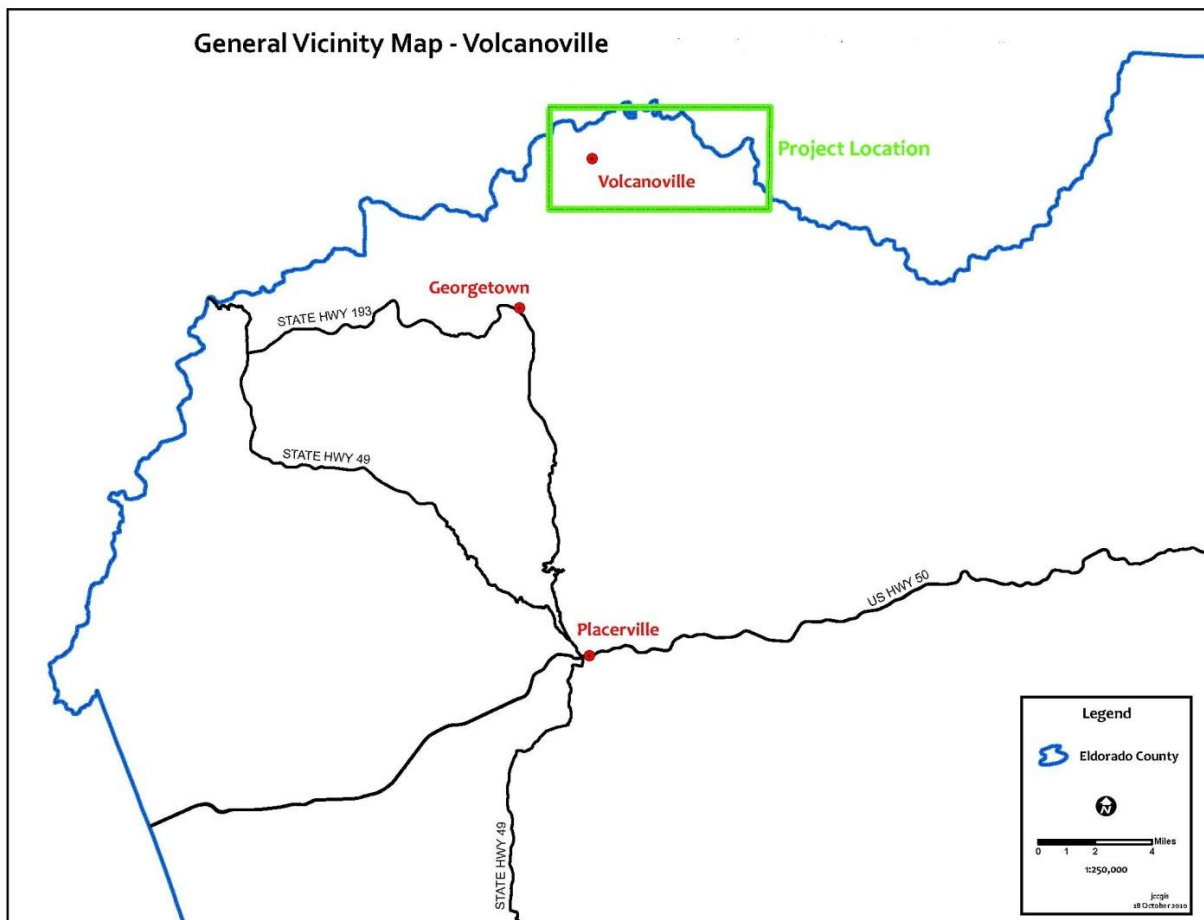


Volcanoville Community Wildfire Protection Plan

Review and Update of the

Volcanoville Community Fire Safe and Fuels Reduction Plan, June 2002

September 2012



1

2 **Contents**

3	Community Wildfire Protection Plan Mutual Agreement Page.....	4
4	Executive Summary.....	5
5	CWPP Objective	5
6	Requirements of a Community Wildfire Protection Plan (CWPP)	5
7	Federal	5
8	State of California	8
9	Community Wildfire Protection Plans (CWPPs) and Local Jurisdiction	9
10	II. Planning Process	12
11	Collaboration.....	12
12	Primary Collaborators	12
13	Primary CWPP Development Team members and responsibilities.....	12
14	Public Education Effort	13
15	Community Description	15
16	Emergency Services	15
17	IV Community Hazard Assessment	15
18	Current Risk.....	15
19	Current Risk Situation	19
20	Recent wildfire ignition history.....	26
21	V. Fire Response	27
22	Wildland Urban Interface wildfire suppression condition.....	27
23	Road Maintenance and Primary Evacuation Road.....	30
24	Water supply.....	32
25	VI. Community Preparedness for a wildfire emergency	32
26	Evacuation Planning, Reducing Structure Ignitability, and Strengthening Community Fire	
27	Preparedness	32
28	Faces: The Story of the Victims of Southern California’s 2003 Fire Siege	32
29	Preparation for Evacuation	33
30	VII. Action Plan	34
31	Critical Findings and Recommendations.....	36

1	Fire Response	36
2	Communications and Early Warning in case of a wildfire	36
3	Roads and Evacuation Planning	37
4	Water Sources.....	37
5	Community Preparedness.....	38
6	Fuel Treatments and Restoration Projects	38
7	Collaboration, Public Education and Prevention	38
8	Fuels Treatments and Restoration Projects.....	39
9	VIII Monitoring and Evaluation	43
10	Appendixes.....	46
11	Appendix A: Volcanoville 2002 Fire Plan	47
12	Appendix B: Treatment Descriptions and Prescriptions	48
13	Appendix C: CALFIRE CPRC 4291 Standards.....	55
14	Appendix D: Useful Resources in Pre Fire and Emergency Planning	56
15	Appendix E: Grant request for Georgetown Fire Water tenders.....	57
16	Appendix F: FACES	62
17	Appendix G CALFIRE LE100	63
18	Appendix H: Volcanoville Structure Protection Preplan	64

19

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25

Community Wildfire Protection Plan Mutual Agreement Page

The Community Wildfire Protection Plan (CWPP) was developed for The El Dorado Fire Safe Council and the Volcanoville Fire Safe/Firewise Council:

- This CWPP was collaboratively developed. Interested parties and federal land management agencies managing land in the vicinity of the plan have been consulted.
- This plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will help protect the communities.

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

Signed For: _____ Date: _____

El Dorado County Fire Safe Council

Signed for: _____ Date: _____

Georgetown Fire Protection District

Signed for: _____ Date: _____

Amador/El Dorado/Sacramento/Alpine Unit, California Department of Forestry and Fire Protection

Signed For _____ Date _____

Volcanoville Firewise/Fire Safe Council

Prepared By: Barry Callenberger

WILDLAND Rx

Executive Summary

CWPP Objective

The purpose of this document is to provide a comprehensive, scientifically based assessment of the wildfire hazards and risks within the Volcanoville Community area. The content of this assessment will aid stakeholders in developing short-term and long-term strategies for:

- Hazardous fuel treatment projects and priorities for those projects
- Community wildfire safety education opportunities
- Assist public agencies in making valid and timely decisions for wildfires and evacuations.
- This assessment estimates the hazards associated with wildland fire in proximity to communities. The hazard information, in conjunction with values-at-risk information, defines "areas of concern" for the community and allows prioritization of mitigation efforts.
- Provide communities with opportunities to make a difference in wildfire losses with little cost to the taxpayers and the communities themselves.

This document incorporates the Volcanoville Community Fire Safe and Fuels Reduction Plan June 2002 and is incorporated as an appendix to this document. The Community fire safe plan predates the Healthy Forest Restoration Act HFRA of 2003. . Much of what was contained in it is still applicable to this update and will be referred to in this document. The requirements for the CWPP have changed since 2002 however the hazards that were identified in the 2002 plan remain today. Some of the recommendations in the 2002 plan have been implemented and the community's priorities have changed somewhat since 2002. The community of Volcanoville has become more proactive in community awareness and education of community members about the risk of wildfires and has made great advances in preparing for a wildfire. The 2006 Ralston fire tested the community's evacuation preparedness and communication with community members. The community needs to look at what worked and what can be improved on from that experience.

The Volcanoville Community Fire Safe Plan Questionnaire from 2002 was rewritten and titled Volcanoville Community Wildfire Protection Plan Questionnaire and used to identify the priority of the same issues questioned in 2002. The 2012 questionnaire is found in the appendix with the priorities. The 2012 questionnaire had responses from 38 families.

Requirements of a Community Wildfire Protection Plan (CWPP)

Federal

The CWPP is required to be consistent with and tiered to the following documents federal acts, and policies. The two acts most associated with fuels reduction policy *The 2010 Federal Land Assistance Management and Enhancement (FLAME) Act* (the most recent congressional act a summary is located at http://www.wflccenter.org/news_pdf/344_pdf) (U. S. House of Representatives and Senate, 2009), and *The Healthy Forest Restoration Act (HFRA) of 2003. The federal agencies' policies that implement the*

acts are the 10 Year Implementation Plan for HFRA and the Cohesive Strategy. These are a national collaborative effort between wildland fire organizations, land managers, and policy making officials representing federal, state and local governments, tribal interests, and non-governmental organizations that will address the nation's wildfire problems.

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

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

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

Fire-Adapted Communities

Despite the challenges of assessing and countering risks, progress is being made to address the threats. One approach is the concept of “fire-adapted communities,” one of the three primary elements of the *Cohesive Strategy*.

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

- Implementing “Firewise” principles to safeguard homes and “Ready, Set, Go!” principles to prepare for fire and evacuation
- Developing adequate local fire suppression capacity to meet community protection needs
- Designing, constructing, retrofitting and maintaining structures and landscaping in a manner that is resistant to ignition
- Adopting and enforcing local codes that require fire-resistant home design and building materials
- Raising the awareness of and creating incentives for growth planning and management that reduces, rather than increases, fire-prone development
- Properly spacing, sequencing and maintaining fuel treatments across the landscape
- Developing and implementing a CWPP or equivalent

- Establishing interagency mutual aid agreements

The Healthy Forest Restoration Act (HFRA) (U.S. Congress, 2003) Requirements for a CWPP include:

The HFRA identifies CWPPs, which allow communities¹ to:

- 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 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]).

State of California

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

California's Forests and Rangelands: 2010 Assessment, California Department of Forestry and Fire Protection, Fire and Resource Assessment Program, June, 2010

Current Status and Trends

- California's long history of wildfire and population growth has led to a set of state laws, regulations and programs that address community wildfire safety. These include state and local planning laws, Fire Hazard Severity Zones and related building standards, defensible space requirements, various fuel reduction programs, the California Fire Plan and CAL FIRE Unit Fire Plans; and the State Hazard Mitigation Plan.
- Community fire protection is also addressed by federal laws and programs such as the Disaster Mitigation Act, National Fire Plan, Healthy Forests Restoration Act, and Firewise Communities Program.
- Local agencies and non-profits play a key role in community fire protection planning. This is accomplished through county fire plans, county general plan safety elements, and through involvement of local fire districts, Fire Safe Councils, and the California Fire Alliance. It also includes local groups such as the Forest Area Safety Taskforce (FAST) and Mountain Area Safety Taskforce (MAST) in San Diego, Riverside, and San Bernardino Counties.
- 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.

http://frap.cdf.ca.gov/assessment2010/pdfs/california_forest_assessment_nov22.pdf

The new state wide fire plan, 2010 Strategic Fire Plan for California, State Board of Forestry and California Department of Forestry and Fire Protection, November 2010, states for its 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, increase firefighter safety, and contribute to ecosystem health. The plan was a cooperative effort between the State Board of Forestry and the California Department of Forestry and Fire Protection (CAL FIRE). The basic principles of the fire plan are as follows:

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

<http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf668.pdf>

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.

1 CWPP's also include the opportunity to educate homeowners, targets prioritizes and schedule fuels
2 treatments, and builds response capability. Working together to create a CWPP is an important first step
3 in bringing the awareness of shared wildfire risk home to the community.

4 Local authorities such as fire departments, fire protection associations, county planning and zoning
5 departments and other authorities conduct risk assessments that help them determine their local needs
6 for fuel treatments, equipment, personnel, training, mitigation needs, local ordinances or code adoption
7 and enforcement. Local assessments also can identify which mitigation programs are best for a given
8 community, such as NFPA's "Firewise" and the International Association of Fire Chief's (IAFC) "Ready,
9 Set, Go!"

