Yuba County Foothills Community Wildfire Protection Plan

July, 2014

Additional materials available online@ http://deercreekgis.com/yubacwpp

Prepared By: Deer Creek Resources, LLC and WildlandRx, Inc.

DISCLAIMER:

This document analyzes wildfire hazard across the Yuba County Foothills, and makes recommendations on ways that residents in the area can reduce their collective exposure to wildfire-caused losses. Due to limitations in funding for wildfire hazard mitigation, it is necessary to set Countywide priorities for hazard reduction work. Within this document, areas were prioritized for hazard reduction based upon a number of factors including: potential wildfire behavior, density of homes, and proximity to important access roads.

The fact that an area may be mapped as lower hazard in this document does NOT mean that that particular area is safe from wildfires – rather, it just means that there were areas where hazard reduction projects might benefit a greater number of residents. Under typical summer wildfire burning conditions, most of the project area has the potential to support rapid rates of wildfire spread and high intensity burning. There are NO low-priority areas for fire hazard mitigation in the Yuba County Foothills.

Wildfire behavior is the product of numerous factors, some of which are weather-dependent and difficult or impossible to quantify. The suggestions in this assessment are based upon field surveys, technical analysis, and the professional experience of the authors. Errors may exist in this analysis and could include inproper recording of field data due to GPS accuracy or surveyor error, computational errors, data entry mistakes and any other conceivable cause.

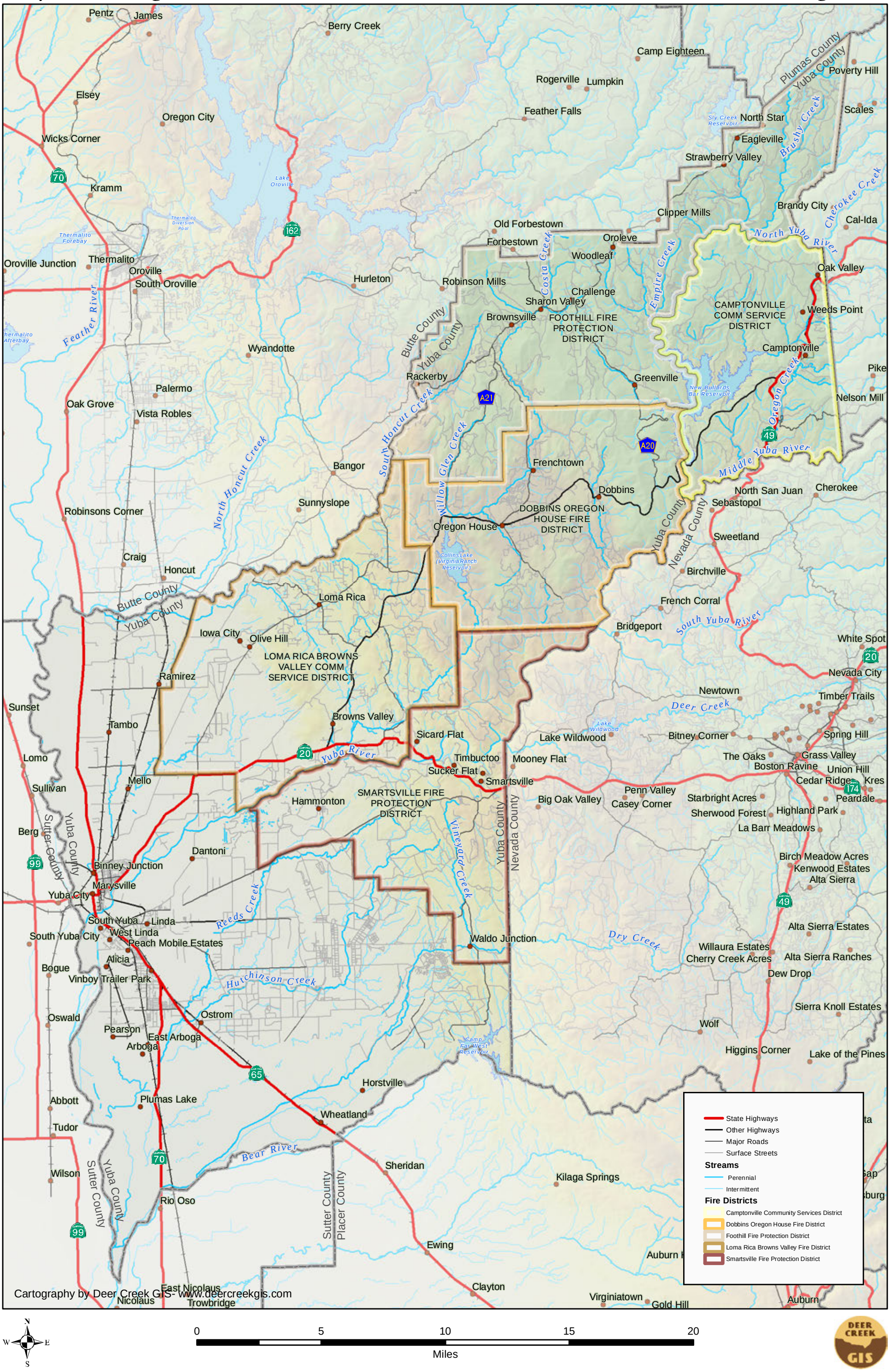
This data comprises a simplification of the physical environment intended to allow the authors to make general recommendations about reducing potential fire behavior at the community scale. While this data is useful in assessing relative risk between the many micro-climates and vegetation-types present in the Yuba County Foothills area, site-specific changes in fuel hazard and wildfire risk (such as annual mowing, grazing, and weed clearance, the growth of flammable ornamental plants and native vegetation, and other changes in the physical environment) will quickly render this data inaccurate.

THIS DATA IS DESCRIBES VEGETATION AND WILDFIRE HAZARD CONDITIONS IN THE YUBA COUNTY FOOTHILLS AT A SINGLE POINT OF TIME, SPRING 2014. ANY FUTURE USE OF THIS DATA FOR OTHER PLANNING, CODE ENFORCEMENT, OR HAZARD MITIGATION WORK IS NOT RECOMMENDED WITHOUT FIRST CHECKING PHYSICAL CONDITIONS ON THE GROUND.

Yuba Foothills Community Wildfire Protection Plan

Project Setting

Figure 1



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This Community Wildfire Protection Plan (CWPP) was developed for the Yuba County Watershed Protection and Fire Safe Council, in collaboration with interested local parties and land management agencies. It provides a snapshot of current wildfire protection challenges and capabilities, identifies and prioritizes areas for hazardous fuel reduction, and recommends types and methods of vegetation management that may help protect the communities from wildfire losses.

The following entities mutually agree with the contents of this Community Wildfire Protection Plan:

Signed For: Yuba County Watershed Protection and Fire Safe Council Date:

Signed for: Camptonville Fire Protection District Date:

Signed for: Smartsville Fire Protection District Date:

Signed for: Dobbins/Oregon House Fire Protection District Date:

Signed for: Loma Rica/Browns Valley Community Services District Date:

Signed for: Foothill Fire Protection District Date:

Signed for: Nevada Yuba Placer Unit, CAL FIRE Date:

Signed For: Tahoe National Forest, U. S. Forest Service, USDA Date:

Signed For: Plumas National Forest, U. S. Forest Service, USDA Date

Signed For: Yuba County Board of Supervisors Date:

Executive Summary

Need for the Project

Wildland fire is an essential, natural process. Fire has shaped the character of Yuba County's forests and woodlands for thousands of years and remains an essential process in maintaining the health of wildlands and watersheds.

As in the rest of California, and most of the US, fire suppression, and the exclusion of natural fires in Yuba County, has resulted in an increase in the loading of flammable vegetation in and around the foothill communities of the county.

Increasing population growth into the wildland areas of the County has increased the amount of assets at risk from wildfire. This trend also complicates the use of prescribed burning to reduce wildfire hazard adds to the probability of human-caused fire ignitions. Also, the presence of human population changes wildfire fighting tactics - initial fire response resources that are needed to stop the spread of the fire are often tasked to take on structure-protection missions instead.

The National Fire Protection Association estimates that more than 30,000 homes have been lost to wildfire since the 1970s. Federal taxpayers have paid out an estimated $40 billion in suppression costs, while the insurance industry has paid claims in excess of $10 billion. In 2003, the Cedar fire in San Diego County destroyed over 2,000 homes, nearly 300,000 acres burned and 16 lives lost. In Yuba County in the last 15 years two large fires (Williams & Pendola) destroyed over 100 homes.

Given the fire history of Yuba County, the density of population, and a climate that features hot, dry, windy summers, the eventuality of a wildland fire impacting foothill communities is great. It's not a matter of 'if', it's a matter of 'when'.

CWPP Project Objective

This document evaluates wildfire hazard across the Yuba County Foothills area. Specifically, it looks at conditions within the Loma Rica/Browns Valley and Camptonville Community Services Districts and the Dobbins-Oregon House, Smartsville, and Foothill Fire Protection Districts. The hazard information is used in conjunction with mapping of 'values-at-risk' (homes, critical access routes, and infrastructure) to define areas where wildfire poses the greatest threat to these assets. The purpose of this document is to provide a comprehensive, scientifically-based assessment of the wildfire hazards and risks.

This assessment will aid stakeholders in developing short and long-term strategies for:

- Prioritizing hazard reduction and other wildfire preparedness projects
- Identifying the methods to be used, that will best provide for wildfire prevention and mitigation
- Implementing projects to reduce hazardous wildfire fuels
- Developing community wildfire safety education programs
- Assisting public agencies in making valid and timely decisions for wildfires and evacuations

I. Requirements of a Community Wildfire Protection Plan (CWPP)

Integration with Federal Policy

The CWPP is required to be consistent with, and tiered to, *The 2010 Federal Land Assistance Management and Enhancement (FLAME) Act*, and The Healthy Forest Restoration Act (HFRA) of 2003**.** The Federal agencies' policies that implement these acts are the *10 Year Implementation Plan for HFRA and the Cohesive Strategy*. These are both national collaborative efforts between wildland fire organizations, land managers, and policymakers that are working to address the nation's wildfire problems**.**

The Healthy Forest Restoration Act (HFRA) (U.S. Congress, 2003) specifies that:

> "Fuel-reduction projects identified in approved CWPPs 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]).[1]"

Integration with State of California Policy

The findings of the Yuba County Foothills CWPP are consistent with, and supported by, the findings in CAL FIRE's *2010 Forest and Range Assessment of California*.

> "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, CAL FIRE units, Resource Conservation Districts, local fire districts and private organizations." (California Department of Forestry and Fire Protection, Fire and Resource Assessment Program, 2010)

The *2010 Strategic Fire Plan for California*, 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." (California State Board of Forestry and Fire Protection, November 2010)"

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, and improve firefighter safety, while contributing to ecosystem health. It is a cooperative effort

[1] Communities are defined as at-risk communities or a group of homes and other structures with basic infrastructure and services (utilities, transportation) within or adjacent to federal lands (HFRA sec. 101 [1]).

between the State Board of Forestry and the California Department of Forestry and Fire Protection (CAL FIRE). The basic principles of the State Fire Plan are as follows:

> Involve the community by encouraging participation aimed at ensuring that fire protection solutions meet individual community needs
>
> Assess community risk by identifying public and private resources (natural and manmade) that could be damaged by wildfire
>
> Implement cooperative projects to reduce a community's potential wildfire losses. (State Board of Forestry and California Department of Forestry and Fire Protection, November 2010)

At the local level for CAL FIRE, this CWPP is consistent with CAL FIRE's Nevada Yuba Placer Ranger Unit Fire Plan which states:

> "The priority landscape for community wildfire planning identifies where wildfire threats coincide with human infrastructure such as houses, transmission lines and major roads… Current strategies involve the recruitment of groups that desire to create new CWPPs and encouraging the updating of existing plans. Cooperation with Fire Safe Councils, Conservation Groups and agencies with wildfire prevention in mind will aid in protecting this priority landscape"

Integration with Yuba County Hazard Mitigation Planning

The Yuba County Multi-Jurisdictional Multi-Hazard Mitigation Plan was the product of a collaborative effort within the County of Yuba. Plans developed for the Yuba County Multi-Hazard Mitigation Project included single-jurisdiction plans for the Dobbins-Oregon House Fire Protection District and the Yuba County Water Agency.

While the current Yuba County Multi-Jurisdictional Multi-Hazard Mitigation Plan (MHMP) has served in lieu of an official CWPP for over a decade, the need to develop a more comprehensive CWPP with greater detail for the other foothill fire districts has been recognized for some time.

Community Wildfire Protection Plans (CWPPs) and Local Jurisdiction

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, evacuation 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, identify strategic locations for hazardous fuels reduction, 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 districts, 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 National Fire Protection Associataion's "Firewise" and the International Association of Fire Chief's (IAFC) "Ready, Set, Go!"

Regulation through codes and ordinances and subsequent enforcement is 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.

Most communities-at-risk are served by volunteer fire departments. Many of these departments do not have the resources to take on additional responsibility without additional funding. The paradox is obvious: Often, communities-at-risk that could do the most to make their communities fire-adapted do not have the resources to do so.

The CWPP is only a plan—it will not, of itself, 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.

II. CWPP Plan Development Process

This project was a collaborative and interactive process that was based largely upon mapping. The primary contractor, Deer Creek Resources (DCR), assembled available mapping information and created large printed maps covering the project area. These maps showed large fire history, terrain, all mapped roads, vegetation, structures, and identified major landowners. The base maps and subsequent revisions were used at every meeting and outreach event. All attendees were given permission to document or depict their issues, concerns, past projects, and any other useful information onto the maps. All comments were digitized and then used by DCR to plan field surveys, develop potential new fuels reduction projects, or designate new primary and secondary access routes. The maps in this document represent the most complete synthesis of all the information used to develop this plan.

Primary Collaborators

Government

- United State Forest Service, Tahoe National Forest and Plumas National Forest
- Yuba County Department of Transportation
- Yuba County Office of Emergency Services
- Bureau of Land Management

Non-Government Agency Involvement

- Yuba County Watershed Protection and Fire Safe Council
- University of California Division of Agriculture and Natural Resources (Cooperative Extension)
- Deer Creek Resources, LLC
- Camptonville Community Partnership
- Forest Industry Representatives
    - Sierra Pacific Industries, Soper Wheeler Company, Siller Brothers,
    - Applied Forest Management (CHY Company)

Fire Department Involvement

- Local Fire Protection Districts
    - Loma Rica-Browns Valley Community Services District (LBVCSD)
    - Dobbins-Oregon House fire Protection District (DOFPD)
    - Foothill Fire Protection District (FFPD)
    - Smartsville Fire Protection District (SFPD)
    - Camptonville Community Services District (CFPD)
- CAL FIRE (Direct Protection Responsibility)
- US Forest Service (limited Direct Protection Responsibility)

The Yuba County Water Agency provided financial and administrative support for this planning effort.

Primary CWPP Development Team Members and Responsibilities

The Yuba County Watershed Protection and Fire Safe Council, and its contractor, Deer Creek Resources, LLC led the collaborative process and development of the CWPP and were responsible for the following:

- Serving on the CWPP development team
- Facilitating and coordinating the over-all CWPP process with Local Fire Protection Districts, Federal Agencies, and other key stakeholders.
- Conducting a landscape-scale Hazard, Values, and Risk Assessment for all lands within the designated CWPP area.
- Assisting fire departments in providing general discussions and assessments of their departments.
- Providing technical expertise in developing prescriptions for wildfire mitigation treatments.
- Assembling and maintaining the final CWPP document.
- Assisting in public education efforts for the CWPP

Local Fire Protection Districts

- Served on CWPP development team
- Provided input on the assessment process and feedback specific to the fire district for Hazard, Values, and Risk assessments.
- Evaluated proposed fuels reduction projects, suggested priorities
- Attended public meetings and helped presenters to liason with local residents
- Provided information on past, current, and future mitigation efforts within their district.
- Provided a general description of the fire department and district including its history, size, structure, response statistics, equipment, stations, services, water systems, ignition sources, and any other pertinent information.
- Provided an objective assessment of the department's wildland fire program (including training, prevention, suppression, etc.) identifying its adequacies, future goals, and areas for improvement (training, personnel, equipment, etc.).
- Assisted in recommending areas where grant funding can be utilized.

CAL FIRE

- Served on CWPP development team.
- Provided oversight of the CWPP process.
- Provided guidance and technical expertise for CWPP development.
- Provided information on past, current, and future mitigation efforts around county.

USDA Forest Service

- Served on CWPP development team.
- Provided information to past, current, and future mitigation work being conducted on Forest Service properties within or adjacent to the CWPP area.
- Provided a general discussion on Forest Service wildfire program (suppression, mitigation, training, prevention, etc.).

Joint Tasks

All team members worked in concert to accomplish the following tasks:

- Identifying appropriate landscape-scale hazard reduction areas throughout the CWPP area.
- Identifying Wildland Urban Interface (WUI) boundaries throughout CWPP area.
- Developing an Implementation Plan for this project
- Participating in community meetings that will allow the public and other stakeholders to provide input and stay informed about this process.
- Outreach and work to create bottom-up interest in WUI communities to develop smaller-scale CWPPs and project-specific implementation plans.
- Assisting interested WUI communities in developing smaller scale CWPPs and executing project-specific implementation plans.

Outreach Process

Stakeholder Meetings
Stakeholder meetings were part of the Fire Safe Council meetings from November 2013 through June 2014. These meetings were an opportunity for existing FSC members to help steer the development of the CWPP, and for knowledgeable locals to draw their priorities and concerns onto large paper maps. These maps were used by Deer Creek Resources (DCR) to develop mapping layers depicting high-hazard areas. The stakeholder group also vetted DCR's maps of the Wildland Urban Interface.

Community Meetings
Community meetings were held in each of the fire protection districts. These meetings were advertised in the local newspapers, flyers were posted by fire district personnel, and the Camptonville Community Partnership sent press releases to online news sources including YubaNet.com, Yubafoothills.com, and the Territorial Dispatch. The meetings included presentations on potential fire behavior in each fire district, a discussion and presentation on structure ignitability and defensible space, a presentation on the current efforts to site a biomass energy facility in the Camptonville area, and a collaborative wildfire hazard mapping exercise. During the mapping exercise, community members drew areas of concern for wildfires such as fuels buildup, evacuation routes and any other concerns related to wildfires onto large paper basemaps of their local fire districts. These maps were also used by DCR in their development of hazard maps, and in the updating of maps showing critical access and egress routes, and defining the boundaries of the WUI.

Collaborative community mapping during plan development

Public Education Effort

Public education was a key component of the five outreach meetings held for this project. Members of the fire safe council, local fire chiefs, foresters, DCR project staff, CAL FIRE, and US Forest Service representatives made presentations at the outreach meetings, and talked about some of the following key points:

- Current level of fire hazard
- Ways to protect your home from a wildfire (building materials and clearance techniques)
- Fire behavior during past large fires
- Road standards needed for emergency access, sharing gate lock combinations with local FDs
- Residential and roadside clearance standards (PRC 4291)
- Evacuation planning prior to an incident.
- Reminding the communities that residential clearance and road side clearances are the responsibilities of the community not the fire department.

Planning Tasks

This project was developed by using the following tasks:

Task 1: **Updating fuel treatment GIS layer** – Project staff obtained proposed and treated fuel reduction data from the Tahoe National Forest – Yuba River Ranger District office, Plumas National Forest – Feather River Ranger District office, CAL FIRE -Nevada/Yuba/Placer Unit, the Fire Safe Council, PG&E, and private industrial timber landowners including: Soper Wheeler Co, CHY Co, and Siller Brothers. One major landowner – Sierra Pacific Industries – chose not to contribute any of their data to this effort.

The contributed data was used to update a master fuel treatment map. This map was used during the project-development phase of the CWPP project to fill gaps among current projects, and to leverage existing work done on the ground.

Task 2: **Updating water GIS layer -** DCR obtained digitized water storage data layers compiled Sierra Nevada Conservancy grant funding for all five fire districts. This data was of limited use, as many of the water tanks shown on the map are empty or damaged, and there is usually no easy way of knowing whether or not a tank is full or usable from roadside observations.

Task 3: **Obtaining data for fuel reduction along County Roads from Yuba County Public Works** – This information was useful during field surveys, as the County Road Department has accomplished a lot of thinning in the past 10 years. However, vegetation grows so well in most of the project area that it is difficult for crews to keep up. Almost all of the past work needs to be done again.

Task 4: **Working with YWP&FSC fuels committee to develop proposed fuels reduction projects -** DCR made large paper base maps showing current and planned projects, along with terrain, roads, and overall fire hazard mapping from Task 5. DCR used these maps at meetings of the fuels committee where representatives from the fire agencies and fire districts drew potential projects onto the master paper map, validated mapping of existing fuel hazard reduction projects, and documented their areas of greatest fire-related concern. The information drawn on the paper maps was digitized for use in the final plan.

Task 5: **Updating the Community Hazard Assessment map from the Yuba County DMA plan -** The Community Risk Assessment Map in the County Disaster Mitigation Plan was out of date. DCR and Wildland Rx surveyed along all of the major, and many of the minor, roads in the project area and mapped areas with high fire hazard. Fire behavior modeling and mapping from the stakeholder and community meetings was used to create a new Community Hazard Assessment map. The bulk of the technical hazard assessment analysis work in this plan was accomplished under this task.

Key subtasks in updating the Community Hazard Assessment mapping were:

- Developing a base map
- Modeling wildfire behavior using the best available data
- Conducting community risk assessments – using interviews, surveys, modeling
- Creating a local definition and boundary for the WUI

- Determining local priorities for protection of life, property and infrastructure
- Establishing recommendations on hazardous fuel and structure ignitability reduction

Task 6: **Creating Recommendations to Reduce Structural Ignitability -** UC Cooperative Extension agent Glenn Nader worked with the County to obtain Structural Ignitability policies that were drafted for the Yuba County Year 2000 Disaster Mitigation Act document. Glenn reviewed the draft document with the County Development Services office and brought a final draft to the YWP&FSC.

Task 7: **Mapping the Wildland Urban Interface areas for each community in the Yuba Foothills -** Using guidance from the Healthy Forests Restoration Act of 2003, and in consultation with local fire agencies, DCR created a GIS layer that establishes WUI threat zones and defense zones for each community. This work was based upon the density of structures, derived from current County assessor's data.

Task 8: **Participating in five community meetings** and develop a draft CWPP document – See above.

Task 9: **Finalizing the CWPP** and developing an updated project list

Task 10: **Working with agencies** to enter CWPP project data into their respective GIS systems for later use by emergency responders.

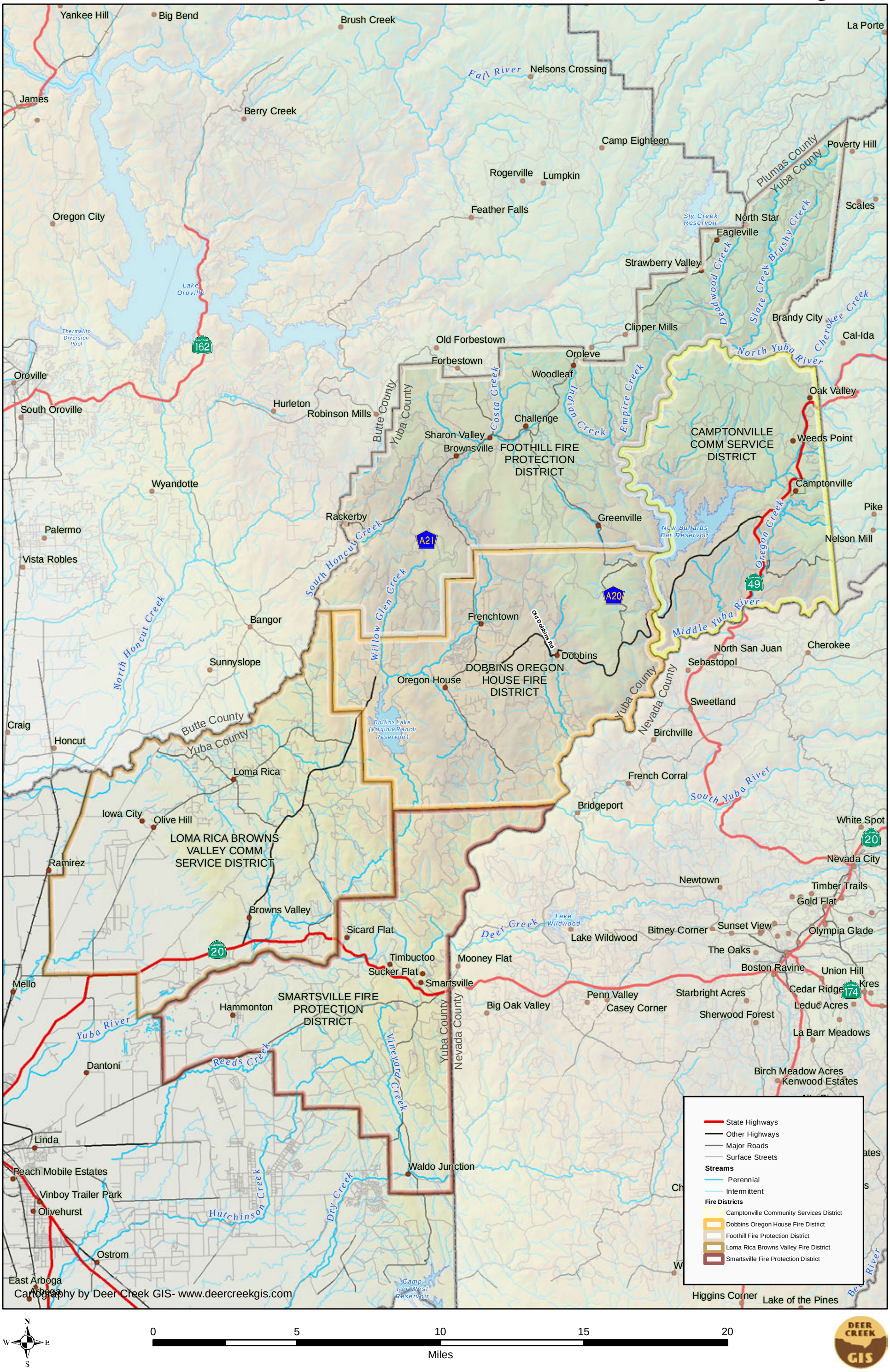
Developing Planning Area Boundaries
The CWPP project area boundary was divided up by the boundaries of the five rural fire protection districts as shown in Figure 2 below.

