

WESTERN EL DORADO COUNTY COMMUNITY WILDFIRE PROTECTION PLAN



Prepared by the El Dorado County Fire Safe Council and Spatial Informatics Group, LLC (SIG)



**RESOLUTION
OF THE
BOARD OF DIRECTORS
OF THE
EL DORADO COUNTY FIRE SAFE COUNCIL**

RESOLVED,

The Board of Directors of the El Dorado County Fire Safe Council has reviewed and hereby adopts this El Dorado County Wildfire Protection Plan (CWPP) for the benefit of the County of El Dorado for the purpose of increasing wildfire safety for its citizens while reducing the risk of loss of life and property.

SO RESOLVED.

Executed this _____, 2017 at Placerville, California

Chairman, El Dorado County Fire Safe Council Date _____

REVIEWED BY:

Chief, CALFIRE Amador-El Dorado Unit Date _____

Supervisor, Eldorado National Forest
United States Forest Service Date _____

President, El Dorado County Fire Chiefs'
Association Date _____

El Dorado County Office of Emergency
Services (OES) Date _____

El Dorado County Board of Supervisors Date _____

Registered Professional Forester (#2774), SIG Date _____

March 28th, 2017



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Executive Summary

The El Dorado County Wildfire Protection Plan provides an overview of local fire history, fire risks, hazards, and past strategies. The Plan identifies specific fire protection problems and issues, lists Plan Goals and Strategic Action Plan Recommendations, identifies and lists communities for Fire Safe Planning, provides for formation of local community Fire Safe Councils, adopts a standard outline for Community Wildfire Protection Plans (CWPP), identifies the El Dorado County Fire Safe Council as a focal point for bringing citizens and protection agencies together to plan and accomplish fire safe measures, and establishes a public education role for the EDCFSC.

The Federal Register currently identifies 22 Communities at Risk in El Dorado County (CALFIRE, 2016; Federal Register, 2001). Seventeen of these communities are covered by this CWPP and the remaining five covered under the Lake Tahoe Basin CWPP (TFFT 2015). The influx of people to El Dorado County and the building of homes in areas with hazardous fuels became an issue over 15 years ago. In response, El Dorado County initiated Fire Safe Planning for all new subdivisions and parcel splits. Several Fire Safe plans were prepared by professionals and approved by the appropriate fire protection agencies since 1993. Major mitigation work was accomplished. Updating the CWPP will expand the number communities having a CWPP compared with previous versions and allow incorporation new collaboratively developed fuel treatments into the next FSC program of work.

The El Dorado County Community Wildfire Protection Plan (“CWPP”), was prepared by members of the EDCFSC, and Spatial Informatics Group, LLC, with input from local stakeholders, members of the public, the California Department of Forestry and Fire Protection (CAL FIRE), local fire protection districts and the Eldorado National Forest. Funding was provided by EDCFSC and the State Responsibility Area Fire Prevention Fund (SRAFPF) Grant Program.

This comprehensive Plan is not a legal document, although the recommendations contained within the Plan carefully conform to the spirit and the letter of the National Fire Plan, the Healthy Forest Restoration Act, the State of California Fire Safe Plan, and the El Dorado County General Plan adopted July 2004. There is no guarantee, warranty, expressed or implied and no assumption of liability that the CWPP for the communities included in this plan will prevent wildfires from destroying natural resources or threatening homes and residents. However, full implementation and maintenance of the plan’s fuel treatment measures may help reduce the exposure of the community and adjacent homes to losses from wildfire.



Chapter 1: Introduction

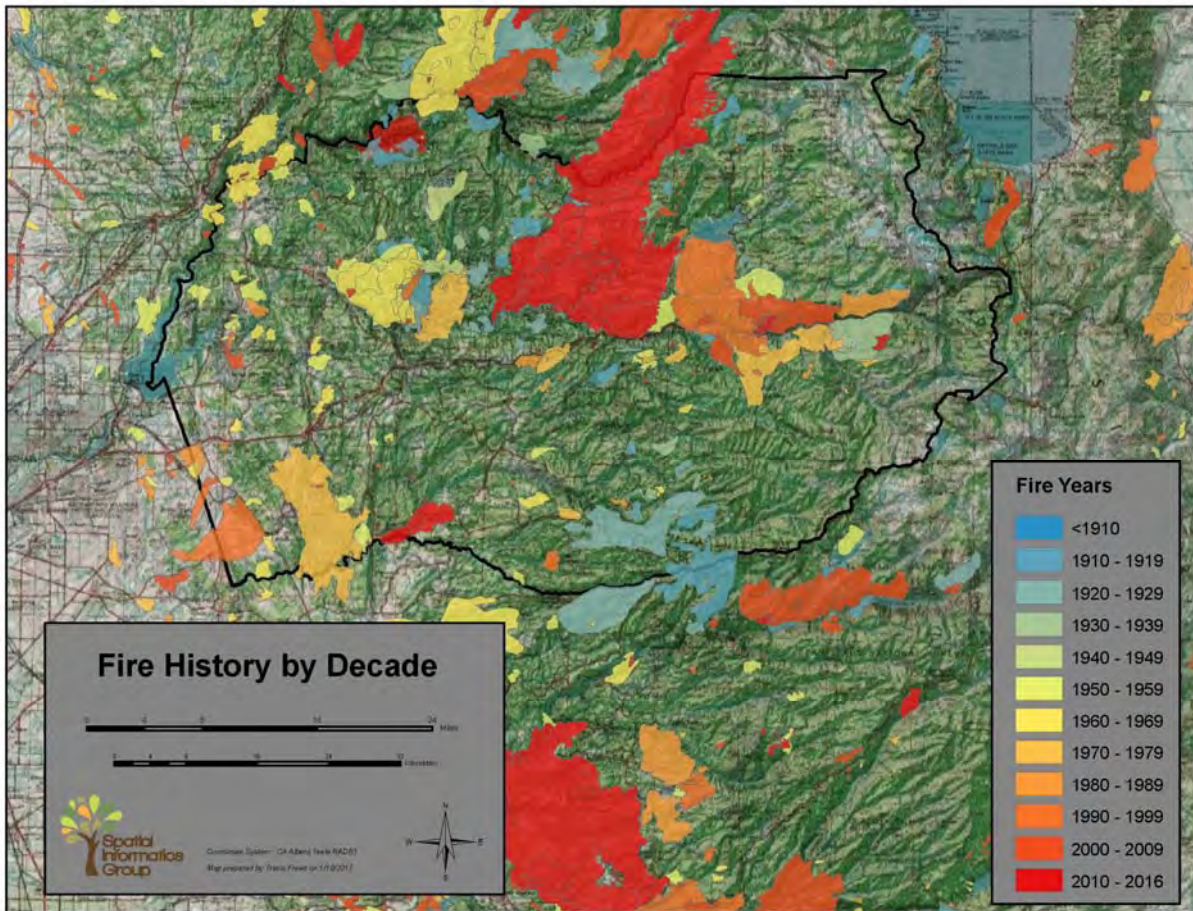
The El Dorado County Wildfire Protection Plan provides an overview of local fire history, fire risks, hazards, and past strategies. The Plan identifies specific fire protection problems and issues, lists Plan Goals and Strategic Action Plan Recommendations, identifies and lists communities for Fire Safe Planning, provides for formation of local community Fire Safe Councils, adopts a standard outline for Community Wildfire Protection Plans (CWPP), identifies the El Dorado County Fire Safe Council as a focal point for bringing citizens and protection agencies together to plan and accomplish fire safe measures, and establishes a public education role for the EDCFSC. The plan has been developed to be consistent with the approach outlined in the document Preparing Wildfire Community Protection Plan: A Handbook for Wildland–Urban Interface Communities (SAF 2004).

Background

El Dorado County has extensive cover of coniferous and hardwood forests as well as grasslands and shrub dominated vegetation types. In many areas, this vegetation is dense and has accumulated, in some cases, for decades, resulting in high dead fuel loadings and extensive ladder fuels--both conducive to supporting high severity crown fires under summer dry conditions. Across the Central and Southern Sierra Nevada, recent drought-induced mortality has resulted in over 102 million dead trees scattered individually, in large groups across the region (El Dorado County 2016). These dead trees are found intermixed in neighborhoods in the wildland-urban interface, exacerbating an already high wildfire risk, as well as posing a direct hazard to residents and emergency personnel working on fires, a potential risk to key community ingress and egress routes, and a general potential increased difficulty for fire control. The tree mortality issue has been recognized by the Governor's Office as a critical public safety issue, leading to a Proclamation of a State of Emergency (Brown 2015). This Proclamation provides agency guidance and funding authority, which are being utilized to help begin mitigation of the problem.

El Dorado County has a Mediterranean-type climate which features hot, dry summers and cool moist winters. These conditions have made wildfire common across the county (Figure 1) over the past 150 years. The largest fires recorded in El Dorado County have burned since 2010. Prior to the early 1900s, fires ignited by lightning, Native Americans, and other persons, typically burned on an average of every 5-8 years in mid-elevation coniferous forests such as those seen in the Georgetown area (Stephens and Collins 2004). This frequency of fire has been recorded across similar elevations and forest vegetation types of the Sierra Nevada Range (Vaillant and Stephens 2009).

Figure 1. Perimeters for fires greater than 10 acres, by decade for El Dorado County and nearby areas for the period from 1878 through July, 2015 (FRAP 2016).



The June – October dry season produces ideal conditions for wildfires. Annual plants die and perennial plants lose moisture and become highly flammable. Fires burning toward the end of the dry season and during other periods of extreme fire weather are intense, resist suppression efforts, and threaten lives, property and resources. Drought conditions intensify the wildfire danger. Two additional climatic conditions aggravate this already serious wildfire problem. Almost every year the Pacific High Pressure System moves eastward over California and brings very hot, dry weather with low humidity. This “heat wave” can occur at any time during the dry season and wildfires can start easily and are difficult to extinguish. The other extreme weather condition, thankfully less frequent, usually occurs in the fall and sometimes in early winter, when north or east strong, dry winds subside from the Great Basin High (Foehn Winds). Under these conditions, a wildfire can quickly escape and create great damage before the winds stop blowing. The Oakland Hills Fire of 1991, which destroyed 3810 homes, burned under these conditions.

Drought conditions and resulting bark beetle infestations have caused pervasive tree mortality across the Central and Southern Sierra Nevada Mountains. It is estimated that there are over 102 million dead trees and this number continues to grow on a daily basis. El Dorado County is not immune to this epidemic as there are thousands of dead and dying trees threatening public safety and infrastructure. In 2016, El Dorado County was designated a “High Priority County” as it contained extensive mortality, including substantial areas of “Tier 1 High Hazard Zones”, where mortality directly coincided with critical infrastructure, posting a direct threat to public safety (TMTF 2016).

The El Dorado County Board of Supervisors has proclaimed a Local State of Emergency and approved the County's Tree Mortality Hazard Tree Removal Program. The State of California has also proclaimed a State of Emergency. This proclamation recognizes and addresses the need for the removal of dead and dying trees throughout the State and authorizes California Disaster Assistant Act (CDAA) funding, which provides 75% reimbursement for all eligible costs related to the removal of hazard trees that threaten public infrastructure (EDC 2016).

The focus of this report is to provide a wildfire protection plan for communities within the Wildland Urban Interface in Western El Dorado County. The Wildland Urban Interface (WUI) is defined as the area where communities or structures are directly adjacent to wildland fuels or where individual structures are scattered throughout a wildland areas. The WUI can also include structures within a city that abut an island of wildland fuels, such as a park or other open space. There are 3 general categories of WUI (Federal Register 2001):

Category 1. Interface Community

The Interface Community exists where structures directly abut wildland fuels. There is a clear line of demarcation between residential, business, and public structures and wildland fuels. Wildland fuels do not generally continue into the developed area. The development density for an interface community is usually three or more structures per acre, with shared municipal services. Fire protection is generally provided by a local government fire department with the responsibility to protect the structure from both an interior fire and an advancing wildland fire. An alternative definition of the interface community emphasizes a population density of 250 or more people per square mile. This includes communities such as El Dorado Hills and Auburn Lake Trails.

Category 2. Intermix Community

The Intermix Community exists where structures are scattered throughout a wildland area. There is no clear line of demarcation; wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres. Fire protection districts funded by various taxing authorities normally provide life and property fire protection and may also have wildland fire protection responsibilities. An alternative definition of intermix community emphasizes a population density of 28-250 people per square mile. This includes communities such as Georgetown, Pollock Pines, and Grizzly Flats.

Category 3. Occluded Community

The Occluded Community generally exists in a situation, often within a city, where structures abut an island of wildland fuels (e.g., a park or open space). There is a clear line of demarcation between structures and wildland fuels. The development density for an occluded community is usually similar to those found in the interface community, but the occluded area is usually less than 1,000 acres in size. Fire protection is normally provided by local government fire departments.

Over 640,000 homes in California are at extreme or high wildfire risk (Botts et al., 2016). Each year, dozens and even hundreds of homes are destroyed or damaged by fires occurring in or moving through WUI areas across the Western United States. El Dorado County is no exception from wildfire losses. In 1985 the Eight Mile Fire destroyed 14 homes and in 1992 the Cleveland Fire destroyed more than 40 homes and claimed the lives of two aircraft pilots. More recently, the King Fire in 2014, destroyed 80 structures, burned over 97,000 acres, and led to the rapid evacuation of hundreds of residences. People who live in, or plan to move into, an area where homes are intermixed with brush, grass, woodlands, or forests may be in jeopardy and their property may be at risk.

Unfortunately, the control of wildfires is not an exact science and the best efforts by emergency personnel can be hampered by limited resources, sudden changes in weather, a complex WUI fire environment, and the need to simultaneously evacuate residents during fast-moving fire events. A wildfire responds to the weather, topography, and fuels in its environment. Under extreme burning conditions, the behavior of a wildfire can be so powerful and unpredictable that fire protection agencies may need to wait until conditions moderate before direct suppression actions can be taken; during this period wildfire can burn freely, destroying entire neighborhoods or burning watershed lands with high severity.

For these reasons, a Community Wildfire Protection Plan (CWPP) is crucial not only to engage and educate communities about wildfire risks, but also to create pathways for beneficial actions and projects that create the environmental and infrastructure conditions that best mitigate wildfire danger.

The El Dorado County Community Wildfire Protection Plan (“CWPP”) was prepared by members of the El Dorado County Fire Safe Council (EDCFSC) and Spatial Informatics Group, LLC, with input from local stakeholders, members of the public, local fire protection districts, the California Department of Forestry and Fire Protection (CAL FIRE), and the Eldorado National Forest. Funding was provided by the El Dorado County Fire Safe Council and the State Responsibility Area Fire Prevention Fund (SRAFPF) Grant Program. This Plan is not a legal document, although the recommendations contained within the Plan carefully conform to the spirit and the letter of the National Fire Plan, Healthy Forests Restoration Act, the State of California Fire Safe Plan, and the El Dorado County General Plan, adopted July 2004.

Minimum CWPP Requirements

The *minimum requirements* for a CWPP as described in the HFRA are:

(1) Collaboration: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.

(2) Prioritized Fuel Reduction: A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.

(3) 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.

Source: SAF, 2004

1.2 Plan Objectives

The purpose of this document is to provide a comprehensive, scientifically-based assessment of the wildfire hazards and risks within the El Dorado County CWPP assessment area. This assessment estimates the hazards associated with wildland fire in proximity to communities. The hazard information, in conjunction with values-at-risk information, defines "areas of concern" for the community and allows prioritization of mitigation efforts. The content of this assessment will aid stakeholders in developing short-term and long-term strategies for:

- Hazardous fuel treatment projects and priorities for those projects. Specifically, this plan will set up a 10-year program of work that may be used by the El Dorado Fire Safe Council and community-level Fire Safe Councils to guide future fuel reduction projects.
- Community wildfire safety education opportunities
- Assisting public agencies in making valid and timely decisions for wildfires and evacuations
- Providing communities with tools and information to help make a potential difference in wildfire losses and to facilitate preparation for evacuations if ever needed

Plan Development Strategy

Severe wildfires in recent years prompted several communities and Fire Safe Councils to independently craft plans for addressing wildfire risk in their immediate vicinity. Similar planning efforts were spurred on by language in Title I of the Healthy Forests Restoration Act (HFRA) of 2003, which defined Community Wildfire Protection Plans (CWPP) and granted priority to fund hazardous fuel reduction projects in areas where a CWPP was in place. However, the format and process for creating a CWPP remained vague.

Therefore, the Society of American Foresters, the National Association of State Foresters, Communities Committee, Western Governors' Association, and the National Association of Counties combined their expertise to write and distribute a straightforward guide on how to create and implement CWPPs that are HFRA-compliant. "Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities," dated March 2004, has been used as a guide in preparing CWPPs for the El Dorado County Fire Safe Council (SAF 2004). Please see the references section for a link to this document. The general approach described in this document is summarized below:

Step One: Convene Decision Makers: Form a core team made up of representatives from the appropriate local governments, local fire authorities, and state and federal agencies responsible for management.

Step Two: Involve Local, State, and Federal Agencies: Identify and engage local representatives of the Eldorado National Forest, California Department of Forestry and Fire Protection (CAL FIRE), Bureau of Land Management, US Forest Service, and other management agencies as appropriate.

Step Three: Engage Interested Parties: Contact and encourage active involvement in plan development from a broad range of interested organizations and stakeholders.

Step Four: Establish a Community Base Map: Work with partners to establish a baseline map of the community that defines the Community Wildland Urban Interface (WUI) and displays inhabited areas at risk, forested areas that contain critical human infrastructure, and forested areas at risk for large scale fire disturbances.

Step Five: Develop a Community Risk and Hazard Assessment: Use modeling and input from local partners to:

- A. Describe the overall risk of wildfire occurrence using historical data and local knowledge
- B. Describe the potential for fire spread, flame length, and fire type (e.g., crown fire, surface fire) which are functions of the fuel complex within individual communities and essential infrastructure using LANDFIRE model inputs and FLAMMAP
- C. Work with partners to develop a community risk assessment that considers the risk of fire ignitions, homes, businesses, and essential infrastructure at risk, local preparedness capability, and adequacy of community ingress and egress routes, staging areas, and firefighter safety
- D. Describe current protection capabilities, access, fire support infrastructure, and the potential for urban conflagration
- E. Describe other community values at risk as identified by the community and local Fire Safe Councils

Step Six: Establish Community Priorities and Recommendations: Use the base map and community risk assessment to facilitate a collaborative community discussion that leads to the identification of local priorities for fuel treatment, reducing structural ignitability, and other issues of interest, such as improving fire response.

Step Seven: Develop an Action Plan and Assessment Strategy: Develop a detailed implementation strategy to accompany the Plan as well as a monitoring plan that will ensure its long-term success and maintenance.

Step Eight: Finalize Community CWPP: Finalize the CWPP and communicate the results to community and key partners.

In keeping with the call to engage with local, state, and federal agencies, Sections 1.21 – 1.23 of this CWPP outline compliance to relevant legislative acts, policies, and plans of each jurisdiction.

1.21 CWPP Consistency with Federal Guidelines

The CWPP is required to be consistent with and tiered to the following documents, federal acts, and policies.

The two acts most associated with fuels reduction policy include:

1. The Healthy Forest Restoration Act (HFRA) of 2003

2. The 2010 Federal Land Assistance Management and Enhancement (FLAME) Act (U.S House of Representatives and Senate, 2009). FLAME is the most recent congressional act and can be located at http://www.wflccenter.org/news_pdf/344_pdf.

The Healthy Forest Restoration Act (U.S. Congress, 2003) defines CWPPs, which allow communities to identify fuel-reduction projects, to receive priority for funding requests from the California State Clearinghouse (HFRA sec 103 [d1]). Federal agencies shall consider recommendations identified in CWPPs (HFRA sec. 103[b]) and implement those projects on federal lands (HFRA sec. 102[a]).

The FLAME Act effort has spawned collaborative consideration and examination of wide-ranging but pertinent elements in creating a concerted move forward. The report has two parts:

- Part I addresses the specific elements requested by Congress in the FLAME Act.
- Part II expands upon those elements and goes further in providing a roadmap for the future— Cohesive Wildland Fire Management Strategy. As a living document, Part II provides a foundation from which to build local and regional actions and direction.

For more information on CWPPs and Firewise Planning, visit the following websites

<http://www.cafirealliance.org/cwpp>

<http://www.firesafecouncil.org/>

<http://www.firewise.org/>

Together, the two parts of the FLAME Act address the elements requested by Congress and represent the next stage in an evolving world of wildland fire management, all with the goal of achieving even safer, more efficient, cost-effective, and achievable public and resource protection and more resilient landscapes.

There are two primary policy documents that federal agencies use to implement the two acts: (1) the *10 Year Implementation Plan for HFRA* and (2) the *Cohesive Strategy*. These are a national collaborative effort between wildland fire organizations; land managers; policy-making officials representing federal, state, and local governments; tribal interests; and non-governmental organizations that will address the nation’s wildfire problems.

Fire-Adapted Communities

One approach to assessing and countering the threat of wildfire is the concept of “fire-adapted communities,” one of the three primary elements of the *Cohesive Strategy*.

A fire-adapted community is one consisting of informed and prepared citizens collaboratively taking action to safely co-exist with wildland fire. An inherent part of becoming a fire-adapted community is to assess the community and the threat posed to it by wildland fire. A fire-adapted community generally has achieved or is working toward the following:

- Implementing “Firewise” principles to safeguard homes and “Ready, Set, Go!” principles to prepare for fire and evacuation
- Developing adequate local fire suppression capacity to meet community protection needs

- Designing, constructing, retrofitting, and maintaining structures and landscaping in a manner that is resistant to ignition
- Adopting and enforcing local codes that require fire-resistant home design and building materials
- Raising the awareness of and creating incentives for growth planning and management that reduces, rather than increases, fire-prone development
- Properly spacing, sequencing and maintaining fuel treatments across the landscape
- Developing and implementing a CWPP or equivalent
- Establishing interagency mutual aid agreements
- Designating internal safety zones

1.22 CWPP Consistency with State of California Guidelines

The CWPP is also consistent with and tiered to the following state plans and policies.

2010 Forest and Range Assessment of California

This analysis and the findings of the Central El Dorado County CWPP are consistent and supported by the findings in the *2010 Forest and Range Assessment of California* (California Department of Forestry and Fire Protection, Fire and Resource Assessment Program, 2010).

Current Status and Trends:

- California's long history of wildfire and population growth has led to a set of state laws, regulations, and programs that address community wildfire safety. These include state and local planning laws, Fire Hazard Severity Zones and related building standards, defensible space requirements, various fuel reduction programs, the California Fire Plan and CAL FIRE Amador, El Dorado Unit Fire Plans, and the State Hazard Mitigation Plan.
- Community fire protection is also addressed by federal laws and programs such as the Disaster Mitigation Act, National Fire Plan, Healthy Forests Restoration Act, and Firewise Communities Program.
- Local agencies and non-profits play a key role in community fire protection planning. This is accomplished through county fire plans, county general plan safety elements, and through involvement of local fire districts, Fire Safe Councils, and the California Fire Alliance.
- Community planning is a collaborative effort that typically includes various federal, state, and local agencies, Resource Conservation Districts, local fire districts, and private organizations.

2010 Strategic Fire Plan for California

The 2010 Strategic Fire Plan for California (State Board of Forestry and Fire Protection 2010) states the following vision:

"...a natural environment that is more resilient and man-made assets which are more resistant to the occurrence and effects of wildland fire through local, state, federal and private partnerships."

The California Fire Plan is the state’s road map for reducing the risk of wildfire. By placing the emphasis on what needs to be done long before a fire starts, the plan looks to reduce firefighting costs and property losses, increase firefighter safety, and contribute to ecosystem health. The plan was a cooperative effort between the State Board of Forestry and the California Department of Forestry and Fire Protection (CAL FIRE). The basic principles of the fire plan are as follows:

- Encourage community involvement to ensure that fire protection solutions meet individual community needs.
- Assess community risk by identifying community assets at risk of wildfire damage.
- Define community assets at risk as public and private resources (natural and manmade) that could be damaged by wildfire.
- Develop pre-fire management solutions and implement cooperative projects to reduce a community’s potential wildfire losses.

1.23 Community Wildfire Protection Plans (CWPPs) and Local Jurisdictions

On the local level, CWPPs are a product of a collaborative process among local stakeholders to prepare for and deal successfully with a wildland fire emergency. CWPPs provide a specific risk assessment to a community, identify areas needing specific treatments, and include roles and responsibilities, community ingress and egress routes, resources, and other pertinent information a community needs in times of emergency. CWPPs are comprehensive wildfire planning tools for a community or a county.

CWPPs also include the opportunity to educate homeowners; target, prioritize, and schedule fuels treatments; and build response capability. Working together to create a CWPP is an important first step in bringing the awareness of shared wildfire risk home to the community. Local authorities such as fire departments, fire protection associations, county planning and zoning departments, and other authorities conduct risk assessments that help them determine their local needs for fuel treatments, equipment, personnel, training, mitigation needs, local ordinances or code adoption, and enforcement. Local assessments also can identify which mitigation programs are best for a given community, such as NFPA’s “Firewise” and the International Association of Fire Chief’s “Ready, Set, Go!” program.

Regulation through codes and ordinances and subsequent enforcement are a major challenge for communities-at-risk since most of those communities are small. Even if they have authority to adopt codes, many communities do not have the resources to enforce them.

Traditionally, many communities were served by Volunteer Fire Departments (VFD’s). Today, most, if not all, local fire protection districts have transitioned from primarily volunteer departments to professionally staffed stations. This was due to increasing OSHA training requirements, liability issues, and corresponding cost increases, which are part of a larger trend statewide. Unfortunately the budgets of many districts have not been able to keep up with the costs associated with these changes and several districts have closed “volunteer” stations and concentrated human resources in one or two stations. That said, there is a robust mutual aid agreement among the districts that puts all resources available to a centralized dispatch. In addition, there is also a Joint Powers Agreement (JPA) for medical response that covers the entire county.

The CWPP is only a plan—it will not reduce the threat of a wildfire or increase protection for any community. Reducing the threat of a wildfire to a community will only be achieved by the local residents of that community. Federal, state, and local agencies may provide assistance, but ultimately, actions that modify fire behavior or increase structural resistance to a wildfire are the responsibility of the local residents.

1.3 CWPP Planning Area Boundaries

The central El Dorado County CWPP is divided into several planning zones by organized by Fire Safe Council. Each fire safe council should be considered a “planning zone” with input from CAL FIRE and the local fire districts (Figure 2). There are areas of the county that are not represented and do not have planned projects in this CWPP. The fire hazard and risk analysis was completed for the area depicted in Figure 3.

Figure 2. El Dorado County Fire Safe Councils for the West Slope Region of the county

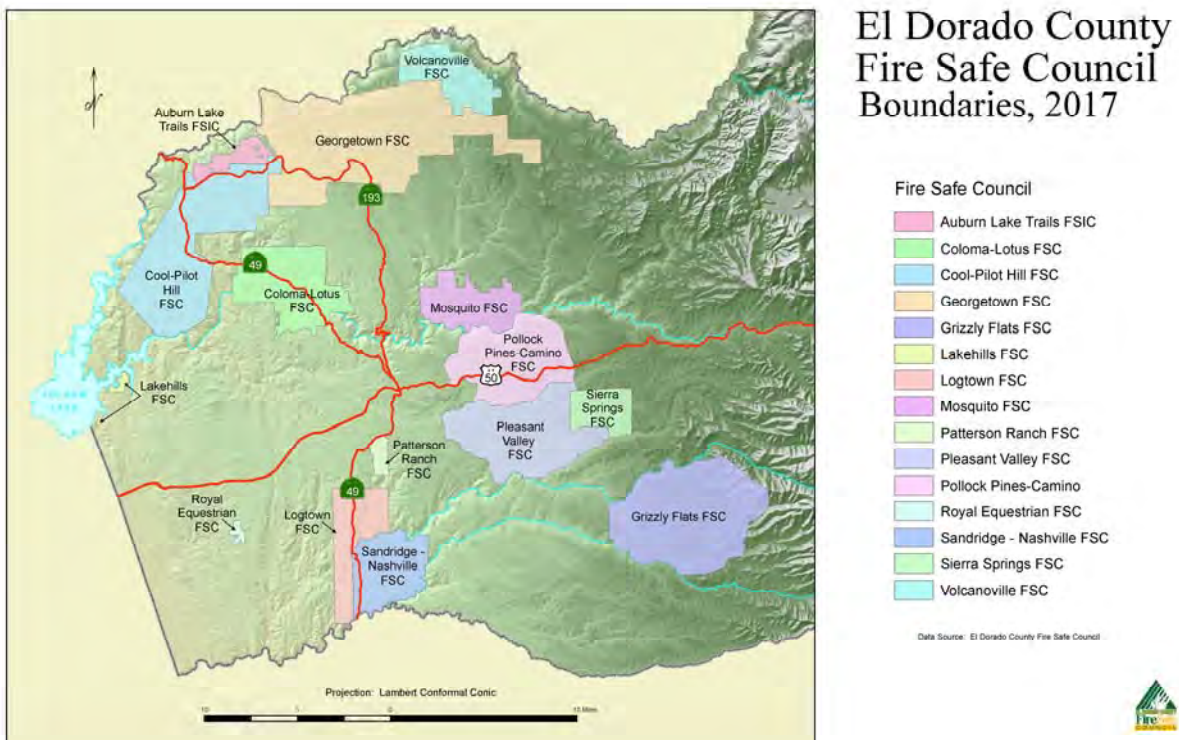
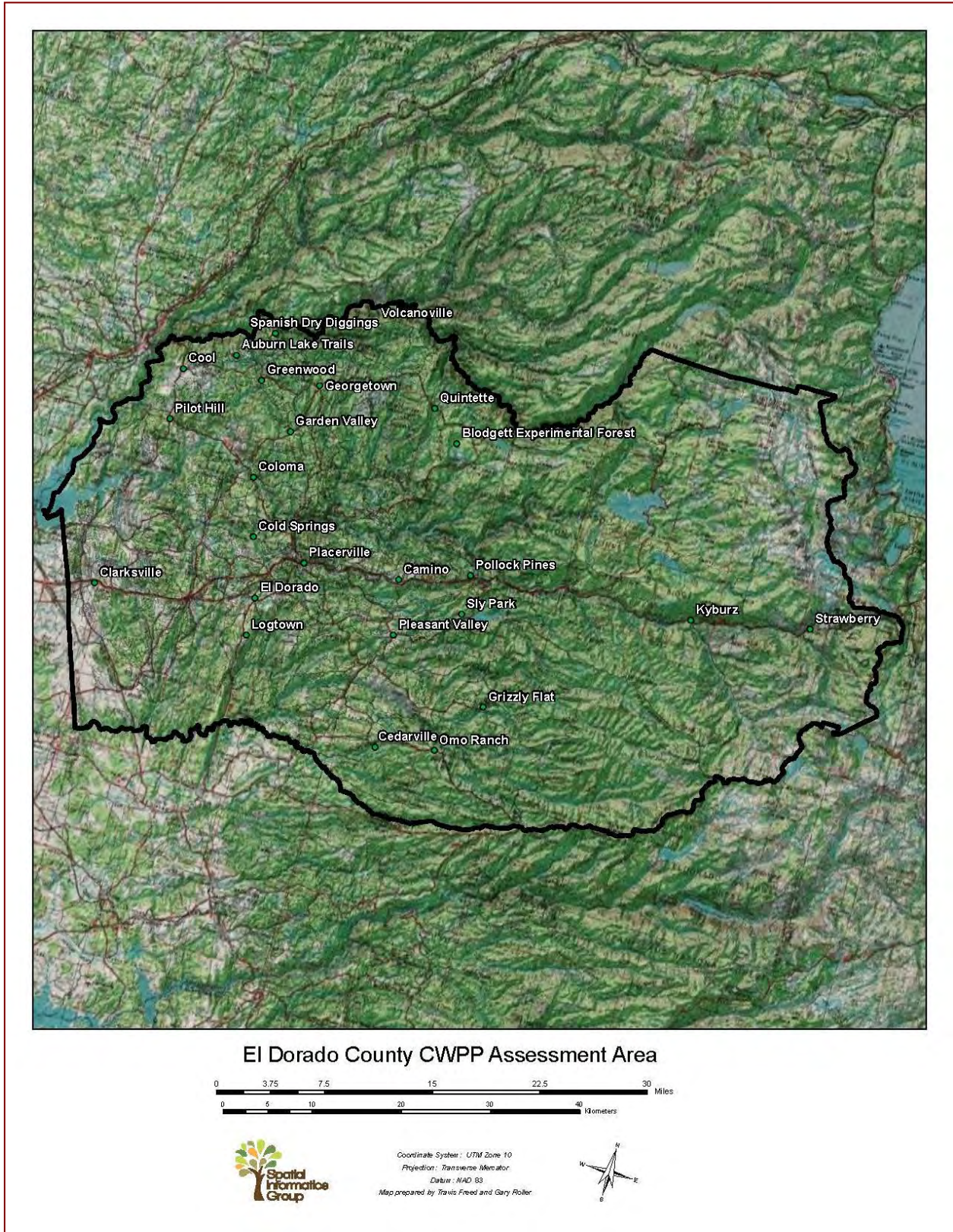


Figure 3. El Dorado CWPP fire hazard and risk assessment area



1.4 Core CWPP Planning Team

The core CWPP planning team is composed of members of the El Dorado County Fire Safe Council, CALFIRE, and Spatial Informatics Group (SIG) (Table 1). This team is responsible for all aspects of developing the CWPP document, with a particular emphasis on gathering community and stakeholder information and concerns via meetings, surveys, and local knowledge, and incorporating that information into the final CWPP.

Table 1. CWPP Planning Team

Name	Title	Organization
Pat Dwyer	Chairperson	El Dorado Fire Safe Council
Steve Willis	Board Member	El Dorado Fire Safe Council
Barry Callenberger	Consultant	Wildland Rx.
Darin McFarlin	Captain	CALFIRE
Gary Roller	Project Manager and Registered Professional Forester	Spatial Informatics Group
Jason Moghaddas	Fire Ecologist and Registered Professional Forester	Spatial Informatics Group
Shane Romsos	Research Scientist	Spatial Informatics Group
Dr. Richard Harris	Registered Professional Forester	Spatial Informatics Group

1.5 Community and Agency Involvement

Communities and agencies across El Dorado County have been directly informed of, participated in, and given input used in the development of the CWPP via newspaper articles, direct public meetings, and an online community survey.

This CWPP is not intended to nor should be used to assess fire risk or prescribe treatments on federal lands. The process for wildfire risk planning on USFS lands is the “Northern Sierra Wildfire Risk Assessment” (NSWRA), the Eldorado National Forest Cohesive Wildland Fire Management Strategy, which will inform the Eldorado National Forest (ENF) Land Management Plan Revisions, as well as the Eldorado National Forest Fire Management Plan. In addition, the South Fork America River Watershed (SOFAR) has had several projects planned and funded independently from this CWPP. The following are websites with more information about the NSWRA

(<http://www.fs.usda.gov/detail/eldorado/news-events/?cid=STELPRD3813466>) and SOFAR (<http://www.fs.usda.gov/detail/eldorado/news-events/?cid=FSEPRD495223>).

1.51 Public Meetings and Other Outreach

Since May 2015, there have been nearly 40 meetings reaching over 400 people (Appendix 1). These meetings have involved all aspects of the CWPP development, including determining the initial scope of the project, informing the public and stakeholders about the CWPP process, and soliciting direct public and agency input on wildfire concerns, evacuation concerns, and potential treatment areas. In addition, the presentation materials have been made available via YouTube, allowing persons who cannot attend the meeting to view a summary of the CWPP at their own convenience.

The number of meetings, the variety of venues and times, frequent notifications, and on-line availability have helped ensure that the community has had the opportunity to provide input directly into the planning process. In addition, a general narrated presentation describing the CWPP process was made available to the public via YouTube; as of June 10, 2016 this online presentation had over 40 views (https://www.youtube.com/playlist?list=PLiEp-2s05SCyPxcSa3VMQSDYobIM_gPT7).

1.53 Community Priority Survey

In collaboration with the El Dorado County Fire Safe Council, a community survey was prepared and distributed online and in print. With more than 400 responses, the survey helped meet several goals of the CWPP, including:

- Providing a platform to directly engage and involve members of the public, agencies, and decision makers in the CWPP process, even when they could not attend the in-person meetings
- Allowing a systematic assessment of concerns regarding perceived fire risks, evacuation issues, and treatment priorities
- Helping to inform Local Fire Safe Councils of potential community concerns and providing contact information for one-on-one follow up with community members who chose to share that information
- Summarizing the spatial information in the survey, including potential fuel treatment locations and community ingress and egress route concerns, into maps, which were further reviewed and refined by the CWPP planning team to integrate additional Stakeholder input

The survey had a range of questions (Appendix 2) allowing people to identify which communities they lived and worked in, the resources they believed warranted the greatest priority for fuel reduction, community ingress and egress routes and related concerns, whether or not they were able to manage their defensible space, and whether or not they wanted follow-up contact from the FSC on specific programs (Senior or Disabled Assistance, Evacuation Planning, Green Waste, and others).

The survey was distributed digitally via the online survey service, Survey Monkey (<https://www.surveymonkey.com/>), between October 14, 2015 and March 31, 2016. Links to the survey were distributed via email, on the FSC website, via newspaper (Mountain Democrat), and at the public meetings described above. For persons not having Internet access or preferring a paper survey, print copies were available by mail or in person, which were then transcribed into Survey Monkey manually. Over the survey period, there were a total of 403 responses, with only 1 of those being a paper-based response.

1.54 Community Priority Survey –Key Findings

Full summaries of the survey data can be found in Appendix 3. Just over 400 surveys were completed by individuals representing 32 different communities in the CWPP area. Of those surveys completed, 188 individuals (47%) requested additional direct follow-up from their local Fire Safe

Council for information on existing programs. This list of information requests was sent to all 13 local Fire Safe councils, allowing them to follow up locally on an on-going basis via direct contact and community meetings.

In some cases, communities were small towns and in others, specific subdivisions or private in-holdings within the Eldorado National Forest. The vast majority of respondents (79%) were not affiliated with organizations responsible for fire protection or fire management, an indication that the survey reached and was taken by local landowners and the general public. For those respondents who were affiliated with fire protection or management organizations, 55% were representatives of local Fire Safe Councils.

Community Priorities for Fuel Treatment

A critical intent of the survey was to gather community-based input on treatment priorities to help inform the layout and prioritization of forest and fuel treatments over the next decade. Respondents were asked to prioritize different resources for fuel treatment work by high (begin work within 1-3 years of CWPP completion), moderate (begin work within 3-5 years of CWPP completion), or low priority (begin work within 5-10 years of CWPP completion). There was clear agreement on several high priorities as shown in Table 3 below.

The survey responses were summarized graphically (Appendix 2). Responses to Question 5 (treatment priorities) were hand-digitized into maps depicting potential community-driven fuel treatment planning units. Community ingress and egress routes and “choke points” identified by respondents (Questions 6 and 7) were mapped as well.

Survey respondents resoundingly identified community ingress and egress routes out of their communities and along major roads and highways as the top priority for fuel treatments. This was supported by extensive written comments (Questions 5-7) about potential treatment areas and community ingress and egress route concerns. Respondents also noted that private residences were a high priority compared with nearly all other resources. The next set of high priorities for treatments focused primarily on other infrastructure, including infrastructure for power generation and transmission, communications, and water conveyance, as well as watershed lands, schools, and hospitals. Vacant lands overall were mentioned numerous times as a concern across communities.

In terms of projects identified as moderate priorities, the emphasis shifted to places of worship, parks, community buildings, airports, and continued focus on water conveyance infrastructure. In the moderate category of priorities, the survey results did not show overwhelming agreement about which priorities were most important, as was seen for high priority projects.

Responses about lower priority projects emphasized parks, cemeteries, and places of worship. There were numerous “other” treatment areas mentioned, including public lands and CALTRANS right of ways, smaller roads, and vacant lands adjacent to developed parcels. The detailed prioritization approach, which integrates the community survey results and other key factors, is described in section 4.32.

Table 3. Summary of treatment priorities for different facilities and resources by percent response for high, moderate, and low priorities.

	Highest Priority (Begin Implementation within 3 Years of CWPP Completion)	Rank for Highest Priority	Moderate Priority (Begin Implementation within 3-5 Years of CWPP Completion)	Rank for Moderate Priority	Lowest Priority (Begin Implementation within 5-10 Years of CWPP Completion)	Rank for Lowest Priority	Response Count
Evacuation Routes Out of the Community	90%	<i>1</i>	9%	<i>19</i>	1%	<i>20</i>	<i>320</i>
Private Residences	78%	<i>2</i>	18%	<i>18</i>	5%	<i>19</i>	<i>330</i>
Major Roads and Highways	67%	<i>3</i>	26%	<i>15</i>	6%	<i>17</i>	<i>293</i>
Power Production and Transmission Infrastructure	65%	<i>4</i>	29%	<i>13</i>	6%	<i>18</i>	<i>269</i>
Communication Infrastructure	60%	<i>5</i>	32%	<i>11</i>	7%	<i>16</i>	<i>269</i>
Vacant (undeveloped) Parcels	59%	<i>6</i>	22%	<i>17</i>	19%	<i>9</i>	<i>320</i>
Domestic Use Water Distribution Ditches, Flumes, and Pipelines	59%	<i>7</i>	32%	<i>12</i>	10%	<i>15</i>	<i>273</i>
Hospitals	57%	<i>8</i>	27%	<i>14</i>	17%	<i>10</i>	<i>260</i>
Watershed Lands Associated with Local Reservoirs	51%	<i>9</i>	36%	<i>9</i>	13%	<i>14</i>	<i>280</i>
Reservoirs and Associated Infrastructure	51%	<i>10</i>	36%	<i>7</i>	13%	<i>13</i>	<i>269</i>
Schools	50%	<i>11</i>	35%	<i>10</i>	15%	<i>12</i>	<i>266</i>



	Highest Priority (Begin Implementation within 3 Years of CWPP Completion)	Rank for Highest Priority	Moderate Priority (Begin Implementation within 3-5 Years of CWPP Completion)	Rank for Moderate Priority	Lowest Priority (Begin Implementation within 5-10 Years of CWPP Completion)	Rank for Lowest Priority	Response Count
Other Community or Public Buildings (e.g. Fire Stations, Post Offices, Community Centers)	40%	12	44%	5	16%	11	265
Threatened and Endangered Wildlife Habitat	32%	13	36%	8	32%	5	275
Agricultural Use Water Distribution Ditches, Flumes, and Pipelines	31%	14	46%	2	24%	8	265
Airports and/or Heliports	30%	15	43%	6	27%	7	258
Private Businesses	25%	16	44%	4	31%	6	258
Places of Worship (Including accessory buildings and infrastructure)	14%	17	46%	1	40%	4	258
Parks	12%	18	44%	3	43%	3	263
Cemetery	6%	19	26%	16	69%	2	250
Other (please specify)	0%	20	0%	20	100%	1	30

Survey Responses Regarding Maintenance of Defensible Space

Eighty-five percent of survey respondents noted that they had maintained their defensible space within the last year. Factors affecting people's ability to regularly maintain defensible space were overwhelmingly time and cost, with many respondents mentioning age and physical condition as an "other" factor. In addition, several respondents mentioned their defensible space (by distance) was on an adjacent landowners' (both private and public) property and was not properly maintained by that owner. Several others mentioned the difficulty in disposing of (chipping) cleared vegetation as well as a desire to maintain privacy screening and shading.

Firewise home construction and landscaping guidelines (Appendix 3) were implemented on properties for about 46% of those surveyed, with cost, time, physical ability, and neighbors' lack of vegetation management being important factors limiting Firewise implementation.

Nearly 40% of respondents requested follow-up from Fire Safe Council representatives for a range of programs including Senior/Disabled Assistance, Chipper and Green Waste Programs, Evacuation Planning, and Ember Awareness. The contact information for these individuals was forwarded to the appropriate Fire Safe Council for follow-up consultations.

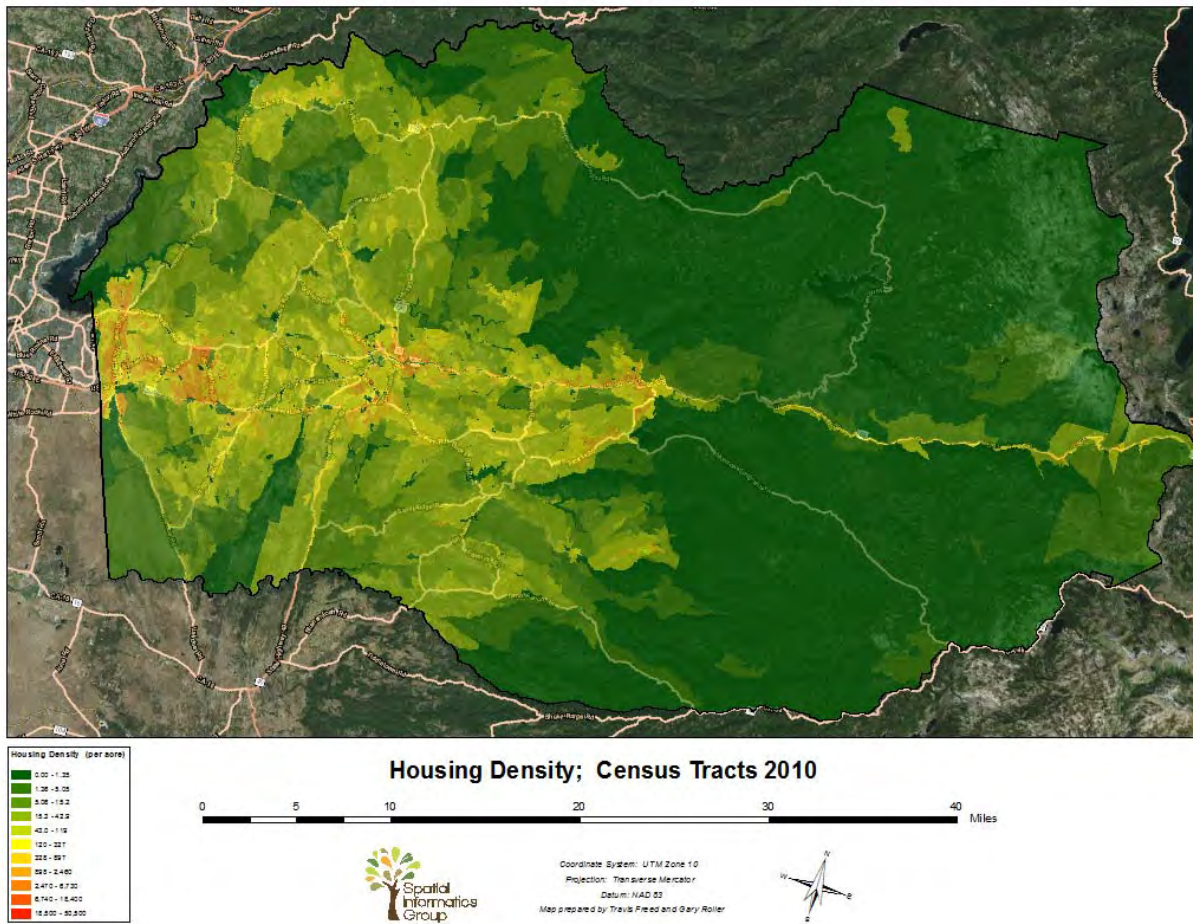
Chapter 2: El Dorado County Characteristics and Demographics

2.1 Geographic Area and Demographics

El Dorado County comprises 1,805 square miles with over half of the area in the Eldorado National Forest and recreation areas managed by various public and private entities. The remainder of the county is a mix of residential areas, agriculture lands, and business parks all grouped in small communities scattered throughout open space made up of wildland vegetation. Nearly 58% of the land area of the county is considered to be WUI. The western boundary is Sacramento County and the eastern boundary is the state of Nevada and the southern half of Lake Tahoe. Placer County is to the north with Amador and Alpine Counties to the south. The population of El Dorado County continues to expand into forested, shrub dominated, and grassland vegetation types with residential and commercial development occurring in wildland/urban interface areas of high fire hazard risk. CAL FIRE has classified this area of El Dorado County as very high fire hazard. Additionally, the California Fire Plan indicates that some or all of the wildland fire threat to this county comes from the adjacent federal lands.

El Dorado County is currently home to 182,019 people, with a projected population of over 225,439 by 2020. As of 2010, the population density in the county was 106 residents per square mile, putting it well below the statewide average population density of 248 people per square mile. It is projected that by 2020 the population density in El Dorado County will reach 132 people per square mile. Of the two incorporated cities in El Dorado County, the city of South Lake Tahoe was the most populous, with 24,087 people in 2010. However, the city of Placerville, the only incorporated city in the study area, was the fastest growing incorporated city in the county, with an annual average population increase of 1 percent between 2000 and 2010 (El Dorado County 2010). The community of El Dorado Hills is the fastest growing unincorporated community in the county. The population was 42,108 at the 2010 census, up from 18,016 at the 2000 census. Many residents commute to the greater Sacramento area and the median home price is \$480,000 (EDCCED 2011). Development is concentrated in the western portion of the county, with a few smaller communities extending east along the Highway 50 Corridor (Figure 4).

Figure 4. Housing Density for El Dorado County (2010).



2.2 Climate, Hydrology and Watershed

Climate

El Dorado County has a Mediterranean type climate which features hot, dry summers and cool, moist winters. The June – October dry season produces ideal conditions for wildfires. Annual plants die and perennial plants lose moisture and become highly flammable. Fires burning toward the end of the dry season are intense, resist suppression efforts, and threaten lives, property, and resources. Drought conditions intensify the wildfire danger (Table 4).

Table 4. Climate readings as of 2010 (El Dorado County 2010)

	<i>Georgetown</i>	<i>Placerville</i>
<i>Avg. July max. temperature (degrees)</i>	<i>89.4</i>	<i>92.7</i>
<i>Avg. January max. temperature</i>	<i>51.2</i>	<i>53.4</i>
<i>Avg. July min. temperature</i>	<i>59.5</i>	<i>51.9</i>
<i>Avg. January min. temperature</i>	<i>35.2</i>	<i>32.6</i>
<i>Avg. July precipitation (inches)</i>	<i>0.0</i>	<i>0.1</i>
<i>Avg. January precipitation</i>	<i>10.6</i>	<i>6.9</i>
<i>Avg. annual precipitation</i>	<i>53.0</i>	<i>38.1</i>
<i>Avg. January snowfall</i>	<i>9.2</i>	<i>1.2</i>
<i>Avg. Annual snowfall</i>	<i>31.8</i>	<i>2.5</i>

Middle Fork American River

The Middle Fork American River Watershed encompasses the northern region of El Dorado County and the southern region of Placer County. El Dorado County’s portion of the watershed extends from the headwaters at Rockbound Valley in Desolation Wilderness, west to its terminus at the confluence with the North Fork American River, east of Auburn. The Rubicon River is the main tributary flowing into the Middle Fork American River, and receives flow upstream from the South Fork Rubicon River and Pilot Creek. Other principal water features within the watershed include Rubicon Reservoir, Loon Lake, Gerle Creek Reservoir, Robbs Peak Reservoir, and Stumpy Meadow Reservoir. The peak runoff from this watershed, where precipitation occurs primarily as snowfall in the upper elevations of the watershed and rainfall in the lower elevations, is typically from March through June.

South Fork American River

The South Fork American River watershed encompasses the central region of the county, extending from the headwaters at Echo Summit, west to the terminus at Folsom Reservoir. The major tributaries contributing flow directly into the South Fork American River are Silver Fork American River, Silver Creek, Slab Creek, Rock Creek, and Weber Creek. Upstream tributaries are Caples Creek, South Fork Silver Creek, and Jones Fork Silver Creek. Other water features within the watershed are Caples Lake, Silver Lake, Lake Aloha, Weber Reservoir, Ice House Reservoir, Union Valley Reservoir, Junction Reservoir, Camino Reservoir, Brush Creek Reservoir, Slab Creek Reservoir, and Chili Bar Reservoir. The peak runoff from this watershed, where precipitation occurs primarily as snowfall in the upper elevations of the watershed and rainfall in the lower elevations, is typically from March through June.

Cosumnes River

The Cosumnes River rises on the western slope of the central Sierra Nevada mountains and flows approximately 52.5 miles (84.5 km²) into the Central Valley, emptying into the Mokelumne River in the Sacramento-San Joaquin Delta. The Cosumnes is the only river in the western Sierra without major dams. Flowing from the western slope, the Cosumnes starts as North, Middle and South Forks cutting canyons through the El Dorado and Amador County Gold Country before converging just east of Highway 49. The North Fork, about 40 miles (64 km) long, begins at the Singleton Springs in El Dorado County, at the head of Leek Spring Valley, 7,400 feet (2,300 m) above sea level.



2.3 Vegetation

El Dorado County is situated almost entirely within Sierra Nevada foothill, scrubland, woodland, and lower-montane forest ecological zones. The primary vegetation types found in the CWPP area are as follows:

- Foothill scrubland vegetation, which is made up of foothill pine, interior live oak woodlands, mixed hardwood, and chaparral scrublands. Some blue oak woodlands occur near the western boundary of the CWPP area.
- Lower montane forest, which is the most prevalent vegetation type, is made up of the following vegetation types: California black oak, ponderosa pine, white fir, incense cedar, Douglas fir mixed conifer, mixed evergreen interspersed with chaparral, and meadows.

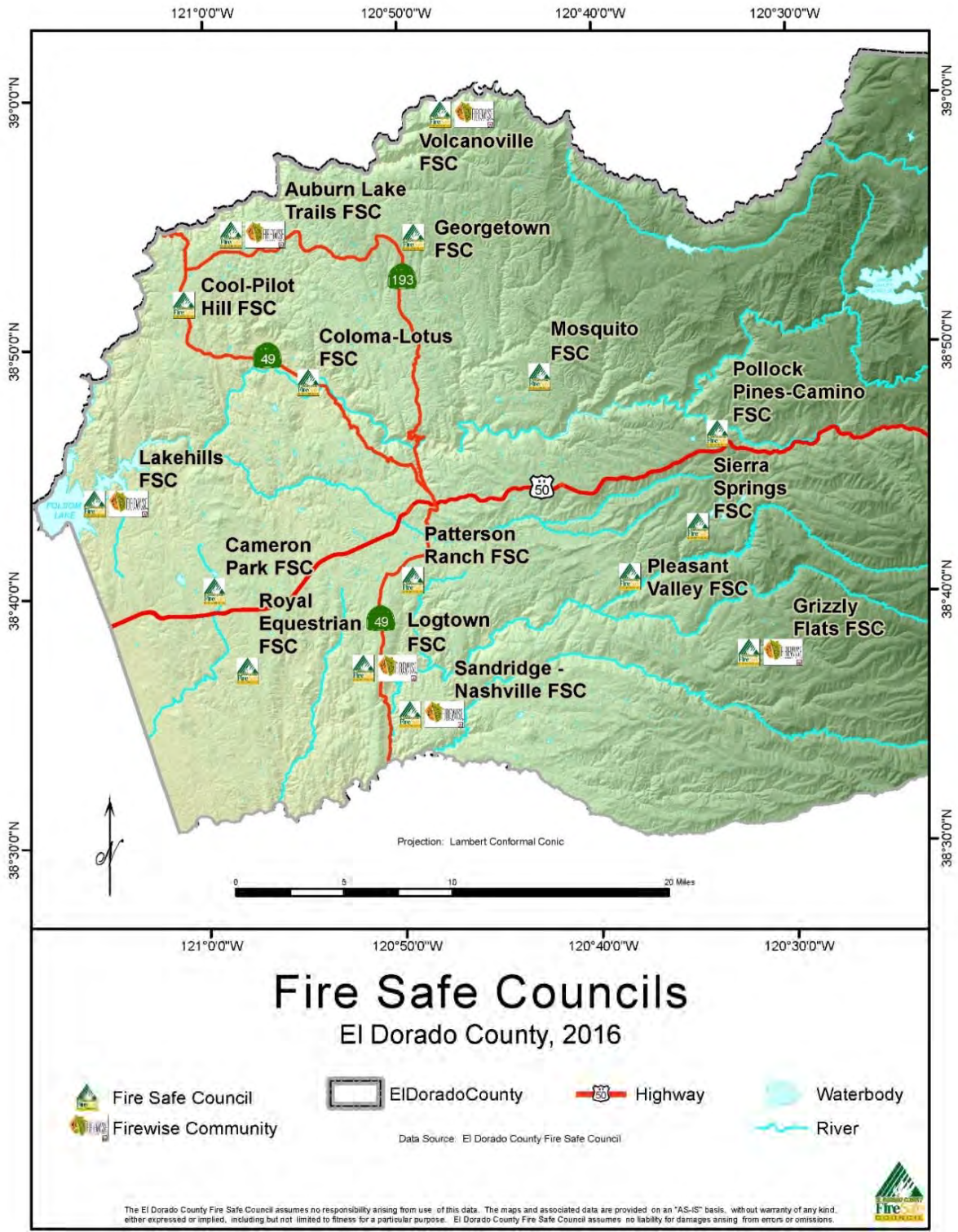
2.51 *Communities at Risk within the CWPP Planning Area*

The Federal Register currently identifies 22 Communities at Risk in El Dorado County (CALFIRE, 2016; Federal Register, 2001). Seventeen of these communities are covered by this CWPP and the remaining five are covered under the Lake Tahoe Basin CWPP (TFFT 2015) (Table 5). The proximity of these communities to each other and their status as a Firewise Community is indicated on Figure 5.

Table 5. List and Status of Fire Safe Councils within Communities at Risk (CAR) within the CWPP Project Area

Community At Risk	Yes Declared at Risk*	Fire Safe Council Status	Firewise Community	Existing CWPP (Date of CWPP)	Plan to be Integrated or Created in This CWPP
Auburn Lake Trails	2001	Yes	Yes	Yes (2013)	Yes
Cameron Park	2001	Yes			Yes
Coloma-Lotus	2001	Yes			Yes
Cool-Pilot Hill	2001	Yes			Yes
Georgetown	2001	Yes		Yes (2014)	Yes
Grizzly Flat	2001	Yes	Yes	Yes (2012)	Yes
Lake Hills Estates-EDH	2001	Yes	Yes	Yes (2014)	Yes
Logtown	2013	Yes	Yes	Yes (2007)	Yes
Mosquito	2001	Yes		Yes	Yes
Patterson Ranch - DS	2001	Yes		Yes (2004)	Yes
Pleasant Valley	2001	Yes	Yes	Yes (2004)	Yes
Pollock Pines	2001	Yes		Yes (2004)	Yes
Royal Equestrian Estates		Yes		Yes (2008)	Yes
Sand Ridge	2001	Yes	Yes	Yes (2004)	Yes
Sierra Springs	2001	Yes			Yes
Volcanoville	2001	Yes	Yes	Yes (2012)	Yes

Figure 5. Map of communities with Fire Safe Councils and status as a Firewise Community



2.7 Infrastructure

El Dorado County is a major transit route for commercial, recreational, and local traffic traveling east-west along the Highway 50 Corridor. Highways 49 and 193 provide highway access to the northern and southern portions of the county, connecting with extensive county and residential road networks. Many of the residential access roads are 2 lane roads with limited alternate routes. A detailed description of road network within El Dorado County is provided in the General Plan (EDC 2004).

The county contains abundant water resources, dams, and associated infrastructure. The El Dorado County General Plan (EDC 2004) should be considered a key resource describing this and other infrastructure.

Chapter 3: Fire Risk Analysis

Chapter Three provides a detailed account of the methods and parameters used to assess and predict the fire risk hazards within the El Dorado CWPP area. For those less interested in the specifics of fire modeling methods, a brief overview of this CWPP's methods is offered below and the reader is invited to skip to Chapter Four for recommended strategies for mitigating fire risk in Western El Dorado County.

First, the history of fire in the mixed conifer forests of El Dorado County from the 1700's to the present is reviewed, including frequency, number of fires, acres burned, and severity.

Second, fire modeling is used to map and predict potential fire behavior and intensity across various vegetation types in the CWPP area. Fire behavior modeling was completed with the FlamMap (Finney 2006) software and incorporates current landscape and fuels conditions, realistic wind and weather conditions (based on historical and current weather data in the CWPP area), and the effects of current and planned fuel treatments, such as fuel breaks or other barriers. Modeling provides a best estimate of the fire hazard and risk to natural and community resources within the CWPP area.

Third, priorities are assessed and identified for reducing and mitigating fire risk at both the county and community levels using existing fire protection plans, collaborative stakeholder meetings, interviews, and an on-line community survey. The online survey helps identify each community's priorities for fuel treatment projects on private lands.

Finally, the fire hazard and risk assessment as well as the community priorities are incorporated to create Community Base Maps, covering the communities listed in Table 2. These maps identify current fire hazards and risks to natural and infrastructure resources, as well as identify potential treatments that may be implemented to help mitigate that risk. The Community Base Maps will be presented at public stakeholder meetings in order to further refine potential treatment areas as well as identify any additional resources at risk.

By modeling potential fire behavior, mapping risks to community resources, gathering and integrating community input, and identifying priority mitigation strategies, this CWPP is intended to provide a valuable tool to guide fuel treatment planning in western El Dorado County.

3.1 Fire History

Fire perimeters, vegetation burn severity, and ignition points were derived from the Region 5 Vegetation Burn Severity Database (1984-2015), fire perimeter data from the Fire and Resource Assessment Program (FRAP) (CALFIRE 2015), and the most recently available ignition point data. All fire point locations or fire perimeters that intersected or were completely within the analysis area boundary were included.

3.12 *Historic Role of Fire in Conifer and Oak Woodland Forests*

Fire was a common ecosystem process in the mixed conifer forests of El Dorado County before the policy of fire exclusion began early in the 20th century. Between 1750 and 1900, the median composite fire interval at the 35–60 acre spatial scale was 4.7 years with a fire interval range of 4–28 years, as measured at Blodgett Forest Research Station, a few miles east of the Community of

Quintette (Stephens and Collins, 2004). This generally meant that fires, both lightning and human caused, occurred on average every five years in any given 60 acre area, although on occasion the fire-fire period could extend up to 28 years. Many areas of El Dorado County have not experienced wildfire for 50-100 years (Figure 1). Forested areas across El Dorado County have been repeatedly harvested and subjected to fire exclusion for the last 90 years, reflecting a management history common to many forests in California (Laudenslayer and Darr, 1990; Stephens, 2000) and elsewhere in the western United States (Stephens and Moghaddas, 2005; Graham et al., 2004).

3.13 Historic Role of Fire in Conifer and Oak Woodland Forests Shrub Dominated Ecosystems

With the implementation of fire suppression policies in the early 20th century, the frequency of fires burning on a given area of the landscape has decreased, resulting in a decrease in the area of shrub fields previously maintained by repeated burning (Nagel and Taylor 2005).

3.14 Total Ignitions by Source (Human- or Lightning-Caused) for El Dorado County- 1992-2013

During the period 1992-2013, there were 265 ignitions per year on average, with more than 80% of those ignitions occurring within the WUI (Appendix 3a). Within the WUI, human-caused ignitions generally made up over 75% of all ignitions, a trend that was relatively stable during the 21-year analysis period. Outside of the WUI, human-caused ignitions typically made up a smaller percentage of ignitions, though they still exceeded lightning-caused ignitions by a factor of two.

3.15 Acres Burned by Wildfire Annually for El Dorado County 1916-2014 by Cause and Within or Outside the WUI

Acres of wildfires by year and location (within or outside of the WUI) and cause (i.e., human-caused, lightning-caused, or unknown cause) are shown in detail in Appendix 3b. Individual fires by year and acreage for all causes and locations (WUI/non-WUI) are shown in Appendix 3b. Over the entire period for which data is available (1916-2014), an average of 4,200 acres burned annually. This trend was consistent until the most recent 20-year period when the 2014 King and Sand Fires skewed the average up to 5,200 acres burned annually.

Over the entire period for which data is available (1916-2014), an average of 63% of all areas burned by wildfire were within the 1.5 mile WUI. This pattern has remained relatively consistent regardless of the period of analysis. It should be noted that the WUI makes up a larger percentage of the county (58%) than non-WUI (42%), which may influence the total acres of fires classified as burning within it.

3.16 Fire Severity 1985-2014

Fire severity is measured as the reduction of canopy cover within 1 year of the fire using remotely sensed infrared imagery (Miller et al 2009). The categories (Appendix 3c) for canopy cover loss are broken into 5 categories as follows:

- 1 = No measurable change in canopy cover
- 2 = Up to 25% reduction in canopy cover
- 3 = 25-50% reduction in canopy cover

4 = 50-75% reduction in canopy cover

5 = >75% reduction in canopy cover

For all fires in El Dorado County, there were 15 between 1984 and 2015 with fire severity data available (USDA 2016). Of these, 2 fires (Gondola and Angora) and 1 fire had very limited acreage within the analysis area (Rahlston). Over all recorded fires, more than 53% of the area burned had greater than 50% of the canopy lost, with the majority of acres categorized as having more than 75% canopy cover loss. The fires over 5,000 acres with the greatest canopy cover loss within the analysis area include the King (2014), Fred's (2004), and Cleveland (1992) fires.

With respect to trends in burn severity, a general trend of increased fire severity in the Sierra Nevada has been noted in previously published studies (Miller et al. 2009). The data available indicate that particularly for large fires (5,000 acres), the majority of the fire tends to burn with high severity, reducing canopy cover by at least 50% and typically by 75% or more.

3.2 Fire Modeling Approach

Fire modeling is a critical component of the CWPP update process. Commonly-used and freely-available data and software were utilized to map potential fire behavior across the CWPP area. Objectives were to:

- 1) Provide maps depicting potential wildfire intensity for the entire CWPP area
- 2) Produce maps to support the fuel treatment design process

All fire behavior modeling was completed with the FlamMap software (Finney 2006), which is the de facto standard for spatial fire behavior analysis. FlamMap requires spatial data describing the landscape and fuels as well as a scenario of relevant weather conditions in order to output spatial data that describe potential fire behavior. FlamMap can run in either of two modes:

- 1) *Basic*, in which FlamMap outputs wall-to-wall spatial fire behavior data such as rate of spread, flame length, and crown fire activity for a specified weather scenario.
- 2) *Minimum Travel Time (MTT)*, in which FlamMap simulates hundreds or thousands of ignition points, each of which burns for a specified duration under the specified weather scenario. MTT outputs include fire perimeters, fire size, and conditional burn probability.

3.21 Fire Risk Assessment Area

The assessment area for this project includes the entirety of El Dorado County, with the exception of lands within the Lake Tahoe Basin (Lake Tahoe Hydrologic Unit Code or "HUC" 8 watershed). The lands within the Lake Tahoe Basin have a recently completed Community Wildfire Protection Plan that covers this area (TFFT 2015). For fire modeling purposes, the assessment area is buffered by an additional 1 mile, allowing simulated fires to spread past the boundaries of El Dorado County without encountering artificial barriers. Maps, however, are displayed without the 1-mile buffer.

3.22 Fire Weather

Weather data from four Remote Automated Weather Stations (RAWS) were used to create a realistic weather scenario based on historic patterns (Table 6). The 98th percentile weather conditions were used with the intent to model the potential for extreme fire behavior, such as what occurred during the 2014 King Fire. The Pilot Hill (station ID 042609) and Ben Bolt (042612) RAWS were used to represent low-elevation weather and the Bald Mountain (042603) and Owens Camp (042611) weather stations to represent mid-elevation weather. The full range of available data for each station was downloaded using the Kansas City Fire Access Software web portal (KCFAST, 2014).

Fire Family Plus (FF+; Bradshaw and McCormick 2000) was used to summarize the weather station data. For the fire behavior modeling the period of analysis was limited to 1995-2015 and the fire season was defined as 15 June to 01 November. We then combined the four weather stations were combined to run a Fire Family Plus analysis to obtain the parameters listed in Table 5. A southwesterly wind direction (225 degrees) was used based on weather records and discussions with local specialists. In the event that the average wind speeds recorded by the weather stations would result in under-predicted fire behavior in FlamMap the approach in Crosby and Chandler (2004) was used to convert steady wind speed to probable 1-minute gust speed, which was then used in the modeling scenario. Based on feedback from the Fire Safe Council, the herbaceous fuel moisture value was lowered from 11% to 3% by excluding the herbaceous fuel moisture value from the Bald Mountain RAWS, which was possibly an outlier.

Table 6. Fuel moisture and other modeling parameters used in FlamMap simulations. The hour classes are defined as the time lag required for a fuel particle to reach 63% of the difference between the initial moisture content and the equilibrium moisture content (or equilibrium with changed atmospheric conditions; Pyne et al. 1996).

Weather Parameter*	Value	FlamMap Parameter	Value
1-hour fuel moisture	2%	Minimum Travel Time (MTT) Calculation Resolution	60 meters
10-hour fuel moisture	3%	Maximum simulation time	720 mins (12 hours)
100hour fuel moisture	5%	Number of random ignitions	10,000 (125 per HUC-12 watershed)
Live herbaceous fuel moisture	3%	MTT Interval	500 meters
Live woody fuel moisture	65%	Spot probability	2%
Wind speed	20 mph**	Foliar moisture content	75%
Crown fire calculation method	Scott and Reinhardt (2001)		

*Fuel moistures are unconditioned.

** Wind speed and direction were modeled for the terrain using the built-in Wind Ninja model at 90-meter resolution. 20 mph wind speed is at the 20 foot level above the ground.

3.23 Incorporation of Existing and Planned Fuel Treatments

Once the operating parameters were set, the input data was refined to reflect current conditions. Spatial data from LANDFIRE (www.landfire.gov) was used to provide canopy base height, canopy bulk density, canopy cover, fire behavior fuel model, and stand height inputs for FlamMap. The most recent LANDFIRE data available was current in 2012 and therefore was not reflective of the more recent fires, including the King Fire, or of any post-2012 fuel treatments. Three changes were applied to the LANDFIRE input data: (1) the blue oak/foothill pine fuel models were adjusted in the lower-elevation region of El Dorado County, (2) the input data was updated to reflect recent fuel treatments, and (3) the input data was updated to reflect recent wildfires including the 2014 King Fire.

In collaboration with CAL FIRE, expert opinion (Dave Sapsis, Personal Communication, Tadashi Moody Personal Communication) was used to reclassify several shrub and grass/shrub fuel models in the study area. This was based on observations that fire intensity was being overestimated using fuel models provided by LANDFIRE.

Current spatial data describing federal fuel treatments were obtained from the US Forest Service (USFS) FACTS database and state fuel treatments from CAL FIRE. The King Fire perimeter was obtained from the US Forest Service (USFS). Next, a new fuel disturbance shapefile was created according to the disturbance codes used by LANDFIRE’s Total Fuel Change Tool (LFTFCT). Each



treatment polygon was assigned a code that described disturbance type, disturbance severity, and time since disturbance (cite LFTFCT documentation). The same approach was used for the wildfire updates and disturbance intensity came from the relative differenced Normalized Burn Ratio (RdNBR) canopy cover mortality raster produced by the USFS. Before running the LFTFCT, the existing vegetation cover (EVC) raster from LANDFIRE needed to be manually updated to reflect recent disturbances. This was accomplished with ArcGIS software through the use of a table of disturbance types and their expected effects on canopy cover. The table was developed from the scientific literature and expert opinion. The LFTFCT then applied the LANDFIRE Map Zones 5 and 6 rule sets to update the fuel model raster based primarily on existing vegetation type and the disturbance codes. Upon completion, new rasters of fuel model, canopy bulk density, canopy base height, and canopy cover were current through 2015.

3.24 Fire Hazard and Risk Assessment Methods

Numerous simulations were run to calibrate FlamMap parameters. Objectives were to obtain realistic fire behavior from FlamMap that matched the expectations of the Fire Safe Council, as well as to refine the Minimum Travel Time (MTT) parameters to obtain sufficient resolution without incurring excessive computation time.

A 12-hour simulated burn period and 10,000 random ignitions were used for the MTT runs. With these settings there were enough ignitions burning for long enough to ensure that every burnable pixel burned at least once, but not so long that most fires spread outside of the buffered study area. Input spatial data was set at 30-meter resolution, which constrained the resolution of outputs, but most simulations were run at 60 meters to reduce processing time. Spot probability was set to 2%.

For the MTT runs gridded wind speeds were generated with FlamMap's Wind Ninja model at 300-meter resolution, foliar moisture content of 75%, and fixed fuel moistures. The Scott and Reinhardt (2001) crown fire calculation method was used.

For each of the calibration runs, the fire perimeters were exported to ArcMap for further processing. Average fire size was calculated after combining each spot fire with its parent fire. The portion of fires whose perimeters remained completely within the fireshed bounds were also calculated.

Once the LANDFIRE inputs were updated, FlamMap was re-run with the final weather scenario (Table 6) and the flame length, rate of spread, and crown fire activity output rasters were saved.

Conditional Burn Probability (CBP) provides an indication of the likelihood of a given pixel burning during the simulation. FlamMap computes this by letting the specified number of ignitions burn for the specified burn time and then it derives CBP from the overlapping fire perimeters. Fuel treatments or natural barriers that slow fire spread have an effect on CBP by reducing the frequency at which a downwind pixel burns. CBP therefore allows useful comparisons between pre-treatment and post-treatment landscapes.

When CBP was mapped for the Placerville area, the Fire Safe Council was concerned that the values in and around Placerville were unrealistically low when compared to other areas of the landscape and historic fire patterns. To explore this problem further, two simulations were run for each of eight wind directions (N, NE, E, etc.) and the results were averaged with the goal of reducing the effect of

wind direction on CBP. This, in essence, eliminated the fire shadow effect produced downwind of barriers (primarily urbanized areas, lakes, and large rivers) to surface fire spread.

3.25 *Assessment of Risk Mitigation Priorities*

Risk mitigation priorities were assessed at the county and community levels using a combination of existing data, collaborative meetings (Appendix 1), interviews, and an on-line survey. The on-line survey allowed for identification of priority areas for fuel treatment implementation that is reflective of each community’s unique characteristics and needs. The priority resources identified through this process were utilized to help create the community base map. For the purposes of the El Dorado CWPP, proposed treatments were confined to private lands only, as parallel efforts are already occurring on public lands.

3.3 **Community Risk Analysis**

3.31 *Creation of Community Fire Hazard Map*

Draft maps by area for modeled flame length, rate of spread, and fire type are included in Appendices 4-6. Maps are color coded to reflect general influence on suppression efforts per tables 7-9 below.

