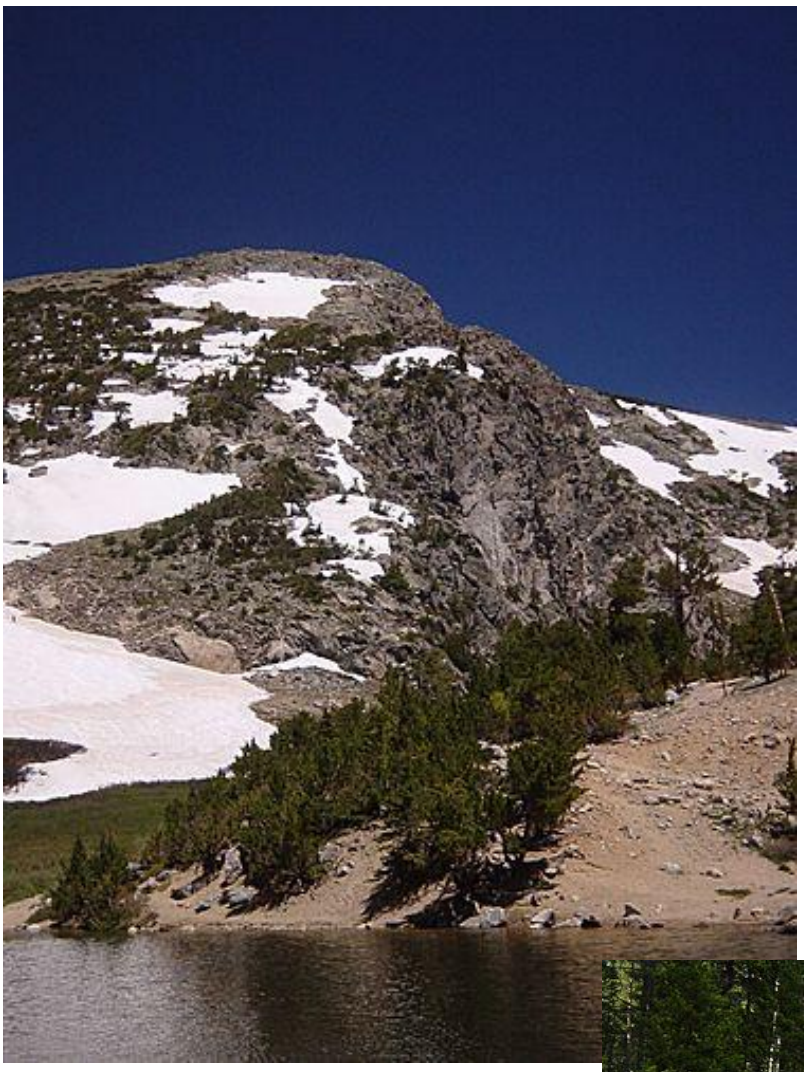
FALL RIVER WATERSHED COMMUNITY WILDFIRE PROTECTION IMPLEMENTATION PLAN

JULY, 2013



THIS PAGE INTENTIONALLY LEFT BLANK

FALL RIVER WATERSHED
COMMUNITY WILDFIRE PROTECTION IMPLEMENTATION PLAN

Signature Page

The Fall River Watershed Community Wildfire Protection Implementation Plan (CWPIP) was developed in accordance with the guidelines set forth by the Healthy Forests Restoration Act (2003) and the Colorado State Forest Service's Minimum Standards for Community Wildfire Protection Plans (CWPP) (Revised 2010).

This plan is under the umbrella of the Clear Creek County CWPP. As such it provides local analysis and implementation recommendations for the Fall River area. The plan:
- was collaboratively developed – residents, interested parties and state and federal land management agencies have been consulted;
- identifies and prioritizes areas for hazardous fuels reduction treatments and recommends the types and methods of treatment to reduce the wildfire threat to values at risk in the area;
- presents measures to reduce the ignitability of structures throughout the plan area.

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

Authorized By:

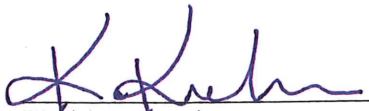
7.16.2013

Matt Taylor (York Gulch HOA-for the team) Date

Concurrence:

7-17-13

Kelly Babeon, Chief, Clear Creek Fire Authority Date



7-16-2013

Kathleen Krebs Date
Director, Clear Creek Office of Emergency Management

THIS PAGE INTENTIONALLY LEFT BLANK

Contents

THIS PAGE INTENTIONALLY LEFT BLANK

1 INTRODUCTION

1.1 Purpose of This Plan

The Fall River Watershed Community Wildfire Protection Implementation Plan (CWPIP) provides an assessment of neighborhood wildfire risks and hazards and outlines specific mitigation treatment recommendations designed to make the community a safer place to live, work and play. It will enable the community to live with fire as a natural part of the landscape ecosystem. Specifically, it is a strategic plan which informs and encourages home owners to create defensible space and achieve fire resistant structural integrity, and makes recommendations for the US Forest Service and Clear Creek County concerning mitigation actions to help reduce wildfire behavior. The recommendations identify road corridor mitigation treatments and fuels treatment projects in order to achieve risk reduction and improve the area's capability to withstand wildfire.

As is the case in any CWPIP much of the community land involved is private land. It is extremely important for land owners to take action to create Defensible Space on their land. A section of the plan demonstrates what can be done while still leaving property attractive. A land owner does not have to clear cut their property to achieve defensible space against wildfire. But without collaborative, neighborhood action the damage to homes or other buildings can be significant.

There are many values at risk for this area. Some of those include life, property, watershed values, power lines, reservoirs, wildlife, and recreation.

Once the CWPIP is finalized and adopted, it is the responsibility of the community to move forward and implement the action items. This may require further planning at the project level, acquisition of funds and assistance through grants or other means, or simply motivating individual homeowners. It should be emphasized that the CWPIP is a living document to be revisited on a regular basis and revised as needed… **THIS IS A PROCESS, NOT A SHELF DOCUMENT!!**

This CWPIP is not a legal document. There is no legal requirement to implement the recommendations herein. This is also the case for CWPPs. As stated in the Clear Creek County CWPP treatments on private land may require compliance with county land use codes, building codes, and local covenants. Treatments on public lands will be carried out by appropriate agencies and may be subject to federal, state, and county policies and procedures such as adherence to the Healthy Forests Restoration Act (HFRA) and National Environmental Policy Act (NEPA).

The Challenge

Decades of aggressive fire suppression in fire-dependent ecosystems, coupled with persistent drought, disease and insect infestation, have all converged to create a threat that is increasingly commanding both national attention and substantial resources. Following a particularly bad fire season in 2000, Congress put forth The National Fire Plan and the Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy. The intent of these programs was to enable effective response to severe wildland fires and to better address their impact on communities.

In the Healthy Forest Restoration Act (HFRA) in 2003, Congress directed communities in the Wildland/Urban Interface (WUI) to prepare a Community Wildfire Protection Plan (CWPP). Once completed, a CWPP provides statutory incentives for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. It also provides the impetus for local communities to engage in wildfire management planning and defensible space actions.

The HFRA provides communities with a flexible set of assessment procedures and guidelines that facilitate a collaborative standardized approach to identify wildfire risks and prioritize mitigation actions. A CWPP addresses such factors as:

- Stakeholder collaboration;
- Public agency and local interested party engagement;
- Mapping;
- Risk assessment – fuels, historical ignitions, infrastructure, structural ignitability, local resources, and firefighting capability;
- Hazard reduction recommendations; and
- Strategic action plans.

The Community Wildfire Protection Implementation Plan (CWPIP) for the Fall River area is under the umbrella guidance of the Clear Creek County (CCC) CWPP. This CWPIP references CCC data as appropriate. The CCC plan contains detailed information on the county, wildfire history, characteristics and hazards, and evaluations of areas with recommended actions. Readers should become familiar with the county plan as well as this CWPIP. This CWPIP focuses on hazard analysis and mitigation recommendations for the Fall River area. These recommendations will enable the community to seek grant and resource assistance, and deal directly with residents in education, information and project work. Inclusion of the Fall River area in the CCC CWPP enables residents to qualify for the CO state tax advantage for defensible space work on their individual properties. But the CWPIP for Fall River provides priority selection and definition of broader scope mitigation projects necessary for community effort into the future.

Once the CWPIP is adopted, the community is responsible for moving forward and implementing specific projects and actions. Implementation may require acquisition of funds, detailed project planning, and educating and motivating the community to take action on their own property.

1.2 Goals and Objectives of the Fall River Watershed CWPIP

Table 1. Fall River Watershed Goals and Objectives for Wildfire Management Planning

Goals	Objectives
Facilitate development of a CWPIP in the Fall River Watershed	• Provide oversight to all activities related to the CWPIP. • Ensure representation and coordination among agencies and interest groups. • Develop a framework for sustaining CWPP efforts.
Conduct a wildfire risk assessment	• Conduct a wildfire risk assessment in the watershed. • Identify areas at risk and contributing factors. • Determine the level of risk to structures that wildfires and contributing factors pose.
Develop a mitigation plan to Address Risk and Manage Hazardous Fuels	• Identify communities at highest risk; identify and prioritize hazard reduction treatments. • Develop initiatives at the homeowner and HOA level. • Secure funding and implement projects. Identify and prioritize non-fuels mitigation needs.
Facilitate emergency planning	• Strengthen emergency management response and evacuation capabilities for wildfire and other incidents. • Build relationships among county government, fire authorities, and communities.
Facilitate community and public outreach	• Increase citizen awareness and action for Firewise practices. • Promote public outreach and cooperation for fuels reduction projects to solicit community involvement and private landowner cooperation.

1.3 Overview of the CWPP Process

The eight steps to developing a CWPP are listed in Table 2. These steps are defined in the handbook, *Preparing a Community Wildfire Protection Plan*, and were used in preparing this Implementation Plan.

Table 2. Eight Steps to Developing a CWPP for the Fall River Watershed

Step	Task	Description
One	Convene Decision Makers	Form a Core Team made up of representatives from communities, local governments, fire authorities, and the Colorado State Forest Service.
Two	Involve Federal Agencies	Engage local representatives of the US Forest Service and other federal land management agencies, as appropriate.
Three	Engage Interested Parties	Contact and encourage participation from a broad range of interested organizations and stakeholders.
Four	Establish a Community Base Map	Develop a base map that defines communities at risk, critical infrastructure, and forest/open space at risk.
Five	Develop a Community Risk Assessment	Develop a risk assessment that considers fuel hazards, risk of wildfire occurrence, homes, business, and at risk infrastructure and other values, and preparedness capability. Rate the level of risk and incorporate into the base map.
Six	Establish Community Priorities and Recommendations	Use the risk assessment and base map to facilitate a collaborative public discussion that prioritizes fuel treatments and non-fuel mitigation practices to reduce fire risk and structural ignitability.
Seven	Develop an Action Plan and Assessment Strategy	Develop a detailed implementation strategy and a monitoring plan that will ensure long-term success.
Eight	Finalize the CWPP	Finalize the District CWPP and communicate the results to interested parties and stakeholders.

1.4 Regulatory Framework

There are several federal legislative acts that set policy and provide guidance to the development of the CWPIP for the Fall River Watershed:

- Healthy Forests Restoration Act (HFRA) (2003) – Federal legislation to promote healthy forest and open space management, hazardous fuels reduction on federal land, community wildfire protection planning, and biomass energy production.

- National Fire Plan – Interagency plan that focuses on firefighting coordination, firefighter safety, post-fire rehabilitation, hazardous fuels reduction, community assistance, and accountability.

- Federal Emergency Management Agency (FEMA) Disaster Mitigation Act (2000) – Provides criteria for state and local multiple-hazard and mitigation planning.

2 CWPP COMMITTEE, FEDERAL AGENCY INVOLVEMENT

2.1 Fall River Watershed CWPP Core Team

The initial step in developing the Fall River Watershed CWPIP is to organize a core, decision-making team. The members of this team have the responsibility for facilitating community involvement and developing the CWPIP. The Fall River Watershed team is composed of community members from various Fall River neighborhoods, and representatives from Clear Creek County, the Colorado State Forest Service, US Forest Service, the Clear Creek Fire Authority, and the Southern Rockies Conservation Alliance. *The team wants to thank resident and former USFS employee, Dan Keller, for the major work in the initial drafting and organization of this document.*

Representatives of organizations, such as homeowners associations, as well as individuals have participated in the process (see Table 3).

Table 3. Fall River Watershed CWPIP Core Team Members
Initial team and 2012 members

Core Team Member	Organization	Phone Number
Scott Rightsell Sarah Clark	St. Mary's HOA St. Mary's HOA	303-567-9600 303-330-0385
John Chapman	CWPP Coordinator; Southern Rockies Conservation Alliance	303-650-5818 x113 chapman@ourcolorado.org
Lt. Einar Jensen (Fall River resident)	Former Clear Creek Fire Authority South Metro Fire Protection Dist.	720-989-2273 einar.jensen@southmetro.org
Kathleen Krebs	CCC Office of Emergency Management	303-679-2320 kkrebs@co.clear-creek.co.us
Matt Taylor (York Gulch) David Gallaher DJ Atchison	CCC Mapping Department (York Gulch HOA) Cumberland Gulch	mtaylor@co.clear-creek.co.us 303-567-4042 303-885-7901
Dan Keller (resident) Marion Anderson Paulette Crisman Omer Humble Gary Vaughn	USFS (Ret.) Fall River HOA Fall River HOA Fall River St. Marys/Alice	303-902-2459 303-567-4018 303-567-0957 303-567-2888 303-709-3865
Allan Gallamore Travis Griffin	Colorado State Forest Service (Golden District) (Now with JEFFCO)	303-279-9757 alleng@lamar.colostate.edu
Kelly Babeon	Clear Creek Fire Authority	303-567-4342

(UPDATE LIST OF TEAM MEMBERS AS NEEDED)

2.2 Federal Agency Collaboration

The USFS, Arapahoe-Roosevelt National Forest, Clear Creek Ranger District is an active participant in the Fall River Watershed CWPP planning process. The USFS provided data and expertise. As part of the Yankee Hill Project, the Forest Service is implementing a thin and pile project in the Fall River Watershed.

USFS Support	Position	Phone Number
Daniel Lovato	District Ranger Clear Creek District Arapahoe/Roosevelt NF	(303) 567-3001
Mark Martin	(Former) South Zone Planning Team Leader Arapahoe/Roosevelt NF	(303) 541-2535
Dave Niemi	(Former) South Zone Fire Management Officer USFS	(303) 541-2520
Dave Buchannan	Asst. Fire Management Officer Nederland Work Station	(303) 258-9193
Cambria Armstrong	(Former) GIS Specialist; Canyon Lakes District; Arapahoe Roosevelt NF	(970) 295-6768
Kevin Zimlinghaus	South Zone Silviculturist Arapahoe/Roosevelt NF	(303) 541-2537
Natalie Angell	Staff-Timber; Clear Creek Ranger Dist. Arapahoe/Roosevelt NF	(303) 567-3015

2.3 Community Stakeholder Involvement

The Fall River Watershed CWPP core team conducted community meetings to:

- Inform local residents about the CWPP process.
- Present information about the watershed that relate to wildfire risk.
- Present the results of the CWPP risk assessment.
- Identify potential wildfire mitigation measures.

Two community meetings were conducted with each of the three home owners associations in the watershed. Additionally, a meeting with the general public was held at the old schoolhouse in Alice.

Organization	Stakeholder Contact	Phone Number
Fall River Road HOA	Marion Anderson, President	303-567-4018
St. Mary's POA	Deb Rightsell (President) Now Sarah Clark (2012)	303-567-9600 303-330-0385
York Gulch HOA	Heather Huntoon (Pres.) Now Jim Vogt (2012)	303-567-4799 303-567-4291

3 FALL RIVER WATERSHED PROFILE

3.1 Watershed Setting

3.1.1 Ecosystems

The Fall River watershed is a second order watershed within the Clear Creek watershed.

The Fall River Watershed was widely logged for mining operations in the late 1800s and early 1900s. This has created a forest that has a preponderance of older age classes and dense timber stands. Large, contiguous blocks of older timber contribute to the risk of wildland fire.

The watershed encompasses three unique elevation ecosystems: the Montane, the Subalpine, and the Alpine.

The **Montane Ecosystem** occurs at elevations between approximately 5,600 and 9,500 feet. Trees common to the watershed's Montane Ecosystem include Ponderosa Pine, Douglas fir, Lodgepole Pine, and Quaking Aspen. Common shrubs include Antelope Bitterbrush, Kinnikinnick, Common Juniper, Holly Grape, Wax Currant, Big Sage, and Rocky Mountain Juniper.

The **Subalpine Ecosystem** occupies elevations approximately between 9,000 and 11,000 feet. Trees common to the watershed's Subalpine Ecosystem include Subalpine Fir, Engelmann Spruce, and Limber Pine. Shrubs common the subalpine zone include Blueberry, Cinquefoil, Wax Currant, Elder, and Wood's Rose.

The **Alpine Ecosystem**, starts at elevations of 11,000 to 11,500 feet. While wildfire is rare at these high elevations, mention of its presence is warranted.

3.1.2 Roads and Access

The Fall River Watershed has one paved road (Co Road 275) that provides ingress and egress. Fall River Road is classified as a "local road" and is characterized by winding, narrow pavement with narrow or no shoulders, steep grades, drop-offs with no guardrails and switchbacks. This can limit the ability of residents to evacuate and firefighters to respond safely to wildfire.

3.2 Assessment Area

Based on fuels and topography the Fall River Watershed CWPP identifies 10 neighborhoods and the risk assessment and specific mitigation actions for each individual neighborhood.

Table 4: Neighborhoods in the Community

Neighborhood	Location
Lower Fall River Road	From I-70 to 2900 Fall River Rd
Middle Fall River Road	2900 to 4000 Fall River Road and Hummingbird Land
Upper Fall River Road	4000 to 7000 Fall River Road. From the lower Fall River Road switchbacks to the upper switchbacks. Includes three homes in Cumberland Gulch.
Rainbow Road & Loch Lomond Highlands	From the intersection of Fall River Road and Rainbow Road to Fall River Reservoir. Includes homes in Loch Lomond Highlands, accessed from Alice Road.
Alice	The St. Mary's Subdivision.
Winterland	The bowl at the top of Fall River Road surrounding Silver Lake. Includes the Silver Lake Condominiums.
Hamlin Gulch	Three homes on Hamlin Gulch Road
Overlooked Way	Two miles up York Gulch, second left
York Gulch	All homes that access Fall River Road from York Gulch Road. (Excludes Overlooked Way).
Pisgah Lake	Along the road that follows ridgeline from York Gulch along the northeastern boundary of Clear Creek County

A map of showing the locations of the communities is included in the appendix.

3.3 Wildland Vegetation and Fuels of the Assessment Area

Maps of the vegetation and fuels in the Fall River Watershed are shown in appendix E.

3.4 Water Resources

The condition and availability of water resources for fire suppression within the Fall River watershed are limited. There are only 2 fire hydrants maintained within the watershed. Both of these are located in the St. Mary / Alice area. No hydrants are located below St. Mary's.

Additionally, there is a 10,000 gallon cistern located at the Clear Creek Fire Authority Station 9 in York Gulch.

Despite abundant water flow in Fall River, the river is relatively shallow limiting its use as a water source for firefighting. Only a few pools exist along Fall River deep enough to supply water to a small pump. None of these pools will support either structural or wildfire firefighting.

Silver Lake does have a dry hydrant connection that makes the lake suitable for drafting, but ice can limit access to that water.

3.5 Fire Protection Authority

Fire protection and emergency response is provided primarily by Clear Creek Fire Authority (CCFA). Medical emergencies draw a response from Clear Creek Emergency Medical Services. Mountain rescues are handled by the Alpine Rescue Team. Responses to wildfires are the initial responsibility of the CCFA with resource support from the Clear Creek Sheriff's Office Wildland Fire Crew and US Forest Service. The CCFA is the only agency with stations in the Fall River watershed (FRW).

CCFA Station 7, at 321 Beaver Road, has two apparatus: Tanker 7 and Scat 7. Tanker 7, manufactured in 2001 by International, is a 1,800-gallon tender with a 500-gpm pump and equipment for interior structural operations. Scat 7, a 1981 Chevrolet, is a Type VI Engine with 300 gallons of water, foam capabilities and light rescue equipment.

CCFA Station 9, at 1181 York Gulch Road, also has two apparatus. Tanker 9 is an aging 1,000-gallon tender that should be replaced while Scat 9 is an unrated small engine with 200 gallons of water, a small pump and light rescue equipment.

Any emergency in the Fall River Watershed draws an automatic response from other CCFA resources, generally from Station 2 in Idaho Springs. Larger incidents will be covered by resources from throughout the district.

The CCFA has mutual aid agreements in place with Central City Fire Department, Gilpin County Ambulance, Clear Creek County Sheriff's Office (CCSO) and Evergreen Fire/Rescue.

3.6 Values at Risk

In any hazard and risk assessment, human life and welfare is the most important valued resource to protect. Homes, businesses, aesthetics, cultural, and ecological resources are all important factors and certainly influence any recommendation, but the safety and welfare of residents and emergency responders remains top priority.

Areas in the Fall River Watershed are identified as being in high risk Wildland Urban Interface (WUI) in the Clear Creek County CWPP; (Lower Fall River, Fall River, Upper Fall River and York Gulch). York Gulch is rated as an area of extreme danger.

Homes in the WUI have inherent risks including but not limited to high fuel loads, limited access, limited emergency resources, and homes built of ignitable materials. The Fall River Watershed neighborhoods located within the WUI are characterized by these hazards and risks.

Community Values at Risk

- Each of the existing mine, head works and mill structures identified as valuable (and the sites are hazardous anyway: hazardous materials, shafts, collapsible timber).
- Existing mines (gated and ungated) that provide bat habitat and are part of the water system

- Reservoirs and associated infrastructure human improvements on those sites;
- Historic buildings including, but not limited to:
    - The schoolhouse and post office in Alice;
    - The historic canals in the York Gulch area

Other non-residential values at risk in the FRW are the historic St. Mary's lodge/restaurant, St. Mary's Bed & Breakfast, the St. Mary's Metro Building (including CCFA Station 7), CCFA Station 9, various pump houses and the Alice-St Mary's water supply.

Besides the risk to homes, residences, and commercial facilities there are risks to natural resources and ecological values, including;

- Wildlife and aquatic habitat
- Timber
- Watersheds
- Water quality
- Air quality
- Natural vegetation communities
- Cultural and historic sites
- View sheds

Catastrophic wildfire has severe and long term impacts on all these ecological values we often take for granted. While this plan is focused primarily on protection of homes and residences, all values at risk benefit from improved ecosystem health and fire protection.

3.7 Base Maps

Appendix E contains base maps showing the location and distribution of:

- Vegetation
- Fuels
- Slope
- Aspect
- Property
- Land Ownership
- Historic Sites
- Eco-values
- Mining Sites
- Fire Behavior

4 RISK ASSESSMENT

4.1 Approach to the Wildfire Risk Assessment

This risk assessment describes:

- Fire behavior characteristics within the Fall River Watershed
- Vegetation and fuels loading around structures
- Structure Risk Assessment
- Emergency response capability.

The Fall River Watershed does not have a formal municipality or significant commercial center. The risk assessment is focused on neighborhoods and subdivisions that represent unique emergency response areas with a concentration of homes, identifiable characteristics and addressable hazards and risks.

The Clear Creek Fire Authority conducted CWPP surveys for the communities identified in chapter 3. Expert observations and a standardized survey process provide the basis for community risk assessments.

4.2 Risk of Wild Fire

4.2.1 Wildfire History

The Fall River Watershed has not had much recent fire activity. In the absence of specific fire history records for Fall River Watershed, records from the nearby Arapaho National Forest, Clear Creek Ranger District are included. June, July, and August are the three busiest months for fire activity. While the majority of local forest fires were lightning-caused (65 percent), four out of the five largest fires during the last three decades were human caused.

Table 5. Wildfire History of the USFS Clear Creek Ranger District

Fire Size Class (Acres)	Number of Fires
	Clear Creek RD USFS 1985 -2005
A (0 - 0.25)	108
B (0.25 - 9.9)	21
C (10 - 99.9)	1
D (100 - 299.9)	0
E (300 - 999.9)	1
F (1,000 - 4,999.9)	0
G (5,000 - 9,999.9)	0

Recent Wildfires in Clear Creek County

FIRE NAME	LOCATION	SIZE	DATES	ADDN INFO
Beartracks	Clear Creek County: USFS lands, within Evergreen FPD and Clear Creek Fire Authority boundaries; immediately southwest of Mt Evans State Wildlife Area	485 acres	June 27, 1998 – July 5, 1998	Heavy fuel loading in roadless area and human caused fire leads to heavy initial attack and extended attack by local fire agencies along with air resources; fire poses threat to Upper Bear Creek drainage and numerous homes; Type 2 IMT takes over from local IMG on day 3 and manages to closeout. At the time of this incident the costs of $2,886/acre were the highest recorded in Colorado.
Fountain Gulch	Clear Creek County and Gilpin County: Clear Creek Fire Authority, Central City FD, Clear Creek and Gilpin County Sheriff's Offices. Along county line immediately north of I-70 at the Hidden Valley exit.	Approx: 200 acres	June 29-July 5, 2002	Significant fire activity in steep terrain with poor road access leads to heavy initial attack and extended attack by local fire agencies along with air resources; fire poses threat to I-70 and CO 119 travel corridors, businesses, and distant subdivisions. Interagency handcrews are ordered to replace local fire resources; continued use of air resources; fire is managed by local IMT to closeout.
North Spring Gulch	Clear Creek County.	20 acres	June 6-7, 2002	Required significant air tanker use to assist local fire departments
Alvarado	Clear Creek County	23 acres	Nov. 7-9, 2007	Type 4 Local Fire… Open Timber/ Grassy Understory, Tall Grass, and Timber (Litter & Understory). Homes threatened to the east of the fire. Determined to be human caused. Heavy initial attack and extended attack by local fire agencies along with air resources with over 200 Helicopter bucket drops

4.2.2 Impacts of Pine Beetles on Fire Behavior

Mountain pine beetles may kill a significant percentage of the lodgepole pine. This will create a large scale change of fuels and fire behavior. Initially, as trees die and the pine needles turn red, the potential for large wildfires will increase. After a few years, as the needles drop and begin to decompose, the fire danger will decrease. Then, after 10-25 years, the dead lodgepole snags will fall over and accumulate on the forest floor. The potential for large wildfire will then increase until the trees completely decompose, which could take long periods of time.

4.2.3 Potential Fire Behavior

Potential fire behavior highlights the impacts to the community should a wildfire occur. Fire behavior is determined from a combination of topography, weather, climate and fuel characteristics. To determine potential fire behavior, fuel characteristics are described in terms of "fuel models". These fuel characteristics are key input to fire behavior prediction models and computer programs. A good discussion of fire behavior is in Section 3 of the CCC CWPP.

4.3 Values at Risk

The idea of a wildland fire anywhere in Clear Creek County is unnerving because our unincorporated neighborhoods in Clear Creek County are prime examples of the Wildland Urban Interface – that zone where undeveloped land mingles with houses and businesses.

Although some residents of the county have improved their property to make it more defensible in times of wildland fires, much work remains to be done. ***A single homeowner who doesn't create defensible space around their property endangers the property of the entire neighborhood. Only by cooperating can neighbors improve the community's resistance to wildfire and hope to survive an otherwise catastrophic wildland fire event.*** A key aspect of property action is action on buildings to reduce structural ignitability.