- Camptonville Community Services District (CCSD)
- Dobbins-Oregon House Fire Protection District (DOHFPD)
- Foothill Fire Protection District (FFPD)
- Loma Rica-Browns Valley Community Services District (LRBVCSD)
  Smartsville Fire Protection District (SFPD)

Yuba Foothills Community Wildfire Protection Plan

Fire Protection Districts

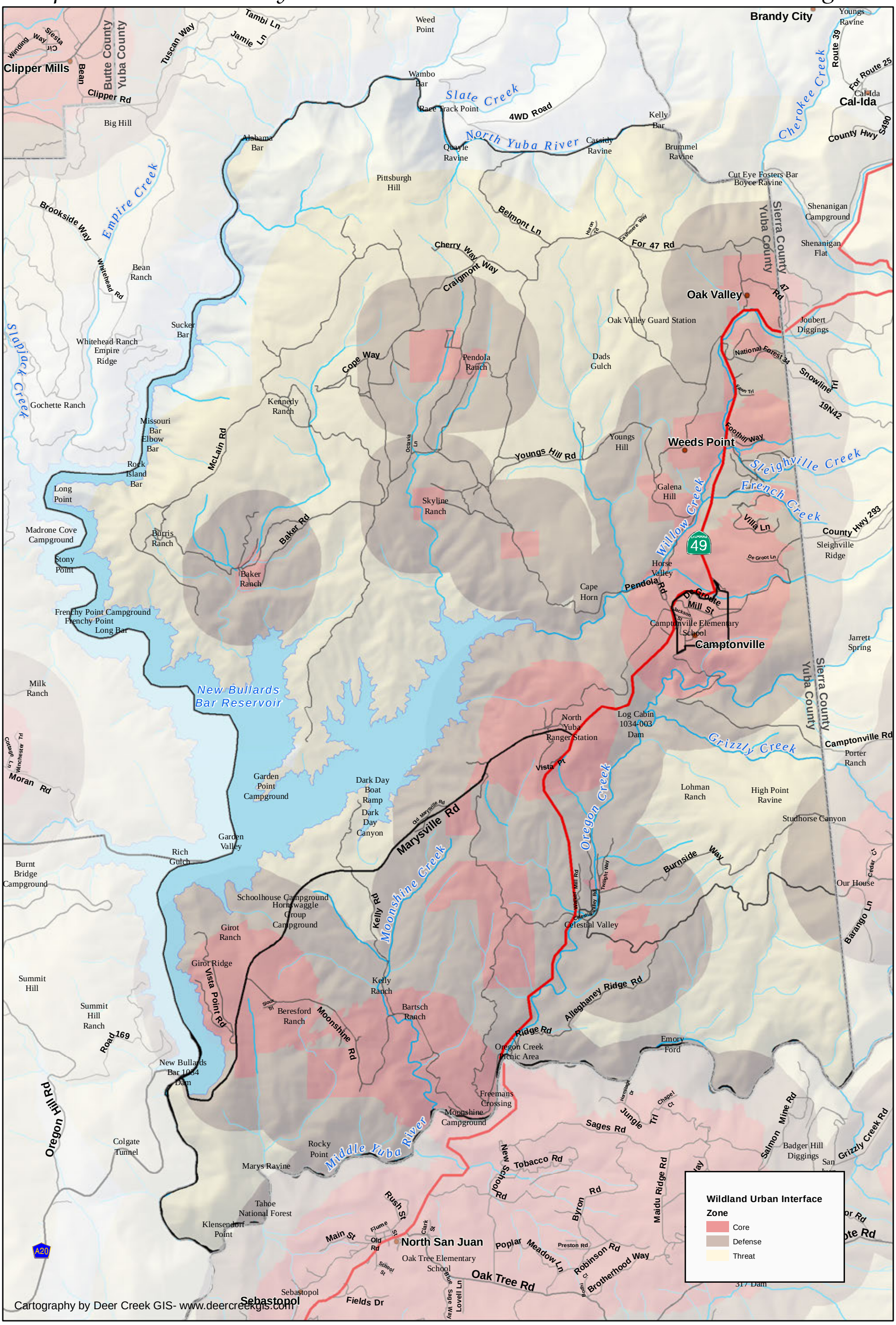
Figure 2



Yuba Foothills Community Wildfire Protection Plan

Camptonville Community Services District WUI

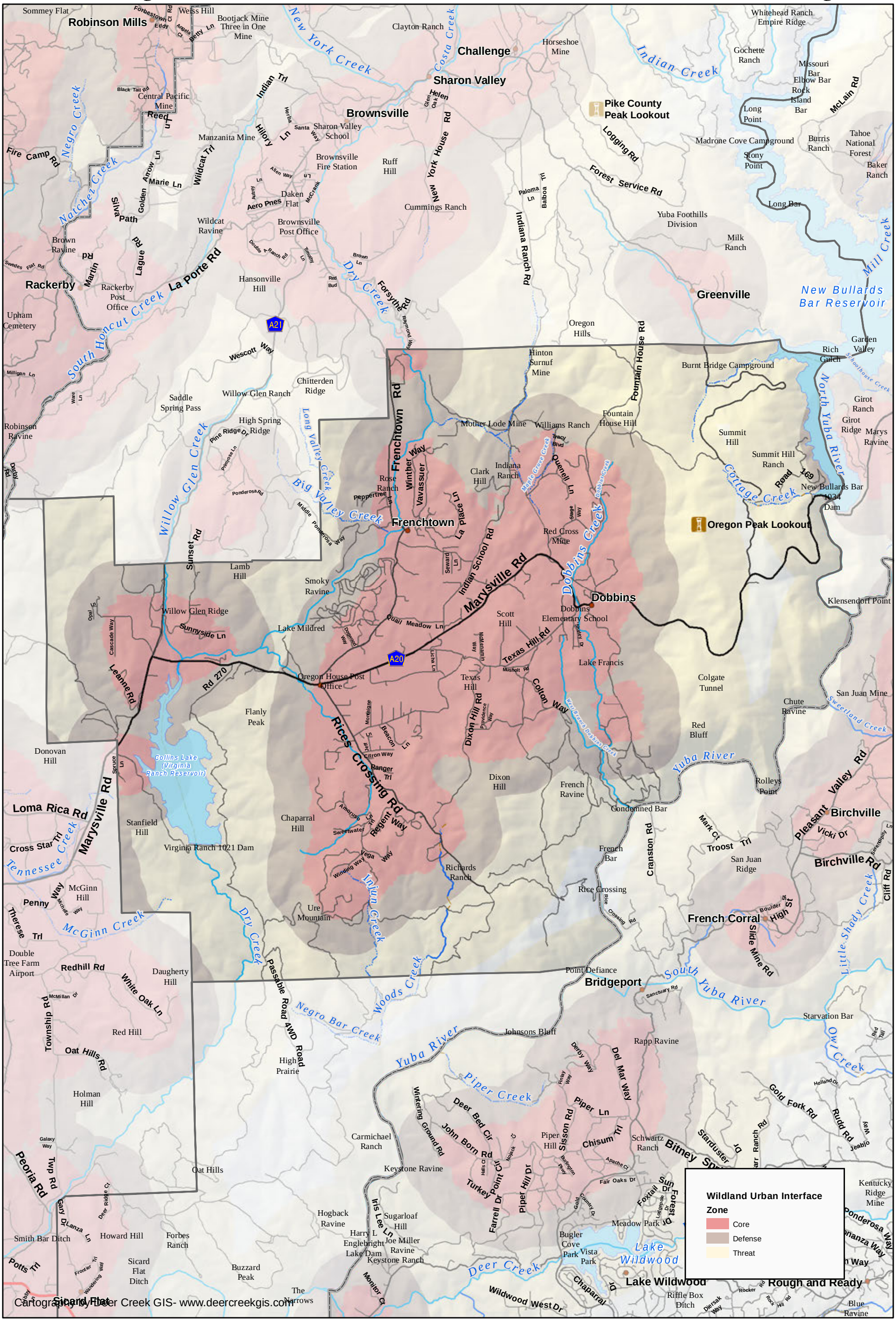
Figure 3

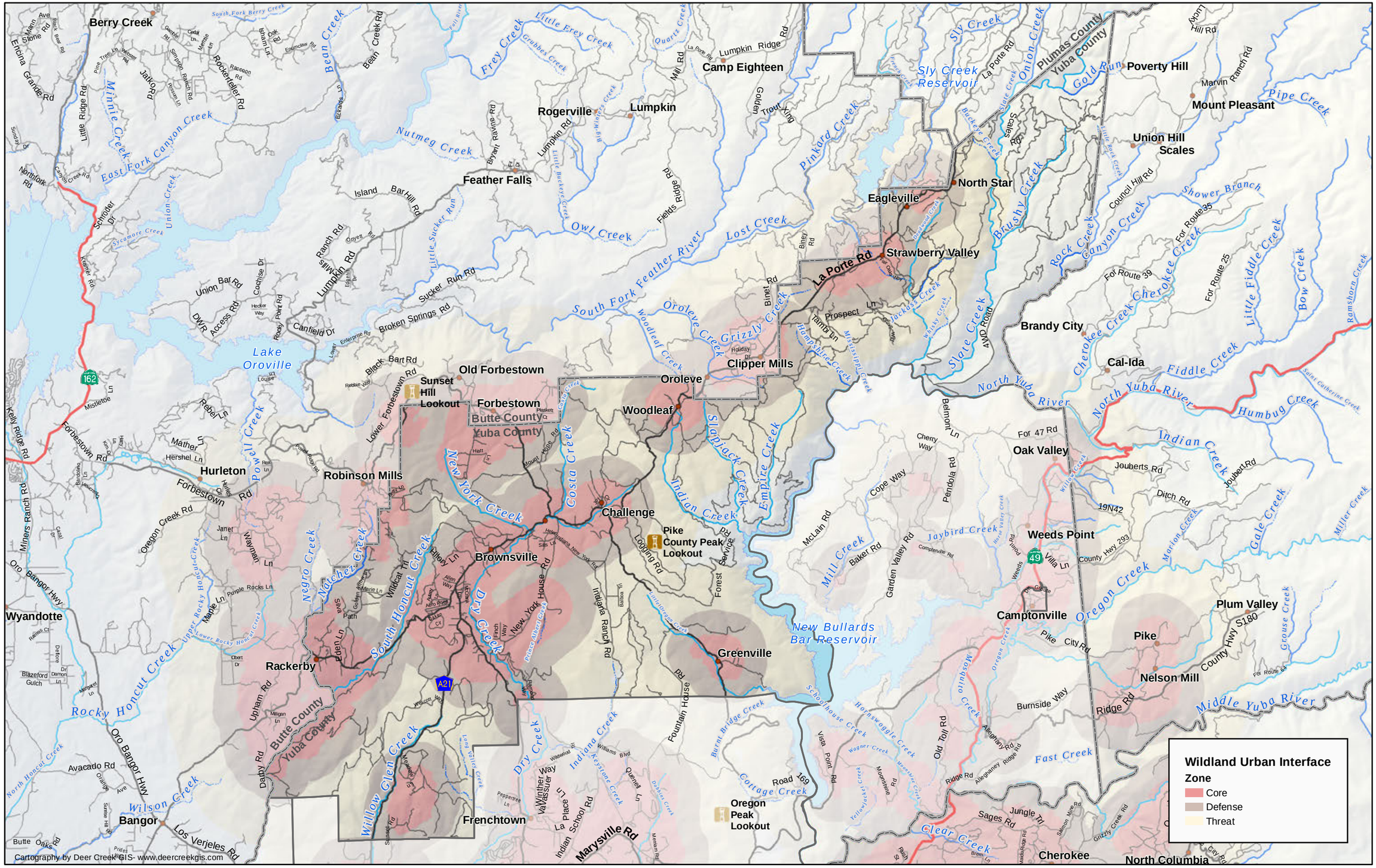


Yuba Foothills Community Wildfire Protection Plan

Dobbins Oregon House Fire Protection District WUI

Figure 4




Berry Creek
Camp Eighteen
Rogerville
Lumpkin
Feather Falls
Poverty Hill
Mount Pleasant
Union Hill
Scales
North Star
Eagleville
Strawberry Valley
La Porte Rd
Brandy City
Cal-Ida
Oroleve
Clipper Mills
Old Forbestown
Sunset Hill Lookout
Forbestown
Butte County
Yuba County
Woodleaf
Robinson Mills
Hurleton
Challenge
Pike County Peak Lookout
Brownsville
Greenville
Oak Valley
Weeds Point
Camptonville
Plum Valley
Pike
Nelson Mill
Wyandotte
Rackerby
Oregon Peak Lookout
Frenchtown
Bangor
Cherokee
North Columbia
Lake Oroville
New Bullards Bar Reservoir
Sly Creek Reservoir
Cartography by Deer Creek GIS- www.deercreekgis.com
Wildland Urban Interface Zone
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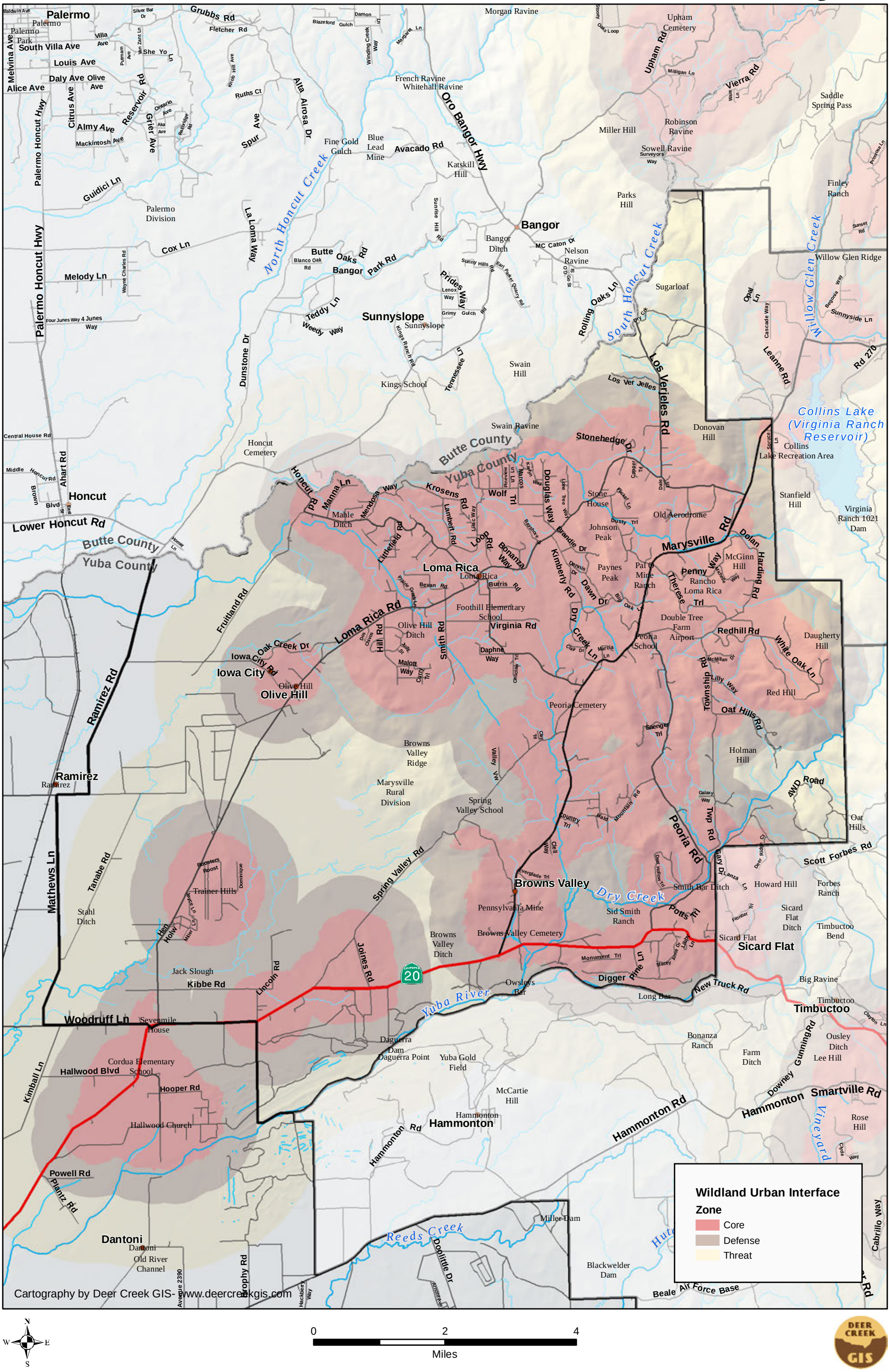
Yuba Foothills Community Wildfire Protection Plan

Loma Rica/Browns Valley Community Services District WUI

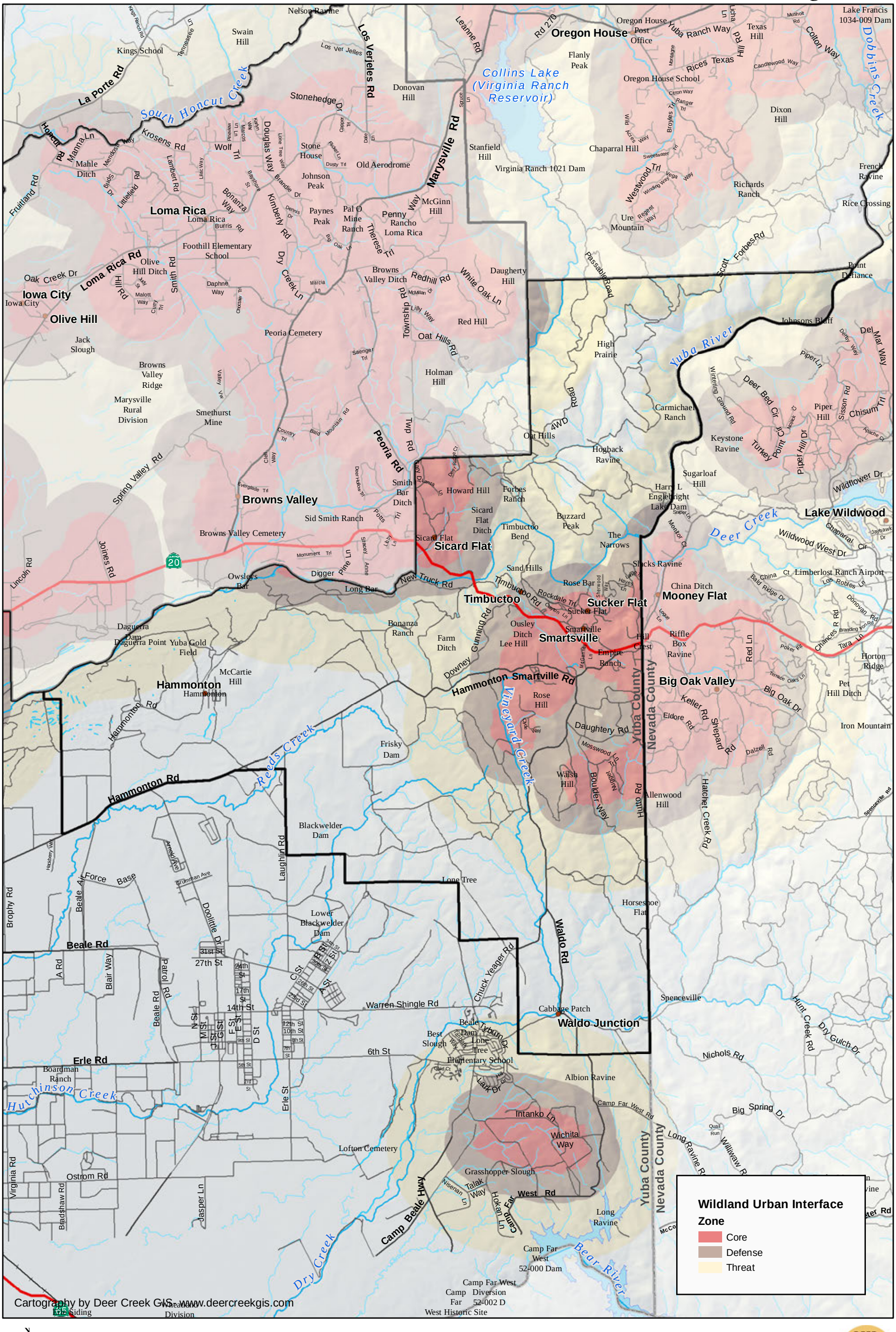
Figure 6



Yuba Foothills Community Wildfire Protection Plan

Smartsville Fire Protection District WUI

Figure 7



III. Project Area Description

Weather

The Yuba County Foothills have a Mediterranean climate, characterized by hot dry summers and mild to cool winters typical of much of the Sierra Nevada Mountain Range. There is an annual drought from July to October. Precipitation increases with elevation, and ranges from about 20 inches at Browns Valley to over 70 inches at Camptonville, mainly occurring from November through April. The precipitation is primarily in the form of rain, with occasional snowfall, especially at the higher elevations. Vegetation growth correlates with precipitation, and the higher elevation areas, including Camptonville, and most of the Foothill Fire Protection District have substantially higher loads of shrub, oak, and conifer vegetation.

Late summer to fall is the period is the most subject to wildfires, especially during the occasionally occurring north wind events. Weather conditions significantly impact the potential for fire ignition, as well as rates of spread, intensity, and direction in which fires burn. Wind is considered the most variable and difficult weather element to predict. The direction and velocity of surface winds can directly control the direction and rate at which fire spreads. Upper level winds can carry embers and firebrands downwind, causing spot fires ahead of the main fire.

Annual high temperatures in the Yuba County Foothills as recorded on the Bangor weather station (800' elevation) are around 80 to 90º F, humidity of 20-25%, with winds generally south to southwest 0-7 mph, with higher gusts. The Pike County weather station is at 3,600' elevation. It has more frequent winds from the southwest to west averaging from 0-7 mph with higher gusts (See Figures A1 & A2). Pike County summer humidity ranges from 15 to 25 percent with temperatures 80-90 degrees. Though infrequent, northeasterly winds are very dry, and have driven most of the area's large wildfires.

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.

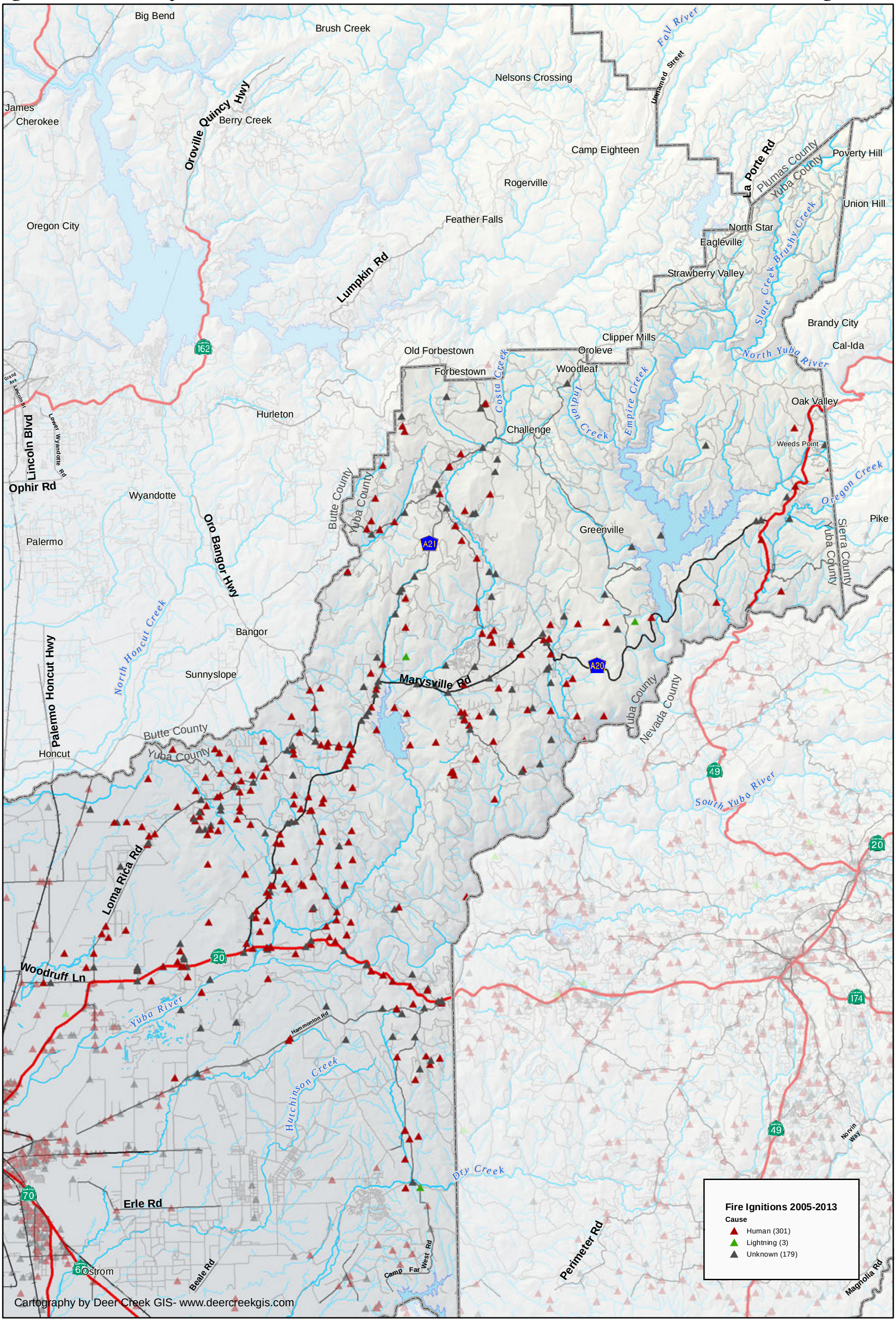
Fires during north wind events usually result in extreme fire behavior because the winds are particularly strong and dry. This preheats fuels and predisposes them to burning with greater intensity. These conditions are usually worse at night, as the North and East winds enhance the downslope/down-canyon night winds common on the Western slope of the Sierra Nevada.

Lightning poses a serious problem during the summer months. Numerous wildfires have resulted from dry lightning occurring between July and August (more than 1100 reported between 2001 and 2013). (See Figure 8, Ignition History).

Yuba Foothills Community Wildfire Protection Plan

Ignition History 2005 -2013

Figure 8



Demographics

In 2010, the total population in Yuba County was reported to be 72,155 people (U.S. Census Bureau (2010), a 19.8% increase over the previous decade. The population was composed primarily of permanent adult residents with 70% of the population over 18 years of age and a 60% home ownership rate. As of 2009, a total of 28,738 housing units were reported. With a land area of 403,641 acres, the population density averages 114 persons per square mile. Higher population densities correlate to city centers and transportation corridors including Highway 20, Highway 65, and Highway 70. Population density correlates with Local Responsibility Areas (LRA) within the County; however growth continues to extend into the State Responsibility Areas (SRA - CAL FIRE) in the eastern portions of the County. In 2000, Yuba County growth projections through 2020 ranged from 10% to 23%. Current census data tends to agree with these projections with actual growth rates of 19.8% for the period 2000 to 2010.

Assuming the range of potential growth through 2020, using the current average rate (19.8%) and the low projected rate (10%) from Yuba County sources, the 2020 population in Yuba County will range from 79,700 to 87,800 people. A characteristic of Yuba County that is noteworthy in terms of fire planning is the high percentage of SRA/LRA relative to Federal Responsibility Areas (FRA). The vast majority of land in Yuba County is privately owned. A portion of the County along the eastern border is currently SRA under protection by the USFS. As development pressures push development into the upper reaches of the watershed, more population will be located in the SRA areas of the County, including those SRA areas receiving fire protection from the Federal Government.[2]

Vegetation and Wildfire Fuels

The general vegetation types within the CWPP area are typical of the western slope of the Sierra Nevada Mountain Range. At the lowest elevations in the region, including most of the Smartsville FD and Loma Rica/Browns Valley Community Services District, the vegetation is primarily blue oak and grass. In these areas, wildfires primarily burn in grass, and the hazard is a function of high rates of fire spread. At slightly higher elevations, but still below 1,000 feet, live oak and brush are present mostly on the deeper soils. Here wildfires can torch into the trees, creating serious control problems.

At elevations in the approximate range of 1,000 to 2,000+ feet, (Dobbins/Oregon House Fire Protection District) are shrublands, made up of foothill gray pine, interior live oak, mixed hardwood, and chaparral. These areas also have the potential for torching and spotting, especially in areas where needles from gray pine drape onto brush below.

The forested upland areas, primarily above 2,500' are comprised of California black oak, ponderosa pine, sugar pine, and Douglas fir, with Tanoak in the understory. This forestation is interspersed with chaparral stands, meadow and riparian forests.[3]

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[2] Unit Strategic Fire Plan Nevada Yuba, Placer Unit, CALFIRE 2013

[3] Fire in California's Ecosystems University of California Press, Neil Sugihara…ital. 2006

These areas experience significantly more precipitation that the lower elevation areas, causing the soils to become deeply weathered and much more productive. They have the heaviest fuel loads in the CWPP area and under dry and windy conditions will experience fuel and terrain-driven fires that exhibit torching, active crown fire runs, long distance spotting and other extreme fire behaviors.

Fire History

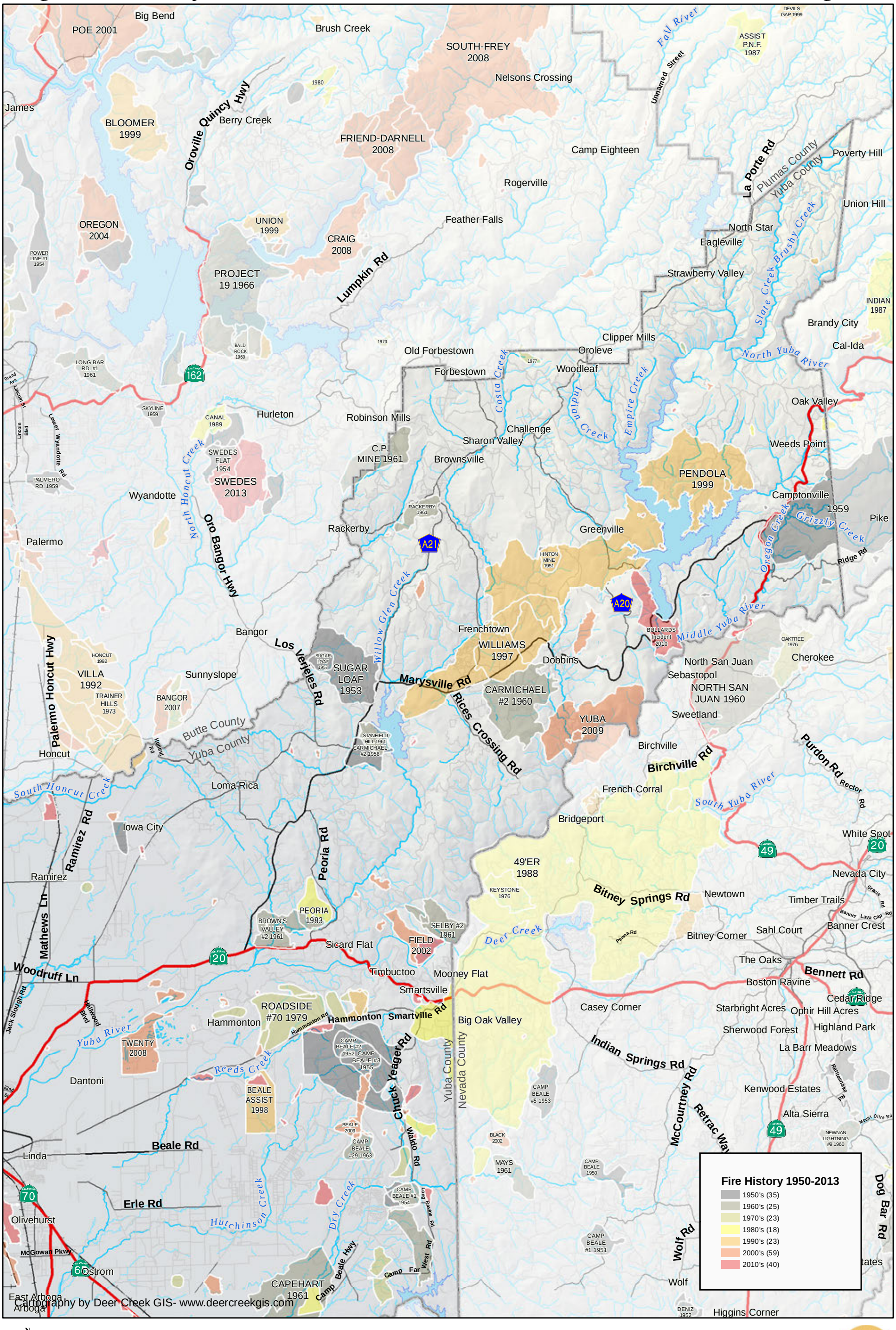
Prior to European settlement, fire return intervals ranged from 2 to 8 years in California Oak woodlands and 5 to 16 years in the remaining forest types. This equated to low intensity fires at frequent intervals. As of the first quarter of the twentieth century, wildfires have been suppressed, resulting in increased fuel loading in many areas that have not experienced fire at the natural return interval.[4] Figure 9, on the following page, displays the history of large fires, those greater than 300 acres, in the Yuba County Foothills CWPP planning area.

