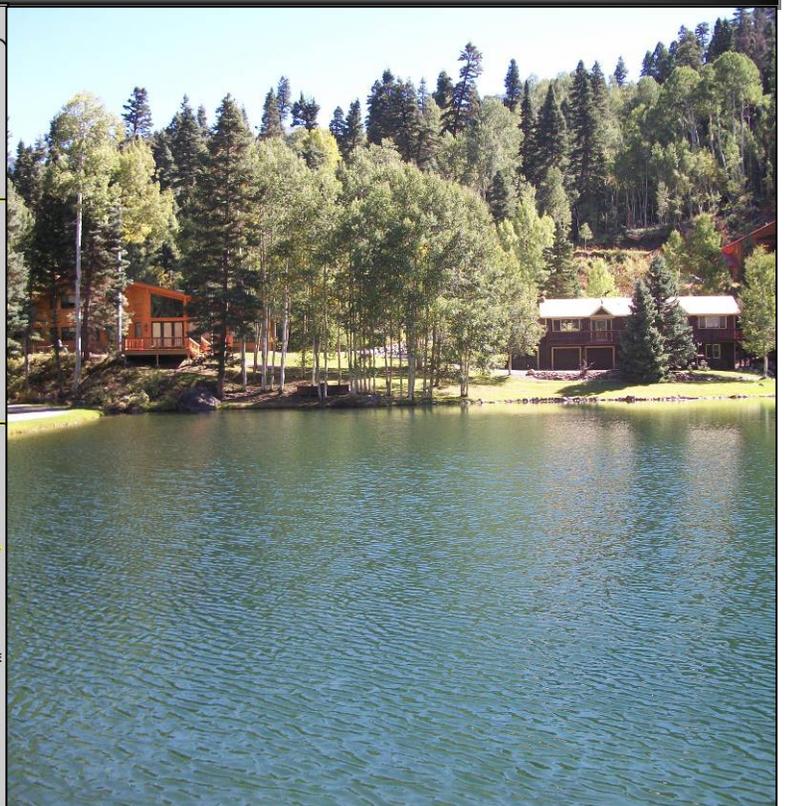
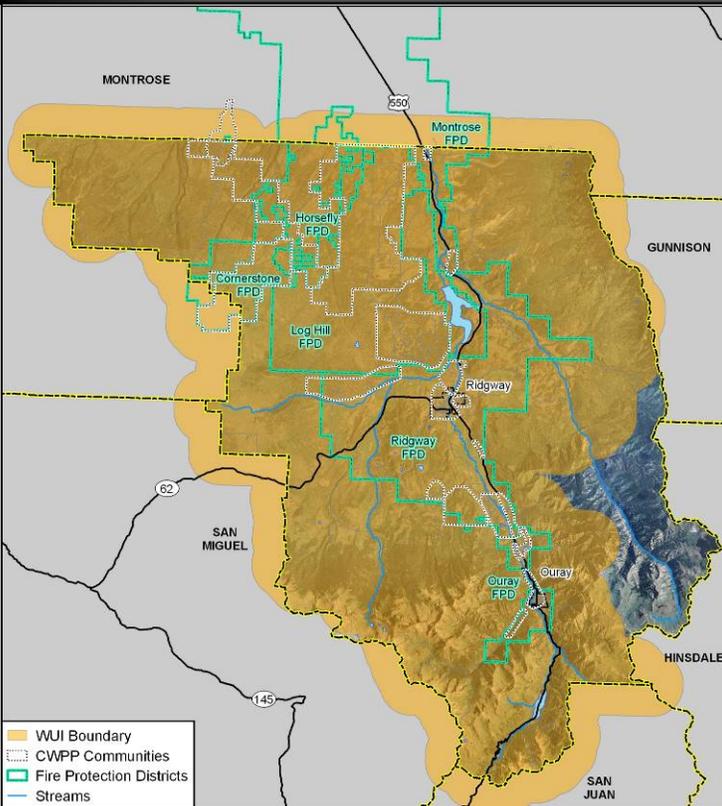
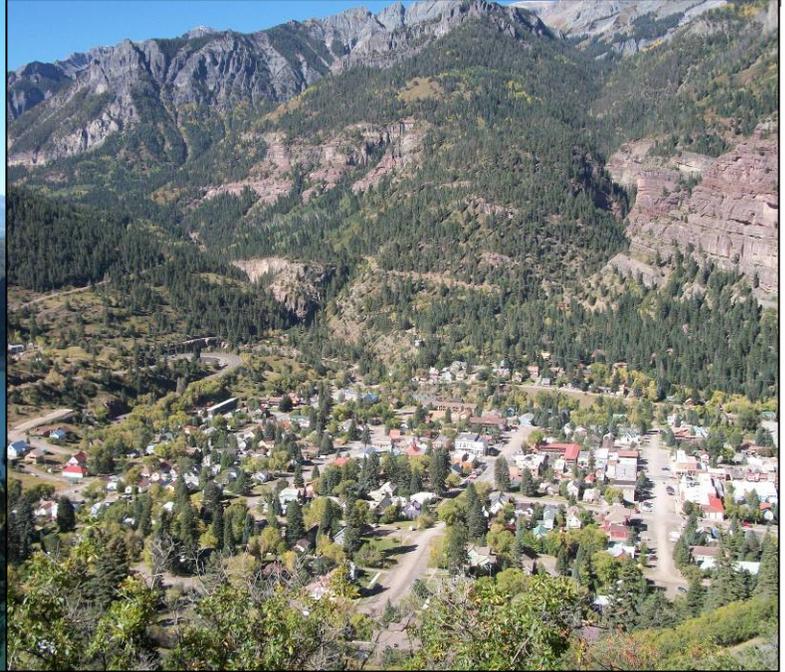


# Ouray County, Colorado

## Community Wildfire Protection Plan



June 2011

**OURAY COUNTY, COLORADO  
COMMUNITY WILDFIRE PROTECTION PLAN  
June 2011**

**Prepared by Ouray County**

In Coordination with the Ouray County Core Stakeholder Group

**With Professional Planning Assistance from**

Anchor Point Group  
Boulder, CO

AMEC Earth & Environmental  
Boulder, CO

**SIGNATURE PAGE**

The following entities participated in the development of this plan and mutually agree on its contents.

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County Sheriff  
Date \_\_\_\_\_

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County Emergency Manager  
Date \_\_\_\_\_

\_\_\_\_\_  
Ouray Fire Department  
Date \_\_\_\_\_

\_\_\_\_\_  
Log Hill Mesa Fire Protection District  
Date \_\_\_\_\_

\_\_\_\_\_  
Montrose Fire Protection District  
Date \_\_\_\_\_

\_\_\_\_\_  
Ridgway Fire Protection District  
Date \_\_\_\_\_

\_\_\_\_\_  
Horsefly Volunteer Fire Association  
Date \_\_\_\_\_

\_\_\_\_\_  
Cornerstone Metropolitan District  
Date \_\_\_\_\_

\_\_\_\_\_  
Montrose Interagency Fire Management Unit  
Date \_\_\_\_\_

\_\_\_\_\_  
Colorado State Forest Service  
Date \_\_\_\_\_

\_\_\_\_\_  
West Region Wildfire Council  
Date \_\_\_\_\_

# OURAY COUNTY COMMUNITY WILDFIRE PROTECTION PLAN

Final, June 2011

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## EXECUTIVE SUMMARY

This document provides a comprehensive, scientifically based analysis of wildfire related hazards and risks in the Wildland Urban Interface (WUI) areas of Ouray County, Colorado. The analysis is delivered in the form of a Community Wildfire Protection Plan (CWPP), and strives to follow the standards for CWPPs that have been established by the Healthy Forests Restoration Act (HFRA) and the Colorado State Forest Service (CSFS). It expands upon Ouray County's existing CWPP by providing more specific recommendations.

This plan presents the results of a county level fire behavior analysis in conjunction with community-level analysis of wildfire risk. From this analysis, recommendations have been generated to aid stakeholders and Ouray County residents in preventing and/or reducing the threat of wildfire to values in the study area.

This report complements local agreements and existing plans for wildfire protection to aid in implementing a seamless, coordinated effort in determining appropriate fire management actions in the study area.

The Ouray County CWPP is a guiding document that will facilitate the implementation of future mitigation efforts.

### **This CWPP strives to meet the requirements of HFRA by:**

#### **Identifying and prioritizing fuels reduction opportunities across the landscape**

See Community Ignitability Analysis Recommendations section of the main document

#### **Addressing structural ignitability**

See Community Ignitability Analysis Recommendations section of the main document and Home Construction mitigation recommendations and CSFS no. 6.302 *Creating Wildfire-Defensible Zones* insert in *Appendix A*

#### **Addressing local preparedness and firefighting capabilities**

See Local Preparedness and Fire Department Capabilities section of the main document

#### **Collaborating with stakeholders**

See *Appendix B*

The Ouray County CWPP is the result of an area-wide fire protection planning effort that includes extensive field data, review, and compilation of existing documents, scientific analysis of the fire behavior potential of the study area (based on fuels, topography, and historical weather conditions), and collaboration with officials from several agencies including the Ouray County Sheriff's Office, Log Hill Mesa Fire Protection District, Ouray Fire Department, Ridgway Fire Protection District, Horsefly Volunteer Fire Association, Montrose Fire Protection District, Cornerstone Metropolitan District, West Region Wildfire Council (WRWC), Colorado State Forest Service (CSFS), Montrose Interagency Fire Management Unit (MIFMU), Ouray County Emergency Management, United States Forest Service (USFS), Bureau of Land Management (BLM), Colorado Division of Emergency Management (CDEM), and representatives from local communities and the public.

This CWPP provides a comprehensive assessment of the wildfire hazards and risks in the study area. Its goal is to reduce hazards through increased education about wildfires, hazardous fuels

reduction, and improved levels of fire suppression response. Detailed recommendations for specific actions are included herein. It is important to note that the Ouray County CWPP is a working document, and, as such, will need to be updated annually, and/or after a major “event” such as wildfire, fuels treatment projects, flood, insect infestation, or even significant new home development.

## **DISCLAIMER**

Recommendations in this document are not prescriptive but are intended to assist in the identification of possible solutions or mitigation actions to reduce the impact of wildfire on values at risk. The views and conclusions in this document are those of the authors and should not be interpreted as representing the opinions or policies of any governmental entity or fire agency, signatory companies, Ouray County, or the US Government. The methodology used is proprietary and as such may not match with other existing hazard and risk ratings. In the event the language of this document conflicts with any regulatory documents, policies, or local laws, this document does not supersede any regulatory documents, local laws, or policies.

## **TAKE HOME MESSAGE**

The CWPP and associated appendices provide an overview of the values at risk on which a significant wildfire would have an impact. These areas include: life safety, homes and property values, infrastructure, recreation and lifestyle, and environmental resources.

Recommendations in the report address seven broad categories, including: defensible space, home construction, landscaping/fuels, preparedness planning, infrastructure, public education, and water source supply. Specific recommendations regarding landscape scale fuel treatments and evacuation routes are included in the Community Ignitability Analysis Recommendations section of the report. General recommendations are provided for all communities within the study area, including the top priority recommendation of defensible space. An additional 55 landscape-scale fuels treatment recommendations are provided for 15 CWPP communities and two areas of special interest. In all, one safety zone improvement was recommended for one community, 13 fuelbreaks were recommended for seven communities and one area of special interest, one linked defensible space project was recommended for four communities, and 42 thinning/mowing projects were recommended for 13 of the communities and one area of special interest along roads, drainages and evacuation routes (some recommendations incorporated a combination of mitigation strategies). Additional recommendations regarding evacuation include maintaining primary egress routes, providing a secondary egress road, and educating residents on the location of primary and alternate evacuation routes or safe zones. Recommendations in this CWPP should be brought to the local community involved with the project to ensure that the project is valuable and viable for the area. Additional fuels reduction projects are also encouraged, especially as previous recommendations are completed.

## **HOW TO USE THIS DOCUMENT**

Because much of the information contained in the report is extensive and/or technical in nature, detailed discussions of certain elements are contained in the following appendices. In addition, please refer to page 176 of this document for a glossary defining technical terms.

### ***Appendix A: General Recommendations***

Recommendations for individual communities are found on the community write-up page in the main report. The solutions outlined in Appendix A pertain to overall recommendations for the County and all fire protection districts. The appendix contains general defensible space guidelines and home ignitability mitigation actions that are applicable to all residents in the study area.

### ***Appendix B: Project Collaboration***

One of the main requirements of HFRA and CSFS is to assure community participation. A summary of the collaborative process undertaken for this project are found here.

**Appendix C: Fire Behavior Potential Analysis Methodology**

*Appendix C* describes the methodology used to evaluate the threat represented by physical hazards such as fuels, weather, and topography to values at risk in the study area, by modeling their effects on fire behavior potential. A detailed description of each standardized, nationally recognized fuel model found in the study area is included.

While the graphics provide general information regarding the overall hazard and risk rating for specific communities, they are not adequate to fully describe the specific information that went towards forming the rating. At a minimum, it is necessary to review the individual community write-ups and recommendations, which include a discussion of community risks based on field observation and anticipated fire behavior. The rating alone may not capture the mitigation needs of the community. As an example, some communities may have a low or moderate rating, but may have a few specific areas that require attention. A full understanding can only be captured by reading the accompanying text, in addition to looking at the graphics.

A CWPP is a living document; it should change based on the needs of the communities as projects are completed or additional projects are added. It is recommended that the core stakeholder group involve the communities to identify projects and implement the CWPP.

## INTRODUCTION

The Ouray County CWPP is the result of a community-wide planning effort that included extensive field data gathering, compilation of existing documents and GIS data, and scientifically-based analyses and recommendations designed to reduce the threat of wildfire-related damages to values at risk. This document incorporates new and existing information relating to wildfire (i.e., 2011 Ouray County Wildfire Annual Operating Plan, 2008 Ouray County Multi-Hazard Mitigation Plan, 2008 Ouray County Wildfire Plan and 2007 Ouray Four Neighborhood CWPP), which will be valuable to citizens, policymakers, and public agencies in Ouray County, Colorado. Participants in this project include Ouray County Emergency Management, Ouray County Sheriff's Office, Ouray Fire Department, Ridgway Fire Protection District, Log Hill Mesa Fire Protection District, Horsefly Volunteer Fire Association, Montrose Fire Protection District, Cornerstone Metropolitan District, Montrose Interagency Fire Management Unit, West Regional Wildfire Council, Bureau of Land Management, United States Forest Service, Colorado State Forest Service, Colorado Office of Emergency Management, representatives from home owner associations (HOAs) and communities, and individual homeowners. This document meets the requirements of the federal Healthy Forests Restoration Act and Colorado State Forest Service (CSFS) guidelines of 2009 for community fire planning.

The assessment portion of this document estimates the hazards and risks associated with wildland fire in proximity to Wildland Urban Interface (WUI) areas. This information, in conjunction with identification of the values at risk, defines areas of special interest and allows for prioritization of mitigation efforts. From the analysis of this data, solutions and mitigation recommendations are offered that will aid homeowners, land managers, and other interested parties in developing short-term and long-term planning efforts.

Wildfire hazard data is derived both from the Community Wildfire Hazard Rating system (WHR) and from the analysis of Fire Behavior Potential, which are extensive and/or technical in nature. Detailed findings and methodologies for these analyses are included in their entirety in appendices rather than the main report text. This approach is designed to make the plan more readable, while establishing a reference source for those interested in the technical elements of the Ouray County wildfire hazard and risk assessment.

This CWPP is a "living document" that is only useful if it is updated annually. The current stakeholder organizations listed in Table 1 will be primarily responsible for compiling and printing updates to the master copy, with the data being supplied by the fire chiefs or interested community leaders (e.g., HOA presidents, town managers).

*For the purposes of this report the following definitions apply:*

**Risk** is considered to be the likelihood of an ignition occurrence. This is primarily determined by the fire history of the area.

**Hazard** is the combination of the WHR ratings of the CWPP communities and the analysis of Fire Behavior Potential, as modeled from the fuels, weather, and topography of the study area. Hazard attempts to quantify the severity of undesirable fire outcomes to the values at risk.

**Values at Risk** are the intrinsic values identified by citizens as being important to the way of life in the study area (e.g., life safety, property conservation, access to recreation, cultural sites, and wildlife habitat).

This document has the following primary purposes:

1. Provide a comprehensive, scientifically based analysis of wildfire related hazards and risks in the WUI areas of Ouray County.
2. Using the results of the analysis, generate recommendations designed to prevent and/or reduce the damage associated with wildfire to WUI values in the study area.
3. Create a CWPP document which conforms to the standards for CWPPs established by HFRA and CSFS.
4. Provide a basis for educational efforts relating to wildfire in general and improving safety from wildfire in specific neighborhoods.

## THE NATIONAL FIRE PLAN AND THE HEALTHY FORESTS RESTORATION ACT

In 2000, more than eight million acres burned across the United States, marking one of the most devastating wildfire seasons in American history. One high profile incident, the Cerro Grande fire at Los Alamos, NM, destroyed more than 235 structures and threatened the Department of Energy's nuclear research facility.

Two reports addressing federal wildland fire management were initiated after the 2000 fire season. The first report, prepared by a federal interagency group, was titled "Review and Update of the 1995 Federal Wildland Fire Management Policy" (2001). This report concluded, among other points, that the condition of America's forests had continued to deteriorate.

The second report, titled "Managing the Impacts of Wildfire on Communities and the Environment: A Report to the President in Response to the Wildfires of 2000," was issued by the Bureau of Land Management (BLM) and the United States Forest Service (USFS). It became known as the National Fire Plan (NFP). This report, and the ensuing Congressional appropriations, ultimately required actions to:

- Respond to severe fires
- Reduce the impacts of fire on rural communities and the environment
- Ensure sufficient firefighting resources

Congress increased its specific appropriations to accomplish these goals. In 2002, there was another severe season: more than 1,200 homes were destroyed and over seven million acres burned. In response to public pressure, Congress and the Bush administration continued to designate funds specifically for actionable items such as preparedness and suppression. That same year, the Bush administration announced the Healthy Forests Initiative, which enhanced measures to restore forest and rangeland health and reduce the risk of catastrophic wildfires. In 2003, the Healthy Forests Restoration Act was signed into law.

Through this piece of legislation, Congress continues to appropriate specific funding to address five main subcategories through the NFP: preparedness, suppression, reduction of hazardous fuels, burned-area rehabilitation, and state and local assistance to firefighters. The general concepts of the NFP blend well with the established need for community wildfire protection in the study area. The spirit of the HFRA and NFP is reflected in the Ouray County CWPP.

*This CWPP strives to meet the requirements of HFRA by:*

1. Identifying and prioritizing fuels reduction opportunities across the landscape
2. Addressing structural ignitability
3. Assessing community fire suppression capabilities
4. Collaborating with stakeholders

## GOALS AND OBJECTIVES

Goals for this project include the following:

1. Enhance life safety for residents and responders.
2. Mitigate undesirable fire outcomes to property and infrastructure.
3. Mitigate undesirable fire outcomes to the environment, watersheds, and quality of life.

To accomplish these goals, the following objectives have been identified:

1. Establish an approximate level of risk (the likelihood of a significant wildfire event in the study area).
2. Provide a scientific analysis of the fire behavior potential of the study area.
3. Group Values at Risk into “communities” that represent relatively similar hazard factors.
4. Identify and quantify factors that limit (mitigate) undesirable fire effects on the Values at Risk (hazard levels).
5. Recommend specific actions that will reduce hazards to the Values at Risk.

### **Other Desired Outcomes**

1. Promote community awareness: Quantifying the community's hazards and risk from wildfire will facilitate public awareness and assist in creating public action to mitigate the defined hazards.
2. Improve wildfire prevention through education: Community awareness, combined with education, will help to reduce the risk of unplanned human ignitions. This type of education can also limit injury, property loss, and even unnecessary death.
3. Facilitate and prioritize appropriate hazardous fuel reductions: Organizing and prioritizing hazard mitigation actions will provide stakeholders with the tools and understanding to bring these projects to ensure that they are valuable and viable for the local community.
4. Promote improved levels of response: The identification of specific community planning areas and their associated hazard and risk rating, will improve the focus and accuracy of preplanning and facilitate the implementation of cross-boundary, multi-jurisdictional projects.
5. Identify other values at risk to wildland fire in the study area in addition to the communities and areas of special interest. This may include water basins, vital infrastructure, places of historical importance, etc.

## COLLABORATION: COMMUNITY AND AGENCIES

The development of this plan has been a collaborative process with officials from several agencies including the Ouray Fire Department, Ridgway Fire Protection District, Horsefly Volunteer Fire Association, Log Hill Mesa Fire Protection District, Montrose Fire Protection District, Cornerstone Metropolitan District, Ouray County Sheriff’s Office, Colorado State Forest Service, Montrose Interagency Fire Management Unit (MIFMU), Ouray County Emergency Management, US Forest Service, Colorado Division of Emergency Management, West Region Wildfire Council and representatives from local communities and the public. Ouray County Emergency Management took the lead on the plan’s development in 2010, with professional planning assistance from Anchor Point Group and AMEC Earth & Environmental. The names of representatives for the core stakeholder team involved in the development of the Ouray County CWPP are included in Table 1 along with their organizations and various current and future roles and responsibilities. Details on the collaborative process can be referenced in **Appendix B, Project Collaboration**, including a description of the meetings and process used to involve stakeholders and engage the public during the development of this plan.

**Table 1. Ouray County CWPP Development Team**

Name	Organization	Roles / Responsibilities
Alan Staehle, Emergency Manager Dominic Mattivi, Sheriff	Ouray County	Primary point of contact and decision making, emergency response
Ron Mabry, Ouray County Incident Management Team Jeff Bockes, GIS Matt Goetch, Ouray 911 Board MSAG Database Don Paulson, Ouray County Historical Society	Ouray County	Participation in plan collaboration and review
Adam Kunz, Fire Chief John Fedel John Rogers, Fire Chief Tom Austin, Asst. Fire Chief Charles Carson	Ouray Fire Department Log Hill Mesa Fire Protection District	Community risk and value approval, development of community protection priorities, and prioritization of fuel treatment project areas and methods. Provided previous fuels treatment data.

Name	Organization	Roles / Responsibilities
Dan Barthashius, Fire Chief Dan Quigley, Fire Chief Bob Pistor, Fire Chief Tad Rowan	Ridgway Fire Department Horsefly Volunteer Fire Association Montrose Fire Department	
Chris Barth, Fire Mitigation & Education Specialist Dana Carter, Fuels FMO Michael Davis, Aviation and Operations FMO	Montrose Interagency Fire Management Unit	Fire trend data, fire occurrence data, existing and planned fuels treatment data and public outreach and education.
Barbara Sharrow, Field Office Manager Ken Holsinger, Fuels Specialist	Bureau of Land Management (BLM) – Uncompahgre Field Office	Participation in plan collaboration and review
Tammy Randall-Parker, Ouray District Ranger	USFS	Participation in plan collaboration and review
Steve Ellis, Southwest Regional FMO	Colorado State Forest Service (CSFS)	Participation in plan collaboration and review
Jodi Rist, District Forester	CSFS	Past and planned fuels treatment data, public outreach and education, participation in plan collaboration and review.
Austin Shelby	CSFS	Participation in plan collaboration and review
Steve Denney, West Region Field Manager	Colorado Division of Emergency Management	Participation in plan collaboration and review

Name	Organization	Roles / Responsibilities
Kirstin Copeland, Ridgway State Park Manager	Colorado State Parks	Participation in plan collaboration and review
Lilia Colter	West Region Wildfire Council	Community outreach and education, participation in plan collaboration and review
Rodrigo Moraga Matt Lloyd Chris White Mark McLean	Anchor Point Group	Development of the CWPP document. Scientific analysis of fire behavior, community hazard and risk. Development of hazard mitigation actions and priorities. Establishment of fuels treatment project areas and methods.
Jeff Brislawn Mack Chambers Hillary King Crystal Gerrity	AMEC Earth and Environmental	Development of the CWPP document, community outreach and stakeholder engagement.
Wildfire Mitigation Advocates - Various citizens	Public representative of CWPP community	Review and comment on draft plan; posting of flyers for public meetings; liaison between community and fire departments, county, state and federal representatives during future plan implementation.

## RELATIONSHIP WITH OTHER PLANNING EFFORTS

The Ouray County CWPP builds upon and is related to other planning efforts in the community, including:

- 2011 Ouray County Wildfire Annual Operating Plan
- 2010 Ouray County Land Use Code, Section 24 Wildfire Mitigation Regulations
- 2008 Ouray County Multi-Hazard Mitigation Plan
- 2008 Ouray County Wildfire Plan
- 2007 Ouray Four Neighborhood CWPP
- Log Hill Mesa Evacuation Plan

The Ouray County CWPP should be considered an umbrella document in relationship to local level CWPPs. The 2011 Ouray County CWPP does not supersede other planning efforts previously identified. It is intended to complement these earlier planning efforts in order to help Ouray County communities determine the most appropriate and effective courses of action for wildland fire mitigation. One difference in the County CWPP is that it analyzes wildfire risk across the entire County using a consistent methodology. Local-level plans may include additional detail on risk, such as individual structure or parcel-level assessments, which is beyond the scope of this county-level plan.

## STUDY AREA OVERVIEW

The study area includes all of Ouray County. Ouray County is located in central-western Colorado and is bordered by Montrose County to the north and northwest, San Miguel County to the west, San Juan County to the south, Hinsdale County to the southeast, and Gunnison County to the northeast. The total land area of the County is 542 square miles (including 2 square miles of water), with roughly half of the County being privately owned, 42% managed by the USFS, and 7% falling under BLM management. Land stewardship in the County is shown in Figure 1. According to the US census, the population of Ouray County in 2010 was estimated at 4,436 people, an 18.5% increase since the 2000 census population of 3,742. In 2010, there were an estimated 3,083 housing units and 2.19 individuals per household. The primary north-south route through the County is Highway 550. Highway 62 is the main east-west route between Ridgway and the western border of the County.

What is now Ouray County was originally the home of the Uncompahgre Utes. Ouray County was established by the Colorado State Legislature in 1877 and named for Chief Ouray of the Ute tribe. Mining, ranching, and the railroads brought settlers out to the Ouray County area in the second half of the 19<sup>th</sup> Century, a history which is still very evident today. Today, recreation and tourism are the main staples of the Ouray County economy.

Ouray County's topography varies from the Uncompahgre River valley to the high mountaintops that earned the county its nickname of "the Switzerland of America." The climate in the Uncompahgre River basin is considered to be semiarid, but in general, rainfall and temperatures in the county vary according to the wide range of elevation and topography. The two incorporated municipalities of Ouray and Ridgway are located at elevations of 7,800 feet and 6,900 feet above sea level, respectively. Average annual precipitation varies widely, from 13 inches in Ridgway to nearly 40 inches in the mountains. The majority of this precipitation comes from snowfall. Local vegetation includes pinyon, juniper, sagebrush, oak brush, ponderosa pine, and spruce/fir forests at higher elevations up to timberline.

Per HFRA regulations, there is a requirement to explicitly define the WUI for the study area. According to the National Wildland Course Guide (NWCG), the WUI is, "the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel." This is a very broad definition, and has been refined for use by land managers and scientists alike. For the purposes of this CWPP, this broad definition applies, but a more specific methodology was developed to create a consistent layer that could be portrayed on a map. The GIS methodology is described below.

Defining the Wildland Urban Interface (WUI) is an important aspect of the CWPP development process. In Ouray County, the WUI was determined using a 1.5 mile buffer surrounding all private lands within the county boundary that are at risk from wildland fire. Because private lands are found intermixed with state and federal lands throughout the entire county, the vast majority of the county is covered within the WUI boundary as defined. The WUI boundary in these state and federal areas can serve as a useful guide for determining effective locations for fire mitigation projects.

Simply put, the WUI is where people and values exist. Tourists and residents alike are drawn to these areas for their natural beauty and abundance of recreational opportunities. And unlike the past, where development was concentrated first in mining camps, and then later in small towns,

homes now occur throughout all of the non-federal portions of Ouray County. More homes now exist in the unincorporated portions of the County, than in the towns of Ouray and Ridgway combined. Anyone who has ever seen the smoke column or drifting embers from a nearby fire will quickly realize that any real safety can only come from reducing the threat of wildfire in these WUI areas, which is this plan's primary purpose.

For the purposes of this project, 21 individual communities were defined within the study area, identified in Figure 3. This map can also be referenced in an 11x17 format in Appendix E. In Figure 2, these communities are shown within the boundaries of the Wildland Urban Interface. The community sheets are organized by the fire protection districts under which they fall, and the subunit descriptions are found within the larger unit. Although the communities may not fill the entire larger planning unit, the whole unit is still considered to be Wildland Urban Interface. For the purposes of this project, 21 distinct communities were identified, representing the most densely populated areas in the study area. Each community exhibits certain dominant hazards from a wildfire perspective. Fuels, topography, structural flammability, availability of water for fire suppression, egress and navigational difficulties, as well as other hazards both natural and manmade, were considered in the overall hazard ranking of these communities. In addition to looking at hazard maps and higher-density development areas, the local knowledge of contributors to this plan helped identify neighborhoods particularly at risk. A table that lists the communities, their hazard rating, and the associated fire protection district can be referenced in the Community Ignitability Analysis Recommendations section of this plan.

Homes outside of the identified CWPP communities are equally at risk for the reasons discussed in the previous paragraph. These homes are subject to the same mitigation improvements recommended in this plan. Individuals have a responsibility to assess their situation whether specifically noted in this plan or not. They must make their own decisions about their personal safety and the safety of their homes. This plan is only a tool to assist the people of Ouray County in the endeavor to improve their communities' safety and resiliency to wildland fires.

Construction type, condition, age, the fuel loading of the structure/contents and position are contributing factors in making homes more susceptible to ignition under even moderate burning conditions. There is also a likelihood of rapid fire growth and spread in some areas due to steep topography, fast-burning or flashy fuel components and other topographic features that contribute to channeling winds and the promotion of extreme fire behavior.

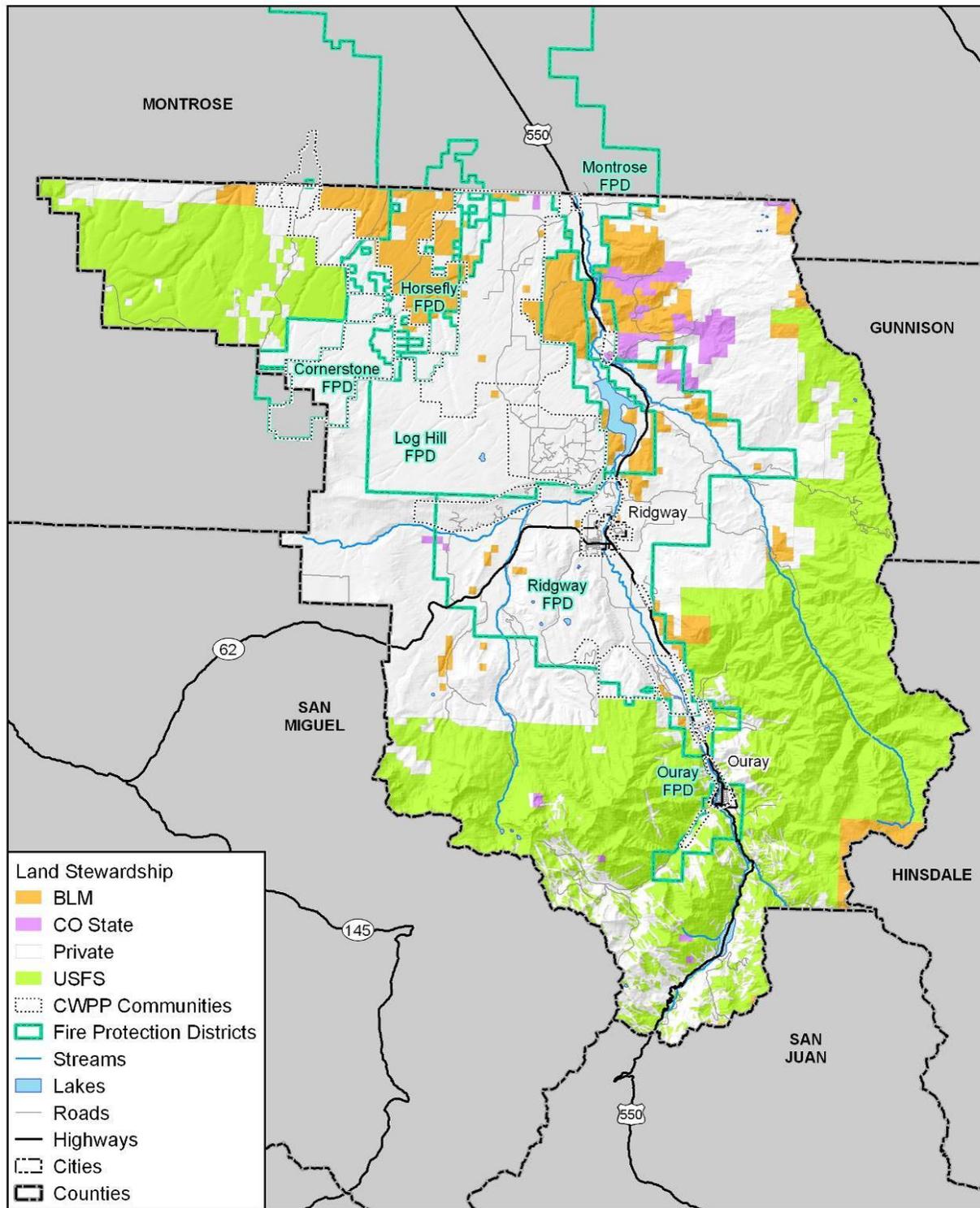
The community-level assessment has identified all of the 21 communities in the study area to be between moderate and very high risk. In these communities, a parcel-level analysis should be implemented as soon as possible to ensure the ongoing safety of residents and survivability of structures.

The methodology for this assessment uses the Wildfire Hazard Rating (WHR) community hazard rating system that was developed specifically to evaluate communities within the WUI for their relative wildfire hazard. The WHR model combines physical infrastructure such as structure density and roads, and fire behavior components like fuels and topography, with the field experience and knowledge of wildland fire experts.

In addition to these 21 communities, eight "areas of special interest" (ASI) have been identified: Ridgway State Park, Elk Mountain Resort, the Amphitheater, Ridgway Water Treatment Plant, Town of Ridgway/Elk Meadows watershed, City of Ouray watershed, communication

towers/power lines, and historic mining structures. Although these areas may not include residences, they contain critical infrastructure, buildings, and/or other structures that necessitate serious attention from a fire mitigation standpoint.

Figure 1. Ouray County Land Stewardship



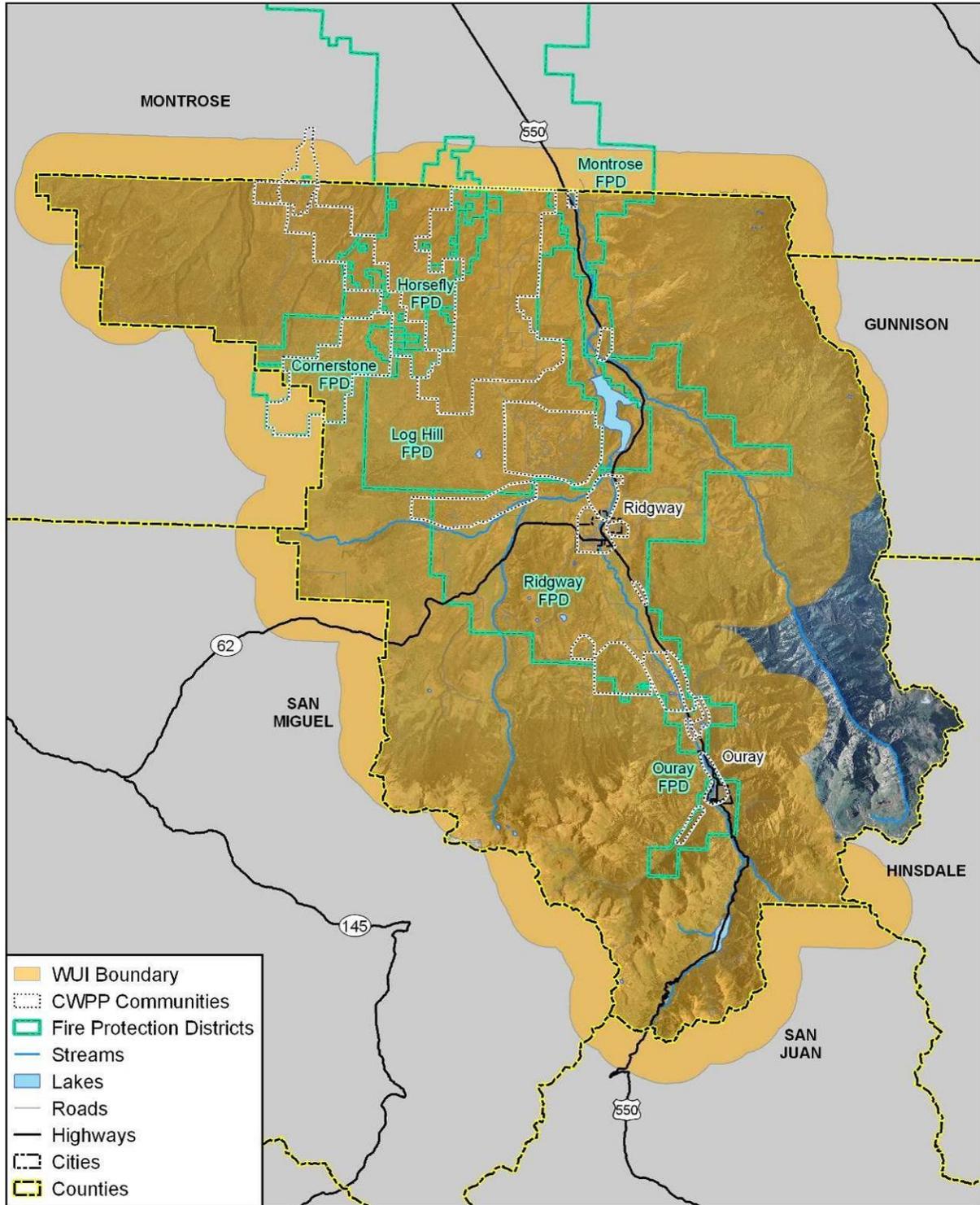
Map compiled 2/2011; intended for planning purposes only.  
 Data Source: Ouray County, Anchor Point, CDOT,  
 Colorado DOW/MESC

0 5 10 Miles



\*Ouray County data shown on this map is to be considered a draft and subject to revision.

Figure 2. Ouray County Wildland Urban Interface Boundary

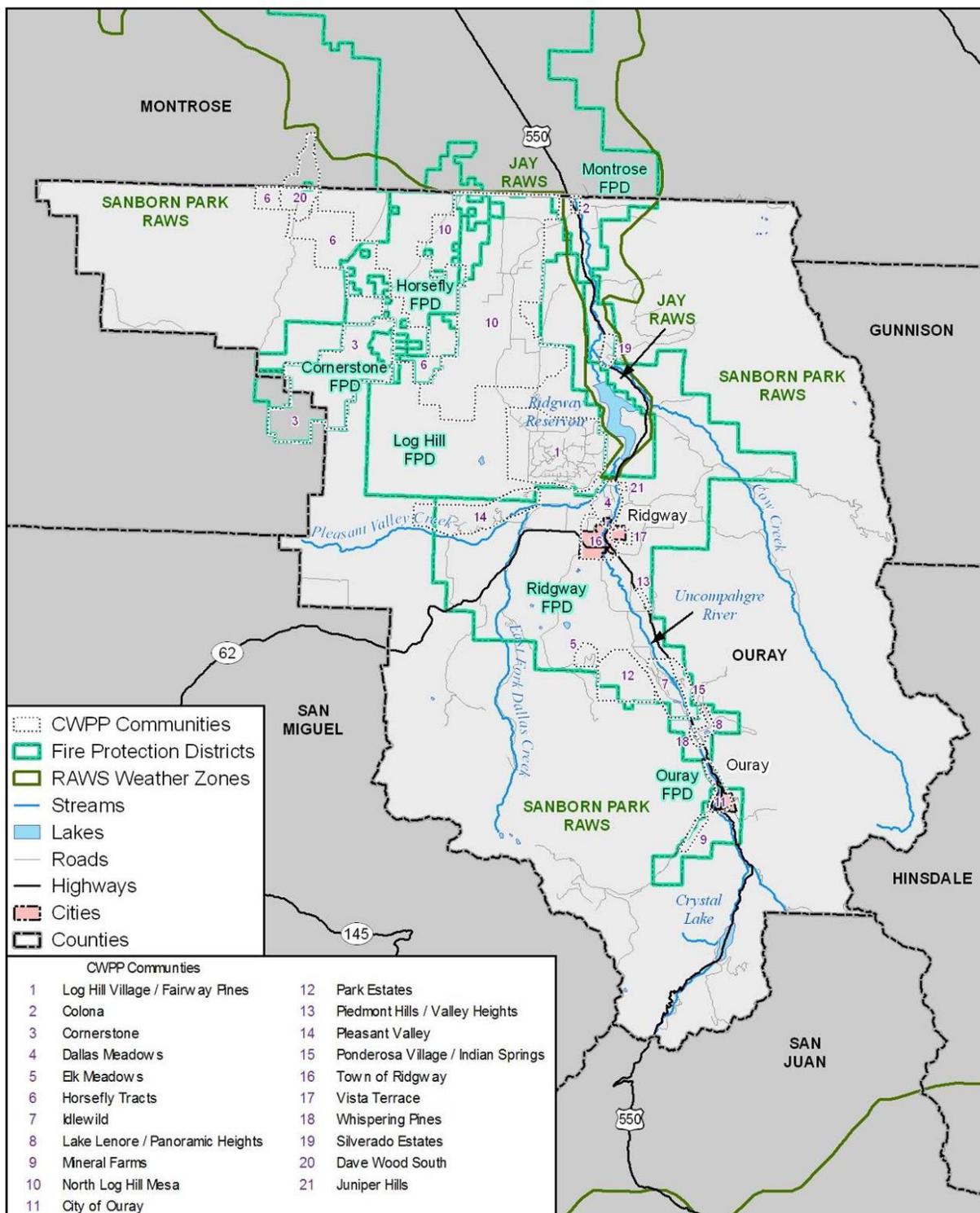


Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



\*Ouray County data shown on this map is to be considered a draft and subject to revision.

Figure 3. Ouray County CWPP Communities



Map compiled 4/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

0 5 10 Miles



\*Ouray County data shown on this map is to be considered a draft and subject to revision.

## VALUES AT RISK

Most of the study area is vulnerable to some form of natural disturbance, and wildland fire is one of the primary concerns. This is a situation that officials and residents are highly aware of. Recent national disaster events and Colorado's wildland fire history have focused increased attention at both local and state government levels on the need to mitigate such events where possible, and to prepare to cope with them when they are unavoidable.

Individuals live in Ouray County for a variety of reasons, including the area's natural beauty, access to public lands, clean water and air, and recreational opportunities presented by adjacent public lands. Protecting these assets also aids in preserving property values, another value to residents. Based on a public survey conducted during the development of this plan (see Appendix B), residents value the area's views and natural beauty the most, followed by clean water and air.

## LIFE SAFETY AND HOMES

Most of Ouray County is part of the Wildland Urban Interface, and wildland fires are a somewhat regular occurrence for the County's residents. Based on the public survey the main concern to residents in the County is their personal safety, as well as the loss of their homes and property value losses. The majority of homes within the study area have roofs, decks and siding that are often made of a mix of combustible materials.

Some communities have already begun to address their wildland fire risk, and as a result have fire protection plans already in place. These include:

- The County of Ouray with its building materials restrictions adopted in the 1990s.
- The County of Ouray with Section 24 (Wildfire Mitigation Regulations) of the 2010 County Land Use Code. A copy of Section 24 is available in Appendix D of this plan.
- The Ouray County Wildfire Protection Plan, adopted 2008.
- The Ouray County Sheriff, the Colorado State Forest Service, and the six Ouray County fire protection districts, including the Ouray FPD, Ridgway FPD, Log Hill Mesa FPD, Montrose FPD, Cornerstone Metropolitan District, and Horsefly Volunteer Fire Association. The FPDs are covered by the 2011 Ouray County Wildfire Annual Operating Plan (AOP), which details procedures and agreements to address the wildland fire threat in Ouray County. The Ouray County Wildfire AOP is renewed each year.
- All communities that fall within the 2007 Ouray Four Neighborhood CWPP. This includes the communities of Whispering Pines, Panoramic Heights, Lake Lenore, and Dexter/Cutler.
- The North Log Hill Mesa community covered by the North Log Hill Mesa Evacuation Plan.

## COMMERCE AND INFRASTRUCTURE

### Economic Values

Wildland fires can directly impact a study area's economy. Ouray County's scenic beauty is a main draw for tourism, much of which takes place in the summer months during the primary wildfire season in Colorado. The County would suffer economically from tourists not coming to

the area and from residents being unable to work due to wildfires. The small number of highways into and out of Ouray County could also be detrimental to the economy if the roads were closed due to wildland fire.

According to the 2008 Ouray County Multi-Hazard Mitigation Plan, an estimated 604 structures are at risk in the WUI area of Ouray County. The estimated structural value at risk is \$180,863,410 and the estimated contents value at risk to wildland fires is \$90,431,705. This equates to a total estimated value of \$271,295,115 at risk to wildland fire in the County. Any new development in the county since 2008 would increase the values at risk.

### **Critical Infrastructure**

Critical infrastructure in Ouray County includes public safety and government buildings, physical infrastructure, water supply systems, wastewater treatment, power infrastructure, and schools. In the 2008 Ouray County Multi-Hazard Mitigation plan, GIS analysis was performed to determine which, if any, critical facilities were located in areas vulnerable to various hazards including wildfire. Data was also gathered from Multi-Hazard Mitigation Plan stakeholders in Ouray County. Critical facilities identified as being at risk to wildland fire include water storage tanks in the Town of Ridgway; City of Ouray water mains, springs, and facilities; electric transmission line substations serving the City of Ouray and the Town of Ridgway; and several facilities in the Log Hill Mesa FPD including Log Hill Fire Station 1, Log Hill Fire Station headquarters (Log Hill Fire Station 2), Dallas Creek Water, Source Energy natural gas pipeline, Tri-County water transmission lines, and the Fairway Pines sanitation district.

In addition, the power line infrastructure in Ouray County traverses areas susceptible to wildfire. Wildfires in these areas can damage power lines, leading to power outages during times when power is needed most. Power lines can also be sources of wildfire ignitions when knocked down by wind or other means. For these reasons, power line infrastructure has been included on several of the maps in this plan.

Several power transmission facilities and communications towers were identified as being at risk to wildland fires in the 2008 Ouray County Multi-Hazard Mitigation Plan. These facilities include the Buckhorn radio site, Storm King radio site, Waterdog radio site, Log Hill radio site, Blowout radio site, Golden Crystal radio site, 230KV power transmission line, Ridgway substation, Ouray substation, 44KV power distribution line, and natural gas pump stations. Power lines can also be sources of wildfire ignitions when knocked down by wind or other means. For these reasons, power line infrastructure has been included on the map in the areas of special interest section discussed later in this plan.

## **ENVIRONMENTAL RESOURCES**

Ouray County's natural resources are of concern to its residents, based on the survey in Appendix B. The County's natural resources are one of the main reasons why residents live in the area and why tourists come to visit.

### **Natural Resources**

Ouray County's watersheds have been identified as "areas of special interest" in this Plan. Taking action to prevent catastrophic wildfire in these areas is critical for maintaining biodiversity, ecosystem function, and watershed health. It is important to note that many ecosystems in North America have evolved with fire as a natural and necessary contributor to habitat vitality and renewal. Many plant species in naturally fire-affected environments require

fire to germinate. Fire suppression can lead to the build-up of inflammable debris and the creation of less frequent but much larger and destructive wildfires. Thus natural and prescribed fire can benefit the ecosystem.

Natural resources potentially at risk to wildfire in Ouray County include wetlands, endangered species, and imperiled natural plant communities. Endangered species and imperiled natural plant communities within the study area are identified within the 2008 Ouray County Multi-Hazard Mitigation Plan. Impacts of wildfires on wetlands can include soil degradation, increased soil erosion, changes in vegetation composition, loss of vegetation, destruction of animal habitats and death of animals, increased weed invasion, and degradation of water quality.

## CURRENT RISK SITUATION

This section examines the current wildland fire risk in Ouray County based on wildfire history and past or planned fire treatments conducted by a multitude of agencies. The fire history discussed here is based on the most accurate information available. However, it is important to note the limitations of the available data. Fire history data in national databases such as the National Fire Incident Reporting System (NFIRS) is highly subject to reporting from local fire departments and fire protection districts. Historical fire incidents may be captured in dispatch records with local or state agencies but not be reported to NFIRS. Therefore, NFIRS data is somewhat biased towards wildland fires that occur on federal lands rather than private lands. Nevertheless, this is currently the most complete source of wildland fire history data available for reference in the Ouray County CWPP.

Most fires in Ouray County are small (less than 100 acres) and never make it onto the lists of large fires. However, even small fires can present a threat to life, safety, and property. This is based on the availability of fuel, both vegetative and man-made; the direct Wildland Urban Interface of subdivisions bordering fuel beds; as well as community infrastructure, including access/egress routes.

Wildfire hazard ratings for Ouray County CWPP communities range from moderate to very high. This assessment is based on an analysis of multiple factors, including the County's wildland fire history.

- Some of the larger fires in Ouray County are summarized below.
  - The May 11, 1999 Baldy Fire originated by human causes and burned 1,326 acres.
  - The September 20, 1999 Log Hill Fire originated by human causes and burned 165 acres.
  - The July 15, 2001 Log Hill RC fire originated by human causes and burned 750 acres.
  - The June 27, 2006 Red Creek fire was caused by lightning and burned 401 acres.

Please note that during the development of this plan the Log Hill Mesa FPD had no records regarding the Sept 20 1999 and the Log Hill RC fire on July 15, 2001. Further investigation is needed to determine if these fires happened or if this is a possible error in the NFIRS data.

