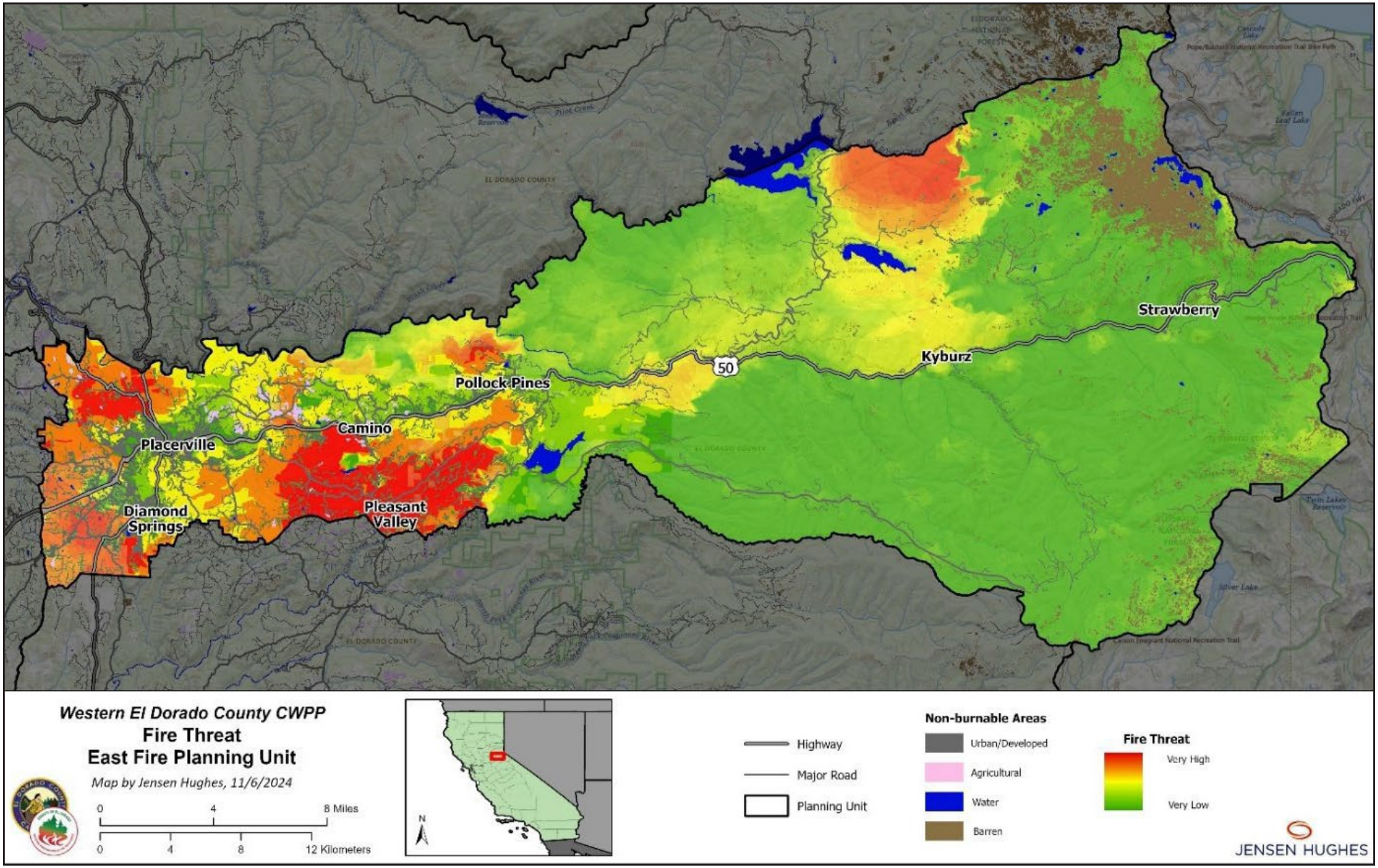


Figure 122. Fire Threat in FPU C – East

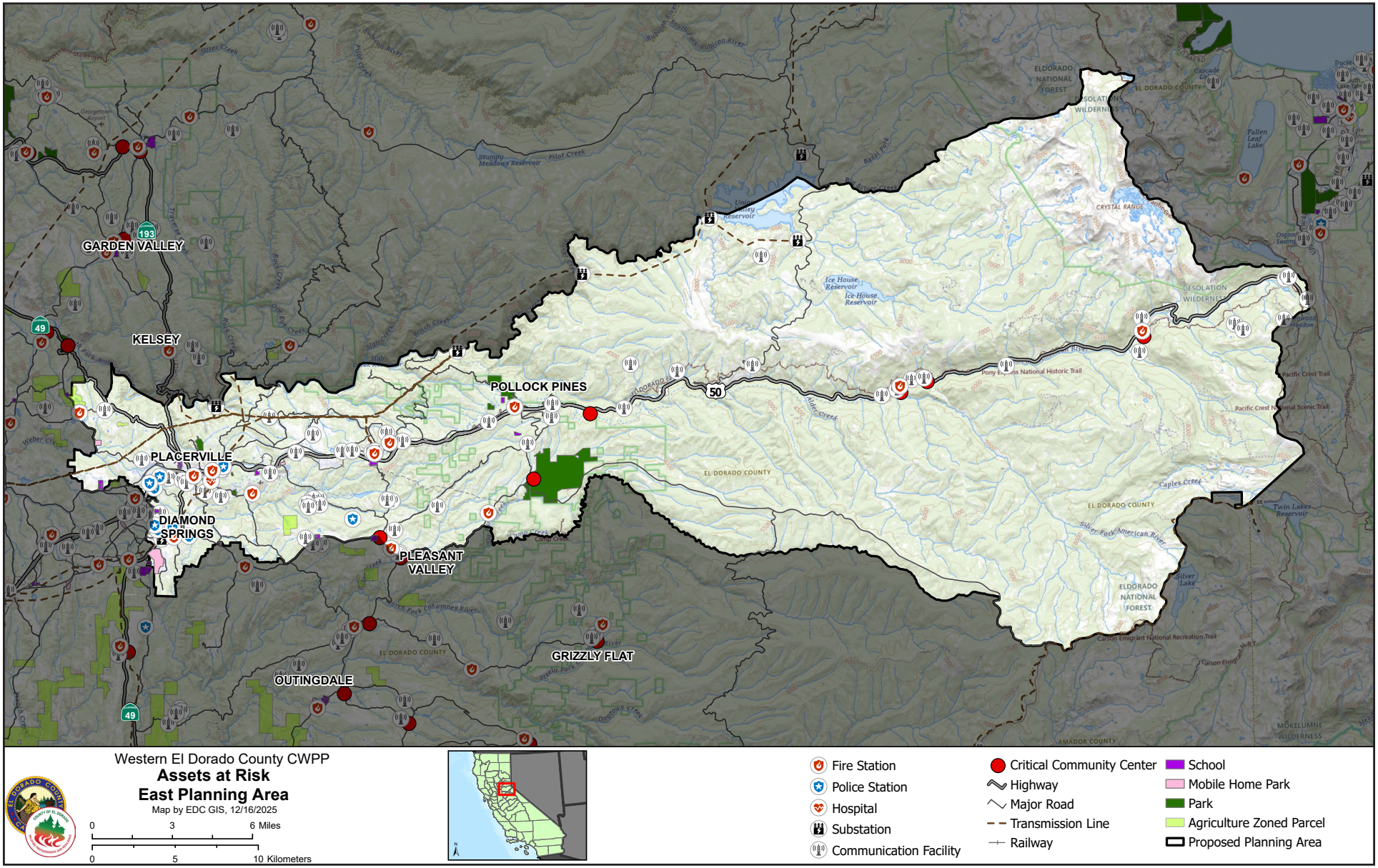


Figure 123. Assets at Risk in FPU C – East

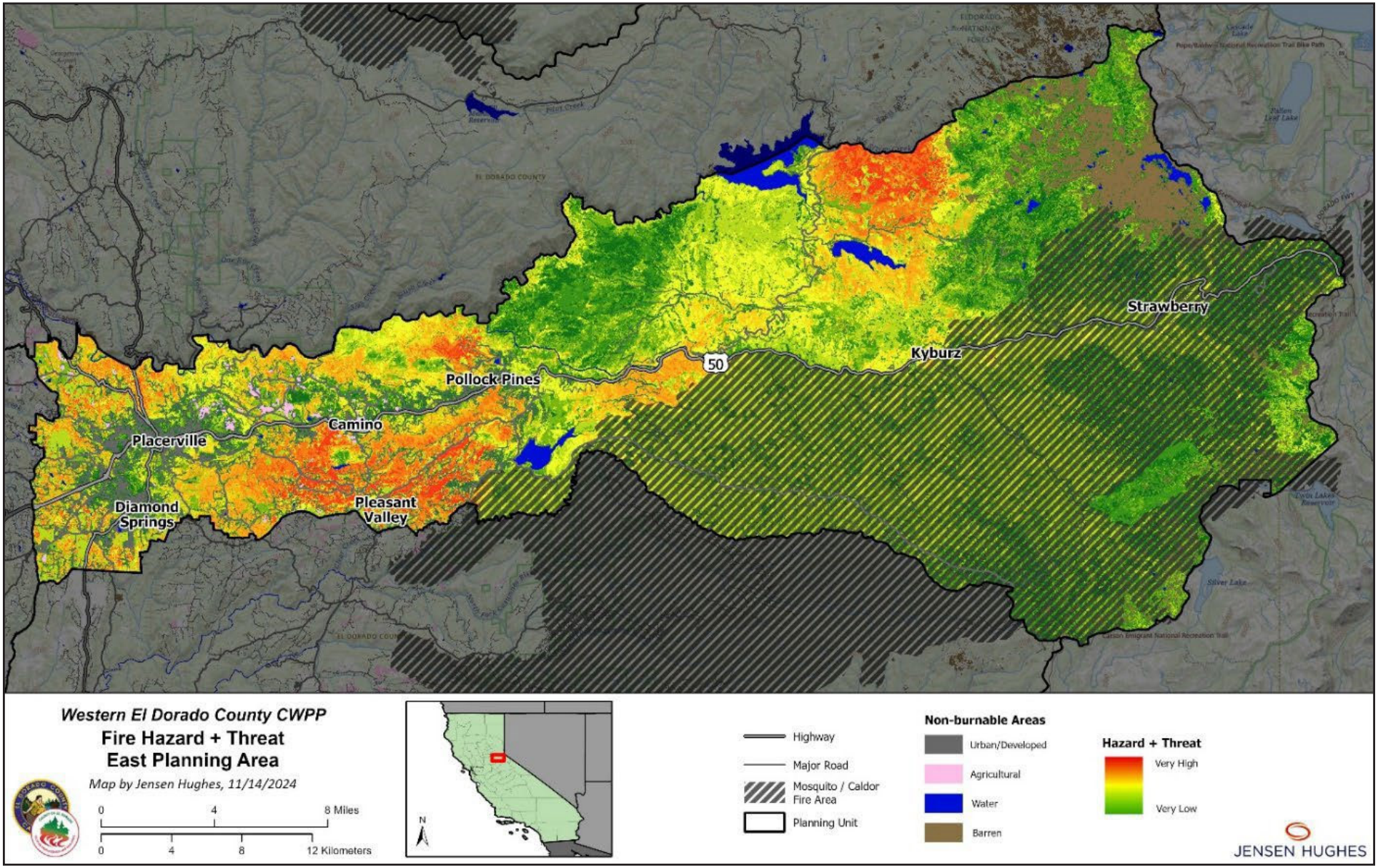


Figure 124. Fire Hazard + Threat in FPU C – East

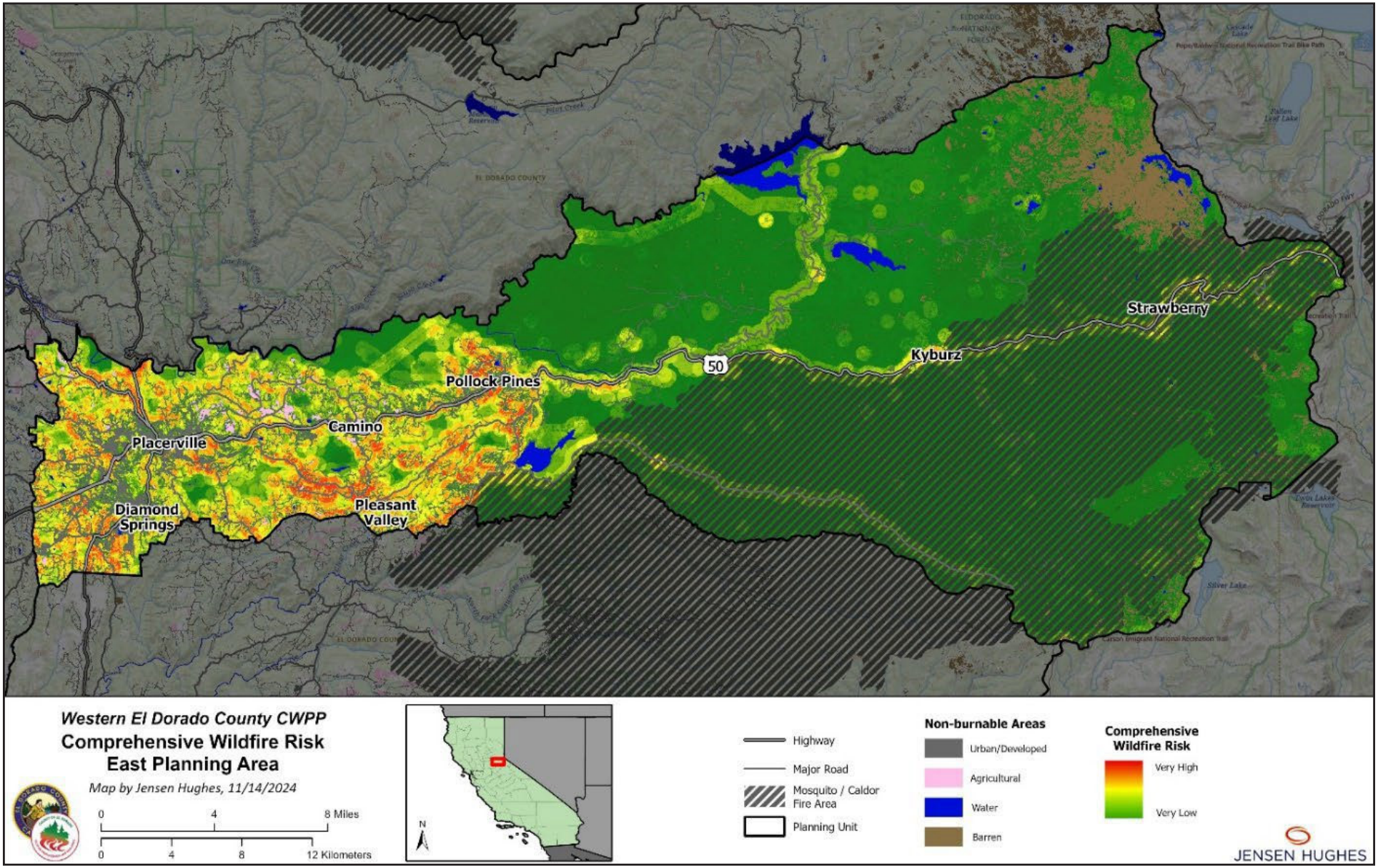


Figure 125. Comprehensive Fire Risk in FPU C – East

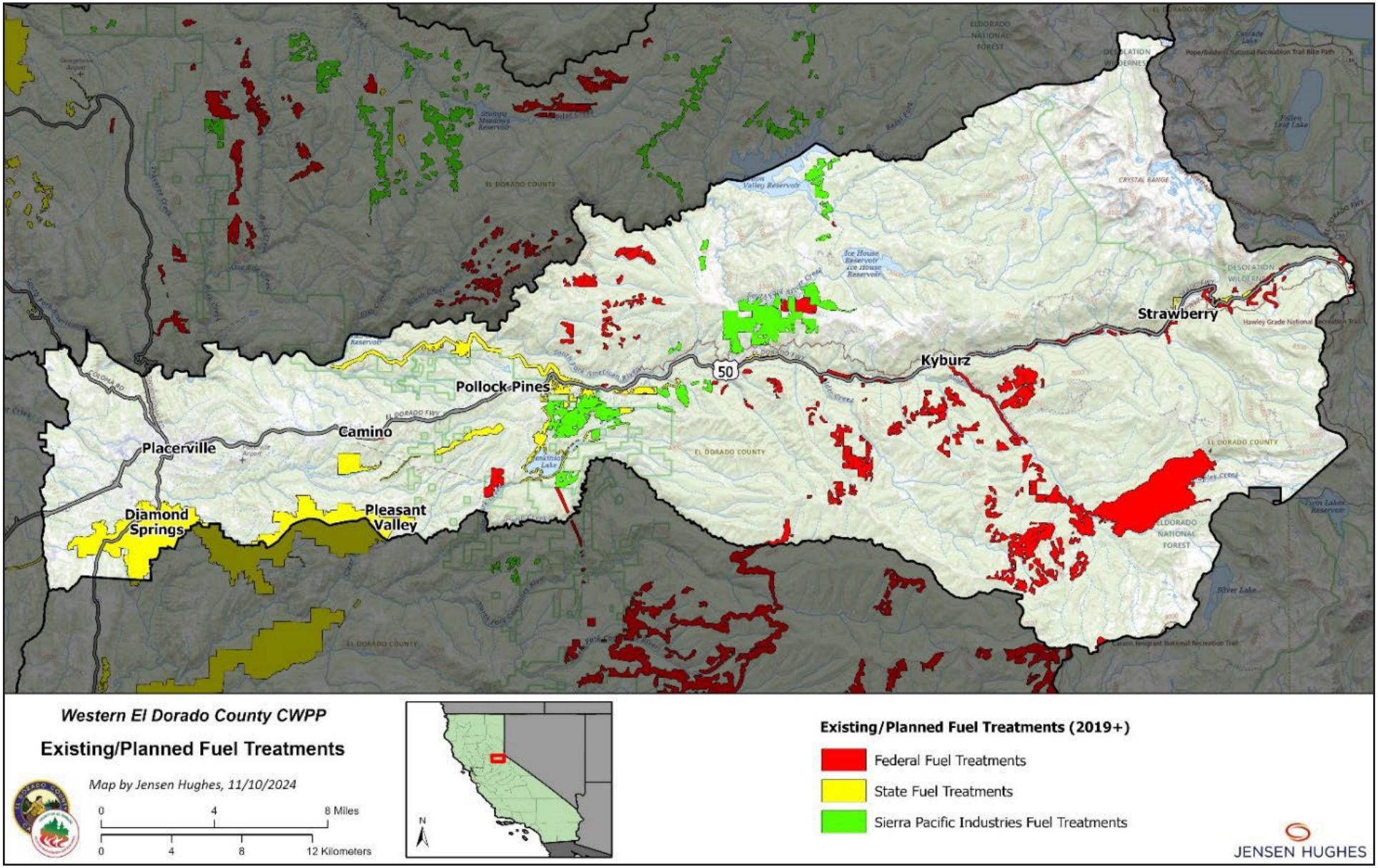


Figure 126. Existing / Planned Fuel Treatments in FPU C – East

C.4 Fire Planning Unit D – South

FPU D is the southern planning unit and approximately 237,424 acres. The western boundary of FPU D is defined by Big Canyon Creek, from the Amador County Line at Latrobe Road northeast to the intersection of Gilmore Creek. The northern boundary of FPU D is defined by the southern boundary of FPU C. The southern boundary of FPU D follows the southern boundary of El Dorado County. The eastern boundary is the Planning Area border at the Sierra Crest.

The FPU includes interface (0.1% by area), intermix (7.9% by area), and influence zone (42.0% by area) WUI (as categorized by CAL FIRE). 89.3% of structures in the FPU are in one of these WUI zones, with the majority (54.8%) in intermix WUI. The majority of the eastern part of this FPU is Forest Service land (Figure 127). Figure 127 and Figure 128 show fire hazard and fire threat in this FPU where reds and oranges are areas at higher risk. See Sections 5.2.4 and 5.2.3 for a detailed description of these assessments.

Figure 129 shows important community assets in this FPU including government and community service buildings, recreation areas, transportation routes, utility infrastructure, agricultural lands, and environmentally sensitive and protected habitats. Figure 130 and Figure 131 show combinations of fire hazard, threat, and assets at risk and can be used to prioritize future projects in the FPU. Figure 132 shows current and planned fuel treatments.