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

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

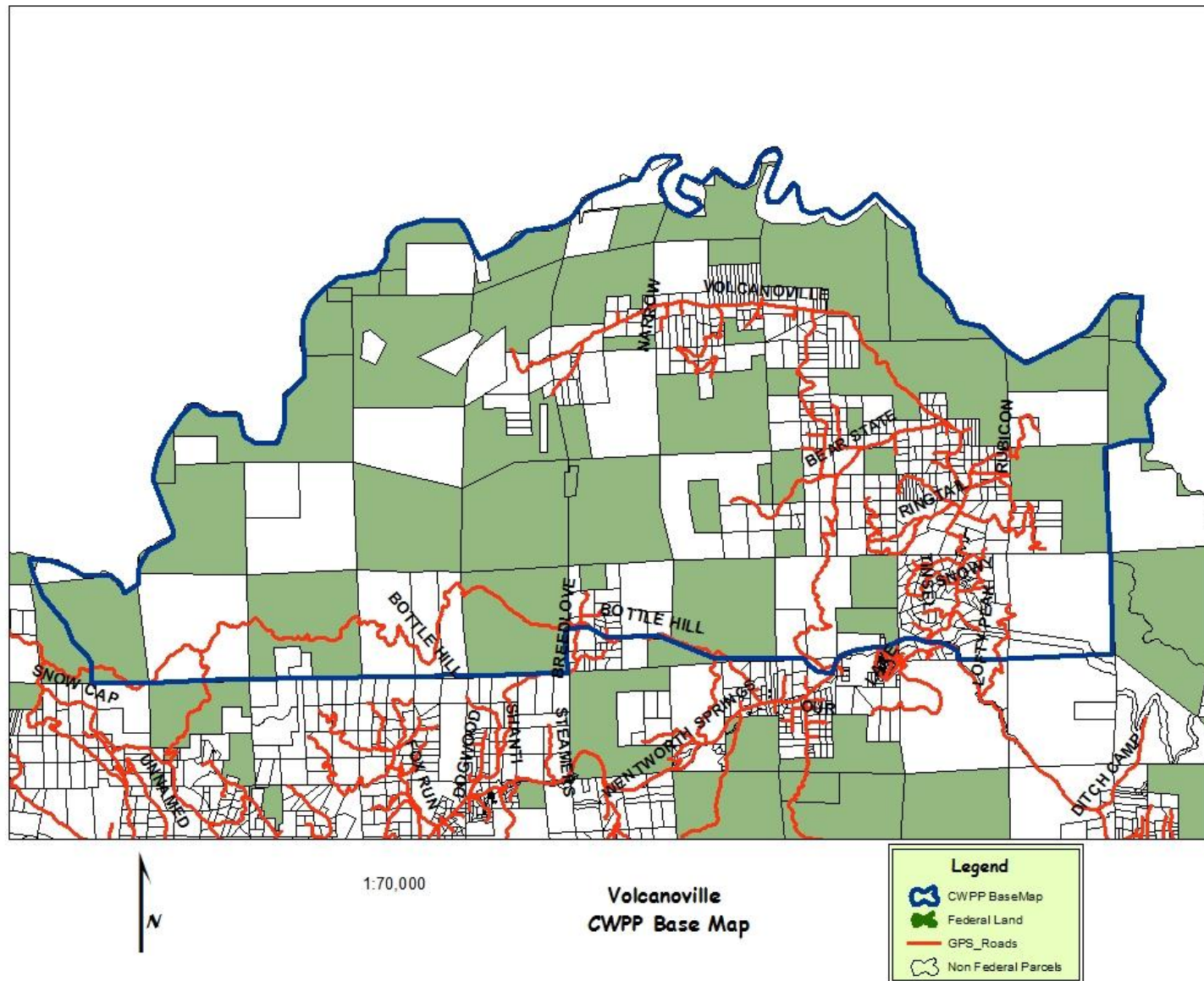
20 The CWPP is only a plan—it will not reduce the threat of a wildfire or increase protection for any
21 community. Reducing the threat of a wildfire to a community will only be achieved by the local
22 residents of that community. Federal, state, and local agencies may provide assistance, but ultimately,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

25 For more information on CWPPs in California go to the following websites

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

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

Planning Area



Boundaries

II. Planning Process

Collaboration

Primary Collaborators

Government

- United State Forest Service
- El Dorado County Department of Transportation

Non-Government Agency Involvement

- El Dorado County Fire Safe Council
- Bear State Homeowners Association

Fire Department Involvement

- Georgetown Fire Protection District
- CAL FIRE (direct protection responsibility)
- US Forest Service (limited direct protection responsibility)

Primary CWPP Development Team members and responsibilities

El Dorado County Fire Safe Council (FSC) and the Volcanoville Fire Safe and Fire Wise Council (FSFWC)

The El Dorado County Fire Safe Council, Volcanoville Fire Safe and Fire Wise Council (FSFWC), Bear State Homeowners Association, and its contractor, Wildland Rx will be the lead representatives in the collaborative process and development of the CWPP responsible for the following:

- Serve on the CWPP development team
- Facilitate and coordinate the over-all CWPP process with Local Fire Protection Districts, Federal Agencies, and other key stakeholders.
- Conduct a landscape-scale Hazard, Values, and Risk Assessment for all lands within the designated CWPP area.
- Assist fire departments in providing general discussions and assessments of their departments.
- Provide technical expertise in developing prescriptions for wildfire mitigation treatments.
- Assemble and maintain the final CWPP document.
- Assist in public education efforts for the CWPP

Fire District (Georgetown Fire Protection district)

- Serve on CWPP development team
- Provide input on the assessment process and feedback specific to the fire district for Hazard, Values, and Risk assessments.
- Provide information on past, current, and future mitigation efforts within your district.

- Provide 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.
- Provide 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.). Assist in recommending areas where grant funding can be utilized.

CALFIRE

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

USDA Forest Service

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

Joint Tasks

All team members should work in concert to accomplish the following tasks:

- Identify appropriate landscape-scale hazard reduction areas throughout the CWPP area.
- Identify WUI boundaries throughout CWPP area.
- Develop an Implementation Plan for this project
- Facilitate and/or participate 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.
- Assist interested WUI communities in developing smaller scale CWPPs and executing project-specific implementation plans.

Public Education Effort

Public education is a key component to the successful implementation of any CWPP.

The local fire safe council, local fire prevention officers, law enforcement officers, CAL FIRE and federal agencies can use these small-organized groups listed above to establish key contacts for road standards needed for emergency equipment, residential clearance standards and evacuation, planning prior to an

1 incident. These organized groups are key components to the information in this CWPP. It's important
2 to remind the communities that residential clearance and road side clearances are the responsibilities of
3 the community not the fire department. Communities may have to do their own work days to clear the
4 roadsides so that equipment can safely travel the roads. Road associations may need to widen the
5 roads and put in turn a round to allow fire equipment space to turn around. These are only a few of the
6 responsibilities of the communities to keep their community safe from a wildfire. The job of the fire
7 departments and the fire safe councils is to educate the community to what needs to be done to
8 provide for safe ingress egress for residence and fire equipment.

9 The Volcanoville FSFWC has done much to improve the public education efforts since the 2002 Fire Plan.
10 This is a list of those annual efforts:

- 11
- 12 • Annual defensible space training and evaluations / inspections
- 13 • Bulletin Boards with different fire safety messages are changed every month and
- 14 posted in 5 different locations along Volcanoville Road.
- 15 • Various seasonal fire safety articles appear in our quarterly newsletter.
- 16 • Annual Community Fire Safety Meeting attended by 76 residents.
- 17 • Firewise Board meetings
- 18 • One resident is on the El Dorado Fire Safe Council Board and attends regular board
- 19 and membership meetings
- 20 • Fire Safety information presented at meetings in February, July, October & January.
- 21 • Preparation and distribution of Special Notices posted at 4 locations along the road
- 22 at various times during the year i.e.; Burning Permits Now Required etc.
- 23 • Development of community fire safety flyers & handouts.
- 24 • Formation of the Neighborhood Emergency Service Team and Emergency Phone
- 25 Tree List.
- 26 • Neighbors helping neighbors with annual Donaldson Park clean up.
- 27 • Red Flag warning boards are set out on red flag days
- 28

29 2010 Volcanoville Residents volunteered approximately 591 hours of time to educate their residents and
30 promote fire and life safety.

Community Description

Found in the Appendix June 2002 Fire Plan

Emergency Services

The Georgetown Fire Protection District, CALFIRE and the US Forest Service provide for the wildland fire protection of the community. The description for the emergency services found in Appendix June 2002 Fire Plan are accurate to today's situation however all of the agencies listed are struggling with budget cuts the result will probably mean cut backs in service, a likely result, over the next few years.

IV Community Hazard Assessment

Current Risk

Wildland Fire Behavior

The wildland fire behavior analysis developed for this CWPP was designed to meet two objectives. The first was to examine the existing fire hazard and potential losses in the event of a wildfire, and secondly to establish the best treatment locations and priority for those treatments based on expected fire behavior with input from the firefighting agencies and local community members. The 2010 version of the California Statewide fuels data for El Dorado County was used in this assessment. The fuels data is the most current inventory of California vegetation that interagency fire experts used to develop the spatial fuels layers for fire planning and decision support in California. The data set was made available from the US Forest Service regional office at McClellan, California. Weather data from the Bald Mountain Remote Automated Weather Station (RAWS) was used to model fire behavior. There were several models used to assist in the fire behavior modeling FARSITE, FLAMMAP, WINDNINJA, and FIREFAMILY Plus. The models are described in Appendix A.

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

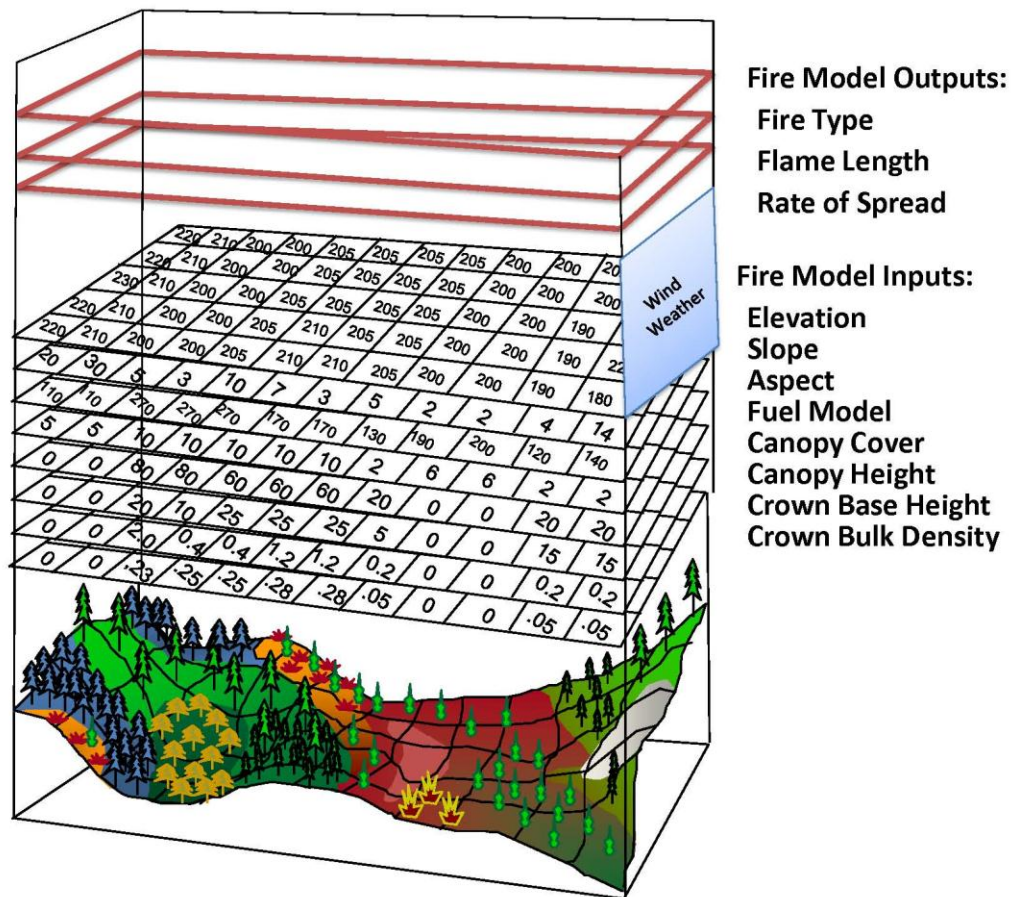
Flame Length - used to determine suppression tactics based on how close you can get to the fire

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

Figure 1 depicts the modeling inputs and outputs for each 30 by 30 meter cell in the spatial grid (approximate every quarter acre). The surface fuel data and mapping done for this document used spatial input data that was randomly ground verified. This allows decision makers to have the best information possible on potential fire behavior and expected losses in the CWPP area.