[4] Unit Strategic Fire Plan Nevada Yuba, Placer Unit, CALFIRE 2013

Yuba Foothills Community Wildfire Protection Plan

Large Fire History (>300 acres) 1950-2013

Figure 9



IV. Community Hazard Assessment

The community hazard assessment developed for this CWPP was accomplished using field surveys, input from the firefighting agencies and local community members, and an analysis of historic fire weather and current vegetation mapping. The analysis was designed to meet two objectives. 1. To examine the existing fire hazard and potential losses in the event of a wildfire, and, 2. To determine strategic locations in which fuels reduction thinning projects might enable firefighters to take a stand against a fire that would be unstoppable.

Hazard Assessment Methods

The fire behavior analysis was conducted by Barry Callenberger of WildlandRx, in coordination with DCR. The analysis tools used for this project were primarily developed by the US Forest Service's Fire Science Laboratory in Missoula, MT. The fire behavior and fire weather analysis used for this project are described in Appendices B and C. The surface fuel data and mapping for this document was randomly ground verified, and preliminary copies of the model output maps were vetted by the Fire Safe Council's Fuels Committee.

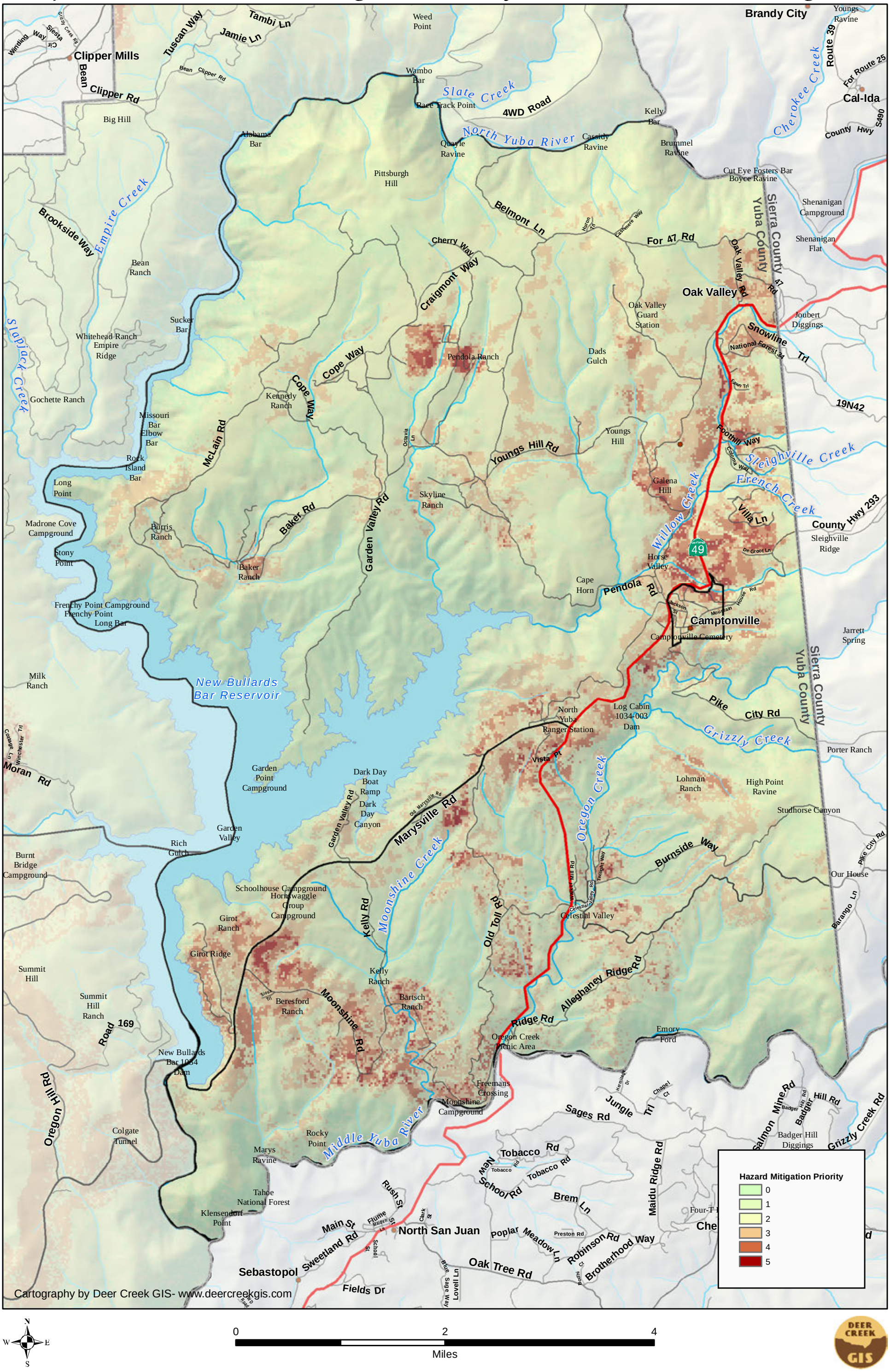
The resulting maps use a 6 point scoring system to show areas where existing structures or critical access routes overlap with critical fire hazard area. The score represents each area's priority for hazardous fuels reduction, public education, and other focused hazard mitigation efforts. Scoring is based upon the following elements:

1. Is the area mapped as 'Wildland Urban Interface'? (1 point)
2. Is the area within ¼ mile of a mapped important access route? (1 point)
3. Does the area have severe potential fire behavior? (1-3 points)
4. Does the parcel have a structure on it? (1 point)

Yuba Foothills Community Wildfire Protection Plan

Camptonville CSD Hazard Mitigation Priority

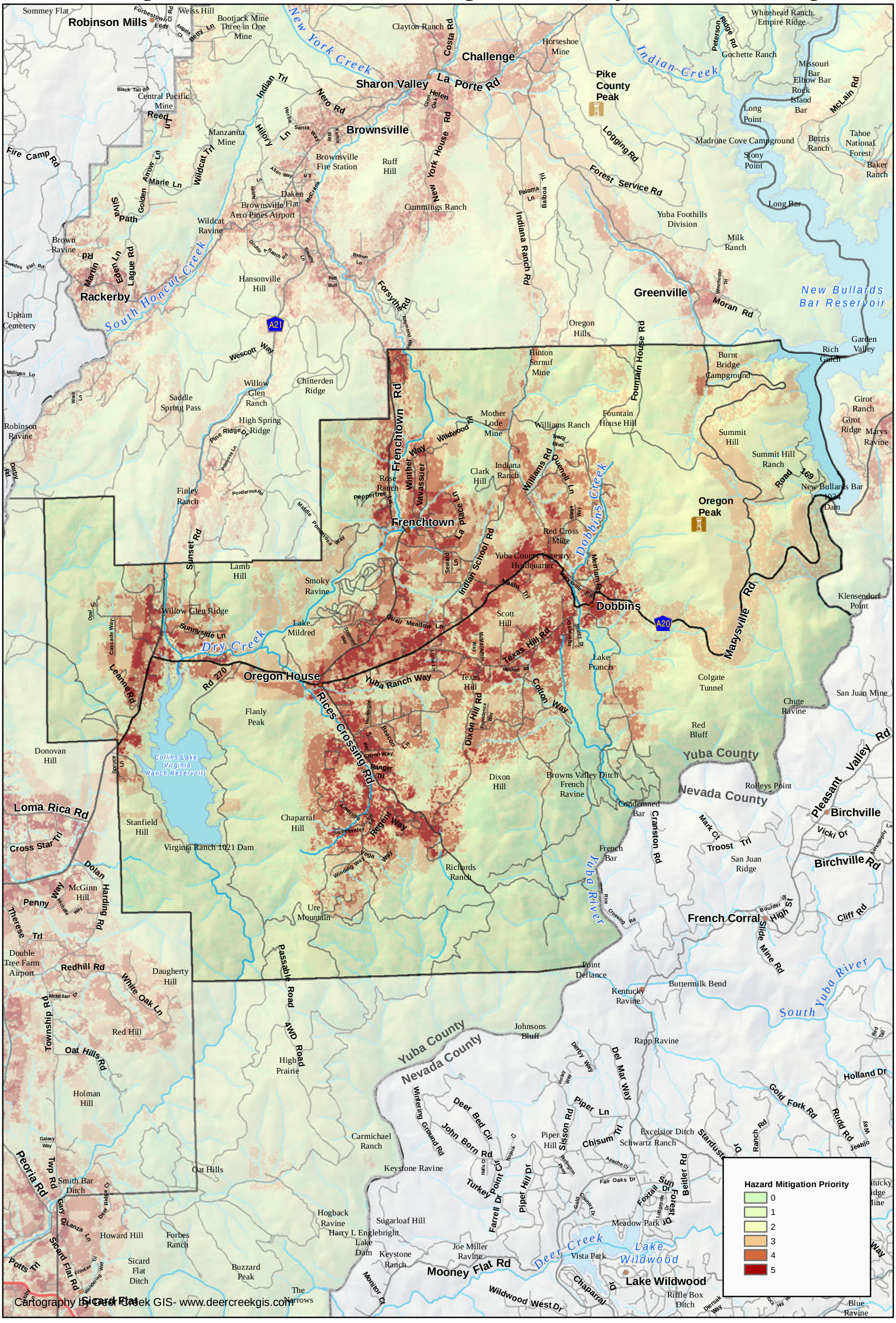
Figure 10



Yuba Foothills Community Wildfire Protection Plan

Dobbins Oregon House FPD Hazard Mitigation Priority

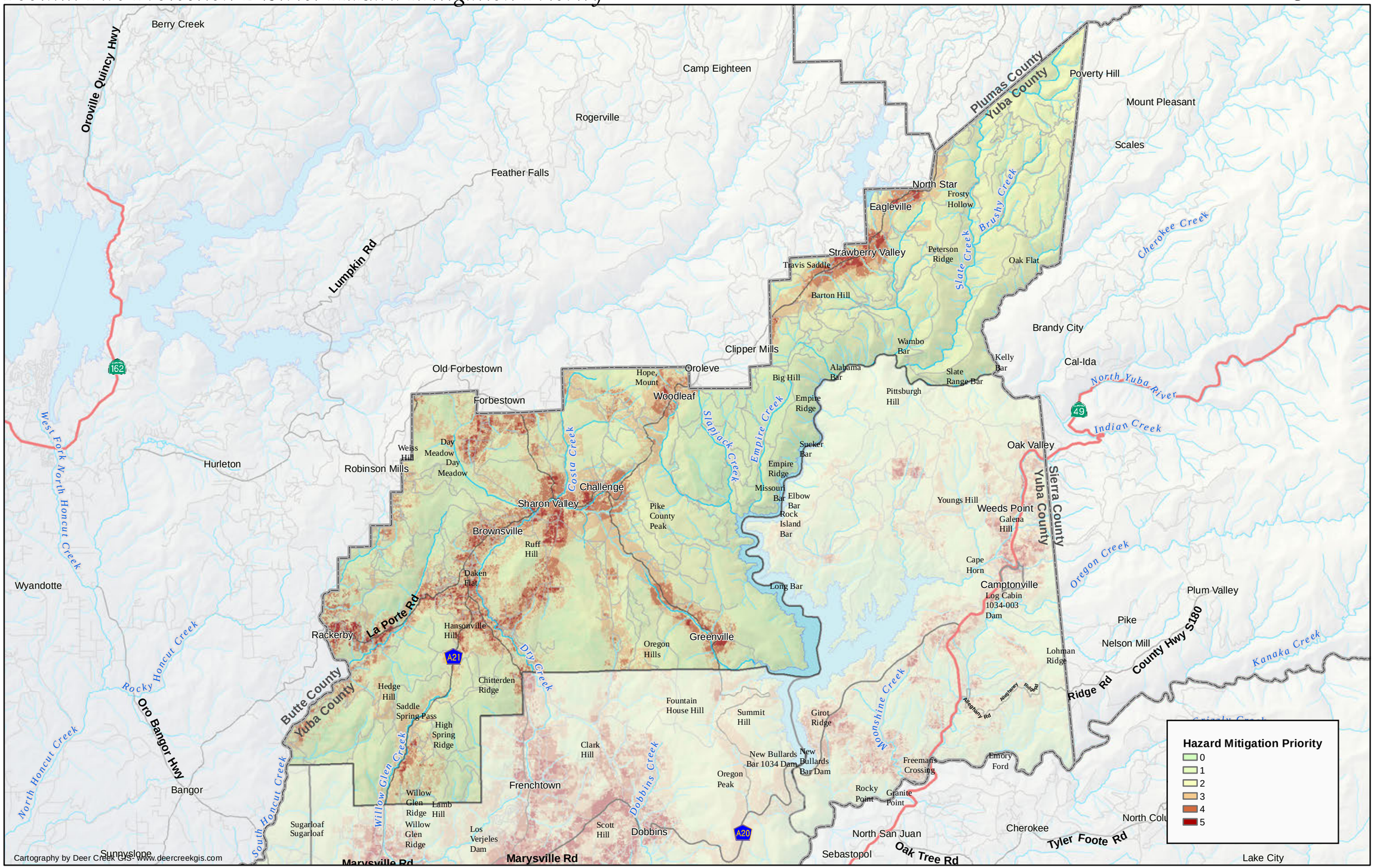
Figure 11



Yuba Foothills Community Wildfire Protection Plan

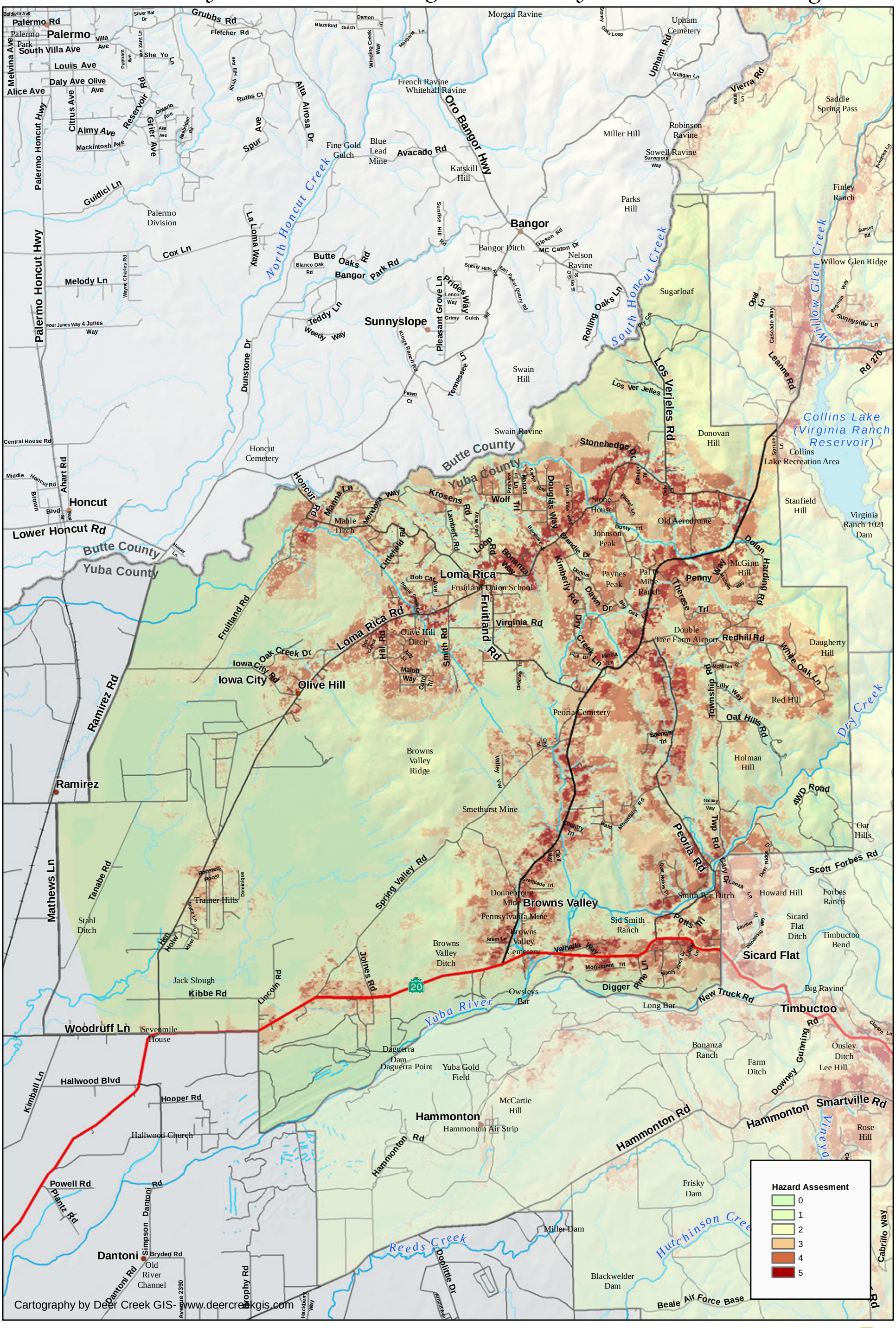
Foothill Fire Protection District Hazard Mitigation Priority

Figure 12



Yuba Foothills Community Wildfire Protection Plan Loma Rica/Browns Valley CSD Hazard Mitigation Priority

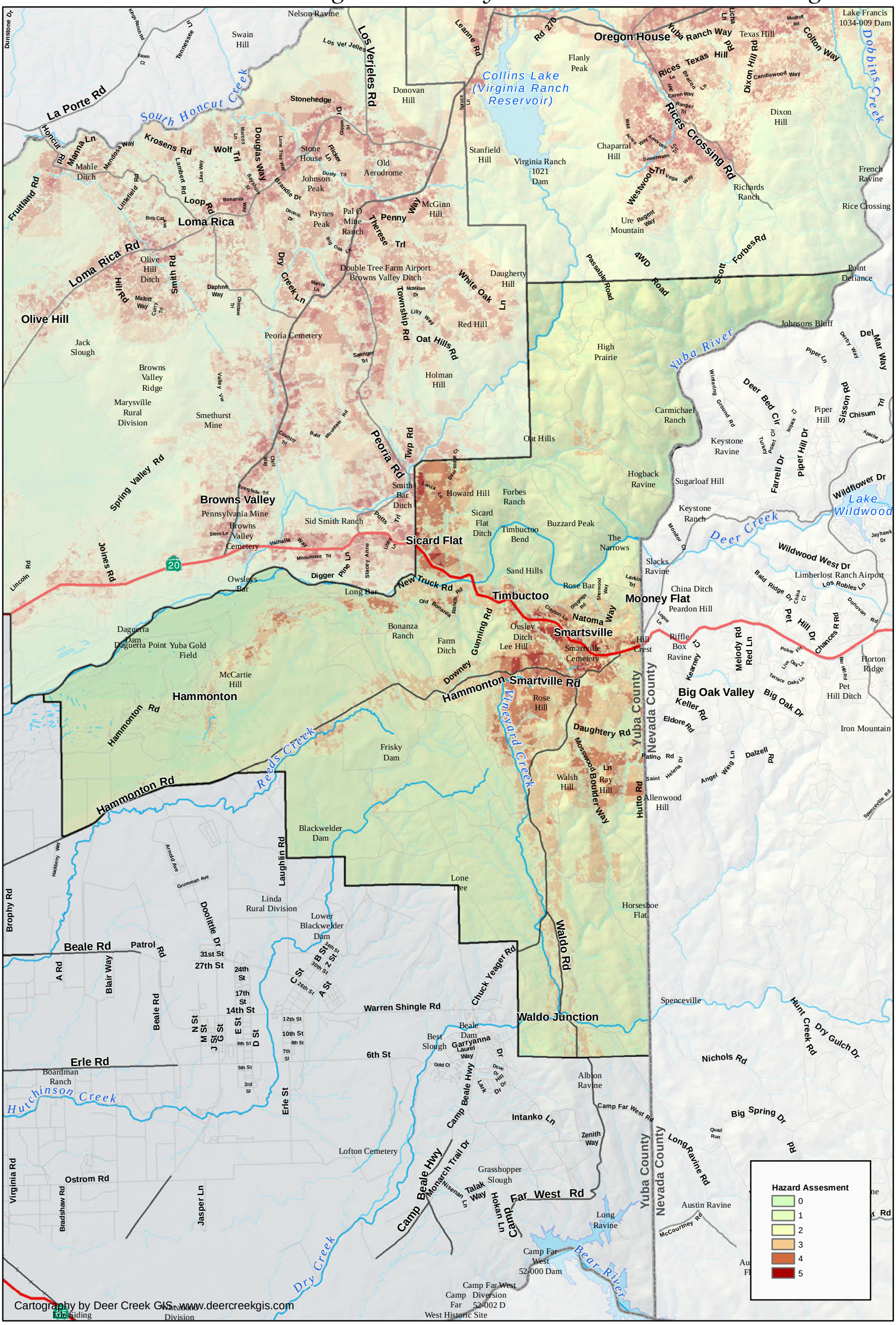
Figure 13



Yuba Foothills Community Wildfire Protection Plan

Smartsville FPD Hazard Mitigation Priority

Figure 14



Current Wildfire Threat Situation

While there is a wildfire threat across the entire project area, people living in heavily vegetated midslope locations and in neighborhoods served by one-way-in-and-out narrow roads are at the greatest risk of losing their homes or being trapped by wildfire. In many of these locations, the mandatory 100 feet of defensible space clearance (PRC 4291) may not be enough to save their homes or ensure their safety if they are trapped at home by a wildfire. Anyone reading this document who wonders if they are living in a high-hazard area should contact their local Fire District for an inspection and advice on how to make their property more survivable during a wildfire.

The CAL FIRE, 2010 Forest and Range Assessment, Chapter 2.1 *Wildfire Threat to Ecosystem Health and Communities*, defines key terms for assessing risk.

> "Risk = (Value of assets at risk) + (Potential fire behavior)
> Fire threat = (Probability of a fire) + (Potential fire behavior)". (CAL FIRE 2010)

Risk - Using the definition above, the 3 upland fire districts (Dobbins/Oregon House, Foothill, and Camptonville) have a '**Very High**' level of risk. This is due mainly to the fact that the communities (assets at risk) tend to be in heavily-vegetated areas that have an extreme wildfire threat (high probability of wildfires and potential for extreme fire behavior). The increased precipitation and soil productivity (faster regrowth of vegetation) in the upland districts make it harder to maintain compliance with State Public Resources Code 4291 (100' of defensible space around residential structures), and fewer landowners are in compliance than in the lower elevation (Loma Rica/Browns Valley and Smartsville Districts).

With the exception of a few heavily vegetated/brushy areas, the risk in the lowland Loma Rica/Browns Valley and Smartsville Districts is '**Moderate**', not because there are less assets at risk there, but because the predominant wildfire fuels are grass. Also, many of the parcels have good structure clearance, resulting from regular mowing and/or grazing of the fine fuels. While there is potential for fast-moving wildfires to impact the lowland districts, if residents continue to mow around their homes and structures, suppression and structure protection is more likely to be successful than in the upland areas. The overall level of compliance with State defensible space requirements is impressively high in these two districts.

Fire Threat - The word 'threat' is used interchangeably with 'hazard'. It describes the likelihood of a destructive fire.

For the reasons mentioned above, wildfire threat is generally lower in the Loma Rica/Browns Valley and Smartsville Districts than in the three upland fire districts, where the wildfire threat is very high to extreme. The higher vegetation productivity in the uplands, logging of most of the larger, fire resistant trees, and fire suppression have created exceedingly heavy fuel loadings. Another major factor contributing to increased fuel loadings in the uplands is poor vegetation management on many of the developed parcels. Not only is it harder to keep up with the rapid growth of vegetation in the higher

elevation areas, but absentee ownership, an increasing number of renters vs. owners, large parcel sizes, an aging population, and recent increase in home foreclosures all contribute to the problem. As many of the obstacles to managing vegetation are systemic, the majority of the most neglected properties are not likely to receive any fire hazard mitigation treatments in the foreseeable future.

Foothill areas that were formerly uninhabited wildlands, are now desirable places for people to move into and grow marijuana. Surveys for this project encountered many marijuana grow sites with large cleared areas. The trailers, drying sheds, and other illegal structures, including dwellings, that are built to support this seasonal use suddenly become new 'assets-at-risk' that must be protected when a wildfire occurs. An out-of-County strike team of fire engines rolling into a going-wildfire doesn't know the difference between legal and unpermitted structures, they just see private property that needs to be saved from the flames. Increased structure-protection demands mean less fire suppression resources are available to control the perimeter spread of the fire. The result is larger, more damaging wildfires. Also, an increase in the summer use of the land, often by visitors unfamiliar with the local wildfire hazards, along with use of chainsaws and heavy equipment for land clearing, increases the likelihood of accidental wildfire ignitions.

Loma Rica/Browns Valley CSD and Smartsville Fire Districts

While these two districts have many assets at risk, they have a lower overall wildfire threat than that in the other three upland districts. This is because the predominant fuels that will carry fire in the lower elevation areas are grass. While many homes in the lower elevations are built in stands of live oak, most of the neighborhoods surveyed had adequate defensible space from thinning among the oak trees. Grazing appears to be more common on the 5-10 acre ranchettes in this area than elsewhere in the rest of the project area. Regrowth and sprouting of the live oak is slower than in the tanoak and brush species found in the higher-precipitation zones of the upland fire districts.

Grazing is very effective in reducing the grass and small brush, and should be encouraged wherever possible. The California Department of Fish and Wildlife (CDF&W) owns large pieces of land within these districts, and a lack of grazing or fuels management on these holdings means that much of the area within the CDF&W ownerships has heavy loadings of fine grass and brush fuels. This fuel loading will drive the spread of wildfires, increasing the hazard to many of the neighboring residential properties. While CDF&W should implement prescribed burning or grazing programs to manage the vegetation on their holdings, it is also important for neighboring landowners to recognize that the mission of CDF&W is to manage wild lands. It is unrealistic for neighbors to expect the State to manage their wildland reserves for the safety of neighboring landowners. It is incumbent upon the neighbors to do everything that they can to minimize the hazard on their own properties. Where possible, future development on lots adjacent to *any undeveloped wildland* should be designed in a way that ensures homes are sited at least 100' away from the edge of the lot so homeowners can accomplish defensible space clearance without relying on help from any neighboring landowners.

The biggest wildfire threat in these two districts is from wind-driven fires spreading rapidly through tall grass. Keeping lots clear of junk, and mowing or grazing around all structures, driveways, and roads each spring, will be the most effective way for residents in this area to minimize their risk of wildfire losses.

Dobbins / Oregon House Fire Protection District (DOHFPD)
Within the Yuba Foothills, this district has experienced the most structure losses from wildfire in the last 20 years. The Williams and Pendola Fires both exhibited the extreme wildfire behavior that can be expected when the next large wildfire hits this area. Both of these fires were driven by strong, changeable winds and heavy vegetation. The vegetation in this district is primarily brush. Under the right conditions, the areas burned by the Williams Fire are ready to burn again.

The DOHFPD has an extreme level of both risk and fire threat. Factors contributing to this include: Narrow, overgrown private roads and long driveways, dense population, many unpermitted structures, absentee landowners, and large lots that are difficult for a single landowner to manage. Exceptions are irrigated pastures and grazed areas. Some large grazed parcels around Frenchtown, Oregon House, and Dobbins – especially along Rices Texas Hill Road and Yuba Ranch Way, and portions of Indiana Ranch Road – represent places where other residents may be able to seek shelter during a wildfire.

The following paragraphs identify some of the areas with the highest concentration of residences at risk from wildfire, and included, or adjacent locations that are relatively safe from wildfire. Some of the safer locations may be places to develop community safety zones.

The **CSA 2** area in the Southwest corner of Oregon House has some of the highest hazard within the District for a single large wildfire loss. Much of the community is served by a single access road (**Regent Way**). This area can be exposed to large fires starting in the Yuba River Canyon. Powerlines in the canyon both represent a potential ignition source, and also an obstacle to the use of aerial firefighting resources attempting to stop a fire at the top of the canyon. In the event of an east wind-driven fire, the primary access via Regent Way could be compromised, forcing residents to leave via **LaSalle Way and Manzanita Lane**, to the North. These narrow roads lack easements or turnarounds, and basically just follow the edges of property lines. Creating a safe secondary access to the CSA 2 area will require buying land or easements along these roads, widening them, and managing the dense vegetation along them. A fire driven by North winds could also cut off both the Regent Way and alternate way out along the NW corner of the community. A new fire access road has been in the works that heads South toward the **UC Sierra Foothill Research and Extension Center**, but this route is not signed or officially designated as an alternate evacuation route. In general, while the street names are well signed in the CSA2 area, many of the roads are overgrown, and the general layout and naming of the roads is confusing.

The **Renaissance Vineyard** was not surveyed during this project, but representatives attended public meetings, and told us that the property has large open areas that can be used to shelter area residents during a wildfire. The Vineyard property can be accessed off of **Dixon Hill Road and Candlewood Way** from the North, and via the main entrance off of **Rices Crossing Road** just across from **Regent Way**. Rices Crossing Road has narrow sections that lack good brush clearance between the Vineyard and Rices Texas Hill Road, so the Vineyard may not be accessible for shelter for anyone coming from the

Northwest if the fire is burning along Rices Crossing Road. The local Fire District should work with vineyard representatives to designate official evacuation areas, and that these areas be signed so that they can be easily located during an emergency.

The neighborhood along the **Dixon Hill, Candlewood Way, Yuba-Nevada Road** Loop, South of Texas Hill Road has narrow, overgrown, roads. This area would be highly exposed to fires driven by Southwest winds coming up the Yuba River Canyon. Yuba-Nevada Road has had some good thinning work done along it. Additional thinning work should be done in the unthinned gaps along this road. Also, residents in this area should focus on increasing defensible space around their homes, and be ready to evacuate quickly if a fire starts nearby. The local Fire District should develop an evacuation plan for the neighborhood that looks into the feasibility of using the Renaissance Vineyard below as a sheltering area.