Table 7. Fire Suppression Interpretations from Flame Length (NWCG 2004)

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

Table 8. Fire Suppression Interpretations from Rate of Spread (NWCG 2004)

Rate of Spread (Chains per hour	Description
Up to 10 Chains per hour	Generally within sustained production rates of Type 1 20 person hand crews
10-16 Chains Per hour	Generally within initial attack production rates for a 20 person hand crew, or 4 person wildland engine crew using a hose lay
16-25 Chains per Hour	Generally within maximum downhill line production rates for a type 2 dozer; exceeds production rates for fire and engine crews
>25 chains per hour	Rate of spread exceeds typically available resource (fire crew, engine crew, dozer) production rates.

Table 9. Definitions for Crown Fire Activity (Scott and Reinhardt 2001)

Flame Length	Description
Non Burnable	Water, pavement, rock, and similar cover types
Surface Fire	A fire burning along the surface without significant movement into surface fire the understory or overstory
Passive Crown Fire	A type of crown fire in which the crowns of individual trees or small groups of trees burn, but solid flaming in the canopy cannot be maintained except for short periods
Active Crown Fire	A crown fire in which the entire fuel complex is involved in flame, but the crowning phase remains dependent on heat released from surface fuel for continued spread

Chapter 4: Fire Risk Mitigation Strategies

Strategies for mitigating fire risk are applied at three scales: planning area (in this case, the area covered by the CWPP), community (i.e., communities "at risk" as identified by state and federal agencies) and individual property. In this chapter, strategies at the community and individual property scales are described. The dominant vegetation, weather, and other conditions affecting risk in the various communities covered by the CWPP and current efforts underway to reduce risk have been described in previous chapters of this CWPP.

4.1 Fire Risk Mitigation Strategies for Communities

Some relevant measures of the status of a community with respect to fire risk include the average age of structures in the community (as it relates to whether the structure was built under current WUI building codes), community design (particularly lot size, density and internal road systems), communitywide compliance with defensible space provisions, general property hygiene (i.e., community "pride in appearance"), presence of community fuel breaks or other fire defense projects, and community involvement in fire prevention education and outreach.

Given the status of a community and its inherent risk due to weather, topography, and vegetation type(s), mitigation strategies at the community scale generally include:

- Improving road access, generally and specifically for emergency response and evacuation
- Improving water supply and water delivery infrastructure
- Enforcing defensible space regulations and generally reducing risks due to accumulations of trash and other flammable material on commercial and residential properties
- Reducing hazardous fuels
- Public education and fire prevention measures

Different emphasis should be placed on different strategies based on site-specific or community risk assessments.

4.11 Improving Road Access

There are many aspects to the issue of roads and adequacy of access, but at the community scale, facilitating emergency response and evacuation in the event of a fire is essential. Respondents to the on-line survey done as part of this CWPP raised this issue with respect to road width to simultaneously accommodate evacuees and incoming fire equipment, bridge width and strength (to support fire apparatus), and grown-over or brushed-in roads. Steep terrain and narrow, steep roads, poorly maintained roads, locked gates, and dense roadside vegetation can all impair the movement of equipment in to fight a fire and movement out by affected people. In the worst of cases, "traffic jams" caused by the combination of poor access and heavy traffic can contribute to the spread of fire and fatalities. Many fatalities associated with the Oakland Hills "Tunnel Fire" in 1991 were attributed to residents being unable to evacuate due to impaired access. The responsibility for evacuation rests with law enforcement and the county Office of Emergency Services. In emergencies, methods such as the Emergency Alert System, the "Wildfires Near Me" website (<https://wildfiresnearme.wfmrda.com/>), public announcements over the television and radio and direct phone or e-mail contacts may be used to inform people in harm's way. Alerting residents when fire is eminent may not always be sufficient; they must be informed in advance to the degree

possible about favored community ingress and egress routes and about the option of "sheltering in place" until a fire passes.

There are many dirt-surfaced roads in El Dorado County that are not maintained and many have locked gates where they traverse private properties. Although law enforcement and fire fighters may have keys or combinations for these locks, that may not be the case for evacuating residents. Consequently, any designated community ingress and egress route must be free of these obstacles.

Evacuation of animals, particularly livestock and horses can be an especially vexing problem during a wildfire emergency. The availability of stock vehicles, accessibility on narrow country roads, potential conflicts with fire-fighting equipment transport, and evacuating residents can all cause ineffective rescue attempts. After a wildfire there are often lost or abandoned animals needing care and shelter. In El Dorado County the Office of Emergency Services, El Dorado County Animal Services, large animal rescue volunteers, and property owners coordinate animal rescue during emergencies. Pre-planning for large animal evacuation is an important part of pre-fire planning. For more information on large animal evacuation, please visit the El Dorado County Animal Rescue Services Web-site (http://www.edcgov.us/AnimalServices/Disaster_Preparedness_-_Pet_and_Animal_Emergency_Planning.aspx).

All of these considerations in regard to emergency response and evacuation imply a need for adequate pre-planning and education at the community and individual property owner level on the part of all parties involved with wildfire prevention and abatement in El Dorado County.

4.12 Improving Water Supply and Delivery Infrastructure

Rural communities in El Dorado County depend on a variety of water supplies and associated infrastructure. In many instances, water supply is the responsibility of the individual property owner who may or may not have a storage facility (e.g., tank, pond, or swimming pool) that can provide a source of water for fighting a fire. In other cases, communities and groups of properties depend on inherited water delivery systems such as flumes and ditches. Flumes and ditches are susceptible to failure and obstructions, particularly during large fires where they may be physically burned or impacted by falling trees. For example, in an evaluation of historic failures along the water conveyance facility associated with one of El Dorado Irrigation District's water supplies, numerous breaches due to excessive flow, landslides, and trees toppling into the open ditch were observed (Harris, personal observations). Water supply and infrastructure is considered a serious potential constraint on response to wildfire in El Dorado County. The El Dorado Irrigation District (EID) is currently underway on a project to replace a 3-mile section of a water supply ditch with a buried pipeline. Objectives of this project include; reduction of water loss to seepage and evapotranspiration, protect drinking water quality, and to reduce operations and maintenance costs. Meeting these objectives will thereby contribute to EID's overall water conservation efforts and protect the supply from impacts of wildfire and associated hazards. More info can be found at: <http://www.eid.org/about-us/project-updates/upper-main-ditch-piping-project>

4.13 Enforcing Defensible Space Regulations

Enforcement of policies, codes and ordinances can have an important impact on risk. For example, the extension of defensible space provisions from 30 feet to 100 feet from a structure had a positive effect that was triggered in part by the requirements of insurance companies. Strategies implemented in other counties, such as Placer County, include provisions for defensible space treatments beyond

a property line onto adjacent property. Consistently mentioned in the community survey was an overall concern of overgrown and un-managed vegetation on vacant lots owned by absentee landowners. Location of these lots and taking action to get them cleaned up is of great importance to many local community members.

4.14 Reducing Hazardous Fuels

Projects aimed at reducing fuels and creating community fuel breaks are described in section 4.3 of this CWPP. Several communities such as Logtown, Grizzly Flats, Auburn Lake Trails and others have been aggressive about seeking funding and implementing fuel treatments to reduce risk in their communities. One of the goals of this CWPP is to increase awareness among communities that have not been as active in this regard and to encourage increased efforts to reduce hazardous fuels.

4.15 Public Education and Fire Prevention Measures

Public education on wildfire risk and prevention is carried out in El Dorado County by the Fire Safe Councils, Fire Districts and Departments, Office of Emergency Services, Resource Conservation Districts, University of California Cooperative Extension, U.S. Forest Service, and CAL FIRE. There is no lack of information available from local and more general sources-the effort is in filtering the information and effectively disturbing it to the public, and then encouraging implementation. A list of resources is available in Appendix 8; some of them include:

- EL Dorado County Fire Safe Council <http://www.edcfiresafe.org/>
- Community fact sheets for fire prevention (http://calfire.ca.gov/communications/communications_factsheets)
- Child-focused activities (http://calfire.ca.gov/communications/communications_justforkids)
- PreventWildfireCA.org
- Firewise communities (<http://www.firewise.org/usa/index.htm>)
- California Wildland Coordinating Group (preventwildfireca.org)
- Other publications, webinars, and fact sheets (<http://ucanr.edu/sites/forestry/Wildfire/>)

There are also events at which wildfire awareness and prevention are showcased such as the National Fire Prevention Week held annually in October (<http://www.nfpa.org/fpw>), Firewise workshops, and El Dorado County Fair. .

One relatively new program is Ready, Set, Go! (<http://www.readyforwildfire.org/>) managed by the International Association of Fire Chiefs, which was launched in 2011. In this program, being “ready” means doing as much as possible to reduce risk on your property. Getting “set” for evacuation during a fire means preparing emergency items and staying in touch with local media. “Going” when there is a fire means following your personal plan, which may include evacuation, sheltering in place, and/or other actions.

There are Firewise communities in El Dorado County that have met the standards of the program for being relatively aware of fire risk.

Preventing fire starts is an important mitigation strategy that is applied at the community scale. Since 1980, CAL FIRE's "volunteers in prevention" program has engaged many people in making classroom presentations, disseminating information on preventative measures to the public, and

developing procedures for reducing ignitions in areas where they have been historically common. During periods of high to extreme fire danger, signs may be used to inform people of the danger. There may also be bans on open burning and adjustments in fire agency personnel schedules. There are many instances where extensive wildfires have been caused by accidental ignitions due to campfires or trash burning during prohibited weather conditions.

As previously noted, there is no lack of information available on reducing community risk of wildfire. The greater issue is whether this information is reaching potentially affected community members in meaningful ways that catalyze action for readiness. Recommended ways to effectively engage the public in the educational process include workshops, media campaigns, informational booths at local fairs and events, and person-to-person dialogue. Effective information transfer is a critical challenge and experience shows that a "one size fits all" approach doesn't work. Seizing opportunities when they arise demands skill and attentiveness on the part of service providers.

For mitigation strategies such as improving emergency access and roads generally, improving water supply, enforcing regulations, and implementing fuel treatments there must be concerted and sometimes costly efforts spearheaded by local agencies and entities such as the county Fire Safe Council. Public education can play a role in rallying support for projects that reduce risk. Ultimately, prioritization of projects will be constrained by the availability of funding and/or assistance programs that can provide financial support.

4.2 Fire Risk Mitigation Strategies for Individual Property Owners

There are three general classes of property in El Dorado County: land that is developed with residential, commercial, or industrial uses; agricultural land (e.g., crop fields, pasture, vineyards); and undeveloped land. The focus of this CWPP is on protecting and defending developed land and infrastructure from wildfire and facilitating safe evacuation of residents through identified community ingress and egress routes. It should be acknowledged, however that unmanaged undeveloped land can contribute very significantly to community risk. The options for reducing fuel on public lands will not be addressed in this document but is being considered through other planning processes.

Confining the discussion to developed land, there are numerous factors affecting risk of ignition and losses during a wildfire. These include lot size, density and set-backs between buildings, the age of the structure and building materials, and defensible space. Some of these factors are unalterable, at least until a fire occurs. Therefore, the focus of mitigation strategies is on those things that an individual property owner can do to reduce risk. These include:

- Implementing defensible space measures
- Providing adequate access for emergency vehicles
- Providing signage to identify the property
- Ensuring that structures are compliant with current building codes for structures in the WUI

4.21 Implementing Defensible Space

For developed properties, defensible space is the single most important strategy that an individual property owner can implement to reduce risk. In addition to county regulations, the State Board of

Forestry has published general guidelines for defensible space (http://bofdata.fire.ca.gov/PDF/copyof4291finalguidelines9_29_06.pdf).

These guidelines address important topics such as the need for greater defensible space based on local conditions, the primary goals of defensible space, which are to reduce the chance of structural ignition and provide a safe environment for firefighters, and admonishments against excessive clearing of vegetation.

Effective defensible space consists of three components: an essentially fuel-free zone adjacent to the home, a treated secondary zone that is thinned and cleaned of surface fuels, and-if the parcel is large enough- a transitional third zone that is basically a managed forest area. These components are designed to work together in a proven and predictable manner. Zone 1 keeps fire from burning directly to the home; Zone 2 reduces the adjacent fire intensity and the likelihood of torching, crown fire, and ember production; and Zone 3 does the same at a broader scale, keeping the fire intensity lower by maintaining a more natural, historic condition.

Defensible space has important implications not only for personal and property safety, but also for insurance coverage. Property owners in fire-prone areas, and specifically homeowners in the Wildland-Urban Interface, face potential issues with obtaining and maintaining insurance coverage. Policies may be issued, denied or denied renewal based on inspections to determine effectiveness of defensible space, property hygiene, access, structural maintenance, and other factors. The consequences of being uninsured or underinsured provide a strong incentive for property owners to implement defensible space.

The El Dorado County Fire Safe Council currently has the following, ongoing programs to encourage and help residents create defensible space: (<http://www.edcfiresafe.org/>)

- Chipper Program
 - The EDCFSC has a program to provide chipping services for neighborhoods and individual homeowners on the west slope of El Dorado County who are willing to work to make their property fire safe. This program is available depending on current funding levels-please check the EDFSC website for current status (<http://www.edcfiresafe.org/>)
- Community green waste dumpster program
- Senior and disabled assistance

4.22 Providing Adequate Access for Emergency Vehicles

Emergency access to developed properties requires specified standards of road width, clearance, curvature, and grade. Although these standards are generally applied to new developments, existing roads in rural areas and even portions of developed towns in El Dorado County do not meet these standards. As with community ingress and egress routes, inadequate roads can create bottlenecks to emergency responders that can lead delays in fire response, delayed evacuation, and potentially to losses of human life and property. Individual property owners can take steps to improve access to their properties by clearing roadside vegetation, maintaining surfacing, and if feasible, adjusting width and curvature. In cases where groups of homes or neighborhoods are served by inadequate emergency access, a coordinated effort is required. This may require seeking additional grant

funding or forming a community road association that levies an assessment on individual properties for the purposes of improving and maintaining roads where funding is not immediately available.

4.23 Providing Signage to Identify Properties

Using signs to properly identify a property can be the difference between saving and losing a home during a wildfire. There are existing El Dorado county ordinances for address signs and homeowners are responsible for purchasing and installing signage in accordance with the county ordinance. Signs may also be used to advise residents and others about current risk of wildfire, road conditions, and distances to emergency response stations. In the latter case, local agencies and law enforcement may bear the responsibility for signage. The specific sign ordinance language is included below:

1274.09. Size of Letters, Numbers and Symbols for Addresses

Size of letters, numbers and symbols for addresses shall be a minimum 3 inch letter height, 3/8 inch stroke, reflectorized, contrasting with the background color of the sign.

15.04.040 -Assignment of house numbers.

C. The numbers shall be of a size not less than four inches in height, except on mailboxes, in which case the numbers shall be of a size which are readable from a distance of five feet, and displayed on a contrasting background.

D. Within thirty days of the effective date of the notice of number assigned, the owner of a dwelling unit or authorized agent then shall remove or obscure from public view any old or previous number not in accordance with the system.

1274.10. Installation, Location and Visibility of Addresses

(a) All buildings shall have a permanently posted address, which shall be placed at each driveway entrance and visible from both directions of travel along the road. In all cases, the address shall be posted at the beginning of construction and shall be maintained thereafter, and the address shall be visible and legible from the road on which the address is located.

(b) Address signs along one-way roads shall be visible from both the intended direction of travel and the opposite direction.

B. All such numbers shall be placed in a horizontal sequence so as to be easily visible and legible from the road upon which the premises front. When the house is a substantial distance from a road, numbers shall be placed on a mailbox or post in a horizontal sequence, in a location adjacent to the driveway access intersection with the road. When the mailbox is on a road other than the road on which it fronts, then the house and road name shall be clearly marked on the mailbox, to ensure proper mail delivery, and a post displaying the house number shall be installed adjacent to the driveway access intersection with the road

4.24 Complying with Current Building Codes

Researchers have generally agreed that the potential for a structure to ignite during a wildfire is largely dependent on the building design and materials, flammability within 100 feet of the structure, and the susceptibility to ignition by firebrands (Reinhardt et al. 2008). The amendments to the Building Code implemented in 2008 require specific standards intended to improve the resistance of a building to ignition from either direct flame contact or airborne embers. These measures may determine whether or not a structure survives a fire when the number of structures at risk exceeds suppression capabilities. Risk, therefore, depends on whether or not structures meet current codes.

New developments within the WUI must meet the current building code standards. Retrofitting existing structures to improve their resistance to wildfire would include:

- Replacing exterior windows and skylights with tempered glass
- Replacing vents with vents approved for use in the WUI
- Replacing combustible roofs with non-combustible, fire-resistant roofing
- Treating wood with fire-retardant chemicals
- Replacing combustible siding with non-combustible siding

All of the mitigation strategies recommended for individual properties require an awareness on the part of the property owner that he or she needs to take steps to reduce risk; knowledge of the strategies that may be applied; commitment of time and money to implement the strategies; and in the case of defensible space, commitment to maintain the desired condition. For all of these, effective public education and engagement play an important role. The county and local Fire Safe Councils can provide that service as well as other assistance such as methods for disposing of green waste. In the case of upgrading structures to conform to current code, consideration can be given to seeking assistance through the Department of Housing and Urban Development for communities at risk (http://portal.hud.gov/hudportal/HUD?src=/topics/home_improvements).

4.3 Regional and County Wide Treatment Strategies

4.31 Fuel Treatment Delineation

Fuel treatment locations were derived from several sources. These included local fire management personnel and experts, local Fire Safe Councils, community-recommended treatments (via the on-line survey), existing fuel reduction projects, and other fire hazard reduction plans or programs (as available). Fuel reduction projects are summarized by name, treatment type, acreage, priority, and source in for individual communities in Chapter 5.

4.32 Fuel Treatment Prioritization

There are potentially thousands of acres within the WUI on private lands that may be treated. A central goal of the CWPP is to help the El Dorado County and local Fire Safe Councils prioritize individual projects within the full spectrum of potential treatments over a 5-year period. Based on community survey results, collaborator input, and the fire risk, a prioritization approach for high priority (beginning implementation within 1-3 years), moderate priority (beginning implementation within 1-3 years), and lower priority (projects to begin in 5-10 years) are listed in table 10.

Table 10. Prioritization approach for fuel reduction projects

Rank of Importance Based on Community Surveys and Modeling Data (1= Highest Importance)	Highest Priority (Begin Implementation within 3 Years of CWPP Completion)	Moderate Priority (Begin Implementation within 3-5 Years of CWPP Completion)	Lowest Priority (Begin Implementation within 5-10 Years of CWPP Completion)
1)	The project creates or enhances ingress and egress routes along <u>secondary, subdivision, or community roads</u> , along for residents to more safely access main highway networks such as Highway 49, Highway 50, Highway 193	The project protects Agricultural Use Water Distribution Ditches, Flumes, and Pipelines	The project protects Cemeteries
2)	The project provides direct protection for private residences	The project protects Places of Worship (Including accessory buildings and infrastructure)	The project protects Threatened and Endangered Wildlife Habitat
3)	The project creates or enhances fuel treatment networks along major roads and highways	The project protects other Community or Public Buildings (e.g. Fire Stations, Post Offices, Community Centers)	
4)	The project creates or enhances protection of power production and transmission infrastructure	The project protects Private Businesses	
5)	The project creates or enhances protection of Communication Infrastructure	The project protects Parks	
6)	The project reduces fire threat from Vacant (undeveloped) Parcels	The project protects Airports and/or Heliports	
7)	The project creates or enhances protection of Domestic Use Water Distribution Ditches, Flumes, and Pipelines		



Rank of Importance Based on Community Surveys and Modeling Data (1= Highest Importance)	Highest Priority (Begin Implementation within 3 Years of CWPP Completion)	Moderate Priority (Begin Implementation within 3-5 Years of CWPP Completion)	Lowest Priority (Begin Implementation within 5-10 Years of CWPP Completion)
8)	The project creates or enhances protection of Hospitals		
9)	The project creates or enhances protection of Watershed Lands Associated with Local Reservoirs		
10)	The project creates or enhances protection of Reservoirs and Associated Infrastructure		
11)	The project creates or enhances protection of Schools		

4.33 Fuel Treatment Types

Fuel treatments that may be implemented under this CWPP include mechanical whole tree harvest; underburning (“prescribed burning”); chainsaw cutting and piling for burning, chipping, and mastication; hand pile and burning; and mastication. Due to local and regional air quality issues, methods of slash disposal that do not result in open burning are encouraged. These disposal methods can include, but are not limited to, the use of woody material in efficient biomass electricity plants, heating facilities and/or boilers, chipping, composting, or mulching as local infrastructure and demand allows. Once completed, these fuel treatments can give fire managers “...a higher probability of successfully attacking a fire” (Agee et. al., 2005). A general description of fuel treatments are provided below.

Mechanical Harvest: Whole-tree yarding (transport to a lumber yard) is typically used for fuel treatments. Under a whole-tree yarding harvest system, individual trees are directionally felled using a mechanical cutting head attached to a tractor or similar unit. Smaller trees (less than 10 inches DBH) are cut, gathered in bunches, and left as “doodles” in the harvest unit; these smaller trees are not typically bucked or limbed within the unit. A rubber tired, track laying, or similar machine is then used to yard these doodles to the landing. At the landing, trees are limbed and bucked to specified lengths. Bucked log sections are loaded onto a log truck and transported to the mill; limbs are typically either chipped and hauled away to a cogeneration (power) plant or burned at the landing.

Treatment of residual slash (after whole-tree yarding) created during harvests is then disposed of where it exceeds desired levels. With areas that do not meet desired conditions with respect to

surface fuels, it may be treated with underburning, pile burning, chipping, mulching, disposal at biomass facility, or other appropriate method.

Mastication: Mastication is implemented using a mastication head attached to an excavator (photo 1), small tractor, or other type of machine (Coulter et al. 2002). The mastication head is used to chip or shred ladder fuels from brush and small trees (up to ~9 inches DBH) in place. Shredded material is either incorporated into the duff layer during operations, left on site, or reduced using a prescribed burn following post-treatment evaluation. Mastication is typically implemented in areas of high brush cover or that need ladder fuel treatment where biomass removal is not feasible. An example of a mastication project pre- and post-treatment are shown in photos 1-3

Photo 1. A rotary masticator chipping small trees and shrubs on the Grizzly Flat Fuel Reduction Project



Photo 2 (top) and 3 (bottom). Before and after mastication treatment on the Grizzly Flat Fuel Reduction Project



Chipping: As an alternative to mastication, vegetative material may be chipped on site with the chips left as mulch or potentially hauled away. Chipping can be done using several types of machines that are both hand- or machine-fed.

Underburning: Underburning involves the use of intentionally lit fires used to burn surface and small ladder fuels within a designated unit under an approved burn and smoke management plan. Underburning may occur in conjunction with other mechanical treatments or as a stand-alone treatment where fuels, access, and topography allow.

Hand-thinning: Hand-thinning is typically used on trees up to 9” in diameter but most effective for trees up to 6” in diameter or shrubs. The treatment is completed by an individual or teams using chainsaws, with cut material either chipped, hauled, or piled and burned.

Chapter 5: Community Specific Wildfire Protection Plans



March 28th, 2017

El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
AUBURN LAKE TRAILS FIRE SAFE COUNCIL
ACTIVITIES

Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California



Prepared for:

AUBURN LAKE TRAILS FIRE SAFE COUNCIL

January 2017

5.1 Auburn Lake Trails

5.11 Overview

Auburn Lake Trails ("ALT") is a 3,600 acre gated subdivision containing 1,104 buildable lots ranging in size from .33 acre to 14 acres. It was established in 1976 in the small foothill community of Cool, California. Currently there are over 1,000 completed homes in Auburn Lake Trails (ALT) with a population of approximately 2,800 residents.

ALT is located at the 1500 to 2000 foot elevation in the foothills of northern California about 36 miles northeast of Sacramento. It is situated on the rim of the American River Canyon which holds the Lower Fork of the American River and is immediately adjacent to the El Dorado National Forest, an area managed by the California State Parks as the Auburn Recreation Area. ALT is a community of residents with a wide range of interests, from horseback riding to golfing, tennis, hiking, and swimming---all of which is demonstrated by its numerous committees, clubs, and organizations. Within ALT are 32 miles of hiking and horseback riding trails that connect to hundreds of miles of trails on the adjacent El Dorado Forest.

The vegetation within and adjacent to ALT is a mosaic of fuel types and was rated by the California Department of Forestry and Fire Protection (CDF) as a very high severity hazard. The community of Cool is listed in the Federal Register as a Community At Risk. The steep terrain, composition, density, structure and heavy fuel loading of the vegetation adjacent to ALT on the federal lands includes all of the elements for a catastrophic wildfire which would engulf ALT. Portions of the subdivision are fractured by drainages, saddles, ridges and steep side slopes. This combination of existing fuels and topography can cause erratic and catastrophic fire behavior.

ALT is a "World Class WUI" trying our best to mitigate our internal fuel-load condition and help the adjacent national forest become a healthy neighbor.

It was clear that Auburn Lake Trails needed to take action to prevent a disastrous fire from destroying the homes and lifestyles that its residents enjoy.

- The Auburn Lake Trails Fuel Safe and Fire Reduction Plan was developed by two registered professional foresters. This plan prioritized the actions that needed to be undertaken in order to make ALT safe from a catastrophic wildfire. The plan was endorsed by fire agencies at all levels and was signed as an agreement by the ALT Board of Directors.
- ALT residents formed the Auburn Lake Trails Fire Safe Council.
- Two registered professional foresters developed the Auburn Lake Trails Fire Safe Fuels Reduction Plan (a Community Wildfire Protection Plan). This plan listed fuel reduction measures that should be undertaken.
- A perimeter shaded fuel break (150 to 300 feet wide) was begun with the help of a grant from the CDF and the El Dorado County Fire Safe Council. The fuel break is located on the canyon edge of the subdivision and was begun in 2002, Work continued in 2003, 2004, and 2005 and is scheduled to continue until completed---subject to funds and work crew availability.
- Fuel reduction was completed in the ALT campground area and on numerous lots, comprising a total of 172.5 acres owned in common by the ALT Property Owners'



Association members for their enjoyment. These holdings are used for recreational purposes and will remain as fuel-treated greenbelts.

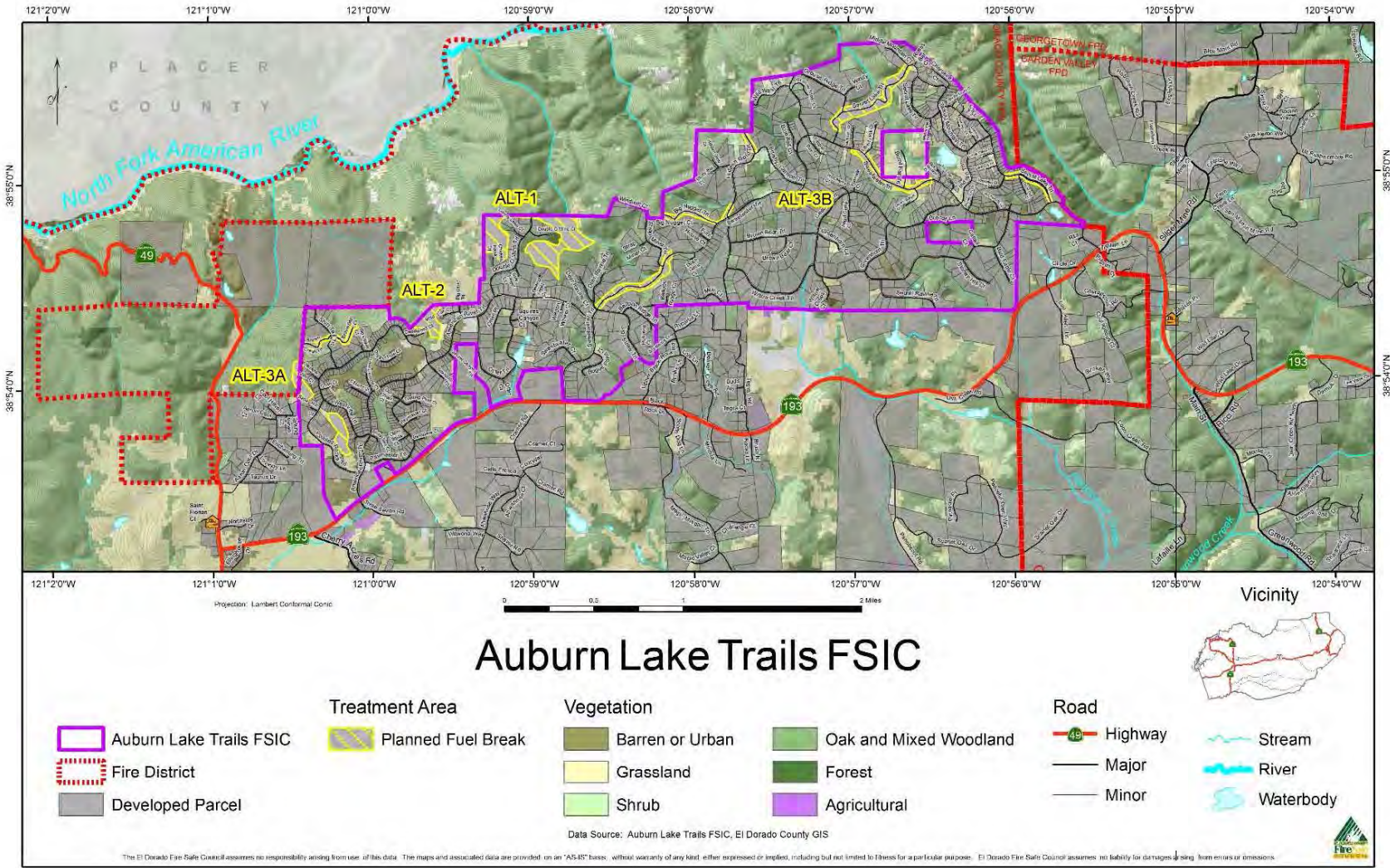
- ALT's Recycling Area, which was located in an extremely dense fuel area, was closed due to fire danger and is now a fire break area.
- The subdivision's rights-of-way along the 26 miles of ALT's roadways are continuously cleared of brush and trees to enable residents to evacuate safely, if necessary.
- Common areas with heavy grasses are mowed repeatedly during fire season.
- Centralized chipping days are held to enable residents to bring slash to be chipped. The El Dorado County Fire Safe Council also provided free roadside chipping to ALT residents. A limited number of free green waste vouchers are also made available to residents for disposing of leaves, needles, and other small clippings.
- A subdivision requirement was passed requiring all property owners to create 100' of defensible space around all structures.
- ALT resident-volunteers (Volunteers in Prevention) inspect every ALT property to insure compliance of the 100' requirement.
- A Fire Compliance Officer was hired to follow up on all non-compliant properties. Deadlines for compliance were established. If properties remain untreated, contractors are hired to clear the non-complying properties, and a lien is placed on the property for the cost of the clearing.
- Numerous community meetings are held to provide residents with important information about creating defensible space, Firewise Landscaping techniques, and other fuel reduction efforts.
- A fire safety column was instituted in the monthly residents' newsletter, "Trailviews", featuring fuel reduction information, Firewise Landscaping ideas, fire danger cautions, and other relevant fire safety information.
- Brochures on numerous fire-safe practices are made available to residents through Firewise programs.
- Collaboration has been established, and continues, with local, regional, and state fire agencies to maximize fire safety efforts and fire safety education.
- Representative ALT residents are actively involved in the county and state level Fire Safe Councils.

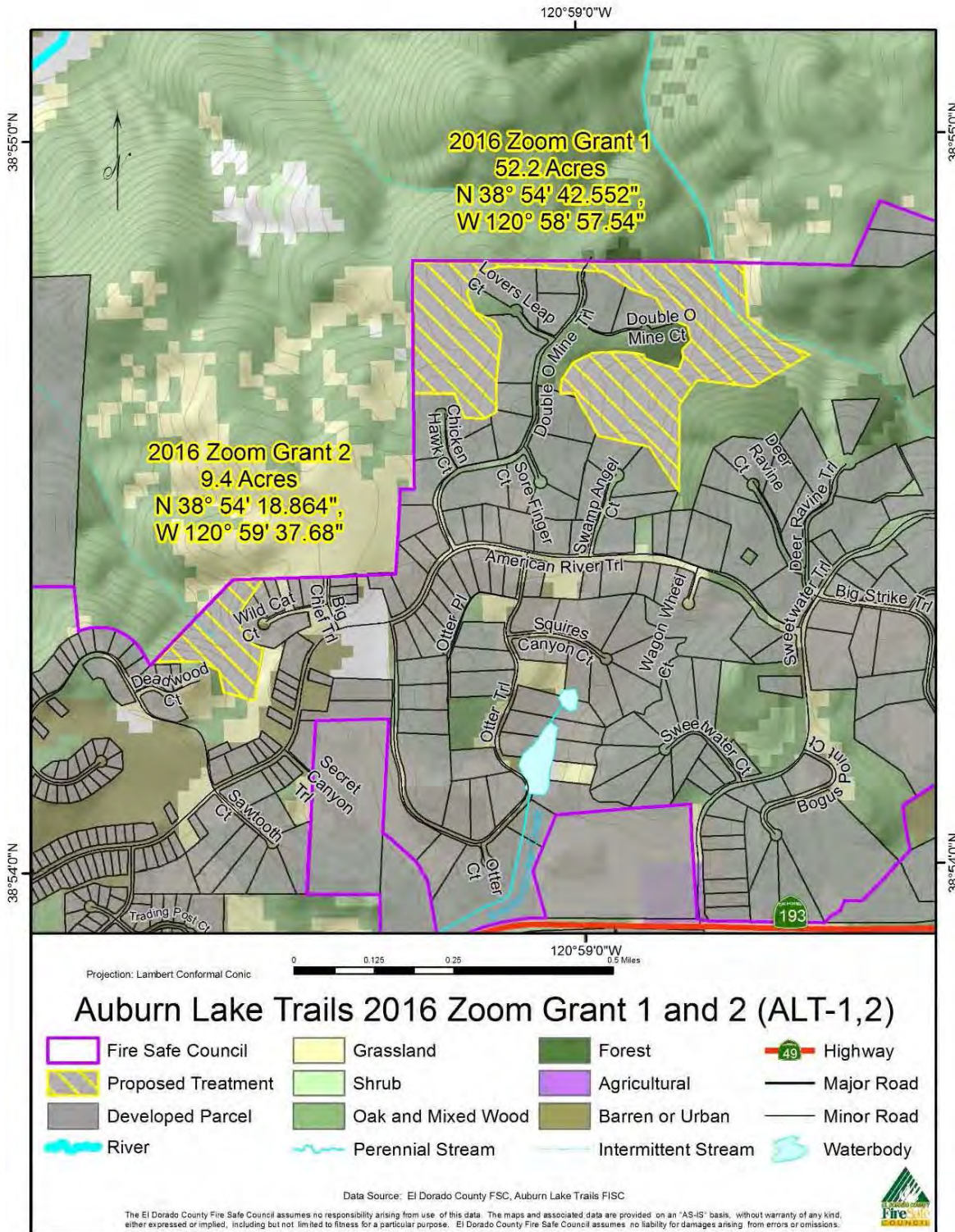
For more information about Auburn Lake Trails and their CWPP, which is incorporated by reference into this chapter, please visit <http://www.edcfiresafe.org/fireplans/auburn-lake-trails.pdf>

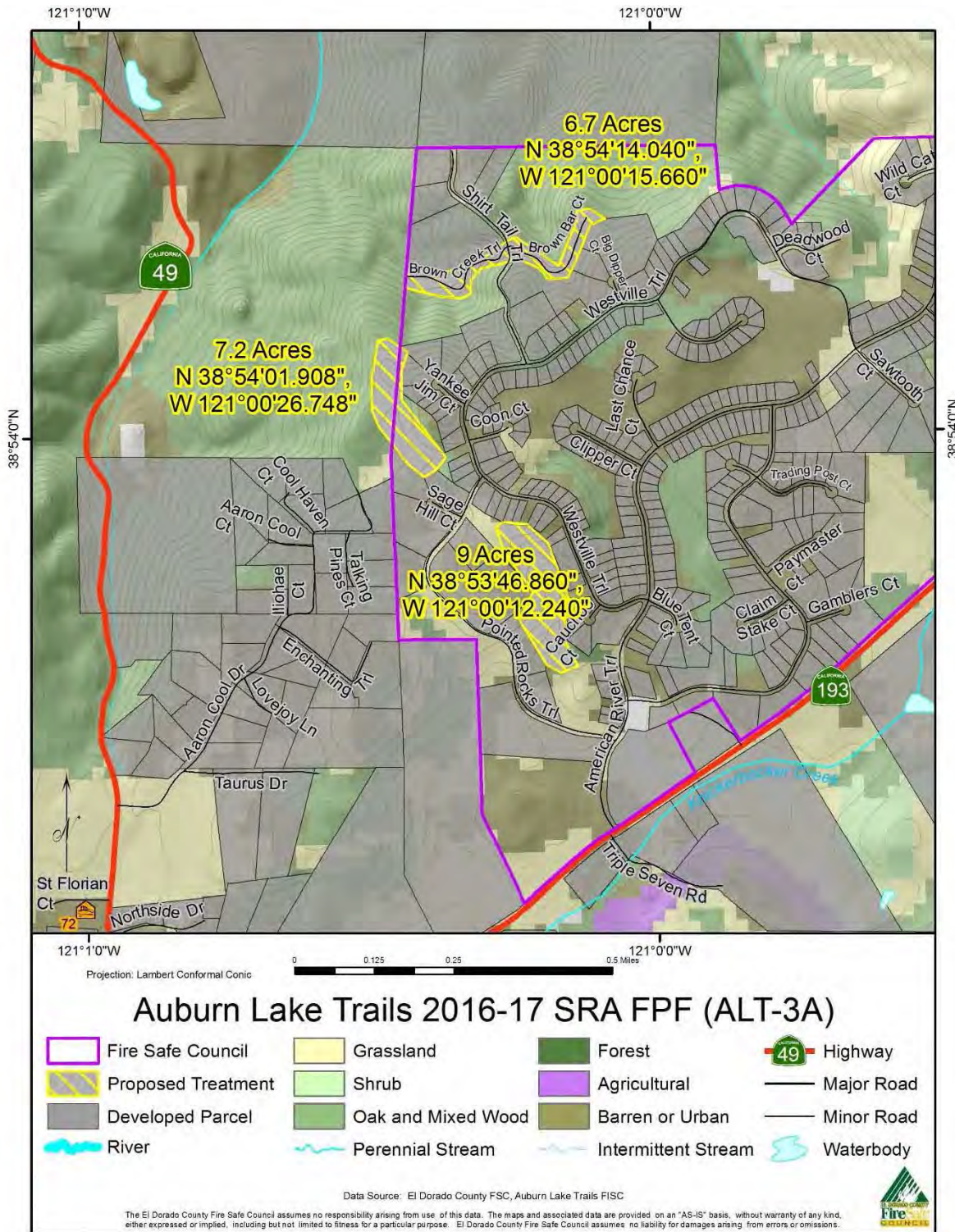
5.12 Proposed Fuel Reduction Projects Maps and Summary Table

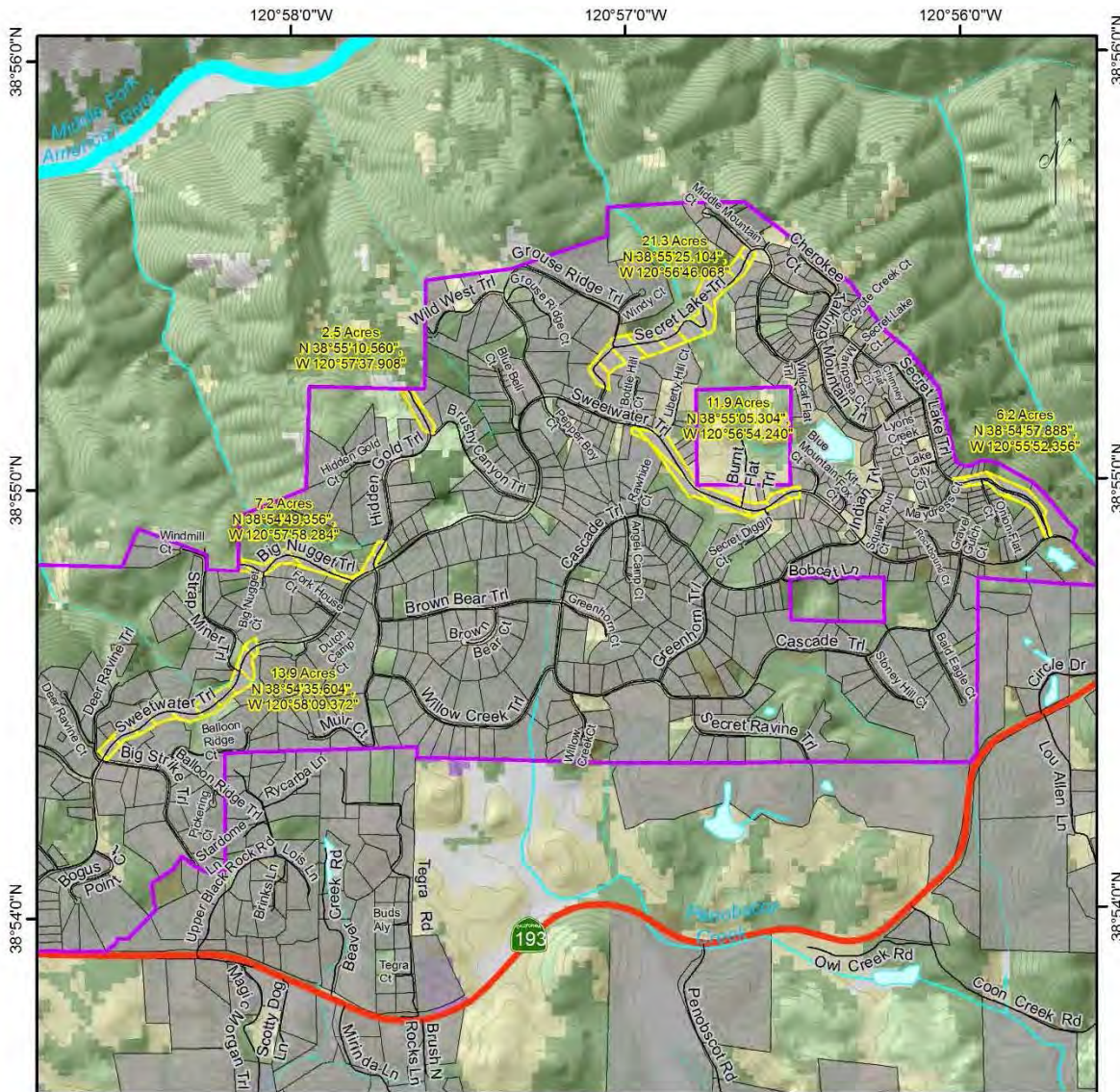
The following pages contain maps and a summary table describing proposed fuel reduction projects for the Auburn Lake Trails Area











Projection: Lambert Conformal Conic


0 0.25 0.5 1 Miles

Auburn Lake Trails 2016-17 SRA FPF (ALT-3B)

Fire Safe Council	Grassland	Forest	Highway
Proposed Treatment	Shrub	Agricultural	Major Road
Developed Parcel	Oak and Mixed Wood	Barren or Urban	Minor Road
River	Perennial Stream	Intermittent Stream	Waterbody

Data Source: El Dorado County FSC, Auburn Lake Trails FISC

The El Dorado County Fire Safe Council assumes no responsibility arising from use of this data. The maps and associated data are provided on an "AS-IS" basis, without warranty of any kind, either expressed or implied, including but not limited to fitness for a particular purpose. El Dorado County Fire Safe Council assumes no liability for damages arising from errors or omissions.




Summary of proposed treatment by cost for the Auburn Lake Trails (“ALT”) Area.

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Auburn Lake Trails	1a	ALT-1a	AR Canyon Fuel Break & HT	Fuel Reduction			\$130,250
Auburn Lake Trails	1	ALT-1	Hazard Tree Removal	Hazard Tree			\$200,000
Auburn Lake Trails	2	ALT-2	Fuel Reduction	Fuel Break	52		\$110,000
Auburn Lake Trails			Total ALT		52	0	\$440,250



El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
CAMINO-CEDAR GROVE FIRE SAFE COUNCIL
ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared for:

CAMINO-CEDER GROVE FIRE SAFE COUNCIL

JANUARY 2017

5.3 Camino-Cedar Grove

5.31 Overview

Camino/Cedar Grove Community area is adjacent to the Pollock Pines Community is primarily an agricultural community with small family owned fruit orchards, vineyards, and Christmas tree farms. The community also has about ½ of its acreage in private forest land and National Forest land on the north side and south side of the community. The Sphere of Influence includes 15,292 acres the 2010 population is 5063 and 2,285 housing units. The agricultural nature of the community brings many visitors in the late fire season to the community; also its location close to Highway 50 brings visitors to the back roads all year long. These visitors bring the potential for human caused fires to a high level.

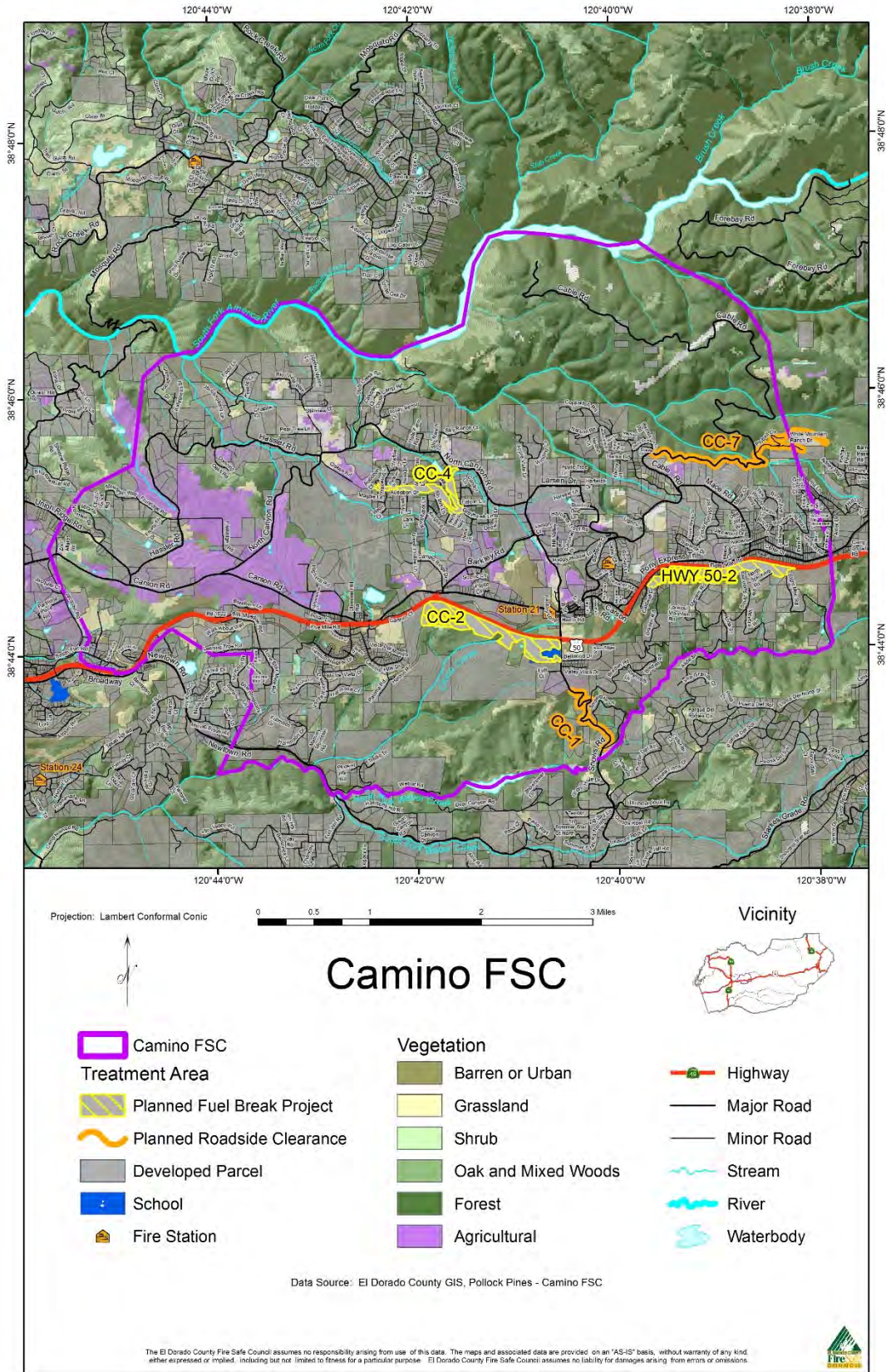
The elevation of the Camino area ranges from 3000 to 3500 feet elevation. Much of the area is covered with a mixed conifer forest with areas interspersed with chaparral. The area fire protection is provided by El Dorado County Fire Protection District for the structure protection and CALFIRE provides the wildland fire protection. Both agencies have mutual aid agreements with the US Forest Service and adjoining local fire agencies.

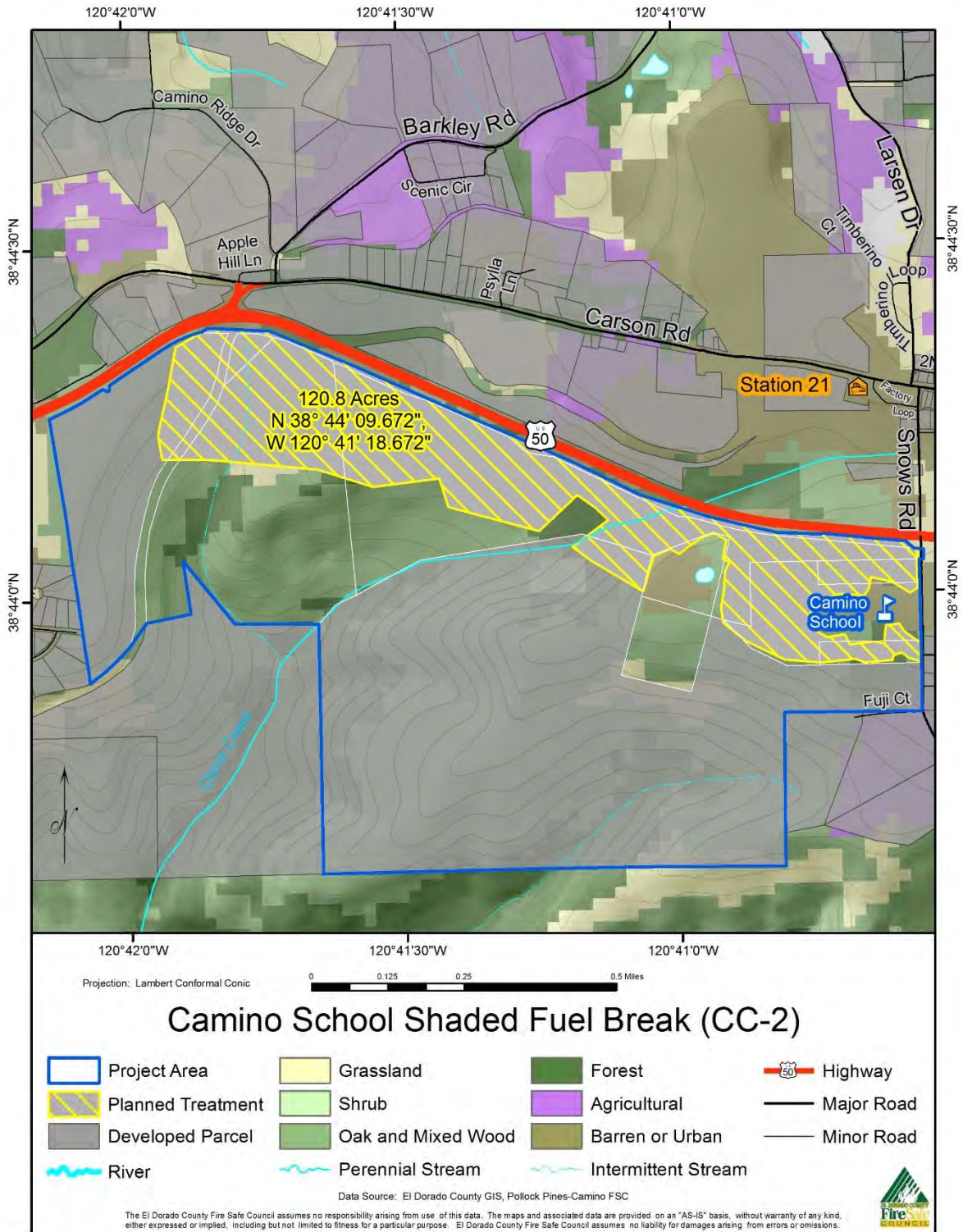
Currently the community does not have an active Fire Safe Council but the Pollock Pines Fire Safe Council has been actively recruiting to have a council started. The Pollock Pines FSC has been meeting with residence and hosting fire safe educational workshops in the community. The Pollock Pines FSC has offered to help establish a Camino FSC.

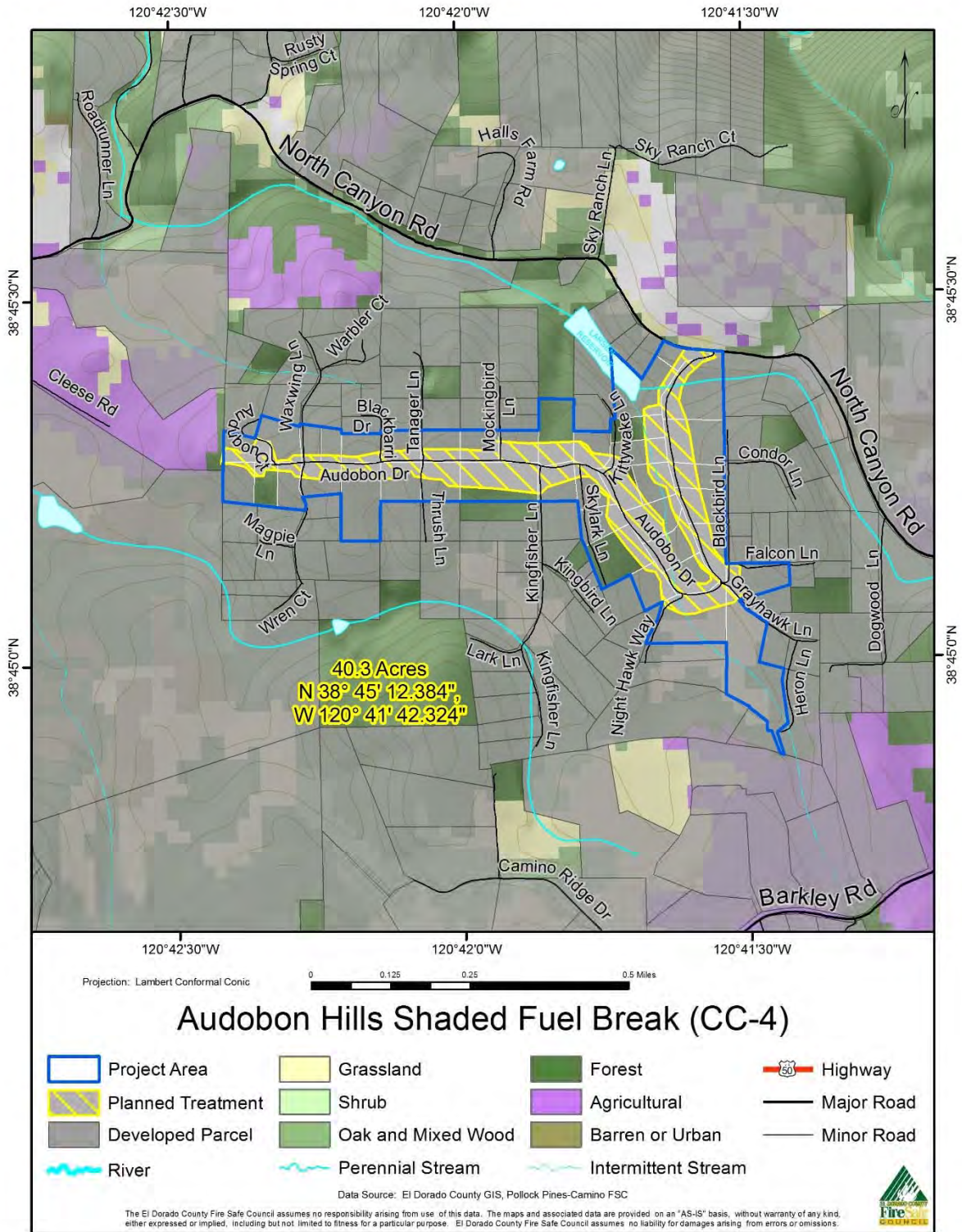
More information on Camino-Cedar Grove area and its 2011 CWPP visit the following website:
<http://www.edcfiresafe.org/fireplans/hwy-50.pdf>

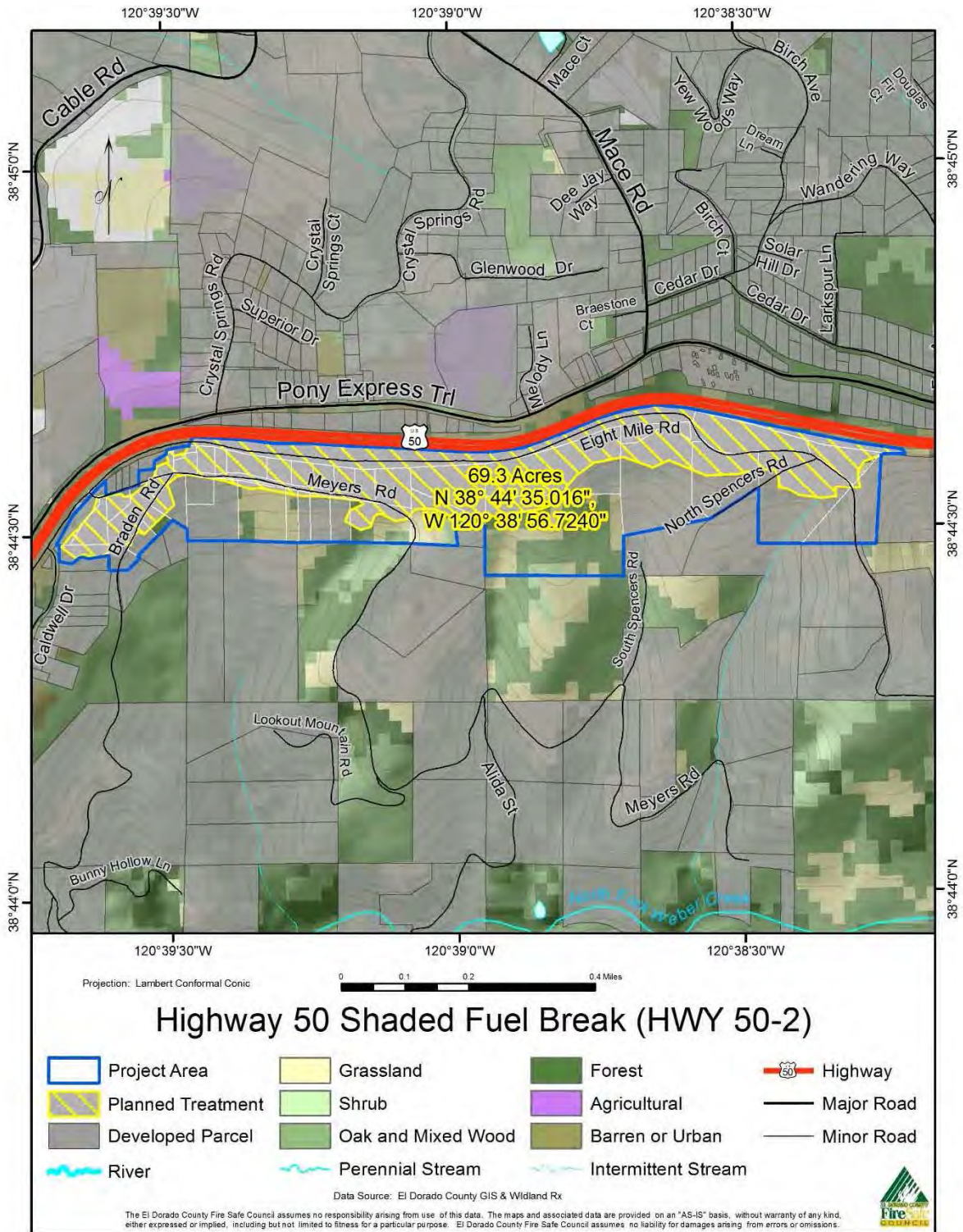
5.32 Proposed Fuel Reduction Projects Maps and Summary Table

The following pages contain maps and a summary table describing proposed fuel reduction projects for the Camino-Cedar Grove Area









Summary of proposed treatment by cost for the Camino-Cedar Grove Area

	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Camino	1	CC-2	Camino School Fuel Break	Fuel Break	120		\$240,000
Camino	3	CC-4	Audubon Hills Fuel Break	Fuel Break	40		\$80,000
Camino	4	HW-50-2	HW 50 Fuel Break	Road Hazard	69	2.0	\$138,000
Camino			Total Camino		229	2.0	\$458,000



El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Sub-Section for
COLOMA - LOTUS FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared by:
COLOMA - LOTUS FIRE SAFE COUNCIL
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JANUARY 2017

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1.0 INTRODUCTION

Coloma - Lotus Fire Safe Council's (CLFSC) subsection of the 2016 El Dorado County Community Wildfire Protection Plan (CWPP) has been written by Council volunteers and approved by attendees at a November 16, 2016 CLFSC meeting. The purpose of this Coloma – Lotus (CL) area section of the El Dorado Countywide CWPP is three-fold:

- To reflect the conditions of the local area;
- Support community efforts to meet CWPP goals; and
- Provide a ready list of area-specific projects.

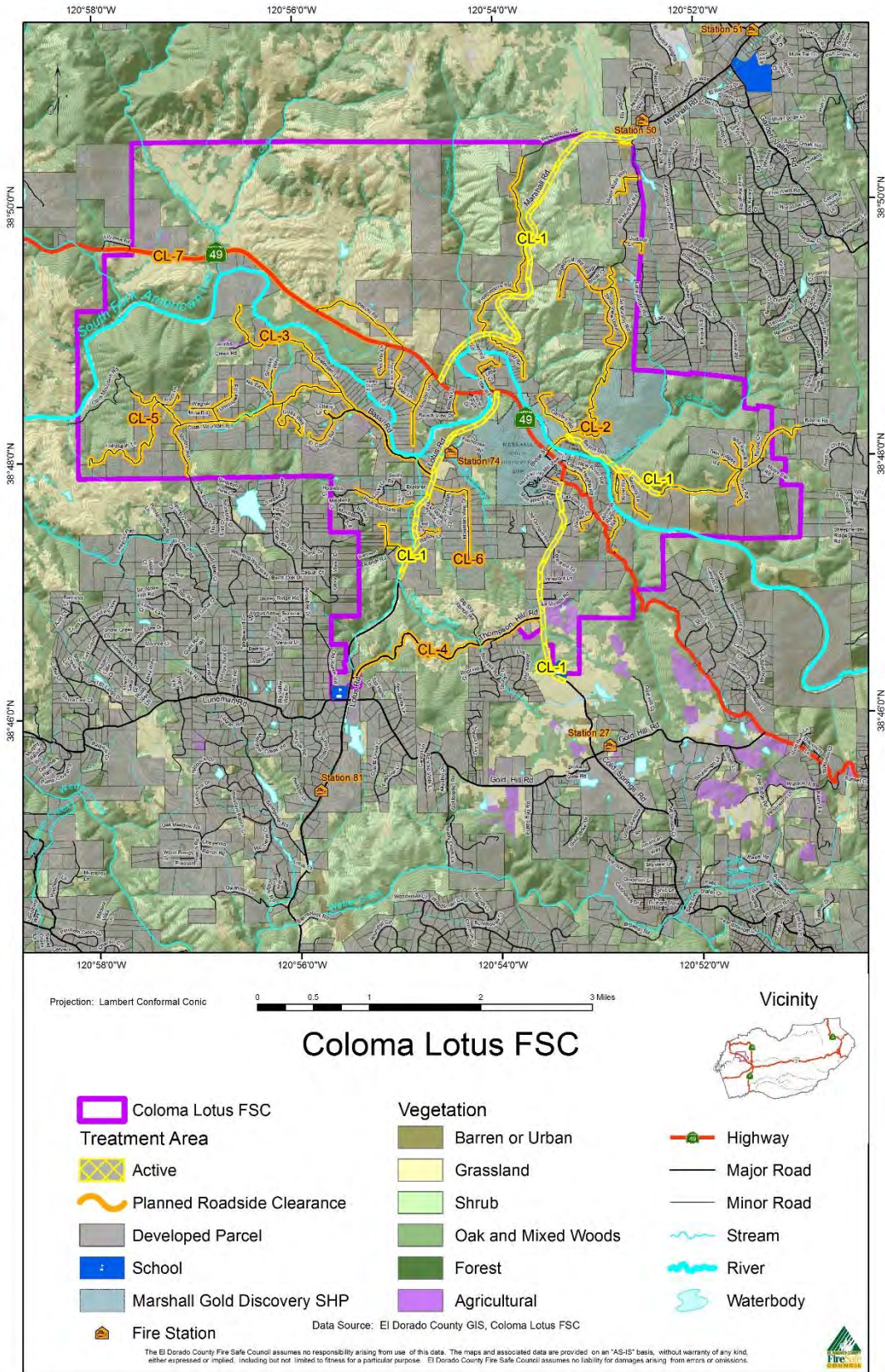
2.0 CLFSC SPHERE OF RECOGNITION DESCRIPTION

The CLFSC area, shown in a map attached to this document, encompasses approximately 20 square miles (13,000 Acres). The CLFSC boundaries, or Sphere of Recognition, were developed over an approximately 6-month period starting with CLFSC organizational meetings in Spring 2015.

During meetings, area topographic maps were shown and discussed with attendees, who marked their property location. Over time, the FSC area was extended beyond the central portions of CL to encompass the much of the valley.

The boundaries extended to the top of local ridgelines in recognition that the Coloma-Lotus valley is in the lower elevation of this part of the county, therefore any fires that begin here may potentially spread uphill and up canyon into other populated communities such as Greenwood, Garden Valley, Georgetown, Pilot Hill, Placerville, and Rescue. The Council also included federal (BLM), State (Marshall Gold Discovery State Historic Park), local (schools and parks) as well as agricultural properties including American River Conservancy (ARC) lands (Wakumatsu Colony Farm) and Bacchi Ranch property. As discussed below, in a section titled *Fire Safe Activities by other CLFSC Area Agencies and Organizations*, we sought to build upon existing vegetation management and fire safe activities through coordination with others, while avoiding duplication of effort.





2.1 CL Valley Historic and Geographic Setting

The very scenic Coloma - Lotus valley and its adjacent lands has its historical roots in the Gold Rush of 1849. Cullumah (meaning “Beautiful” as given by the Native Nisenan and Foothill Miwok) lied quietly in a valley inhabited by native Americans when in 1847, James Marshall and a small band of Anglo-American workers hired by James Marshall and John Sutter settled in the valley to construct a sawmill along the heavily forested banks and hills of the South Fork American River. Then, on January 24th of 1848, James Marshall found a few flakes of gold in the tailrace of the nearly completed and operational Sutter’s Mill.

Once the word got out of the gold discovery, the population of the Coloma – Lotus Valley exploded into the tens of thousands, seemingly overnight from the influx of persons who arrived from throughout the world seeking their fortunes in the search of gold. Hotels, breweries, stores, saloons, wineries, restaurants and almost every conceivable business were established to serve the needs of the miners. As time passed, the miners spread out to other areas prospecting for fresh, undiscovered gold, yet Coloma and Lotus continued for some time to be the home base for supplies and a place that offered these miners a sense of “civilization”.

As more years passed and the gold rush subsided throughout the Mother Lode, the Coloma – Lotus community relied more on its agricultural products and some residual mining as its main economic base. Today, the Coloma – Lotus valley relies heavily on tourism and agriculture to support whitewater rafting on the American River as well as local wineries and farms.

Today, in addition to the recreational boating, wineries and farms mentioned above, there are approximately 740 residences within the Coloma - Lotus Fire Safe Council’s (CLFSC) area; a small shopping center; resorts; campgrounds; county, state and federal parks and lands; working cattle ranches; restaurants; stores; a gas station; two schools; two community churches, a community hall, and numerous other places of business. The El Dorado Irrigation District (EID) is the main purveyor of water in addition to private wells. The EID water system stores, treats and distributes metered water. PG&E is the public power utility servicing the area. There is also a limited fire hydrant system. El Dorado County Department of Transportation (DOT) maintains county public roads while CalTrans services State Highway 49 (the main artery) that bisects the area.

Coloma-Lotus residents live on land parcels ranging from ¼ to 640 acres and larger in size. There are approximately 740 habitable structures with approximately 2,000 people living in the area year-round. Also within the CLFSC boundary are Bureau of Land Management (BLM Department of the Interior) lands consisting of about 1000 acres. At the core of the Coloma-Lotus valley is the Marshall Gold Discovery State Historic Park that encompasses approximately 576 acres.

The most important natural asset in the CLFSC area is the South Fork of the American River which has shaped the Coloma-Lotus Valley. The loss of trees and other plants due to wildfires in the CLFSC area would cause multiple problems as loss of vegetation would reduce a vital part of the functioning ecosystem. Vegetation significantly reduces the amount and speed of storm water runoff, which if left unchecked, pollutes local streams and damages the watershed. Visual impacts from uncontrolled wild land fires, would impact the scenic beauty for which the area is known.



Another local asset is the Marshall Gold Discovery State Historic Park. The State Park hosts over 250,000 visitors annually, most which are school children. Its historically significant structures are a recognized and important cultural asset for the State of California and the nation. The Lotus area has the El Dorado County's highest use County park called Henningsen-Lotus Park. And finally, the American River is the most popular whitewater rafting destination in California. Over a million persons come annually to the Coloma-Lotus area to enjoy the river, camping, concerts, special events, and local nature hikes. Loss of our local wildlife ecosystem would have a major economic loss to local businesses, the County, and California State Parks.

2.2 Existing Wildfire Urban Interface (WUI) Conditions

The predominant feature of the Coloma-Lotus valley is the South Fork of the American River canyon. The Coloma-Lotus valley as well as the river canyon upstream and downstream of the valley are surrounded by steep canyons with heavy fuel loading. Multiple drainages flow into the South Fork in this area. The main river corridor and these side canyons act as "chimneys" for airflow as the daytime temperatures increase. Airflow is up-canyon in the daytime and then reversed to down-canyon at night. At times when the overall weather systems may be calm, there may be significant breezes up or down these canyons due to this effect. The heavy fuel loading in the area consists of oak and pine forests as well as various brush types and grasses with an understory forming an excessive amount of ladder fuel.

The CLFSC area encompasses approximately 20 square miles (13,000 Acres). The South Fork American River's headwaters and upper watershed lies within the El Dorado National Forest and the Tahoe National Forest. Each of these forests lies on the western slope of the Sierra Mountain Range. With the Coloma-Lotus valley being in the lower elevation of this part of the county, any fires that begin here may potentially spread uphill and up canyon into other populated communities such as Greenwood, Garden Valley, Georgetown, Pilot Hill, Placerville, and Rescue.

The SRA Fire Hazard Severity Map shows approximately 50% of the land within the CLFSC area as *Moderate*; approximately 30% as *High*; and approximately 20% as *Very High*. However, a large majority of the most densely populated and developed areas are within the *Very High* fire hazard category.

The CL valley has been fortunate not to experience any major fires such as the Kings or Butte fires, however the following "Incident Fires" are sobering reminders that we live in a fire-prone WUI area:

- Bayne Fire (July 1, 2007) - 80 acres along Bayne Road, Mount Murphy area of Coloma.
- Salmon Fire (August 15, 2012) - 108 acres along Salmon Falls Road, south of Pilot Hill.
- Camp Lotus Fire (July 6, 2014) – Extent uncertain.
- Adventure Fire (July 16, 2015) – Over 100 acres along State Highway 49, by the Adventure Connections Campground (west) and Bacchi Ranch (east). Involved El Dorado County Fire, CDCR, El Dorado County Sheriff's Office, CHP, US Forest Service, Georgetown, Garden



Valley, El Dorado Hills, Rescue Fire, and Cameron Park Fire using 21 engines, 4 air tankers, 2 helicopters, 2 dozers and 3 water tenders working through the night.

- Storkbill Fire (July 22, 2016) – 50 acres off Storksbill Road in Pilot Hill.

2.3 Emergency Services

The El Dorado County Fire Protection District and CALFIRE provide the structural firefighting resources as well as wildfire protection for the community. There is fire equipment based at the Lotus Fire Department building, however this is a volunteer station which is only periodically staffed. The El Dorado County Fire District has multiple structure fire-fighting and ambulance stations that are each located approximately 10 minutes away in Cool, Garden Valley, Rescue and Placerville. The closest CALFIRE stations are at Greenwood and Pilot Hill – each approximately 10 minutes away by County road. The air support provided by CALFIRE’s Grass Valley airport location provides fast, critical help to fires extending beyond the main roads.

2.4 Greatest Threats – Internal and External

The greatest threats to the CLFSC Sphere of Recognition are divided into two types – those that are internal and those that are external to the CL area, as follows:

2.4.1 Internal wildfire-related threats include:

- Lack of staffed structural fire suppression equipment and the need for a full time staffed community fire station within the Coloma - Lotus Valley. Even though this issue is not addressed directly in this document it continues to be a major concern of local citizens.
- The bowl-shaped geography of the CL valley, because any fires starting on the valley floor quickly traveling uphill.
- Potential for wildfires in the CL valley cutting off available evacuation routes and routes of travel for inbound suppression equipment.
- Residents and visitors blocking evacuation routes and routes of travel for suppression equipment. Multiple one-lane roads as well as the Mount Murphy Road bridge are likely locations of congestion during an emergency.
- Numerous lodging and event venues are crowded, especially during the summer months, with visitors unfamiliar with area roads and emergency management programs. The CL area contains numerous commercial RV campgrounds, campgrounds managed by river rafting outfitters, B&Bs, other lodging and wineries that serve as event venues.
- The Marshall Gold Discovery State Historic Park historical structures, many built of wood, are difficult to protect.
- Failure of the residents to have adequate defensible space for their homes. (Violations of the California Public Resources Code (PRC) 4291)
- Failure of vacant land owners who do not remove hazardous vegetation. (Violation of the El Dorado County Nuisances Code Section 25845 Chapter 9.02)

2.4.2 External wildfire-related threats include:

- Variable daily wind directions, with up-canyon winds predominating during the day, and down-canyon winds during the evening.
- Strong winds and sometimes lightening brought by storm fronts from the north and west, particularly during the late summer through spring months.
- Increased tree mortality due to drought and bark beetle damage.
- Potential for a large, high-severity fire outside of the CL Valley to adversely impact the South Fork of the American River headwaters, main stem and side-stream watersheds. Runoff and erosion rates increase by two or more magnitudes for several years after a high severity fire creating greater risk of adverse effects to aquatic resources. After a severe wildfire, the potential effects within and downstream of the CLFSC Sphere of Recognition include:
 - increase in the suspended sediment and turbidity levels of streams during and immediately after rainfall events and periods of rapid snowmelt;
 - deposition of fine-grained sediment in stream channels;
 - deposition of ash in streams, which can increase nutrient levels for several years; and
 - increases in runoff during rainfall events tend to cause stream channel erosion.