Clear Creek Fire Authority has conducted neighborhood assessments of subdivisions to prepare its personnel for wildland fires and other emergency responses as well as to teach property owners how they can assist firefighters, law enforcement, ambulance crews and other specially trained personnel when emergencies do occur.

4.4 Fall River Neighborhood Hazard Assessment and Wildland Urban Interface Mitigation Strategies: Lt. Einar Jensen (Resident & former member, Clear Creek Fire Authority

Community surveys were conducted during the summer of 2007 by Fall River resident and (at that time) Clear Creek Fire Authority member Einer Jensen to determine structure risk. A standardized survey process defined by the National Fire Protection Association (NFPA) was utilized to assess the relative level of wildfire risk and hazard for each community, using NFPA Form 1144 *Standard for Protection of Life and Property from Wildfire.* These surveys assess predominant characteristics within individual neighborhoods as they relate to structural ignitability, fuels, topography, expected fire behavior, emergency response, and ultimately human safety and welfare. Scores are assigned to each element and then totaled to determine the community's relative level of risk. **Low**, **moderate**, **high**, and **extreme** hazard ratings are assigned based on the total score.

Table 6. Community Hazard Rating

Community	Hazard Rating
Lower Fall River Road	High
Middle Fall River Road	Moderate to High
Hummingbird Lane	Extreme
Upper Fall River Road	High to Extreme
Rainbow Rd	Extreme
Hamlin Gulch	High
Alice	Moderate to High
Winterland	High
Overlooked Way	Extreme
York Gulch	Moderate to High
Pisgah Lake Rd	High

This comprehensive assessment provides the raw material for effective identification, prioritization and implementation of specific mitigation treatments.

4.4.1 Lower Fall River Road (Risk: High)

The structures in this neighborhood are along the valley floor and include the three homes at the intersection of York Gulch Road and Fall River Road. The riparian ecosystem is densely forested with narrow-leaf cottonwoods, blue spruces, aspens and firs. A majority of homes south and west of Fall River Road are on the other side of the creek and utilize a bridge of some sort. Most bridges lack any weight ratings. However, these homes do have access to Fall River and its water. Homes on the north and east side of Fall River Road tend to have steep and narrow driveways, often without turnarounds or hammerheads. Most homes have propane heat as well as wood stoves. All have electrical lines above ground, usually tightly crowded by branches, which present wind and snow risks in addition to fire risks. With few exceptions the homes in this neighborhood are high hazard relative to the NFPA 1144 form. Ingress and egress are unusually good as long as the incident is up-valley. Structures in the first mile of Fall River Road have two ways out: Fall River Road to I-70 and York Gulch Road to Central City. Homes above the 1000 Block have only one way out: Fall River Road to I-70.

Recommendations: Aggressively develop defensible space plans, regardless of whether the home is on a slope or at the valley bottom. Defensible space zones should be greater on slopes below a structure, and cut banks above structures should be treated to minimize collapse zone hazards. Create shaded fuel breaks along Fall River Road on public lands initially and tie into private property defensible space to protect access routes. Develop an emergency escape route that serves the entire watershed. Create eddies or gated pools for water resources. Rate each bridge for weight restrictions. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. Add spark arresters to chimneys.

4.4.2 Middle Fall River Road (Risk: Moderate-High) and Hummingbird Lane (Risk: Extreme)

The fuels and lay of the land change in this neighborhood. The valley widens, dense forest gives way to shrubs and meadows and the structures move away from the creek. Some structures are surrounded by dense deciduous trees. Although aspens and cottonwoods are more fire-resistant than conifers, they will ignite and are prone to collapse. They also shed their leaves which are considered one-hour fuels that also can ignite. Some ponderosa pines and juniper are present. Driveways are typically wider and less steep, except in the case of Hummingbird Lane. The ratings of bridges are not posted. Access to water is challenging and, in the case of Hummingbird Lane, non-existent. Propane and electrical utilities are above ground. The homes along the valley floor are moderate to high hazard depending on the amount of defensible space that exists around them. The only escape route is down Fall River Road, which could be compromised depending on the incident.

Although Hummingbird Lane is on a south aspect and trees are rare, the steep slope could carry a grass/shrub fire quickly. The homes on Hummingbird Lane are rated extreme because Hummingbird Lane is so narrow and steep.

Recommendations: For a fire on the slope of Hummingbird Lane, I recommend utilizing a shelter-in-place plan. Instead of asking residents to descend, emergency vehicles could ascend

the one-lane road if necessary. This plan requires aggressive attention to defensible space standards, especially below homes. Structures also must be made less-vulnerable to fire: screening eaves, eliminating fuels below decks, removing lightweight curtains and closing curtains of heavier materials, for example. This plan addresses localized wildfires, but does not address fires burning elsewhere in the watershed or other emergencies that could require emergency vehicle response. Any sort of response on this road must account for the single-lane, weather, erosion, tight curves and lack of water beyond the residents' wells. On the valley floor, develop defensible space plans around structures and along driveways. Create shaded fuel breaks along Fall River Road on public lands initially and tie into private property defensible space to protect access routes. Develop access to the pond southwest of Hummingbird Lane if possible, for both tanker shuttle operations and helicopter dipping operations. Develop an emergency escape route that serves the entire watershed. Rate each bridge for weight restrictions. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. Add spark arresters to chimneys.

4.4.3 Upper Fall River Road (Risk: High to Extreme)

This neighborhood starts below the lower Fall River Road switchbacks and continues to the upper switchbacks. The lower end of the neighborhood is heavily forested with a mix of conifers and deciduous species. This dense forest tightly surrounds most homes on both sides of Fall River Road. Fall River itself hugs the slope southwest of the homes, so bridges are not an issue but water access is. Starting in the 5000 Block of Fall River Road, the forest transitions into mature subalpine with dense lodgepoles and Douglas fir. Some aspens are present. Fall River is along the southwest slope; weight ratings for bridges are again an issue. Although there are few homes between 5500 and 6500 Fall River Road, the area is used for recreation, which introduces additional ignition risks. The home at the base of the upper switchbacks shares characteristic with the rest of the neighborhood in terms of ecosystem, but it is close to a potential water source. The only escape route is down Fall River Road, which could be compromised depending on the incident.

Three homes currently exist on the southern and eastern aspects of Cumberland Gulch, which features fewer pines and more aspens, within a half mile of Fall River Road's pavement. The shared driveway is steep and poorly marked either with address signs or with markings for the Forest Service Road that also starts there. Recreational traffic must be included as a source of ignitions because the roadway is used so heavily.

Recommendations: Aggressively develop defensible space plans, regardless of whether the home is on a slope or at the valley bottom. Defensible space zones should be greater on slopes below a structure, and cut banks above structures should be treated to minimize collapse zone hazards. Create shaded fuel breaks along Fall River Road on public lands initially and tie into private property defensible space to protect access routes. Develop a full fuelbreak on both sides of Fall River Road halfway between the upper house and bulk of the homes below it. Consider a road descending Cumberland Gulch for emergency egress. Develop an emergency escape route that serves the entire watershed. Develop a dry hydrant access point at the intersection of Fall River Road and Rainbow Road. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. Improve labeling of Forest Service Roads. Add spark arresters to chimneys.

4.4.4 Rainbow Road & Loch Lomond Highlands (Risk: Extreme)

This neighborhood starts at the intersection of Fall River Road and Rainbow Road, follows Rainbow Road to Fall River Reservoir, and includes the homes in Loch Lomond Highlands, which is accessed from Alice Road. The neighborhood is heavily forested with subalpine species: lodgepole pine, Douglas fir, subalpine fir, Engelmann spruce, blue spruce along Fall River and occasional deciduous species in riparian zones and aspens. Fall River bisects the neighborhood on the valley floor, flowing from the reservoir and other lakes at the headwaters. Some homes have unrated bridges, but the bridges on Rainbow Road should be rated (data should be available from the county or Forest Service). Recreation sites are interspersed with the structures and the road is used by visitors more than residents; the land surrounding Fall River Reservoir hosts dozens of fire-wielding users (campfires, firearms, smokers) on most snowless weekends. These additional ignition sources should be recognized. The only escape route from Rainbow Road is down that road to Fall River Road; however, a safety zone could be developed at the top of the road as trees give way to alpine flora. The road is generally very rocky which limits the speed of vehicles. Loch Lomond's escape route is to Alice Road into the community of Alice to a safety zone or to Fall River Road.

Recommendations: Aggressively develop defensible space plans, regardless of whether the home is on a slope or at the valley bottom. Defensible space zones should be greater on slopes below a structure, and cut banks above structures should be treated to minimize collapse zone hazards. Create shaded fuel breaks along Rainbow Road on public lands initially and tie into private property defensible space to protect access routes. Develop a full fuelbreak along Rainbow Road on both sides of Fall River Road. Develop the emergency escape route that could connect Vista Place to Rainbow Road; adding a gate will limit recreational use of the road. Develop a dry hydrant access point at the intersection of Fall River Road and Rainbow Road. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. Add spark arresters to chimneys.

4.4.5 Hamlin Gulch (Risk: High)

This neighborhood consists of three homes, but the roadway is used for access to the Arapaho National Forest. The homes are surrounded by a mix of conifers and deciduous trees along the valley floor. The gulch could form a chimney given proper wind conditions. Hamlin Gulch Road is not an adequate escape route as it has several sections of light duty rock crawling with high-centering hazards and poor traction. The only escape route is down York Gulch Road to Fall River Road. Otherwise, sheltering-in-place could be an option.

Recommendations: Develop defensible space plans that also account for tree collapse zones. A single downed tree could block the single-lane road. Develop the emergency escape route to Pisgah Road or improve Hamlin Gulch Road (FS 273.1) to York Gulch; adding a gate will limit recreational use of the escape road. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. Add spark arresters to chimneys.

4.4.6 Alice (Risk: Moderate to High)

This community, which also is called the St. Mary's subdivision, surrounds a bowl in the upper subalpine zone of the watershed. Most homes are enveloped by lodgepole pines, subalpine fir and Douglas fir, but some spruce is also present. Aspens are rare except along Little Cub, Aspen Drive and parts of Beaver Road. The middle of the bowl, which historically drained several mines and mills, has few trees but grasses and shrubs have taken a toehold as the ecosystem transitions into its a post-industrial era. A marsh ecosystem exists east of Silver Creek Road. The only escape route sends vehicles to Fall River Road and no official safety zones currently exist. This neighborhood's hazard class is moderate to high.

Recommendations: Aggressively develop defensible space plans. Defensible space zones should be greater on slopes below a structure, and cut banks above structures should be treated to minimize collapse zone hazards. Create shaded fuel breaks along Fall River Road between the upper switchback and Alice Road on public lands initially and tie into private property defensible space to protect access routes. Good defensible space exists around the water treatment plant and it has access from two sides, but the address is not posted. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. All intersections should be marked with reflective street signs; the wooden signs are showing their age. Develop a safety zone in the marshes east of Silver Creek Road. Consider cutting a safety zone at the south end of Silver Creek Road. Develop a secondary escape route to FRR around the water treatment plant. Work with the Clear Creek Fire Authority and St. Mary's Glacier Water & Sanitation District to develop the hydrant system in the area and upgrade CCFA Station 7 to have its own cistern. Add spark arresters to chimneys.

4.4.7 Winterland (Risk: High)

This community is at the top of Fall River Road in a bowl surrounding Silver Lake. It includes the Silver Lake Condominiums. It is in the upper subalpine zone of the watershed. Most homes are surrounded by lodgepole pines, subalpine firs and Douglas firs, but some spruces also are present. Aspens are rare. Riparian ecosystems surround Silver Lake and Lake Quivera. Escape routes send vehicles to Fall River Road; Yankee Hill is not an adequate escape route.

Recommendations: Aggressively develop defensible space plans. Defensible space zones should include minimizing tree collapse zones along driveway and roadway cutbanks. Create shaded fuel breaks along Fall River Road to enhance the mitigation work provided by Grand Creek LLC, and tie them into private property defensible space to protect access routes. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. All intersections should be marked with reflective street signs; the wooden signs are showing their age. Improve the road to Yankee Hill, installing a gate to limit access, to provide an escape route to a safety zone there. Work with the Clear Creek Fire Authority and St. Mary's Glacier Water & Sanitation District to develop the hydrant system in the area and upgrade CCFA Station 7 to have its own cistern. Develop an all-weather dry hydrant connection at Silver Lake. Add spark arresters to chimneys.

4.4.8 Overlooked Way (Risk: Extreme)

The homes on Overlooked Way are on a steep west aspect overlooking Fall River Road. The slope is heavily forested largely with conifers but some deciduous species also grow there. There is no direct access to water. The homes are "off the grid" and utilize solar, wind and/or generator for electricity. Propane is also utilized. Recreation is not a direct threat because access to the road only accesses homes, but recreation is present in the valleys below the neighborhood. The only escape route is up Overlooked to York Gulch Road and then to Fall River Road.

Recommendations: Aggressively develop defensible space plans. Defensible space zones should include minimizing tree collapse zones along driveway and roadway cutbanks. Maintain the road to provide consistent emergency access. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. The intersection should be marked with a reflective street sign. Add spark arresters to chimneys.

4.4.9 York Gulch (Risk: Moderate to High)

The neighborhood of York Gulch is larger than some of the others in this report, but it features a consistent geography and culture. Most homes are on sun-drenched slopes, a characteristic that limits the growth of conifers in favor of grasses, shrubs, aspens and other deciduous species. Surface water is fleeting under the sunny conditions. Fires could spread rapidly through the light flashy fuels at the surface. Most homes are "off the grid" and utilize solar, wind, and/or generator for electricity. Propane is also utilized. The lack of utility lines eliminates the risk of downed power lines igniting fires, but the presence of batteries, generators, and propane tanks in and around the homes presents challenges for structural suppression. This neighborhood also has existing emergency escape plans utilizing roads that descend the valley to Fall River Road (Old Stage, York Gulch and Chinook) and utilizing routes to Gilpin County to escape eastward. However, Hamlin Gulch is not suitable for westward escape and Chinook is not suitable for eastward escape. Both roads narrow and feature stretches of light-duty rock crawling. A cistern exists at Clear Creek Fire Authority Station 9.

Recommendations: Continue developing defensible space around homes, regardless of whether they're surrounded by standing timber or heavy grasses. Institute a prescribed burning plan for the larger meadows to nurture healthy ecosystems. Add water resources (cisterns) at key intersections. Post addresses at the ends of driveways and on homes with reflective and contrasting materials at least four inches tall. Encourage residents to join Clear Creek Fire Authority as volunteer firefighter for Station 9, which has only one member currently.

4.4.10 Pisgah Lake Road (Risk: High)

This road follows a ridgeline from York Gulch along the northeastern boundary of Clear Creek County. Recreational users create a significant amount of traffic along the road and in the old ball field. Their impact is at least as significant as the residents'. The homes on the western side of the road are surrounded by a thick conifer forest while homes on the east side are within more deciduous ecosystems. Pisgah Lake provides a limited water source for pumping operations, but

its value as a dip-site for helicopter operations is not known. Escape routes are limited to Forest Service Roads entering Gilpin County and the link to York Gulch's "octopus" intersection.

Recommendations: Aggressively develop defensible space plans for homes and the roadway. Defensible space zones should be greater on slopes below a structure, and cut banks above structures should be treated to minimize collapse zone hazards. Create shaded fuel breaks along Pisgah Lake Road on public lands initially and tie into private property defensible space to protect access routes. Develop a cistern at the Octopus. Label roadways better. Maintain the ball field as a safety zone capable of holding the residents of York Gulch and emergency personnel as well as Pisgah Lake Road residents. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. Add spark arresters to chimneys.

4.5 Fall River Neighborhood Hazard Assessment: Clear Creek County Community Wildfire Protection Plan

Following are the Fall River watershed neighborhoods, their physical descriptions and their fire hazard assessments from the Community Assessment Surveys in the Clear Creek County CWPP. Fall River area neighborhoods Lower Fall River, Fall River, Upper Fall River and York Gulch are rated high, while Alice/St. Mary's is rated extreme. Areas shown in green are units recommended for mitigation treatment. They were evaluated as part of the team effort.

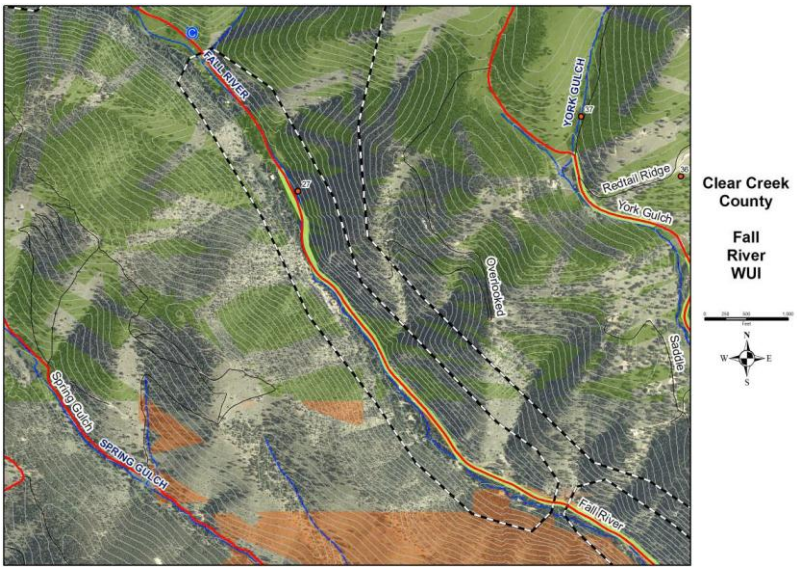
Fall River

Community Hazard Assessment HIGH

Community Design
23 Addresses. Primary access 2-lane gravel/dirt with no turnarounds. Home sites are dispersed along a valley bottom with approximately 80% of slopes ranging between 10-20% in steepness near homes. Construction materials are flammable. Roofing materials are flammable on ~50% of home sites. Approximately 50% of homes had between 30-70 feet of defensible space. No emergency water supply or convenient water source observed.

Fuels
Light overstory vegetation along roads and toe of slopes. Heavy mixed conifer overstory with lodgepole and slash build-up on higher slopes adjacent to main road. Very dense in some areas. FBFM 1, 2, 8, 10.

Mitigation Recommendations
Improve defensible space where needed and reduce structural ignitability through phased building improvements or new construction. Improve and maintain primary county evacuation route along Fall Creek Road including shade fuelbreaks margins where needed. Recommend emergency water supply cistern installed near west end of community to serve both Fall River and Upper Fall River WUIs.



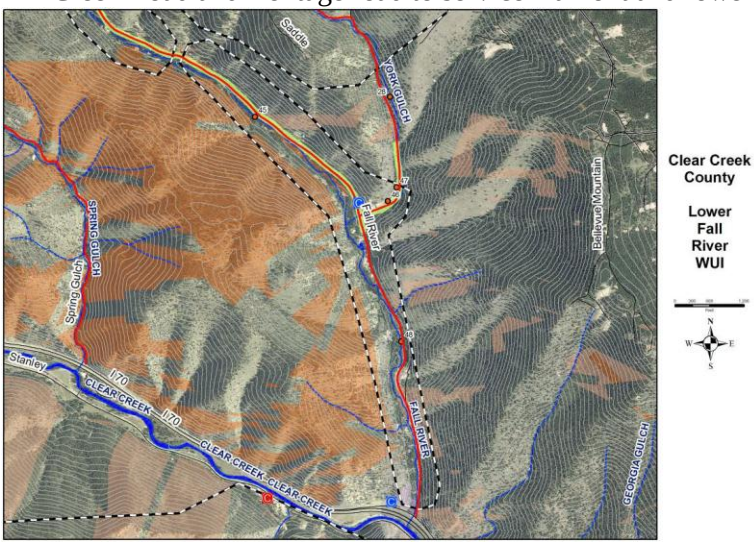
Lower Fall River

Community Hazard Assessment **HIGH**

Community Design
54 Addresses. Primary access via Mill Creek Rd. on a 2 lane paved surface with few turnarounds other than driveways. Construction materials predominantly flammable. Roofing materials 50% flammable/50% nonflammable. Depending on snowmelt/drought conditions, Mill Creek could be accessed as a draft source for the immediate area.

Fuels
Vegetation ranges from mainly large open areas with short grasses and coniferous vegetation with low-hanging branches to a more closed conifer overstory with light litter build-up on the ground. Vegetation along creek is spruce and fir mixed with riparian species including willows and aspens. FBFM 1, 2, 4, 5, 8.

Mitigation Recommendations
Improve defensible space where needed and reduce structural ignitability through phased building improvements or new construction. Develop and maintain shaded fuelbreak along forested areas of primary county evacuation route Mill Creek Road. Recommend installing emergency water supply/cistern near intersection of Mill Creek Road and frontage road to service Dumont and lower Mill Creek.



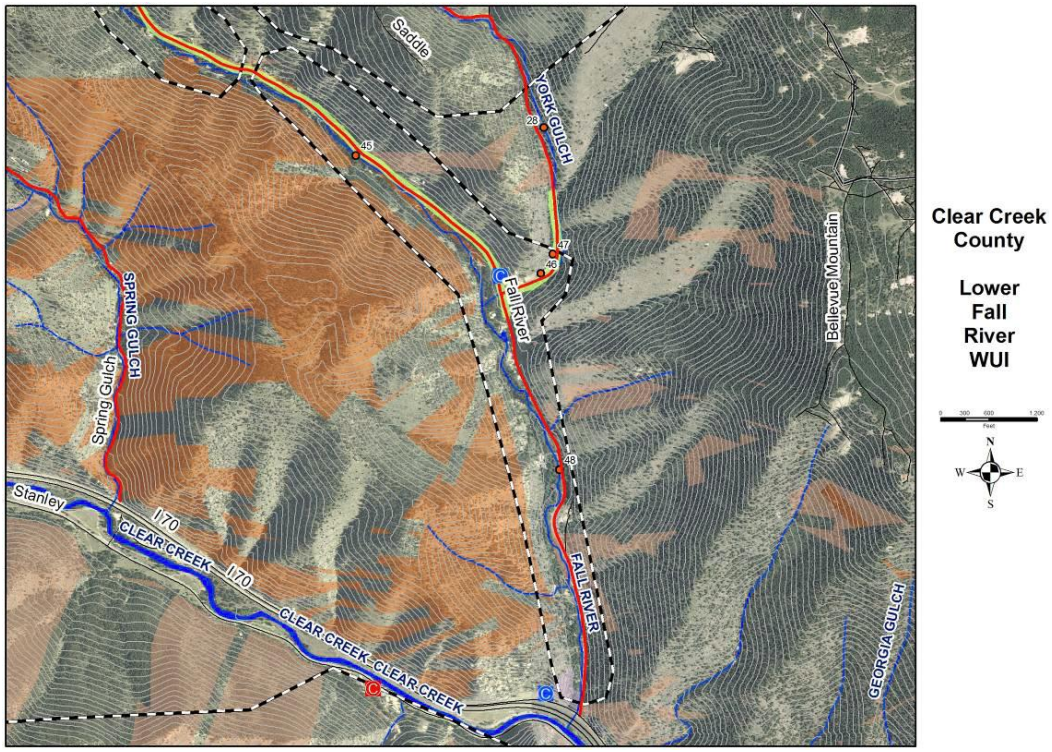
Lower Fall River

Community Hazard Assessment HIGH

This page in the Clear Creek County CWPP was placed with the description and recommendations for Lower Mill Creek. We have included the pictures and map as they are the correct ones, but placed the recommendations from the area survey done by Einar Jensen instead.

Mitigation Recommendations

Aggressively develop defensible space plans, regardless of whether the home is on a slope or at the valley bottom. Defensible space zones should be greater on slopes below a structure, and cut banks above structures should be treated to minimize collapse zone hazards. Create shaded fuel breaks along Fall River Road on public lands initially and tie into private property defensible space to protect access routes. Develop an emergency escape route that serves the entire watershed. Create eddies or gated pools for water resources. Rate each bridge for weight restrictions. Consistently post addresses at the ends of driveways and on homes with numerals of contrasting and reflective colors measuring at least four inches tall. Add spark arresters to chimneys.



Upper Fall River

Community Hazard Assessment **HIGH**

Community Design

26 Addresses. Primary access is Fall River Rd. which is 2 lane paved. Secondary roads are gravel/dirt, some with grades up to 30%. The majority of homes maintain between 30-70 feet defensible space. Construction and roofing materials primarily flammable. No emergency water supply identified.

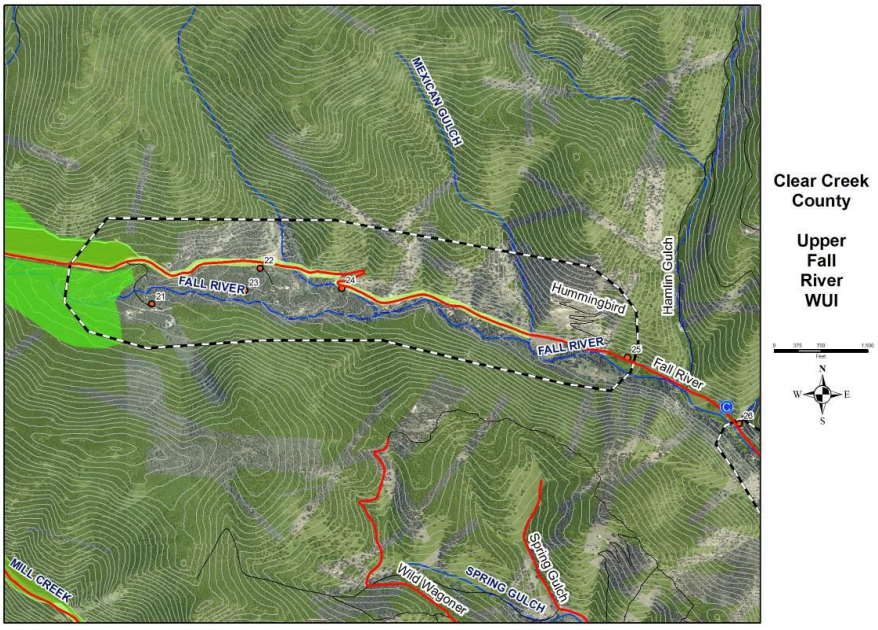
Fuels

Deciduous riparian zone along Fall River and roadway. Open timbered slopes primarily ponderosa on south facing slopes. Overstory vegetation is lighter along roadways and heavier on slopes. Heavy mixed conifer on north facing slopes. Douglas fir and interspersed aspen stands were observed. FBFM 2, 8, 9.

Mitigation Recommendations

Improve defensible space where needed and reduce structural ignitability through phased building improvements or new construction. Develop and maintain shaded fuelbreaks along all forested sections of primary county evacuation route of Fall River Road. Improve and maintain existing utility right-of-way fuelbreaks. Implement USFS treatment units as identified in the Yankee Hill mitigation project (dark green on map inset). Potential forest treatment zone independently identifies west of WUI along the Fall

River drainage. Recommend emergency water supply/cistern installation east of WUI to serve both Upper Fall River and Fall River.