Figure 1: Model inputs and outputs for fire behavior modeling



The outputs were used to evaluate fire effects, determine the likelihood of potential loss and to determine potential suppression tactics. Further refinement and calibration of the analysis parameters in the matrix were completed after consulting with local fire officials and researching historical fire records. Weather data is required to bring local conditions into the analysis to complete this assessment. Weather from the Bald Mountain Remote Automated Weather Station (RAWS), located in

1 El Dorado County north of the CWPP analysis area, has the longest most accurate records available for
2 the county. Descriptive weather parameters such as temperature and relative humidity are used to
3 determine the fuel moistures to burn the vegetation. When the vegetation burns it releases energy.
4 This energy can be measured and used to determine fire danger. It is called the Energy Release
5 Component (ERC)

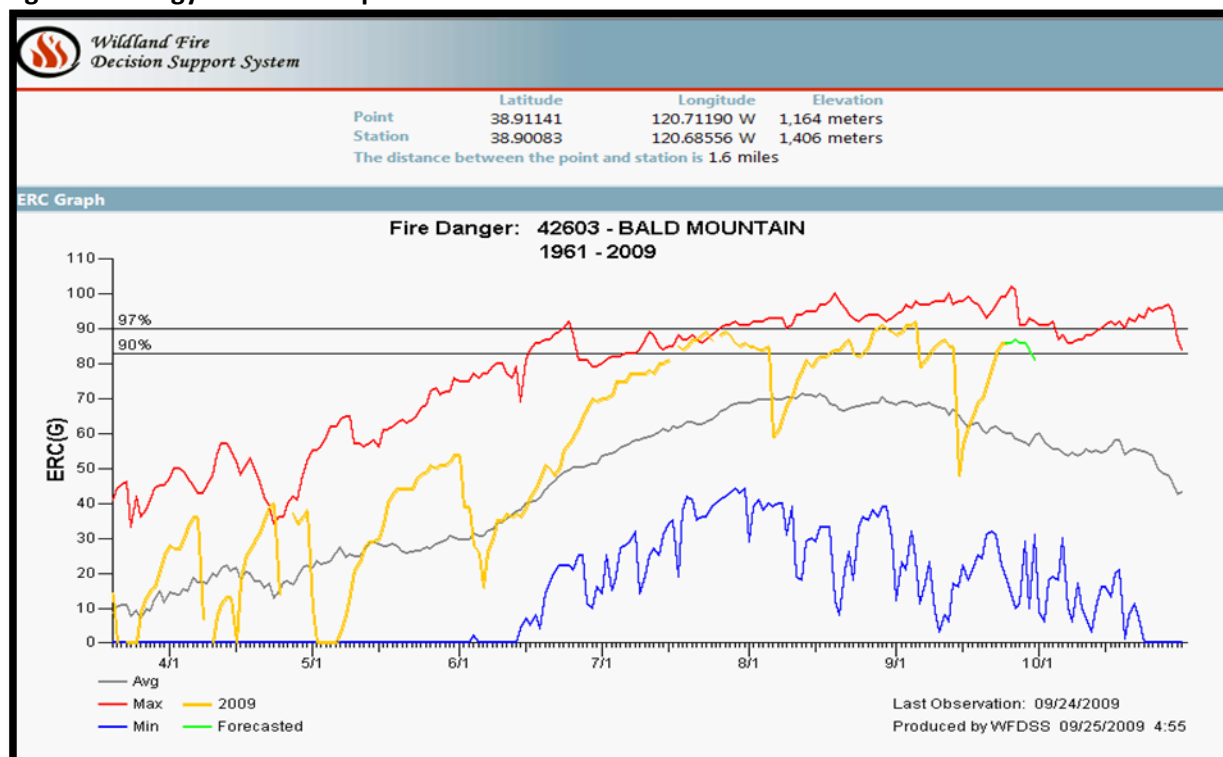
6 The fire behavior measurement used for this assessment was Energy Release Component (ERC)
7 an [NFDRS](#) (National Fire Danger Rating System) index related to how hot a fire could burn. It is
8 directly related to the 24-hour, potential worst case, total available energy (BTUs) per unit area
9 (in square feet) within the flaming front at the head of a fire.

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

18 The ERC graph (Figure 2) for the Bald Mtn. Station indicates when conditions historically in the CWPP
19 area will support fires that are likely to escape initial attack. Fires which are likely to escape initial attack
20 would occur when the conditions for ERC reaches above 90%. The graph records the average ERC, the
21 maximum historic ERC, the minimum historic ERC, the forecasted, and the actual 2009 ERC for the Bald
22 Mountain Weather station. As indicated by the graph; the period that a wildfire is most likely to escape
23 initial attack begins around July 15 and lasts well into October on the average year. Recognizing that
24 each year can be slightly different.

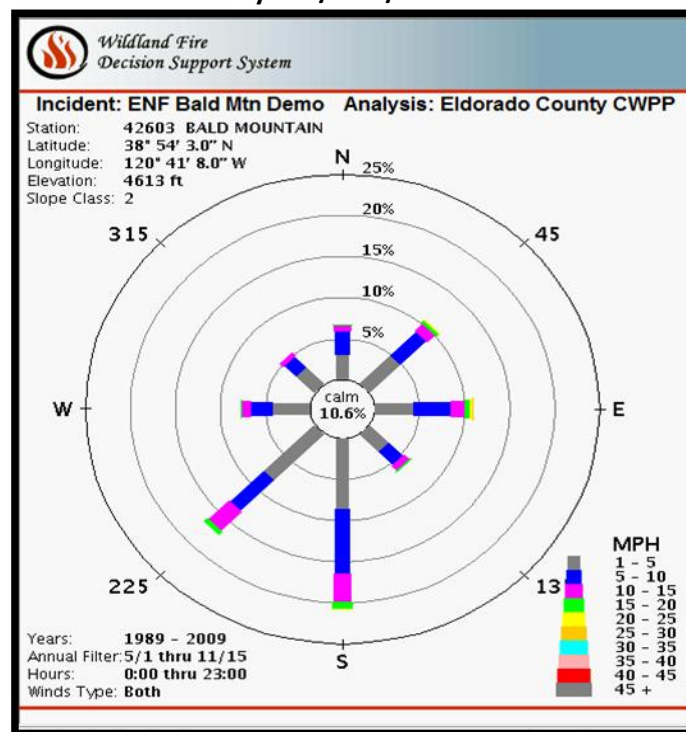
25 The rule of thumb is when the grass cures and the California buckeye turn brown; the chaparral
26 vegetation and the conifer trees will begin to carry fire. Moisture content continues to drop and
27 the vegetation goes into a dormant state usually by or in mid-August, at this point wildfires will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

Figure 2: Energy Release Component for Bald Mtn.



Another important factor in rapid fire spread is wind direction and speed. To analyze the last 20 years of hourly wind data from the Bald Mtn. RAWS, the Wind Rose Tool was used from the Wildland Fire Decision Support System (WFDSS). The wind rose on page 29 (figure 3) graphically illustrates 20 years of hourly wind speed and direction collected from the Bald Mtn. 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. One such fire in 1991, the Cleveland Fire, was driven first by erratic cold front winds which burned 26,000 acres. A large fire in the 1959, the Ice House Fire, was a fire driven by dry, northeast winds and it burned 19,099 acres.

Figure 3 Bald Mtn. weather wind rose analysis 5/1-11/15



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 El Dorado County.

Current Risk Situation

The CAL FIRE, 2010 Forest and Range Assessment, chapter 2.1 *Wildfire Threat to Ecosystem Health and Communities*, wrote the definition of key terms for assessing risk. Consistency in understanding these terms and definitions is critical to understanding this analysis. These terms are also important to interpreting the results and rankings, which are used to identify areas that are best suited for projects and to set project priorities. The following are the key terms and their definitions. The 2010 Forest and Range Assessment can be found at the following website. <http://frap.fire.ca.gov/assessment2010.html>)

Risk is a measure of the expected damage that a fire may have on assets that hold value to society. In some cases, fire effects may be view as beneficial, in which case a negative risk value would be applied. It is important to recognize that a given fire threat will have a varying impact on different assets, and that differing fire threats have different impacts on individual and collective assets. (Chapter 2.1 page 101, 2010 Assessment)

Fire threat is a measure of fire hazard that includes components for the probability (chance of burning) and the nature of the fire (fire behavior). Taken collectively, these two features assess the basic threat features of periodic wildfires and their capacity to drive fire effects. It is important to understand that fire threat carries no direct measure of fire effects and associated value change associated with fire risk. (Chapter 2.1 page 101, 2010 Assessment)

The current risk to property loss from wildland fires has been classified as very high in the CWPP area. This has in, some respect, been caused by human intervention or lack of intervention in the accumulation of flammable vegetation in the urban interface. Years of successful initial attack from local suppression resources have created an environment of complex fuels. Some homeowners continue to be complacent or desire not to change the vegetation surrounding, the community, has allowed hazard fuel to accumulate. Other human impacts that add to this problem of homeowner complacency are due to the increase in absentee ownership, the number of renters, and recent increase in home foreclosures in the more residential communities of the CWPP area. These properties are not likely going to receive any fire hazard mitigation treatments. Historically, in El Dorado County, grazing, logging, and other agricultural uses have played a large role in managing fuels and interrupting the continuity of vegetation across the county. In recent years, grazing has been significantly reduced and large parcels have been subdivided and developed creating a true wildland interface problem. More recently, many homes have been abandoned or reprocessed by banks leaving the properties vacant and at risk.

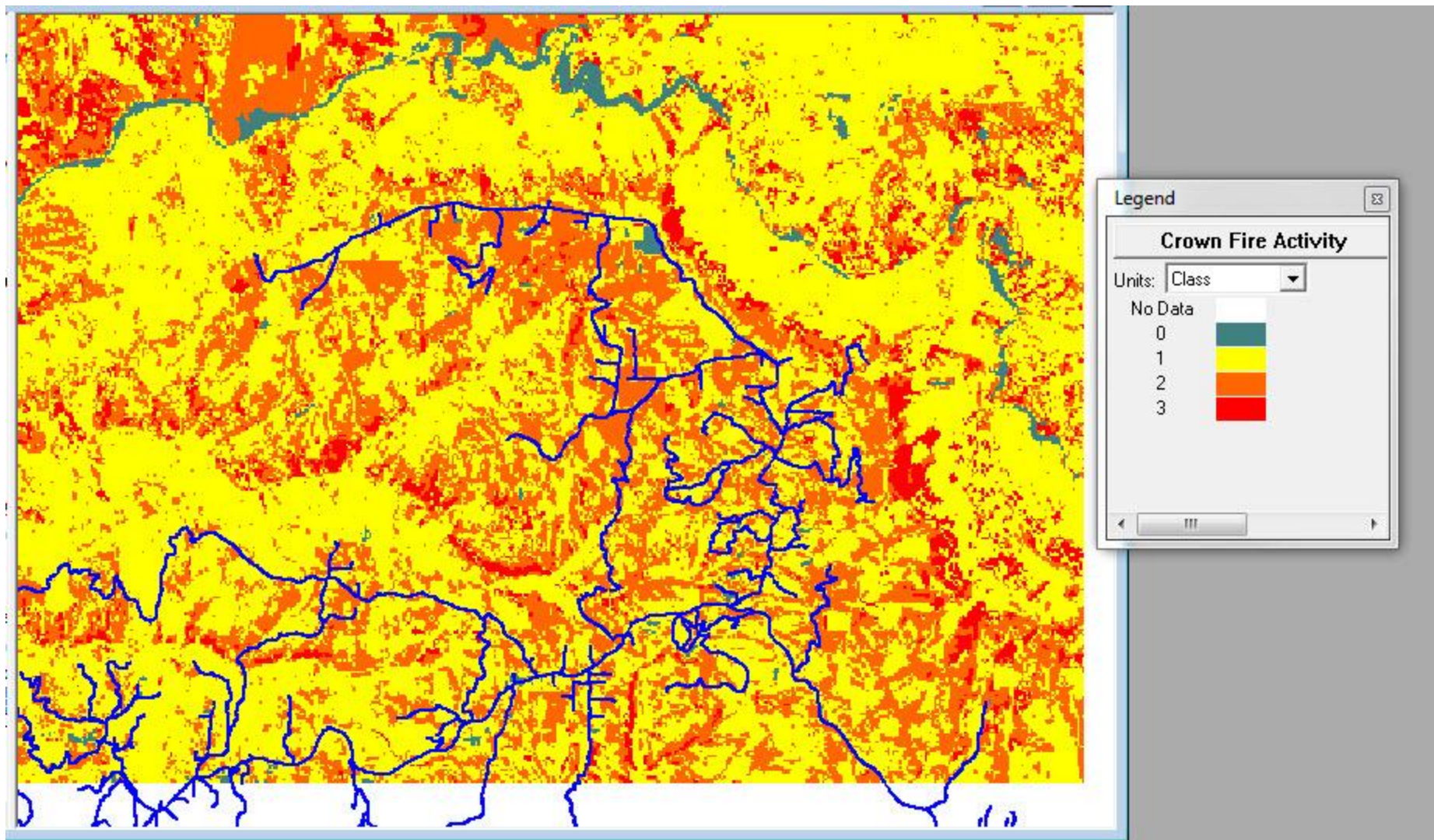
An analysis of the current fire behavior within the Volcanoville CWPP area was done using FlamMap Fire Behavior Model. The weather conditions used in the modeling were derived from the Bald Mountain RASWS data and are typical of late summer conditions