3.0 CLFSC CURRENT ACTIVITIES AND PROJECTS

Since the organization of the CLFSC in 2015, the group has been proactive in alerting members of the CL community about ways to effectively prepare for wildfire, and thereby minimize the potential impacts. The Council has held evening meeting with speakers and discussion focused upon educating residents of the benefits of defensible space, the availability of fuel reduction resources (EDCFSC chipper program, etc.) and advantages of readiness prior to an emergency. The CLFSC continues to emphasize the importance of preparedness as exemplified by an October 2015 Community Preparedness Event, with presentations by the El Dorado County Office of Emergency Preparedness.

The CLFSC was exceptionally pleased to receive funding for the Coloma-Lotus Phase 1 (CL-1) Project to complete over 36 acres of reduced fuel work along four major County roads. Approximately 7 miles of roadwork is planned for early 2017, to be completed through a coordinated effort by the EDCFSC, Greenwood California Conservation Crews (CCC) and EDC Department of Transportation.

Table 1. CL-1 Project Location, Size and Dimensions

Project Roads	Length (feet)	Width (feet)	Area (acres)	Starting Point (Intersection)	Ending Point
Bayne Road	5,240	22	2.60	Bayne Rd/Mount Murphy Road	1.0 mile, before creek



Cold Springs Road	9,504	43	9.38	SH 49/Cold Springs	1.8 mile, to Gold Trail School
Lotus Road	10,032	43	9.90	SH 49/Lotus Road	1.9 mile, bottom of hill
Marshall Road	14,784	43	14.59	SH 49/Marshall Road	2.8 mile, top of hill
Totals	36,960 feet		36.47 acres		7.5 miles

Project CL-1 is viewed as the first phase of a valley-wide effort to establish and maintain a Fire Safe Community. Once completed, the 36,960 (7.5 miles) of proposed fuel breaks will leverage the effectiveness of adjacent defensible space created by Coloma-Lotus residents and businesses, as well as fire safe actions by BLM, State Parks, County Parks and private landowners to strategically broaden the size of the Project shaded fuel breaks. The Marshall Road portion of the Project, located in a High Fire Hazard Severity Zone, will strategically reduce the potential for a wildland fire traveling uphill into the nearby Garden Valley community. The Lotus Road and Cold Springs Road corridor clearings will minimize the potential for a CLFSC area fire spreading south and west into the more populated Placerville area.

4.0 CLFSC CWPP GOALS

The CLFSC has four primary goals to direct its fire safe activities:

- 1) Strengthen Community Education and Outreach: Strengthen community education and outreach related to fire safety, emergency preparedness and available vegetation management resources.
- 2) Increase Fire Safe Road Access: Complete listed CLFSC projects that support landowner evacuation and fire fighter ingress through fuel reduction projects along roadways.
- 3) Increase Defensible Space and Shaded Fuel Breaks: Encourage public and private landowners to leverage CLFSC road projects and other fire safe activities to create wider swaths of defensible space and shaded fuel breaks.
- 4) Optimize Coordination with other Groups: Build the foundation to conduct mutually beneficially fire safe activities with area agencies, organizations, businesses and individuals.

These CLFSC goals are intended to guide the Council’s activities, effectively using available resources.

4.1 Strengthen Community Education and Outreach

A fundamental CLFSC goal is to strengthen community education and outreach related to fire safety and emergency preparedness. Educating the community about the various ways to avoid starting fires as well as decrease the threat of wildfires and negative impacts once a fire has begun is extremely important, productive and effective. Sample activities to meet Council education and community outreach goals include:

- 1) A periodic newsletter to be mailed out to area residents and businesses in the CLFSC area. This newsletter will have both general information about being a fire-wise / fire-safe



community as well as information specific to the Coloma-Lotus area. Concerns, questions and issues about fire related topics can also be addressed.

- 2) Development of internet based communications (e.g. Facebook) that are specific for the Coloma-Lotus community to keep residents informed of current and future planned projects; offer discussions of issues or concerns specific to the Coloma-Lotus area; and relay information about the past, current and future community meetings. Toward this end, the Council will coordinate and use the existing online resources of the EDCFSC, Grange and CL Chamber of Commerce.
- 3) Local community meetings (to be held approximately quarterly) to:
 - a. Discuss and inform residents of past, current and future fire safe activities and projects.
 - b. Have guest speakers who can share their knowledge and experiences about fire related topics.
 - c. Have fire related educational materials available to take home for those attending the meetings.
 - d. Advise community members of various services that are available to help reduce the threat of or damage from fires in the community.
 - e. Offer a social gathering where members of the community can get to know others in the community whereby they can build stronger communication links, friendships and support.
- 4) Placement of Fire Danger Level signs at key locations along major area roads.

4.2 Increase Fire Safe Road Access

Clear travel routes are vital to allow evacuation of residents and visitors, and inbound movement of suppression equipment and crews in the event of a wildfire in or near the Sphere of Recognition. Due to the area's relatively few main roads, wind patterns and geography, some evacuation routes could be clogged or cut off. The roads and bridges are narrow, with many located on slopes that can easily be overrun by a wildfire, or clogged by evacuating vehicles and/or responding suppression equipment. It is critical that area roads can serve as transportation corridors and fuel breaks, where possible, to protect the community from the worst effects of wildfire.

The CALFIRE Amador-El Dorado Fire Unit (AEU) Ignition Management Plan discusses how, in cooperation with El Dorado County and other local planning agencies, CALFIRE has oversight responsibility and reviews proposed land development permits for compliance with PRC 4290. In their review of land use permits, the number one factor CALFIRE considered is access. The AEU Plan states: "Access is a major fire prevention and protection need, whether wildland or structural. Failure to provide reasonable access for emergency equipment and evacuation exits for civilians can result in major loss of life, property and natural resources. Fire apparatus sitting at an intersection, waiting for civilians to exit on a narrow road, cannot provide the necessary fire suppression action. Safe access requires street and road networks that limit dead-end roads and provide reasonable widths, grades, turn-outs, and curves on all roads and driveways".



In accordance with CLFSC goals and CALFIRE priorities, the Council seeks to improve fire safe access routes, as shown in the Projects section, below. Clear routes are key to evacuating residents and allowing CALFIRE equipment to fight wildfires. The first project (CL-1) developed by the recently formed CLFSC involved shaded fuel breaks along four main transportation arteries to help insure safe evacuation of residents as well as safe ingress of firefighting equipment and crews. Additional shaded fuel breaks along other roads that lie within the CLFSC boundary are being planned. It is our goal that all the roadways within the CLFSC area have safe buffers (e.g. shaded fuel breaks and reduced fuel loads) to help insure the safety of our residents, visitors and emergency crews.

4.3 Increase Defensible Space and Shaded Fuel Breaks

Another CLFSC goal involves reducing hazardous fuel loads in other CL areas (in addition to the roadways) by creating shaded fuel breaks along the perimeters of the CLFSC boundary as well as around the perimeters of the public lands that lie within the CLFSC boundary. Working in coordination with willing land owners, the Council hopes that much of the CL area can be better treated and thereby reduce much of the fire danger and increase the safety of our residents, visitors and emergency responders.

There are approximately 15 Bureau of Land Management (BLM) parcels within the CLFSC area for a total perimeter measurement of approximately 16.5 linear miles. In addition to BLM, California State Parks has the Marshall Gold Discovery State Historic Park (MGDSHP) lands that lie in the heart of the CLFSC area. MGDSHP has two large main areas: the main historic region consisting of approximately 4.3 miles around its perimeter and the Mt. Murphy lands consisting of approximately 3.3 miles around its perimeter. The total perimeter around the MGDSHP lands is approximately 7.6 miles. As mentioned above, working with both willing land owners, the creation of shaded fuel breaks along these perimeters can be very beneficial in reducing fire danger.

An 8 to 10-year maintenance cycle would be required and is envisioned as our best approach to maintain hazardous fuel levels to a minimum. This 8 to 10-year cycle would be acceptable for reducing brush and tree overgrowth. Regrowth will be the greatest in and near the drainages. Observed regrowth in the described previous projects suggests the regrowth in this project will be slow. Custodial fuel reduction maintenance to the project site is not expected to be required before 8 or more years. When maintenance might be necessary to ‘tune-up’ the fuel reduction, that maintenance will likely include the removal of understory vegetation, but to a lesser degree than the vegetation exists today.

4.4 Coordinate Fire Safe Activities with other CLFSC Area Agencies and Organizations

The CLFSC recognizes and appreciates the ongoing fire safe efforts by Coloma - Lotus community agencies, organizations and individual, as well as the ongoing support of CLFSC activities by the Gold Trail Grange and CL Chamber of Commerce, described below. We look forward to continued coordination and, when appropriate, co-sponsoring educational and fuel reduction activities and projects with the groups listed below.



- American River Conservancy
- Bureau of Land Management Mother Lode Field Unit
- Marshall Gold Discovery State Historic Park
- Gold Trail Grange No. 452
- Coloma-Lotus Chamber of Commerce

4.4.1 American River Conservancy

The American River Conservancy (ARC) has conducted extensive past and ongoing fire safety projects involving fuel reduction in the CLFSC area on ARC-owned property. ARC lands within the CLFSC area includes portions of the Wakamatsu Colony Farm site located along Cold Springs Road and surrounding the Gold Trail School. The 272-acre Wakamatsu site has an active Vegetation Management Plan developed with CALFIRE.

The ARC site is located adjacent to private lands, including rural residential lands and agricultural lands. There is also a public middle school located adjacent to the site (Gold Trail School). In addition, Wakumatsu Colony Farm is located in a Moderate Fire Hazard Severity Zone. The area has vegetation and topographic features that affect fire intensity and rate of spread (according to CALFIRE) and the project site is identified in the Amador-El Dorado – Sacramento CALFIRE Unit's Strategic Fire Plan. Work performed since 2011 includes fuel reduction/understory brush clearing, prescribed fire and ongoing grazing to reduce fuel loads.

- Fuel reduction/understory brush clearing: The “Fuel Reduction in the South Fork American River Watershed” project involved manual fuel reduction activities performed by California Conservation Corps (CCC) crew members on approximately 35 acres of densely forested oak woodland within the South Fork American River Watershed. In 2013, CCC crews worked for approximately 1,500 hours to treat 6 acres of area. In 2015, CCC crews worked for 1920 hours (collectively) to treat 10 acres of area.
- Prescribed Fire: In 2011 ARC worked with CALFIRE to create a Vegetation Management Plan that allowed for the use of prescribed fire at the Wakamatsu Farm. In 2012 and 2013, prescribed burns were carried out as live fire training exercises utilizing local CALFIRE and County Fire crews. Approximately 60 acres total of annual grassland/oak savannah were treated between 2012 and 2013.
- Grazing to reduce fuel loads: ARC currently leases approximately 80 acres of irrigated pasture and dry land pasture to Free Hand Farm, a local family-owned business to graze sheep and cattle at the Wakamatsu Farm. The addition of livestock to the management of the property has resulted in reduced levels of yellow star thistle and medusahead grass, effectively helping to reduce fuel loads in the grassland areas.



The overall purpose of ARC fire safe efforts is to reduce, modify, and manage fuels within the Wakumatsu Farm that may enhance mitigation efforts in the event of a wildland fire situation. The primary objective is to reduce accumulations of flammable low brush species such as Scotch Broom (*Cytisus scoparius*), Manzanita (*Arctostaphylos manzanita*), coyote brush (*Baccharis pilularis*), ceanothus (*Ceanothus cuneatus*) and Toyon (*Heteromeles arbutifolia*) and reduce ladder fuels from existing interior live oak trees. The dominant overstory consists of interior live oak (*Quercus wislizeni*) with a few blue oak and grey pines. All the brush and vegetation that removed by CCC crews manually (using hand tools and chainsaws) was chipped onsite.

4.4.2 Bureau of Land Management

The Bureau of Land Management (BLM) Mother Lode Field Office owns and manages approximately 17 parcels of land totaling about 1000 acres along and near the South Fork of the American River. Only non-motorized recreational activities such as hiking, mountain biking, horseback riding and other similar passive activities are allowed upon these BLM sites. Of these parcels, the most popular include three day-use and river access sites within the Coloma - Lotus FSC area, described below.

- Dave Moore Nature Area: One of the main features of the Dave Moore Nature Area is a loop trail about a mile long which goes from the parking lot trail head to the South Fork American River and back again passing through several habitat types and providing access for pedestrians, wheelchairs and baby strollers.
- Greenwood Creek developed by BLM in 2005 primarily to serve kayakers and rafters, also connects via trails to Magnolia and Cronan Ranch trails. This area has 40 car-sized parking stalls; trailers and recreational campers are not allowed. Kayaks and rafts must be carried to the parking lot via a trail from the river that is approximately 1/3 mile in length.
- Magnolia Ranch – with its large parking lot capable of handling horse trailers and extensive trail network connected to the larger Cronan Ranch, Magnolia Ranch serves numerous area equestrians and other trail users. It is the only BLM parking area visible from Highway 49, and therefore attracts visitors who may not be familiar with other public recreational facilities.

BLM's South Fork American River Management Plan, adopted in 2004, guides development and use of their lands. Individual parcel descriptions and management plans are provided. Overall operation and maintenance of BLM's recreational properties includes fire prevention related activities including vegetation control and fuels management using prescribed burns, control of noxious weeds and grazing. BLM lands also provide emergency vehicle access to otherwise inaccessible portions of the South Fork of the American River.

- a. Dave Moore Nature Area, Greenwood Creek and the Magnolia Ranch area all receive annual and weekly maintenance during the year. Limbing of trees close to trails occurs every 3-5 years. All areas are weed-eaten where vehicles park and around site facilities. If there is a



need to clear trail from felled trees or trees that are dying or in need of trimming, maintenance is done on an as needed basis.

- b. Adjoining Cronan Ranch, connected by trails to Magnolia and Greenwood, has its own BLM management plan. Removal of invasive weeds has been a priority in managing Cronan Ranch. All trails systems (18 miles of trails) have been mowed and sprayed for invasive weeds on an annual basis. Starting in May of 2015 and continuing through 2016, BLM has been grazing the Cronan Ranch by sheep. Over 400 sheep are grazing at any given time for 4-5 months during the spring and late summer months to help stop the spread of invasive weeds and reduce the grass fuels from building up. Over 500 acres are being grazed annually on this property. Prescribed burn has been proposed in this area but conditions to burn are very stringent and windows of time to make this a reality are narrow. BLM would use test plots first to determine whether this will be an effective tool to use.

4.4.3 Marshall Gold Discovery State Historic Park

Marshall Gold Discovery State Historic Park (MGDSHP), created in 1942 and now grown to over 576 acres in size, encompasses most of the historic town of Coloma, the Monroe Ridge to the south of the town site and Mount Murphy on the north side of the river. With about 450 year-round residents in the surrounding area, the tree-lined streets of the historic park are usually quiet, shady, and serene. Most of the park's approximately 250,000 annual visitors (many of them elementary school students) come year-round, including the annual celebration of Marshall's January 24, 1848 gold discovery, monthly living history events and special events.

The Park has a number of historic structures – many dating back to the gold rush era, include the working blacksmith shop; the Price-Thomas, Miller, Thomas, Weller, Monroe, Williams, and Papini homes; the Coloma Greys; the James Marshall cabin; the old Schoolhouse; the Argonaut; the Oddfellows Hall; and the Emanuel and St. John's Churches. All of these structures are irreplaceable historic wooden buildings. In addition to these structures, there are also other historic structures made primarily of stone and brick with wooden interiors and/or roofing components and two historic cemeteries. Other MGSDSP structures for maintenance, housing and public use facilities are located throughout the park.

Aware of their vulnerability to fire, and need for large-scale vegetation management, there has been some ongoing fuel reduction and forest health work on Monroe Ridge and other maintenance activities in developed areas throughout the Park. The Park's vegetation management work has included landscape level cutting, piling and burning of excessive fuels on the ridge, including dead and dying trees and shrubs and downed woody debris, as well as removal of invasive plants that contribute to fuel loading (broom, olive, locust and tree of heaven). Dead, dying and other hazardous trees are removed from facility areas on a routine basis around the town of Coloma. Mowing and weed removal from fields and roadside areas occurs on an annual basis.



For the future, the Park staff intends its existing fire safe activities to continue, as well as expand, to include the activities listed below and also described in the Project section of this document under Marshall Gold (MG) Projects 1 through 5:

- a. Continued fuel reduction/forest health work on Monroe Ridge
- b. Assessment and prioritization of 100' defensible space needs around park structures within the park's perimeter as well as habitable structures neighboring park property
- c. Implementation of 100' defensible space around structures identified in above assessment
- d. Wildfire management plan
- e. Fuel reduction on Mt. Murphy (at highest probably ignition points/interior live oak woodlands).

4.4.4 Coloma - Lotus Chamber of Commerce

The Coloma - Lotus Chamber of Commerce (CL CofC), started in 1998 and now with over 100 members, generously donated the initial funding of \$200 that allowed the CLFSC to formally organize. The funds were used to set up and maintain a bank account with Umpqua Bank and a post office box at the Coloma post office. The CL CofC, through its website (www.coloma.com), annual CL Guide and ongoing communications with its members, provides an important communication channel for CLFSC activities.

4.4.5 Gold Trail Grange No. 452

The Gold Trail Grange, located along Highway 49 within the SHP, serves as a vibrant community center in the Coloma-Lotus Valley. The Grange partners with various local community groups and non-profits such as the American River Conservancy, Coloma-Lotus Chamber of Commerce, CL FSC, local farmers, artisans and artists, and civic leaders to bring important and interesting events and activities to the community. Since the start of forming a local FSC, the Gold Trail Grange No. 452 has graciously allowed all CLFSC meetings to occur in the grange building at no cost to the Council. The Grange also donated \$200 that has been used to maintain a bank account with Umpqua Bank and a post office box at the Coloma post office. The Grange, through its Facebook page (www.facebook.com/goldtrailgrange/), standing committee for preparedness and resiliency, and ongoing communications with its members, provides an important communication channel for CLFSC activities.

5.0 CLFSC CWPP PROJECTS

The six CLFSC and five Marshall Gold Discovery (MG) fuel reduction projects described on the following pages, were developed in anticipation of future grant opportunities. The Council plans to submit fuel reduction project applications tailored to funding sources, such as CALFIRE grants, as funding opportunities arise. We also intend to pursue additional fire safe projects like the ones described in Section 4.3, Increase Defensible Space and Shaded Fuel Breaks, and in Section 4.4, Coordinate Fire Safe Activities with other CLFSC Area Agencies and Organizations. Implementing



fire safe projects, especially those included below, will allow the Council to pursue and meet its goals.

Pending CLFSC fuel reduction projects in this Countywide CWPP were developed and prioritized based upon fire severity maps, road conditions and number of residences served. The listed projects consist of shaded fuel breaks along existing roads that primarily are used to access residences, with some business and visitor use. Projects CL-2 through CL-7, are generally in priority order. Project CL-2 has all its roads in Red category of fire severity. Distance of minor road to a main road, as well as the number of parcels and developed parcels were also considered. Several short roads within the CLFSC area were not listed in the Projects section, however could be listed and funded in grant applications if they meet funding priorities.

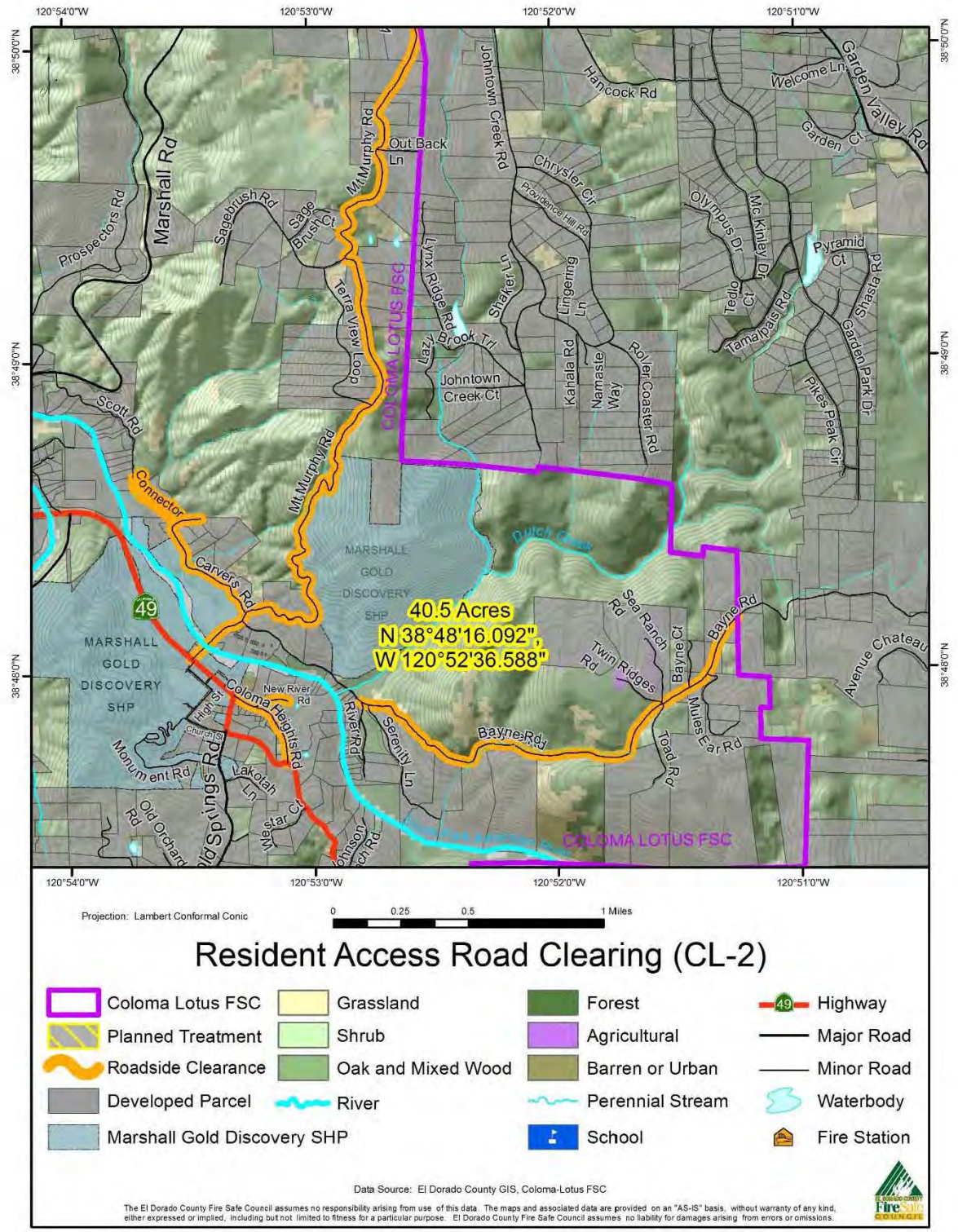
In the Projects listed and mapped following, there is fuel reduction work that may be done on public road rights of way (ROWs) and fuel reduction that might be done on private property. In all cases, the CLFSC would need to apply for funding through CALFIRE or other funding agency, and be awarded the funds.

- In the event the CL Fire Safe Council received funds for fire safe work, fuel reduction work on public ROWs would require an El Dorado County Department of Transportation (as the owner of County Roads), or a permit from Caltrans (owner of State Highway 49).
- If funding for fuel reduction work on private property became available, the access to private land would be fully optional. A signed access agreement from the property owner (not renter or other resident) for specified fuel reduction work, for a specified time-period would be required. In short, without a signed agreement there would be no access or work on private property.

As the funding for CALFIRE and other grant-related fire safe work is very limited, any property owner who does not want work upon their land would free up funds for properties owned by willing participants.

The proposed CLFSC CWPP Projects are presented in the Projects attachment to this CWPP. Roadside clearing widths and acreage amounts were calculated excluding the road pavement. For example, a 30-foot wide road clearing would involve 15 feet of clearing on both sides of the pavement.

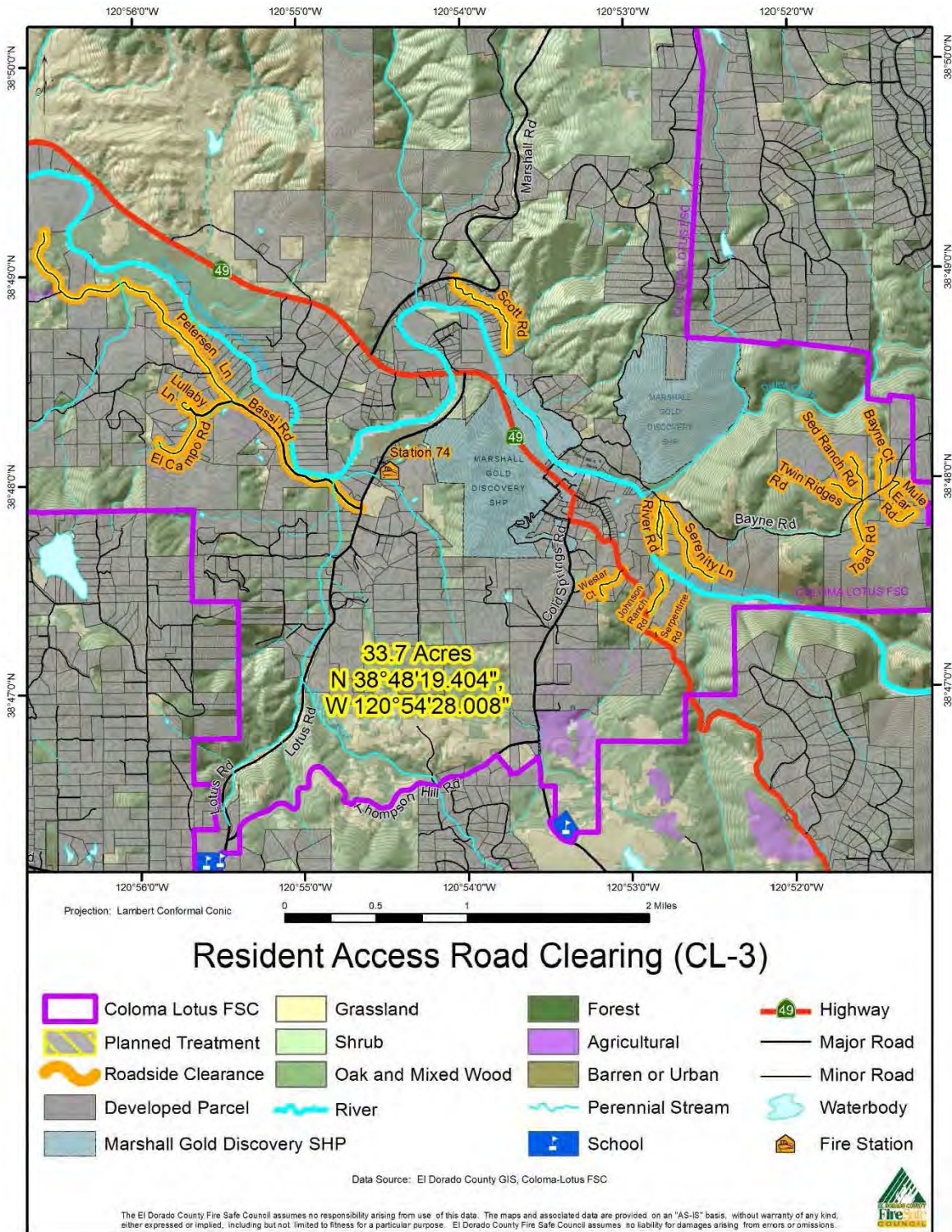


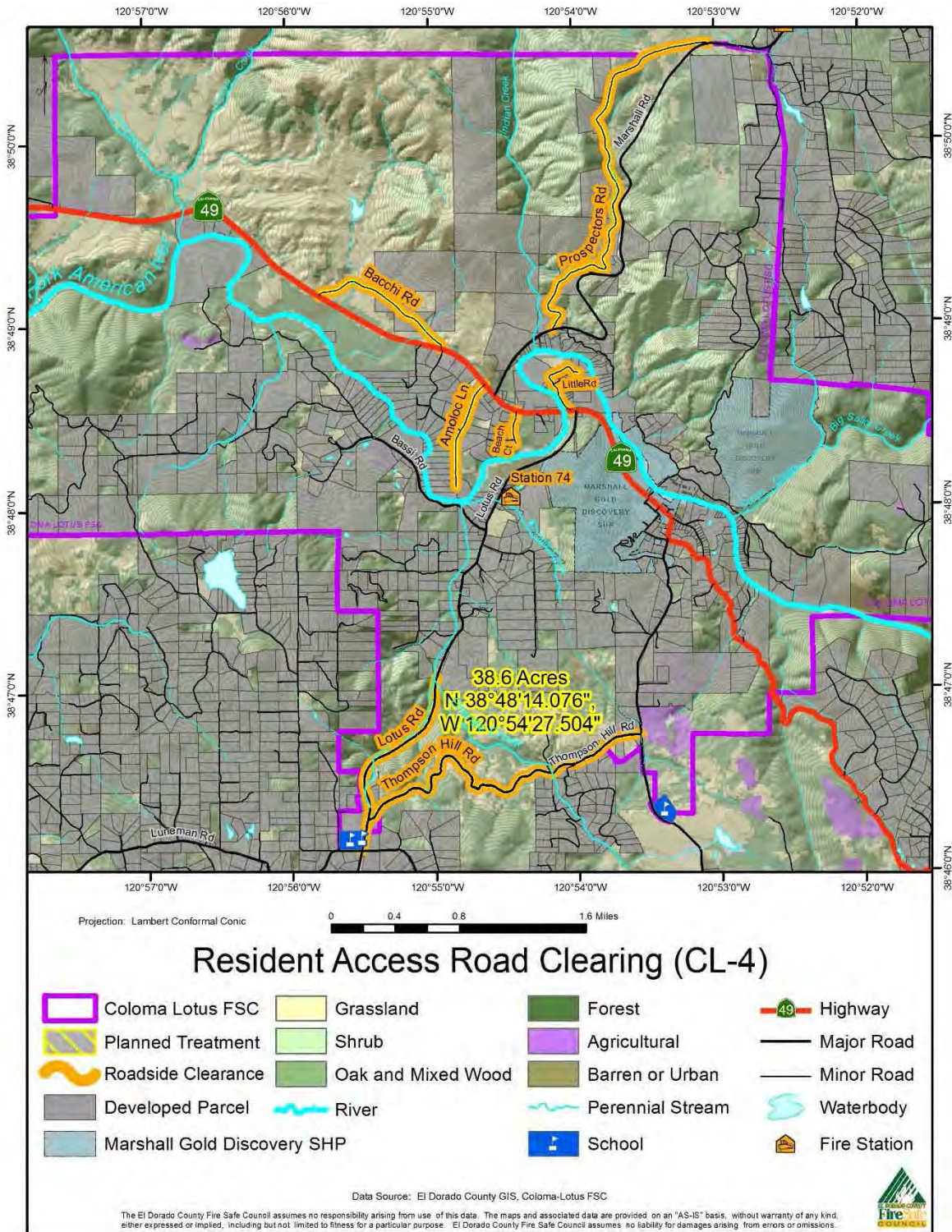


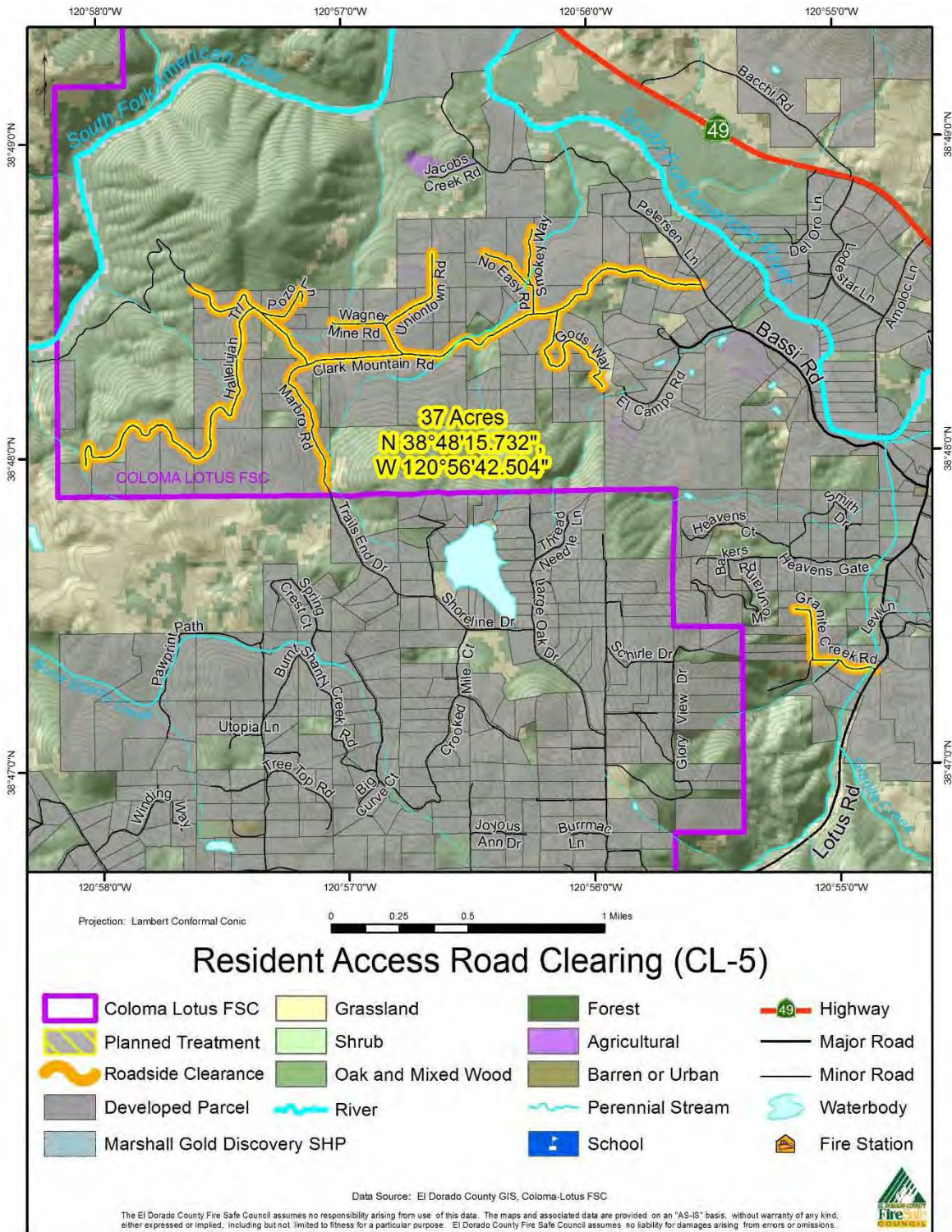
Summary of proposed treatment by cost for the Coloma-Lotus Area

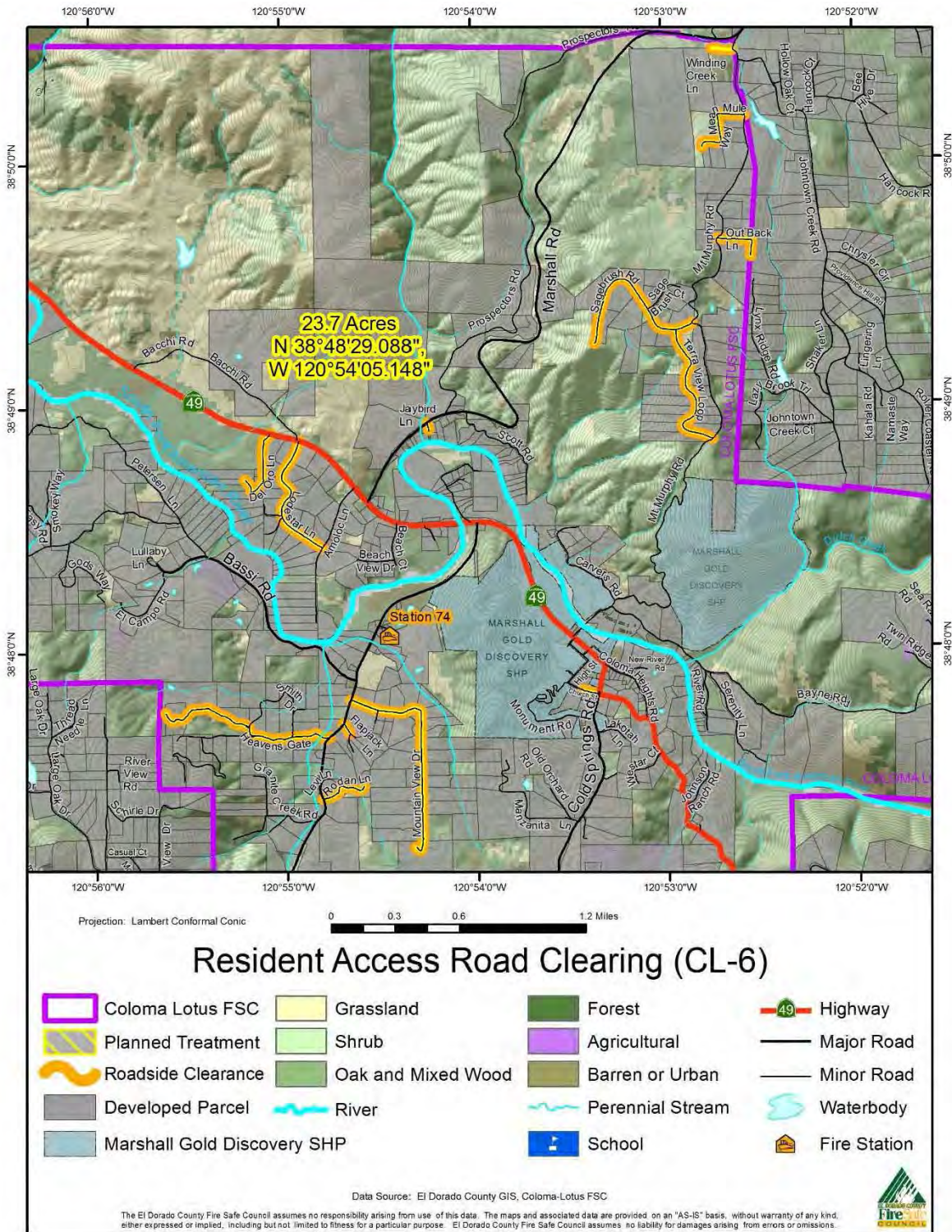
COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Coloma-Lotus	1	CL-1	Roadside Fuel Reduction	Road Hazard	37	7.5	\$58,957
Coloma-Lotus	2	CL-2	Roadside Fuel Reduction	Road Hazard	39	7.5	\$77,200
Coloma-Lotus	3	CL-3	Roadside Fuel Reduction	Road Hazard	32	6.0	\$64,000
Coloma-Lotus	4	CL-4	Roadside Fuel Reduction	Road Hazard	41	7.4	\$82,400
Coloma-Lotus	5	CL-5	Roadside Fuel Reduction	Road Hazard	34	7.0	\$68,000
Coloma-Lotus	6	CL-6	Roadside Fuel Reduction	Road Hazard	21	5.0	\$42,200
Coloma-Lotus	7	CL-7	Roadside Fuel Reduction	Road Hazard	47	6.4	\$92,400
Coloma-Lotus	8	MG-1	Park Fire Safe Project	Fuel Reduction	249		\$498,000
Coloma-Lotus	9	MG-2&3	Park Fire Safe Project	Fuel Reduction	60		\$120,000
Coloma-Lotus	10	MG-4	Park Fire Safe Project	Fire Plan			\$100,000
Coloma-Lotus	11	MG-5	Park Fire Safe Project	Fuel Reduction	248		\$496,000
Coloma-Lotus			Total Coloma-Lotus		808	46.8	\$1,699,157

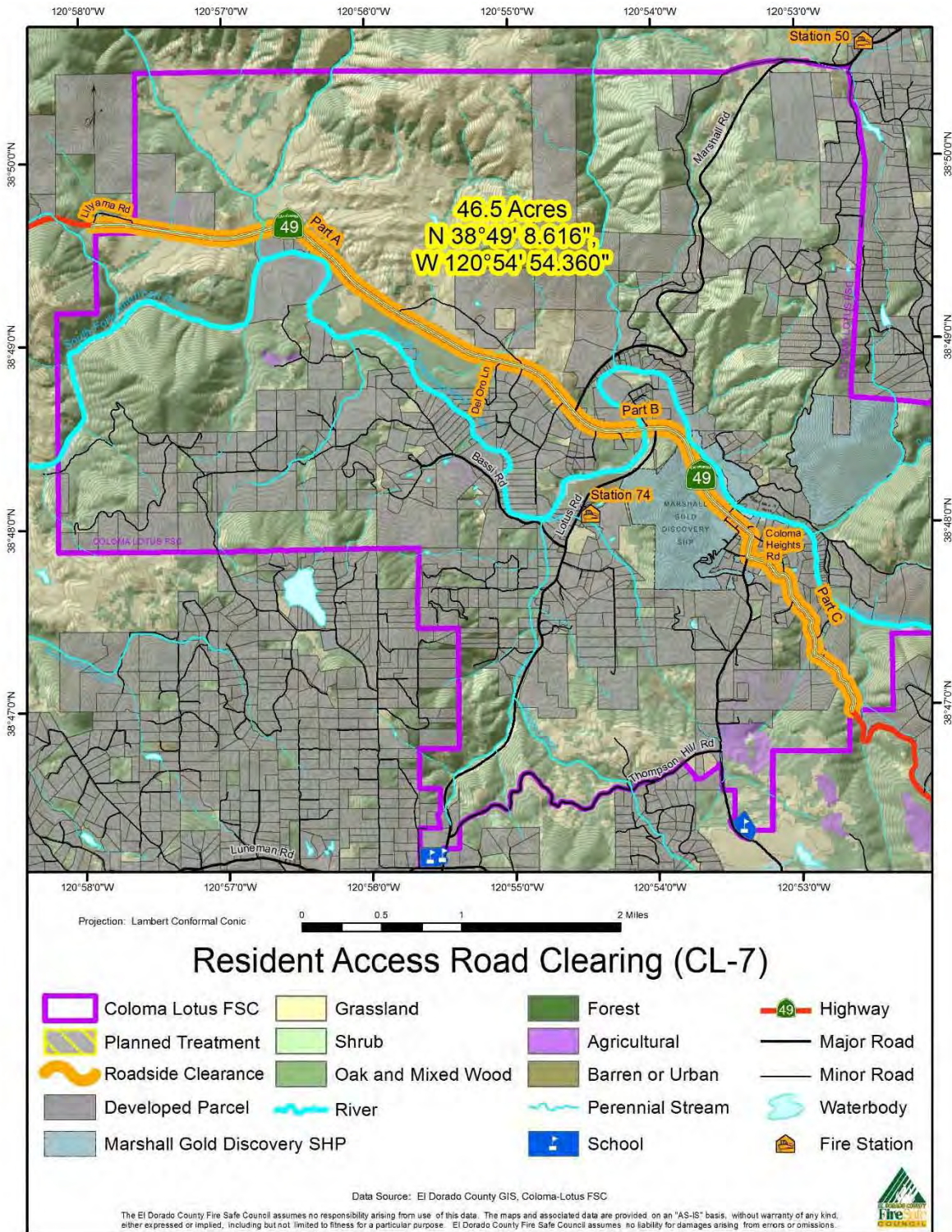








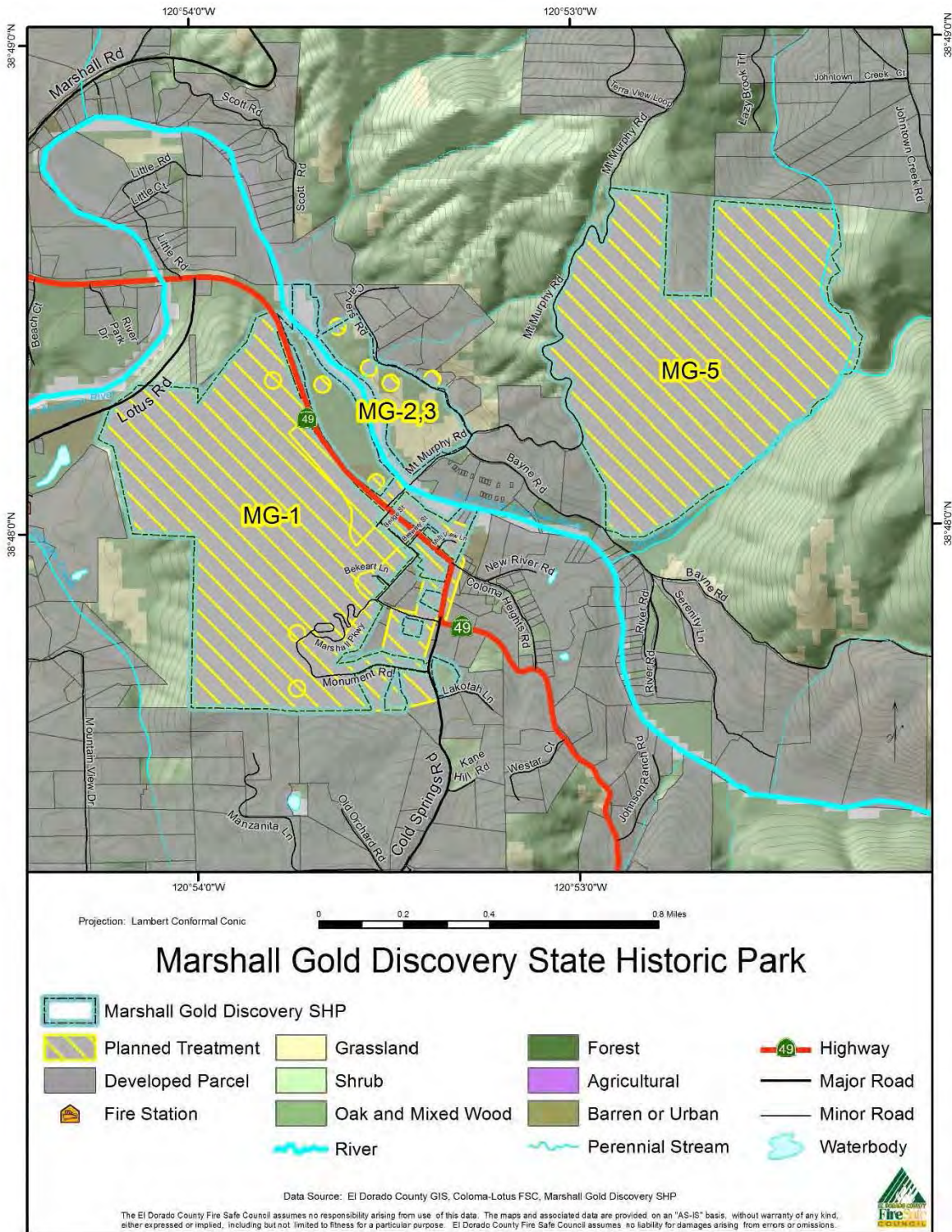


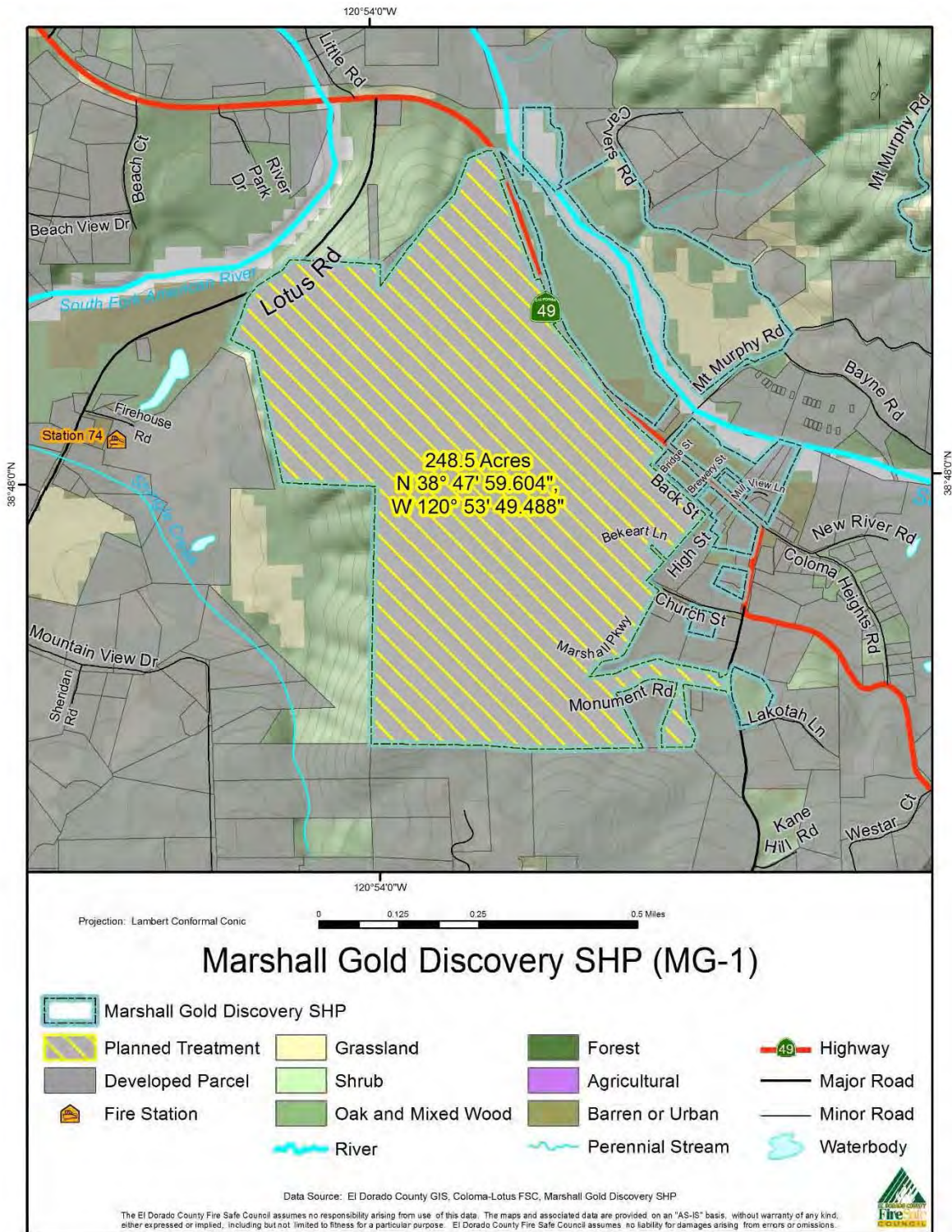


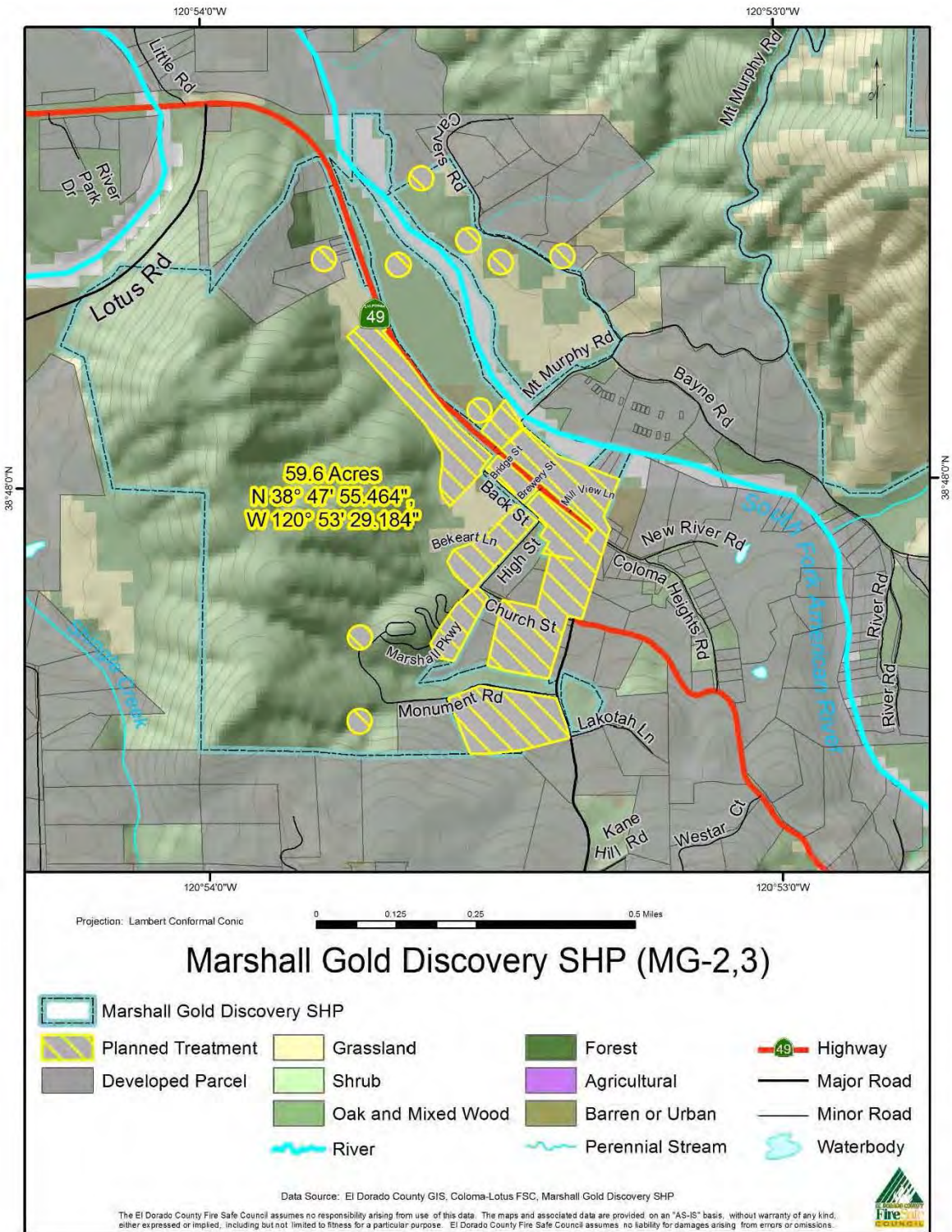
6.0 Marshall Gold Discovery State Historic Park

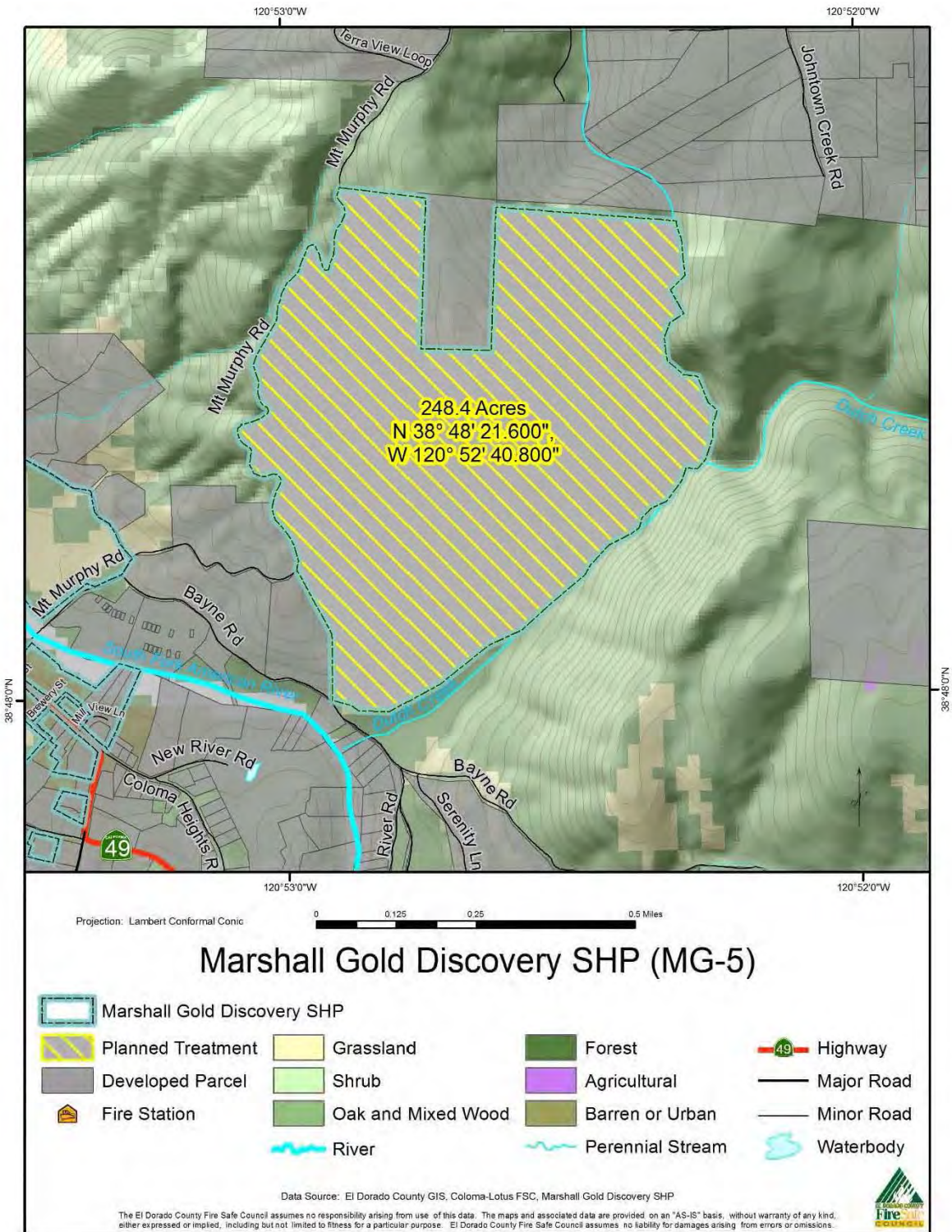
Is located in the middle of the Coloma Lotus FSC sphere of influence and was the first official California State Park. In 1848 gold was first discovered on this land in California. The Park brings numerous visitors to the Coloma area all year long. The Park also contains numerous historic structures that could be lost in the event of a wildfire. The Park management takes its fuels reduction seriously and has tried to keep up with vegetation regrowth around the structures. They have been a participant with the FSC in determining areas that need to be treated to reduce the impact of a wildfire entering or leaving the Park. The following is a list of proposed areas for treatment.











El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Sub-Section for
COOL & PILOT HILL FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared for:
COOL-PILOT HILL FIRE SAFE COUNCIL

JANUARY 2017

History of Cool and Pilot Hill

Originally, Cool was known as the Cave Valley area, because of the limestone caverns in the area. These caves were a major tourist attraction. Eventually, the caves became a commercial source of limestone and were closed to the public. In 1956, the California Journal of Mines and Geology (Vol. 52, Number 4), reports “Cool-Cave was a major source of limestone for cement, lime, and beet-sugar industries for many years.”

The first pioneers were gold miners, but others stayed on and developed a stage stop for limestone delivered to and from the Divide. Farming became popular, because of the richness of the soil, and many orchards were developed in the area. When the post office was to be opened, the name Cave Valley was rejected as it was already in use. The town was thus named after Aaron Cool/ Reverend Peter Y. Cool, who was a circuit riding preacher, well thought of by the area residents. Henrietta Lewis became the first postmaster in 1885. At the time, Cool not only had its post office, but also a general store, school, public houses, blacksmith and carriage stop, plus a meeting hall. Penobscot Ranch and Knickerbocker Ranch both had public houses and these historic properties still exist today.

Cave Valley was a crossroads for merchants, miners, families, and travelers because it was located on the Gold Country Road that later became Highway 49. It was also the intersection of the road that led to Georgetown and other smaller gold rush communities to the east. That road is now Highway 193.

Pilot Hills is located close to Cool on Highway 49. Pilot Hill takes its name from the promontory which rises above the surrounding ravines and hills, upon which “pilot” fires were lit to guide later travelers to the area. Before being called Pilot Hill, the mining camp established here in early 1849 was known as Centreville. Of special historical note in Pilot Hill, is the Bayley House and Barn, which is now a historical park in Pilot Hill on Highway 49. When completed in 1862, at a cost of \$20,000, it was perhaps the grandest building in the state. Bayley believed the Central Pacific Railroad would pass close by his hotel, making it a logical stop on the route. The building’s grand opening took place on May 15 of 1862, but unfortunately, the dreams of Alcander Bayley were never realized as the railroad changed its route and bypassed the area completely.

Sphere of Recognition Description

The Cool-Pilot Hill community was established in the early 1850’s as a result of the gold rush and the advent of gold discovered nearby in Coloma (Marshall Gold Discovery Park which attracts school children and visitors annually). Pilot Hill is South of Cool on Highway 49.

Cool and Pilot Hill are wildland urban interface communities located on the West Slope of El Dorado County, just South of Placer County.

Cool is the first business and residential community of El Dorado County from Auburn. Thus, Cool is the sole entrance into El Dorado County from Highway 80. This brings a great deal of traffic passing through Cool and Pilot Hill on Highway 49 over to Highway 50. The only Northern exit from El Dorado County is on Highway 49 through Cool. Highway 49 bisects the Cool-Pilot Hill area and runs South through El Dorado from County line at the Confluence of the North and Middle forks of the American River. The 100 Western States foot race as well as the world-class



international endurance trail ride passes through the Auburn State Recreation Area in Cool. The area is a watershed for the American River and Folsom Lake.

The community has been identified as a Community at Risk for wildfire in the Federal Register. The 2010 U.S. Census lists over 5,000 people living in Cool/Pilot Hill combined. These numbers will have increased in the subsequent 6 years. Forty percent are between the ages of 45-64 and the median age is 48. In 2010 there were over 3,000 housing units and nearly 30 percent are households include individuals 65 or older.

The Cool Pilot Hill Fire Safe Council was established in late 2015. There six board members and hold monthly meetings open to the public. Board members and volunteers include backgrounds in facilities and project management, grant administration, biology and fire suppression. In 2016 the Council presented three community forums open to the public focusing on READY – SET – GO. The first forum was held at the Northside School and included a motto and mascot designed by students from Northside during a Coo-Pilot Hill school competition. Since the inception of the Cool-Pilot Hill Fire Safe Council education has been the initial focus and now the Council is actively involved in grant writing to seek funds for further education and fire fuel reduction.

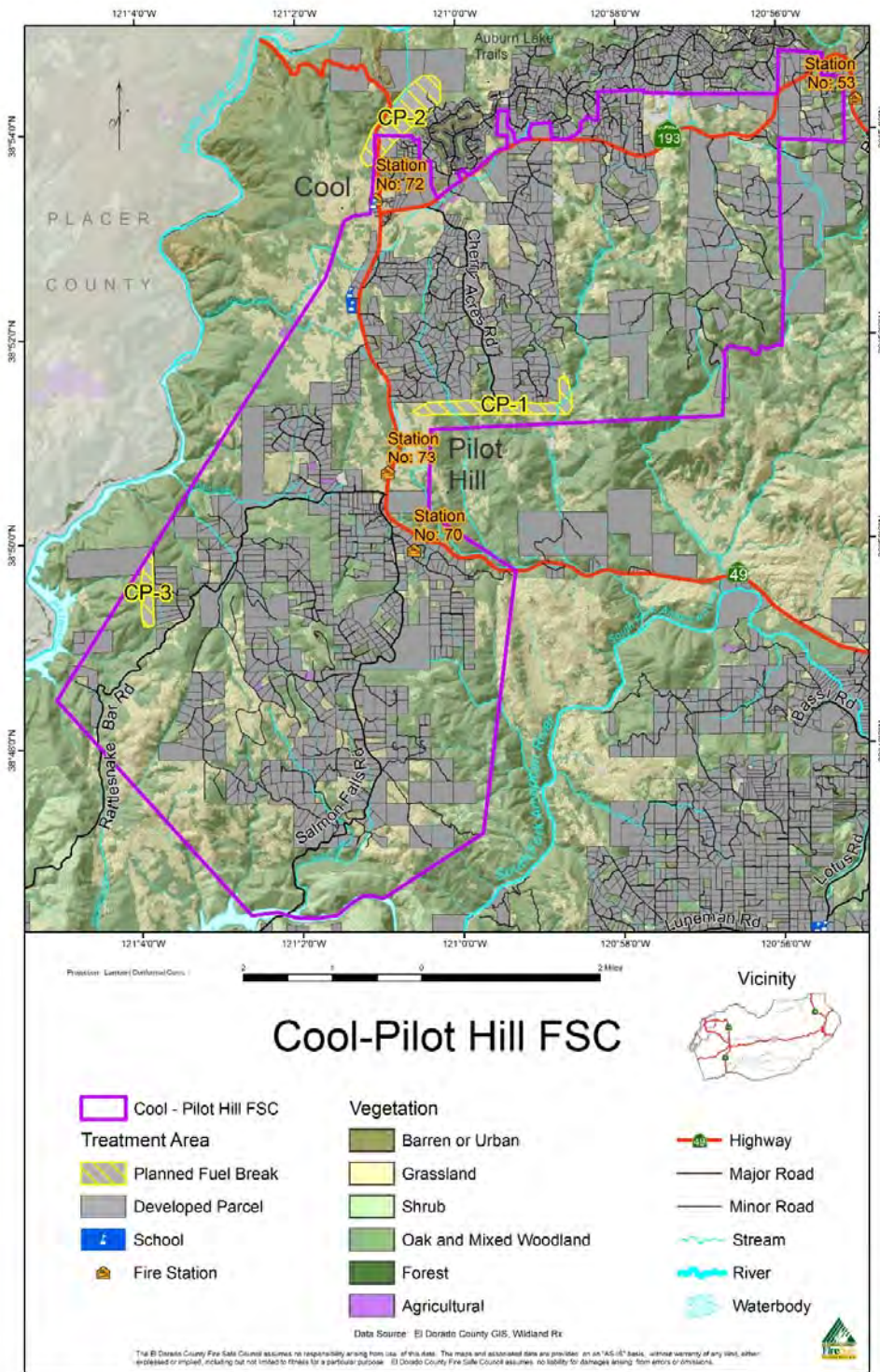
The topography within the community is rolling hills and steeper terrain. Cool and Pilot Hill are essentially rural residential, with Cool having a downtown main street at the intersection of Highways 49 and 193. There, one finds several restaurants, a new Holiday Market, Wells Fargo Bank, real estate offices, gas station/convenience store, feed store, gift store, dentist, optometrist, post offices, and other primarily family owned and run store fronts. The Cool main street shopping area has essentially doubled in size in the last several years. There are many residential and agricultural properties distributed throughout Cool and Pilot Hill. Northside School, a California Distinguished School, is located in Cool on Highway 49. There is an El Dorado County fire station at the entrance to Cool on Highway 49 – this is not always manned.

The Auburn State Recreation Park entrance is located in Cool behind the fire station. From there, visitors can hike, bike, ride horses, walk their dogs and participate in major national competitive bike and running races, at the same time enjoying the beautiful open landscape. Many large competitive runs and biking events are staged out of the Cool fire station and enjoy the Auburn State Recreation Park rolling hills for their national and international races. Today, families as well as retired folks alike, enjoy and appreciate all that Cool and Pilot Hill offer.

Figure 1 on the following page is a map of the Sphere of Recognition for the Cool/Pilot Hill Fire Safe Council



Figure 1: Cool/Pilot Hill Sphere of Recognition



Emergency Services

The El Dorado County Fire Protection District provides primarily the structure firefighting resources as well as wildfire protection for the community. There is fire equipment based at the Cool fire station #72. This is a volunteer station, which is only periodically staffed. The next nearest station is Garden Valley and then Georgetown. The closest ambulance is located in Georgetown. The closest CAL FIRE station is Pilot Hill.

Existing Condition/ Area Description

Ponderosa pine in the community is included in the tier one tree mortality high hazard zone. A large section of forest east of the community above the town of Georgetown is identified as tier two tree mortality high hazard zone. Cool contains isolated patches of Ponderosa pine at the lower elevation of its range and drought and disease has already killed many of these trees. Cool/Pilot Hill and surrounding communities are experiencing tree mortality from isolated groves to whole neighborhoods.

Areas of Greatest Threat

The areas of greatest threat are divided into two areas, Internal and External to the Cool-Pilot Hill Sphere of Recognition.

Internal threats are:

- The need for an ambulance and full time staffed community fire station in Cool. At times, the ambulance in Georgetown is not sufficient and an ambulance must be sent from further away. Thirty percent of the residences in Cool and Pilot Hill include individuals 65 and older.
- Evacuation routes and routes of travel are limited. If a major route, such as Highway 49 and/or 193 are blocked, then evacuation capacity is severely limited. In a sudden emergency, many automobiles will travel on the same major highways with many areas using the same routes, including Auburn Lake Trails, Georgetown, Garden Valley, and Greenwood, to name a few. Northside School and adjacent Cool Community Church could have a sudden major influx onto Highway 49 in an emergency.
- Failure of the residents to have adequate defensible space for their homes. (Violations of the California Public Resources Code (PRC) 4291)
- Failure of vacant landowners who do not remove hazardous vegetation. (Violation of the El Dorado County Nuisances Code Section 25845 Chapter 9.02)
- Cool and Pilot Hill have a larger than normal number of large animals, including horses and cattle. If a sudden need to evacuate occurred, this could present a serious problem.

Community Preparedness for a Wildfire Emergency

There has not been a great deal of emergency preparedness within the community members themselves. The establishment of the Cool-Pilot Hill Fire Safe Council in 2015 can begin to help. The Council has been proactive in educating the community of the hazards and is enthusiastic about continuing to prepare the community for a wildfire. There has not been an establishment of a CWPP for the area.



The major evacuation routes (Highway 49 and 193) are very important due to the location of the community and the difficulty of evacuation in the event of a wildfire in or near the Sphere of Recognition. The evacuation routes can be easily cut off due to the location of the only access to and from the area. It is important that these routes be cleared in order to protect them from wildfire.

The rather new Cool-Pilot Hill Fire Safe Council has held 3 public forms open to the community during 2016:

1. April 25 (4:30-5pm(pizza!) 5-7pm(presentations): “Ready” Event at Northside School (Library); Cool, CA

This event featured:

- A “Fireside Chat” about Fire Safety with Supervisor Michael Ranalli
- A facilitated conversation with Mark Brunton (CalFIRE Station 72 Battalion Chief) and Jeff Tolson (Cool Fire Chief El Dorado County, Retired)
- Announcing the winners of the Cool-Pilot Hill Fire Safe mascot and motto contest (submissions by students from Northside School, Cool, CA)
- Presenters from the El Dorado County Public Health, Preparedness, and Response
- And much more!

2. June 22 (6-8pm): “Set” Event at Pilot Hill Grange; Cool, CA

This event featured:

- Information about the Cool-Pilot Hill Fire Safe Council (meet the Council members!)
- Supervisor Ranelli, Fireside Chat about Fire Safety
- Mark Brunton, CalFIRE Battalion Chief
- Lieutenant James Byers, Office of Emergency Services
- Officer Ian Hoey, California Highway Patrol
- Henry Brezenski, EDC Animal Services
- Chief Schwab, Georgetown Fire Department

3. September 21 (6-8pm): “Go” Event at Cool Hall; Cool, CA

This event included:

- District IV Supervisor Michael Ranalli
- Sargeant Todd Hammitt (Office of Emergency Services, El Dorado County)
- Brandon McKay, Captain/Deputy Fire Marshal (EDC Fire District)
- Chief Schwab, Georgetown Fire Department

The event provided critical information needed to know if one had a day or few hours to evacuate.

Fuel Reduction Objectives and Projects

. Projects could include:



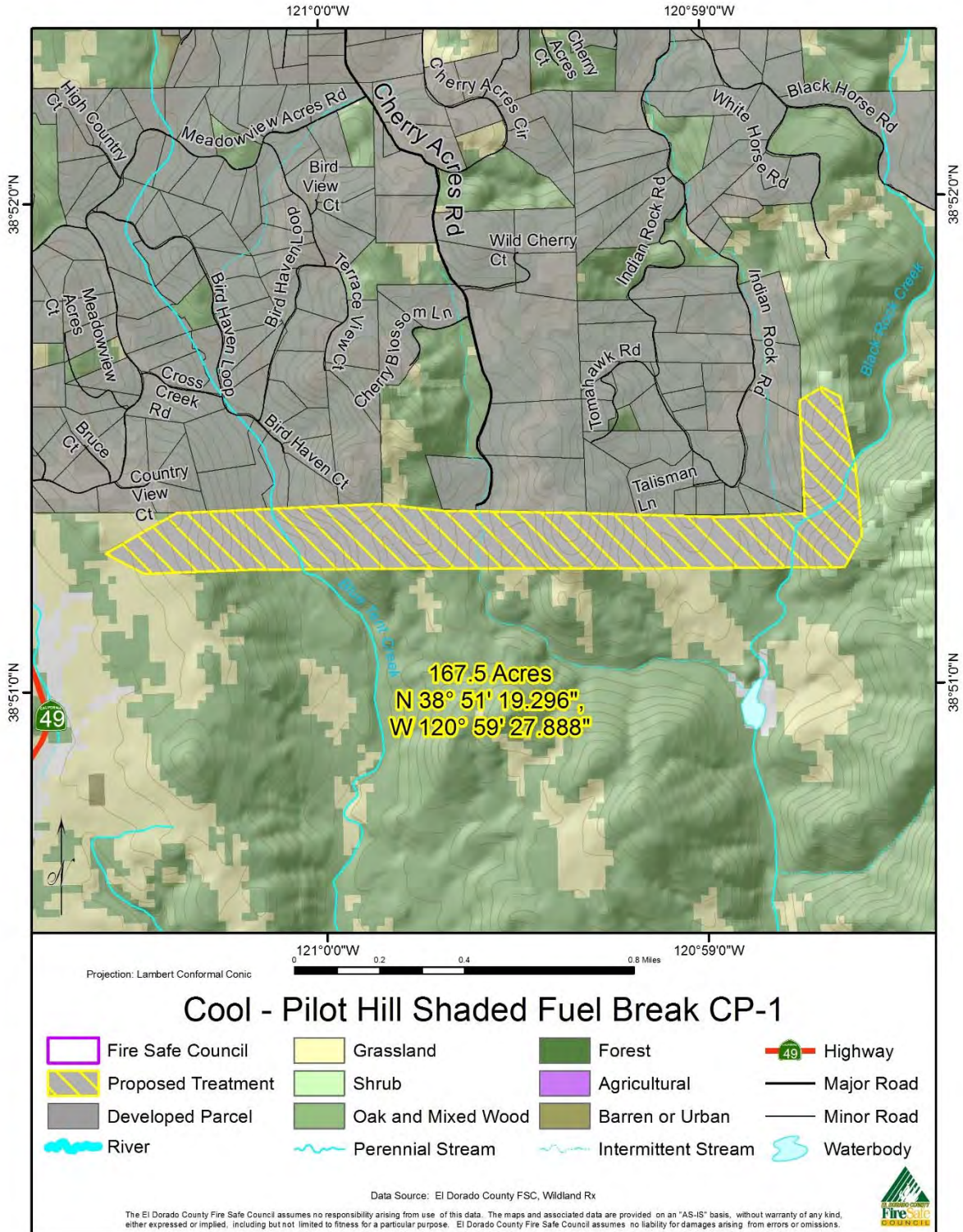
- Provide the residents with an external evacuation route that would improve the current situation. During each community forum of the Fire Safe Council, individual residents noted neighbors had serious need for clearly their property to protect against fire. Some streets were reported to be blocked off in case of emergency.
- Treat fuels along collector roads in such a manner so they can be used as evacuation routes.
- Work with the El Dorado County Fire District and CAL FIRE to build a stronger Defensible Space Program resulting in fire safe clearance on individual lots and working with the County Board of Supervisors to enforce hazardous vegetation nuisance code.