St Marys/Alice

Community Hazard Assessment **EXTREME**

Community Design
300 Addresses. Primary access 1½ lane road with winding switchbacks and no turnarounds. All gravel roads except Fall River.
Some 4WD secondary roads. Approximately 75% of homes have 30-70 feet defensible space. Construction and roofing materials
predominantly flammable. Community hydrants available as an emergency water source**.**
Fuels
Fuels generally medium to heavy density short-needle mixed conifers. FBFM 5, 8, 10.
Mitigation Recommendations
Improve defensible space where needed and reduce structural ignitability through phased building improvements or new construction. Develop and maintain shaded fuelbreaks along all forested sections of primary county evacuation route Fall River Road and all secondary community access routes. Potential strategic forest treatment zones identified in dense timber stands along Mackinaw Road/Upper Fall River valley, along ridge at southeast access to community, along Crest Road/Lake Quivina, northeast
of Silver Lake, and along Fall River Valley southeast of the WUI. Implement USFS treatment units as identified in the Yankee Hill mitigation project (dark green on map inset). Develop and maintain secondary emergency access route from Mine Road to identified safety zones and evacuation routes in Gilpin County. Hydrants were noted in the community survey but not included in county GIS data. Recommend survey of identified ponds/lakes for potential draft and helicopter dip resource. Back country safety zone development recommended in open area near intersection of Silver Creek Road and Aspen Road.

York Gulch

Community Hazard Assessment **HIGH**

Community Design

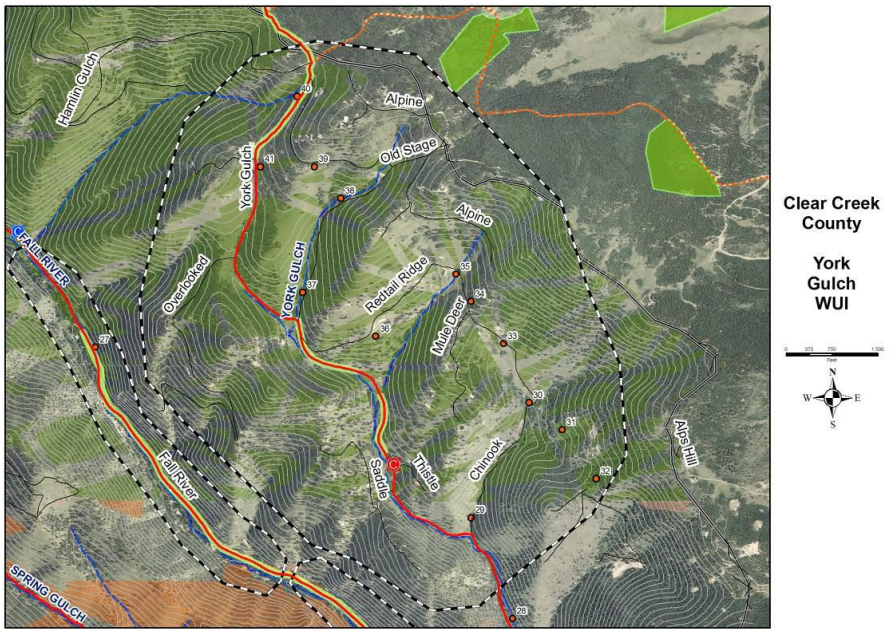
69 Addresses. Primary access is York Gulch Road--a 2 lane gravel road with one turnaround toward the top of the road. Secondary roads are single lane and many are in poor condition. Construction materials primarily flammable. Roofing materials 50% flammable/50% nonflammable. No emergency water source observed.

Fuels

Medium to heavy density in the mixed conifer overstory on slopes and ridges. Some areas of mountain mahogany shrubs and patches of aspens among the mixed conifer. Short grass understory along roads. FBFM 2, 4, 5, 8.

Mitigation Recommendations

Improve defensible space where needed and reduce structural ignitability through phased building improvements or new construction. Develop and maintain shaded fuelbreaks along all forested sections of primary county evacuation route and any forested secondary neighborhood access. Emergency water supply/cistern noted on York Gulch Road. Recommend investigating, developing, and maintaining potential secondary emergency access routes into Gilpin County from Upper York Gulch Road/Pisgah Road.



5 WILDFIRE MITIGATION TECHNIQUES

Wildfire mitigation results in the reduction of the probability and negative impacts of wildfire. This can be accomplished through wildland fuels management, non-fuels mitigation measures, and public outreach. Results are often most effective when these approaches are pursued in concert by governmental entities, citizen groups, and individuals.

The neighborhoods in the Fall River Drainage exist in several ecosystems, but most share the characteristics of being surrounded by dense forests. Thinning will reduce the ability of a fire to crown, or burn from tree canopy to tree canopy, and it will reinvigorate the forest's health benefiting flora and fauna as well as the human community. Thinning is important, but it does not prevent fires outright.

Shaded fuel breaks (a "break in the fuel") can mitigate the impacts of wildfire by reducing the fuel loads in selected areas. Shaded fuel breaks along roadways and on forested slopes are other recommendations. The community should identify priority locations for shaded fuel breaks that will be most effective in protecting values at risk.

There is no legal requirement to implement the recommendations of this CWPP. Actions on public lands are subject to federal, state, and county laws, policies and procedures such as adherence to the HFRA and National Environmental Protection Act (NEPA). Actions on private land will comply with existing laws and regulations and may require compliance with county land use codes, building codes, and local covenants.

Recommended actions are described by:

- Common actions that all land and home owners can take to reduce the risks from fire.
- Actions that specific neighborhoods can take to reduce risk.

Some of these projects require the support and coordination of the fire department and other governmental entities as well as substantial planning and funds. **However, actions most essential to the preservation of homes during a wildfire are the responsibility of each individual.**

5.1 Suggested Actions Common to All

These actions can and should be taken by all land and home owners in all neighborhoods. While these actions will benefit the individual home owner, there will also be a cumulative effect as more and more neighbors complete actions.

Project	Actions
Defensible Space	• Basic yard clean-up • Understory thinning near residential and commercial structures • Understory thinning near roads • Understory thinning in drainages • Over story thinning where needed • Employ defensible space principals at all cistern locations
Firewise Building Improvements	• Replace shake roofs • Enclose exposed decks and gables • Screen vents and chimneys
Chimney Spark Arresters	• All chimneys should be fitted with spark arresters.
Shaded Fuel Breaks	• Thin along primary roadways (Fall River Road) • Thin along secondary roadways • Create and maintain breaks along neighborhood margins • Improve and expand utility rights-of-way
Access / Egress Improvements	• Create/improve fire apparatus turn-arounds • Create and improve signage. • Create and improve address numbering. • Create secondary access / egress routes • Identify and improve secondary evacuation routes, where available. • Identify or create safety zones
Clearly Mark Addresses	• Clearly post addresses at the ends of all driveways and all homes with numerals of contrasting and reflective colors measuring at least four i tall.
Evacuation Planning	• Assess potential escape routes for usability by type of vehicle. • Publish maps of escape routes. • Develop an emergency escape route that serves the entir
Outreach / Public Education	• Spring community meetings • Summer community meetings to reach second home owners. • Firewise materials distribution • CWPP meetings • Ongoing, recurrent outreach • Develop demonstration mitigation projects
Area Treatments	• Thinning projects on large private holdings • Thinning projects on public lands • Prescribed fire as appropriate

5.1.1 Defensible Space

Defensible space is an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure. It also reduces the chance of a structure fire moving from the building to the surrounding forest. Defensible space provides room for firefighters to do their jobs. Your house is more likely to survive a wildfire if grasses, brush, trees and other common forest fuels are managed to reduce a fire's intensity.

You, as residents of the Fall River watershed, are the most important component of this plan! Homeowners are often discouraged from completing defensible space because they believe their lot sizes are too small for effective fuel mitigation. But your actions are truly meaningful in protecting life, property, and the beauty of the area. Wildfire is a natural part of an ecosystem. The actions you take will determine how fire affects your property.

To quote the Colorado State Forest Service, "Fire is capricious. It can find the weak link in your home's fire protection scheme and gain the upper hand because of a small, overlooked or seemingly inconsequential factor" ("Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones"; CSFS website.)

You do not have to clear cut your property! Defensible space can be created in an esthetically pleasing manner that maintains privacy and the natural character of the community, and restores forest health.

It is recommended that defensible space be developed around all structures in the planning area. The CWPIP cannot mandate a property owner take any action. It is hoped residents in the area will see how defensible space can be attractively created and realize when everyone takes action the broader neighborhood landscape is protected. The advantage of the CWPIP is that it provides a framework for individuals and neighbors to work together to reduce fire hazard and restore forest health. As noted in the CCC CWPP communities with a CWPP are eligible for cost share programs. Defensible space will be created following CSFS guidelines, ("Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones"; CSFS website.)

Research indicates homes with fire resistant roofs and defensible space have an 85 percent chance of surviving a wildfire while homes with neither of these characteristics have a 15 percent survival rate. An effective defensible space consists of flame resistant vegetation (aspen or large diameter trees without lower limbs), low flammability landscaping plants, mowed grass, lack of firewood stacks, and absence of fuel tanks immediately adjacent to structures. Structural ignitability is the fire resistance of materials used in the buildings themselves, and the design of the structure.

A functional defensible space consists of non-flammable vegetation no closer than 30 feet to the structure, the use of low flammability landscaping plants, mowed grass, lack of firewood stacks, and absence of fuel tanks immediately adjacent to structures (visit http://csfs.colostate.edu/library.htm). The defensible space should be larger for structures built on slopes.

It should be emphasized that defensible space can be created in an esthetically pleasing manner that maintains privacy and the natural character of the community.

These efforts can be encouraged and coordinated annually through a community meeting, and most of this work can be done by the homeowner with little more than hand tools. A phased approach may make this effort less daunting. Defensible space should also be created around out buildings.

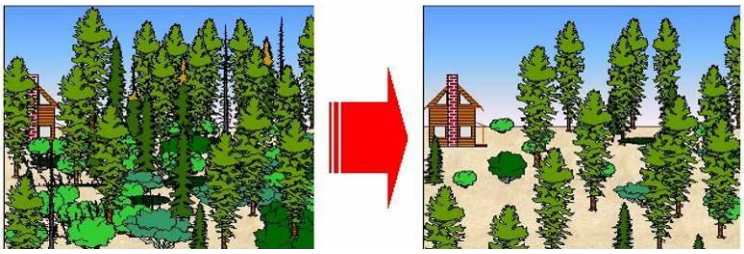


Figure 1. Larimer County, CO defensible space primer (www.co.larimers.co.us)

Assisting neighbors may be essential in many cases. For example: assisting the elderly, sharing ladders for gutter cleaning, assisting neighbors with large thinning needs such as near roads and in drainages.

Table 7. Defensible Space Projects

Year	Project	Actions
	Basic yard clean-up (annual)	• Dispose of clutter in the yard • Remove dead branches from yard • Mow and rake • Clean off roofs and gutters • Remove combustible vegetation near structures • Coordinate disposal as a neighborhood or community • Post 4" reflective address numbers visible from road in addition to personalized addressing
	Understory thinning near structures	• Limb trees up to 5-10 feet • Trim branches back 15 feet from chimneys • Trim or cut down brush • Remove young trees that can carry fire into forest canopy • Coordinate disposal as neighborhood/ community
	Understory thinning on private property near roads and in drainages	• Limb trees up to 6-10 feet • Trim branches back 15 feet from chimneys • Trim or cut down brush • Remove young trees that can carry fire into forest canopy • Coordinate disposal as a neighborhood or community
	Overstory treatments on private property	• Evaluate the need to thin mature or diseased trees • Prioritize and coordinate tree removal within

Year	Project	Actions
		neighborhoods to increase cost effectiveness
	Restart defensible space treatment cycle	• Continue the annual Basic yard clean-up • Evaluate need to revisit past efforts or catch those that were by-passed

Zone 1 (30 feet from structure): Within 3 to 5 feet of the structure, decorative rock or mowed, irrigated grass is recommended. Well-spaced and pruned low flammable plants are acceptable if the structure has noncombustible siding. In the remainder of Zone 1, trees' lower braches should be pruned 10 feet above the ground (not to exceed one third of the tree height). Dead wood, tall grass, and ladder fuels (low limbs, small trees, and shrubs that may carry fire into tree crowns) should be removed from this area. Leaves and overhanging branches should be removed from the roof and gutters. The 30-foot area should be irrigated as appropriate. Woodpiles should be removed and stored in Zone 2.

Zone 2 (greater than 30 feet from structure or to the property line): The size of this zone is dependent upon slope. Treatment of ground fuels and ladder fuels is generally the same as Zone 1. Trees (or small groups of trees) and shrubs should be thinned to provide 10 feet of clearance among crowns. Grasses should be mowed as they dry in late summer.

Zone 3 (area of forest management): This area outside of Zone 2 should be managed for the appropriate land use objectives, such as forest health, aesthetics, recreation, and wildlife habitat.

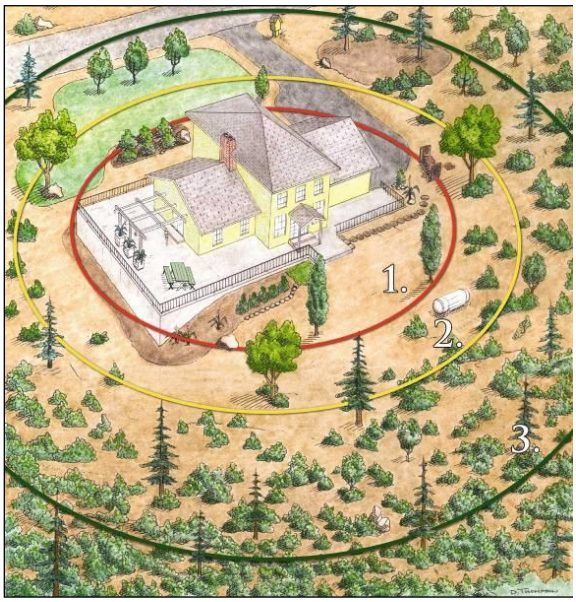


Figure 2. *F*irewise defensible space

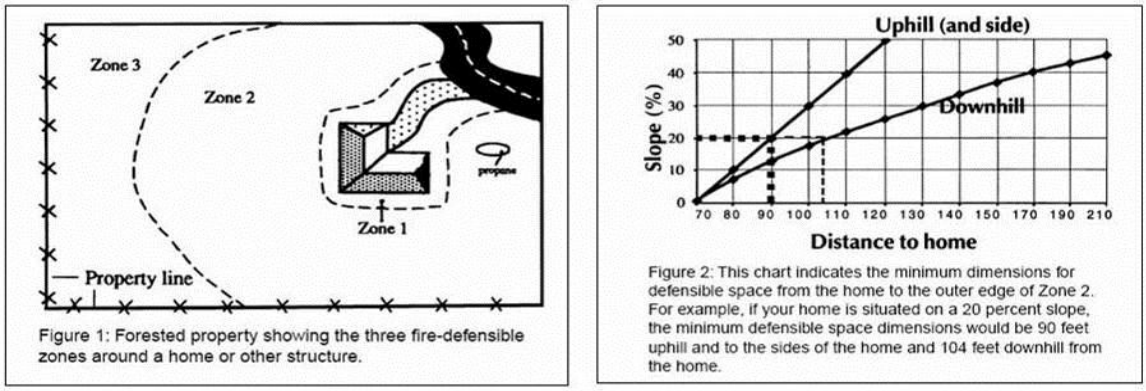


Figure 3. CSFS Defensible Space Standards

Mitigation of Structural Ignitability

1. Most structures DON'T ignite from direct flame contact, but from radiant heat (heat that doesn't warm the intervening air but does warm objects). As a fire burns the heat passes through air and windows to objects inside the home that warm to the point of ignition then smolder for hours. You have an important role making the house less resistant to radiant heat. Use non-combustible roofing material and non-combustible siding (Class C or better), and spark arresters on chimneys.
2. Embers or fire brands also ignite house fires. During fires the air contains embers and tosses them anywhere, including onto unburned fuels. A wildfire can create spot fires miles downwind. Embers can get stuck in "traps" on roofing, such as beside chimneys or in gutters and start new fires. Clean pine needles out of gutters and off roofing. Screen attic and foundation vents with fine mesh screening.
3. Large windows are a threat to homes because they allow radiant heat to enter the structure. Remove lacey and other decorative curtains when a fire approaches to prevent radiant heat from igniting them through the glass. Large windows, especially single-pane windows, are vulnerable to breaking from debris blowing in fire-generated winds and embers. Double and triple pane windows are more resistant to heat transfer.

4. Other areas of concern:
   - Combustible decks with exposed undersides; enclose underside of porches.
   - Lack of clear addressing
   - Numerous outbuildings in disrepair
   - Improper storage of firewood, surplus constructions materials, ancillary vehicles and machinery; store away from buildings and remove combustible materials.
   - Combustible fences in disrepair

5.1.2 Area Treatments

Wildfires frequently burn across jurisdictional boundaries. As such, hazardous fuels management must be coordinated across jurisdictions and ownership boundaries. The objectives of these vegetative treatments are to reduce buildup of hazardous fuels to reduce fire intensity, rates of spread, and crown fire initiation and propagation. These efforts can increase the efficacy of fire suppression efforts as well as return ecosystems to a healthier and less combustible status.

Hazardous fuels need to be managed to restore forest or grassland health and manage vegetation to a more natural condition. This may occur by breaking up fuel continuity and reducing fuel load. This will make wildfires more readily suppressible and may make prescribed fire a realistic treatment in some cases.

Large-scale fuel treatments are subject to a number of hurdles, including: funding, lack of public understanding, environmental impact, and ownership issues. It can be unrealistic to schedule these projects prematurely. Rather, these projects are prioritized without specific dates.

Two CSFS publications will be followed in carrying out mitigation in the Fall River watershed… ***Guidelines for Forested Subdivisions and Communities***, (Dennis, not dated); and ***Lodgepole Pine Management Guidelines for Land Managers in the Wildland -Urban Interface*** (Dennis et al).

Logs and other woody material generated from creating the fuel breaks would be disposed through salvage log sales, hauling debris off site to a designed disposal area, or burned on site following CSFS, Golden District *Prescribed Pile Burning Guidelines* (CSFS, not dated). Salvage logging may be possible if harvested trees are sufficient in size and wood quality for post-harvest markets. Burning the woody debris will require arrangements to be made with the CCFA and/or CSFS. If available an air curtain burner could provide an effective way of dealing with much of the debris. A CCC open burning permit will be necessary.

Each of the recommended fuel mitigation projects can be achieved by a variety of methods. Selecting the most appropriate, cost effective option is an important planning step. Costs can vary tremendously, but generally run $800 to $2,000 per acre depending upon:

- Diameter of materials
- Acreage of project
- Steepness of slope
- Density of fuels
- Proximity to structures
- Fuel costs
- Area accessibility

Table 8. Treatment Options
(From Clear Creek County CWPP)
(Costs will be updated in planning for individual projects)

Treatment	Estimated Cost	Comments
Machine Mowing	$90 - $200 / acre	• Appropriate for large, flat grassy areas on relatively flat terrain
Prescribed Fire	$1500 - $2000 / project	• Can be very cost effective • Ecologically beneficial • Can be used as training opportunities for firefighters • Carries risk of escape which may be unacceptable in some WUI areas • Unreliable scheduling due to weather and smoke management constraints
Brush	$300 - $500 / acre	• Brush species (Gamble oak in particular) tend to resprout vigorously

Mastication		after mechanical treatment • Follow-treatment with herbicides, fire, grazing, or further mechanical treatments are typically necessary • Mastication tends to be less expensive than manual (chain saw) treatment and eliminates disposal issues
Timber Mastication	$300 - $1200 / acre	• Materials up to 10" in diameter and slopes up to 30% can be treated • Eliminates disposal issues • Environmental impact of residue being left on-site are still under study
Manual Treatment with Chipping or Pile Burning	$300 - $1200 / acre	• Allows for removal of merchantable materials or firewood in timber • Requires chipping, hauling, pile burning of slash
Feller Buncher	$750 and up / acre	• Mechanical treatment on slopes over 30% or of materials over 10" in diameter may require a feller buncher rather than a masticator • Costs tend to be considerably higher than masticator • May allow for removal of merchantable material

The above cost estimates are several years old. The community CWPIP team should consult with the CO State Forest Service for current cost estimates as they move to implement a new priority project.

5.1.3 Shaded Fuel Breaks

Shaded fuel breaks can help enhance the effectiveness of defensible space, protect ingress/egress routes, reduce fire intensity near values at risk, and provide tenable areas for fire suppression efforts. Roads provide a good start for a fuel break as well as ready access for machinery and removal of thinned vegetation. Depending on the width of road easements, much of the work along roads must be initiated by the private land owner, which is why it was included as a phase of the defensible space schedule. Thinning within the easement and along roads on public land will require coordination with the associated public entity.

Great benefit will be realized merely by removing dense reproduction, dead and down forest litter, and low branches along roadways. Thinning of the overstory will break the continuity of the forest canopy and interrupt the spread of crown fires. A general recommendation for these fuel breaks is to follow the CSFS fuel break guidelines, reducing fuels on both sides of the road similar to defensible space Zone 2 or 3 figure 3. Shaded fuel break on left, untreated on right

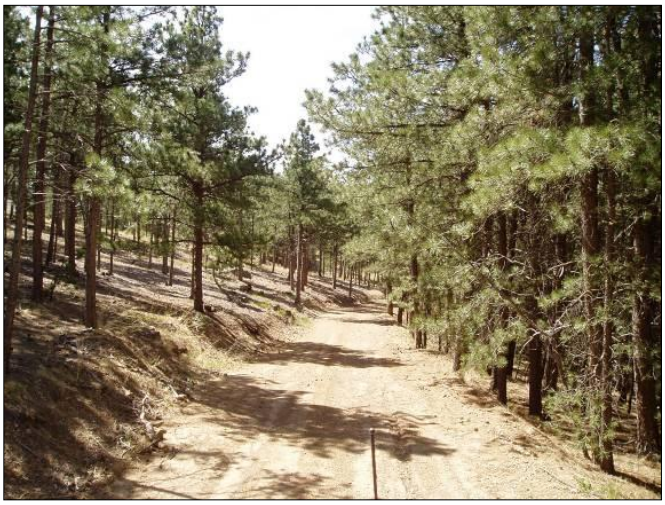


Fig. 5: Fuel Break on left

- Total width of fuel break should be 200 to 250 feet.
- Reduce surface fuel load to approximately 5 tons per acre.
- Reduce surface fuel bed height to 2 feet or lower.
- Employ mechanically based thinning to reduce basal area to 60 to 90 square feet per acre.
- On remaining trees, raise canopy base height to 5 to 12 feet high.
- Create minimum 10 feet of clearance between crowns of trees or tree groups.

Figure 6. Vegetation regeneration in areas previously treated is common throughout the district

Due to the fragmented nature of land ownership along the roads, individual prescriptions and cooperation must be closely coordinated by the implementation team and the home owners associations. The priority of treatment areas is outlined in the following table based on density of fuels, existing hazards to access/egress routes, ease of coordination, and protection to the community as a whole. Many of these projects may be largely addressed by efforts undertaken on private lots.

Stand Densities As noted in CSFS publications,"…crown separation is a more critical factor for fuel breaks than a fixed tree density level. A minimum 10-foot spacing between the edges of tree crowns is recommended on level ground. As slope increases, crown spacing should also increase. Small, isolated groups of trees may be retained for visual diversity. Increase crown spacing around any groups of trees for aesthetic reasons and to reduce fire intensities and torching potential."

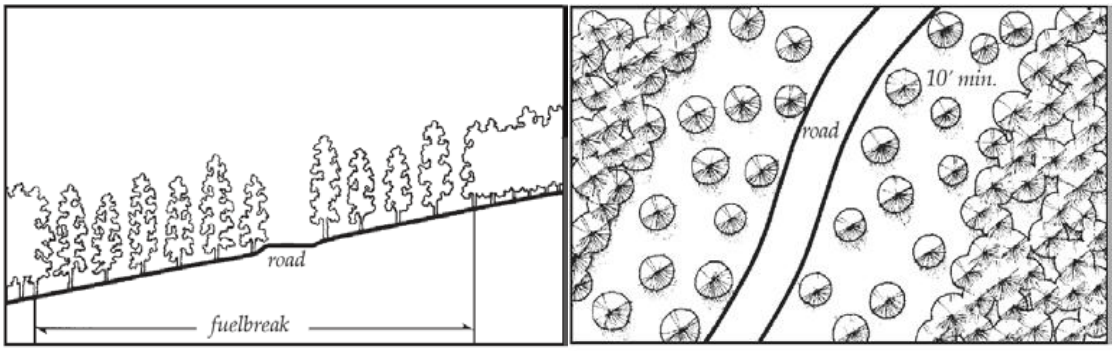
The area has dense and aged stands of Lodgepole pine. There is potential for wind throw if fuel break thinning creates corridors in the forest. It is recommended that thinning in Lodgepole be accomplished by leaving groups of 7 to 10 trees separated from adjacent groups of trees to create the desired spacing effect. This will assist these stands to be self-supportive in wind events.

Table 9: Fuel break Width/Slope

Percent slope %	Minimum uphill distance (ft.)	Minimum downhill distance (ft.)	Total distance of modified fuels (ft.)
0	150	150	300
10	140	165	303
20	130	180	310
30	120	195	315
40	110	210	320
50	100	225	325
60	100	240	340

***As slope increases, total distance for cut-and-fill for road construction rapidly increases, improving fuel break effective width.**

In creating fuel breaks dead diseased, weakened, and malformed conifer trees would be removed. The harvesting of conifer trees would occur to achieve the desired density of approximately 10-to15-foot spacing among tree canopies. Trees would be limbed up approximately 10 feet from the ground. Ladder fuels, such as small trees and shrubs, are thinned out so that fire will not easily burn from the ground into the forest canopy. Aspen trees would not be harvested during the creation of the fuel breaks. Aspen are fire resistant and add to the effectiveness of the fuel breaks.



Cross-section of a typical fuelbreak built in conjunction with a road.

Plan view of fuelbreak showing minimum distance between tree crowns.

Figure 7: Fuel Break Diagram (Dennis not dated)

5.1.4 Fire Breaks

A fire break is an area where vegetation has been removed to bare ground or replaced with non-flammable surface such as asphalt. The purpose of the fire break is to stop fire progression and improve fire suppression efforts. The asphalt bike path should be managed as a firebreak the entire length of the planning area to reduce the chances of fire caused from an I-70 ignition from spreading to the planning area. Herbaceous vegetation should be mowed approximately 10 feet on each side in late summer to further enhance its effectiveness.

5.1.5 Biomass

Hazardous fuels management will potentially result in large amounts of woody plant materials that will need to be disposed. Appropriate disposal practices will depend on the amount of woody material generated and they may include spreading the debris over a large area, burning, chipping and spreading, or burying in a landfill facility. Economical use of the woody debris such as small-diameter wood products or biomass energy production should be explored.

5.1.6 Access

Access is a critical safety component of a neighborhood's or community's hazard and risk profile. Good design provides for multiple points of ingress/egress, two way traffic flow, and

adequate emergency vehicle turnaround radii for terminating roads that conform to a recognized standard such as the International Fire Code or NFPA standards.

Every neighborhood within the district has unique access characteristics. CWPIP recommendations are geared to help each area identify access challenges and develop actions to mitigate the situation. In many cases this involves a road construction or improvement project to provide a secondary means evacuation, turnarounds, or widen an existing road to better accommodate two-way traffic. Creating shaded fuel breaks along roadways will enhance these routes.