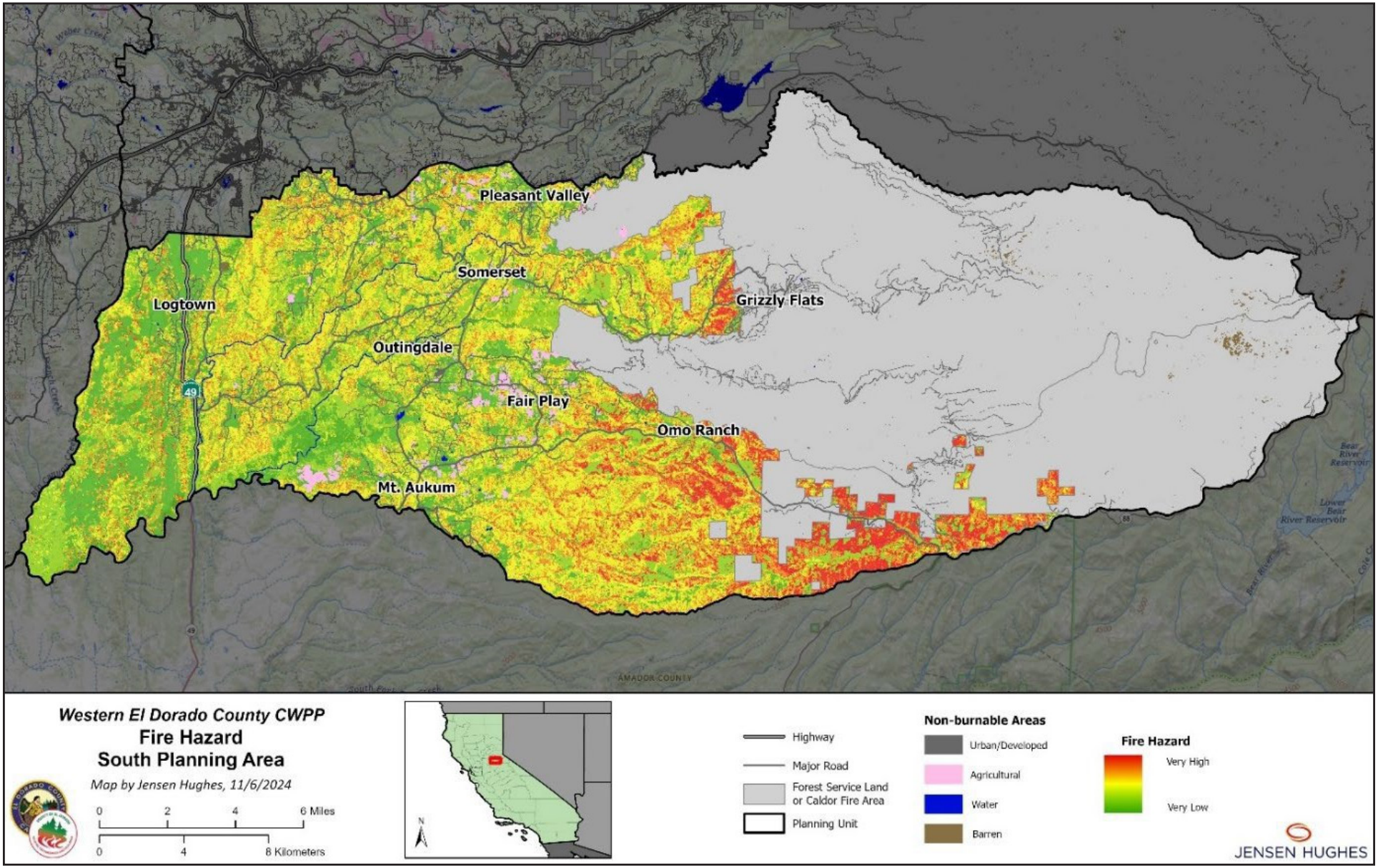


Figure 127. Fire Hazard in FPU D – South

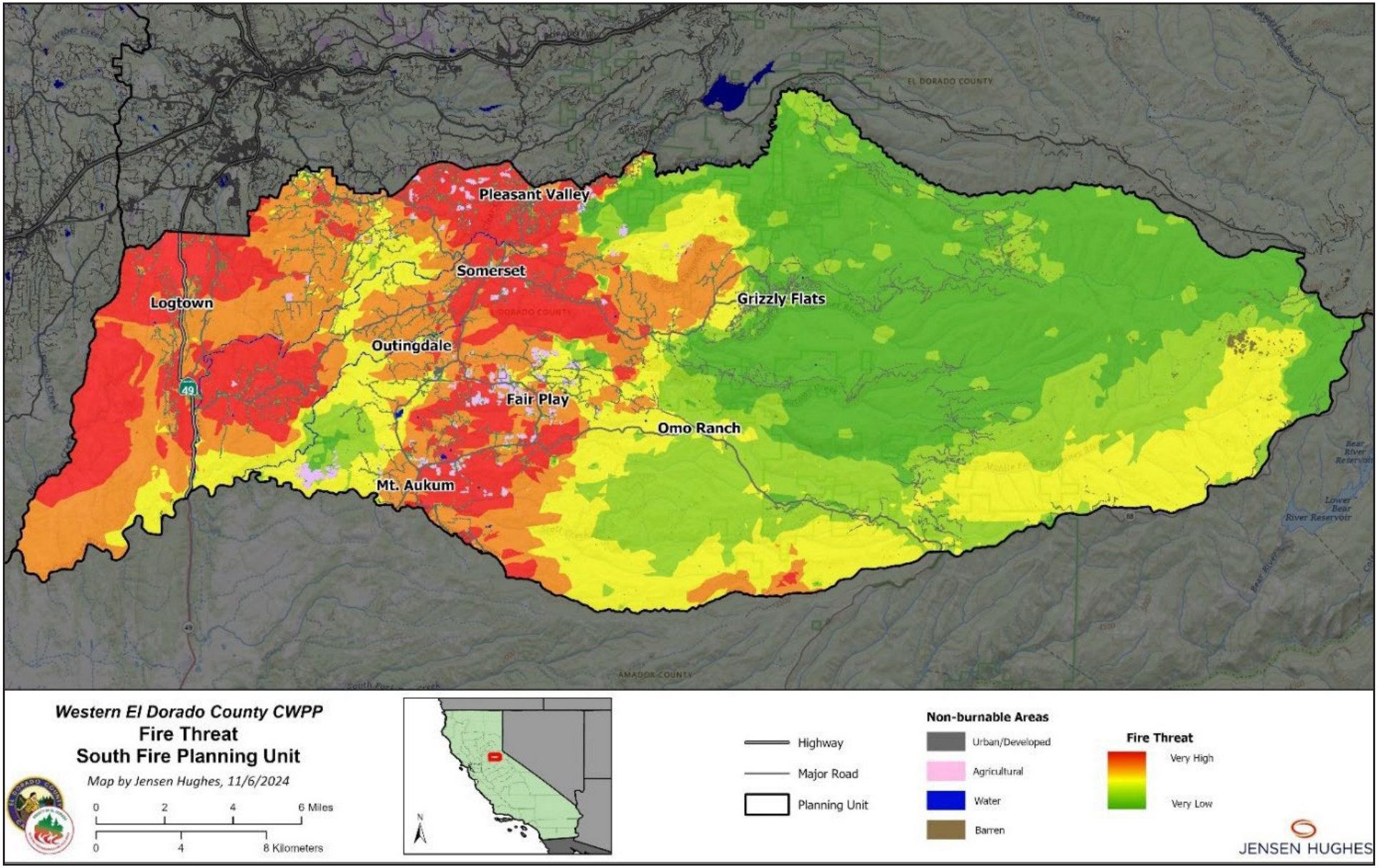


Figure 128. Fire Threat in FPU D – South

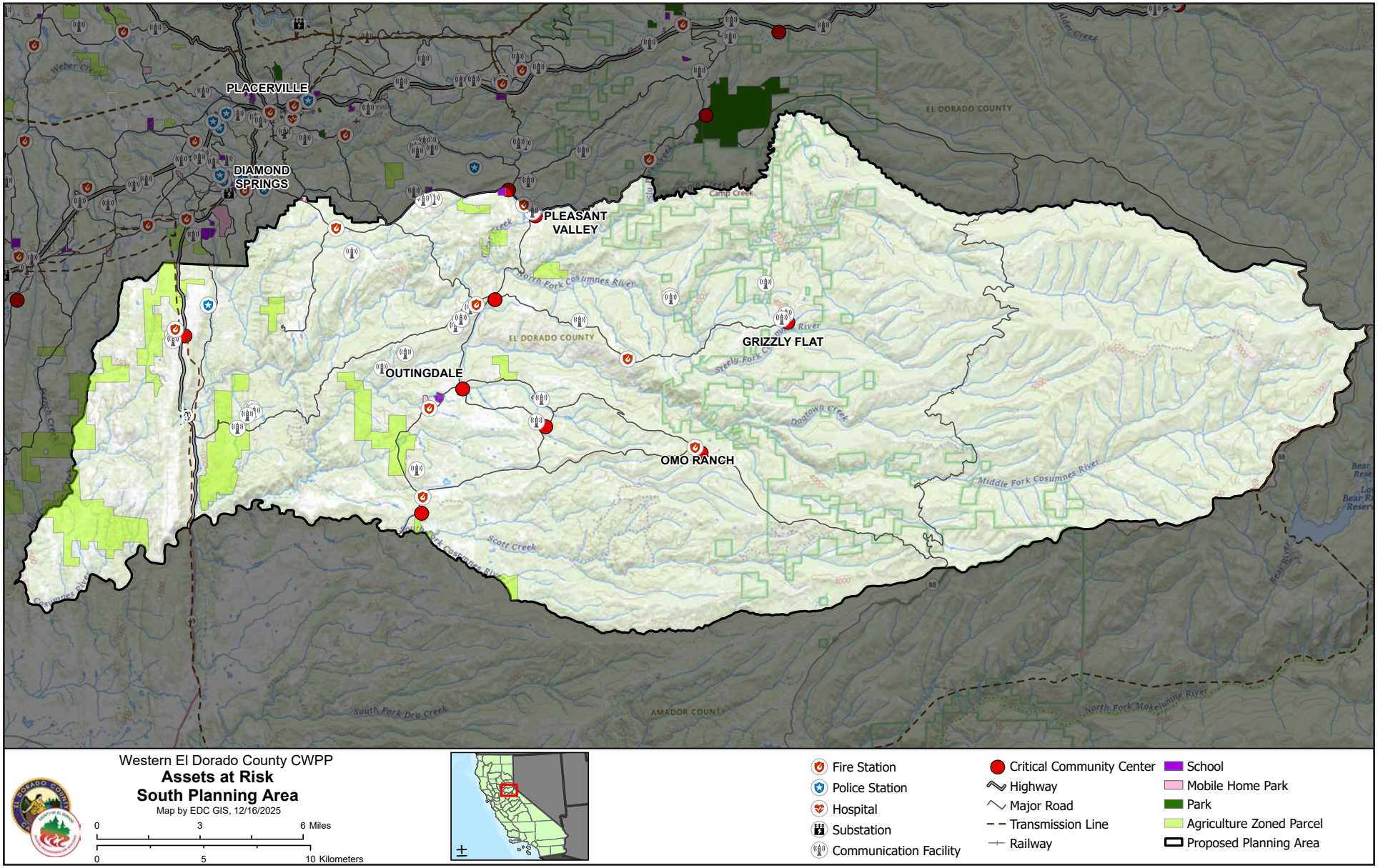


Figure 129. Assets at Risk in FPU D – South

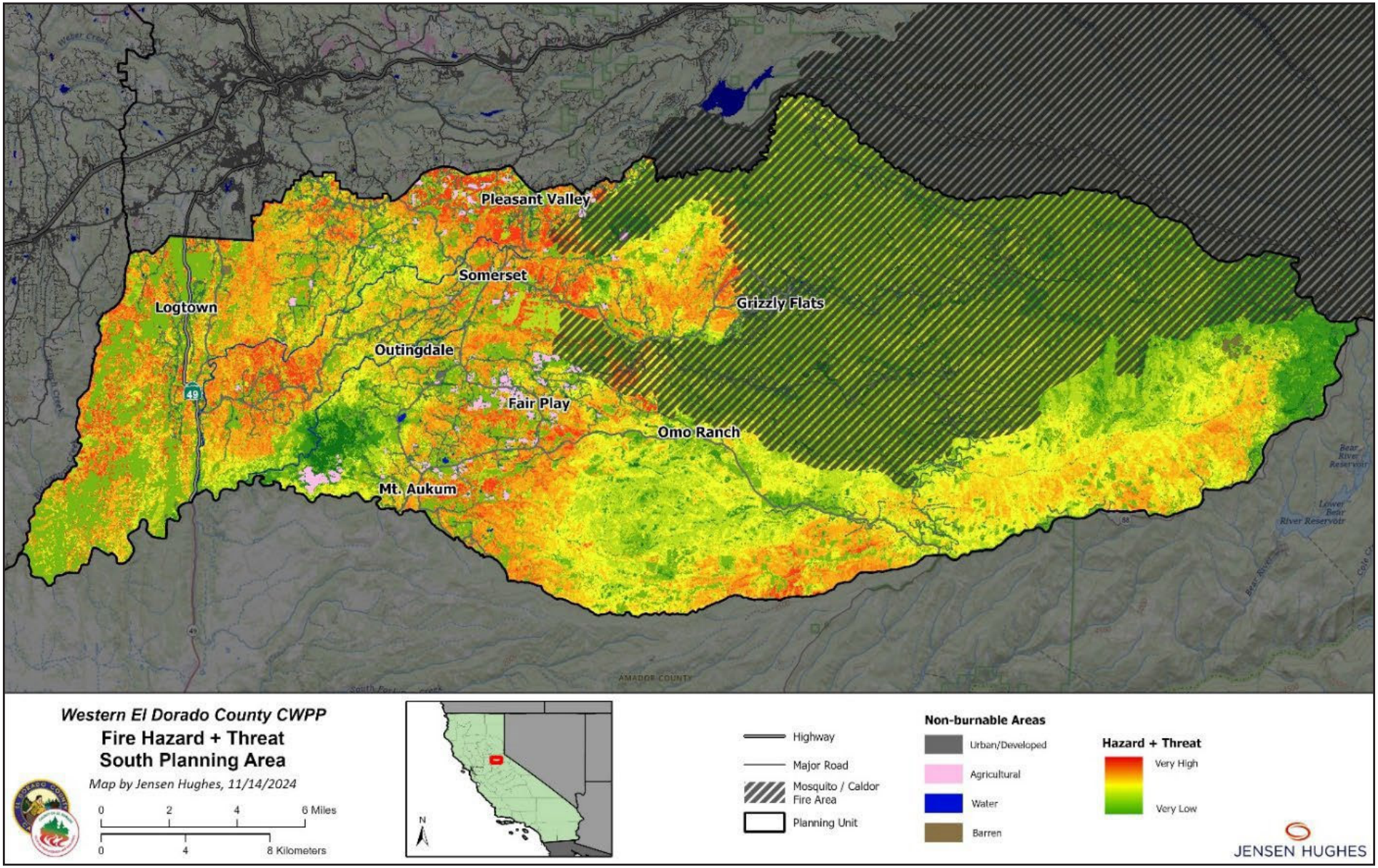


Figure 130. Fire Hazard + Threat in FPU D – South

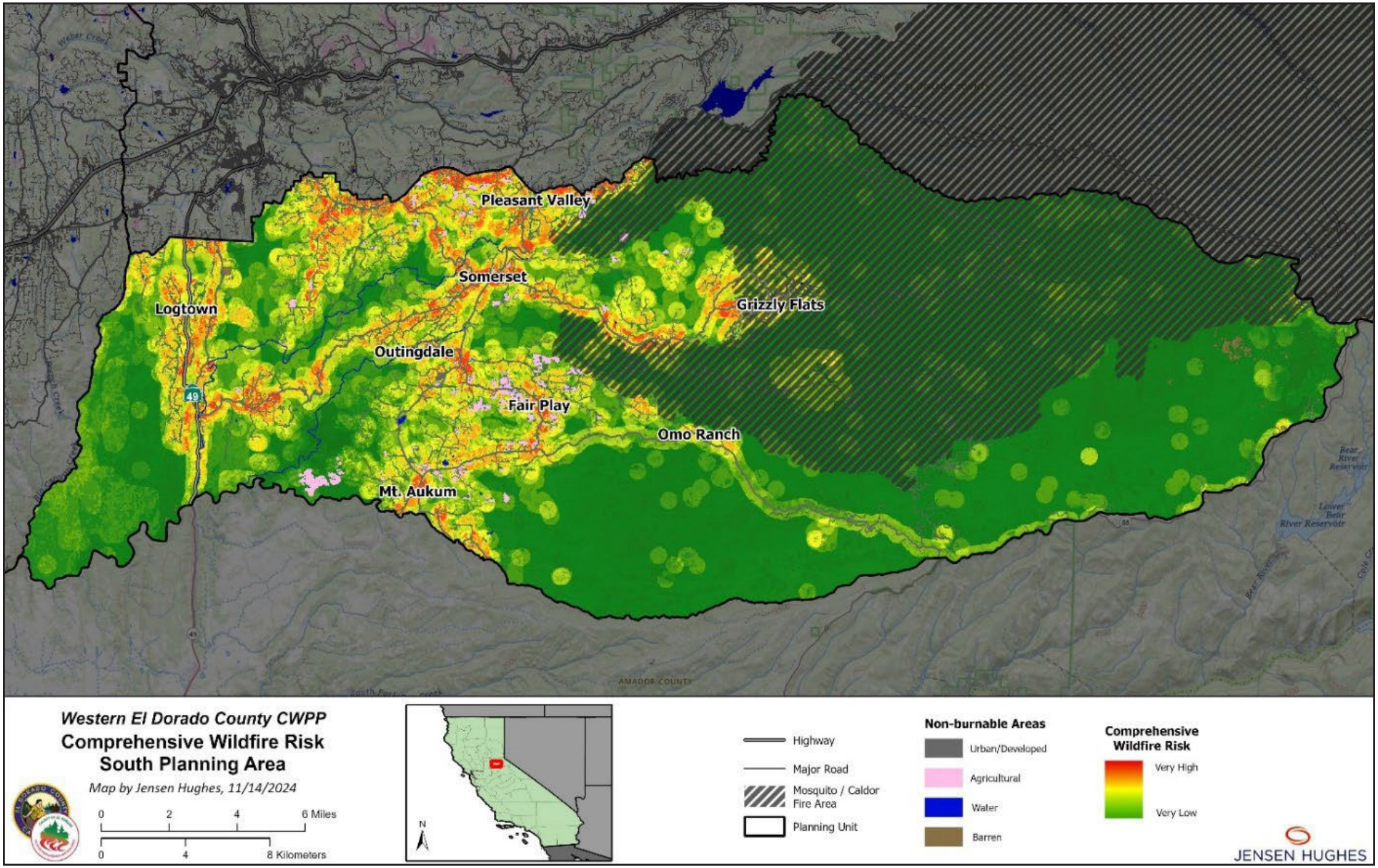


Figure 131. Comprehensive Fire Risk in FPU D – South

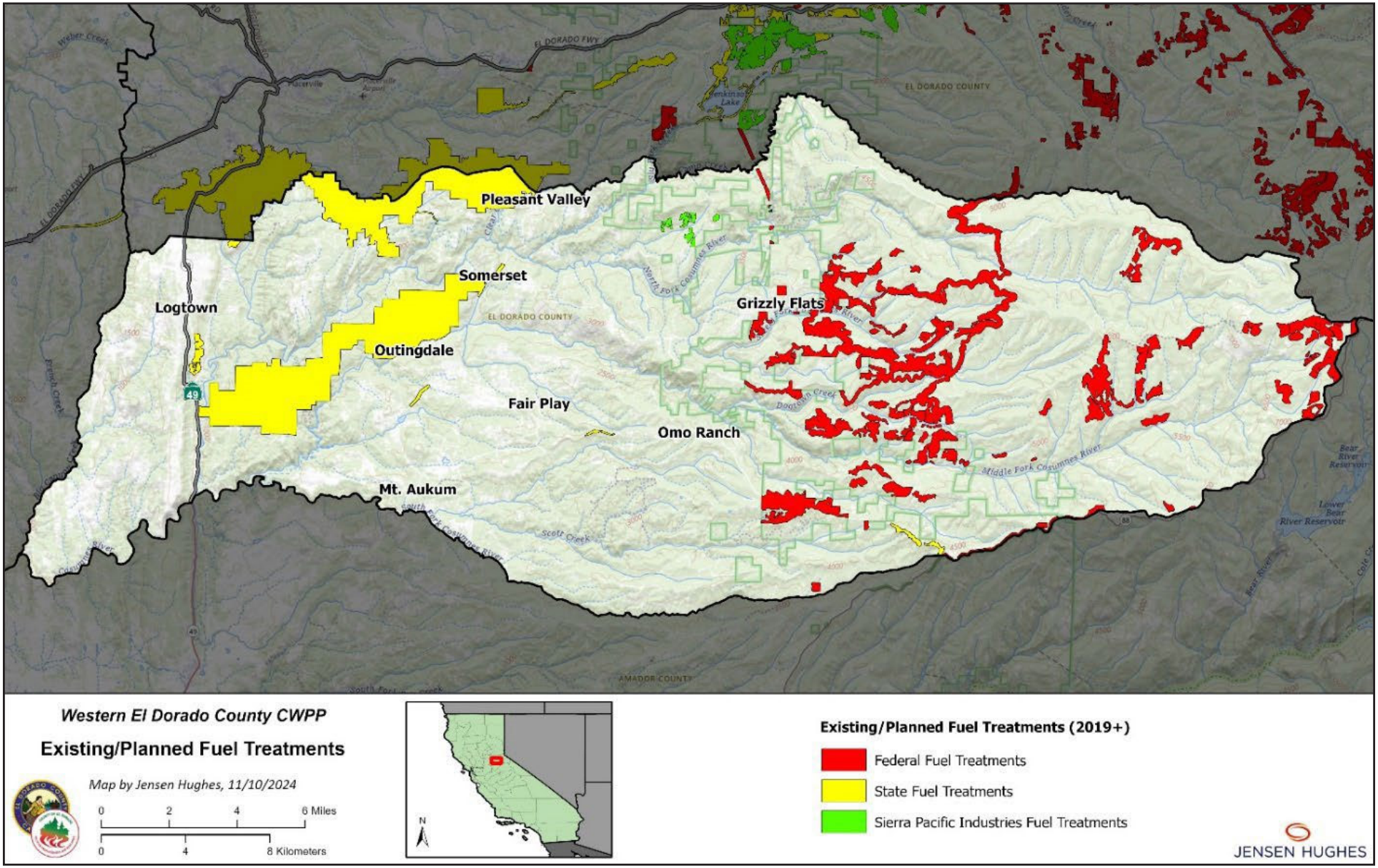


Figure 132. Existing / Planned Fuel Treatments in FPU D – South

APPENDIX D. FIREFIGHTING CAPACITY & FIRE BEHAVIOR CORRELATION

Evaluating the effectiveness of firefighting resources against wildfire is a complex matter. On the same wildland fire there may be locations where firefighters can be successful in defending structures or securing portions of the fire's perimeter, while elsewhere firefighters may be over matched by the intensity and rate-of-spread of the fire. Elements such as the alignment of the fire spread (head or flanking fire versus backing fire) can significantly change the fireline intensity faced by firefighters. Other elements that can influence firefighter success include access, topography, the ability to secure a safe operational space, and the availability of aerial resources to support ground operations.