The neighborhood off of **Ingersoll Drive**, near Lake Frances, has one road in and out, lacks turnarounds for fire equipment, and is surrounded by heavy vegetation. In addition to improving defensible space around the structures here, the local Fire District and Fire Safe Council should work with the Lucero Vineyard to the West of this development to determine the feasibility of developing a secondary evacuation route through their property.

In the heart of Dobbins, work should focus on maintaining defensible space around structures and mowing grass every spring. Meriam Road and Oregon Peak Road both have a number of seasonally-occupied structures and a one-way-in-and-out situation. A fire starting near Marysville Road could trap residents above. The kids camp at the **Lake Frances** resort needs an evacuation plan if they don't already have one.

The Lake of the Springs RV Resort at Lake Mildred is largely within the footprint of the 1997 Williams Fire. It has heavy fuel loading, a midslope location, and is aligned with summer upslope SW winds. It has one major road in and out, and with heavy summer use it represents a place where an accidental ignition could quickly grow into a large fire in the Williams Fire burn scar. The Fire District should work with the resort to develop a fire prevention plan for the resort that would include mowing around campsites and posting wildfire hazard awareness signs. The resort also should be included in evacuation planning that takes place for the District.

The vegetation around the RV campground on Browns Valley Irrigation District lands at **Collins Lake** is currently in a firesafe condition.

The **Queen Ann Lane** area is steep and heavily vegetated with poor access and exposure to North and Westerly winds. The **Vavassauer and Winther Way** neighborhoods are one-way-in-and-out with heavy vegetation, and the neighborhood is located in a midslope location that is in alignment with Southwest afternoon winds; a fire starting in the **Frenchtown** area could quickly spread into the homes here. After about ¼ mile, both of these roads lack easements, and much of the roadway is overgrown with brush. Residents in this area should evacuate immediately if a fire starts below them.

Foothill Fire Protection District
Similarly to the DOHFPD, the Foothill and Camptonville Districts have a very high threat of large and damaging wildfires. Additionally, the fuel types and fire regimes are much different here. Situated predominantly above 2,000' elevation, the land cover is primarily hardwood and mixed conifer forests. These forestlands have extremely high-productivity, and this more than any other factor drives the wildfire hazard in the area – trees and brush grow very well here, and any vegetation thinning projects begin re-growing immediately.

All of the communities in the two forested districts have a high level of exposure to wildfire losses. Active wildfires in these areas will create torching, crowning, and long distance spotting, and once established under hot, dry, and windy conditions, will likely only be contained after they run out of slope, or weather conditions moderate. During these severe burning conditions (with long-distance spotting), most fuelbreaks will be ineffective for stopping the spread of the fire, but may provide a level of protection for firefighters and evacuating residents. Thinning projects should focus for the most part on protecting critical access and egress routes, and on providing a reduction in fire behavior *adjacent to the major communities*.

Within the CWPP project area, the Foothill District is unique in that it has a high percentage of industrial timberland ownership and several of the local forest management companies have close working relationships with the fire district. Most of the residential dwellings in the unit are on smaller parcels – settlement is clustered along the major (historic) roads and in the communities of Brownsville, Sharon Valley, Forbestown, Challenge, Cummings Ranch, Clipper Mills, Greenville, Merry Mountain Village (outside Yuba County but inside of the Foothill District's response area) and Strawberry Valley.

The Yuba Watershed Protection & Fire Safe Council in collaboration with the Forbestown Fire Safe Council, Bureau of Land Management, Butte Fire Safe Council and the US Forest Service, have accomplished extensive forest thinning projects along Forbestown Road. In the area South of Forbestown, however, very high fuel loading still exists. The area around **Idlewood Circle** has extremely high fuel loading, and no safe places in which for firefighters to make a stand. A large-scale thinning project downslope and West of this neighborhood should be implemented. In lieu of major thinning projects, homeowners need to recognize that in areas with fuel that is as heavy as the thickets around Idlewood, the 100' of defensible space required by CAL FIRE may not be enough to convince firefighters to stay there during a wildfire to save their homes.

Camptonville Community Services District
Population is clustered along the Highway 49, and the Marysville, Moonshine, and Alleghany Road corridors. Most of the large forestland parcels are managed by the US Forest Service. Sierra Pacific Industries manages some land in the Pendola area, but there is less population adjacent to their lands than exists proximal to industrial timberlands in the Foothill District.

There are few firefighting options in many of the more rugged canyon areas. **Moonshine Road**, **Kelly Road, Alleghany Ridge Road, Ridge Road, and Old Toll Road** all are exposed to extreme fire behavior if a fire starts in the canyon below. In steep midslope areas like this, it is unlikely that firefighters will be

able to save many of the homes that lack significant clearance. Any grant-funded thinning work in steep midslope areas should be focused along the roads so residents can get out safely. As evidenced along **Moonshine Road**, 'shaded-fuelbreak' projects (which open up the canopy while causing soil disturbance) in places that already have Scotch Broom invasions have tended to increase the amount of Scotch Broom in the understory, creating much worse ladder-fuel conditions.

Similarly to the Moonshine Road area, the **Sleighville** Creek neighborhood features large midslope lots among deeply incised creek drainages. The area is served by one main road, which follows Sleighville Creek before branching off to the many upslope parcels. The area is mixed-conifer forest with a heavy tanoak component. The main access road needs thinning work to be done along it to improve emergency access and egress. Some of the parcels in the neighborhood have seen major thinning, but the majority are overgrown and not currently defensible during a large wildfire. Landowners in the area may want to consider working together to hire a registered professional forester to a *Multi Owner Timber Harvest Plan* to thin their properties.

The **Pendola**, **Weeds Point, and Oak Valley** area have very diffuse population, and many of the large parcels are ranches with sufficient space for the residents to safety wait out a wildfire. Many of the homes are built in ridgetop locations, and a lot of work has been done to thin along the roads in the area. Fuels reduction work here should focus on retaining large trees while thinning understory fuels on built parcels. The PRC 4291 100' defensible space rule is a minimum standard, and property-owners in any heavily-forested area should consider thinning as far out into their parcel as they can. Camps like **Camp Pendola and Camp Mount Zion**, and any other facilities that host children in the summertime must have a wildfire evacuation plan in place. The summer camps must be included in any evacuation planning drills.

The town of **Camptonville** is situated in a saddle and exposed to fires burning uphill from either the South or the North. Several clearing projects are recommended around the margins of the community. The town's source watershed extends into Sierra County, and fuel reduction projects that reduce the hazard of high-severity fire in this area should be a priority for the US Forest Service.

For a list of recommended projects in each fire district, please see the following project prioritization maps.

Multi Owner Timber Harvest Plans

In both the Foothill and Camptonville Districts, small private landowners with excessively dense forestland should consider collaborating with their neighbors to develop ‘Multi-owner Timber Harvest Plans’ (MOHPs). These plans should aim to reduce forest fuel loading. While a lack of a market for woodchips makes large-scale mechanical thinning and chipping of the cut material more expensive than it would be if the chips could be sold, it is possible that selling a few truckloads of logs could help to offset the cost of some thinning. Also, neighbors can consider working with their industrial timberland neighbors to include their property in adjacent/ongoing Timber Harvest Plans (THPs). These projects would involve working with a California-licensed Registered Professional Forester (RPF) to develop timer harvest plans that would pay for thinning and chipping or pile burning work by selling some of the larger trees on the property.

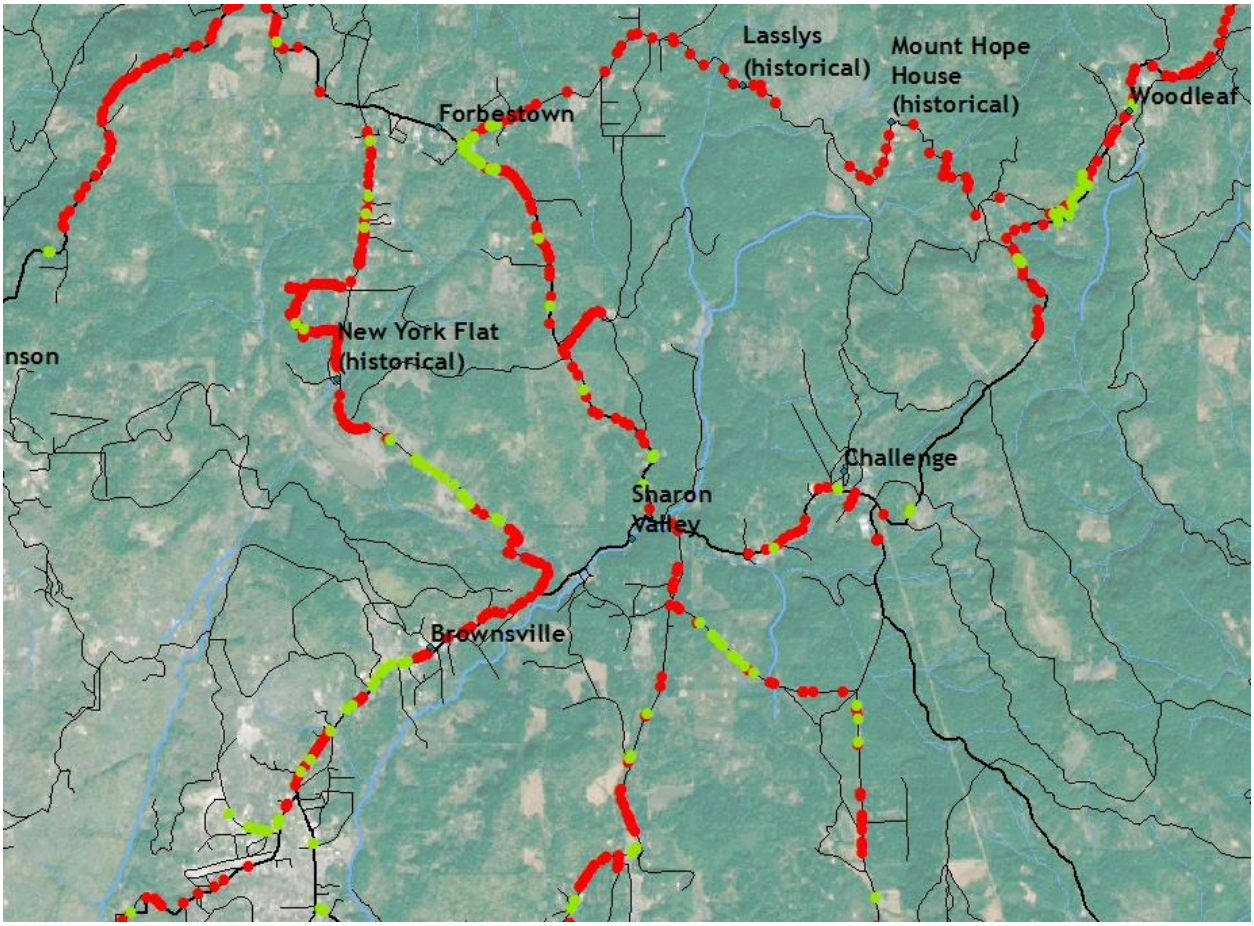
It is important that any logging-based fuels-reduction projects be executed with the overall objective of reducing surface fuel loads and ladder fuels. Logging in and of itself can increase surface fuel loading and does not necessarily reduce wildfire hazard. 'Thinning-from-below' treatments that remove smaller trees without opening the canopy significantly are a better option. Opening the canopy lets more light reach the forest floor, drying surface fuels, and triggering the growth of many small trees that will become the next ladder fuels. Also, an open canopy lets in more wind, which can increase surface fire intensity and rates of fire spread.

Transportation System

Inadequate access and egress during critical wildfire conditions is the ***single most critical life threatening issue identified during the field surveys for this project***. Many of the major roads in the project area have dense vegetation adjacent to them that ***will be dangerous for firefighter access or evacuee egress*** during a wildfire. Also, many of the parcels in the project area are served by one-way-in-and-out roads and long, narrow driveways. Due to the dense, overgrown condition of the vegetation, ***most of the minor roads*** in the project area are currently **unsafe for access or egress during a wildfire**, and a fast-moving wildfire has the ***potential to kill people trapped in their cars*** on overgrown roads. With an aging/absentee population, increasing population in the wildlands, and rapid growth rates for vegetation in the project area, it seems unlikely that fire access will ever *cease to* be a major safety issue in the area.

Roadside fuel loading near Idlewood Circle, Forbestown. Survey rod is 6’ tall.

Like most of the Sierra Foothills, many of the major road alignments in the project area are little changed from the gold rush era of the 1800s, particularly the roads in the older communities, where many of the houses are built right up against the road. This fact along with a lack of easements along shared roads makes it difficult to develop roadside hazardous fuels reduction thinning projects, since all involved landowners must consent to having work done on their property.



Map showing major roads in Foothill Fire Protection District from survey work conducted for this CWPP. Red dots show high fire hazard condition along major roads. Green dots are in a fire safe condition.

Today's private and commercial vehicles and fire equipment are much larger than they were even 30 years ago. Many of the roads in the county that were constructed earlier than 30 years ago were not expected to be conduits for today's population or vehicle sizes. This constitutes another impediment to adequate ingress and egress during emergencies. The location of the primary access and egress roads in the Yuba Foothill CWPP area are displayed in Figure 15 on page 46.

In Yuba County, as in most rural areas, **r**oad standards have been a contentious issue for decades. The fire departments, the county planning department, Board of Supervisors, and developers all want different requirements. Until recently, with the advent of statewide standards for roads in Title 14, road requirements have been under attack from developers that wanted to maximize the amount of developable land with minimal investment in road-building.

Vegetation Clearance along Roads, Evacuation Planning, Road Maintenance

It is important that the fire safe council communicate the requirements and priorities for roadside hazard reduction identified in this plan with the County Department of Public Works, Caltrans, and local fire

districts. The maps and project spreadsheet in this document score individual roadside hazard reduction projects based on predicted wildfire behavior, whether or not the route is considered to be a major access route, and proximity to existing structures. Hazard reduction thinning should be prioritized based on the scoring from this project. Roadside vegetation clearance standards used by the county should be provided to homeowner and road associations for educational purposes.

Community Roadside Hazard Reduction

Grant funding for roadside treatments should be focused on the areas that will produce strategically-located fuel breaks, and/or will improve safe access and egress for the largest number of people. Roadside hazard reduction projects on minor roads and driveways that are not identified in this plan can be just as important for the safety of the residents there. Given limited public funds for *all types* of projects, vegetation clearance work on many of the minor roads and driveways will need to be undertaken by the residents in these neighborhoods.

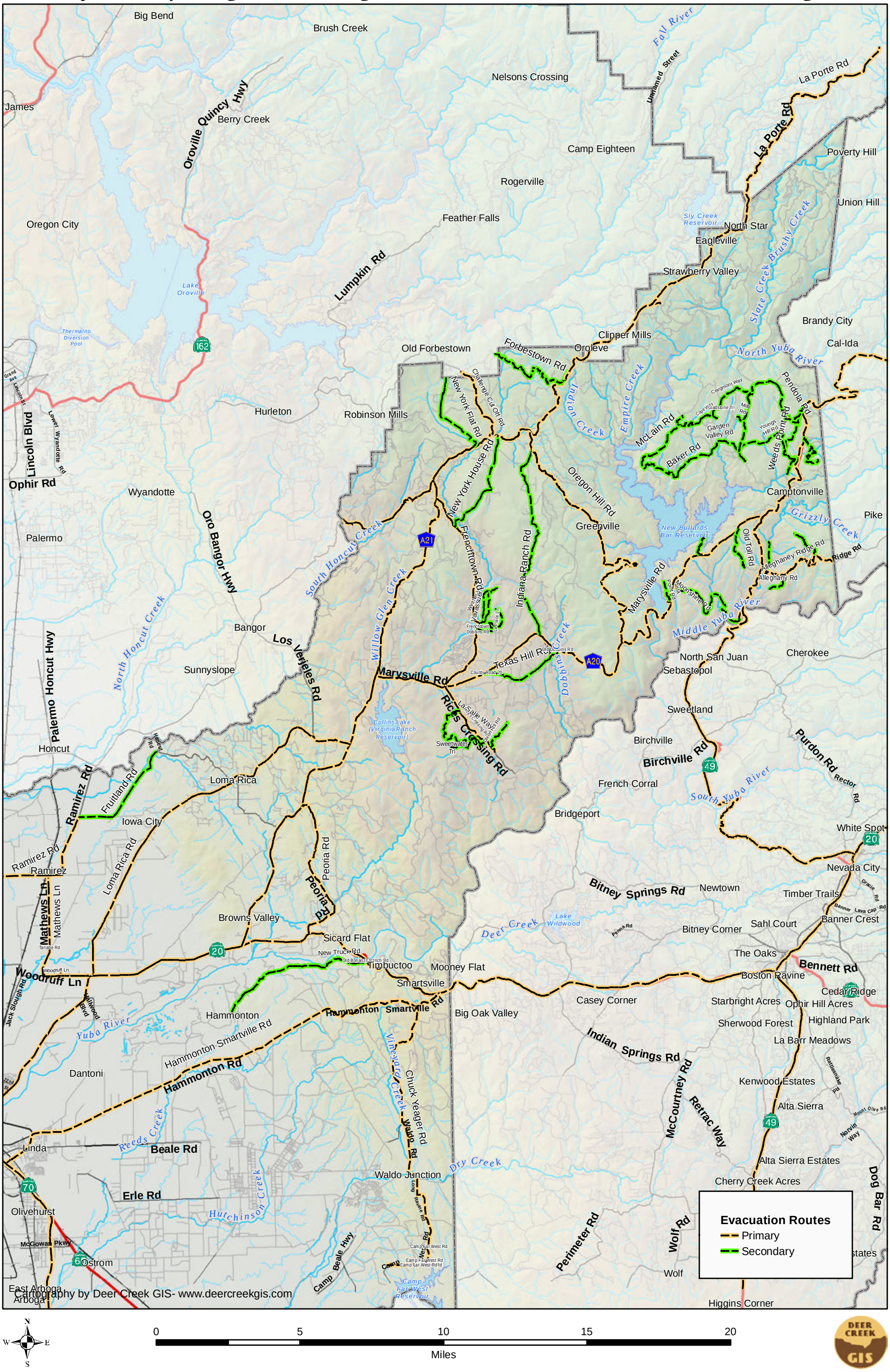
A successful neighborhood fuels reduction project depends on the residents making it a priority to plan the project, do the work, and keep the work maintained. Roads and long driveways should be cleared to a minimum of 15 feet high and 18 feet wide. Residents and homeowners and road associations should be encouraged to upgrade their roads to meet the California Title 14 standards for new road construction. While new road bed standards can't be enforced on old roads, vegetation clearance and the installation of turnouts and turnarounds along these roads should be encouraged by the fire districts.

Road associations may need to widen roads and put in turn arounds to allow fire equipment space required for safe manuvering. These are only a few of the responsibilities of the communities to keep their community safe from a wildfire. The job of the fire departments and the fire safe councils is to educate the community to what needs to be done to provide for safe ingress and egress for residence and fire equipment.

Yuba Foothills Community Wildfire Protection Plan

Primary Roads for Egress and Ingress

Figure 15



V. Fire Response

The capabilities and equipment of each of the five fire districts are listed in Appendix D.

All departments have mutual aid agreements with each other so the local resource pool is large. However, with dwindling budgets whether it be to CALFIRE, the US Forest Service, the County or Community Service Districts, more cuts to the fire departments should be expected, which could lead to fewer staffed positions and equipment staying in service longer than expected before it is replaced. Like all volunteer fire departments, they will continue to have difficulty recruiting and retaining volunteers. Much of this is due to an aging work force, the large number of commuters, and the increase in training requirements. The Foothills have many residents that work outside of the area, which makes many of the volunteers unavailable during the day. Foothill volunteer departments should be encouraged to expand their recruiting efforts to enhance their response capabilities, and able bodied residents encouraged to become volunteers.

Wildland Urban Interface wildfire suppression condition

Generally, three wildland fire suppression conditions exist in wildland urban interface areas. Each condition requires a specific suppression strategy that is modified as the fire moves across the landscape and the conditions change. Table 8 below describes the three conditions, suppression strategies, and the treatments used to mitigate the pre-fire conditions. Fuel treatment strategies are designed to modify fire behavior so that fire suppression resources have a better chance for success. Fuel treatments are not designed to work alone, that is, fire suppression resources must be present to take full advantage of the treatments during a wildland fire. Notice that compliance with California Public Resource Code (CPRC) 4291 is an important part of the treatment strategy (See appendix C for information on CPRC 4291

The table is a rule of thumb and a generalization of what can be affective when preparing communities for a wildfire. For example, numerous structures located on less than 1 acre of land each in the interface. The suppression strategy is to provide structure protection until the fire passes. With structures on larger acreage the best strategy is rapid initial attack to stop the fire and provide structure protection. In the wildland where there are few structures the tactics are provide for structure protection but suppress the fire as well. The treatment strategies are also related to the size of the lots and the importance of what makes for efficiency for providing structure protection. The treatments help move the community toward a community that can withstand a wildfire or become a fire adaptive community

A great resource for information on becoming a Fire Adapted Community can be found at:

http://www.fireadapted.org/

Table: Wildland Urban Interface (WUI) conditions and suppression and treatment strategies

Condition	Suppression strategy	Treatment and Prefire Strategy
Wildland Fire with structures threatened (*parcels are generally larger than one acre*)	Perimeter control during initial attack (IA) with rapid transition to structure protection	Design treatments to modify fire behavior for containment prior to reaching structures adjacent to fuel treatments. (Compliance with CPRC-4291 critical)
Wildland Fire with structure to structure ignition taking place (*parcels generally less than one acre)*	Structure protection	Compliance of CPRC-4291 Building Codes Road Access / Turn-a-rounds. Perimeter treatments to keep the fire out of the community, if feasible.
Wildland Fire without structures (very few if any structures or assets at risk from the fire)	Environmental conditions and resource objectives determine response to unplanned ignitions	Strategically designed treatments to modify landscape fire behavior including strategic perimeter control treatments

VI. Community Preparedness for a Wildfire Emergency

Evacuation Planning

Evacuation planning is critical and scenarios for evacuation should be run periodically with law enforcement, fire personnel, and local community members. Community evacuation practice sessions should be held in all of the fire districts so that the people living in the area understand the importance of evacuation planning and law enforcement can understand potential evacuation problems.

Other issues related to evacuation planning are choke points, staff availability, and a lack of formal wildfire evacuation pre-planning. Choke points exist where feeder roads connect to primary routes and are points that potentially hinder smooth and rapid evacuation. It is critical to any evacuation that traffic control be set in place as fast as possible at these choke points. Evacuation can be further constrained by the availability of law enforcement personnel and and/or Community Emergency Response Team volunteers (CERT) personnel in the event of an evacuation. Planning must address severely limit County limitations in the number of on duty personnel that can be used to begin evacuations in the event of a rapidly moving wildfire.

The attitude that the evacuation strategy should be fluid, based on the particular needs of each incident, is not acceptable. While a level of flexibility is necessary due to the unpredictable nature of wildfire, it is important to develop and drill on several plausible scenarios for each community. Preplanning for evacuation is important to public safety. As pointed out in the 'Wildland Fire Lessons Learned' publication *FACES: The Story of the Victims of Southern California's 2003 Fire Siege (http://tiny.cc/FACES2003)* even communities such as San Diego County where wildfires requiring evacuations are annual events, local officials and residents were not prepared for evacuation during the firestorms of 2003, and MANY lives were lost. The 'Faces' document should be required reading for all emergency personnel that may need to work in any evacuation capacity. The C ounty's Disaster Council should identify specific problems that could impede evacuation and access for wildfire suppression resources. More needs to be done to inspire the community members to write their own evacuation plans. The evacuation planning website WILDFIRE IS COMING are you Ready? is an excellent place to start your preparations http://www.readyforwildfire.org/ Also, community involvement in annual evacuation drills is *highly* recommended.

> **Case Study – Wildfire Evacuations during the 2003 Southern California Wildfires**
> San Diego County was lacking in Fire Evacuation Interagency Planning. In early 2003—prior to the southern California Fire Siege—the California Department of Forestry and Fire Protection (CDF) and the U.S. Forest Service helped initiate a group called the Forest Area Safety Taskforce (FAST). This interagency team was brought together to prepare an evacuation plan for Palomar Mountain and practice its provisions (Lundberg 2005). The FAST exercise demonstrated that most communities in San Diego County did not have an evacuation plan. Unfortunately, for the most part, this was demonstrated when the multiple fire siege hit in October 2003. Twenty two people lost their lives either by waiting too long to evacuate or during the process of evacuating.
>
> Not surprisingly, when the need arose on the Old Fire, in San Bernardino County, those who had planned for months in advance for the contingency of evacuation—under the Mountain Area Safety Task Force

(MAST) preparations—were able to safely conduct an exodus of mountain residents to safer locations. Those who had not accomplished similar interagency planning in San Diego County became victims of the fast spreading Cedar and Paradise Fires.

The majority of people killed each year by wildfire die in their automobiles. Most of those who died on the Cedar and Paradise fires were trapped by flames while trying to flee to safety.

The development of a multijurisdictional evacuation plan with all partners, informing the public about evacuation procedures in advance and scheduling evacuation simulations, such as the communities of San Bernardino County have done, was instrumental in safely evacuating 70,000 people from the mountain resort area during the 2003 Old Fire.

VII. Action Plan

Critical Findings and Recommendations

This Action Plan is based on the community meeting inputs, stakeholders, recommendations by the fire agencies and fire districts, and the CWPP contractor.

Biomass Use Potential

The community of Camptonville has started the process of studying the feasibility of creating a Biomass industrial site near the community of Camptonville. The Camptonville Community Partnership (CCP) is a non-profit organization whose mission is to help create healthy and sustainable communities and landscapes in the Yuba foothills. In partnership with the Yuba Watershed Protection and Fire Safe Council, CCP is investigating the possibility of locating a community-scale biomass-to-energy power plant at the former Sierra Mountain Mills site in Celestial Valley, near Camptonville. This bioenergy plant could provide up to 3 MW of clean, renewable energy by turning wood biomass into electricity. This is enough energy to power 1200 to 2700 households. The fuel for the plant would come from sustainable forest management activities aimed at reducing the threat of high intensity wildfires on nearby private and federal land.

In September 2013, this vision took a step towards becoming reality when CCP was awarded a grant from the National Forest Foundation to assist with the planning efforts. The funding will be used to create an economic development plan for a Forest Biomass Business Center in Celestial Valley, where the bioenergy plant would be co-located with other related businesses. For example, a wood pellet manufacturer could use forest biomass, renewable energy and waste heat from the power plant to create its product. Other potential co-located businesses include hothouse agriculture, bio char compost production, or any enterprise that has a high demand for electricity or heat.

PROPOSED LOCATION

The proposed project site is an approximately 20-acre property located off of State Highway 49 in Celestial Valley, about 2 miles south of the community of Camptonville. The site is the previous location of an operating sawmill, which closed in the 1990s, and therefore has features that make it attractive for

siting a Forest Biomass Business Center. The site is level, graded, and has existing ingress and egress routes that would facilitate the delivery of chips and other materials. Several existing large buildings and covered storage areas could be retrofitted to become part of Center operations. The site's proximity to Highway 49 would facilitate the transportation of biomass from nearby harvest areas.

Recommendation: The CWPP stakeholders support this effort by the Camptonville Community Partnership and will assist the project development where possible.

Fire Risk Mitigation Strategies

The overall goal of this CWPP is to identify situations and factors which place citizens, their property and communities at risk from wildfire, and suggest appropriate mitigation goal(s) to reduce that risk.

For the purposes of this document, the word "mitigation" is defined as follows:

"Mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event. Mitigation, also known as prevention, encourages long-term reduction of hazard vulnerability. The goal of mitigation is to save lives and reduce property damage. Mitigation can accomplish this, and should be cost-effective and environmentally sound. This, in turn, can reduce the enormous cost of disasters to property owners and all levels of government. In addition, mitigation can protect critical community facilities, reduce exposure to liability, and minimize community disruption. Examples include land use planning, adoption of building codes, and elevation of homes, or acquisition and relocation of homes away from floodplains." - (FEMA Publication 386-1).

The objectives of this section are to:

- Identify mitigation goals that focus on public safety, firefighter safety, reducing structure ignitability, and reducing damage to assets and natural resources.
- Identify areas where collaborative efforts of local, state, and federal agencies, and private landowners can mitigate risks of structure ignitability, reduce hazardous fuels, and wildfire threats to communities and watersheds.

This section identifies specific wildfire-related risks, and provides mitigation strategies for each. It is organized around the following 5 focus areas.

A. Information, Education & Planning
B. Reducing Structure Ignitability
C. Enhancing Suppression Capabilities and Public Safety
    a. Fire Protection
    b. Access & Signage
    c. Water Systems
D. Hazardous Fuel Reduction Planning & Implementation
E. Evacuation Planning

	Focus Area - Information, Education, and Planning
	The Yuba County Watershed Protection and Fire Safe Council is comprised of participants from local fire departments, state, and federal agencies, and private organizations. Funding for the council has been provided by the federal National Fire Plan, California Propositions 204 & 40 programs, and Yuba County under the HR-2389 (Secure Rural Schools and Community Self-Determination Act) Title III program. Past projects have included: Water Tanks, a Fire Safe Council website, Education and outreach information programs, a residential fuel chipping program, fuel reduction projects along County roads Fuel Breaks This CWPP document establishes many needed projects, and provides a basis for funders to establish the legitimacy of proposed projects.
Item	Mitigation Goals:
A. 1.	**Fire Safe Council (FSC) growth**: Continue to seek participation and funding to support the fire safe council.
A. 2.	**Expand information & education – homeowners:** Fire safe council, Yuba County, local fire departments, and state and federal agencies should continue to provide and expand informational and educational programs for homeowners, property owners, and communities on what causes homes to ignite and burn in a wildland fire. Programs should also address: the need for safe access and signage, the importance of available water, adequate fire protection, fuel reduction, and the critical role that homeowners play in reducing fire.
A. 4.	**Periodic updating of the County Wildfire Protection Plan:** Completion of the County Wildfire Protection Plan is the first step in planning and implementing mitigation activities that will protect homes and communities from wildland fire. The Community Wildfire Protection Plan serves as the CWPP document for the unincorporated communities within the County of Yuba**.** The plan will be updated with specific consideration given to the areas designated as communities at risk, and the elements of the fire risk mitigation strategies by area of focus.