As with area fuels treatment, issues of ownership, substantial costs, potential environmental impacts, and engineering needs will necessitate more study on a project level. Several of these suggested routes will mutually benefit adjacent communities and will require inter-community cooperation.

Motor vehicles have only two routes of ingress and egress from the watershed: Fall River Road to I-70 or York Gulch to Gilpin County. Emergency crews have access to other roads, but those routes, e.g., Upper Chinook Road and Bald Mountain Road through Russell Gulch to Central City easily could be blocked in times of wildland fires.

Within the drainage, most roads consist of packed dirt or gravel. Despite the efforts of public agencies and property owners, the quality of these roads varies throughout the year depending on weather, use (especially by off-highway vehicles) and general deterioration. Road width also varies, which prevents safe passing of oncoming vehicles in several places. Few places exist with enough room for larger fire apparatus to share the road with passenger vehicles, much less recreational vehicles. These roads also are susceptible to blockage from downed trees and utility lines, which will prevent fire apparatus from entering the subdivision and property owners from evacuating in emergencies. Firefighters will abandon fire suppression operations on homes that could otherwise be saved if roads become threatened. Intersections must be well marked and signage needs to be maintained and cleared of obstructions throughout the year.

5.1.7 Signage

If firefighters, ambulances and law enforcement can't find your home, they can't help you. Firefighters, ambulances and law enforcement respond based on street addresses and last names. Both forms of identification should be easily visible from the road, especially after dark. Visible addresses posted by the house helps firefighters verify they have reached the proper location, especially when a driveway serves multiple homes. Firefighters cannot defend homes they cannot find.

5.1.8 Evacuation Planning

Every household should create an evacuation plan in advance of emergency situations. Evacuation plans should include a meeting place outside the watershed, such as the Safeway parking lot in Idaho Springs, and a point of contact outside of the state who you can call with updates on your status. Family members and friends can then contact that person to keep up with family members without overloading the local telephone circuits needed by emergency crews.

Think about the Four Ps: Pets, Pills, Papers and Photos. You may have five hours to evacuate; you may have five minutes. Compile a list of those important documents, photographs and memorabilia that you want to remove in case of evacuation to ease the task if it becomes necessary.

If you do leave, set a ladder in the driveway and connect garden hoses to spigots so that firefighters can supplement their equipment and water with yours to defend your home.

5.1.9 Outreach / Public Education

The CWPIP team needs to lead in education and outreach, critical to involving area residents. A community-wide education program will: 1) educate the public to the risks of wildfire to property and life; 2) urge property owners to take responsibility in reducing the risk of wildfire and to create defensible space around their structures; 3) teach the benefits of different types of fire resistant building materials in lessening structural ignitability; and 4) increase awareness of the natural role of low-intensity fire in grassland and woodland ecosystems and make known the benefits from thinning fuel loaded areas.

Efforts must reach both full time and part time residents. Many lots are undeveloped and owned by absentee owners. A lack of fuels management on these lots can impact the entire community. An effort should be made to contact these owners and determine how to address hazard fuel mitigation on these properties.

This can be a forum for presentations by experts in the field and allow for coordination of "clean-up" efforts within the community. Firewise materials and postings should be made available to the public at the fire station, post office, and elementary school every year. A disposal method for yard waste should be coordinated every spring. This may be coordinated with any Home Owner Association spring clean-up activities and may include the coordination of a central disposal site, mobile chipping services, or a hauling service. Grant monies may be available for these efforts.

5.2 Neighborhood Specific Projects

This section contains projects that are specific to neighborhoods in the Fall River watershed. Each neighborhood should consider fostering these projects to better protect the neighborhood and the watershed. A few recommendations are adopted from the Clear Creek County CWPP as they affect some neighborhoods. **This listing can be used by the team in selecting future priorities after completion of initially recommended projects.**

Recommendations are in priority order for each area. **(Priorities may change over time)**

5.2.1 Lower FRR

- Rate and sign each bridge for weight restrictions.
- Create eddies or gated pools for water resources; must be accessible from roads; assure water rights are known and respected.
- Clear Creek County CWPP Recommendations:

- Develop & maintain shaded fuelbreak along forested areas of Fall River Road.

5.2.2 Middle Fall River Road

- Rate and sign each bridge for weight restrictions.
- Develop access to the pond southwest of Hummingbird Lane for both tanker shuttle operations and helicopter dipping operations; have area studied by wildland fire aviation experts for suitability for helicopter operations.
- Clear Creek County CWPP Recommendations:
  - Improve and maintain primary county evacuation route along Fall River Road, including shaded fuel breaks and margins where needed.
  - Develop emergency water supply cistern near west end of community to serve both Fall River and Upper Fall River.

5.2.3 Upper Fall River Road

- Develop a full fuel break on both sides of Fall River Road halfway between the upper house and bulk of the homes below it.
- Improve labeling of Forest Service Roads.
- Develop a dry hydrant access point at the intersection of Fall River Road and Rainbow Road; check to see what agreements may be needed to develop this access.
- Clear Creek County CWPP Recommendations:
  - Improve and maintain existing utility right-of-way fuel breaks.
  - Implement USFS treatment units as identified in Yankee Hill mitigation project. (See map in Appendix D)
  - Evaluate a potential forest treatment zone west of the WUI along the Fall River drainage.
  - Develop an emergency water supply/cistern east of the WUI to serve Upper Fall River and Fall River.

5.2.4 Rainbow Road & Loch Lomond Highlands

- Develop a full fuel break along Rainbow Road on both sides of Fall River Road.
- Develop a dry hydrant access point at the intersection of Fall River Road and Rainbow Road; check for water rights and any needed agreements.

5.2.5 Hamlin Gulch

(No neighborhood specific projects)

5.2.6 Alice

- All intersections should be marked with reflective street signs; the wooden signs are showing their age.
- Work with CCCFA to identify and develop safety zones in the area.

- Work with the Clear Creek Fire Authority and St. Mary's Glacier Water & Sanitation District to develop the hydrant system in the area and upgrade CCFA Station 7 to have its own cistern.
- Good defensible space exists around the water treatment plant and it has access from two sides, but the address is not posted.
- Develop a secondary escape route to FRR around the water treatment plant.
-
- Clear Creek County CWPP Recommendations:
    - Potential strategic forest treatment zones identified in dense timber stands along Mackinaw Road/Upper Fall River valley, along ridge at southeast access to community, along Crest Road/Lake Quivina, northeast of Silver Lake, and along Fall River Valley southeast of the WUI.
    - Implement USFS treatment units identified in the Yankee Hill mitigation project. (See map in Appendix D)
    - Develop and maintain secondary emergency access route from Mine Road to identified safety zones and evacuation routes in Gilpin County.
    - Survey identified ponds/lakes for potential draft and helicopter dip resources.
    - Develop and maintain shaded fuel breaks along forested sections of Fall River.

5.2.7 Winterland

- All intersections should be marked with reflective street signs; the wooden signs are showing their age.
- Work with the Clear Creek Fire Authority and St. Mary's Glacier Water & Sanitation District to develop the hydrant system in the area and upgrade CCFA Station 7 to have its own cistern.
- Improve the road to Yankee Hill, installing a gate to limit access, to provide an escape route.
- Develop an all-weather dry hydrant connection at Silver Lake; check need for agreement.

5.2.8 Overlooked Way

- Defensible space zones should include minimizing tree collapse zones along driveway and roadway cut banks.
- Maintain the road to provide consistent emergency access.
- The intersection should be marked with a reflective street sign.

5.2.9 York Gulch

- Add water resources (cisterns) at key intersections.
- Encourage residents to join Clear Creek Fire Authority as a volunteer firefighter for Station 9, which has only one member currently.
- Institute a prescribed burning plan for the larger meadows to nurture healthy ecosystems.
- Clear Creek County CWPP Recommendations:
- Recommend investigating, developing, and maintaining potential secondary emergency access routes into Gilpin County from Upper York Gulch Road/Pisgah Road.

5.2.10 Pisgah Lake Road

- Label roadways better.
- Maintain the ball field as a safety zone capable of holding the residents of York Gulch and emergency personnel as well as Pisgah Lake Road residents; involve CCCFA in study.
- Develop a cistern at "the octopus"; check water rights and need for agreement.

5.3 Supporting Projects

Several of the recommended actions will require more extensive study and the cooperation of entities outside of the Fall River watershed area. These are important issues that are integral to the CWPP. The community should not forego these actions merely because of their complexity.

5.3.1 Funding and Grants

Grant support may be able to accelerate treatment on larger private holdings and along roads as well as disposal. In addition to close coordination with the Clear Creek County Office of Emergency Management, an excellent resource for finding grants is www.rockymountainwildlandfire.info.

5.3.2 Public Land Planning

Clear Creek County has completed a county-wide CWPP (http://www.co.clear-creek.co.us/Depts/OEM/CWPP/cwpp_project_page.htm). This plan addresses the overall fire risk and major mitigation actions which need to be addressed countywide. Recognition by this plan of relative risks in different areas of the county will help the county select among community CWPPs in terms of grant funding and direct assistance. The core group responsible for carrying the Fall River CWPP into the future must continually network with County officials to present Fall River concerns, annual priorities and assistance needs, and accomplishments.

5.3.3 Regulatory Actions

One of the major issues confronting defensible space and hazardous fuels mitigation is the need for maintenance. While county statutes require creation of defensible space for new construction, there is no requirement for maintenance and no retroactive regulation for existing structures. For defensible space to be consistently successful some regulatory impetus is likely necessary. Clear Creek County should examine the options for requiring the maintenance of defensible space. This could be associated with the sale of a home or based on time since initial treatment.

6. Priority Mitigation Projects: Roads and Landscapes Adjacent to Communities and Water Supplies

The following pages contain the priority projects and their descriptions as determined by the Fall River Watershed Area CWPIP team.

RECOMMENDED MITIGATION PRIORITY #1
ROADSIDE FUELS THINNING

The CWPIP team feels that given the one way in and out character of the drainage and the steep timbered slopes which could carry a wildfire in a chimney like fashion that making main roads safer for both evacuation and fire team traffic is the most important priority. The Clear Creek County CWPP has the same recommendation statement on all pages dealing with Lower, Middle and Upper Fall River: "Develop and maintain shaded fuel breaks along all forested sections of primary county evacuation route of Fall River Road. Improve and maintain existing utility right-of-way fuel breaks." **Residents, especially along Lower Fall River, are concerned with issues of stream bank damage and watershed protection as well as property screening in this narrower area. The team and representatives of the county and fire department will need to work with land owners to find sound and acceptable actions as private land owners control what is done on their property. A CWPIP does not force land owners to take action.**

The length of the main Fall River access road is approximately 9.5 miles. The roadsides are a combination of county, private, and in some cases USFS land. The routes are described in sections: 4.4.1 (Lower Fall River Road); 4.4.2 (Middle Fall River Road); and 4.4.3 (Upper Fall River Road), pp.22-24. Lower and Middle Fall River Road areas are primarily private property along the roadside. Upper Fall River Road contains USFS land for a small portion of its length.

The basic recommendation is to: Perform thinning along Fall River Road (CR 275); thin (mostly dead fall) up to 50 feet on either side of the road, following guidelines listed below.

There would be fuel break clearing of dead standing and dead-fall coniferous growth and dead low growth with only moderate live-ground growth removal, then seeding with appropriate mixes to encourage grass cover and prevent soil erosion. The approximate acreage on each side of the road is estimated at 6 acres/mile.

Treatment would be in accordance with:

- The USFS standard for roadside mitigation/hazard tree removal: "… implement hazard tree removal activities within a distance equal to 110% of the height of the tallest hazard tree from the edge of: 1) National Forest System (NFS) roads open to motorized travel (maintenance levels two through five); 2) federal, state, county, or other permitted roads…" In this case the height of the tallest tree within the treatment zone would be used.
- The Colorado State Forest Service "Fuelbreak Guidelines for Forested Subdivisions and Communities" by Frank Dennis.

Treatment would be primarily hand thinning with some mechanical, and with slash pile and burning of material or some use of wood for biomass purposes. Cost would be approximately $1800/acre or $21000/mi.

The Fall River team should consult with the Golden District of the Colorado State Forest Service and with Clear Creek County for an up-to-date cost estimate when it begins the process to accomplish this project.

RECOMMENDED MITIGATION PRIORITY #2
EMERGENCY EVACUATION ROUTES:
STUDY AND BROCHURE

Every area in the Fall River drainage expressed the need for officials to develop an emergency evacuation brochure in the same manner as has been done for the Floyd Hill Area by the Clear Creek Fire Authority and CCC Sheriff's office.

The brochure would be designed to show in map form routes that could be used to evacuate the area in wildfire emergencies and note any issues with various routes. Recommended procedures for evacuation would also be in the brochure.

This brochure is not designed to tell residents exactly which routes to use in an emergency. Such a determination is made at the time of the emergency by Sheriff's officers, the CCC Fire Authority, or other party in charge of the event based on existing conditions and predicted wildfire activity.

The brochure would result from a study by the fire authority and sheriff's office, based on past and current information and professional evaluation.

A copy of the Floyd Hill brochure is on the following pages as an example of what is recommended by the team.

For More Information:

As with all emergencies, Evergreen Fire Rescue will keep the public we serve informed through our twitter feeds, websites, and with the sheriff offices of Jefferson and Clear Creek County. These websites can provide additional useful information.

Evergreen Fire Rescue
www.evergreenfirerescue.com
http://twitter.com/efr_co

Jefferson County Sheriff
http://jeffco/sheriff
http://jeffcosheriff1.blogspot.com
http://twitter.com/jeffcocolorado

Clear Creek Sheriff
www.clearcreeksheriff.us

Ready, Set, Go! Personal Wildfire Action Plan
www.firesafetyeducators.org/lessonplans/ReadySetGoColorado.pdf

Smart911
www.smart911.com

www.firewise.org

U.S. Department of Homeland Security's Preparedness Website
www.ready.gov

The Red Cross Disaster Family Plan
www.redcross.org/services/disaster/beprepared/familyplan.html

Colorado Division of Emergency Management
www.dola.state.co.us/oem/oemindex.htm

Colorado Water Conservation Board
www.cwcb.state.co.us/flood_watch

National Wildland/Urban Interface Fire Program
www.firewise.org

U.S. Geological Survey
www.usgs.gov

National Weather Service
www.nws.noaa.gov

The Urban Drainage and Flood Control District
www.udfcd.org

Mitigation Resources:

www.FederalGrants.com

www.fs.fed.us

www.state.co.us/gov_dir/leg_dir/olls/sl2008a/sl_334.htm

www.kunc.org/post/tax-breaks-grant-money-available-colorado-wildfire-mitigation

For more information, please visit
www.evergreenfirerescue.com
Follow us on Twitter: @efr_co

If it is an emergency, please dial 911

1802 Bergen Parkway
Evergreen, CO 80439
Phone: 303-674-3145 Fax: 303-674-8701

What can you do to be prepared for evacuation?

Now is the time to take action.

Living in the mountains, and in wildfire areas, you should already be prepared to evacuate at a moment's notice.

Get an evacuation plan together and go over it with family and friends that you have close contact with.

When You Must Evacuate:

If you are instructed to evacuate immediately, gather your household and go. When possible, take one car per household preferably a high clearance vehicle such as a SUV. This will keep you together and reduce traffic congestion and delay. In other cases, you may have time to follow these steps:

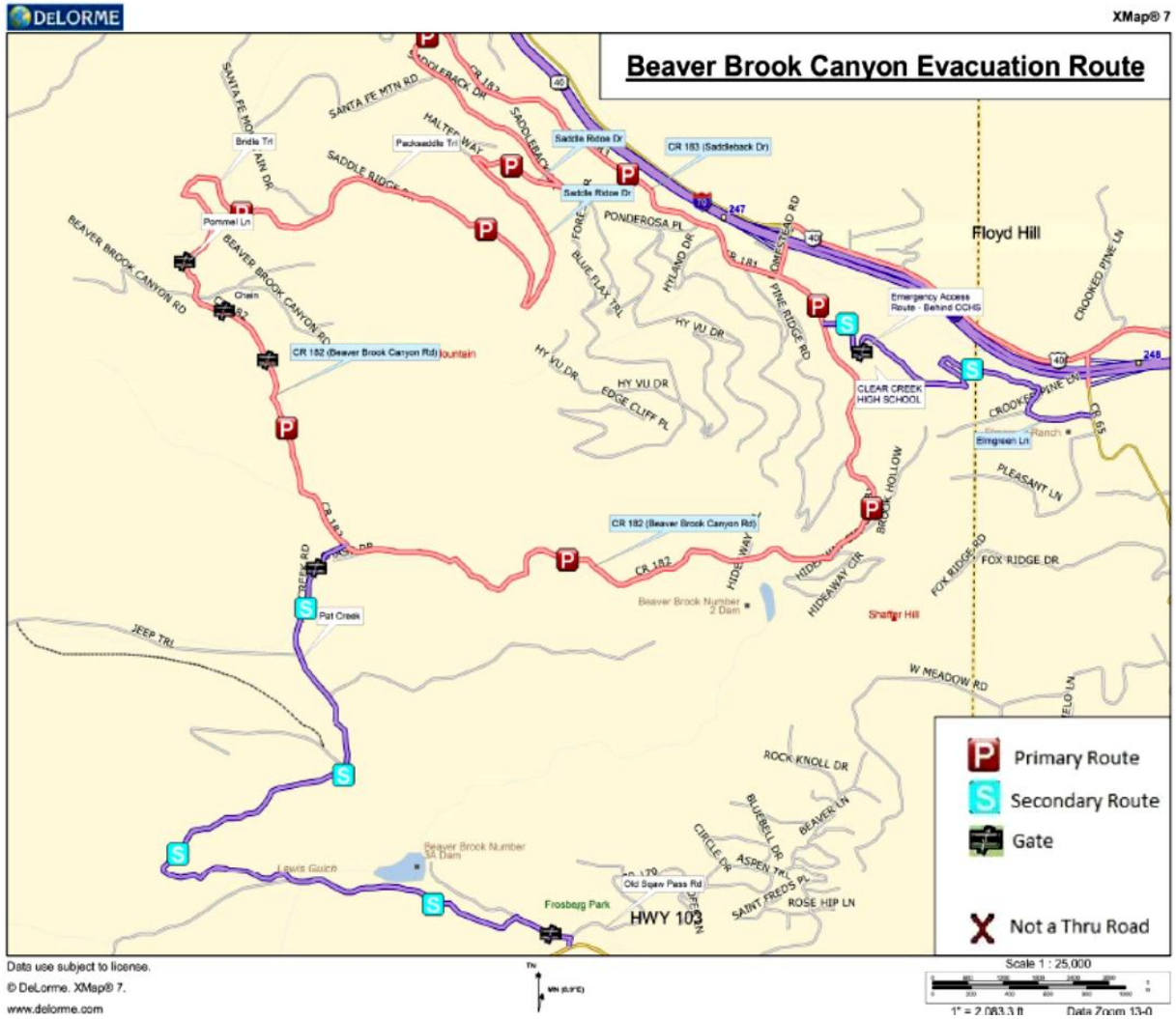
1. Gather water, food, clothing, medicines, emergency supplies, insurance and financial records.
2. Wear sturdy shoes and clothing that provides some protection, such as long pants, long-sleeved shirts, cap and jacket.
3. Secure your home. Close and lock doors and windows. Unplug appliances. If a hard freeze is likely during your absence, take actions needed to prevent damage to water pipes by freezing temperatures.
4. Turn off the main switch on electricity panel, if instructed to do so.
5. Let others know where you are going, leave a note or call.
6. Leave early enough to avoid being trapped.
7. Follow the Fire Department or Sheriff's Office recommended evacuation routes. **DO NOT TAKE SHORTCUTS.** They may be blocked. Be alert for bridges. Stay away from downed power lines. Disaster situations can be intense, stressful and confusing.

Your Go Kit:

- Battery powered radio / emergency radio
- Flashlights and extra batteries
- First aid kit
- Whistle for signaling
- Dust masks
- Wrenches and pliers for shutting down utilities
- Food with can opener
- Spare eyeglasses, shoes, coats, spare clothing
- Animal carriers ready at the front of the house
- Escape route plan and emergency numbers for friends, family, and neighbors
- Insurance, medical, prescriptions, and family information you may need.
- Spare keys.

All of these items should be kept by your door and ready to go at a moment's notice!

Floyd Hill Draft Evacuation Brochure



Beaver Brook Canyon Evacuation Route:

Primary route — depending on your location:

- Beaver Brook Canyon Road to the Floyd Hill Overpass.

- Beaver Brook Canyon Road through gate
- Then through chain gate to Pommel Lane (private property)
- Through third gate to Bridle Trail to Packsaddle Trail to Saddle Ridge Drive to Saddleback Drive to the Floyd Hill overpass.

Secondary route via Pat Creek (private property):
NOTE: TO BE USED UNDER THE DIRECTION OF FIRE OR SHERIFF AUTHORITY

- Beaver Brook Canyon Road, south on Pat Creek Road through gate
- Straight at the first 4-way intersection
- Through second gate to HWY. 103

Secondary Route via Clear Creek High School:

- Beaver Brook Canyon Rd to CC HS driveway.
- Left just before entering parking lot
- Left through gate
- Stay right to Elmgreen Ln.

Evacuation Levels:

An evacuation notice will be sent via a "reverse 911" call; however you should be aware of what is happening in your area. Both law enforcement and firefighters may be tasked with door-to-door notification. You are encouraged to leave when any level of evacuation has been ordered.

There are three levels of evacuation.

Level 1 Evacuation means ***be ready***. Residents should be aware of the danger that exists in their area. You should make and be ready to leave, and then monitor local media outlets. Residents with special needs (such as the elderly or those with a susceptibility to breathing problems) are advised to evacuate. People with livestock or pets should consider moving them out of the area. Evacuations at this time are ***voluntary,*** but if you have concerns, evacuate now.

Level 2 Evacuation means ***leave soon***. There is significant potential of danger in your area, and residents should relocate to a shelter or with family/friends outside the affected area. You need to leave ***as soon as possible***.

Level 3 Evacuation means ***leave immediately***. Danger in your area is current and imminent. There is no time to gather belongings. ***Leave immediately***.

For emergency notification, register your cell phone and voice over internet at www.evergreenrescue.com.

RECOMMENDED MITIGATION PRIORITY #3
ACTION ON VARIOUS AREA ROUTES TO FACILITATE EMERGENCY EVACUATION:

In team meetings residents of the Cumberland Gulch and York Gulch areas stressed concerns over routes that are used as access or could be potentially used for evacuation. The concerns involved:

- Cumberland Gulch: current parking by area visitors could block both evacuation and access by fire authority vehicles.
- York Gulch: The Bald Mountain Road;

MITIGATION WORK ON CUMBERLAND GULCH

The concern for the Cumberland Gulch area is associated with needed signage to prohibit vehicles parking in some areas. Parking along the entrance road to the gulch could prohibit easy evacuation from the area and also access by emergency vehicles. Residents are proposing the following actions be taken which involve action by Clear Creek County.

New Signage- The priority is for clear signs for No Parking and Do Not Block Entrance. This would be to resolve instances where the entrance of Cumberland Gulch Rd.& Trail have been filled with so many parked OHV's, passenger cars, trailers & ATV's, that no emergency vehicles would make it through to a fire or other emergency. Examples are:

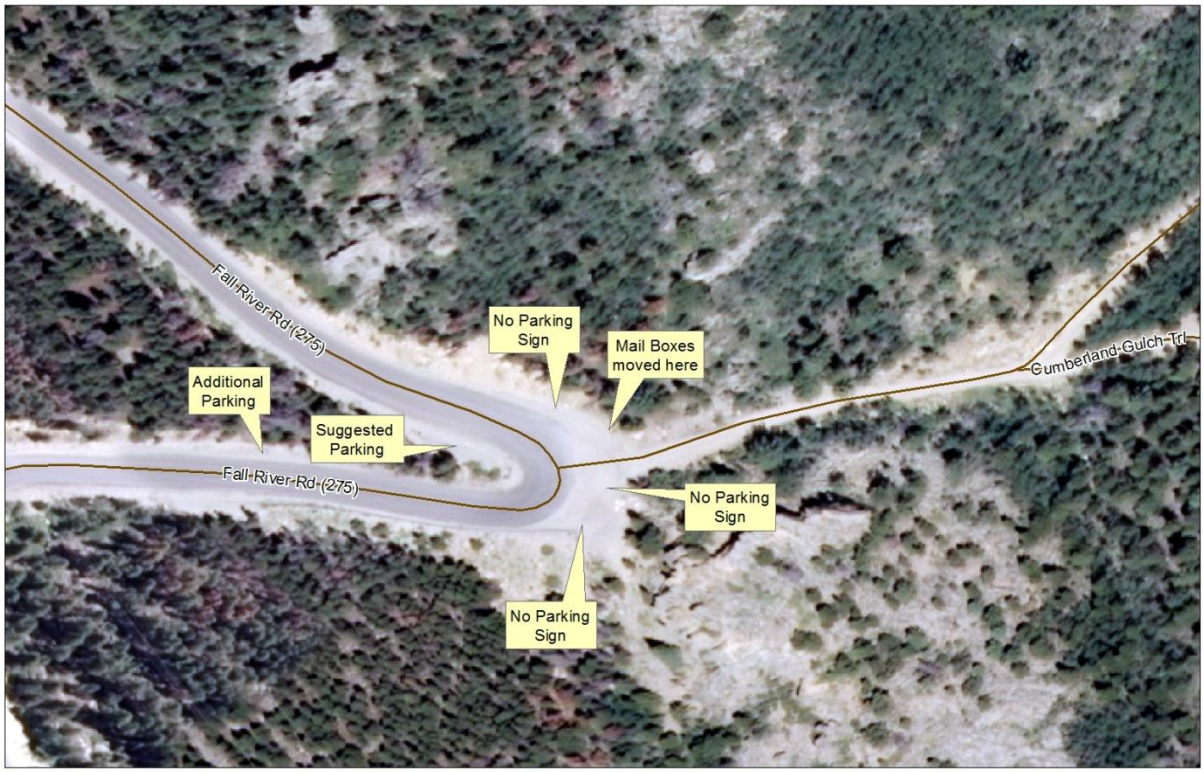
Vehicles parked at head of Cumberland Gulch

New Proposed No Parking Signs - Two state certified No Parking Anytime signs locally installed at the end of one home owner's driveway/roadway for safety purposes were removed by county workers. This plan proposes these signs be reinstalled by the county to ensure that the drive/roadway remains open and clear for any/all emergency vehicles; or that the county work with home owners to find alternate arrangements that will achieve effective road evacuation and access.

The proposal is also for signage to designate public parking across from the Cumberland Gulch road entrance so that visitors can still use the area. It is recommended that the proposed parking areas be evaluated for any physical changes which would add to parking and parked vehicles being in safe locations.

New Proposed Mailbox location – It is also proposed that resident mailboxes be moved to the right side of Fall River Road next to the street sign and culvert. This will aid emergency service personnel as the signs will be much more noticeable.

The next page has a map of the proposed locations.



Recommended sign and parking locations; Cumberland Gulch Road junction

MITIGATION WORK ON BALD MOUNTAIN LANE

Bald Mountain Lane serves as the primary escape route for the Fall River Watershed, and in particular the York Gulch area. At present time it can be traversed by high clearance 2 wheel drive vehicles, but AWD is recommended. The unmaintained portion is about 1.4 miles long and in most places is not wide enough to allow passing vehicles. If a car broke down or got stuck it would block any further ingress/egress - areas could certainly be widened and smoothed. There are several "pull out" areas where vehicles can pull over to allow another to pass. See map P.49.