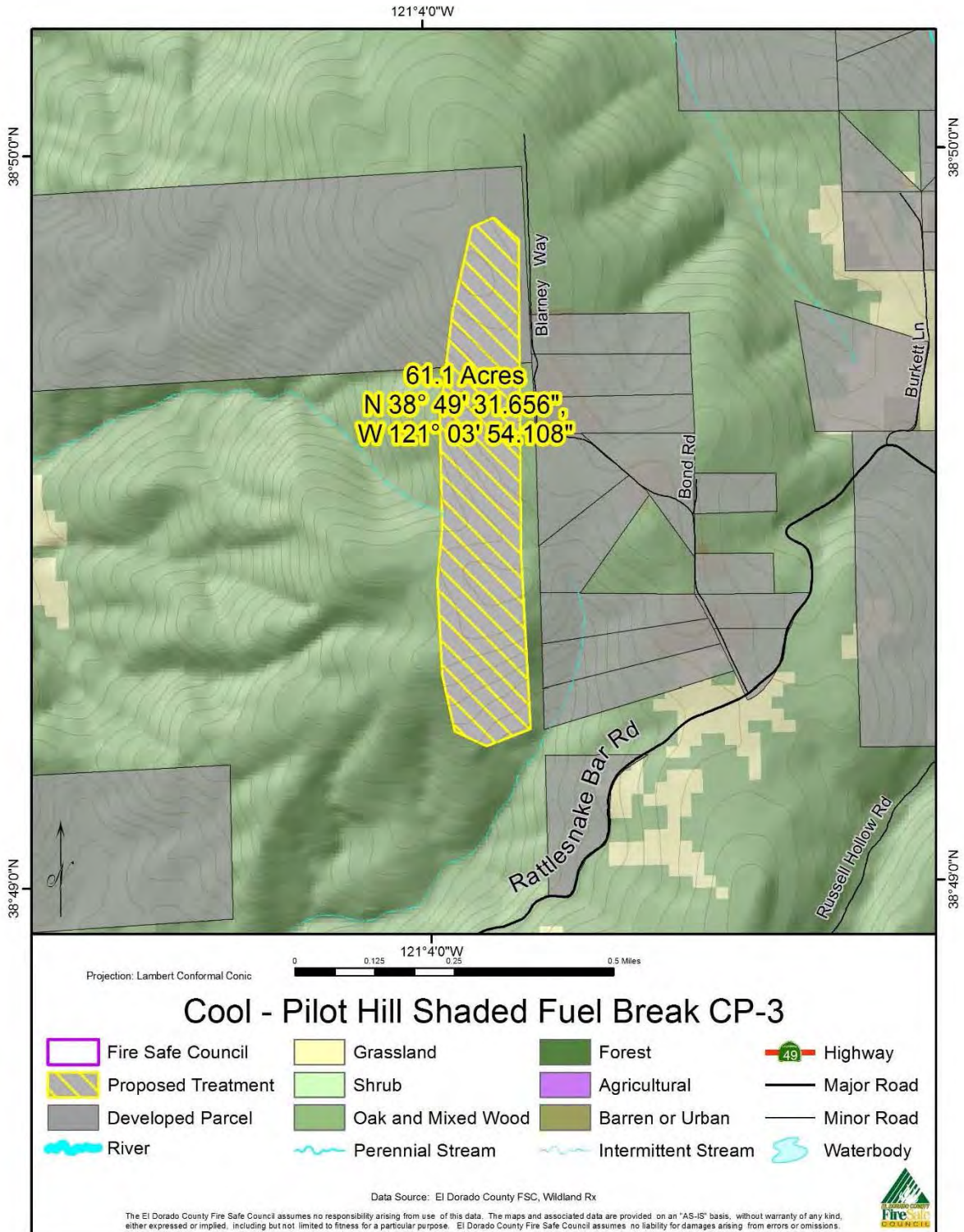


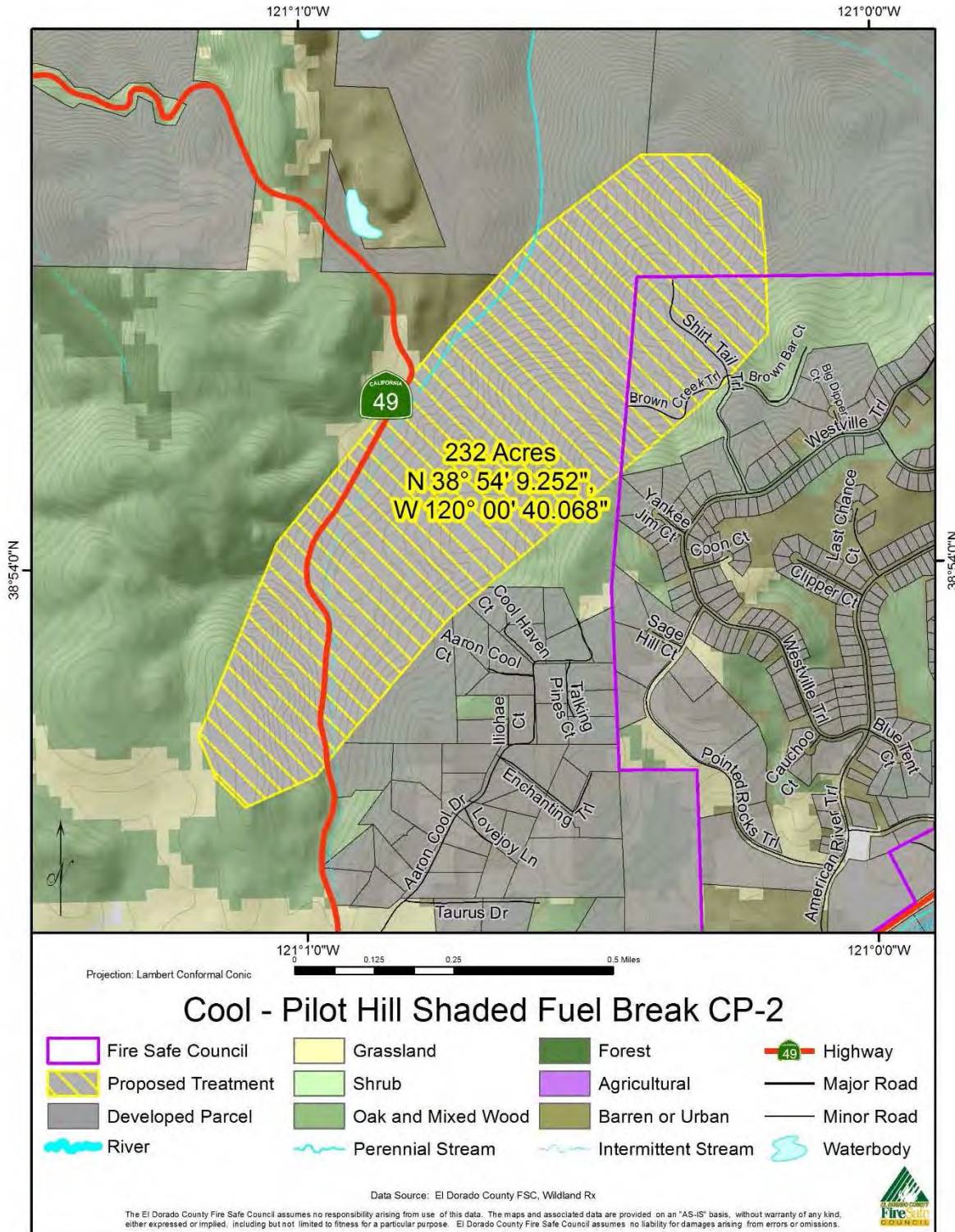
Summary of proposed treatment by cost for the Cool-Pilot Hill Area

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Cool-Pilot Hill	1a	CP-1a	Community Outreach	Education			\$155,674
Cool-Pilot Hill	1	CP-1	Cool PH Fuel Break	Fuel Reduction	168		\$336,000
Cool-Pilot Hill	2	CP-2	Cool PH Fuel Break	Fuel Reduction	232		\$464,000
Cool-Pilot Hill	3	CP-3	Cool PH Fuel Break	Fuel Reduction	61		\$122,000
Cool-Pilot Hill	4	CP-4	Rattlesnake Bar Fuel Reduction	Road Hazard	60	2.5	\$120,000
Cool-Pilot Hill	5	CP-5	Salmon Falls Roadside Fuel	Road Hazard	84	3.5	\$168,000
Cool-Pilot Hill			Total Cool-Pilot Hill		605	6.0	\$1,210,000









El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
COUNTYWIDE FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

The following are projects implemented and planned by the El Dorado County Fire Safe Council for the west side of El Dorado County from Twin Bridges to the western county line. These projects are important to all of the county Fire Safe Councils.

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
County Wide WS	1	EDCFSC-1	Defensible Space- Chipping	Fuel Reduction	400		\$200,000
County Wide WS	2	EDCFSC -2	Hazardous Tree Removal	Hazard Tree			\$1,000,000
County Wide WS	3	EDCFSC-3	Community Outreach	Education			\$200,000
1 County Wide WS	4	EDCFSC-4	Community Wildfire Plans	Planning			\$100,000
1 County Wide WS	5	EDCFSC-5	Senior Assistance	Fuel Reduction	40		\$20,000
1 County Wide WS	6	EDCFSC-6	Veterans Assistance	Fuel Reduction	20		\$10,000
			Total EDCFSC		460	0.0	\$1,530,000



El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
GEORGETOWN-VOLCANOVILLE FIRE SAFE COUNCIL
ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared for:

GEORGETOWN FIRE SAFE COUNCIL
And
VOLCANOVILLE FIRE SAFE COUNCIL (A Firewise Community since 2007)

JANUARY 2017

Georgetown Community Description

Community Area Boundaries

The Georgetown Community Wildfire Protection Plan covers the entirety of the Georgetown Fire District, in El Dorado County, California. For purposes of this document, the Georgetown Fire District was divided into four planning areas. These areas are described below, starting from the western extent and moving east

Planning Area 1

Planning Area 1 was called the Greenwood Planning Unit, though it does not include the community of Greenwood proper. The Northern boundary is the Middle Fork of the American River (also the El Dorado – Placer County line). The Western boundary extends to the south, along a jog in the Middle Fork, then climbs up to the American Canyon, then extends east along section lines, crossing Sliger Mine Road, to GDPUD lands off Spanish Dry Diggin’s Road. It then extends further south, crossing State Route 193, adjacent to the BLM lands. It parallels SR193, until just before Graybar Mine Road it heads north, along the Georgetown Airport lands (crossing Spanish Dry Diggin’s Road), before connecting back to the Middle Fork of the American River.

Planning Area 2

Planning Area 2 is the Georgetown Planning Unit. It shares the western boundary with the Greenwood Planning Unit, but extends further along the Middle Fork of the American River, but extends south, avoiding the Volcanoville area. It make’s another jog to the east before extending in nearly a straight line south, inclosing Bottle Hill and Breedlove Roads, crossing Wentworth Springs road to the southern Fire District Boundary, and then extending west, connecting back to the Greenwood Planning Unit near Graybar Mine Road on SR193.

Planning Area 3

Planning Area 3 is the Volcanoville Planning Unit. Both it and Planning Area 4, the Quintette Planning Unit are very similar, and adjacent geographically, but share different social parameters. The Volcanoville Planning Unit shares the western boundary with the Georgetown Planning Unit. The northern boundary continues along the Middle Fork for some distance, partially enclosing the Volcanoville ridge. The extreme eastern end of the Georgetown Fire District, including the community of Quintette and lands belonging to the Blodgett Experimental Forest, are included in the Quintette Planning Unit. The southern boundary parallels Wentworth Springs Road, and, except for one jog to the south, it joins back to the Georgetown Planning Unit. This planning unit is already covered by a Community Wildfire Protection Plan which will be included in the Appendix.

Planning Area 4

Planning Area 4 is the Quintette Planning Unit. It forms the extreme eastern end of the Georgetown Fire District. One portion is formed from the Middle Fork of the American River, but otherwise is a roughly rectangular shape, with the community of Quintette but little else of occupied lands. It includes a portion of the Blodgett Experimental Forest, some Sierra Pacific Industries land, and some U.S. Forest Service lands that are primarily used for industrial forestry.

The Georgetown CCWPP area is located between the middle foothills and the mountainous uplands of the Sierra Nevada. The area is known to geologists as the western metamorphic belt of the Sierra. Due to the movement of the North American plate, various sedimentary and volcanic rocks have been accreted over time from ocean and volcanic islands. As the ocean floor and volcanic rocks



were attached, they were compressed and deeply buried, resulting in partial melting and recrystallization (metamorphism). These partially altered rocks were hardened and their characteristics changed, resulting in varying resistance to weathering, which produced the particular topography of the area. Also, the chemical characteristics of some rocks can result in profound vegetation differences (e.g. serpentine soils). More recent volcanic ash flows (primarily on the higher ridges) can form deep soils with beneficial effects on the coniferous forest that dominates these areas.

The Georgetown FPD ranges from approximately 800 feet elevation at Cherokee Bar along the Middle Fork of the American River, to over 4200 feet, above Quintette. The Middle Fork of the American forms the northern boundary, and its' tributaries Otter Creek and Canyon Creek are incised into a gently sloping landform, on which most of the population is found. This gently sloped area consists of rolling hills with smaller creeks and drainages. The town of Georgetown is located on the "Divide", meaning areas to the north drain to the Middle Fork American River, while areas to the south drain into the South Fork of the American River. The northern portion (Otter and Canyon Creeks) is steeper with poorer access, and is fortunately sparsely populated. Much of this area has a north-facing aspect, meaning it is generally cooler and moister. South of Georgetown, the slopes tend to be gentler, so topography has less influence on wildfire behavior. There are no incorporated cities in the area. Unincorporated communities include: Georgetown, Volcanoville, Quintette, and Spanish Dry Diggin's.

Electricity is provided by Pacific Gas & Electric Company. A major power line carrying hydroelectricity generated at the Loon Lake and other hydroelectric power stations, passes just north of Georgetown, to the Sacramento Municipal Utility District grid.

The primary traffic arterials are State Route 193, beginning at Cool, passing through Georgetown, and ending at SR 49 in Placerville. Wentworth Springs Road, extends east, ending at Loon Lake Road. Spanish Dry Diggin's Road begins at Georgetown, near Buffalo Hill Center (a portion of the local business district), and continues on toward Greenwood, ending at Sliger Mine Road, which connects the Rancho Cumbre subdivision, and the Ruck-a-chucky rapids on the Middle Fork of the American River with SR 193. There are many smaller roads feeding into these arterials, serving smaller parcels. Private roads tend to have gravel surfaces, while most County maintained roads are paved. There are exceptions, those County roads serving less traveled portions of the district often having gravel surfaces.

Fire hydrants are found on most arterial roads, coinciding with domestic water service. Hydrants are found up Wentworth Springs Road, just past the US Forest Service Georgetown Ranger Station ~3.5 mi. above Georgetown. The largest concentration of population without fire hydrants is the Volcanoville area. They do have water tanks and an active Fire Safe Council. Reservoir Road, branching off Spanish Dry Diggin's Road, though unpaved, does have fire hydrants, while Spanish Dry Diggin's, does not, past the Georgetown Airport. There are several other smaller concentrations of parcels without water service, such as the Fox Run Road area. The Georgetown Airport (6245 Aerodrome Way, 530/622-0459), managed by El Dorado County, is 2800 feet long by 60 feet wide. It is located ~1.5 miles north-west of Georgetown, served by Spanish Dry Diggin's Road.

The Georgetown School, (6530 Wentworth Springs Rd.) one of three elementary schools in the Black Oak Mine Unified School District. It is located on ~90 acres, adjacent to



Georgetown. The site is also the location of the school District Office and a nature area. A smaller satellite school in Volcanoville (Otter Creek School, 4701 Volcanoville Rd.) serves grades 1-4. The Georgetown School can be reached at 530/333-8320.

Georgetown Divide Public Utility District (GDPUD, 6345 Main St., 530/333-4356) has an office on Main St., just east of downtown Georgetown. The only treatment plant in the Fire District is the Walton Lake Water Treatment Plant, located off Wentworth Springs Road, (~3 mi. above Georgetown). It utilizes water from Stumpy Meadows Reservoir for treated water and supplies untreated irrigation water to the irrigation water system.

Telephone service is provided by AT&T. Verizon has a cell phone tower on Hotchkiss Hill, adjacent to a water tank maintained by GDPUD. It has an electric generator to provide service if the power supply should be interrupted. The area around the tower has been cleared, and is not in danger from fire.

The two closest hospitals are Marshall Hospital (1095 Marshall Way, 530/626-2612) in Placerville and Sutter Auburn Faith (11815 Education St., 530/888-4500), in Auburn. There is a medical center in Buffalo Hill (Divide Wellness Center, 6065 SR 193, 530/333-2548) that provides some medical care through nurse practitioners. They do have an emergency planning document in place.

There currently is almost no subdivision activity in the Georgetown FPD. Current development patterns are derived from existing parcels created primarily from historic development, or from parcelization that occurred during the 1970's and '80's. Current development occurs on existing parcels and is mainly served by private roads and wells. As such, the increase in population in the WUI provides minimal additional fees for fire protection.

The Georgetown Fire District occupies a portion of the Sierra Nevada Foothills between typical foothill oak woodland and mixed conifer vegetation types. Like much of the Sierras, it is subject to seasonal drought from June through September. The dense woody vegetation may be subject to wildfire at nearly any time of the year, but is especially prone during late summer and early fall, when humidity is low in both the air and the fuels.

Geology, Soils & Topography

The Georgetown Area is located between the middle foothills and the mountainous uplands of the Sierra Nevada. The area is known geologically as the western metamorphic belt of the Sierras. The Georgetown Fire Protection District ranges from approximately 800 feet elevation at Cherokee Bar along the Middle Fork of the American River, to over 4200 feet, above Quintette. The Middle Fork of the American forms the northern boundary, and its' tributaries Otter Creek and Canyon Creek are incised into a more tabular landform to the south, on which most of the population is found. This tabular area consists of rolling hills with more gentle slopes and smaller creeks and drains. The town of Georgetown is located on the divide, meaning areas to the north drain to the Middle Fork, while areas to the south drain into the South Fork. The northern portion (Otter and Canyon Creeks) is steeper with poorer access, and is fortunately sparsely populated. Also, much of this area has a north-facing aspect, meaning it is generally cooler and moister. South of Georgetown, the slopes tend to be gentler, so topography has less influence on wildfire behavior.



Weather

Annual highs in the Sierra Nevada are around 90° Fahrenheit, while lows approach 0° F. In the planning area, annual highs are around 95° F, while lows approach 20° F.

The Georgetown area has a Mediterranean climate, typical of much of the Sierra Nevada, with an annual drought from May to October, and between 35 and 50 inches of precipitation from November through April. The precipitation is primarily in the form of rain, with occasional snowfall, especially at the higher elevations. The late summer to fall period is the most subject to wildfires, especially during the occasional foehn wind periods.

Prevailing winds in fire season (generally June through October) are out of the southwest, although infrequent foehn winds usually blow from the north to the east. Weather conditions can change rapidly as upper-level wind currents and pressure systems in the western states shift locations, and both dry and wet frontal systems move through the mountainous terrain. Frontal winds associated with low-pressure systems moving across the area can create hazardous fire conditions. Winds in advance of the frontal system can reach speeds exceeding 60 mph over ridges. The atmospheric instability dilutes and disperses smoke, but also creates torching (running crown fires are a result of strong winds) and spot fire problems (distances increase as winds increase).

Fires during foehn events—or subsiding winds—usually result in extreme fire behavior because the winds are particularly strong and dry, thus preheating fuels and predisposing them to burning with intensity. These conditions are usually worse at night, as these foehn winds combine with downslope/down-canyon diurnal winds.

When the temperature is high, relative humidity low, wind speed is high and/or originating from the east in a foehn wind, conditions are very favorable for extensive and severe wildfires. Typically the 90th or 95th percentile weather observations (i.e., weather observations that are among the most extreme—only 10% of the observations are more extreme under 90th percentile conditions) are used for planning fire hazard reduction treatments.

Hydrology

The Georgetown area is bounded to the North by the Middle Fork of the American River. Two tributaries between the northern boundary and Georgetown proper are Otter Creek and Canyon Creek, both of which generally parallel the Middle Fork, but eventually join it as it bears in a south-westerly direction. The extreme western end includes Hoboken and American Canyons, draining areas near Spanish Dry Diggin's. The southern portion of the area includes the headwaters of a number of smaller streams, most of which bear to the south or south-west. This area includes (from the western area, east of Greenwood), Georgetown Creek (paralleling Highway 193), Manhattan Creek, Empire Creek (draining Georgetown proper), Slate Creek, Traverse Creek, Rock Creek.

Separate from the creeks and rivers of the area, is the extensive irrigation and domestic water network of the Georgetown Divide Public Utility District. The water system (derived from water diversions used for mining), provides both domestic (treated, piped) water for households, and untreated irrigation water through a ditch and culvert system. Where irrigation is available, domesticated crops may be maintained at much higher moisture levels, and leakage from ditches or pipes may support riparian vegetation some distance from natural water sources. In addition, ponds may be available to support fire fighting for certain areas.



There is anecdotal evidence that the surface hydrology has been altered over the last 100 years, or, more accurately, since the elimination of Native Americans as a major force in land management. The formerly frequent burning reduced brush and small trees, but also seemed to result in more open meadows and springs.

Vegetation and Fuels

Vegetation varies by size, height, and density, and combined with other flammable material on the site, it provides the fuel that feeds wildfire. Fuel includes anything that can burn: grass, shrubs, and trees, as well as fences, decks, furniture, cars, and houses. These can be described either as fuel models, or in terms of sizes and volumes: light fuels (consisting of grass, dry leaves, and kindling-size twigs), medium fuels (shrubs and fences), or heavy fuels (logs, trees, or homes). The distribution of the volume and sizes of fuels in any one space, along with the moisture content and arrangement of fuels, greatly influence resulting fire behavior.

The Georgetown Fire District is located between typical oak woodlands and mixed conifer forest, and includes both types. Some locations also support chaparral brush fields. In addition, because of the long occupation by European-Americans (since 1849), disturbance and the introduction of exotic plant species, some areas display unique plant associations. Some of these are relevant to the fire environment in that they are at extreme risk of wildfire.

Threatened and Endangered Species

California has a large number of threatened and endangered species. While most biologists acknowledge that fire plays a role in the environment in which these species live, little is known about the relationship of these species to fire. Their response to fire of varying intensities, frequencies, and seasons is also not well understood; even less the effects of potential hazard reduction treatments on rare species. The planning and implementation of projects may be hindered because of this lack of knowledge.

Other T&E animal species, formerly likely to occur in the Georgetown area, are most likely affected by management practices of the past 150 years, specifically timber harvest and fire exclusion. Species such as the Wolverine, Pacific Fisher, Martin and birds like the Goshawk and Northern Spotted Owl were likely more common when there were still expanses of ancient forest. Others, such as the Black-backed Woodpecker rely on burned forests and would likely increase if fire increased.

Emergency Services

The Georgetown Fire Department structure fire protection, CAL FIRE and the US Forest Service provide for the wildland fire protection of the community. All of the agencies are struggling with budget cuts the result will probably mean cut backs in service, a likely result, over the next few years. Georgetown Fire has been especially hit by budget cuts and depends on its volunteers to staff many of its engines.¹

¹ Georgetown Fire Protection District CWPP, 2014

Volcanoville Community Description

The old community of Volcanoville is located about 7 miles northeast of Georgetown on a broad, relatively flat ridge between the Rubicon & South Fork of the American Rivers and Missouri Canyon between the headwaters of Grizzly Canyon and what is now named Josephine Canyon. It was established, along with the communities of Mt. Hope and Mt. Gregory, to mine the buried, rich river bar gravels discovered high up on the Georgetown Divide early in 1850. These gravels were likely a part of the "Big Blue Lead", an ancient riverbed which meandered approximately north east to southwest and was hydraulically mined at Malakoff, Gold Run, Spanish Hill in Placerville and many, many other places. Georgetown Divide was unique in that the gravels were interspersed with quartz deposits making hydraulic removal profitable and hard rock mining equally profitable. During the flush years, there were a number of stores and saloons. An elementary school was established in Mt. Gregory in 1856. Over 300 miles of ditches supplied mine and agricultural water to the area in 1860. Following the construction of a bridge across Otter Creek in 1854 (which was a toll bridge) the Volcanoville Road became the main supply and stagecoach route to the upper divide which was much shorter and easier to use than the earlier Tunnel Hill Mine Road.

Volcanoville Road, designated Road 64 was declared a Public Highway by the El Dorado County Board of Supervisors on May 17, 1855. Quite a boom developed after the 1896 Josephine Mine activity, which saw the development of the community of Josephine.

Current and Adjacent Land Uses

Following the heyday of mining activity which, of course, caused much soil disturbance and logging of forests for mining and settlement purposes, portions of the area (i.e., abandoned mining claims, etc.), reverted to what is now the Bureau of Land Management. Later, those lands and other lands were withdrawn from the Public Domain and designated Timber Reserves. The Eldorado Timber Reserve was created from the already established Tahoe and Stanislaus Reserves in 1910. Current land use is a mix of National Forest Multiple Uses which include grazing, timber management, recreation, wildlife and watershed management, commercial timber management of privately owned timber lands and residential occupancy of 130 permanent residences on 400 5+ acre lots including an elementary school with approximately 26 K through 8th grade students.

Topography

Over all, the topography is quite rugged. Canyons are deeply incised and, for the most part, difficult to traverse. At the historic sites of Volcanoville, Mt. Hope and Mt. Gregory, for example, the elevation drops 2500 feet to the Rubicon / South Fork American River in less than a mile and to the south, over 1000 feet to Missouri Canyon and Otter Creek in a similarly short distance. The Volcanoville Road Community itself, is largely located on a relatively gentle ridge top with slopes averaging about 30%.

Vegetation and Fuels

Vegetation in the area is typical of the Central Sierra Mixed Conifer Type. Second (and third) growth Ponderosa pine forests predominate with associated sugar pine, Incense cedar, Douglas fir, Black and Canyon live oaks and Madrone compose the overstory with reproduction, brush and Bear Clover in the understory. Manzanita and Ceanothus dominated brush fields occupy poorer sites.²

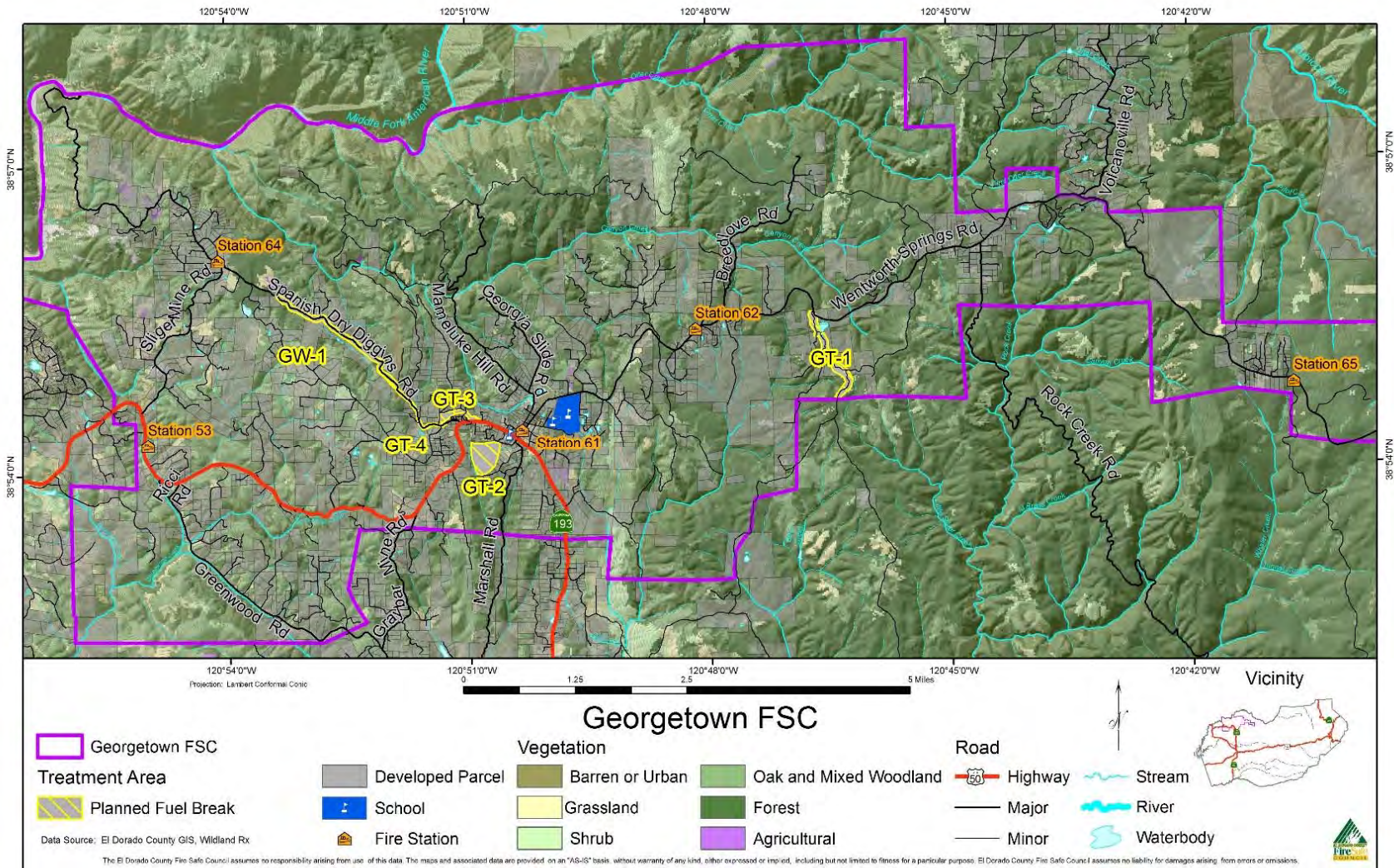
² Volcanoville CWPP, 2012



The Community Wildfire Protection Plan for Georgetown and Volcanoville can be found at the website; <http://www.edcfiresafe.org/cwpp/>



Figure 2: Georgetown Community



Summary of proposed treatment by cost for the Georgetown Area.

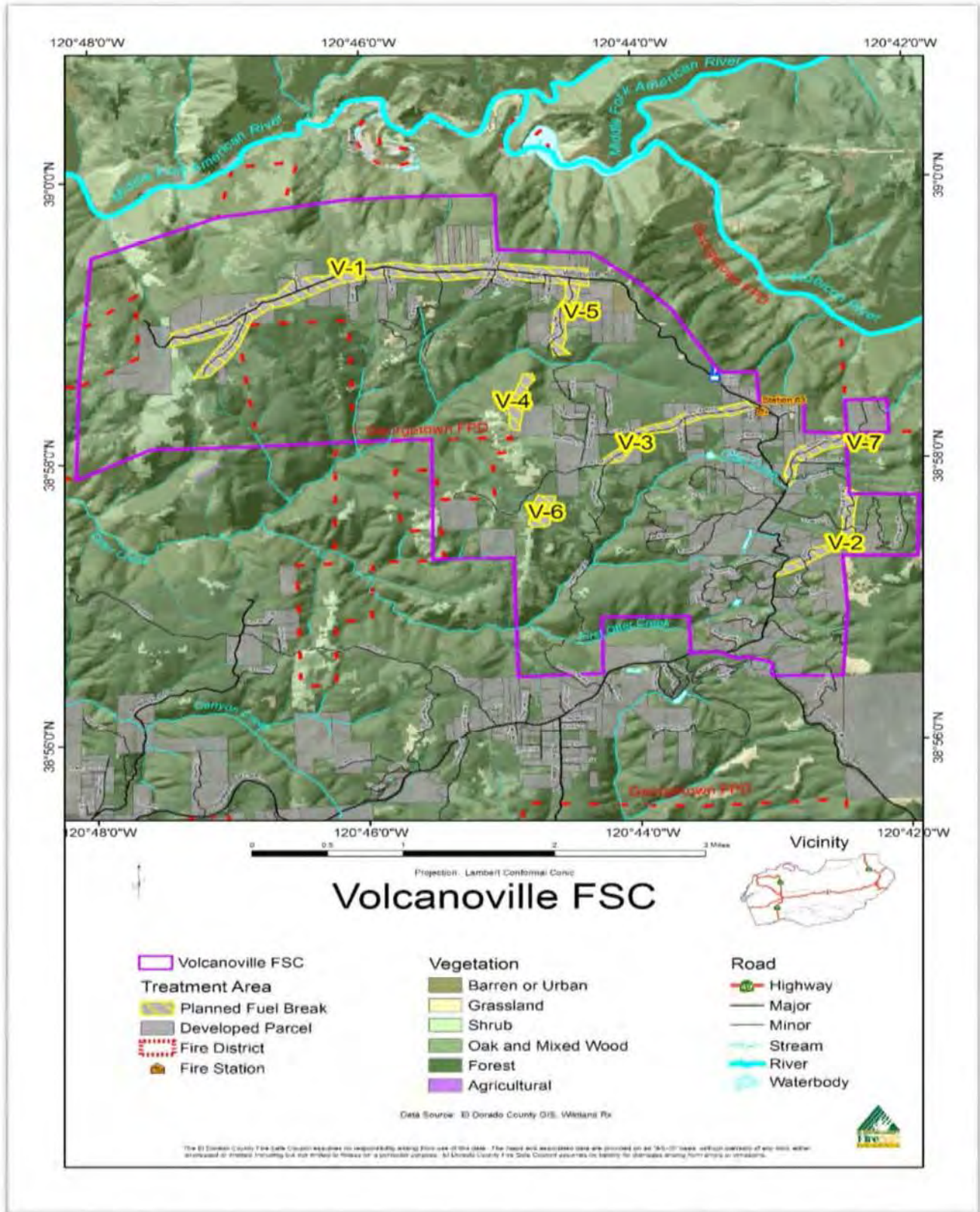
COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Georgetown	1	GT-1	East Side Fuel Break	Fuel Break	60		\$150,000
Georgetown	4	GT-2	South Side Fuel Break	Fuel Break	40		\$92,000
Georgetown	5	GT-3	Northwest Fuel Break	Fuel Break	17		\$51,000
Georgetown	2	GT-4	Spanish Dry Diggins	Road Hazard	25	1.0	\$57,500
Georgetown	3	GT-5	Wentworth Springs	Road Hazard	147	6.1	\$338,100
Georgetown	6	GT-6	Highway 193	Road Hazard	128	5.3	\$294,400
Georgetown	7	GT-7	Marshall Grade	Road Hazard	29	1.2	\$66,700
Georgetown			Total Georgetown		446	13.6	\$1,049,700
Greenwood	1	GW-1	Spanish Dry Diggins	Road Hazard	64	2.7	\$160,000
Greenwood	2	GW-2	Sliger Mine Road East	Road Hazard	17	0.7	\$39,000
Greenwood	3	GW-3	Sliger Mine Road West	Road Hazard	54	2.3	\$124,200
Greenwood			Total Greenwood		135	5.7	\$323,200
Quintette	1	QT-1	Wentworth Springs East	Road Hazard	44	1.8	\$101,200
Quintette			Total Quintette		44	1.8	\$101,200

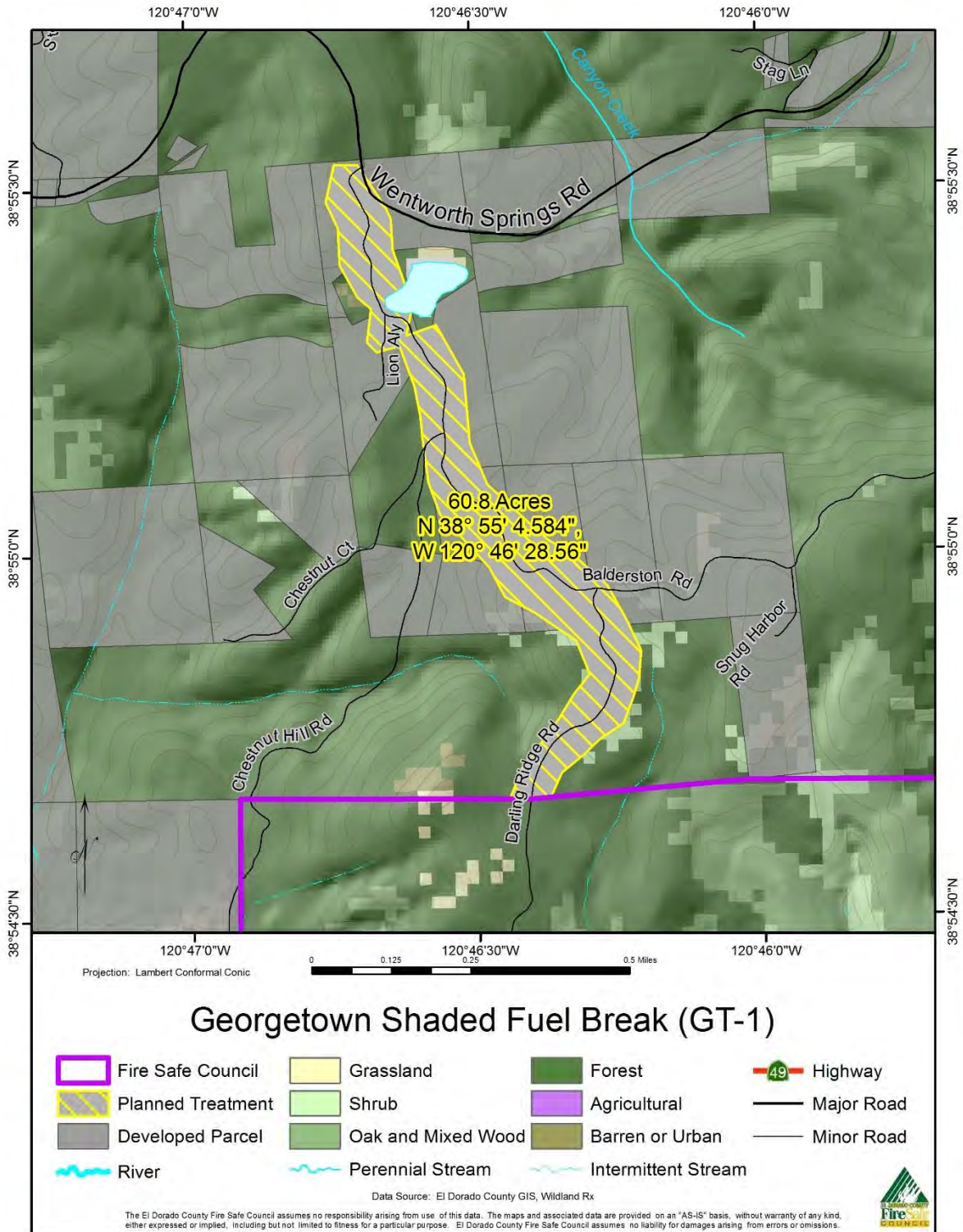


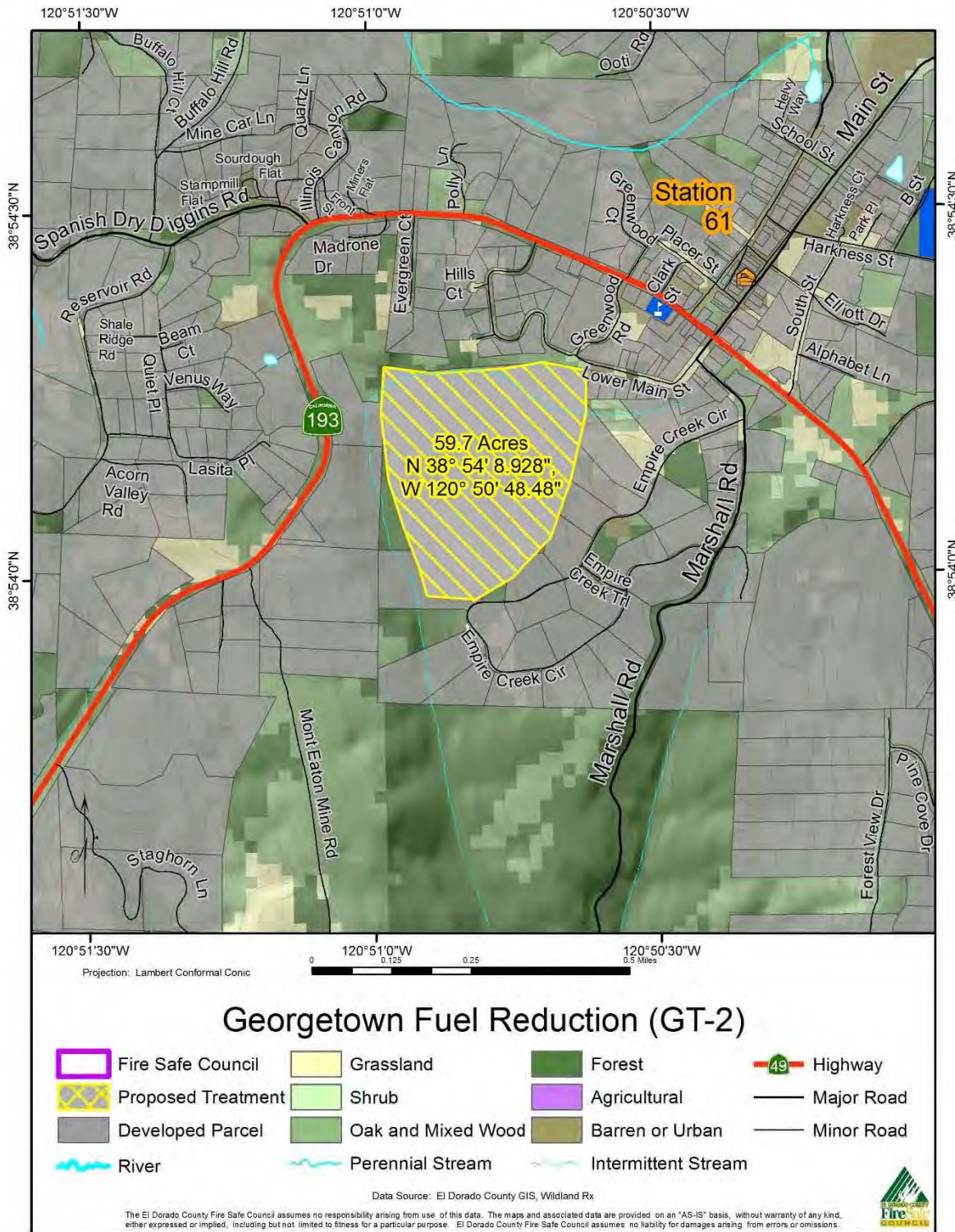
Summary of proposed treatment by cost for the Volcanoville Area

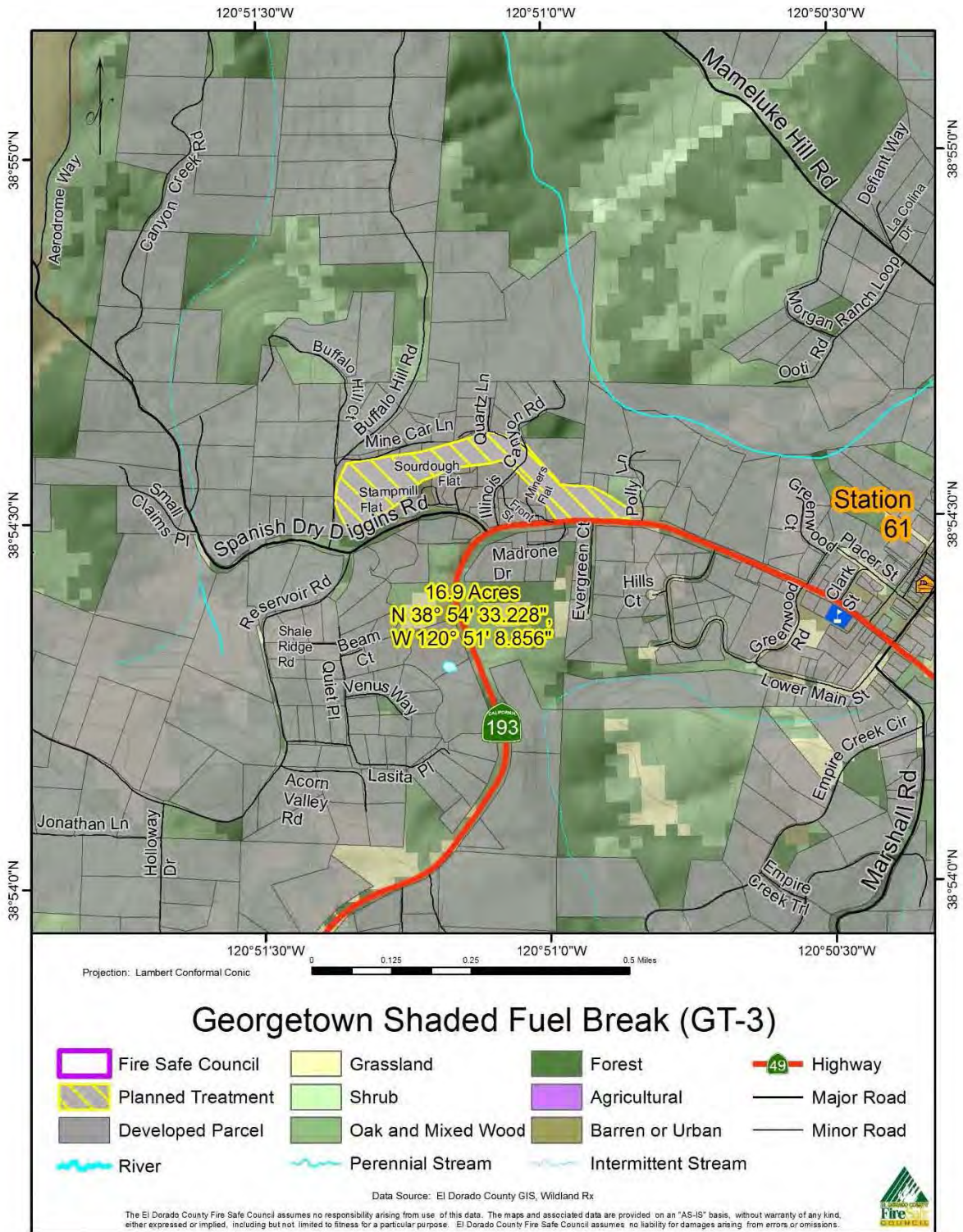
COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Volcanoville	1	Vol-1	Volcanoville road	Road Hazard	83	3.5	\$124,500
Volcanoville	8	Vol-2	Tunnel Hill	Fuel Break	45		\$67,500
Volcanoville	2	Vol-3	Bear State	Road Hazard	34	1.4	\$51,000
Volcanoville	5	Vol-4	Northwest Fuel Reduction	Fuel Break	26		\$39,000
Volcanoville	6	Vol-5	Ken Tucker Flat	Road Hazard	26	1.1	\$39,000
Volcanoville	7	Vol-6	West Side Fuel Reduction	Fuel Break	20		\$30,000
Volcanoville	9	Vol-7	North East Fuel Reduction	Fuel Break	30		\$45,000
Volcanoville	10	Vol-8	Volcanoville road	Road Hazard	88	3.7	\$132,000
Volcanoville	11	Vol-9	Volcanoville road	Road Hazard	47	1.9	\$70,500
Volcanoville	12	Vol-10	Bear State	Road Hazard	17	0.7	\$25,500
Volcanoville	13	Vol-12	Kentucky Mine North	Road Hazard	22	0.9	\$33,000
Volcanoville	14	Vol-13	Kentucky Mine South	Road Hazard	32	1.3	\$48,000
Volcanoville			Total Volcanoville		470	13.2	\$705,000

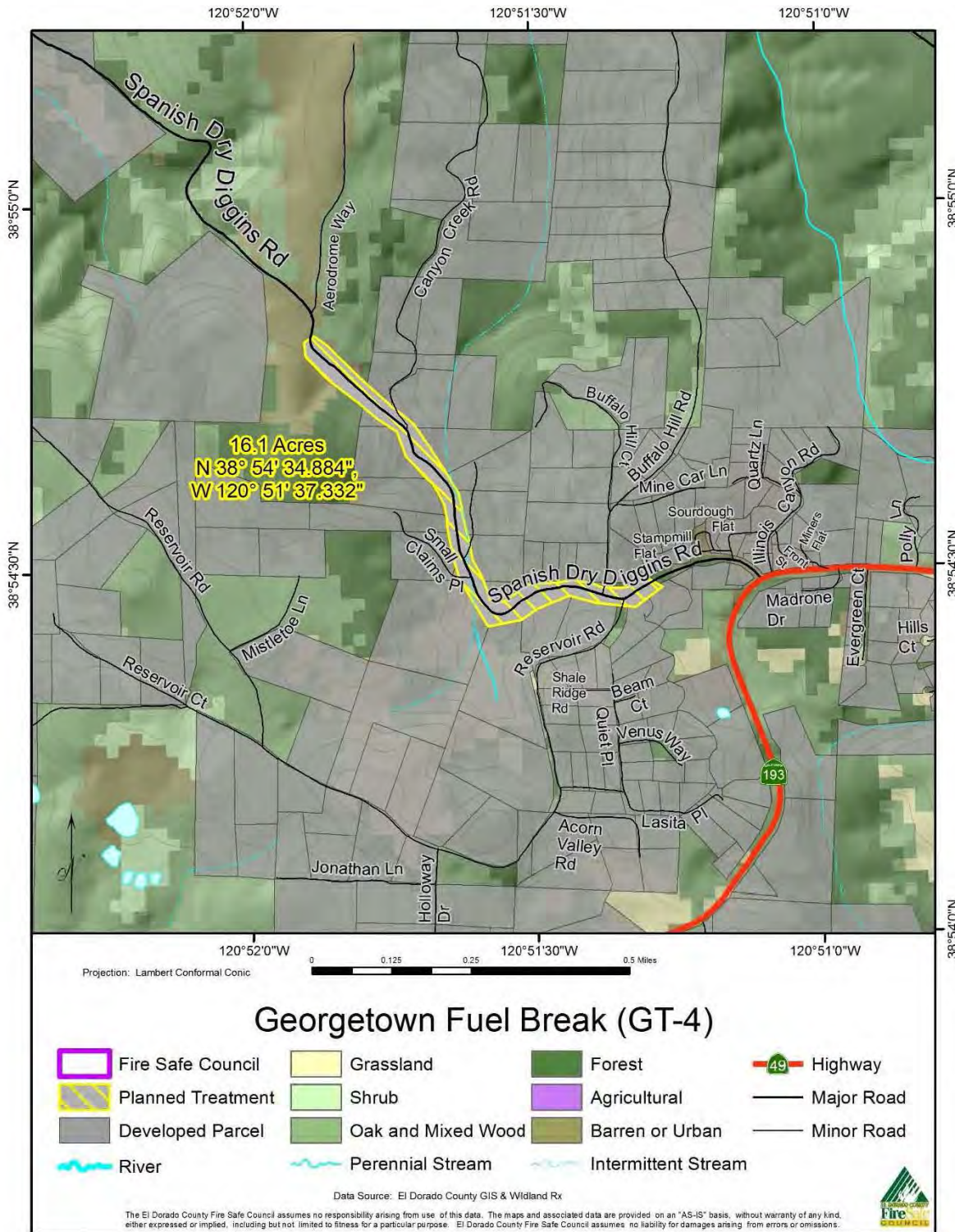


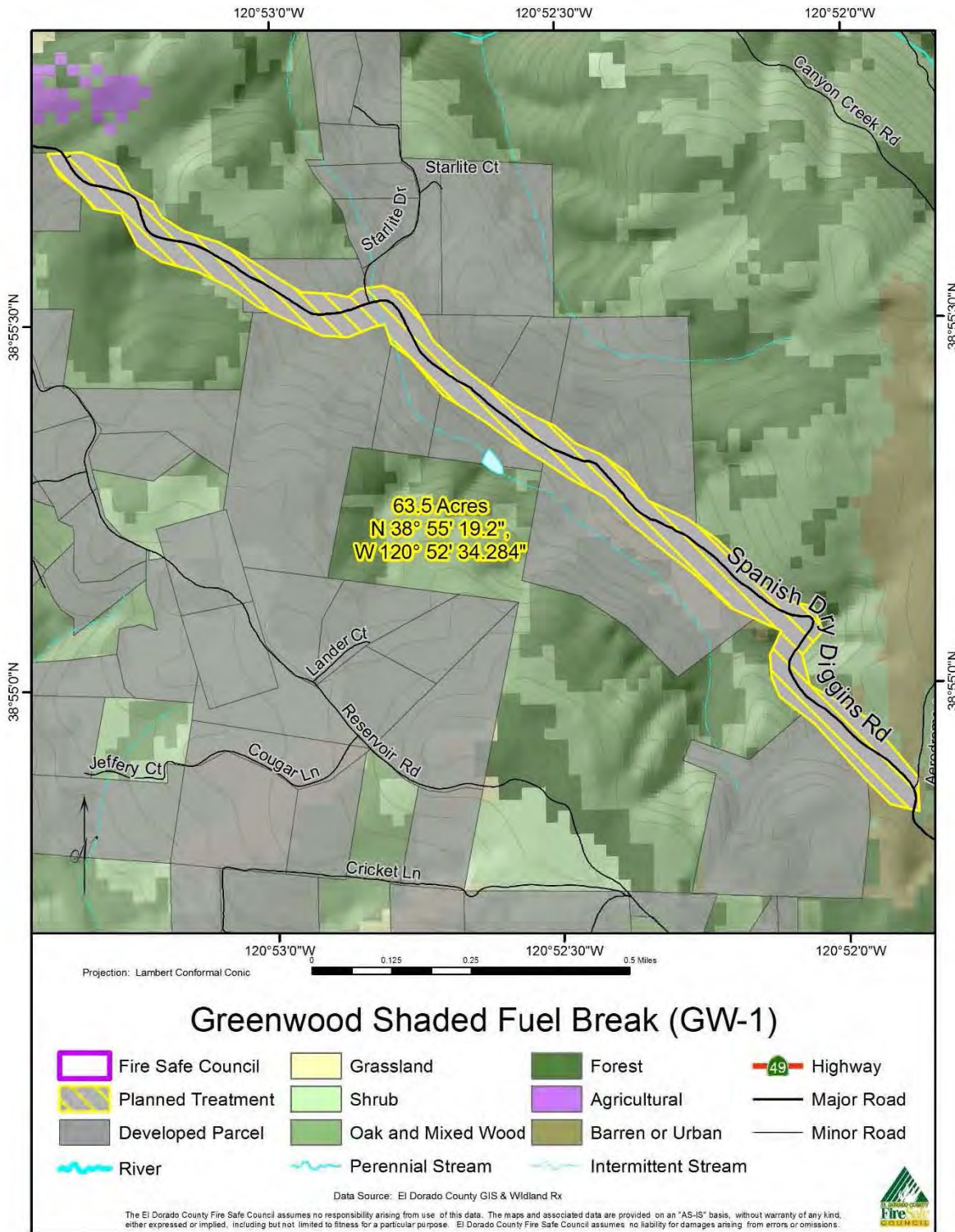


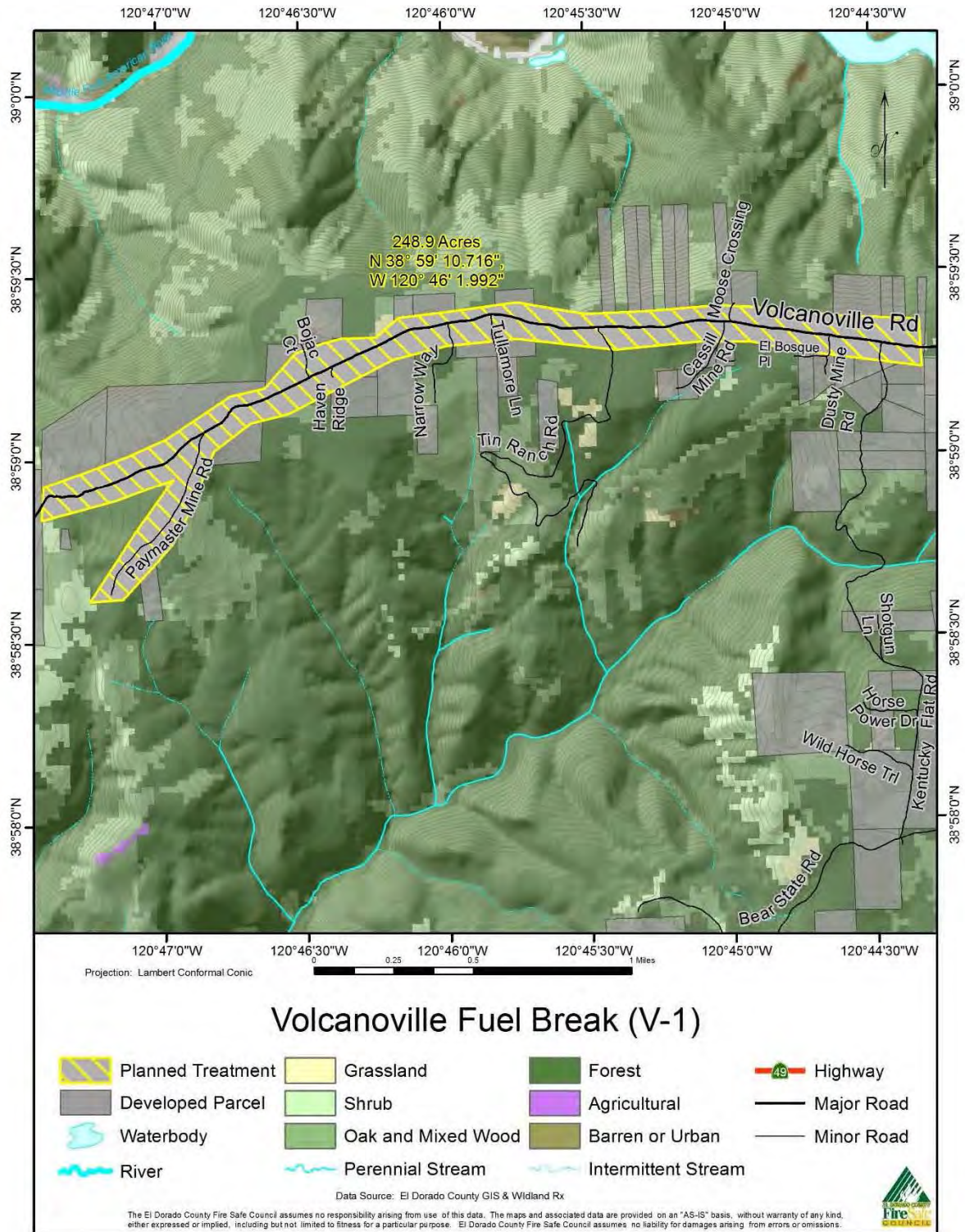


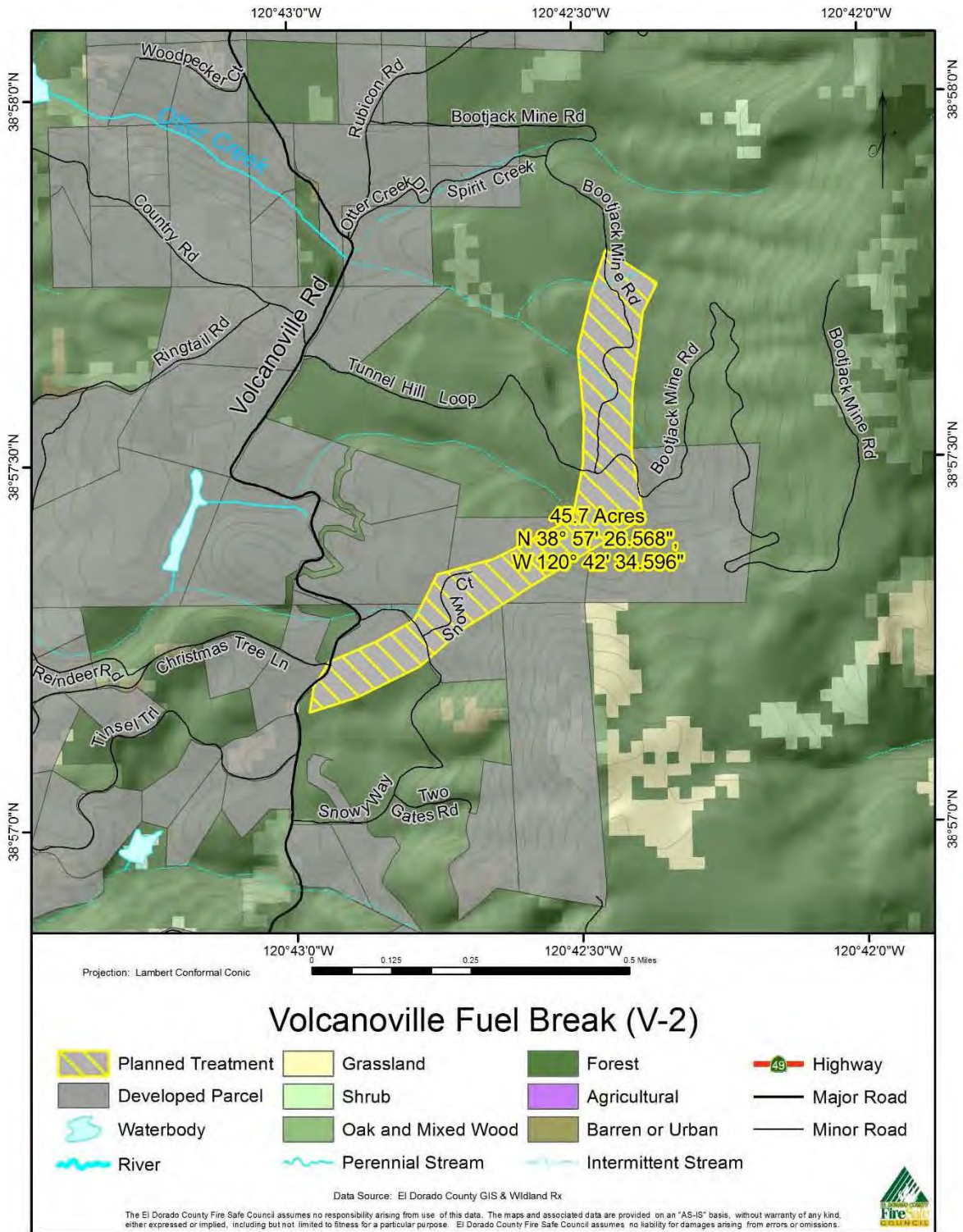


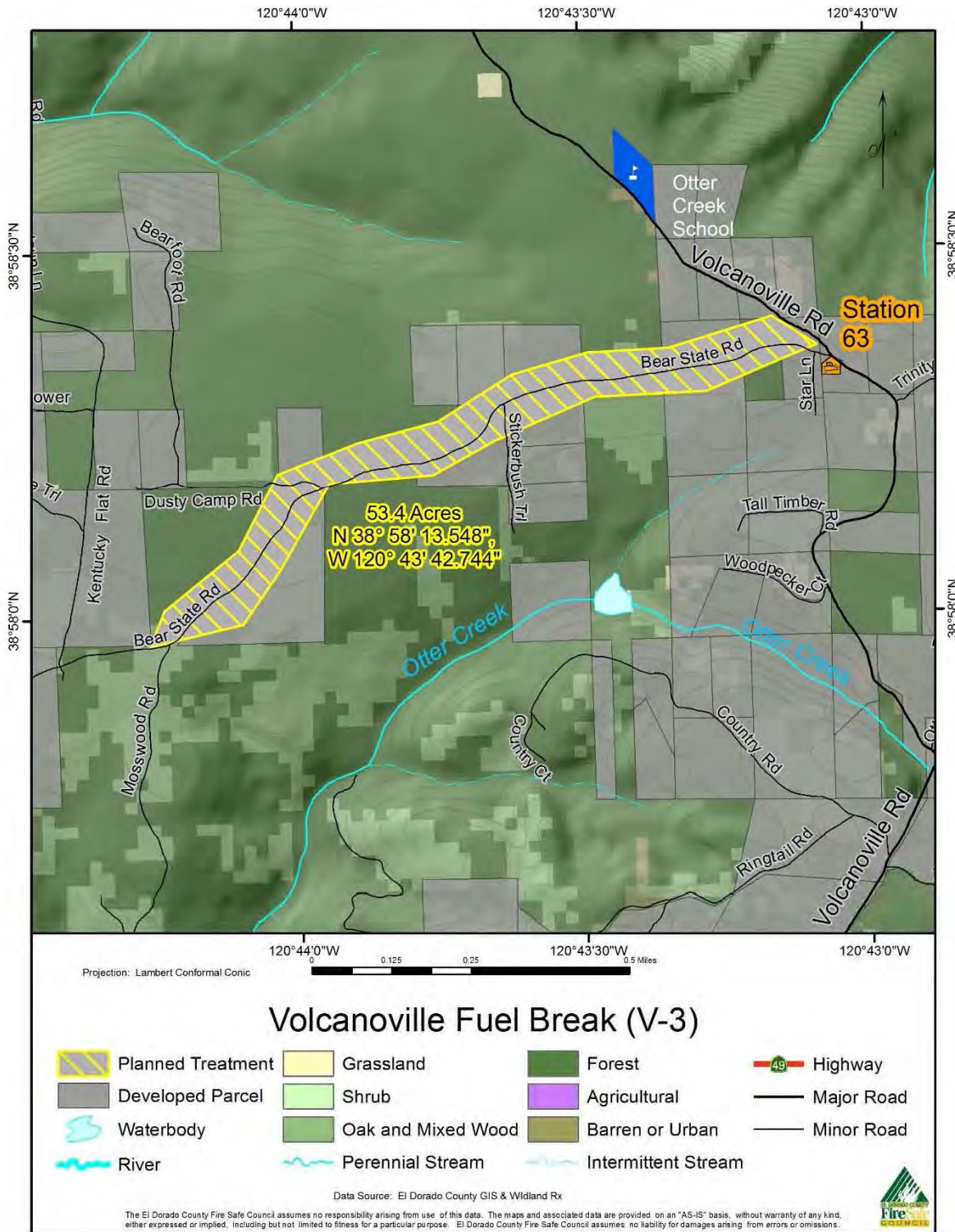


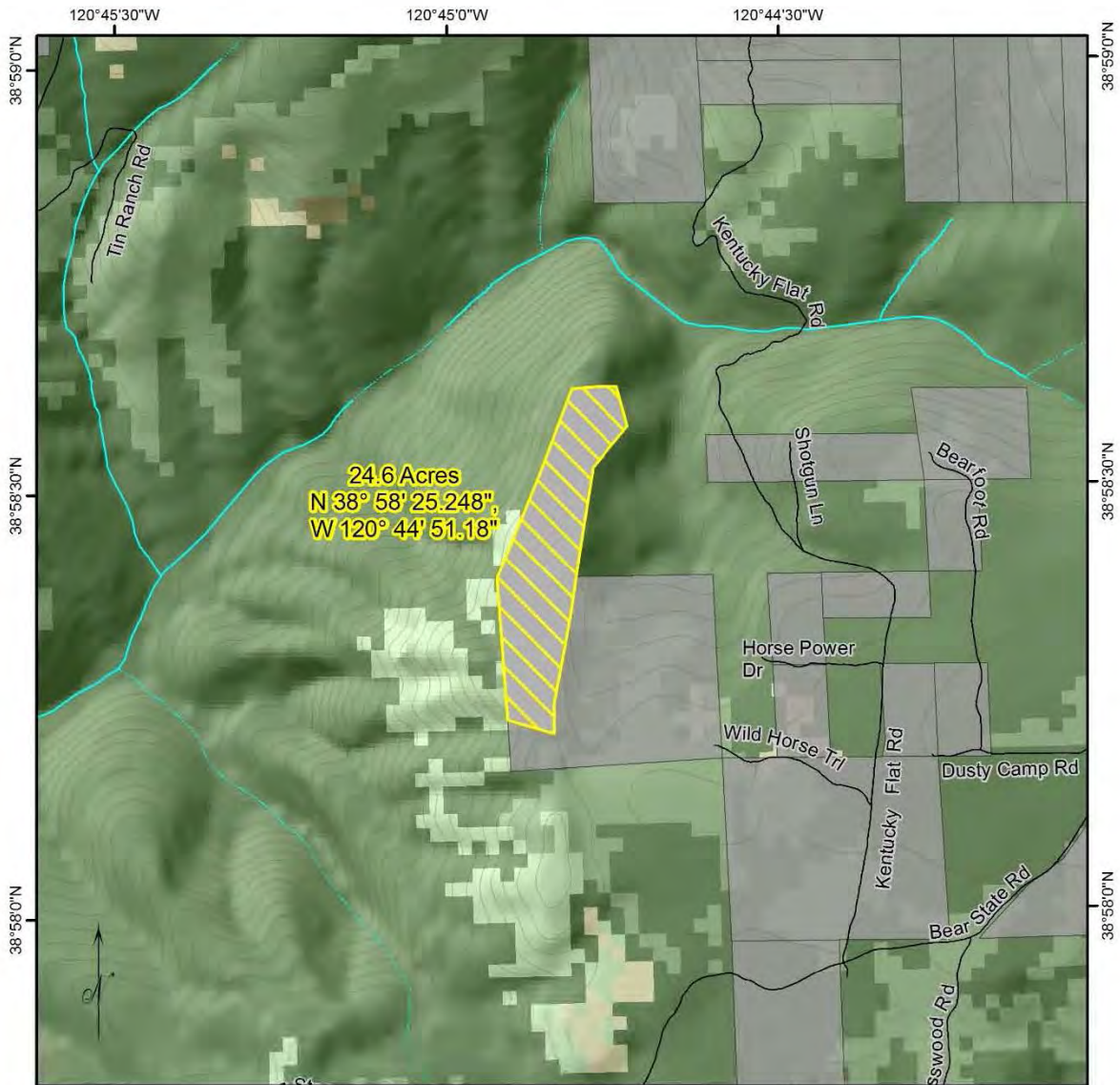












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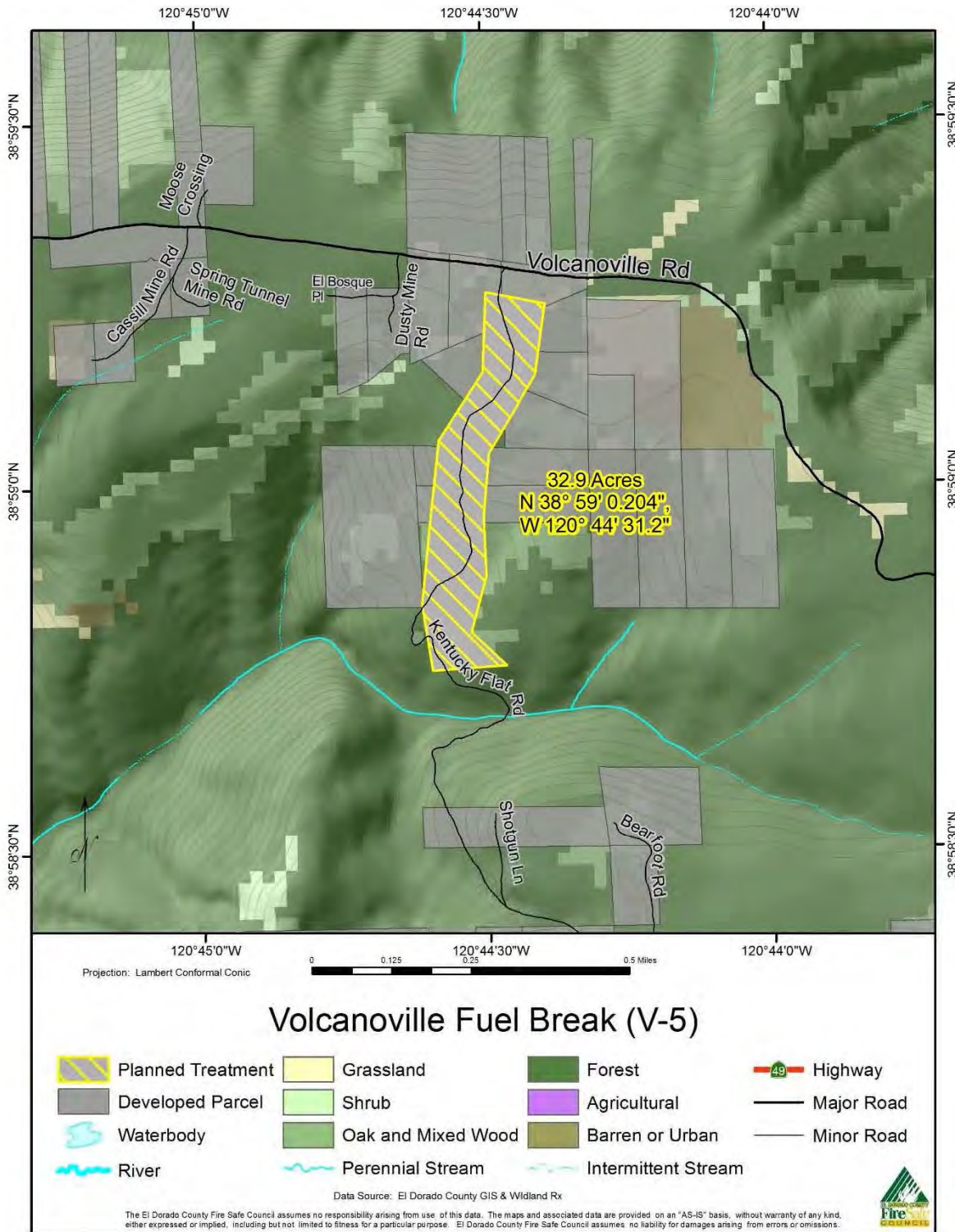
Volcanoville Fuel Break (V-4)

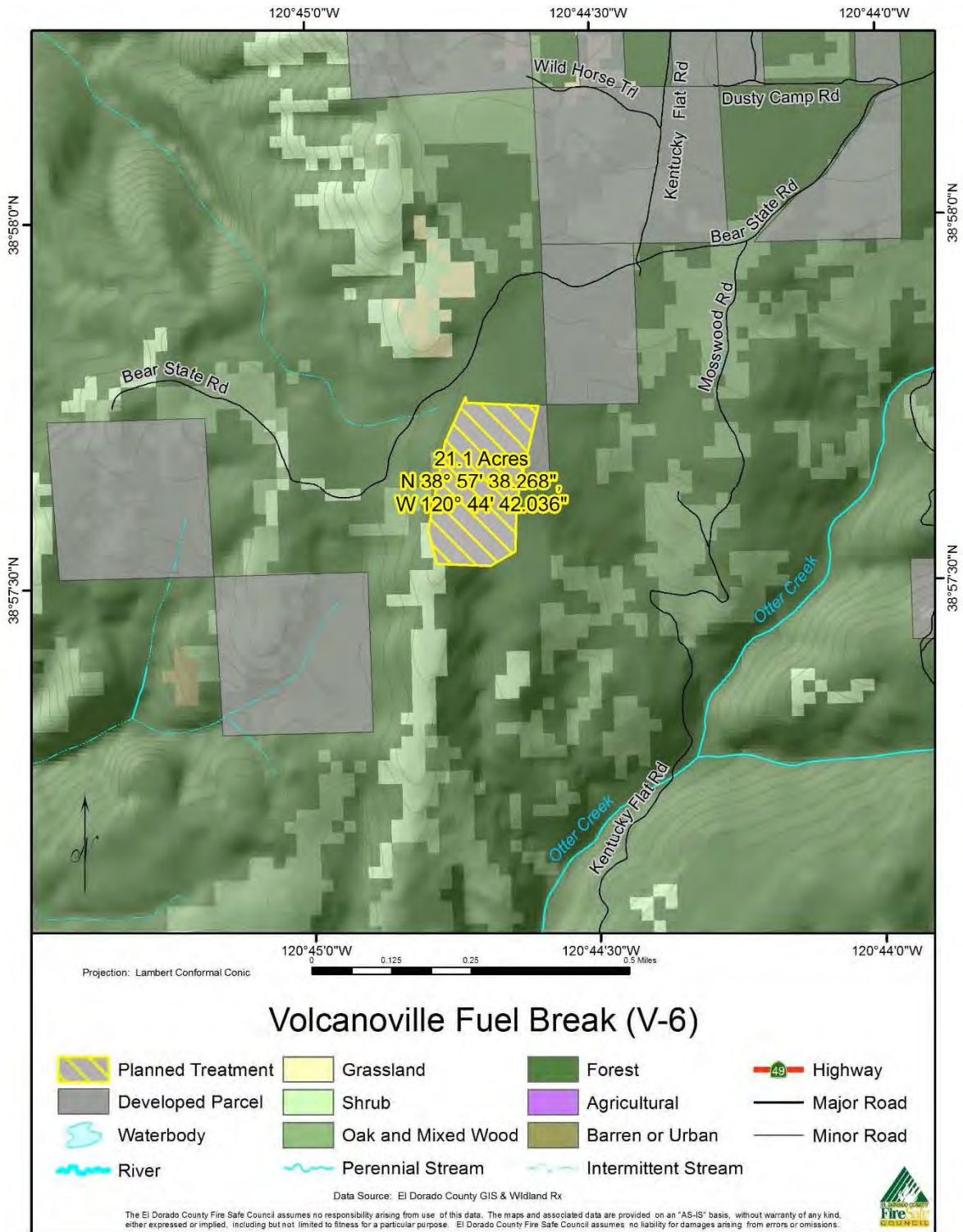
- | | | | |
|-------------------|--------------------|---------------------|------------|
| Planned Treatment | Grassland | Forest | Highway |
| Developed Parcel | Shrub | Agricultural | Major Road |
| Waterbody | Oak and Mixed Wood | Barren or Urban | Minor Road |
| River | Perennial Stream | Intermittent Stream | |

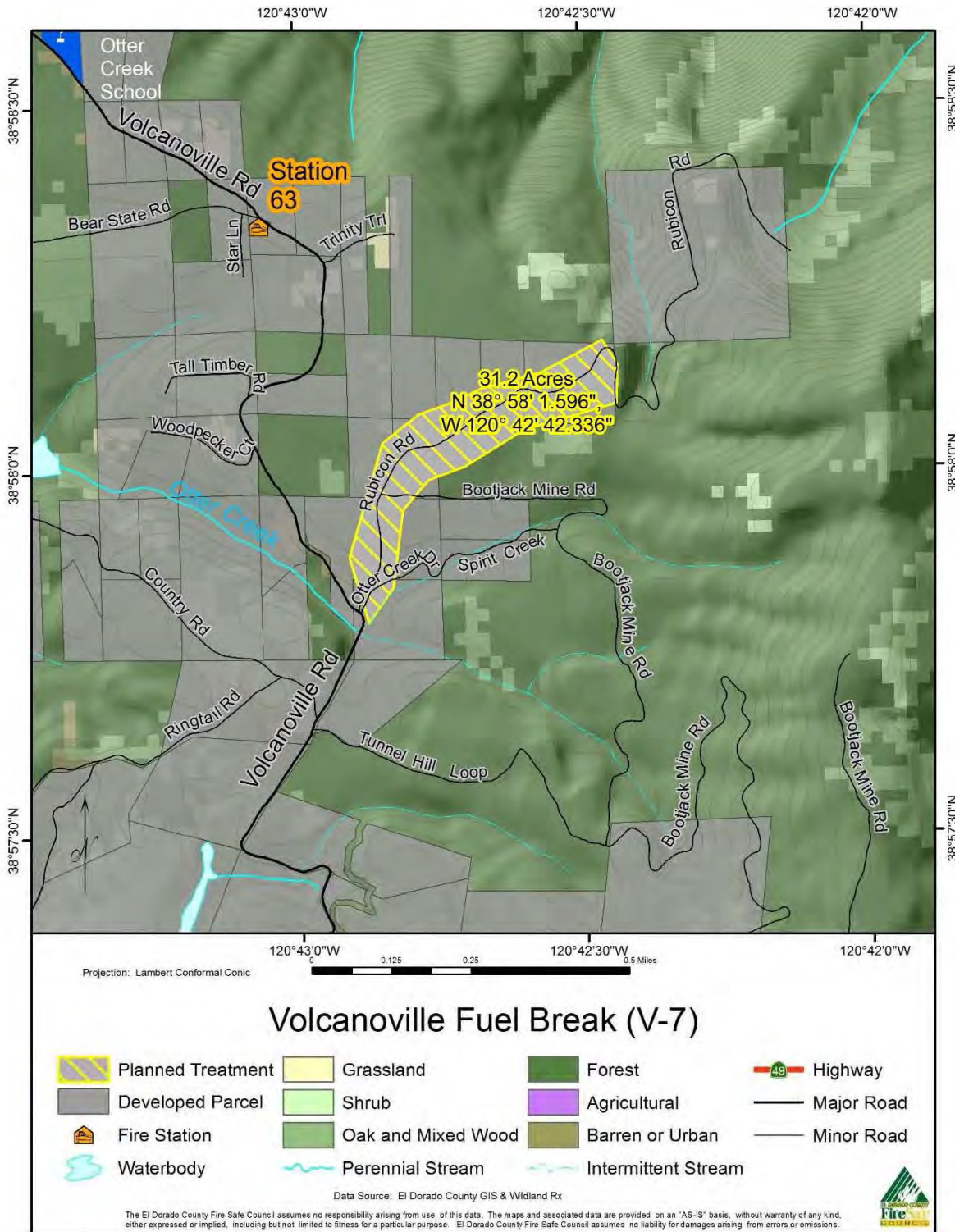
Data Source: El Dorado County GIS & Wildland Rx

The El Dorado County Fire Safe Council assumes no responsibility arising from use of this data. The maps and associated data are provided on an "AS-IS" basis, without warranty of any kind, either expressed or implied, including but not limited to fitness for a particular purpose. El Dorado County Fire Safe Council assumes no liability for damages arising from errors or omissions.