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

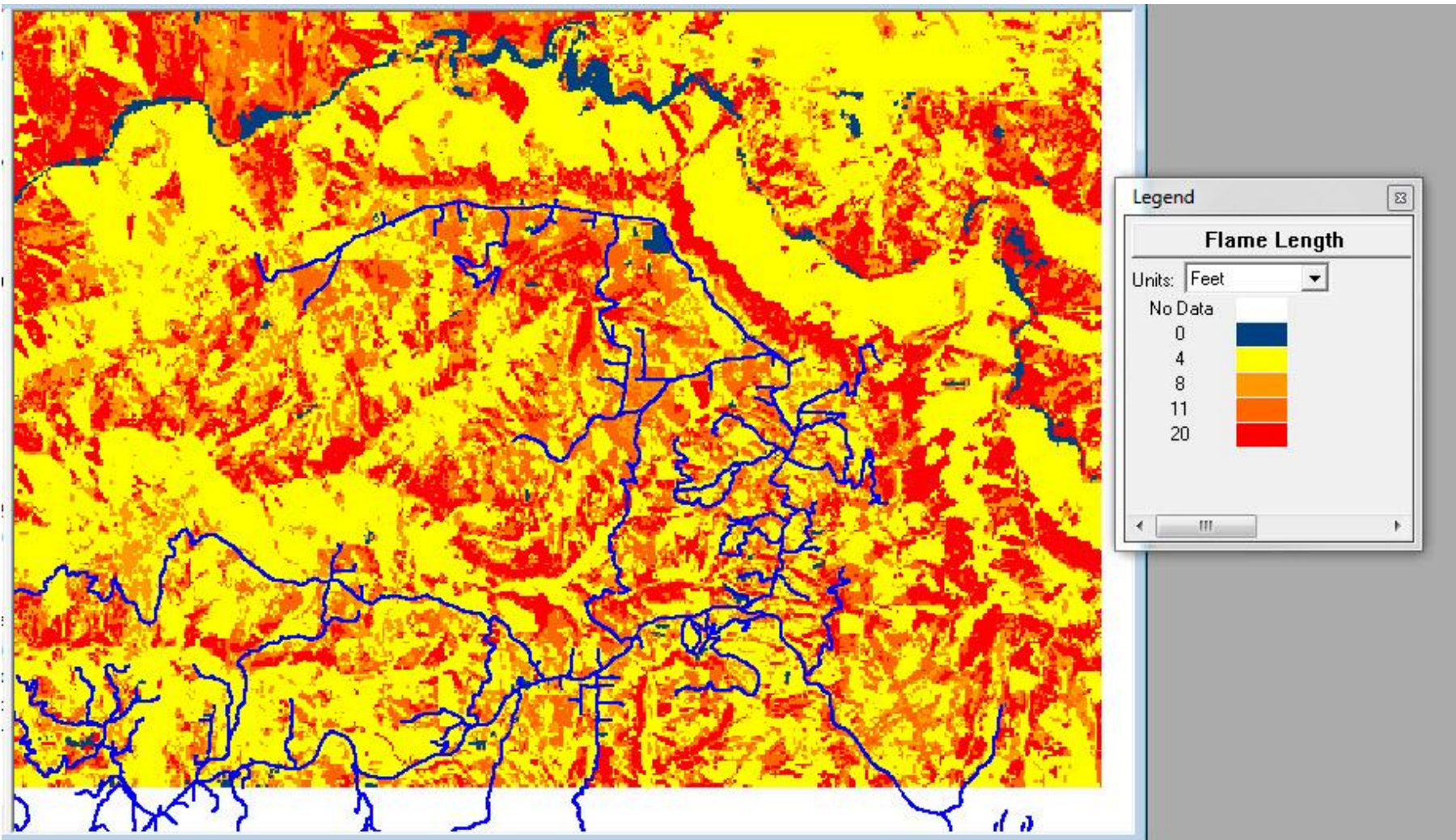
The following map demonstrates Volcanoville Crown Fire Activity and Flame length. Fire type or Crown fire activity, is an important output from FlamMap. It considers multiple factors to determine if the fire is, surface, passively crowning (torching) or actively crowning in any particular cell of the 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).

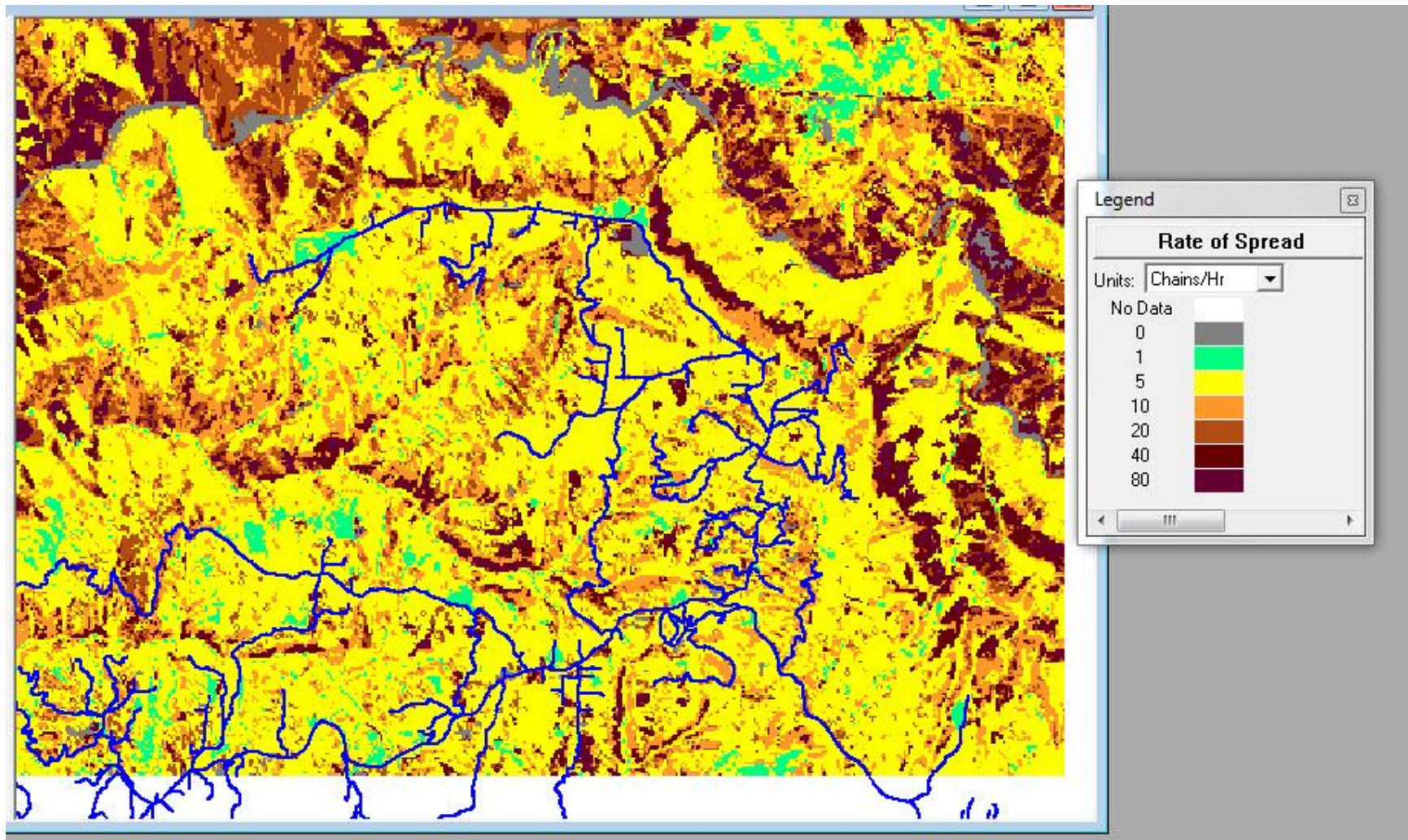
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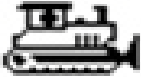


1 Flame lengths greater than 4 feet are difficult to control

2 **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)

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

4 **: Effective Suppression efforts**

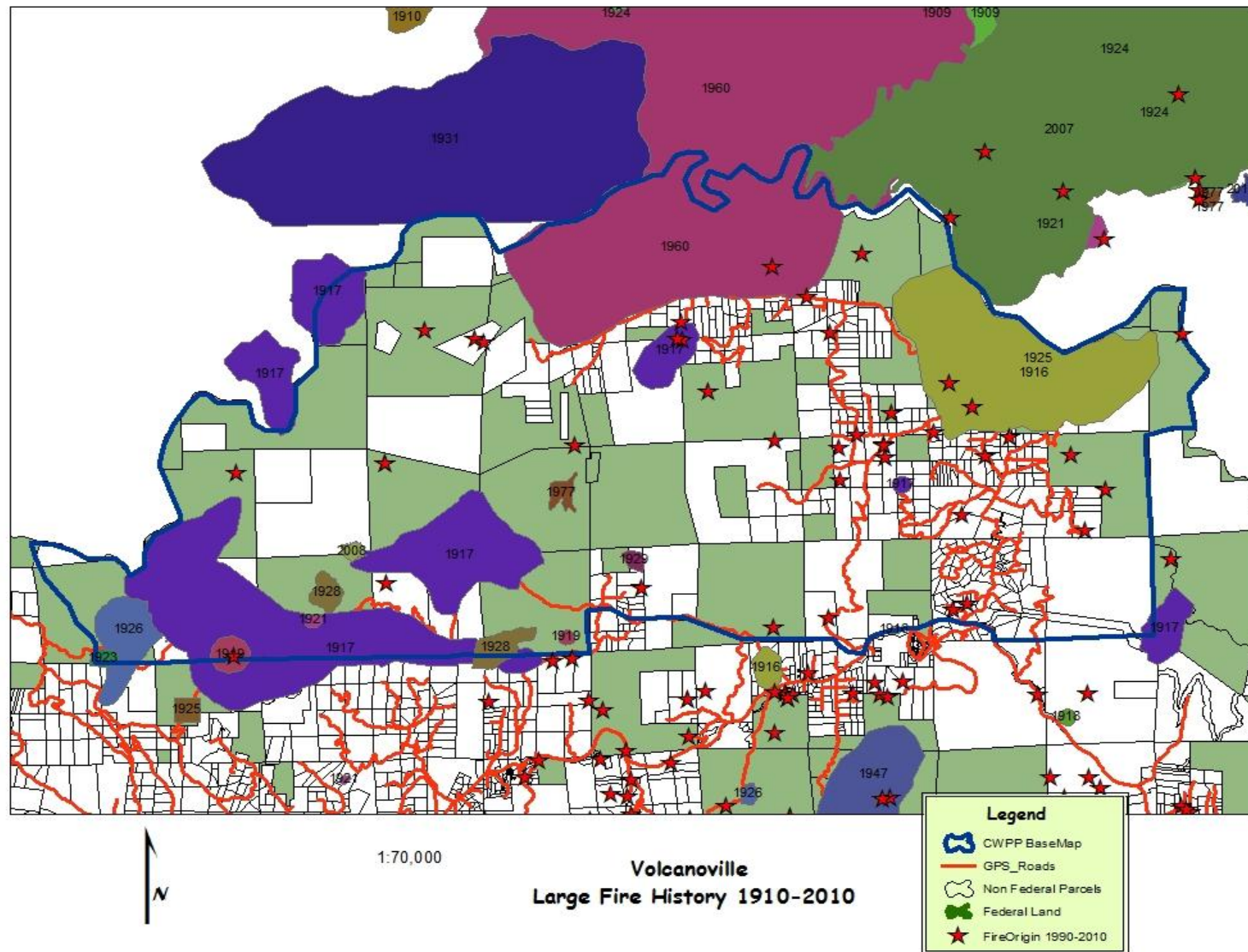
Resistance to Control		Interpretation
Low 1		<ul style="list-style-type: none">• Fire can generally be attacked at the head or flanks by persons with hand tools and or engines• Handlines should hold the fire
Moderate 2		<ul style="list-style-type: none">• Fire is too intense for direct attack on the 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		<ul style="list-style-type: none">• Fire may present serious control problems -- torching out, crowning, and spotting• Control efforts at the fire head will probably be ineffective
Very High 4		<ul style="list-style-type: none">• Crowning spotting and major fire runs are probable
Extreme 5		<ul style="list-style-type: none">• Control efforts at the head of the fire are ineffective

5 Resistance to Control above moderate makes suppression efforts extremely difficult unless there is a
6 break in the vegetation or a change in the weather.