There are only a few other escape routes for the Fall River Watershed and York Gulch area however, they all require 4 wheel drive, high clearance vehicles and a competent driver. These consist of: forest service route (FR) 739.1 leading to Columbine Campground (Route #5 on map P.58); FR 737.1D leading to the Russell Gulch area (Route #2 on map P.58); and various routes leading from Yankee Hill to Apex Rd in Gilpin County. To improve any of these routes would take considerable effort and resources.

For these reasons the team believes that Bald Mountain Lane serves as the most likely candidate for improvement, which would provide an adequate escape route for the Fall River Watershed.

Recommended improvements to Bald Mountain lane include:

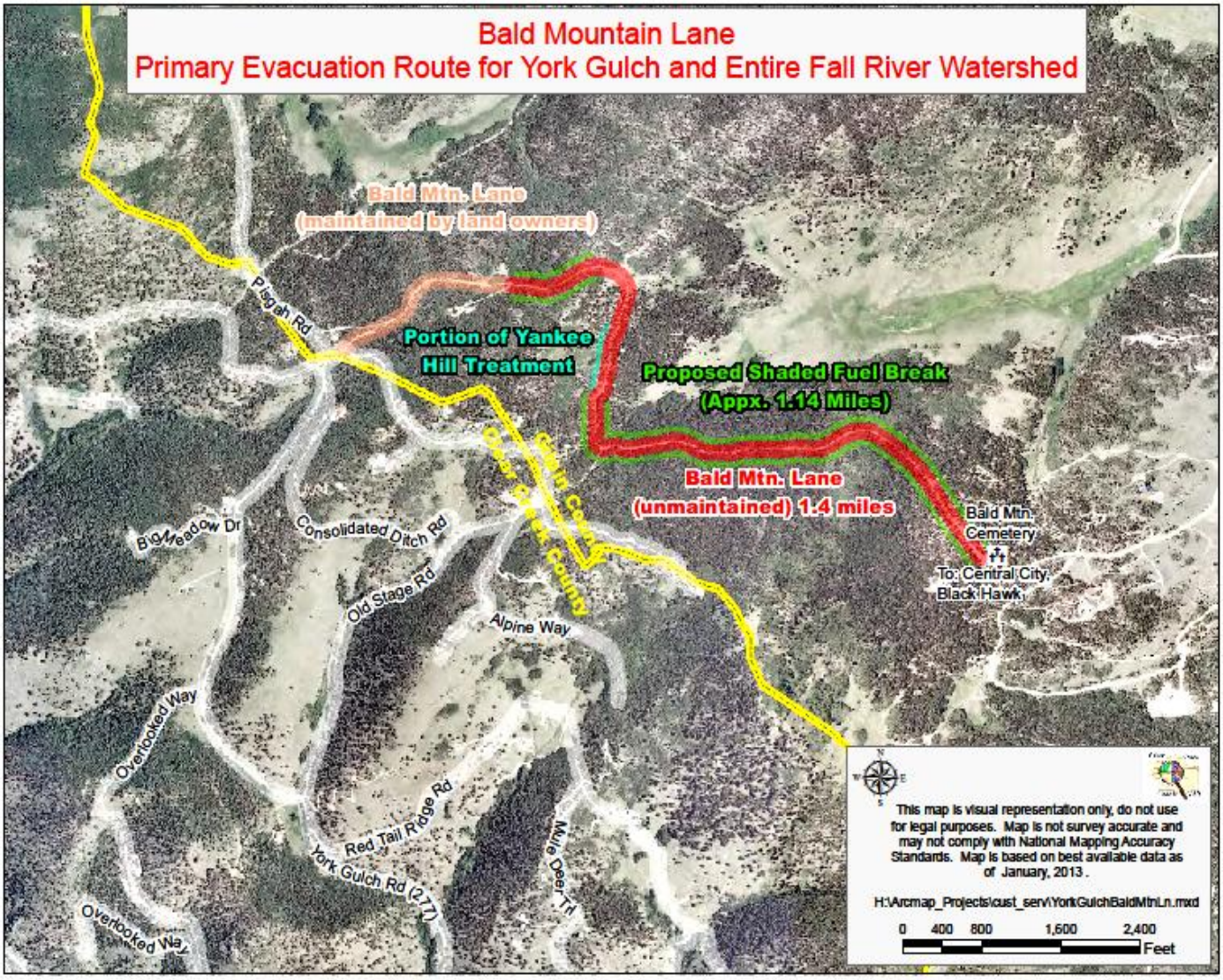
- Material fill and grading
- Addition of "pull off areas."
- Shaded fuel breaks – thinning of forest on either side of road.
- Develop and install foldable evacuation route signage from Fall River Road over this route.

Treatment would be in accordance with:

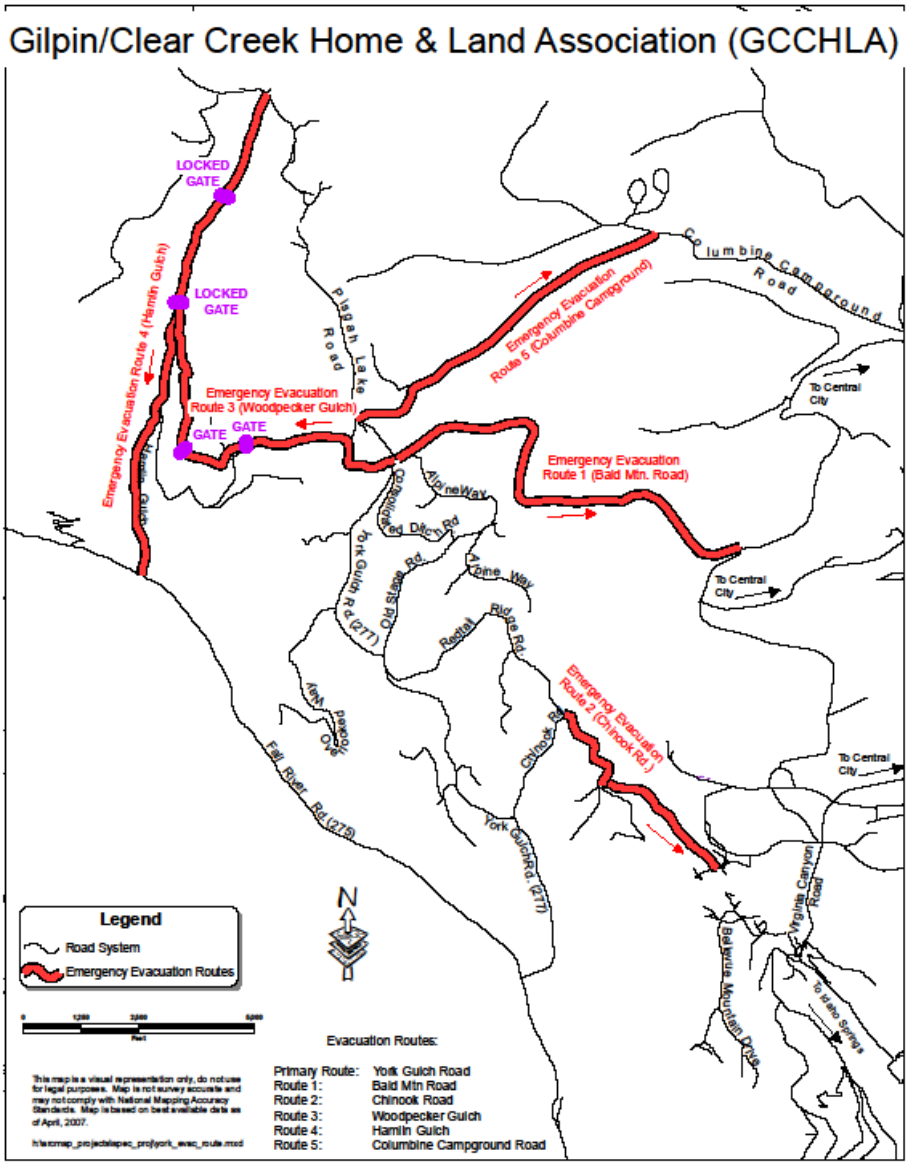
- The USFS standard for roadside mitigation/hazard tree removal: "… implement hazard tree removal activities within a distance equal to 110% of the height of the tallest hazard tree from the edge of: 1) National Forest System (NFS) roads open to motorized travel (maintenance levels two through five); 2) federal, state, county, or other permitted roads…" In this case the height of the tallest tree within the treatment zone would be used.
- The Colorado State Forest Service publication,"Fuelbreak Guidelines for Forested Subdivisions and Communities" by Frank Dennis

Treatment would be primarily hand thinning with some mechanical, and with slash pile and burning of material or some use of wood for biomass purposes. If it is assumed up to 60 feet would be involved on either side of the road this means maximum acreage would be approximately 23.36 acres. Cost would be approximately $1800/acre.

The community team should consult with the Golden District of the Colorado State Forest Service for an up-to-date cost estimate when it begins the process to accomplish this project.



Bald Mountain Lane Evacuation Route



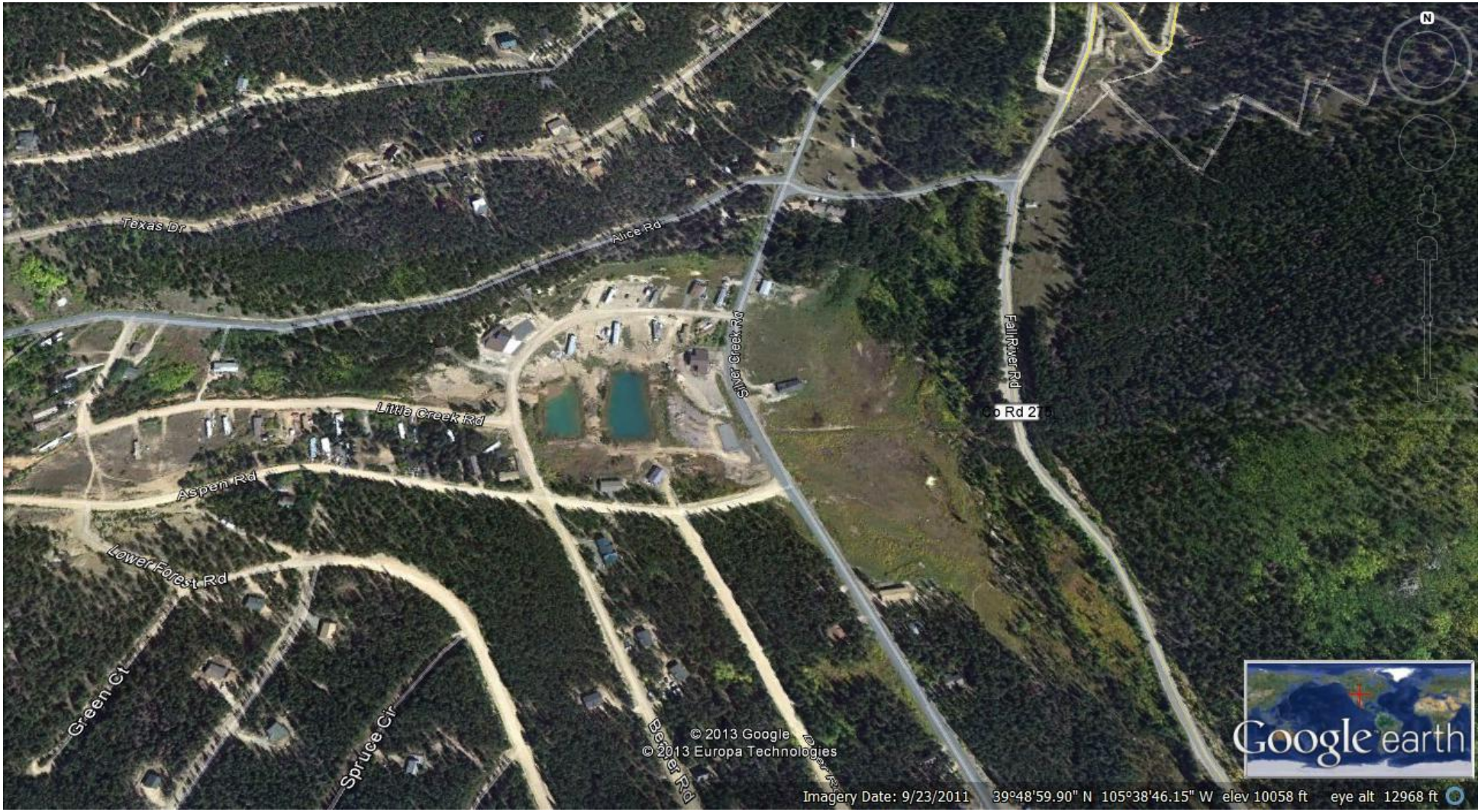
Overall York Gulch Area Evacuation Possibilities

RECOMMENDED MITIGATION PRIORITY #4
DEVELOP SAFETY ZONE FOR ST. MARYS AREA

Residents at the upper end of the Fall River area watershed wish to develop a safety zone in the event of a wildfire event as they are above nearly all secondary evacuation routes from the watershed.

The safe zone they have initially looked at is adjacent to the filtering ponds, mostly on Metro property, across the street from the fire station. The area includes Silvercreek and Beaver road. Initial discussion with the Clear Creek County Fire Authority Chief has provided support for designation of this area (see map next page).

The team recommends working with the Clear Creek County Fire Authority to complete study of and development of the area adjacent to the ponds as a safety zone. Also recommended is study to determine additional areas which may be effective as safety zones and development of those areas.



Proposed Safety Zone: St. Marys/Alice area

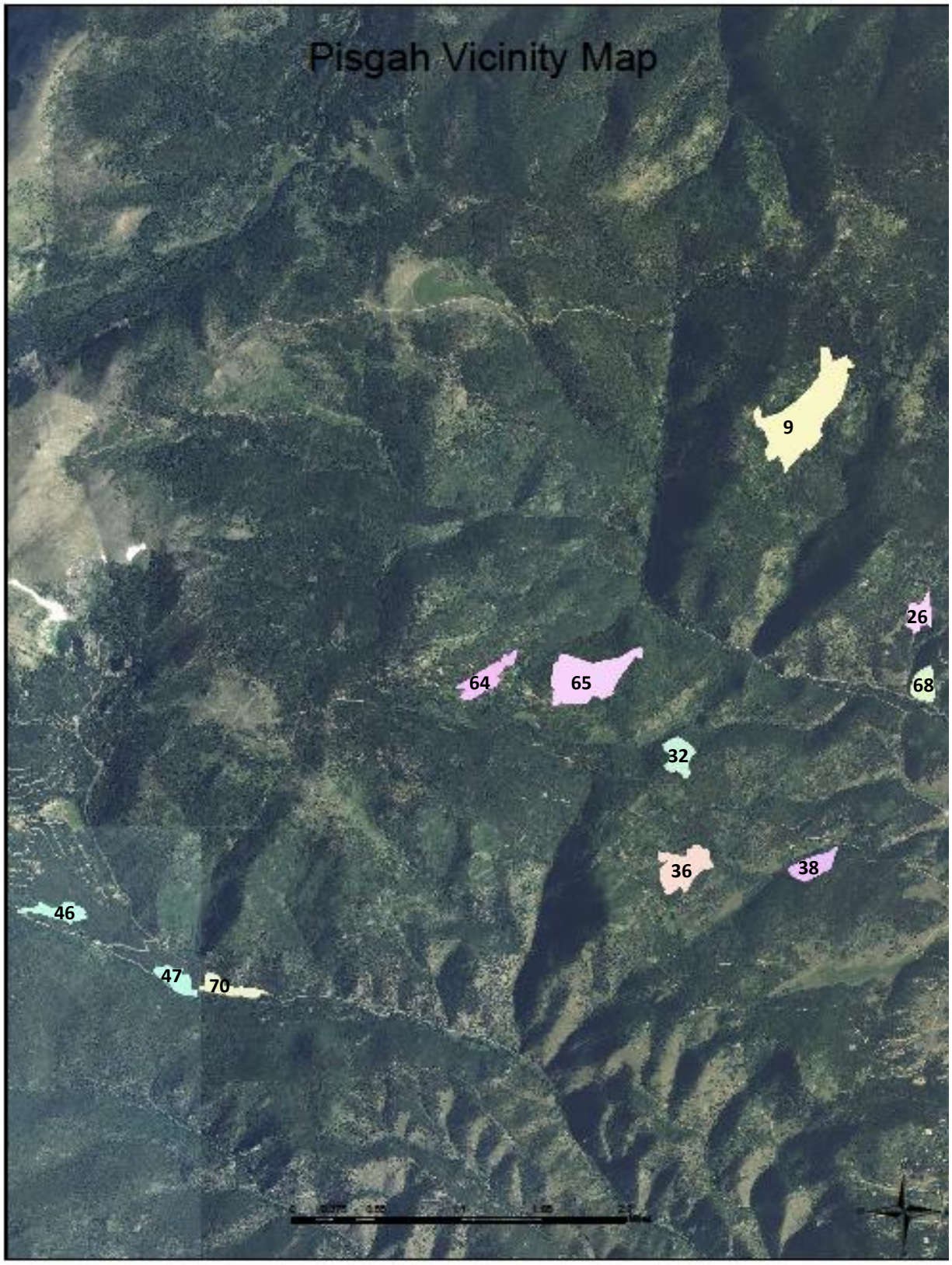
RECOMMENDED MITIGATION PRIORITY #5
US FOREST SERVICE ACTION TO COMPLETE MITIGATION ACTIONS CONTAINED IN YANKEE HILL HAZARDOUS FUELS REDUCTION PROJECT

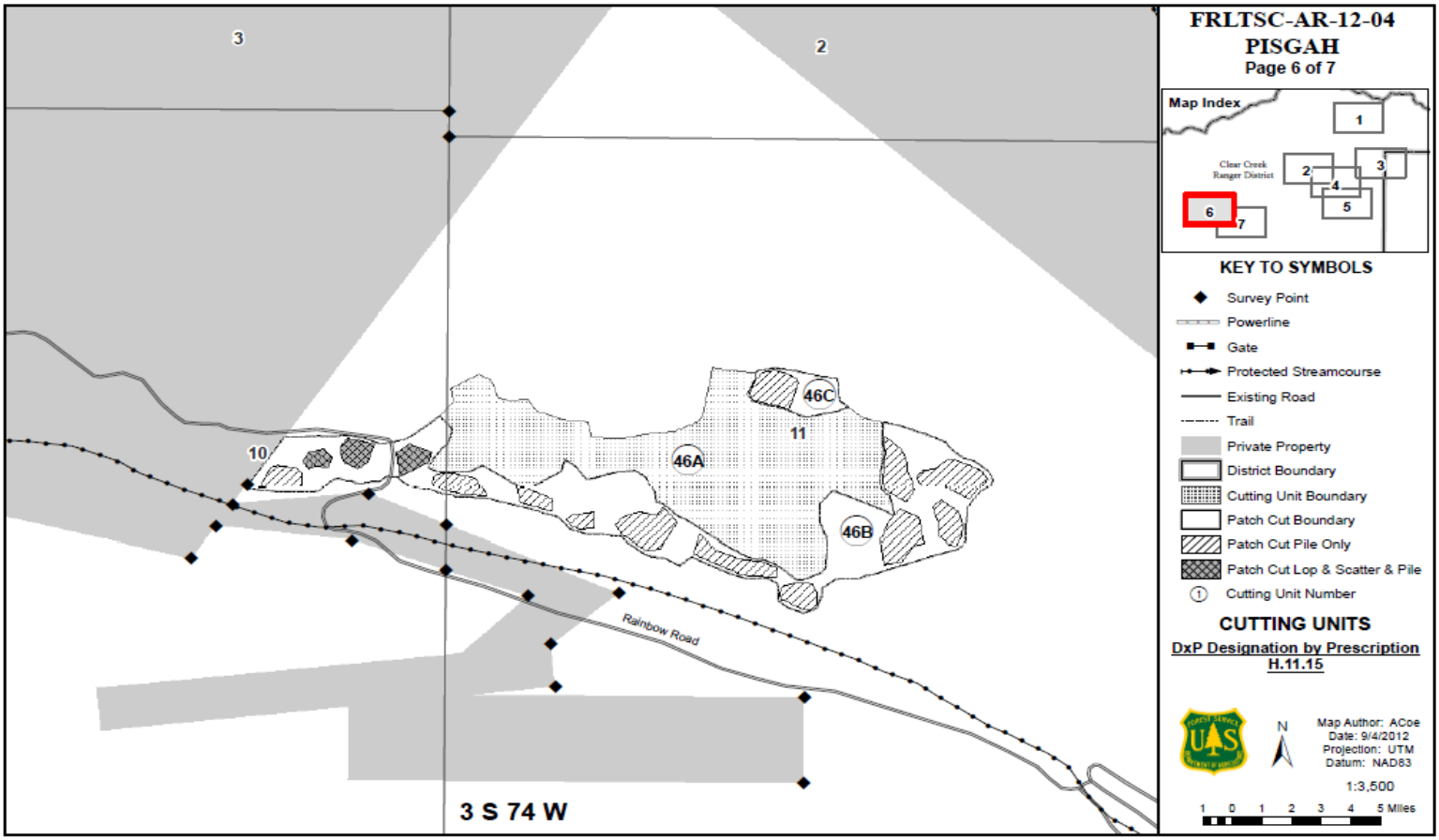
The Fall River CWPP team endorses work begun by the US Forest Service, Arapahoe Roosevelt National Forest, to carry out fuels mitigation work in the watershed as part of the overall Yankee Hill Hazardous Fuels Reduction project. The project's purpose and expected results will provide for added safety to the area as it deals with researched expected wildfire spread patterns. The Decision Notice for the project stated its purpose as: "The purpose of this project is to lower the intensity and slow the rate of spread of wildfire on National Forest System lands by modifying vegetation structure and fuel loads, creating openings in the forest canopy, and expanding existing natural and manmade fuel breaks in strategic locations."

In a press release in October, 2012, the forest stated, "Work on the Pisgah portion of the Yankee Hill Hazardous Fuels reduction project is scheduled to begin mid Oct. 2012. Crews will be creating openings in the forest canopy and creating fuel breaks to reduce the potential for intense fire behavior. This work will also address pockets of fuels susceptible to mountain pine beetle by thinning or patch cutting in conifer dominated stands, while enhancing aspen.

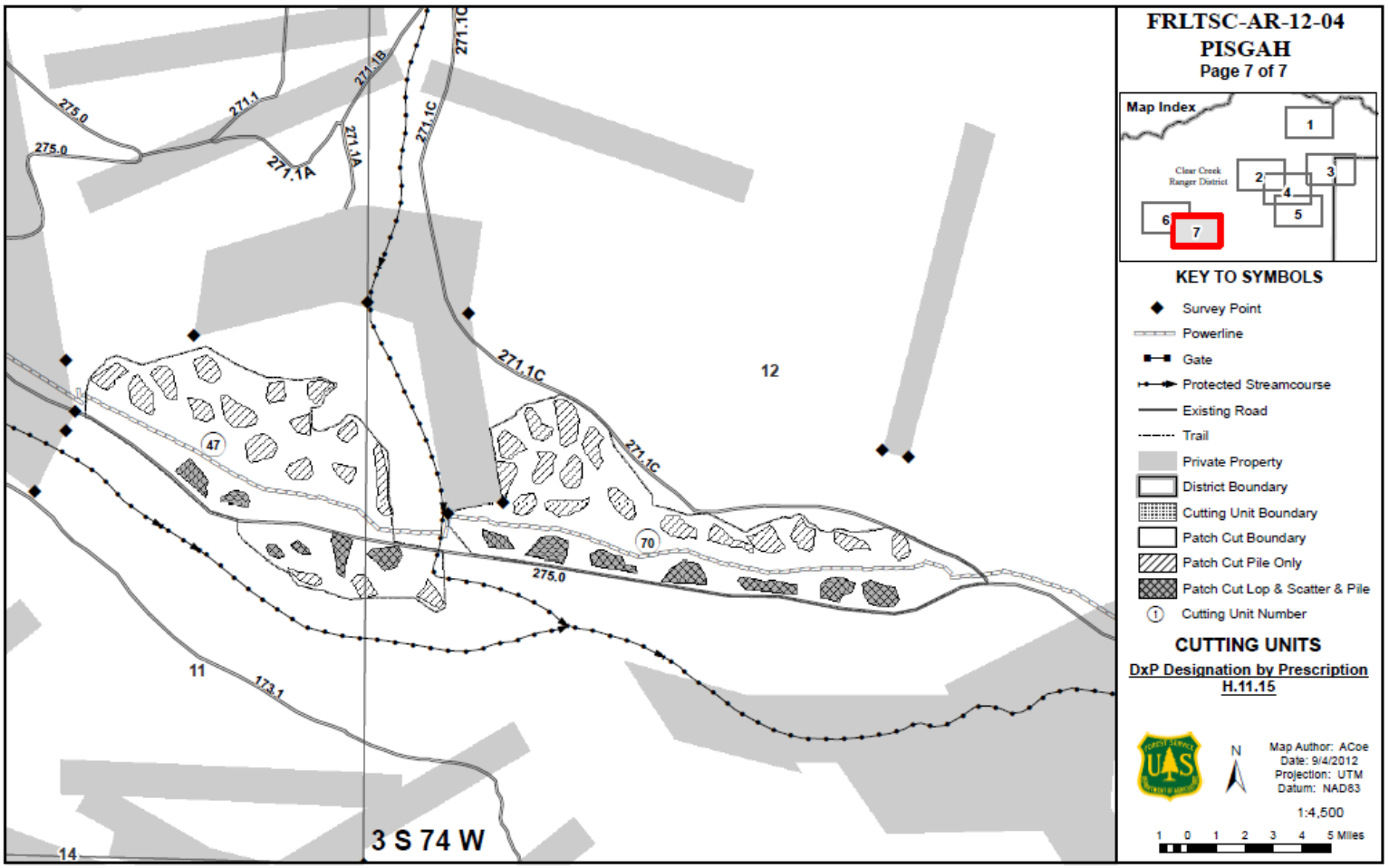
Piles that cannot be chipped, masticated, or hauled off will be scheduled for burning after the material cures, possibly in winter 2013 or 2014." Treatment methods are described: "Silvicultural prescriptions included a variety of treatments strategically placed on the landscape to best support project objectives. Mechanized (i.e., skidder, feller-buncher, harvester, masticating equipment, forwarder) and manual vegetation treatments (cutting with chainsaws) would be used. Treatments would focus on reducing ladder fuels, increasing the average height between the ground surface and the base of live crowns of trees within the stand, increasing the spacing between tree crowns and groups of trees, and expanding existing openings. A variety of slash treatments would be used, including: lop and scatter, piling and burning, chipping and mastication, or removal. For all treatments, where possible, aspen would be retained, enhanced, and expanded; bristlecone and healthy limber pine would be retained; and clumps of Engelmann spruce and subalpine fir with low branches would be retained."

The Pisgah area work, commenced in 2012, is shown on the map on the following page as unit 46 (Rainbow Road) and units 47 and 70, on Fall River road.