A common standard used to evaluate the potential of firefighting resources to succeed on the ground are fire suppression interpretations based on flame length found in the Wildland Fire Incident Management Field Guide (NWCG, 2014). Generally, these interpretations evaluate what type of firefighting resources would be required to successfully suppress the head of a wildland fire based on the observed fire length (0). Since flame lengths can be directly related to potential firefighting success, these breakpoints are oftentimes used for classifying modeled fire behavior throughout the CWPP.

Table 30. Suppression Capabilities Based on Flame Lengths Found at the Flaming Front of a Wildfire

Flame Lengths (feet)	Fireline Intensity (BTU/foot/second)	Interpretation
0-4	0-100	Fires can be generally attacked at the head or flanks by persons using hand tools. Handlines should hold the fire.
4-8	100-500	Fires are too intense for direct attack at the head of the fire by persons with hand tools. Handlines cannot be relied upon to hold the fire. Equipment such as dozers, engines and retardant aircraft can be effective.
8-11	500-1,000	Fires may present serious control problems – torching out, crowning and spotting. Control efforts at the head of the fire will probably be ineffective.
11+	1,000+	Crowning, spotting and major fire runs are common. Control efforts at the head of the fire are ineffective.
Caution: These are not guidelines to personnel safety; fires can be dangerous at any level of intensity; Wilson (1977) has shown that most fatalities occur on small fires or isolated sections of large fires. Source: NWCG Fireline Handbook, Appendix B, Fire Behavior, April 2006		

The classifications in Table 31 provide insights into resource capabilities but can be misinterpreted if applied out of context. For example, 8-foot flame lengths can be successfully suppressed by engine crews using hose lays, if they are able to approach the fire from a direction where convective and radiant heat are focused away from the firefighter. The same 8-foot flame length will likely overwhelm firefighters positioned in a manner where they are receiving large portions of the heat flux from the fire. This can be the case where firefighters are performing structure defense or attempting a frontal assault on the advancing fire front. It has been found that convective energy transferred by wind gusts, fire whirls, or air turbulence can significantly increase the total heat transfer to the firefighter and increase the required safety zone size necessary to engage the fire (Butler, Cohen, 1998).