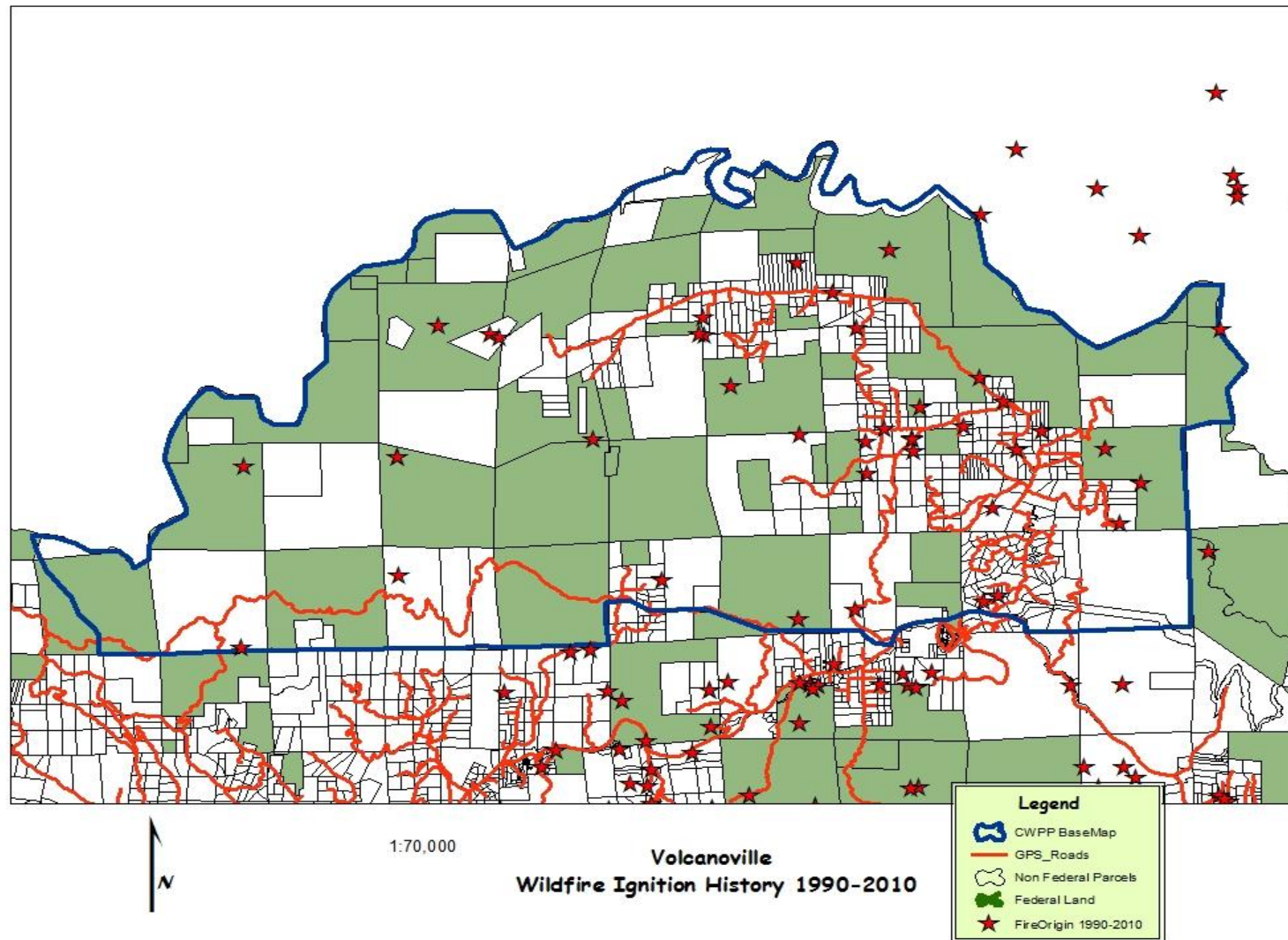
7 Using the above tables and the previous FLAMMAP runs it is easy to calculate how difficult it will be to
8 control a wildfire under late summer weather conditions and that the resistance to control will be high
9 to extreme in some of the areas of Volcanoville.

10

Large Fire History



Recent wildfire ignition history



V. Fire Response

Wildland Urban Interface wildfire suppression condition

Generally, three wildland fire suppression conditions exist in the CWPP area, each requiring a specific suppression strategy that is modified as conditions change and the fire moves across the landscape. Table 8 below describes the three conditions, suppression strategy and treatments used to mitigate the pre-fire conditions. The treatment strategies are designed to modify fire behavior so that fire suppression resources have a better chance for success. The 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

Table 8: Wildland Urban Interface(WUI) conditions and suppression and treatment strategies

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

1 **Transportation System**

2
3 The Road system in the CWPP area was well described in the 2002 Fire Plan and has changed little since
4 then. The recommendation from the 2002 plan was: that the only feasible access improvement was to
5 increase visibility and passing opportunities at selected Volcanoville Road locations recommended in the
6 Fire Safe plan, including construction of inter visible turnouts and roadside fuel removal. As has been
7 previously identified the construction of Community Safety Zones is not a viable solution to evacuation
8 planning. Adequacy of emergency Ingress and egress was identified in the community questionnaire as priority
9 3 and the need for roadside hazard reduction to make the evacuation routes safe was identified as priority 6. A
10 feasibility study should be performed to determine the possibility of repairing the Kentucky Mine Road as a
11 second evacuation route

12 Roads have been an issue in El Dorado County for decades between the fire departments, the county
13 planning department, the County Board of supervisors, and developers. Until recently with the advent
14 of State wide standards for roads in Title 14, the road requirements have been under attack. To add to
15 the standards issues, like many of the many of the roads in El Dorado County the Volcanoville roads
16 were constructed years before any standards were even considered and homes were constructed right
17 up to the edge of the narrow roads. Some roads in the county are little changed from the gold rush era
18 of the 1800s, particularly the roads in the older communities. Today's private and commercial vehicles
19 and fire equipment are much larger than they were even 30 years ago. Many of the roads in the county
20 that were constructed earlier than 30 years ago were not expected to be conduits for today's population
21 or vehicle sizes.

22 The only road identified as a primary evacuation route is Volcanoville Road. Volcanoville Road is the
23 primary evaluation route that has problems. It is a winding, narrow road that provides its residents with
24 only one way in and one way out of the area. It is the only road residents can use for evacuation and
25 must be shared with incoming fire apparatus. and if used to evacuate large numbers of residences it will
26 easily become blocked to incoming suppression equipment. Volcanoville Road, in places, is only one
27 lane wide without turnouts. Traffic control along this route of travel is critical the Sheriff department in
28 charge of evacuation and traffic control is an hour away from Volcanoville. Suppression equipment
29 using this road needs to be cautioned that it could be block by evacuating residences.

1 Other weaknesses along the primary evacuation routes are choke points. Choke points are where
2 feeder roads connect to primary routes and are points that potentially will hinder smooth and rapid
3 evacuation. It is critical to any evacuation that traffic control be set in place as fast as possible at these
4 choke points. Evacuation can be further constrained by the availability of law enforcement personnel
5 and or CERT personnel in the event of an evacuation. The county is severely limited in the number of on
6 duty personnel that can be used to begin evacuations in the event of a rapidly moving wildfire.

7 Evacuation planning is critical and scenarios for evacuation should be run periodically with law
8 enforcement, fire personal, and local community members as well. More community evacuation
9 practice sessions should be held in congested highly populated areas, so that the people living in the
10 area understand the importance of evacuation planning and law enforcement can understand potential
11 evacuation problems.

12
13 The number of egress constrained roads along Volcanoville Road and the number of homes on roads
14 that have only one way in and out is very high. Today's large fire engines are limited by their size to
15 access and maneuverability on narrow roads adding to the complexity of evacuation and suppression
16 activities. In some cases, evacuation may need to occur earlier than anticipated. Individuals need to be
17 better prepared for them to evacuate. Evacuation planning is not at a level that can be safely
18 implemented. Weaknesses in the strategy of evacuation should be found and tested to improve
19 efficiency. Roads or road sides may need to be improved in many cases. Past road standards do not fit
20 well with today's fire equipment.

21
22 The attitude that evacuation is based on the incident is not acceptable. Preplanning for evacuation is
23 important to the safety of the public. As pointed out in the lessons learned publication *FACES: The Story*
24 *of the Victims of Southern California's 2003 Fire Siege* even communities such as San Diego County
25 where wildfires requiring evacuations are annual events, they were ill prepared for evacuation and lives
26 were lost. The Faces document is attached and should be required reading for all emergency personnel
27 both firefighting and law enforcement. The county does have a very active Disaster Council and one of
28 their tasks should be to identify specific problems that could impede suppression resources and
29 evacuation. More needs to be done to inspire the community members to write their own evacuation
30 plans. The evacuation planning website WILDFIRE IS COMING are you Ready? Is an excellent place to
31 start your preparation <http://www.readyforwildfire.org/>. It is also highly recommended that the
32 community participate in evacuation drills annually to prepare for evacuation.

1
2 It's important that road and evacuation route treatments are completed on driveways, roads, and other
3 key transportation corridors. A successful neighborhood fuels reduction project, depends on the
4 priorities of local residents, opportunities for funding, conditions of the land, and land ownership
5 patterns.

6 The idea of keeping and maintaining roads and long driveways open for fire engines is important and
7 recognition of the acceptable standard for roads is the clearance of 15 feet height and 18 feet wide is
8 important to the safety of all. The California Title 14- Natural Resources Division, 1.5- Department of
9 Forestry, Chapter 7- Fire Protection, Subchapter 2 SRA Fire Safe Regulations Articles 1-5, Article 1.
10 Administration Article 2. Emergency Access Article 3. Signing and Building Numbering Article 4.
11 Emergency Water Standards Article 5. Fuel Modification Standards, sets the current standards for new
12 road construction. Understanding that new road bed standards can't be enforced on old roads
13 vegetation removal, turnouts and turnarounds along these roads should be encouraged by the fire
14 districts.