Pisgah Vicinity Map
9
26
64
65
68
32
36
38
46
47
70



Pisgah Unit 46: Rainbow Road



Pisgah Units 47 and 70: Fall River Road

7. EMERGENCY OPERATIONS

7.1 Wildfire Response Capability and Recommendations

The Fall River Watershed area is protected by a combination of volunteer and paid personnel in a network of public safety agencies including Clear Creek County Fire Authority, Clear Creek County Sheriff's Office, Clear Creek Emergency Medical Services, Alpine Rescue Team and the US Forest Service. The average response time is 15-20 minutes, but that period varies with inclement weather and the distance of the emergency from paved roads as the watershed includes a vast backcountry area."

7.2Mutual Aid

Standing mutual aid agreements are in-place with the adjacent Central City, Gilpin County EMS, Evergreen Fire/Rescue, Lake Dillon Fire-Rescue and surrounding Sheriff's Offices. These agreements facilitate effective emergency response operations in bordering areas where jurisdiction is not well defined and/or resources are not close. All Incident Commanders (IC) and/or District Chiefs are authorized to request Mutual Aid from any agency. Additional local support for wildfires may be provided by the US Forest Service. When a local incident exceeds the capacity of local resources, the Fort Collins Interagency Dispatch Center (FTC) is notified. FTC can dispatch resources and/or an incident management team to assume command from local jurisdiction.

- **Emergency Procedures: Evacuation Routes; Ready-Set-Go**

In the event that the Clear Creek County Sheriff orders a community to evacuate because of threatening wildfire, residents should leave in an orderly manner. The Sheriff would proclaim the preferred evacuation routes and safe sites. However, the need for evacuation can occur without notice when conditions for wildfire are favorable. Homeowners should be prepared to evacuate without formal notice.

Evacuation Routes

The only paved road in and out of the Fall River Watershed is Fall River Road. In the event that egress is blocked below your residence, alternate evacuation routes may need to be utilized.

Alternate routes are few and many of the evacuation routes are rough, dirt roads. Residents should scout out these routes prior to using them to ensure that they can safely navigate the route.

Evacuation procedures will vary according to subdivision. The Fall River neighborhood representatives should work with CCC and CCFA to develop and communicate procedures.

Pre-plans should also deal with: available evacuation centers and the procedures needed to activate them; safety zones and their use procedures. Large animal evacuation centers also need to be identified. CCC and CCFA should also be asked to address the potential for Shelter in Place. This concept has been used, but presents problems and hazards to safety.

As discussed elsewhere, residents should take defensible space actions on their property to reduce the chance of structure loss in advance of a wildfire. Human safety is the number one concern in an evacuation. Defensible space fuels mitigation and home safety actions can protect not only life, but also defend against ignition of the structures.

Most properties have other hazardous materials that pose additional threats to firefighters beyond that of the fire. Consider where you are storing your grill (propane tank), recreational vehicle or boat (fuel tanks), lawnmowers (fuel tanks), hot tub supplies (chlorine), fertilizers, pesticides and paint. Leave a note for firefighters on your front door or mailbox noting where hazardous materials are stored to help them safely defend your home.

Leach fields are problematic because firefighters don't want to drive their fire apparatus over them. Mark their boundaries.

Many residents have pets guarding their properties. If you aren't home when an evacuation occurs, is your dog (or llama) of a disposition to maul or eat firefighters? Firefighters will work with animal control officers to save your pets, but they can only help them if they can get them.

Ready-Set-Go:
Clear Creek County endorses the Ready-Set-Go program (RSG) of wildfire action planning for residents and other property owners. This program assists firefighters to teach individuals who live in high risk wildfire areas and the wildland-urban-interface (WUI) how to best prepare themselves and their properties against fire threats.

The RSG Program stresses that when firefighters encourage residents to take personal responsibility for preparing their property and family for wildland fire, residents become an active part of the solution to the problem of increasing fire losses.

RSG works in complimentary and collaborative fashion with Firewise and other existing wildland fire public education efforts. It amplifies the messages to individuals to better achieve the common goal we all share of fire-adapted communities.

The RSG Program is a three step process that can significantly increase the safety of residents and the safety of responding firefighters. The three steps are:

1) Ready – Preparing for the Fire Threat; Be Ready, Be Firewise. Take personal responsibility and prepare long before the threat of a wildfire so your home is ready in case of a fire.

2) Set – Situational Awareness When a Fire Starts; Pack your vehicle with your emergency items.

3) Go – Leave early! Comply with any evacuation orders and follow evacuation plans early!

The RSG Program provides tools through its website: www.wildlandfireRSG.org.
A more complete description of the program is in Appendix G.

Preparedness actions (before fire threatens) can include:

- Thoroughly irrigate the defensible space
- Remove debris from rain gutters
- Remove all flammable materials within 30 feet of the house such as: woodpiles, leaves, debris, and patio furniture.

When an evacuation is imminent, residents should:

- Close but don't lock windows and doors
- Cover other openings such as crawl spaces and attic vents in nonflammable material.
- Place a ladder against the house for roof access by firefighters
- Leave a fully charged hose that reaches around the house for firefighter use
- Leave porch lights on to allow firefighters to find homes at night.

Families should prepare a written evacuation plan so that all family members know what to do, what to take, meeting locations and phone numbers to call in case family members are separated.

Example evacuation plans are provided in the appendix.

Upon return, the exterior of the house should be monitored for smoke for several days. Embers may lodge in small cracks and crevices and smolder for several hours or days before flaming.

All of these procedures and plans should be addressed in public or HOA meetings with information eventually being distributed door to door. Residents should ensure they are familiar with these procedures, including primary and secondary routes, and the location of any designated community safety zone.

8. FALL RIVER WATERSHED CWPIP IMPLEMENTATION

o CWPIP Plan Adoption

The Fall River Watershed CWPIP was exposed to meetings of area home owner associations on three occasions to allow public review and response. Following these meetings public comments were assessed and the plan was finalized.

The Fall River Watershed CWPIP provides the foundation and resources for understanding wildfire risk and presents opportunities to reduce potential losses from wildfire. The individual watershed areas should take action to be part of the CWPIP team, to aid in selecting, prioritizing and specifically describing projects by acreage, mitigation actions and costs, and by participating in district-wide activities for prevention and protection.

Following formal concurrence with this plan by Clear Creek County, the Colorado State Forest Service, and the Clear Creek County Fire Authority, the Fall River Watershed area will be able to compete for hazardous fuels and non-fuels mitigation funding to support plan implementation. Adoption of this plan also highlights the partnership between the residents and stakeholders within the Fall River Watershed, CCC, CSFS and the USFS.

o Sustaining CWPIP Efforts

This Community Wildfire Protection Implementation Plan is the base document for what is, in reality, a long term process. Assessing community and home owner risk levels and establishing priority actions for fuels mitigation and individual home site actions and improvements will take a period of years. And as forests continue to change and grow it is necessary to keep up with actions and repeat them as time passes.

Implementing and sustaining the CWPIP is the key to success. This is the responsibility of the Implementation Team. Maintaining partnerships among community-based organizations, fire protection authorities, local governments, public land management agencies, and private landowners is necessary to implement projects to support this plan.

Individual homeowners, landowners and residents must take an active role in implementing actions on property they own. If one resident performs mitigation on his/her property but no one around them does it still puts that property at risk. These are truly community efforts to protect homes, businesses, historic and recreational sites, watersheds, and the forests we all care about and in which we make our homes. Absentee home and landowners need to take actions to protect their investments.

The CCC Sheriff's Office, CCCOEM and CCFA are committed to supporting fire protection efforts within the district as well as surrounding areas. It is important that the district continue to provide support in maintaining risk assessment information and emergency management coordination.

o Next Steps

Following adoption of this plan, the following activities will be initiated to support priority tasks:

Table 10. Next Steps

Objective	Tasks	Schedule	Responsibility
Project selection & prioritization	• The team works with each HOA area to select 1 or 2 initial priorities. These will be melded into an initial priority list for area wide mitigation work. Projects will be described in detail and placed in a plan Appendix.	Ongoing	CWPIP Team
Plan Review & Community meetings	• Review CWPIP for updating needs, to review for completed projects and to move new projects into the plan as needed. The team will attend HOA meetings and sponsor community demonstration and work days to foster education and involvement.	Ongoing	CWPIP Team

o CWPIP Oversight, Monitoring and Evaluation

The Core Team should be responsible for plan monitoring and evaluation through regular meetings, public involvement, and coordination with Fall River Watershed FPD, neighborhoods, and HOAs to assure plan goals and objectives are being obtained. Monitoring is the collection and analysis of information acquired over time to assist with decision-making and to provide the basis for change. Evaluation will include analysis of the effectiveness of past fuels reduction and non-fuels mitigation projects, as well as recent wildfire suppression efforts.

Table 9. Monitoring and Evaluation Tasks

Objective	Tasks	Timeline	Oversight
Risk Assessment	• Use reliable data that is compatible among partner agencies	Annual	CCC/CCFA
	• Update the CWPP as new information becomes available	Annual	CWPIP Implementation Team
	• Continue to assess wildfire risk to communities and private landowners	Biennial	HOA
Fuels Reduction	• Identify and prioritize fuels treatment projects on public land through development of a 5-year plan	Annual	CWPIP Team working with USFS / CCC
	• Track fuels reduction projects and defensible space projects on private land	Biennial	CWPP Team working with CCC
	• Monitor fuels reduction projects on evacuation routes	Annual	CCC / CCFA
	• Track grants and other funding sources and make appropriate application	On-going	CCC / CCFA
			CCC / CCFA

Objective	Tasks	Timeline	Oversight
Emergency Management	• Cooperate with CCCSO, CCCFA in planning and public education on emergency actions.	Ongoing	CCC / CCFA
Public Outreach	• Plan and hold Firewise education week • Provide Firewise pamphlets at public events • Evaluate techniques used to motivate and educate private landowners • Reach out to involve at least one person from each HOA/neighborhood who will interface with the CWPP Team and provide there area with educational materials, set up community demonstration days, and help set up work projects.	Annual Annual Annual On-going	CCC / CCFA CCC / CCFA CCC / CCFA CWPIP Team

The composition of the CWPIP team should retain professional representation from Clear Creek County, the CCC Fire Authority, Colorado State Forest Service, and the US Forest Service. Representation from area neighborhoods is very important and at least two of the neighborhood HOAs should be represented at any one time. This representation should be on a rotating basis to involve different areas and reduce the impact on participants.

As shown in the charts above, **team meetings should be held at least quarterly** (it may be desirable to meet more often as summer approaches each year) to review plan goals, actions and public response. Each year the CWPIP team should conduct a performance review to evaluate accomplishments and problems over the past year. The team should also consider any proposed changes to the CWPIP for the upcoming year and select project goals. The team should consult with the State Forest Service, USFS, and fire officials, and reach out to neighborhood stakeholders during plan review and project development. Timing should be guided by grant submission dates; CCCOEM and the CSFS district office can assist in this regard.

The overall CWPIP evaluation, recommended changes, and upcoming project goals should be presented to the public through various media: city and county meetings; newspaper; Community Wildfire days; county and fire department websites; and outreach to neighborhood organizations.

The CWPIP and a team contact list should be available on the Clear Creek County and Clear Creek Fire Authority and CSFS websites so the public can offer ideas at any time for the team to consider.

The CWPIP team should organize or take part in an annual community open house each spring to keep the public continuously aware of healthy forest restoration and wildfire mitigation needs and opportunities.

The team should develop or participate in demonstration days in area neighborhoods to showcase projects, techniques, and new ideas and encourage people to become involved.

APPENDICES

A. Publications and Websites

B. Defending the Watershed: (Lt. Einar Jensen, former Clear Creek Fire Authority)

C. Fire Evacuation Checklist

D. Pre-Planning: Ready, Set, Go Program

E. Fall River Watershed Land Ownership Maps

F. Ecological Maps

APPENDIX A

Publications and websites

Following is a listing of publications available from the Colorado State Forest Service which provide guidance on a range of mitigation activities which will aid communities in lessening the impact of wildfire. Also listed are several websites which contain information useful in mitigation efforts. *Fall River area residents are encouraged to view these sites which contain a great amount of useful information and action items which can assist in protecting properties from the effects of wildfire.*

Publications

The following publications can be viewed on the State Forest Service website (or linked directly from below). You may also obtain them from the Golden District office of the State Forest Service.

General Resources

Wildfire Policy in Transition: Where There's Smoke, There's... Mirrors
Presentation on Wildfire Policy in Transition

Resources for Homeowners & Landowners

Clear Creek County CWPP
http://csfs.colostate.edu/pages/CommunityWildfireProtectionPlans.html (go down list by county to the plan)

Creating Wildfire-Defensible Zones http://csfs.colostate.edu/pdfs/06302.pdf
Fire-Resistant Landscaping http://csfs.colostate.edu/pdfs/06303.pdf
Forest Home Fire Safety http://csfs.colostate.edu/pdfs/06304.pdf
FireWise Plant Materials http://csfs.colostate.edu/pdfs/06305.pdf
Grass Seed Mixes to Reduce Wildfire Hazard http://csfs.colostate.edu/pdfs/06306.pdf
Are You FireWise? Notebook http://csfs.colostate.edu/pdfs/wholenotebook.pdf
Home Fire Protection http://csfs.colostate.edu/pdfs/home_fire_protection_brochure.pdf
Living with Fire http://csfs.colostate.edu/pdfs/LWF51303.pdf
Wildfire & Insurance http://csfs.colostate.edu/pdfs/Wildfire_and_Insurance.pdf

FireWise Construction

Firewise Construction: Design and Materials by Peter Slack
http://csfs.colostate.edu/pdfs/construction_booklet.pdf
Decks http://csfs.colostate.edu/pdfs/decks.pdf
Roofing Materials http://csfs.colostate.edu/pdfs/roofing.pdf
Siding http://csfs.colostate.edu/pdfs/siding.pdf
Windows and Glass http://csfs.colostate.edu/pdfs/windows_and_glass.pdf

Resources for Communities

Fuelbreak Guidelines for Forested Subdivisions & Communities
http://csfs.colostate.edu/pdfs/fuelbreak_guidellines.pdf

Preparing a Community Wildfire Protection Plan - Handbook
Community Guide to Preparing & Implementing a CWPP — 2008
http://csfs.colostate.edu/pdfs/cwpphandbook.pdf
Community Wildfire Protection Plan Evaluation Guide http://csfs.colostate.edu/pdfs/eval_9-8-08_web.pdf
CWPP Minimum Standards REVISED 2009
http://csfs.colostate.edu/pdfs/FINAL_Revised_CWPP_Minimum_Standards_111309.pdf

Post-Fire
Vegetative Recovery after Wildfire http://csfs.colostate.edu/pdfs/06307.pdf
Soil Erosion Control after Wildfire http://csfs.colostate.edu/pdfs/06308.pdf
Insects and Diseases Associated with Forest Fires http://csfs.colostate.edu/pdfs/06309.pdf
"After the Fire" Safety Tips Factsheet http://csfs.colostate.edu/pdfs/after_the_fire.pdf

Websites

Colorado State Forest Service: http://csfs.colostate.edu/ Look for wildfire links, community wildfire protection link, and Land Owner & Assistance Programs
Clear Creek Fire Authority: http://www.clearcreekfire.com
Clear Creek County: http://www.co.clear-creek.co.us/
Firewise: http://www.firewise.org/
Rocky Mountain Wildland Fire Information:
http://www.rockymountainwildlandfire.info/grants.htm
Arapahoe National Forest: http://www.fs.fed.us/r2/arnf/index.shtml
Front Range Roundtable: http://frontrangeroundtable.org/Home_Page.php
Healthy Forest Restoration Act –background and information:
http://en.wikipedia.org/wiki/Healthy_Forests_Initiative
Healthy Forest Restoration Act – official website: http://www.forestsandrangelands.gov/

APPENDIX B

Defending the Watershed: Lt. Einar Jensen (Resident; former Clear Creek Fire Authority)

The neighborhoods in the Fall River Drainage exist in several ecosystems, but most share the characteristics of being surrounded by dense forests. Slopes with a south aspect (those facing south) support some ponderosa pines and shrubs while north aspects are densely packed with Douglas firs, subalpine firs and lodgepole pines. Blue spruces and narrow leaf cottonwoods are the dominant riparian species along gulches and creeks. Some aspen groves also exist in the area. Clear Creek County's dominant winds are from the southwest, which could push a crowning fire straight through the neighborhood, but winds following the I-70 corridor could cause erratic fire behavior in the Fall River Valley and on slopes adjacent to the interstate.

Our forest is densely packed with mature trees. **Thinning will reduce the ability of a fire to crown**, or burn from tree canopy to tree canopy, and it will reinvigorate the forest's health benefiting flora and fauna as well as the human community. Thinning is important, but it does not prevent fires outright. Also recognize that thinning is different from clear-cutting. Removing too many trees at once promotes erosion and threatens the health of the forest and its inhabitants. Adding shaded fuelbreaks along roadways and on forested slopes are other recommendations.

Access is a major problem. Motor vehicles have only two routes of ingress and egress from the drainage: Fall River Road to I-70 or York Gulch to Gilpin County. Emergency crews have access to other roads, but those routes -- such as Upper Chinook Road -- easily could be blocked in times of wildland fires. Within the drainage, most roads consist of packed dirt or gravel. Despite the efforts of public agencies and property owners, the quality of these roads varies throughout the year depending on weather, use (especially by off-highway vehicles) and general deterioration. Road width also varies, which prevents safe passing of oncoming vehicles in several places. Few places exist with enough room for larger fire apparatus to share the road with passenger vehicles, much less recreational vehicles. These roads also are susceptible to blockage from downed trees and utility lines, which will prevent fire apparatus from entering the subdivision and property owners from evacuating in emergencies. Firefighters will abandon homes that could otherwise be saved if roads become threatened. Intersections must be well marked and signage needs to be maintained and cleared of obstructions throughout the year.

Better signage is also needed on private property. Most homes have visible addresses at the ends of their driveways, but some don't. Firefighters, ambulances and law enforcement respond based on street addresses and last names. Make sure both forms of identification are easily visible from the road, especially after dark, and add your address to the house to help us verify we reached the proper location, especially when a driveway serves multiple homes. We can't help you if we can't find you.

Water is an important resource for any fire, but especially for fires involving structures. The nearest fire stations are in Alice, York Gulch and Idaho Springs. **Water resources are rare beyond wide spots in Fall River**.

Younger individuals and families are moving into this area, but part of the population remains older. As we age, we collect more "stuff," which means that we need to remove more stuff in times of evacuation. Additionally, families have more belongings than single residents. Consider compiling a list of those important documents, photographs and memorabilia that you

want to remove in case of evacuation to ease the task if it becomes necessary. **Think about the Four Ps: Pets, Pills, Papers and Photos.** You may have five hours to evacuate; you may have five minutes.

If you do leave, **set a ladder in the driveway** and **connect garden hoses to spigots** so that we can use your equipment and ours to defend your home. We'll also use your water to refill our tank and help suppress flames running toward the house.

Create an evacuation plan for your family in advance of that stressful moment. Include a meeting place outside the watershed, such as the Safeway parking lot in Idaho Springs), and a point of contact outside of the state who you can call with updates on your status. Family members and friends can call/email that person to learn about your well-being without overloading the local telephone circuits needed by emergency crews.

So what do we do?

Wildfire is part of our ecosystems: they have created the ecosystems we love in Clear Creek County. We humans need to adjust our thinking to accept fire and "welcome" it into our neighborhoods. To achieve that goal, we have to make our homes less vulnerable to wildfires. That's key. To make homes less vulnerable, we need to understand what fire does and how it behaves.

1. Firefighters on the ground can only battle flames 0-4 feet in length safely. Fires burning in the crowns of trees are impossible to fight. Use the principles of defensible space (www.firewise.org) to drop fire from crowns onto the surface where we can do something about the fire. Thin trees so that the branches don't touch each other and remove low lying branches, called ladder fuels, that allow a fire to "climb" into aerial fuels. Remove ladder fuels to 8 feet about the ground and thin trees throughout the property.

2. Fire burns faster uphill than downhill or laterally. As fire burns, it preheats fuels above it. Therefore, property owners need to remove more fuels (thinning) on the downhill side of the house than the uphill side.

3. Most structures DON'T ignite from direct flame contact. Wildfires tend to ignite structures via radiant heat (heat that doesn't warm the intervening air but does warm objects). As a fire is burning, the heat passes through air and windows to objects that warm to the point of ignition then smolder for hours. Firefighters (across the country) are learning to return to burned over neighborhoods to extinguish these smoldering fires before they turn into unwitnessed structure fires. As a homeowner, your role includes making the house less resistant to radiant heat: use a non-combustible roofing material, non-combustible siding and prevent woody debris from accumulating under decks and in gutters. Also, remove lacey curtains from windows: use heavier fabrics or shingles to protect windows and keep the radiant heat out.

4. Embers or fire brands also ignite house fires. As fires burn, they suck in oxygen and push heated air upward. That column of rising air contains embers and tosses them anywhere, including onto unburned fuels. These "spot fires" are tough to manage. The Hayman fire created spot fires miles downwind -- leading to the partial evacuation of

Castle Rock's subdivisions. Embers can get stuck in "traps" on roofing, such as beside chimneys or in gutters. If the roofing material is non-combustible, the risk is minimal. If the roofing is wood shake shingles... disaster. And when those shingles ignite, they can become embers and start dozens of new fires. Wood shake shingles are an awful gamble. Also clean pine needles out of gutters and off roofing, and rake them from the yard. Needles are acidic; raking them will encourage better ground cover around your property and encourage wildlife to visit.

5. Large windows are a threat to homes because they allow radiant heat to enter the structure. Remove lacey and other decorative curtains from windows when a fire approaches to prevent the radiant heat from igniting them through the glass. Large windows, especially single-panes windows, also are vulnerable to breaking from debris blowing in fire-generated winds. A broken window could allow embers to enter the structure.

6. Most properties have other hazardous materials that pose additional threats to firefighters beyond that of the fire. Consider where you are storing your grill (propane tank), recreational vehicle or boat (fuel tanks), lawnmowers (fuel tanks), hot tub supplies (chlorine), fertilizers, pesticides and paint. Leave a note for firefighters on your front door or mailbox in times of evacuation so we can safely defend the neighborhood.

7. Leech fields are problematic because we don't want to drive our fire apparatus over them. Mark their boundaries.

8. Many residents have pets guarding their properties. If you aren't home when an evacuation occurs, is your dog (or llama) of a disposition to maul or eat firefighters? We'll work with animal control officers to save your pets, but we have to get to them to help them.

APPENDIX C

Fire Evacuation Checklist

When evacuation is imminent, even knowledgeable folks will feel the stress and forget things. In addition to helping you remember, this checklist can do two things for the firefighters:

- convince them that your house can be saved
- give them information they need to fight effectively.

How to Use This Checklist

1. If you're reading this online, print it out. If possible, copy it on to heavy paper.

2. Go over it ***before the crisis***, discussing how to accomplish each item ***during the crisis***. Make assignments.

3. Fill out the Checklist (pages 2 & 3). The time frames are obviously approximate; no one knows if, much less when, an evacuation will be ordered.

4. When evacuation becomes a possibility, do each step and note results. [Some suggestions below.]

5. Post the Checklist (and any note you think useful for the fire fighters) on your front door as you leave.

Protect it somehow (laminate, clear plastic bag, etc.). ***Keep it brief & clear; they will be very busy.***

Suggestions for Filling out the Checklist

Wildfire Mitigation Checklist: If already completed, check again gutters, vents, Defensible Space Zone 1, access by large vehicles. If you haven't done the list, do as much as you can, starting with items above.

Leave Doors Unlocked: Latch any door that tends to blow open (remember: fires create wind). If applicable, leave note for fire fighters concerning latched doors.

Separate Note to Fire Fighters: Include fire retardant features that aren't obvious; items not on Checklist; etc. Write several hours prior, so you can rewrite, if necessary. ***Major items only: they're busy***.

Remember, this Checklist has three, equally important, goals:

1. Action items for you

2. Information for firefighters

3. Argument that your house is save-able.

So fill it out and post it with items #2 and 3 in mind!

Note: For additional information, please visit the Ventura County, CA website at http://fire.countyofventura.org/publicinformation/publications/PDFs/Ready_Set_Go-8.5x11-09_Final.pdf

(Post on Door)

Last House Contact
Name: _____ Address: _____
Info: _____
Key Locations:
Batteries
Water sources
Propane Tank
Tool shed
Ladder(s)

When (or Before!) Fire First Starts

__ If you haven't already done so, make a detailed inventory of personal items. Include purchase date & price, replacement cost, whether covered by insurance, etc. Store one copy off premises.

__ Make a list of items to take either for use while gone or for safekeeping: papers (e.g.., insurance, birth certificates, passports, & the inventory above), checkbook/credit card, ID, medicines, clothes, water, food, toiletries, pet supplies, etc.

__ Review (or begin) the annual Wildfire Mitigation Checklist, particularly gutters, access, and defensible space.

__Fell any trees/limbs that you have been gambling on saving.

__ Determine best radio news source on the fire. (Possibly K-Goat, particularly after the Saxon Mtn. upgrade.)

__ Take "before" photos of inside and outside. Take the film with you when you leave.

__ Make sure you have at least ½ tank of gas in the car(s) you will use to leave. Fill chain saw & pumps.

__ Disconnect blockage of unidentified phone calls so that "Reverse-911" can be received.

1 Day Before Evacuation (if you have that much notice)

__ Go over plans with family and close friend/relative not in fire area. Include rendez-vous point.

__ If possible evacuate pets, livestock, and non-essential humans.

__ Begin close checks on phone answering machine for reverse-911 notifications.

__ If possible, get animals away from fire area.

6-12 Hours Before Evacuation (if you have that much notice)

__ Fill water holding tank. Top off after significant use.

__ Attach hoses to outside faucets. Charge, but keep nozzles shut. If roof is wood, attach one hose to sprinkler and place on roof (but do not turn on).

__ Compose note to firefighters to place on front door. (Hand tools, chain saw, holding tank, cistern, etc.)

__ Change into cotton or wool clothing (no nylon or combustible); put on sturdy footwear.

__ Park all vehicles (a) out of way (garage preferable), (b) facing outward, (c) keys in ignition, (d) windows up.

__ Disconnect electronic garage door opener (manual operation).

__ Close exterior vents or cover with fire-retardant material (if none available, do nothing).

(over)

__ Get combustible lawn furniture well away from structures.

__ Begin loading car with valuables previously identified.

__ Fill sinks, bathtubs, garbage pails, etc., with water. Place large towels, small rugs, burlap bags nearby.

__ If applicable leave fueled portable pump next to cistern stream, or lake. (Make note to firefighters.)
__ Round up all remaining pets (and their supplies) so that they can be evacuated immediately.

1-2 Hours Before Evacuation

__ Shut off propane at the tank and at the house. Extinguish pilot lights.

__ Erect ladder to roof (preferably away from fire direction. (Location: _____)

Place second ladder to deck, if applicable: (Location: _____)

__ Remove (or at least open) combustible curtains; close fire-resistant curtains or venetian blinds.

__ Move combustible furniture to center of rooms.

__ Turn on light in every room and on porch.

__ Close ***every*** window; close ***every*** door you're not actually using. Leave all unlocked.
__ Top off water holding tank.

__ Open fireplace damper, but place screen in front of hearth.

As You Leave

__ Check doors (closed), windows (closed), lights (one on in every room).

__ Place this checklist and any note in plastic bag and post where firefighters can see it.
__ Drive away with headlights on. Follow evacuation route indicated; your favorite shortcut may have been affected by the fire or efforts to suppress it.