	Focus Area - Reducing Ignitability of Existing Homes	
	The first priority for mitigation actions are immediately around structures, the **home ignition zone**, which is the area up to 100 feet from the building. Research shows that fire resistant roofing, decks and other building construction characteristics, such as boxed in decks and vent metal screens of ¼" or less, coupled with defensible space, and fire prevention measures within the home ignition zone play the largest role in home survival. This Home Ignition Zone is critical to home survivability, civilian and firefighter safety and the effectiveness of firefighters providing structure protection to a residence during a wildland fire. Homeowners can dramatically reduce the risk of home ignition caused when embers land on, or near the home, or enter through improperly screened vents or other openings. These embers can case a new fire, burning down a house that would have otherwise survived the passage of the main fire. Attention to the "little things", such as pine needles which have accumulated on the roof or under the deck, in addition to the more obvious roofing, siding, and vent coverings can mean the difference between a home surviving and not surviving. In addition to the home itself, homeowners must consider and evaluate their surrounding landscape out 100 feet or to their property line in terms of fuel reduction for defensible space. Homeowners need to evaluate their individual circumstances, their home and landscape, determine what material on, in or near their home will readily catch fire from embers and what landscape characteristics will limit a fire's spread. Homeowners should plan ahead and allow enough time, prior to fire season, to complete the work necessary to make their home and landscape fire resistant.	
B.1.	**Structures & attachments –** Educate existing homeowners and provide incentives for making existing residences and properties less prone to loss from a wildfire due to embers, radiated heat, or surface fire spread.	
Item	Risk Condition:	Mitigation Goals:
B.1.a.	**Roofing - Shake roofs are a leading cause of home loss in wildfires.** Research show that homes with non-combustible roofs and clearance of at least 30-60 feet have a 95% chance of survival in a wildfire.	**1) Educate homeowners** on the risks posed by shake roofing, and the increased fire safety of non-combustible roofing.
B.1.b.	**Vent openings -** Screening of vent openings with steel screens will prevent embers (during the ember blizzard that comes with a wildfire) from entering into attics and crawl spaces. *Currently standards exist in the county for new construction, but must older structures require retrofitting of vents.*	**1) Educate homeowners and the building industry** on importance of placement of ¼ inch steel screening over all vent openings. **2) Explore incentives** to encourage homeowners to install ¼ inch steel screening of vent openings. For example, local Fire Districts could obtain donations to buy large rolls of mesh screen for free

		distribution to residents.
B.1.c.	**Siding -** Untreated wood siding significantly adds to the radiant heat and flame impingement exposure risk from wildfire. All homes within the high and very high fire hazard severity zones of Yuba County that have other buildings adjacent within less than 30 feet should be constructed with fire resistive siding.	**Educate homeowners** on the risks posed by wood siding, and the increased fire safety of non-combustible siding.
B.1.d.	**Eaves – Eaves often add to the home's exposure from wildfire by trapping direct flames and embers.** Building construction practices should be modified to reduce the susceptibility of eaves to direct fire and firebrand ignition.	**1) Educate homeowners and contractors** of the importance of fire resistive eave construction by boxing open eaves in and screening any eave vents. **2) Explore incentives for improvements to eave construction -** incentives for homeowners modify to eaves to improve fire resistance.
B.1.e.	**Decks -** If treated and maintained properly, and with adequate defensible space from vegetation, most solid wood decking material is fire resistant enough to withstand the short term heat load. Research shows that treated natural wood products must be well maintained to prevent cracking or rotting and maintain their fire resistance. Many new materials (synthetics) ignite more easily than wood and have a rapid structural collapse when subjected to high heat loads.	**1) Educate homeowners** about the types of decking materials, and keeping it clean. Address the need for keeping areas beneath decks clear of combustible debris, and boxing in the sides with non-combustible siding. It is recommended that decks should be kept free of combustible material that accumulates on, under or around the deck. Another option is to enclose or otherwise shield the underside of the deck in order to prevent flames, heat and embers from getting under and causing fires under the deck.
B.1.f.	**Detached Structures –** Flammable Structures (e.g. storage, wood & tool sheds, and fencing) without separation from homes, place those homes at risk of loss due to exposure.	**Educate homeowners** on the need to separate detached structures and other flammable heat sources from their residence. Building to building ignition threats can be reduced with non-combustible siding. Flammable structures such as sheds should be

		separated from the home a distance of 30 feet or more or be sided with non-combustible siding. Fences constructed of flammable material should have 10 foot of separation, usually having a 10 foot chain link fence section attached to the house.
B.1.g.	**Woodpiles -** Woodpiles without adequate separation expose structures (homes and other buildings) to sustained heat and fire. During the fire season, roughly May through October, wood piles should be located away from residences.	**1) Educate homeowners** on the need to separate wood piles from their residence a minimum of 30 feet, more if space is available, during the fire season months; roughly May through October.
B.1.h.	**Propane tanks –** Propane tanks should be clear of flammable vegetation for at least 10 feet.	**1) Educate homeowners** to clear vegetation & flammable material around propane tanks a distance of at least 10 feet.

	Focus Area - Enhancing Suppression Capabilities and Public Safety	
	Risk Condition:	Mitigation Goals:
	Fire protection – Yuba County provides a unique challenge for fire protection in that it has a blend of urban and rural fire and rescue needs. The most effective manner to meet this challenge is for fire departments to share critical and scarce resources across jurisdictional boundaries. Expanding rural populations present increasing challenges for emergency providers. Countywide fire and rescue master planning, involving federal, state and local fire departments, is an important tool to evaluating current and expected needs, and planning the future development of, fire and rescue services within the County.	**1) Mutual Aid Agreements** Fire departments within Yuba County should continue to cooperatively share emergency resources through mutual aid agreements. Automatic aid agreements provide the timely response of critical resources to emergencies regardless of jurisdiction. **2) Cooperative countywide emergency service planning** involving federal, state and local jurisdictions should evaluate the need to expand the depth and breadth of fire, EMS and rescue services to rural communities. Prefire planning drills should be supported to practice coordination of firefighting activities. **3) Support County Fire Chiefs Association** by maintaining existing fire and rescue capabilities, such as staffing of local hand crews and fire lookouts. Plan and implement future fire and rescue modules to support growing populations and new fire and rescue challenges brought about by changes in society.
	Roads - Many residents live on limited access egress roads. Many of the primary, and most of the secondary, roads in the CWPP area have segments that need to be evaluated regarding accessibility for suppression resources and evacuation planning. Most large fire engines will have difficulty on these roads. More public fatalities occur during evacuation than from their structure burning down around them.	Residents need to understand the emergency equipment limitations that pertain to them and the problems the roads cause during suppression deployment and evacuation Fire Districts need to inspect all of the roads in their district and make recommendations on whether they are passable for fire equipment and evacuation. County Office of Emergency Services(OES) along with the Fire District establish trigger points at which notification should be given for evacuation and actively get community support for evacuation drills. Make sure that the message for evacuation planning is consistent and the plans identified in this CWPP

		are well distributed to community members.
C.2.	**Road and Address Signage –** Psigning that is visible day and night from both directions, is critical to the ability of emergency services to rapidly locate emergencies.	**Explore incentives** for homeowners to meet state and local fire safe standards for signing of their homes and private roads.
C.3.	**Driveways and private roads -** This factor is critical to agencies providing emergency services, not only for wildland fire purposes, but for all emergency vehicle access.	
C.3.a.	**Private Roads –** Private roads are often long, narrow, and without adequate fuel reduction making it difficult, impassible or simply unsafe for emergency vehicles to access homes. Moreover, inadequate access on private roads often makes it difficult, if not impossible, to allow emergency vehicles to pass during emergencies.	**1) Educate homeowners** with existing private roads about current road standards**,** including but not limited to road surface, width, height and length requirements. Also include access gates, bridges, turnouts, turnarounds and roadside fuel reduction.
C.3.b.	**Driveway length –** Driveways are often long and narrow making it difficult for emergency vehicles to access homes, and allow other emergency or civilian vehicles to pass.	**1) Educate homeowners** to bring existing driveways up to state and local standards for emergency access. 2) **Explore incentives** for homeowners to meet state and local fire safe standards for driveway access.
C.3.c.	**Gates –** Private gates, such as those serving gated communities, private roads, individual homes or private property are often inaccessible to emergency responders. Gates should be accessible to emergency service agencies and should conform to state and local standard for access including emergency service codes, width and operation even during power outages.	**1) Educate homeowners** of the need to address locked or code key gates that can limit emergency access.
C.3.d.	**Vegetative clearances -** Emergency responders have experienced existing private roads and driveways too overgrown with vegetation for	**1) Educate homeowners** on vegetative clearance standards for fire trucks of 15 feet vertical and 5 to 10 feet horizontally from the roadway.

	their apparatus to safely access.	
C.3.e.	**Slopes (driveway & private roads) -** Emergency access is limited by slopes that are too steep for fire apparatus and other emergency vehicles.	**1) Educate existing homeowners** on driveways and roadways fire safe standards for slope.
C.3.f.	**Turnouts and turnarounds (driveways & private roads) -** Emergency responders have experienced private roads with limited turnouts, or turnarounds for their apparatus.	**1) Educate existing homeowners** on the fire safe standards for turnouts and turnarounds. Fire engines are not supposed to back up if at all possible.
C.3.g.	**Bridges (driveways and private roads)** Emergency vehicles are often unable to cross bridges on private roads and driveways due to width, height and weight limitations.	**1) Educate existing homeowners** to upgrade non-conforming bridges, culverts and turnouts to make sure that emergency responders can safely gain access to their residences.
C.4.	**Access for evacuations in and out of the community in the wildland urban interface (WUI) -** A number of existing "at risk" communities in Yuba County presently only have one way in and out of their community.	**1) Develop alternate community escape routes** in the Wildland Urban Interface. Communities, industrial landowners, along with local, state, and federal agencies, should work collaboratively to identify and fund improvement of emergency evacuation routes for communities with one way in and out. Develop MOU between private landowners and public pertaining to road maintenance and liability during evacuation. There are numerous camps and campgrounds within the CWPP area and it is important for the fire districts to further evaluate whether those camps have up-to-date evacuation plans. **2) Support efforts to improve local and state road systems for emergency access.** Work cooperatively with agencies, elected officials and private entities to support efforts to improve road systems for emergency access.
C.5.	**Water systems -** Water is a premium commodity in the suppression of both structural and wildland fires.	
C.5.a.	**Existing communities and subdivisions -** Many existing Yuba County homes,	**1) Identify** existing water source locations and gather GPS coordinates and tank attributes such as type and

	communities and subdivisions lack sufficient water storage, handling, or delivery systems, placing properties at a higher risk for loss to fire.	size. Mark with 3 inch blue reflective signs. **2) Explore incentives** for communities and government agencies to work collaboratively to increase water storage and delivery capacity for use during a fire.
C.5.b.	An effort is needed to continue adding water sources in the fire protection districts. An example of a Structure Protection Preplan form is attached to this plan. It, or a similar form, can be used to gather, and facilitate addressing information about community water and road issues. It is important to determine current strategy, and evaluate the capacity of water sources for all areas within the CWPP boundary. Several of the existing sources are in need of repair. The Fire Safe council has done an excellent job of acquiring funding for water tanks and has been locating them in strategic spots. This should continue in the future.	Establish a fire safe council committee with involvement of the Fire District and the water districts who can work to evaluate the current water sources and determine any potential for improvements. The community, with the aid of the fire district, should continue looking at sources for funding to improve the current fire-water situation in the community. Continue the construction and/or installation of water tanks in areas that have a limited supply of water.

	Focus Area - Hazardous Fuel Reduction (HFR)	
	Risk Condition:	Mitigation Goals:
D.1.	**Defensible space and fuel treatment on developed lots -** An excess of hazardous fuel around structures places many homes at risk. Structures are required to have at least 100 feet, or to the property line of defensible space under state law (PRC 4291). More clearance may be necessary depending on fuels, slope aspect, and the structure's position relative to topography (slope). Evaluations for compliance to CPRC 4291 are a continuing effort these are used primarily as educational tools. Inspections are performed by the US Forest Service as part of a cooperative agreement between them and CALFIRE (Appendix F, Attachments).	**1) Educate homeowners** on the risks due to inadequate defensible space and the need to comply with state laws requiring the removal of vegetation for defensible space around their residence. Homeowners should be directed to follow the guidance provided in the Yuba County Fire Safe Councils "A Homeowner's Guide to Firewise Landscaping in Yuba County" available on the web at www.co.yuba.ca.us/firesafe/, or at local fire stations. The volunteer evaluation program by the local fire districts is important and needs to continue but should be followed up by the responsible agency or agencies to add a layer of enforcement to the program. The current volunteer program is only offered to the residents, who can deny access. This should be expanded to include visual inspection without permission and educational material left on the door of the residence. The property inspection form used by CALFIRE (LE 100) can be found at http://dcgis.us/LE_100.pdf. It is recommended that the community create its own form using the LE 100 as an example. **2) Explore incentives to increase compliance with state laws -** Explore incentives, such as insurance rate reduction, for existing homeowners that have met state and local fire safe standards for defensible.
D.2.	**Post Forest Practice activity (slash) fuel treatment –** Forest practice activities, including thinning and harvesting, create "activity fuels," (slash) which, under the California Forest Practice Act, must be treated to varying standards based upon the circumstances. Reference the California Forest Practice Rules Article 7, Hazard Reduction, Section 937.2 Treatment of Slash	**1) Educate non-industrial and industrial forest landowners** about the added fire hazard created by remaining activity fuels. **2) Explore incentives** to ease the cost to non-industrial and industrial forest landowners to make it easier and more cost effective for them to treat activity fuels within the WUI to a 2-4 foot flame

	to Reduce Fire Hazard. - http://tiny.cc/forestpracticerules By increasing the amount of flashy,fine fuel loading on the surface, logging slash can create a significant fire hazard, which within the Wildland Urban Interface adds to the problem of protecting life, structures and natural resources.	length standard.
D.3.	**Fuel treatment and maintenance of hazardous fuels in planned subdivisions -** Many proposed subdivisions in Yuba County have hazardous fuel conditions that place the development and surrounding homes and communities at risk. Moreover, with the addition of structures and people to wildland areas comes the increased risk of fire starts.	**1) Consider modification of county codes** to require hazardous fuel treatment on proposed developments prior to recordation of final map **2) Modify county codes to require a plan for the maintenance of treated wildland fuels** on proposed developments prior to recordation of final map**.** To maintain the investment, and desired fuel condition, and provide for community safety, in upcoming developments it is prudent to require a hazardous fuel reduction maintenance plan. This plan can assign the responsibility to provide future fiscal requirements and enforcement responsibilities for maintaining fuels in a fire-resistant condition to either the Homeowners Association the Community Service District. Hazardous fuel reduction and subsequent maintenance should create a fire-resilient condition, a condition. This condition would not contribute to initiating or sustaining a crown fire, and limit potential surface fuel flame lengths to 4 feet or less.
D.5.	**Fuel treatment on private lands within communities-at-risk -** While many communities have begun to develop hazardous fuel reduction projects, there is much untreated land between structures and in common areas throughout the foothills. Projects include fuel breaks around, or fuel reduction within, the communities.	**1) Encourage collaborative community based hazardous fuel reduction projects -** Encourage property owners, homeowner associations, community services districts, communities, and agencies to work collaboratively to reduce the risk of fire. **2) Implement recommended hazardous fuel reduction projects -** Implement fuel treatment within and around communities as addressed within this

		document. 3) Continue to pursue hazardous fuel reduction funding for communities through grants. **4) Explore incentives** for existing large landowners to meet hazardous fuel reduction standards on their properties in the WUI.
D.6.	**Fuel treatment on public lands within communities-at-risk -** There are approximately **53,000** acres of public lands within the boundaries of Yuba County's communities at risk. The fuel condition on much of the public land has become overgrown, and, although recent efforts to reduce the fuels have improved conditions, there are far too many acres yet untreated.	**1) Treat all public lands within community at risk boundaries.** Through collaborative efforts, all public lands within communities at risk should be assessed for treatment. Public lands should be treated to a standard which will create a fire-resilient stand, which would not contribute to initiating or sustaining a crown fire, and limit potential surface fuel flame lengths to 4 feet or less.
D.7.	**Fuel reduction in the adjacent WUI zone -** Up to ½ mile around the "Community At Risk" boundary to the outer edge of the WUI is the area where collaborative community based hazardous fuel reduction efforts should occur so that fires approaching or leaving a community will be less intense, generate fewer embers for spot fires, and provide for defensible actions by suppression resources. These fuel reduction projects would focus on reductions in surface, ladder, and canopy fuels on public and private lands.	**1) Complete Yuba Foothills Strategy for Fuel Reduction** including private, local, state and federal hazardous fuel reduction projects.
D.8.	**Fuel reduction in the extended WUI zone -** Up to a mile around the adjacent WUI zone (for a total WUI of 1.5 miles). In this area, community based hazardous fuel reduction efforts should occur to compliment work within the adjacent WUI, providing additional community protection. This would reduce potential wildland fire impacts so that they will	**1) Continue mitigation measures into the WUI 'Threat Zone'.** Mitigation measures in the extended WUI would be the same or similar to those in the WUI 'Defense Zone', but be second in priority for HFR work. **2) Explore incentives for landowners to reduce hazardous fuels -** Explore incentives (e.g. tax breaks, waive yield taxes, and THP exemptions) for existing

	be less intense, generate fewer embers for spotfires into the community, provide protection to the surrounding natural landscape, and provide for safer and more efficient firefighting. These fuel reduction projects would focus on reductions in surface, ladder, and canopy fuels on public and private lands.	large landowners to meet hazardous fuel reduction standards on their properties.
D.9.	**Fuel Reduction Maintenance –** Fuel reduction is a critical component of protecting homes and communities from the risk of wildland fire. However, without periodic maintenance dynamic plant communities will re-establish themselves returning eventually to the overgrown state that propagates catastrophic wildland fires.	**1) Educate homeowners, citizen groups, organizations, agencies and others involved in fuel reduction** about the dynamic plant communities and the need to complete periodic fuel reduction maintenance in order to prevent re-growth. **2) Explore incentives** (e.g. tax breaks, reduction in insurance premiums, waive yield taxes, and THP exemptions) for existing landowners to maintain hazardous fuel reduction standards on their properties.

	Focus Area - Evacuation Planning	
	Risk Condition:	Mitigation Goals:
E.1.	**Evacuation plans & drills:** Evacuation planning prior to emergency incidents improves the orderly evacuation of civilians and the ingress of emergency crews Many of the County's communities have evacuation plans with identified evacuation routes and public assembly areas. Evacuation plans need to be tested with simulated emergency drills to improve effectiveness.	Community evacuation plans will be developed and maintained through a coordinated effort involving law enforcement, fire, EMS, County OES and the American Red Cross with the assistance of area fire safe councils. Advertise and encourage community members to sign up with Yuba County Code Red and register to get information that may affect them. Code Red website is: https://public.coderedweb.com/CNE/FBE5B4D6F361
E.2	Encourage Families to develop their own evacuation Plans	Section VI of this document lists various ways that this Risk should be addressed

Table: Foothill Fire District Potential Projects

ID	PROJECT NAME	PROJECT TYPE	YEAR	DISTRICT	ACRES	PRIORITY
FH-1	Hansonville Hill Fuelbreak	Understory Thin	2014	FOOTHILL FIRE PROTECTION DISTRICT	141	2
FH-10	Rough Hill Prescribed Burns	Maintenance Burn	2018	FOOTHILL FIRE PROTECTION DISTRICT	15	2
FH-11	Rough Hill Prescribed Burns	Maintenance Burn	2018	FOOTHILL FIRE PROTECTION DISTRICT	10	2
FH-12	Costa Creek Prescribed Burn	Understory Burn	2015	FOOTHILL FIRE PROTECTION DISTRICT	87	3
FH-13	Mount Hope Bible Camp Wildfire Safety	Understory Thin	2014	FOOTHILL FIRE PROTECTION DISTRICT	81	3

	Project					
FH-14	Woodleaf Wildfire Safety Project	Defensible Space and Understory Thinning	2015	FOOTHILL FIRE PROTECTION DISTRICT	200	4
FH-15	Zions Camp Wildfire Safety Project	Defensible Space and Understory Thinning	2014	FOOTHILL FIRE PROTECTION DISTRICT	62	3
FH-16	Greenville	Roadside Thinning	2014	FOOTHILL FIRE PROTECTION DISTRICT	9	4
FH-17	La Porte Road Project 4	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	25	4
FH-18	New York House Road Project	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	54	4
FH-19	Lower New York Flat Road Project	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	37	3
FH-2	Soper Ranch Rx Burn	Prescribed Burn	2016	FOOTHILL FIRE PROTECTION DISTRICT	91	1
FH-20	La Porte Road Project	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	45	3
FH-21	Challenge Cut Off Road Project	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	41	3
FH-22	New York House Road Project 2	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	17	5
FH-23	Forbestown Road Project	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	28	3
FH-24	La Porte Road Project 5	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	58	3
FH-25	La Porte Road Project 6	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	9	3
FH-26	La Porte Road Project 7	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	44	3
FH-27	La Porte Road Project 8	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	45	4
FH-28	La Porte Road Project 9	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	31	4
FH-29	La Porte Road Project 2	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	30	3
FH-3	Rough Hill Prescribed Burns	Maintenance Burn	2018	FOOTHILL FIRE PROTECTION DISTRICT	10	1

FH-30	La Porte Road Project 3	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	129	3
FH-31	New York Flat - Idlewood Project	Defensible Space and Understory Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	224	3
FH-32	Roadside Thinning	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	202	3
FH-33	La Porte Road Project 10	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	95	3
FH-34	La Porte Road Project 11	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	58	3
FH-35	La Porte Road Project 12	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	56	3
FH-36	Forbestown Road	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	62	3
FH-37	Challenge Cut Off Road Project 2	Roadside Thinning	0	FOOTHILL FIRE PROTECTION DISTRICT	56	3
FH-4	Rough Hill Prescribed Burns	Maintenance Burn	2018	FOOTHILL FIRE PROTECTION DISTRICT	10	3
FH-5	Rough Hill Prescribed Burns	Maintenance Burn	2018	FOOTHILL FIRE PROTECTION DISTRICT	7	1
FH-6	Rough Hill Prescribed Burns	Maintenance Burn	2018	FOOTHILL FIRE PROTECTION DISTRICT	8	1
FH-7	Rough Hill Prescribed Burns	Maintenance Burn	2018	FOOTHILL FIRE PROTECTION DISTRICT	21	2
FH-8	Rough Hill Prescribed Burns	Maintenance Burn	2018	FOOTHILL FIRE PROTECTION DISTRICT	1	3
FH-9	Rough Hill Prescribed Burns	Maintenance Burn	2018	FOOTHILL FIRE PROTECTION DISTRICT	2	2

Yuba Foothills Community Wildfire Protection Plan

Foothill Fire Protection District Fuel Reduction Projects

Figure 16

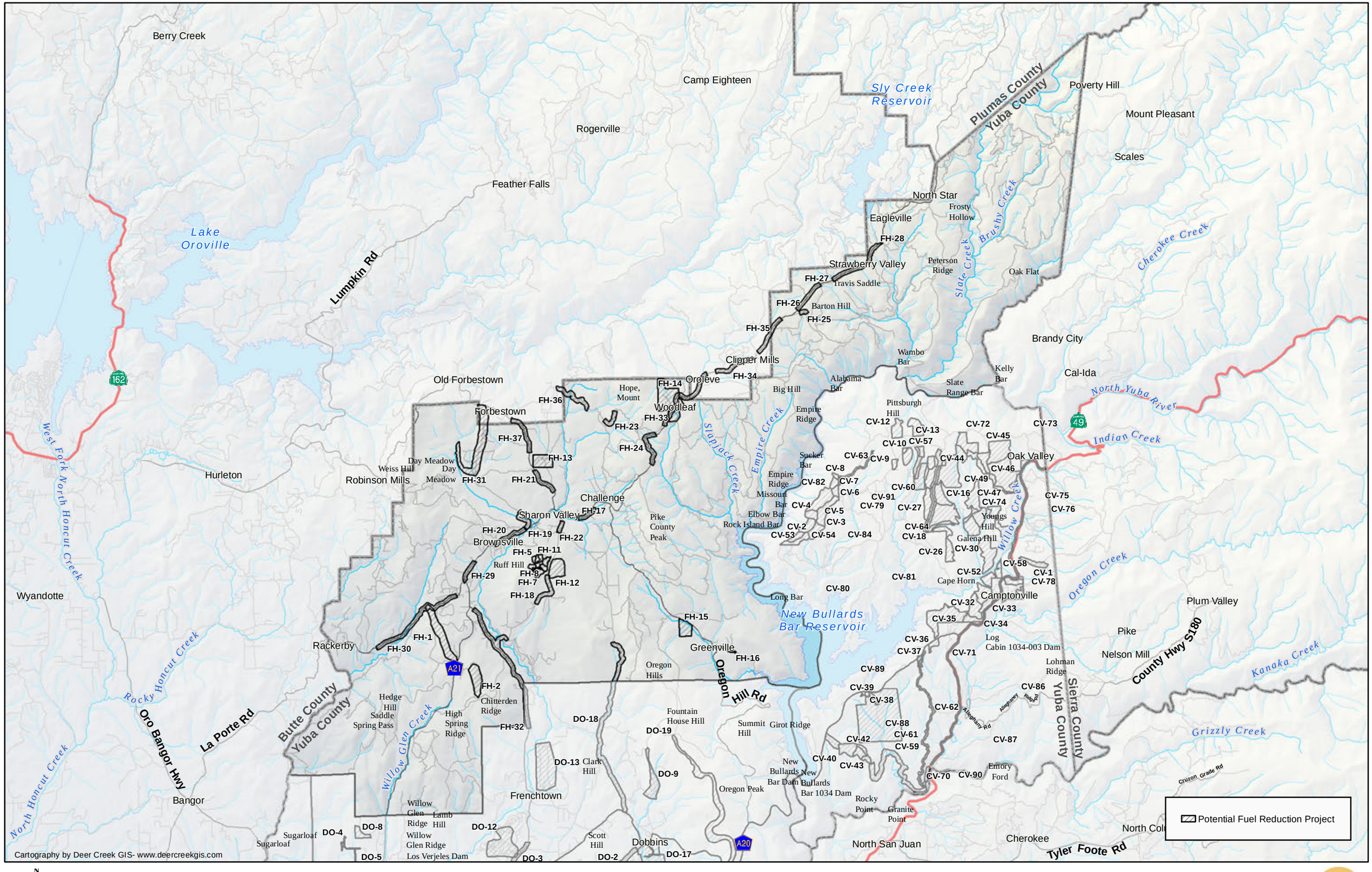


Table: Loma Rica Projects

ID	PROJECT NAME	PROJECT TYPE	YEAR	DISTRICT	ACRES	PRIORITY
LR-1	Roadside Thinning	Roadside Thinning	2015	LOMA RICA BROWNS VALLEY COMM SERVICE DISTRICT	30	3
LR-2	Needs Thinning	Needs Thinning	2015	LOMA RICA BROWNS VALLEY COMM SERVICE DISTRICT	3	3
LR-3	Dawn Drive Project	Roadside Thinning	2015	LOMA RICA BROWNS VALLEY COMM SERVICE DISTRICT	20	3
LR-4	Roadside Thinning	Roadside Thinning	2015	LOMA RICA BROWNS VALLEY COMM SERVICE DISTRICT	1416	2
LR-5	Wolf Trail Project	Roadside Thinning	2016	LOMA RICA BROWNS VALLEY COMM SERVICE DISTRICT	13	2
LR-6	Dawn Drive Project 2	Roadside Thinning	2016	LOMA RICA BROWNS VALLEY COMM SERVICE DISTRICT	16	3
LR-7	Wolf Trail Project 2	Roadside Thinning	2011 6	LOMA RICA BROWNS VALLEY COMM SERVICE DISTRICT	19	3
LR-8	Stone Hedge Drive Project	Roadside Thinning	2016	LOMA RICA BROWNS VALLEY COMM SERVICE DISTRICT	31	3