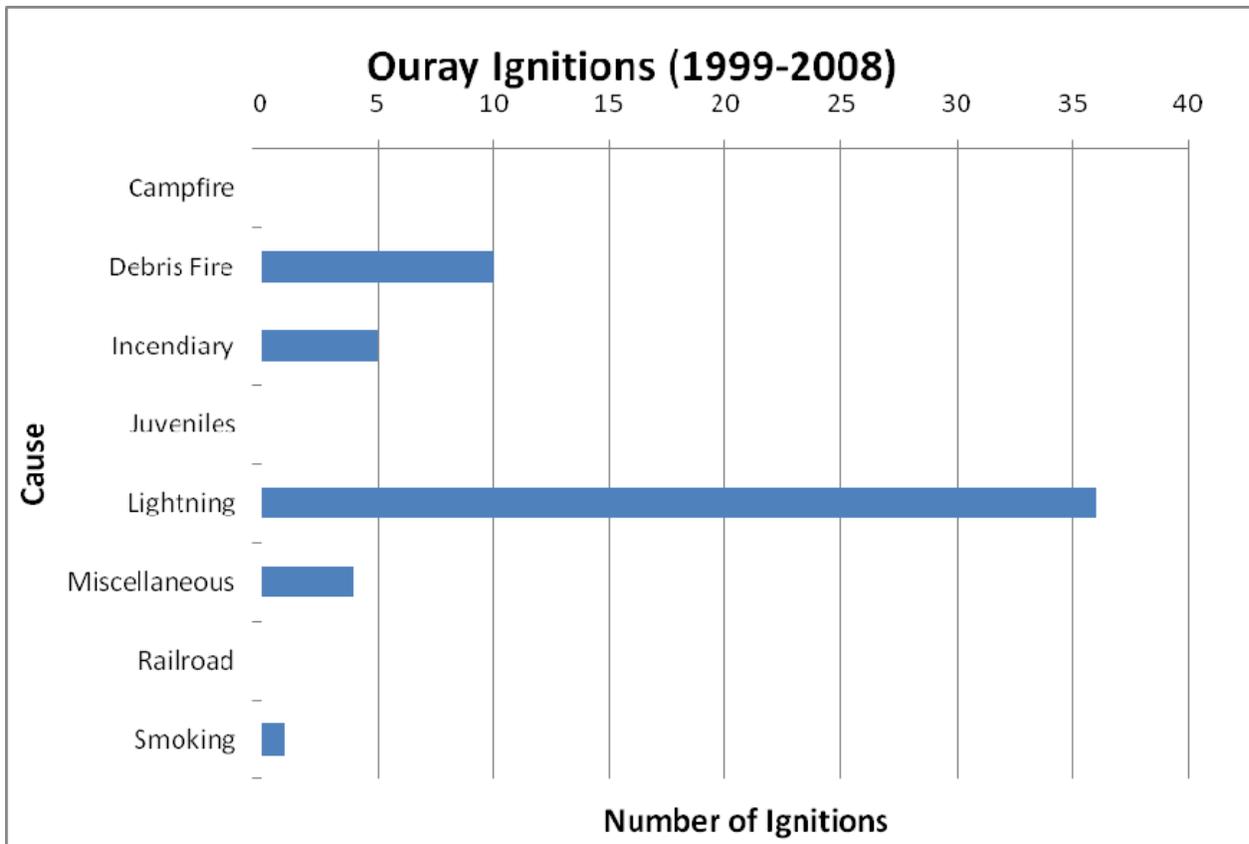
Additional fire history data was obtained from the National Fire Incident Reporting System (NFIRS). The results of this data are displayed below in Table 2, Figure 4, and Figure 5. The NFIRS data is the most complete wildland fire history information currently available, but it is important to note that this data is subject to certain limitations as discussed in the first paragraph of this section. According to the NFIRS data, a total of 56 ignitions were reported in Ouray County between 1999 and 2008. Of these ignitions, 36 were caused by lightning, as illustrated by Figure 4. As shown in Figure 5 most of these fires occurred in the northern portion of the county.

**Table 2. Ouray County Reported Wildfire Ignitions by Cause: 1999-2008**

Ignition Cause	Number of Reported Ignitions
Campfire	0
Debris Fire	10
Incendiary	5
Juveniles	0
Lightning	36
Miscellaneous	4
Railroad	0
Smoking	1
<b>TOTAL</b>	<b>56</b>

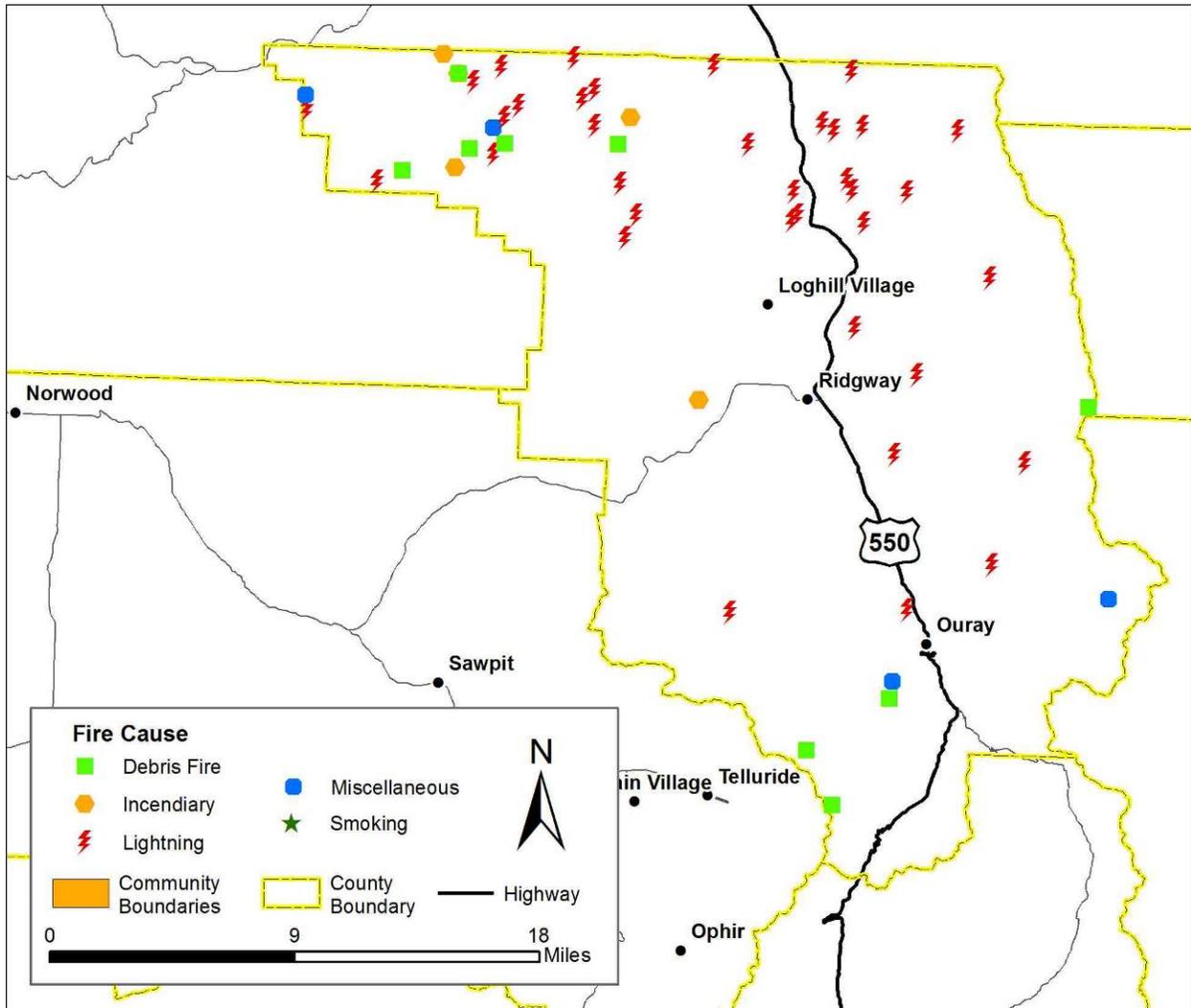
Source: NFIRS

**Figure 4. Ouray County Reported Wildfire Ignitions by Cause: 1999-2008**



Source: NFIRS

Figure 5. Ouray County Reported Ignitions: 1999-2008

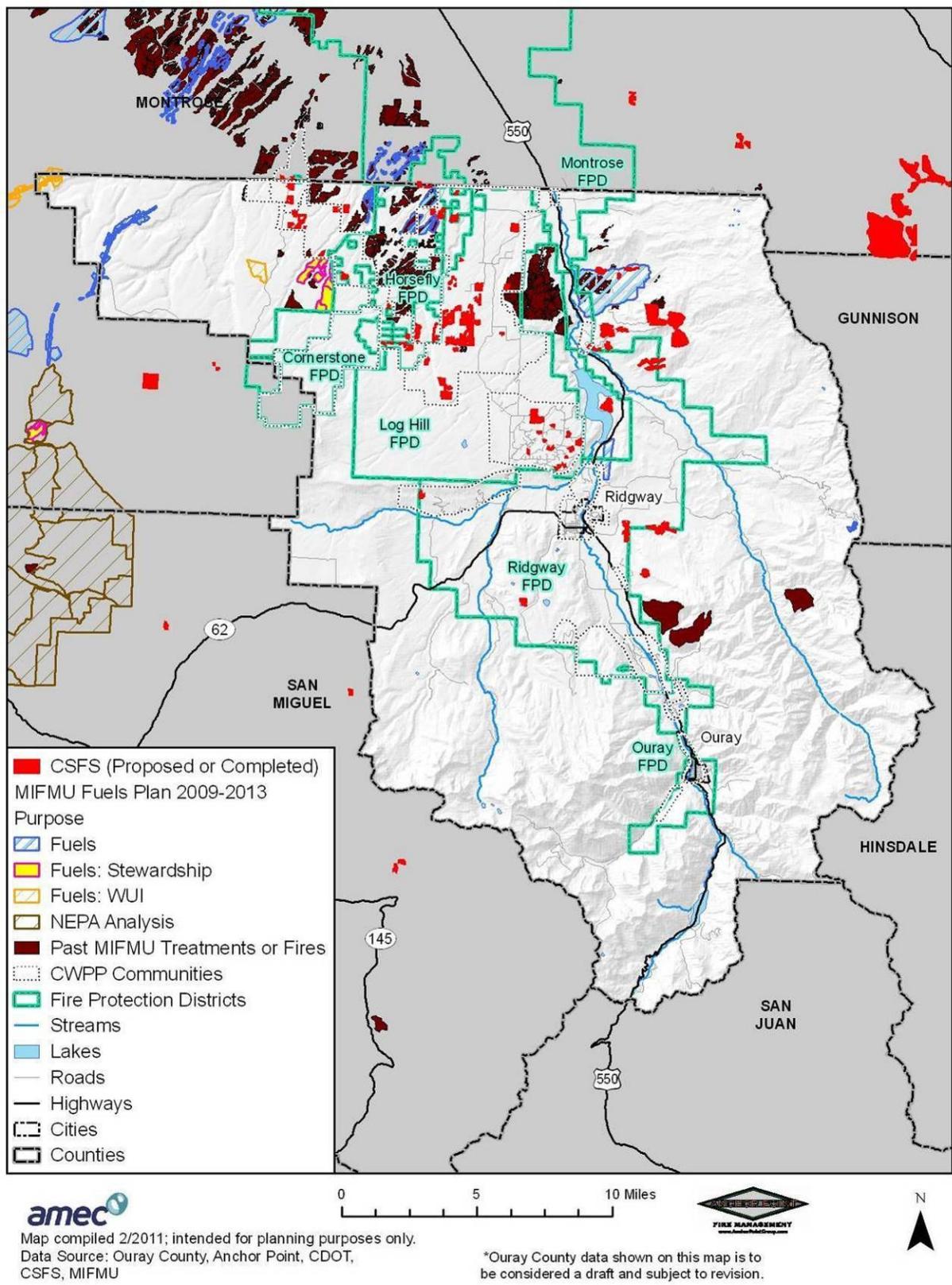


Source: NFIRS

### **Existing and Ongoing Fuels Treatment Efforts**

The Montrose Interagency Fire Management Unit (MIFMU), a combined effort of the USFS and BLM, has performed fuels treatments within Ouray County to alleviate the high level of wildfire risk and improve forest health. In addition, fuels treatments and defensible space efforts have been undertaken by the Colorado State Forest Service and individuals in the County. A snapshot of these efforts and planned treatments as of late 2010 is captured in Figure 6. This map can also be referenced in an 11x17 format in Appendix E. The MIFMU Fuels Plan layer shown on the map differentiates between various fuels treatment categories intended for internal use. For the purposes of this CWPP they are all planned or in-process fuels treatment efforts. The NEPA category is where there has been environmental analysis completed in compliance with the National Environmental Policy Act which may allow for fuels work to be done there. In addition past fires, prescribed burns and areas of maintenance are shown on the map. Ouray County and the individual communities within the study area can supplement these efforts with their own wildland fire mitigation treatments, which are detailed in the Community Ignitability Analysis Recommendations section of this plan. The existing or planned treatments from these other agencies are also represented on the community level maps as reference for existing fuels mitigation activity that may be occurring in or adjacent to a community.

Figure 6. Other Agency Fuels Treatments



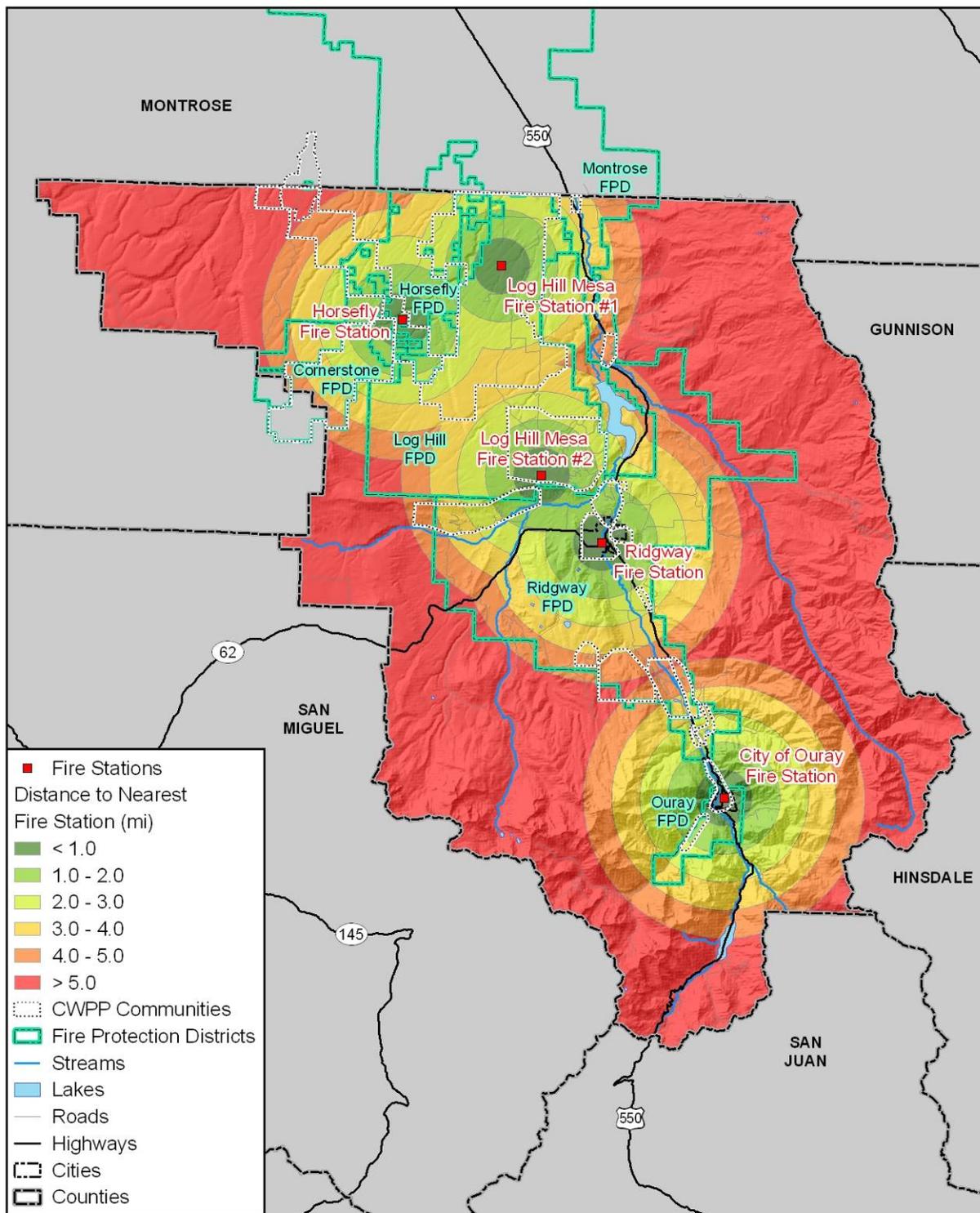
## LOCAL PREPAREDNESS AND FIRE PROTECTION DISTRICT CAPABILITIES

The Ouray County CWPP study area encompasses six fire protection districts (FPD): Log Hill Mesa FPD, Ouray FPD, Ridgway FPD, Horsefly Volunteer Fire Association, Cornerstone Metropolitan District, and Montrose FPD. The Montrose FPD is based in Montrose County but straddles the Montrose-Ouray border and is responsible for wildland fire response for two of the CWPP communities. Therefore, Montrose FPD is discussed in the Ouray County CWPP as well. The Cornerstone Metropolitan District has tax supported fire protection responsibility, but does not have the funding or capabilities to respond to wildland fires at this point. Communities that fall under the Cornerstone Metropolitan District are instead covered by the Horsefly Volunteer Fire Association. Therefore, the capabilities of the Cornerstone Metropolitan District are not discussed in the Ouray County CWPP. It should also be noted that there is a lack of all season roads between Ouray and Montrose County in the Cornerstone, Horsefly and the North Log Hill Mesa communities.

The following section describes the results of the capabilities assessment conducted during the development of the CWPP. Capabilities were assessed through a feedback form that included firefighter safety, personal protective equipment (PPE), communications, training, firefighting equipment, and water supply. Recommendations for improvements in these capabilities were made by Anchor Point Group based on analysis of the results from the feedback forms and discussions with fire department representatives. The recommendations were assigned a relative level of priority based on the desire to protect life safety, property conservation, and fire control. Adjustments in prioritization may be made based on funding opportunities and/or the more specific needs of each individual department.

Figure 7 shows the locations of fire stations assigned to these six fire protection districts and their proximity to communities within Ouray County.

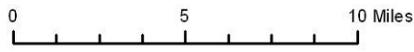
Figure 7. Ouray County Fire Station Proximity Map



- Fire Stations
- Distance to Nearest Fire Station (mi)
- < 1.0
- 1.0 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0
- ⋯ CWPP Communities
- ▭ Fire Protection Districts
- Streams
- ▭ Lakes
- Roads
- Highways
- ▭ Cities
- ▭ Counties



Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



\*Ouray County data shown on this map is to be considered a draft and subject to revision.

## **LOG HILL MESA FIRE PROTECTION DISTRICT**



### **Training**

Members of the Log Hill Mesa Fire Protection District go through a relatively rigorous training program for a volunteer fire department. All firefighters are required to take the entry-level wildland fire course S-130/190 within two years of joining. Other wildland courses are also offered to department members, including those taught at the statewide fire academies and the Colorado Firecamp. All firefighters are required to take one of two fitness tests offered each year, which includes the standardized Work Capacity Test. Department trainings occur bimonthly on the first Wednesday and second Saturday of each month, and include a wildfire component during the typical fire season months. An in-house sawyer class is also offered annually to all department members.

### **Evacuation Plan**

The Log Hill Mesa FPD produced an evacuation plan and associated brochure for the Log Hill Mesa community.

### **PPE**

All personal protective equipment (PPE) is provided to firefighters. This includes Nomex pants and shirts, fire pack, boots, and a new generation fire shelter.

### **Communications**

All firefighters are equipped with portable VHF radios, which are compatible with federal and state agencies. The chief and assistant chief also have portable 800 MHz radios. All fire apparatus is equipped with mobile VHF radios, and select vehicles also have mobile 800 MHz radios.

### **Equipment**

The Log Hill Mesa FPD has several wildland fire trucks. At the Log Hill Village station (Station 2) the department is equipped with one 400-gallon Type 1 engine with a 1,500 GPM pump; one 750-gallon Type 3 engine with a 750 GPM pump; one 350-gallon Type 6 brush truck with a 150 GPM pump; one 3,000-gallon tender with a 500 GPM pump and a 3,000 gallon dump-tank; and one utility vehicle (UTV) with a 50 gallon tank and a 50 GPM pump. Additionally, at the North Log Hill station (station 1), the district has one Type 3 engine with 750 gallons of storage and a 750 GPM pump; one Type 6 brush truck with 350 gallons of storage and a 150 GPM pump; one 3,000-gallon tender with a 500 GPM pump and a 3,000 gallon dump-tank; one 1,000-gallon tender with a 250 GPM pump; and one UTV with an 80-gallon tank and a 50 GPM pump.

### **Water Supply**

The availability and location of water resources is an issue in some parts of the district. While there are adequate fire hydrants within most of the Log Hill Village/Fairway Pines community, many other areas serviced by the FPD lack adequate water supplies. Scattered hydrants and cisterns are available in these areas, but may not be reliable or known by all fire personnel. See the individual community/planning area write-ups for details on water supply within the community/planning area.

### **Recommendations**

#### **Firefighter Safety - PRIORITY 1**

- Implement defensible space around Stations 1 and 2, and Dallas Creek Water facilities.
- Improve communications between the district, adjacent districts, the sheriff's office and Montrose Interagency Fire Management Unit.
- Work on securing additional equipment and PPE, including helmets and a thermal imaging camera.
- Continue work to improve both fire stations, including an emergency generator at Station 2 and an exhaust system at Station 1.
- Continue to document all wildland fires into National Fire Incident Reporting System (NFIRS), which is available online at [nfirs.fema.gov](http://nfirs.fema.gov).

#### **Training - PRIORITY 2**

- Additional recommended wildland fire courses for all interested firefighters include S-215 Fire Operations in the Urban Interface, S-290 Intermediate Fire Behavior, and I-200 and I-300 Basic and Intermediate Incident Command System. It is preferential and recommended that these courses be taken in a classroom setting under the direction of skilled and knowledgeable instructors. A list of available times and dates for these courses can be found at <http://www.nationalfiretraining.net>. However, S-290 is also available online at [www.meted.ucar.edu](http://www.meted.ucar.edu). Click on 'Fire Weather' under topics. Registration is required but is free of cost.
- Consider training all FPD members in radio communications to ensure that FPD personnel understand how to operate and program both VHF and 800 MHz radio systems.

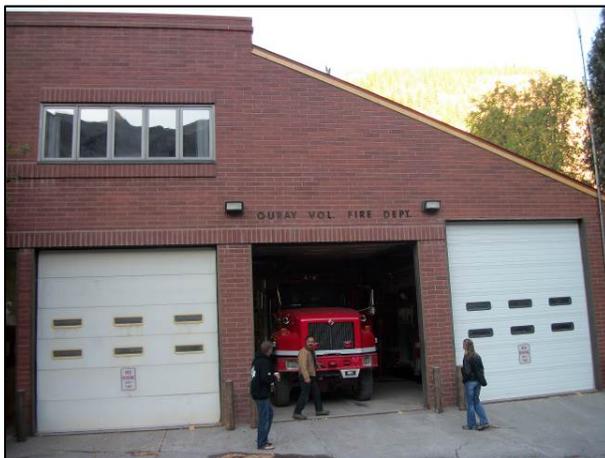
- Consider requiring all firefighters who are involved in wildland firefighting to take one level of the Work Capacity Test annually.
- Encourage Type 3 Incident Management Team participation.
- Encourage personnel to seek higher qualifications and participate in out-of-district fire assignments.
- Encourage, and work on, providing training opportunities with adjacent districts.
- Officers should familiarize themselves and their crews with fire protection plans within their response area.
- Obtain grant funding to support the need for, and interest in, additional training for department members.

### **Water Supply – PRIORITY 3**

- Any hydrants in the district should be inspected, tested, and serviced on an annual basis.
- Locate and map all water resources in the district. This should also include the amount or flow rate of water available at each source.
- Apparatus should be equipped with portable water storage, and engine checks including drafting tests should be performed monthly if possible, especially during the summer months.

### **OURAY FIRE DEPARTMENT**

The Ouray Fire Department is a city fire department. There is a fire protection district outside of the city limits, but this FPD has no equipment or personnel. Therefore, the FPD contracts with the City of Ouray Fire Department for wildland fire protection.



### **Training**

Though not required, firefighters of the Ouray FPD are encouraged to take the entry-level wildland fire course S-130/190. However, so far no department members have taken them. Additional wildland fire courses are also offered and paid for, but not required. The work capacity test qualification assessment is also offered should members choose to take it, but is not required. The department does have a scheduled training program, which occurs monthly and includes a wildland component in the spring and summer months.

**PPE**

Most wildland personal protective equipment (PPE) is not available for firefighters. While there are some firepacks, helmets and fire shelters available, there are not enough for all department members. Nomex shirts and pants are not available, and firefighters must provide their own wildland boots. Shelters are not new generation.

**Communications**

Communication occurs via VHF radios, and there are a limited number of handheld radios available. All apparatus also have radios. The town currently operates under a cumbersome dispatch system, whereby the Ouray Police are dispatched by the State Patrol, and the FD is dispatched by the 911 answering point at the Montrose Sheriff's Office.

**Equipment**

The Ouray FPD has three fire apparatus. This includes one 500-gallon Type 1 engine (4x4) with a 1,500 GPM pump; one 500-gallon Type 2 engine (4x4) with a 750 GPM pump; and one 2,000-gallon tender with a 1,250 GPM pump. All three trucks are housed at the Ouray station.

**Water Supply**

The availability of water resources within the communities in Ouray's district is not a major problem. Hydrants are present throughout most of the town and outlying areas. Other communities served by the FPD have large ponds available for drafting, as well as creek and river resources. Water sources, including hydrants, are not marked however. See the individual community/planning area write-ups for details on water supply within the community/planning area.

**Recommendations****Firefighter Safety – PRIORITY 1**

- Work with local federal agencies to secure additional basic PPE for all firefighters, including Nomex shirts and pants, helmets, firepacks, and new generation fire shelters.
- Work on securing additional radios, including 800 MHz compatible radios for use when communicating with adjacent districts.
- Look into grants or other available funding for the purchase of a Type 6 engine.
- Improve communications between the district, adjacent districts, the sheriff's office and Montrose Interagency Fire Management Unit.
- Document all wildland fires into National Fire Incident Reporting System (NFIRS), which is available online at [nfirs.fema.gov](http://nfirs.fema.gov).

**Training – PRIORITY 2**

- Encourage or require all department members to take the introductory wildland fire course S-130/S-190. It is preferential and recommended that these courses be taken in a classroom setting under the direction of skilled and knowledgeable instructors. A list of available times and dates for these courses can be found at <http://www.nationalfiretraining.net>. However, if department members are unable to attend these courses in the recommended classroom setting, they are also offered online by NWCG at <http://training.nwcg.gov/courses/s130.html>.
- Additional recommended wildland fire courses for all interested firefighters include S-215 Fire Operations in the Urban Interface, S-290 Intermediate Fire Behavior, and I-200 and I-300 Basic and Intermediate Incident Command System. It is preferential and recommended that these courses be taken in a classroom setting under the direction of skilled and knowledgeable instructors. A list of available times and dates for these courses can be found at <http://www.nationalfiretraining.net>. However, S-290 is also

available online at [www.meted.ucar.edu](http://www.meted.ucar.edu). Click on 'Fire Weather' under topics. Registration is required but is free of cost.

- Consider training all FD members in radio communications to ensure that FD personnel understand how to operate and program both VHF and 800 MHz radio systems.
- Encourage Type 3 Incident Management Team participation.
- Encourage personnel to seek higher qualifications and participate in out-of-district fire assignments.
- Encourage, and work on, providing training opportunities with adjacent districts.
- Officers should familiarize themselves and their crews with fire protection plans within their response area.

### **Water Supply - PRIORITY 3**

- Any hydrants in the district should be inspected, tested and serviced on an annual basis.
- Locate and map all water resources in the district. This should also include the amount or flow rate of water available at each source.
- Apparatus should be equipped with portable water storage, and engine checks including drafting tests should be performed at least annually.
- When possible, install additional hydrants in areas with limited water availability.

## **RIDGWAY FIRE PROTECTION DISTRICT**



### **Training**

While not required, all firefighters of the Ridgway FPD are encouraged to take the entry-level wildland fire course S-130/190. The work capacity test qualification assessment is also offered should members choose to take it but is not required, and most department members do not take it, nor do they take S-130/190. Additional wildland fire courses are also offered and paid for but are not required. The department does have a scheduled training program, which occurs monthly and includes a wildland component in the spring and summer months.

### **PPE**

All personal protective equipment (PPE) is provided to firefighters. This includes Nomex pants and shirts, fire pack, boots, and fire shelter. Shelters are not, however, new generation.

### **Communications**

Communication occurs via VHF radios. Some 800 MHz radios are available, but the department needs additional training to use the equipment.

### **Equipment**

The Ridgway FPD has several fire trucks, though only one is specific to wildland firefighting. Their apparatus includes two Type 1 structure engines (4x4): one that carries 2,300 gallons with a 1,000 GPM pump and another that carries 750 with a 1,750 GPM pump. They also have a Type 2 structure engine that can carry 500 gallons of water with a 750 GPM quick-response pump and a two-wheel drive tender that can carry 2,400 gallons with an 800 GPM pump. Specific to wildland firefighting, Ridgway has one 180-gallon Type 6 engine. This truck is low to the ground, which could be problematic in rural areas with poorly maintained dirt roads. This truck also has a bad pump that needs to be replaced.

### **Water Supply**

The availability and location of water resources is a critical problem throughout the fire protection district. While there are adequate fire hydrants within most of the area near the town of Ridgway and other outlying communities, many other areas serviced by the FPD lack adequate water supplies. While some homes have cisterns available for fire department use, they are often small in capacity. Creeks and ponds are available in some areas, but they require time and effort be spent in the process of drafting water from them. Moreover, shuttle trips will need to be setup to bring water back to the fire area, which takes personnel and apparatus away from the firefighting effort. See the individual community/planning area write-ups for details on water supply within the community/planning area.

### **Recommendations**

#### **Firefighter Safety - PRIORITY 1**

- Secure new generation fire shelters.
- Work on acquiring 800 MHz radios for regional use.
- Improve communications between the district, adjacent districts, the sheriff's office and Montrose Interagency Fire Management Unit.
- Work on securing additional equipment and PPE, including Nomex shirts and pants, helmets, firepacks, and new generation fire shelters.
- Look into grants or other available funding for the purchase of an additional Type 6 engine with improved capacity.
- Document all wildland fires into National Fire Incident Reporting System (NFIRS), which is available online at [www.nfirs.fema.gov](http://www.nfirs.fema.gov).

#### **Training - PRIORITY 2**

- Encourage or require all department members to take the introductory wildland fire course S-130/S-190. It is preferential and recommended that these courses be taken in a classroom setting under the direction of skilled and knowledgeable instructors. A list of available times and dates for these courses can be found at <http://www.nationalfiretraining.net>. However, if department members are unable to attend these courses in the recommended classroom setting, they are also offered online by NWCG at <http://training.nwcg.gov/courses/s130.html>.
- Additional recommended wildland fire courses for all interested firefighters include S-215 Fire Operations in the Urban Interface, S-290 Intermediate Fire Behavior, and I-200 and I-300 Basic and Intermediate Incident Command System. It is preferential and

recommended that these courses be taken in a classroom setting under the direction of skilled and knowledgeable instructors. A list of available times and dates for these courses can be found at <http://www.nationalfiretraining.net>. However, S-290 is also available online at [www.meted.ucar.edu](http://www.meted.ucar.edu). Click on 'Fire Weather' under topics. Registration is required but is free of cost.

- Consider training all FPD members in radio communications to ensure that FPD personnel understand how to operate and program both VHF and 800 MHz radio systems.
- Consider requiring all firefighters who are involved in wildland firefighting to take one level of the Work Capacity Test annually.
- Encourage Type 3 Incident Management Team participation.
- Encourage personnel to seek higher qualifications and participate in out-of-district fire assignments.
- Encourage, and work on, providing training opportunities with adjacent districts.
- Officers should familiarize themselves and their crews with fire protection plans within their response area.

### **Water Supply - PRIORITY 3**

- Any hydrants in the district should be inspected, tested, and serviced on an annual basis.
- Locate and map all water resources in the district. This should also include the amount or flow rate of water available at each source.
- Apparatus should be equipped with portable water storage, and engine checks including drafting tests should be performed at least annually.
- When possible, install additional storage and hydrants in areas with limited water availability.

### **CORNERSTONE METROPOLITAN DISTRICT**

The community of Cornerstone in Ouray County is a metropolitan area with a designated fire protection district that overlaps into Montrose County. Although Cornerstone has a designated fire department, the community currently lacks an established fire district and emergency medical response team. Therefore, for the time being, the Horsefly Volunteer Fire Association provides the Cornerstone Metropolitan District with an emergency response fire engine and covers their needs as far as wildfire response services. Montrose FPD provides medical and structural fire response.

## **HORSEFLY VOLUNTEER FIRE ASSOCIATION**



### **Training**

For an all-donation fire association, the Horsefly VFA has done a commendable job in wildland fire training. All firefighters are required to take the entry-level wildland fire course S-130/190, and a few have also taken S-131 Firefighter Type 1. Other wildland courses are also offered to firefighters and are paid for by federal grants. All firefighters are required to take the annual fire refresher (RT-130) in order to be allowed on fires. While the work capacity test is not required, typically 5-7 members take it each year. Department trainings occur bimonthly during fire season, which is typically May to September, and sometimes include a live-fire exercise for one of the trainings each year. An in-house sawyer class is also offered annually to all department members. This class is taught by MIFMU. Hazmat training is also offered, and the association is working on structure fire training.

### **PPE**

Most personal protective equipment (PPE) is provided to firefighters. This includes Nomex pants and shirts, fire pack, and new generation fire shelters. Boots are not provided at this time.

### **Communications**

Currently, the association has 10 VHF radios for captains and an additional 10 VHF radios in vehicles. There is also one 800 MHz radio for the chief.

### **Equipment**

The Horsefly Volunteer Fire Association has two Type 3 engines, three 180-gallon Type 6/7 engines, and one 180-gallon water trailer at its Mariposa station (Station 1). Additionally, the Association has one Type 4 engine at the Cornerstone station.

### **Water Supply**

The availability and location of water resources is a critical problem throughout most of the fire association area. While there are scattered flushing hydrants along Government Springs Road and within Cornerstone, many other areas serviced by the VFA lack adequate water supplies. Some homes have cisterns available, and there are seasonal ponds available in some areas, but they require time and effort be spent in the process of drafting water from them. Moreover, shuttle trips will need to be setup to bring water back to the fire area, which takes personnel and apparatus away from the firefighting effort. See the individual community/planning area write-ups for details on water supply within the community/planning area.

**Recommendations****Firefighter Safety – PRIORITY 1**

- Continue to work on finishing the completion to Station 1. This might include locating grant money for interior improvements, a water storage tank, and a radio repeater system.
- Work on acquiring 800 MHz compatible radios for use when communicating with adjacent districts.
- Improve communications between the district, adjacent districts, the sheriff's office and Montrose Interagency Fire Management Unit.
- Work on securing additional equipment and PPE, including Nomex shirts and pants, helmets, firepacks, and new generation fire shelters

**Training – PRIORITY 2**

- Encourage or require all department members to take the introductory wildland fire course S-130/S-190. It is preferential and recommended that these courses be taken in a classroom setting under the direction of skilled and knowledgeable instructors. A list of available times and dates for these courses can be found at <http://www.nationalfiretraining.net>. However, if department members are unable to attend these courses in the recommended classroom setting, they are also offered online by NWCG at <http://training.nwcg.gov/courses/s130.html>.
- Additional recommended wildland fire courses for all interested firefighters include S-215 Fire Operations in the Urban Interface, S-290 Intermediate Fire Behavior, and I-200 and I-300 Basic and Intermediate Incident Command System. It is preferential and recommended that these courses be taken in a classroom setting under the direction of skilled and knowledgeable instructors. A list of available times and dates for these courses can be found at <http://www.nationalfiretraining.net>. However, S-290 is also available online at [www.meted.ucar.edu](http://www.meted.ucar.edu). Click on 'Fire Weather' under topics. Registration is required but is free of cost.
- Consider training all HFVA members in radio communications to ensure that HFVA personnel understand how to operate and program both VHF and 800 MHz radio systems.
- Continue to work on structure fire training, as well a medical training.
- Consider requiring all firefighters who are involved in wildland firefighting to take one level of the Work Capacity Test annually.
- Encourage Type 3 Incident Management Team participation.
- Encourage personnel to seek higher qualifications and participate in out-of-district fire assignments.
- Encourage, and work on, providing training opportunities with adjacent districts.
- Consider incorporation to become a fire protection district.

**Water Supply – PRIORITY 3**

- Any hydrants in the district should be inspected, tested and serviced on an annual basis.
- Locate and map all water resources in the district. This should also include the amount or flow rate of water available at each source.
- Apparatus should be equipped with portable water storage, and engine checks including drafting tests should be performed at least annually.
- When possible, install additional storage and hydrants in areas with limited water availability.

## **MONTROSE FIRE PROTECTION DISTRICT**



### **Training**

The Montrose Fire Protection District (FPD) is composed of 55 members. All FPD members have taken the S-130/190 introductory wildland fire course. Additional wildland fire courses are also currently offered by the Montrose FPD and are currently paid for by the department. A regular training program is conducted on duty for FPD members and scheduled monthly for volunteer and reserve members. Furthermore, the Montrose FPD members take the work capacity test and fire refresher annually.

### **Personal Protective Equipment (PPE)**

Montrose FPD provides Nomex pants and shirts, wildland boots, helmets, fireline packs, and new generation shelters.

### **Communications**

The department uses both VHF and 800 MHz radios, and the department has 18 mobile units and 55 handheld units. All trucks are equipped with radios in their apparatus.

### **Equipment**

The Montrose FPD has three Type 6 engines, two 1,000-gallon Type 1 engines, and one 3,500-gallon tender.

### **Water Supply**

Water availability is variable within the area; however, a minimum of 500 gallon per minute (GPM) is available in areas with newer subdivisions. Both hydrants and ponds are present and serve as water sources within the area. Flow rates for hydrants are not tested annually. However, flow rates vary from 100-500 GPM and are dependent on the hydrant location.

**Recommendations**

**Firefighter Safety – PRIORITY 1**

- Continue to work towards having enough VHF radios for all personnel in all apparatus that respond to wildland fires.
- Ensure that all personnel are trained in use and programming of VHF radios.
- Continue to work towards having enough helmets, Nomex pants and shirts, and wildland boots for all department members.

**Training – PRIORITY 2**

- Officers should familiarize themselves and their crews with fire protection plans within their response area.
- Obtain grant funding to support the need for, interest in, and compensation of additional training for department members and volunteer members.
- Additional recommended wildland fire courses for all interested firefighters include S-215 Fire Operations in the Urban Interface, S-290 Intermediate Fire Behavior, and I-200 and I-300 Basic and Intermediate Incident Command System. It is preferential and recommended that these courses be taken in a classroom setting under the direction of skilled and knowledgeable instructors. A list of available times and dates for these courses can be found at <http://www.nationalfiretraining.net>. However, S-290 is also available online at [www.meted.ucar.edu](http://www.meted.ucar.edu). Click on 'Fire Weather' under topics. Registration is required but is free of cost.
- Consider training all FPD members in radio communications to ensure that FPD personnel understand how to operate and program both VHF and 800 MHz radio systems.

**Water Supply – PRIORITY 3**

- Maintain and test hydrants systems annually, especially in areas where water supply is inconsistent.
- When possible, install additional storage and hydrants in areas with limited water availability.

## **THE OURAY COUNTY ROLE IN PREPAREDNESS AND RESPONSE**

### **Situation**

Ouray County has no direct firefighting capability, but does have an important role in supporting response. The County has taken the lead in compliance with federal and state mandates, and has done so on behalf of and in concert with the City and town, fire protection districts, and the surrounding counties. This is the role of Emergency Management, and it dates back to before 2003. In the event of a wildfire, the County also provides financial backing and operational support when necessary. The different fire protection districts have differing levels of capacity to fund and manage wildfire events; they all have access to County support through the Sheriff's Office and Emergency Management. For a number of years, the Board of County Commissioners (BOCC) has recognized that some events may need immediate applications of expensive resources and has given the Sheriff permission to engage those resources without requiring further permission, up to a limited level.

The County participates in updating of the Annual Wildfire Operating Plan and commits certain resources in support of fire operations such as bulldozers and water tanker support. The BOCC also supports an Emergency Planning Team (EPT) consisting of the Sheriff, the Public Health Director, the EMS Director, and the Emergency Planning Coordinator. This group helps initiate and carry out various planning efforts.

An offshoot of the EPT is a group of volunteers known as the Incident Management Team (IMT). This group is set up to support an "Incident Command" operation and/or an "Emergency Operations Center" which would support Incident Command during longer lasting events. Most County emergency planning anticipates a "Unified Command" structure where responsibilities would be shared with any affected towns, fire departments/districts, state and federal agencies, and even the private sector where appropriate. All IMT members have access various warning methods such as Target Notification and the Emergency Alert System through the National Weather Service.

### **Communications**

All emergency vehicles in Ouray County have been equipped with modern VHF radios which have the frequencies of all other emergency services in the County so that all Countywide Emergency Services have complete interoperability with each other. These radios also have the National frequencies for police, fire, and EMS. Most responders also have access to similarly set up VHF portable radios.

Most emergency vehicles in Ouray County also have 800DTR radios on the state system and agency chiefs and some officers also have 800DTR portable radios. These 800DTR radios are set up with all appropriate West Regional talk groups as well as the state-wide talk groups enabling interoperability with regional and state resources that are not on VHF.

Ouray County also has three Incident Command radio interface devices which can link disparate radio systems together for interoperability as long as system radios and proper cabling for those radios are available to plug into the interface equipment.

### **Recommendations**

- Equip Ouray County Water Tanker Trucks to be useful as water supply support for fire departments/districts.

- Consider establishing formal agreements with jurisdictions which might need to share resources during a large event.
- Consider establishing protocols and operating procedures for the IMT to support Incident Management.
- Provide additional training and PPE (personal protective equipment) for IMT members and a method of maintaining currency.
- Promote Incident Command System (ICS) use in every day operations so that it becomes routine.
- Design an Emergency Operations Center where emergency power is available and move toward making it operational.
- Provide training and PPE for road and bridge personnel who would be called upon to respond with water trucks and/or bulldozers during a fire event.
- Provide an appropriate level of ICS training, and a centralized means of tracking the training status, for all County personnel.
- Complete the equipping of emergency vehicles with state 800DTR radios.
- Establish a means by which all personnel having access to either VHF or 800DTR radios get initial and periodic training on the use of this equipment.

## COMMUNITY IGNITABILITY ANALYSIS RECOMMENDATIONS

### PURPOSE

The purpose of this section is to examine the identified CWPP communities in greater detail. Of the 21 CWPP communities defined in the Ouray County study area, none were found to represent an extreme hazard. Six were rated as very high hazard, eleven were rated as high hazard, and the remaining four were rated as moderate hazard (Table 3). It is important to remember these communities are rated relative to what is customary for this specific type of interface. While adhering to proven methodology, an attempt is made to approach each community as a unique entity with its own characteristics, so that the most accurate, safe, and useful assessments possible are provided.

### COMMUNITY ASSESSMENT METHODOLOGY

The community-level methodology for this assessment uses a Wildfire Hazard Rating (WHR) that was developed specifically to evaluate communities within the Wildland Urban Interface (WUI) for their relative wildfire hazard.<sup>1</sup> The WHR model combines physical infrastructure such as structure density and roads, and fire behavior components like fuels and topography, with the field experience and knowledge of wildland fire experts. It has been proven and refined by use in rating thousands of neighborhoods throughout the United States. Much of NFPA 1144 has been integrated into this methodology to ensure compatibility with national standards. Additionally, aspects of NFPA 1142 regarding water supply for rural and suburban firefighting are included in the assessments by looking at proximity and capacity of the water supply. The fire modeling in combination with the expertise of the field personnel are what create a more robust rating system than NFPA 1144 or NFPA 1142 on their own.

Defined communities are the centerpiece of the CWPP. The definition of a community, for the purposes of a CWPP, has been refined by Anchor Point over the last 10 years while producing these plans. In doing so, state and federal requirements/definitions have been taken into consideration. The Colorado State Forest Service requires that each community have representation during the planning process. This representation can be a fire department official, a HOA leader, an involved community member, or the sheriff if the community in question does not belong to a specific fire protection district. Because each community has to have representation, it must be a cohesive enough unit to support a single representative. Thus, a community should be a single geographic area that shares similar infrastructure, vegetation, topography, and as a result, similar recommendation needs. Lot/parcel sizes should be small enough that actions taken by individual residents will likely have an effect on their neighbor's fire risk, and may motivate further action. Close proximity is an easy way to encourage collaboration. Communities are focused on groups of homes with similar needs, while other values at risk are captured under areas of special interest.

Initial community boundaries were drawn on table maps during the first stakeholder meeting associated with this planning effort. At this meeting, local fire department representatives and

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<sup>1</sup> White, C. "Community Wildfire Hazard Rating From" *Wildfire Hazard Mitigation and Response Plan*, Colorado State Forest Service, 1986. Ft. Collins, CO.

the sheriff identified values at risk from wildfire. In the following weeks, Anchor Point staff met one-on-one with fire department personnel, the sheriff, county emergency management and state and federal employees to better define the boundaries and identify the potential hazards and risks to the WUI. Actual boundaries were drawn on topographical maps and with the aid of Google Earth, often using topography and fuels to delineate boundaries. The WHR surveys filled out during field tours combine physical infrastructure, such as structure density and roads, and fire behavior components, such as fuels and topography, with the field experience and knowledge of wildland fire experts. The WHR rating system has been proven and refined by use in rating thousands of neighborhoods throughout the United States.

Areas of special interest (ASIs) are places within the CWPP study area which have a risk from wildfire but have a social or economic value that is not based on residential development. Unlike communities, ASIs are not given hazard ratings. Frequent candidates for ASIs include recreation areas, such as parks, ski areas, and defined open space. Guest ranches, church camps, RV parks and other large acreage recreational camps that have a large but temporary population are typically included in a list of ASIs that have similar mitigation and fire protection needs. Also included is critical infrastructure such as communications arrays. ASIs are identified separately from communities because of the size and a focus on recreation and infrastructure over residences. ASIs and communities evaluate specific sections of the study area; parts of the study area that do not meet either criterion, but are still within the Wildland Urban Interface are defined as rural planning areas.

The rural planning areas (RPAs) cover every part of the defined Wildland Urban Interface that is not included in a community or an Area of Special Interest but are still at risk from wildfire. A RPA is not analyzed in the same way as a community, nor are recommendations given beyond standard "Firewise" practices. The RPA analysis differentiates and essentially prioritizes different areas of the defined Wildland Urban Interface based on potential fire behavior. These rural areas may claim "umbrella coverage" of the countywide CWPP. Therefore, projects within a RPA will be eligible for wildfire mitigation grants. The RPA is broken into priority zones ranked from A to D. Within this matrix, A is the highest priority, while B and C are at progressively lower risk from fire, and D represents areas with the least wildfire risk. This prioritization is separate from the ratings given to communities and are designed to aid in project management outside of defined communities. Ouray County RPAs are shown in Figure 9. This map can also be referenced in an 11x17 format in Appendix E.

For the purposes of this plan, the CWPP community boundaries can also serve as planning unit boundaries; the community boundaries align well with areas that have similar requirements in terms of needed fuel reduction projects. Within these planning units, there are acute, well-defined projects described and presented graphically. These projects are considered to be the first priority within the project areas. However, additional, larger landscape-scale projects in, and out of, the boundaries should also be considered. Identifying larger projects in the surrounding influence zones will be meaningful for obtaining grants to help fund all of the projects, especially the small acreage projects. Although large fuelbreaks are not always as effective for individual home protection as defensible space, they can act as anchor points for suppression activities to begin if carried out correctly. For example, a burn-out operation can begin off of a large, properly implemented fuelbreak, and fuelbreaks are also useful places for aircraft to drop retardant or water. An overarching recommendation that can be made throughout the Ouray County study area includes completing treatment along the roads. A few specific planning units and roads were identified in the plan because they were identified as crucial due to the fuel

loading and quantity of travel. However, all roads within the study area boundaries are viable options for fuels treatments, as they are used for access and egress.

Each community write-up can be regarded as an individual document. These pages can be delivered to a community independently of the overall document. As a result, you will see specific recommendations, if existing, for each community listed first, followed by recommendations that apply to all communities, such as defensible space. While seemingly repetitive, with this format, each community has all of the pertinent information available in three to four pages separate of the overall document. Defensible space is determined to be the greatest benefit for the least cost for landowners. Not every community has specific landscape-scale fuel reduction or fuel treatment projects identified including Colona, Mineral Farms, the City of Ouray, the Town of Ridgway, Whispering Pines and Dave Wood South, but defensible space is recommended for all. This does not mean that a larger, landscape-scale project within the community/planning area could not be beneficial for the area, but it was not identified as the most important step in protecting life safety and values at risk.

Many knowledgeable and experienced fire management professionals were queried about specific environmental and infrastructure factors, and wildfire behavior and hazards. Weightings within the model were established through these queries. The model was designed to be applicable throughout the western United States.

The model was developed from the perspective of performing structural triage, also known as prioritizing, on a threatened community in the path of an advancing wildfire with moderate fire behavior. The WHR survey and fuel model ground truthing are accomplished by field surveyors with WUI fire experience.

As part of the Ouray County CWPP, 21 WUI areas were identified within the study area. The location and hazard rating of these communities are shown in Figure 8. This map can also be referenced in an 11x17 format in Appendix E. In the community descriptions which follow, the headings correspond to the various Ouray County fire protection districts, while the sub-headings numbered below correspond to the individual CWPP communities within the fire protection districts. The individual communities are organized primarily by risk level from very high hazard to moderate hazard, and then alphabetically within their hazard rating. The 21 CWPP communities are identified according to their hazard rating in Table 3. The 9 ASIs in the Ouray County study area are discussed in the areas of special interest section.