El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
GRIZZLY FLATS FIRE SAFE COUNCIL ACTIVITIES



Photo: Hoskins Hotel, Main Street, Grizzly Flat, CA, Dedicated 1886

Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California 95636

Prepared for:

GRIZZLY FLATS FIRE SAFE COUNCIL
PO Box 152
Grizzly Flats, California

JANUARY 2017



Community Description

The Community of Grizzly Flats was identified in the August 17, 2001 Federal Register as an “Urban Wildland Interface community within the vicinity of federal lands that is at high risk from wildfire”. Grizzly Flats is adjacent to the Eldorado National Forest (ENF). In 2003, the ENF started planning for the ‘Last Chance Fuel Reduction Project’ (LCFRP), which was to supplement the Grizzly Flats community’s overall efforts to reduce the heavy fuel loading at the community’s boundaries. The LCFRP is located immediately south of the community’s southern boundary.

In 2002, the Grizzly Flats community residents came together to discuss living in the heart of a high fire hazard area. In an effort to prevent or minimize catastrophic wildland fire to their community, they organized a volunteer group of residents, who in turn created the Grizzly Flats Fire Safe Council (GFFSC) in 2004. The GFFSC, under the guidance of the El Dorado County Fire Safe Council (EDCFSC), the GFFSC's parent organization, and the requirements of Cal Fire, created its first Community Wildfire Protection Plan (CWPP) in 2006.

The Grizzly Flats community is located in El Dorado County. The ‘Village of Grizzly Flat’ was created in 1850 as a gold rush settlement and evolved into a community around gold mining in the 19th century and around the timber industry in the 20th century. The 1852 Village of Grizzly Flat is described in a pioneer’s journal as “...a beautiful rolling country before us but no vegetation except tall pine timber was visible.” (*Doble, 1999*) *John Doble’s Journal and Letters From The Mines; Volcano, Mokelumne Hill, Jackson and San Francisco 1851-1865, Volcano Press, Inc. , 1999.* This text offers the reader a comparative description of the vegetation during the Gold Rush era and today.

The Grizzly Flats Community Services District encompasses approximately 1,670 acres, including 1,235 parcels of land, with 497 homes and approximately 1250 people. Parcel of land within the GFFSC range in size from 1/4 to 40 acres. The GFFSC’s Sphere of Recognition incorporates approximately 25,000 acres, a population of 1,404, and 819 housing units (per the 2010 census). Grizzly Flats is located south and east of Placerville, CA, with approximately 85% of its boundary abutting the Eldorado National Forest. The main access roads are Grizzly Flat Road and String Canyon Road. The average elevations is about 4,000 feet. The topography within the community is relatively gentle. String Canyon Creek, and the Steely Fork and the North Fork of Cosumnes River form steep canyons with heavy fuel loadings. The vegetation is primarily a second growth stand of mixed conifers with a heavy understory fuel loading. The community has a Post Office, an elementary school, a community church, and a Community Service District (CSD), the purveyor of water. The CSD water system stores, treats and distributes metered water, and includes fire suppression water to the fire hydrants. Grizzly Flats is within the governmental administration of the County of El Dorado.

Emergency Services

The Pioneer Fire Protection District is the provider of structure fire protection. Fire Station 35, with an unstaffed Type 4 engine, is in Grizzly Flats. Fire Station 31 is about 10 miles west of Grizzly Flat and is staffed by volunteers during a part of the year. The next nearest Fire Station is Station 38 in Mt. Aukum, a full time staffed station about 35 minutes away. The El Dorado County Fire District’s Station 19, located in Pleasant Valley, has structure firefighting equipment



and the closest ambulance. Station 19 equipment is approximate 35 minutes away. Grizzly Flats is within the State Responsibility Area (SRA), with Cal Fire providing wildland fire protection. The closest Cal Fire Stations are in River Pines and Camino. Both are approximate 60 minutes away. The USFS Station 63 is in Grizzly Flats. It is staffed during wildfire season; from May until November, depending on the wildfire season's length. Engine 363 and its crew respond to Federal forest fires across the nation, which can leave the Station unoccupied for periods of time.



Exhibit 1: Grizzly Flats Fire Safe Council Sphere of Recognition

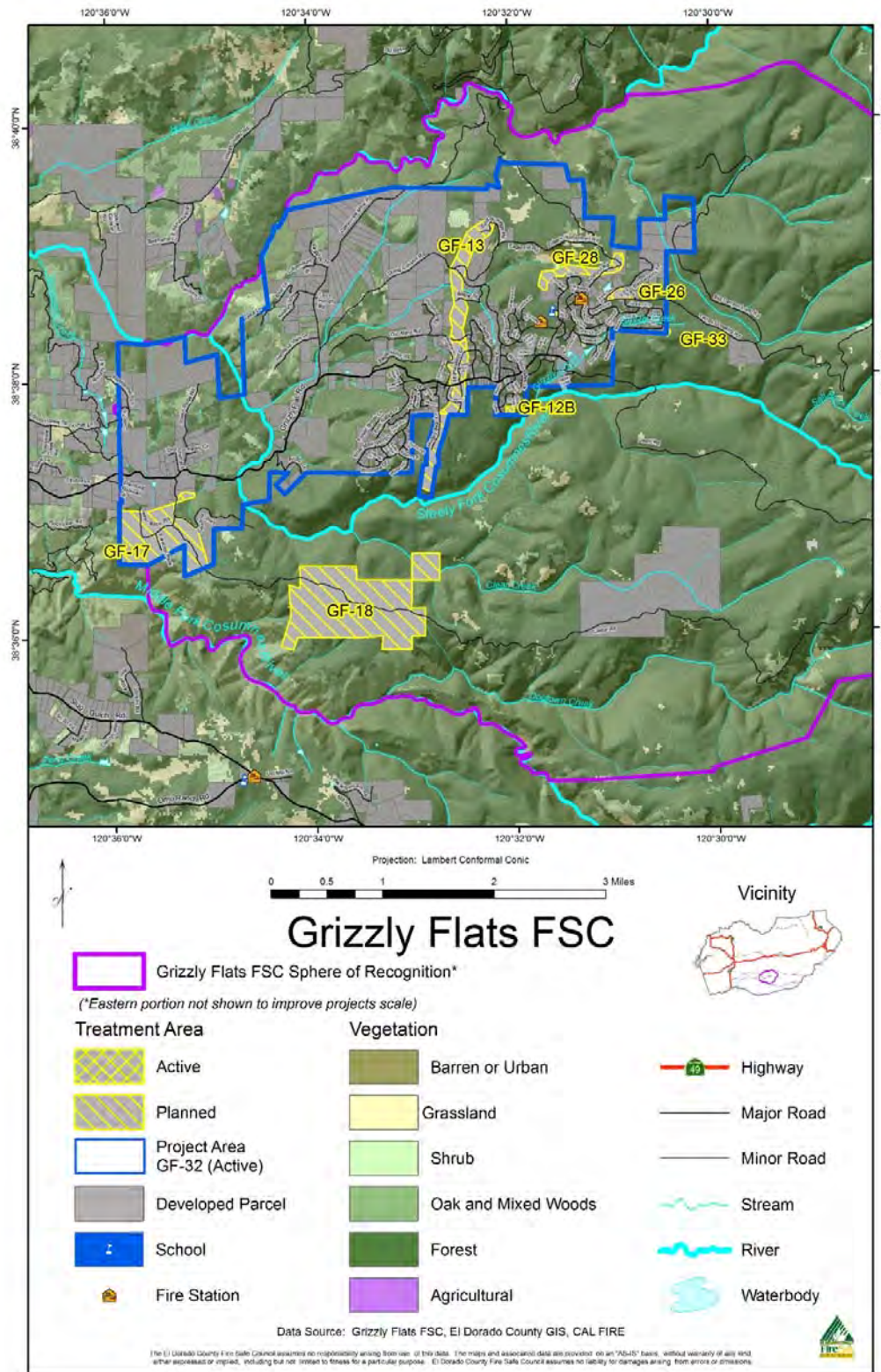


Exhibit 2: Grizzly Flats Projects waiting for grant funding

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Grizzly Flats	1a	GF-32	Hazard Tree Removal	Hazard Tree			\$200,000
Grizzly Flats	1	GF-13	Near Eagle Mine Road	Fuel Reduction	91		\$182,000
Grizzly Flats	2	GF-28	Tyler Fuel Break	Fuel Reduction	44		\$88,000
Grizzly Flats	3	GF-26	GFCSC Reservoir Protection	Fuel Reduction	9		\$18,000
Grizzly Flats	4	GF-33	GFCSD Water Tank Protection	Fuel Reduction	2		\$4,000
Grizzly Flats	5	GF-17	Caldor Road	Fuel Reduction	213		\$426,000
Grizzly Flats	6	GF-18	Henry's Diggings	Fuel Reduction	75		\$150,000
Grizzly Flats	7	GF-20	Cosumnes Mine Road Area	Fuel Reduction	70		\$140,000
Grizzly Flats	8	GF-23	Woodpecker Acres Reservoir	Infrastructure	2		\$30,000
Grizzly Flats	9	GF-14	Vacant Lot Hazard Reduction	Fuel Reduction	100		\$200,000
Grizzly Flats	10	GF-16	Huggy Bear Fuel Reduction	Fuel Reduction	20		\$40,000
Grizzly Flats	11	GF-24	Steely Ridge Fuel Reduction	Fuel Reduction	30		\$60,000
Grizzly Flats	12	GF-30	Log Cleanup – SE of Community	Fuel Reduction	80		\$160,000
Grizzly Flats	13	GF-29	Gilbert Fuel Break	Fuel Reduction	25		\$50,000



COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Grizzly Flats	14	GF-11	Fuel Break Maintenance	Fuel Reduction	50		\$100,000
Grizzly Flats	15	GF-10	Fuel Break Maintenance	Fuel Reduction	50		\$100,000
Grizzly Flats	16	GF-22	Samaan Fuel Break	Fuel Reduction	40		\$80,000
Grizzly Flats			Total Grizzly Flats		880	0.0	\$1,986,000



Exhibit 3: GF-13 Project Location Map

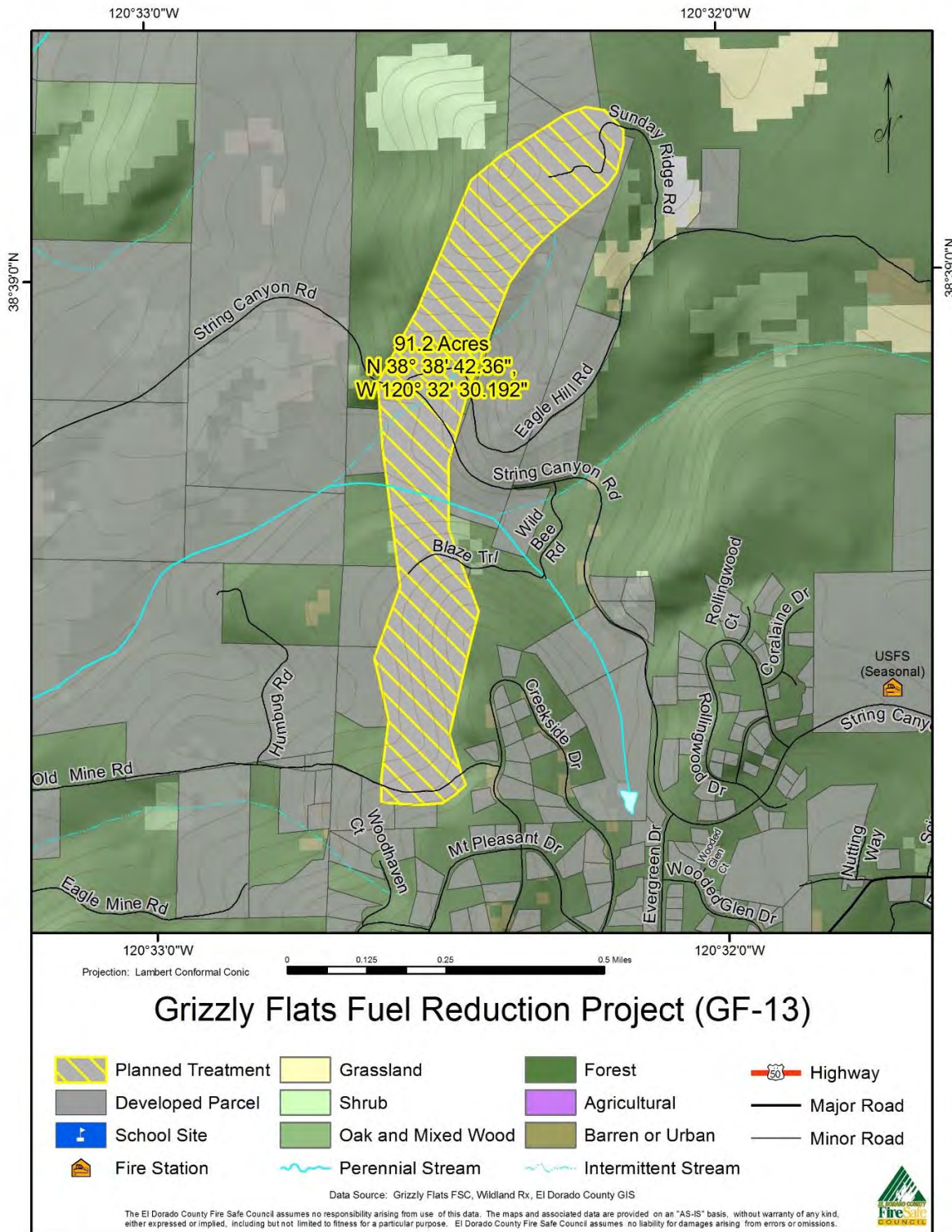


Exhibit 4: GF-28 Project Location Map

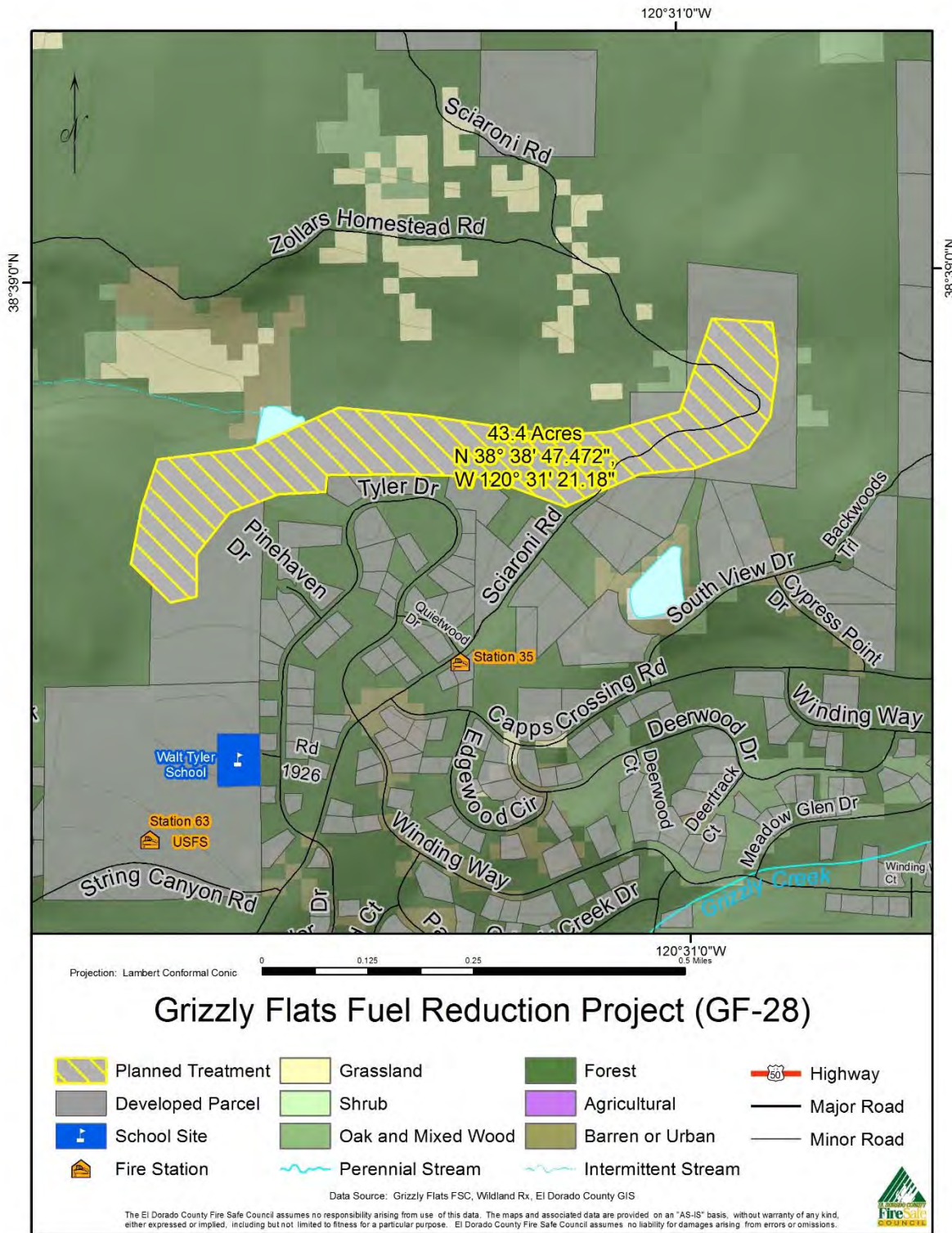


Figure 5: GF-26 Project Location Map

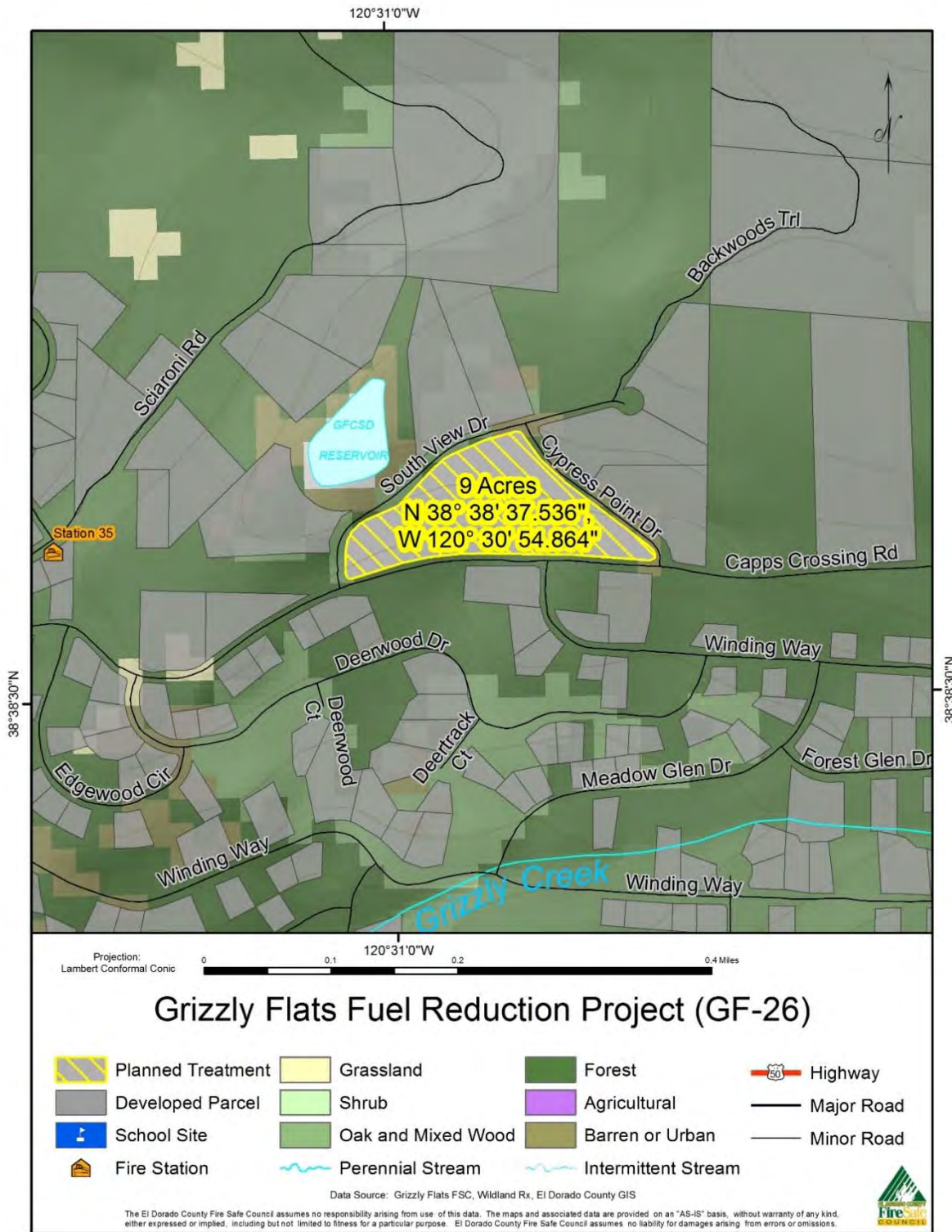
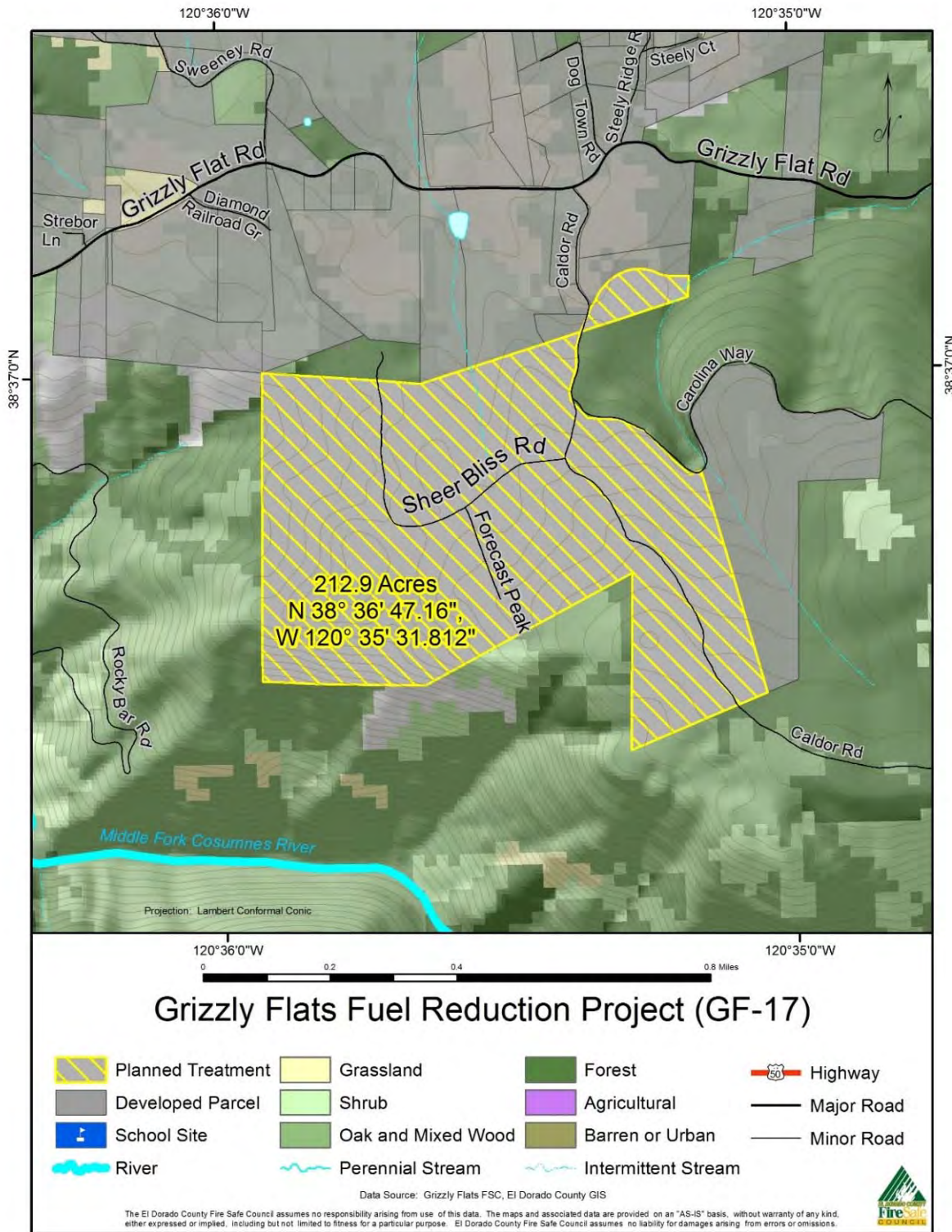


Exhibit 6: GF-33 Project Location Map



Exhibit 7: GF-17 Project Location Map



El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
LAKE HILLS FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared for:
LAKEHILLS FIRE SAFE COUNCIL

JANUARY 2017

Lake Hills Fire Safe Council (LHFSC) has three member communities:

- Lake Hills Estates
- Southpointe
- Lakeridge Oaks

Community History:

Lake Hills Estates

The Lake Hills Estates development was created in the late 1950's/early 1960's. It consists of four separate units that are designated as Unit 1 through Unit 4. Unit 1 was established as the Lake Hills Corporation, a California Corporation. The Unit 1 "Declaration of Tract Restrictions", currently referred to as Covenants, Codes and Restrictions (CC&Rs), were created on March 21, 1956. The Unit 4 CC&Rs were recorded by Wright and Kimbrough, a Corporation, on March 14, 1961. Unit 4 was originally planned to include a marina and boat storage area on Folsom Lake but was subsequently re-parceled to single family residences only. The Lake Hills Estates Civic Association was formed to provide a social venue for the residents and to provide the Architectural Control Committee (ACC) functions consistent with the CC&Rs. The developers' ACC control was gradually transitioned to the Civic Association. Consequently, Lake Hills Estates did not form a Home Owners Association (HOA) common for other adjacent developments.

In following years, Lake Hills Estates continued to build and was joined by neighboring developments adding residences and increasing the population. Development is now contiguous, following the contour of Folsom Lake, from Southpointe (bordering New York Creek on the northeast) to Lakeridge Oaks (nestled against Mormon Island Auxiliary Dam and Browns Ravine Marina on the southwest). The 8 mile shoreline within the Folsom Lake State Recreation Area (FLSRA) is a common border to all the developments.



Southpointe

The Southpointe Community was originally a 3-phase planned development that began construction in 1990. Initially planned for 92 lots, there are now 85 lots with 76 custom, single-family homes. Southpointe was specifically designed to capture the beauty and natural setting of the area with views of Folsom Lake to the West, the American River to the North and the mountains to the East.



Lakeridge Oaks

The Planned Development Final Subdivision Public Report for this sub-division was first filed in October, 1979. The community has 48 total lots, with 45 residences currently. The Lakeridge Oaks community also includes seven (7.01) acres of undeveloped common land within the community.



The above-referenced three member communities are only part of the entire Lake Hills Fire Safe Council's impact. In between Southpointe to the northeast and Lakeridge Oaks to the southwest, the contiguous developed area contain 5 additional communities that combine with Lake Hills Estates for a total of 8 communities with about 800 homes. LHFSC, through cooperative efforts with California State Parks and the US Bureau of Reclamation executing vegetation management projects along the noted 8 mile shoreline, has worked with members of these other communities. As such, the LHFSC extends a sphere of influence that includes all these communities.

Community Demographics

The communities are located in El Dorado Hills, in El Dorado County adjacent to Folsom Lake State Recreational Area, co-owned and managed by California State Parks and the US Bureau of Reclamation. Lake Hills Estates and Southpointe are located together, on a peninsula. On the east side of Southpointe is New York Ravine and Lomita Way. Lakeridge Oaks is located southwest and also borders Folsom Lake. Within Lake Hills Estates and Southpointe there are 336 habitable structures in the immediate area. Within $\frac{3}{4}$ of a mile, there are an additional 450 residences. 45 homes are within Lakeridge Oaks, which is accessed off Green Valley Road. There are hiking trails

running parallel to the lakeshore, on the public lands below the homes, and there are many coves, actively used for recreation. The entire area is accessible to the public either by trails or boat.

Lake Hills Fire Safe Council History

On June 9, 2012, a Multi-Agency Disaster Drill and Evacuation Exercise held in Lake Hills Estates provided the impetus to initiate a fire safe council formation effort.

A volunteer group of neighbors formed the Lake Hills Fire Safe Council (LHFSC) in July, 2012; it operates as an Associate Council of the El Dorado County Fire Safe Council. Lake Hills Estates became Firewise in 2013. Southpointe HOA and Lakeridge Oaks HOA joined the LHFSC in 2014. Subsequently, both became Firewise Communities. The LHFSC completed a Lake Hills Estates CWPP in 2014, and an amendment to the CWPP in 2015 included the contiguous Southpointe development.

Per EDH Fire Department Chief Dave Roberts, this is a high risk area and the LHFSC works to provide a common voice and community effort toward protecting against wildland fires in our area and providing leadership to organize and work with other agencies, including:

- El Dorado Hills Fire Department
- CAL FIRE
- US Bureau of Reclamation
- Folsom Lake State Recreation Area
- California Conservation Corps (CCC)
- California Highway Patrol
- El Dorado County (including Sheriff, Office of Emergency Services, Animal Services, Dept. of Transportation)

Lake Hills FSC Past Accomplishments

Since 2012, LHFSC has partnered in vegetation management projects on both public and private lands. This work has been conducted under the guidelines of the Folsom Lake Shaded Fuel Break, a 7 phase project created in 2004 by California State Parks and the US Bureau of Reclamation, designed to clear “ladder fuels” on public property that borders Lake Hills Estates, Southpointe, Lakeridge Oaks and neighboring communities.

Folsom Lake Shaded Fuel Break (SFB) as of November, 2016

2012-2015

SFB Work / Vegetation Management

- Acres Treated = 43
- Grant Funding = \$137,865.60
- USBR Funding = \$80,777.75
- Total Funding = \$ 218,643.35
- Total Work Hours = 9,450

April, 2016

SFB Maintenance / Canopy Thinning in Phase 1

- Acres Treated = 7



- USBR Funding = \$9,187.50
- Total Work Hours = 490

June, 2016

SFB Work / Vegetation Management / Tree Removal

- Acres Treated = .25
- Trees Removed = 7
- CA State Parks Funding = \$7,505.00

July – September, 2016

Private Lands Ladder Fuel Treatment / Tree Removal

- Acres Treated = 7
- Trees Removed = 10
- PG&E Funding = \$30,837.00

Firewise is a national recognition program sponsored by the National Fire Protection Association and promotes fire safety awareness and education. LHFSC sponsored a Lake Hills Estates’ community risk assessment in order to receive Firewise Community status in 2013. With the support of the LHFSC, Southpointe and Lakeridge Oaks also became Firewise Communities. Yearly Firewise events are held to further promote education & safety.

Other efforts of the LHFSC focus on education. In mid-2014, a door-to-door campaign to promote CAL FIRE’s “**Ready – Set – Go**” program was conducted. Instructional brochures offered residents information on critical actions to protect home and family in the event of a catastrophic fire and how to prepare for emergencies. The communities included in this distribution were Lake Hills Estates, Southpointe and Lakeridge Oaks. Furthering our education goal, LHFSC’s monthly newsletters and public meetings cover safety topics and promote community teamwork.

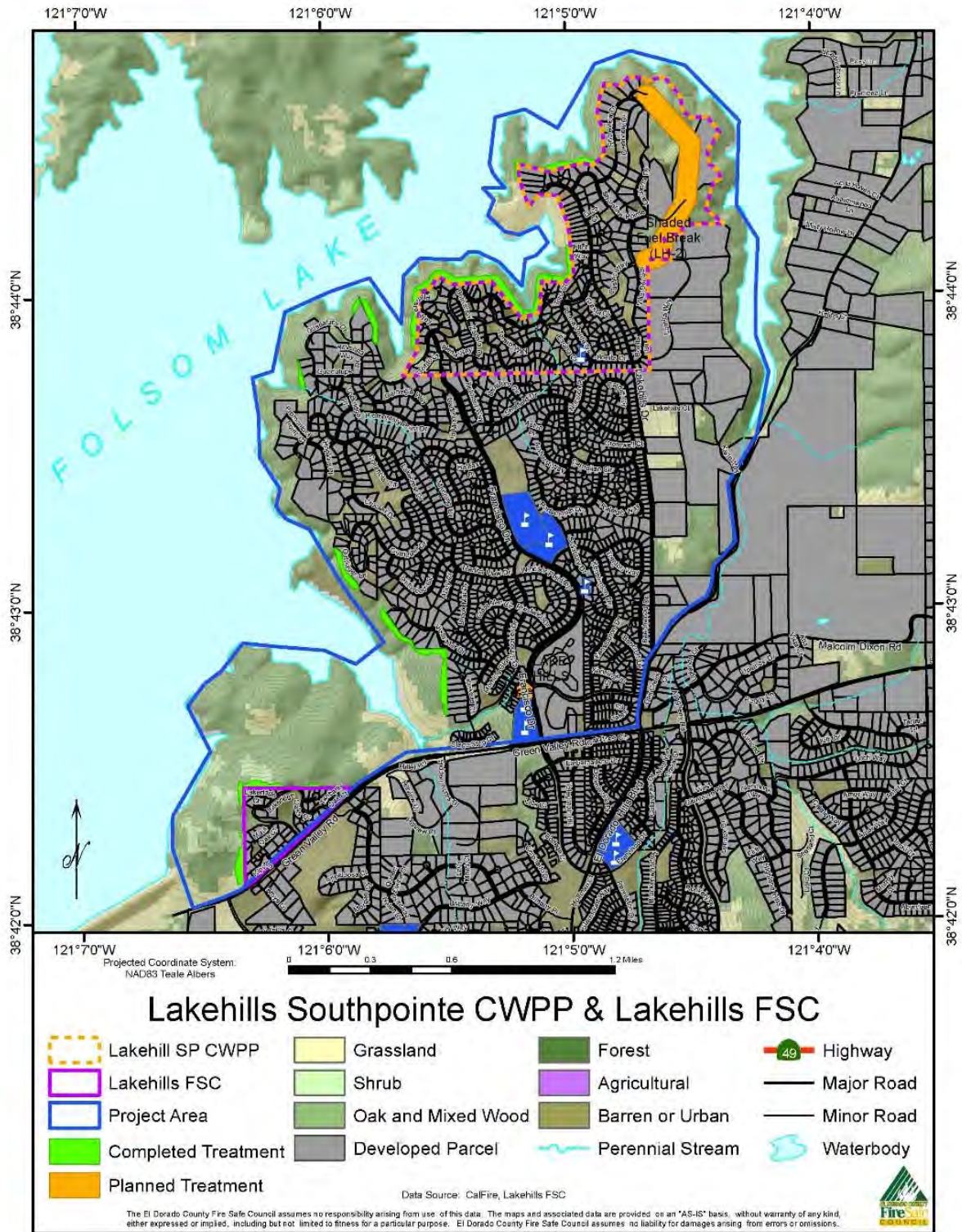
Vegetation, Terrain and Fire Risk

The vegetation types in and around the area are a combination of Grass Savanna, Blue Oak, Interior Live Oak, with grass and brush. There is a significant element of California Gray Pine scattered throughout. The shaded fuel break is mostly a grass and brush understory with an oak overstory. The slopes along the shaded fuel break vary from gentle (5-10%) to steep (40%). The Folsom Lake State Recreation Area (FLSRA) has a high rate of visitors in summer months, and the chance of an unintentionally ignited fire pose a high risk to all the homes bordering the FLSRA.



A copy of the Lake Hills CWPP can be found on the website: <http://www.edcfiresafe.org/cwpp/>

Figure 3: Lake Hills Fire Safe Council area with completed and planned projects



- Lake Hills FSC Projects:
EDCFSC Countywide CWPP – Lake Hills FSC / El Dorado Hills

Projects Table of Contents

Lake Hills FSC Private Lands (FSC Sponsor) (within LHFSC Boundary)

1. LH1 – Dead, Dying, Diseased & Dangerous Trees
2. LH2 – New York Creek Fuel Reduction Project
3. LH3 – Fuel Reduction & Safety Project, Vacant Parcels
4. LH4 – Lakeridge Oaks Fuel Reduction
5. LH5 – Lake Hills Roadside Clearance
6. LH6 – Lake Hills Homeowner Assistance
7. LH7 – Public Lands Shaded Fuel Break Maintenance (USBR or FLSRA Sponsor)(By FLSFB Phase)
 - 1) LHSFB1 – SFB Maintenance
 - 2) LHSFB2 – SFB Maintenance
 - 3) LHSFB3 – SFB Maintenance
 - 4) LHSFB4 – SFB Maintenance
 - 5) LHSFB5 – SFB Maintenance
 - 6) LHSFB6 – SFB Maintenance
 - 7) LHSFB7 – SFB Maintenance
8. LH8 / EDH1 - El Dorado Hills Road Connection, Improvement, Hazard Fuel Reduction (EDHFD Sponsor) (RC = Road Connection, RI = Road Improvement, HFR = Hazard Fuel Reduction)
 - 1) EDHRC1 - Arroyo Vista connection to Salmon Valley Lane
 - 2) EDHRC2 - Falcon Crest Lane connection of loop to Salmon Falls Road
 - 3) EDHRC3 - Pheasant Lane connection to Screech Owl
 - 4) EDHRC4 - Settlers Trail connecting to Victoria Way
 - 5) EDHRI1 - Rocky Springs Road to W. Green Springs Road
 - 6) EDHRI2 - Kipps Lane
 - 7) EDHRI3 - Thunder Lane
 - 8) EDHRI4 - Cothrin Ranch
 - 9) EDHRI5 - Wild Turkey Drive
 - 10) EDHRI6 - Falcon Crest Lane
 - 11) EDHRI7 - Settlers Trail
 - 12) EDHHFR1 - Kipps Lane
 - 13) EDHHFR2 - Old Bass Lake Road
 - 14) EDHHFR3 - Falcon Crest Lane
 - 15) EDHHFR4 - Thunder Lane
 - 16) EDHHFR5 - Cothrin Ranch
 - 17) EDHHFR6 - Wild Turkey Drive
 - 18) EDHHFR7 - Hidden Bridge Road

Definitions:

(RC) Road Connection: Connection of two or more roadways to provide improved and appropriate emergency ingress/egress and circulation

(RI) Road Improvement: Roadway Paving, Grading, Widening, Turn Outs, Connection, etc.



(HFR) Hazard Fuel Reduction: Vegetative Clearances around roadways or structure, utilities, etc.

Action Items:

Work with ED County to identify county maintained roads.

Identify common goal areas with ED County DOT and CALFIRE.

Other Possible Projects:

Serrano Wildland / Water / Wildlife (Beaver) Habitat Area.

Rolling Hills Estates – approx. 6’ set back between federal lands and private properties.

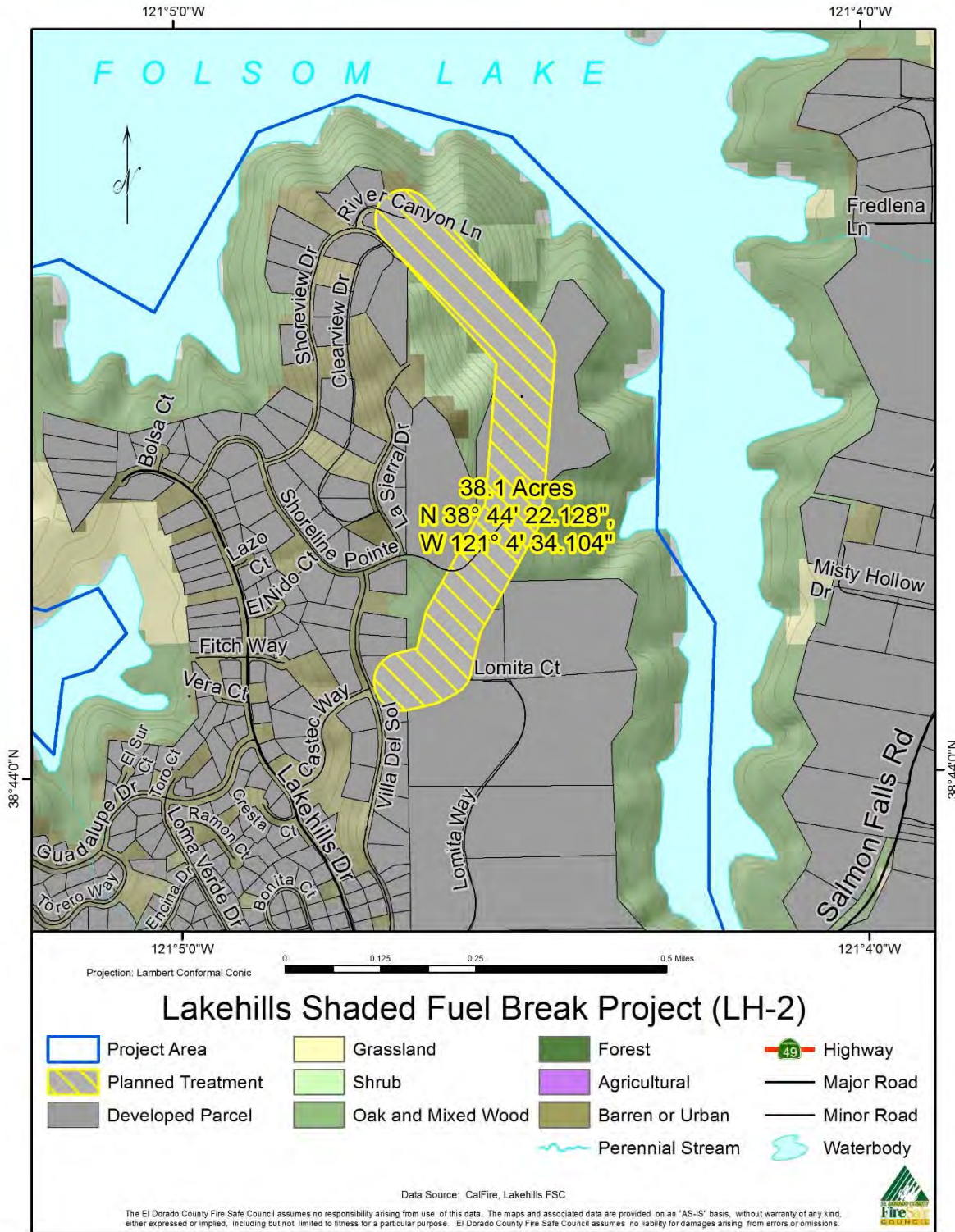


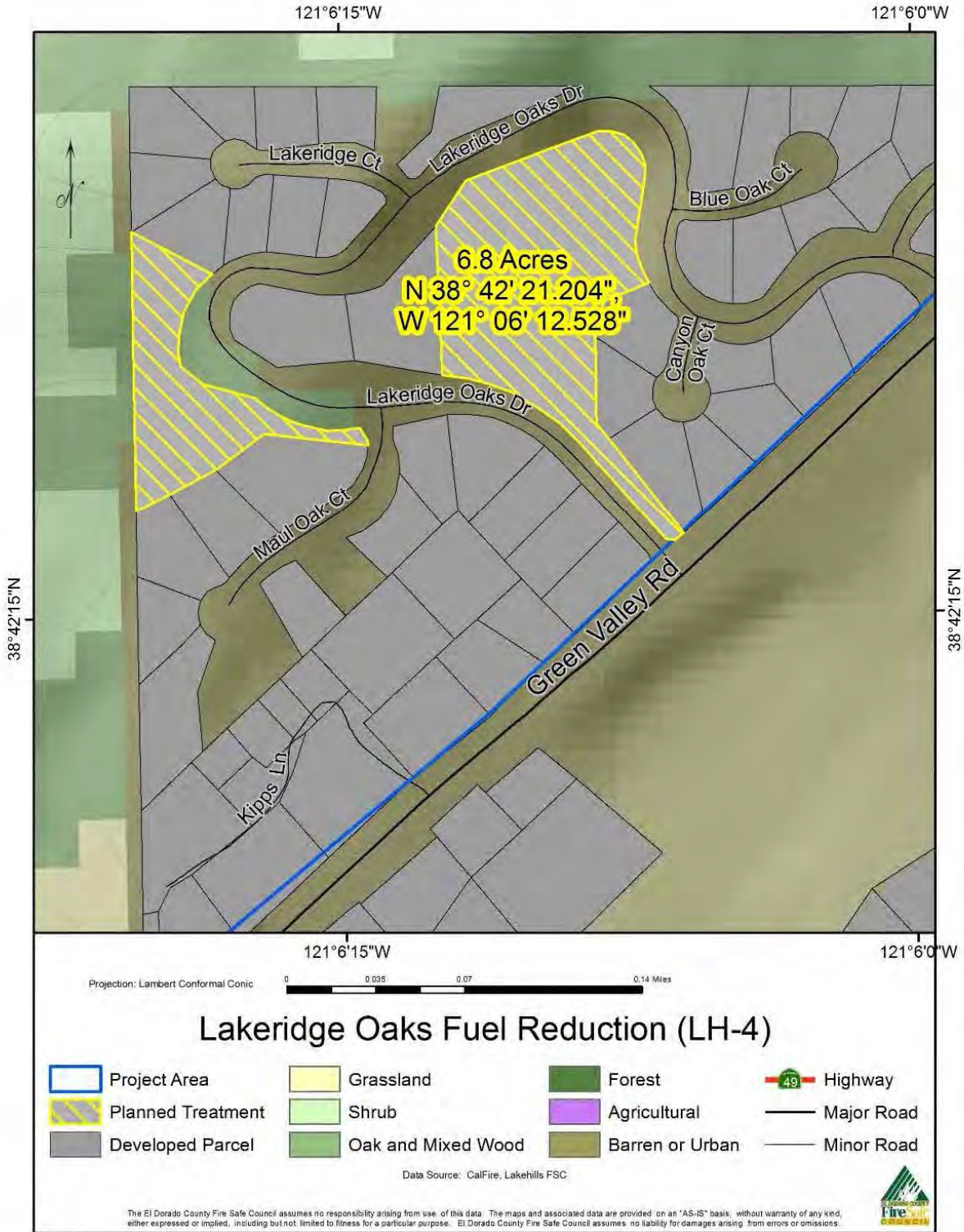
Summary of proposed treatment by cost for the Lake Hills Area.

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Lake Hills	1	LH-1	Hazard Tree Removal	Hazard Tree			\$200,000
Lake Hills	2	LH-2	New York Creek	Fuel Reduction	38		\$76,000
Lake Hills	3	LH-3	Vacant Parcel Fuel Reduction	Fuel Reduction	15		\$48,000
Lake Hills	4	LH-4	Lakeridge Oaks Fuel Reduction	Fuel Reduction	7		\$20,000
Lake Hills	5	LH-5	Lake Hills Roadside Clearance	Road Hazard	6	2.0	\$12,000
Lake Hills	6	LH-6	Homeowner Assistance	Fuel Reduction	50		\$100,000
Lake Hills	7	LH-7	Fuel Break Maintenance Parks	Fuel Reduction	50		\$100,000
Lake Hills	8	LH-8	Road improvement & Fuel	Road Hazard	100		\$200,000
Lake Hills			Total Lake Hills		266	2.0	\$756,000

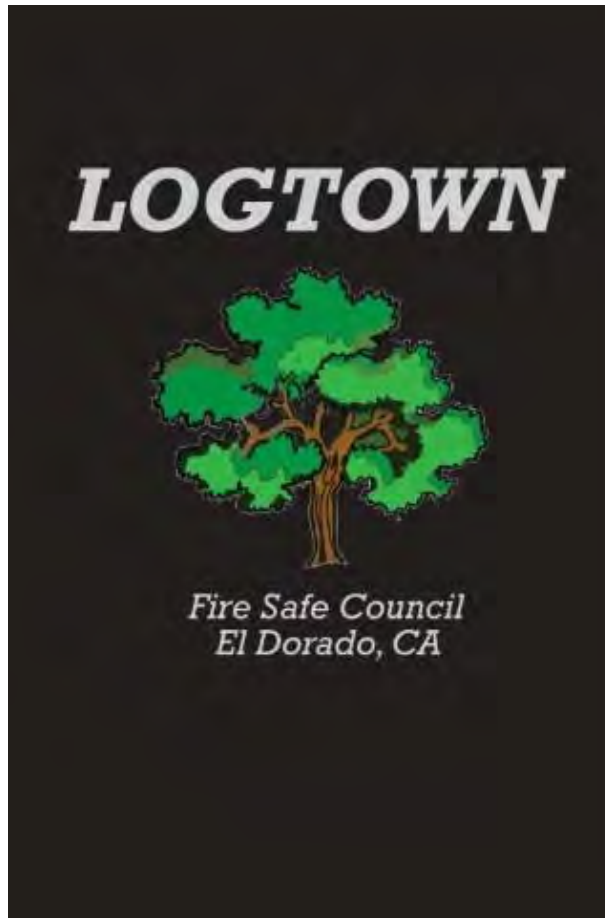


Map of Project Area, Treatment Shown in Yellow





El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
LOGTOWN FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared for:

LOGTOWN FIRE SAFE COUNCIL

JANUARY 2017

COMMUNITY DESCRIPTION

The Logtown Fire Safe Council area includes a diverse community of more than 600 parcels ranging from smaller two acre subdivision lots to large ranches. We have dirt roads, graveled roads and paved roads. There are private roads, county roads, roads maintained by a Community Service District and a State highway (SR-49) bisecting the community. The terrain ranges from open ridge tops with views of the Sierra Nevada Range to the east to secluded, timbered canyons. Our location in the beautiful Sierra Nevada foothills and the diverse terrain and roadways present us with unique challenges when it comes to fire safety. The wildland fire hazard ratings for the Logtown area range from moderate to very high in what is known as a Wildland Urban Interface (WUI) area.

GENESIS

The Logtown Fire Safe Council was born in July 2006 after a wildfire started by an accident on Highway 49 destroyed two houses and threatened many more. Since that time we have improved our community's resistance to wildfire through education, creation of defensible space and cooperation with local fire and road agencies. The volunteers of the Logtown Fire Safe Council has completed several, grant funded, fuel reduction project around the perimeter of the community and along transportation corridors. The Logtown Fire Safe Council meets on the second Saturday of each month except December at Station 44 on Quartz Drive. Every year in the spring the Logtown FSC hosts a spring cleanup that includes green waste dumpsters, household trash dumpsters, recycle bins, e-waste collections and local charity donation truck. Each fall the Logtown FSC hosts a "Hot Dog Social" fundraiser with music and auctions. The Logtown Fire Safe Council is one of the most active and successful councils in the county.

FIRE RISK

Logtown is an unincorporated community with approximately 600 parcels and 850 residents. Logtown is situated on ridges between the North Fork and main Consumes River Canyons in El Dorado County. The steep topography in the canyons, heavy fuel loading, history of wildfire ignitions combined with extensive and diverse use activities has many of the elements for a wildfire of catastrophic portions.

The Logtown Community Wildfire Prevention Plan addresses all the hazards and risks within and adjacent to the community. The greatest threat outside the community would be a fast moving wildfire in the river canyons (North Fork & Middle Fork of Consumes River) and along Highway 49. Within the community there are areas where homes are intermixed with dense vegetation and located on dead end roads. Vegetation was identified and classified into 4 fuel models and Fuel Treatment Standards were written for each model. Seven fuel reduction elements were developed to help protect the Logtown area: Defensible Space, Vacant Lots, Fuel breaks, Firebreaks Perimeter Fuel Reduction Zones, Roadside Fuel Treatments and Power Lines.



HISTORY

Probably one of the most forgotten places in El Dorado County, relatively little is known about Logtown also called Empire City. Located 3 miles south of El Dorado (Mud Springs) and about eight miles north of Plymouth (Polkerville) on highway 49, archaeologists have recently uncovered various objects from the 1800s including mining tools and machinery and a blacksmith's shop. A small cemetery located nearby marks the graves of a handful of young men who died of cholera, but the location of the towns other residents remains is a mystery. The Empire Mine was known to be active in 1856 and later the Pocahontas mine was active in the 1870s. State Route 49 leads south from El Dorado into a pleasant little valley lush and green in the spring, dried and marked by shades of brown in fall and winter. Logtown Creek, Logtown Ravine, and Logtown Ridge along the east side of the ravine are no different than any of the valleys, creeks, or ridges within in a few minutes' drive in any direction. The thick grass on the hills and flanks of the ridge, the dense underbrush and cottonwoods along the creek, and the groves of oak trees and years of decay hide it well. They conceal the creek bank where gold seekers first tried their luck at placering; the piles of gravel they dug up and washed clean; the dams and ditches that brought water to where they needed it; the mine shafts that sank through hundreds of feet of rock; and the clusters of buildings that grew up around the mines and mills.

A place can also be hidden, or overlooked, because it is ordinary. Logtown was not the scene of extraordinary events. The ravine is one of many little valleys in the Sierra Nevada foothills, and the events here were not so different from what went on throughout Gold Country. Logtown was part of the Gold Rush, and the eventual development of mining and agriculture in El Dorado County. At Logtown, there was placer mining at the beginning of the Gold Rush in 1849 and 1850. The census and newspapers do not tell us what Logtown looked like in 1850, but we can imagine tents and simple log or wooden houses spread along the creek from one end of the ravine to the other. The business district probably consisted of a cluster of tents and more substantial buildings. According to the Placer Times there were as many as 20 stores, two taverns, and services like blacksmiths, shoemakers, bakers, and carpenters. The census confirms this picture, listing three hotel keepers and five merchants, as well as a carpenter, clerk, drover, herder, joiner, laborer, and trader. By 1851, the El Dorado County Recorder had licensed 15 merchants in Logtown who sold "goods and/or liquors." In 1852, an additional four liquor licenses were granted in Logtown. At one time or another, there were more than a dozen mines operating in Logtown Ravine. The Pocahontas, Empire, Lamoille, Ophir, and Minnehaha, were the most prominent, as the Placerville Mountain Democrat described in an article from February 5, 1858: Almost every person here is more or less interested in quartz mining, and quartz is the constant topic of the day. There are now six mills in active operation in this neighborhood, employing, in the aggregate, not less than one hundred and seventy five men.

As the gold petered out and the miners left, the countryside reverted to ranching and grazing. Many of the original families from the 1800s remain and large family run ranches surround the Logtown Community.

In the early 1960's portions of Logtown Ridge were sub-divided into 2 to 8 acre parcels named "Paradise Ranchos" Many families from the city moved here to raise their families in the quiet of the foothills. The homes were built along the ridges to take advantage of the views of the high sierras to the east and the city lights of Sacramento to the west. The ridgetop locations increase the fire risk. In addition, the building standards of the 1960's did not require two ways in and out, so many of the roads run along a ridgetop and dead end. Crystal Blvd. and Monitor Road are examples.



VEGETATION (Fuels)

Some ecosystems have become overgrown and unhealthy leaving them hazardous to homes in and adjacent to these ecosystems. Condition Classes are a function of the degree of departure from historical fire regimes resulting in alterations of key ecosystems components such as composition, structural age, stand age, and canopy closure. One or more of the following activities may have caused this departure: fire exclusion, timber harvesting, grazing, and insect and disease or other past management practices. Condition Classes were determined by CAL FIRE.

The dominate fuel models in and around Logtown are Grass savannas, (Fuel Model 1), Blue Oak/Grass (Full Model 2), Interior Live Oak/ with grass and brush (Fuel Models 4 and 6) and Chaparral (Fuel Model 4). Intermixed are small patches of Native Pine and Ponderosa Pine.

Grass Savannas (Fuel Model 1) are comprised of very porous and continuous herbaceous grass fuels, generally below knee level and fuel loads are about 1 ton per acre. Less than one-third of the area has other vegetation like shrubs and trees. When cured, surface fires will move rapidly, 700 - 1050 (feet/hour) with flame lengths of 3.5 - 4.5 feet.



Annual grasses with scattered oaks and brush, typical of area northeast of Quartz Drive. Fire Spread is in the Grasses.

Blue Oak/Grass (Fuel Model 2) is comprised of oak overstory (20% to 40% canopy closure), grass ground cover 1 to 2 feet tall with scattered Poison Oak and mixed brush. A moderate fuel ladder is established however fire spread is mainly in the grass but more intense than Fuel Model 1, but rate of spread is reduced (360 – 500 feet/hour) and with flame lengths of 6 - < 8 feet.



Thirty to forty percent oak overstory with understory of scattered brush and groundcover of annual grasses. Typical of fuels on west side of Crystal Boulevard. Fire spread is in the grasses. Individual trees will torch.

Interior Live Oak with grass and brush (combination of Fuel Models 4 and 6) is comprised of primarily mixed oak (Live Oak, Blue Oak, Black Oak, Valley Oak) with scattered Native Pine and Ponderosa Pine in the overstory. Live Oak is the dominate tree species. The understory is Poison Oak, mixed brush, oak and Native Pine seedlings and saplings. Ground cover is grass with liter (tree limbs, and logs). Canopy closure is 80% to 100%. Fuel loading is 6 to 13 tons per acre. A significant fuel ladder is present in this fuel type. The heaviest concentrations of these fuels are in the Martinez Creek drainage along the FSC eastern boundary.



Live Oak stands with scattered Native and Ponderosa Pine with 80% crown closure and understory of brush, saplings and ground cover of grass and litter. An extensive fuel ladder is present. Fire spread is in tree crowns.

Chaparral (Fuel Model 4) consists of Chemise, Toyon and manzanita brush with a high ratio of dead to live fuel. Fuel loads average 18 to 20 tons per acre. The largest brush field is located on the east facing slope between Logtown Ridge and Highway 49. Rate of spread can be 7500 feet/hour with 20 foot flame lengths.



Mixed brush - chemise, manzanita, Toyon with high ratio of dead to live stems in large brush field between Highway 49 and Crystal Boulevard. Scattered suppressed tree saplings are intermixed with the brush. Fire spread is in brush crowns.

TOPOGRAPHY

The main topographic features are: Logtown Ridge, Monitor Ridge, Martinez Creek and the North and Middle Forks of the Consumes River. The high ridges, steep canyons and multiple watersheds make wildland firefighting difficult. The major ridges run north and south and the predominate winds are from the west driving wildfire up the ridges.

CLIMATE

Logtown has a Mediterranean type climate which features hot, dry summers and cool moist winters. The June – October dry season produces ideal conditions for wildfires. Annual plants die and perennial plants lose moisture and become highly flammable. Fires burning towards the end of the dry season are intense, resist suppression efforts and threaten lives, property and resources. Drought conditions intensify the wildfire danger. Two additional climatic conditions aggravate this already serious wildfire problem. Periodically, almost every year, the Pacific High Pressure System moves eastward over California and brings very hot, dry weather with low humidity. This “Heat Wave” can occur at any time during the dry season and wildfire can start easily and are difficult to extinguish. The other extreme weather condition, thankfully less frequent, usually occurs in the fall and sometimes in early winter, when north or east strong, dry winds subside from the Great Basin High (Fohen Winds). Under these conditions, a wildfire can quickly escape and create great damage before the winds stop blowing. The Oakland Hills Fire of 1991, which destroyed 3810 homes, burned under these conditions.

Each year, hundreds of homes are destroyed or damaged by wildland fires. El Dorado County and Logtown are no exception from wildfire losses. In 1985 the Eight Mile Fire destroyed 14 homes; in 1992 the Cleveland Fire destroyed over 40 homes and claimed the lives of two air tanker pilots; and in 2006 two homes were lost in Logtown from fire starts along Highway 49.

INFASTRUCTURE

There are no schools or parks, a CSD Common Area, a commercial “Strip Mall” and PG&E transmission lines. There is a large El Dorado Irrigation District (EID) drinking water reservoir on Dolomite that provides residential water to the community and water for the fire hydrant system. There is a two bay fire station with apparatus on Quartz Drive, but it is manned with a volunteer.

Many of the parcel owners have livestock which help in reducing fuels but complicates evacuation procedures.

FIRE PROTECTION

Structural fire protection is provided by Diamond Springs – El Dorado Fire Protection District. A robust mutual aid agreement with all county fire districts has a multiplier effect and all of the county firefighting resources are available to respond to an incident (including CAL FIRE and the USFS). The nearest staffed station is in El Dorado, Station 46, Station 44 is located in Logtown on Quartz Drive but is staffed by a volunteer resident. Logtown is wholly within CAL FIRE State Responsibility Area who is the primary provider of wildfire protection. However, both agencies share in the jurisdictional responsibilities for wildfire and structure protection. A fire hydrant system serves the community except in the Little Canyon Road area.

Project History

The Logtown Fire Safe Council has been one of the most active Fire safe councils in the county and has accomplished numerous projects since the original CWPP was created in 2007

Logtown Completed Projects

ID (49CWPP)	Name (Logtown)	Funded by	Acres	Cost	Completed
LT-4	FB2 Rattler/Buzztail	Prop 40	29		Jan 2009
LT-6	Mica Roadside	Prop 40	13		Jan 2009
				\$ 50,000	
LT-5	FB 1	USFS	29		Natural
LT-1	FB3	USFS	31		June 2010
LT-3	Stope FRZ	USFS	29		June 2010
LT-2	West Side FRZ	USFS	109		June 2010
LT-4	East Side FRZ	USFS	54		June 2010
	Sub Total		294	\$ 417,755	
	Total			\$ 467,755	
LT-10	East Side -Monitor	Prop 40	42	\$ 95,000	March 2014
LT-10	East Side Dolomite	No		\$ 100,000	
LT-8	Union Mine	No		\$ 325,000	
LT-9	Hwy 49-1	No		\$ 200,000	
LT-7	Hwy 49-2	No		\$ 200,000	

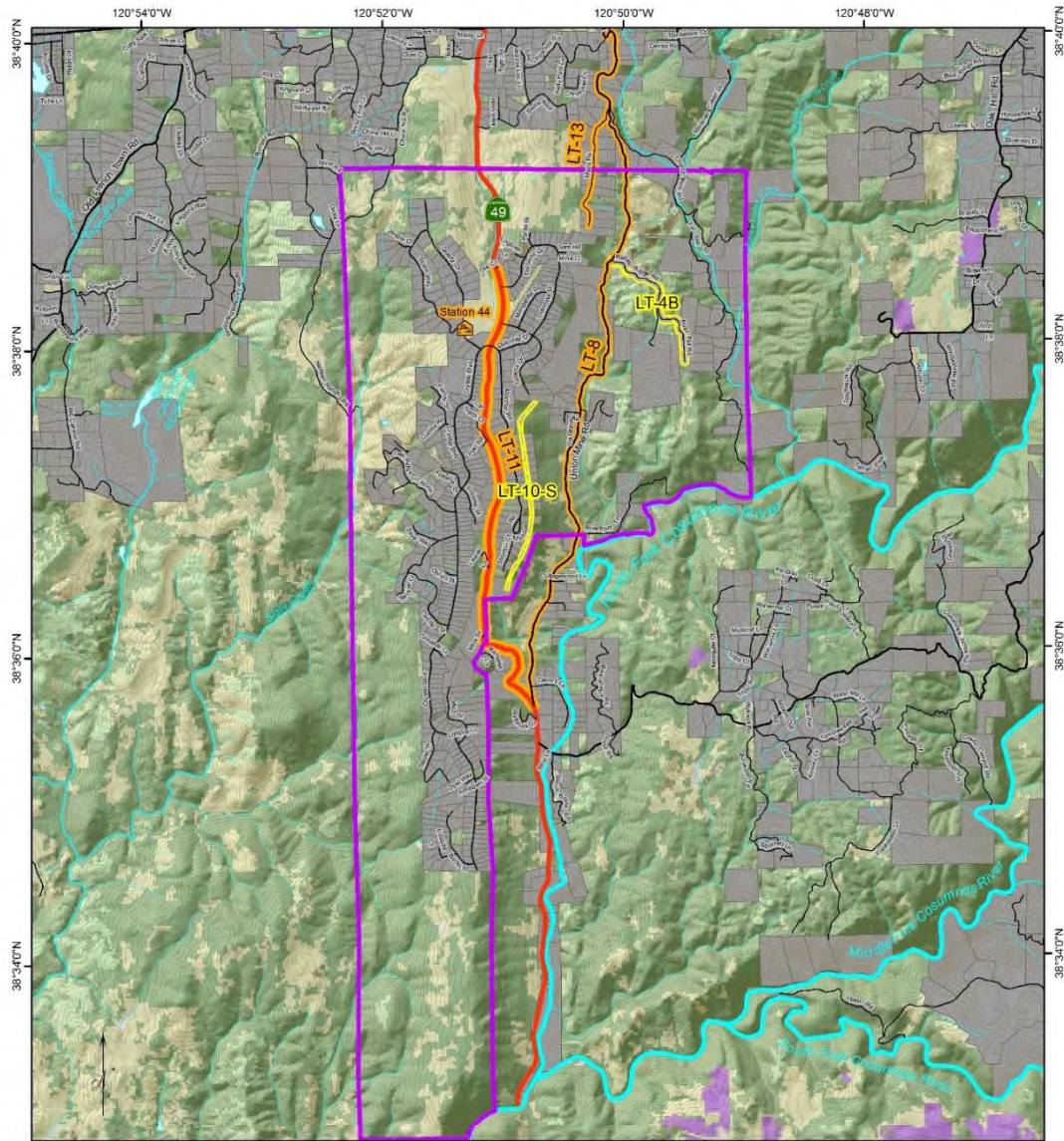
A copy of the Logtown CWPP can be found on the website: <http://www.edcfiresafe.org/cwpp/>



Summary of proposed treatment by cost for the Logtown Area.