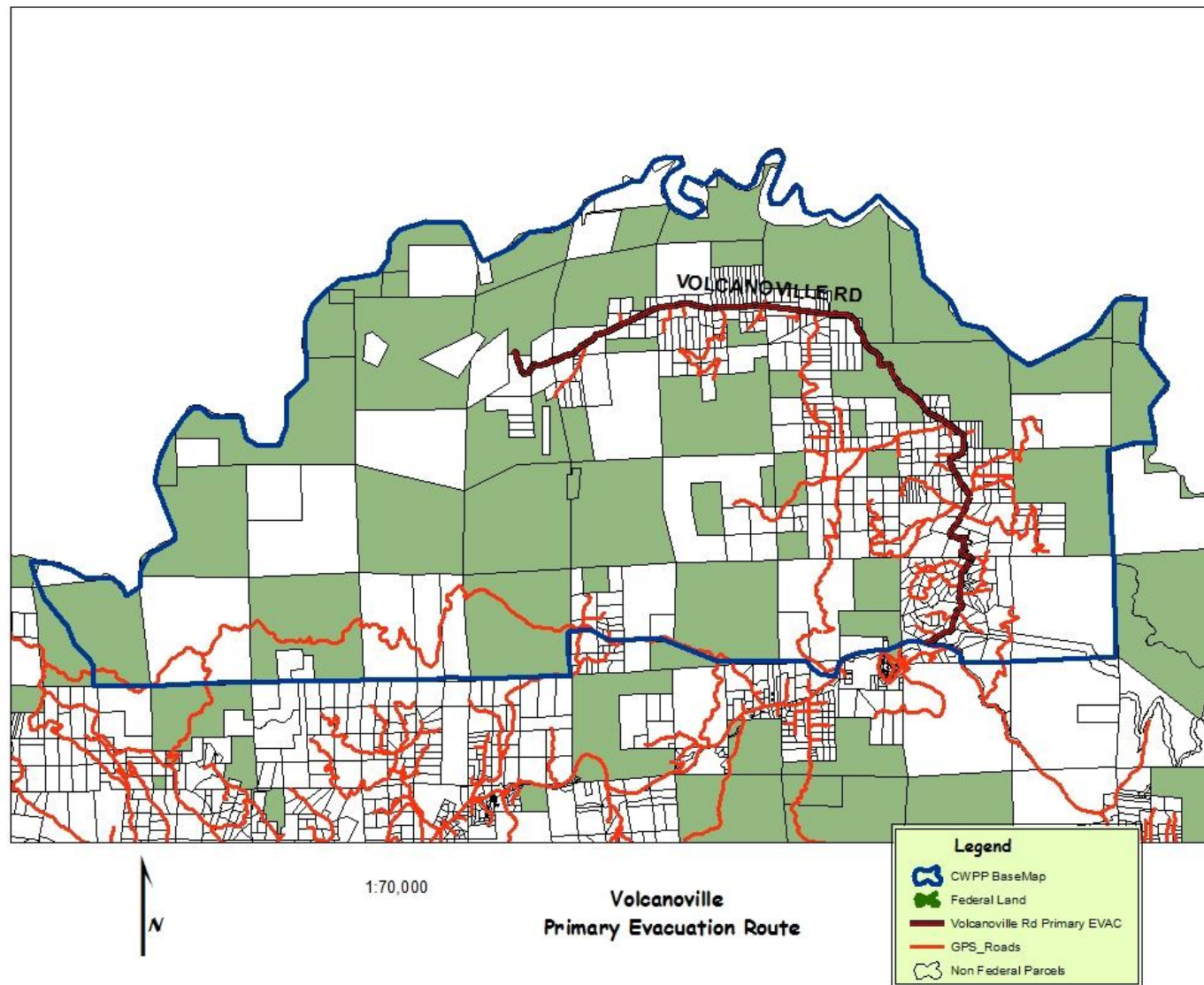
15 **Road Maintenance and Primary Evacuation Road**

16

17 It is important to coordinate with the El Dorado County Department of Transportation (DOT) and local
18 fire districts on setting priorities for roadside clearance to support emergency services as well as
19 evacuation. The result would be that hazard tree and brush removal operations are focused in areas of
20 greatest need based on evacuation planning, road conditions, and numbers of residences served. Road
21 maintenance standards used by the county could be both educational and used as a model by
22 homeowner and road associations. It is important to remember all residents in the Volcanoville
23 community have only one way in and one way out on Volcanoville Road,

24
25
26

Road Maintenance and Primary Evacuation Roads



Water supply

The water supply issues were identified in the 2002 Fire Plan and have changed little since then. There have been attempts to improve the water system through the grant process and to date for various reasons have not been successfully funded.

VI. Community Preparedness for a wildfire emergency

Evacuation Planning, Reducing Structure Ignitability, and Strengthening Community Fire Preparedness

There are several resources available for making plans and preparing for a wildfire one of the best is located on the internet at <http://www.readyforwildfire.org> created by CALFIRE and contains numerous pointers on preparing your home and family for a wildfire web page is titled Wildfire is coming ARE YOU READY?

The Firewise website is an excellent source of preparing the community for a wildfire

<http://www.firewise.org>

Another source for all types of disaster planning is the American Red Cross the web address is

<http://www.redcross.org>

Faces: The Story of the Victims of Southern California's 2003 Fire Siege

<http://www.wildfirelessons.net/documents/Faces.doc>

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 and practice an evacuation plan for Palomar Mountain (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 waiting too long to evacuate or during the process of evacuating.

Not surprisingly, when the need arose on the Old Fire, those in San Bernardino County 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 residential evacuation process from a wildfire can be one of the most hazardous undertakings, resulting in human injury or death due to chaotic conditions and congestion on the roads. Many 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 schedule 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 who were threatened by the Old Fire in the San Bernardino area.

Preparation for Evacuation

If Evacuation is a Possibility

- Locate your *Evacuation Checklist* and place the items in your vehicle.
- Park your vehicle facing outward and carry your car keys with you.
- Locate your pets and keep them nearby.
- Prepare farm animals for transport.
- Place connected garden hoses and buckets full of water around the house.
- Move propane BBQ appliances away from structures.
- Cover-up. Wear long pants, long sleeve shirt, heavy shoes/boots, cap, dry bandanna for face cover, goggles or glasses. 100% cotton is preferable.
- Leave lights on in the house - door unlocked.
- Leave windows closed - air conditioning off.

The Evacuation Process

1. Officials will determine the areas to be evacuated and the routes to use depending upon the fire's location, behavior, winds, terrain, etc.
2. Law enforcement agencies are typically responsible for enforcing an evacuation order. **Follow their directions promptly.**
3. You will be advised of potential evacuations as early as possible. You must take the initiative to stay informed and aware. Listen to your radio/TV for announcements from law enforcement and emergency personnel.
4. You may be directed to temporary assembly areas to await transfer to a safe location.

If You Become Trapped

1 While in your vehicle:

- 2 •Stay calm.**
- 3 •Park your vehicle in an area clear of vegetation.**
- 4 •Close all vehicle windows and vents.**
- 5 •Cover yourself with wool blanket or jacket.**
- 6 •Lie on vehicle floor.**
- 7 •Use your cell phone to advise officials – Call 911.**

8 While on foot:

- 9 •Stay calm.**
- 10 •Go to an area clear of vegetation, a ditch or depression if possible.**
- 11 •Lie face down, cover up.**
- 12 •Use your cell phone to advise officials - Call 911.**

13 While in your home:

- 14 •Stay calm, keep your family together.**
- 15 •Call 911 and inform authorities of your location.**
- 16 •Fill sinks and tubs with cold water.**
- 17 •Keep doors and windows closed, but unlocked.**
- 18 •Stay inside your house.**
- 19 •Stay away from outside walls and windows.**

20 * Note – it will get hot in the house, but it is much hotter, and more dangerous outside.

21
22 After the fire passes, and if it is safe, check the following areas for fire:

- 23 •The roof and house exterior.**
- 24 •Under decks and inside your attic.**
- 25 •Your yard for burning trees, woodpiles, etc.**

27 **Returning Home**

28 Fire officials will determine when it is safe for you to return to your home. This will be done as soon
29 as possible considering safety and accessibility.

30 When you return home:

- 31 •Be alert for downed power lines and other hazards.**
- 32 •Check propane tanks, regulators, and lines before turning gas on.**
- 33 •Check your residence carefully for hidden embers or smoldering fires.**

36 **VII. Action Plan**

37
38 The questionnaire for the 2002 Fire plan was revised and again sent out to community members to get
39 an idea of the communities concerns. The following table is a result of the recent questionnaire. They
40 are an assessment of 38 respondents to the questionnaire

Priority	Question
1	Adequacy of Fire Suppression Forces - Response time strength of attack etc.
2	Adequate communications and / or an early warning system in the case of fire.
3	Adequacy of emergency Ingress and Egress.
4	Adequate storage of firefighting water and locations of tanks ponds pools etc.
5	Adequate road signing and building numbering to allow prompt fire and emergency responses.
6	The need for roadside hazard reduction to make evacuation routes safe
7	Adequacy of compliance with Fire Safe Regulations annual cleanup
8	The need for wildfire safe havens or refuge in place sites
9	The need for strategic fuel modifications (Fuel breaks etc.)

1

2

Critical Findings and Recommendations

These critical findings are based on the community questionnaire and recommendations by the fire agencies and the CWPP contractor.

Fire Response

Finding: Currently initial attack is successful and extended attack has worked well with all agencies working together to suppress fires quickly. The first engine on scene can be as much as 30 minutes from the time a report of a wildfire is made. Currently all fire districts in the county are finding themselves with insufficient funding and forced to reduce services across the board. This will lead to reduced capacity and increase in response times to incidents of all types within the county.

Recommendations: The Community needs to be vigilant and realize that suppression resources can be limited, and that it is important to keep informed of resource draw down and participate with Georgetown Fire in increasing their protection capabilities or prevent their budget cuts.

Communications and Early Warning in case of a wildfire

Finding

Communications have improved since the 2002 fire plan but it is the number two priority for the community. There is limited cell phone coverage but still a potential to loose service with a power failure. Chief Schwab of Georgetown Fire has made communications one of his highest priorities. The use of reverse 911 is available but not all residences have land lines. The Volcanoville Communities Neighborhood Emergency Service Team has established a phone tree process and has used it several times and they are vigilant with updates as new people move into or out of the community

Recommendations: The community Fire Wise Fire Safe Council needs to continue to test the phone tree network and improve it through testing. Revisit the phone tree list to add any additional residence that may not be on the list. They have experienced some concerns about the phone tree but are working on resolving them

Roads and Evacuation Planning

Finding:

- Many of the residents live on limited access egress roads, many of the primary and most of the secondary roads in the CWPP have segments that need to be evaluated for 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.

Recommendations: Residents need to understand the emergency equipment limitations that pertain to them and the problems there roads cause during suppression and evacuation

Fire Districts 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 Districts establish trigger point (trigger points are points at which notification should be given for example once a fire has established itself south of the American River) 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.

Water Sources

Findings: There needs to be an effort to GPS all the hydrant and water source locations in Volcanoville CWPP area. The Volcanoville Structure Protection Preplan (Appendix G) forms when revised can be used to gather this information.

It is important to determine current strategy and evaluate the water capacity of the sources for all areas within the CWPP boundary. Several of the existing sources are in need of repair.

Recommendation: Establish a committee with involvement of the Fire Districts and the water district who can work to evaluate the current water sources and determine any potential improvements which

were recommended in the 2002 fire plan. The community with the aid of the fire district should continue looking at sources for funding to improve the current water sources in the community.

Community Preparedness

Findings: There appears to be a lack of actual individual disaster plans and understanding of evacuation. There should be focused education on CPRC 4291. The Fire Safe & Firewise Council does perform evaluations for 4291 compliance if on non-gated property. As part of the education the public needs to understand opportunities for assistance to do hazards fuels reduction exists through the El Dorado County Fire Safe Council's and other programs.

Recommendations: Inspections/education, weekend exercises, local government (police, CHP, sheriff offices, fire departments, volunteers, CAL FIRE) utilize pre-existing organized groups, pre-announce, and participate to extent possible. These efforts must be community or neighborhood based outreaches.

Fuel Treatments and Restoration Projects

Findings: There are many opportunities for a large wildfire to establish in the complex terrain of the North Fork of American River and Otter Creek, which will then threaten residents in the CWPP area.

Recommendations: Start with no-cost or low cost programs like CPRC 4291 which is the law directing homeowners to do hazard reduction, coordination with El Dorado County Department of Transportation (DOT) road crews to clear primary evacuation roads first. Apply for grants that support pre-suppression efforts in fuel breaks, for maintenance treatments of existing treatments. Continue to use demonstration projects to provide example for the public on treatment expectations. Continue to use signage and bulletin boards are good reminders to people, as well.