APPENDIX E. FUEL TREATMENT PRESCRIPTIVE GUIDELINES & TECHNIQUES

This appendix provides fuel treatment prescriptions and guidelines to assist the County and property-owners in implementing fuel treatments. This prescriptive guidance incorporates fire behavior assessment factors and best management practices (BMPs) for achievable wildfire hazard mitigation actions. Understanding and working within BMP standards will help minimize impacts to surrounding natural resources.

E.1 Roadside Fuel Treatment Prescriptive Guidelines

The following table describes the intensity levels for roadside and driveway fuel treatments:

Table 31. Roadside Fuel Treatment Prescriptive Guidelines

Primary Zone (A) (10' minimum; up to 50') (distance varies with terrain & accessibility)	
Fuel Type	
Grass/Forbs	Reduce fuel depth to less than 2-inch.
Surface Dead/ Down Material	Remove all large (>3-inches diameter) dead/down material.
Chaparral/Shrub	Remove all chaparral/shrub vegetation within this zone. Retain the root system to provide for soil stabilization
Trees Overstory Without Chaparral/ Shrub Understory)	Prune all trees to 6-feet or ½ of the live crown height, whichever is less. Remove dead standing trees and branches extending over roadways to a minimum height of 13 feet 6 inches.
Trees Overstory With Chaparral/ Shrub Understory)	Thinning specifications, same as Trees Overstory (without understory), but remove all understory chaparral/shrubs below trees in this zone.

E.2 Vegetation / Fuel Treatment Prescriptive Guidelines

The following table describes prescriptive guidelines for vegetation management in the HIZ:

Table 32. Vegetation Management Prescriptive Guidelines

	Primary Defense Zone (A) (0 – 30' from a structure)	Fuel Reduction Zone (B) (30' – 100' from a structure)	Fuel Reduction Zone (C) (100' and greater from a structure)
Fuel Type	**Based on California Public Resources Code 4291 and HIZ Recommendations**		**Based on Firefighter Safety**
Grass/Forbs	Reduce fuel depth to 2- inches maximum.	Reduce grass height to 4" or less. Longer grass in discontinuous open areas is acceptable.	Treatment may not be needed.
Surface Dead/ Down Material	Remove all dead/down materials.	Reduce dead/down flammable material to < 3" depth	Reduce heavier pockets of dead/down flammable material to < 5" depth.
Chaparral/Shrub	Remove all but individual specimen chaparral plants. Individual ornamental/native shrubs should be spaced at a minimum 2x shrub height.	Remove up to 75 percent of chaparral vegetation. Allow for intermittent small pockets or clumps of chaparral/shrub vegetation. Pockets and clumps of chaparral remaining should be healthy, all dead material removed and limbed to 1/3 height of chaparral crown.	Less intensive chaparral/shrub vegetation removal with up to 30 feet for spacing of pockets and clumps of chaparral and shrubs. The remaining pockets and clumps of chaparral should be healthy, all dead material removed.
Trees Overstory Without Chaparral/ Shrub Understory)	Thin smaller trees leaving larger trees (>than 6-inches DBH) at 10-20 ft crown spacing limb/prune lower branches 6-feet above grade level, or lower 1/3 of tree height on smaller trees. Remove dead standing trees.	Thin smaller trees leaving larger trees (> than 6- inches DBH) at approximately 10-foot crown spacing; limb/prune lower branches 6-feet up, or lower 1/3 of tree height on smaller trees; remove all broken limbs and dead material.	Limb and prune lower branches of larger trees up to 6 feet and remove all broken limbs and dead material.
Trees Overstory With Chaparral/ Shrub Understory)	Thinning specifications: the same as Overstory without Chaparral /shrub understory Zone A. Understory: remove chaparral/shrub; limb/prune healthy ornamental shrubs to 1/3 of shrub height, maintain spacing between shrubs.	Thinning specifications are the same as Trees Overstory without Chaparral/shrub understory (Zone B). Understory: occasional less dense chaparral/shrub or small tree clump in openings is acceptable.	Thinning specifications are the same as Trees Overstory without chaparral/shrub understory in Zone C. Understory specifications are the same as Chaparral/shrub in Zone C except the pockets and clumps are limited to tree openings (non-canopy).

E.3 Implementation Guidelines for Fuel Treatments

The following describes possible restrictions on implementing fuel treatments:

Noxious Weeds

- To limit the spread and establishment of invasive plant species (e.g., noxious weeds) into project areas, all off-road equipment used during project implementation will be washed free of invasive exotic weeds and seeds before entering project areas. If any equipment works in an area where weeds occur, it will be washed to remove weed propagules prior to entering other work locations.
- All equipment staging areas will be located away from known areas with noxious weed occurrences and outside of riparian habitat area.

Cultural Resources

- Any known cultural resources within the proposed treatment area will be protected. If any sensitive cultural resources are found, work will stop, and a qualified Archaeologist will be notified.

Soil and Watershed

- Every effort should be made to minimize damage to the soil surface in order to reduce potential for erosion and sediment transport due to project implementation activities.
- No mechanical equipment use on slopes greater than 30 percent with following exception: Mastication can occur on slopes greater than 30 percent where the equipment is operating on slopes less than 30 percent and accessing steeper slopes with a boom arm.
- Chipped or masticated material may be “blown” back onto the slope where feasible to enhance soil coverage.

Tree Removal

- All live tree removal will be in compliance with County and/or City of Placerville requirements.

E.4 Recommended Best Management Practices (BMP's)

- CEQA and/or NEPA may be required prior to implementation of all site-specific projects, depending on the funding source.
- Shrubs will vary in size randomly scattered across the project area. Chipped material should not exceed 4- inches in depth.
- Boundaries between treatment levels will maintain free-form shapes and feathered edges that replicate natural patterns; avoid straight lines by scalloping and feathering along edges of vegetation. The feathering of edges includes undulating edges horizontally and diverse heights of the brush retained on site.
- Precautions will be taken to prevent scarring of trees or retained shrubs by equipment.
- Signs should be posted warning the public of potential hazards during fuel treatment activities.
- Environmentally Sensitive Habitat Areas (ESHA) will be marked on the project area maps.

- Known landslide and unstable areas should be avoided as vegetation treatment activities may result in increased potential for mass wasting and erosion.
- Heavy equipment should not work on slopes greater than 30%. Movement of any heavy equipment across slopes should be minimized. Heavy equipment will not be used in areas any ESHA.
- When operating equipment off of roadways the use of rubber tracked equipment, with a low ground pressure coefficient, is preferred.
- When treating herbaceous/grass fuels; mowing or weed whipping is the preferred over discing to limit soil disturbance.
- Required riparian zone setbacks will be identified, mapped and flagged prior to project implementation work.
- Any project generated vegetation debris shall be removed from the stream course.
- Water bars and other erosion control structures will be located where necessary to limit erosion and associated run-off causing sediment movement into stream courses.
- No servicing or refueling of equipment will occur on site. Operators must remove residues, waste oil, engine coolants, and other harmful materials from all worksites. Spill containment will be established prior to any on- site servicing or refueling, even in approved on-site service locations.

E.5 Fuel Treatment Implementation Timing

The treatment of hazardous fuels as proposed in this CWPP are not of the type or magnitude that could have a negative effect on species response from the various plant communities within the Planning Area. Typically, only the use of prescribed fire, mastication or crushing to eliminate standing chaparral requires a consideration of how individual species will recover following a treatment.

- **Herbaceous Vegetation/Grass:** Herbaceous fuels are most effectively treated following curing of the individual plants. When cured, these grass-like fuels have dispersed their seeds, helping to assure their continued presences as part of the landscape. Treating herbaceous fuels after they have cured also minimizes regrowth following treatment. When looking to eliminate non-native herbaceous fuels, treating this vegetation before it has set seed will, over time, help to reduce the abundance of a species on the landscape. Herbicides can also be effective in killing targeted non-native species before they sow seed. However, the use of herbicides can be controversial and require an impact analysis following California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) protocols.

  Where conditions allow, mowing or weed-whipping herbaceous fuels before seeds are sown can also be effective at eliminating target species. However, treating these fuels before they are fully cured will require a second treatment to address the fire hazard associated with regrowth.

APPENDIX F. FIRE SAFE COUNCIL WORKSHOPS

The following is a sample agenda provided as part of the Fire Safe Council workshop.