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Logtown	1	LT-10	East Side Fuel Reduction	Fuel Break	142		\$200,000
Logtown	2	LT-11	HW 49 Fuel Reduction	Road Hazard	82	3.4	\$196,854
Logtown	3	LT-8	Union Mine Fuel Reduction	Road Hazard	138	5.8	\$325,279
Logtown	4	LT-2b	West Side Fuel Maintenance	Fuel Break	100		\$200
Logtown	5	LT-4b	BLM/Buzztail Fuel Break	Road Hazard	27	1.1	\$64,225
Logtown			Total Logtown		489	10.3	\$786,558





Projection: Lambert Conformal Conic
 0 0.5 1 2 3 Miles

Vicinity

Logtown FSC

Treatment Area

- Active Fuel Break
- Planned Fuel Break
- Roadside Clearance
- Developed Parcel
- School
- Fire Station

Vegetation

- Barren or Urban
- Grassland
- Shrub
- Oak and Mixed Woods
- Forest
- Agricultural

- Highway
- Major Road
- Minor Road
- Stream
- River
- Waterbody

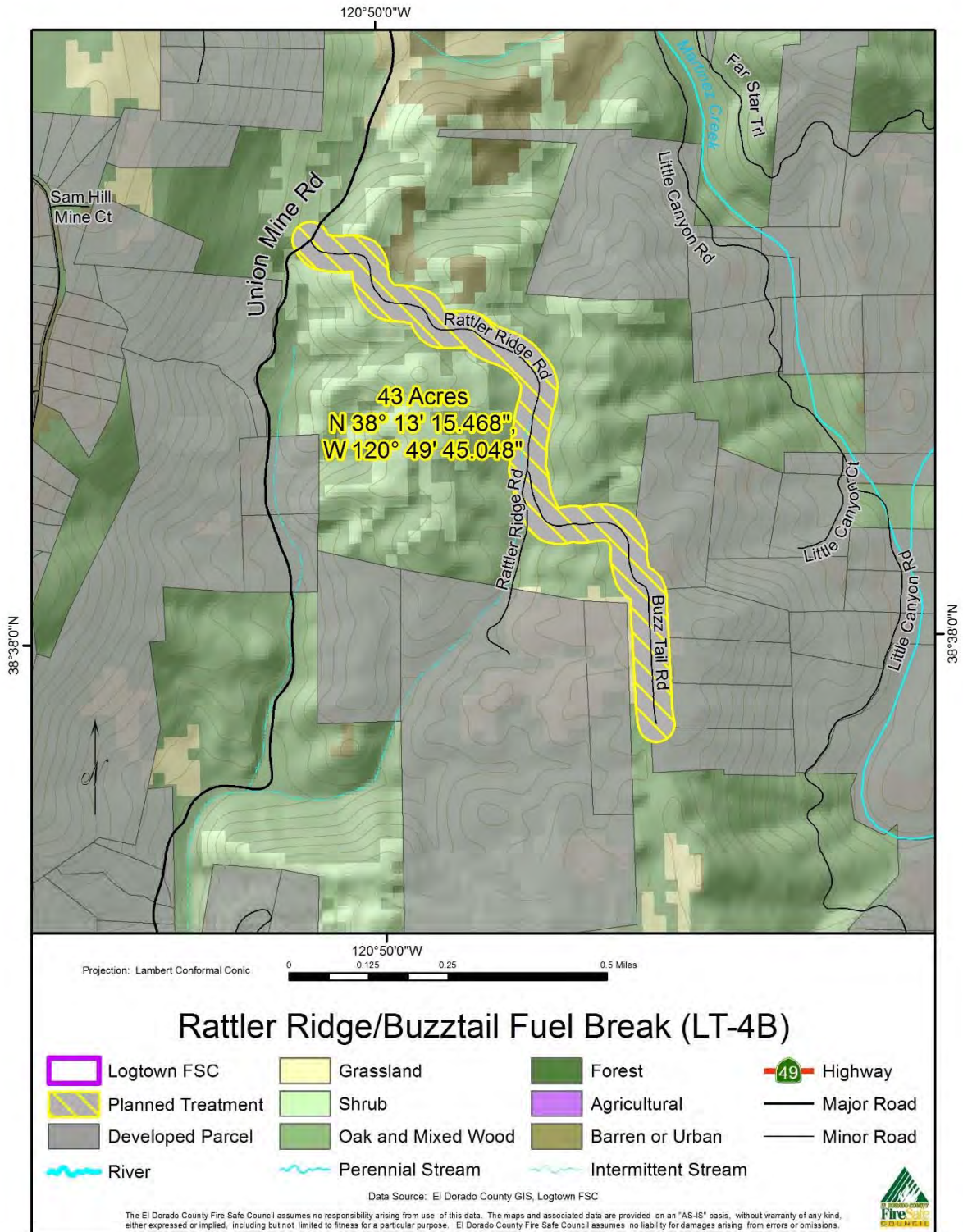


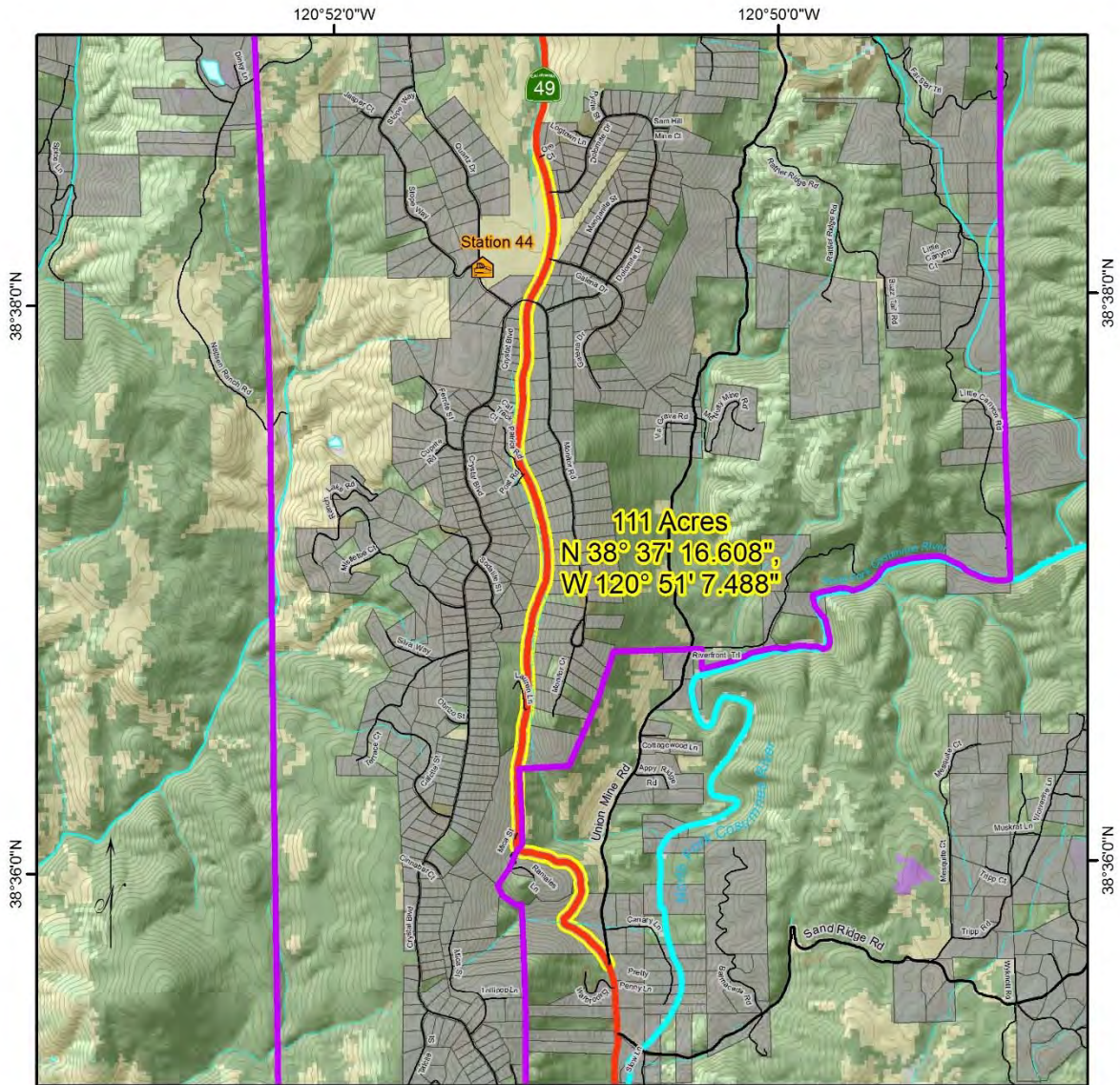
Logtown FSC

Data Source: Logtown FSC, El Dorado County GIS, CAL FIRE

The El Dorado County Fire Safe Council assumes no responsibility arising from use of this data. The maps and associated data are provided on an "AS-IS" basis, without warranty of any kind, either expressed or implied, including but not limited to fitness for a particular purpose. El Dorado County Fire Safe Council assumes no liability for damages arising from errors or omissions.







111 Acres
 N 38° 37' 16.608",
 W 120° 51' 7.488"

Projection: Lambert Conformal Conic
 0 0.4 0.8 1.6 Miles

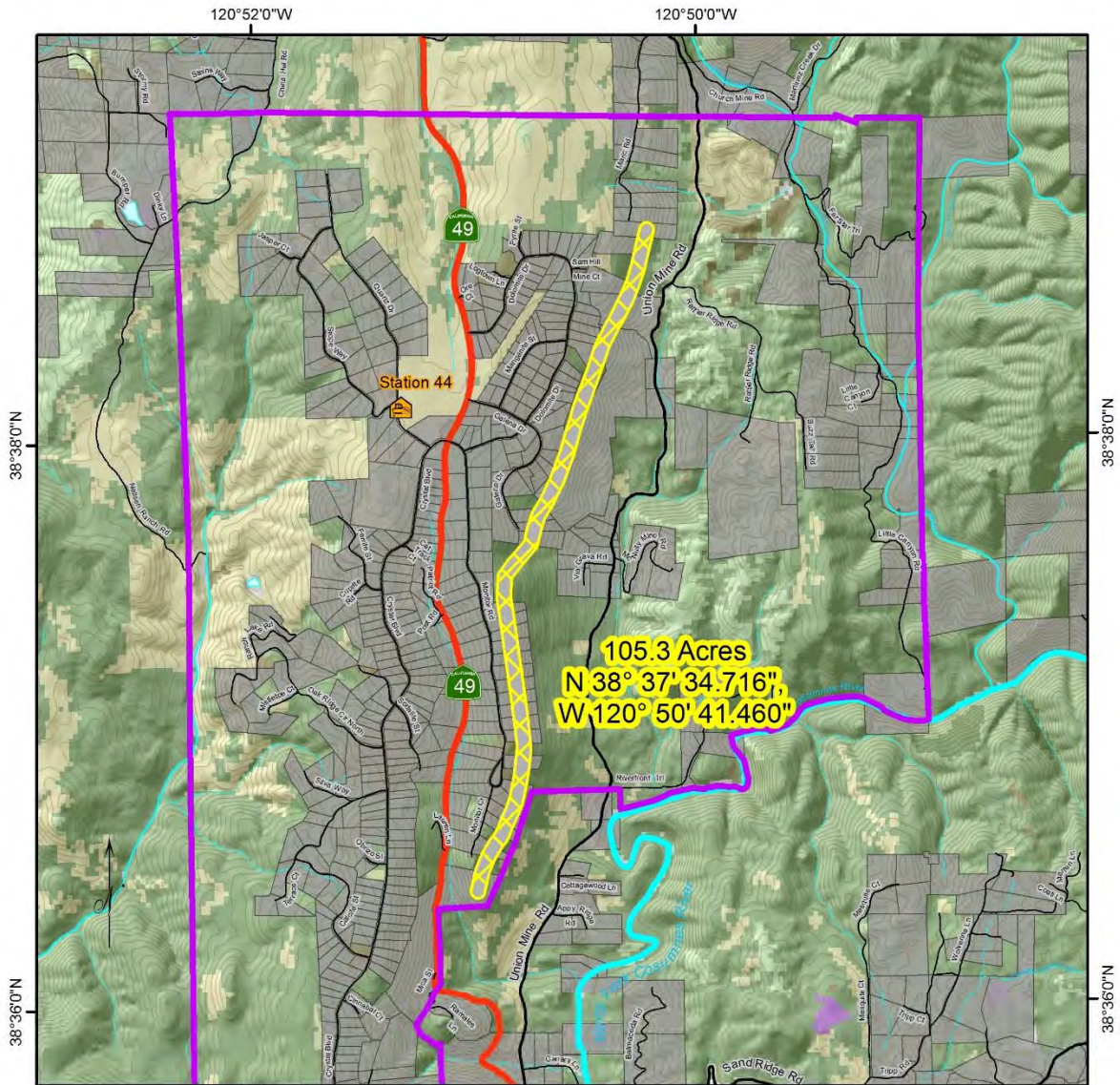
Highway 49 - Fuel Reduction (LT-11)

- | | | | |
|-------------------|--------------------|---------------------|------------|
| Logtown FSC | Grassland | Forest | Highway |
| Planned Treatment | Shrub | Agricultural | Major Road |
| Developed Parcel | Oak and Mixed Wood | Barren or Urban | Minor Road |
| River | Perennial Stream | Intermittent Stream | |

Data Source: El Dorado County GIS, Logtown FSC

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Projection: Lambert Conformal Conic 0 0.4 0.8 1.6 Miles

Logtown East Side Fuel Break (LT-10)

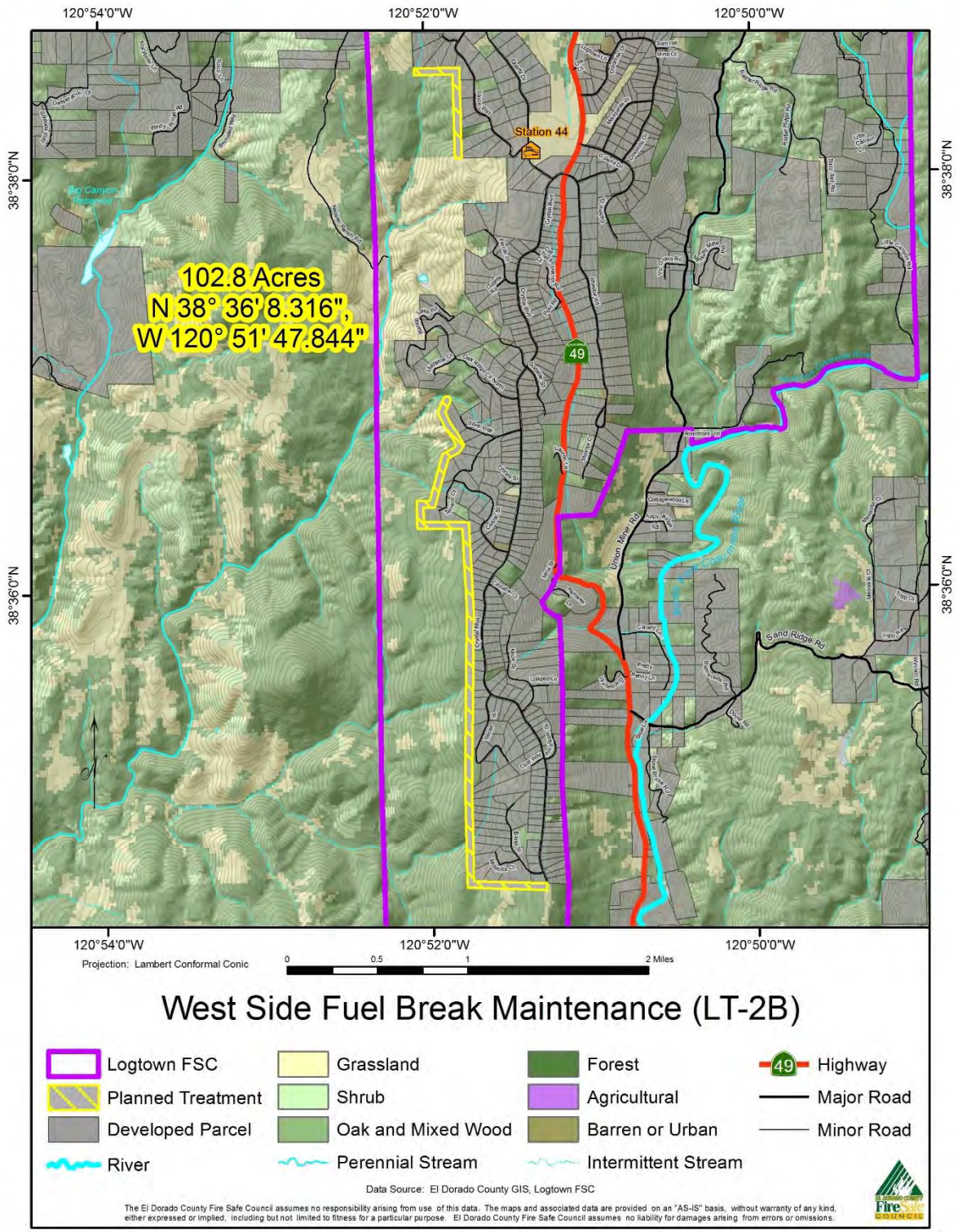
- Logtown FSC
- Active Treatment
- Developed Parcel
- River
- Grassland
- Shrub
- Oak and Mixed Wood
- Perennial Stream
- Forest
- Agricultural
- Barren or Urban
- Intermittent Stream
- Highway
- Major Road
- Minor Road

Data Source: El Dorado County GIS, Logtown FSC

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Westside Fuel Break Maintenance (LT 2B)



El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
MOSQUITO FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

January, 2017

Overview The Mosquito Valley

By Richard Hughey, *Mountain Democrat* columnist - Jan. 26, 2001

High on the ridge of the Georgetown Divide, about 10 miles north of Placerville along the Mosquito Road, is the community of Mosquito. It is about six miles east of Garden Valley, and has about the same elevation as Georgetown, which gives it a generally pleasant and moderate climate. The land is also rich in natural amenities making it ideal for upscale suburban development, which began in the 1960s. The Mosquito community is now the center of a semi-exclusive, 5,000 acre residential development known as Swansboro Country, complete with its own lake and airport.

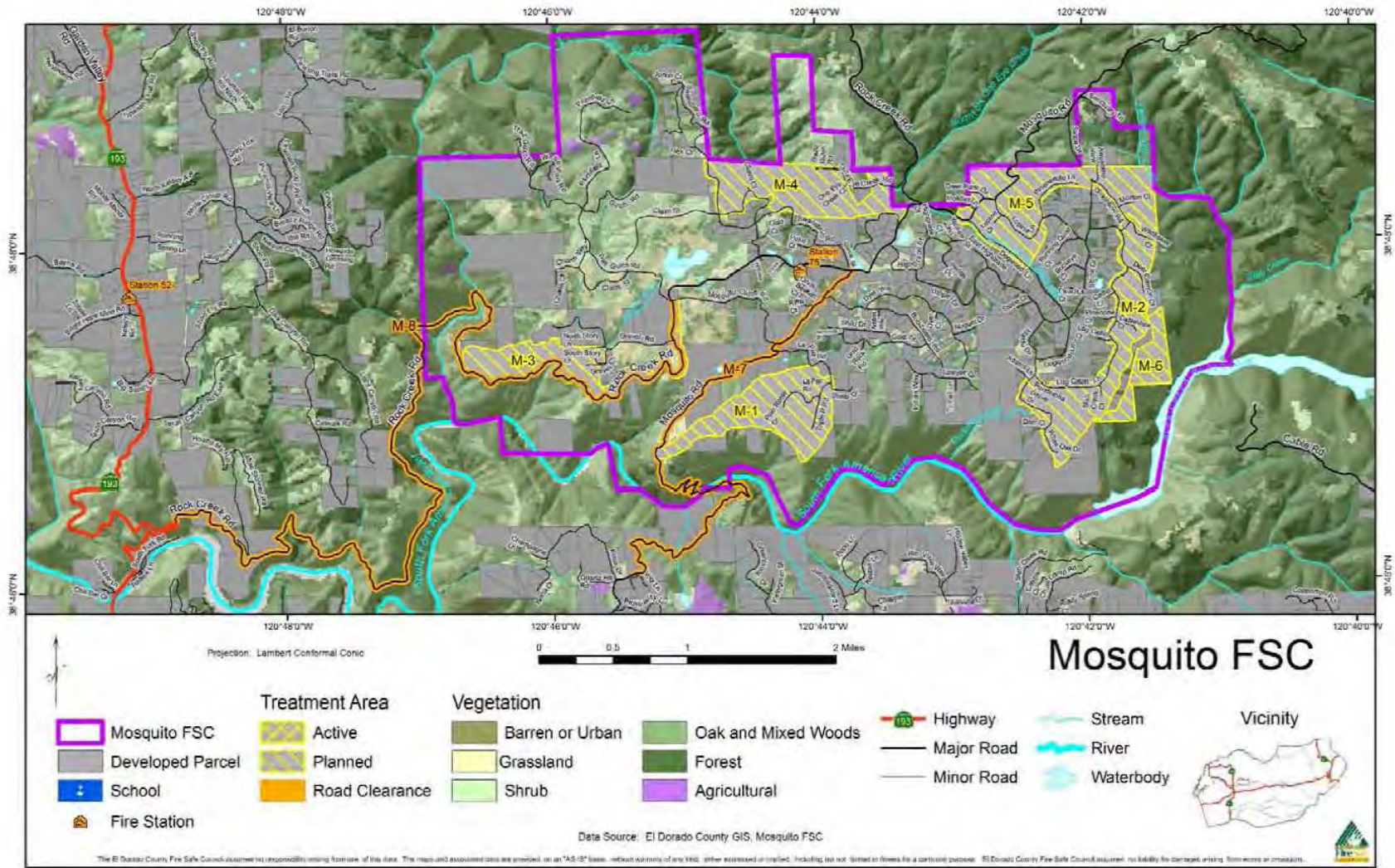
With only a modicum of hype, the Swansboro developer offers in its sales brochure a picturesque image of Mosquito Valley: "Deer stand and watch you pass, gray squirrels flick their bushy tails and chatter in concern. In springtime, dogwood and buckeye bloom and Scotch broom scatters its gold across the hillsides in breathtaking brilliance against the verdant green. In autumn, oaks and sycamores splash red and yellow through the forest, the madrone curves its tattered trunk between the towering fir and pine, and manzanita spreads a gray-green cover over the rich El Dorado earth. Through the multi-greens of summer or the snow-trimmed fields of winter, streams play their crystal way across the rocks, and waterfalls leap down seal-brown boulders or moss covered ledges."

John C. Fremont was the first white man to traverse Mosquito Valley in 1844 on his trek west along the north bank of the South Fork that took him and his expedition to the vicinity of Pilot Hill and then on to Sutter's Fort at what the Spanish called Nueva Helvicia.

The Mosquito FSC area is located north of Placerville Ca. and includes the community of Swansboro. It encompasses an area of 7,860 acres with a population according to the 2010 census of 1097 individuals and 551 homes. It is located on to the north of the South Fork of the American River. There is only two ways in and out both are narrow roads, the Rock Creek Road and Mosquito Road. Structure fire protection is provided by the Mosquito Fire Protection District wildland fire protection is provided by CALFIRE and the US Forest Service. The community is surrounded by industrial timberland and the Eldorado National Forest. The vegetation varies greatly with grass Oak woodland to chaparral and mixed conifer forest all the types of vegetation that can cause rapid fire spread and crown fire potential

Living in the Mosquito community also means living in an area that has a high risk of wild land fires. Many of us realize that but we often have a tendency to believe that wild land fire "happens to the other guy" and cannot happen to us here. In reality it can happen here as it did in **1979 with the Chili Bar Fire** and most recently with the **2014 King Fire of September**

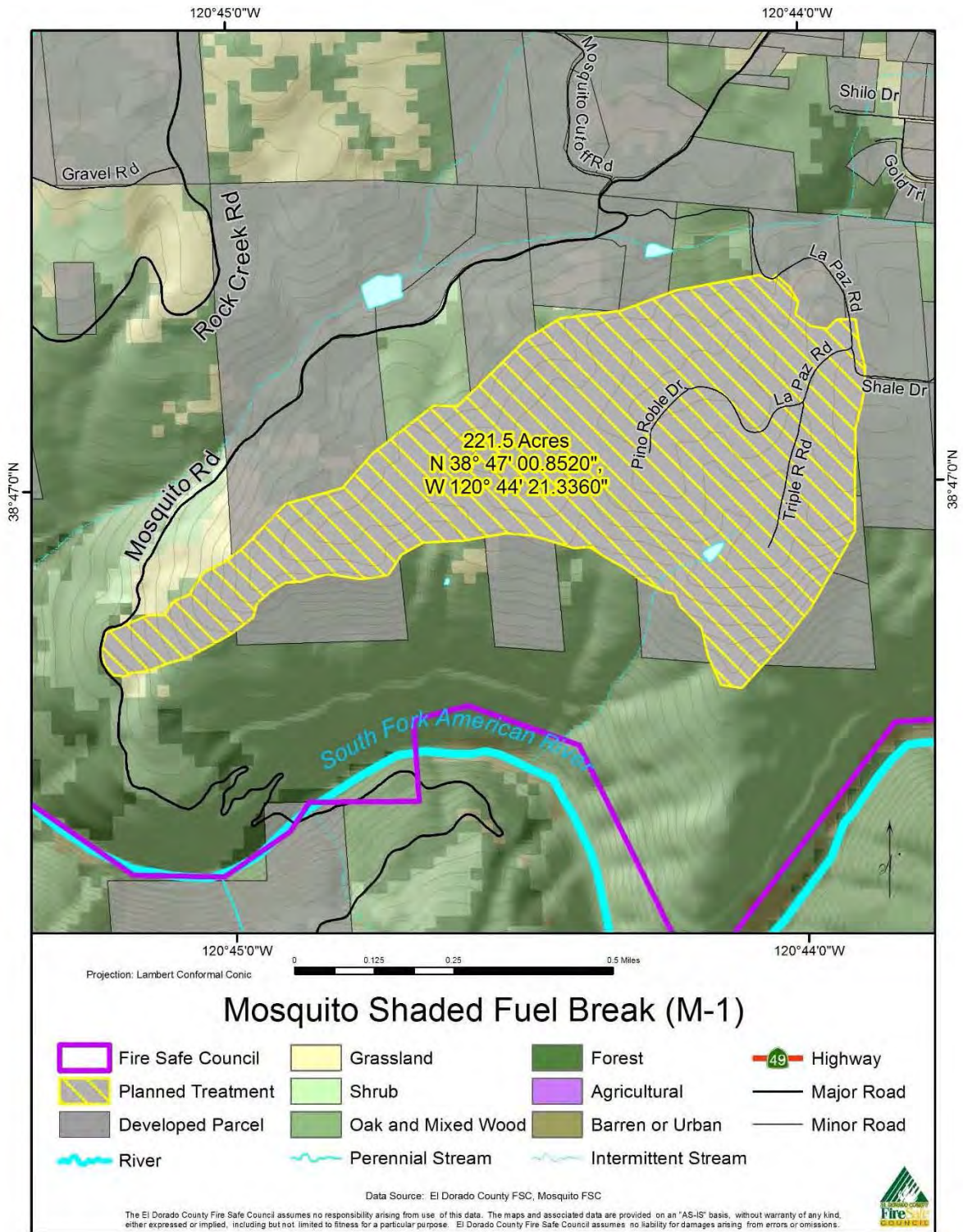


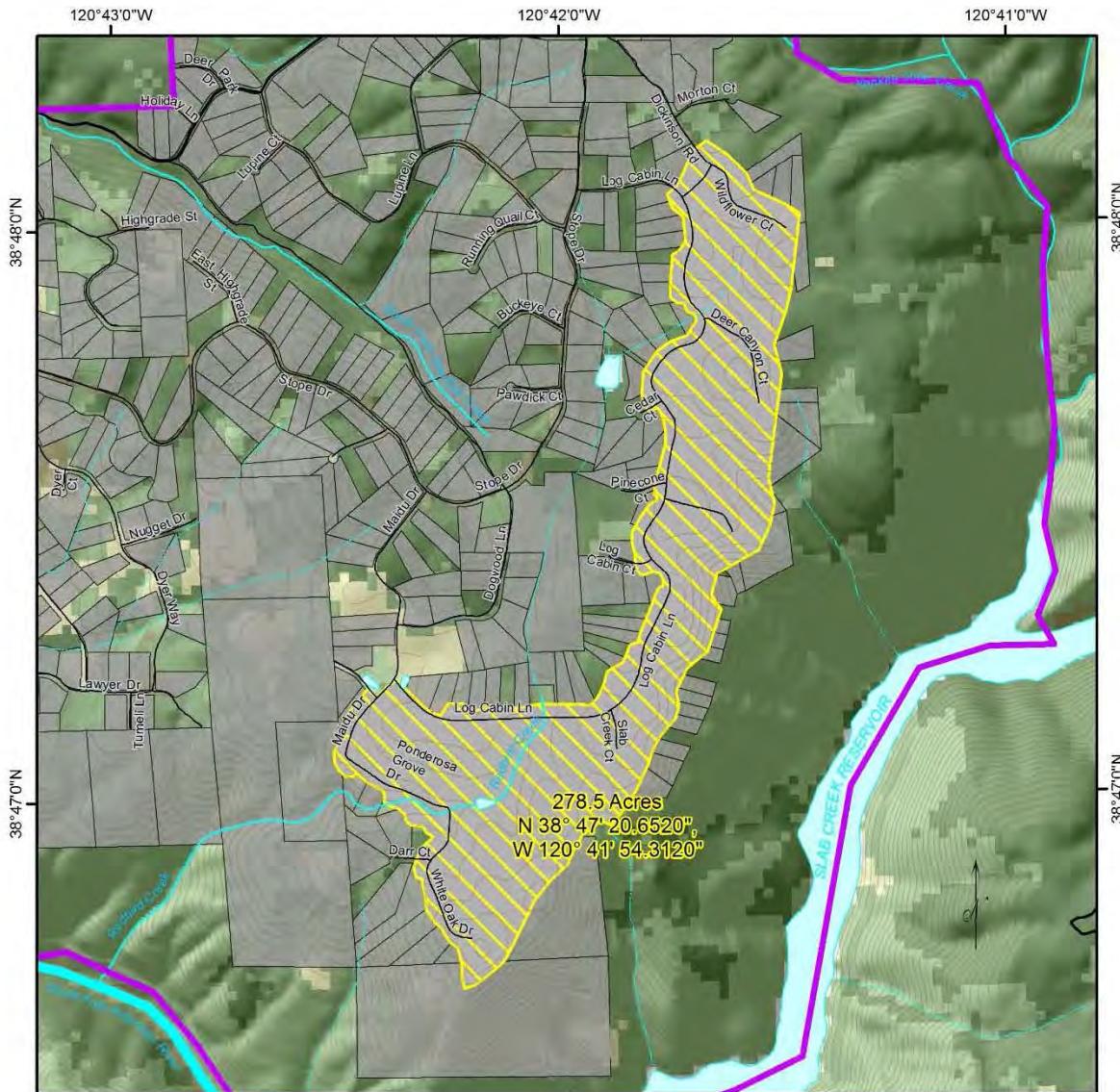


Summary of proposed treatment by cost for the Mosquito Area.

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Mosquito	1	M-1	South Fork	Fuel Reduction	221		\$442,000
Mosquito	2	M-2	Log Cabin Fuel Reduction	Fuel Reduction	278		\$556,000
Mosquito	3	M-3	Rock Creek Road	Fuel Reduction	188		\$376,000
Mosquito	4	M-4	Swansboro	Fuel Reduction	233		\$466,000
Mosquito	5	M-5	Mosquito	Fuel Reduction	293		\$586,000
Mosquito	6	M-6	Slab Creek	Fuel Reduction	73		\$146,000
Mosquito			Total Mosquito		1286	0.0	\$2,572,000







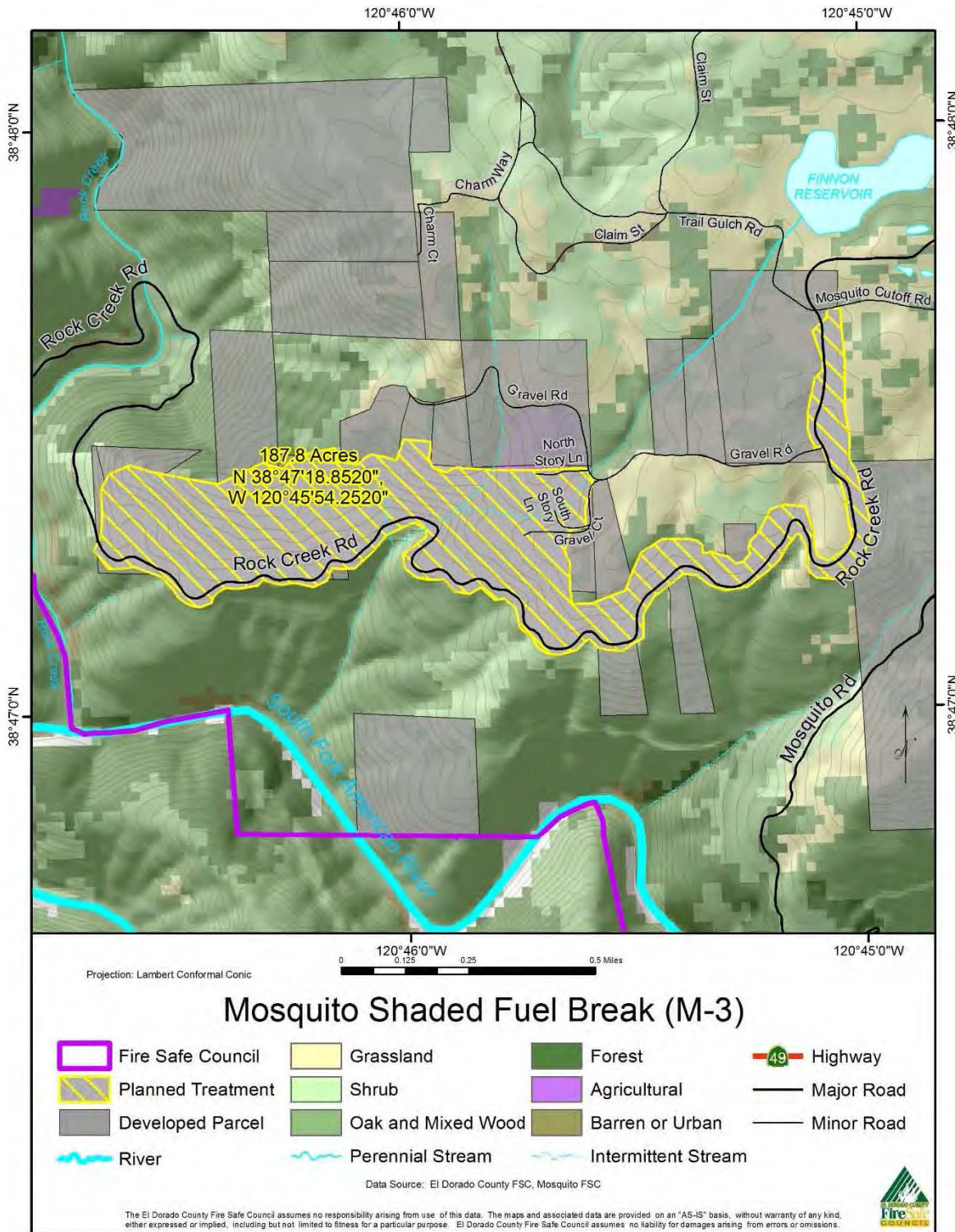
Mosquito Shaded Fuel Break (M-2)

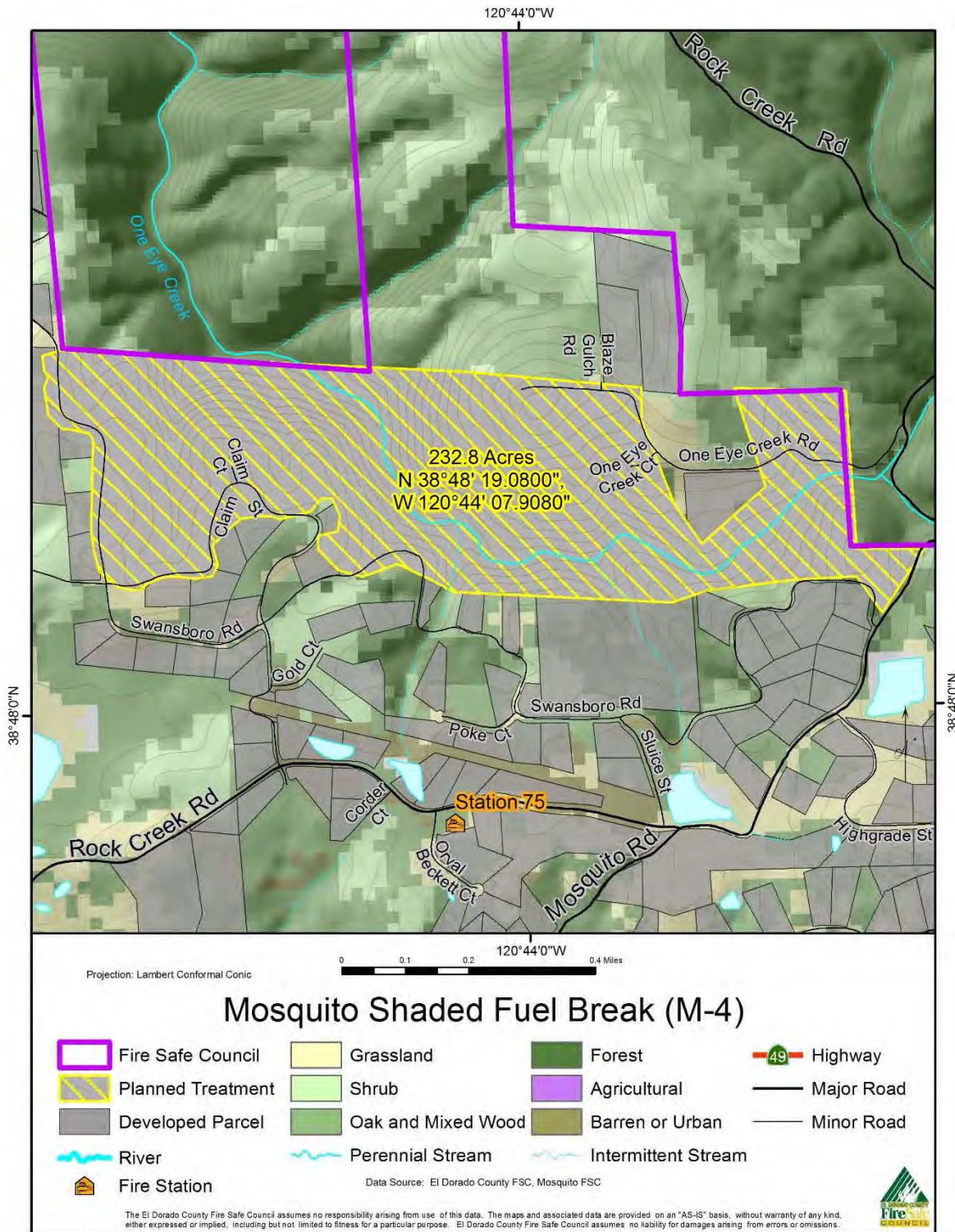
- | | | | |
|-------------------|--------------------|---------------------|------------|
| Fire Safe Council | Grassland | Forest | Highway 49 |
| Planned Treatment | Shrub | Agricultural | Major Road |
| Developed Parcel | Oak and Mixed Wood | Barren or Urban | Minor Road |
| River | Perennial Stream | Intermittent Stream | |

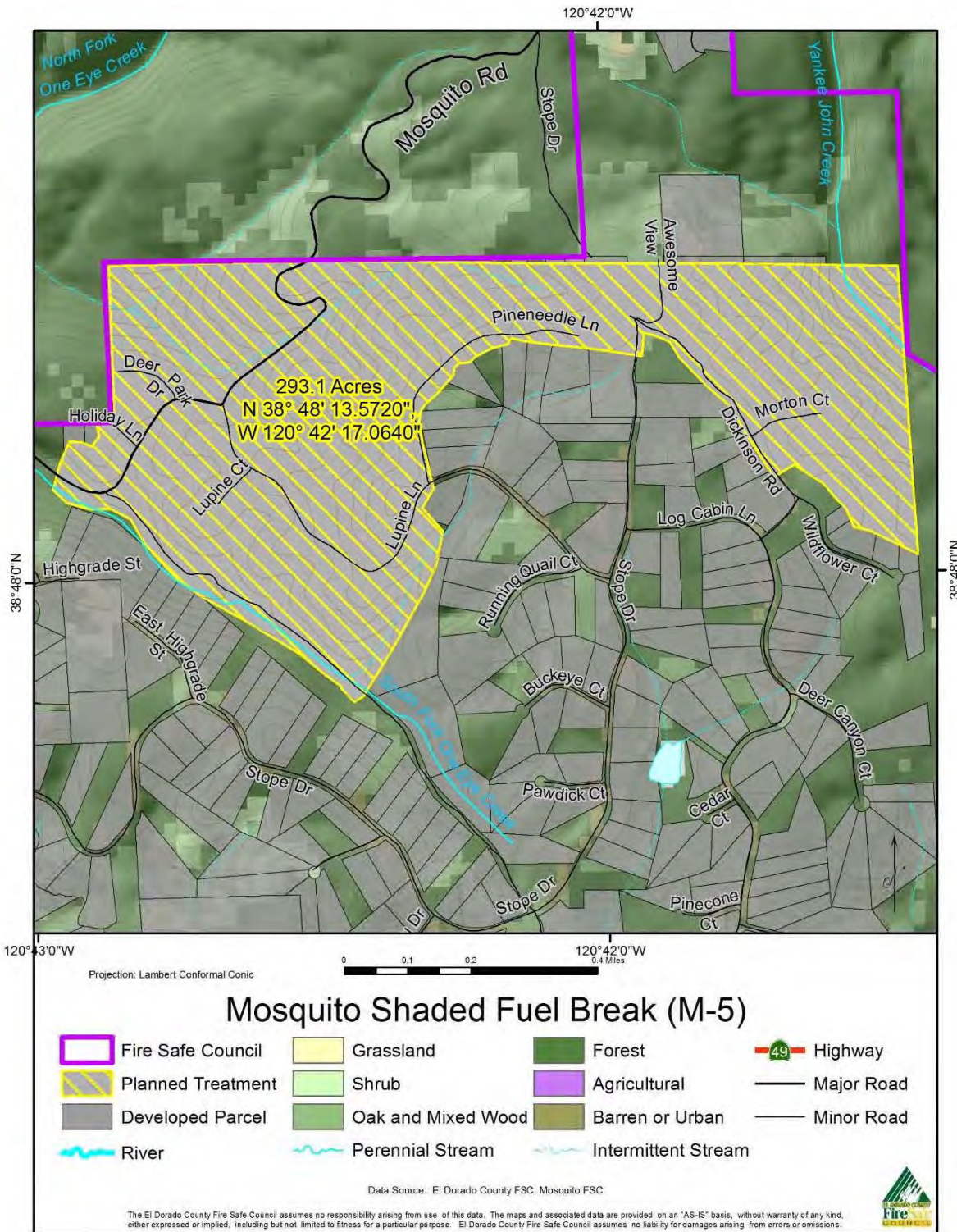
Data Source: El Dorado County FSC, Mosquito FSC

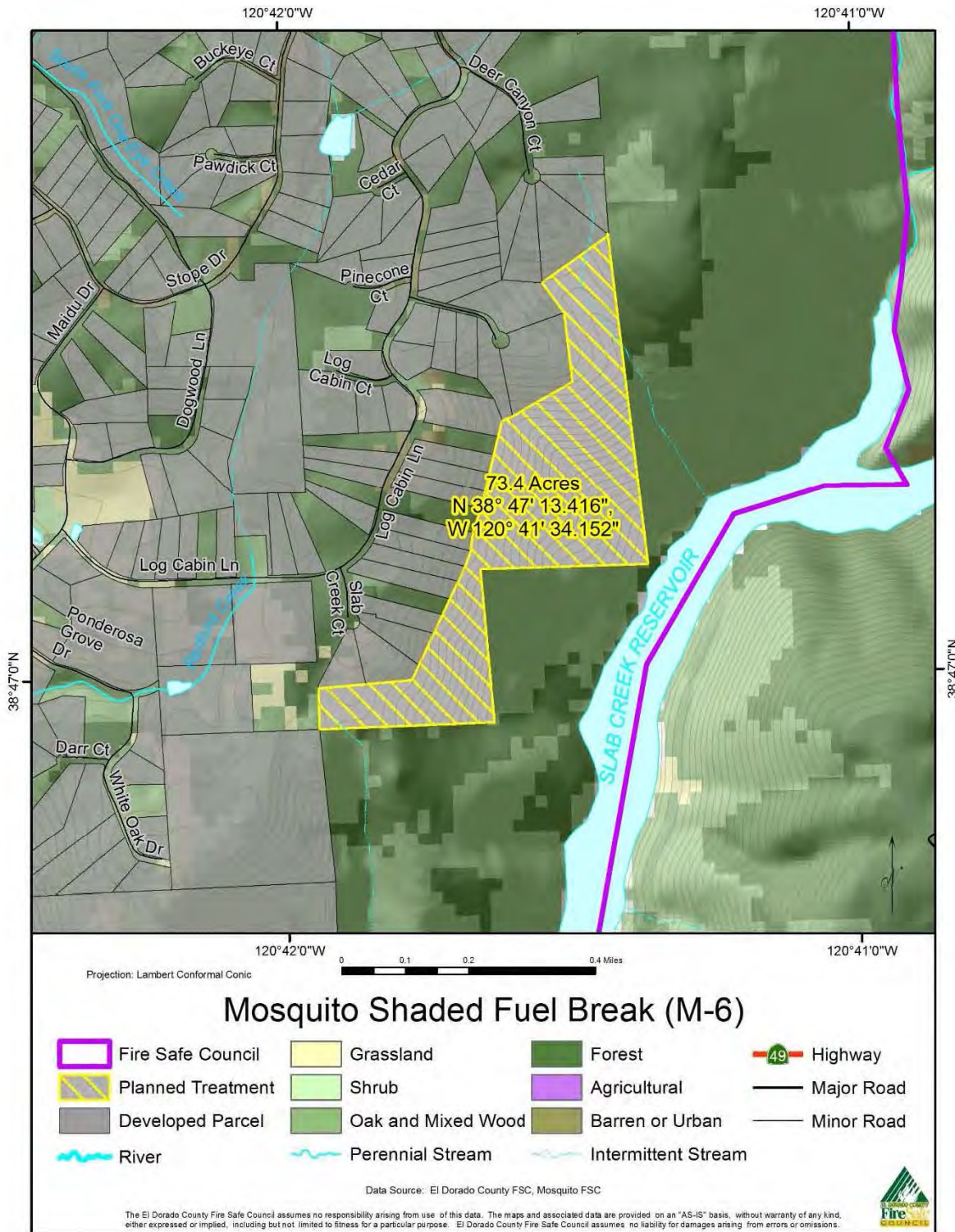
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El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
PATTERSON RANCH FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared for:

PATTERSON RANCH FIRE SAFE COUNCIL

JANUARY 2017

Patterson Ranch Community Fire Safe Council

Mission Statement: *The mission of the PRFSC is to preserve Diamond Springs' natural and manmade resources by preparing, educating and guiding all Tullis Mine Road and Patterson Drive area residences and private landowners to ensure that their homes, neighborhoods and community are defensibly, wildfire safe.*

The community of Patterson Ranch is located South of Diamond Springs California. The FSC includes 1,139 acres of land with a vegetation type of chaparral, grass oak woodland, and Gray pine with potential for rapid fire spread. The Population in 2010 was 1779 individuals with 799 housing units. Most of the housing units are on lots less than an acre in size surrounded by unoccupied acreages of vegetation.

Patterson Ranch is within the Diamond Springs El Dorado Fire Protection District, the fire district provides the structure fire protection. CALFIRE provides the wildland fire protection for the Ranch.

The Patterson Ranch Fire Safe Council was formed in 2015 and is a satellite council under the umbrella of the El Dorado County Fire Safe Council, its policies and procedures. The EDCFSC is a 501 c3 nonprofit organization.

In the afternoon of Friday, August 16, 2013, the Union Fire was reported just before 1:35 pm near Union Mine High School in Diamond Springs. The fire was fully contained at 116 acres by 6 pm. By that time, one home, the historic Patterson house, was destroyed and several outbuildings and fences were damaged by the fast moving wildfire.

The fire started behind Union Mine High School and burned in a northeast direction threatening hundreds of homes and the Lake Oaks Mobile Home Park on Patterson Drive. Residents were allowed back into the residents by nightfall. All, but the Patterson family, realized we had been very lucky to escape a more catastrophic end result, loss of our homes.

The fire had disclosed inherent problems with the locations of our residences. Defensible space and fire breaks along the perimeter of Lake Oaks Mobile Home Park, Deer Park and Deer Park Estates subdivisions was limited or completely nonexistent. The fire had consumed dry grasses and trees made available by years of neglect and drought conditions. With Patterson Drive blocked by the firefighting effort, Tullis Mine Road was found to be too narrow and unsafe as an alternative evacuation route.

On June 25, 2014, an assessment team composed of Supervisor Brian Veerkamp, EDC Board of Supervisor District 3, Bard Lower and Don Spear from County DOT, Rich Krek of DS/ED Fire District, Pat Dwyer of EDC Fire Safe Council, and Randy Pitts and Kris Payne, local residents, drove Tullis Mine Road and Patterson Drive in a 9-passenger van for three hours assessing our area's fire safety condition. All realized that almost a year later, except for a few locations, it was conditionally worse.

Pat Dwyer spoke of the EDC Fire Safe Council county-wide effort and 8 months later the Patterson Ranch Fire Safe Council was born.



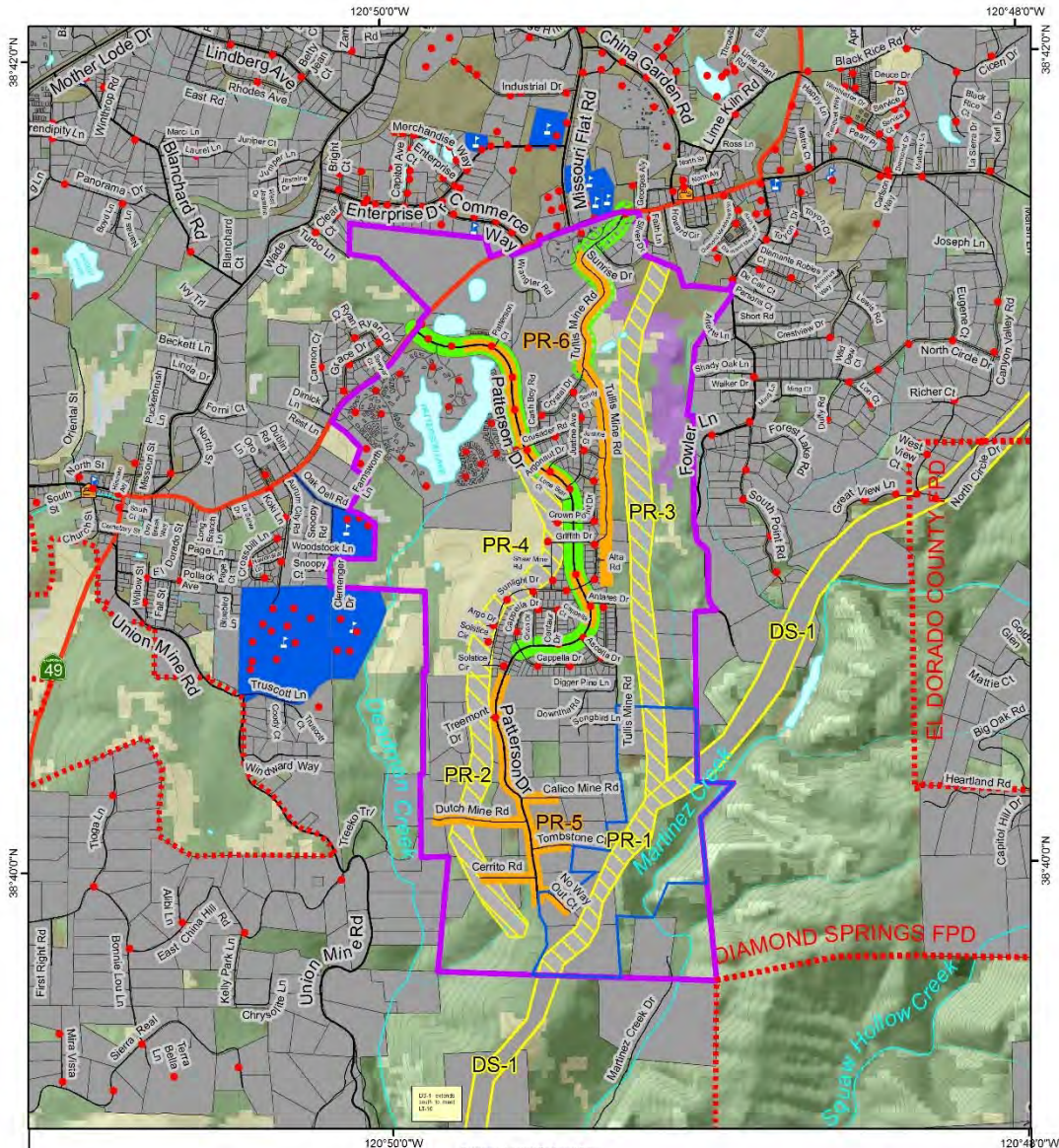
The Patterson Ranch Fire Safe Council consists of over 800 lots/parcels of land, divided into 8 sub-areas (blocks) of property in the vicinity of Tullis Mine Road and Patterson Drive (See attached map).

The EDCFSC offers programs to its affiliates (us) including special neighborhood vegetative waste containers for workdays/block parties' efforts, and chipper reservations for chipping larger diameter tree limbs, senior assistance programs, and general assistance/guidance on fire safe standards and procedures. Over the next 6 months, the Patterson Ranch FSC will meet with residential and property owners of the 800+ lots/parcels to introduce its mission and organization. Area (block) leaders will be solicited for the 8 sub-areas and to make up the Patterson Ranch Fire Safe Council. This a worthy endeavor! Volunteers are needed! The Patterson Ranch FSC can be as large or as small a fire safety program deliverer as the organization can find volunteers to support its mission. Fund raising, block parties, etc., are all possible. EDCFSC will help fund our startup effort.

The Patterson Ranch is cover inside the Diamond Springs El Dorado FPD CWPP located on the website:

<http://www.edcfiresafe.org/cwpp/>





Projection: Lambert Conformal Conic
 0.5 0.25 0 0.5 Miles

Patterson Ranch FSC



- | | | | |
|---------------------------|------------------------|--------------------|------------|
| Patterson Ranch FSC | Egress Route Primary | Barren or Urban | Highway |
| Project Area | Egress Route Secondary | Grassland | Major Road |
| Treatment Area | Developed Parcel | Shrub | Minor Road |
| Planned Fuel Break | School | Oak and Mixed Wood | Stream |
| Planned (49 CWPP) | Fire District | Forest | River |
| Roadside Hazard Reduction | Fire Station | Agricultural | Waterbody |
| | Hydrant | | |

Data Source: Patterson Ranch FSC, El Dorado County FSC

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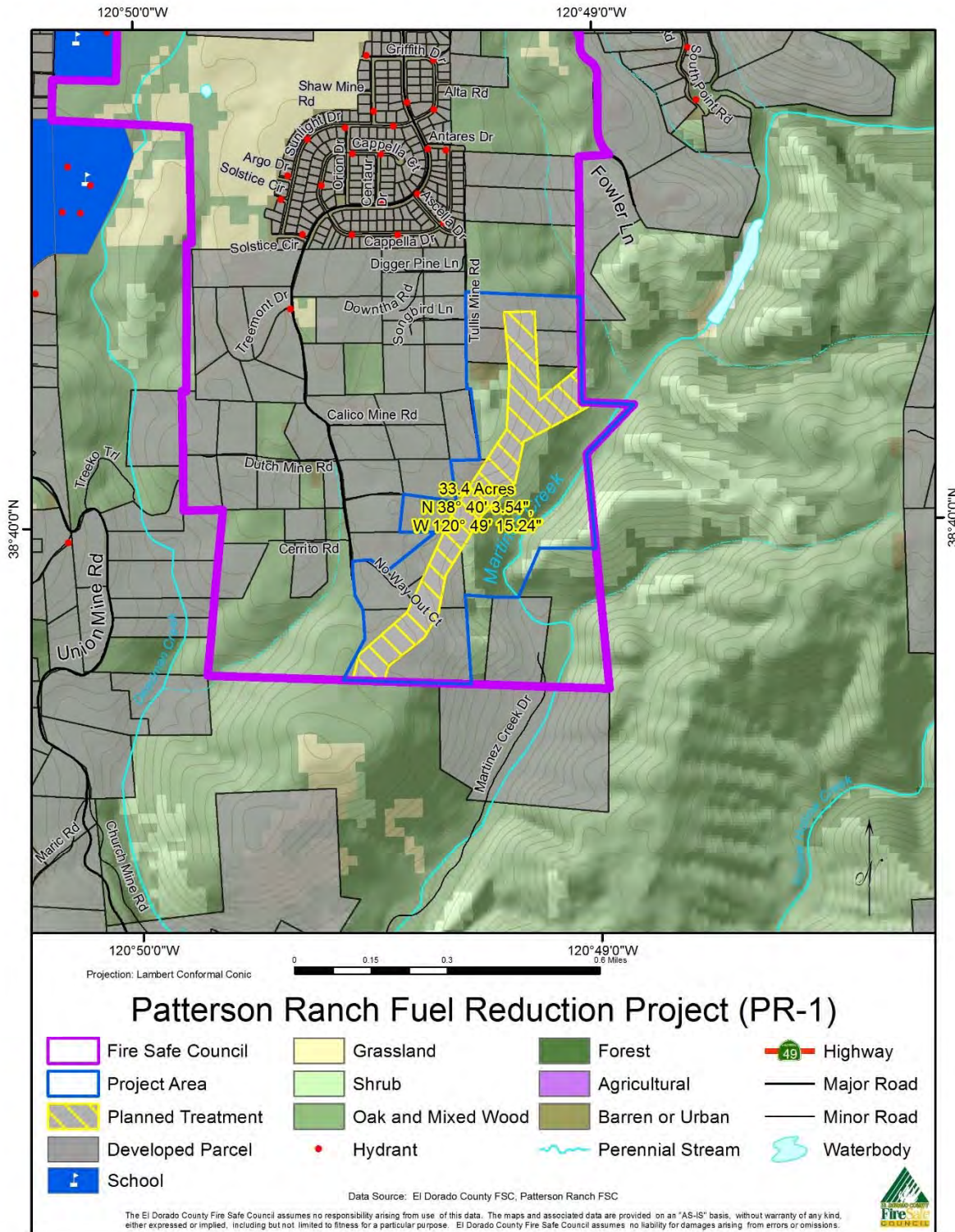


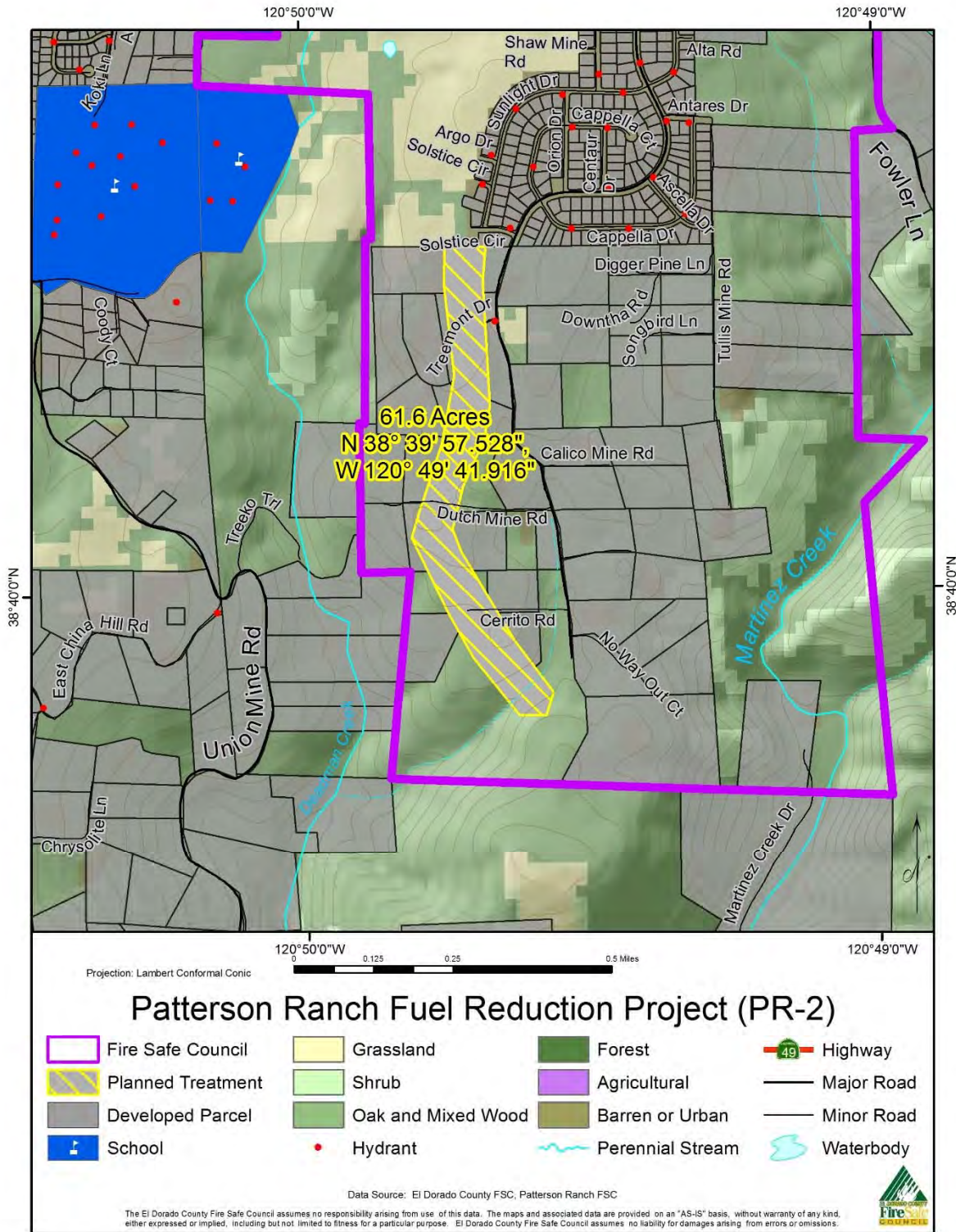
The Fuel Break projects for Patterson Ranch are part of the system of fuel breaks that were recommended in the Diamond Springs/El Dorado Fire Protection District Community Wildfire Protection Plan, completed in 2011. The Patterson FSC has adopted some of those into the community Tab for their FSC.

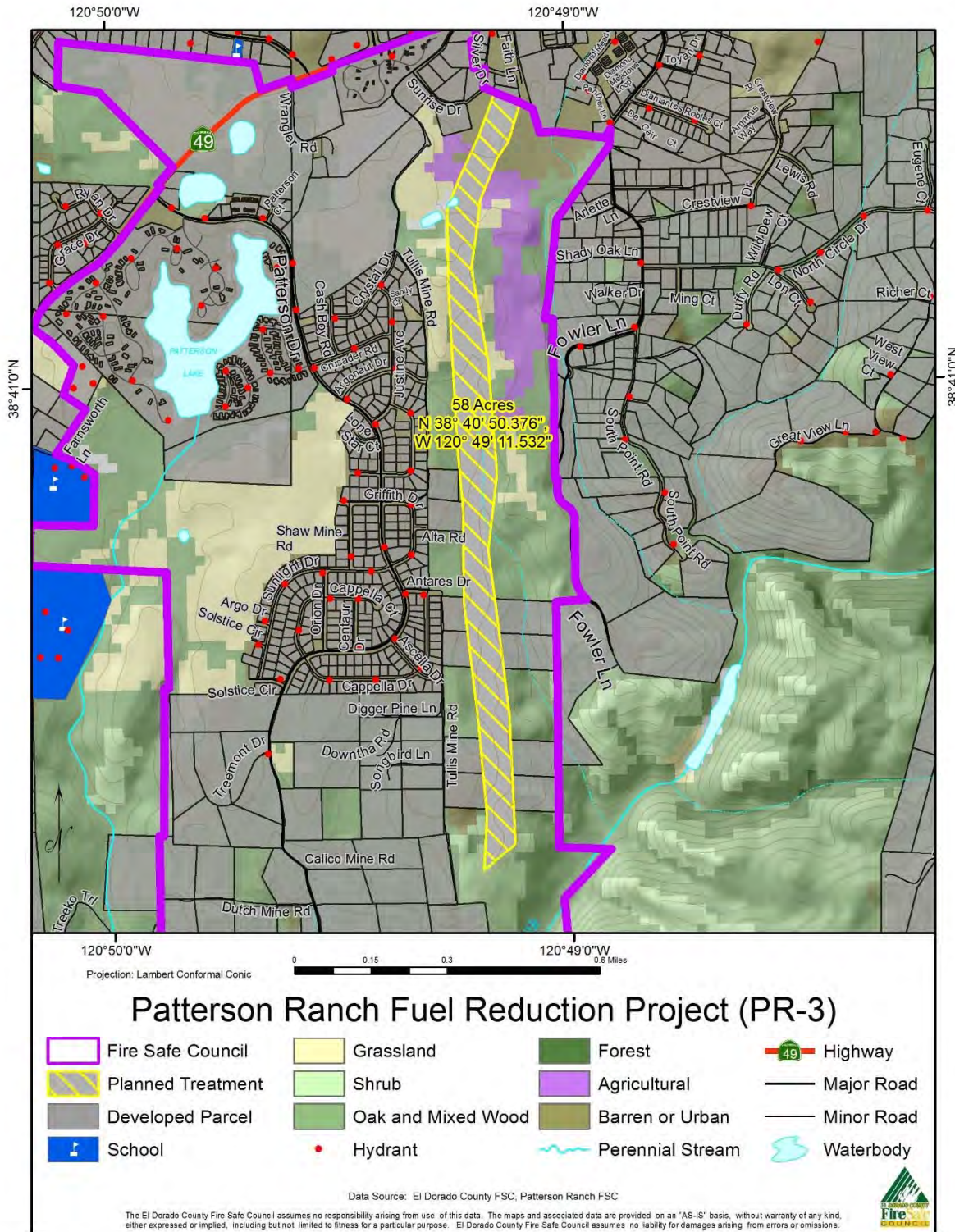
Table 2: Patterson Ranch Projects

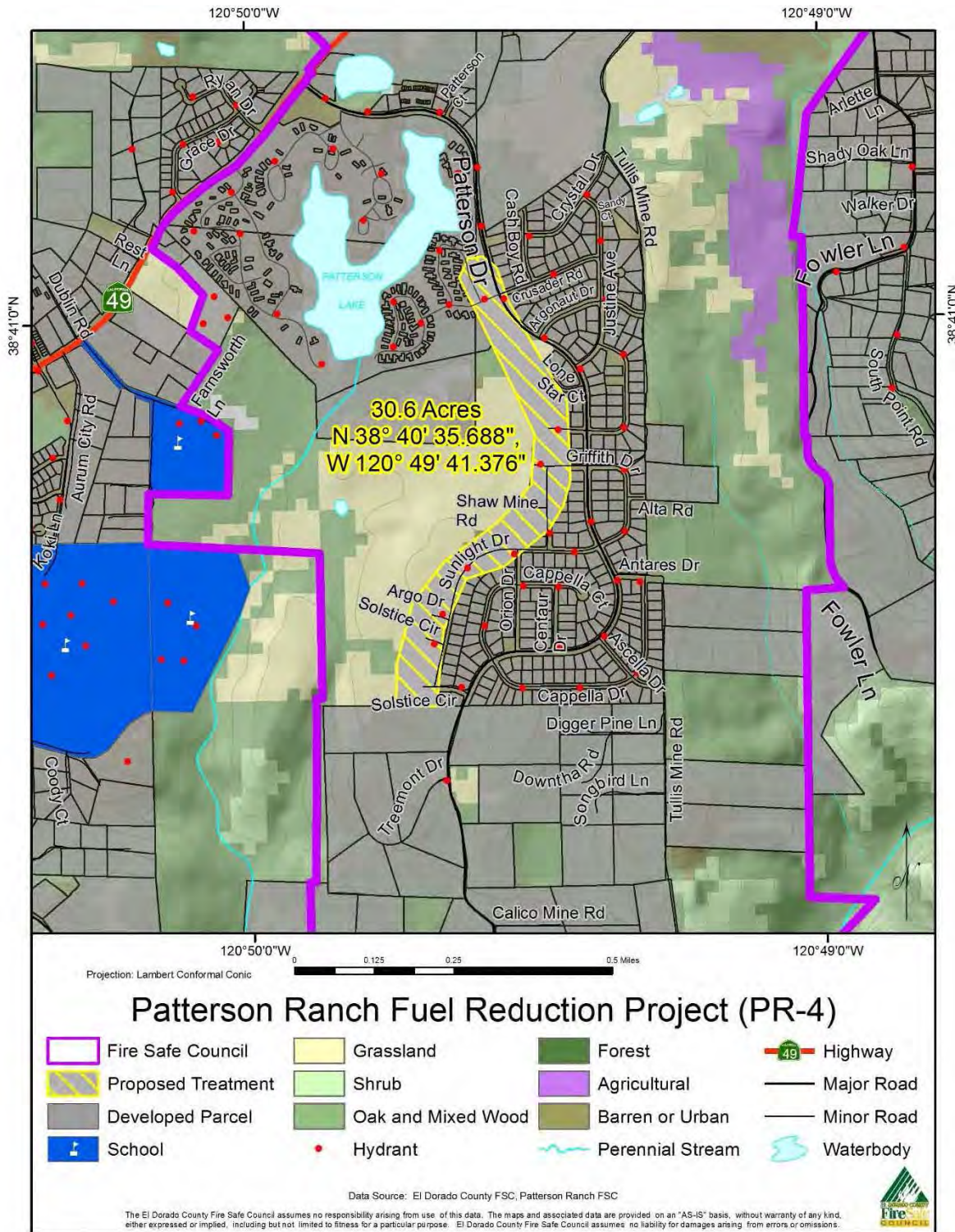
COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Patterson Ranch	1	PR-1	Martinez Creek	Fuel Reduction	33		\$66,000
Patterson Ranch	2	PR-2	West Patterson	Fuel Reduction	62		\$124,000
Patterson Ranch	3	PR-3	East Patterson	Fuel Reduction	58		\$166,000
Patterson Ranch	4	PR-4	Patterson Ranch East	Fuel Reduction	31		\$62,000
Patterson Ranch	5	PR-5	Patterson Drive	Road Hazard	20	4.0	\$32,000
Patterson Ranch	6	PR-6	Tullis Mine Road	Road Hazard	10	2.0	\$16,000
Patterson Ranch			Total Patterson Ranch		214	6.0	\$466,000











El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
PLEASANT VALLEY FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared by:

PLEASANT VALLEY FIRE SAFE COUNCIL

JANUARY 2017

MISSION

“Working towards the preservation of agriculture, rural and urban environments, and our natural resources, by promoting fire prevention education and community participation to reduce the impacts of wildfire”

The Pleasant Valley Sphere of Influences takes in an area south of Camino California and north of the North Branch of the Cosumnes River with the western boundary of Sierra Springs FSC and east of Cedar Ravine. It includes 17,360 acres made up of vegetation types from Oak woodland to mixed conifer forests and areas of chaparral. The 2010 census indicates that within the FSC boundary there are 4525 individuals and 2000 housing units. Pleasant Valley has several small developments and areas with large forested and open space parcels of land. The community is bounded on the west by Cedar Ravine Road, on the east by Sierra Springs Fire Safe Council, to the north by Weber Creek and the south by the North Fork of the Cosumnes River

The vegetation is dominated by the transition from oak grass woodland into the lower montane conifer forest types. In fire behavior terms, this transition can be characterized as a surface fire with limited torching to an active crown fire. The steep topography of Weber Creek and Camp Creek are perfectly aligned with the south and southwest winds that dominant the CWPP area which also adds to suppression difficulty.