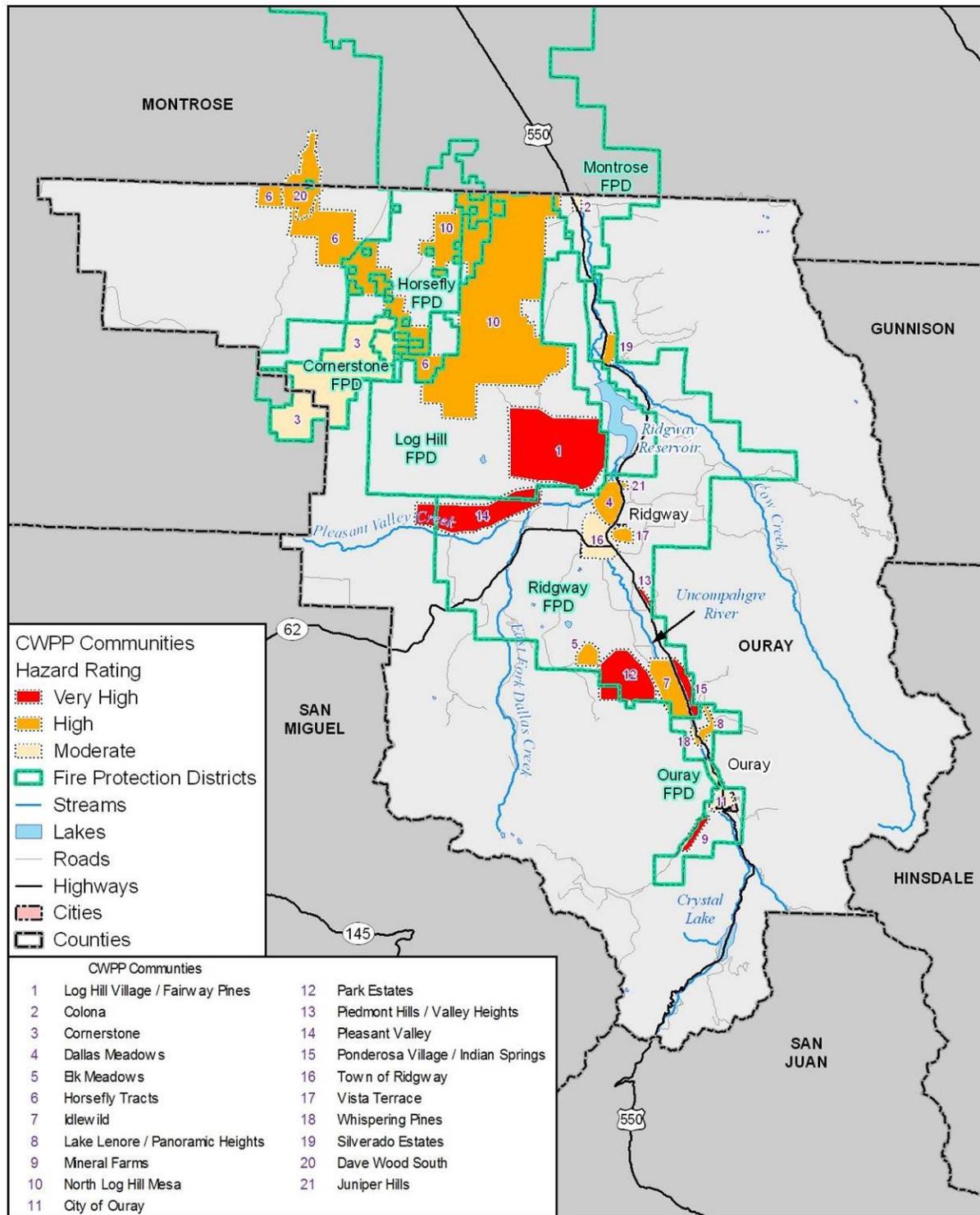
The rating system assigns a hazard rating based on five categories: topographic position, fuels and fire behavior, construction and infrastructure, suppression factors, and other factors, including frequent lightning, railroads, campfires, etc.

It is important to note that every hazard rating does not necessarily occur in every geographic region. There are some areas with no low hazard communities, just as there are some areas with no extreme communities. The rankings are also related to what is customary for the area. For example, a high hazard area on the plains of Kansas may not look like a high hazard area in the Rocky Mountains. The system creates a relative ranking of community hazards in relation to the other communities in the study area. It is designed to be used by experienced wildland firefighters who have a familiarity with structural triage operations and fire behavior in the interface.

**Table 3. Community Hazard Ratings**

Community Name	Fire Protection District	Hazard Rating
City of Ouray	Ouray	moderate
Colona	Montrose	moderate
Cornerstone	Horsefly	moderate
Town of Ridgway	Ridgway	moderate
Dallas Meadows	Ridgway	High
Dave Wood South	Montrose	High
Elk Meadows	Ridgway	High
Horsefly Tracts	Horsefly	High
Idlewild	Ridgway	High
Juniper Hills	Ridgway	High
Lake Lenore/Panoramic Heights	Ouray	High
North Log Hill Mesa	Log Hill Mesa	High
Silverado Estates	Ridgway	High
Vista Terrace	Ridgway	High
Whispering Pines	Ouray	High
Log Hill Village/Fairway Pines	Log Hill Mesa	Very High
Mineral Farms	Ouray	Very High
Park Estates	Ridgway	Very High
Piedmont Hills/Vista Heights	Ridgway	Very High
Pleasant Valley	Ridgway	Very High
Ponderosa Village/Indian Springs	Ridgway	Very High

Figure 8. Ouray County CWPP Communities and Hazard Ratings

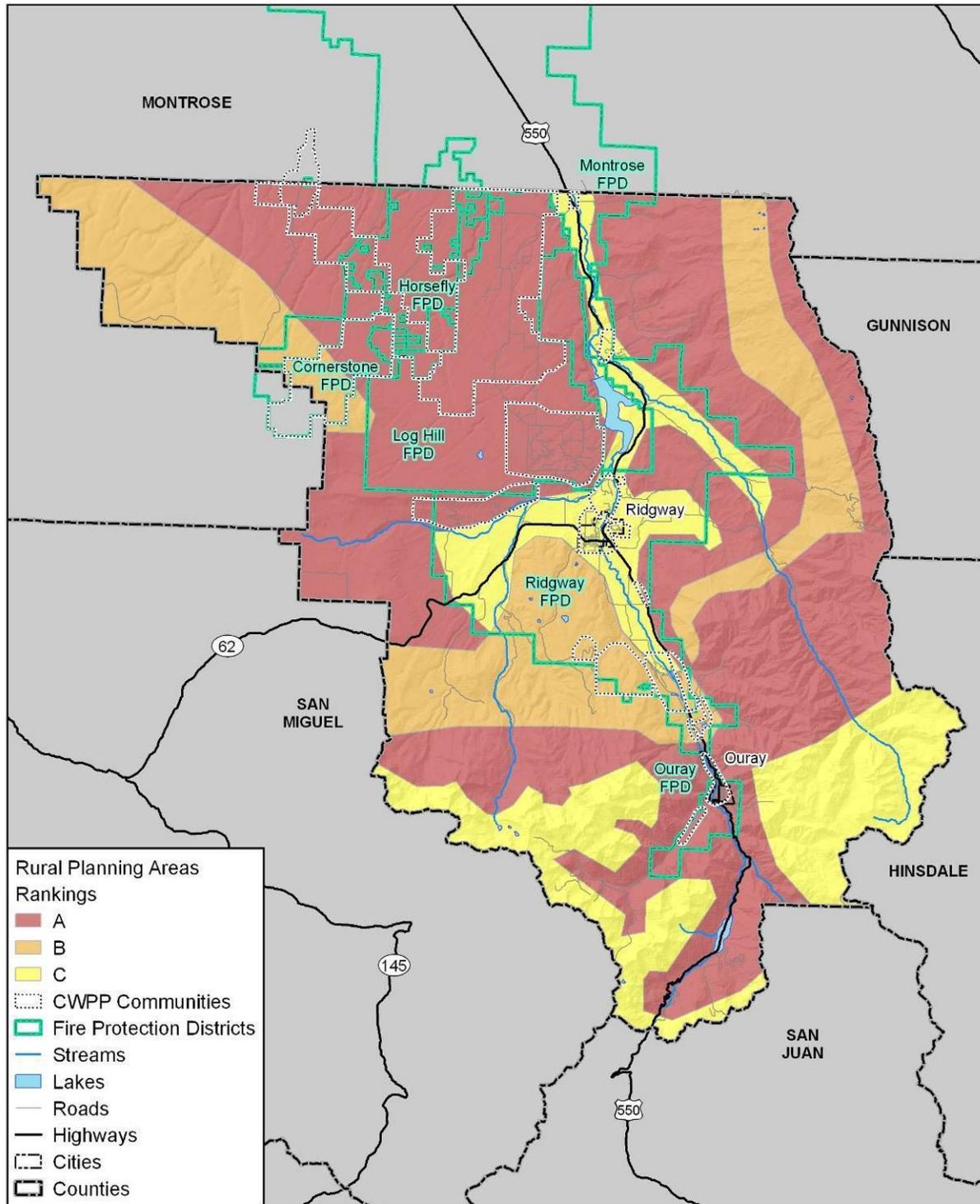


Map compiled 4/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



\*Ouray County data shown on this map is to be considered a draft and subject to revision.

Figure 9. Ouray County Rural Planning Areas



- Rural Planning Areas  
Rankings
- A
  - B
  - C
  - CWPP Communities
  - Fire Protection Districts
  - Streams
  - Lakes
  - Roads
  - Highways
  - Cities
  - Counties

**amec**  
Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

**FIRE MANAGEMENT**  
www.anchorpoint.com  
\*Ouray County data shown on this map is to be considered a draft and subject to revision.

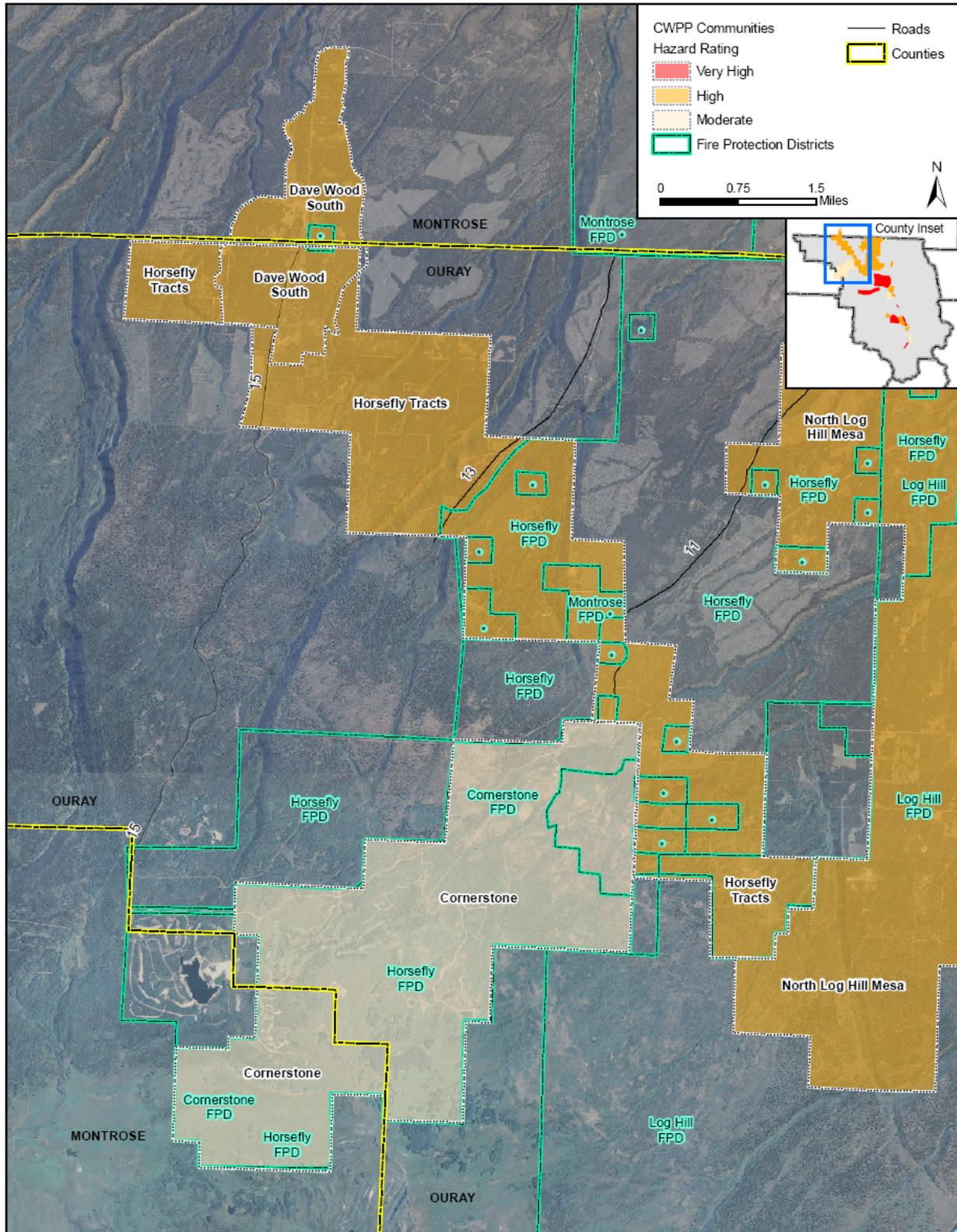
**HORSEFLY VOLUNTEER FIRE ASSOCIATION**

Two CWPP communities were identified within the Horsefly Volunteer Fire Association response area: Horsefly and Cornerstone. These communities and their hazard ratings are shown in Table 4 and Figure 10. Each community’s ignitability analysis recommendations are discussed in the following pages.

**Table 4. Horsefly Volunteer Fire Association CWPP Communities by Hazard Rating**

High	Moderate
Horsefly Tracts	Cornerstone

Figure 10. Horsefly Volunteer Fire Association CWPP Communities\*



\*Asterisks on map indicate areas included within a FPD

## 1. Horsefly Tracts



### Hazard Rating: High

Horsefly comprises a group of 35-plus-acre tracts off of the Government Springs and Dave Wood roads, as seen in Figure 11. While the main roads are well maintained paved and gravel roads, side roads are long, narrow and, in some cases, poorly maintained. Side roads run through steep drainages that are thick with vegetation, creating the potential for a fire to block egress. Road signs are made of wood and thus are nonreflective and combustible. Addressing in the community is inconsistent, combustible, and sometimes hard to see, potentially complicating navigation for first responders or evacuees. Topography is primarily flat, though there are some rolling hills and steep ravines. There are approximately 150 lots in the community, approximately 50 of which have structures on them. Some houses are built above steep ravines. Most structures have metal roofs and noncombustible siding, but not all. For the most part, homes have defensible space around them, and many landowners have done mitigation on their properties. Work has been done in some areas along roads to clear 60 feet from the road. Turnarounds for fire apparatus are adequate at most houses. Homes in Horsefly run on solar power and use propane for heating. Water is available for drafting via some seasonal ponds and individual home cisterns, as well as limited flushing hydrants present on Government Springs Road. There are three hydrants on Government Springs Road and one in Cornerstone. Some homes have very long response times due to the distance from the Horsefly fire station and the condition of the roads. Like other Ouray County communities, lightning and high winds increase fire danger in this community.

In the Horsefly community, dense pinyon-juniper forest dominates much of the landscape. There are also areas of Gambel oak in drainages and large, open stands of ponderosa pine on the mesa tops. Intermixed within these areas are a number of wide open grass and shrub-dominated meadows. Because of the density of fuels and steepness of drainages and mesas, rates of spread are expected to be between 40 to 60 chains per hour throughout much of the community, but could easily exceed 60 chains per hour. In areas of pinyon-juniper and Gambel oak with contiguous fuel loadings, rapidly-moving crown fire behavior is possible under high severity weather conditions. Numerous steep mesa sides and drainages will act to further this spread, and flame lengths in these areas could easily surpass 11 feet. There are a number of fuels treatments that have been implemented within and adjacent to the community. These chaining and prescribed burning treatments intend to decrease the density of the pinyon and juniper trees. Typically, the resulting vegetation consists of grass, which carries fire more

quickly, but with less intensity than the pinyon-juniper forest. Many areas atop the mesa experience frequent lightning and a number of small fires are suppressed each year.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 5. Horsefly Tracts Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for all homes	Hand felling and limbing near homes; mowing	Variable, depends on topography
Horsefly Evacuation Route Improvement and Thinning***	2	The current roadway connecting Horsefly to North Log Hill Mesa via Wisteria should be improved & thinned. There are currently gates on both access areas of the road, which should be redesigned to allow removal during a fire emergency, and codes should be made known to local residents.	Mechanical treatment; hand-felling and limbing in some areas due to slope	Total of 47, which includes portion treated within the North Log Hill Mesa community
Timber Ridge Roadside Thinning***	3	Thin along major roadway areas that cross drainages. This will aid in the egress of homeowners & the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity & smoke. Thinned areas could also slow fire spread up	Mechanical treatment; hand-felling and limbing in some areas due to slope	11

Name	Priority	Description	Methods*	Acres**
		drainages.		
Bible Camp Roadside Thinning 1***	3	Thin along major roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Mechanical treatment; hand-felling and limbing in some areas due to slope	17
Bible Camp Roadside Thinning 2***	3	Thin along major roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Mechanical treatment; hand-felling and limbing in some areas due to slope	23
Wildcat Canyon Roadside Thinning 1***	3	Thin along major roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Mechanical treatment; hand-felling and limbing in some areas due to slope	16
Wildcat Canyon Roadside Thinning 2***	3	Thin along major roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas	Mechanical treatment; hand-felling and limbing in some areas due to slope	48

Name	Priority	Description	Methods*	Acres**
		could also slow fire spread up drainages.		
Mariposa Roadside Thinning***	3	Thin along major roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Mechanical treatment; hand-felling and limbing in some areas due to slope	20
Government Springs Roadside Thinning ***	3	Areas of thick vegetation along Government Springs Road should be thinned to a distance of at least 50 feet from the edge of the road. This will aid in the egress of residents by reducing heat intensity and smoke	Mechanical treatment; hand-felling and limbing in some areas due to slope	Total of 259, which includes portion treated within the Cornerstone community
Bible Camp Fuelbreak	4	There are a number of previously completed fuels treatments on adjacent BLM land that should be connected. Where possible, if they were connected across drainage bottoms by way of mechanical treatment or prescribed burning, their effectiveness would be greatly enhanced.	Mechanical treatment or prescribed fire on mesa, may require hand felling or RX fire in drainages due to slope	45
Sims Mesa Fuelbreak	4	There are a number of previously completed fuels treatments on adjacent BLM land that should be connected. Where possible, if they were connected across drainage bottoms by way of mechanical treatment or prescribed burning, their effectiveness would be greatly enhanced.	Mechanical treatment or prescribed fire on mesa, may require hand felling or RX fire in drainages due to slope	19

Name	Priority	Description	Methods*	Acres**
Government Springs Fuelbreak	4	There are a number of previously completed fuels treatments on adjacent BLM land that should be connected. Where possible, if they were connected across drainage bottoms by way of mechanical treatment or prescribed burning, their effectiveness would be greatly enhanced.	Mechanical treatment or prescribed fire on mesa, may require hand felling or RX fire in drainages due to slope	18
West Horsefly Creek Fuelbreak	4	There are a number of previously completed fuels treatments on adjacent BLM land that should be connected. Where possible, if they were connected across drainage bottoms by way of mechanical treatment or prescribed burning, their effectiveness would be greatly enhanced.	Mechanical treatment or prescribed fire on mesa, may require hand felling or RX fire in drainages due to slope	10

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\*Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

\*\*\*See Glossary for further explanation of roadside thinning projects.

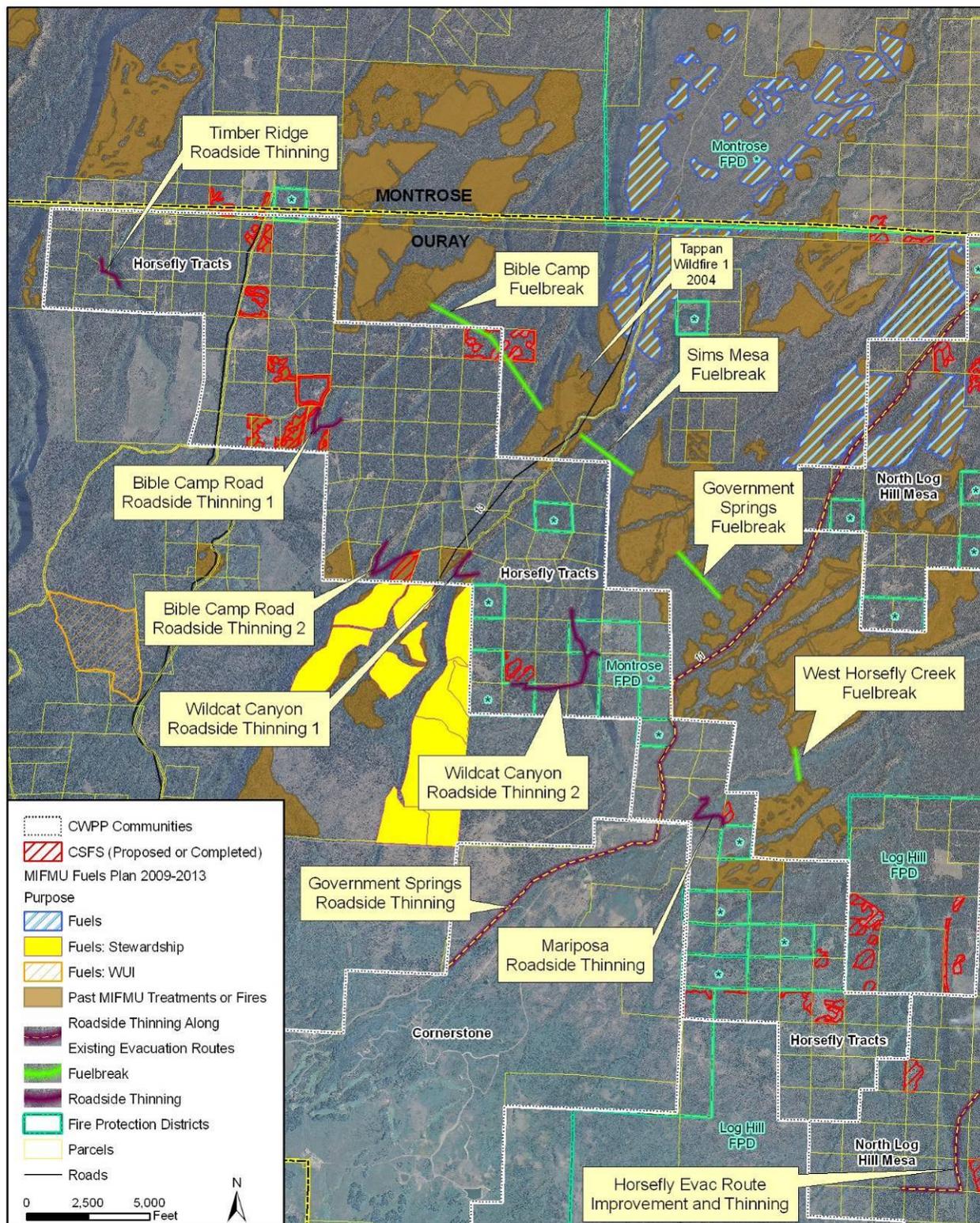
**Table 6. Horsefly Tracts General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.  Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.
Landscaping/Fuels	2	Clean leaf and needle litter from roofs and gutters and away from foundations.  Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.  Remove wood piles and any flammable yard clutter to at least

Category	Priority	Description
		<p>30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Where available, large safety zones should be maintained and identified in all evacuation planning. These safety zones will need to be of adequate size and quality in order to be effective.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 11. Horsefly Tracts Fuels Treatment Recommendations\*



\*Asterisks on map indicate areas included within a FPD

## 2. Cornerstone



### Hazard Rating: Moderate

The Cornerstone community is a metropolitan district located at the end of the Government Springs Road (refer to Figure 12). The main access road is paved, and a dirt USFS road can serve as egress. Other roads throughout the community are paved. Street signs are metal and noncombustible but are nonreflective. Addressing is also nonreflective and is made from combustible materials. Topography in the area is mostly flat but includes some rolling hills. The community is split between Ouray and Montrose Counties, though most of the current and proposed development is located in Ouray County. Lots have been platted, but most of the community has yet to be developed. There are high fire-resistant metal roofs present on some homes, and roofs on any new homes should be constructed of Class A materials. Siding and deck construction is a mix of noncombustible and combustible materials. Defensible space has been minimally implemented around most current homes, though most occur in aspen stands. There are adequate turnarounds in most areas. All homes currently constructed and planned in the future are required to have sprinkler systems. Of the total community size of 6,000 acres, approximately half is considered open space and will not be developed in the future. Water for firefighting is available via hydrants. The community has its own fire truck, though it is not currently staffed. Technically, Cornerstone is a part of Horsefly's district. High winds and lightning increase the wildland fire danger in this community.

There are a variety of fuel types present in the Cornerstone community. Open, shrub-dominated areas surround large stands of aspen. The majority of homes and infrastructure occur in these areas. Also present are areas of contiguous ponderosa pine and stands of pinyon-juniper intermixed with Gambel oak. Rates of spread can be expected to be higher in the drainages present throughout the community. Fast-moving crown fire behavior can be expected in areas of pinyon-juniper that have consist fuels between trees during high wind events. In these areas, high fireline intensities can also expected, though the vast majority of the community can expect low to moderate fireline intensities. Rates of spread vary greatly throughout the community, and are expected to be between 20 and 60 chains per hour. Flame lengths are estimated at 4 to 8 feet.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A

concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community's respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 7. Cornerstone Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50' around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located near dangerous topography, or near the perimeter of the community.	Hand felling and limbing near homes; mowing	Variable, depends on topography
Government Springs Roadside Thinning***	3	Areas of thick vegetation along Government Springs Road should be thinned to a distance of at least 50 feet from the edge of the road. This will aid in the egress of residents by reducing heat intensity and smoke	Mechanical treatment; hand-felling and limbing in some areas due to slope	Total of 259, which includes portion treated within the Horsefly community

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

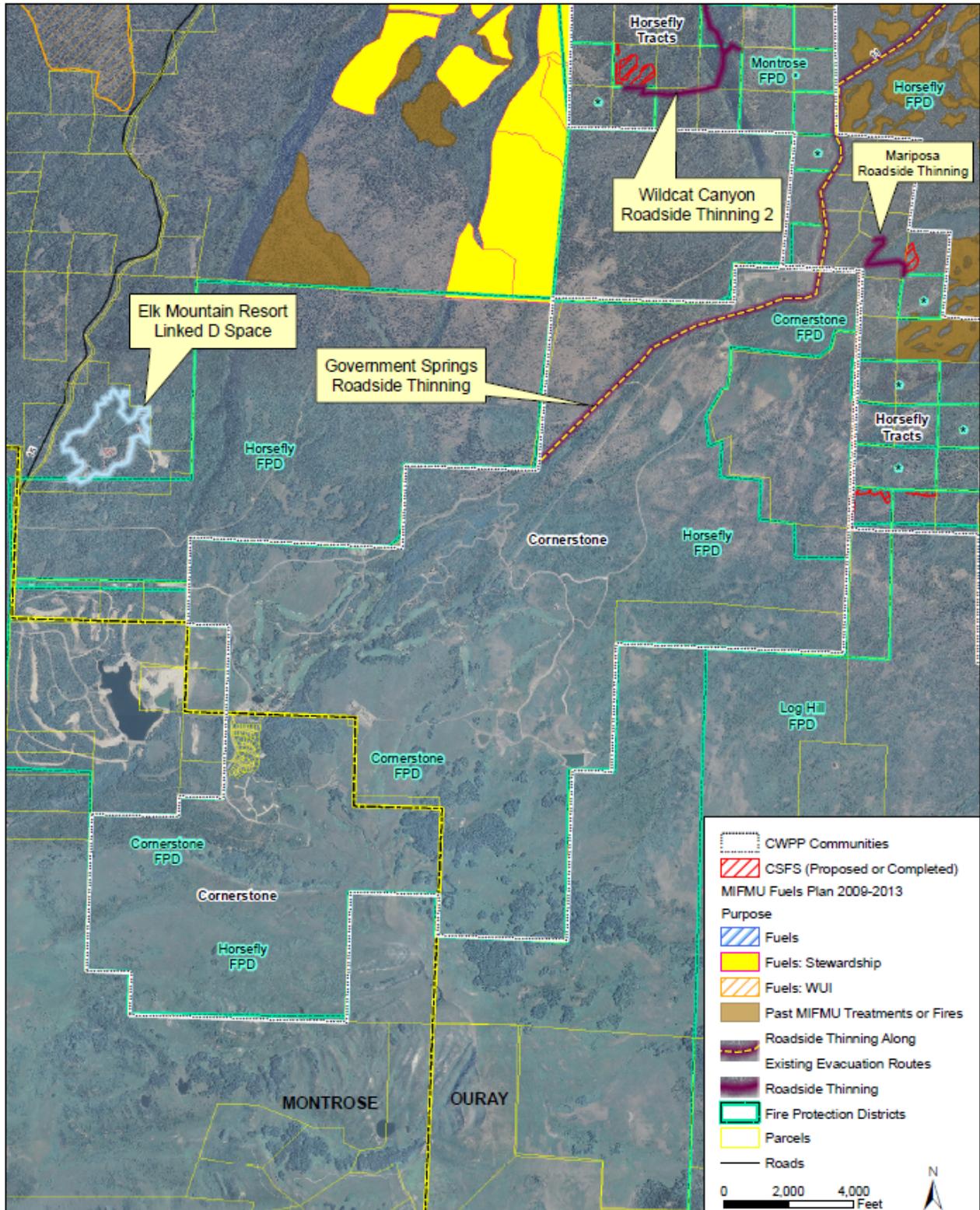
\*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 8. Cornerstone General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/ Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Where available, large safety zones should be maintained and identified in all evacuation planning. These safety zones will need to be of adequate size and quality in order to be effective</p> <p>Develop fire safety brochures that can be distributed and made available to guests in the summer months.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 12. Cornerstone Fuels Treatment Recommendations\*



\*Asterisks on map indicate areas included within a FPD

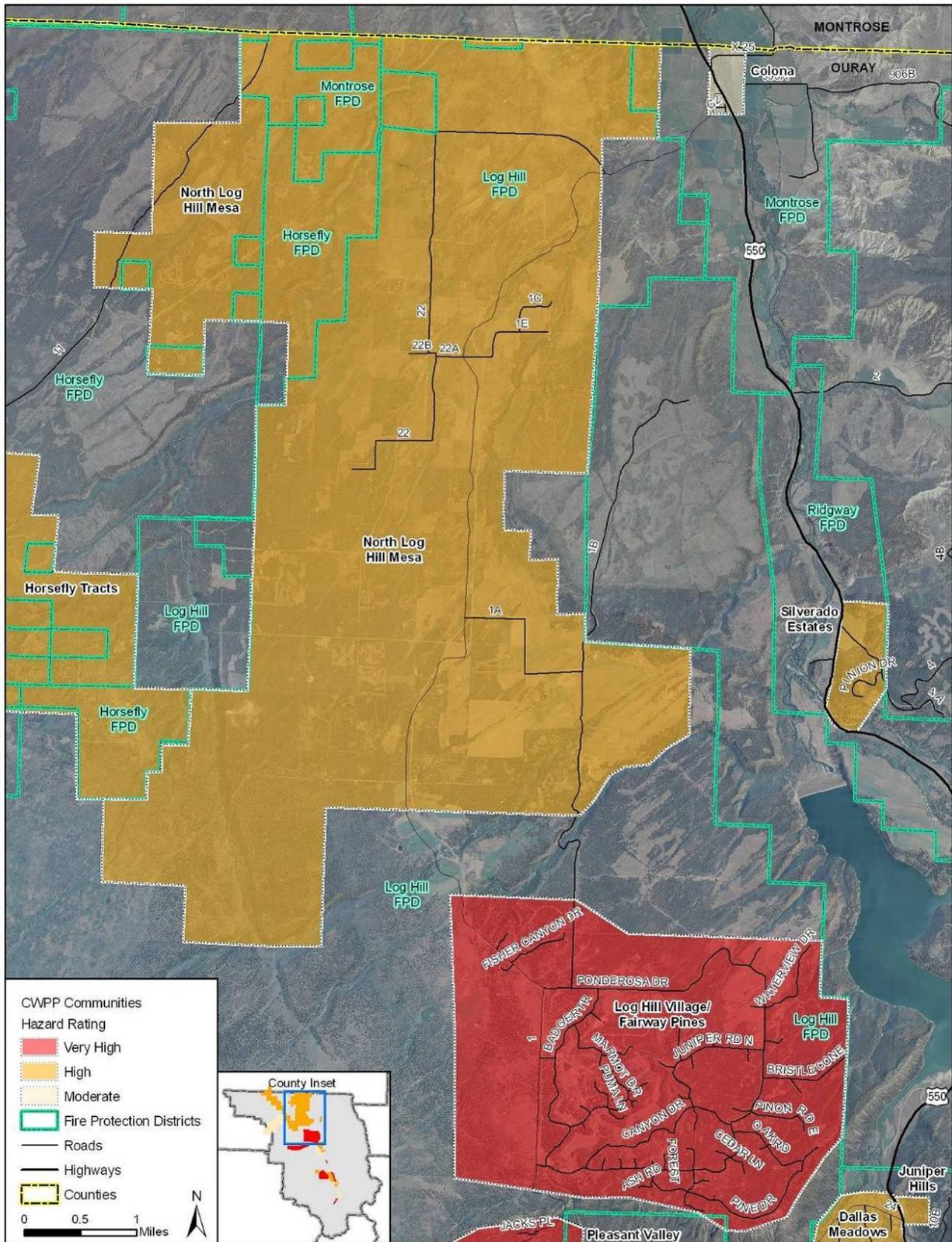
LOG HILL MESA FIRE PROTECTION DISTRICT

Two CWPP communities were identified within the Log Hill Mesa FPD, including Log Hill Village/Fairway Pines and North Log Hill Mesa. These communities are identified in Table 9 and shown in Figure 13. The North Log Hill Mesa community is also covered by the 2010 Log Hill Mesa Residents' Evacuation Guide, published by the Log Hill Mesa Fire Protection District. Each community's ignitability analysis recommendations are discussed in the following pages.

**Table 9. Log Hill Mesa Fire Protection District CWPP Communities by Hazard Rating**

Very High	High
Log Hill Village/Fairway Pines	North Log Hill Mesa

Figure 13. Log Hill Mesa FPD CWPP Communities



### 3. Log Hill Village/Fairway Pines



#### Hazard Rating: Very High

The Log Hill Village/Fairway Pines community is situated atop Log Hill Mesa, northeast of Ridgway (refer to Figure 14). Access into Log Hill Village occurs along Ponderosa Drive, while Fairway Pines is accessed off of Badger Trail/Marmot Drive. Both of these roads are paved and of adequate width for incoming fire apparatus. There is also another way into and out of the community on County Road 1A, though its condition varies and may not be viable for some cars. Side roads in the community are dirt, and there are an adequate number of turnarounds for fire apparatus. However, many driveways are long and narrow and are not easily accessed by most fire equipment. Street signs are present and consistent, though they are nonreflective. Addressing is inconsistent, nonreflective, and made of combustible materials. Topography for the Log Hill Village/Fairway Pines community is mostly flat atop the mesa. However, many houses are located adjacent to the steep slope of the mesa. Home construction varies widely in the community. Many homes have high fire-resistant roofs, including those made of metal, though there are also a number of homes with shake shingle roofs. Siding and deck materials also vary widely, resulting in a mix of combustible and noncombustible materials. The degree of defensible space in the community also varies widely, with some landowners treating all of the area around their house and their entire property while others have done no work at all. Residents must ask permission from the HOA to cut anything over six feet tall. Utilities are all underground in most places, though in some areas of old construction there are above-ground propane tanks and power lines. Water is available throughout the community via hydrants rated at less than 500 GPM. Hydrants are placed every 1,000 feet in old areas and every 600 feet in areas of newer construction. The community has an ISO rating of 6. Other significant factors include high winds, lightning, and a seasonal population in this community.

The two major fuel types in this community are ponderosa pine and pinyon-juniper. There are also smaller open meadows with a grass and shrub component. The fire behavior predicted is similar to other areas on top of the Log Hill Mesa. Moderate weather conditions generate rates of spread often between 40 to 60 chains per hour and flame lengths between 4 and 8 feet. Under high severity weather conditions, especially in areas of heavy fuel loadings and on the steep sides of the mesa, longer flame lengths, higher fireline intensities and the potential for crown fire is possible. Increased wind speeds, higher temperatures and lower relative humidity will lead to rates of spread greater than 80 chains/hour and flame lengths greater than 11 feet, thus requiring aerial support for suppression. Fires moving uphill on the mesa sides will exhibit

rapid rates of spread, and could easily encroach on the mesa edge where many values at risk are located.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 10. Log Hill Village/Fairway Pines Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located in dangerous topography (above ravines and natural chimneys, mid-slope on steep slopes, on ridge tops or summits) with heavy vegetation loads near or below the home.	Hand felling and limbing near homes; mowing	Variable, depends on topography
County Road 1 Roadside Thinning***	2	Thin along both sides of County Road 1. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Hand felling and limbing due to slopes and hazards	Total of 14, which includes portions of the Pleasant Valley community
Ponderosa Drive/County Road 1 Evacuation Route Improvement and Thinning***	2	The other exit for Ponderosa Drive onto County Road 1 should be improved so that all types of vehicles are able to utilize it in the event of an emergency. Thin along the road in areas of dense and	Mostly hand felling and limbing due to slope and hazards; some mechanical treatments	85

Name	Priority	Description	Methods*	Acres**
		encroaching fuels		
Log Hill Village Linked Defensible Space	3	All homes near the edge of the mesa should have extended defensible space which should be linked in order to increase effectiveness	Hand felling and limbing due to hazards	97
County Road 1 Roadside Fuelbreak	3	Thin the drainage below County Road 1. This will slow a fire advancing up-drainage into the Log Hill Village area and inhibit a fire from cutting off County Road 1	Hand felling and limbing due to slope	3
Log Hill Village Drainage Thinning Fuelbreak	4	Concentrate on thinning major drainages that funnel up into Log Hill Mesa, with the hope of eventually linking the treatments. Thinned areas could also slow fire spread up drainage	Mostly hand felling and limbing due to slope; some mechanical treatments	59

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

\*\*\*See Glossary for further explanation of roadside thinning projects.

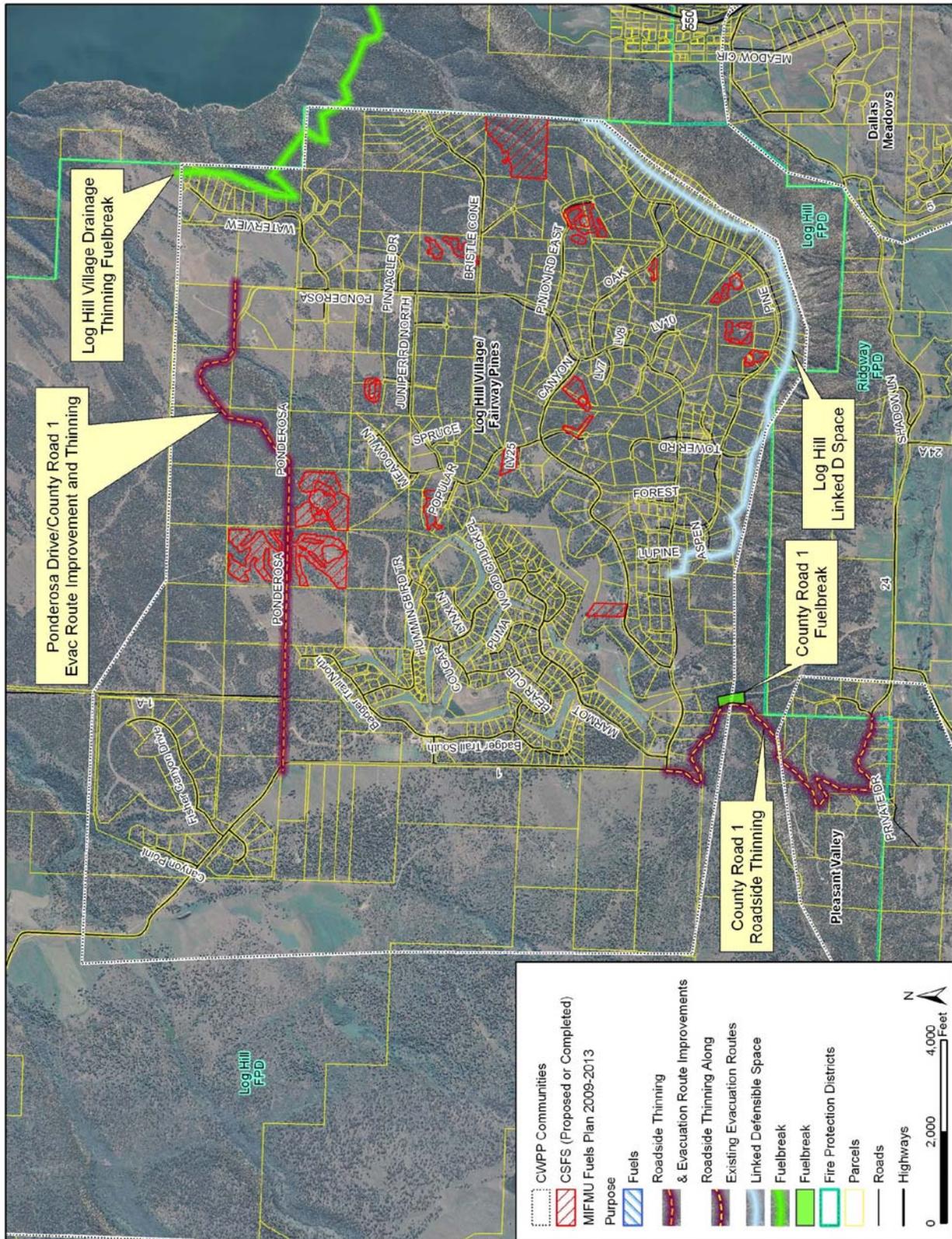
**Table 11. Log Hill Village/Fairway Pines General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.  Replace any shake-shingle roofs with noncombustible types, such as metal or composite shingle.  Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.
Landscaping/Fuels	2	Clean leaf and needle litter from roofs and gutters and away from foundations.  Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that

Category	Priority	Description
		<p>cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Reinforce the 4-H Center and Fairgrounds in Ridgway as an evacuation center for residents.</p> <p>Where available, large safety zones should be maintained and identified in all evacuation planning. These safety zones will need to be of adequate size and quality in order to be effective</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 14. Log Hill Village/Fairway Pines Fuels Treatment Recommendations



#### 4. North Log Hill Mesa



##### **Hazard Rating: High**

The North Log Hill Mesa community encompasses most of the larger lots north of Log Hill Village all the way to the County line (refer to Figure 15). The main thoroughfare and access point for the community is County Road 1, a well maintained gravel road. Many side roads are poorly maintained and crowded with vegetation, meaning they could easily be cut off in the event of a wildfire. Long and narrow side roads provide access to most individual lots, and all are one way in and out. Wisteria Road provides an egress route to Horsefly, though only for 4x4 vehicles. This route is also locked, so it may not be a viable option. Street signage is mostly present, sometimes made of nonreflective metal and sometimes of wood. Addressing is inconsistent, nonreflective and often mounted on, or comprised of, combustible materials. This area is mostly flat, with some steep ravines and hills. Some homes are built near these steep ravines. Home construction materials are consistent with that of other Ouray County communities; roofing, siding, and deck materials vary in combustibility. Defensible space implementation is variable; some landowners have done adequate mitigation around their homes, but most have done no work at all. CSFS has done some treatments on individual lots. Many areas lack adequate turnaround areas for emergency vehicles. Housing density in this community is low, and many lots are 40 acres or larger. Most areas have all of their utilities buried underground, though some of the more northerly areas have above-ground power lines and propane tanks. There are a few scattered hydrants in the community, but most water is available through individual underground cisterns and limited water towers. Log Hill Mesa FPD maintains a fire station on this part of the mesa, though response times to some homes could be lengthy due to distance and road quality. High winds and lightning increase wildfire danger in North Log Hill Mesa.

Due to its size, there are a variety of fuel types found throughout the North Log Hill Mesa community. Stands of ponderosa pine occur in the southwestern corner. Further north, much of the area is covered by dense stands of pinyon-juniper separated by large meadows consisting of small shrubs and grasses. Along the western edge runs the Horsefly Creek drainage, which has dense fuel loadings and very steep slopes. Rapid rates of spread and flame lengths over 11 feet are expected in drainages found throughout the community. There are a number of fuels treatments that have been implemented within and adjacent to the community. These chaining and prescribed burning treatments intend to decrease the density of the pinyon and juniper

trees. In other areas with dense and contiguous fuel loadings, primarily in the pinyon-juniper fuel type, fast-moving crown fires are possible during extreme wind events. High fireline intensities are also expected in these areas, especially in the northern and southwestern sections of the community.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 12. North Log Hill Mesa Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for all homes	Hand felling and limbing near homes; mowing	Variable, depends on topography
Horsefly Evacuation Route Improvement and Thinning***	2	The current roadway connecting Horsefly to North Log Hill Mesa via Wisteria should be improved and thinned. There are currently gates on both access areas of the road, which should be redesigned to allow removal during a fire emergency and codes should be made known to local residents.	Mechanical treatment; hand-felling and limbing in some areas due to slope	Total of 47, which includes portion treated within the Horsefly community
County Road 22 Roadside Thinning***	3	Thin along roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the	Mechanical treatment; hand-felling and limbing in some areas due to	31

Name	Priority	Description	Methods*	Acres**
		roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	slope	
Cactus Road Roadside Thinning***	3	Thin along roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Mostly mechanical treatment; may require some hand felling and limbing due to slope	23
County Road 1 Roadside Thinning***	3	Thin along roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Mostly mechanical treatment; may require some hand felling and limbing due to slope	67
County Road 22A Roadside Thinning***	3	Thin along roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Mostly mechanical treatment; may require some hand felling and limbing due to slope	15
Snowbush Road Roadside Thinning***	3	Thin along roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Mostly mechanical treatment; may require some hand felling and limbing due to slope	81
Sage Road Roadside Thinning***	3	Thin along roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas	Mostly mechanical treatment; may require some hand felling and limbing due to	16

Name	Priority	Description	Methods*	Acres**
		could also slow fire spread up drainages.	slope	
Coral Road Roadside Thinning***	3	Thin along Coral Road to connect both open areas. This will slow a fire advancing out of the Horsefly Creek drainage	Mostly mechanical treatment; may require some hand felling and limbing due to slope	36
Tiyoweh Trail Roadside Thinning***	3	Thin along roadway areas that cross drainages. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Mostly mechanical treatment; may require some hand felling and limbing due to slope	18
Coral Belt Fuelbreak	4	Implement a patch-cut between the two large open areas north of Bell Drive and east of County Road 22. Discontinuing fuel continuity in the pinyon-juniper will aid firefighters in suppression and slow an advancing fire.	Mostly mechanical treatment; may require some hand felling and limbing due to slope	5

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

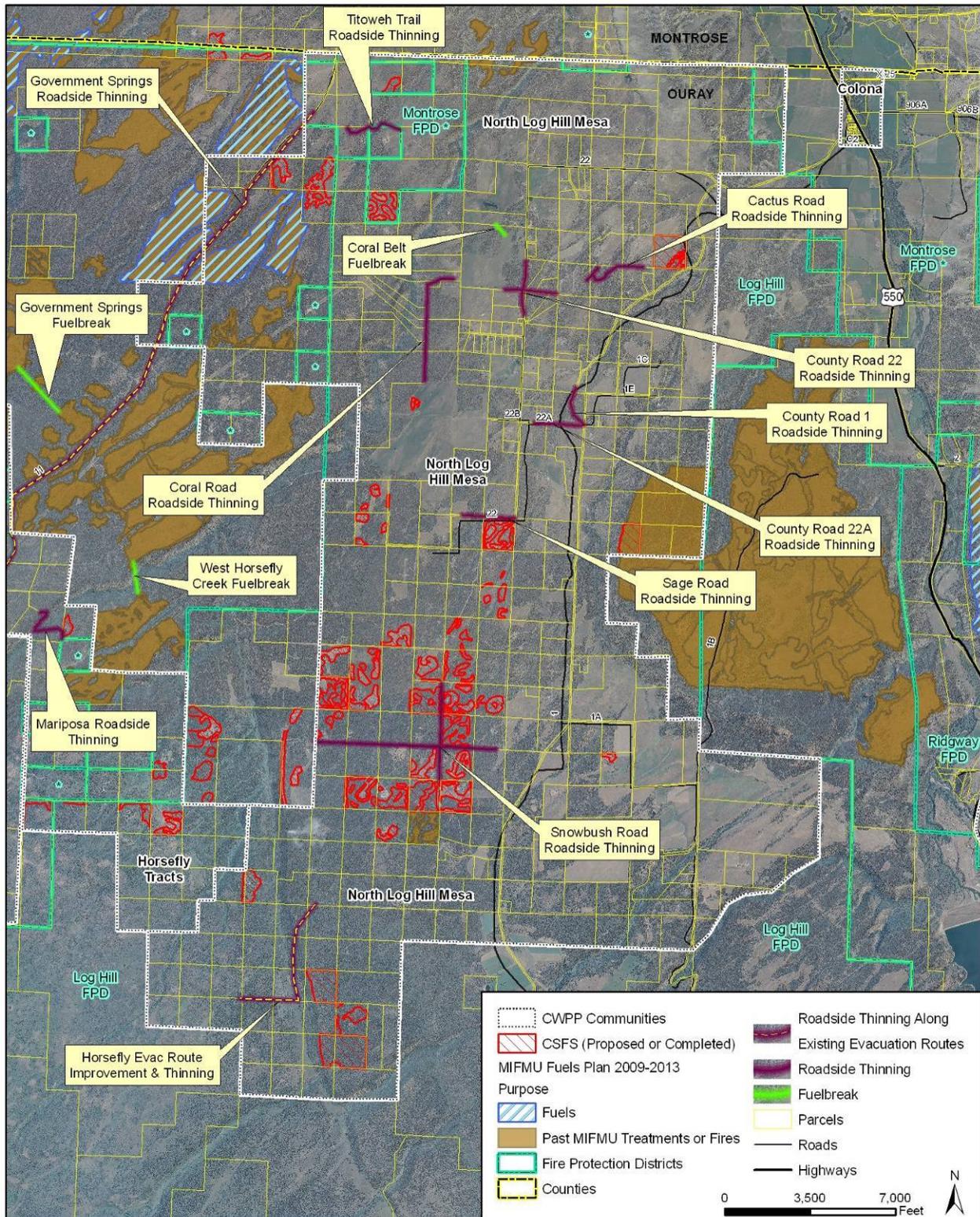
\*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 13. North Log Hill Mesa General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Replace any shake-shingle roofs with noncombustible types, such as metal or composite shingle.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/ Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Where available, large safety zones should be maintained and identified in all evacuation planning. These safety zones will need to be of adequate size and quality in order to be effective</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 15. North Log Hill Mesa Fuels Treatment Recommendations\*



\*Asterisks on map indicate areas included within a FPD

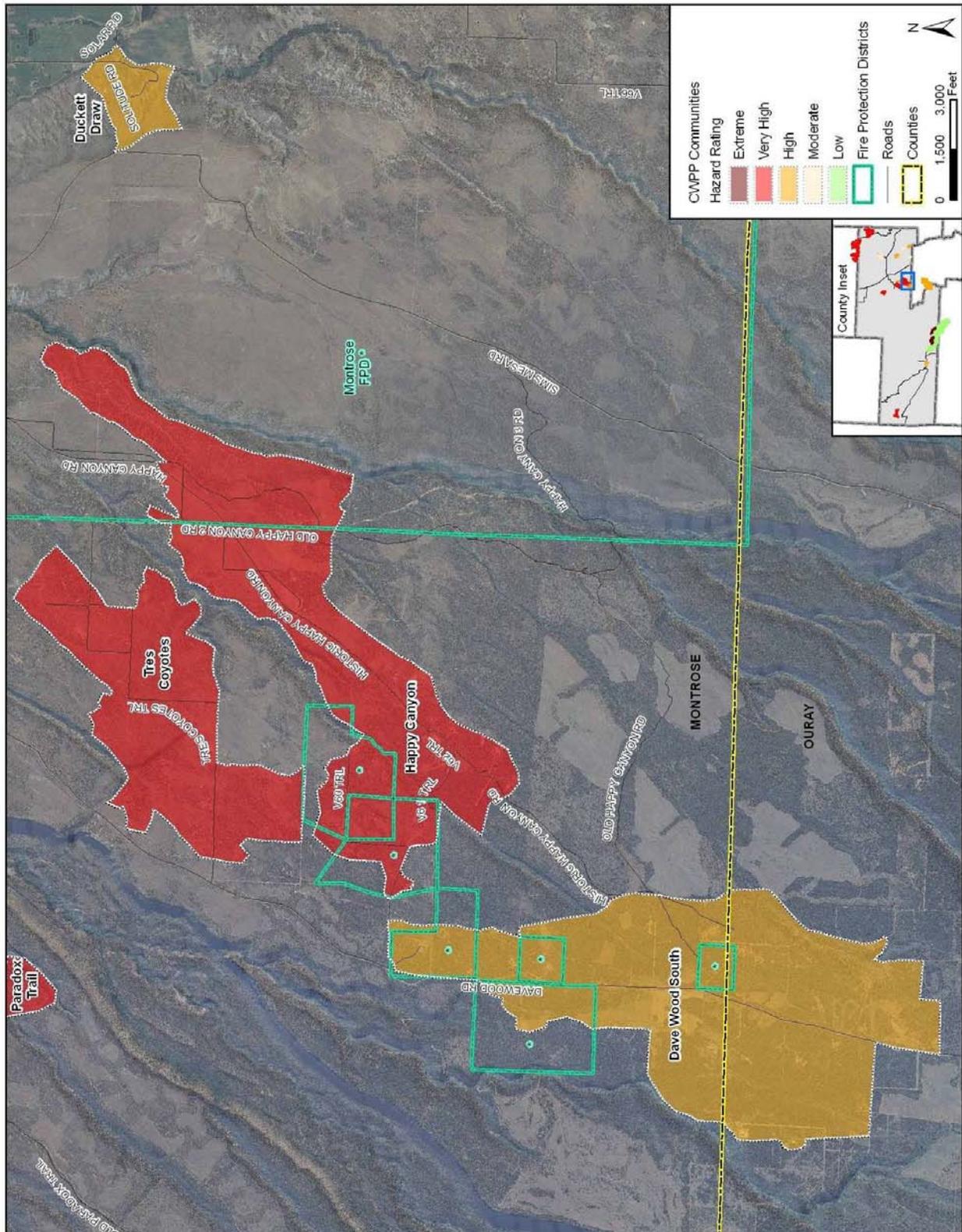
**MONTROSE FIRE PROTECTION DISTRICT**

Two CWPP communities, Colona and Dave Wood South, were identified within the Montrose FPD. Dave Wood South straddles the border between Ouray and Montrose County. The northern portion of Dave Wood South in Montrose County is served by the Montrose Fire Protection District; therefore, it is included in the Montrose FPD CWPP communities section. However, it is important to note that the southern portion of Dave Wood South in Ouray County is served by the Ouray County Sheriff’s office. Colona is entirely within the borders of Ouray County but is still serviced by the Montrose FPD. These communities and their hazard ratings are identified in Table 14 and shown in Figure 16. The community’s ignitability analysis recommendations are discussed in the following pages.