Workshop Agenda

Meeting Title:	Western El Dorado County (EDC) Community Wildfire Protection Plan (CWPP) Update EDC Fire Safe Council Workshop
Date/Time:	Wednesday, August 21, 2024 12:30-3:00 pm PDT
Meeting Location:	American Legion Hall 4561 Greenstone Road, Placerville

Agenda Item	*Description*
1	**Welcome & Introduction**
2	**Workshop Overview** + Objectives for today's workshop
3	**Overview of CWPP Development Process** + What is a CWPP? + Goals & objectives + Approach, outcomes & timeline
4	**Preliminary Hazard and Risk Assessment** + Site visit summary & recap + Project area fire history & fire behavior modeling + Climate impacts + Parcel & neighborhood-level risks + Other community risks & vulnerabilities
5	**Q&A Session**
6	**Break**
7	**Public Workshop Outline** + Format + Description of breakout session
8	**FSC Engagement Plan** + How will FSCs be engaged throughout the process? + How can FSCs gather input prior to Public Workshops?
9	**Next Steps**
10	**Closing Remarks**

A copy of the full presentation is available through OWPR. Contact information is provided below.



OWPR Contact Info

wildfireready@edcgov.us

APPENDIX G. GENERAL PUBLIC WORKSHOPS

The following is a sample agenda provided as part of the public workshops held in Somerset, Garden Valley, Pollock Pines, Diamond Springs, and Cameron Park.

Timing	*Description*
5 min.	Welcome & Introductions
5 min.	Workshop Overview + Objectives for today's workshop
15 min.	Overview of the CWPP Development Process + What is a CWPP? + CWPP goals & objectives + Approach, outcomes & timeline
20 min.	Preliminary Hazard and Risk Assessment
15 min.	Q&A Session
40 min.	Breakout Session (or Roundtable Discussion if fewer than 10 attendees) + Key topics: concerns, priorities, and goals
10 min.	Break
30 min.	Reporting Out + Each breakout group shares (5 min. each) + Whole group discussion (time permitting)
5 min.	Next Steps + Upcoming public workshops + Public survey
5 min.	Closing Remarks

A copy of the full presentation is available through OWPR. Contact information is provided in Appendix F.

APPENDIX H. RESULTS OF GENERAL PUBLIC SURVEY

All raw responses/comments can be provided by request to OWPR.

APPENDIX I. RESULTS OF BROAD STAKEHOLDER SURVEY

All raw responses/comments can be provided by request to OWPR.

APPENDIX J. PLAN ALIGNMENT ANALYSIS & RECOMMENDATIONS

This appendix provides a wildfire-specific plan alignment analysis for four recently updated or developed planning documents for Western El Dorado County. The intent is to assist the County in understanding where plans may not currently align and recommended actions to help reconcile differences in plans that may not be working toward a common vision for wildfire resilience.

J.1 Introduction

California counties must maintain and update numerous different planning documents that meet a range of state and federal requirements in order for the county and the jurisdictions within it to maintain eligibility for various types of aid, both fiscal and otherwise. These plans have evolved substantially over the years, and today present an extensive, month-to-year long process that results in a comprehensive and highly detailed public documents. A substantial investment in time and funding is made to ultimately identify key actions to be taken to improve outcomes. In hazards planning, these key actions are designed to increase resilience by reducing risk and mitigating losses. Such actions vary by plan type, but there is substantial overlap between plans. This is particularly true for wildfire hazards, which much be addressed in General Plans, FEMA-compliant Hazard Mitigation Plans, and in Community Wildfire Protection Plans, which are developed at both county-scale and for individual communities and sub-divisions.

Given the number of different plans for wildfire that are required today, the California Governor's Office recognized a need to align these plans to maximize both planning efficiency and the effectiveness of the plans in identifying and prioritizing mitigation strategies. To that end, a Wildfire Resilience Plan Alignment Guide (https://resilientca.org/plan-alignment/wildfire-resilience/) was created to help jurisdictions align their planning documents to facilitate increased resilience through "unified, inclusive, and strategic planning." The Plan Alignment Guide identifies several foundational strategies and a suite of best practices across four phases of planning to achieve this. The three foundational strategies are:

1. Build and Leverage an Alignment Team
2. Integrate and Align Public Engagement
3. Prioritize and Advance Equity and Environmental Justice

The four phases of planning recommend in the Wildfire Resilience Plan Alignment Guide include:

1. **Explore, define, and initiate:** develop a shared vision and treat the process as an outcome
2. **Assess vulnerability:** assess the risk across multiple scales that include neighboring jurisdictions
3. **Define an adaptation framework and strategies:** align actions across plans and consistent with state priorities
4. **Implement, monitor, evaluate, adjust:** implement collaboratively with stakeholders and update adaptively

J.2 Method

For this analysis, four plans were identified and evaluated per the Wildfire Resilience Plan Alignment Guide. The four plans are as follows:

- El Dorado County General Plan Safety Element, 2024 Update (hereafter GPSE),

- El Dorado County Multi-Jurisdiction Hazard Mitigation Plan, 2024 Update (hereafter, HMP),
- Western El Dorado County Community Wildfire Protection Plan, 2025 Update (hereafter, CWPP), and
- CAL FIRE Amador-El Dorado Unit Fire Plan, 2024 Update (hereafter AEUFP).

Notably, three of these plans (GPSE, HMP, and CWPP) are federally regulated and effectively originate with the County, while the AEUFP is state regulated and originates from the CALFIRE unit. As such, each plan has slightly different statutory requirements.

Aligning the plans to achieve wildfire resilience requires recognizing where there is overlap and potential for alignment, and where the statutory requirements yield different plan components that are more difficult to align and reconcile. The Wildfire Resilience Alignment Planning Guide does not explicitly define the potential area for overlap, rather, it identifies key themes and suggests ways in which alignment can be achieved for each plan type.

The goals of this analysis were as follows:

1. Conduct a high-level general overview of plan alignment according to the guidelines set in the Wildfire Resilience Plan Alignment Guide;
2. Identify areas where alignment is high between the plans and where they are generally integrated;
3. Identify gaps in alignment, and
4. Provide a set of action items to consider for future planning efforts to improve plan alignment as document updates occur.

Notably, this analysis is a general qualitative assessment, rather than a detailed or quantitative assessment. Zhang et al. (2025) identifies methods for quantifying plan alignment in California and characterizing plan alignment gaps in the context of six key themes. However, Zhang's method is substantially detailed and requires coding plan text to derive scores. This analysis makes a note of where a more detailed alignment assessment could improve future planning efforts.

J.3 Alignment Analysis Results

The plans are generally well-aligned, with the key wildfire themes addressed across plans, particularly the GPSE, HMP, and CWPP. The AEUFP has different objectives than the other plans and was the least aligned.

Notably, the plans provide considerable nuance around the complex challenge of facilitating wildfire resilience in extremely complex landscapes and generally come to similar conclusions about the types of actions that need to occur and where the primary areas of concern are located. The gaps noted primarily pertain to a lack of detailed cross-referencing and cross-plan prioritization, which cannot be assessed more comprehensively without a more detailed plan alignment study.

J.3.1 Phase 1: Explore, Define, & Initiate

a. **Vision:** The plans present a shared vision that is well aligned. Each plan identifies a goal of minimizing the losses of life and property to wildfire, and mitigating risks to key cultural and natural resources, infrastructure, and other values at risk.

b. **Values-at-Risk:** Stemming from the shared vision, values-at-risk were relatively consistent across the plans, focusing on infrastructure, critical services, human health and safety, and natural resources. There was a substantial difference in the detailed identification of such values (e.g., the AEUFP synthesized them into a short, easily digestible list while the CWPP provided details and named locations), so future plans could cross-reference to take advantage of the preferred format and level of detail and to be consistent.

c. **Development Team:** Stakeholder representation in the development process was generally well-aligned across the plans. There were some differences due to statutory requirements and different extents of plan coverage (for example, the AUEFP covers three counties and did not list inclusion of community Fire Safe Councils in the stakeholder input team but has a different mandate that may not require broader public input). None of the plans indicated if a gap analysis was undertaken to determine if additional stakeholders should be included based on those that provided inputs to other plans.

d. **Public Engagement and Outreach:** Public input to the process was variable across the plans, consistent with statutory requirements. Notably, both the HMP and the CWPP require engagement with the public during the planning process, and both conducted stakeholder meetings and surveys, within the same year, but not in conjunction. All plans consistently identified the same general methods of outreach and public education.

J.3.2 Phase 2: Assess Vulnerability

a. **Define Vulnerable Populations:** The GPSE, HMP, and CWPP all identify similar vulnerable populations in the County but they use different metrics to represent them. The GPSE describes socially vulnerable populations in the context of fire impacts, the HMP mapped vulnerability using CalEnviroScreen (an aggregate assessment of vulnerability), and the CWPP utilized specific census metrics to map populations-at-risk to wildfire. Only the HMP described potential action programs targeted to such populations.

b. **Identify Vulnerable Communities:** All plans defined specific communities deemed to be the most vulnerable to wildfire. These lists were variable across plans, given the different criteria and perspectives.

c. **Convey Wildfire Hazard:** Wildfire history was relatively consistent across plans, with the AEUFP providing the most limited review of historic fires. Wildfire hazard was addressed much more extensively in the CWPP as compared to the other three plans, which characterized fire hazard based on the CALFIRE Fire Hazard Severity Zones. The HMP focused on fire probability and climate change projections of area burned, while the CWPP focused on translating potential fire behavior to impacts on specific values-at-risk, and also climate change impacts to fire weather. Notably, the CALFIRE FHSZs focus on State Responsibility Areas, while the CWPP addresses federal lands as well. A more detailed analysis of fire behavior outputs, including spatial comparisons of hot spots around the county, could help identify which outputs demonstrate the most agreement across metrics and with expert and local knowledge of the communities at the greatest risk in order to increase efficiency of fire hazard analysis in future updates.