Yuba Foothills Community Wildfire Protection Plan

Loma Rica/Browns Valley CSD Fuel Reduction Projects

Figure 17

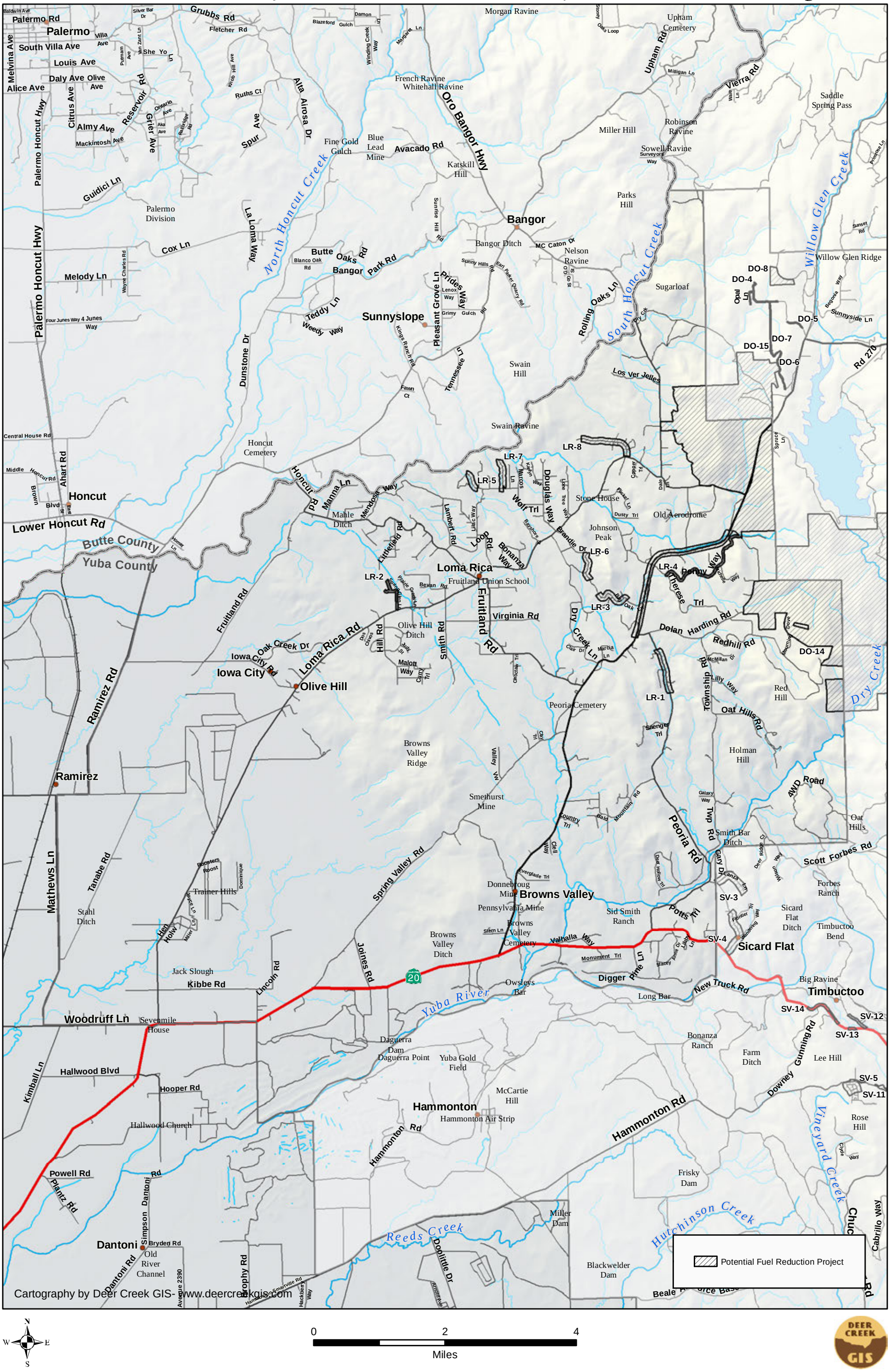


Table: Camptonville Projects

ID	Name	Description	Year	Fire District	Acres	Priority
CV-1	Camptonville North	Shaded Fuelbreak	2015	CAMPTONVILLE COMM SERVICE DISTRICT	37	3
CV-10	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	42	2
CV-11	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	32	2
CV-12	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	56	1
CV-13	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	64	1
CV-14	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	29	2
CV-15	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	58	2
CV-16	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	234	2
CV-17	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	77	2
CV-18	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	161	2
CV-19	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	86	2
CV-2	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	56	2
CV-20	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	10	2
CV-21	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	9	2
CV-22	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	53	2
CV-23	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	61	2
CV-24	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	25	2
CV-25	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	34	2
CV-26	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	51	1
CV-27	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	74	2
CV-28	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	36	2

CV-29	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	44	2
CV-3	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	81	2
CV-30	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	124	2
CV-31	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	70	2
CV-32	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	76	2
CV-33	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	34	3
CV-34	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	39	3
CV-35	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	204	3
CV-36	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	18	3
CV-37	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	13	2
CV-38	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	9	2
CV-39	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	14	2
CV-4	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	32	2
CV-40	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	62	3
CV-41	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	29	3
CV-42	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	13	3
CV-43	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	16	3
CV-44	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	85	2
CV-45	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	141	2
CV-46	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	49	2
CV-47	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	207	2
CV-48	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	18	2

CV-49	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	45	2
CV-5	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	99	2
CV-50	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	27	2
CV-51	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	26	2
CV-52	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	35	2
CV-53	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	42	2
CV-54	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	44	2
CV-55	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	27	2
CV-56	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	7	2
CV-57	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	16	1
CV-58	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	27	3
CV-59	Moonshine Hazard Reduction	Remove Ladder Fuels, Pile and Burn, avoid ground disturbance and maintain crown closure	2015	CAMPTONVILLE COMM SERVICE DISTRICT	191	3
CV-6	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	19	2
CV-60	Camp Pendola Hazard Reduction	Defensible Space and Understory Thinning	2015	CAMPTONVILLE COMM SERVICE DISTRICT	68	3
CV-61	Scotch Broom Removal	Scotch Broom Removal	0	CAMPTONVILLE COMM SERVICE DISTRICT	697	1
CV-62	Roadside Thinning	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	83	2
CV-63	Roadside Thinning	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	31	1
CV-64	Pendola Extension Treatment	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	43	2
CV-66	Camptonville Community Fuels Reduction - Millsite	Thinning and Ladder Fuels Removal	2015	CAMPTONVILLE COMM SERVICE DISTRICT	30	4

CV-67	Camptonville South Community Hazard Reduction	Thinning and Ladder Fuels Removal	2015	CAMPTONVILLE COMM SERVICE DISTRICT	31	3
CV-69	Camptonville Community Fuels Reduction	Thinning and Ladder Fuels Removal	2015	CAMPTONVILLE COMM SERVICE DISTRICT	6	3
CV-7	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	22	2
CV-70	Moonshine Road Project	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	15	3
CV-71	State Hwy 49	Roadside Thinning	2014	CAMPTONVILLE COMM SERVICE DISTRICT	192	2
CV-72	Pendola Extension Roadside Treatment	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	40	2
CV-73	Oak Valley MOHP	Multi Owner Harvest Plan	0	CAMPTONVILLE COMM SERVICE DISTRICT	421	2
CV-74	Weeds Pt Roadside Treatment	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	42	3
CV-75	Fawn/Snoline MOHP	Multi Owner Harvest Plan	0	CAMPTONVILLE COMM SERVICE DISTRICT	186	3
CV-76	Sleighville Creek MOHP	Multi Owner Harvest Plan	0	CAMPTONVILLE COMM SERVICE DISTRICT	551	3
CV-77	CVFD Firehouse Expansion	Construction/Infrastructure	0	CAMPTONVILLE COMM SERVICE DISTRICT	1	2
CV-78	Water Treatment Plant Treatment	Thinning and Ladder Fuels Removal	2015	CAMPTONVILLE COMM SERVICE DISTRICT	3	2
CV-79	McLain Roadside Treatment	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	49	1
CV-8	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	8	2
CV-80	Curtis MOHP	Multi Owner Harvest Plan	0	CAMPTONVILLE COMM SERVICE DISTRICT	746	2
CV-81	Pendola MOHP	Multi Owner Harvest Plan	0	CAMPTONVILLE COMM SERVICE DISTRICT	941	2
CV-82	Fire Water Storage Tank Project	Construction/Infrastructure	2015	CAMPTONVILLE COMM SERVICE DISTRICT	1	1
CV-83	Fire Water Storage Tank Project	Construction/Infrastructure	2017	CAMPTONVILLE COMM SERVICE DISTRICT	1	1
CV-84	Baker Ranch Roadside	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	33	2

	Treatment					
CV-85	State of California Camptonville Roadside Thinning	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	3	3
CV-86	Ridge Road Treatment	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	90	2
CV-87	Alleghany Road Treatment	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	32	2
CV-88	Kelley Road Repair	Construction/Infrastructure	0	CAMPTONVILLE COMM SERVICE DISTRICT	3	1
CV-89	Marysville Road Treatment (Maintenance)	Roadside Thinning	0	CAMPTONVILLE COMM SERVICE DISTRICT	133	2
CV-9	Future USFS Camp Fuels Project	Future USFS Camp Fuels Project	2018	CAMPTONVILLE COMM SERVICE DISTRICT	16	2
CV-90	Oregon Creek Day Use Treatment	Thinning and Ladder Fuels Removal	0	CAMPTONVILLE COMM SERVICE DISTRICT	100	2
CV-91	Octavia MOHP	Multi Owner Harvest Plan	0	CAMPTONVILLE COMM SERVICE DISTRICT	184	3

Yuba Foothills Community Wildfire Protection Plan

Camptonville CSD Fuel Reduction Projects

Figure 18

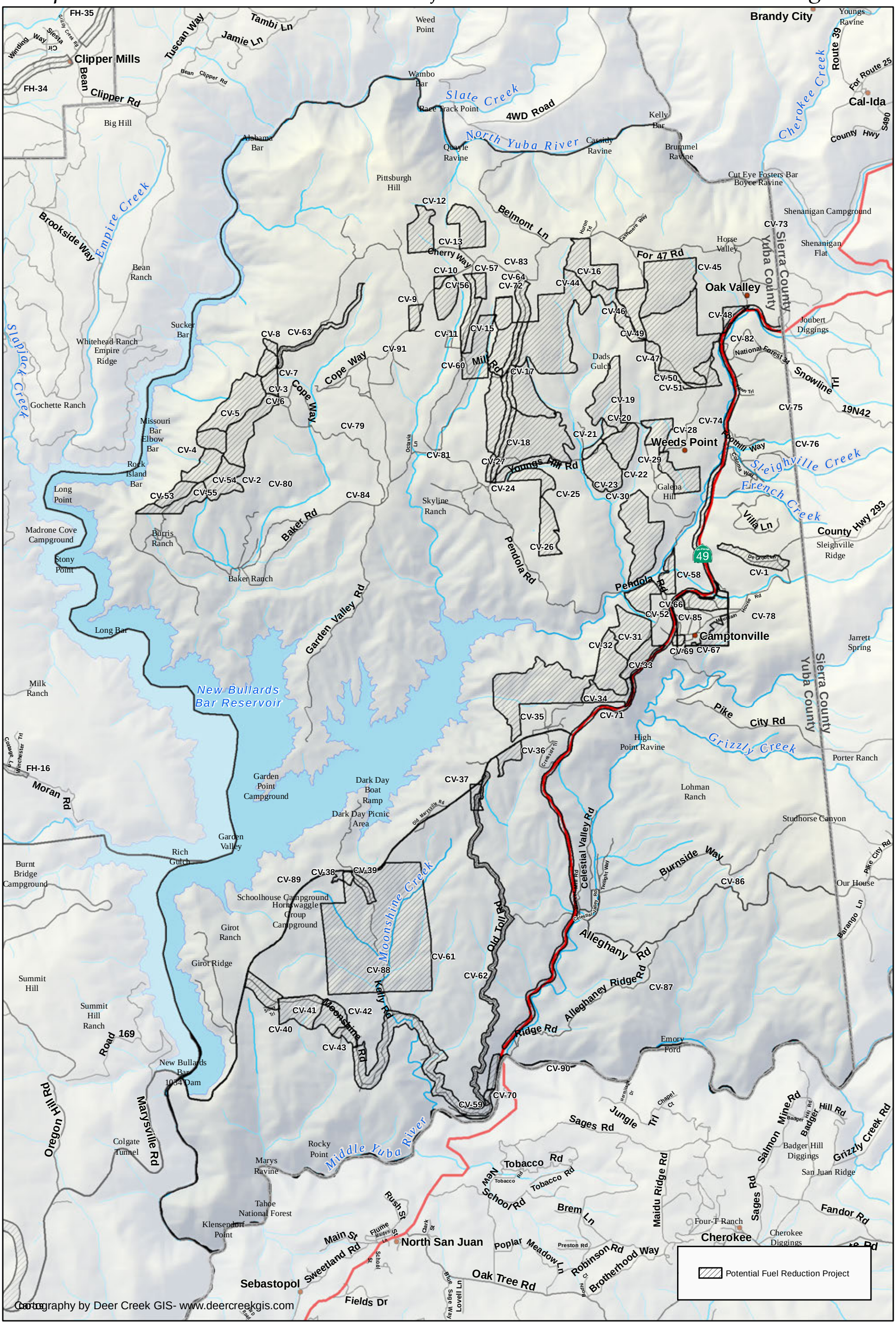
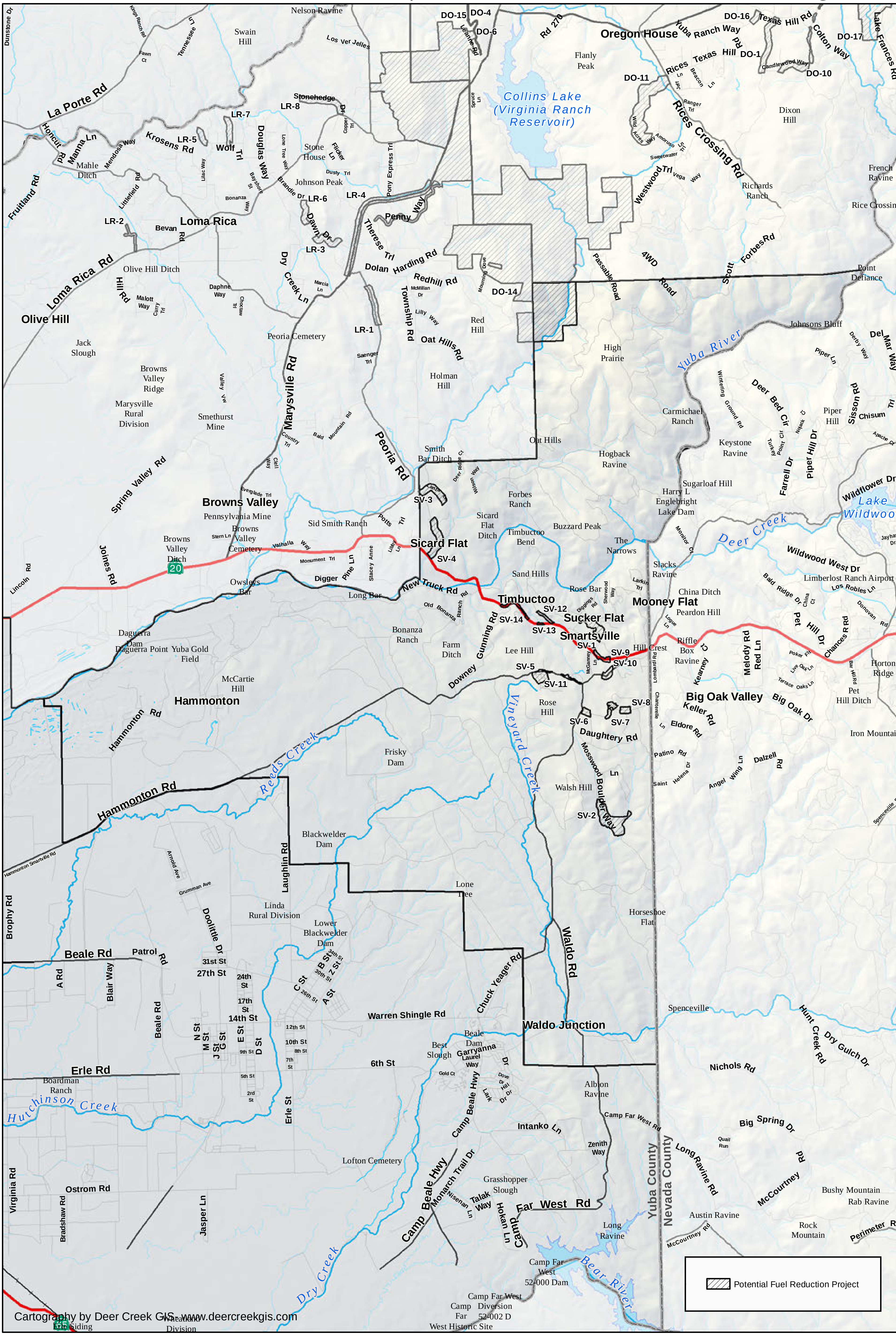


Table: Smartsville Projects

ID	NAME	PROJECT TYPE	YEAR	DISTRICT	ACRES	PRIORITY
SV-10	Hammonton Smartsville Road Project	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	10	3
SV-11	Hammonton Smartsville Road Project 2	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	3	3
SV-12	Timbuctoo Project	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	5	4
SV-13	Highway 20 Project 2	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	2	2
SV-14	Highway 20 Project 3	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	8	2
SV-2	Thinning and Ladder Fuels Removal	Thinning and Ladder Fuels Removal	2015	SMARTVILLE FIRE PROTECTION DISTRICT	47	2
SV-3	Gary Drive Project	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	31	4
SV-4	Sicard Flat Project	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	22	2
SV-5	49er Circle Project	Thinning and Ladder Fuels Removal	2015	SMARTVILLE FIRE PROTECTION DISTRICT	10	4
SV-6	Big Oak Valley Ranch Road	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	6	3
SV-7	Big Oak Valley Ranch Road 2	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	9	3
SV-8	Big Oak Valley Ranch Road 3	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	7	3
SV-9	Highway 20 Project	Roadside Thinning	2015	SMARTVILLE FIRE PROTECTION DISTRICT	10	3

Yuba Foothills Community Wildfire Protection Plan

Smartsville FPD Fuel Reduction Projects — *Figure 19*



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Miles

Table: Dobbins/Oregon House Projects

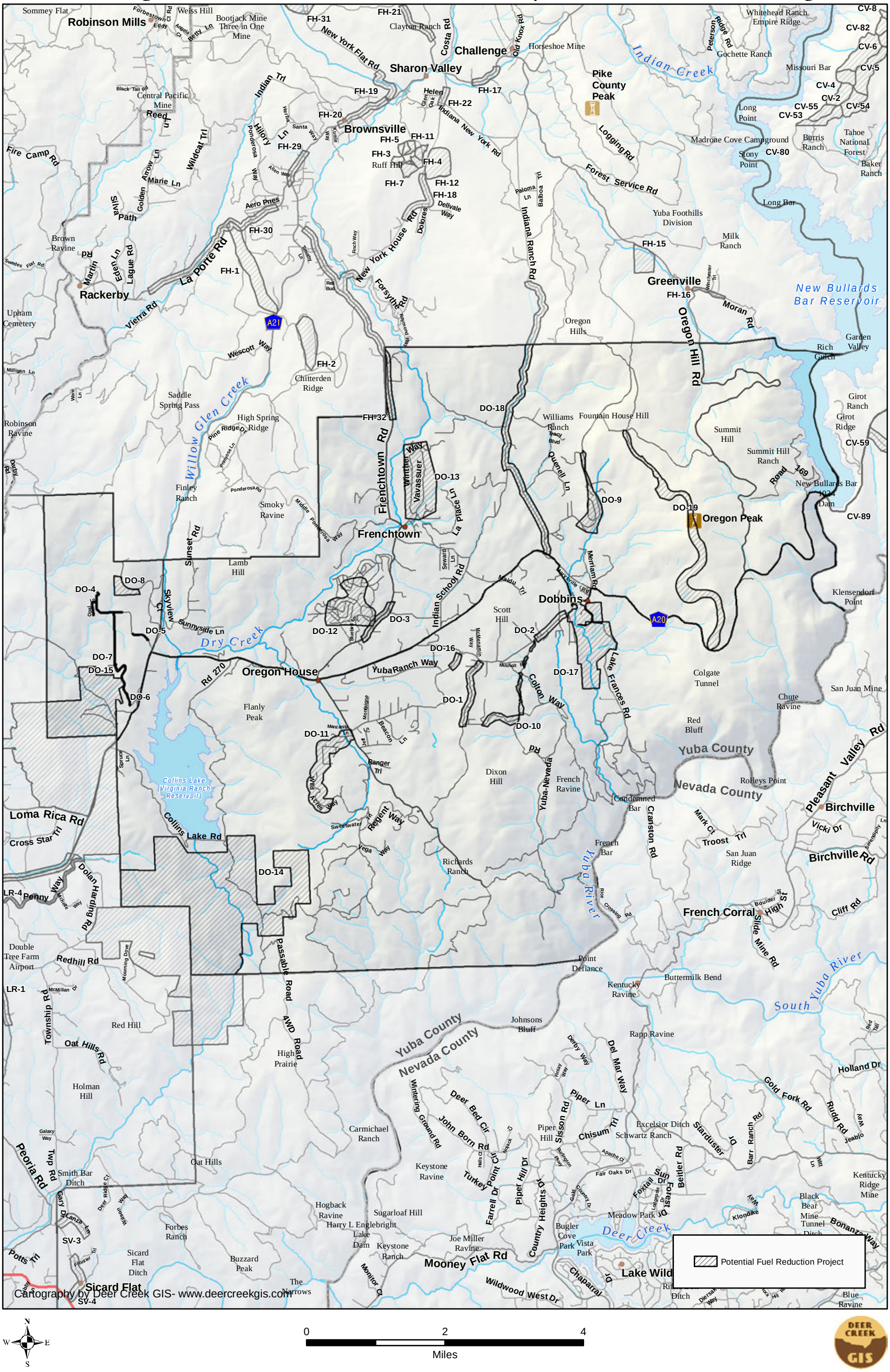
ID	PROJECT NAME	PROJECT TYPE	YEAR	DISTRICT	ACRES	PRIORITY
DO-1	Roadside Thinning	Roadside Thinning	2016	DOBBINS OREGON HOUSE FIRE DISTRICT	54	3
DO-10	Candlewood Thinning	Roadside Thinning	2015	DOBBINS OREGON HOUSE FIRE DISTRICT	51	3
DO-11	CSA2 Egress Improvement	Roadside Thinning	2015	DOBBINS OREGON HOUSE FIRE DISTRICT	158	4
DO-12	1000 Trails Park Cleanup	Defensible Space and Understory Thinning	2014	DOBBINS OREGON HOUSE FIRE DISTRICT	139	3
DO-13	Vavasuer Road Project	Roadside Thinning	2014	DOBBINS OREGON HOUSE FIRE DISTRICT	258	4
DO-14	Roadside Thinning	Roadside Thinning	2015	DOBBINS OREGON HOUSE FIRE DISTRICT	2249	1
DO-15	Connect Roads	Connect Roads	2014	DOBBINS OREGON HOUSE FIRE DISTRICT	1	4
DO-16	Rices Texas Hill Road Project	Roadside Thinning	2015	DOBBINS OREGON HOUSE FIRE DISTRICT	9	4
DO-17	Dobbins South Community Hazard Reduction Project	Thinning from below	2015	DOBBINS OREGON HOUSE FIRE DISTRICT	198	2
DO-18	La Porte Road Project 13	Roadside Thinning	2016	DOBBINS OREGON HOUSE FIRE DISTRICT	219	3
DO-19	Oregon Ridge Shaded Fuelbreak	Shaded Fuelbreak Maintenance	2016	DOBBINS OREGON HOUSE FIRE DISTRICT	215	2
DO-2	Roadside Thinning	Roadside Thinning	2015	DOBBINS OREGON HOUSE FIRE DISTRICT	25	4
DO-3	Frenchtown Road Project	Roadside Thinning	2016	DOBBINS OREGON HOUSE FIRE DISTRICT	24	4
DO-4	Roadside Thinning	Roadside Thinning	2015	DOBBINS OREGON HOUSE FIRE	14	2

				DISTRICT		
DO -5	Roadside Thinning	Roadside Thinning	2016	DOBBINS OREGON HOUSE FIRE DISTRICT	1	4
DO -6	Roadside Thinning	Roadside Thinning	2016	DOBBINS OREGON HOUSE FIRE DISTRICT	7	3
DO -7	Roadside Thinning	Roadside Thinning	2016	DOBBINS OREGON HOUSE FIRE DISTRICT	1	4
DO -8	Graze	Graze	2015	DOBBINS OREGON HOUSE FIRE DISTRICT	26	3
DO -9	Fountain House Roadside Thinning	Roadside Thinning	2014	DOBBINS OREGON HOUSE FIRE DISTRICT	82	3

Yuba Foothills Community Wildfire Protection Plan

Dobbins Oregon House FPD Fuel Reduction Projects

Figure 20



VIII Monitoring and Evaluation

A CWPP does not end when it is adopted; a thorough process should involve a continuous cycle of collaborative planning, implementation, monitoring and adapting strategies based on lessons learned. As communities learn from successes and challenges during the development and implementation of their CWPP, stakeholders may identify new actions, propose a shift in how decisions are made or actions are accomplished, and evaluate the resources necessary for successful CWPP implementation.

- Track accomplishments and identify the extent to which CWPP goals have been met.
- Examine collaborative relationships and their contributions to CWPP implementation, including existing participants and potential new partners.
- Identify actions and priority fuels reduction projects that have not been implemented, and reasons why, then set a course for future actions and updating the plan.

Table 11 is a framework that can help a community in monitoring and evaluating its CWPP. The table lists six CWPP goals and a series of questions to help communities monitor and evaluate accomplishments, and challenges, and assess how well goals have been met. Communities and agencies may want to work together to ensure that, at a minimum, data are collected to evaluate the plan and measures employed to ensure consistency. The community must recognize that fire safety is rapidly changing. It is likely that new developments and new sources of money in fire safety will change from year to year. It is recommended that this plan be reviewed on an annual basis by the fire districts with updates every 5 years or sooner if necessary.

Table: Framework for Monitoring and Evaluation the CWPP

1. Partnerships and Collaboration	1.1 Who has been involved with CWPP development and implementation? How have relationships grown or changed through implementation? What resources did they bring to the table?
	1.2 Have partners involved in the planning process remained engaged in implementation? Have new partners become involved? How have the relationships established through the CWPP enhanced opportunities to address CWPP goals?
	1.3 How has the collaborative process assisted in implementing the CWPP and building capacity for the community to reduce wildfire risk?
	1.4 Has CWPP collaboration made a difference or had a positive impact on local organizations, neighborhoods and/or actions?
2. Risk Assessment	2.1 How has population growth/change and development in your community affected wildfire risk?
	2.2 Are there new or updated data sources that may change the risk assessment and

	influence fuels treatment priorities?
	2.3 Have the County or State enacted wildfire-related ordinances that affect communities covered by the CWPP?
	2.4 Has the community enforced local or CPR 4291 ordinances
3. Reducing Hazardous Fuels	3.1 How many acres have been treated for hazardous fuels reduction on public and private land that were identified as high-priority projects in the CWPP? What percentage of total acres treated does this constitute?
	3.2 How many fuels reduction projects have spanned ownership boundaries to include public and private land?
	3.3 What is the number and percent of residents that have participated in projects and completed defensible space on their land?
	3.4 How many hazardous fuels reduction projects have been implemented in connection with a forest restoration project?
	3.5 Economic development resulting from fuels reduction: How many local jobs have resulted because of fuels reduction or restoration activities?
	3.6 Evaluate any CWPP fuels treatment utilized during suppression for effectiveness
4. Reducing Structural Ignitability	4.1 What kind of resource losses (homes, property, infra-structure, etc.) have occurred from wildfires?
	4.2 Are the current codes and regulations for wildfire hazard adequate? If not, are there efforts to change or update them? Are there action items in the CWPP to develop codes and recommendations?
	4.3 Has the public knowledge and understanding about structural ignitability been increased by strategies adopted in the CWPP? Have homeowners been educated on how to reduce home ignitability, and are they replacing flammable building components with non-flammable materials?
	4.4 How many Firewise Communities have been recognized? How many citizens, neighborhoods, or communities have taken action to increase the resilience of their structure to fire?

	4.5 How has the availability and capacity of local fire agencies to respond to wildland and structural fires improved or changed since the CWPP was developed?
5. Education and Outreach	5.1 What kind of public involvement has the CWPP fostered? Examples include public education, household visits, demonstration projects, etc.
	5.2 Has a change in public awareness about wildfire resulted from the plan?
	5.3 What kinds of activities have citizens taken to reduce wildfire risk?
6. Emergency Management	6.1 Is the CWPP integrated within the county or municipal Emergency Operations Plan?
	6.2 Does the CWPP include an evacuation plan? If yes, has it been tested or implemented since the CWPP adoption?
	6.3 Is the CWPP aligned with other hazard mitigation plans or efforts?
	6.4 Is the Evacuation Website operational and has it been updated with new information?

* Include goals that can be evaluated with measures as part of a local CWPP evaluation process. This table identifies specific measures that relate to outcomes that can be evaluated at a national level and are associated with HFRA or identified within the 10-Year Implementation Plan.

Appendices

Appendix A: Wildfire Preparedness and Fire Education Websites

Sign up for Yuba County OES Code Red https://public.coderedweb.com/CNE/FBE5B4D6F361

Yuba County Office of Emergency Services (OES) Evacuation Guide http://tiny.cc/yuba_evac

Wildfire is Coming. Are you ready? http://www.readyforwildfire.org/

Making your Family Disaster Plan http://www.ready.gov/america/makeaplan/index.html

Disaster Planning guide template http://ready.adcouncil.org/beprepared/fep/index.jsp

California Emergency Management Agency http://www.calema.ca.gov/

Yuba County Home Page http://www.co.yuba.ca.us/

Yuba County Office of Emergency Services http://www.co.yuba.ca.us/departments/oes/

Yuba County Fire Safe Council http://www.co.yuba.ca.us/firesafe/

CAL FIRE Nevada-Yuba-Placer Unit Fire Plan http://tiny.cc/NYP_fireplan_2013

CAL FIRE Wildland-Urban Interface/Defensible Space Regulations http://tiny.cc/CALFIRE_Codes

CAL FIRE Wildfire Prevention Regulations http://www.fire.ca.gov/about/downloads/preventionlaws.pdf

Home Ignition Prevention/Ember Awareness http://www.livingwithfire.info/be-ember-aware

Builders Wildfire Mitigation Guide http://firecenter.berkeley.edu/bwmg/

Wildfire Preparedness for Horse Owners http://www.ext.colostate.edu/pubs/livestk/01817.html

California Fire Safe Council http://www.firesafecouncil.org/

Red Cross - Sacramento/Sierra Chapter http://sacsierraredcross.org/

Fire Adapted Communities (Educational Resource) http://www.fireadapted.org/

Firewise Communities (Educational Resource) http://www.firewise.org/

Appendix B: Yuba County Fire Behavior Modeling

FlamMap Model Description

(from http://www.fire.org/)

FlamMap is a fire behavior mapping and analysis program that computes potential fire behavior characteristics (spread rate, flame length, fireline intensity, etc.) over an entire FARSITE landscape for constant weather and fuel moisture conditions.