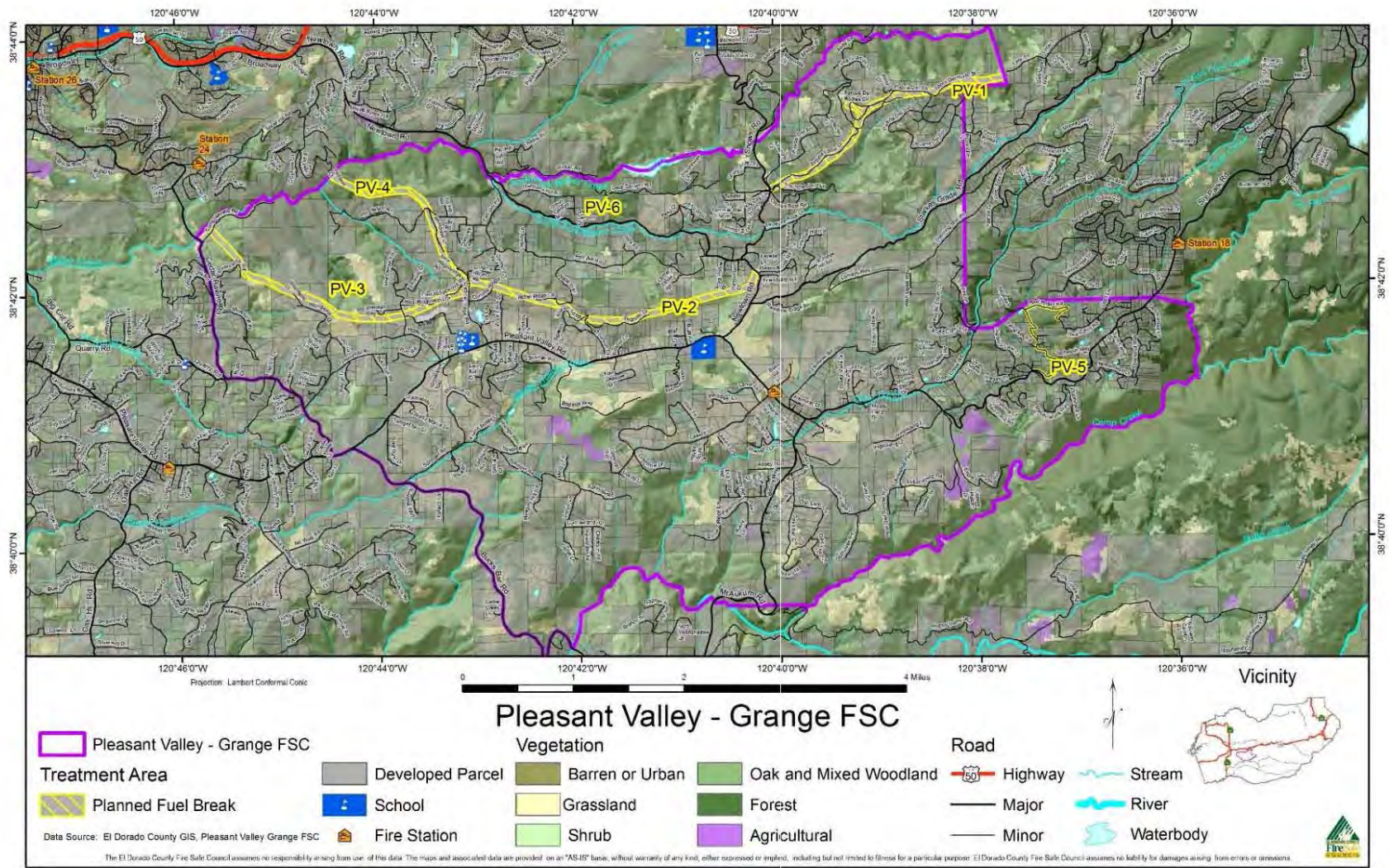
The Sly Park Road corridor is on to the most populated areas in the county, with over 5000 full time residences that stretch from Pollock Pines to Pleasant Valley. The area is also home to one of the most popular recreation areas south of Hwy 50, Jenkinson Land, the Sacramento County Sly Park Outdoor Education facility and several wineries. This winding narrow two lane road has many evacuation concerns along the Sly Park Road corridor. This, added to recreational use in and adjacent to the Sly Park corridor can lead to the potential for conflicting objectives, evacuation and fire suppression, could make the Sly Park Road evacuation route a dangerous situation during a major wildfire.

The area fire protection is provided by El Dorado County Fire Protection District for the structure protection and CALFIRE provides the wildland fire protection. Both agencies have mutual aid agreements with the US Forest Service and adjoining local fire agencies.

More information can be found in the El Dorado County Fire Protection District CWPP website:

<http://www.edcfiresafe.org/cwpp/>

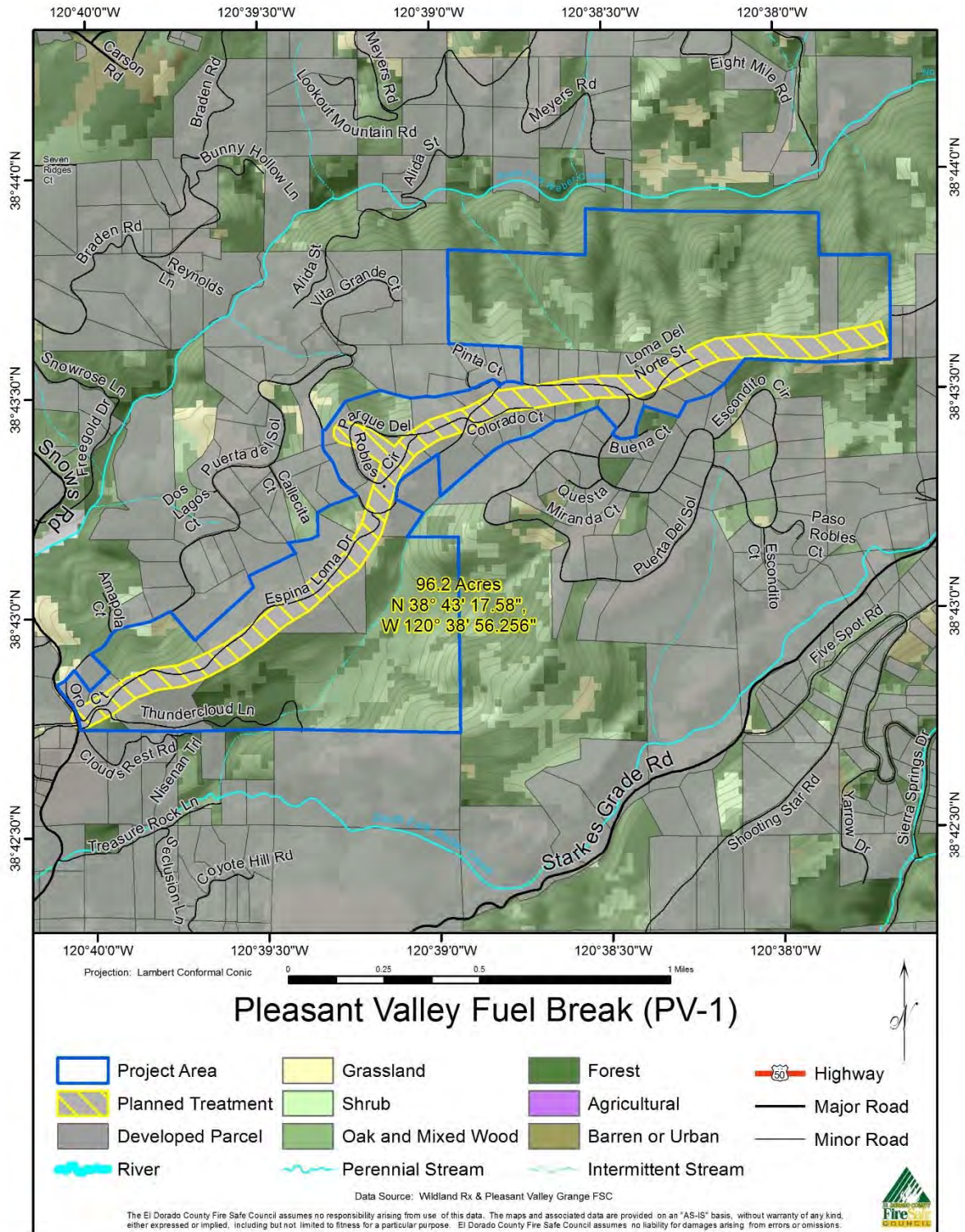


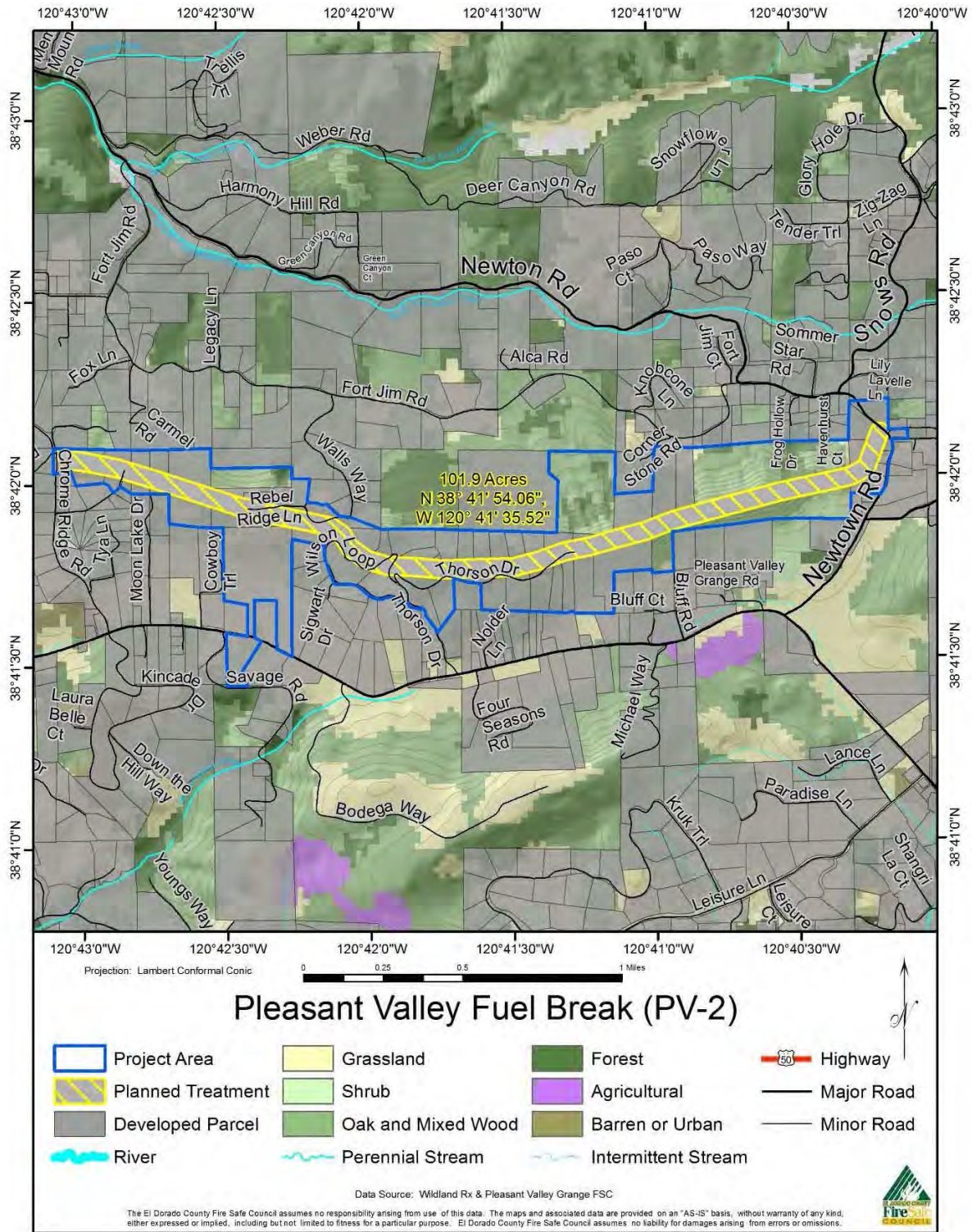


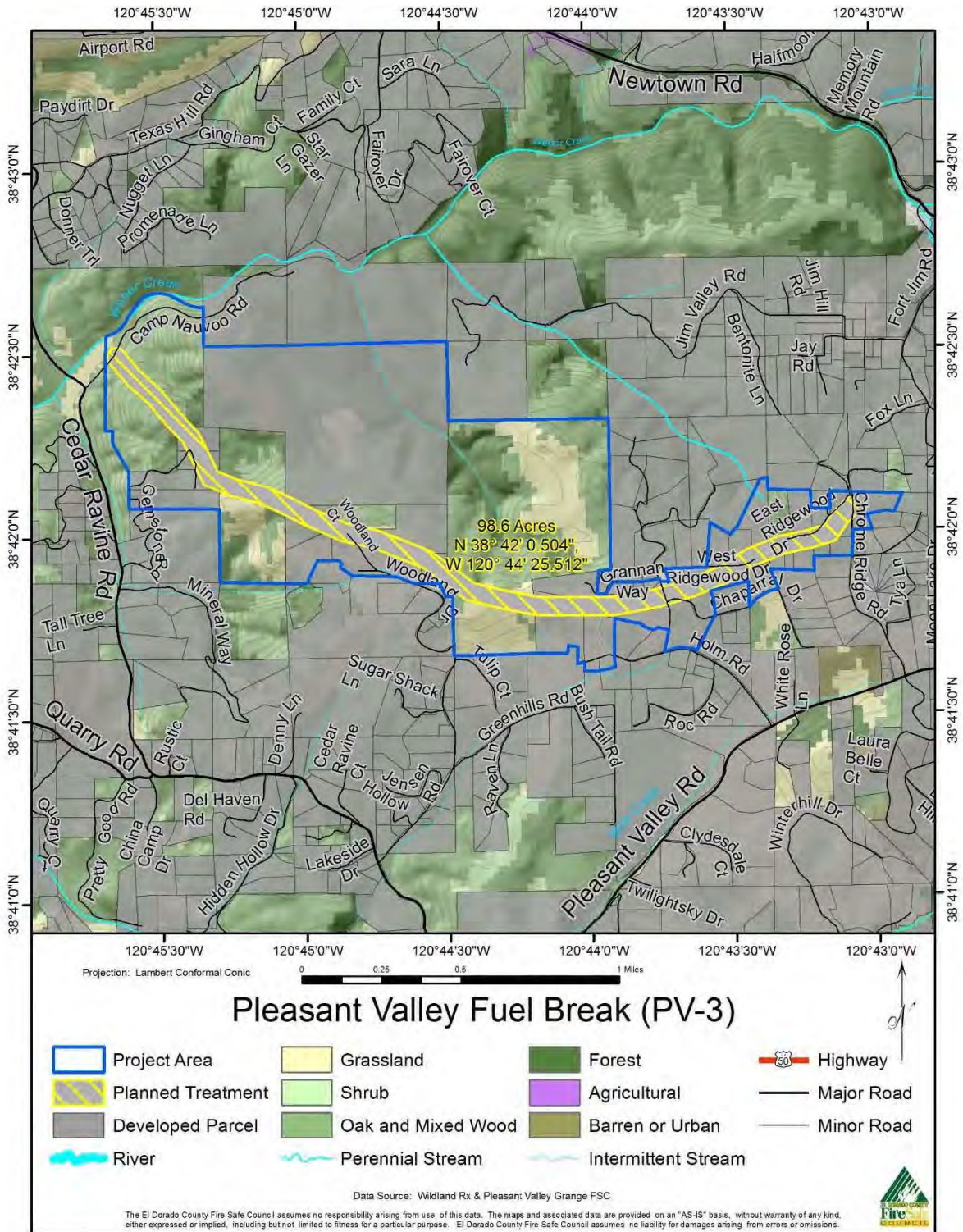
Summary of proposed treatment by cost for the Pleasant Valley Area.

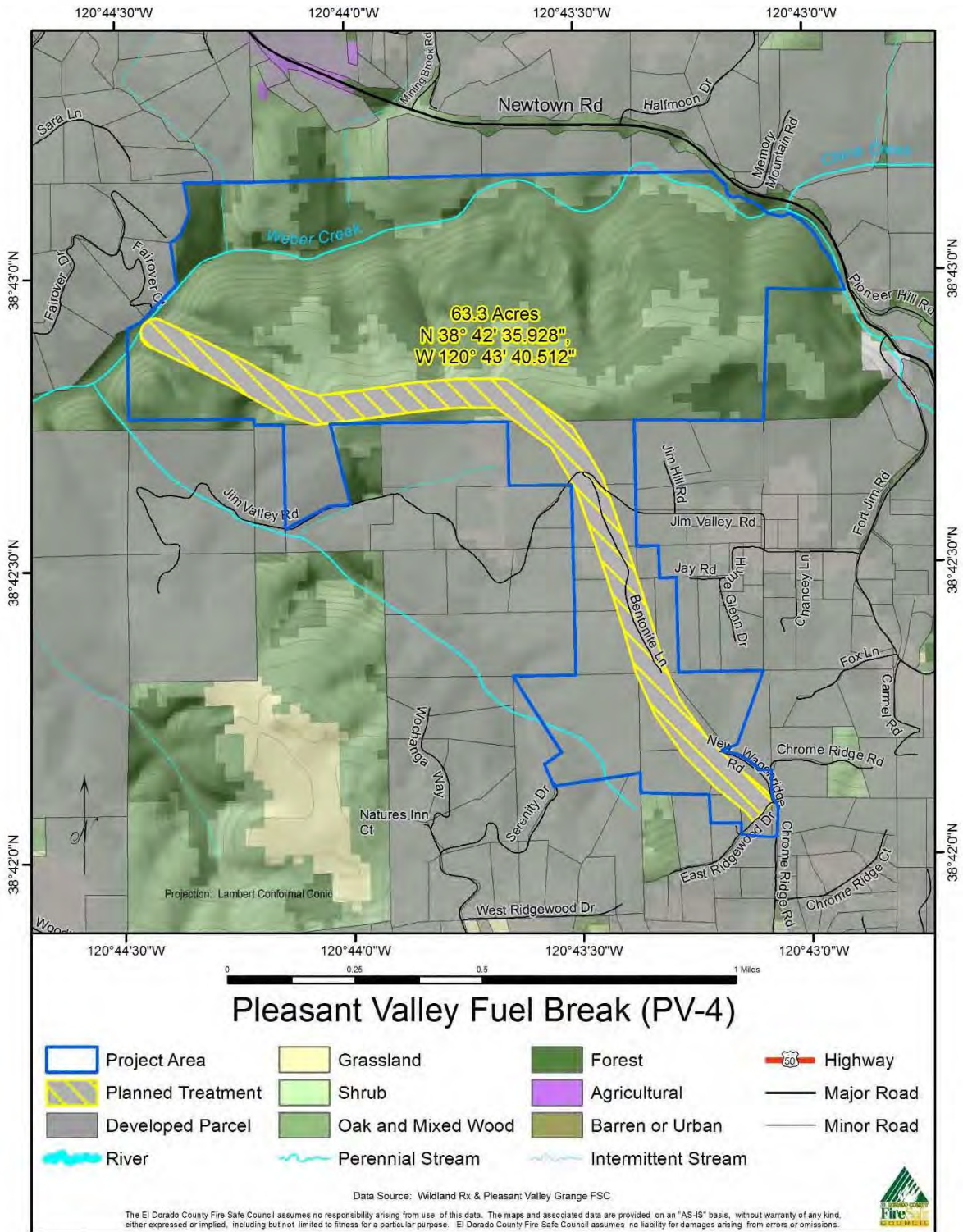
COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Pleasant Valley	1a	PV-HT	Hazard Tree Removal	Hazard Tree			\$200,000
Pleasant Valley	1	PV-1	Rancho Del Sol	Fuel Reduction	96		\$200,000
Pleasant Valley	2	PV-2	Thorson Fuel Reduction	Fuel Reduction	102		\$204,000
Pleasant Valley	3	PV-3	Pleasant Valley North Fuel	Fuel Reduction	99		\$200,000
Pleasant Valley	4	PV-4	Jim Valley Fuel Reduction	Fuel Reduction	63		\$126,000
Pleasant Valley	5	PV-5	Fairglad Road Reduction	Road Hazard	10	2.0	\$20,000
Pleasant Valley	6	PV-6	South Weber Road Connect	Infrastructure	1	0.3	\$100,000
Pleasant Valley			Total Pleasant Valley		371	2.0	\$850,000

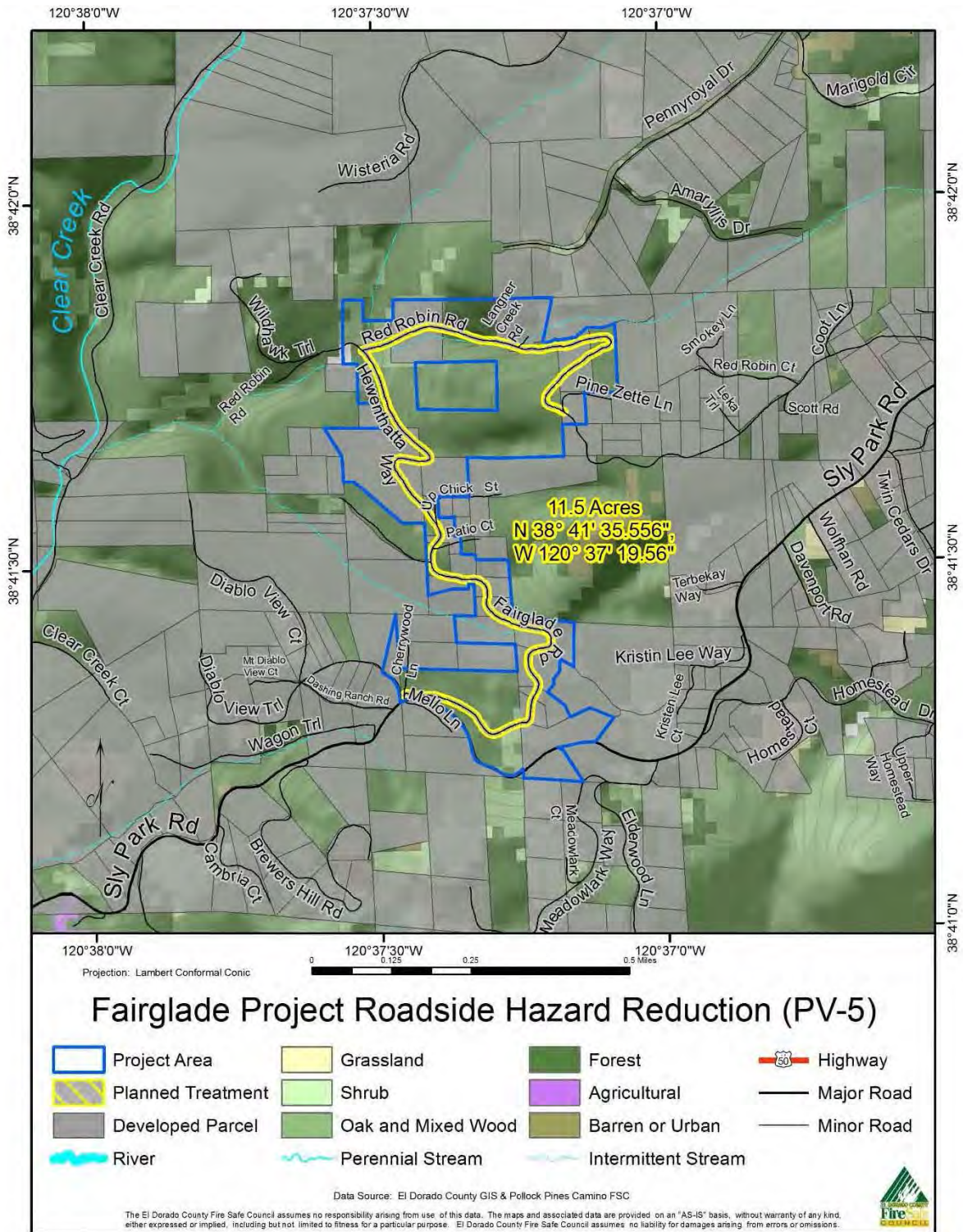


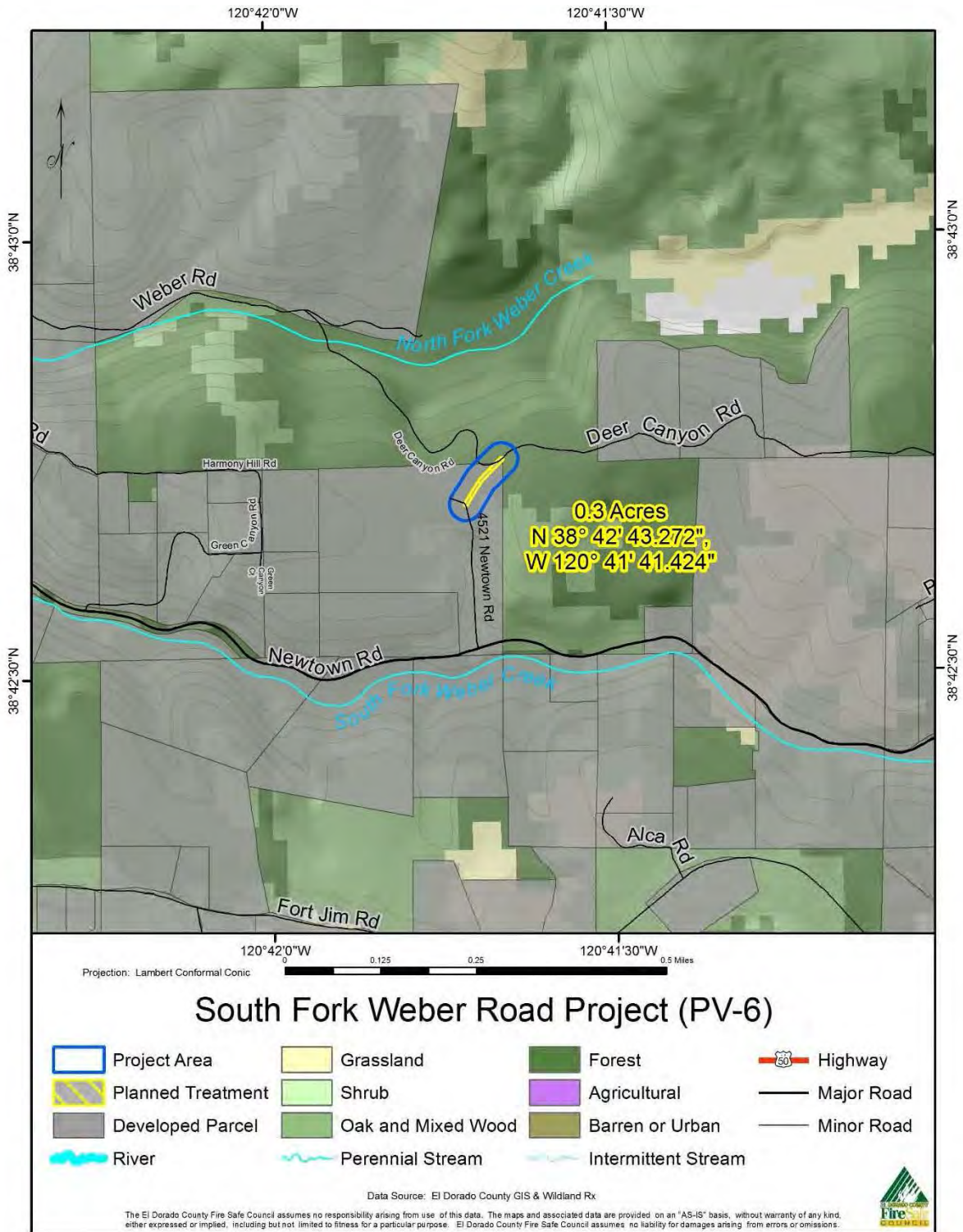












El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Sub-Section for
POLLOCK PINES FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared for:

POLLOCK PINES FIRE SAFE COUNCIL

January, 2017

Pollock Pines is a census-designated place (CDP) in El Dorado County California. It is an unincorporated community. It is also part of the Sacramento-Arden-Arcade-Roseville Metropolitan Statistical Area. Pollock Pines lies at elevations between 3500 and 4200 ft. on the western slope of the Sierra Nevada Mountains. The population was 6,871 at the 2010 census, up from 4,728 at the 2000 census. There were 3,391 housing units reported in the 2010 census.

Designations: Pollock Pines is designated as a Wildland Urban Intermix area and is identified in the Federal Register as a “Community at Risk” from wildfire.

History: One of the original Pony Express stations (Twelve Mile House) was located in Pollock Pines. The location was covered by the restaurant called "Sportsman's Hall". The "Hall", which was originally opened in 1852 by John and James Blair, who had emigrated from Scotland, still operates today. Pollock Pines was primarily a lumber community (the town is named for H.R. Pollock, who operated a lumber mill in the area in the early 1900s). The first post office opened in 1936. The name celebrates the Pollock family, early settlers.

Economics: From its founding, timber (and the supporting businesses) was the primary industry in Pollock Pines through the 1950’s. The supporting businesses included providing the timber operations with needed supplies, and moving the timber to market and mills. The wagon trails developed for the movement of timber later became a major route for commerce. During the silver rush of the Comstock Lode in western Nevada, Pollock Pines was a major stopping and transfer point for supplies moving east along what is now Pony Express Trail. This route later became the Lincoln Highway, then US Highway 50. It was slightly realigned in the 1960s and made 4 lanes, but still follows the basic original route.

During the 1950’s, a new “industry” came to Pollock Pines—hydroelectricity. The Sacramento Metropolitan Utility District (SMUD) started to develop the Upper American River Project on the South Fork of the American River. Three major lakes were created. The infrastructure needed for this project brought thousands of construction workers to the Pollock Pines area, with the associated building boom of housing, schools, and support businesses.

The area took a major economic hit in the early 1990’s with the decline of the availability of timber from the US Forest Service. Since that time, the population has changed and aged, with young families being replaced with an older, active retired group. The economic activity has shifted from the timber industry to a recreation and service based economy. As shown above, the population has started to increase again, mainly due the influx of Baby Boomers from large metropolitan areas

Geography: The area encompassing Pollock Pines is in a heavily timbered mountain region situated along the ridge top on the south side of the South Fork of the American River. It is approximately 15 miles east of Placerville and 60 miles east of Sacramento on Highway 50. It includes the area from the American River on the north to Jenkinson Lake and the Mormon Emigrant Trail on the south. There are scattered tracts of the Eldorado National Forest (ENF) within Pollock Pines. However, the ENF surrounds the Pollock Pines area on the north, east, and southeast. Pollock Pines receives annual snowfall between 6 inches and 6 feet. The town sits on the westward side of the Sierra Nevada and receives several inches of precipitation each year. According to the United States Census Bureau, the CDP has a total area of 8.0 square miles (21 km²), over 99% of it land.



Since Pollock Pines sits on a ridge, it has major river canyons on the north and south side. These are west-east aligned canyons and match the prevailing winds that happen most afternoons during the summer and fall. The canyon to the north (South Fork of the American River) has demonstrated as late as 2014 its ability to generate large and threatening fires. 2014 saw the King Fire start on the south rim of the canyon, drop into the bottom of the canyon, and then spread east, until it spotted across the canyon to the north. Several areas on the north side of Pollock Pines were evacuated for several days. It was only due to a lucky wind shift that the fire did not spread significantly on the south side of the canyon. Over 3000 houses were within a few hours of being evacuated.

On the south side of Pollock Pines sits Weber Creek. This canyon has been the location of at least 3 major fires since the 1960s. These fires have been stopped on the ridge line that has Highway 50 running across the top. However, due to increased growth in this area, fire has the potential to cause major structure loss in the future. Further to the south is the Cosumnes River drainage. This was the site of the 2014 Sand Fire (4200+ acres and 20+ residences lost). The fire had the potential for 25,000+ acres, with over 1500 homes in the potential path.

Infrastructure: One of the primary values at risk in the Pollock Pines area, in addition to the obvious life safety issues of a wildland fire, is the water supply for a large portion of the population of El Dorado County. The hub of the El Dorado Irrigation District (EID) water delivery system is located in Pollock Pines. A major component of the entire system is the reservoir known as Jenkinson Lake (locally called Sly Park Lake). This reservoir produces or stores a large part of the water supply for many areas of El Dorado County, including the Pollock Pines community. The lake, and surrounding recreation area and watershed, are located within Pollock Pines. While most of the service area is gravity fed, many areas require booster pumps to provide adequate water pressure. Power lines run through the area to supply the power for booster pumps for the water system. Disruption of the water supply would have an immediate impact on the ability of fire agencies to provide structure protection to the homes in the Pollock area.

EID maintains critical water supply, treatment and power infrastructure within proposed project locations. Twenty-two miles of EID water canal runs from Kyburz to Long Canyon Forebay Pond. This pond supports all the drinking water for the West Slope of El Dorado County. A 15k acre/ feed penstock transports water from the pond to the bottom of the American River Canyon, which is the power feed for the EID energy plant. A 40 CFS capacity canal called the Main Ditch continues three miles west to the EID water treatment plant on Gilmore Road. The facilities at the plant itself include floating treated reservoir covers.

A large multi-agency radio facility (Union Hill) is located on the east side of Pollock Pines. Agencies affected at this site include the emergency communications for Cal Fire, El Dorado County Fire Department, El Dorado Co. Sherriff Dept., CHP, Cal Trans, County DOT, and several cellular carriers. This facility provides the critical communications needed by the above agencies to support wildfire suppression and evacuation activities.

Any fires spreading through the Pollock Pines area would also have a severe impact upon the watersheds of Weber Creek, Hazel Creek, and Sly Park Creek. The latter two are the primary water sources for Jenkinson Lake. Depending on fire spread, the South Fork of the American River, with all the associated tributaries and infrastructure of the EID main canal (which brings water from the high elevations to the east to be stored in Jenkinson Lake), could also be threatened.



Hazardous fuels management projects must be deployed across the landscape if they are to change wildfire intensity and spread, and thereby protect watershed values. While clearance around structures as required by PRC 4291 is highly effective in saving structures from a wildfire, that same fire burning through untreated vegetation can lead to increased ember production and severe watershed damage. Landscape level treatments, such as shaded fuel breaks or area treatments, complement structure clearance treatments by slowing the rate of spread and lowering intensity; therefore, resource damage.

There are slightly over 2400 private residences in the Pollock Pines area. This does not include multi-family dwellings, mobile home parks, or any commercial structures. There are three school facilities within Pollock Pines (Pinewood Elementary, Sierra Ridge Middle School, and the Emigrant Trail Educational Center (used to support the Middle School and home of the Boys and Girls Clubs, as well as the Pollock Pines Elementary School District administrative offices).

Vegetation: The Pollock Pines area vegetation is associated with lower montane forest. Vegetation types include California black oak, Ponderosa Pine, White Fir, Incense Cedar, and Douglas Fir, with mixed conifer and mixed evergreen interspersed with chaparral, and meadows. The following are potential treatments to reduce hazardous fuel beds: 1. Mechanical (biomass) thin. 2. Hand thin. 3. Hand/machine pile, and 4. Mechanical mastication

Conifer stands have created dense understories with fire suppression for urban development. Leave trees that have single leaders and thrifty crowns with at least 1/3 live crown ratio. Intolerant to shade species have a higher preference as leave trees because their seed will be less likely to germinate in the understory. Conifer leave trees in descending order: Sugar Pine, Ponderosa Pine, Douglas Fir, White Fir, Incense Cedar.

Hardwood stands with a high percentage of oaks can provide excellent food and cover for wildlife. Retain live trees with cavities for squirrels, raccoons, and other cavity dwellers. Leave trees that have vertical leaders and thrifty crown with at least 1/3 live crown ratio. Hardwood leave tree species in descending order: Valley Oak, Big Leaf Maple, Blue Oak, Black Oak, Madrone, Live Oak.

Snags prove excellent wildlife habitat in their natural state. Leave or create dead standing trees (snags) to provide insects and nesting cavities for birds. Snags should not be taller than 30 feet in height and not capable of reaching a home or road. Snags that have fallen become decayed, leave for diversity.

Within Upper Montane Chaparral, spring annuals are peculiar to our area "lava caps". Lava caps are Miocene epoch volcanic mudflows that support unique plant communities of annual herbs, perennial shrubs, and grass dominated openings. These support small, low growing herb species, which are adapted to high soil temps, full sunlight, and droughty conditions. Seeps are common in upper swales and slow gradually during the late spring and summer. The sequence of flowering is from March to August. Possible special plant species to see are Yellow bur navarretia, Pleasant Valley mariposa lily and Indian Manzanita. Two species are 'sensitive' and endemic to the El Dorado National Forest. These areas should be avoided and excluded from treatment.

Insect and Disease Treatment area Insect and Disease designations are primarily based on the risk of substantial tree mortality over the next 15 years as determined by stand density and other



factors. Tree mortality is not extensive at this time, but is spreading north from the south Sierra region. Actions to increase resilience to insects and disease are needed to prevent the widespread mortality that is occurring in other forest.

Maintenance: Once fuels have been modified within an area (such as PP-1, SP-1 Phase One), maintenance activities should be planned and implemented to keep the effectiveness of the original treatment. If no maintenance occurs, the effectiveness of the original treatment will diminish every year. Potentially yielding no net treatment effect within 5 years. The most cost effective technique is the use of California registered herbicides. Spraying soon after treatment may allow trees to take control to shade out brush. This technique has negligible soil effects but may not appropriate for riparian zones, watercourses, and areas with listed plants.

Fuel Reduction Objectives and Projects: As mentioned above, the two greatest wildfire threats to Pollock Pines comes from the American River Canyon and any fire originating south of the Weber Creek drainage. South of Pollock Pines, the north- east/west steep canyon alignment combines with the typical prevailing southeast prevailing wind directions. Ignitions (south of Hwy 50) within Weber Creek drainage or further south in the Canyon Creek drainage along Starks Grade road have the potential to rapidly spread northeast into the heavily populated neighborhoods of Pollock Pines. Equally, an ignition originating out of the American River Canyon (north of Hwy 50) anywhere east during a foehn wind event would rapidly spread southwest into Pollock Pines. Fire behavior modeling, using the actual conditions of the 2004 Fred’s Fire (near the community of Kyburz further east in the American River Canyon) showed a complete over run of the Pollock Pines area in about 3 hours after ignition. The Community Wildfire Protection Plan (CWPP) fuels reduction projects specifically work towards

- Support the protection of a designated fire safe zone located at the Pollock Pines school complex
- Creation and maintenance of fuel breaks in strategic locations on both the north and south sides of Pollock Pines, which provide a line of defense for the surrounding subdivisions.
- Modification of vegetation adjacent to roads to provide safer ingress and egress of evacuating residents and responding emergency personnel
- Incorporate residential roads into shaded fuel breaks for greater effectiveness
- Reduce fuel loading around critical firefighter infrastructure; water drafting and staging areas
- A typical, desired treatment condition is: to reduce vegetation both vertically and horizontally. Limb conifers to 10-12 feet height; leave a minimum of 1/3rd of the crown. Space trees horizontally by removing trees up to a maximum of 16” DBH, to between 15 - 20 feet apart. Remove all the brush within 20’ of trees. Oak and hardwood tree foliage pruned off the ground to a minimum of 6 feet.

South Fork American River (SOFAR) Cohesive Strategy: The SOFAR is an All-Lands Wildland Fire Management Strategy for the South Fork American River Watershed, which has three goals:

- Resilient Landscapes
- Fire Adapted Communities
- Safe and Effective Wildfire Response

In 2014, the Eldorado National Forest was one of two forests in California selected to begin implementation of the National Cohesive Wildland Fire Management Strategy. This watershed was chosen because of the many values at risk threatened by complex fire issues associated with drought,



climate change, fuel loading, insects and disease. Communities, infrastructure, public and private timber, water, power, recreation, protected species and fire frequently are all reasons that this watershed is a high priority for collaborative action. There have been fire major wildfires in the SOFAR watershed in the last 40 years – Pilliken Fire (1973), Wrights Fire (1981), Cleveland Fire (1992), Fred’s fire (2004), and the King Fire (2014).

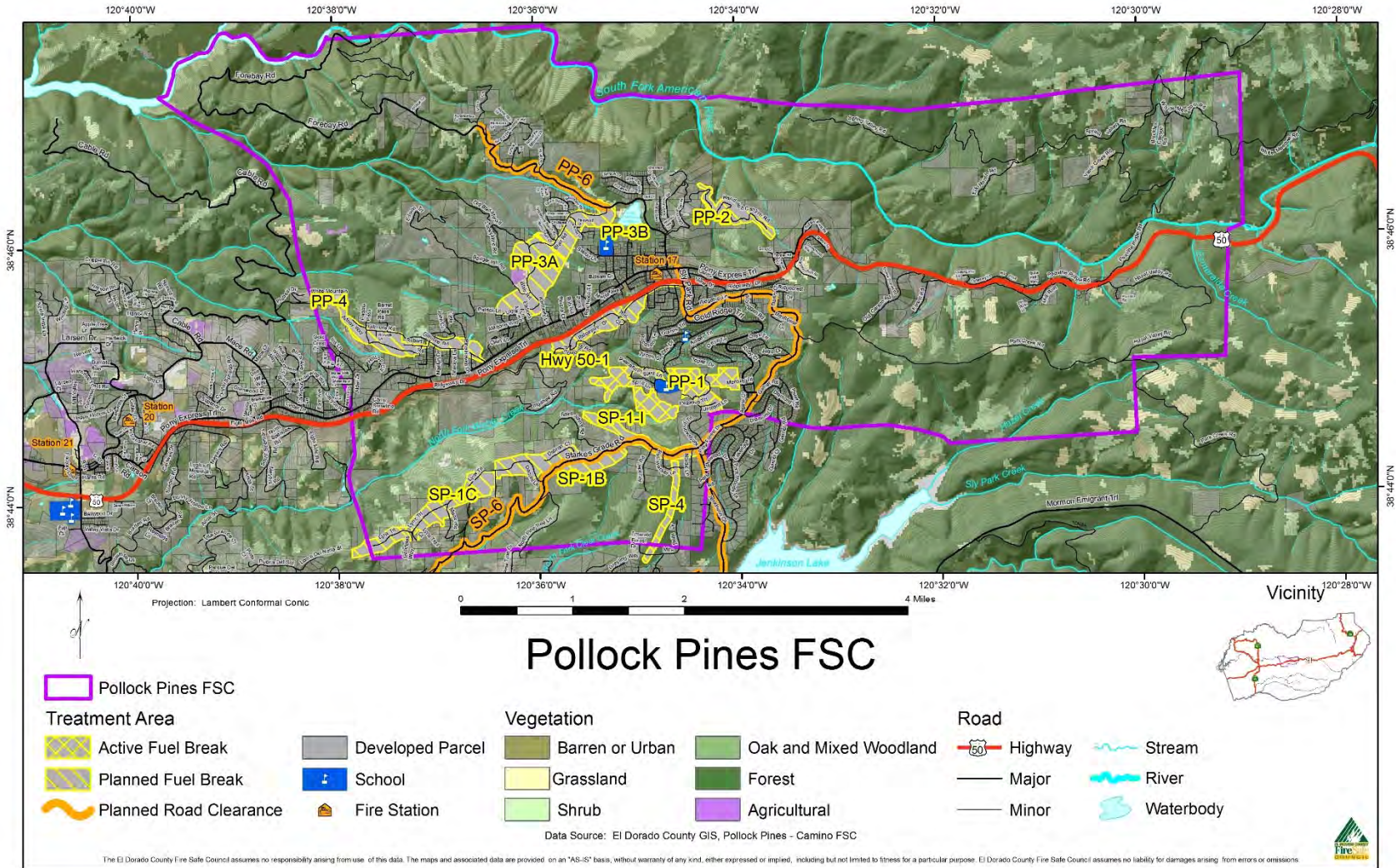
This project area includes the upper 75% of the South Fork of the American River Watershed, 50% of the King Fire burned area, and 49 miles of the Highway 50 corridor. The western boundary of the project area is defined by Highway 193 and Highway 49.

The US Forest Service and CAL FIRE have developed a plan called Fire Adapted 50, which will focus on the Fire Adapted Communities component of the cohesive strategy. Fire Adapted 50 includes a series of projects that will strengthen and expand existing fuel breaks in the most heavily developed part of the watershed along the Highway 50 corridor. This includes the Camino-Pollock Pines Fuel Break Phase. This phase will construct one cohesive fuels treatment starting from Fresh Pond, continuing west along the ridgeline (bordering the south side of the South Fork of the American River canyon), and ending near the western end of the Slab Creek reservoir.

More information can be found in the El Dorado County Fire Protection District CWPP website: <http://www.edcfiresafe.org/cwpp/>



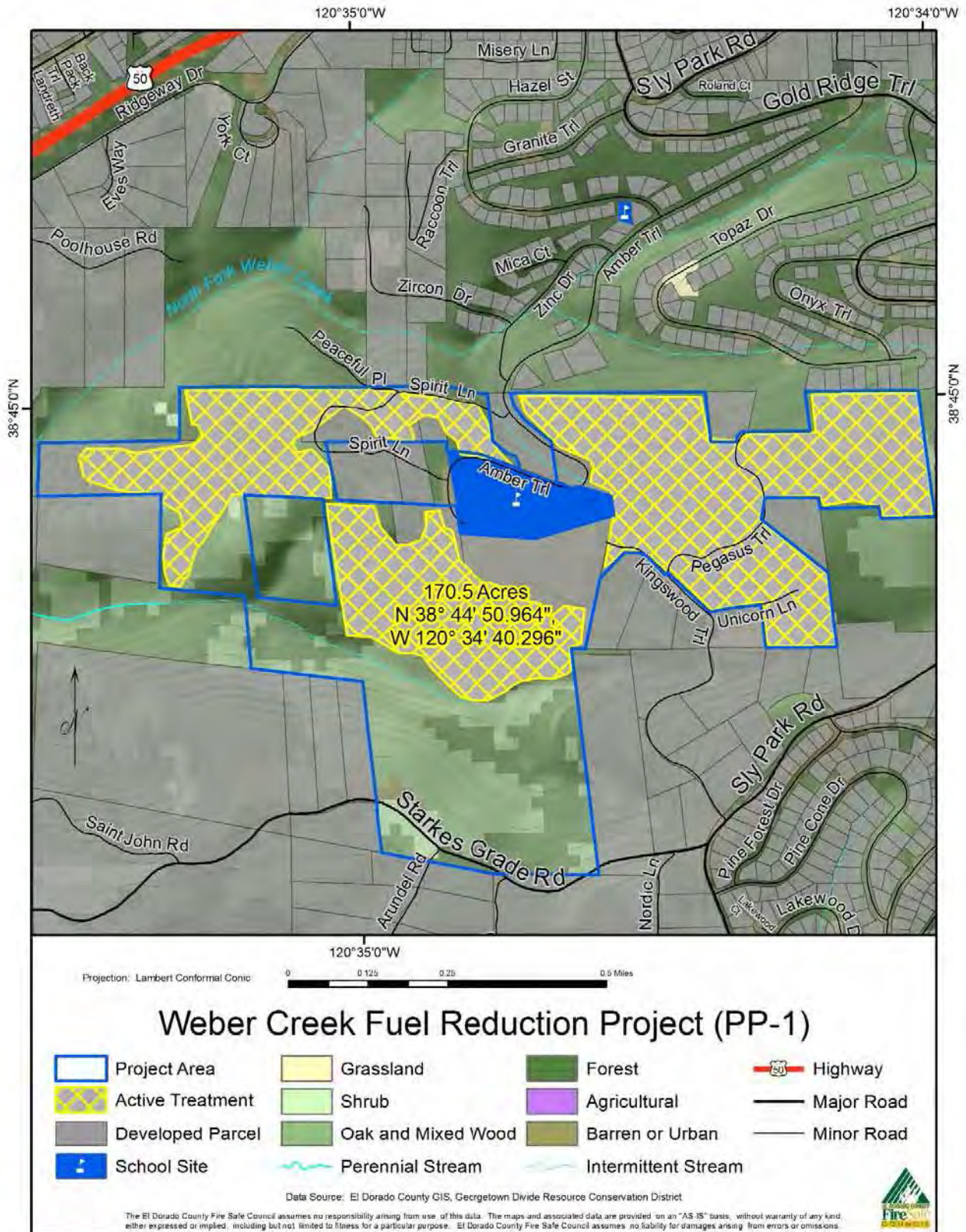
6.2 Pollock Pines Project FSC Area

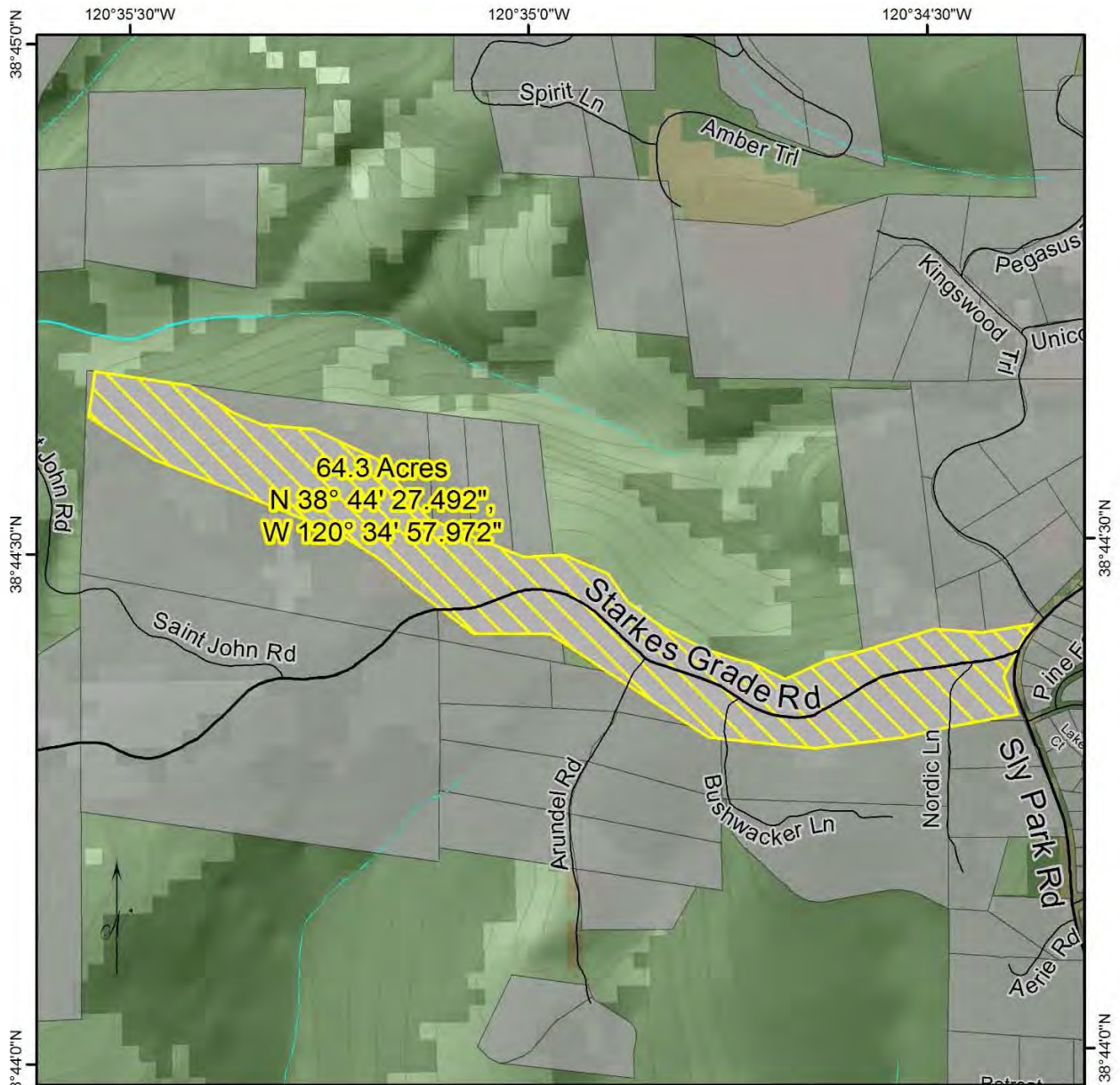


6.3 Projects currently Underway in the Pollock Pines Area

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Pollock Pines	1	PP-1	Weber Creek Fuel Reduction	Fuel Break	170		\$237,870
Pollock Pines	1b	PP-HT	Hazard Tree Removal	Hazard Trees			\$200,000
Pollock Pines	3	PP-2	Randolph Canyon	Fuel Break	58		\$116,000
Pollock Pines	2	SP-1	Weber Creek Fuel Reduction	Fuel Break	64		\$128,000
Pollock Pines	4	SP-1b	Weber Creek Fuel Reduction	Fuel Break	131		\$262,000
Pollock Pines	5	SP-4	Gilmore Road	Fuel Break	35		\$70,000
Pollock Pines	6	SP-1c	Weber Creek Fuel Reduction	Fuel Break	125		\$250,000
Pollock Pines	7	HW -50	HW 50 Fuel Break	Road Hazard	82	3.1	\$164,000
Pollock Pines	8	PP-3a	Blair Road Shaded Fuel Break	Fuel Break	139	1.0	\$278,000
Pollock Pines	9	PP-3b	Blair Road Shaded Fuel Break	Fuel Break	74	0.7	\$148,000
Pollock Pines			Total Pollock Pines		878	4.8	\$1,853,870







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Fuel Reduction Project (SP-1, Phase I)

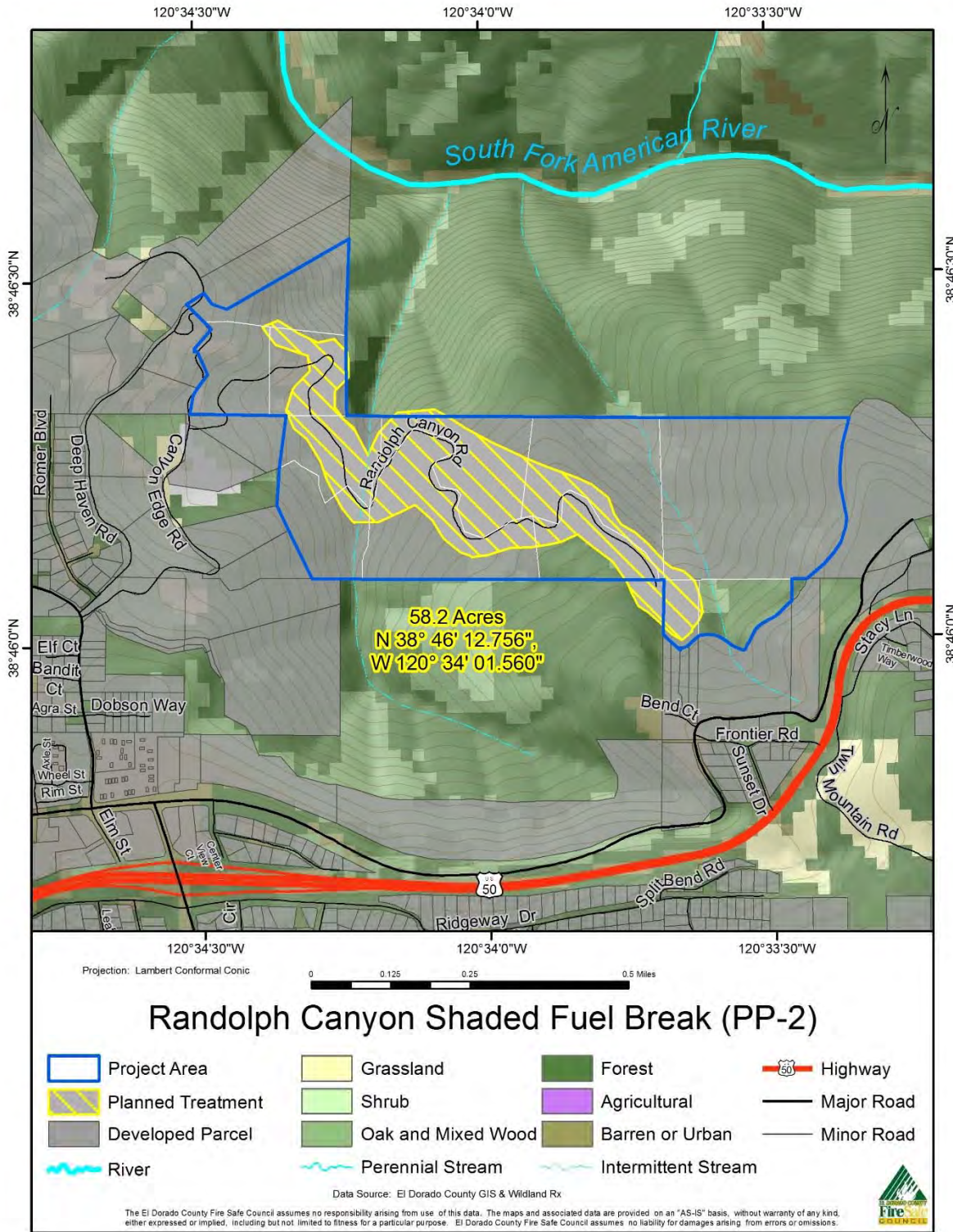
- | | | | |
|-------------------|--------------------|---------------------|------------|
| Project Area | Grassland | Forest | Highway |
| Planned Treatment | Shrub | Agricultural | Major Road |
| Developed Parcel | Oak and Mixed Wood | Barren or Urban | Minor Road |
| River | Perennial Stream | Intermittent Stream | |

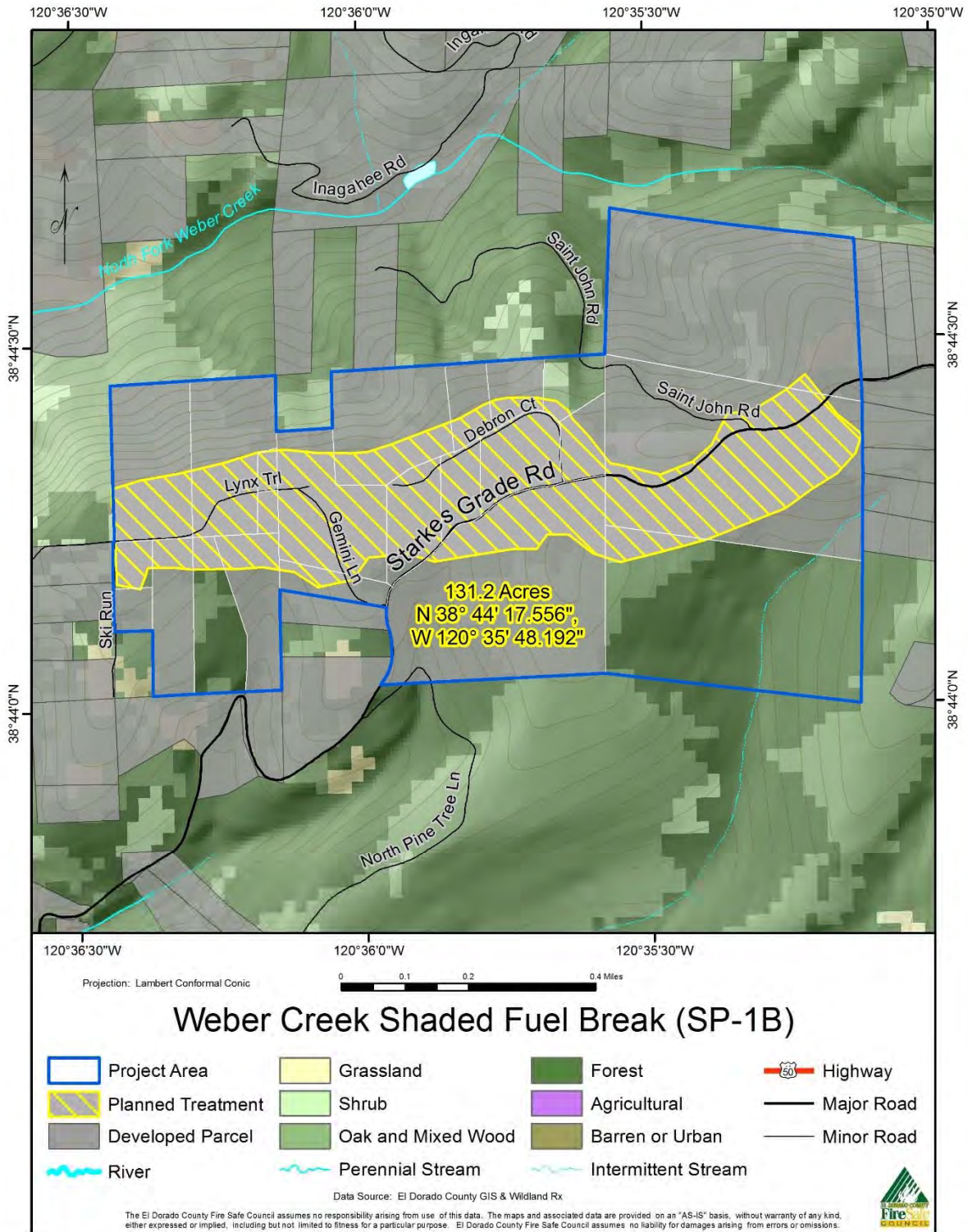
Data Source: El Dorado County GIS & Pollock Pines Camino FSC

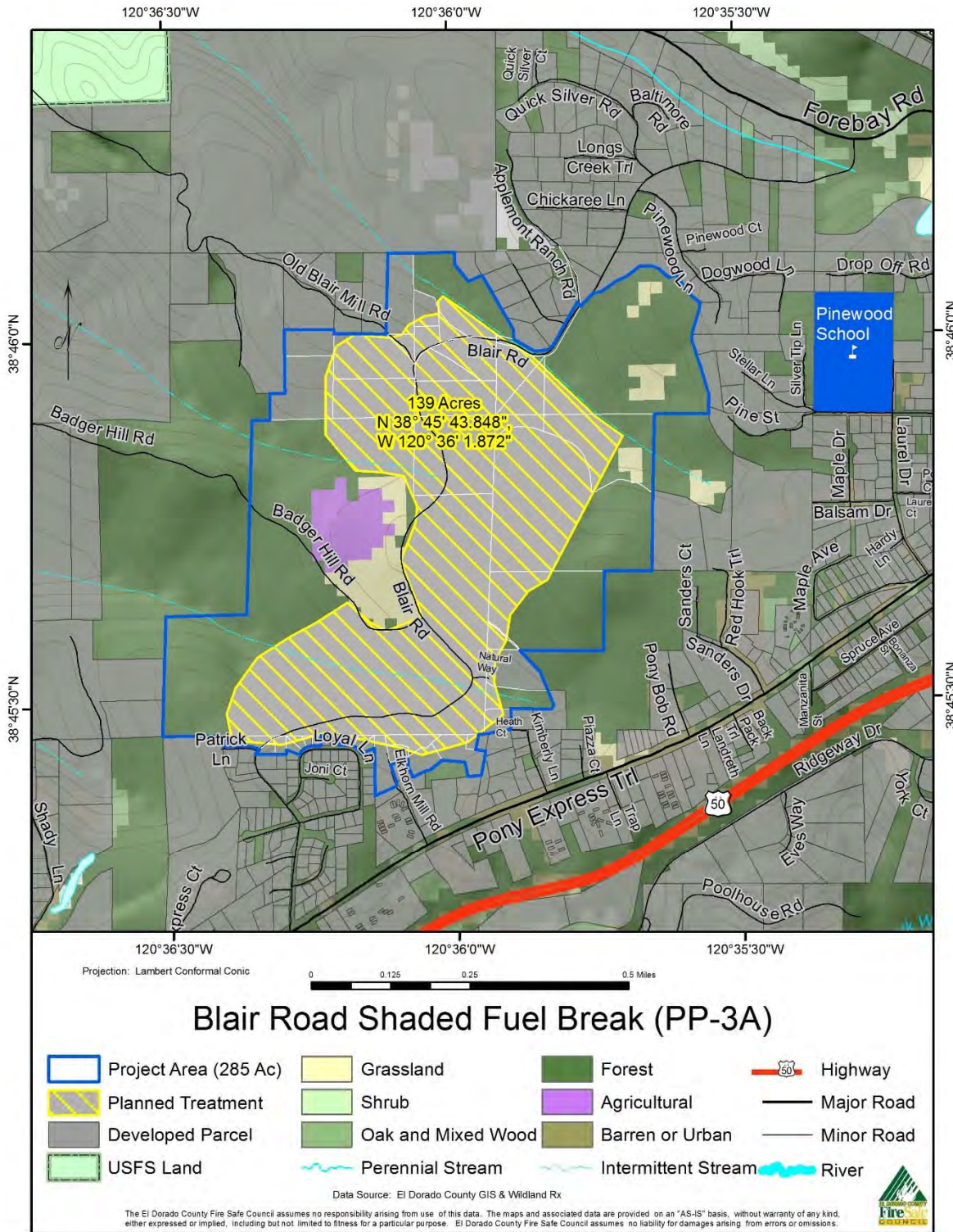
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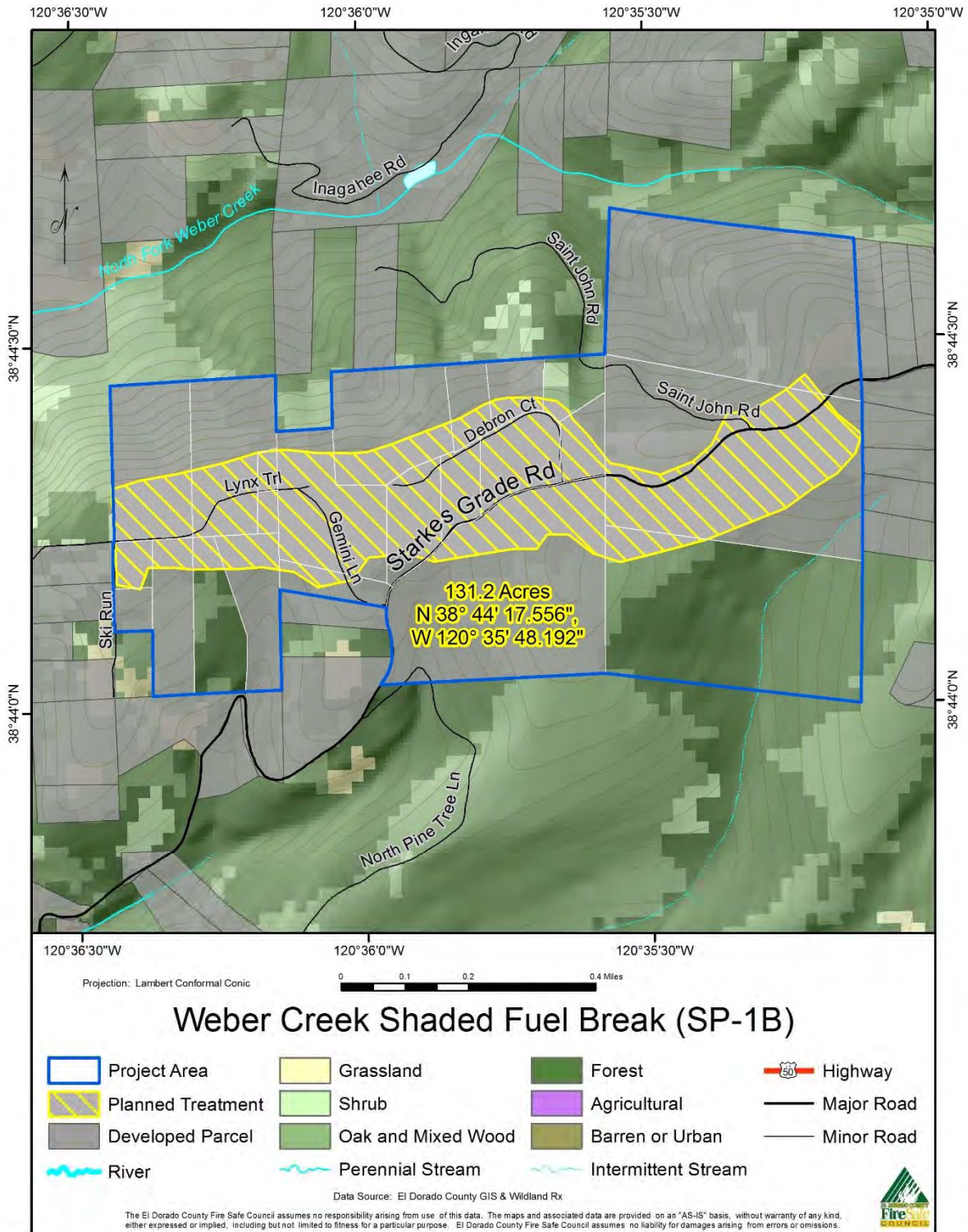


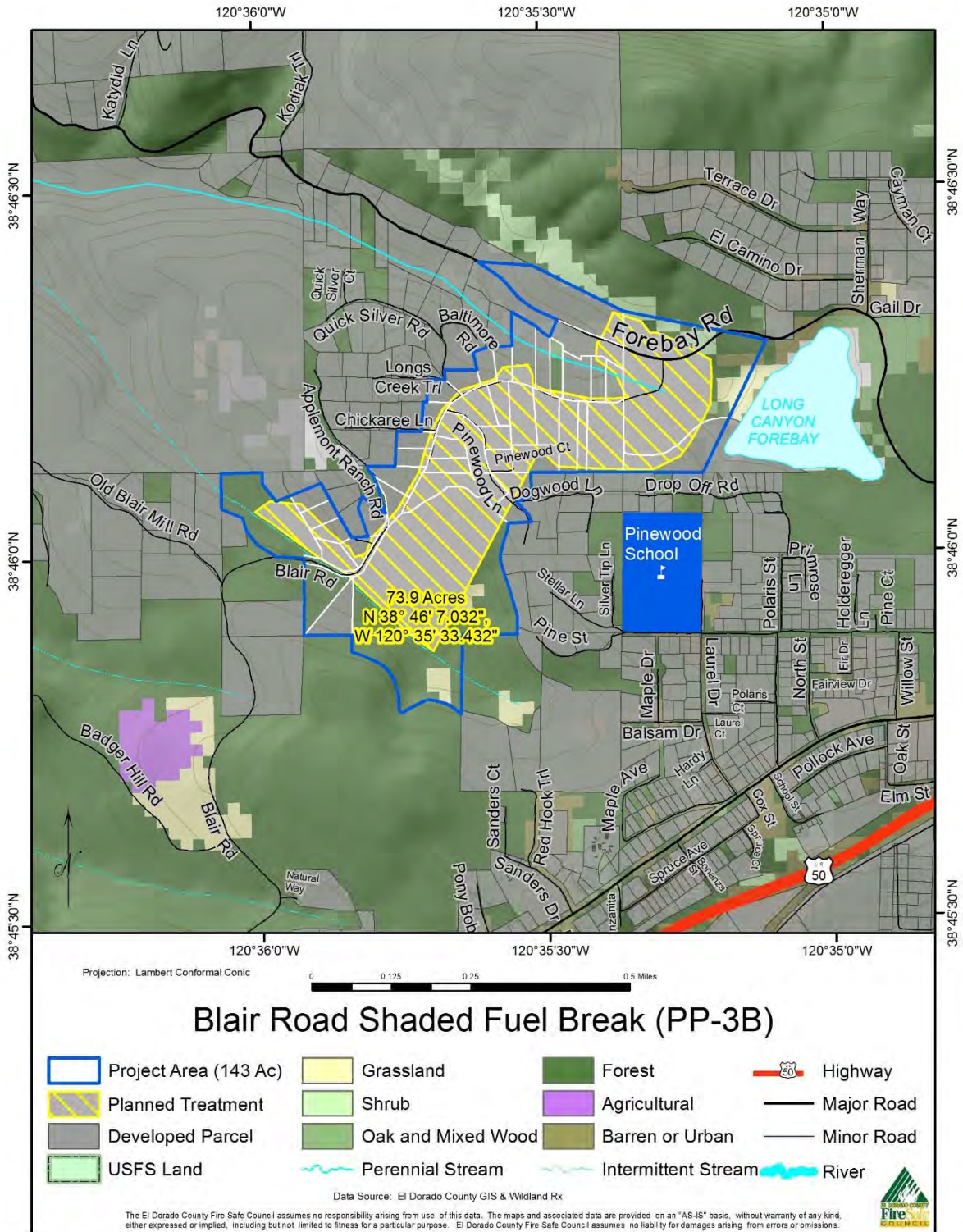
6.4 Future Project Maps

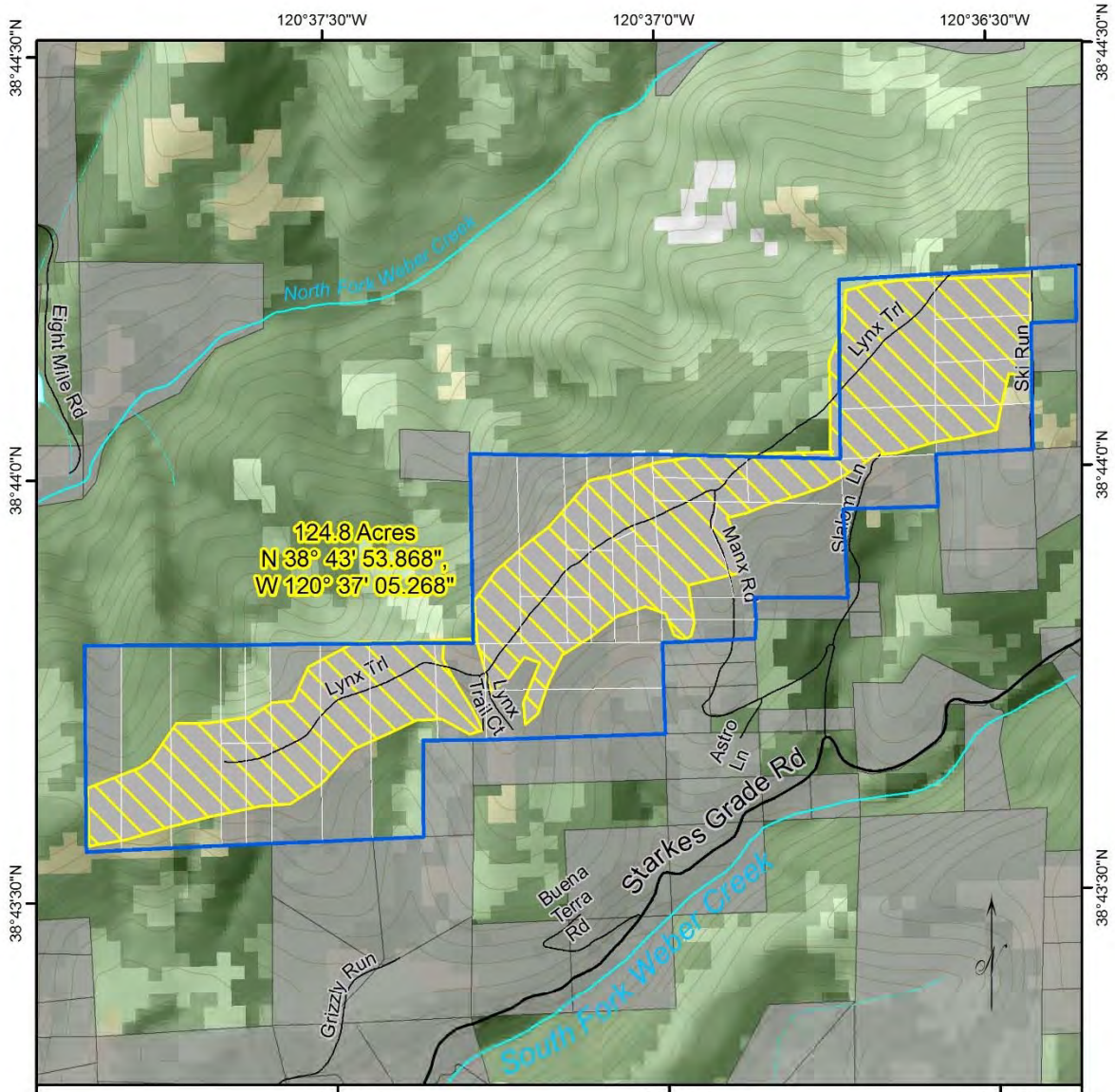












Projection: Lambert Conformal Conic

0 0.1 0.2 0.4 Miles

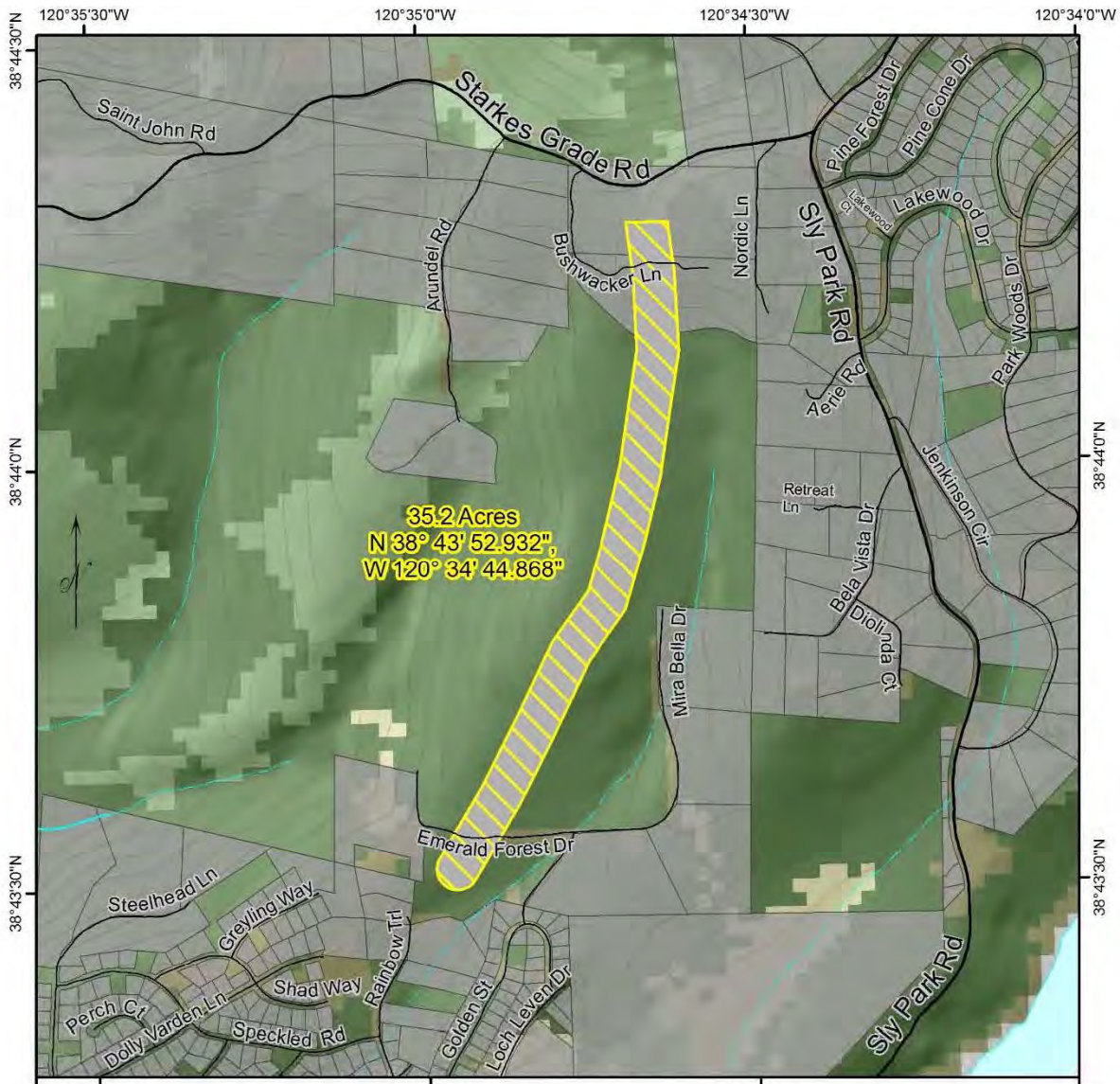
Weber Creek Shaded Fuel Break (SP-1C)

<ul style="list-style-type: none"> Project Area Planned Treatment Developed Parcel River 	<ul style="list-style-type: none"> Grassland Shrub Oak and Mixed Wood Perennial Stream 	<ul style="list-style-type: none"> Forest Agricultural Barren or Urban Intermittent Stream
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Data Source: El Dorado County GIS & Wildland Rx

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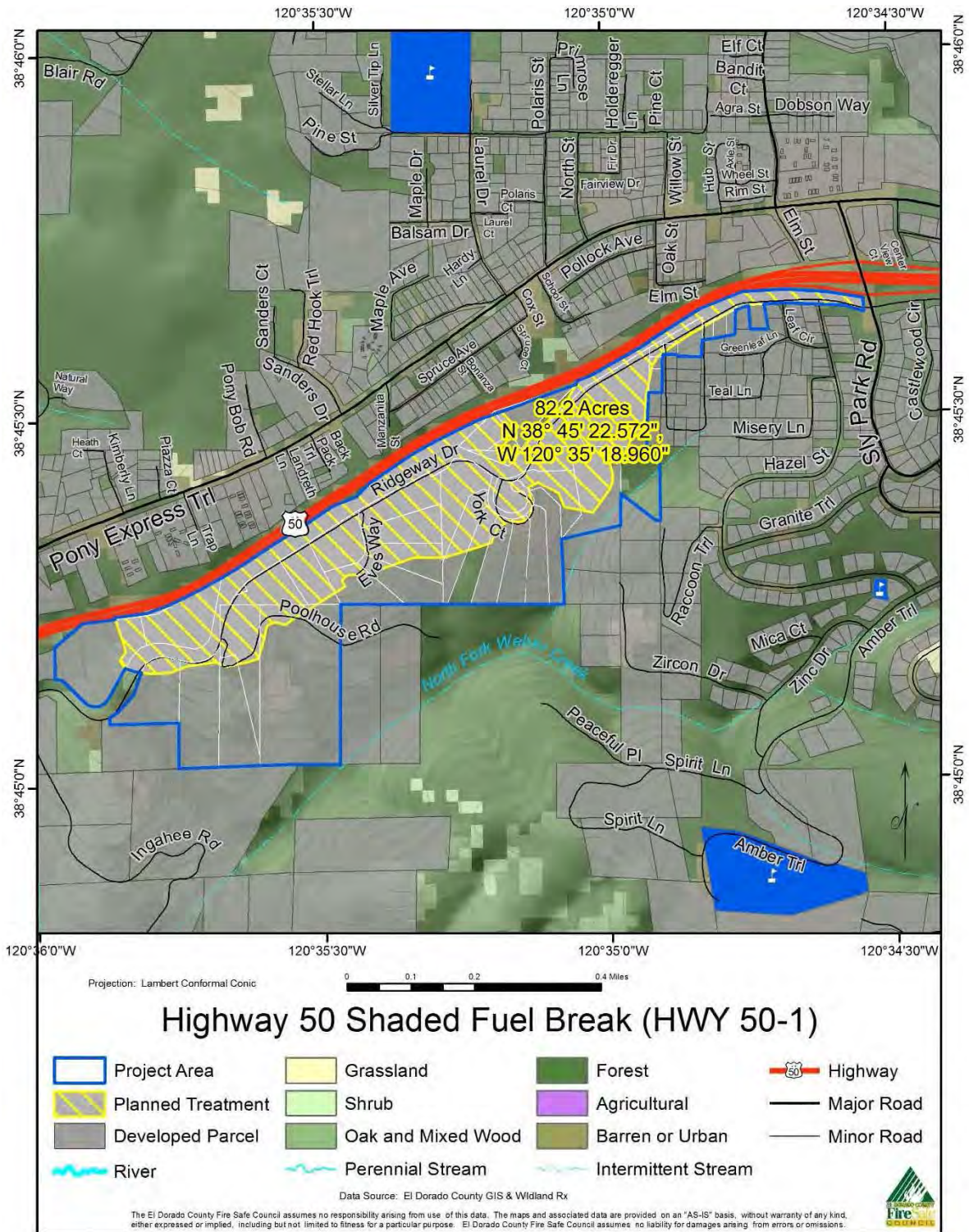
Sly Park Shaded Fuel Break (SP-4)

- | | | | |
|-------------------|--------------------|---------------------|------------|
| Fire Safe Council | Grassland | Forest | Highway |
| Planned Treatment | Shrub | Agricultural | Major Road |
| Developed Parcel | Oak and Mixed Wood | Barren or Urban | Minor Road |
| River | Perennial Stream | Intermittent Stream | |

Data Source: El Dorado County GIS & Wildland Rx

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El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
ROYAL EQUESTRIAN ESTATES FIRE SAFE COUNCIL
ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared for:

ROYAL EQUESTRIAN ESTATES FIRE SAFE COUNCIL

JANUARY 2017

The Royal Equestrian Estates is located south of the community of Shingle Springs in the foothills of El Dorado County. The primary vegetation types in the community are oak tree overstory with a grass understory typical of Sierra Mountain foothills along with areas of chaparral primarily Manzanita and chemise brush vegetation. The community is made up of mostly 5 acre parcels sub divided into 77 properties with 59 of the lots with large homes and landscaping. Each lot has its own well providing water. There is also an EID water filled water storage tank and fire hydrant system that provides coverage directly for about half the properties and can load water tenders for the balance.