J.3.3 Phase 3: Define an Adaptation, Framework, & Strategies

a. **Identify General Current and Future Mitigation Strategies:** The AEUFP, HMP, and CWPP identify both general and specific strategies for facilitating resilience. A more detailed analysis could compile and crosswalk both the general strategies and specific proposed actions both short- and long-term to identify where there is misalignment and gaps that can be addressed by referencing another plan or including more detail, such as in a table that is consistent across all plans. The general strategies of identifying mitigating ignitions, facilitating effective suppression response, increasing defensibility around individual structures, and increasing defensibility around communities is consistent across plans.

b. **Evacuation:** Concerns about ingress/egress and pinch points are consistent across plans. The AEUFP identifies specific evacuation routes of critical importance in the SRA based on the knowledge of experienced fire personnel. By contrast, the CWPP and the GPSE reference both the HMP and the El Dorado County Evacuation Study. A more detailed review and cross-reference could determine if the critical evacuation routes named in the AEUFP are acknowledged and included in the management strategies and specific actions (such as roadside fuel reduction projects) in the HMP and CWPP. Similarly, only the HMP explores compounding disasters (e.g., fire followed by debris flows and floods), which the other plans could use to prioritize maintenance of evacuation routes and development of alternatives.

c. **Housing and Structure Ignitability:** All plans acknowledge the importance of home hardening and defensible space. The AEUFP quantifies defensible space inspections across the unit, while the CWPP identifies specific communities prioritized for home hardening and defensible space programs. Plan alignment could be improved by integrating Defensible Space Inspection data into plans (e.g., what communities have the highest and lowest compliance?) and cross-referencing the proposed actions from the CWPP to the HMP and GPSE.

d. **Fuels Management:** Each plan lists a set of both general (next steps for risk assessment and alignment with other plans) and very specific actions (such as individual fuel breaks or hazardous fuel reduction projects). The lists also identify who is responsible for undertaking these actions and along what timelines (shorter- or longer-term). They also identify potential funding sources for such efforts. The CWPP further maps landscape-scale fuel treatments across the Planning Area. In general, each plan identifies the key areas of fuel management necessary to mitigate risk (hazardous fuels reduction, forest health projects like shaded fuel breaks, and roadside fuel reductions), but these are not cross-referenced between plans.

J.3.4 Phase 4: Implement, Monitor, Evaluate, & Adjust

a. **Target Funding Sources and a Timeframe for Implementation:** The HMP and CWPP provide detailed tables for potential funding sources and the rough timeframes for implementation. These could be cross-referenced to elaborate and identify the most likely sources.

b. **Evaluate Measurable Outcomes:** The CWPP includes specific, quantifiable outcomes around both the process and the final outputs. By contrast, the HMP suggests evaluating based on changes in vulnerability, which is neither measurable nor concrete. The AEUFP measures metrics set according to CALFIRE goals. The plans could be better aligned by identifying a consistent set of tangible outcomes for wildfire that can be identified and cross-referenced across plans. For example, completion of CALFIRE defensible space inspections is a metric for AEUFP, but also a relevant outcome for the goals of both the HMP and the CWPP.

c. **Identify Modification Strategies and Timelines:** All plans identify timelines for updates and modifications. One of the most difficult challenges of aligning plans is that it can occur one of two ways: concurrently or sequentially. The current plans were all updated relatively close together in time, but still sequentially, which is clear in referencing the out-of-date CWPP in the GPSE and HMP. It is extremely challenging to update plans concurrently, as is suggested in the Wildfire Resilience Plan Alignment Guide, due to both the financial requirements and the burden on key stakeholders. However, if the plan updates can be done concurrently, an iterative updating process can better leverage stakeholder and public input, potentially leverage funding, and improve cross-referencing between plans. This is particularly true for the HMP and CWPP, as they are both revised at 5-year intervals.

J.4 Recommendations for Future Plan Alignment Efforts

Recommendation	Description
1. Identify a dedicated plan alignment team	It is possible that certain stakeholder representatives did form a core alignment team, participating in the development of all plans, but since some of the plans did not name individuals (only organizations), this could not be cross-referenced. For wildfire, such members might represent OWPR, the County Fire Safe Council, federal and state agencies, etc., but they should be consistent across plans. This will also ensure that plans are cross-referenced to each other.
2. Align public input and engagement mechanisms	Public input to planning efforts is critical, but it is common to have only limited feedback from a very small fraction of the population. This is further exacerbated during multiple concurrent planning efforts when citizens become confused about which planning effort they are responding to. Both engagement and efficiency can be improved through leveraging, for example, a combined survey that includes the CWPP questions with the broader HMP questions might receive more respondents. Webinars and workshops could potentially be combined to solicit feedback on multiple documents (and help educate the public about their differences). Reducing the number of meetings/surveys can reduce “engagement burnout” and increase meaningful participation.
3. Develop a more detailed assessment of vulnerable populations	Plans could be better aligned by referring to the plan that provides the most detailed discussion and suggestions of strategies to support socially vulnerable populations. A more detailed review of the strategies described in each plan would help facilitate this. As vulnerable populations are also the least resilient, careful attention to identifying actions specifically supporting socially vulnerable populations will increase resilience (e.g., development of an evacuation plan specifically for the homeless population, as was done in South Lake Tahoe).

Recommendation	Description
4. Cross-reference vulnerable communities	A detailed cross-referencing of the communities listed as the greatest at risk to wildfire in each plan would both ensure consistency across plans and may also support prioritization based on multi-hazard assessment from the HMP and other priorities laid out in the GPSE. For example, communities that are vulnerable to multiple hazards and have poor evacuation options and high social vulnerability might rise to the top of a prioritization list, while other communities might have less urgent concerns based on the criteria identified by the planning teams. Similarly, some proposed actions are tied to specific communities in the CWPP and AEUFP, and this could be replicated in the other plans.
5. Align fire hazard analysis	Spatial analysis of the various fire hazard products included in the plans (particularly the HMP and CWPP) in conjunction with the list of communities of greatest concern could help identify where there is agreement (or substantial disagreement). This could help prioritize communities and best represent the fire hazard products that are the most relevant to the needs of the County, the requirements of the plans, and the identification of actions and strategies. A more detailed analysis of fire behavior outputs, including spatial comparisons of hot spots around the county, could help identify which outputs demonstrate the most agreement across metrics. This in combination with expert and local knowledge of the communities at greatest risk could increase efficiency of fire hazard analysis in future updates.
6. Cross-reference proposed Strategies and Actions	The proposed strategy and action tables could be cross-referenced in a more detailed review in order to accomplish three main goals: a. Confirm that all strategies identified are included (e.g., are all of the AE-UFP projects in the CWPP and HMP?) b. Identify where strategies meet multiple objectives and produce success stories c. Identify and cross-reference specific, measurable outcomes to align plans on progress made. d. Prioritize projects given funding limitations

Recommendation	Description
7. Improve cross-plan assessment of housing ignitability and defensibility:	One of the challenges across such a large planning area is understanding individual structure level vulnerability and identifying specific actions and initiatives to mitigate this. The AEUFP defensible space inspection data could be integrated into future plan alignment efforts to help pinpoint the variability in adoption of home hardening and defensible space efforts as relevant to community-scale vulnerability. The specific communities identified in the CWPP for defensible space programs can be included in or referenced by the HMP.
8. Conduct concurrent updates of plans	This can improve leveraging and cross-referencing as compared to sequential updates. While there are many places where the plans reference each other now, they could be further integrated through concurrent development. This would also allow for the plans to reference each other when another plan more extensively covers a topic area, improving synthesis.
9. Conduct a quantitative analysis of plan alignment	Zhang et al. (2025) developed a method and rubrics based on the California Wildfire Resilience Plan Alignment Guide to assess both how effectively GPSEs, HMPs, and CWPPs met the objectives they are tasked with, and how well they align with each other. Further, they utilized guidelines for fire-adapted communities to characterize how well each plan aligned with and promoted science-informed characteristics of fire-adapted communities. Quantifying the thematic alignment across plans using this quantitative method can highlight both the areas where plans could be better aligned and the magnitude of the gap in alignment.

J.5 References

Zhang, C., Lambrou, N., Kolden, C. and Loukaitou-Sideris, A., 2025. Addressing Wildfire Resilience through Comprehensive County-Level Plan Effectiveness in California. International Journal of Disaster Risk Reduction, p.105230.

Zhang, C., Lambrou, N., Kolden, C. and Loukaitou-Sideris, A., In review. Identifying Misalignments in Wildfire Management: Opportunities for Plan Integration and Stakeholder Collaboration. Available at SSRN 5182092.

California Office of Planning and Research (CA OPR), Wildfire resilience plan alignment guide, 2023. https://resilientca.org/plan-alignment/wildfire-resilience/

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