**Table 14. Montrose Fire Protection District CWPP Communities by Hazard Rating**

High	Moderate
Dave Wood South	Colona

Figure 16. Montrose FPD CWPP Communities in the Study Area\*



\*Asterisks on map indicate areas included within a FPD

## 5. Dave Wood South

### **Hazard Rating: High**

Dave Wood South is located along Dave Wood Road in the southern part of Montrose County and extends into Ouray County (refer to Figure 17). This community is served by the Montrose Fire Protection District but is included in this CWPP because it falls partially within the Ouray County study area, as shown in Figure 16). The Dave Wood South community is located south of the Tres Coyotes community and southwest of the Happy Canyon community and is identified as a high hazard area within the Montrose County WUI. The community currently consists of approximately 10 homes located on 40 acre parcels. The community is bisected by Dave Wood Road which serves as the main access to the community. Dave Wood Road is a partially paved road with small connecting roads and driveway access to homes. Within the community roads are not paved and are less than 20 feet wide. Street signage is reflective and present within the community, helping to ease firefighters' response in the event of a wildfire. The topography of the area is generally flat within the community with steep canyons on the eastern and western sides of the community. Homes within the community typically have asphalt shingles, which are highly resistant to fire. Decking and siding materials consist of combustible materials. Address numbering is present on homes, however, numbering is unreflective. Defensible space has been created around some homes within the community; however, defensible space is not present throughout. Driveways are long and provide adequate turnaround for fire apparatus. Additionally, several buildings, farm equipment, and livestock are present within the community. Utilities are all located above ground and propane tanks are present within in the community. The community does not have hydrants within the area to provide an emergency water supply to residences. Agricultural burning and combustible building materials increases the community's overall hazard rating. The majority of Dave Wood South is not within a fire protection district; only pockets within the northern region of this community are located within the Montrose Fire Protection District. The southern region of the community extends south into Ouray County; however this region of the community does not fall within any fire protection districts for Ouray County. This region of the community is served by the Ouray County Sheriff's Office.

The fuels in Dave Wood South consist mostly of dense pinyon-juniper woodlands, leading to the potential for more active fire behavior. Flame lengths in the areas are predicted between 4-8 feet, but with areas of flame lengths between 8-11 feet. Because there is greater fuel loading the fuels are not as flashy as grass, rates of spread are not predicted to be greater than 80 chains per hour even with high wind speeds and temperatures. The quantity of trees in Dave Wood South leads to a higher probability of active crown fire throughout the community, particularly east of Dave Wood Road. Suppression activities in the area are likely to be more difficult because of the potential for crown fire and the associated fireline intensity.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community's

respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 15. Dave Wood South Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50' around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located in dangerous topography (above ravines and natural chimneys, mid-slope on steep slopes, on ridge tops or summits) with heavy vegetation loads near or below the home.	Hand felling and limbing near homes; mowing	Variable, depends on topography

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

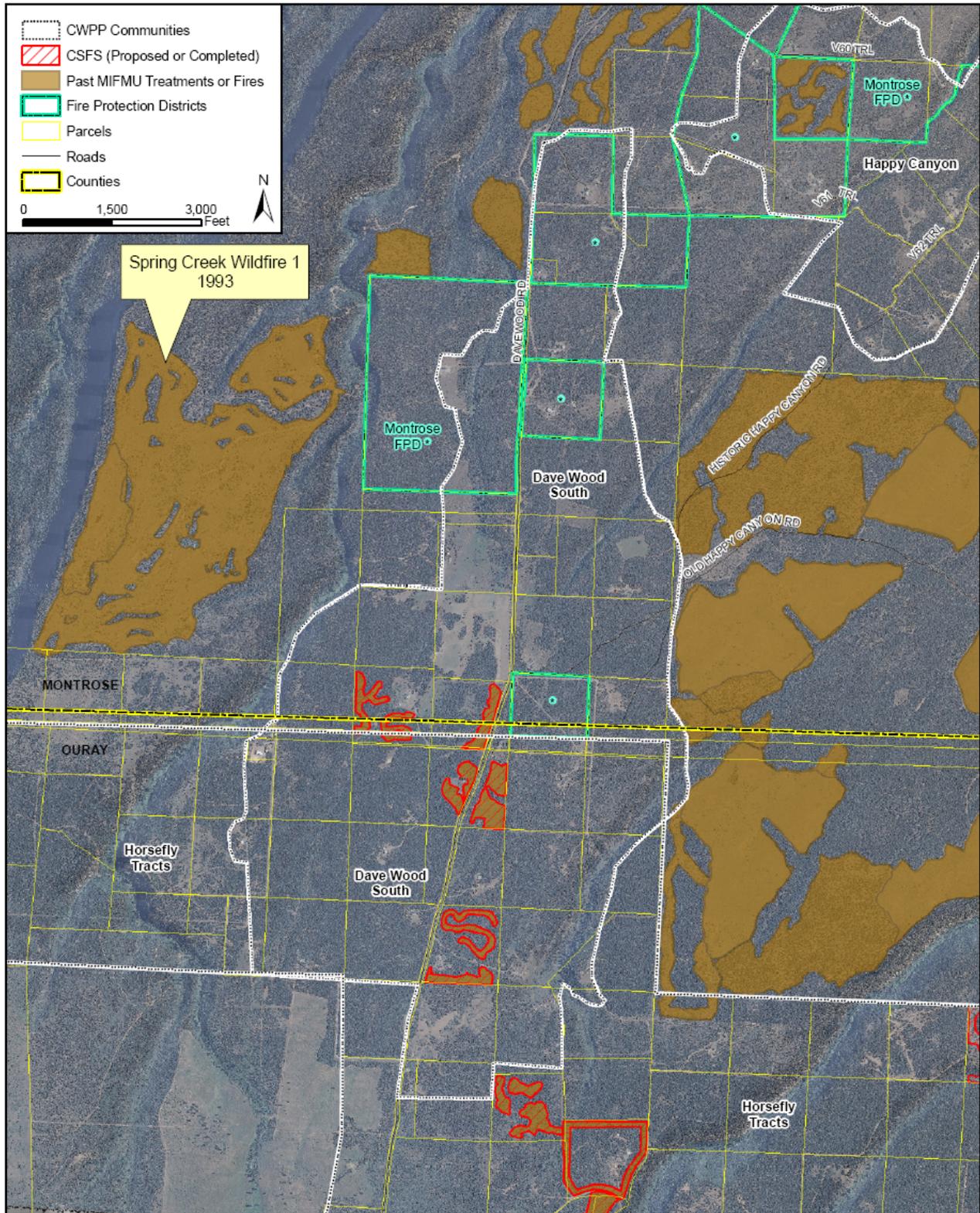
\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

**Table 16. Dave Wood South General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 17. Dave Wood South Fuels Treatment Recommendations\*



\*Asterisks on map indicate areas included within a FPD

## 6. Colona

**Hazard Rating: Moderate**

The community of Colona is located in the northern part of Ouray County along Highway 550 near the county line (refer to Figure 18). There are multiple paved roads providing ingress and egress in Colona. Street signs are metal and reflective but are not present in all areas. Addressing in the community is inconsistent, nonreflective, and not always visible. Topography is flat, and general house location is not an issue in terms of fire danger. Roofs offer high fire resistance for the most part, and deck and siding materials vary in combustibility. Driveways have adequate turnaround space for emergency vehicles. Utilities, including propane tanks, are located above ground, increasing their risk of fire damage. Water sources include hydrants located in the community. Colona falls within the Montrose FPD and is eight miles away from the department's Station Two. Response times could be long, but Montrose has paid, full-time staffing. Other significant factors contributing to fire risk include high winds, which can exacerbate severity, and agricultural burning which poses a primary ignition threat.

The majority of the Colona community consists of irrigated farmland. However, there are still combustible fuels present throughout the area, including those same irrigated fields should they dry out. These light, flashy fuels could carry fire rapidly throughout the community. In many instances, fire could spread before fire suppression resources arrive. While low flame lengths and fire intensity is usually expected from grass fires, a fast spreading fire could encounter other larger fuels, including structures and community debris. If these fuels were to ignite, the wildfire dynamic could quickly change. There is also an area of trees in the community, present along the Uncompahgre River. Due to their location near the river, these are not seen as a major wildland fire hazard, except possibly under severe drought conditions. Since the community is flat throughout, there are no topographical features of concern.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation

Advocate has been identified, the responsibility defaults to the fire chief of the community's respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 17. Colona Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Mowing, chemical treatments of invasives	50' around the home

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

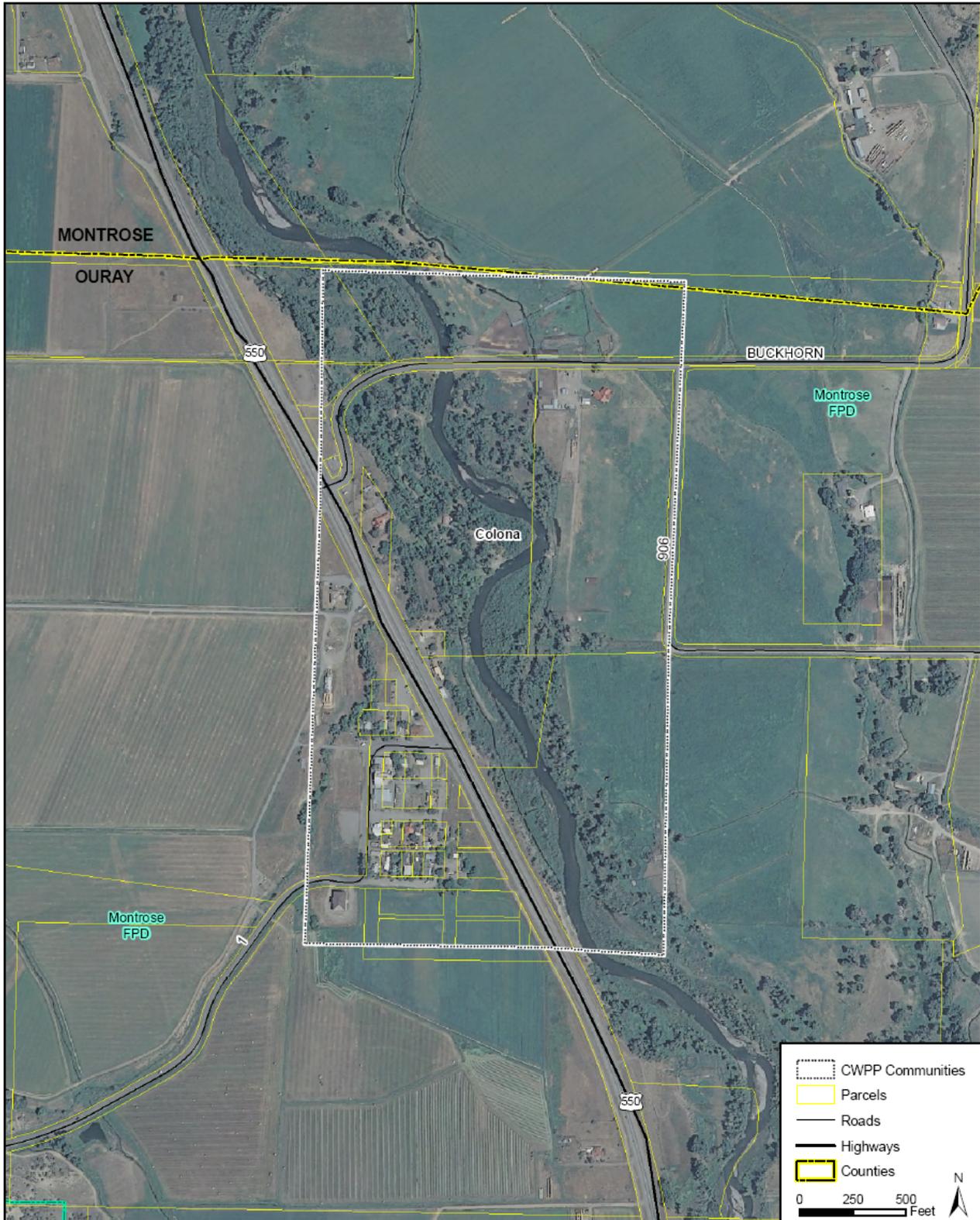
\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

**Table 18. Colona General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/ Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>A "No Outlet" sign should identify all dead end streets.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 18. Colona CWPP Community



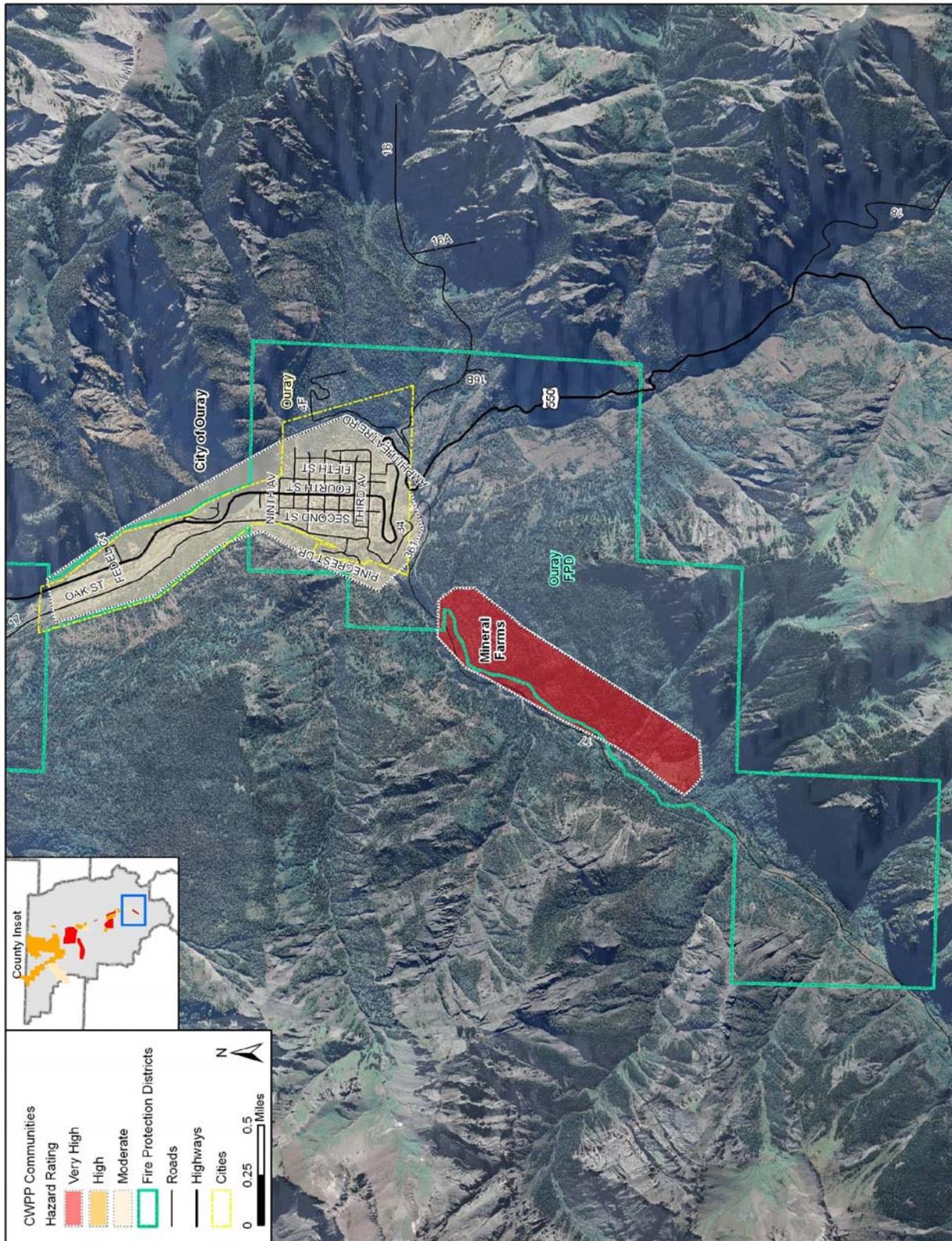
**OURAY FIRE DEPARTMENT**

Four CWPP communities were identified within the Ouray FD boundaries, including Mineral Farms, Lake Lenore/Panoramic Heights, Whispering Pines, and the City of Ouray. These communities and their hazard ratings are identified in Table 19 and shown in Figure 19. The communities of Whispering Pines and Lake Lenore/Panoramic Heights are also covered by the 2007 Four Neighborhood CWPP. Each community’s ignitability analysis recommendations are discussed in the following pages.

**Table 19. Ouray Fire Department CWPP Communities by Hazard Rating**

Very High	High	Moderate
Mineral Farms	Lake Lenore/Panoramic Heights Whispering Pines	City of Ouray

Figure 19. Ouray FPD CWPP Communities



## 7. Mineral Farms



### Hazard Rating: Very High

Mineral Farms is located southwest of Ouray along the Camp Bird Road (refer to Figure 20). Access into the two subdivisions is along narrow dirt roads that are one way in and out. Street signage is all nonreflective and flammable. Addressing is inconsistent, nonreflective, and mounted on or made of flammable materials. The community is located in a large, narrow valley with some steep slopes. Roof construction is mostly metal, and deck and siding materials vary in combustibility. A few houses have limited defensible space, but most have vegetation directly touching the structure. In the subdivisions there are limited turnarounds for fire apparatus. This is especially true along McNulty Lane. Utilities, including propane tanks and fuel tanks surrounded by vegetation, are all located above ground. Water in the community is available from large ponds and some hydrants, as well as from the water tank on Camp Bird Road. The community is not far from the Ouray Fire Department, so response times are relatively quick. As in other communities in Ouray County, high winds are a complicating factor for fire danger in Mineral Farms. Adjacent national forest land is also a potential concern for ignitions because of the proximity of camping areas with fire pits and the potential for recreationists to slow evacuations of the community in the event of a fire.

The steep hillsides of Canyon Creek canyon dominate the topography of the Mineral Farms community. Spruce, aspen, and fir are more common in this wetter climate. While the area could experience extreme fire behavior, it would most likely be following drought, combined with high temperatures, low relative humidity, high winds and an ignition source. Flame lengths over 11 feet are likely under high severity weather conditions, potentially requiring aerial resources for containment. Under these conditions, fireline intensities are expected to be moderate to high, with small areas of extreme intensity. There are nearby recreation areas where a potential ignition could come from, as well off of Camp Bird Road which runs below the community.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this

plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community's respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 20. Mineral Farms Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50' around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located on the perimeter of the community.	Hand felling and limbing near homes; mowing	Variable, depends on topography

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

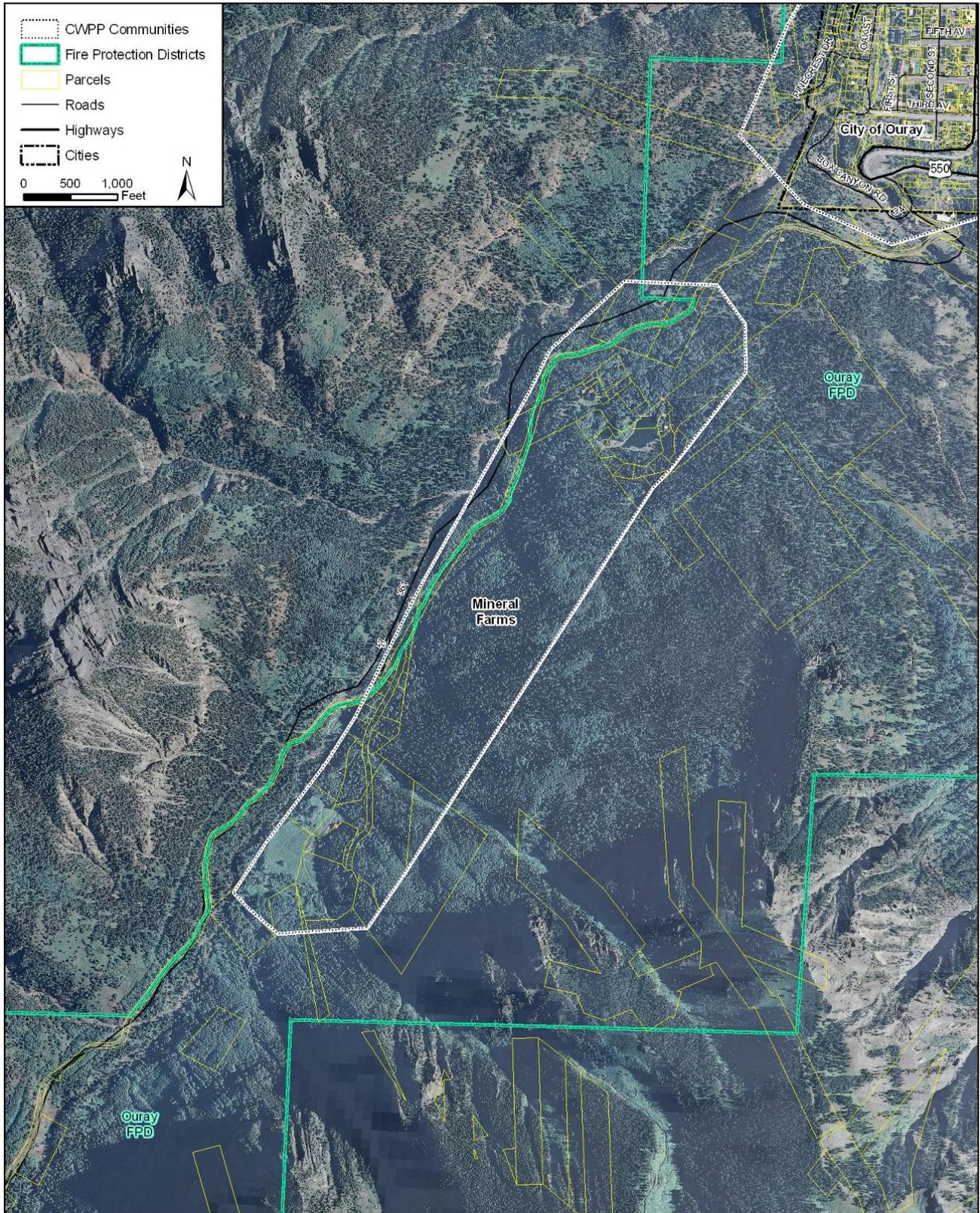
\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

**Table 21. Mineral Farms General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/ Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Where available, large safety zones should be maintained and identified in all evacuation planning. These safety zones will need to be of adequate size and quality in order to be effective.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 20. Mineral Farms Fuels CWPP Community



## 8. Lake Lenore / Panoramic Heights



### Hazard Rating: High

The Lake Lenore/Panoramic Heights community, which includes the communities of Dexter and Cutler Neighborhood, is located north of Ouray on the east side of Highway 550 (refer to Figure 21). The community has one way in and one way out. Roads throughout the community are well maintained dirt of varying widths and slopes greater than 15% grade. Street signs are present and nonreflective. Addressing is also nonreflective and is often made of combustible materials. The community is situated on a hillside with steep slopes and some ravines. Some homes are built mid-slope, in saddles, and near ravines, increasing their fire risk. Roofs are mostly made of highly fire-resistant materials including metal, but some homes have flammable shake shingle roofs. Deck and siding materials vary in combustibility. Most homes in Panoramic Heights have defensible space, but some others in the community do not. Not all driveways have adequate turnaround space for emergency vehicles. Some utilities in the community are located above ground. Water resources in the community include hydrants in Panoramic Heights, as well as the potential to draft from the lake and cisterns for the community as a whole. The fire department has installed a hydrant for the Lake Lenore area. Other significant factors include high winds, lightning, and recreationists, who can present potential evacuation complications and ignition sources.

The main tree species found within the Lake Lenore / Panoramic Heights community are ponderosa pine, spruce, fir, pinyon-juniper, aspen, and other deciduous species. Heavy fuel loadings in some areas, steep slopes, and a few major drainages will act to increase rates of spread and crown fire potential, especially during high wind events. An ignition off of Highway 550 could move rapidly up-drainage into the community and spread quickly. Rates of spread are expected to be higher closer to the highway, and could exceed 60 chains per hour under high severity weather conditions. Flame lengths are not anticipated to surpass 11 feet, meaning a fire could potentially be brought under control using handcrews and heavy equipment. Areas of dense pinyon-juniper forest could support active crown fire behavior, which might make containment difficult. Thinning in these areas will reduce crown continuity.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of

the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 22. Lake Lenore/Panoramic Heights Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located in dangerous topography (above ravines and natural chimneys, mid-slope on steep slopes, on ridge tops or summits) with heavy vegetation loads near or below the home.	Hand felling and limbing near homes; mowing	Variable, depends on topography
County Road 14 Roadside thinning***	2	Thin along both sides of County Road 14 to a distance of at least 50 feet. This will aid in the egress of residents and ingress of fire personnel by reducing fire intensity and smoke.	Hand felling and limbing due to slopes and hazards	72
Lake Lenore Safety Zone Enhancement	3	Enhance the safety zone area created in the subdivision and make it larger	Mechanical treatment or hand felling and limbing	5

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150’ treatments on either side of the road. Actual acres treated may vary once project is implemented.

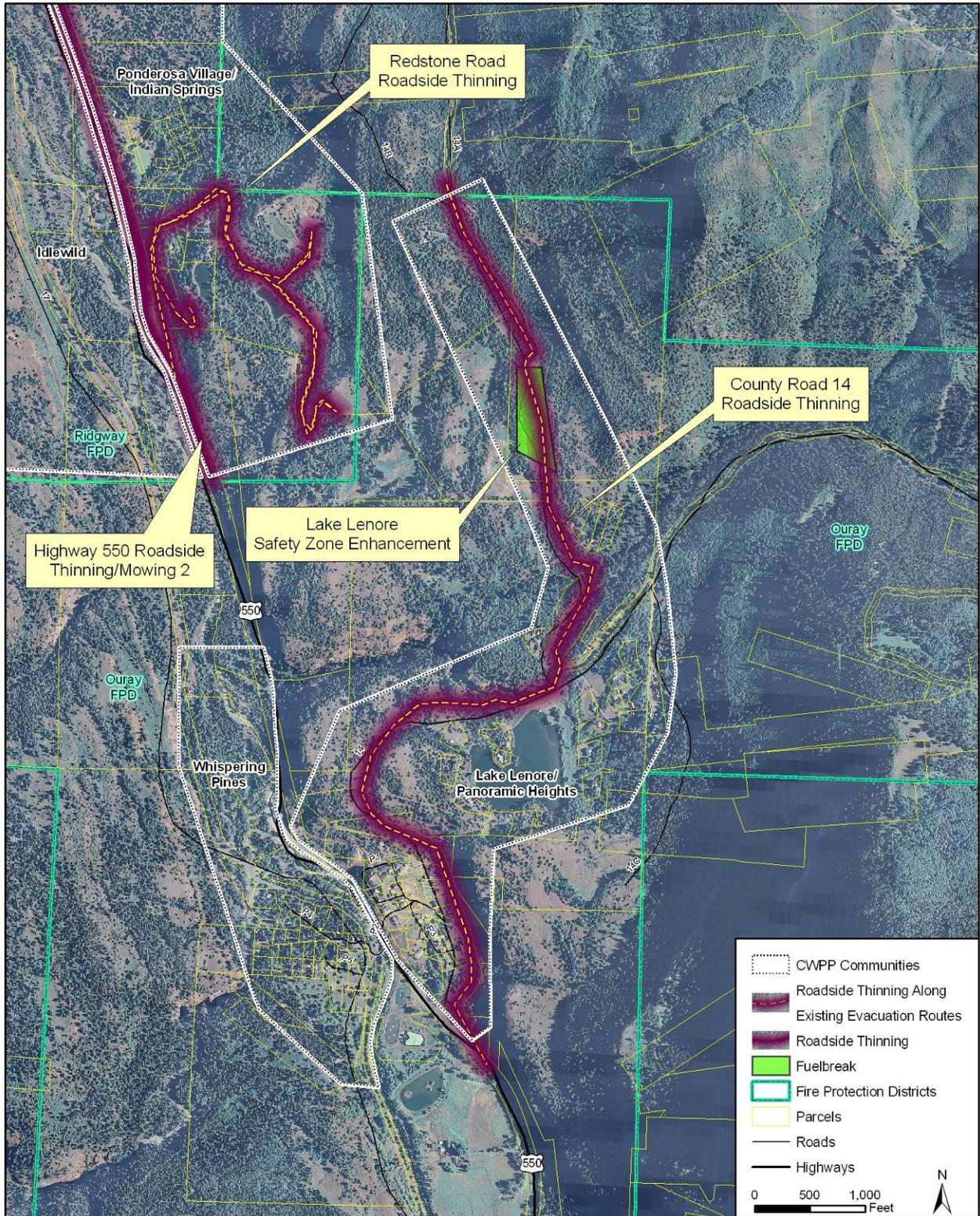
\*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 23. Lake Lenore/Panoramic Heights General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Where available, large safety zones should be maintained and identified in all evacuation planning. These safety zones will need to be of adequate size and quality in order to be effective</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 21. Lake Lenore/Panoramic Heights Fuels Treatment Recommendations



## 9. Whispering Pines



### Hazard Rating: High

The Whispering Pines community is north of Ouray on the west side of Highway 550 (refer to Figure 22). There are multiple ways in and out of the community. Access into the community is along County Road 17 and adjacent side roads. Street signs were not present along all roads and where they were present, they were typically not reflective. Addressing is present and visible for most houses, but it is inconsistent and composed of flammable materials. The topography of Whispering Pines is mostly flat, but gets steeper further away from the highway. Home construction varies throughout the community, though most houses have highly fire-resistant roofs. A few houses, however, have shake shingle roofs. Siding and deck construction is a mix of combustible and noncombustible materials. The vast majority of homes have done no noticeable defensible space implementation. Large stacks of firewood lying against or adjacent to homes is ubiquitous throughout the community. There are some adequate turnarounds for fire engines, though many areas are too narrow to be utilized. Utilities, including power lines, are above ground, and many homes use firewood for heat. Water is available via hydrants, which have been recently tested and have ample flow. The community is not too far from Ouray's fire station, so response times are estimated to be relatively quick. Other significant factors in the community include high winds, which could increase the risk of occurrence and the severity of wildland fires.

There are a variety of tree species located within the Whispering Pines community, including ponderosa pine, spruce, fir, pinyon-juniper, Gambel oak, and other deciduous trees. Tree density is relatively high throughout most of the community, aside from a few open meadows. Rates of spread are expected to be between 40 and 60 chains per hour for the majority of the community. Flame lengths between 4 and 8 are likely, though they could be much higher given the density of the canopy under drought and high severity weather conditions. Rolling hills, steep hillsides, and a few small drainages are found within the community, and will increase fire spread. The main concern is an ignition off of County Road 17, which could spread rapidly throughout the community and affect a number of homes.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of

the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 24. Whispering Pines Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located on the perimeter of the community.	Hand felling and limbing near homes; mowing	Variable, depends on topography

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

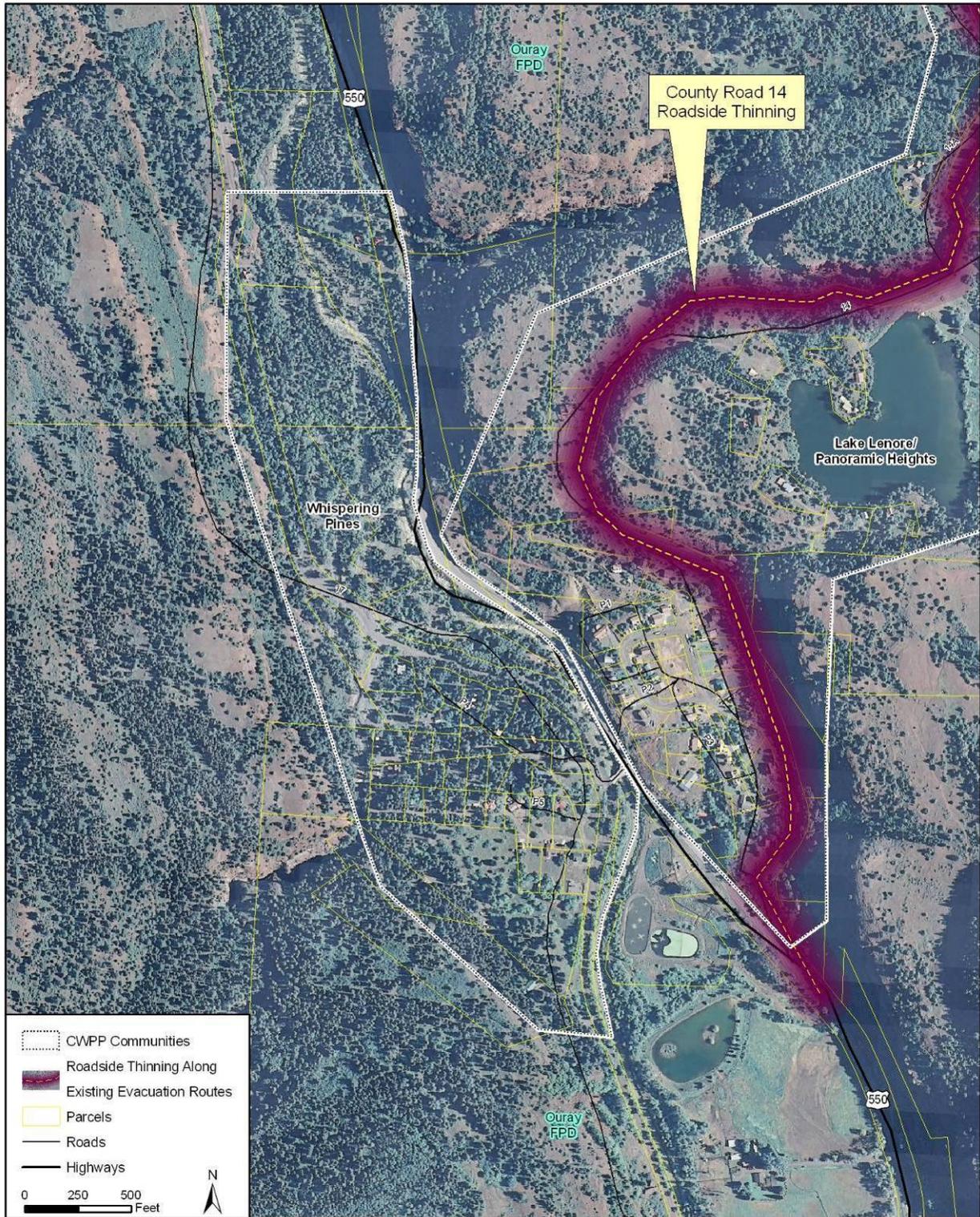
\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150’ treatments on either side of the road. Actual acres treated may vary once project is implemented.

**Table 25. Whispering Pines General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Replace any shake-shingle roofs with noncombustible types, such as metal or composite shingle.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 22. Whispering Pines Fuels Treatment Recommendations



## 10. City of Ouray



### Hazard Rating: Moderate

The City of Ouray is located in the southern part of the County (refer to Figure 23). There are multiple ingress/egress routes, but some side roads within the City are one way in and out. Roads are mostly flat and paved or well maintained dirt, though there are some steep road areas. Street signage in the main part of Ouray is good. On the periphery where many of the at-risk homes are, there are nonreflective, inconsistent, flammable signs. Some areas lack roads signs altogether. Addressing varies throughout the City. It is usually present but sometimes hard to see. It is inconsistent and mostly nonreflective and combustible. The City of Ouray is in a flat area surrounded by steep canyon sides. Some homes on the periphery are built mid-slope or near ravines. Most are at the base of very steep canyon sides. Most roofs are metal and highly fire-resistant, though there are a few homes with shake shingle roofs. Deck and siding construction materials are consistent with other communities in the county, varying in combustibility. Some houses in and around the City lack defensible space. In places where defensible space work has been implemented, it is only partially adequate. There are adequate turnarounds for emergency vehicles in most areas, but not in all. Electric power lines are located underground for the majority of areas. A few homes have propane tanks, some of which are surrounded by vegetation. Water sources in the community include hydrants. The community has an ISO rating of 7. Other significant factors include high winds and tourists.

The majority of the surrounding area, and many areas within the City of Ouray, are dominated by spruce and fir forest. Other tree species present include Gambel oak, pinyon-juniper, ponderosa pine, and various deciduous and ornamental species. Rates of spread within, and surrounding, the City are expected to be between 40-60 chains per hour, and a fire starting within the town limits could spread quickly uphill due to the steepness of the surrounding slopes. Flame lengths over 11 feet are possible in many areas surrounding the town, and could make control efforts difficult. Ember fallout onto the numerous structures within the community is also possible, and could potentially ignite susceptible homes. Given its location surrounded by steep sides, intense heat and smoke production could also significantly affect residents within the city area. Due to limited lot size, firewood is often stacked next to structures.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows.

Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 26. City of Ouray Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Mowing, chemical treatments of invasives	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located out on the perimeter of town.	Hand felling and limbing near homes; mowing	Variable, depends on topography

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

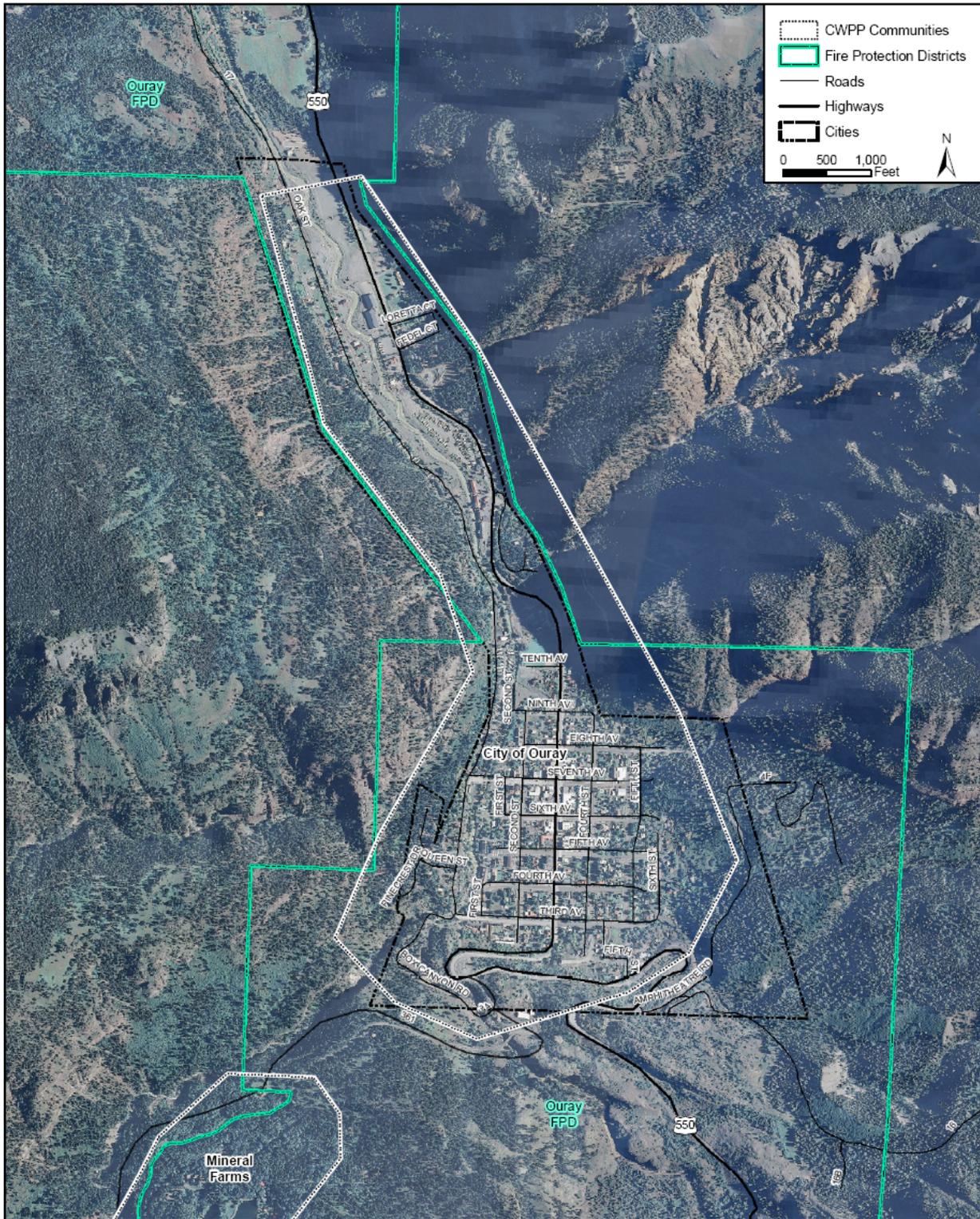
\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150’ treatments on either side of the road. Actual acres treated may vary once project is implemented.

**Table 27. City of Ouray General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Replace any shake-shingle roofs with noncombustible types, such as metal or composite shingle.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p> <p>Discourage the planting of flammable ornamental vegetation within 30 feet of homes.</p>
Preparedness Planning/ Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A "No Outlet" sign should identify all dead end streets.</p> <p>Develop safety brochures that can be distributed and made available to guests in the summer months.</p> <p>Develop an evacuation plan for the town and outlying areas, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 23. City of Ouray CWPP Community



**RIDGWAY FIRE PROTECTION DISTRICT**

Eleven CWPP communities were identified within the Ridgway FPD, including Park Estates, Piedmont Hills/Valley Heights, Pleasant Valley, Ponderosa Village/Indian Springs, Dallas Meadows, Juniper Hills, Elk Meadows, Idlewild, Silverado Estates, Vista Terrace and the Town of Ridgway. These communities and their hazard ratings are identified in Table 28 and shown in Figure 24 and Figure 25. Each community’s ignitability analysis recommendations are discussed in the following pages.