While You Are Gone

__ Contact insurance agent(s) immediately. Tell them where you're staying.
__ Keep ***all*** receipts. Don't determine by yourself what is, and isn't, covered.

When You Return

__ Check phone, utilities, etc. Be sure pilot lights are lit before using gas appliances.

__ Ventilate house if smoke in area is not too heavy. Unblock vents. Clean up fire retardant. If fire touched house, check roof and attic carefully.

__ Inventory losses & report immediately. Use the "before" inventory as your starting point.

__ Take "after" photos (before and after cleanup).

__ If fire came close, watch for snags, hot spots, etc. and notify fire department ***immediately***.

__ Make any temporary repairs you can, particularly to reseal the outer shell from further damage. Do not wait for reimbursements to do so.

__ Get a detailed estimate of repairs and forward to agent(s)/adjuster(s). One estimate is sufficient at this point.

APPENDIX D
PRE-PLANNING: READY-SET-GO!

Wildfire Action Planning- The Ready, Set, Go! Program (RSG): ww.wildlandfireRSG.org.

This program assists firefighters to teach individuals who live in high risk wildfire areas and the wildland-urban-interface (WUI) how to best prepare themselves and their properties against fire threats. The RSG Program stresses that when firefighters encourage residents to take personal responsibility for preparing their property and family for wildland fire, residents become an active part of the solution to the problem of increasing fire losses.

RSG works in complimentary and collaborative fashion with Firewise and other existing wildland fire public education efforts. It amplifies the messages to individuals to better achieve the common goal we all share of fire-adapted communities.

The RSG Program is a three step process that can significantly increase the safety of residents and the safety of responding firefighters. The RSG Program provides the implementation guidance; background knowledge; and presentation tools to assist fire departments in delivering the program message.

It is easy to remember and is easy to implement:

• **Ready – Preparing for the Fire Threat:** Be Ready, Be Firewise. Take personal responsibility and prepare long before the threat of a wildfire so your home is ready in case of a fire. Create defensible space by clearing brush away from your home. Use fire-resistant landscaping and harden your home with fire-safe construction measures. Assemble emergency supplies and belongings in a safe spot. Make sure all residents residing within the home are on the same page, plan escape routes. For more information about how to be Ready for wildland fires, go to Firewise.org.

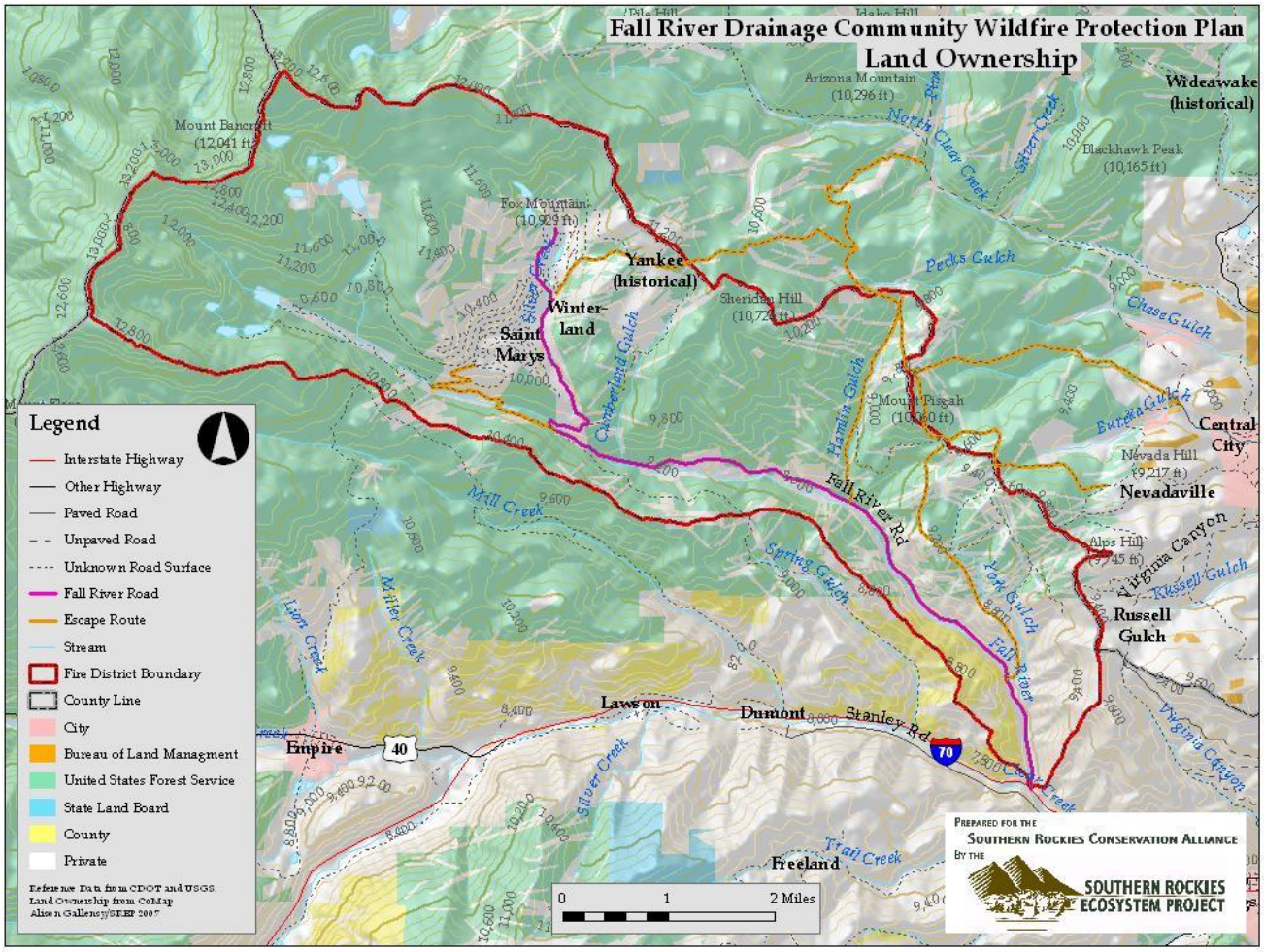
• **Set – Situational Awareness When a Fire Starts:** Pack your vehicle with your emergency items. Stay aware of the latest news from local media and your local fire department for updated information on the fire.

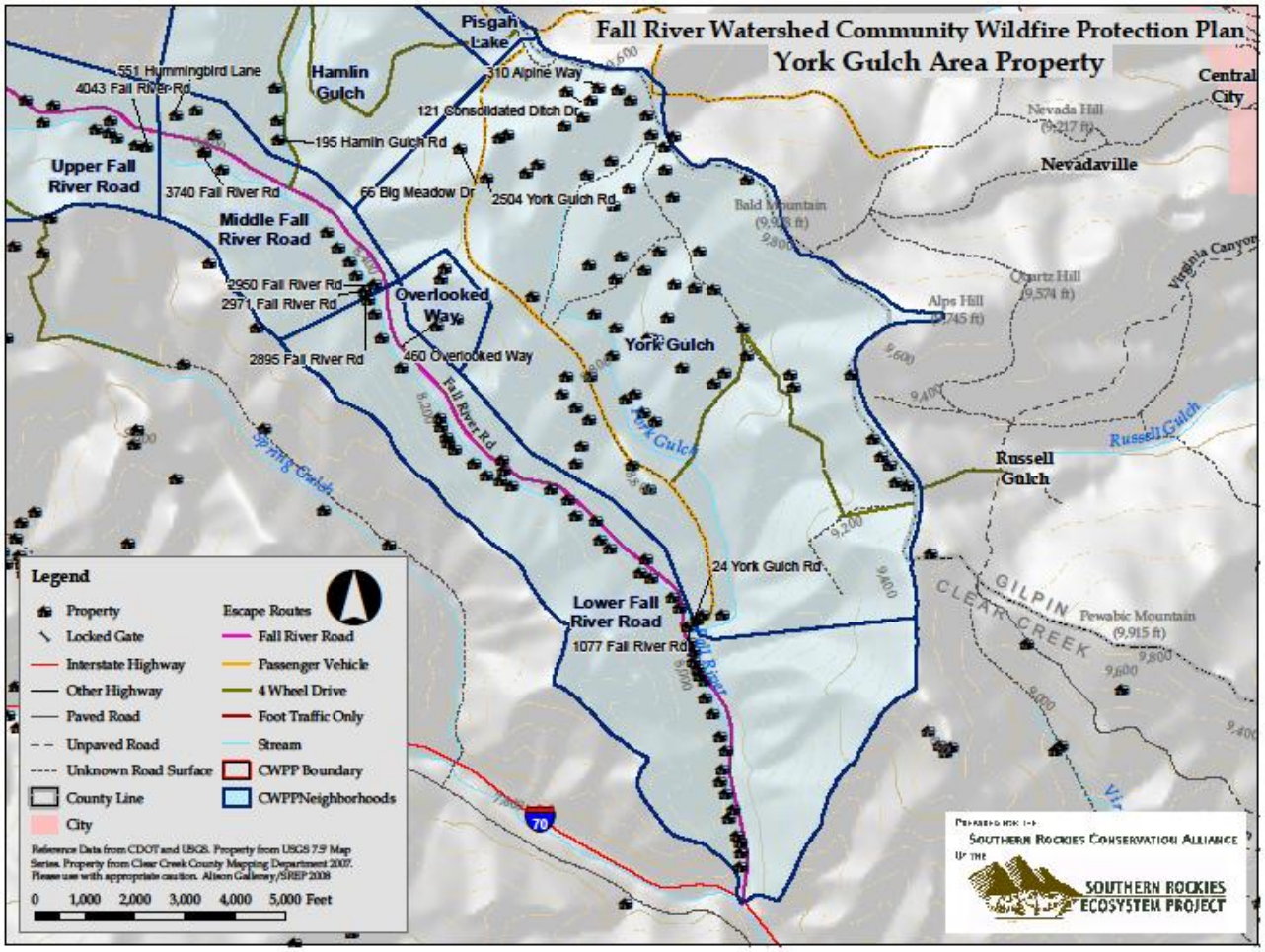
• **Go – Leave early!** Comply with any evacuation orders and follow evacuation plans early! Your Action Plan makes you prepared and firefighters are now able to maneuver and ensure you and your family's safety.

The RSG Program provides tools through its website, www.wildlandfireRSG.org for fire departments that join the program to better understand preparedness techniques; help in identifying local partners and audiences; useful outreach models and presentation tools; and general background on wildland fire activity. These are especially designed to assist small volunteer and rural fire departments that are often strapped for time and resources.

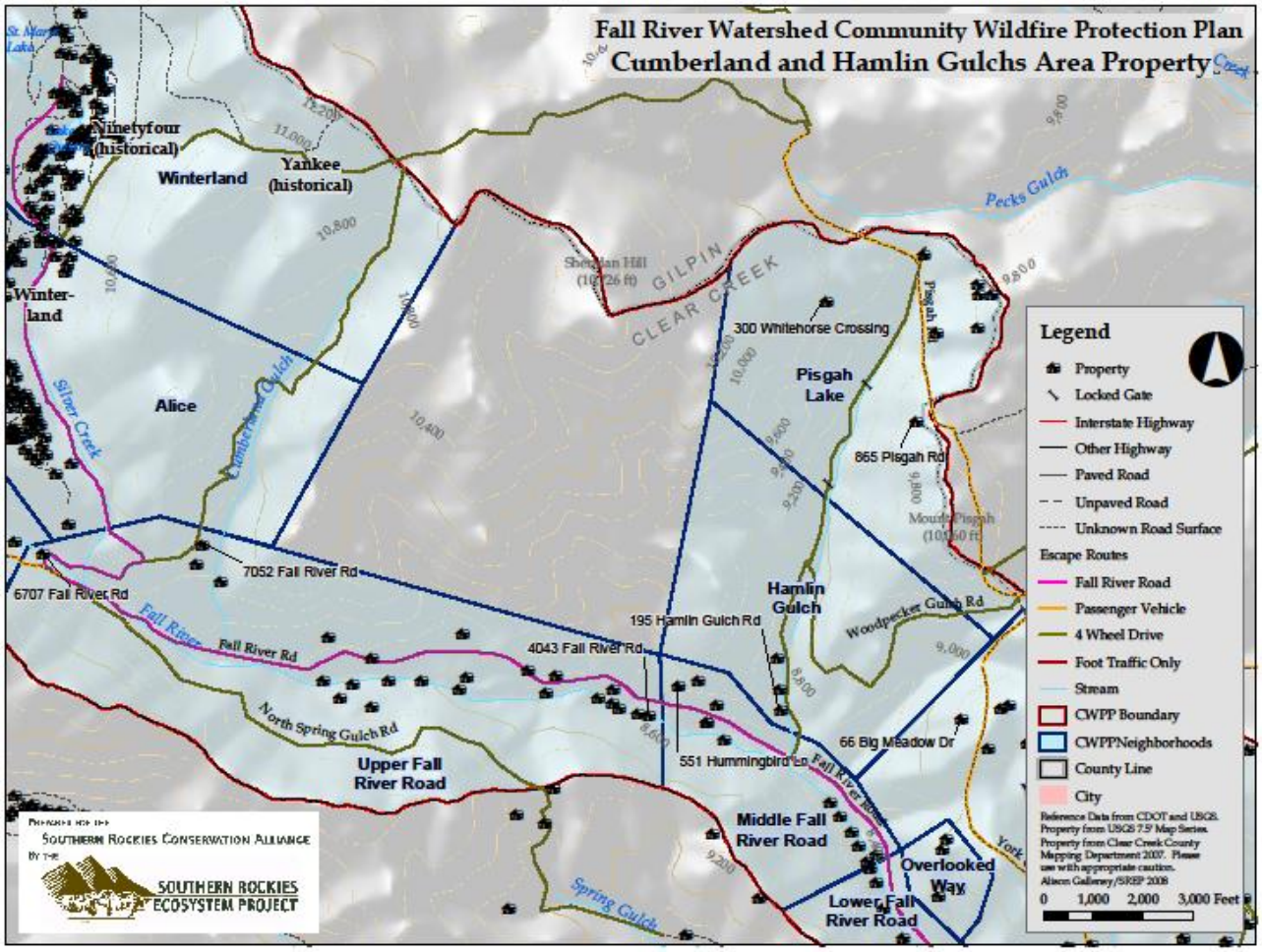
The program was developed for national rollout by the International Association of Fire Chiefs (IAFC), with support from the U.S. Forest Service, the U.S. Fire Administration (USFA), the U.S. Department of the Interior, the Firewise Communities Program and the Insurance Institute for Business & Home Safety (IBHS).

.APPENDIX E: Fall River Watershed Land Ownership Maps

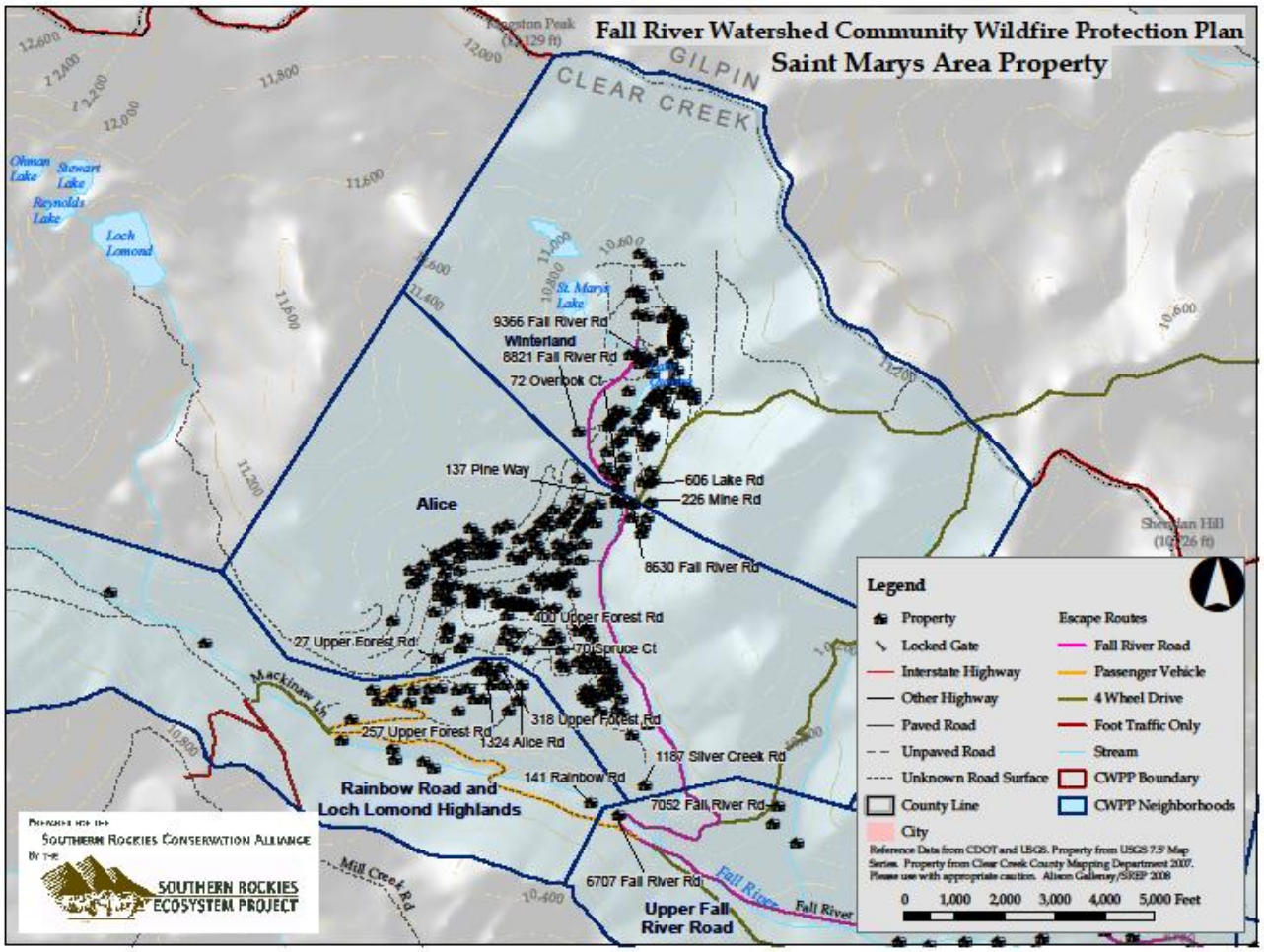




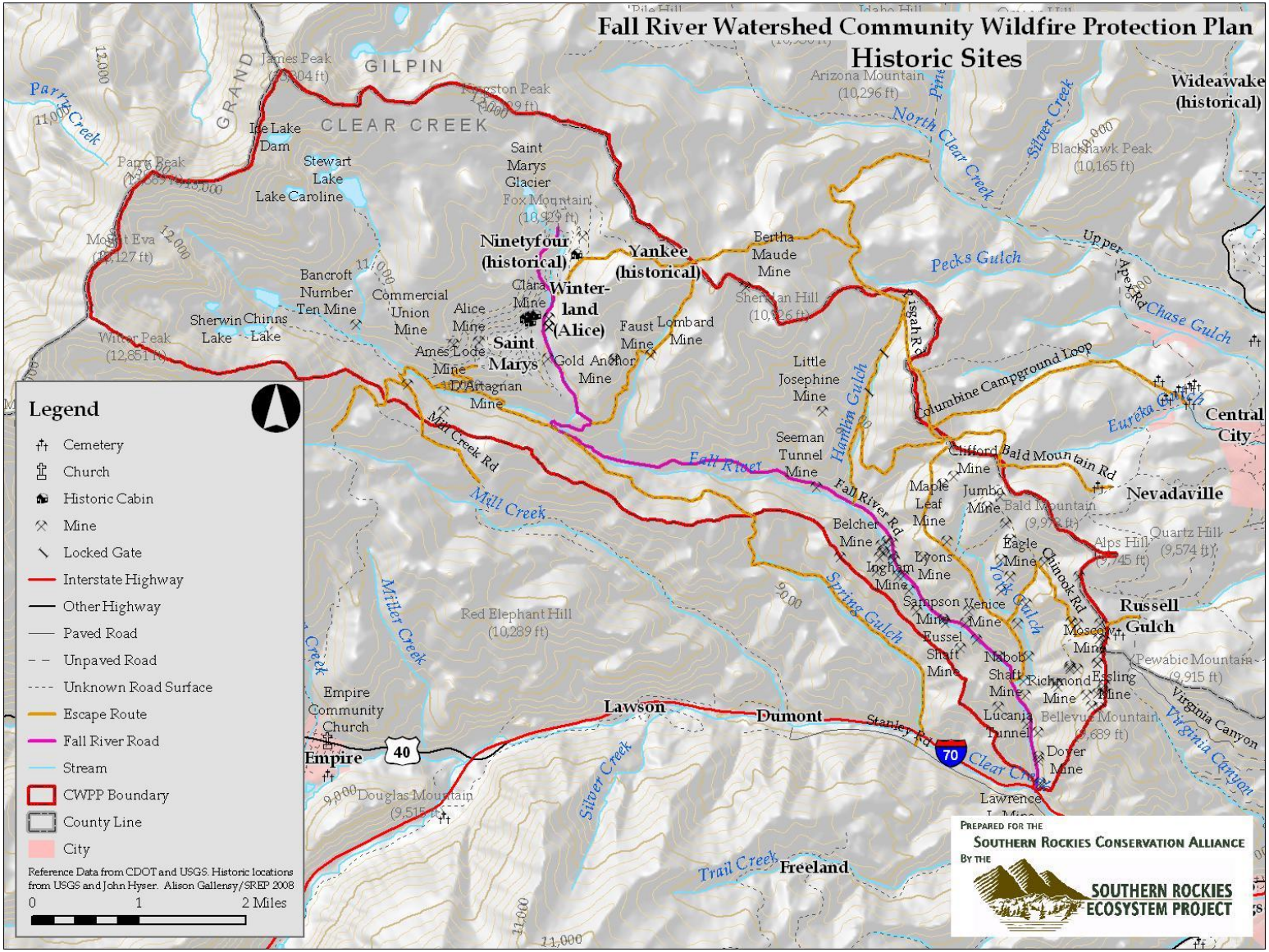
CWPP AREA: LOWER FALL RIVER AND YORK GULCH