Collaboration, Public Education and Prevention

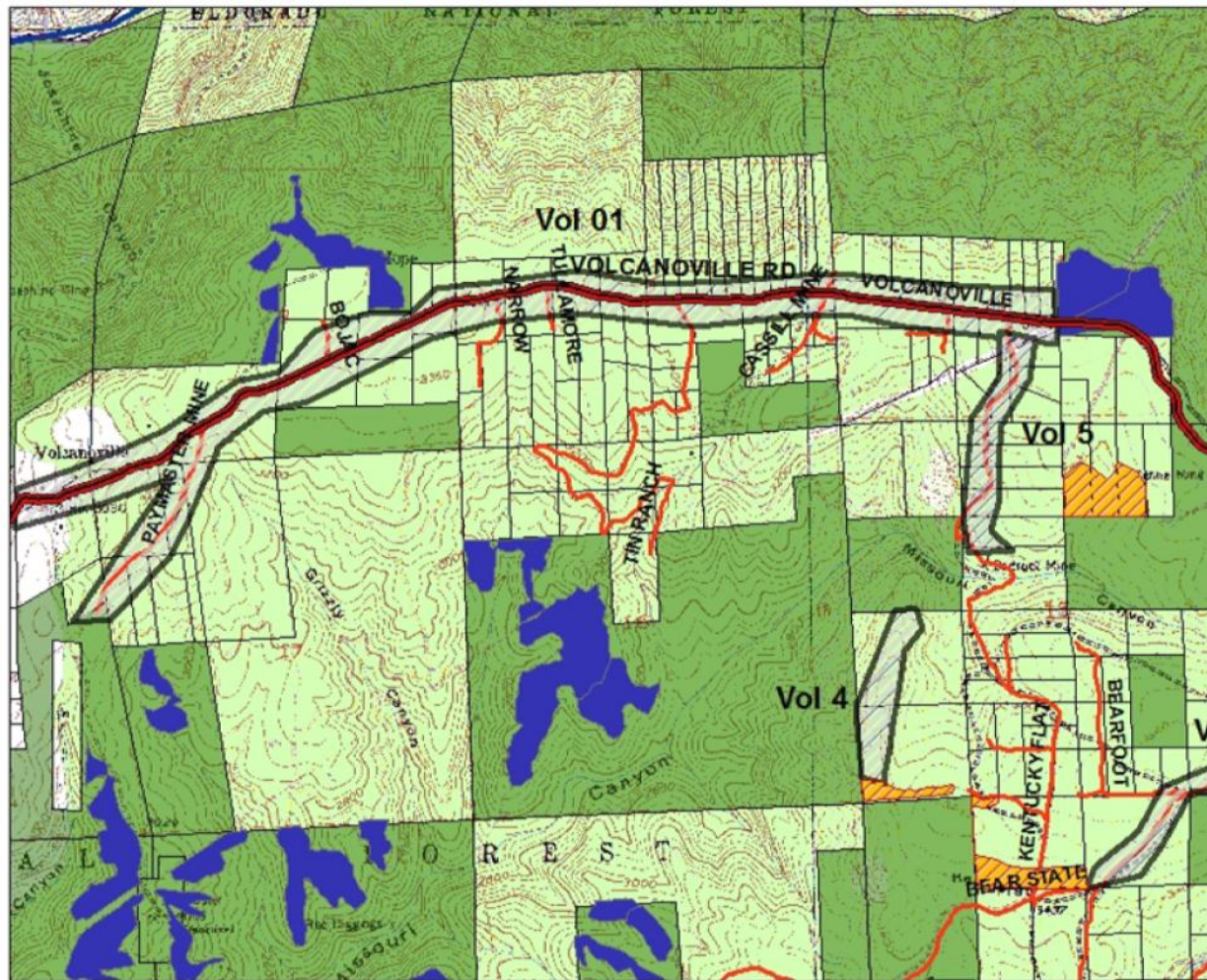
Findings: Evaluations for compliance to CPRC 4291 are a continuing effort these are used primarily as an educational tool. Inspections are performed by the US Forest Service as part of a cooperative agreement between them and CALFIRE

Recommendations: The evaluation program by the local citizens need 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 residence, they can deny access. This should be expanded to include visual inspection without permission and educational material left on the door of the resident. A form used by CALFIRE (LE 100) is found in the appendixes along with direction on how to implement the requirements of the law. It is recommended that the community create its own form using the LE 100 as an example for their evaluation form.

Fuels Treatments and Restoration Projects

Treatment Costs

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
Machine Pile	\$185-\$275

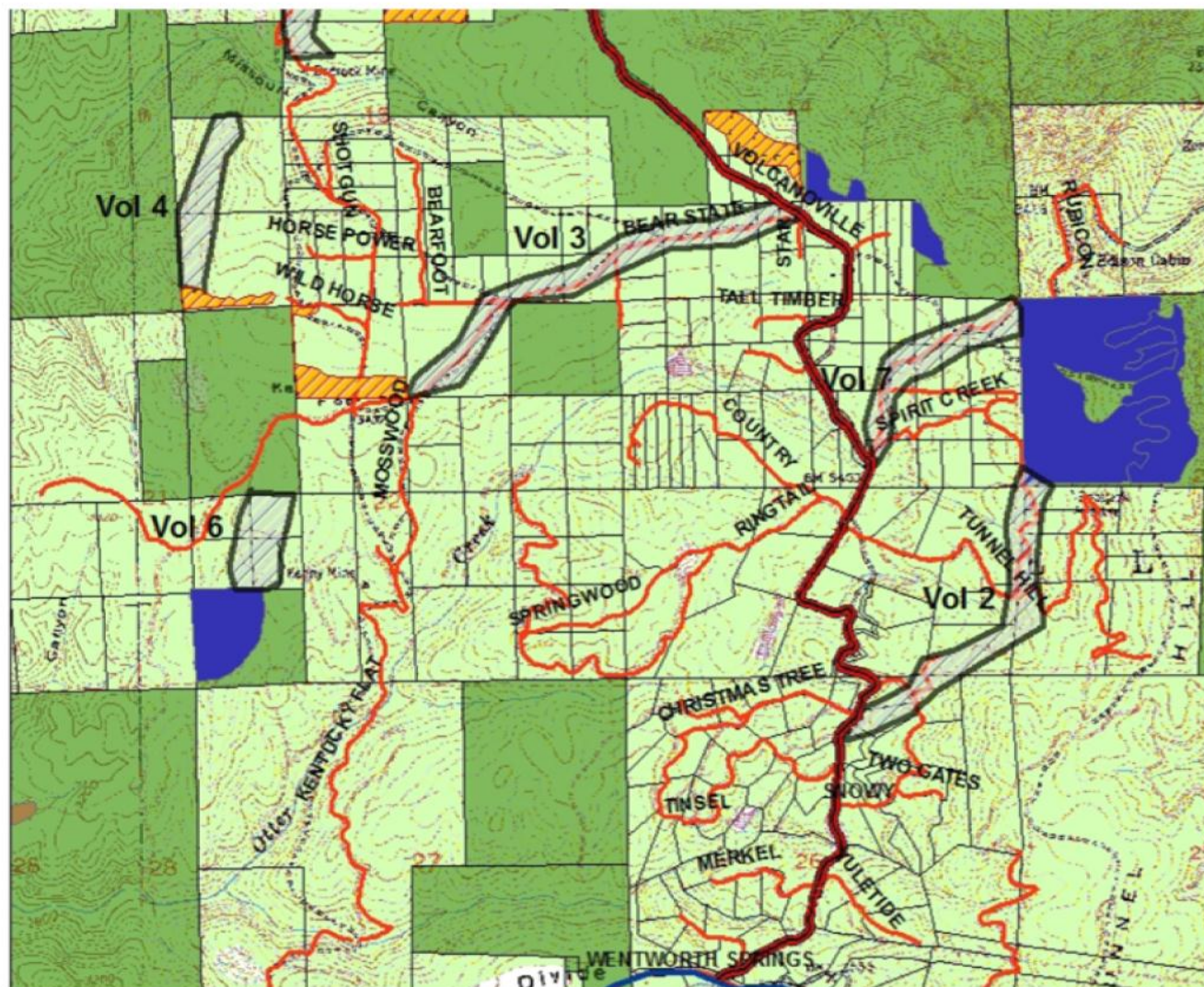


Volcanoville Potential Projects

1:24,000



Volcanoville Potential Projects



1:24,000

Legend

- Volcanoville Rd Primary EVAC
- Potential projects
- CWPP BaseMap
- Smarty_Jones
- TREATMENT**
 - thin
 - thin/masticate
 - GPS_Roads
 - Non Federal Parcels
 - Federal Land
 - vvprojects

Table XX: Treatments Volcanoville Community Project Priority

Community	Name	Treatment Type	Road Name	Mechanical	Hand	Rx Fire	Acres	Est. Cost	Priority	Est. Year
Volcanoville										
100' each side	Vol 1	Fuel Break	Volcanoville Rd	Yes			83	124,500	1	
	Vol 2	Fuel Break		Yes			45	67,500	8	
100' each side	Vol 3	Fuel Break	Bear State	Yes			34	51,000	2	
	Vol 4	Fuel Break		Yes			26	39,000	5	
	Vol 5	Fuel Break		Yes			34	51,000	6	
	Vol 6	Fuel Break		Yes			20	30,000	7	
	Vol 7	Fuel Break		Yes			30	45,000	9	
50' each side		Road Hazard & water source location..	Volcanoville	Yes			88	132,000	10	
Minus Vol 1		Road Hazard	Volcanoville	Yes			47	70,500	3	
		Road Hazard & water source location.	Bear State	Yes			17	25,500	4	
		Road Hazard & water source location..	Kentucky Mine North of Bear State	Yes			22	33,000	11	
		Road Hazard & water source location..	Kentucky Mine South of Bear State				32	48,000	12	

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 why; set a course for future actions and update the plan.

Table 14 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, challenges, and 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 measures to gain 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 14: Framework for Monitoring and Evaluating a 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 priorities?
	2.3 Has the community enacted a wildfire-related ordinance? If so, county, state, or local?
	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 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.

1
2
3

Appendixes

1

2

Appendix A: Volcanoville 2002 Fire Plan

3

4

[CWPP Appendix\Volcanoville_CWPP 2002.docx](#)

Appendix B: Treatment Descriptions and Prescriptions

Fuel Treatment and Restoration Projects Strategy these are a few landscape treatments designed to support wildland fire suppression, demonstration projects designed to educate, roadside treatments designed to facilitate safer evacuations, maintenance treatments and critical individual clearance zones that minimize structure-to-structure ignitions. (CPRC - 4291 and Open Space Treatments)

Treatment Prescriptions

The following treatment techniques are typical of those currently used by the, private forest landowners, the U. S. Forest Service, and described in the Sierra Nevada Framework. It was assumed that no new roads would be constructed to implement the projects. The following is a brief description of potential treatment techniques that could be employed to accomplish fuels treatment.

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 than 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 harvesting system.

Mechanical thinning has the ability to create a more precisely targeted stand structure than prescribed fire (van Wagtendonk 1996, Weatherspoon and Skinner 1996, Stephens 1998, Agee and others 2000, Miller and Urban 2000). 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 (Alexander and Yancik 1977, Graham, 2004).

Prescription Mechanical Thinning: Thin stands from below by removing trees up to 30 inches in diameter at breast height (DBH). The thinning is done by starting with the smallest diameter class; removing sufficient suppressed and intermediate trees to achieve an average crown base height (distance from the ground to the base of the leaf [needle] crown) of at least 20 feet and spacing of 10 feet between the crowns of residual trees. On drier sites and on southern aspects, favor the removal of white fir over all other conifer species.

Retain 2-5 snags per acre (minimum size of 24 inches dbh) and 3-7 large downed logs per acre (minimum size 14 inches dbh and 20 feet long). The trees are removed by whole tree yarding and or disposing of slash in stands by hand piling and burning, or by chipping and scattering.

Mastication

Mastication requires 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, sites 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.

Prescription Mastication: Use rubber tired or low impact tracked vehicles to cut, chip, and scatter all shrubs and small trees up to 10 inches dbh on site. White fir should be the priority for tree removal. Brush cover should be reduced by creating a mosaic of treated and untreated shrubs. Openings between shrubs should be twice the height of the shrubs and 50-70% of the shrubs should be treated. Brush that is treated should be cut to the maximum stump height of 6 inches. No individual pieces of cut material should be greater than 4 feet long. All masticated stumps should be cut to within 6 inches of the ground. Debris should not average more than two inches in thickness over the entire project area. All cut vegetation should be kept within the unit boundaries. Any cut vegetation falling into ditches, roads, road banks, trails, or adjacent units should be removed immediately.

Tractor Piling or Grapple piling: Use of rubber tired or tracked machines to pile slash, brush and small trees. Where needed trees under 8" DBH will be thinned out to 20' spacing. Most trees over 8" DBH will not be piled. Live oak will be thinned out in many places. Generally Black oak will be left on site. Protection of desirable residual trees from skin ups and damage is very important. Slash piles should not be piled near residual trees so when they are burned the piles will not damage trees remaining onsite. Contractor should create clean piles that are free of dirt and no larger than 15 feet tall and 15 feet in diameter. The piles should be partly covered with a 6'x6' piece of water proof material to allow them to be burned after significant rain fall.

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).