**Table 28. Ridgway Fire Protection District CWPP Communities by Hazard Rating**

Very High	High	Moderate
Park Estates Piedmont Hills/Valley Heights Pleasant Valley Ponderosa Village/Indian Springs	Dallas Meadows Elk Meadows Idlewild Juniper Hills Silverado Estates Vista Terrace	Town of Ridgway

Figure 24. Ridgway FPD CWPP Communities (North)

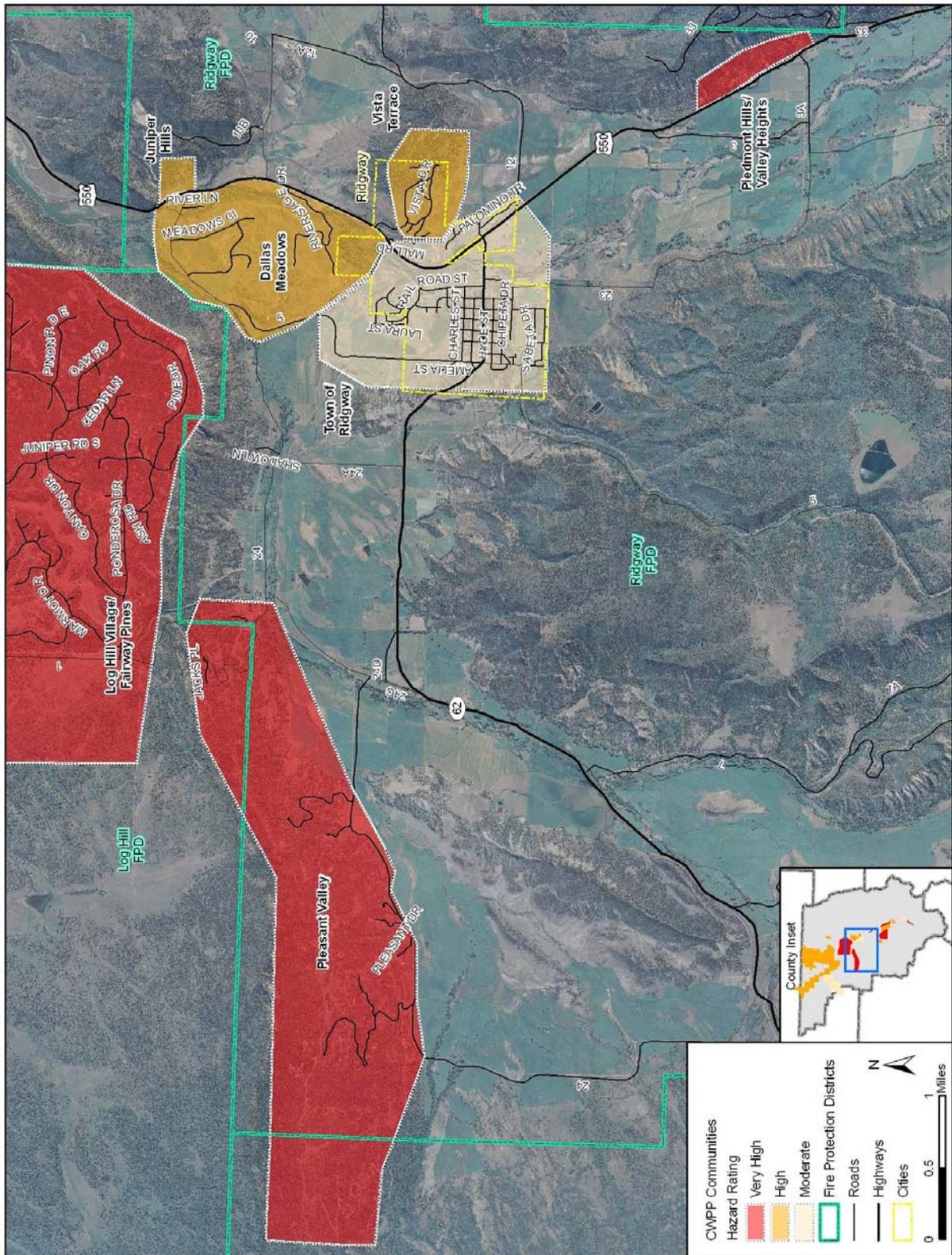
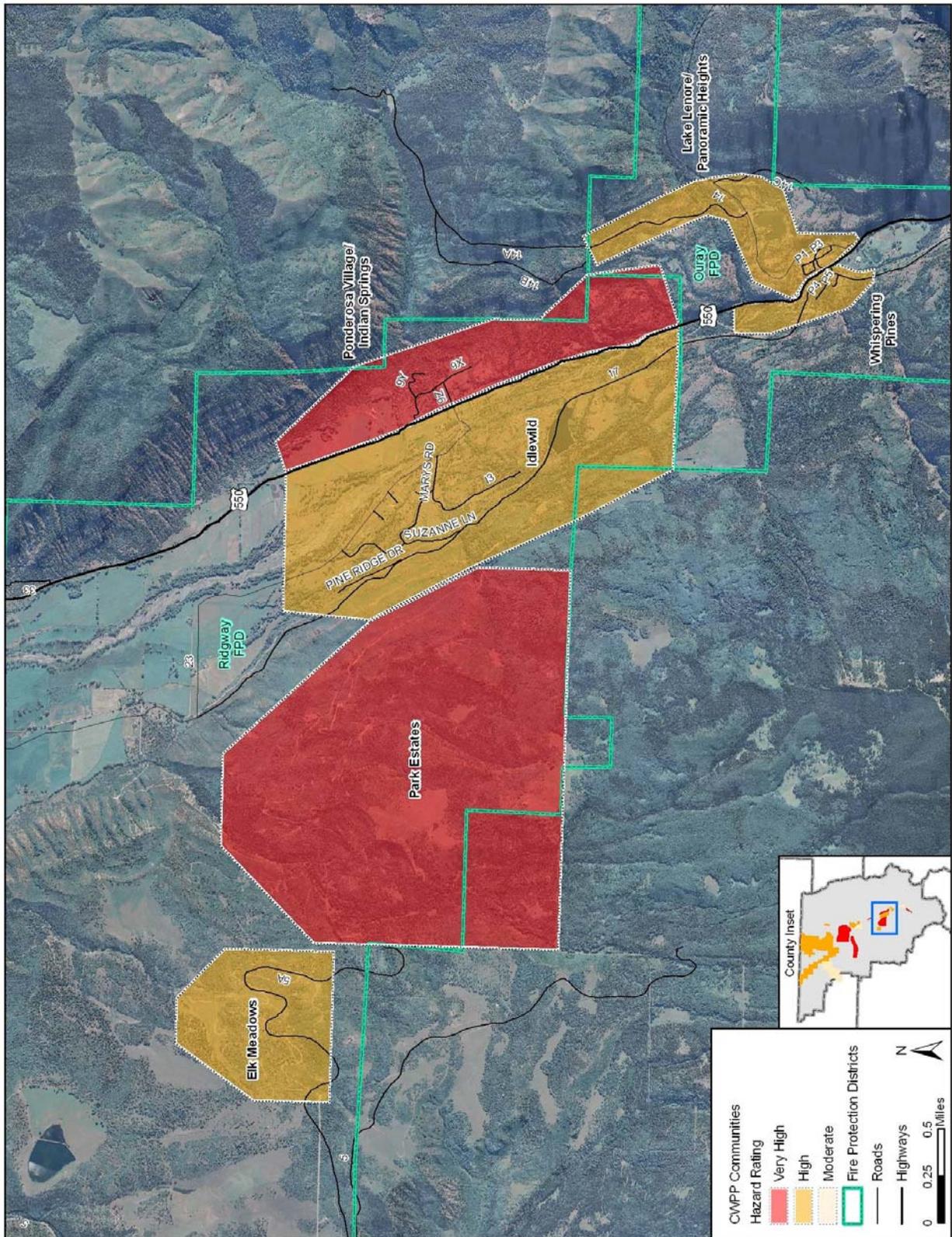
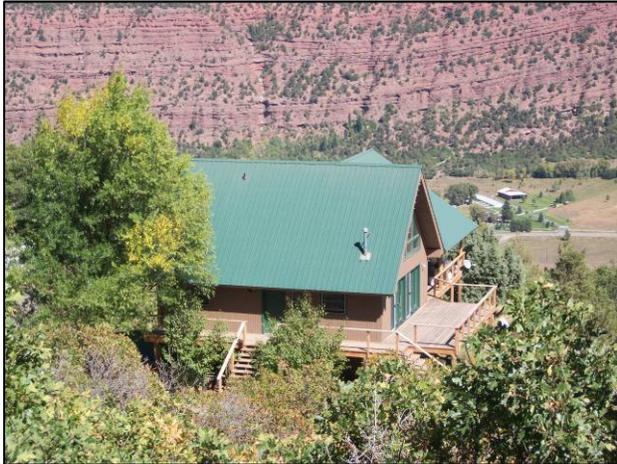


Figure 25. Ridgway FPD CWPP Communities (South)



## 11. Park Estates



### Hazard Rating: Very High

The Park Estates community stands on Miller Mesa, northwest of Ouray and west of Highway 550 (refer to Figure 26). Ingress/egress into Park Estates is one way in and out through a locked gate. Other options include crossing private land with a four-wheel drive vehicle to get to the Elk Meadows community, or to potentially egress down the mesa to Coal Creek Road. However, these options may not be currently viable due to the condition of both roads, presence of locked gates and related ownership issues. The main road into the community is dirt, narrow, steep in places, and lacks adequate pull-offs and passing areas for fire apparatus in certain areas. Park Estates petitioned to become part of the Ridgway Fire Protection District (FPD). In order to be annexed into the Ridgway FPD, certain conditions had to be met and maintained. In summary, they are:

- Sufficient sources of year around water to access in the event of a fire
- Snow removal year round from roads and turnarounds
- Signage sufficient to identify each lot and home
- Adequate turnarounds
- Development and maintenance of defensible space around each structure
- Widened driveways (Ridgway FPD reserves the right to “red tag” driveways that are not safe)
- Multiple points of ingress and egress
- Access by emergency services through the locked gates

Road signage is uniform with reflective letters. Every intersection has a street sign. Addresses are posted on every lot, but in some areas are inconsistent and also made of flammable, nonreflective materials. Structures are positioned in many fire-prone areas, including atop cliffs and near chimneys. Homes are mostly built with fire-resistant roofing, including some made of metal. Most homes have noncombustible siding and deck construction, but not all. Moreover, most homes within the community lack fully adequate defensible space, though some work has been done around many of the homes. Most driveways are long, steep, and narrow and lack adequate turnaround space for emergency vehicles. There is a very large meadow at the top of Miller Mesa which could serve as a safety zone in the event that the main egress route was cut off in a wildfire. Utilities in Park Estates are located above ground, increasing their risk of

exposure and damage in a wildland fire. There are no hydrants in the community, though home cistern use is possible, but may not be reliable. There are some ponds on top of the Mesa that could also potentially be used as a water source. Given the distance from the Ridgway fire station and the narrowness and steepness of the roads, response times to the community are expected to be long. Other complicating factors include high winds and lightning in the area, which could increase the risk or severity of wildland fires in Park Estates.

Within the Park Estates community, there are a number of different tree species, including Gambel oak, aspen, spruce, fir and ponderosa pine. In addition to the shrub-dominated areas at lower elevations, there are also a number of large meadows in the higher parts of the community. There are numerous steep slopes and drainages that will act to further exacerbate fire spread. Higher up in the community, rates of spread are not expected to exceed 40 to 60 chains per hour, except under extreme conditions. Flame lengths could surpass 11 feet in a few areas where dense forest occurs, though the majority of the community can expect to see flame lengths between 4 and 8 feet. Low to moderate fireline intensities are expected for the community.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 29. Park Estates Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for all homes.	Hand felling and limbing near homes; mowing	Variable, depends on topography
Elk Ridge Road Roadside Thinning***	2	Thin along both sides of Elk Ridge Road. All areas where the road bends more than 90° require greater thinning within the inside area. This will aid in the egress of residents and	Hand felling and limbing due to slope and access	52

Name	Priority	Description	Methods*	Acres**
		ingress of fire personnel by reducing fire intensity and smoke.		
Improve/Thin Evacuation Route***	2	The access route between Park Estates and Elk Meadows should be enhanced so that it is useable by all residents. Gates should be established so that only residents of both communities have the key or access code to the gates. Thinning should occur along this road to enhance its usefulness. This will greatly benefit both communities in the event that an advancing wildfire cuts off the main egress for one of the communities	Hand felling and limbing due to slope and access	46
Elk Ridge Road Drainage Thinning***	3	Thin heavily in the first main drainage below Elk Ridge Road. This will slow an advancing fire moving up-drainage into the Park Estates community	Hand felling and limbing due to slope and access	15

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

\*\*\*See Glossary for further explanation of roadside thinning projects.

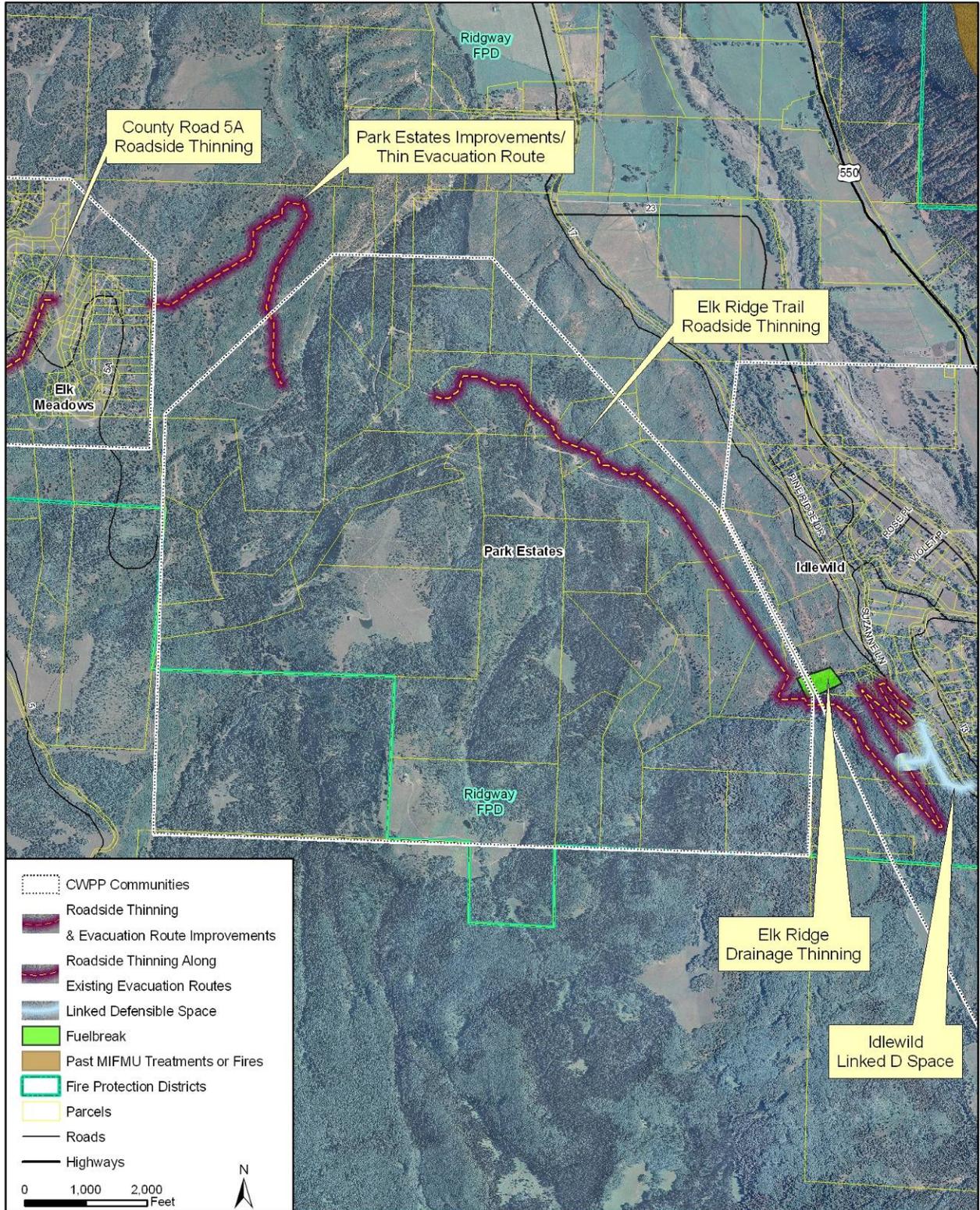
**Table 30. Park Estates General Wildfire Treatment Recommendations**

Category	Priority	Description
Home Construction	1	Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.
		Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.
Landscaping/Fuels	2	Clean leaf and needle litter from roofs and gutters and away from foundations.
		Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below

Category	Priority	Description
		the access. Focus on removing vegetation in drainages that cross roads.
		Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.
		Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.
Preparedness Planning/Evacuation	3	Determine the viability of a secondary egress route down the mesa to Coal Creek Road, and if viable, develop the route and include it in all evacuation route planning.
		Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.
		Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.
		Ensure that all gates in the community are removable and/or have access codes that are known to all residents and the local fire department
		Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.
		Where available, large safety zones should be maintained and identified in all evacuation planning. These safety zones will need to be of adequate size and quality in order to be effective
		Create a community level CWPP to further refine the risk assessment and mitigation strategies.
Infrastructure	4	Provide adequate turnarounds for fire apparatus throughout the community.
		Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 26. Park Estates Fuels Treatment Recommendations



## 12. Piedmont Hills/Valley Heights



### Hazard Rating: Very High

The Piedmont Hills/Valley Heights community encompasses two individual subdivisions located on the eastern side of Highway 550 southeast of Ridgway (refer to Figure 27). Access into the two subdivisions occurs on dirt roads, with one way in and one way out for both. Street signs are not visible from the highway and are made from wood. Addressing is also often made of combustible materials, is nonreflective, and is inconsistent. The community is built on a steep, southwest-facing aspect, increasing its fire danger. Some homes are near ravines and are mid-slope. Home construction varies between the two subdivisions, though most homes in both have metal roofs and mix of combustible and noncombustible decks, siding and outbuildings. Very minimal defensible space has been implemented, and many homes have firewood and other combustible materials underneath decks and adjacent to structures. There are some areas that could be used as turnarounds for fire apparatus, while other areas do not have sufficient space. Above-ground power lines and propane tanks that are surrounded by vegetation present additional issues for wildfire in the community. The community is less than three miles from Ridgway, so response times are relatively short. Water sources in the community include cisterns, but in general water availability is poor in Piedmont Hills/Valley Heights.

Steep slopes, numerous small drainages, heavy fuel loadings and a southwest-facing aspect are topographic features of the concern in the Piedmont Hills / Valley Heights community. The vast majority of the community is covered with dense pinyon-juniper forest. The greatest concern for the community stems from a human-caused fire starting below the community and spreading quickly uphill. Rates of spread are expected to be between 40 and 60 chains per hour for most of the community under high weather conditions. Flame lengths are not expected to exceed 11 feet, though active crown fire behavior is possible under extreme weather conditions. High fireline intensities are also expected throughout most of the community.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each

community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community's respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 31. Piedmont Hills/Valley Heights Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50' around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located on the perimeter of the community.	Hand felling and limbing near homes; mowing	Variable, depends on topography
Piedmont Drive Roadside Thinning***	2	Thin along both sides of the roads into the Piedmont Hills subdivision. This will aid in the egress of residents by reducing fire intensities and smoke.	Mostly hand felling and limbing due to slope and hazards	12
Highway 550 Roadside Thinning/Mowing***	3	Thin and/or mow along the side of Highway 550 below the community, connecting in areas of the main access roads and into any linked defensible space. This will slow or inhibit an ignition from the highway area from advancing up into the community.	Mowing; chemical treatments for invasives	36
Piedmont Hills/Vista Heights Drainage Thinning	3	Thin the area in the main drainage between the two subdivisions.	Mostly hand felling and limbing due to slope and access	9

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

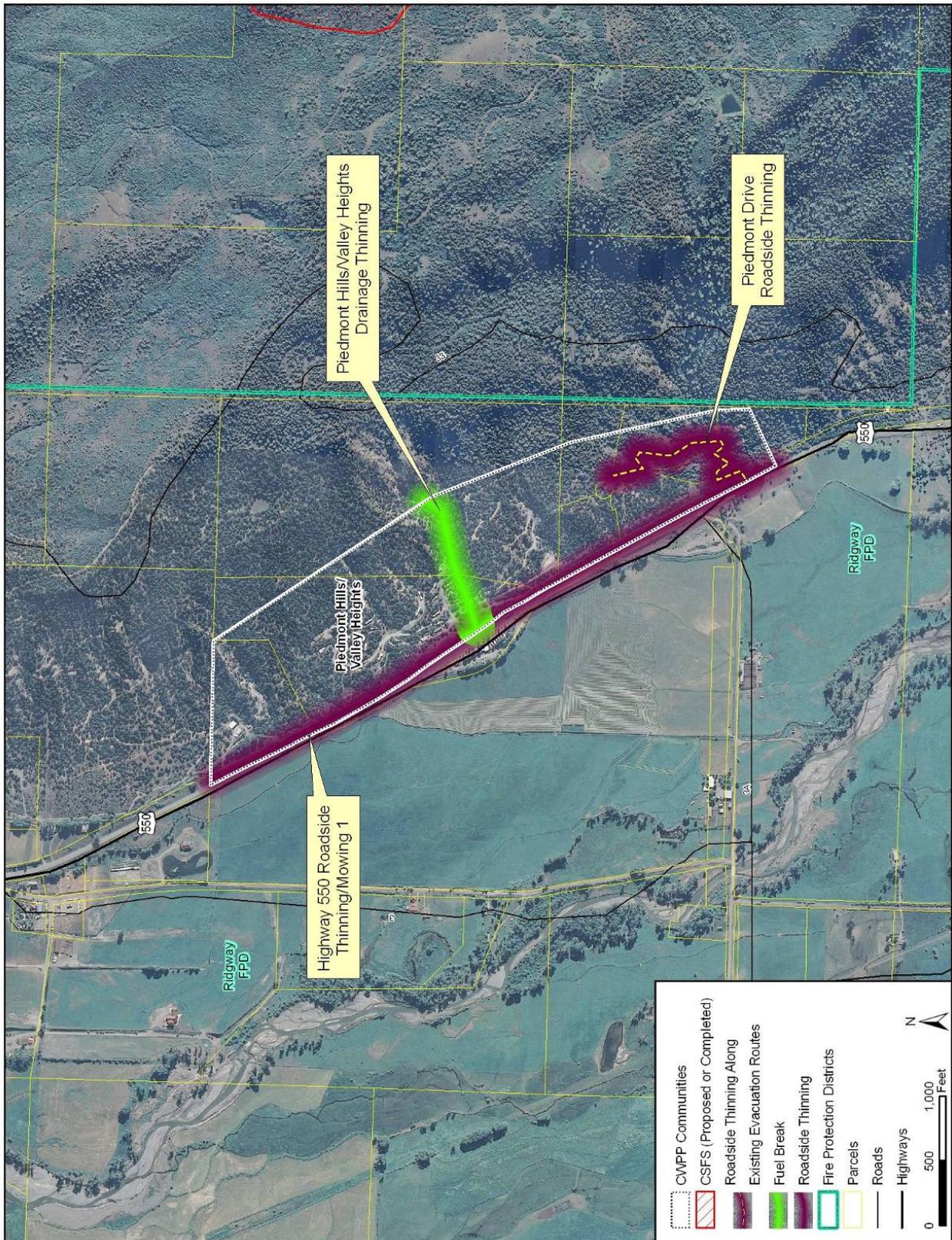
\*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 32. Piedmont Hills/Valley Heights General Wildfire Mitigation Recommendations**

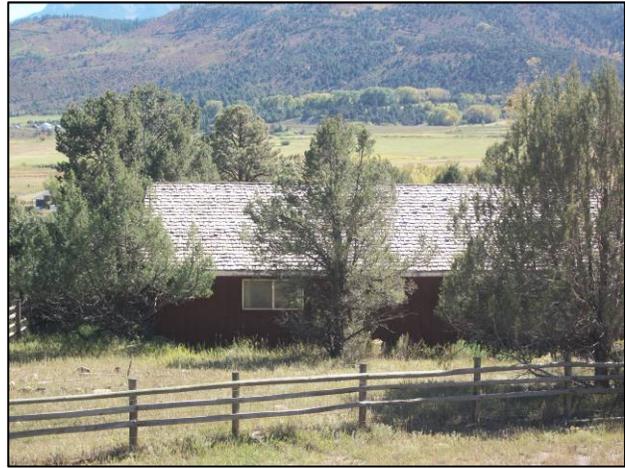
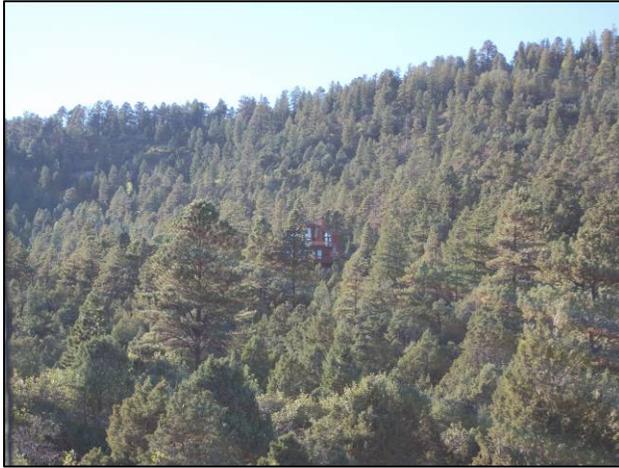
Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Special emphasis should be placed on removing any flammable yard clutter adjacent to homes and propane tanks.</p> <p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p>
Preparedness Planning/ Evacuation	3	<p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p> <p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 27. Piedmont Hills/Valley Heights Fuels Treatment Recommendations



### 13. Pleasant Valley



#### Hazard Rating: Very High

The community of Pleasant Valley includes all of the smaller subdivisions on the hillside above County Road 24 (refer to Figure 28). Roads vary within these subdivisions from paved to unmaintained dirt, but all are narrow and one way in and out. There are subdivisions with two ways in and out, but they are currently blocked by locked gates. Proper street signing is also lacking in many areas, and where it does exist, it is nonreflective and combustible. The community is built on a steep hillside with a south-facing aspect, meaning that the land and vegetation in this area is generally drier. Some homes are mid-slope, while others are built near forested ravines. Home construction materials vary greatly from metal roofing to shake shingles, but decks and siding are made of combustible materials for the most part. Very few lots have adequate defensible space. In fact, most homes have vegetation growing right up to the structure. Many homes in the community lack visible addressing, and where it is present, it is nonreflective and flammable. Driveways are mostly long and narrow, and most areas lack adequate turnarounds for fire apparatus and emergency vehicles. Water resources are available in the community, including hydrants that are present in most subdivisions. Some subdivisions also have large water tanks. Response times to these areas are typically lengthy due to poor access and distance from fire stations. Other significant factors that increase risk are high winds and lightning.

The steep slopes and dense pinyon-juniper forest found in the Pleasant Valley community create prime conditions for fast, uphill-moving fires. Numerous small drainages and a network of rolling hills will further aid in fire spread by speeding the preheating of fuels. Rates of spread across the community are rapid even under moderate weather conditions. Flame lengths are not expected to exceed 11 feet, meaning control by engines and dozers is possible. Because of the dense pinyon-juniper fuel types, active crown fire behavior is likely under high severity weather conditions. High fireline intensities are also expected throughout the majority of the community area. An ignition beginning below the community is the most likely scenario for fire spread, especially from the agricultural areas below, or off of, County Road 24.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of

the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 33. Pleasant Valley Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for all homes, where applicable.	Hand felling and limbing near homes; mowing	Variable, depends on topography
McClure Roadside Thinning***	2	Thin along both sides the road. All areas where the roads bends more than 90° require greater thinning within the inside area. This will aid in the egress of residents and ingress of fire personnel by reducing fire intensity and smoke	Hand felling and limbing due to slopes and hazards	97
Soaring Eagle Roadside Thinning***	2	Thin along both sides the road. All areas where the roads bends more than 90° require greater thinning within the inside area. This will aid in the egress of residents and ingress of fire personnel by reducing fire intensity and smoke	Hand felling and limbing due to slopes and hazards	26
Pleasant Valley Drive Roadside Thinning***	2	Thin along both sides the road. All areas where the roads bends more than 90° require greater thinning within the inside area. This will aid in the egress of residents and ingress of fire personnel by reducing fire intensity and smoke	Hand felling and limbing due to slopes and hazards	50

Name	Priority	Description	Methods*	Acres**
Catamount Drive Roadside Thinning***	2	Thin along both sides the road. All areas where the roads bends more than 90° require greater thinning within the inside area. This will aid in the egress of residents and ingress of fire personnel by reducing fire intensity and smoke	Hand felling and limbing due to slopes and hazards	31
Penn Crest Roadside Thinning***	2	Thin along both sides the road. All areas where the roads bends more than 90° require greater thinning within the inside area. This will aid in the egress of residents and ingress of fire personnel by reducing fire intensity and smoke	Hand felling and limbing due to slopes and hazards	32
County Road 1 Roadside Thinning***	2	Thin along both sides of County Road 1. This will aid in the egress of homeowners and the ingress of firefighters. By reducing fuel densities directly adjacent to the roadway area, it will reduce heat intensity and smoke. Thinned areas could also slow fire spread up drainages.	Hand felling and limbing due to slopes and hazards	Total of 14, which includes portions of the Log Hill Village community
County Road 24 Roadside Thinning/Mowing***	3	Thin and/or mow along the top side of County Road 24 below the community. This will slow a fire advancing uphill from the road, which is a potential source of ignitions	Mowing; chemical treatments for invasives; hand thinning and limbing of trees along roadside	76

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

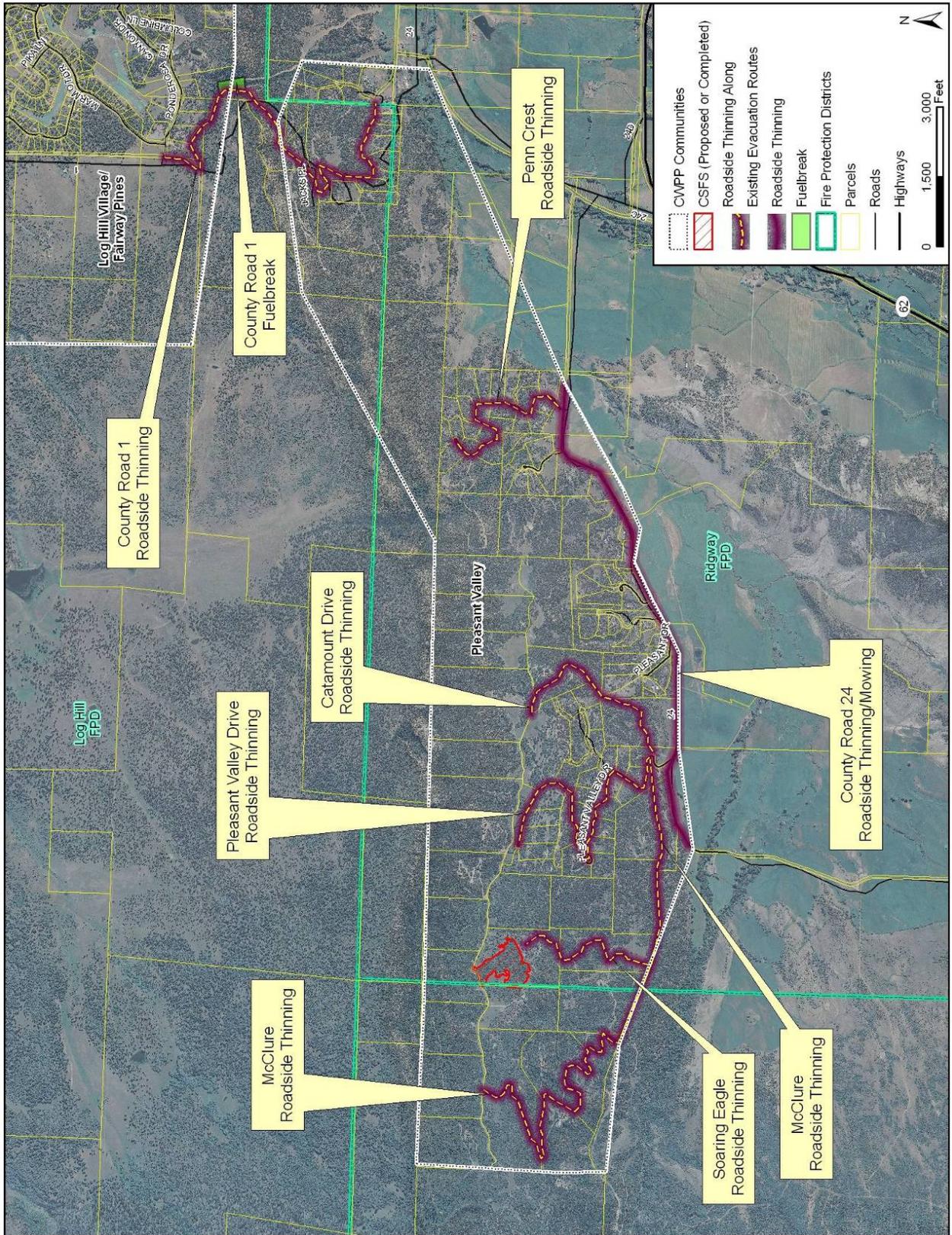
\*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 34. Pleasant Valley General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Special emphasis should be placed on removing any flammable yard clutter adjacent to homes and propane tanks.</p> <p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p>
Preparedness Planning/ Evacuation	3	<p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p> <p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>Ensure that all gates in the community are removable and/or have access codes that are known to all residents and the local fire department</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 28. Pleasant Valley Fuels Treatment Recommendations



#### 14. Ponderosa Village / Indian Springs



##### **Hazard Rating: Very High**

The Ponderosa Village/Indian Springs community includes a number of small subdivisions located directly across from the Idlewild community, east of Highway 550 (refer to Figure 29). There is one way in and out for each subdivision. Access into these subdivisions is along steep, narrow roads. Street signs and addressing are inconsistent and nonreflective, and some are made of wood. Homes within the community are built mid-slope on steep slopes with a west-facing aspect, near ravines and on top of saddles. Home construction is inconsistent; roof types are a variety of high to low fire resistance, and deck and siding materials also vary in combustibility. Some areas have lawns and limited defensible space, but as a whole most homes lack any defensible space implementation. Many homes have vegetation, firewood, and other highly combustible materials directly adjacent to the structure. Overall, the community lacks adequate turnarounds for fire apparatus. All utilities are above ground, and in some areas propane tanks are densely surrounded by vegetation and other combustible materials. There are some hydrants in the community to provide water sources for firefighters. Ridgway, located over five miles away, would respond to fires in this community. High winds further increase wildfire risk in the Ponderosa Village/Indian Springs community.

There are a variety of fuel types found throughout the community, including ponderosa pine, pinyon-juniper, Gambel oak, and other deciduous species. There are areas of steep slopes and drainages in the community that, along with high wind speeds create the potential for rapid rates of spread and potential crown fire behavior. Flame lengths are expected to be between 4 and 8 chains per hour for the vast majority of the community. Small areas in the southern end of the community could see flame lengths over 11 feet under extreme conditions, making control of the fire exceedingly difficult. Rates of spread between 40 and 60 chains per hour are estimated. The greatest concern for the community stems from a human-caused fire starting below the community and spreading quickly uphill especially off of Highway 550 or from one of the homes lower in the community.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders

and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community's respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 35. Ponderosa Village/Indian Springs Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50' around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located on the perimeter of the community.	Hand felling and limbing near homes; mowing	Variable, depends on topography
Redstone Road Roadside Thinning***	2	Thin along both sides of Red Stone Road. This will aid in the egress of residents in the event of a fire by reducing fire intensities and smoke.	Hand felling and limbing due to slopes and hazards	44
Highway 550 Roadside Thinning/Mowing**	3	Thin and/or mow along the east side of Highway 550 below the community. This will slow a fire advancing uphill from the road, which is a potential source of ignitions.	Mowing; chemical treatments for invasives; limited hand felling and limbing	61

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

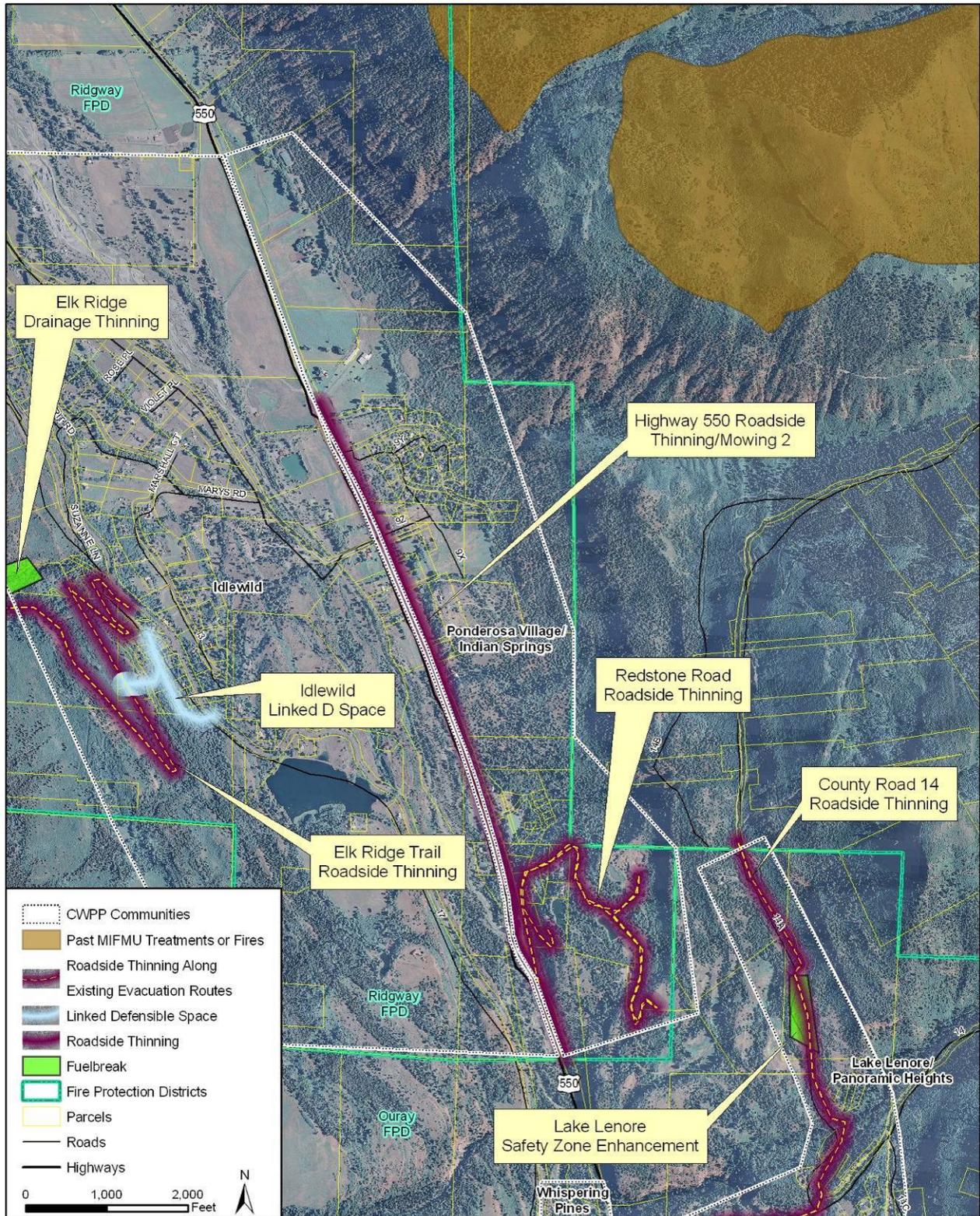
\*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 36. Ponderosa Village/Indian Springs General Wildfire Mitigation Recommendations**

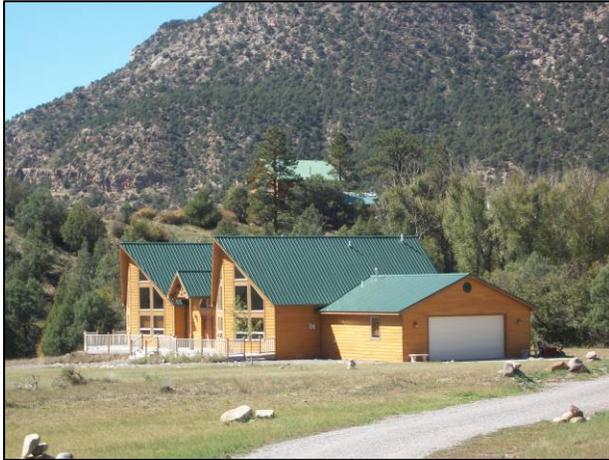
Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Special emphasis should be placed on removing any flammable yard clutter adjacent to homes and propane tanks.</p> <p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p>
Preparedness Planning/ Evacuation	3	<p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p> <p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 29. Ponderosa Village/Indian Springs Fuels Treatment Recommendations



## 15. Dallas Meadows



### Hazard Rating: High

The Dallas Meadows community, including the subdivisions of Eagle Hill and Weaver, is located northeast of Ridgway (refer to Figure 30). There are multiple ingress and egress points: County Roads 5 and 24 (dirt) and Highway 550 (paved) provide the main access into the community. Some shorter side roads are only one way in and out. Street signage is consistent and noncombustible but is nonreflective. Addressing is inconsistent, combustible, and hard to see, potentially complicating wildfire response and evacuation operations. The area is mostly flat with heavily vegetated drainage areas running along Dallas Creek and the Uncompahgre River in particular. Some homes in the community have bridges as driveways, which may not be rated for the weight of fire trucks. These bridges also leave little or no turnaround space for fire apparatus. Most other areas do contain sufficient turnarounds. Most homes have metal, fire-resistant roofs, though decks and siding vary in combustibility. Many homes in the community have natural defensible space due to vegetation being cleared around the building envelope. However, homes near forested areas have little defensible space. Utilities are underground, reducing their vulnerability to wildfire. Water is available via hydrants within the community, though they are run off of an adjacent tank which is filled by a small stream. Under high intensity use, the tank could run low, reducing volume and pressure quickly. A better source of water is available from working hydrants on County Road 24, which could be utilized for shuttle delivery. Moreover, responders could draft from the Uncompahgre River if necessary using a portable pump system, as vehicle access is limited. The community is close to the Ridgway Fire Station, so response times for firefighters coming from the fire station should be relatively short. Like other Ouray County communities, high winds are an issue in this area and increase wildfire risk.

The Dallas Meadows community is dominated by open, grass- and shrub-filled areas. There are also a number of smaller areas of pinyon-juniper forest, especially along the Uncompahgre River drainage. In many areas of the community, rapid rates of spread over 60 chains per hour are anticipated. Flame lengths will be between 4 and 8 feet for most of the community, and are not expected to exceed 11 feet. Moderate to high fireline intensities are expected throughout the vast majority of the community area. The Uncompahgre River and Dallas Creek drainages should be considered terrain features of concern, as they will act to further increase fire spread.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows.

Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 37. Dallas Meadows Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located in dangerous topography (above ravines and natural chimneys, mid-slope on steep slopes, on ridge tops or summits) with heavy vegetation loads near or below the home.	Hand felling and limbing near homes; mowing	Variable, depends on topography

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

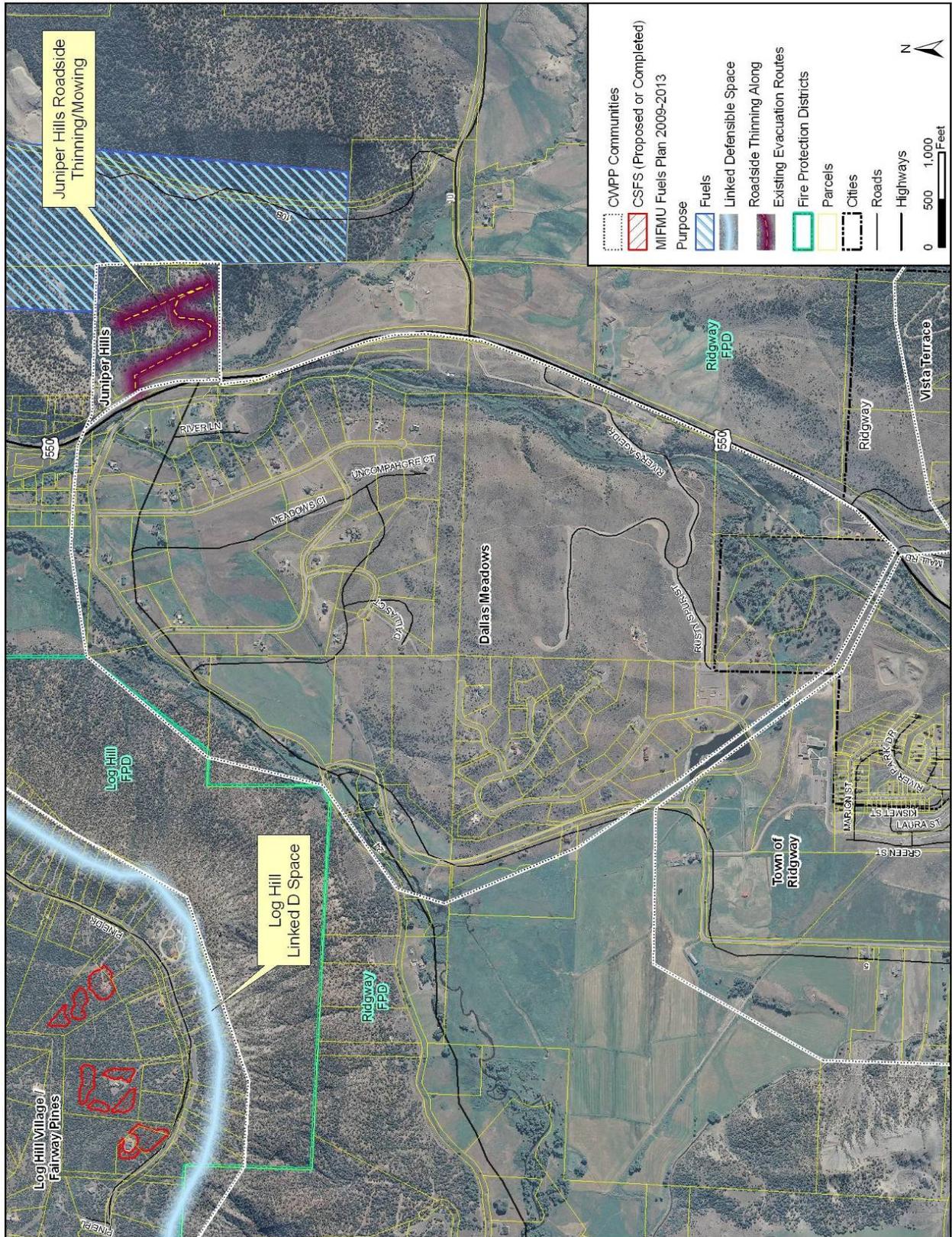
\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150’ treatments on either side of the road. Actual acres treated may vary once project is implemented.

**Table 38. Dallas Meadows General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Replace any shake-shingle roofs with noncombustible types, such as metal or composite shingle.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/ Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 30. Dallas Meadows Fuels Treatment Recommendations



## 16. Elk Meadows



### Hazard Rating: High

Elk Meadows, located on the top of Miller Mesa, has one approved access/egress (refer to Figure 31). Another option is to cross private land on a rough (4x4) road to get to Park Estates, but this is currently not viable. Roads throughout the community are adequately maintained dirt. Street signage is combustible and nonreflective, and addressing is inconsistent and made from nonreflective materials. Topography for this community is mostly flat with some hills atop the mesa. Some homes are built adjacent to the steep cliff sides. The majority of roofs are metal and therefore fire resistant. Decks and siding materials vary in combustibility. Most houses lack any defensible space, though some homeowners have done limited work. There are adequate turnarounds in many areas, but not in all subdivision roads. Lot sizes vary from one half to two acres and are smaller than most of the other communities. Thus, housing density is higher, and the community is at greater risk from wildfire due to the potential for structure-to-structure ignitions. Utilities are all located above ground, including propane tanks, many of which are surrounded by vegetation. The community has only one hydrant, so most available water is from individual home cisterns. Elk Meadows has its own water treatment plant. The Ridgway FPD does maintain an engine in the community, and there are a few volunteer fire department members in the community. Response times from Ridgway are very long. Other significant factors include high winds and lightning.

There are steep slopes leading into the western side of the Elk Meadows community and a number of small and medium sized drainages. Along with areas of dense vegetation and favorable wind conditions, these will act to push fire uphill into the community. The main vegetation found within the community includes ponderosa pine and aspen forest, separated by small grass-filled meadows. Rates of spread are not expected to be high, at around 30-40 chains per hour. Flame lengths are estimated at around 4 feet, meaning a wildfire could be contained using handcrews and engines. Under drought and extreme weather conditions, rates of spread and flame lengths could be higher. Given the elevation and location of the community, a lightning-caused ignition is likely.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A

concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community's respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 39. Elk Meadows Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50' around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located in dangerous topography (above ravines and natural chimneys, mid-slope on steep slopes, on ridge tops or summits) with heavy vegetation loads near or below the home.	Hand felling and limbing near homes; mowing	Variable, depends on topography
County Road 5A Roadside Thinning***	2	Thin along both sides of County Road 5A/Aspen Drive in areas of heavy flammable fuel loadings. This will aid in the egress of residents by reducing fire intensity and smoke.	Hand felling and limbing	52
Improve/Thin Evacuation Route***	2	The access route between Park Estates and Elk Meadows should be enhanced so that it is useable by all residents. Gates should be established so that only residents of both communities have the key or access code to the gates. Thinning should occur along this road to enhance its usefulness. This will greatly benefit both communities in the event that an advancing wildfire cuts off the main egress for one of the communities.	Hand felling and limbing due to slope	46

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

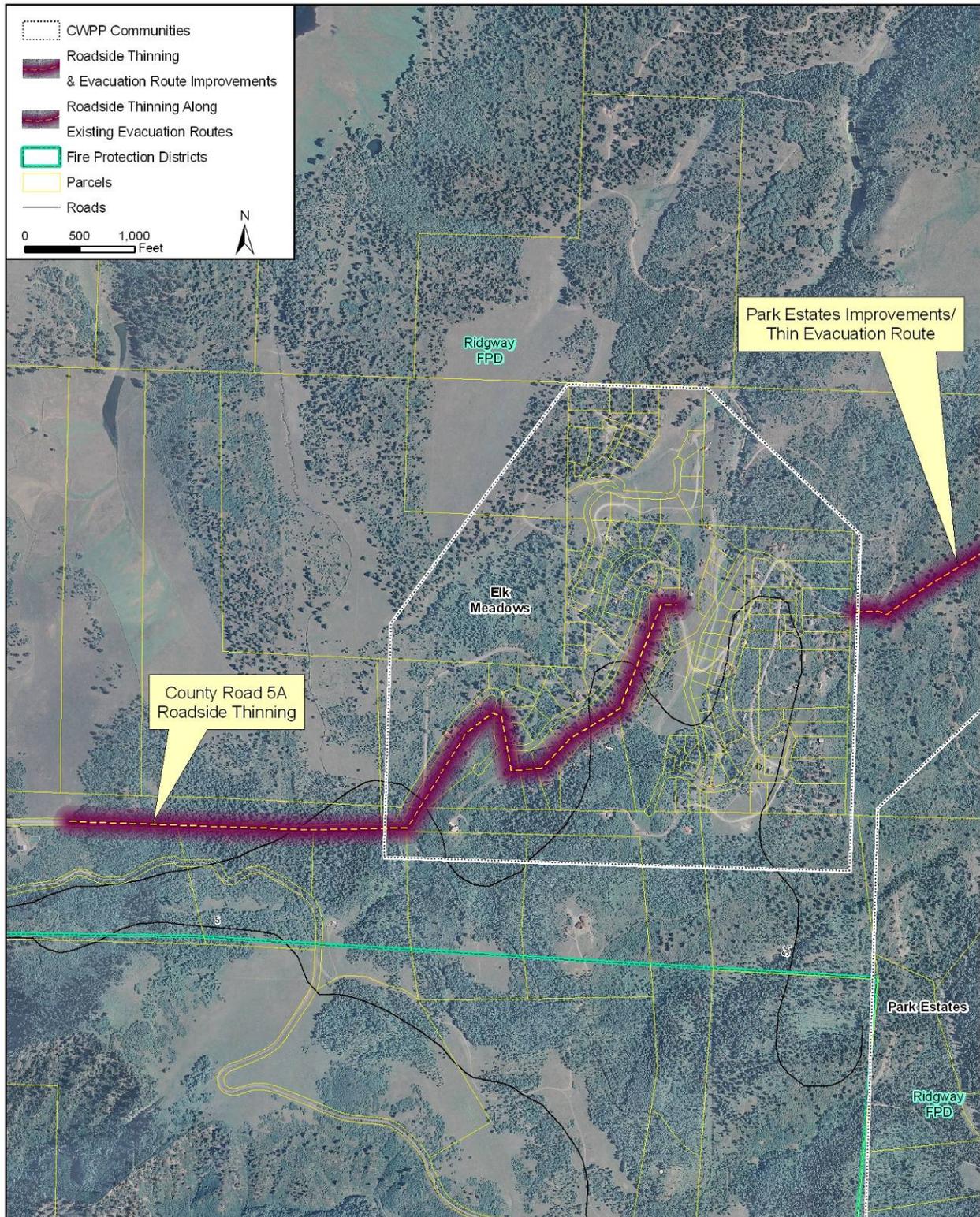
\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented. \*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 40. Elk Meadows General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Where available, large safety zones should be maintained and identified in all evacuation planning. These safety zones will need to be of adequate size and quality in order to be effective</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 31. Elk Meadows Fuels Treatment Recommendations



## 17. Idlewild



### Hazard Rating: High

Located in the valley below the Park Estates community, Idlewild lies on the west side of Highway 550 (refer to Figure 32). There are multiple ingress and egress routes, though some side roads dead end. Roads in the community area all dirt and are decently maintained. Road widths vary between 20 and 24 feet. Street signs are present and consistent but nonreflective. Addressing is inconsistent, combustible, and hard to see on many homes. The community abuts the hillside leading up to Miller Mesa, but topography is mostly flat. Some homes are located on the valley bottom and some on the steadily increasing slope of the hillside. Home construction varies with some houses having moderate to high fire-resistant roofs and a mix of combustible and noncombustible siding. The majority of homes lack any defensible space. Many homes have large stacks of firewood near, or directly against, the structure increasing their risk to wildfire. Some driveways offer adequate turnaround space for emergency vehicles. A large commercial campground is in the community, which could be an additional evacuation concern in the event of a wildfire. Utilities in the community are located above ground. There are some hydrants in Idlewild. Ridgway, over five miles away from Idlewild, would respond to wildfires in the community. Like other Ouray County communities, high winds in the area increase wildfire risk to Idlewild.