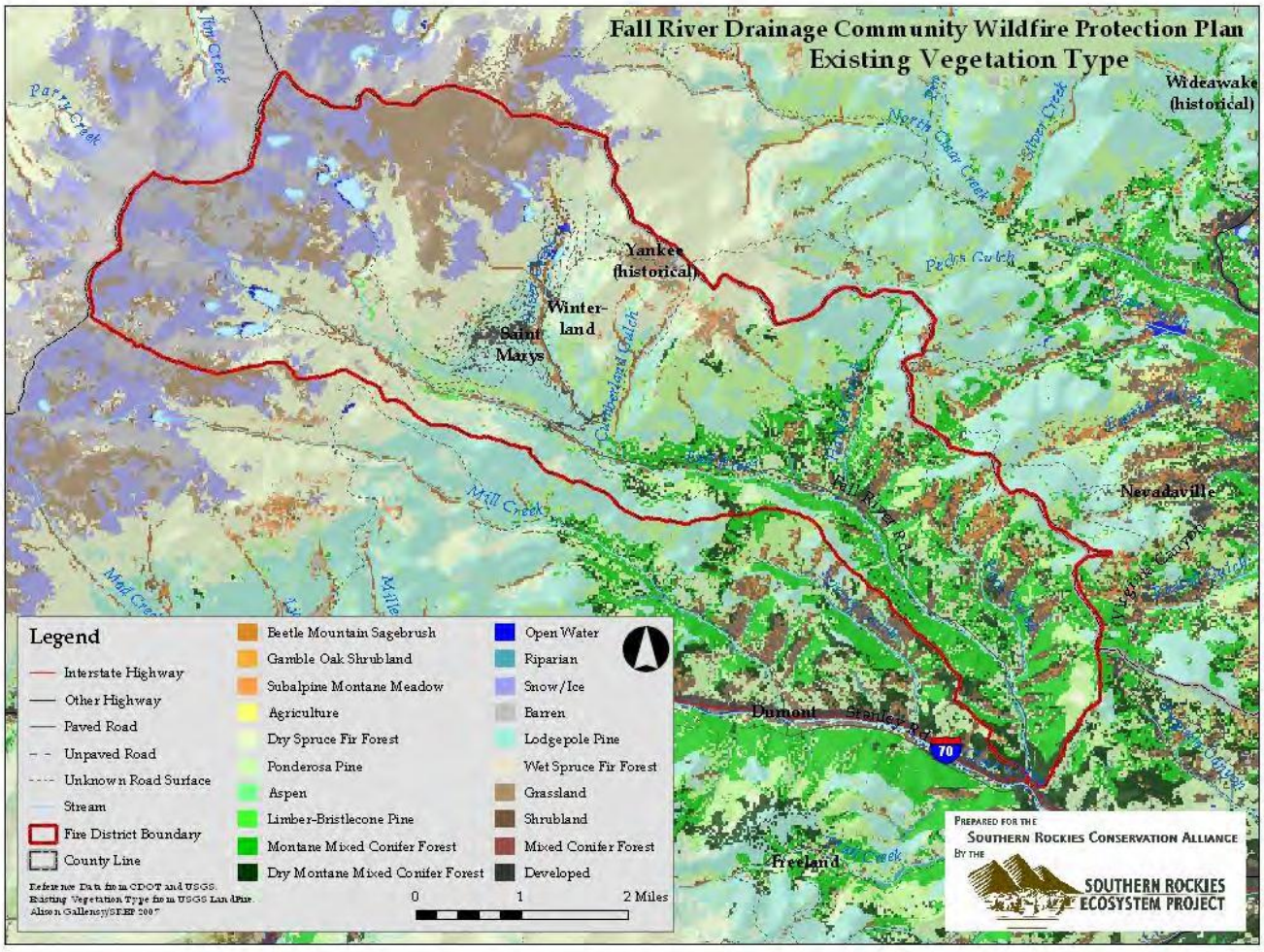
CWPP AREA: CUMBERLAND, HAMLIN GULCH, MIDDLE & UPPER FALL RIVER RD

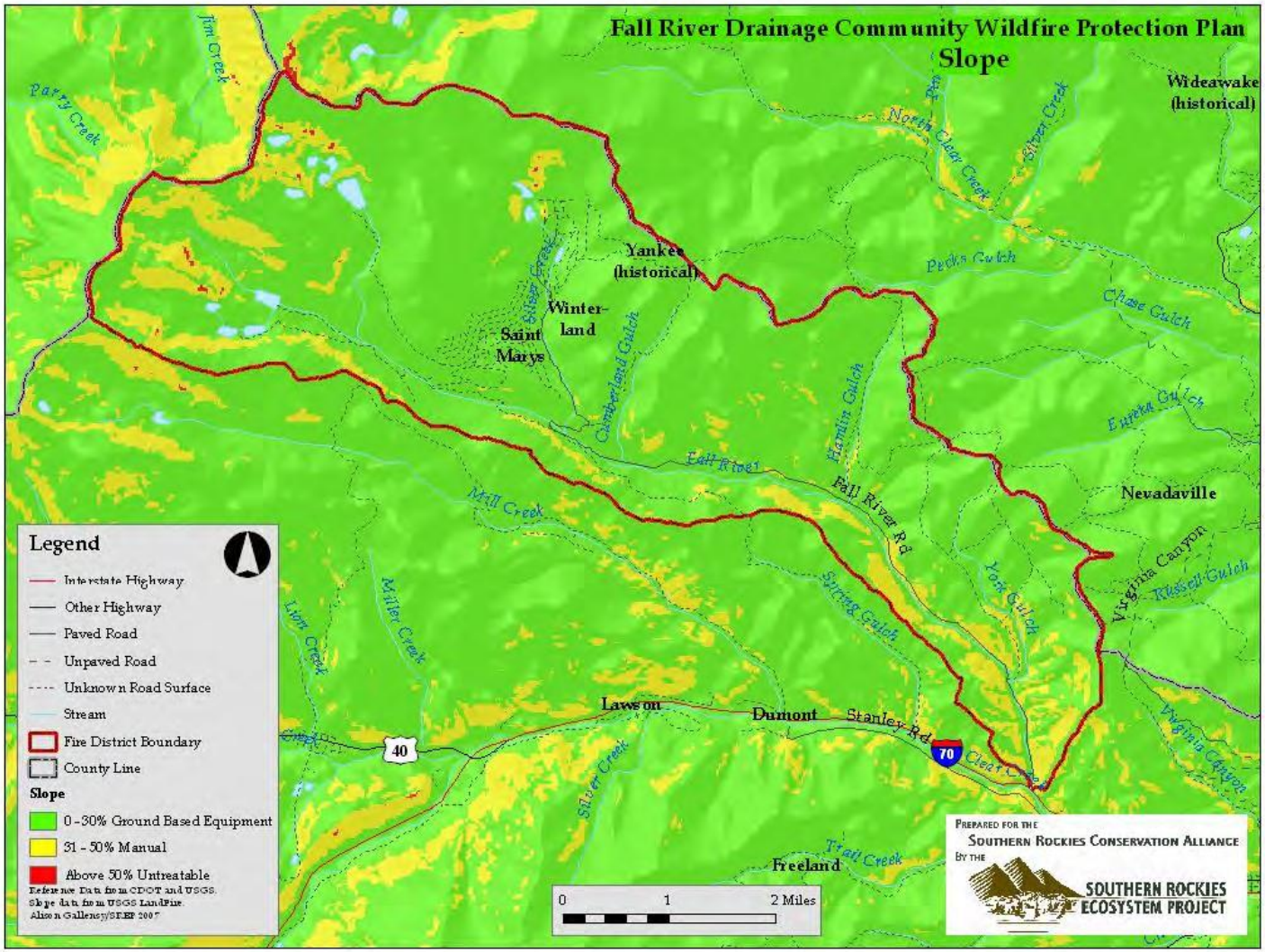


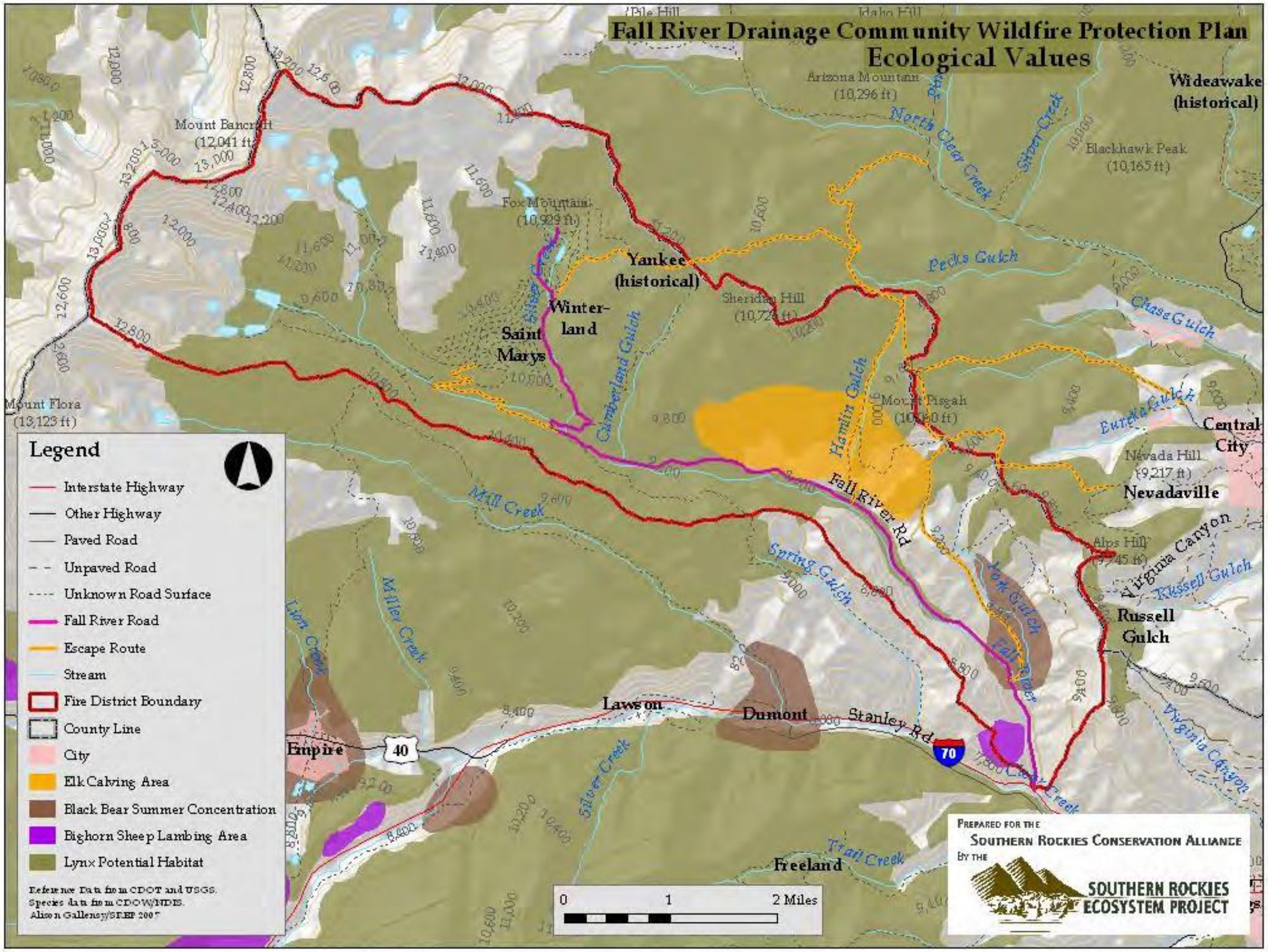
CWPP AREA: ST. MARYS/ALICE


Fall River Watershed Community Wildfire Protection Plan
Historic Sites
Legend
Cemetery
Church
Historic Cabin
Mine
Locked Gate
Interstate Highway
Other Highway
Paved Road
Unpaved Road
Unknown Road Surface
Escape Route
Fall River Road
Stream
CWPP Boundary
County Line
City
Reference Data from CDOT and USGS. Historic locations from USGS and John Hyser. Alison Gallensy/SREP 2008
0
1
2 Miles
Prepared for the
Southern Rockies Conservation Alliance
By the
Southern Rockies Ecosystem Project
GILPIN
CLEAR CREEK
GRAND
Parry Peak
James Peak
Ice Lake Dam
Stewart Lake
Lake Caroline
Saint Marys Glacier
Fox Mountain
Ninetyfour (historical)
Yankee (historical)
Bertha Maude Mine
Wideawake (historical)
Arizona Mountain
Blackhawk Peak
Mount Eva
Bancroft Number Ten Mine
Commercial Union Mine
Clara Mine
Winter-land (Alice)
Alice Mine
Saint Marys
Ames Lode Mine
D'Artagnan Mine
Gold Anchor Mine
Faust Mine
Lombard Mine
Sherwin Lake
Chinns Lake
Witter Peak
Sheridan Hill
Pecks Gulch
Upper Apex Rd
Chase Gulch
Little Josephine Mine
Columbine Campground Loop
Eureka Gulch
Central City
Hamilton Gulch
Seeman Tunnel Mine
Clifford Mine
Bald Mountain Rd
Nevadaville
Maple Leaf Mine
Jumbo Mine
Bald Mountain
Quartz Hill
Alps Hill
Belcher Mine
Ingham Mine
Lyons Mine
Eagle Mine
Chinook Rd
Russell Gulch
Sampson Mine
Venice Mine
Fussel Shaft Mine
Moscow Mine
Pewabic Mountain
Nabob Shaft Mine
Richmond Mine
Essling Mine
Lucania Tunnel
Bellevue Mountain
Virginia Canyon
Dover Mine
Lawrence
Mail Creek Rd
Fall River
Fall River Rd
Mill Creek
Miller Creek
Spring Gulch
York Gulch
Red Elephant Hill
Empire Community Church
Empire
Lawson
Dumont
Stanley Rd
Clear Creek
Douglas Mountain
Silver Creek
Trail Creek
Freeland
40
70

APPENDIX F:
ECOLOGICAL MAPS




Fall River Drainage Community Wildfire Protection Plan
Slope
Wideawake (historical)
Yankee (historical)
Winter-land
Saint Marys
Nevadaville
Lawson
Dumont
Freeland
Stanley Rd
Fall River Rd
Mill Creek
Miller Creek
Lion Creek
Silver Creek
Trail Creek
Spring Gulch
York Gulch
Russell Gulch
Virginia Canyon
Eureka Gulch
Chase Gulch
Peck's Gulch
Hamlin Gulch
Cumberland Gulch
North Clear Creek
Clear Creek
Barry Creek
Tim Creek
40
70
Legend
Interstate Highway
Other Highway
Paved Road
Unpaved Road
Unknown Road Surface
Stream
Fire District Boundary
County Line
Slope
0 - 30% Ground Based Equipment
31 - 50% Manual
Above 50% Untreatable
Reference Data from CDOT and USGS.
Slope data from USGS LandFire.
Alison Gallensy/SREP 2007
0
1
2 Miles
Prepared for the
Southern Rockies Conservation Alliance
By the
Southern Rockies Ecosystem Project


Fall River Drainage Community Wildfire Protection Plan
Ecological Values
Legend
Interstate Highway
Other Highway
Paved Road
Unpaved Road
Unknown Road Surface
Fall River Road
Escape Route
Stream
Fire District Boundary
County Line
City
Elk Calving Area
Black Bear Summer Concentration
Bighorn Sheep Lambing Area
Lynx Potential Habitat
Reference Data from CDOT and USGS.
Species data from CDOW/NDIS.
Alison Gallensky/SREP 2007
Prepared for the
Southern Rockies Conservation Alliance
By the
Southern Rockies Ecosystem Project
0
1
2 Miles
Wideawake (historical)
Yankee (historical)
Winter-land
Saint Marys
Central City
Nevadaville
Russell Gulch
Lawson
Dumont
Empire
Freeland
Fall River Rd
Stanley Rd
Mount Bancroft (12,041 ft)
Fox Mountain (10,929 ft)
Mount Flora (13,123 ft)
Arizona Mountain (10,296 ft)
Blackhawk Peak (10,165 ft)
Nevada Hill (9,217 ft)
Mill Creek
Spring Gulch
Hamlin Gulch
Peck's Gulch
Chase Gulch
Eureka Gulch
North Clear Creek
Silver Creek
Miller Creek
Lion Creek
Trail Creek
Virginia Canyon
Russell Gulch
Cumberland Gulch
40
70

Potential Conservation Area (PCA) Report

Name St. Mary's Glacier **Site Code** S.USCOHP*5026

IDENTIFIERS

Site ID 2048 **Site Class** PCA

Site Alias None

Network of Conservation Areas (NCA)

NCA Site ID	NCA Site Code	NCA Site Name
-		No Data

Site Relations No Data

LOCATORS

Nation United States **Latitude** 394960N

State Colorado **Longitude** 1053853W

Quad Code	Quad Name
39105-G6	Empire

County

Clear Creek (CO)

Gilpin (CO)

Watershed Code	Watershed Name
10190004	Clear

Township/Range	Section	Meridian	Note
002S074W	35	6P	
003S074W	03	6P	
002S074W	27	6P	
002S074W	26	6P	
002S074W	34	6P	
002S074W	25	6P	

SITE DESCRIPTION

Minimum Elevation - **Feet** - **Meters**

Maximum Elevation - **Feet** - **Meters**

Site Description

No Data

Key Environmental Factors

No Data

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map P - Partial **Mapped Date** 05/01/1996

Designer Ranne, B.

Boundary Justification

Bristle cone pine study

Primary Area 835.18 **Acres** 337.99 **Hectares**

SITE SIGNIFICANCE

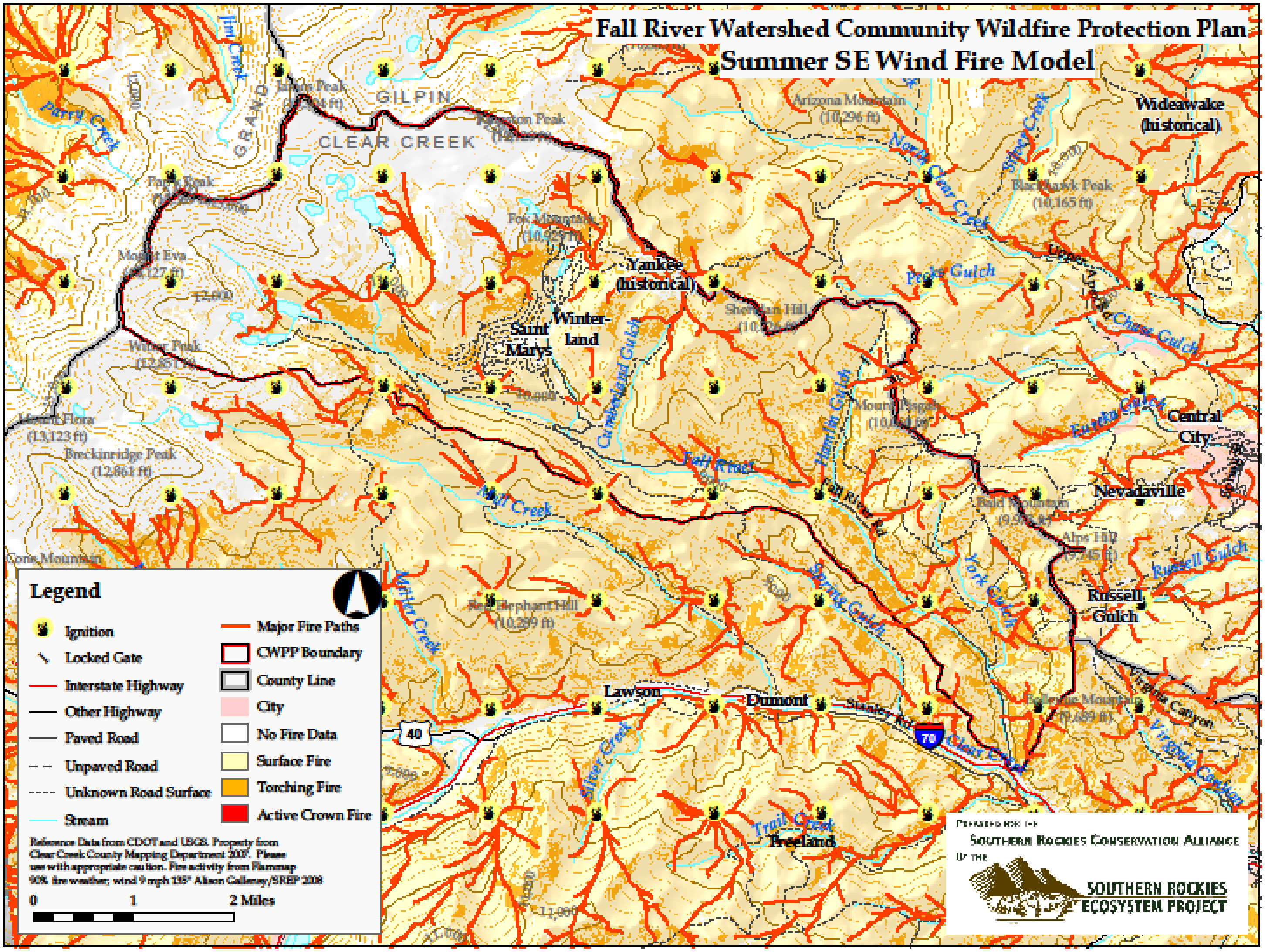
Biodiversity Significance Rank B3: High Biodiversity Significance

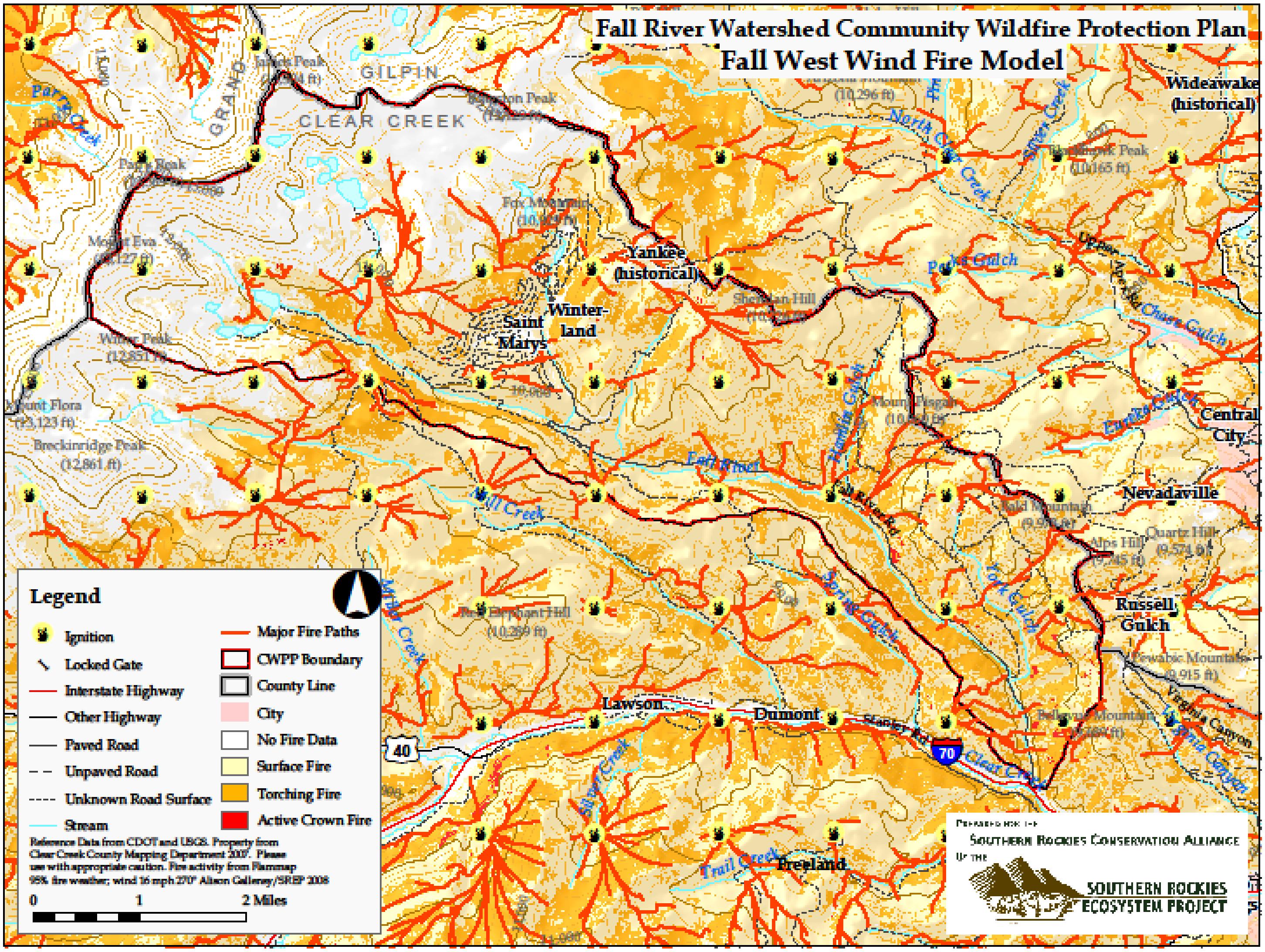
Biodiversity Significance Comments

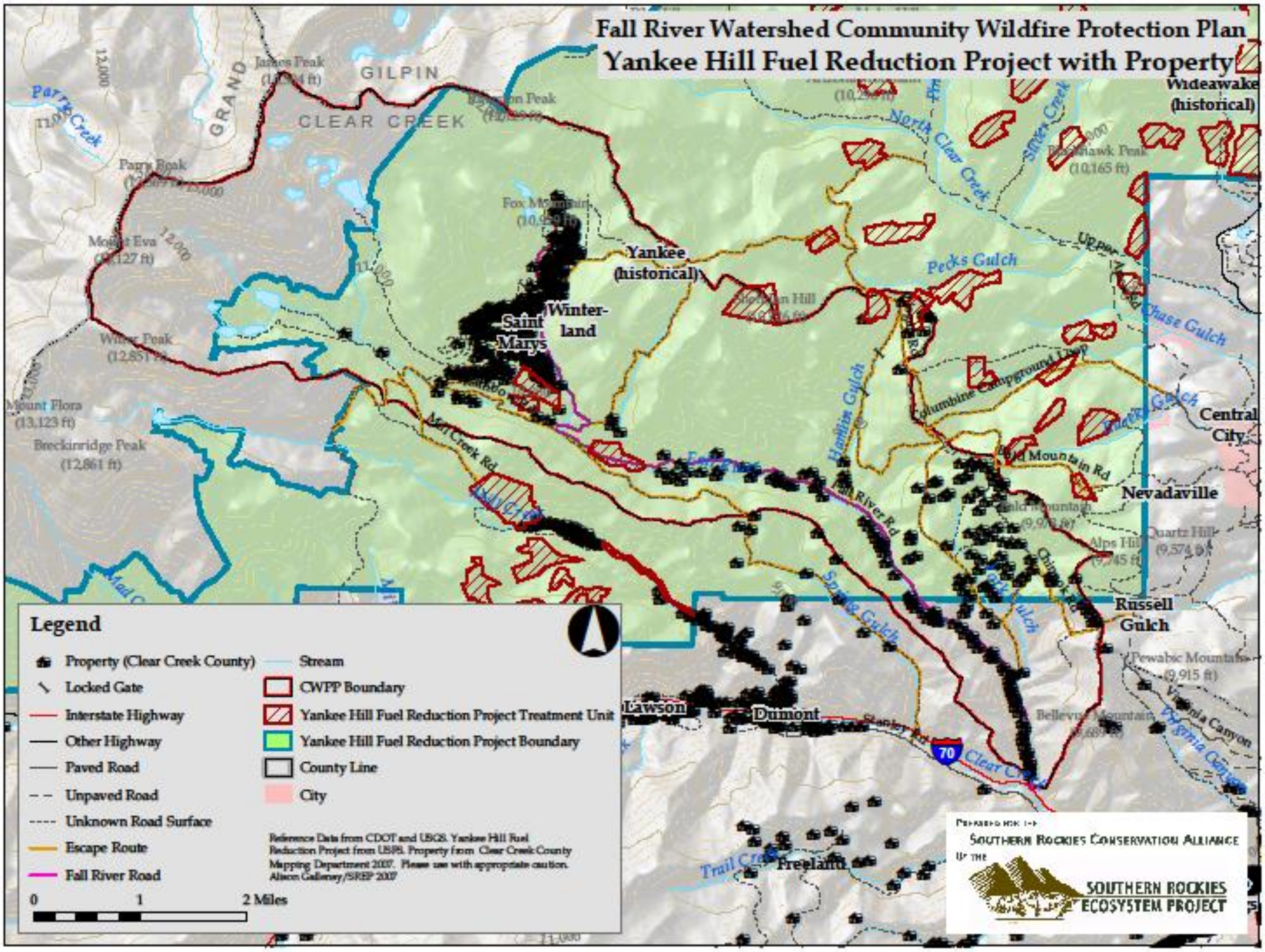
This site supports a good (B-ranked) occurrence of a globally vulnerable (G3/S3) plant community.

Other Values Rank No Data

Print Date 3/28/2007 4,153


Fall River Watershed Community Wildfire Protection Plan
Summer SE Wind Fire Model
Legend
Ignition
Locked Gate
Interstate Highway
Other Highway
Paved Road
Unpaved Road
Unknown Road Surface
Stream
Major Fire Paths
CWPP Boundary
County Line
City
No Fire Data
Surface Fire
Torching Fire
Active Crown Fire
0
1
2 Miles
GILPIN
CLEAR CREEK
Wideawake (historical)
Yankee (historical)
Saint Marys
Winter-land
Central City
Nevadaville
Russell Gulch
Lawson
Dumont
Freeland
Fall River
Mill Creek
North Clear Creek
Peck Gulch
Arizona Mountain (10,296 ft)
Mount Eva (13,127 ft)
Parry Peak
Mount Flora (13,123 ft)
Breckinridge Peak (12,861 ft)
Witter Peak
Sheridan Hill
Bald Mountain
Alps Hill
Red Elephant Hill (10,289 ft)
Blackhawk Peak (10,165 ft)
Fox Mountain
Cone Mountain
Bellevue Mountain
Virginia Canyon
Russell Gulch
Eureka Gulch
Chase Gulch
Trail Creek
Silver Creek
Stanley Rd
Clear Creek
40
70
Prepared for the Southern Rockies Conservation Alliance by the
SOUTHERN ROCKIES ECOSYSTEM PROJECT


Fall River Watershed Community Wildfire Protection Plan
Fall West Wind Fire Model
Legend
Ignition
Locked Gate
Interstate Highway
Other Highway
Paved Road
Unpaved Road
Unknown Road Surface
Stream
Major Fire Paths
CWPP Boundary
County Line
City
No Fire Data
Surface Fire
Torching Fire
Active Crown Fire
0 1 2 Miles
GILPIN
CLEAR CREEK
Wideawake (historical)
Yankee (historical)
Saint Marys
Winter-land
Central City
Nevadaville
Russell Gulch
Lawson
Dumont
Freeland
Mount Flora
Breckinridge Peak
Winter Peak
Fox Mountain
Sheridan Hill
Fall River
Mill Creek
Trail Creek
North Clear Creek
Clear Creek
Prepared for the
Southern Rockies Conservation Alliance
by the
SOUTHERN ROCKIES ECOSYSTEM PROJECT


Fall River Watershed Community Wildfire Protection Plan
Yankee Hill Fuel Reduction Project with Property
Legend
Property (Clear Creek County)
Locked Gate
Interstate Highway
Other Highway
Paved Road
Unpaved Road
Unknown Road Surface
Escape Route
Fall River Road
Stream
CWPP Boundary
Yankee Hill Fuel Reduction Project Treatment Unit
Yankee Hill Fuel Reduction Project Boundary
County Line
City
0
1
2 Miles
Reference Data from CDOT and USGS. Yankee Hill Fuel Reduction Project from USFS. Property from Clear Creek County Mapping Department 2007. Please use with appropriate caution. Alison Galloway/SREP 2007
SOUTHERN ROCKIES ECOSYSTEM PROJECT
Saint Marys
Winter-land
Yankee (historical)
Central City
Nevadaville
Russell Gulch
Lawson
Dumont
Freeland
GILPIN
CLEAR CREEK
GRAND