Three important fire behavior summaries are derived from FlamMap and were used in designing the 'resistance to control' maps and tables for the analysis.

Flame Length - used to determine suppression tactics based on how close you can get to the fire

Rate of Spread - used to determine fire spread, direction, and to develop triggers points for decisions

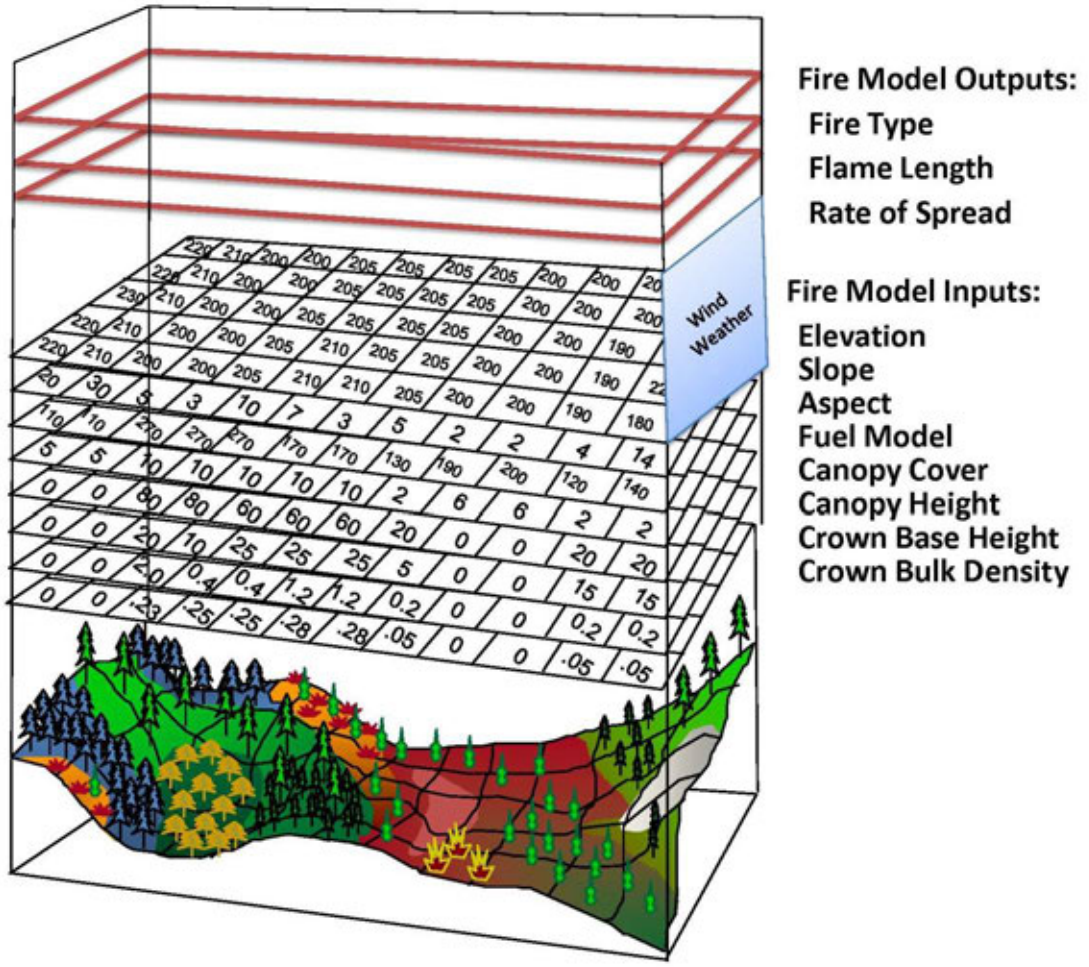
Fire Type - based on the flame length and availability of ladder fuels, the fire can be a surface, torching, or actively crowning wildfire

FlamMap software creates raster maps of potential fire behavior characteristics (spread rate, flame length, crown fire activity, etc.) and environmental conditions (dead fuel moistures, mid-flame wind speeds, and solar irradiance) over an entire *FARSITE* landscape. These raster maps can be viewed in FlamMap or exported for use in a GIS, image, or word processor.

- FlamMap is not a replacement for *FARSITE* or a complete fire growth simulation model. There is no temporal component in FlamMap. It uses spatial information on topography and fuels to calculate fire behavior characteristics at one instant.
- It uses the same spatial and tabular data as *FARSITE*:
  - a Landscape (.LCP) File,
  - Initial Fuel Moistures (.FMS) File,
  - optional Custom Fuel Model (.FMD),
  - optional Conversion (.CNV),
  - optional Weather (.WTR), and
  - optional Wind (.WND) Files.
- It incorporates the following fire behavior models:
  - Rothermel's 1972 surface fire model,
  - Van Wagner's 1977 crown fire initiation model,
  - Rothermel's 1991 crown fire spread model, and
  - Nelson's 2000 dead fuel moisture model.

FlamMap is widely used by the National Park Service, USDA Forest Service, and other federal and state land management agencies in support of fire management activities. It is designed for use by users familiar with fuels, weather, topography, wildfire situations, and the associated terminology. Because of its complexity, only users with the proper fire behavior training and experience should use FlamMap where the outputs are to be used for making fire and land management decisions.

The figure below depicts the different types of data that were used for the fire behavior modeling portion of the community hazard assessment. The grid size used for the model has a piece of data for approximately every quarter acre.



Fire Behavior Modeling

Assessing Wildfire Suppression Effectiveness within the Yuba County Foothill CWPP Area
An analysis of the current fire behavior within the Yuba County CWPP area was done using FlamMap Fire Behavior Model. 2010 forest fuels and vegetation data from the US Forest Service Regional Office at McClellan, California was used along with weather data from the Bangor and Pike County Remote Automated Weather Stations (RAWS) to calculate and create maps of potential fire behavior.

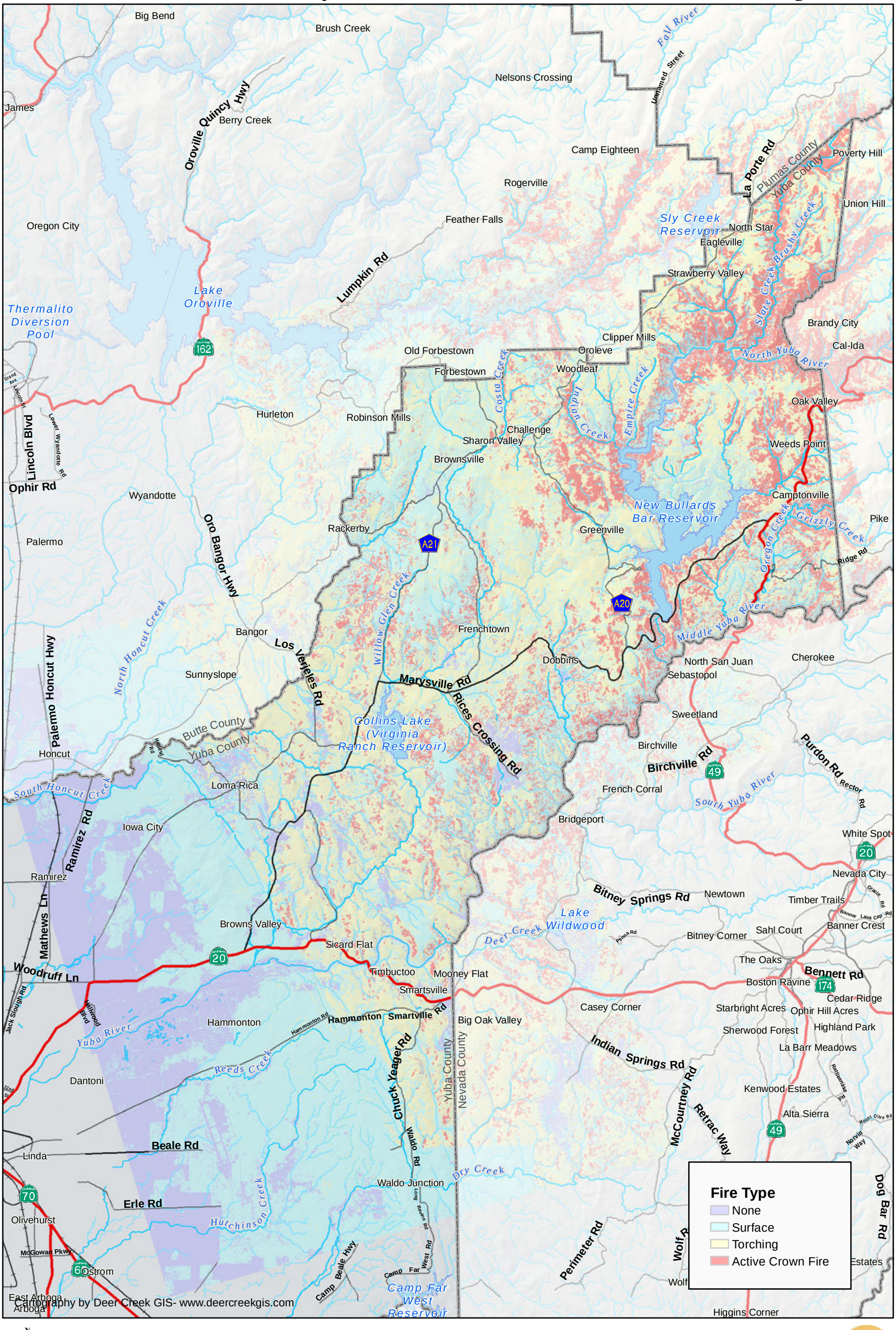
The weather conditions used in the modeling are typical of late summer conditions

- Temperature 85-95 degrees
- Humidity 10-15 %
- Eye level wind speed 5-7 mph

Yuba Foothills Community Wildfire Protection Plan

Predicted Crown Fire Activity

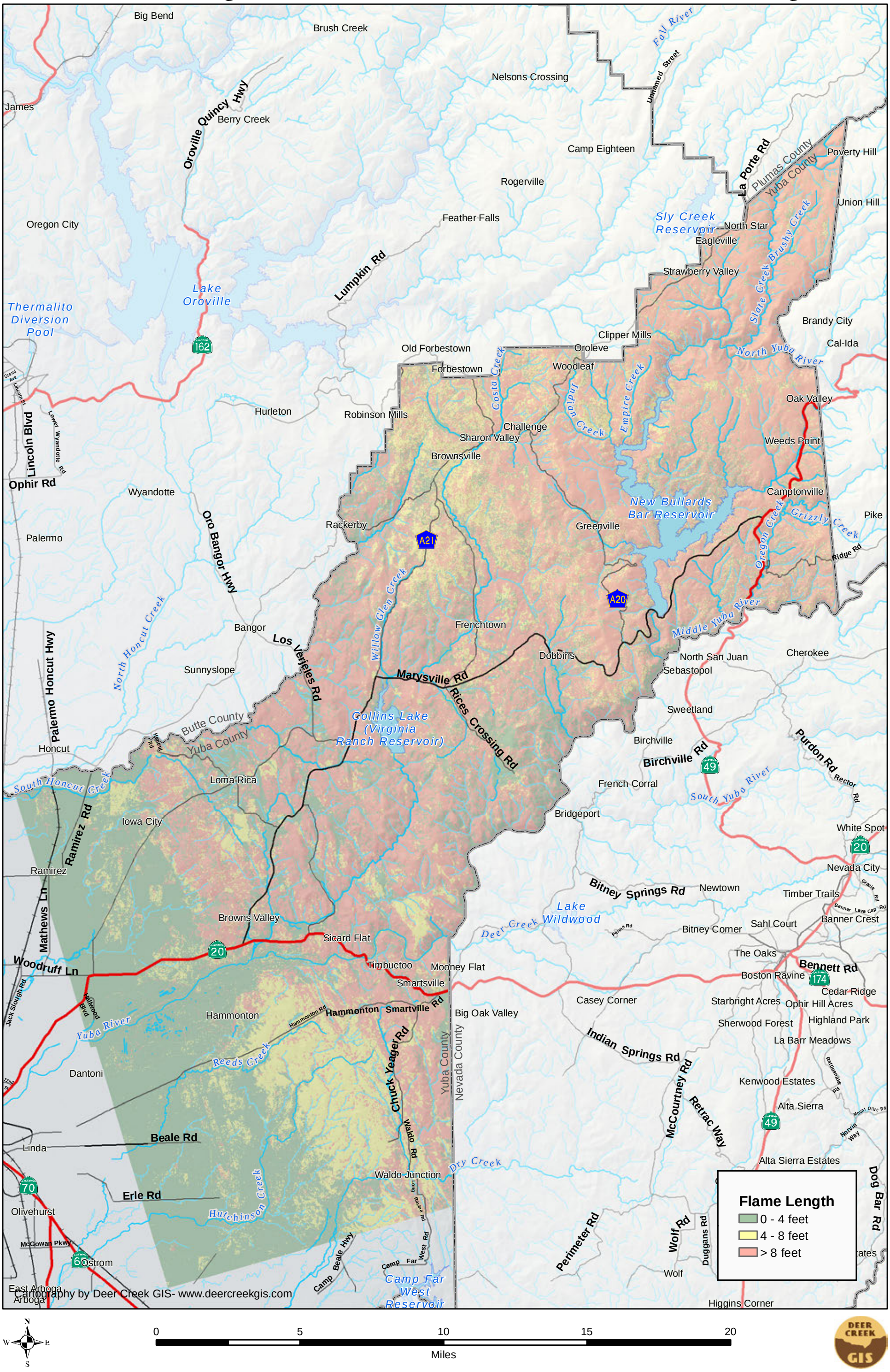
Figure A-5



Yuba Foothills Community Wildfire Protection Plan

Predicted Flame Length

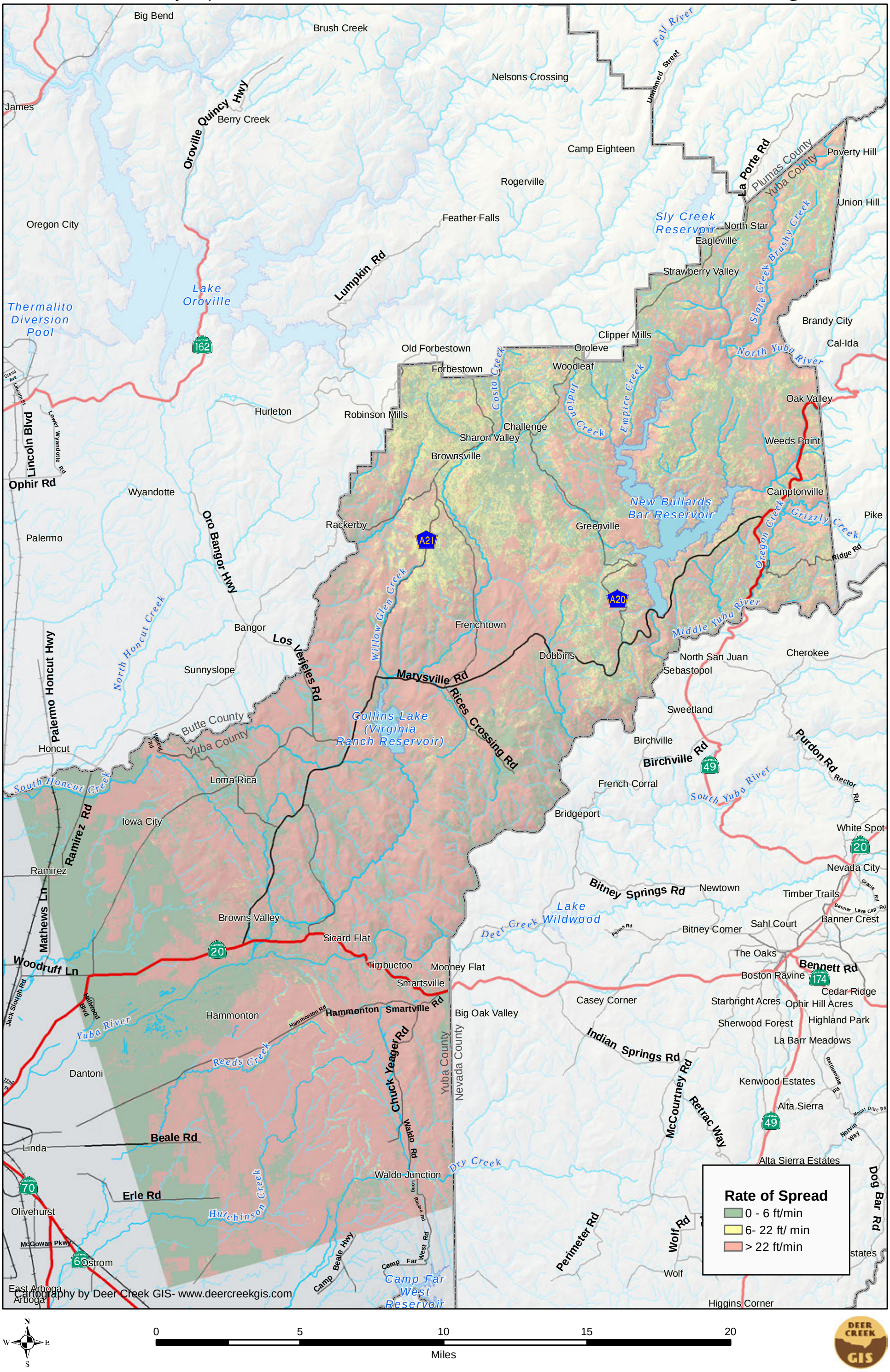
Figure A-6



Yuba Foothills Community Wildfire Protection Plan

Predicted Rate of Spread

Figure A-7



The map in Figure A-5 demonstrates Crown Fire Activity. Fire type or Crown fire activity, is an important output from FlamMap. It considers multiple factors to determine if the fire is, surface, passively crowning (torching) or actively crowning in any particular cell of the fuels grid.

- Fire type 1 is a surface fire; the fire is generally on the ground, high likelihood of initial attack success.
- Fire type 2 is a passive crown fire, (torching and short range spotting).
- Fire type 3 is an active crown fire, (fire actively moving in the crowns of trees with mid to long range spotting).

The other Fire Behavior indicator, Flame Length, is useful in determining resistance to control Flame lengths greater than 4 feet are very difficult to control. Again, using the same parameters for the weather, and the FLAMMAP model to determine flame length, a fire behavior specialist can develop the area's resistance to control. Flame length and Rate of spread modeling outputs can be found in Figures A-6 and A-7, above. When evaluating the maps you can see that much of the CWPP area rates out to an analysis score of 50 to 80 giving it a resistance to control in many areas of the CWPP as High to Very High

Table: Resistance to control matrix

Flame Length (feet)	Rate of Spread (Chains / hour)*	Fire Type X 10	Analysis Score	Resistance to Control
0 to 3.9	0 to 4.9	1x10=10	Less than 18.8	Low (1)
3.9 to 7.9	4.9 to 9.9	10	18.9 to 27.8	Moderate (2)
7.9 to 10.9	9.9 to 19.9	2x10=20	27.9 to 50.8	High (3)
10.9 to 19.9	19.9 to 39.9	20	50.9 to 79.8	Very High (4)
20 +	40 +	3x10=30	79.9 and greater	Extreme (5)

*One Chain equals 66 feet 40 chains per hour equals ½ mile per hour rate of spread

Table: Effective Fire Suppression efforts

Resistance to Control		Interpretation
Low 1		• Fire can generally be attacked at the head or flanks by persons with hand tools and or engines • Handlines should hold the fire
Moderate 2		• Fire is too intense for direct attack on the head by persons using hand tools • Handlines cannot be relied on to hold the fire • Equipment such as dozers, fire engines, and retardant aircraft can be effective
High 3		• Fire may present serious control problems --torching out, crowning, and spotting • Control efforts at the fire head will probably be ineffective
Very High 4		• Crowning spotting and major fire runs are probable • Control efforts at the head of the fire are ineffective
Extreme 5		

Resistance to Control above moderate makes suppression efforts extremely difficult unless there is a break in the vegetation or a change in the weather. Using the above tables, and the previous FLAMMAP runs, it is easy to calculate how difficult it will be to control a wildfire under late summer weather conditions and that the resistance to control will be high to Very High in many of the areas of the Foothill CWPP.

Appendix C: Fire Weather Data for the Community Hazard Assessment

Weather data is required to bring local conditions into the analysis and complete this assessment. Weather data from the Pike County and Bangor Remote Automated Weather Station (RAWS), located in Yuba County, comprises the longest and most accurate records available for the county. Descriptive weather parameters such as temperature and relative humidity are used to calculate the amount of energy released when different types of vegetation burns. This assessment used a calculation called 'Energy Release Component (ERC)' which describes the 24-hour, potential worst case, total available energy (BTUs) per unit area (in square feet) within the flaming front at the head of a fire.

The ERC can serve as a good characterization of a fire season as it tracks seasonal fire danger trends well. The ERC is a function of the fuel model and the live and dead fuel moistures. Fuel loading, woody fuel moistures, and larger fuel moistures all have an influence on the ERC, while the lighter fuels have less influence and wind speed has none. ERC has low variability and is the best fire danger component for indicating the effects of intermediate to long-term drying on fire behavior (if it is a significant factor) although it is not intended for use as a drought index. (Northern California Predictive Service Center, http://gacc.nifc.gov/oncc/predictive/fuels_fire-danger/psac/erc/index.htm)

The ERC graphs (Figures C1 & C2) for the Pike and Bangor stations, respectively indicate when conditions, historically, in the CWPP area will support fires that are likely to escape initial attack. Fires which are likely to escape initial attack would occur when the conditions for ERC reach above 90%. The graph records the average ERC, the maximum historic ERC, the minimum historic ERC, the forecasted, and the actual ERC for the Bangor and Pike Weather stations. As indicated by the graph; the period that a wildfire is most likely to escape initial attack begins around July 15 and lasts well into October on the average year. It should be recognized that the cited period can produce slightly different results each year.

The rule of thumb is when the grass cures and the California buckeye turn brown, the chaparral vegetation and the conifer trees will begin to carry fire. Moisture content continues to drop and the vegetation goes into a dormant state usually by or in mid-August. At this point wildfires will generally move rapidly through the vegetation, living or dead, in the CWPP area.

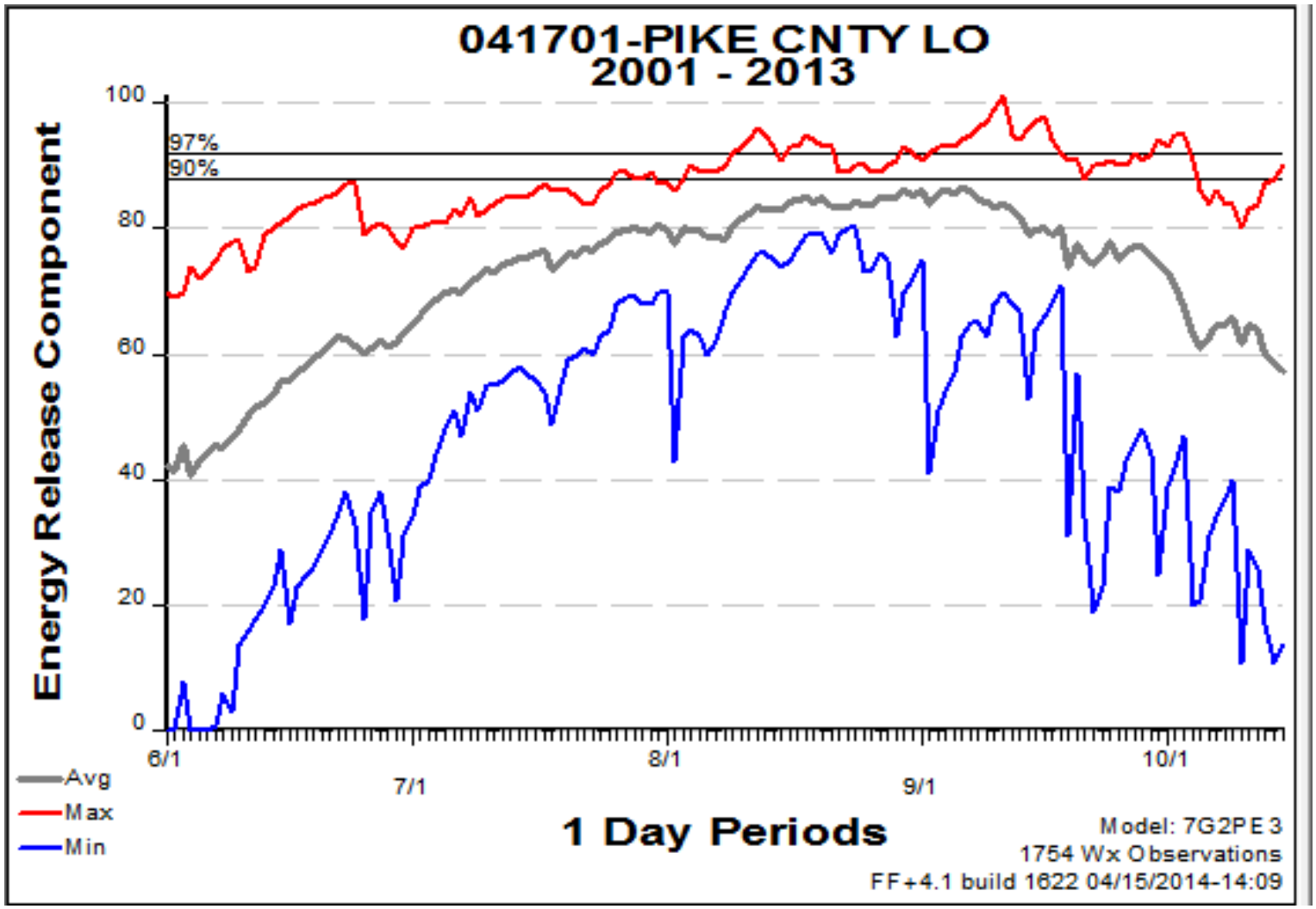


Figure C-1 ERC for Pike County Weather station

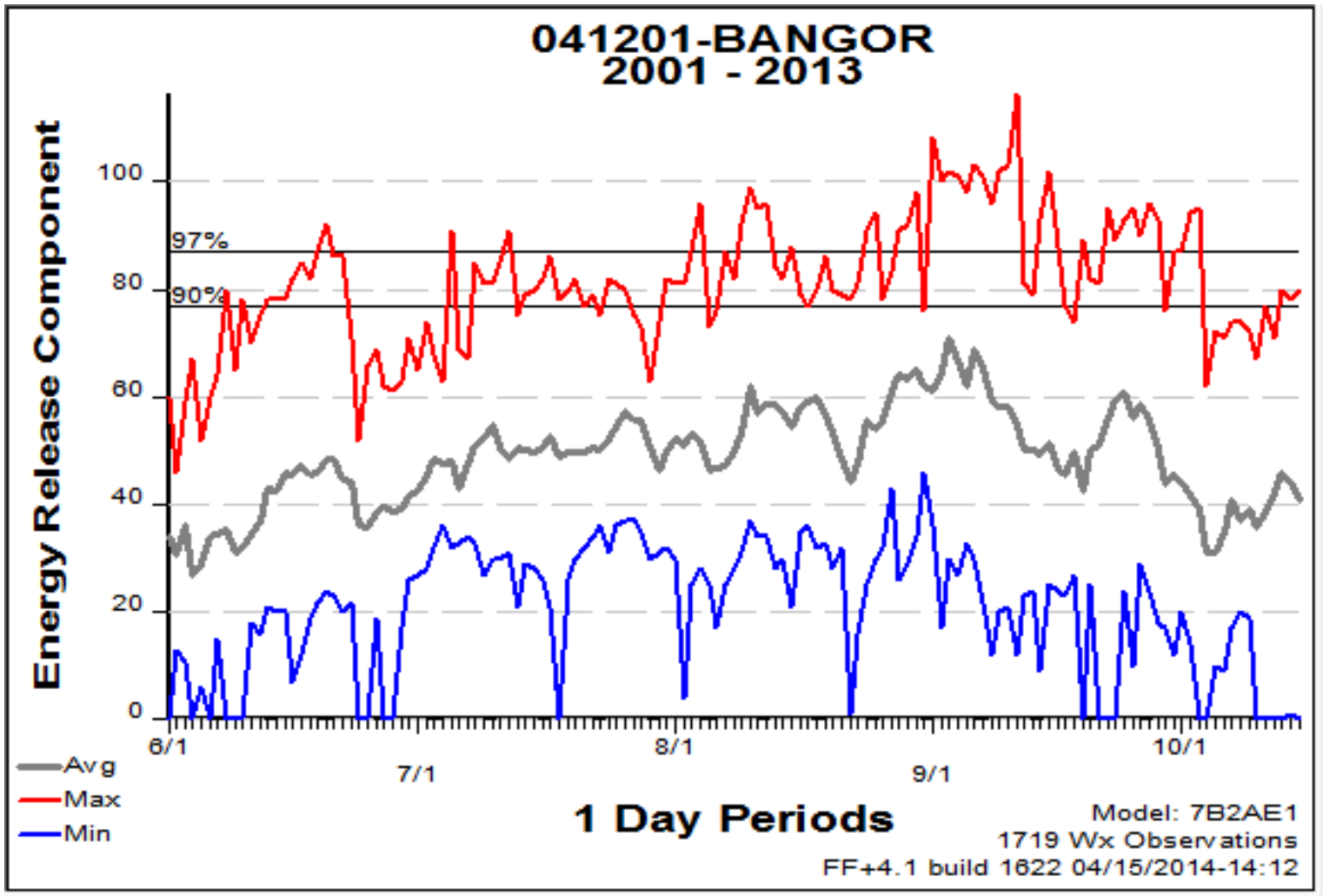
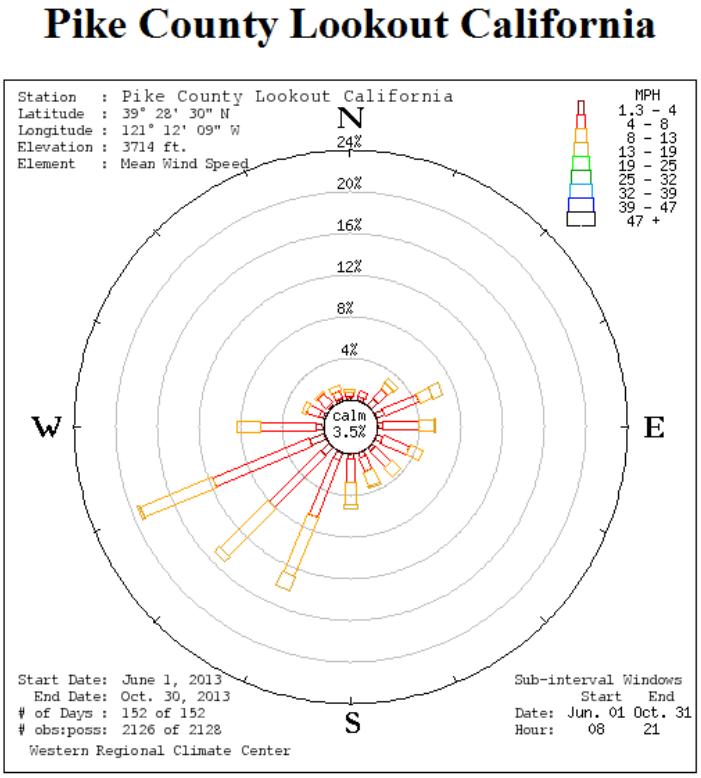


Figure C-2: ERC for Bangor Weather Station

Winds

Another important factor in rapid fire spread is wind direction and speed. To analyze the last 20 years of hourly wind data from the Banger and Pike. RAWS, the Wind Rose Tool was used from the weather station climate data. The wind rose (figures C-3 & C-4) graphically illustrates 20 years of hourly wind speed and direction collected from the. RAWS. The wind rose clearly shows that most of the time during "fire season" the wind comes from the south-southwest direction across the CWPP area. During the months of September and October, winds often become erratic due to the passage of cold fronts. The winds during those months can also be very dry winds from the east and northeast adding to difficulty in controlling wildfires. Two such fires are, The Williams and the Pendola Fire, were driven first by erratic cold front winds.