El Dorado County has a unique wildland fire environment owing to its Mediterranean climate, highly combustible fuels, frequent interface zones, and the complexity of its terrain. Fires burn with much greater intensity in this environment and are more costly and difficult to control creating a greater risk of loss of life, property, and resources.

The CALFIRE Ranger Unit Direct Protection Area (DPA¹) on the west slope of the Central Sierra Mountain Range is experiencing explosive population growth. Most of this growth is occurring outside the incorporated cities the same areas that contain the most hazardous fuels and most difficult terrain. Most of the manmade values at risk from wildfire are also located in these areas.

The fire environment in El Dorado County is conducive to large destructive wildfires as shown by the fire history map. Over 70% of the CDF's DPA contains high to very high hazard fuels (brush and timber). (CALFIRE Amador El Dorado Ranger Unit Fire Plan)

6.1 Fire History

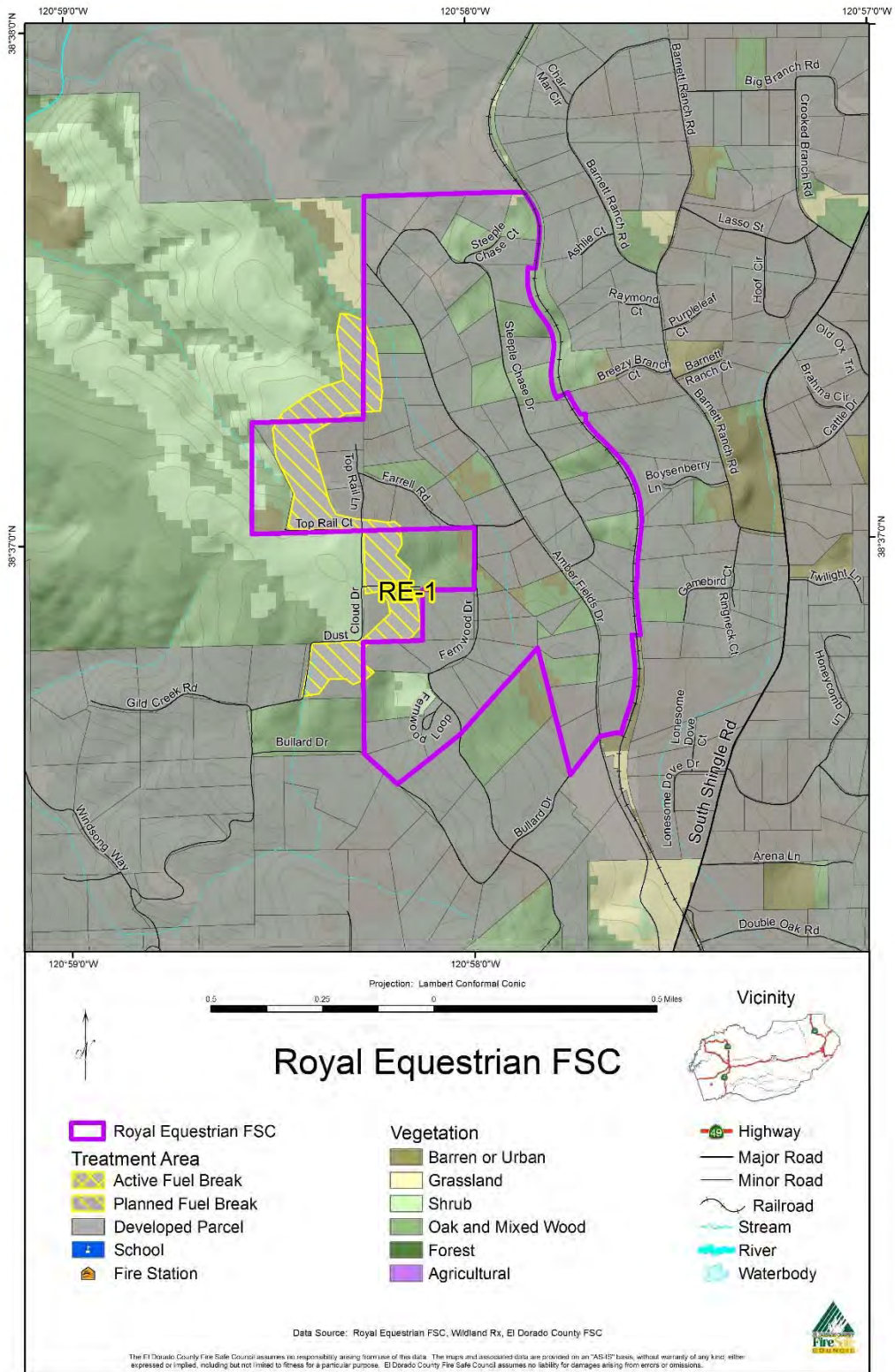
El Dorado County has increased its population and development over the past twenty years in the wildland vegetation and this has placed many additional homes at risk. Small fires often create wildland/urban interface fire protection problems previously only found in the most densely populated areas of southern California. Wildfire ignitions have increased in El Dorado County according the Amador-El Dorado Unit (CAL FIRE) Fire Management Plan.

Latrobe and Shingle Springs are listed in the Federal Register as communities at risk from a wildfire. The Royal Equestrian Estates community is located between these two communities with the same vegetation and hazards as Shingle Springs and Latrobe.

In 1976, before homes were constructed, the entire Royal Equestrian Estates area was burned over by the Quarry Fire which burned a total of 1940 acres. In 2006, the Deer Fire a wildfire started by accident at the EID sewage disposal plant in Marble valley, threatened the community from the west and burned 71 Acres.



Figure 4: Royal Equestrian Estates FSC Map



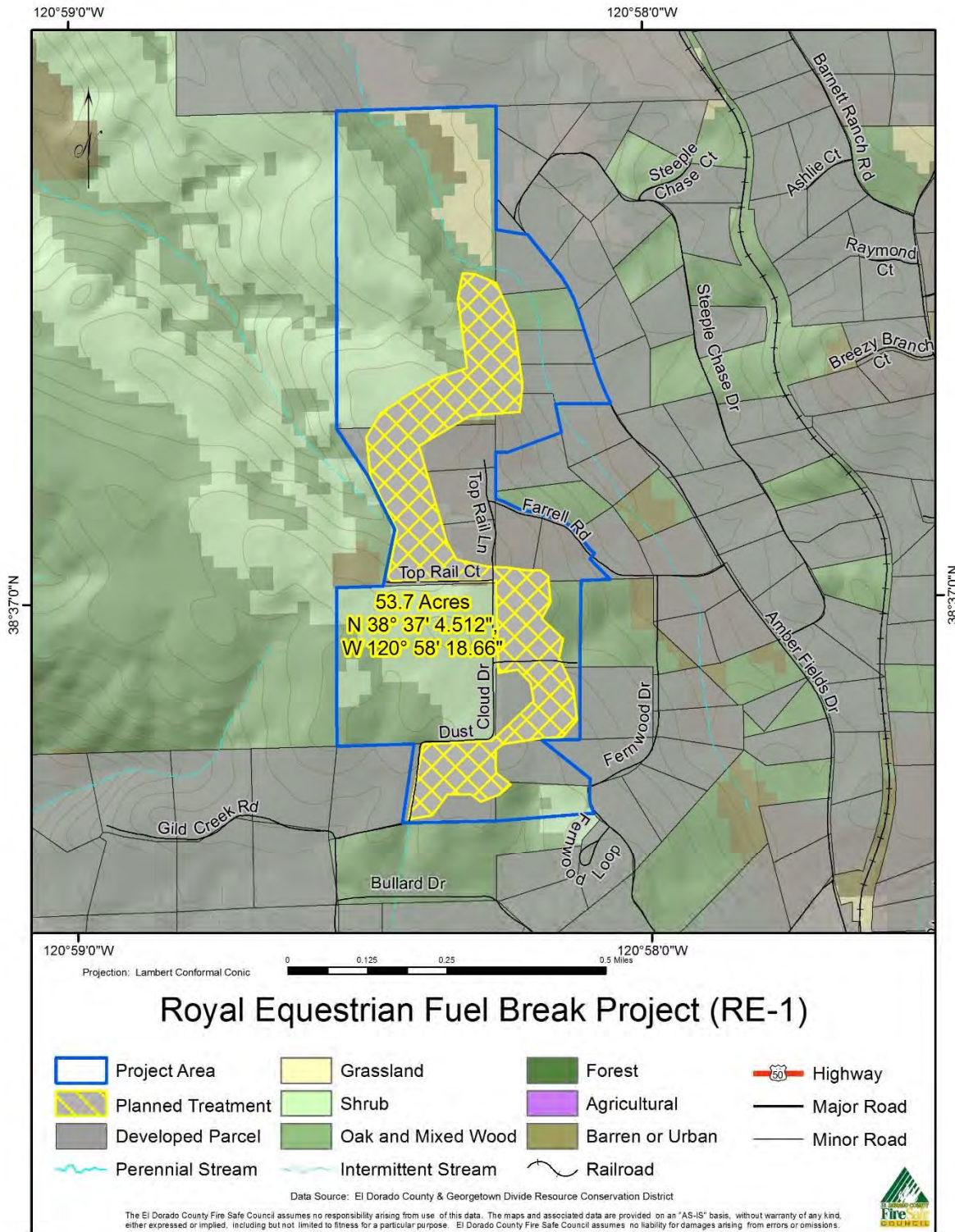
Fire Risk Mitigation Projects Summary

Fuel Breaks

- A. Construction on Western Border** – The Community has acquired funds through a \$98,000 grant to finance the construction of a fuel break along the Western boundary (REE 1) that will provide an opportunity for suppression resources to take advantage of a change in fire behavior that will allow for stopping a wildfire from entering the community. This highest priority external threat to Royal Equestrian Estates (REE) comes specifically from the west Marble Valley. To mitigate this threat from the west will require the implementation of a project to reduce the fuels along the western boundary of the REE Home Owners Association (HOA). The treatment will include the construction of a 54-acre shaded fuel break as shown on the following map.

As REE implements its fuel break construction there will be opportunities for neighboring communities to add to the fuel break for their protection as well. There are numerous communities along South Shingle Road that would benefit from an enhanced fuel break above Marble Valley.





B. REE Community Recreation Trail and Railroad right of way

The Royal Equestrian Estates HOA has a developed equestrian trail system that follows along much of the outside boundary of the REE. The trail is well defined along the northern, eastern and southern boundary of the community. This trail system if maintained to a width of 10 to 20 feet would provide a very good fuel break in the grass woodland portion of the estates. Through annually maintaining a trail tread to mineral soil of 6 to 10 feet wide with the grass and brush mowed to 10 feet wide on each side of the tread, the trail could provide an opportunity for suppression forces to use the trail as a control line during a wildfire. It is recommended that this trail system be accurately mapped so that local suppression forces would know that it exists and place it into their pre-attack planning. Once the trail has been constructed to the specifications and maintained annually it could be part of a fuel break system protecting the community from a wildfire threatening the community from the north, east and south.

Also along the eastern boundary of the REE HOA is a railroad right-of-way which could be incorporated into a fuel reduction zone along with the equestrian trail. The vegetation, primarily grass and small brush, on either side of the rails could be mowed or cut 10 feet on each side of the rails. This could be done in concert with the right-of- way owner of the rails – a joint powers authority. If the rails are put into service or maintained as a recreational trail again the owner of the right-of-way would have the responsibility for the treatment to prevent fires caused by the right-of-way use.

Provide roadside hazard reduction along key ingress and egress routes inside the REE.

The REE Fire Safe Council (FSC) has successfully mobilized property owners to provide proper defensible space alongside critical roads on their properties. They should continue to maintain this.

If voluntary efforts are not successful, then contracted services can accomplish this at an estimated cost for roadside hazard reduction is \$2000/acre.

Clear Vacant Lots / Improve Defensible Space – To both assist vacant lot owners and developed property owners in improving fire safety, there are several projects that can be undertaken including:

Chipping /mulching program. The REE FSC has successfully sponsored annual community “Chipper Days” over the past 10 years to assist and encourage lot owners in the community to meet the State and County standards for fuels treatment by vegetation reduction efforts and using CalFire grant funded programs to have free chipping services chip the material on site. These programs should be continued.

Vacant lots – there remain several vacant lots that have not been treated. This is now the most significant internal fire risk for REE. The REEFSC reports that many attempts have been made over the years to encourage the owners of these lots to provide some treatment with only limited success. REE HOA may wish to consider implementing rules or CC&Rs similar to those adopted by many other local jurisdictions that require vacant lot owners to provide some defined level of treatment.

The Royal Equestrian Estates Homeowners Association will work with the El Dorado County Fire Safe Council to establish several chipping days where the chipper will be exclusively available for the residents. A program to help economic disadvantaged or persons with physical limitations has



been developed by the El Dorado County Fire Safe Council and can be used by homeowners unable financially or physically to clear their property. The intent is for this to supplement the El Dorado County Fire Safe council chipping program. Estimated cost for five chipping days is \$3,800.

Seek funding to strengthen the Defensible Space Program.

The REE HOA may seek \$6,000 to enhance the Defensible Space Program which includes the inspection for compliance with California’s Defensible Space Program. Various sub-projects will be considered to enable the program to improve the defensible space situation within the subdivision; for example, the establishment of advisors and assistance to the remote owners of vacant lots to treat their properties.

Implement a volunteer defensible space program of inspections and education

- a. If the volunteer inspection program is not sufficiently effective and material fire risks remain threatening the community, consider an abatement CC&R change that would involve contract clearing and billing the lot owner. This type of program has been successfully implemented in other communities and homeowner’s associations.

Explore funding to increase the number of Fire Hydrants / Maintain them

- a. **Explore Cost / Benefit of installing additional Fire Hydrants** – REE was developed in two phases and the first phase which comprises about half of the REE HOA Properties does not have any fire hydrants. The second phase does have fire hydrants. The REE FSC has met with EID to develop rough costs of EID constructing sufficient pipeline capacity to the REE development and found it to be cost prohibitive at this time. And this did not include the very significant additional costs to dig up and install the pipes and hydrants in REE roads as well as to install a pumping station. However, as adjacent areas are developed REE will remain vigilant to see if there are potential future synergies available as other water infrastructure is installed to potentially cost effectively bring water supply to REE. At present the lack of fire hydrants is recognized by the El Dorado County Fire Protection District and a water tender is dispatched to all reported fires in REE. It has been recognized that the cost of installing Fire Hydrants is currently too high to really benefit the community and that the use of water tenders is a good trade off and beneficial to the community.
- b. **Maintain Fire Hydrants-** The property owner’s water supply is provided by individual wells. The fire hydrant system and water to the hydrants is supplied by the Eldorado Irrigation District and is critical to effective community interior and exterior fire defenses. The Homeowners Association has a vested interest in their community water delivery system and has established a program of volunteers that,
 - i. Tests each fire hydrant annually
 - ii. Checks the water level and operational status of their 66,000-gallon water storage tank quarterly.
 - iii. Drains and has the water tank inspected inside and out every five years with re-lining and any other needed maintenance accomplished as needed.



This program should be continued. It may also be helpful for the REE FSC to contact the El Dorado Irrigation District and Eldorado County Fire Protection District to see if there are any further actions or programs that could be implemented to ensure that these systems are fully operational and well maintained and/or if these programs should be directed by the Fire District.

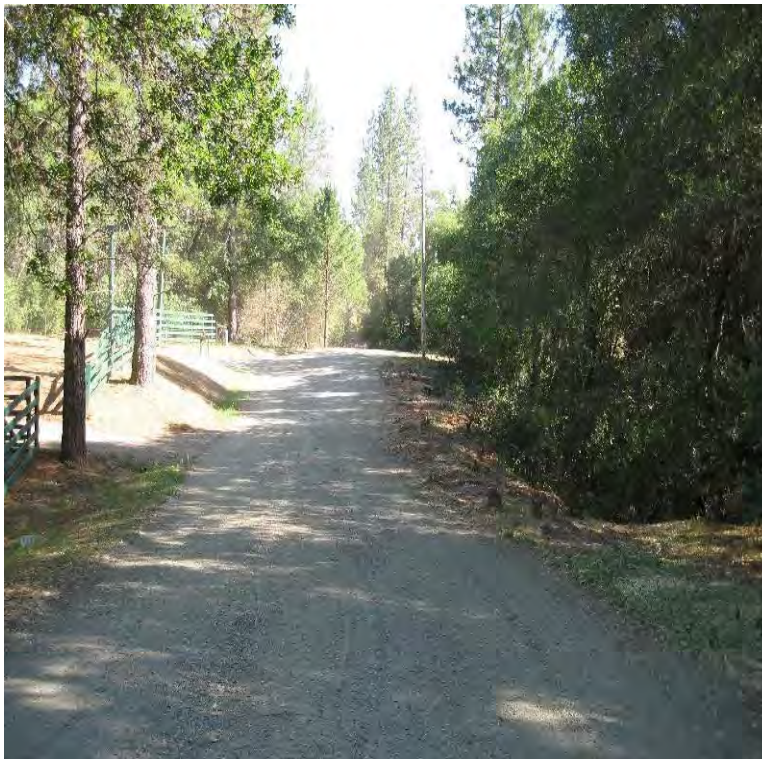


Summary of proposed treatment by cost for the Royal Equestrian Area.

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Royal Equestrian	1	REE-1	West Side Fuel Break	Fuel Reduction	54		\$98,243
Royal Equestrian	2	REE-2	Riding Trail Fuel Reduction	Fuel Reduction	20	4.0	\$40,000
Royal Equestrian			Total Royal Equestrian		74	4.0	\$138,243



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Prepared for:

SANDRIDGE-NASHVILLE FIRE SAFE COUNCIL

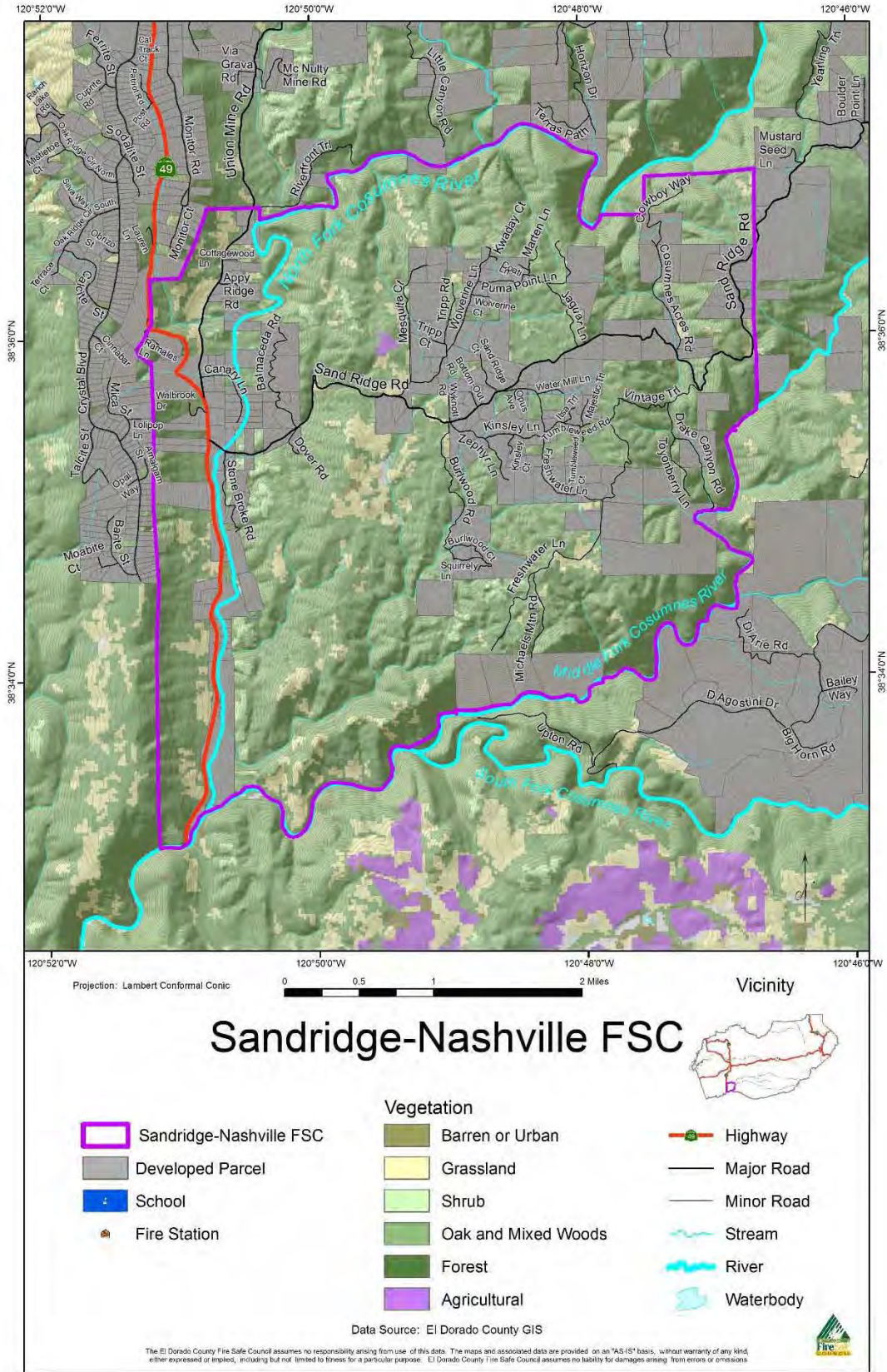
JANUARY 2017

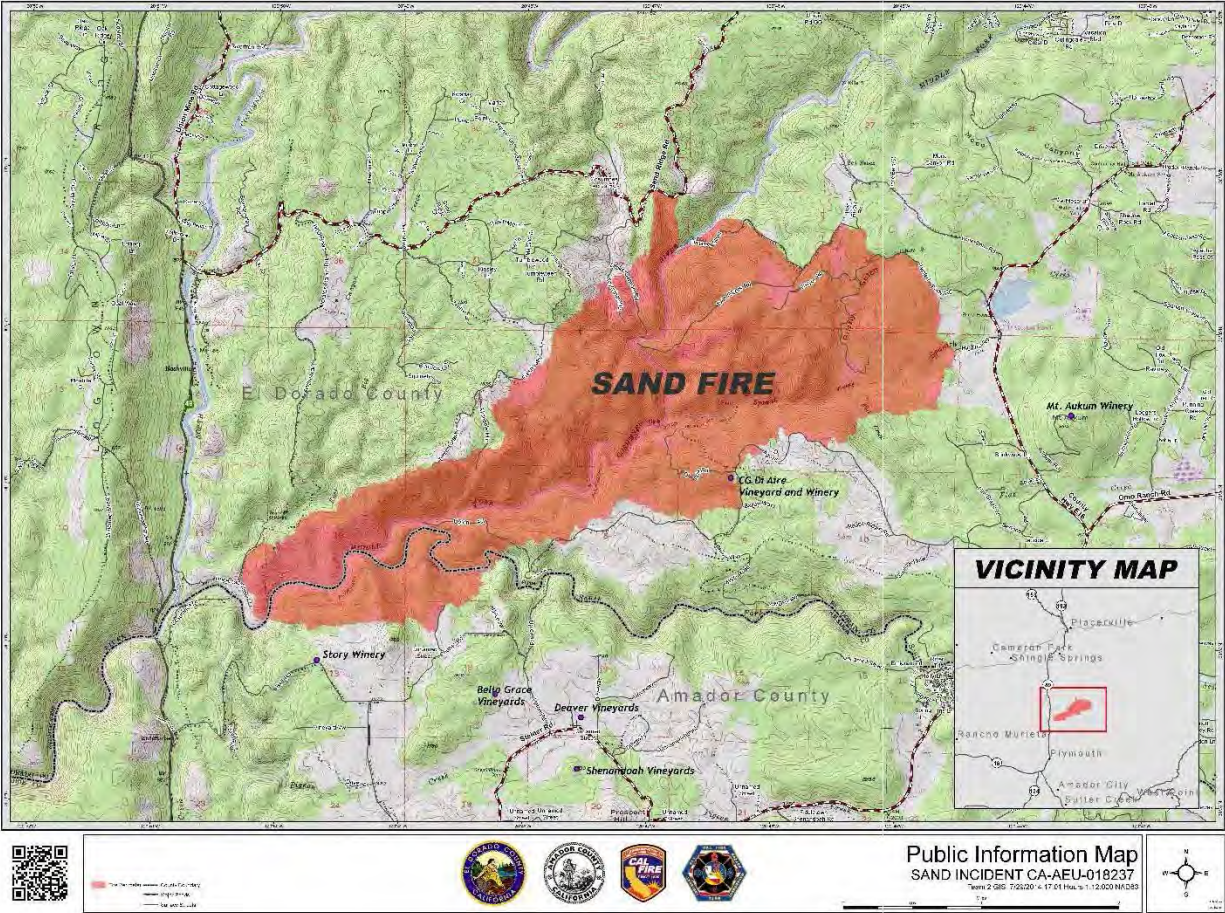
Sand Ridge-Nashville is an area including 9,372 acres in south El Dorado County between Highway 49 and County road E 16. The population was 598 with 289 housing units most of the housing is on large parcels.

July 25, 2014 the Sand Fire ignited in the FSC area caused by vehicle use in dry vegetation the fire burned 4,240 acres Structures lost were 20 residences and 47 outbuildings most of the burn area was in the southern end of the Fire Safe Council Area. The vegetation type in the area is highly flammable with oak and grass woodland and many acres of chaparral. The Sand Ridge area is covered under the Diamond Springs El Dorado FPD CWPP located on the website: <http://www.edcfiresafe.org/cwpp/>

COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Sand Ridge	TBD						







El Dorado County
COMMUNITY WILDFIRE PROTECTION PLAN
Community Tab for
SIERRA SPRINGS FIRE SAFE COUNCIL ACTIVITIES



Prepared for Inclusion in the:

EL DORADO COUNTY FIRE SAFE COUNCIL
Community Wildfire Protection Plan
Diamond Springs, California

Prepared for:

SIERRA SPRINGS FIRE SAFE COUNCIL

JANUARY 2017

Sierra Springs Owners Association (SSOA), which includes approximately 638 properties, was established in 1969. Awareness of the need for increased fire safety and fuel mitigation in the community became more evident after the Sand Ridge and King fires. Thus, the Sierra Springs Fire Safety Committee was formed in 2015 to address the fire safety issues in the SSOA. The association's board adopted two fire safety policies, one for lots with a structure(s) and one for lots without a structure. The board also approved the fire safety committee to act on their behalf. The committee then began sending letters to owners asking them to comply with the fire safety policies and Public Resources Code 4291.

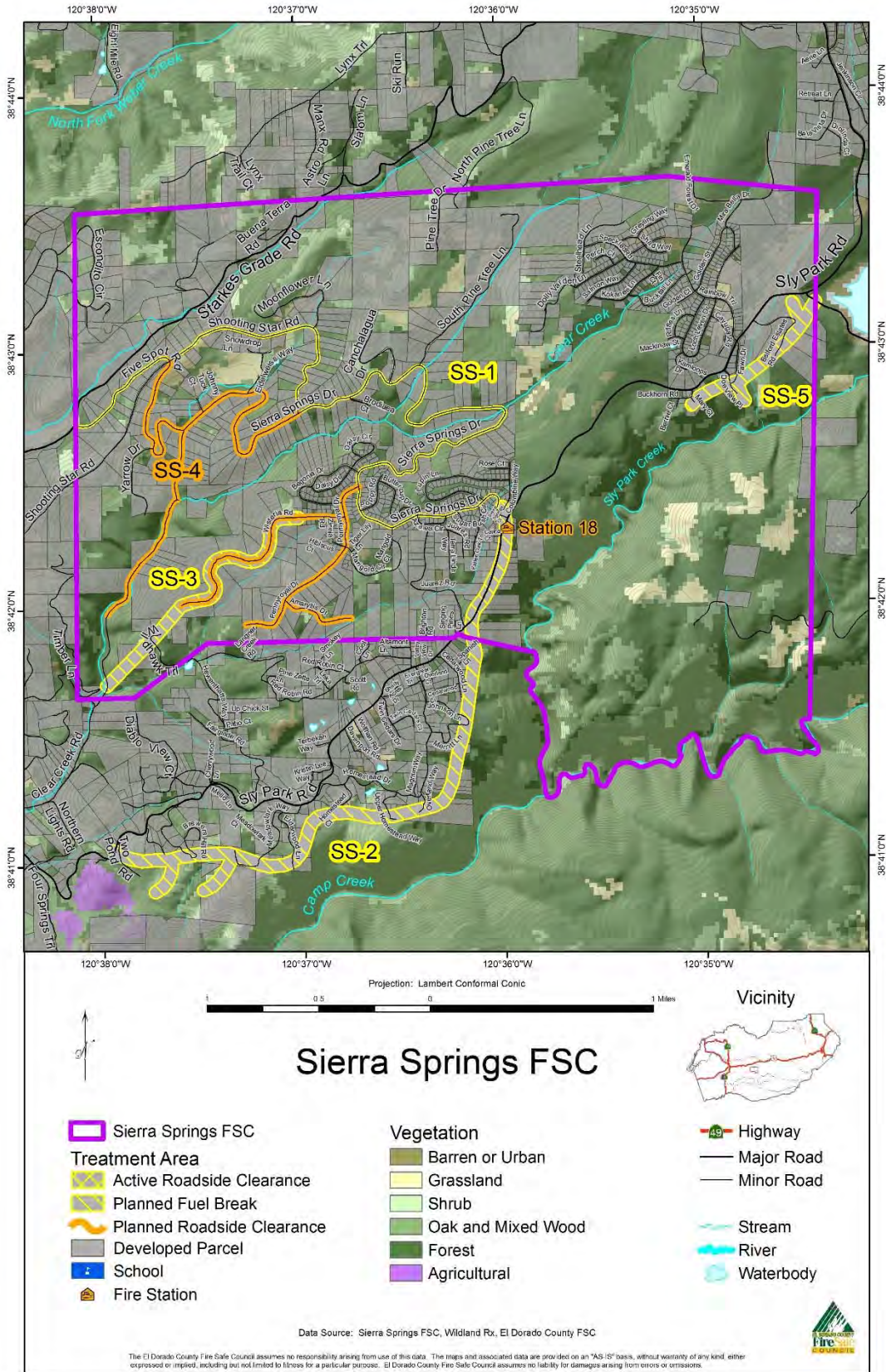
The Sierra Springs Fire Safe Committee realized the importance of taking a broader approach to fire safety and established the Sierra Springs Fire Safe Council (SSFSC), an associate council under the El Dorado Fire Safe Council in July 2016. The sphere of influence of the SSFSC extends beyond the community of Sierra Springs to include other communities that do not have their own council. Sly Park Hills as well as other small communities are included in the SSFSC.

The SSFSC met with CWPP project manager, Barry Callenberger, to identify five potential fuel mitigation projects within the SSFSC area. Two roadside fuel reduction projects and three shaded fuel breaks are included in our Countywide Community Protection Plan. SS-1, a roadside fuel clearance project has begun and is expected to be completed by January 2017.

The Sierra Springs Community Sphere of Influence includes 4,747 acres of mixed conifer vegetation within the FSC there is from the 2010 census a population of 2344 individuals, and a total of 1135 housing units

More information can be found in the El Dorado County Fire Protection District CWPP website: <http://www.edcfiresafe.org/cwpp/>

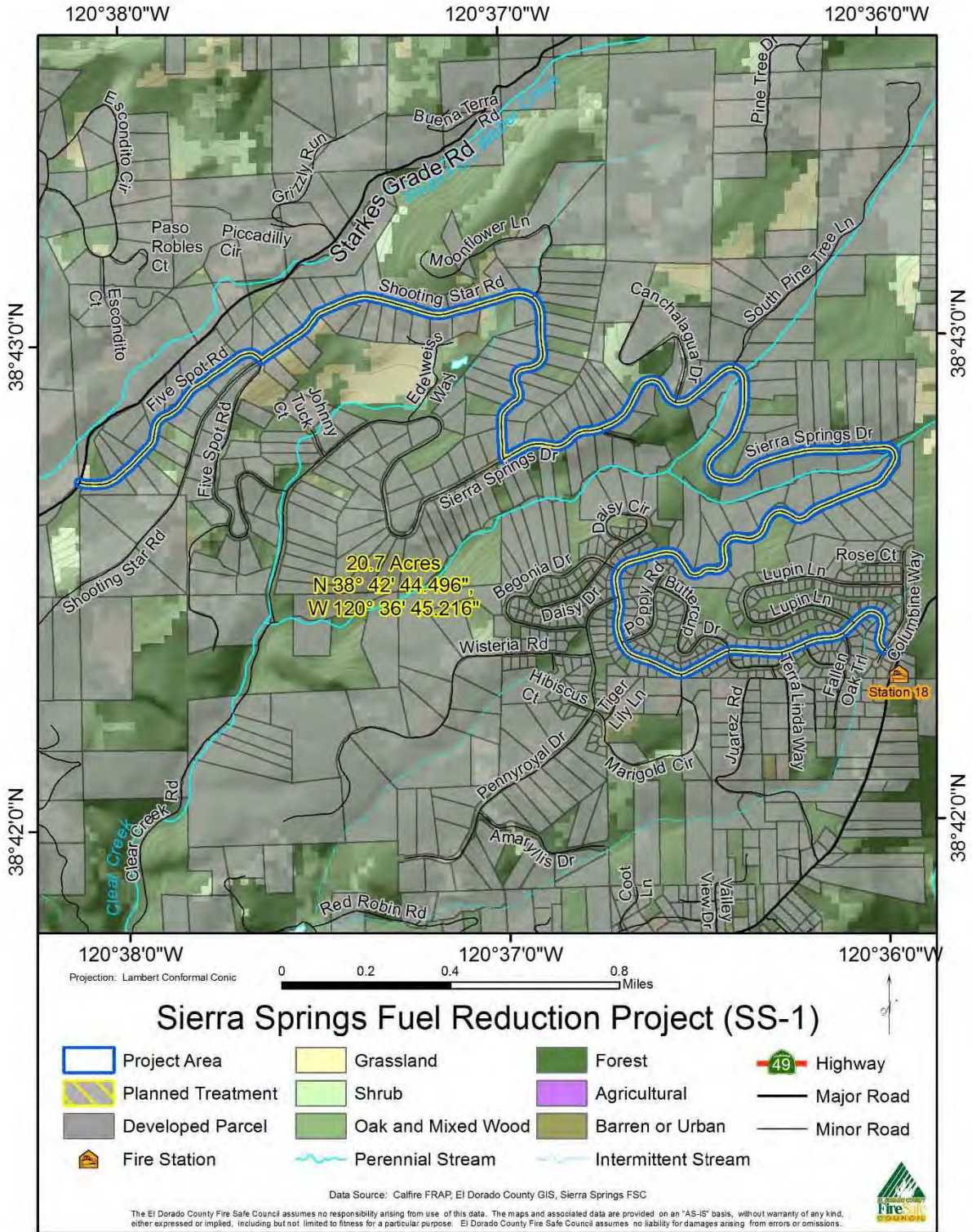


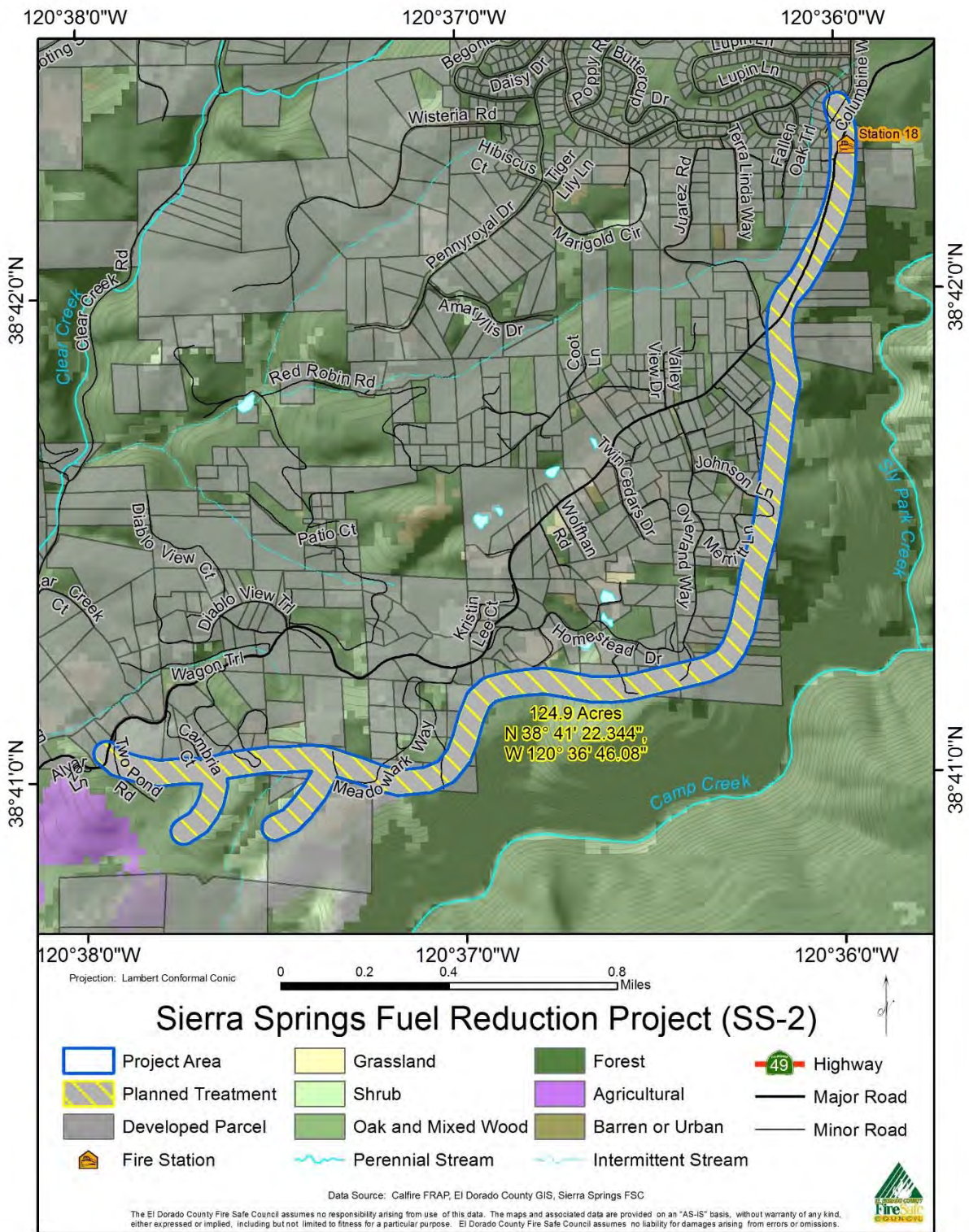


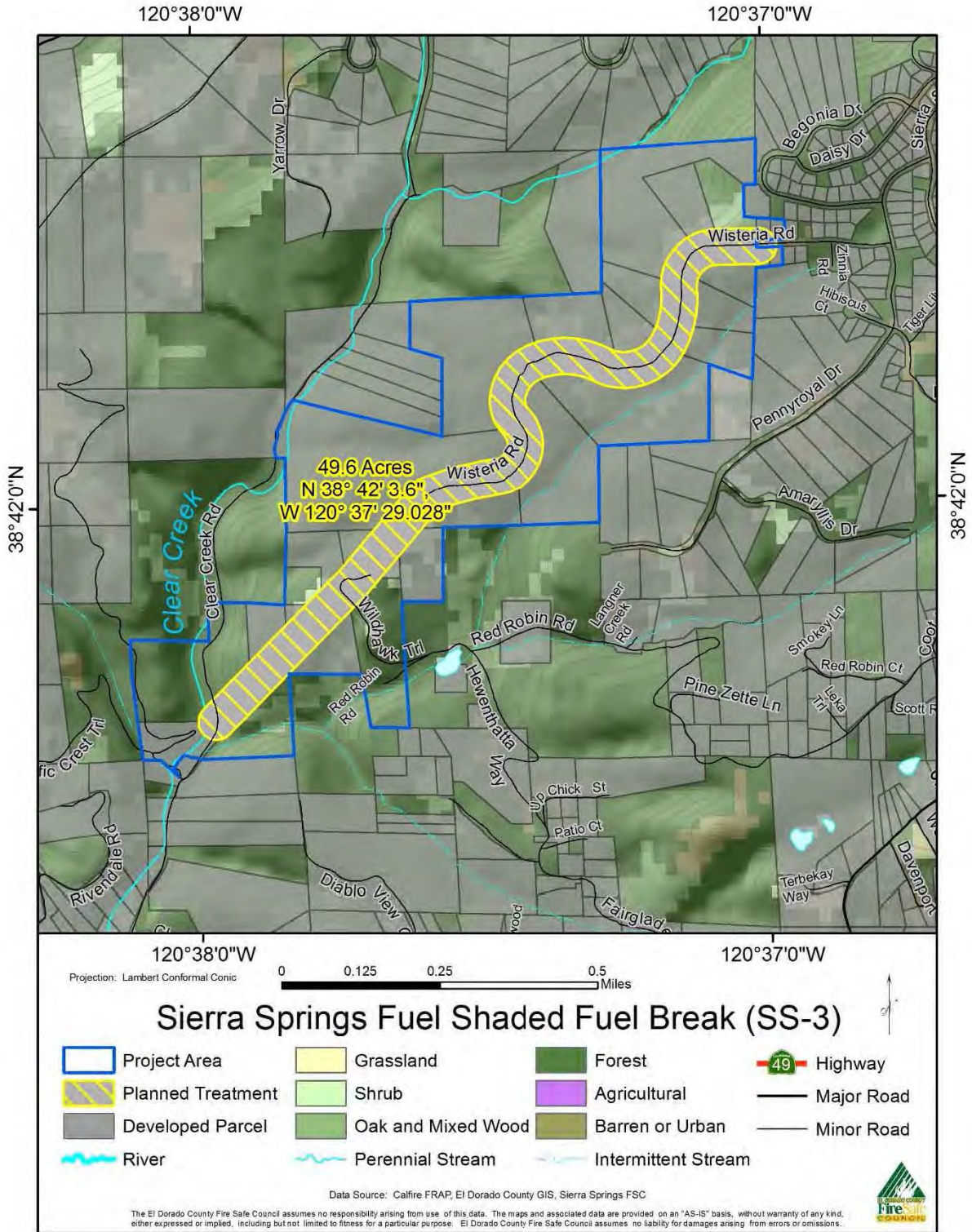
Summary of proposed treatment by cost for the Sierra Springs Area.

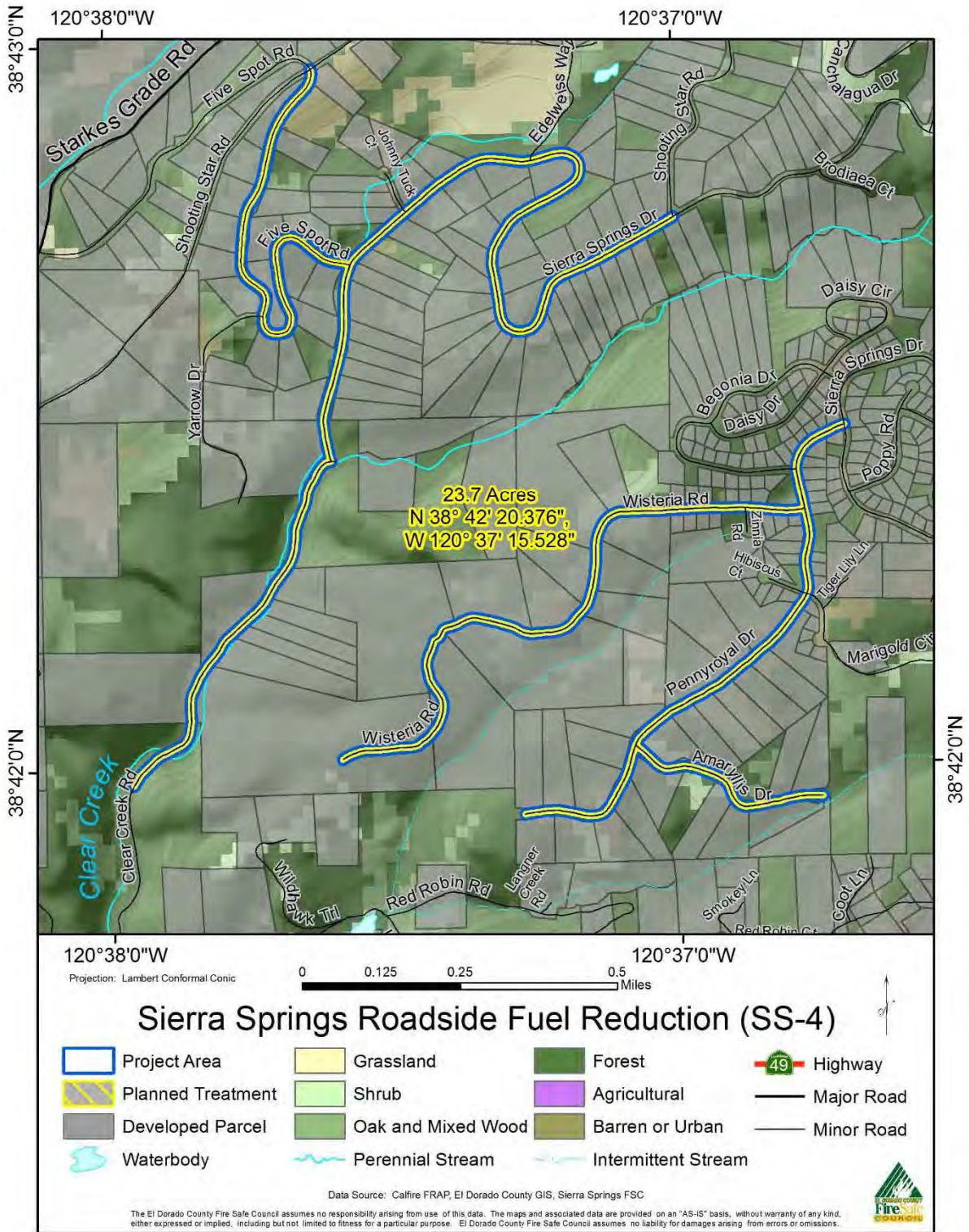
COMMUNITY	PRIORITY	PROJECT NUMBER	PROJECT DESCRIPTION	TREATMENT TYPE	ACRES	MILES	ESTIMATED COST
Sierra Springs	1	SS-1	Roadside Clearance	Road Hazard	21	5.0	\$46,000
Sierra Springs	2	SS-2	Camp Creek Fuel Break	Fuel Reduction	125		\$199,000
Sierra Springs	3	SS-3	Wisteria Fuel Break	Fuel Reduction	50	1.0	\$100,000
Sierra Springs	4	SS-4	Roadside Clearance	Road Hazard	21	5.0	\$44,000
Sierra Springs	5	SS-5	Sly Park Creek	Fuel Reduction	35		\$70,000
Sierra Springs			Total Sierra Springs		252	11.0	\$459,000

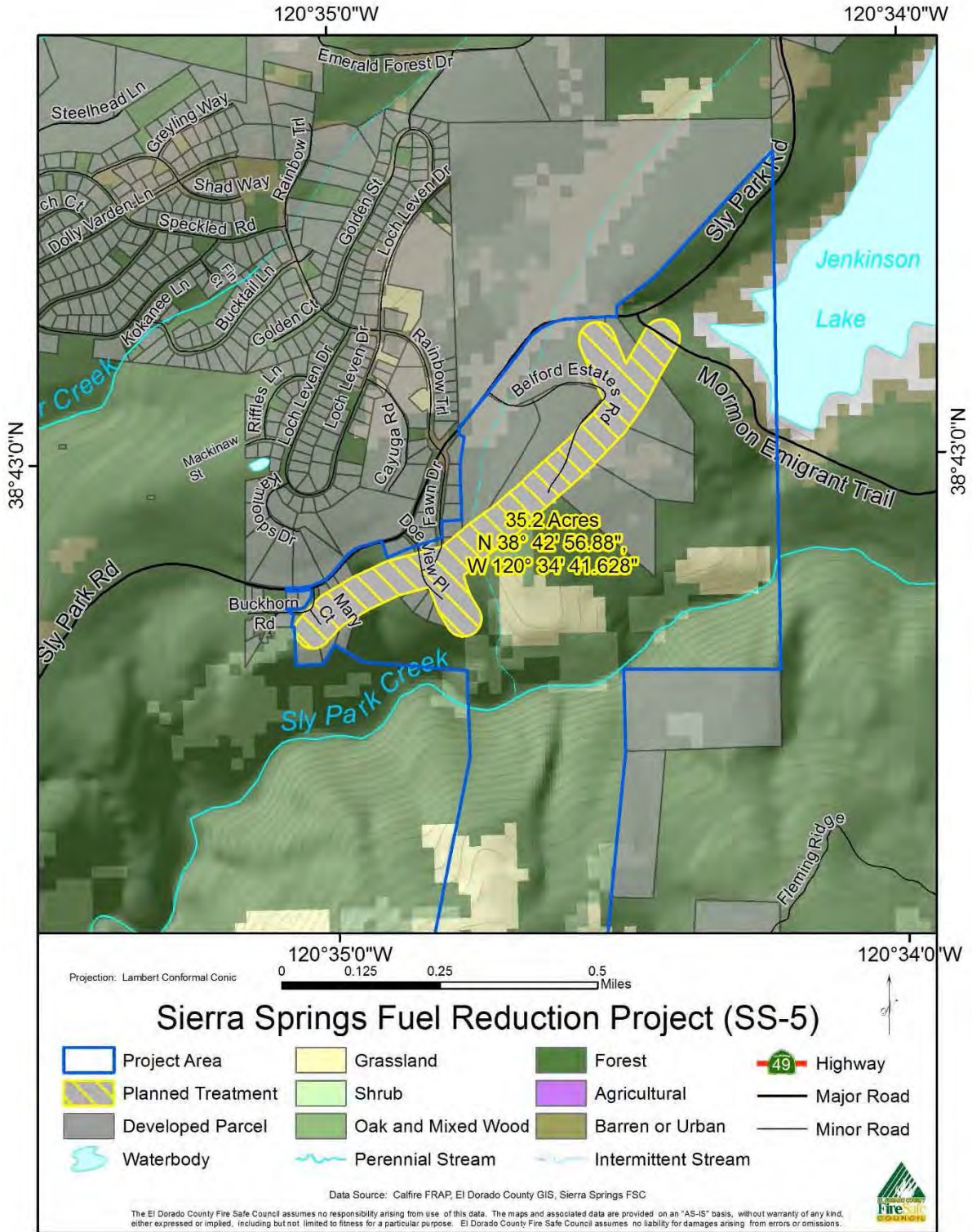












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Appendix 1: List of Meetings Held to Provide Updates On and Solicit Input from the Public on the El Dorado County Community Wildfire Protection

(Following Pages)



Meeting Date	Meeting Time	Audience or Community	Meeting Location	Meeting Contact	Number of People In Attendance	Meeting Focus
5/18/2015	10:00	EDCFSC	EDH Fire	Pat	5	CWPP Strategy
6/8/2015	9:00	EDCFSC	Station 83	Pat	5	CWPP RFP
6/17/2015	10:00	EDCFSC	Station 83	Pat	5	Contractor Selection
6/29/2015	10:00	EDCFSC	Station 83	Pat	6	Pre Award Conference
7/6/2015	10:00	EDCFSC	Station 83	Pat	6	Contract Award
8/10/2015	10:00	EDCFSC	Station 83	Pat	5	E-board
8/18/2015	11:00	SIG	Home	Pat/Gary	5	Conference Call
8/18/2015	930	SIG/EDCFSC	Placerville, CA, El Dorado County OES Meeting Room	Dr. Harris	32	Chief's Kick-off
8/18/2015	1:00	SIG/EDCFSC	Placerville, CA, El Dorado County OES Meeting Room	Dr. Harris	26	Agency Kick-off
9/29/2015	2:00	SIG/EDCFSC	Home	Pat/Gary	6	Conference Call
10/25/2015	1:00	PV	PV	Bruce	29	CWPP Kick-off
10/30/2015	8:00	USFS	USFS	Teresa	10	Model Concerns
11/3/2015	3:00	SIG/EDCFSC	Home	Pat/Gary	5	Model Conf Call
11/10/2015	7:00	EDCFSC/ Lake Hills FSC	EDH Fire	Steve/Pat	8	CWPP Kick-off
11/10/2015	7:00pm	Lake Hills Fire Safe Council Public Meeting	EDH Fire Station 85	Steve Willis/ Pat Dwyer	21	Countywide CWPP and survey kickoff
11/11/2015	5:30	EDCFSC/Cool FSC	Holiday Market Cool	Linnea/Pat	9	CWPP Kick-off
11/14/2015	9:00	EDCFSC/Logt own FSC	Station 44	Pat	29	CWPP Kick-off
1/30/2016	9:00 to 11:00am	Mosquito Fire Safe Council	Mosquito Fire Station	Karen Pullen	43	Pancake Breakfast

Meeting Date	Meeting Time	Audience or Community	Meeting Location	Meeting Contact	Number of People In Attendance	Meeting Focus
1/30/2016	9:00-11:00 am	Mosquito Fire	Station 75	Chief Hazelett	16	In Conjunction with Mosquito FSC Meeting
2/2/2016	6:30 to 8:00 pm	Placerville Fire Safe Council	BOS Chambers	Kathy Withrow	87	Special meeting by Supervisor Veerkamp
2/6/2016	9:00 to 11:00 am	Grizzly Flat Fire Safe Council	GF Community Church	Mark Almer Ernie Lori	34	Regular FSC Meeting
2/13/2016	9:00 to 11:00 am	Logtown Fire Safe Council	Station 44	Pat Dwyer	28	Regular FSC Meeting
2/16/2016	1:00pm	Department of Transportation	DOT Maint Office	Don Spear	3	Discuss roadside vegetation mgt
2/23/2016	1:00 to 3:00 pm	EDCFSC Stakeholders	USFS	Pat Dwyer	35	Regular Quarterly Stakeholders Meeting
2/29/2016	0900-1000 am	CAL FIRE	AEU HQ Camino	Tom Tinsley	5	Maps and strategy
03/09/2016	6:00 pm	Diamond Springs Fire	Station 49	Chief Combs	14	Briefed DSED Board on CWPP
3/13/2016	1:00 to 3:00pm	Pleasant Valley Fire Safe Council	PV	Bruce Dickson	44	Regular FSC Meeting

Meeting Date	Meeting Time	Audience or Community	Meeting Location	Meeting Contact	Number of People In Attendance	Meeting Focus
3/16/2016	6:00 to 7:30 pm	Coloma-Lotus Fire Safe Council	Coloma	Deborah Kruse	18	Regular FSC Meeting
3/16/2016	6:30 to 8:00 pm	Pollock Pines Fire Safe Council	PP Community Center	Heather Campbell	8	Regular FSC Meeting
3/24/2016	6:00 to 8:00 pm	Garden Valley Fire Safe Council	Garden Valley Fire	Ron Wolsfield 344-0880	43	Rural Communities Group Special Event
3/24/2016	6:00 to 8:00 pm	Garden Valley Fire	Station 51	Ron Wolsfield	47	In Conjunction with Rural Communities Group Meeting
3/29/2016 03/29/2016	6:30 to 8:30 pm	OMO Ranch Fire Safe Council	Pioneer School	Nancy Lynch	21	OMO Ranch Group
4/25/2016	5:00 to 7:00 pm	Cool- Pilot Hill Fire Safe Council	Northside School	Linnea Marengo	22	Special Event
5/7/2016	10:30 – 12:00am	Volcanoville Fire Safe Council	Georgetown Fire Volcanoville	Mary Cornielson	18	Community Preparedness Day
6/22/16 6/28/16 7/6/16	8:00 am 9:00 am 2:00 pm	El Dorado Hills	EDH Fire Station 85	Steve Willis Marsall Cox	2	CWPP Maps
7/12/16	7:00 pm	Lake Hills FSC Public Meeting	EDH Fire Station 85	Steve Willis	27	CWPP Projects, Maps
23 meetings in 2016	various	Auburn Lake Trails Fire Safe Council	ALT	Jeff Tolson	Total 2139 hours	CWPP/ Public Education
08/10/2016	11:00am	El Dorado County Chamber of Commerce	Red Hawk Steak House	Chamber Members	55	Fire safe presentation and CWPP
11/16/16	1:00 pm	Royal Equestrian Fire Safe Council	Residence	Ray Pingle Barry Callenberger	7	CWPP projects maps and REE-1



Meeting Date	Meeting Time	Audience or Community	Meeting Location	Meeting Contact	Number of People In Attendance	Meeting Focus
8/1/2015		Patterson-DS Fire Safe Council	Residence	Kris Payne	22	CWPP Council Formation

Appendix 2: Community Survey Questions and Summaries



21 page appendix will be inserted here in the final PDF











































Appendix 3: Summary of Fire History Including Ignitions, Acres Burned, and Fire Severity for El Dorado County



Appendix 3a. Ignitions by year (1992-2013) including the percentage of ignitions within and outside the WUI by cause (human or lightning caused)

Year	Within WUI			Outside WUI			Total Ignitions
	Human Caused	Lightning Caused	WUI Total	Human Caused	Lightning Caused	Non WUI Total	
1992	65%	14%	79%	7%	14%	21%	392
1993	83%	1%	84%	11%	5%	16%	263
1994	79%	7%	86%	9%	5%	14%	341
1995	87%	1%	88%	10%	2%	12%	231
1996	74%	8%	83%	10%	7%	17%	246
1997	78%	7%	85%	12%	3%	15%	235
1998	74%	6%	80%	11%	9%	20%	187
1999	74%	5%	80%	12%	8%	20%	298
2000	75%	4%	79%	17%	5%	21%	299
2001	72%	3%	75%	21%	4%	25%	278
2002	74%	5%	80%	18%	2%	20%	266
2003	69%	9%	78%	13%	9%	22%	298
2004	78%	4%	82%	10%	8%	18%	291
2005	86%	3%	89%	8%	3%	11%	193
2006	81%	4%	86%	11%	3%	14%	280
2007	86%	1%	87%	10%	3%	13%	365
2008	83%	4%	87%	10%	4%	13%	285
2009	70%	1%	71%	28%	1%	29%	218
2010	69%	9%	79%	14%	7%	21%	169
2011	81%	3%	84%	11%	5%	16%	219
2012	72%	9%	82%	9%	9%	18%	236
2013	78%	7%	85%	10%	5%	15%	259
Total	77%	5%	82%	12%	6%	18%	5849

Appendix 3b. Acres per year burned by wildfire by year (1916-2014) including the percentage of acres within and outside the WUI by cause (human or lightning caused)

Year	Within WUI			Outside WUI			Total Acres
	Human Caused	Lightning Caused	Human Caused	Lightning Caused	Human Caused	Lightning Caused	
1916	74%	0%	74%	26%	0%	26%	13023
1917	52%	16%	67%	30%	3%	33%	9677
1918	36%	46%	82%	17%	1%	18%	922
1919	18%	0%	18%	82%	0%	82%	4483
1920	7%	7%	13%	85%	1%	87%	2661
1921	22%	0%	22%	78%	0%	78%	84
1922	97%	0%	97%	3%	0%	3%	2534
1923	27%	0%	27%	73%	0%	73%	2878
1924	39%	0%	39%	61%	0%	61%	13491
1925	36%	0%	36%	33%	30%	64%	124
1926	21%	0%	21%	79%	0%	79%	2269
1927	11%	0%	11%	0%	89%	89%	351
1928	84%	0%	84%	15%	2%	16%	1302
1929	50%	23%	74%	6%	20%	26%	2130
1930	0%	0%	0%	100%	0%	100%	284
1931	24%	0%	24%	76%	0%	76%	560
1932	41%	0%	41%	59%	0%	59%	7934
1933	100%	0%	100%	0%	0%	0%	1619
1934	22%	0%	22%	75%	3%	78%	1080
1936	44%	0%	44%	56%	0%	56%	865
1937	100%	0%	100%	0%	0%	0%	74
1942	100%	0%	100%	0%	0%	0%	165
1943	45%	0%	45%	55%	0%	55%	1800
1944	44%	0%	44%	56%	0%	56%	842
1947	99%	0%	99%	1%	0%	1%	2835
1950	67%	0%	67%	33%	0%	33%	1639
1951	86%	0%	86%	14%	0%	14%	1700
1952	99%	0%	99%	1%	0%	1%	2531
1954	99%	0%	99%	1%	0%	1%	16809
1955	100%	0%	100%	0%	0%	0%	1476
1956	100%	0%	100%	0%	0%	0%	280
1957	84%	0%	84%	16%	0%	16%	1671
1958	100%	0%	100%	0%	0%	0%	1171
1959	51%	0%	51%	49%	0%	49%	31159
1960	23%	0%	23%	77%	0%	77%	13367



Year	Within WUI			Outside WUI			Total Acres
	Human Caused	Lightning Caused	Human Caused	Lightning Caused	Human Caused	Lightning Caused	
1961	99%	0%	99%	1%	0%	1%	13048
1962	99%	0%	99%	1%	0%	1%	1368
1964	97%	0%	97%	3%	0%	3%	4109
1966	0%	0%	0%	86%	14%	100%	176
1968	100%	0%	100%	0%	0%	0%	916
1969	55%	0%	55%	45%	0%	45%	647
1970	100%	0%	100%	0%	0%	0%	1757
1971	0%	0%	0%	100%	0%	100%	15
1972	99%	0%	99%	1%	0%	1%	1126
1973	51%	0%	51%	49%	0%	49%	11055
1974	78%	0%	78%	22%	0%	22%	743
1975	0%	0%	0%	0%	100%	100%	18
1976	85%	0%	85%	15%	0%	15%	18250
1977	0%	0%	0%	11%	89%	100%	312
1979	98%	0%	98%	2%	0%	2%	6952
1981	100%	0%	100%	0%	0%	0%	4969
1984	100%	0%	100%	0%	0%	0%	27
1985	79%	0%	79%	21%	0%	21%	1057
1986	100%	0%	100%	0%	0%	0%	762
1987	60%	0%	60%	40%	0%	40%	28
1988	14%	2%	16%	84%	0%	84%	594
1989	100%	0%	100%	0%	0%	0%	43
1990	0%	0%	0%	100%	0%	100%	8
1991	100%	0%	100%	0%	0%	0%	18
1992	43%	0%	43%	57%	0%	57%	23852
1993	100%	0%	100%	0%	0%	0%	70
1994	94%	0%	94%	6%	0%	6%	927
1995	28%	0%	28%	72%	0%	72%	144
1996	55%	0%	56%	44%	0%	44%	6470
1997	98%	0%	98%	2%	0%	2%	319
1999	2%	0%	2%	83%	15%	98%	75
2001	64%	0%	64%	36%	0%	36%	660
2002	59%	0%	59%	41%	0%	41%	3766
2003	96%	0%	96%	4%	0%	4%	300
2004	98%	0%	98%	2%	0%	2%	7632
2005	55%	15%	70%	30%	0%	30%	87
2006	85%	0%	85%	15%	0%	15%	286
2007	99%	0%	99%	1%	0%	1%	128



	Within WUI			Outside WUI			
Year	Human Caused	Lightning Caused	Human Caused	Lightning Caused	Human Caused	Lightning Caused	Total Acres
2008	59%	11%	70%	16%	14%	30%	271
2009	99%	0%	99%	1%	0%	1%	7
2011	7%	2%	9%	20%	71%	91%	683
2012	0%	0%	0%	100%	0%	100%	44
2013	95%	0%	95%	5%	0%	5%	617
2014	25%	0%	25%	75%	0%	75%	72,272
Total	56%	1%	56%	43%	1%	44%	33,2395

Appendix 3c. Percent of fire by vegetation burn severity for wildfires for data available (1984-2015) (USDA 2016).

Fire Name	Fire Year	Total Acres	Percent Loss of Canopy Cover					Total %
			0 %	Up to 25%	25-50 %	50-75 %	>75 %	
Mile	1985	892	64%	20%	8%	5%	2%	100%
CAENF00000066	1985	341	39%	14%	6%	7%	35%	100%
CLEVELAND	1992	23,084	13%	10%	7%	8%	62%	100%
KELSEY	1994	1270	28%	17%	7%	7%	41%	100%
MEEKS	1995	163	54%	16%	5%	5%	21%	100%
MILL	1995	127	11%	23%	9%	12%	45%	100%
GONDOLA	2002	26	40%	17%	6%	9%	28%	100%
HUNTER	2002	699	41%	31%	10%	8%	11%	100%
PLUM	2002	1,895	62%	20%	6%	4%	7%	100%
SAINTPAULI	2002	349	18%	37%	17%	11%	16%	100%
SHOWERS	2002	309	11%	27%	16%	13%	32%	100%
FREDS	2004	7,896	8%	16%	10%	10%	56%	100%
RALSTON	2007	8	36%	64%	0%	0%	0%	100%
ANGORA	2007	3,198	12%	15%	11%	10%	53%	100%
KING	2014	68,358	28%	18%	7%	5%	42%	100%
SAND	2014	4,416	23%	27%	38%	2%	10%	100%
TRAILHEAD	2016	5,646	41%	29%	8%	5%	17%	100%
Total		108,613	31%	24%	10%	7%	28%	100%

Appendix 4: Modeled Flame Length (Following Pages)



8 page appendix will be inserted here in the final PDF

















Appendix 5: Modeled Rate of Spread (Following Pages)



















Appendix 6: Modeled Fire Type (Following Pages)

