Species found within the Idlewild community include ponderosa pine, pinyon-juniper, Gambel oak, and a variety of other deciduous and ornamental species. Terrain features of concern include the steep hillside leading up the mountain and a number of small drainages. Structures built in the valley bottom do not have a significant risk of damage or loss from wildfire. However, there are many homes that back up to the steeper slopes of the community that have a higher component of wildland vegetation. Under high percentile weather conditions, fast rates of spread are expected on the west side of the community in areas where more grasses and shrubs occur on steeper slopes. Flame lengths in most areas are between 4 and 8 feet, though they could exceed 11 feet under extreme weather conditions in the southwestern corner of the community. An ignition from the base of the community could spread quickly uphill, affecting homes higher up and potentially other communities in the vicinity.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of

the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 41. Idlewild Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located on the perimeter of the community.	Hand felling and limbing near homes; mowing	Variable, depends on topography
Elk Ridge Road Roadside Thinning***	2	Thin along both sides of Elk Ridge Road. All areas where the road bends more than 90° require greater thinning within the inside area. This will aid in the egress of residents and ingress of fire personnel by reducing fire intensity and smoke.	Hand felling and limbing due to slope and access	5
Elk Ridge Road Drainage Thinning***	3	Thin heavily in the first main drainage below Elk Ridge Road. This will slow an advancing fire moving up-drainage into the Park Estates community	Hand felling and limbing due to slope and access	15
Idlewild Linked Defensible Space	3	Link defensible space between homes in areas near heavy fuel loadings.	Hand felling and limbing due to hazards	7

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150’ treatments on either side of the road. Actual acres treated may vary once project is implemented.

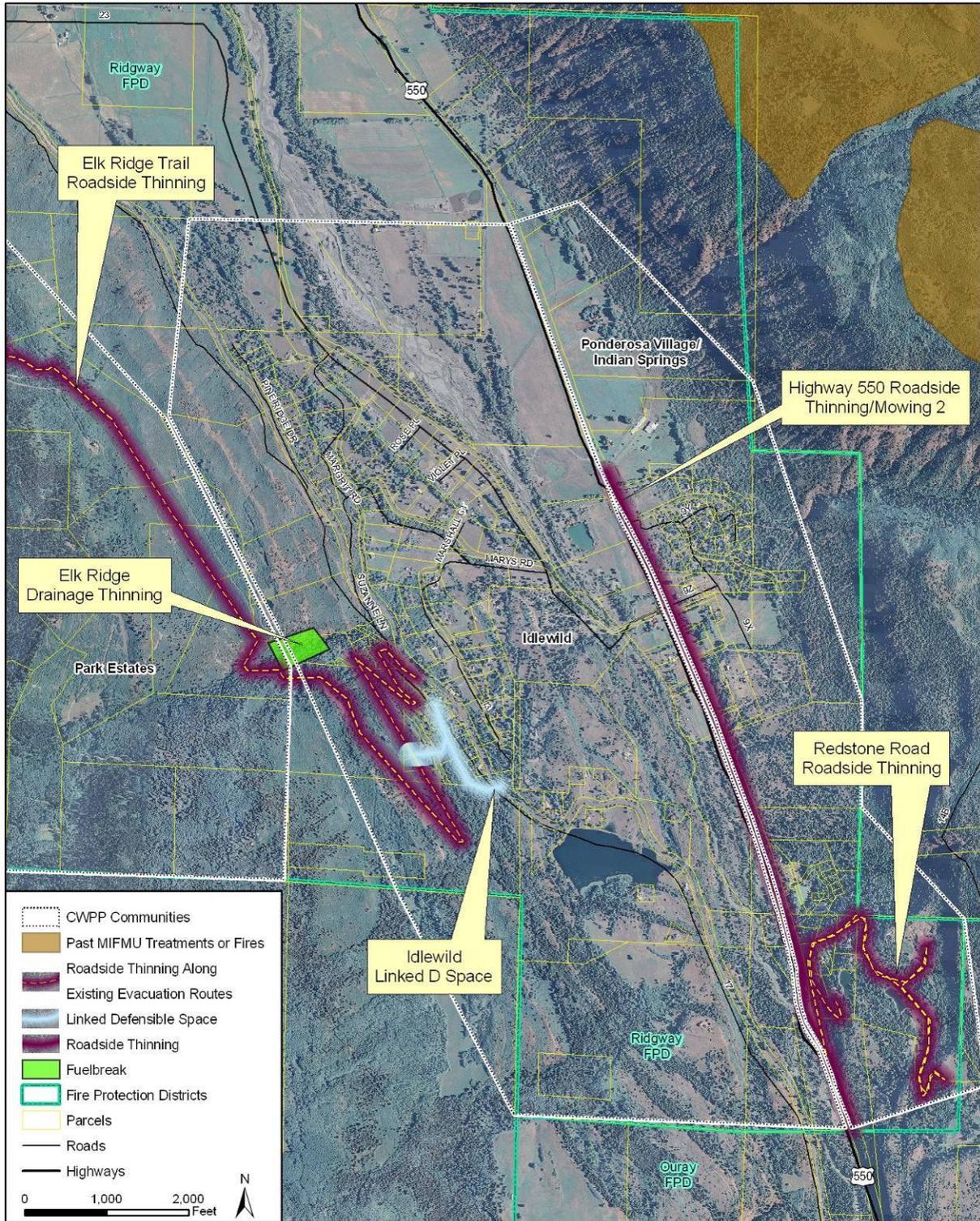
\*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 42. Idlewild General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 32. Idlewild Fuels Treatment Recommendations



## 18. Juniper Hills



### Hazard Rating: High

The small Juniper Hills community is located northeast of Ridgway (refer to Figure 33). There is only one access into the community, which is right off of Highway 550. Street signage is consistent and noncombustible, but is nonreflective. Addressing is inconsistent, combustible, and hard to see, potentially complicating wildfire response and evacuation operations. The community lies within a larger, heavily vegetated drainage, and has a west-facing slope. Most homes have metal, fire-resistant roofs, though decks and siding vary in combustibility. Most of the homes within the community lack adequate defensible space. Turnarounds are not adequate for most the homes due to narrow driveways and limited space near homes. Utilities are underground, reducing their vulnerability to wildfire. Water is available from working hydrants on County Road 24, which could be utilized for shuttle delivery. Moreover, responders could draft from the Uncompahgre River if necessary using a portable pump system, as vehicle access is limited. The community is close to the Ridgway Fire Station, so response times for firefighters coming from the fire station should be relatively short. High winds and an ignition moving uphill off of Highway 550 are potential concerns for the community.

The Juniper Hills community consists primarily of pinyon-juniper forest on a west-facing aspect. Rapid rates of spread over 60 chains per hour are anticipated. Flame lengths will be between 4 and 8 feet for most of the community, though they could exceed 11 feet under extreme burning conditions, making suppression difficult. Moderate to high fireline intensities are expected throughout the majority of the community area. The steeper slopes and influence of the main drainage area are terrain features of concern and will act to further increase fire spread.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire

district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community's respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 43. Juniper Hills Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50' around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located in dangerous topography (above ravines and natural chimneys, mid-slope on steep slopes, on ridge tops or summits) with heavy vegetation loads near or below the home.	Hand felling and limbing near homes; mowing	Variable, depends on topography
Thin/Mow Along Juniper Hills Access Road	2	Thin and/or mow along the main access road into the Juniper Hills subdivision. Concentrate on the bottom side of the road when it comes to a (T) at the top. This will aid in the egress of residents and ingress of fire personnel by reducing fire intensity and smoke. It could also slow a fire advancing uphill from the highway, which is seen as a major source of ignitions	Mowing; chemical treatments for invasives; hand thinning and limbing of trees	20

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

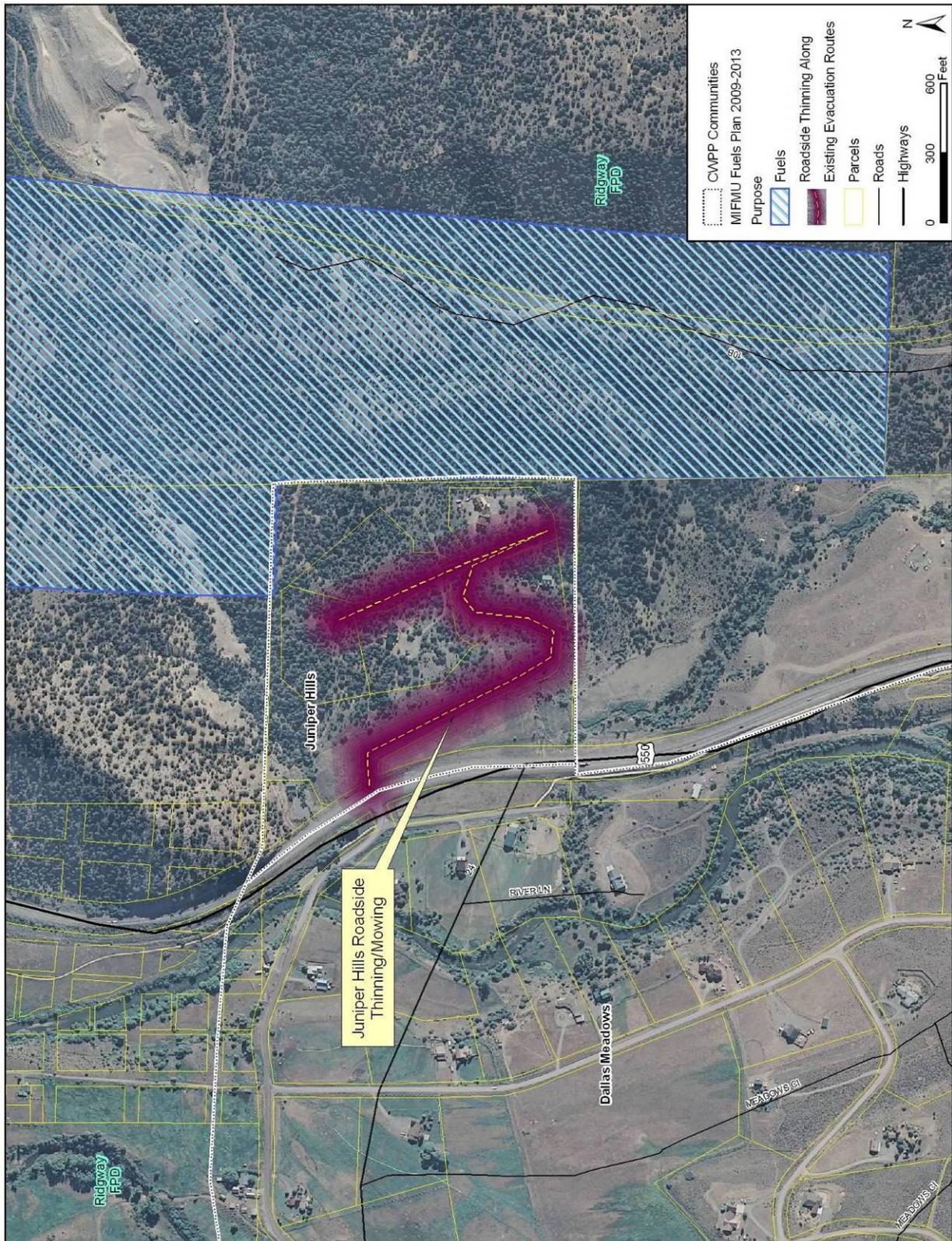
\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

**Table 44. Juniper Hills General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Replace any shake-shingle roofs with noncombustible types, such as metal or composite shingle.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 33. Juniper Hills Fuels Treatment Recommendations



## 19. Silverado Estates



### Hazard Rating: High

Silverado Estates is the northernmost community present in Ridgway's fire protection district, situated along Highway 550 (refer to Figure 34). The Silverado Estates community includes the Ridge subdivision. There are two ways in and out of Silverado Estates. Access within the community is along paved or well maintained dirt roads with relatively flat slope. Street signage is present but is made of flammable, nonreflective materials. The community is built on a hillside with a generally west-facing aspect. Some houses are mid-slope. Many of the homes in the community appear to have been built more recently, and as a result, the roofs are typically made of metal, making them highly resistant to fire. Siding and decks, however, are made of a mix of combustible and noncombustible materials. Some landowners have done partial defensible space work around their homes, including low-limbing their trees. More could still be done directly near homes. Addressing in Silverado Estates is inconsistent, nonreflective, and made of combustible materials. Some areas have adequate turnaround space but not all. Utilities are located underground, decreasing their vulnerability to wildfire. Water sources include hydrants that are present within the community and a 50,000 gallon storage tank. The community is nearly 10 miles away from the fire station in Ridgway, so response times will be lengthy. High winds in the area could increase the risk and severity of wildfires in Silverado Estates. Recreationists in the area present a potential complication for evacuation and also pose as a possible ignition source.

The Silverado Estates community consists primarily of pinyon-juniper forest intermixed with smaller grass- and shrub-dominated areas. In the northern and southern sections of the community where most of the homes are located, rapid rates of spread over 80 chains per hour are expected under high severity weather conditions. Flame lengths in these areas are expected to be between eight and 11 feet, making control with handcrews and equipment difficult. Flame lengths could exceed 11 feet under extreme weather conditions, possibly requiring the use of aerial resources for suppression. Active crown fire behavior is possible throughout the community, especially in areas of steep slopes and heavy fuel loadings. Due to its proximity and the steepness of the adjacent slopes, an ignition off of Highway 550 could spread rapidly into the community area.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows.

Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner’s association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community’s respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 45. Silverado Estates Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50’ around the home
Extended Defensible Space	2	Extended defensible space is recommended for all homes.	Hand felling and limbing near homes; mowing	Variable, depends on topography
Silverado Estates Egress Thinning***	2	Thin along both sides of the main roads connecting the two subdivisions. This will aid in the egress of residents and ingress of fire personnel.	Mostly hand felling and limbing due to slope and access	47
Silverado Estates Linked Defensible Space/Fuelbreak	3	Using linked defensible space and thinning, create a fuelbreak around the southern section of the subdivision. This will slow an advancing fire, potentially protecting homes and aiding in evacuation.	Mostly hand felling and limbing due to slope and hazards; mechanical on flat areas away from homes	28
Silverado Estates Drainage Thinning 1***	4	Thin below the road on the west in the two drainage areas on the northern section. This will slow an advancing fire moving up-drainage and aid in egress.	Mostly hand felling and limbing due to slope and access	4
Silverado Estates Drainage Thinning 2***	4	Thin below the road on the west in the two drainage areas on the northern section. This will slow an advancing fire moving up-drainage and aid in egress.	Mostly hand felling and limbing due to slope and access	5

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

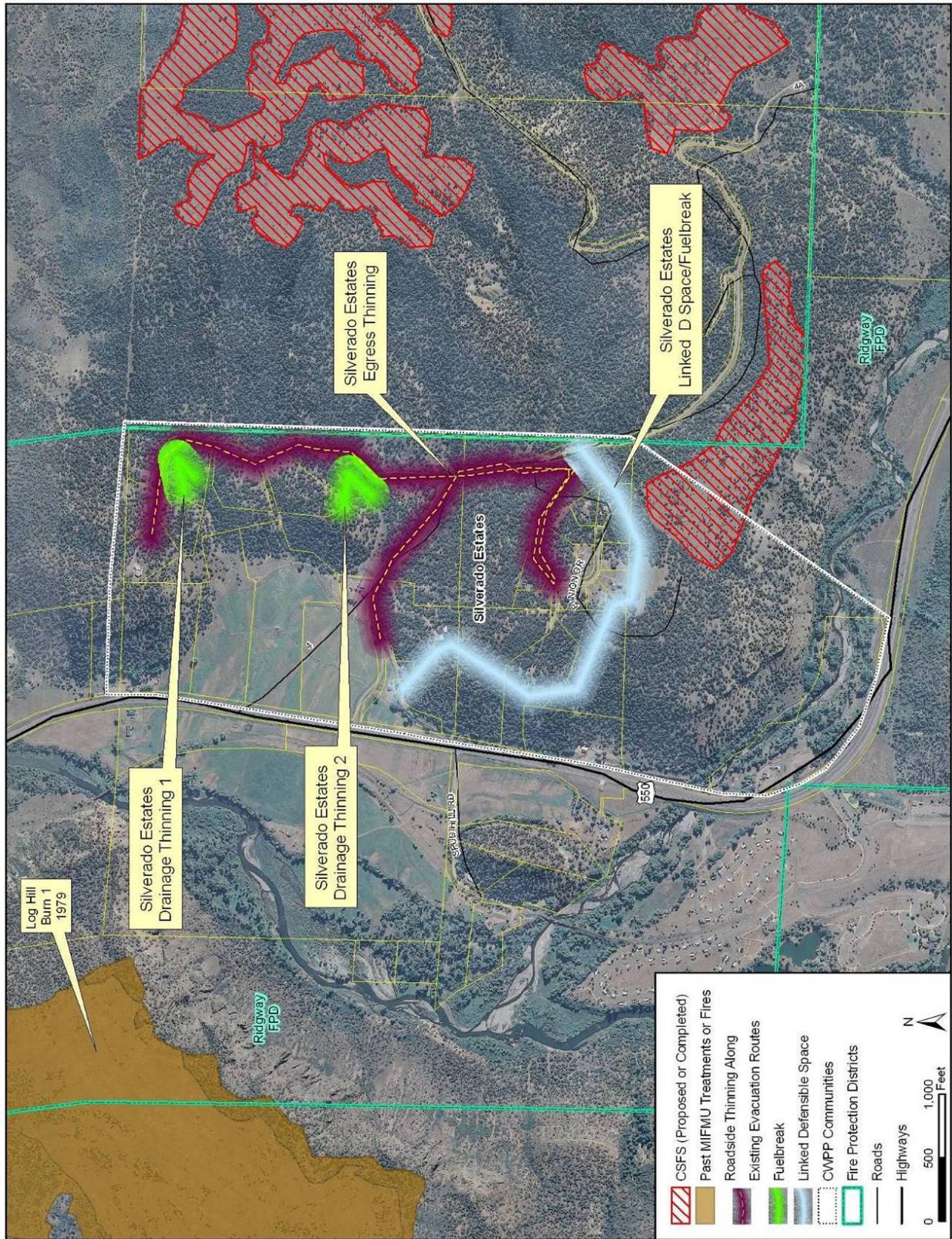
\*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 46. Silverado Estates General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/ Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Preparedness Planning/ Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 34. Silverado Estates Fuels Treatment Recommendations



## 20. Vista Terrace



### Hazard Rating: High

The community of Vista Terrace lies east of Ridgway (refer to Figure 35). There is one way in and out of the community. The proposed location of the second exit is in the path of where a wildfire would burn, thus limiting the viability of this proposed route as a solution to wildfire access and evacuation. Roads in Vista Terrace are well maintained dirt, generally 20-24 feet wide. Street signage is present and made of metal, but it is not reflective. Addressing in the community is inconsistent, nonreflective, and often combustible. Topography in the area includes gentle hills without steep slopes and some flat areas on top of the hills. Most homes are built in these flat areas, though some are at the base of hills and mid-slope. Most roofs are made of metal and have high fire-resistance. Combustibility is varied for decks and siding materials. Many homes have some natural defensible space due to lawns and a lack of adjacent vegetation. Other homes are surrounded by vegetation and minimal to no clearing work has been done around them. This is especially true of homes among the pinyon-juniper woodlands. Some driveways have sufficient turnaround space for fire engines, but not all. Utilities are located below ground, but there is an above-ground power line running through the community. There are hydrants in the community, and it is close to the Ridgway Fire Station. High winds and lightning in Vista Terrace could potentially increase fire risk and severity.

The Vista Terrace community is divided primarily between open, grass- and shrub-dominated areas and steeper sections of pinyon-juniper forest. Due to an abundance of light, flashy fuels in the grass and shrub areas, rapid rates of spread between 60 to 70 chains per hours are possible under high severity weather conditions. Flame lengths are expected to be between 4 and 8 feet for most of the community, meaning that the majority of a fire could be controlled with the use of handcrews and engines. The rolling hills and steep ridges of the community will also act to increase fire spread by preheating the fuels. The hillside areas surrounding the community could quickly spread an ignition into the community, especially if should it come off of Highway 550 or County Road 12.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A

concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community's respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 47. Vista Terrace Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50' around the home
Extended Defensible Space	2	Extended defensible space is recommended for homes located in dangerous topography (above ravines and natural chimneys, mid-slope on steep slopes, on ridge tops or summits) with heavy vegetation loads near or below the home.	Hand felling and limbing near homes; mowing	Variable, depends on topography
Vista Terrace Improve and Thin/Mow Secondary Egress Route***	2	The planned secondary egress route out of the community should be supported. This route should avoid areas within the potential fire path. Both sides of the road should be thinned to a distance of at least 50 feet from the edge of the road. This will aid in the egress of residents by reducing heat intensity and smoke	Mowing; chemical treatments for invasives; hand thinning and limbing of trees along roadside	30

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

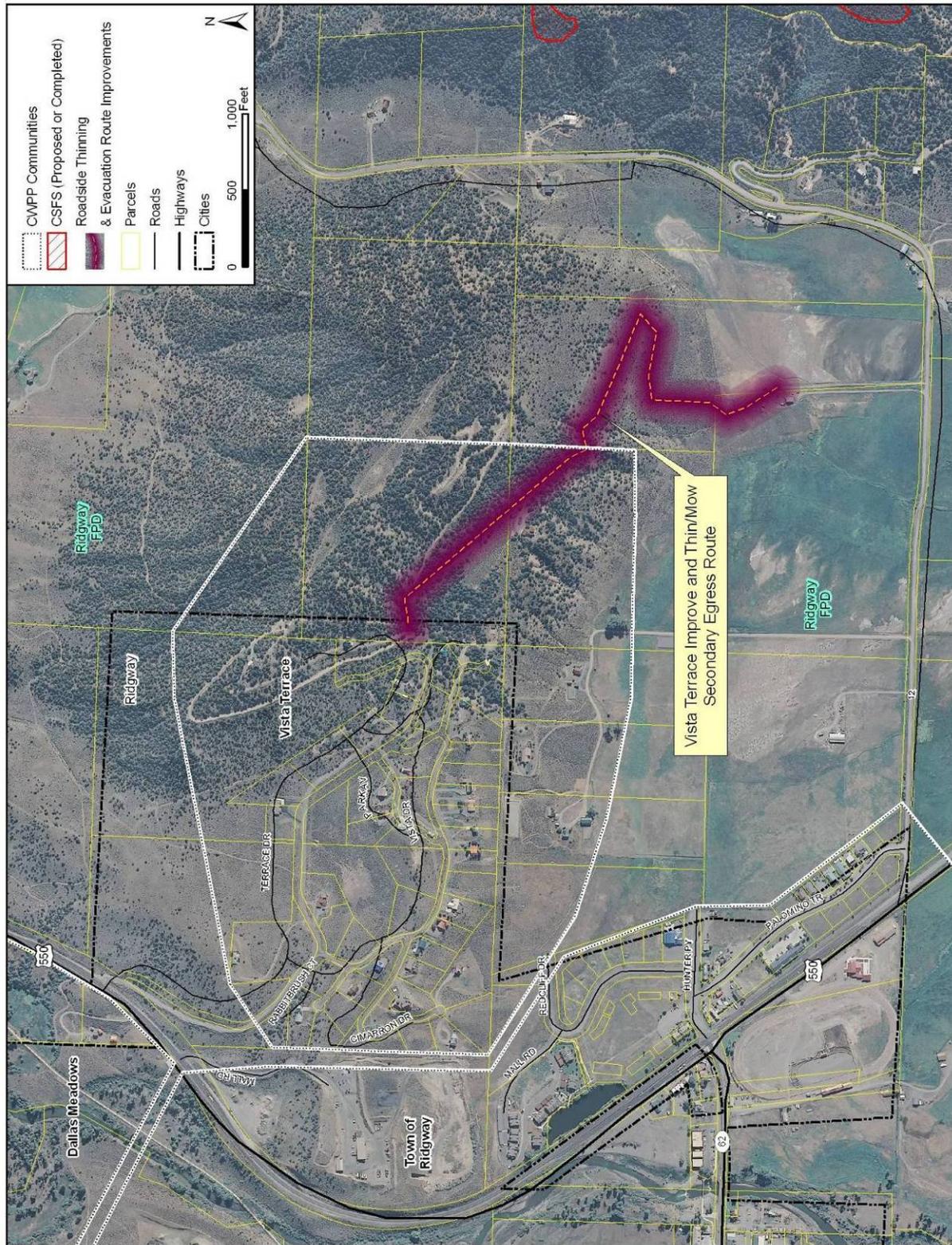
\*\*\*See Glossary for further explanation of roadside thinning projects.

**Table 48. Vista Terrace General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>A large-animal evacuation plan should be developed where applicable.</p> <p>Develop an evacuation plan for the community, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 35. Vista Terrace Fuels Treatment Recommendations



## 21. Town of Ridgway:



### Hazard Rating: Moderate

The Town of Ridgway is located in the center of the county at the intersection of Highways 550 and 62 (refer to Figure 36). Most roads within the community are dirt. Street signage in Ridgway is metal and reflective but not always present. Addressing is also inconsistent and is nonreflective. Overall topography in the community is flat, so house location is generally not an issue. For the most part, roofs are made of metal and offer some fire resistance, but there are some homes with shake shingle roofs. Deck and siding materials vary in combustibility; some homes are constructed of brick while others have combustible wood siding. Defensible space in the community is well-developed, and driveways have adequate turnaround space for fire engines and tenders. Utilities are located above ground, increasing their exposure to wildland fires. Water sources in the community include hydrants. The fire department is located in the town itself, so response times are quick. High winds in the area increase overall fire risk.

The majority of the area surrounding the Town of Ridgway includes agricultural lands and open areas of various grasses and shrubs. Rapid rates of spread are possible in these areas where light, flashy fuels are continuous. This risk increases during windy conditions. In the western section of the community, pinyon-juniper forest backs down into the outskirts of town. In these areas, increased flame lengths and higher fireline intensities can be expected. The abundance of roads in and around the town should act as a fuelbreaks to stop the vast majority of grass fires. Fast moving fires could threaten homes however, and their risk should not be overlooked.

The following recommendations are suggested to minimize the wildfire risk within the community. They are represented in both a table and a map (where appropriate) that follows. Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A concerted effort was made during the development of this countywide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. See the implementation table in the Conclusions and Next Steps Chapter of this plan to determine if a local Wildfire Mitigation Advocate has been identified for the community that will assist with implementing recommended activities in coordination with the local fire district, State Forest Service, and federal land managers as appropriate. If no Wildfire Mitigation Advocate has been identified, the responsibility defaults to the fire chief of the community's

respective fire district, or the sheriff if not located within a fire protection district. Contact information for Wildfire Mitigation Advocates is maintained by the WRWC.

**Table 49. Town of Ridgway Fuels Treatment Recommendations**

Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Mowing, chemical treatments of invasives	50' around the home

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

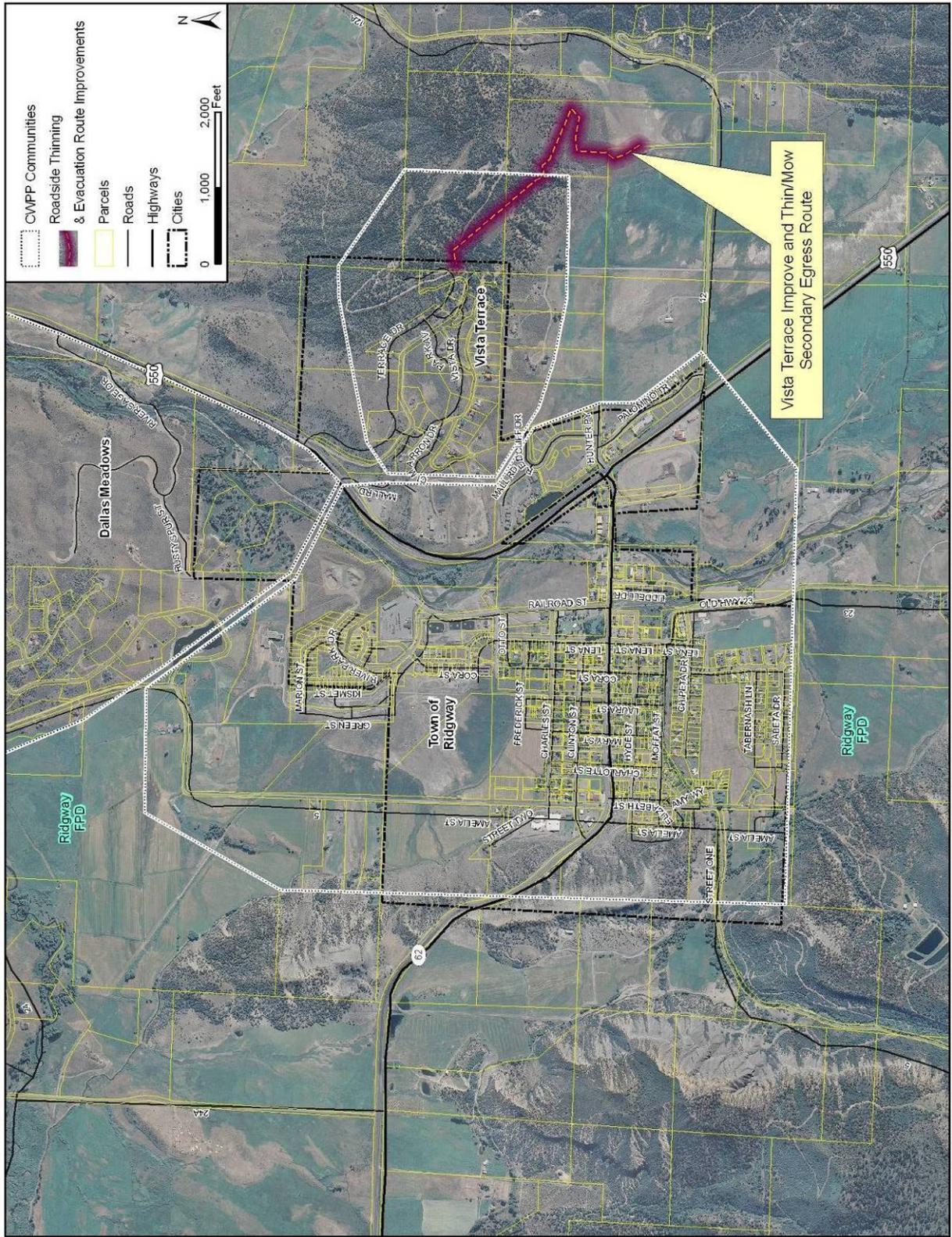
\*\* Defensible space distances will vary by property based on slope and fuels. See CSFS 6.302 in Appendix A for more precise distances. Acreages for fuel treatments along roads are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

**Table 50. Town of Ridgway General Wildfire Mitigation Recommendations**

Category	Priority	Description
Home Construction	1	<p>Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.</p> <p>Replace any shake-shingle roofs with noncombustible types, such as metal or composite shingle.</p> <p>Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.</p>
Landscaping/Fuels	2	<p>Clean leaf and needle litter from roofs and gutters and away from foundations.</p> <p>Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.</p> <p>Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.</p> <p>Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.</p>
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>Develop safety brochures that can be distributed and made available to guests in the summer months.</p> <p>A "No Outlet" sign should identify all dead end streets.</p> <p>Develop an evacuation plan for the town and outlying areas, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

For more detailed recommendations on how to enhance the safety of your home and community, please refer to Appendix A.

Figure 36. Town of Ridgway Fuels Treatment Recommendations

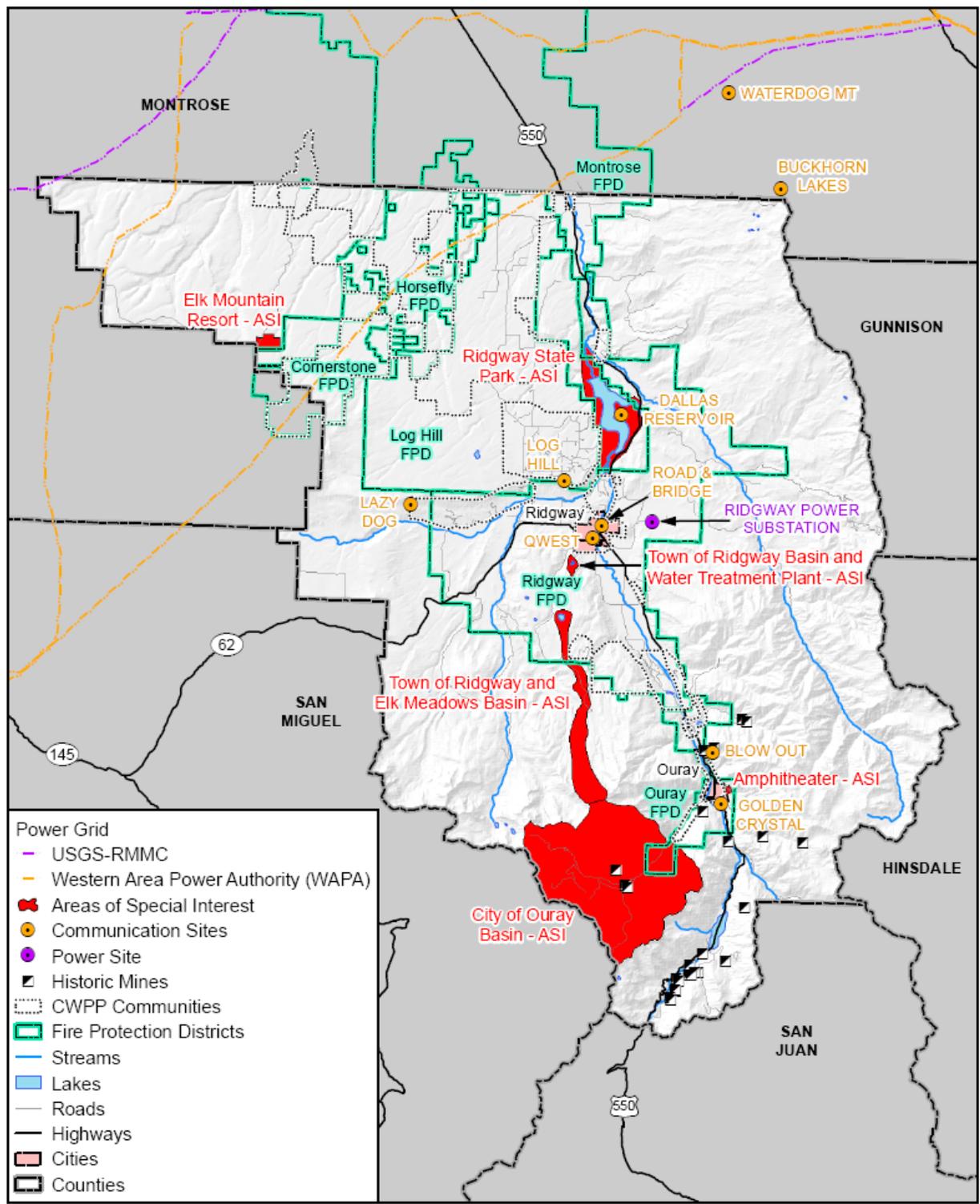


## AREAS OF SPECIAL INTEREST

Areas of special interest (ASIs) are places within the CWPP study area that could be threatened from wildfire and have a social or economic value which is not based on residential development. Unlike communities, ASIs are not given hazard ratings. Frequent candidates for ASIs include recreation areas, such as parks, reservoirs, ski areas, and defined open space. Guest ranches, church camps, RV parks and other large acreage recreational camps that have a significant, but temporary population are typically included as an ASI. Also included is some critical infrastructure, such as communication sites. ASIs are identified separately from communities because of the size and a focus on recreation and infrastructure over residences.

Sometimes there are specific fuels reduction recommendations that can help mitigate the fire risk to ASIs. Frequently, there are no significant recommendations for the ASIs, but they are still identified, as they are values at risk. However, some of the ASIs in this plan have specific fuels reduction recommendations. Damage to these areas as a result of wildfire could impact the surrounding communities and areas. Figure 37 shows the location of the ASIs within the Ouray County study area. This map can also be referenced in an 11x17 format in Appendix E.

Figure 37. Ouray County Areas of Special Interest



Map compiled 6/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT, MIFMU



\*Ouray County data shown on this map is to be considered a draft and subject to revision.

## Ridgway State Park



Located in north-central Ouray County, Ridgway State Park (RSP) offers year-round recreational opportunities. Managed by the Colorado Department of Natural Resources, RSP provides residents and visitors with a place to camp, hike, picnic, boat, fish, and swim. There are nearly 300 campsites found throughout the Park, divided between three separate campground areas. The Park itself has over 14 miles of designated trails, and many additional miles are found on adjacent BLM lands. In addition to the recreational opportunities, RSP is home to many native plant communities including pinyon-juniper woodland, riparian forest, and a number of important wetland areas. In total, the park protects over 3,200 acres of habitat for plants, as well as many species of mammals, birds, reptiles, amphibians, and fishes.

In an effort to maintain and protect the natural habitat, the threat from wildfire should be taken seriously. Currently, RSP is working on a management plan with the goal of treating many of the areas found throughout the park in order to reduce the threat and potential impact from catastrophic wildfire. Not only is there the concern of protecting visitors and infrastructure within and adjacent to the park, there is also the issue of protecting natural resources from human ignitions.

Nearly all of the vegetation found within the park is capable of carrying fire. In campground areas set amongst wildland fuels, the potential for human-caused ignitions is higher in this area than in other adjacent communities. Visitors should be well informed of the dangers of wildfire and its potential impacts, and actions should be taken to reduce the risk of a human-caused ignition from the campground or picnic areas.

Should a wildfire occur, precaution needs to be taken to ensure the safe and orderly evacuation of visitors and park personnel. An evacuation could be complicated due to the potential number of visitors, and because of the large number of boats being towed. In a wildfire event, the lake can also be a water source for fire trucks using a system that protects the lake from zebra mussels. Due to the threat posed by the organisms, drafting via helicopters and trucks may not be possible. This issue will need to be discussed with park personnel.

**Table 51. Ridgway State Park ASI Fuels Treatment Recommendations**

Name	Priority	Description	Methods	Acres
Ridgway State Park Visitor's Center Fuelbreak	1	Thin below the visitor's center. This will create a firebreak below the structure and slow or stop and advancing fire coming up from below.	Mostly hand felling and limbing due to slope and hazards	5
Fuels Management Program	1	Continue to develop and implement a fuels management program within the state park. This program can be utilized for future fuels reduction projects, which will help reduce the impact of fire on the state park and reduce the potential for a fire escape into neighboring communities.	N/A	N/A

**Table 52. General Wildfire Mitigation Recommendations**

Category	Priority	Description
Landscaping/Fuels	1	Maintain thinning and mowing around campground sites and fire pits.  Continue to thin vegetation and mow along access roads and trails which might be used for evacuation purposes.
Preparedness Planning/Evacuation	2	Continue to work on the park's evacuation plan, including making clear posted evacuation routes and procedures.  Post a fire danger sign at the state park entrance. Provide visitor's with information on wildfire, especially during times of high fire danger.  Establish an agreement between the RSP and the BLM in order to access the Fischer Creek area in the event of a wildfire.

**Elk Mountain Resort**

Surrounded by national forest lands on the Montrose County line, Elk Mountain Resort is considered an Area of Special Interest (ASI) due to its size and capacity to house many guests. The resort is located on 275 acres, and includes numerous structures and outbuildings. While the area could experience extreme fire behavior, it would most likely be following drought, combined with high temperatures, low relative humidity, high winds and an ignition source. The majority of the time, the probability of a fire in and around the area is low. Additionally, strict county building regulations for new construction and development ensure fire-resistant building design and adequate water supply. However, because of its size and location outside of a fire protection district, extended and linked defensible space is recommended for all structures, so that they connect to form a circular fuelbreak around the compound. Whether or not the resort is currently open is unknown at this time.

**Table 53. Elk Mountain Resort ASI Fuels Treatment Recommendations**

Name	Priority	Description	Methods	Acres*
Defensible Space	1	Defensible space around individual buildings. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing	50' around the home
Linked Defensible Space	2	Link defensible space between buildings in order to create a large fuelbreak surrounding the complex.	Hand felling and limbing near homes; mowing	50

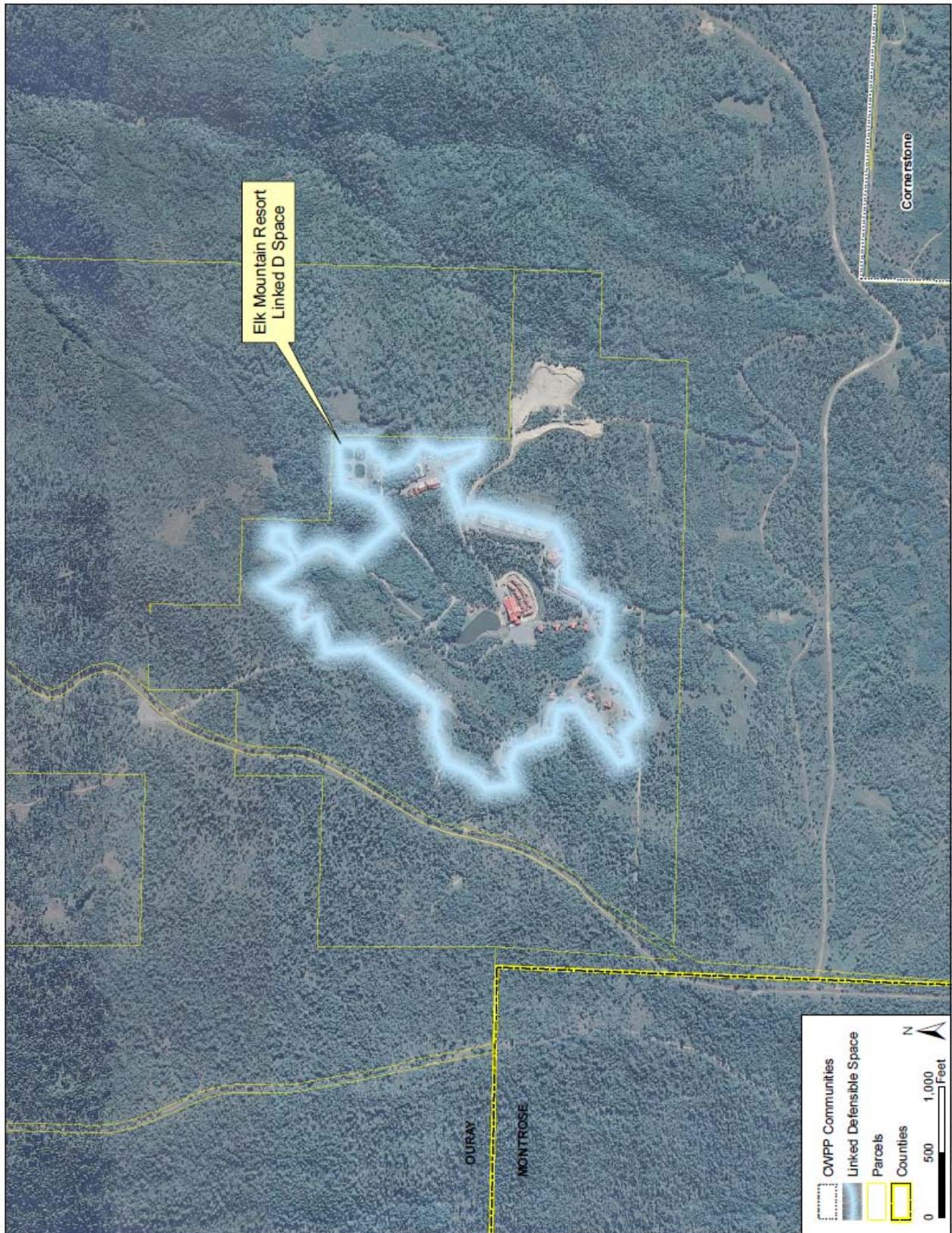
\*Acreage is estimated based on assumption of 200' wide treatment. Actual acres treated may vary once project is implemented.

**Table 54. Elk Mountain Resort ASI General Wildfire Mitigation Recommendations**

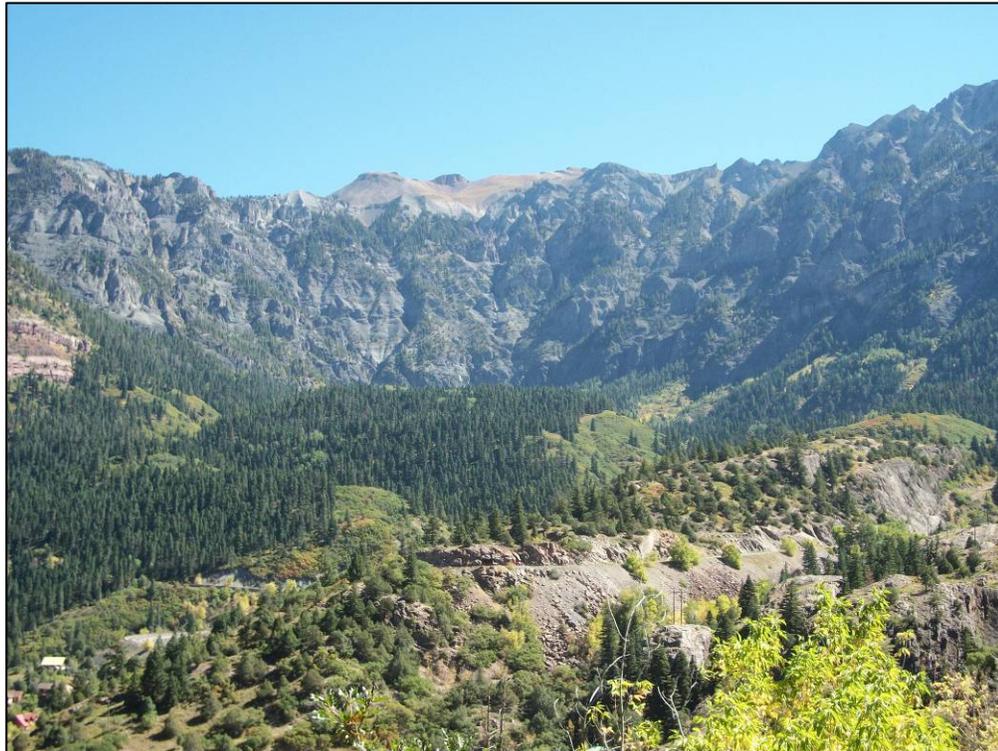
Category	Priority	Description
Building Construction	1	Discourage the use of combustible materials for decks, siding and roofs, especially where homes are upslope from heavy vegetation.  Replace any shake shingle roofs with noncombustible types, such as metal or composite shingle.  Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.
Landscaping/Fuels	2	Clean leaf and needle litter from roofs and gutters and away from foundations.  Thin vegetation along side roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.

Category	Priority	Description
		Remove wood piles and any flammable yard clutter to at least 30 feet from structures and propane tanks. Wood piles should be located uphill or even with homes; never downhill.
Preparedness Planning/Evacuation	3	<p>Add reflective addressing to all buildings. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed three to five feet above ground level.</p> <p>Ensure that all road signs and attachments are made of reflective, noncombustible materials, and that they are easily understood.</p> <p>Provide property management companies with fire safety brochures that can be distributed and made available to guests in the summer months.</p> <p>Develop an evacuation plan for the community and individual subdivisions, including identifying escape routes and an evacuation center.</p> <p>Create a community level CWPP to further refine the risk assessment and mitigation strategies.</p>
Infrastructure	4	<p>Post fire danger for the day at the gate house entrance. This information will need to be kept current.</p> <p>Provide adequate turnarounds for fire apparatus throughout the community.</p> <p>Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure that they are visible, maintained and operable.</p>

Figure 38. Elk Mountain Fuels Treatment Recommendations



**Amphitheater**



The Amphitheater Area of Special Interest (ASI) is located on national forest lands east and above the City of Ouray. The area includes a number of designated and dispersed camping areas, as well as access to hiking trails and four-wheel drive roads. Nearly all of the vegetation found within the area is susceptible to wildfire, and the potential for a human-caused ignition is possible. Moreover, because of the number of camping areas, an evacuation could be difficult. Should a wildfire occur, precaution needs to be taken to ensure the safe and orderly evacuation of visitors. An evacuation could be complicated due to the potential number of visitors, and because of steep, narrow roads that are one way in and out. In a wildfire event, the campground does contain a 1,000 gallon cistern that could potentially be used.

**Table 55. Amphitheater ASI General Wildfire Mitigation Recommendations**

Category	Priority	Description
Preparedness Planning/Evacuation	1	Develop an evacuation plan for visiting recreationists.  Post evacuation route signs along roads within the area  Post a fire danger sign at the amphitheater entrance. Provide visitor's with information on wildfire, especially during times of high fire danger.
Infrastructure	2	Develop/enhance water sources in the Amphitheater area, including a large water tank or cistern(s).

**County Road 10 Power Substation**

This power substation serves the Town of Ridgway and the surrounding area. If this substation were affected by wildfire, residents of one of the County’s major population centers could be left without power.

**Table 56. County Road 10 Power Substation Fuels Treatment Recommendations**

Name	Priority	Description	Methods	Acres
Extended Defensible Space	1	Extended defensible space is recommended for infrastructure due to its critical nature and proximity to flammable vegetation	Hand felling and limbing; mowing	Variable, depends on topography

**Communication Towers/Power Lines**

Communication towers and power lines serve a vital function during emergency operations. According to the 2008 Ouray County Multi-Hazard Mitigation Plan, several communication facilities are at risk to wildland fire in the study area. The at-risk facilities are shown below in Table 57.

**Table 57. Communication Assets at Risk to Wildland Fire**

Name of Asset
Blow Out Radio/Cell Site
Buckhorn Lakes Communication Site*
Dallas Reservoir Communication Site
Golden Crystal Communication Site
Lazy Dog Communication Site
Log Hill Mesa Communication Site
Qwest Communication Site
Road and Bridge Communication Site
Waterdog Communication Site*

\*Asset is located in Montrose County but impacts Ouray County

**Table 58. Communications/Power Lines Fuels Treatment and General Wildfire Mitigation Recommendations**

Name	Priority	Description	Methods	Acres
Extended Defensible Space	1	Extended defensible space is recommended for infrastructure located near dangerous topography (above ravines and natural chimneys, mid-slope on	Hand felling and limbing; mowing	Variable, depends on topography

Name	Priority	Description	Methods	Acres
		steep slopes, on ridge tops or summits) with heavy vegetation loads near or below the home.		
Thin Below Power Lines	1	Thin below power lines in areas of heavy fuel loadings	Hand felling and limbing; and mechanical treatments where slope and access allows	TBD
Preparedness Planning	2	All infrastructure locations should be mapped in an easily-readable format and available for all incoming resources.	N/A	N/A

\* Mechanical treatments include hydro-axe, roller chop, or brush hog

### **Ridgway Water Treatment Plant**



The Ridgway Water Treatment Plant is at risk from wildfire. A wildfire in the area could impact the amount of water available to the residents in the surrounding communities, not to mention the cost of replacing the equipment associated with the water treatment plants.

**Table 59. Ridgway WTP ASI Fuels Treatment and General Wildfire Mitigation Recommendations**

Name	Priority	Description	Methods	Acres
Extended Defensible Space	1	Extended defensible space is recommended for infrastructure due to its critical nature and proximity to flammable vegetation	Hand felling and limbing; mowing	Variable, depends on topography
Preparedness Planning	2	Maintain road access to the treatment plant at all times. Accomplish this by maintaining the road quality and thinning vegetation along sides of the roads.	Hand felling and limbing; mowing	N/A

**Town of Ridgway/Elk Meadows Watershed and City of Ouray Watershed**

Two watersheds have been identified as areas of special interest within the Ouray County study area. These watersheds are shown in red in Figure 37. A wildfire in either of these basins could have detrimental impacts to water quality and increased risk of debris flows and sedimentation.