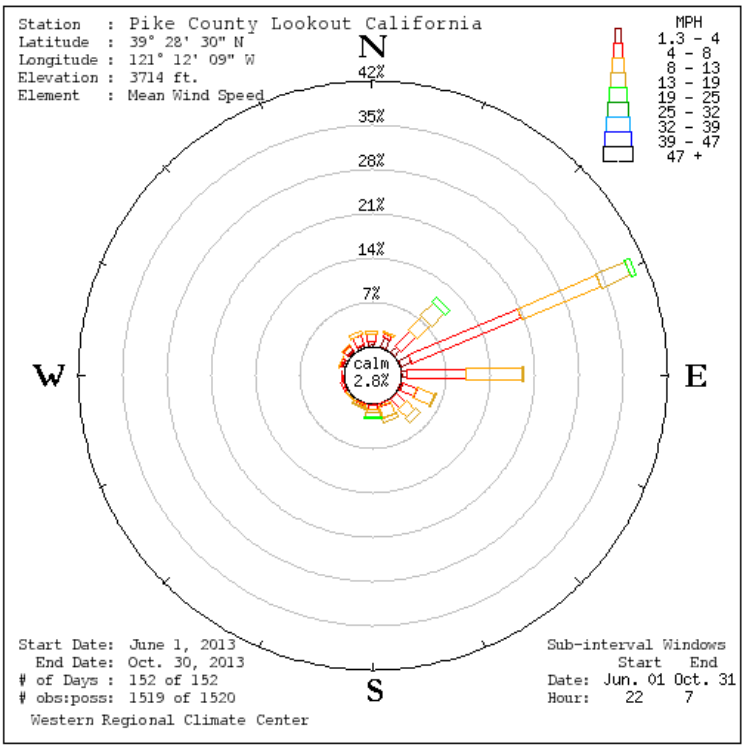


Pike County Lookout California - Wind Frequency Table (percentage)

Latitude : 39° 28' 30" N	Start Date : June 1, 2013	Sub Interval Windows
Longitude : 121° 12' 09" W	End Date : Oct. 30, 2013	Start End
Elevation : 3714 ft.	# of Days : 152 of 152	Date Jun. 01 Oct. 31
Element : Mean Wind Speed	# obs : poss : 2126 of 3648	Hour 08 21

Figure C-3: Pike county Wind rose daytime June thru October 2013

Pike County Lookout California



Pike County Lookout California - Wind Frequency Table (percentage)

Latitude : 39° 28' 30" N	Start Date : June 1, 2013	Sub Interval Windows
Longitude : 121° 12' 09" W	End Date : Oct. 30, 2013	Start End
Elevation : 3714 ft.	# of Days : 152 of 152	Date Jun. 01 Oct. 31
Element : Mean Wind Speed	# obs : poss : 1519 of 3648	Hour 22 7

Figure C-4: Evening wind rose for Pike weather June thru October 2013

Wind direction and speed is also influenced by vegetation type and terrain (slope and aspect) features on the landscape. Terrain is a landform feature that does not change nor can it be changed. It is a factor that is constant on the landscape of the Yuba County foothills. Note that the winds can be very strong during the day as well as at night. It can come from the southwest during the day and from the northeast during the evening

Appendix D: Fire District Resource Summaries

Loma Rica/Browns Valley Community Services District (LBVCSD)

Fire Protection District Name: LBVCSD				
Administrative Address:	11485 Loma Rica Rd., Marysville CA 95901			
Primary Service Area:	Loma Rica and Browns Valley			
Primary Service Population:	7200			
FY2013 Adopted Budget:	2930000.00			
Emergency Medical Service:	BLS			
SERVICES PROVIDED:				
Specific Services	**Self**	**Contract**		
1. Dispatch		X	All services provided via contract with CALFIRE. Staffing varies depending on time of year.	
2. Fire Suppression		X		
3. Basic Rescue		X		
4. Advanced Rescue		X		
5. Vegetation Mgmt		X		
6. Fire Code Permit/Enforcement		X		
7. Haz Mat Response		X		
8. Construction Plan Check		X		
9. Fire Investigation		X		
10. Community Info/ Education		X		
Fire Stations:	**List of Equipment**	**No.**	**Location**	
Loma Rica #61	Type One Engine Type 3 Engine Type 6 Engine	1 2 1	Loma Rica	
Browns Valley #62	Type 3 Engine Type 1 Water Tender	1 1	Browns Valley	
Personnel:	**Number**	**Position**		
Paid Staff:	1	General Mgr		
Reserve-Volunteers:	5	Volunteer FF		
Support Vehicles				
SERVICE PROFILE:				
Service Calls (CY 2013)*	**Count**		**Average Response Time**	
Structure Fire	**8**			

Wildland Fire	49			
EMS/Rescue	326			
Hazardous Conditions	4			
Service Call	20			
Good Intent				
All Others	50			
Totals	457			
ISO Class Rating	5,8,9			

Dobbins-Oregon House fire Protection District (DOFPD)

Fire Protection District Name:		Dobbins-Oregon House Fire Protection District		
Administrative Address:	9150 Marysville Road, Oregon House, CA 95962			
Primary Service Area:				
Primary Service Population:	3500 people			
FY2013 Adopted Budget:	$92,500			
Emergency Medical Service:	Basic Life Support BLS EMT/Fire personnel only.			
SERVICES PROVIDED:				
Specific Services	Self	Contract		
1. Dispatch		Grass Valley CALFIRE ECC		
2. Fire Suppression	All Risk			
3. Basic Rescue	DOHFPD			
4. Advanced Rescue	DOHFPD			
5. Vegetation Mgmt.	n/a			
6. Fire Code Permit/Enforcement	DOHFPD	USFS/CALFIRE Jurisdiction		
7. Hz. Mat Response	DOHFPD			
8. Construction Plan Check	DOHFPD			
9. Fire Investigation	DOHFPD	State Fire Marshall		
10. Community Info/Education	DOHFPD			
Fire Stations:	List of Equipment	No.	Location	
Main Station	Rescue 6451	1	9150 Marysville Road	
	Type II/III Engine	2		
	Type III Engine	1		
	Type II Water Tender	1		
Collins Lake Substation	Type II/III Engine	1		
	Chief Vehicle	1		
Dobbins Substation	Type I	1		
	Water Tender	1		
Regent Way	Type III	1		

Personnel:	Number	Position		
Paid Staff:	0			
Reserve-Volunteers:	18			
Support Vehicles				
SERVICE PROFILE:				
Service Calls (CY 2013)*	Count		Average Response Time	
Structure Fire				
Wildland Fire				
EMS/Rescue				
Hazardous Conditions				
Service Call				
Good Intent				
All Others				
Totals				
ISO Class Rating	8B			

Foothill Fire Protection District (FFPD)

Fire Protection District Name:		Foothill Fire Protection District		
Administrative Address:	16796 Willow Glen Road, POB 332 Brownsville, CA 95919			
Primary Service Area:	Brownsville, Challenge, Forbstown			
Primary Service Population:	3000			
FY2013 Adopted Budget:	$123,000			
Emergency Medical Service:	BLS/AED/EPI			
SERVICES PROVIDED:				
Specific Services	Self	Contract		
1. Dispatch		Grass Valley CALFIRE ECC		
2. Fire Suppression	All Risk			
3. Basic Rescue	FHFPD			
4. Advanced Rescue	FHFPD			
5. Vegetation Mgmt.	n/a			
6. Fire Code Permit/Enforcement		USFS/CALFIRE Jurisdiction		
7. Hz Mat Response		Yuba/Sutter Hazmat Team		
8. Construction Plan Check	n/a	Yuba County		
9. Fire Investigation	n/a	State Fire Marshall		
10. Community Info/ Education				
Fire Stations:	List of Equipment	No.	Location	
Station 1	Rescue		Brownsville	
	Engine	3		
	Water Tender	1		
	Utility			
Station 2	Utility	1	Clipper Mills	
	Engine	1		
	Water Tender	1		
Personnel:	Number	Position		
Paid Staff:	0			

Reserve-Volunteers:	24			
Support Vehicles				
SERVICE PROFILE:				
Service Calls (CY 2013)*	Count		Average Response Time	
Structure Fire	8		6 Minutes	
Wildland Fire	17			
EMS/Rescue	244			
Hazardous Conditions	14			
Service Call				
Good Intent	15			
All Others	10			
Totals	22			
ISO Class Rating	6/8			

Smartsville Fire Protection District (SFPD)

Fire Protection District Name:		Smartsville Fire Protection District		
Administrative Address:	P. O. Box 354, Smartsville, CA 95977			
Primary Service Area:	67 Square miles of Rural Yuba County Foothills			
Primary Service Population:	2500			
FY2013 Adopted Budget:	123,000			
Emergency Medical Service:	BLS			
SERVICES PROVIDED:				
Specific Services	Self	Contract		
1. Dispatch		CALFIRE		
2. Fire Suppression	Yes			
3. Basic Rescue	Yes			
4. Advanced Rescue	Yes			
5. Vegetation Mgmt.		CALFIRE		
6. Fire Code Permit/Enforcement		Yuba Cnty		
7. Haz Mat Response		Yuba Cnty		
8. Construction Plan Check		Yuba Cnty		
9. Fire Investigation		ATF		
10. Community Info/ Education	Yes			
Fire Stations:	List of Equipment	No.	Location	
One	2 Type 1	6881/6882	8348 Smartsville Rd/8437 Blue Gravel Rd	
2	1 Type 3/1Type 6	6871/6859		
	1 Tender/1 Rescue	6891/6851		
Personnel:	Number	Position		
Paid Staff:	3	Firefighter/Engineer/Captain/Chief		
Reserve-Volunteers:	11	Fire Fighters		

		Engineer/Captain/Chief		
Support Vehicles	2	6800/6831	Smartsville Big Oak	
SERVICE PROFILE:				
Service Calls (CY 2013)*	Count		Average Response Time	
Structure Fire	31		8 minutes	
Wildland Fire	50		8 min	
EMS/Rescue	294		8 min	
Hazardous Conditions	0			
Service Call	16		8min	
Good Intent				
All Others	6		8min	
Totals	454			
ISO Class Rating	9			

Smartsville Fire Protection District equipment needs:

1) New 3,000 gallon Water Tender (750 gpm with foam), estimated cost of $240,000.

2) Refurbish and upgrade existing Water Tender, from a 2,000 gallon to a 3,000 gallon, with a 750 to a 1,000 gpm mid-ship pump and 300 gpm auxiliary pump, foam system and additional storage space: estimated expense of $150,000.

3) New Type 3 engine: estimated cost of $250,000.

4) Re-chassis current Type 3 engine: estimated cost $140,000. The new apparatus would make the department NFPA compliant, and EPA compliant.

> Items 2 and 4, would make the department NFPA compliant, but would not meet EPA guidelines as they are older apparatus.

Camptonville Fire Protection District (CFPD)

Fire Protection District Name:		Camptonville Community Services District Camptonville Volunteer Fire Department		
Administrative Address:	P.O. Box 37 Camptonville, CA 95922			
Primary Service Area:	50 square miles			
Primary Service Population:	700-800 permanent + rec users at and around Bullard's Bar Reservoir			
FY2013 Adopted Budget:	$51,871			
Emergency Medical Service:	BLS EMT/Fire personnel only, closest ambulance service 30 minutes out			
SERVICES PROVIDED:				
Specific Services	Self	Contract		
1. Dispatch		Grass Valley CALFIRE ECC		
2. Fire Suppression	All Risk			
3. Basic Rescue	LARRO			
4. Advanced Rescue	n/a			
5. Vegetation Mgmt.	n/a			
6. Fire Code Permit/Enforcement		USFS/CALFIRE Jurisdiction		
7. Haz Mat Response		Yuba/Sutter Hazmat Team		
8. Construction Plan Check	n/a	Yuba County		
9. Fire Investigation	n/a	State Fire Marshall		
10. Community Info/ Education				
Fire Stations:	List of Equipment	No.	Location	
Station 1	Rescue	1	15410 Mill Street	
	Type II Engine	1		
	Type II Engine	1		
	Type II Water Tender	1		
	Utility	1		
Station 2	Type IV Engine	1	14918 Kelly Road	
Personnel:	Number	Position		
Paid Staff:	0			
Reserve-Volunteers:	18			

Support Vehicles	1 4wd PU for Chief			
SERVICE PROFILE:				
Service Calls (CY 2013)*	Count		Average Response Time	
Structure Fire	10			
Wildland Fire	10			
EMS/Rescue	70			
Hazardous Conditions				
Service Call	10			
Good Intent				
All Others	10			
Totals	90			
ISO Class Rating	9			

Equipment Needs for Camptonville Volunteer Fire Department

1) Type IV Quick Attack to replace the 1980 Rescue, hose and brass included.
2) Type III Engine for Station 2, equipped for wildland/structure protection response.
3) A 4th heated bay at Station 1 to store the Water Tender during Winter Months
4) Concrete paving from Station 1 Fire hall to Street
5) 6500 Watt Emergency Generator for Station 1
6) Storage Container (20 ft. Conex) for Station 1
7) 10,000 gallon water storage at Station 1
8) (Heated) Training Room for Station 1
9) Washer and Dryer (Front Load Heavy Duty)
10) Portable pump, volume
11) 12 Replacement SCBA packs and 18 tanks
12) 1 Dozen sets structure turnouts
13) EMS Training Mannequin (Full weight body with Airway mechanisms)

Wildfire and Structure Fire Resources other than Local FPD

Fire Agency	24/7 Staffing Apparatus	Volunteer Off Duty Apparatus	Seasonal Staffing Apparatus	Hand crews	Helicopters Seasonal***
CALFIRE*			7	4	
US Forest Service**	0				

Appendix E: Hazardous Fuels Treatment Methods

The following section describes some of the commonly applied fuel reduction treatments for the vegetation types found in this project area. These treatments are designed to improve the success of wildland fire suppression during an active fire. They are also useful in creating high-profile demonstration projects to educate the public on what firesafe conditions can look like. Applications include roadside treatments designed to facilitate safer evacuations, maintenance treatments for past projects that are growing back, landscape-scale mechanized forest-thinning projects, detail-oriented hand-treatments that can be done in neighborhoods to create defensible space and prevent structure-to-structure ignitions during a wildfire.

Mechanical Thinning

Mechanical thinning utilizes heavy equipment with large hydraulically-driven saws to cut and remove trees (generally under 24 inches in diameter). The two major harvesting methods include "whole tree removal (WTR)" and "cut-to-length (CTL)". CTL machines use a "stroke delimber" to remove branches before automatically cutting a log to predetermined lengths (Figure 7). While whole tree removal is preferable from a fuels-reduction standpoint, CTL machines create a mat of slash on which they can operate, reducing impacts to the soil. The slash vs. soil disturbance tradeoff must be considered on a site-specific basis. It is possible to use an in-woods chipper to reduce surface fuels in concert with CTL. Mechanical thinning equipment is generally confined to slopes less than 30%. WTR projects require large landings that can accommodate a skidder operation, a large chipper, and semi-trucks. CTL operations require fewer and smaller landings.

Mechanical thinning using a cut-to-length harvester. The log-loader tractor is called a 'forwarder'.

Mechanical thinning has the ability to create a more precisely targeted stand structure than prescribed fire (Agee and others 2000, Omi,2002)[5]. The net effect of removing ladder fuels is that surface fires burning through treated stands are less likely to ignite the overstory canopy fuels. By itself, mechanical thinning with machinery does little to beneficially affect surface fuel loading. The only exception is that some level of surface fuel compaction, crushing, or mastication may occur during the thinning process. Depending on how it is accomplished, mechanical thinning may add to surface fuel loadings, thereby increasing surface fire intensity. It may be necessary to remove or treat fine fuels that result from thinning the stand (Graham, 2004).

Mastication

Mastication uses machines to grind, rearrange, compact, or otherwise change fire hazard without reducing fuel loads. These treatments tend to be relatively expensive, and are limited to relatively gentle slopes and areas of high values (near homes and communities). Rocky sites, areas with heavy down logs, and sites dominated by large trees are difficult places in which to operate mastication equipment. Additionally, sparks from mastication heads have the potential to start fires and, when working on public land, these machines are subject to the same activity-level restrictions that apply to most other logging equipment.

The ecological and fire effects of mastication treatments vary depending on the size, composition, and location of the fuels left after treatment (Graham and others 2000). In many cases, mastication creates a window of 2-5 years in which surface fire intensity actually increases. While this may be offset by a decrease in crown fire potential, mastication tends to increase fuelbed continuity, and can increase fire rates of spread. Mastication is a useful tool in plantations and brushfields, and has applications in thinning small trees for fuelbreak maintenance.

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[5] Omi, Philip, Martinson, Eric, 2002, **Effect of Fuels Treatment on Wildfire Severity,** Western Forest Fire Research Center, Colorado State University

Agee J.K., Bahro, B., Finney, M.A., Omi, P.N., Sapsis, D.B., Skinner, C.N., van Wagtendonk, J.W., and C.P. Weatherspoon. 2000. **The use of shaded fuelbreak in landscape fire management,** *Forest Ecology and Management* 127: 55-56

Before and After Mastication – 'Moon' project, just West of Camptonville.

Mastication using a track loader and mower head

Mastication Soil Issues

Thin layers of wood chips spread on the forest floor tend to dry and rewet readily. Deep layers of both chips and chip piles may have insufficient air circulation, making poor conditions for decomposition. Moreover, when layers of small woody material are spread on the forest floor and decomposition does occur, the decomposing organisms utilize large amounts of nitrogen reducing its availability to plants. Therefore, the impact of any crushing, chipping, or mulching treatment on decomposition processes and their potential contribution to smoldering fires needs to be considered (Graham, 2004)[6].

[6] Graham, R.T., Sarah McCaffrey and Jain Theresa. 2004. Science Basis for Changing Forest Structure to Modify Wildfire Behavior and Severity, RMRS-GTR-120, April 2004

Prescribed Burning

Prescribed burning reduces the loading of fine fuels, duff, large woody fuels, rotten material, shrubs, and other live surface fuels. These changes, together with increased fuel compactness and reduced fuel continuity change the fuel energy stored on the site, reducing potential fire spread rate and intensity. Burning reduces horizontal fuel continuity (shrub, low vegetation, woody fuel strata), which disrupts growth of surface fires, limits buildup of intensity, and reduces spot fire ignition probability (Graham, 2004). Given current accumulations of fuels in some stands, multiple prescribed fires—as the sole treatment or in combination with thinning—may be needed initially. This would be followed by long-term maintenance burning or other fuel reduction (for example, mowing), to reduce crown fire hazard and the likelihood of severe ecosystem impacts from high severity fires. Ecologically speaking prescribed burning is the best treatment for the vegetation types in the Yuba County CWPP area. However, it will be important to build public support for prescribed fire use first, and to prioritize projects that will decrease the hazard posed by an escaped prescribed burn to nearby homes and other assets at risk.

Prescribed Burning

Hand Thinning and Chipping

Hand thinning and chipping is usually accomplished by a crew of persons using chainsaws and pole saws to thin and clear undesirable vegetation. Hand thinning is conducted with crews of approximately 10 individuals who cut trees with chainsaws. Hand thinning is generally used to cut smaller trees (less than 14 inches in diameter), on steep slopes where machines cannot operate, or in environmentally sensitive areas where machines would have a significant environmental impact. Removal of smaller trees is generally limited to younger stands where the trees are smaller. Because hand thinning can only effectively remove smaller material, silvicultural and fuel management objectives may be more constrained than those achieved with mechanical thinning. Therefore, hand thinning may require more frequent treatments to maintain acceptable fuel loads than mechanical thinning and hand thinning may not be cost effective in forest stands with excessive ground fuel loading where mechanical thinning would remove or compact those fuels.

Chipping

Chipping may be used as an alternative to burning. It redistributes forest vegetation that is cut by mechanical thinning or hand thinning. The chips may be removed from the site and converted to

energy, used for landscaping and other commercial products, or they can be scattered throughout the project area.

Grazing
Use of Goats sheep, horses or cows to reduce the small fuels such as grass, Black Berries and small brush

Cost Estimates
Cost estimates developed as part of this planning effort are based on data from the resource conservation district and costs for similar work in Amador County. Cost estimates vary widely because of fuel loadings, operational constraints, and crew capabilities. The costs are limited to the direct cost of project implementation. These cost estimates **do not include** offsetting revenue that may be generated by providing commercial products, costs associated with project planning or preparation of environmental compliance reports, or administrative overhead incurred during implementation.

Administrative cost are approximately 40% of the total project costs. If the project is estimated to be $100,000 for "on the ground implementation", the administrative costs would be $40,000. Administrative costs would include environmental documentation, financial administration, project layout and contract administration.

The following are treatments that are proposed as a result of meetings with stakeholders and community members through community meetings and stakeholder meetings throughout the early part of 2014. These projects will require more analysis and CEQA documentation prior to implementation. These are recommendations that were agreed upon through collaboration within Yuba County.

Treatment Costs
The following table is a list of costs for various types of treatments. The costs were derived from treatments that have occurred over the past 8 years. Recommendations for treatments and prescriptions can be found in Appendix B

Table 11: Fuel treatment types with average costs / acre

Fuel Reduction Treatment	Cost per acre
Mechanical thinning (urban interface)	$1,000-$3,200
Mastication	$700 - $1,500
Prescribed burning	$400-$900
Hand thin and Chip	$850 - $2,350
Pile Burn	$300 - $700

Grazing	
Machine Pile	$185-$275

The costs displayed in Table 4 are based on contractor costs for the treatment plus management and CEQA documentation. The cost of mastication is $2,500 dollars per acre and the cut and chip hand treatment is $2,300 dollars per acre. Prescribed burn costs should go down substantially with follow-up treatments.

Appendix F: Previous Fire Safe Council Mitigation Projects

Funding Source Amount Project Name Year

Proposition 204 $999,900 Fuel breaks (Oregon Ridge, Brownsville & Camptonville) 1999

This grant was received from the State Water Resources Control Board to fund three years of fire reduction work to protect water quality. Fuel was reduced along 12 miles of county roads, US forest service masticated and under burned about 160 acres in the Camptonville area, private land around the communities of Camptonville and Brownsville below the airport had fuel reduction conducted, and fire education was provided at two meetings.

BLM $ 82,000 Community wildfire planning –coordinator 2001

An evacuation plan for the foothills was developed and the Fire Safe Council was restructured to better facilitate fire prevention planning.

USFS $144,000 Community Protection Program (Brownsville and Camptonville) 2002

This grant continued work in the same areas of Brownsville and Camptonville on private land started by Prop 204. funding.

BLM $ 48,000 Road fuel treatment 2003

This grant reduced fuel on 4. 8 miles of Yuba County Roads. A committee prioritized over 50 miles of road that needed fuel reduction.

HR 2389 $ 35,000 5 water tanks 2003

Each Fire Department has submitted a list of five 10,000 gallon water tanks. This grant funded one per District.

BLM $ 43,000 Community wildfire planning –coordinator 2003

This grant funded the drafting of three community plans (Oregon House, Strawberry Valley, Camptonville) development of coloring books for primary school fire education and evacuation packets.

USFS $ 20,000 Fuel treatment in Camptonville 2003

This grant completed fuel reduction on one side of the town of Camptonville.

BLM $ 30,000 GIS of fire information 2003

This grant funded the coordination and development of digital information for fire mitigation planning. The information developed was forwarded to Yuba County OES, US Forest Service, and CDF.

BLM $ 52,000 Road fuel treatment 2004

This grant reduced fuel on 5. 2 miles of Yuba County Roads.

HR 2389 $ 32,000 Fire education and outreach 2005

This grant funded the Coordinator position for the Yuba Watershed Protection and Fire Safe Council. That position organized grant projects and future plans and applications.

HR 2389 $ 38,000 Road fuel treatment 2005

This grant reduced fuel on 3. 8 miles of Yuba County Roads.

HR 2389 $ 3,000 Educational web site 2005

This grant will provide a web based fire prevention outreach. It will be located on the Yuba County server and will link to Yuba County OES links and provide fire prevention information.

RREA $ 3,500 Building construction to resist fire 2005

This grant was received by UC Cooperative Extension to develop an electronic publication on building material combustibility and provided for demonstrations at a public meeting in Fall 05 in Brownsville.

Proposition 40 $ 69,000 Residential chipping of fuel 2005

This grant started the residential chipping program in the foothills areas of Yuba County. It will chip the fuel that the homeowner clears within 100' of their house.

As part of creating a 100 foot defensible fire zone around homes and outbuildings, residents in selected areas are encouraged to take advantage of a free chipping program to dispose of unwanted brush. The program will require that the brush be brought to the nearest road location, where it will be chipped and returned to the resident for use as compost or mulch.

Proposition 40 $ 49,900 CHY/Donor Slapjack coordinated fuel break 2005

This grant will treat 77 acres of land within the landscape Community fuel break that has been proposed by the US Forest Service.

Proposition 40 $ 58,500 Middlebrook Slapjack coordinated fuel break 2005

This grant will treat 40 acres of land within the landscape Community fuel break that has been proposed by the US Forest Service.

Proposition 40 $ 72,000 Road fuel treatment 2005

This grant reduced fuel on 3. 8 miles of Yuba County Roads.

HR 2389 $ 55,000 Fire Prevention officer 2006

This grant will provide startup funds for the Fire Prevention officer for Yuba County.

Presently, in Yuba County, the responsibility for ensuring that fire code requirements (as outlined in Public Resources Code 4290) are met and enforced falls on Volunteer Fire Departments and a CDF Battalion Chief. These individuals are usually loaded to capacity with the myriad tasks involved with operating their departments/battalions. They just don't have the time and in some cases may not have the appropriate expertise to assist the Yuba County Planning Department with review of new development plans to properly assure fire safety for county residents.

Because of their proximity to urban centers, neighboring Placer and Nevada counties experienced the same problem several years ago. To deal with this problem they instituted county fire code review and enforcement through establishment of a Fire Prevention Planner position. A person qualified in fire prevention who is housed with the Planning Department will staff this position. He/she works with other planners to ensure that new developments are designed and constructed in conformance with current fire code requirements. This position will also ensure that fire prevention standards are uniformly applied county wide.

HR 2389 $ 99,000 Woodleaf and Clipper Mills Fuel Reduction 2006

This grant will provide coordinated fuel treatment with Forest Service's proposed Slapjack fuel reduction project. It will protect Brownsville, Camptonville, and Dobbins.

Total Community Grants $1,736,800

Appendix G: Fire Protection District Structure Protection Preplan

Address: _____

Contact Person: _____

Phone Number: _____

Emergency Phone Number: _____

Property Location: _____

Fire Truck Turn Around: Yes ☐ No ☐

Home is: Wood siding Brick Stucco Log

Single Level Two Story Tri Level

Home has: _____' Clearance Poorly Maintained Clearance No Clearance

Well Pond Swimming Pool Stream Water Tank

Other Source of Water -- Identify_____

Metal Roof Wood Shake Roof Composition Roof

Tile Roof Synthetic Roof

Access Road is: Graveled Dirt Asphalt --- Good repair Poor condition

Overgrown with vegetation Accessible for fire trucks

One way in and one way out Two Ways in and out

Bridge ---- Concrete Wood

Driveway is: Graveled Dirt Asphalt --- Good repair Poor condition

Overgrown with vegetation Accessible for fire trucks

One way in and one way out Two Ways in and out

Terrain is: Level Slightly Sloped Rolling Steep