Prescribed Burning

Prescribed burning reduces the loading of fine fuels, duff, large woody fuels, rotten material, shrubs, and other live surface fuels (Figure 9). 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, 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 (Peterson and others in prep).



Prescription for Prescribed Burning: Low intensity broadcast burning should be used to reduce all 100-hour fuels (< 3 inches diameter) by 60-80%, the brush component by 50%, and 75% of trees less than 3 inches dbh. Use fire to prune ladder fuels by scorching the lower 1/3 of branches on 100% of trees less than 8 inches dbh. Retain large down logs (20 inches in diameter or greater) to a maximum density of five per acre. Maintain 60 to 70% of ground cover on slopes 35% or less. Additionally, acceptable standards for prescribed fires should include:

- 13 foot maximum scorch height; and,
- less than 10% mortality in conifers > 12 inches dbh.

Do not ignite fires in Steam Environmental Zones (SEZ). However, allow backing fires to enter SEZs affecting a maximum of 45% of the area in a mosaic pattern. No more than 50% of the 100-hour fuels (<3 inches diameter) should be consumed in SEZ's.

Opportunities to use prescribed fire are limited because of smoke management concerns.

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 dbh), 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

1 limited to younger stands where the trees are smaller. Because hand thinning can only effectively
2 remove smaller material, silvicultural and fuel management objectives may be more constrained than
3 those achieved with mechanical thinning. Therefore, hand thinning may require more frequent
4 treatments to maintain acceptable fuel loads than mechanical thinning and hand thinning may not be
5 cost effective in forest stands with excessive ground fuel loading where mechanical thinning would
6 remove or compact those fuels.



7
8
9 **Prescription Hand Thin and Pile Burn:** Hand thinning and pile burning should be accomplished using a
10 ten person hand crew with chainsaws. Starting with the smallest diameter trees, remove trees up to 6
11 inches dbh to achieve spacing of 20 feet between residual crowns . All dead and down material greater
12 than 3 inches in diameter and up to 8 inches in diameter and all cut material regardless of size should be
13 piled for burning. Piles should be constructed compactly, beginning with a core of fine fuels and
14 minimizing air spaces to facilitate complete combustion. Piles should be constructed away from trees to
15 prevent damage when burning and should not be taller than 5 feet. If broadcast burning is not
16 scheduled for the area, then a fire line should be surrounded around each pile. Piles will be covered
17 with a 4x4 foot square of water resistant paper to cover the fine material in the center of the piles.

18 **Chipping:** Chipping may be used as an alternative to burning. It redistributes forest vegetation that is
19 cut by mechanical thinning or hand thinning. The chips may be removed from the site and converted to
20 energy for other products, or they can be scattered throughout the project area.

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

3 **Cost Estimates**

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

10 Administrative cost are approximately 40% of the total project costs if the project is estimated to be
11 \$100,000 for on the ground implementation the administrative costs would be \$40,000. Administrative
12 costs would include environmental documentation, financial administration, project layout and contract
13 administration.

14

1

2

Appendix C: CALFIRE CPRC 4291 Standards

3

[CWPP Appendix\4291finalguidelines2 23 06.pdf](#)

Appendix D: Useful Resources in Pre Fire and Emergency Planning

1. Get a Kit, 2. Make a Plan, 3. Be Informed <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/>
- El Dorado County Home Page <http://www.co.el-dorado.ca.us/>
- El Dorado Irrigation District <http://www.eid.org/>
- State of CA http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_codes.php
- 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/>
- El Dorado Fire Safe Council <http://www.edcfiresafe.org/index.php>
- Red Cross - Sacramento/Sierra Chapter <http://sacsierraredcross.org/>

Appendix E: Grant request for Georgetown Fire Water tenders

Narrative for Grant

The Problem: No Hydrants with No Water Tenders

The purpose of this project is to obtain two (2) Type II Tactical Water Tenders (Tankers) to save lives and property in the Georgetown Fire Protection District as well as adjacent state and federal lands. The district lies within the Sierra foothills, east of Sacramento. A portion of our district lies within the Eldorado National Forest.

The District is aggressively working a defensible space program that utilizes community volunteers. We have generated small grant monies to help fund this program. It is a great public education program, but it is not a fire suppression tool. Having safe, reliable and appropriate fire apparatus is a main ingredient of success.

The Georgetown Fire District is entirely within a severe fire hazard area. During the summer it is a tinderbox of fuels waiting to explode. The topography and potential losses of life and property are greater than the Oakland Hills fire. Our state senators have publicly voiced their concerns for the fire problems in this area; however we have not received any new funding. In fact, the state has taken money away from the local agencies in tax shifts, tax limitation legislation and new charges for administrative costs at the county level.

The District encompasses 96 square miles and protects an additional 50+ square miles. It is a gateway into the high country of the Eldorado National Forest to Lake Tahoe and Desolation Wilderness. Georgetown is primarily a bedroom community with virtually no industry. The elimination of logging has severely impacted the local economy. In one particular area of the district there is great potential for extensive loss of life due to a lack of secondary egress in the face of a quickly moving wildfire. In that area alone there are more than 300 residential dwelling units.

1 Elevation changes from oak woodlands at the 2,000-foot level to tall timber of Douglas fir and pine at
2 the 5,000-foot elevation. Because of the rural, mountainous terrain, the District has mostly narrow
3 winding roads that during the winter are often ice and snow covered. Road grades range from level to
4 19%. Approximately 35% of the district has a municipal fire hydrant water supply. For the rest of the
5 district, water must be trucked in.

6
7 Out of default, the District protects a “gray area” comprised of numerous state and Federal lands, horse
8 trails, off-highway vehicle parks, lakes and hiking trails. During the summer, our district is inundated
9 with tourists who come to enjoy the great outdoors. Each of them is a potential source of ignition for
10 fire. We also provide mutual aid to the state and federal prescribed burn projects, as they are
11 sometimes near residential areas (and have occasionally escaped!). Neither the state, nor the federal
12 fire agencies provide full time fire protection for these camps, buildings and lands. During non-declared
13 fire season, there is no presence of wildland agencies for firefighting. Many times, due to weather
14 conditions, wildland fires occur off-season and there is no state or federal presence. During declared
15 fire season, especially if it is a busy season, both the state and federal agencies may be completely
16 drawn down, thereby increasing our responsibility for the initial attack on wildland fire.

17
18 Over the past decade, we have experienced an increase in population; an increase in the number of
19 tourists who visit the area; a reluctance by the federal agencies to engage in structural fire protection,
20 (even on their own buildings); an increase in the dead and dying trees; an increase in the dry biomass
21 and forest litter, an increase in the number and size of houses in the wildland interface; an increase in
22 the number of prescribed fires on the government lands, a relative decrease in tax revenues due to state
23 tax shifts and an impacted local economy; lastly, an increase in the public expectation of the levels of
24 service the District should provide.

25
26 In the last ten years, we have been substantially involved in significant major fires within our backyard
27 including the Star Fire (35,000 acres), Cleveland Fire (24,000 acres), Kelsey Fire (30 structures and 800
28 acres), Hickok Fire (700 acres, 2 structures). In addition, all of our local fire agencies participate in the
29 “closest resource concept” for mitigating incidents. Regardless of geographical or statutory boundaries,
30 we send the closest resource to an incident.

31
32 Many of our citizens are retired and on fixed incomes. We have tried developing other sources of
33 revenue. We have done pancake breakfasts, cooked and sold thousands of hot dogs, tacos and helium
34 filled balloons. We have done public private partnerships, other grants and other fundraisers. We have
35 watched our expenses over the years and done our best to ensure that the public gets a good return on
36 their tax dollars.

1
2 These various fundraisers don't pay for new apparatus. We have judiciously purchased used apparatus
3 to replace worn out engines. *The only Tender we have is 28 years old* and does not have three point
4 seatbelts. The biggest problem for us is that there is virtually no used market for these type of tenders
5 we desperately need. State law severely limits our local budget, and we just can't sell enough cupcakes
6 and hotdogs to cover the cost of new apparatus.

7 We know that your financial assistance would be a big step towards helping us solve this problem.

8
9 **The Solution: Type II Tactical Water Tenders (Tankers) that will provide numerous capabilities that**
10 **currently do not exist for our district.**

11
12 Tactics and strategy continue to be fairly basic: put water on the fire early! In other words, put the wet
13 stuff on the red stuff.

14
15 The Georgetown Fire District proposes to purchase a fully equipped, 3 person cab, Type-II Tactical
16 Tender that will meet the needs of this District and our many allied agencies that we interface with.
17 Federal and state agencies will find that this piece of equipment, and the associated staffing that we can
18 provide will be of great value to them during fire season as well. The new tenders would be made
19 available to these agencies during prescribed fires for standby. Additionally, we participate fully in the
20 California Mutual Aid system, along with the El Dorado County Chiefs' Association mutual aid. Thus this
21 piece of equipment will be made available on an as needed basis to other agencies statewide and to the
22 northwestern areas of Nevada. Engines from El Dorado County have routinely gone into the Tahoe
23 Basin and the State of Nevada. We intend to continue to participate in that arena.

24
25 The equipment necessary to meet our risks and ISO requirements would include a 500 GPM pump,
26 2,000-gallon tank, and a configuration to allow both wildland and structural work in a rural setting. The
27 Tenders will replace a 1983 construction tender that we bought used 12 years ago. It was worn out
28 when we got it. It is tired, doesn't run on all, can hold only two firefighters, and probably shouldn't be
29 placed on an active fire line. Replacing this piece of equipment will get us to a fire reliably and safely
30 with at least three firefighters in a belted and seated configuration. We can use it year round for all risk
31 mitigation.

32
33 This vehicle will help us protect about 400 million dollars of private property, priceless scenic
34 government land, watershed, timber, and untold numbers of recreational seeking people who descend

1 upon our understaffed district. This vehicle will help our district to meet ISO requirements for
2 apparatus and pumping capacity. This, in turn will save taxpayers additional dollars in fire insurance
3 premiums.

4
5 Ultimately, our goal is to be able to suppress any fire before it becomes large and damaging. While our
6 fire prevention program seeks to educate rural homeowners about their responsibilities and risks, we
7 have to be able to get to the fire and suppress the fire. Clearly, quick intervention is the key to
8 controlling fire. Reliable, modern apparatus is a key factor in that equation. Early control saves millions
9 of dollars statewide annually in suppression costs.

10
11 Local Funding:

12 The fire district operates on a budget that is derived from property taxes, a special assessment and a
13 special tax. We augment this budget with occasional successful grants, donations and fundraisers. We
14 have gone to the property owners and they have been supportive as they can. They have been tapped
15 hard for additional revenues. However, we just don't have the money to buy new apparatus and
16 continue to provide minimal staffing. We have tried to be thrifty with the dollars we have. In the last
17 couple of years, we had to replace leaking roofs, purchase used apparatus to replace *really old* Type I
18 engines, replace a military 1945 water tender with a well-used one, buy appropriate safety gear PPE for
19 our firefighters and improve communications equipment. We just don't have enough money for
20 apparatus. We have lived within our means.

21
22 The District strives to maintain its level of service. I can look down the road in California and I see dark
23 storm clouds due to the looming budget crisis. We all wonder how bad we will get hit this time around.
24 We need your help, please. With your help, we are willing to match 20% of the funds instead of the
25 minimum 10%. I personally will flip more pancakes if necessary to match the 20%.

26
27 Project Budget:

28 The total project budget is \$360,000. We are asking for \$288,000. As mentioned previously, the District
29 will match 20% of the funds for this project. These funds will cover the purchase of the entire project
30 and the District will budget for training and funds for future maintenance.

31
32 Additional Project Information:

We know that you are faced with difficult decisions regarding the distribution of funds. This is our third grant application to FEMA. I want you to know that we go to great lengths to work in the mutual aid system; in fact, I am one of the operational area coordinators statewide. These water tenders will not only benefit this district, over the years, it will benefit many other agencies at the local, state and federal level many times over. I have a keen knowledge of our regional deficiencies and will use the new engine for the greater good as well as our own. We too want to protect the environment in which we live, the property that we are sworn to protect and the lives of those who depend on us in times of emergency.

To the screening committee, thank you for your consideration and time in reviewing this and all the many grant applications before you.

1

2 **Appendix F: FACES**

3 The story of lives lost during 2003 southern California Wildfires

4 [CWPP Appendix\FACES.pdf](#)

5

1

2 **Appendix G CALFIRE LE100**

3 [CWPP Appendix\FormLE1000211.pdf](#)

4

1 **Appendix H: Volcanoville Structure Protection Preplan**

2

3 To be revised

4

Volcanoville 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