**Historical Structures**

Ouray County’s rich history and culture is preserved in many historic buildings. Mining in particular played a predominant role in the growth and development of Ouray County as it is known today. Many historic mine structures remain intact in the county, but they are vulnerable to wildland fire. At-risk historic mine structures in Ouray County are listed and shown in the images below. Mine structure locations are also visible in Figure 37.

**Mine Structures North of Ouray**

- Jonathon Mine tram house/boarding house
- Wanakah Mine buildings
- Memphis Mine loading bins and blacksmith shop
- Almadi Mine buildings
- Old Main Mine Buildings

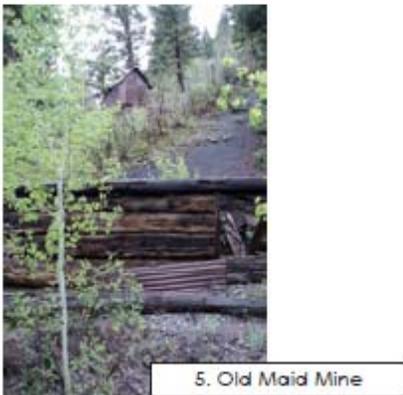
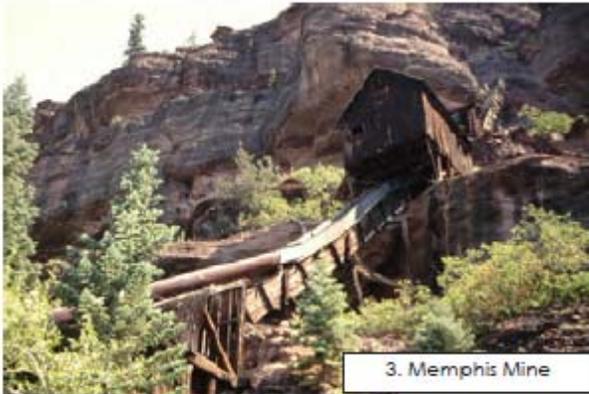
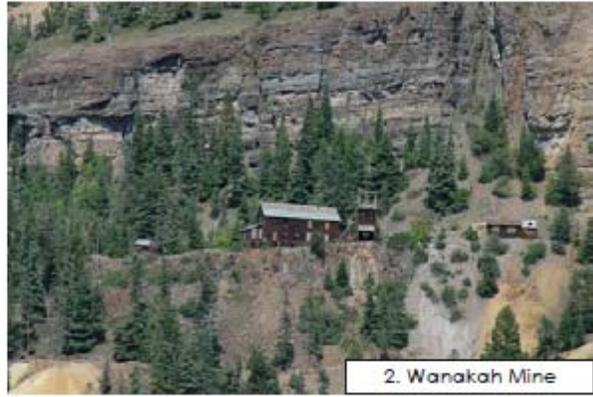
**Mine Structures South of Ouray**

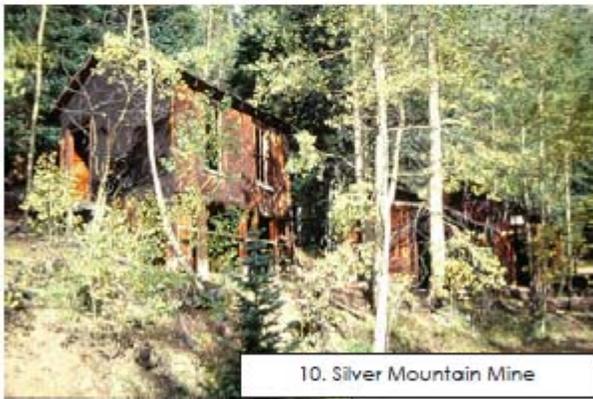
- Neosho Mine buildings
- Grizzly Bear Mine buildings
- Yellow Jacket Mine boarding house
- Lucky Twenty Mine buildings
- Silver Mountain Mine boarding house and other mine buildings on the Brown Mountain Road
- Ironton townsite
- Joker Tunnel boarding house
- Colorado Boy head frame
- Silverton Railroad’s Corkscrew Gulch Turntable

- Silverton Railroad right-of-way above and below turntable (many original ties in place)
- American Girl head frame
- Silverton Railroad loading bins at Guston
- Truck loading bins and buildings at Guston
- Yankee Girl head frame
- Genesee Vanderbilt Mine buildings

**Mine Structures West of Ouray**

- Mineral Farm Mine loading bins
- Bimetalist Mine boarding house
- Camp Bird level 14 buildings
- Camp Bird tram tower







11a. Ironton



12. Joker Tunnel Boarding House



13. Colorado Boy Head Frame



14. Silverton RR Corkscrew Turntable



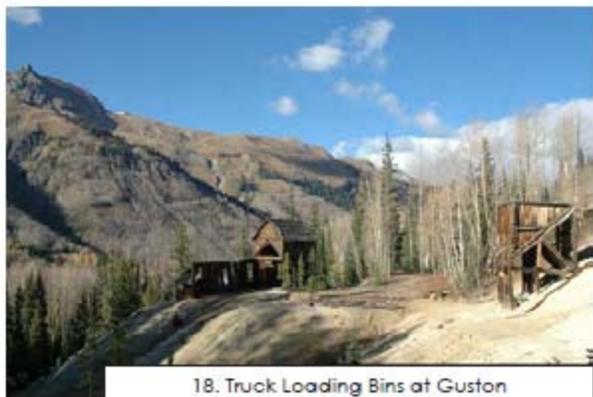
15. Silverton RR Grade



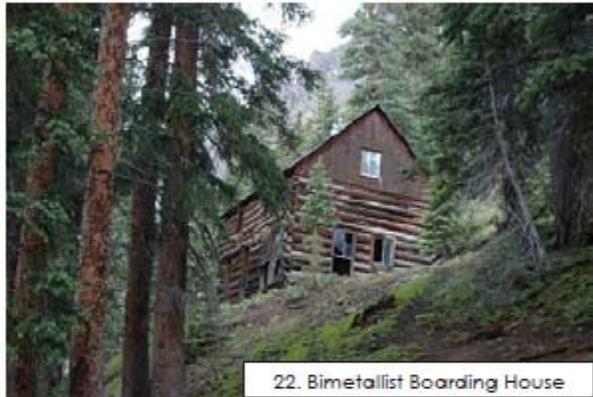
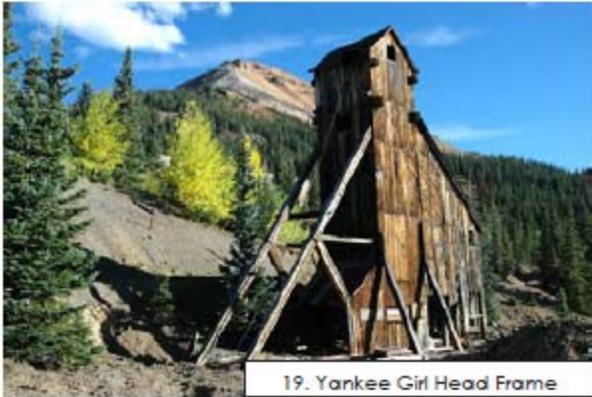
16. American Girl Head Frame



17. Silverton RR Grade Loading Bins at Guston



18. Truck Loading Bins at Guston



**Table 60. Historical Structures Fuels Treatment and General Wildfire Mitigation Recommendations**

Name	Priority	Description	Methods	Acres
Extended Defensible Space	1	Extended defensible space is recommended for all historical structures due to their locations in often dangerous topography and near heavy fuel loadings. Since they are not always a priority for protection and/or known about in the initial attack stages of an advancing wildfire, they could greatly benefit from the additional protection.	Hand felling and limbing; mowing	Variable, depends on topography
Preparedness Planning	2	All historical structure locations should be mapped in an easily-readable format and available for all incoming resources.	N/A	N/A

## CONCLUSIONS AND NEXT STEPS

The Ouray County Wildfire Protection Plan (CWPP) is a comprehensive analysis of wildfire-related hazards and risks in the Wildland Urban Interface (WUI) areas in Ouray County, Colorado. This document follows the standards for CWPPs that have been established by the Healthy Forests Restoration Act (HFRA) and Colorado State Forest Service (CSFS).

This plan and its accompanying assessment of values at risk demonstrate that Ouray County has variable, but considerable, risk to wildfires across much of the county. Much can be done to reduce this risk before the next wildfire occurs.

The results of the analysis were used to determine a variety of fuel reduction projects throughout the study area. These recommendations were initially made by Anchor Point Group, LLC, but have been vetted by the stakeholders and presented and reviewed in public meetings. Stakeholders and citizens can also use these results to guide in the decision making for additional fuel reduction projects. Recommendations focus on reducing the threat of wildfire to values within the study area. Additional recommendations are presented throughout the document, and include public education, home and street addressing, as well as water source availability. Since much of the report is technical, detailed discussions of certain elements are contained in appendices, which are included after the main CWPP document.

Local agreements and existing plans were examined in order to create a coordinated fire management effort between all parties involved. Public land management, private landowners, and resident concerns and comments were used to generate this document. The Ouray County CWPP is a multi-year, guiding document that will facilitate the implementation of future mitigation efforts. The CWPP is a living document, meaning it changes and evolves through time. Consequently, it should be revisited at least annually to assess the relevance and progress on the given recommendations. There is no official way to amend or adapt a CWPP, but any changes should be collaborative and include stakeholder representation. This process is discussed further in the Plan Monitoring and Maintenance section that follows.

## PROJECTS TO IMPLEMENT

This plan identifies mitigation recommendations or action items developed through various plan inputs and data collection and research. The following is a table of fuels treatment recommendations identified by Anchor Point Group. This table gives a summary of all of the recommended fuels reduction projects for the Ouray County study area. Each of these is depicted as a graphic within the recommendations section for the individual communities. The priority level should be used to assist in determining which fuels projects should be focused on and in what order they should be implemented. CWPP activities may be eligible for funding through state and federal grant programs, including the National Fire Plan or Title II/Title III funding.

Recommendations in this plan must be supported by stakeholders, including representatives of the community that may include homeowner's association board members or citizens. A concerted effort was made during the development of this County wide plan by the stakeholders and West Region Wildfire Council to identify Wildfire Mitigation Advocates within each community. If a Wildfire Mitigation Advocate has been identified it is indicated by a 'Y' in the table under the 'WMA Identified' column. A 'TBD' indicates that this is 'To Be Determined.' A contact list of the community Wildfire Mitigation Advocates is maintained by the West Region

Wildfire Council's Community Wildfire Protection Plan Coordinator and on file with County emergency management. If a contact has not been identified additional follow-up will be needed and the responsibility defaults to the fire chief of the community's respective fire district, or the sheriff if not located within a fire protection district.

**Table 61. Fuels Treatment Recommendations Summary Table**

Community	Community Hazard Rating	Recommended Fuels Treatment Name	Priority (1 = highest, 4 = lowest)	Wildfire Mitigation Advocate Identified? (Y/TBD)
Colona	Moderate	Individual Defensible Space	1	TBD
Cornerstone	Moderate	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
Dallas Meadows	High	Individual Defensible Space	1	Y
Dave Wood South	High	Individual Defensible Space	1	(Y in Montrose)
		Extended Defensible Space	2	
Elk Meadows	High	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
		County Road 5A Roadside Thinning	2	
		Improve/Thin Evac Route	2	
Horsefly	High	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
		Horsefly Evac Route Improvement and Thinning	2	
		Timber Ridge Roadside Thinning	3	
		Bible Camp Roadside Thinning 1	3	
		Bible Camp Roadside Thinning 2	3	
		Wildcat Canyon Roadside Thinning 1	3	
		Wildcat Canyon Roadside Thinning 2	3	
		Mariposa Roadside Thinning	3	
		Government Springs Roadside Thinning	3	

Community	Community Hazard Rating	Recommended Fuels Treatment Name	Priority (1 = highest, 4 = lowest)	Wildfire Mitigation Advocate Identified? (Y/TBD)
		Bible Camp Fuelbreak	4	
		Sims Mesa Fuelbreak	4	
		Government Springs Fuelbreak	4	
		West Horsefly Creek Fuelbreak	4	
Idlewild	High	Individual Defensible Space	1	TBD
		Extended Defensible Space	2	
		Elk Ridge Road Roadside Thinning	2	
		Elk Ridge Road Drainage Thinning	3	
		Idlewild Linked Defensible Space	3	
Juniper Hills	High	Individual Defensible Space	1	TBD
		Juniper Hills This/Mow Along Access Road	2	
Lake Lenore/ Panoramic Heights	High	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
		County Road 14 Roadside thinning	2	
		Lake Lenore Safety Zone Enhancement	3	
Log Hill Village/ Fairway Pines	Very High	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
		County Road 1 Roadside Thinning	2	
		Ponderosa Drive/County Road 1 Evac Improvement and Thinning	2	
		County Road 1 Roadside Fuelbreak	3	
		Log Hill Mesa Linked Defensible Space	3	

Community	Community Hazard Rating	Recommended Fuels Treatment Name	Priority (1 = highest, 4 = lowest)	Wildfire Mitigation Advocate Identified? (Y/TBD)
		Log Hill Village Drainage Thinning Fuelbreak	4	
Mineral Farms	Very High	Individual Defensible Space	1	TBD
		Extended Defensible Space	2	
North Log Hill Mesa	High	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
		Horsefly Evac Route Improvement and Thinning	2	
		County Road 22 Roadside Thinning	3	
		Cactus Road Roadside Thinning	3	
		County Road 1 Roadside Thinning	3	
		County Road 22A Roadside Thinning	3	
		Snowbush Road Roadside Thinning	3	
		Sage Road Roadside Thinning	3	
		Coral Road Roadside Thinning	3	
		Tiyoweh Trail Roadside Thinning	3	
		Coral Belt Fuelbreak	3	
Ouray	Moderate	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
Park Estates	Very High	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
		Improve/Thin Evac Route	2	
		Elk Ridge Road Roadside Thinning	2	
		Elk Ridge Road Drainage Thinning	3	
Piedmont Hills/ Vista Heights	Very High	Individual Defensible Space	1	TBD
		Extended Defensible Space	2	

Community	Community Hazard Rating	Recommended Fuels Treatment Name	Priority (1 = highest, 4 = lowest)	Wildfire Mitigation Advocate Identified? (Y/TBD)
		Piedmont Drive Roadside Thinning	2	
		Highway 550 Roadside Thinning/Mowing 1	3	
		Piedmont Hills/Vista Heights Drainage Thinning	3	
Pleasant Valley	Very High	Individual Defensible Space	1	TBD
		Extended Defensible Space	2	
		McClure Roadside Thinning	2	
		Soaring Eagle Roadside Thinning	2	
		Pleasant Valley Drive Roadside Thinning	2	
		Catamount Drive Roadside Thinning	2	
		Penn Crest Roadside Thinning	2	
		County Road 1 Roadside Thinning	2	
		County Road 24 Roadside Thinning/Mowing	3	
Ponderosa Village/ Indian Springs	Very High	Individual Defensible Space	1	TBD
		Extended Defensible Space	2	
		Redstone Road Roadside Thinning	2	
		Highway 550 Roadside Thinning/Mowing 2	3	
Ridgway	Moderate	Individual Defensible Space	1	Y
Silverado Estates	Very High	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
		Silverado Estates Egress Thinning	2	
		Silverado Estates Linked Defensible Space/Fuelbreak	3	
		Silverado Estates Drainage Thinning 1	4	

Community	Community Hazard Rating	Recommended Fuels Treatment Name	Priority (1 = highest, 4 = lowest)	Wildfire Mitigation Advocate Identified? (Y/TBD)
		Silverado Estates Drainage Thinning 2	4	
Vista Terrace	High	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
		Vista Terrace Improve and Thin/Mow Secondary Egress Route	2	
Whispering Pines	High	Individual Defensible Space	1	Y
		Extended Defensible Space	2	
County Road 10 Power Substation ASI		Individual Defensible Space	1	N/A
Communication Towers/Power Lines ASI		Individual Defensible Space	1	N/A
Elk Mountain Resort ASI		Defensible Space around buildings	1	N/A
		Elk Mountain Resort Linked Defensible Space	2	
Historical Structures ASI		Individual Defensible Space	1	N/A
Ridgway State Park ASI		Ridgway State Park Visitor's Center Fuelbreak	1	N/A
		Fuels Management Program	2	
Ridgway Water Treatment Plant ASI		Individual Defensible Space	1	N/A

These recommendations are not a prescription for the area, and any project to be undertaken should be done in conjunction with a trained forester. The projects detailed in the CWPP are not the only projects that are viable within the planning area; they are the most achievable for the communities. Landscape scale projects are excellent options as well, but often require multiple communities working with federal, state and county government. As support and community involvement grow through these smaller projects, the larger treatments become more obtainable. Additional projects at all scales should be considered by the core stakeholder group, especially as Ouray County begins to complete the initial projects identified in the CWPP.

The following table represents other recommendations that were identified during the planning process. These recommendations are not fuels treatment recommendations but they contribute to wildfire mitigation in Ouray County to protect life safety, property, and other values at risk.

**Table 62. Countywide Additional Wildfire Mitigation Recommendations Summary Table**

Action Item*	Implementation Lead
Utilize and enforce Ouray County Wildfire Mitigation Regulations-Section 24 of the Ouray County Land Use code (amended Sept 2006)	County
Explore resolving apparent conflict between Ouray County Wildfire Mitigation Regulations and Visual Impact regulations	County, HOAs
Explore adoption of Road and Bridge Committee address number standards and develop a mechanism to implement those standards easily.	County
The County should consider an increase to the setback requirements from the Log Hill Mesa and other escarpments.	County
Sponsor community chipper operations and designated burn areas.	FPDs, HOAs, County
Complete Ponderosa Drive from about the 3500 block out to County Road 1 & 1A to help in the ingress of firefighting equipment, and egress of the citizens in the Northeast portion of Log Hill Village and Water View subdivision. Include evacuation route signage	County
Explore risk to power infrastructure leading to Dallas Creek Water facilities	Dallas Creek Water
Explore risk to power infrastructure leading to Ridgeway Water facilities	Ridgeway Town
Require call-in to County Emergency Management to burn slash piles	County
Increase public awareness of the Fire Safety Rating for New Residential Structures in the Ouray County Wildfire Mitigation Regulations- Section 24 of the Ouray County Land Use code	County
Obtain “Smokey Bear” or other signs for use along entrances to communities to inform the public of the current fire danger and to promote fire prevention. Ensure that fire danger messages are kept up-to-date with Daily Fire Danger broadcast to maintain credibility and effectiveness.	County, state, FPDs, communities, HOAs
Ouray County needs to fit its two water tanker trucks with “port-a-ponds” to comply with guidelines in the Annual Wildfire Operating Plan and to be useful as a resource in event of a fire.	County

\*Additional background and general recommendations are provided in Appendix A.

In addition to these recommendations, the 2008 Ouray County Multi-Hazard Mitigation Plan identified and prioritized mitigation projects related to wildland fire. A sample of these includes the following:

- Continue to reduce impacts of wildfire to future development through land use planning, subdivision reviews, permitting, and building codes

- Review the County wildfire mitigation standards code against the National Fire Protection Association model and modify the Ouray County code if appropriate (moderate priority)
- Review County wildfire regulations with insurance industry (moderate priority)
- Complete ISO reevaluation of Log Hill Mesa Fire Protection District (moderate priority)
- Explore adding the development of a community wildfire protection plan and defensible space as requirements for subdivision planned unit development approvals (low priority)

Please refer to the 2008 Ouray County Multi-Hazard Mitigation Plan for more detail.

To facilitate implementation, each action item, such as fuel modification, public education, etc. can be populated into the provided worksheet on the next page to organize information on key issues, develop ideas for implementation, coordinate and partner organizations, generate a timeline, and plan goals addressed.

The West Region Wildfire Council (WRWC) combines federal, state, county and local representatives from Delta, Gunnison Hinsdale, Montrose, Ouray and San Miguel Counties. The WRWC strives to prepare counties, fire protection districts, communities and interagency fire management partners to plan for and mitigate the potential threats from wildland fire. By promoting wildfire preparation, prevention and mitigation education, the WRWC strives to better mitigate the threat of catastrophic wildland fire to communities and natural resources. The West Region Wildfire Council CWPP Coordinator helps to facilitate the implementation of hazard reduction recommendations outlined in this plan and other community specific CWPPs. Information regarding wildfire mitigation, funding opportunities, your community's Wildfire Mitigation Advocate and other services available through the West Region Wildfire Council can be obtained by contacting the Council's CWPP Coordinator. 102 Par Place Suite #1 Montrose, CO 81401. [wrrwc.lilia@gmail.com](mailto:wrrwc.lilia@gmail.com) (970)249-9051 ext. 125

**Action Item Worksheet**

**Proposed Action Item Identification:**

*(Each action item includes a list of the key issues that the activity will address. Action items should be fact based and tied directly to issues or needs identified through the planning process.)*

**Proposed Action Title:**

*(Utilize the appropriate recommendation name or title in the CWPP.)*

**Rationale for Proposed Action Item:**

*(Utilize any justification or report language in the CWPP.)*

**Ideas for Implementation (Optional):**

*(Each action item includes ideas for implementation and potential resources. This information offers a transition from theory to practice. The ideas for implementation serve as a starting point for this plan. This component is dynamic in nature, as some ideas may be not feasible and new ideas may be added during the plan maintenance process. Report graphics can add value to this section.)*

**Coordinating Organization:**

**Internal Partners:**

*(Internal partners are members of the CWPP advisory committee and may be able to assist in the implementation of action items by providing relevant resources to the coordinating organization.)*

**External Partners:**

*(External partner organizations can assist the coordinating organization in implementing the action items in various ways. Partners may include local, regional, state, or federal agencies, as well as local and regional public and private sector entities.)*

**Timeline:**

**Short Term (0-2 years)**

*(Action items or activities that may be implemented with existing resources and authorities within one to two years.)*

**Long Term (2-4 or more years)**

*(Action items or activities that may require new or additional resources and/or authorities, and may take from one to five years to implement.)*

**If available, estimated cost:**

## **FUNDING SOURCES**

Often the biggest hurdle to overcome when trying to implement a CWPP or wildfire mitigation projects is funding. By having an official CWPP, a multitude of funding sources becomes available to complete the work outlined in the plan. Federal, national, state and county funds are available to begin treatments. The list below is not all-inclusive, but it provides many of the most commonly available sources. Links to more funding sources can be accessed from these sites. The Resources for Implementing CWPP Recommendations section on the pages that follow the Glossary have a more complete list.

[http://www.firewise.org/usa/grant\\_funding\\_sources.htm](http://www.firewise.org/usa/grant_funding_sources.htm)

<http://csfs.colostate.edu/pages/funding.html>

<http://csfs.colostate.edu/pdfs/Landowner-Assistance-Programs-rev112610.pdf>

<http://rockymountainwildlandfire.info/grants.htm>

<http://www.anchorpointgroup.com/resources.html>

## **PLAN MONITORING AND MAINTENANCE**

The Ouray County 2011 CWPP should be considered a living document, requiring regular maintenance, updates, and monitoring/evaluation of progress of recommended wildfire mitigation actions. The Ouray County CWPP development team should revisit the plan annually to make evaluations and updates as progress, roadblocks, or changing circumstances are recognized. It is recommended that the document should also be formally updated every five years. Events or circumstances that may warrant updating the CWPP include, but are not limited to, progress on recommended fuels treatments and wildfire mitigation actions, progress on preparedness planning and community-level CWPP development, new housing/structural development in Ouray County that may require identification of a new CWPP community, large-scale wildland fire events in the County, and/or changes in the Wildfire Mitigation Advocates for the CWPP communities.

## GLOSSARY

The following definitions apply to terms used in the Ouray County Community Wildfire Protection Plan.

**1-hour time lag fuels:** Grasses, litter and duff; <1/4 inch in diameter

**10-hour time lag fuels:** Twigs and small stems; 1/4 inch to 1 inch in diameter

**100-hour time lag fuels:** Branches; 1 to 3 inches in diameter

**1000-hour time lag fuels:** Large stems and branches; >3 inches in diameter

**Active Crown Fire:** This is a crown fire in which the entire fuel complex – all fuel strata – become involved, but the crowning phase remains dependent on heat released from the surface fuel strata for continued spread (also called a Running Crown Fire or Continuous Crown Fire).

**Chain:** A chain is a unit of measurement that equals 66 feet. It is normally used as the measure of the rate of spread of wildfires or as a production rate for wildland fire apparatus or crews (chains per hour).

**Chimney:** A steep and narrow drainage which has the potential to funnel winds and greatly increase fire behavior. Due to this increase, the tops of chimneys are especially hazardous areas.

**Citizen Safety Zone:** An area that can be used for protection by residents in the event that the main evacuation route is compromised. The area should be cleared of fuels and otherwise well maintained. It should be large enough for all residents of the area to survive an advancing wildfire without special equipment or training.

**Crown Fire (Crowning):** The movement of fire through the crowns of trees or shrubs; may or may not be independent of the surface fire.

**Defensible Space:** An area around a structure where fuels and vegetation are modified cleared or reduced to slow the spread of wildfire toward or from the structure. The design and distance of the defensible space is based on fuels, topography, and the design/materials used in the construction of the structure.

**Energy Release Component:** An index of how hot a fire could burn. ERC is directly related to the 24-hour, potential worst case, total available energy within the flaming front at the head of a fire.

**Extended Defensible Space** (also known as Zone 3): This is a defensible space area where treatment is continued beyond the minimum boundary. This zone focuses on forest management with fuels reduction being a secondary consideration.

**Fine Fuels:** Fuels that are less than 1/4-inch in diameter, such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash which, when dry, ignite readily and are consumed rapidly.

**Fire Behavior Potential:** The expected severity of a wildland fire expressed as the rate of spread, the level of crown fire activity, and flame length. This is derived from fire behavior modeling programs using the following inputs: fuels, canopy cover, historical weather averages, elevation, slope, and aspect.

**Fire Danger:** In this document we do not use this as a technical term, due to various and nebulous meanings that have been historically applied.

**Fire Hazard:** Given an ignition, the likelihood and severity of Fire Outcomes (Fire Effects) that result in damage to people, property, and/or the environment. The hazard rating is derived from the Community Assessment and the Fire Behavior Potential.

**Fireline Intensity:** The rate of heat energy related during combustion per unit length of fire front. It is usually expressed in BTUs/second/foot.

**Fire Mitigation:** Any action designed to decrease the likelihood of an ignition, reduce Fire Behavior Potential, or to protect property from the impact of undesirable Fire Outcomes.

**Fire Outcomes, AKA Fire Effects:** This is a description of the expected effects of a wildfire on people, property and/or the environment, based on the Fire Behavior Potential and physical presence of Values at Risk. Outcomes can be desirable as well as undesirable.

**Fire Risk:** The probability that an ignition will occur in an area with potential for damaging effects to people, property, and/or the environment. Risk is based primarily on historical ignitions data.

**FlamMap:** A software package created by the Joint Fire Sciences Program, Rocky Mountain Research Station. The software uses mapped environmental data such as Elevation, Aspect, Slope, and Fuel Model, along with fuel moisture and wind information, to generate predicted fire behavior characteristics such as Flame Length, Crown Fire Activity, and Spread Rate.

**Flame Length:** The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface)—an indicator of fire intensity.

**Fuelbreak:** A natural or constructed discontinuity in a fuel profile that is used to isolate, stop, or reduce the spread of fire. Fuelbreaks may also make retardant lines more effective and serve as control lines for fire suppression actions. Fuelbreaks in the WUI are designed to limit the spread and intensity of crown fire activity.

**Incident Command System (ICS):** ICS is a standardized all-hazards management approach that establishes common procedures for responding to and managing emergency incidents; establishes a common communications protocol; and enables a coordinated response among multiple agencies and/or jurisdictions.

**National Fire Incident Reporting System (NFIRS):** A national database of fire incident information created by the National Fire Data Center of the United States Fire Administration. NFIRS is designed to help State and local governments gather fire incident data to develop fire reporting and analysis capabilities and to help assess and address fire danger in the United States. State and local participation in NFIRS is voluntary.

**Passive Crown Fire:** A crown fire in which individual or small groups of trees torch out (candle), but solid flaming in the canopy fuels cannot be maintained except for short periods.

**Roadside thinnings** are broken down into three categories (roadside thinning, roadside thinning for evacuation, roadside thinning and evacuation route improvement). The purpose of breaking these down is to help with planning and implementation as well as to differentiate between the priorities of life safety and fire control. It also allows for better planning for grant funding based on the different costs and effort required to implement the various type of projects. These are described further below:

**Roadside thinning:** The primary purpose of this project is to increase the ability of firefighters to successfully use the existing road as a control line in the event of a fire.

**Roadside thinning for evacuation route:** This thinning is located along an existing road which is maintained at a level which can accommodate civilian and fire traffic. The purpose of the thinning is to reduce the fire impacts along that road. This allows the safe evacuation of civilians and safe access to firefighters, by mitigating the fire impacts, due to the maintenance of the road, improvement to the evacuation route itself is not necessary.

**Roadside thinning and evacuation route improvement:** This thinning is focused along an existing road, usually a Forest Service road, which is unmaintained or maintained to the level of a 4x4 trail. The recommendation is to thin the area along the road to reduce the impacts of fire and improve the quality of the road so that it is passable for all vehicles. This will improve life safety by adding a more broadly usable egress for civilians and an additional access for firefighters.

**Shelter-in-Place Areas:** A method of protecting the public from an advancing wildfire that involves instructing people to remain inside their homes or public buildings until the danger passes. This concept is new to wildfire in the United States, but not to hazardous materials incident response, where time, hazards, and sheer logistics often make evacuation impossible. This concept is the dominant modality for public protection from wildfires in Australia, where fast-moving, short-duration fires in light fuels make evacuation impractical. The success of this tactic depends on a detailed preplan that takes into account the construction type and materials of the building used, topography, depth and type of the fuel profile, as well as current and expected weather and fire behavior.

**Stand Pipe:** A fixed pipe attached to a water source located at an easily accessible point which allows firefighters to draft from the water source more efficiently.

**Structural Triage:** The process of identifying, sorting, and committing resources to a specific structure.

**Surface Fire:** A fire that burns in the surface litter, debris, and small vegetation on the ground.

**Time lag:** Time needed under specified conditions for a fuel particle to lose about 60% of the difference between its initial moisture content and its equilibrium moisture content.

**Values at Risk:** People, property, ecological elements, and other human and intrinsic values within the project area. Values at Risk are identified by inhabitants as important to the way of life in the study area, and are particularly susceptible to damage from undesirable fire outcomes.

**WHR (Community Wildfire Hazard Rating, AKA Community Assessment):** A 140-point scale analysis designed to identify factors that increase the potential for and/or severity of undesirable fire outcomes in WUI communities.

**WUI (Wildland Urban Interface):** The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. This is sometimes referred to as Urban Wildland Interface, or UWI.

## RECOMMENDED READING

Anderson, H. E., *Aids to Determining Fuel Models for Estimating Fire Behavior*, National Wildfire Coordinating Group, NFES 1574, April 1982.

*At Home in the Woods – Lessons Learned in the Wildland/Urban Interface*, FEMA, 2004.

Bachmann, A., and Allgower, B., *A Consistent Wildland Fire Risk Terminology is Needed!*, Fire Management Today (61, 4), USDA Forest Services, Washington, DC, Fall 2001.

Dennis, F.C., *Fuelbreak Guidelines for Forested Subdivisions*, Colorado State Forest Service, Colorado State University, 1983.

*Developing a Cooperative Approach to Wildfire Protection*, National Wildland Urban Interface Fire Protection Program.

*Development Strategies in the Wildland/Urban Interface*, International Association of Fire Chiefs and Western Fire Chiefs Association, Billings, Montana, July 1991.

*Firefighter Safety in the Wildland/Urban Interface – A Video Series* (VHS Video - 60 Minutes.), National Wildland/Urban Interface Fire Program, 2003.

*Fires that Changed the Fire Service – Wildlands* (VHS Video – 84 Minutes.), American Heat, March 2000.

*FireSmart – Protecting Your Community from Wildfire*, Partners in Protection, Edmonton, Alberta, Canada, May 1999.

Hirsch, K.G., Pinedo, M.M., and Greelee, J.M., *An International Collection of Wildland Urban Interface Resource Materials*, Information Report NOR-X-344, Canadian Forest Service – Northwest Region – Northern Forestry Centre, 1996.

*Home Improvement: A Firewise Approach* (VHS Video – 15 Minutes.), 2003.

*Introducing Firewise Communities Workshops* (VHS Video– 6 Minutes.), Firewise Communities, Quincy, MA.

Mangan, R. J., *Improving Firefighter Safety in the Wildland-Urban Intermix*, FE02P16 – USDA Forest Service Technology and Development Program, Missoula, Montana, Feb. 2000.

*National Wildland/Urban Interface Fire Protection Program Building a Fire wise Home* (VHS Video – 20 Minutes.), Hearst-Argyle Television Productions, Needham, MA, Nov. 1997.

Langowski, P., *Fire and Fuels Analysis to Support Project Planning*, Nov. 2003.

*Preparing a Community Wildfire Protection Plan – a Handbook for Wildland Urban Interface Communities*, Sponsored by: Communities Committee, National Association of Counties, National Association of State Foresters, Society of American Foresters, Western Governors' Association, March 2004.

Queen, Phillip L., *Fighting Fire in the Wildland/Urban Interface*, Fire Publications, Inc., Bellflower, California, 1993.

Quincy, M.A., *Wildfire! Preventing Home Ignitions!* (VHS Video – 19 Mins.), Firewise Communities,

Slaughter, R. (ed.), *California's I-ZONE – Urban/Wildland Fire Prevention & Mitigation*, Sacramento, California, Jan. 1996.

*Standard for Protection of Life and Property from Wildfire*, NFPA 1144(02) (Formerly NFPA 299) National Fire Protection Association, Quincy, MA, 2002.

*Southwest Community Wildfire Protection Plan Guide*, Southwest Strategy, 2004.

*Urban-Wildland Interface Code™*, International Fire Code Institute, Whittier, California, Jan. 2000.

White, C., *Dry Hydrant Manual – A Guide for Developing Alternative Water Sources for Rural Fire Protection*, Developed for Summit County, Colorado.

*Wildland/Urban Interface Fire Hazard Assessment Methodology*, Developed by National Wildland/Urban Interface Fire Protection Program.

*Wildland/Urban Interface Fire Policy Action Report*, Western Governors' Association, Feb. 1996.

## RESOURCES FOR IMPLEMENTING CWPP RECOMMENDATIONS

There are many sources of funds and technical assistance available for implementing the recommendations within the CWPP. Some available grants and websites where more information can be found are provided below.

- **West Region Wildfire Council (WRWC)**
  - Purpose: The West Region Wildfire Council supports interagency efforts to develop and implement plans to mitigate the threat of catastrophic wildland fire to communities and natural resources in Delta, Gunnison, Hinsdale, Montrose, Ouray and San Miguel counties. The WRWC promotes information sharing and collaboration between local communities and state and federal fire managers for fuels management, wildfire suppression, enhancing capability, planning and collaboration. The WRWC has "mini grants" to help provide seed money to implement wildfire mitigation projects.
  - More information:  
wrrwc.lilia@gmail.com;  
102 Par Place, Suite 1,  
Montrose, CO 81401;  
970-249-9051 ext 125.
- **Colorado State Forest Service**
  - Purpose: to help homeowners and landowners promote healthy and sustainable forest conditions. One of the ways CSFS does this is by emphasizing action on state, private, and other non-federal lands, and providing technical and financial assistance to those that have demonstrated a willingness and/or commitment to effectively manage their property.
  - Tax exemption for wildfire mitigation work: Colorado landowners with property located in a Wildland Urban Interface area also may qualify to receive a tax exemption for the costs of wildfire mitigation work. As authorized by §39-22-104(4)(n), C.R.S., for income tax years 2009 through 2013 individuals, estates and trusts may subtract from federal taxable income 50 percent of the costs incurred in performing wildfire mitigation measures.
  - More information:  
<http://csfs.colostate.edu/pages/programs-home-land-owners.html>  
<http://csfs.colostate.edu/pages/funding.html>  
<http://csfs.colostate.edu/pdfs/Landowner-Assistance-Programs-rev112610.pdf>
- **Federal Emergency Management Agency (FEMA)**
  - **Assistance to Firefighters Grant Program**
    - Purpose: to improve firefighting operations, purchase firefighting vehicles, equipment and personal protective equipment, fund fire prevention programs, and establish wellness and fitness programs.
    - More information: <http://www.fema.gov/firegrants/>
  - **Hazard Mitigation Assistance Grant Program (HMGP)**
    - Purpose: The Hazard Mitigation Grant Program provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to

- enable mitigation measures to be implemented during the immediate recovery from a disaster.
    - <http://www.fema.gov/government/grant/hmcp/index.shtm>
  - **Pre-Disaster Mitigation Grant Program (PDM)**
    - Purpose: The Pre-Disaster Mitigation program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations.
    - <http://www.fema.gov/government/grant/pdm/index.shtm>
- **Firehouse.com**
  - Purpose: emergency services grants.
  - More information: [www.firehouse.com/funding/grants.html](http://www.firehouse.com/funding/grants.html)
- **Firewise Communities**
  - Firewise is a multi-agency organization designed to increase homeowners', community leaders', developers', and others' education on the Wildland Urban Interface and the actions they can take to reduce fire risk to protect lives, property, and ecosystems. A summary of grant funding sources can be found on the Firewise website.
  - [http://www.firewise.org/usa/grant\\_funding\\_sources.htm](http://www.firewise.org/usa/grant_funding_sources.htm)
- **Homeland Security, Office for Domestic Preparedness**
  - Purpose: to assist local, state, regional, or national organizations in addressing fire prevention and safety. The emphasis for these grants is the prevention of fire-related injuries to children.
  - More information: <http://www.firegrantsupport.com/>
- **National Volunteer Fire Council**
  - Purpose: to support volunteer Fire Protection Districts.
  - More information: <http://www.nvfc.org/federalfunding.html>
- **Natural Resources Conservation Service (NRCS) Emergency Watershed Protection Program (EWP)**
  - Purpose: The purpose of the Emergency Watershed Protection program is to undertake emergency measures, including the purchase of flood plain easements, for runoff retardation and soil erosion prevention to safeguard lives and property from floods, drought, and the products of erosion on any watershed whenever fire, flood or any other natural occurrence is causing or has caused a sudden impairment of the watershed.
  - <http://www.nrcs.usda.gov/programs/ewp/>
- **USDA Community Facilities Grant Program**
  - Purpose: to help rural communities. Funding is provided for fire stations.
  - More information: [www.rurdev.usda.gov/rhs/](http://www.rurdev.usda.gov/rhs/)
- **US Forest Service, Economic Action Programs**
  - Cooperative Forestry Assistance
  - Purpose: to assist in the advancement of forest resources management, the control of insects and diseases affecting trees and forests, the improvement and maintenance of fish and wildlife habitat, and the planning and conduct of urban and community forestry programs.
  - <http://www.fs.fed.us/spf/coop/>
- **Uncompahgre Partnership**

- Purpose: To develop a collaborative approach to improve the ecosystem health and natural functions of the landscape, using best available science, community input, and adaptive management.
- <http://www.upartnership.org/>

### **Other Grants and Information Sources**

Environmental Protection Agency Catalog of Federal Funding Sources for Watershed Protection  
<http://cfpub.epa.gov/fedfund>

ESRI Grant Assistance program for (Geographic Information System) GIS users  
<http://www.esri.com/grants>

The Fire Safe Council  
<http://www.FireSafeCouncil.org>

Fire Regime Condition Class  
<http://www.frcc.gov/>, July 2005.

FRAMES -- Fire Research and Management Exchange System,  
<http://frames.nbii.gov>

Federal Grant opportunities search website  
[www.grants.gov](http://www.grants.gov)

Interagency Wildland Fire Communications Group – Rocky Mountain Area  
<http://www.rockymountainwildlandfire.info/grants.htm>

National Association of State Foresters  
<http://stateforesters.org/>

National Database of State and Local Wildfire Hazard Mitigation Programs  
<http://www.wildfireprograms.com>, January 2010.

National Fire Protection Association Standards  
Standard for Protection of Life and Property from Wildfire, NFPA 1144  
Standard for Protection of Life and Property from Wildfire, NFPA 299  
[http://www.nfpa.org/aboutthecodes/list\\_of\\_codes\\_and\\_standards.asp](http://www.nfpa.org/aboutthecodes/list_of_codes_and_standards.asp)

## APPENDIX A: GENERAL RECOMMENDATIONS

The following categories have been identified as areas that the county, its residents, and fire protection districts should focus on to mitigate wildfire impacts: defensible space, home construction, landscaping/fuels, preparedness planning, infrastructure, public education, and water source supply. Recommendations are provided for each category in the tables that follow. **To improve life safety and preserve property, every home in the study area should have compliant, effective defensible space.** Defensible space is THE MOST IMPORTANT action an individual can take to protect their home. Defensible space recommendations are discussed in a separate section following the summary tables.

All of the general recommendations are summarized in the following tables. Not every recommendation is applicable for every community, and as a result, local fire districts, land management agencies, stakeholders, and citizens should work together to determine the exact actions that need to be taken within individual communities. Implementation of the actions will be a shared responsibility in many cases and include individual homeowners, homeowners associations (HOA), County staff, fire protection districts (FPDs), and other stakeholders. Suggestions for an implementation lead are identified for each action. Coordination and collaboration with the West Region Wildfire Council (WRWC) is also encouraged for many of these activities. A summary table of all the specific fuels reduction recommendations within the county can be found in the Conclusions and Next Steps section in the main document.

Additional details on recommendations and issues specific to the recommended action items are discussed in text that follows the summary tables.

**Table A1. Home Construction Recommendations**

Action Items	Implementation Lead
Utilize and enforce Ouray County Wildfire Mitigation Regulations-Section 24 of the Ouray County Land Use code (amended Sept 2006)	County
Post reflective house numbers so that they are clearly visible from the main road. Reflective numbers should also be visible on the structure itself.	Individual homeowners
Explore resolving apparent conflict between Ouray County Wildfire Mitigation Regulations and Visual Impact regulations	County, HOAs
The County should consider an increase to the setback requirements from the Log Hill Mesa and other escarpments.	County
Discourage the use of combustible materials for decks, siding, and roofs, especially where homes are upslope from heavy vegetation.	Individual homeowners, HOAs, County
Maintain and clean spark arresters on chimneys.	Individual homeowners
Enclose under decks so firebrands do not fly under and collect.	Individual homeowners
Use glass skylights; plastic will melt and allow embers into the home.	Individual homeowners
Enclose eaves and soffits.	Individual homeowners
Use nonflammable fencing, such as metal, if fence is attached to the house.	Individual homeowners
Cover openings with 1/8" metal screen to block fire brands and embers from collecting under the home or deck.	Individual homeowners
Use rated roofing material. Replace any shake shingle roofs with noncombustible types.	Individual homeowners, HOAs, County
Use fire resistant building materials on exterior walls.	Individual homeowners
Eliminate any covenants or deed restrictions that require or endorse the use of flammable building materials such as shake shingle roofs. This is addressed for new development in Section 24 of the County Land Use Code.	HOAs, County

**Table A2. Landscaping and Fuels Recommendations**

<b>Action Items</b>	<b>Implementation Lead</b>
Consistently maintain defensible space, see CSFS 6.302.	Individual homeowners, HOAs
Sponsor community chipper operations and designated burn areas.	FPDs, HOAs, County
Encourage individual landowners to mow or weed whack fuels near homes and along roadways and fence lines during times of high fire danger.	Individual homeowners, HOAs, FPDs
Clean roof and gutters at least twice a year, especially as vegetation begins to cure in the autumn.	Individual homeowners
Stack firewood uphill or on a side contour, at least 30 feet away from structures, outbuildings, and other infrastructure, such as propane tanks and power poles.	Individual homeowners, HOAs
Do not store combustibles or firewood under decks or downhill.	Individual homeowners, HOAs
When possible, maintain an irrigated greenbelt around the home. Be sure to mow grass regularly, especially along roads and fence lines.	Individual homeowners, HOAs
Trees and vegetation along driveways should be thinned as necessary to maintain a minimum 15' vertical and horizontal clearance for emergency vehicle access along driveways. This includes removing ladder fuels, which are low lying branches that allow a fire to climb from the ground into tree canopies.	Individual homeowners, HOAs
Focus on removing vegetation in drainages that intersect roads or are under bridges.	Individual homeowners, HOAs
Consider a block wall of nonflammable material around the perimeter of a yard.	Individual homeowners
Use pavers, rock, slate, grass or xeriscaping to break up the landscape and create a fuel break.	Individual homeowners
Use groupings of potted plants that include succulents and other drought and fire resistant vegetation.	Individual homeowners
Use faux brick and stone finishes and annuals and perennials with high moisture content.	Individual homeowners
Use grass and driveways as fuel breaks from the house.	Individual homeowners

**Table A3. Preparedness Planning Recommendations**

Action Items	Implementation Lead
Connect, and have available, a minimum of 50 feet of garden hose to extinguish small fires before they spread.	Individual homeowners
Consider achievement of nationally designated 'Firewise Community/USA' status for communities in this plan	Communities, County, FPDs
Have nearby evacuation centers for citizens and staging areas for fire resources. This is especially important in communities with single access and a high population density.	County, FPDs
Identify and pre-plan primary escape routes for all CWPP communities. Emergency management personnel should be included in the development of pre-plans for citizen evacuation. Re-evaluate and update these plans as necessary and include presentation and distribution of plan to residents.	County, FPDs
Educate citizens on the proper escape routes and evacuation centers to use in the event of an evacuation. This also applies to animal rescue.	County, FPDs
Identify areas where large animal evacuation is an issue and develop a plan for evacuation.	County, FPDs
Perform response drills to determine the timing and effectiveness of escape routes and fire resource staging areas.	County, state, FPDs
Ensure the existing reverse 911 system includes wildfire notifications.	County
Maintain or develop pre-attack/operational plans for the study area. The pre-attack plan assists fire agencies in developing strategies and tactics that will mitigate damage when incidents do occur.	County, FPDs
Create additional community level CWPP's, particularly those communities with a high or greater hazard rating.	County, FPDs

**Table A4. Infrastructure Recommendations**

Action Item	Implementation Lead
Complete Ponderosa Drive from about the 3500 block out to County Road 1 & 1A to help in the ingress of firefighting equipment, and egress of the citizens in the Northeast portion of Log Hill Village and Water View subdivision. Include evacuation route signage	County
Explore risk to power infrastructure leading to Dallas Creek Water facilities	Dallas Creek Water
Explore risk to power infrastructure leading to Ridgway Water facilities	Ridgway Town
Explore adoption of Road and Bridge Committee address number standards and develop a mechanism to implement those standards easily.	County
Ensure that every intersection and street name change has adequate, noncombustible reflective signage that is easily understood.	County, communities, HOAs
Develop a program of replacing worn or difficult to read street signs. Include specifications and input from County officials, developers, HOAs, and the fire protection districts.	County, HOAs, FPDs
Lot markers should be replaced with address markers as a condition for a home has a certificate of occupancy.	County
Where dead end and private road markers occur, the addresses of homes beyond the marker should be clearly posted. This can be done with a group address marker, for example, "14391-14393 Wilderness Lane".	County, communities, HOAs
Provide adequate turnarounds for emergency equipment throughout all communities.	County, developers, FPDs, HOAs
Encourage fuels treatments on federal lands in power line corridors.	County, BLM, USFS, Utility companies
Encourage the placement of all utilities, including propane tanks and power lines, below ground.	County, communities, HOAs

**Table A5. Public Education Recommendations**

Action Item	Implementation Lead
Remain aware of current fire danger in the community.	All
Require call-in to County Emergency Management to burn slash piles	County
Enforce burn bans and fine those who violate them	County
Increase public awareness of the Fire Safety Rating for New Residential Structures in the Ouray County Wildfire Mitigation Regulations- Section 24 of the Ouray County Land Use code	County
Implement fire prevention, fire preparedness, defensible space, and hazard reduction recommendations for each community.	County, state, WRWC, communities, HOAs
Obtain “Smokey Bear” signs for use along entrances to communities to inform the public of the current fire danger and to promote fire prevention. Ensure that fire danger messages are kept up-to-date with Daily Fire Danger broadcast to maintain credibility and effectiveness.	County, state, FPDs, communities, HOAs
Create an evacuation plan that is presented and distributed to residents (see related action in Preparedness Planning category).	County, FPDs
Hold multiple meetings per year to educate residents on wildfire risk, defensible space, and evacuation.	County, CSFS, FPDs
Ask homeowner’s associations and other neighborhood groups to promote the development of defensible space and Firewise plantings.	HOAs, County, FPD
Provide citizens with the findings of this study including: Levels of risk and hazard Values of fuels reduction programs Consequences of inaction for the entire community	County, CSFS, FPDs
Create neighborhood Firewise Council or similar WUI citizen advisory committee to promote the message of shared responsibility. The Firewise Council should consist of local citizens and local FPDs and its primary goals should be: Bringing the concerns of the residents to the prioritization of mitigation actions Selecting demonstration sites Assisting with grant applications and awards Coordinate activities with the West Region Wildfire Council	Communities, HOAs, FPDs, WRWC
Make use of regional and local media and existing Firewise brochures to promote wildfire public education messages in the fire district.	County, state, FPDs

Action Item	Implementation Lead
Maintain a current wildfire educational presentation explaining the concepts of defensible space and wildfire hazard mitigation. The information in this countywide CWPP should be incorporated into that presentation for the education of homeowners countywide. This could be promoted through informational gatherings sponsored by the fire department, homeowners associations, or neighborhood gatherings such as local festivals and school events. It should also be presented during times of extreme fire danger and other times of heightened awareness concerning wildfire.	County, CSFS, FPDs, WRWC

**Table A6. Water Supply Recommendations**

Action Item	Implementation Lead
Ouray County needs to fit its two water tanker trucks with “quick dumps” and “port-a-ponds” to comply with guidelines in the Annual Wildfire Operating Plan and to be useful as a resource in event of a fire.	County
Areas with no water or inadequate water supply should be evaluated to improve existing hydrants, establish a stored water supply, or preplan the use of other firefighting resources.	County, FPDs
Map existing hydrants, water sources, and their volume and/or flow. Make this information available for emergency personnel in and out of the district.	County, FPDs
Make sure cisterns are well marked with their capacity and are kept clear of vegetation.	County, FPDs
Conduct annual testing for fire hydrant function and flow.	County, FPDs
FPD trainings should focus on drafting operations frequently throughout the spring and summer to ensure apparatus can fill in the event of a wildfire.	FPDs
Work on obtaining contracts with landowners to gain legal permission to use ditches for suppression activities.	FPDs

## **DEFENSIBLE SPACE**

Construction type, condition, age, fuel loading of the area, and building position are contributing factors in making homes more susceptible to ignition under even moderate burning conditions. As mentioned previously, defensible space is THE MOST IMPORTANT action an individual can do to protect their home. This is especially important for homes with wood roofs and homes located near any other topographic features that contribute to fire intensity such as chimneys and saddles. These recommendations are intended to give homeowners enough information to immediately begin making their home Firewise or improve existing home mitigation efforts. Defensible space needs to be maintained throughout the year. Because of differences in vegetation, topography, and construction materials consulting a trained individual is recommended before embarking on a defensible space project.

Because of the fire ecology of the vegetation and topography, an aggressive program of evaluating and implementing defensible space for all homes combined with adequate home construction, will do more to limit fire-related property damage than any other single recommendation in this report.

Homes and structures exist outside of the defined CWPP community boundaries in Ouray County. The following defensible space guidelines apply to **all** structures that could be threatened by wildfire, whether or not they are part of a defined community. The guidelines are from Colorado State Forest Service fact sheet 6.302, which can also be referenced online at <http://csfs.colostate.edu/pages/defensible-space.html>. All new construction within the study area should follow guidelines which are referenced in the Wildfire Mitigation Regulations in Section 24 of the Ouray County Land Use Code, which is included as Appendix D to the Ouray County CWPP.



# FORESTRY

## Creating Wildfire-Defensible Zones    no. 6.302

by F.C. Dennis <sup>1</sup>

### Quick Facts...

Wildfire will find the weakest links in the defense measures you have taken on your property.

The primary determinants of a home's ability to survive wildfire are its roofing material and the quality of the "defensible space" surrounding it.

Even small steps to protect your home and property will make them more able to withstand fire.

Consider these measures for all areas of your property, not just the immediate vicinity of the house.

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. While you may not be able to accomplish all measures below (and there are no guarantees), each will increase your home's, and possibly your family's, safety and survival during a wildfire.

Start with the easiest and least expensive actions. Begin your work closest to your house and move outward. Keep working on the more difficult items until you have completed your entire project.

### Defensible Space

Two factors have emerged as the primary determinants of a home's ability to survive wildfire. These are the home's roofing material and the quality of the "defensible space" surrounding it.

Use fire-resistive materials (Class C or better rating), not wood or shake shingles, to roof homes in or near forests and grasslands. When your roof needs significant repairs or replacement, do so with a fire-resistant roofing material. Check with your county building department. Some counties now restrict wood roofs or require specific classifications of roofing material.

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 withstand a wildfire if grasses, brush, trees and other common forest fuels are managed to reduce a fire's intensity.

The measure of fuel hazard refers to its continuity, both horizontal (across the ground) and vertical (from the ground up into the vegetation crown). Fuels with a high degree of both vertical and horizontal continuity are the most hazardous, particularly when they occur on slopes. Heavier fuels (brush and trees) are more hazardous (i.e. produce a more intense fire) than light fuels such as grass.

Mitigation of wildfire hazards focuses on breaking up the continuity of horizontal and vertical fuels. Additional distance between fuels is required on slopes.

Creating an effective defensible space involves developing a series of management zones in which different treatment techniques are used. See Figure 1 for a general view of the relationships among these management zones. Develop defensible space around each building on your property. Include detached garages, storage buildings, barns and other structures in your plan.

The actual design and development of your defensible space depends on several factors: size and shape of buildings, materials used in their construction, the slope of the ground on which the structures are built, surrounding topography,



### Putting Knowledge to Work

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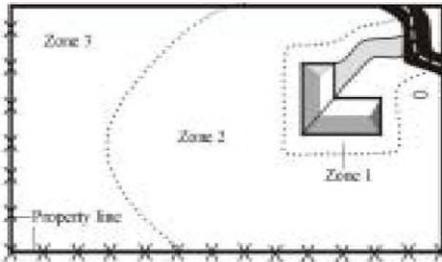


Figure 1: Forested property showing the three fire-defensible zones around a home or other structure.

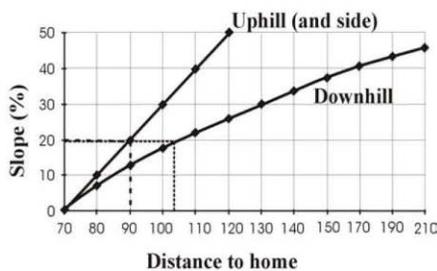


Figure 2: This chart indicates the *minimum recommended* dimensions for defensible space from the home to the outer edge of Zone 2. For example, if your home is situated on a 20 percent slope, the minimum defensible space dimensions would be 90 feet uphill and to the sides of the home and 104 feet downhill from the home.

and sizes and types of vegetation on your property. These factors all affect your design. You may want to request additional guidance from your local Colorado State Forest Service (CSFS) forester or fire department. (See the Special Recommendations section of this fact sheet for shrubs, lodgepole pine, Engelmann spruce, and aspen.)

## Defensible Space Management Zones

**Zone 1** is the area of maximum modification and treatment. It consists of an area of 15 feet around the structure in which all flammable vegetation is removed. This 15 feet is measured from the outside edge of the home's eaves and any attached structures, such as decks.

**Zone 2** is an area of fuel reduction. It is a transitional area between Zones 1 and 3. The size of Zone 2 depends on the slope of the ground where the structure is built. Typically, the defensible space should extend *at least* 75 to 125 feet from the structure. See Figure 2 for the appropriate distance for your home's defensible space. Within this zone, the continuity and arrangement of vegetation is modified. Remove stressed, diseased, dead or dying trees and shrubs. Thin and prune the remaining larger trees and shrubs. Be sure to extend thinning along either side of your driveway all the way to your main access road. These actions help eliminate the continuous fuel surrounding a structure while enhancing homesite safety and the aesthetics of the property.

**Zone 3** is an area of traditional forest management and is of no particular size. It extends from the edge of your defensible space to your property boundaries.

## Prescriptions

### Zone 1

The size of Zone 1 is 15 feet, measured from the edges of the structure. Within this zone, several specific treatments are recommended.

Plant nothing within 3 to 5 feet of the structure, particularly if the building is sided with wood, logs or other flammable materials. Decorative rock, for example, creates an attractive, easily maintained, nonflammable ground cover.

If the house has noncombustible siding, widely spaced foundation plantings of low growing shrubs or other "fire wise" plants are acceptable. Do not plant directly beneath windows or next to foundation vents. Be sure there are no areas of continuous grass adjacent to plantings in this area.

Frequently prune and maintain plants in this zone to ensure vigorous growth and a low growth habit. Remove dead branches, stems and leaves.

Do not store firewood or other combustible materials in this area. Enclose or screen decks with metal screening. Extend the gravel coverage under the decks. Do not use areas under decks for storage.

Ideally, remove all trees from Zone 1 to reduce fire hazards. If you do keep a tree, consider it part of the structure and extend the distance of the entire defensible space accordingly. Isolate the tree from any other surrounding trees. Prune it to at least 10 feet above the ground. Remove any branches that interfere with the roof or are within 10 feet of the chimney. Remove all "ladder fuels" from beneath the tree. Ladder fuels are vegetation with vertical continuity that allows fire to burn from ground level up into the branches and crowns of trees. Ladder fuels are potentially very hazardous but are easy to mitigate. No ladder fuels can be allowed under tree canopies. In all other areas, prune all branches of shrubs or trees up to a height of 10 feet above ground (or 1/2 the height, whichever is the least).

## Zone 2

Zone 2 is an area of fuel reduction designed to reduce the intensity of any fire approaching your home. Follow these recommended management steps.

Thin trees and large shrubs so there is at least 10 feet between crowns. Crown separation is measured from the furthest branch of one tree to the nearest branch on the next tree (Figure 3). On steep slopes, allow more space between tree crowns. (See Figure 4 for *minimum recommended* spacing for trees on steep slopes.) Remove all ladder fuels from under these remaining trees. Carefully prune trees to a height of at least 10 feet.

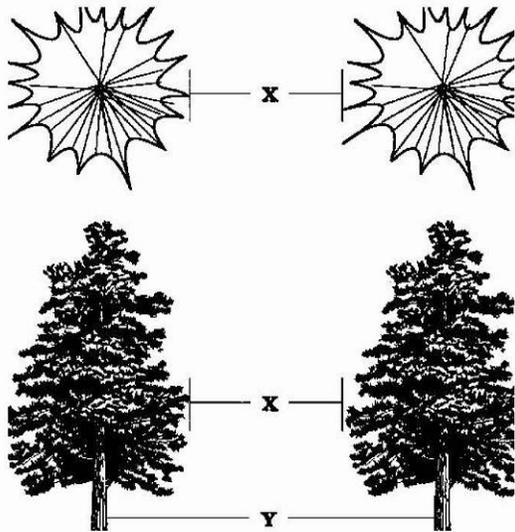


Figure 3: X = crown spacing; Y = stem spacing. Do not measure between stems for crown — measure between the edges of tree crowns.

Small clumps of 2 to 3 trees may be occasionally left in Zone 2. Leave more space between the crowns of these clumps and surrounding trees.

Because Zone 2 forms an aesthetic buffer and provides a transition between zones, it is necessary to blend the requirements for Zones 1 and 3. Thin the portions of Zone 3 adjacent to Zone 2 more heavily than the outer portions.

Isolated shrubs may remain, provided they are not under tree crowns. Prune and maintain these plants periodically to maintain vigorous growth. Remove dead stems from trees and shrubs annually. Where shrubs are the primary fuel in Zone 2, refer to the Special Recommendations section of this fact sheet.

Limit the number of dead trees (snags) retained in this area. Wildlife needs only one or two snags per acre. Be sure any snags left for wildlife cannot fall onto the house or block access roads or driveways.

Mow grasses (or remove them with a weed trimmer) as needed through the growing season to keep them low, a maximum of 6 to 8 inches. This is extremely critical in the fall when grasses dry out and cure or in the spring after the snow is gone but before the plants green up.

Stack firewood and woodpiles uphill or on the same elevation as the structure but at least 30 feet away. Clear and keep away flammable vegetation within 10 feet of these woodpiles. Do not stack wood against your house or on or under your deck, even in winter. Many homes have burned from a woodpile that ignited as the fire passed. Wildfires can burn at almost any time in Colorado.

Locate propane tanks at least 30 feet from any structures, preferably on the same elevation as the house. You don't want the LP container below your house — if it ignites, the fire would tend to burn uphill. On the other hand, if the tank is above your house and it develops a leak, LP gas will flow downhill into your home. Clear and keep away flammable vegetation within 10 feet of these tanks. Do not screen propane tanks with shrubs or vegetation.

Dispose of slash (limbs, branches and other woody debris) from your trees and shrubs through chipping or by piling and burning. Contact your local CSFS office or county sheriff's office for information about burning slash piles. If neither of these alternatives is possible, lop and scatter slash by cutting it into very small pieces and distributing it over the ground. Avoid heavy accumulations

% slope	Tree Crown Spacing	Brush and Shrub Clump Spacing
0 -10 %	10'	2 1/2 x shrub height
11 - 20%	15'	3 x shrub height
21 - 40%	20'	4 x shrub height
> 40%	30'	6 x shrub height

Figure 4: Minimum tree crown and shrub clump spacing.

Tree Diameter (in inches)	Average Stem Spacing Between Trees (in feet)
3	10
4	11
5	12
6	13
7	14
8	15
9	16
10	17
11	19
12	21
13	23
14	24
15	26
16	28
17	29
18	31
19	33
20	35
21	36
22	38
23	40
24	42

Figure 5: Minimum tree spacing for Zone 3.

of slash. Lay it close to the ground to speed decomposition. If desired, no more than two or three small, widely spaced brush piles may be left for wildlife purposes. Locate these towards the outer portions of your defensible space.

### Zone 3

This zone is of no specified size. It extends from the edge of your defensible space to your property lines. A gradual transition into this zone from defensible space standards to other management objectives you may have is suggested. Typical management objectives for areas surrounding homesites or subdivisions are: provide optimum recreational opportunities; enhance aesthetics; maintain tree health and vigor; provide barriers for wind, noise, dust and visual intrusions; support limited production of firewood, fence posts and other forest commodities; or grow Christmas trees or trees for transplanting.

Specific requirements will be dictated by your objectives for your land and the kinds of trees present. See Figure 5 for the *minimum* suggested spacing between “leave” trees. Forest management in Zone 3 is an opportunity for you to increase the health and growth rate of the forest in this zone. Keep in mind that root competition for available moisture limits tree growth and ultimately the health of the forest.

A high canopy forest reduces the chance of a surface fire climbing into the tops of the trees and might be a priority for you if this zone slopes steeply. The healthiest forest is one that has multiple ages, sizes, and species of trees where adequate growing room is maintained over time. Remember to consider the hazards of ladder fuels. Multiple sizes and ages of trees might increase the fire hazard from Zone 3 into Zone 2, particularly on steep slopes.

A greater number of wildlife trees can remain in Zone 3. Make sure that dead trees pose no threat to power lines or fire access roads.

While pruning generally is not necessary in Zone 3, it may be a good idea from the standpoint of personal safety to prune trees along trails and fire access roads. Or, if you prefer the aesthetics of a well-manicured forest, you might prune the entire area. In any case, pruning helps reduce ladder fuels within the tree stand, thus enhancing wildfire safety.

Mowing is not necessary in Zone 3.

Any approved method of slash treatment is acceptable for this zone, including piling and burning, chipping or lop-and-scatter.

### Special Recommendations

Tree spacing guidelines do not apply to *mature* stands of aspen trees where the recommendations for ladder fuels have been complied with. In areas of aspen regeneration and young trees, the spacing guidelines should be followed.

#### Brush and shrubs

Brush and shrubs are woody plants, smaller than trees, often formed by a number of vertical or semi-upright branches arising close to the ground. Brush is smaller than shrubs and can be either woody or herbaceous vegetation.

On nearly level ground, minimum spacing recommendations between clumps of brush and/or shrubs is 2 1/2 times the height of the vegetation. Maximum diameter of clumps should be 2 times the height of the vegetation. As with tree crown spacing, all measurements are made from the edges of vegetation crowns (Figure 3).

For example: For shrubs 6 feet high, spacing between shrub clumps should be 15 feet or more apart (measured from the edges of the crowns of vegetation clumps). The diameter of shrub clumps should not exceed 12 feet (measured from the edges of the crowns). Branches should be pruned to a height of 3 feet.

## Grasses

Keep dead, dry or curing grasses mowed to less than 6 inches. Defensible space size where grass is the predominant fuel can be reduced (Figure 5) when applying this practice.

## Windthrow

In Colorado, certain locations and tree species, including lodgepole pine and Engelmann spruce, are especially susceptible to damage and uprooting by high winds (windthrow). If you see evidence of this problem in or near your forest, or have these tree species, consider the following adjustments to the defensible space guidelines. It is highly recommended that you contact a professional forester to help design your defensible space.

**Adjustments:** If your trees or homesite are susceptible to windthrow and the trees have never been thinned, use a stem spacing of diameter plus five instead of the guides listed in the Zone 3 section. Over time (every 3 to 5 years) *gradually* remove additional trees. The time between cutting cycles allows trees to “firm up” by expanding their root systems. Continue this periodic thinning until the desired spacing is reached.

Also consider leaving small clumps of trees and creating small openings on their lee side (opposite of the predominant wind direction). Again, a professional forester can help you design the best situation for your specific homesite and tree species. Remember, with species such as lodgepole pine and Engelmann spruce, the likelihood of a wildfire running through the tree tops or crowns (crowning) is closely related to the overabundance of fuels on the forest floor. Be sure to remove downed logs, branches and *excess* brush and needle buildup.

## Maintaining Your Defensible Space

Your home is located in a forest that is dynamic, always changing. Trees and shrubs continue to grow, plants die or are damaged, new plants begin to grow, and plants drop their leaves and needles. Like other parts of your home, defensible space requires maintenance. Use the following checklist each year to determine if additional work or maintenance is necessary.

% slope	D-space size (uphill, downhill, sidehill)
0 - 20 %	30'
21 - 40%	50'
> 40%	70'

Figure 6: Minimum defensible space size for grass fuels.

### Defensible Space and FireWise Annual Checklist

- Trees and shrubs are properly thinned and pruned within the defensible space. Slash from the thinning is disposed of.
- Roof and gutters are clear of debris.
- Branches overhanging the roof and chimney are removed.
- Chimney screens are in place and in good condition.
- Grass and weeds are mowed to a low height.
- An outdoor water supply is available, complete with a hose and nozzle that can reach all parts of the house.
- Fire extinguishers are checked and in working condition.
- The driveway is wide enough. The clearance of trees and branches is adequate for fire and emergency equipment. (Check with your local fire department.)
- Road signs and your name and house number are posted and easily visible.
- There is an easily accessible tool storage area with rakes, hoes, axes and shovels for use in case of fire.
- You have practiced family fire drills and your fire evacuation plan.
- Your escape routes, meeting points and other details are known and understood by all family members.
- Attic, roof, eaves and foundation vents are screened and in good condition.



FIREWISE is a multi-agency program that encourages the development of defensible space and the prevention of catastrophic wildfire.

Stilt foundations and decks are enclosed, screened or walled up.

- Trash and debris accumulations are removed from the defensible space.
- A checklist for fire safety needs inside the home also has been completed. This is available from your local fire department.

## References

Colorado State Forest Service, Colorado State University, Fort Collins, CO 80523-5060; (970) 491-6303:

- *FireWise Construction — Design and Materials*
- Home Fire Protection in the Wildland Urban Interface
- Wildfire Protection in the Wildland Urban Interface
- *Landowner Guide to Thinning*

Colorado State University Cooperative Extension, 115 General Services Bldg., Fort Collins, CO 80523-4061; (970) 491-6198; E-mail: resourcecenter@ucm.colostate.edu:

- 6.303, *Fire-Resistant Landscaping*
- 6.304, *Forest Home Fire Safety*
- 6.305, *FireWise Plant Materials*
- 6.306, *Grass Seed Mixes to Reduce Wildfire Hazard*
- 7.205, *Pruning Evergreens*
- 7.206, *Pruning Shrubs*
- 7.207, *Pruning Deciduous Trees*



This fact sheet was produced in cooperation with the Colorado State Forest Service.

<sup>1</sup>Wildfire Hazard Mitigation Coordinator, Colorado State Forest Service.

Colorado State University, U.S. Department of Agriculture, and Colorado counties cooperating. Cooperative Extension programs are available to all without discrimination. No endorsement of products mentioned is intended nor is criticism implied of products not mentioned.

## **ADDITIONAL BACKGROUND AND GUIDELINES ON GENERAL RECOMMENDATIONS**

### **Home Construction and Mitigation**

Community responsibility for self protection from wildfire is essential. Educating homeowners is the first step in promoting shared responsibility. Part of the educational process is defining the hazard and risks both at the community-level and the individual parcel-level.

Communities in the study area were rated for hazard – that is, the likelihood and severity of fire outcomes (fire effects) that result in damage to people, property, and/or the environment. The community-level assessment identified three of the communities in the study area to be rated extreme. Six communities were rated at very high hazard, 17 were rated at high hazard, and the remaining six were rated at moderate hazard. Colorado’s weather variability makes it entirely possible that unusually dangerous fire behavior can take place beyond the norm. Construction type, condition, age, the fuel loading around the structure/contents, and position are contributing factors in making homes more susceptible to ignition. Community hazard ratings are also influenced by factors related to the likelihood of rapid fire growth and spread due to fast burning or flashy fuel components, and other topographic features contributing to channeling winds and promotion of intense fire behavior. It is important to remember that these communities are rated relative to what is customary for interface in the Rocky Mountains and may bear little resemblance to similarly rated communities in other areas such as California chaparral or southern hardwood forests.

All of the communities, especially those with extreme, very high and high hazard ratings, should consider implementing a parcel-level analysis. Like many interface communities in the west, homes in Ouray County are often found in clusters of development, often with relatively unbroken native fuel beds separating them. Even homes that are outside of a defined “CWPP community” will most likely have hazard levels similar to homes within near-by evaluated communities. It will be important to prioritize parcel-level hazard surveys of these individual properties along with parcel-level surveys of the surrounding interface communities. By being defined as a community, there are large-scale projects that may benefit multiple homes, but in all, home mitigation and construction are the most cost effective steps landowners can take to protect their property from wildfire.

### **Home Construction**

All new construction within the study area should follow guidelines outlined in the Wildfire Mitigation Regulations in Section 24 of the Ouray County Land Use Code, which is included as Appendix D to the Ouray County CWPP. Changes to existing structures should be done with the assistance of a fire department representative or Fire Protection Engineer, who will know which guidelines are appropriate for new or remodeled structures. Recommended alterations to a home may include: double pane windows, noncombustible siding, Class A roof materials, soffits, gable vents, etc. This is partially addressed in the Ouray County Wildfire Mitigation Regulations.

### **General Home Construction Considerations:**

- Enclose under decks so firebrands do not fly under and collect.
- Use glass skylights; plastic will melt and allow embers into the home.
- Enclose eaves and soffits.
- Use non-flammable fencing if attached to the house such as metal.
- Cover openings with 1/8” metal screen to block fire brands and embers from collecting under the home or deck.

- The roof is the most important element of the home. Use rated roofing material.

## **Building Materials**

- Use rated roofing material. Roofing material with a Class A, B or C rating is fire resistant and will help keep the flame from spreading. Examples include:
  - Composition shingle
  - Metal
  - Clay
  - Cement tile
- Use fire-resistant building materials on exterior walls. Examples include:
  - Cement
  - Plaster
  - Stucco
  - Masonry (concrete, stone, brick or block)
- While vinyl is difficult to ignite, it can fall away or melt when exposed to extreme heat.
- Use double-paned or tempered glass. Double-pane glass can help reduce the risk of fracture or collapse during an extreme wildfire. Tempered glass is the most effective. Low E glass blocks radiant heat from igniting combustible materials inside the house. For skylights, glass is a better choice than plastic or fiberglass.
- Enclose eaves, fascias, soffits and vents. 'Box' eaves, fascias, soffits and vents, or enclose them with metal screens. Vent openings should be covered with 1/8" metal screen.
- Protect overhangs and other attachments. Remove all vegetation and other fuels near overhangs and other attachments (room additions, bay windows, decks, porches, carports and fences). Box in the undersides of overhangs, decks and balconies with noncombustible or fire-resistant materials. Fences constructed of flammable materials like wood should not be attached directly to the house.
- Anything attached to the house (decks, porches, fences and outbuildings) should be considered part of the house. These act as fuel bridges, particularly if constructed from flammable materials.
- If a wood fence is attached to the house, separate the fence from the house with a masonry or metal barrier.
- Decks and elevated porches should be kept free of combustible materials and debris.
- Elevated wooden decks should not be located at the top of a hill. Consider a terrace.

## **Recommendations**

- Develop a parcel-level wildfire hazard analysis for all the homes in the study area. Completing this process will facilitate the following important fire management practices:
  - Establish a baseline hazard assessment for individual homes in CWPP communities
  - Educate the community through the presentation of the parcel-level Hazard-Risk Analysis at neighborhood public meetings
  - Identify defensible space needs and other effective mitigation techniques
  - Identify and facilitate "cross-boundary" projects
- Make community achievement of national Firewise status a priority
- Maintain pre-attack/operational plan for the study area. The pre-attack plan assists fire agencies in developing strategies and tactics that will mitigate damage when incidents do occur

- Ask homeowner's associations and other neighborhood groups to promote the development of defensible space and Firewise plantings.
- Eliminate any covenants or deed restrictions that require or endorse the use of flammable building materials such as shake roofs. This is addressed for new development in Section 24 of the County Land Use Code. Specific publications that address these issues can be found at: [www.firewise.org](http://www.firewise.org).

## **Infrastructure**

### **Road Signs and Home Addresses**

The majority of the streets within the county are adequately labeled, yet signs are not always reflective. There are still many places where signs are missing or made of combustible materials or it is unclear which road is which. Proper reflective signage is a critical operational need. Knowing at a glance the difference between a road and a driveway (and which houses are on the driveway) cuts down response time by reducing navigation errors. This is especially true for out-of-district responders who do not have the opportunity to train on access issues specific to the response area. The value of the time saved, especially at night and in difficult conditions, cannot be overstated: it can make the difference between lives saved and lost.

Addressing is another major issue in Ouray County. Most homes within communities lack reflective addressing that is easily visible from the road. However, by giving every outbuilding an address, there is additional confusion when determining how many residences are accessed from each driveway, especially when the driveways are long and structures cannot be seen. The new addresses are an improvement overall, and unless they become a consistent detriment to life safety, there is no reason to redo this work.

### **Recommendations**

- Ensure that every intersection and street name change should have adequate, reflective signage.
- Develop a program of replacing worn or difficult to read street signs. Include specifications and input from County officials, developers, HOAs, and the fire protection districts.
- Lot markers should be replaced with address markers as soon as a home has a certificate of occupancy.
- Where dead end and private road markers occur, the addresses of homes beyond the marker should be clearly posted. This can be done with a group address marker, for example, "14391-14393 Wilderness Lane"

## **Preparedness Planning**

Many CWPP communities in Ouray County have only one way in and out of the community. In order to reduce potential conflicts between evacuating citizens and incoming responders, it is desirable to have nearby evacuation centers for citizens and staging areas for fire resources. This is especially important in communities with single access and a high population density. Evacuation centers should include heated buildings with facilities large enough to handle the population. Schools and churches are usually ideal for this purpose. Fire staging areas should contain large safety zones, easy access and turnarounds for large apparatus, a significant fuel break between the fire and the escape route, topography conducive to radio communications, and access to water. Natural clearings and large irrigated meadows may make good safety zones for firefighting forces. Local responders are encouraged to pre-plan the use of potential staging areas with property owners.

- Identify and pre-plan primary escape routes for all CWPP communities. Emergency management personnel should be included in the development of pre-plans for citizen evacuation. Re-evaluate and update these plans as necessary.
- Educate citizens on the proper escape routes and evacuation centers to use in the event of an evacuation. This also applies to animal rescue.
- Ensure the existing reverse 911 system includes wildfire notifications.
- Perform response drills to determine the timing and effectiveness of escape routes and fire resource staging areas.

## **Public Education**

There is likely to be a varied understanding among property owners of the hazards associated with the threat of a wildfire. An approach to wildfire education that emphasizes safety and hazard mitigation on an individual property level should be undertaken, in addition to fire department efforts at risk reduction.

## **Recommendations**

- Provide communities and homeowners fire prevention educational materials through personal contact. Fire prevention and wildfire hazard mitigation education should be an ongoing effort.
- Implement fire prevention, fire preparedness, defensible space, and hazard reduction recommendations for each community.
- Obtain “Smokey Bear” signs for use along entrances to communities to inform the public of the current fire danger and to promote fire prevention. Ensure that fire danger messages are kept up-to-date with Daily Fire Danger broadcast to maintain credibility and effectiveness.
- Create an evacuation plan that is presented and distributed to residents.
- Hold multiple meetings per year to educate residents on wildfire risk, defensible space, and evacuation.

Use these web sites for a list of public education materials and for general homeowner education:

<http://csfs.colostate.edu/pages/wf-protection.html>

[http://www.fs.fed.us/fire/links/links\\_prevention.html](http://www.fs.fed.us/fire/links/links_prevention.html)

<http://www.or.blm.gov/nwfire/docs/Livingwithfire.pdf>

<http://www.firewise.org>

<http://www.SouthwestColoradoFires.org>

<http://www.blm.gov/nifc/st/en/prog/fire.1.html>

<http://www.safeco.com/insurance-101/disaster-preparedness/wildfire>

- Provide citizens with the findings of this study including:
  - Levels of risk and hazard.
  - Values of fuels reduction programs.
  - Consequences of inaction for the entire community.
- Create a community level Firewise Council or similar WUI citizen advisory committee to promote the message of shared responsibility. Too often, advice from government agencies can be construed as self serving. Consequently, citizens may resist acting on this information. The Firewise Council should consist of local citizens and members of the local FPD and its primary goals should be:
  - Bringing the concerns of the residents to the prioritization of mitigation actions.
  - Selecting demonstration sites.
  - Assisting with grant applications and awards.
  - Make use of regional and local media to promote wildfire public education messages in the fire district.
  - Coordinate activities with the West Region Wildfire Council
- Maintain a current wildfire educational presentation explaining the concepts of defensible space and wildfire hazard mitigation. The information in this countywide CWPP should be incorporated into that presentation for the education of homeowners countywide. This could be promoted through informational gatherings sponsored by the fire department, homeowners associations or neighborhood gatherings such as local festivals, and school events. It should also be presented during times of extreme fire danger and other times of heightened awareness concerning wildfire.

## **Water Supply**

Water is a critical fire suppression issue in the study area, as it is in many communities in Colorado. While the areas around Log Hill Village, the Town of Ridgway and City of Ouray have an adequate hydrant network, many of the other communities identified do not. Flow rates are not adequate in all areas for large-scale suppression activities and hydrants are not tested annually. All new developments within the study area should follow the water supply guidelines outlined in the Wildfire Mitigation Regulations in Section 24 of the Ouray County Land Use Code, which is included as Appendix D to the Ouray County CWPP.

## **Recommendations**

- Areas with no water or inadequate water supply should be evaluated to improve existing hydrants, establish a stored water supply, or use preplanned firefighting resources.
- Map existing hydrants, water sources and their volume. Make this information available for emergency personnel in and out of the district.
- Make sure cisterns are well marked with their capacity and are kept clear of vegetation.
- Conduct annual testing for fire hydrant function and flow.
- FPD trainings should focus on drafting operations frequently throughout the spring and summer to ensure apparatus can fill in the event of a wildfire.

## **APPENDIX B: PROJECT COLLABORATION EFFORT THE NEED FOR A CWPP**

In response to the Healthy Forests Restoration Act (HFRA), and in an effort to create incentives, Congress directed interface communities to prepare a Community Wildfire Protection Plan (CWPP). Once completed, a CWPP provides statutory incentives for the federal agencies to consider the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. CWPPs can take a variety of forms based on the needs of the people involved in their development. CWPPs may address issues such as wildfire response, hazard mitigation, community preparedness, structure protection, or all of the above. Colorado Senate Bill 09-001 provided revised minimum standards and guidelines for the development of CWPPs in Colorado. The minimum requirements for a CWPP specify that collaboration between local and state government representatives, in consultation with federal agencies and other interested parties. The plan must exhibit diverse collaboration with an emphasis on involvement of community members/representatives. This appendix describes and documents the process used to collaborate between the core planning group, stakeholders, and community representatives during the development of this plan.

### **PROJECT FUNDING AND COORDINATION**

Ouray County used US Department of Interior Community Assistance funds and county funding to complete a community-wide hazard and risk assessment and the resultant Ouray County CWPP. The funding allowed the County to develop the plan with professional planning assistance from Anchor Point Group and AMEC Earth and Environmental.

Future community education and private landowner assistance will be coordinated through the West Region Wildfire Council in concert with the Colorado State Forest Service (CSFS), Ouray County, Montrose Interagency Fire Management Unit, and the fire protection districts. These groups will continue to identify funding for the implementation of mitigation projects.

### **INTER-AGENCY COLLABORATION**

#### **Roles and Responsibilities**

To be successful, wildfire mitigation in the interface must be a community-based, collaborative effort. Stakeholders and Ouray County will have the greatest responsibility for implementing the recommended mitigation projects. The CSFS and the US Forest Service (USFS)/Bureau of Land Management (BLM) are valuable participants in addressing cross-boundary projects throughout the area.

Nearly all of the recommendations from this report affect private land or access roads to private land. There are also mitigation recommendations for individual structures, which are the responsibility of the homeowner. Homeowners will, however, need a Wildfire Mitigation Advocate to help them implement these recommendations. The best defensible space will be created with oversight and expert advice from the fire district and/or government forestry personnel. One-on-one dialog will continue to build the relationship with community members. This level of involvement will allow agencies to keep track of the progress and update this plan to reflect the latest modifications at the community level.

## **THE COLLABORATIVE PROCESS**

### **Core Team**

The formation of an operating group (a core team) is the initial step in developing a CWPP. The operating group should represent local governments, local fire authorities, and the state agency(ies) responsible for forest management. Members of the core team then engage local representatives in the CWPP development process to share and exchange perspectives, priorities, and other pertinent information relevant to the CWPP planning process and development of the final CWPP report.

Numerous federal, State, local, and private agencies (stakeholders) participated in this CWPP. These stakeholders included:

- Ouray County Sheriff's Office
- Ouray County Emergency Management
- Ouray County Commissioners
- Montrose Interagency Fire Management Unit
- West Region Wildfire Council
- Ouray Fire Protection District
- Ouray Fire Department
- Ridgway Fire District
- Log Hill Mesa Fire Protection District
- Horsefly Volunteer Fire Association
- Montrose Fire Protection District
- Cornerstone Metropolitan District
- Bureau of Land Management
- US Forest Service
- Colorado State Forest Service
- Colorado State Parks - Ridgway State Park
- Colorado Division of Emergency Management
- Ouray County residents
- Anchor Point Group
- AMEC Earth and Environmental

### **Collaboration Tools**

Development of the Ouray County CWPP was conducted through an online project collaboration tool known as Basecamp. Basecamp provided a homogeneous means for the sharing of information, data files, mapping, and imagery resources within the core team and provided an open forum for project communications amongst a diverse team of local representatives, fire authorities, forest management, and plan coordinators. Use of the Basecamp tool promoted on-time and on-scale project management and team collaboration in the final development of the Ouray County CWPP.

### **Stakeholder and Public Involvement**

The true collaborative process was initiated through a stakeholder meeting held on August 26, 2010. The purpose of the meetings was to outline the approach to the project and bring all past, current, and future efforts and needs to the table. The primary focus was on the identification and delineation of CWPP communities, areas of concern, and values at risk. Best practices and anticipated "roadblocks" were identified.

Following the stakeholder meeting was a series of individual meetings between Anchor Point Group staff and County and fire department representatives during the field assessment of identified communities. The Basecamp online collaboration tool was used throughout the project to present the results, share documents, share and finalize community boundaries, and discuss any issues or concerns going into the draft CWPP report. In addition, the planning effort was an agenda item on the West Region Wildfire Council regular meetings held every other month, which included conference call participation with the plan's consultants.

An extensive as well as targeted public and community outreach effort took place during the development of this plan. An effort was made to identify and request for a wildfire mitigation advocate (WMA), for each identified CWPP community within Montrose County. The stakeholder group provided input on suggested WMAs. These suggested WMAs were contacted by phone by the West Region Wildfire Council Community Wildfire Protection Plan Coordinator as well as by mail and targeted emails. A public survey also solicited interested individuals that would like to become WMAs. The role of the WMA is to:

- Act as a community liaison and maintain a working relationship with their fire chief, federal, state and county representatives;
- Become educated, and educate others on the importance of being Firewise;
- Know how to leverage the technical expertise and financial assistance of partners to reach the goals of their community;
- Spread the word of available grant funds to the people in their community;
- Help their community connect with the resources necessary to accomplish the mitigation recommendations outlined for their community

Those interested in becoming a Wildfire Mitigation Advocate (WMA) returned a form to the West Region Community Wildfire Protection Plan Coordinator indicating such. The WMA may be contacted in the future by entities such as the WRWC, CSFS, County emergency management, fire chiefs, Home Owner's Association (HOA) presidents and others that may offer assistance to guide them along in the implementation efforts.

The WMA served as the primary contact resource for the core team in notifying the communities, distributing wildfire information, and soliciting feedback from members of the communities. Notices of public meetings and information pamphlets were mailed to the WMAs for distribution to members of the Ouray County communities. The community collaboration efforts conducted through the WMAs allowed for the solicitation of resident involvement by a community peer (i.e., the WMA) in the effort to increase the level of understanding and overall public involvement. These WMAs will be important for future implementation of this plan. A contact list of the community WMAs is maintained by the West Region Wildfire Council Community Wildfire Protection Plan Coordinator and on file with County emergency management.

In addition to the community collaboration efforts, a public meeting was also held to advertise the planning effort and get direct input and feedback from county residents.

The meeting agenda included the following items:

- Overview of the Ouray County CWPP planning process
- Fire behavior analysis and communities at risk

- Recommended loss reduction strategies and fuels treatments
- Ongoing Fire Management/Mitigation Efforts/Funding sources

Representatives from the local fire districts, Montrose Interagency Fire Management Unit (MIFMU), Bureau of Land Management (BLM), US Forest Service (USFS), Colorado State Forest Service, spoke about fire management efforts and funding sources. The West Region Wildfire Council CWPP Coordinator discussed how residents can provide feedback and stay involved. Each meeting had an open forum for comments, questions and answers and a drawing to reward those who took the time to participate. The second half of the meeting was an open house where drafts of the community descriptions, recommendations and associated maps were made available for review and markup. Comments and changes to maps or fuels treatment recommendations were collected and were incorporated into the final document where appropriate. In general the meetings indicated that there was support for the plan and its recommendations and interest in convening community meetings to start the process of implementation.

Listed below is a summary of the meeting dates and locations and the number of people in attendance at the meetings:

- Ouray County 4-H Events Center - March 9, 2011. 41 people attended.

Meeting announcements and sign in rosters are provided at the end of this appendix. The following are photos taken during the meetings.

### Photos from the public meeting at the Ouray County 4-H Events Center, March 9, 2011



A concerted effort was made to obtain additional public comments on the plan before it was finalized. The plan was posted on the County website and in hardcopy format at the Ouray County Court House and Ouray County Planning Office in Ridgway and advertised through County press releases. In addition, an effort was made to engage representatives from the CWPP communities in the draft plan review process. The West Region Wildfire Council CWPP Coordinator emailed the identified WMAs a copy of their community's section for review and comment. Hardcopies were mailed to some communities' WMA where an email address was not available. Comments were solicited during a minimum three week review period. Comments were recorded and shared with the stakeholder group and incorporated into the document where appropriate. Table B1 provides a list of comments received and the corresponding responses given during the plan review period.

**Table B1. Ouray County Public Review: Comments and Responses**

Committer	Subject	Comment	Response
Resident of Dallas Meadows Subdivision - John Young	Dallas Meadows Community Description	Provided input to make community description more accurate regarding access, defensible space, and water supply.	Revised section per remarks. Split Juniper Hills subdivision from Dallas Meadows into its own community.
Park Estates Resident - Jim Ross	Park Estates Community Description	Suggested contacting community HOA president; mentioned that community petitioned to become part of Ridgway FPD and has been engaged in wildfire mitigation as a condition of being part of the district	Contacted community HOA president
Park Estates HOA president- Annette Butts	Park Estates Community Description	The Plan states that Park Estates is the Ridgway Fire Protection District, but the map, Figure 21, is unclear. It appears to show just two parcels of land included in the RFPD, when the whole of Park Estates should be included. In order to be annexed into the Ridgway Fire Protection District, certain conditions had to be met and maintained. Primary access/egress into Park Estates is on Elk Ridge Trail through a locked gate with a key pad. Emergency services are informed of the gate code. There is an emergency exit by means of Coal Creek Road to County Rd. 17. Coal Creek Rd. can be accessed from Timber Road or Scenic Drive. The gates on Coal Creek and Timber Rd. are locked but residents and emergency services have the combinations. Road signage is uniform with reflective letters. Every intersection has a street sign. Addresses assigned by the county are posted on every lot.	Clarifications made in community description; corrections to map made

# Ouray County CWPP Appendix B | 2011

Commenter	Subject	Comment	Response
		<p>Newer homes are built in compliance with Ouray County building codes which require defensible space, fire resistant building materials, and water availability. Most homes have cisterns which are accessible. There are 4 private ponds from which water can be drawn.</p> <p>The correct name for the main road in Park Estates is Elk Ridge Trail, not road.</p> <p>Recommendations The recommendations are good and will be studied by the Association with the goal of implementing them or improving measures already taken.</p>	
Scott Williams	Question on fire hydrant testing	Sorry for these late comments, but I have only one. I may have missed it in the draft, but should the Plan include regularly scheduled fire hydrant testing? We are in Pleasant Valley and have fire hydrants in the development, but I'm not sure if they are tested regularly by our local fire district. Thanks!	Pointed out where it is recommended in the Ridgway Fire Protection District section in the Local Preparedness and Fire Protection District Capabilities of the plan
North Log Hill Mesa resident - Mary Deganhart	suggestion on cistern inventory; question on implementation	<p>We are residents of the North Log Hill Mesa area and have reviewed that portion of the CWPP. I have the following comments/suggestions: A possible additional recommendation would be to somehow inventory all of the individual cisterns on properties in this area and have them systematically and clearly marked for use by fire fighters in a wildland fire event.</p> <p>Comment: While there are a number of very useful and viable recommendations, how will these recommendations be implemented? What is the next step to ensure implementation?</p>	Shared with stakeholder group for consideration. Implementation leads identified in general recommendations in Appendix A to aid in plan implementation.

Comments on the draft plan were also solicited from the core group by the plan's consultants. An initial draft of the plan was posted on Basecamp for review and comment. A second, more complete draft was developed for public review and additional stakeholder input. This draft was reviewed by the County, local fire authorities, West Region Wildfire Council CWPP Coordinator, the Colorado State Forest Service District Forester, and the Montrose Interagency Fire Management Unit (BLM and USFS). Feedback on the draft was captured in email and on

Basecamp, and on marked-up hardcopies. This feedback, in addition to the public feedback, was integrated into a third draft. Following the core group's review this fourth and final CWPP was created.

## **Public Surveys**

In addition to the public meetings, a resident survey was also provided through the Zoomerang Survey website to assist the core team in identifying local values and understanding the general attitude residents have about hazards and risks of wildfire within their communities. This online resource was made available to the public and was launched on February 1, 2011 and was closed on April 5, 2011. Hardcopies of the survey were also made available at the public meetings. The survey consisted of 28 questions inquiring on topics such as, but not limited to; importance values for the area, concerns for wildfire risk, concerns on wildfire damage to various resources, overall feeling of safety, evacuation awareness, wildfire awareness, preferences on fuel treatments and defensible space, and overall concerns in addressing a wildfire occurrence. Ninety-four people completed the survey during that time. Results were used in the development of this plan, particularly to inform the values at risk section, and are detailed below. The results were also summarized in an Excel spreadsheet and shared with the core group on Basecamp.

A sampling of the quotes collected during the survey is listed below. Some of the recommendations have been formally incorporated into the document's action items in Appendix A:

*"Thank you for your concern! This questionnaire made me think about safety."*

*"We recommend more public awareness of the Fire Safety Rating for New Residential Structures. If properly enforced, this would go a long way towards mitigating fire risk in Ouray County. Most private homeowners are unaware of this document and how it affects their residence. This is because the contractor usually prepares the document and submits it at the time of building permit application. See LUC Section 24."*

*"Are residents being made aware of changes that need to be made? Will the escape route in Log Hill Village on Reservoir side opened up to public?"*

*"Concerned about Dallas Creek Water Co supply of water continuing in case of a power outage."*

*"The county needs to do two things: 1) ban ditch burning near the base of Log Hill escarpment, 2) require a permit and fire dept supervision to burn on Log Hill."*

*"The maintenance of Ouray County roads, with the completion of Ponderosa Dr. from about the 3500 block out to County Road 1 & 1A would help in the accessibility of fire fighting equipment, and also the escapability of the citizens in the Northeast portion of Log Hill Village and Water View subdivision."*

*"With a dry summer predicted this is a timely subject. Please be diligent in keeping everyone aware of the dangers, recommendations, improvements, etc."*

*"My 3 lots were fire mitigated by Fire Ready several years ago for a total of \$12,000 for 3 lots in Log Hill Village. This included cutting firebreaks, preserving oak and serviceberry growth which are fire-retardant. The soil was not disturbed, preventing noxious weed invasion as now required by Colorado state law. As far as I am concerned, this is the only acceptable method of fire mitigation. Hydroaxing is not to be condoned. It is disfiguring of the landscape and promotes fire-prone weed invasion."*

*"Please note that we now live in Ridgeway town limits but own a house and 3 lots on Log Hill and these comments apply to the Log Hill property."*

*"Being a Colorado Native I know that it is not if we are going to have a fire but WHEN! Just ask the folks on the Front Range after last year's fires. Nature is great but it must be managed to reduce risk to everyone and private property."*

*"Am NOT in favor of hydro-axe and aerial seeding within a residential subdivision as it has been done in Log Hill Village. Thoughtful thinning with use of wood is more appropriate than the wholesale waste of hydro-axing. Part of the reason to live on Log Hill is to enjoy the views WITH trees, but one must acknowledge the risk. Also, cheat grass is an issue (witness cheat grass fires on the CO Front Range and in north central Nevada) that should be addressed."*

*"Thanks for taking the time to address wildland fires in Ouray County. We need to be responsible stewards of our land, forests, and water..."*

*"Any effort you are thinking of should be ongoing, not on and off as time goes by and subject to personnel changes"*

*"A destructive wildfire on Log Hill Mesa could occur and would be a local catastrophe, resulting in enormous land value reductions, and associated tax revenue loss to the county"*

*"The Log Hill HOA is unreasonable in allowing fire hazard tree removal for its residents."*

*"Thank you for the time and resources that have gone into promoting fire mitigation in our community."*

*"Thank you for bringing this issue to Ouray County residents."*

*"I would love for someone to pay for a chipper = I will even furnish the labor. On a fixed income (S.S.) I don't have enough money to do all that I want to."*

*"Most people have no idea the intensity of a wildfire or how frightening it can be if they are not at all familiar with what the sights and sounds and heat and smoke are like."*

*"County Road 1 is so poorly maintained that fire trucks have a hard time responding."*

*"I live full time in a different part of Colorado where we have evacuated several times because of the threat of wildfires. LHV's restrictions on cutting trees around the home concern me somewhat, as they leave a lot of fuel for fires. I would never clear-cut a property, as we all love trees, but I believe the current rules only require 15 or 30 feet of defensible space -- it should be much more."*

*"The community needs to be better informed and there needs to be several opportunities per year to attend workshops. " - Log Hill Village Resident*

*"Thanks for all your effort and hard work!!"*

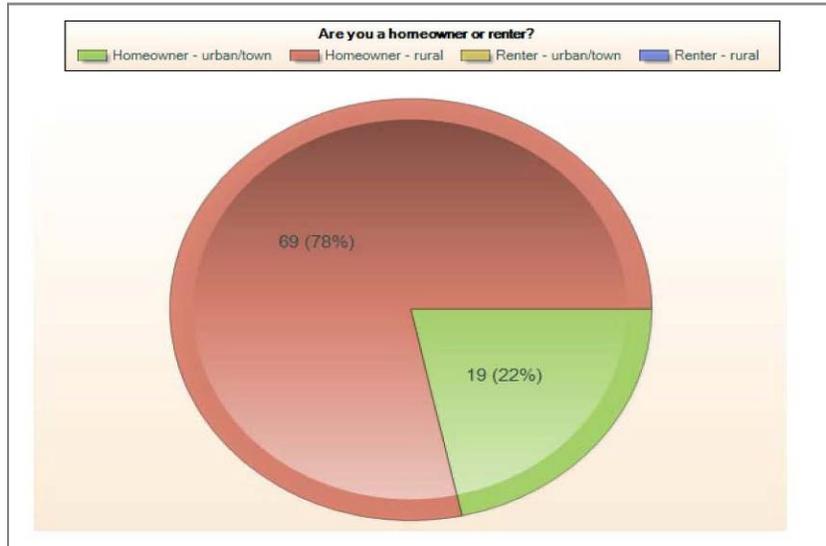
*"Interest in chipping program"*

*"I have been thinning the forest around my house for many years."*

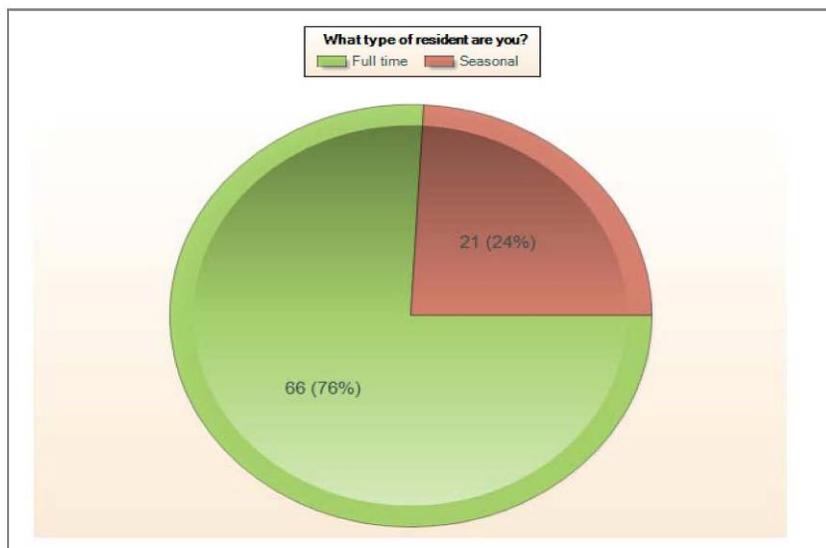
*"We have created phases of treatment areas on our 5 acres."*

The graphics below provide a visual summary of the respondents' answers to the posted survey. Unfortunately the low number of respondents to the survey did not yield statistically significant results. Additional planning process documentation follows the survey results.

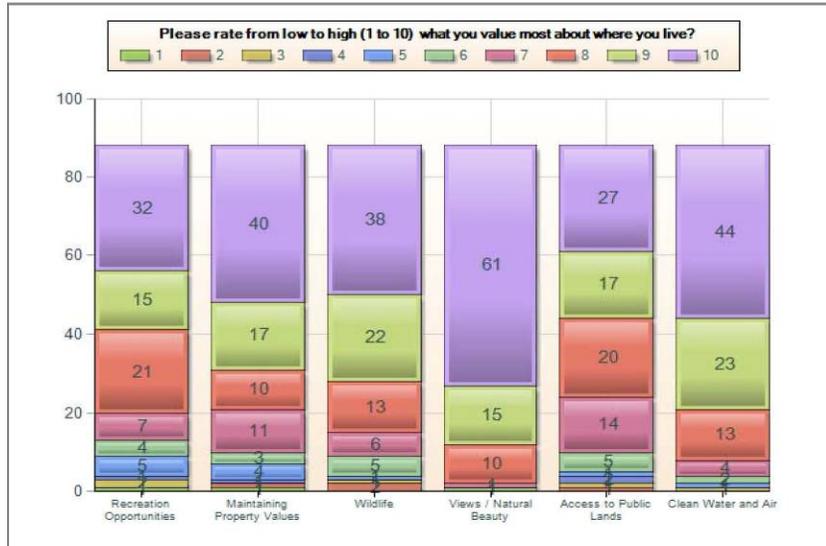
**Ouray County Community Wildfire Protection Plan Resident Survey:** Are you a homeowner or renter?



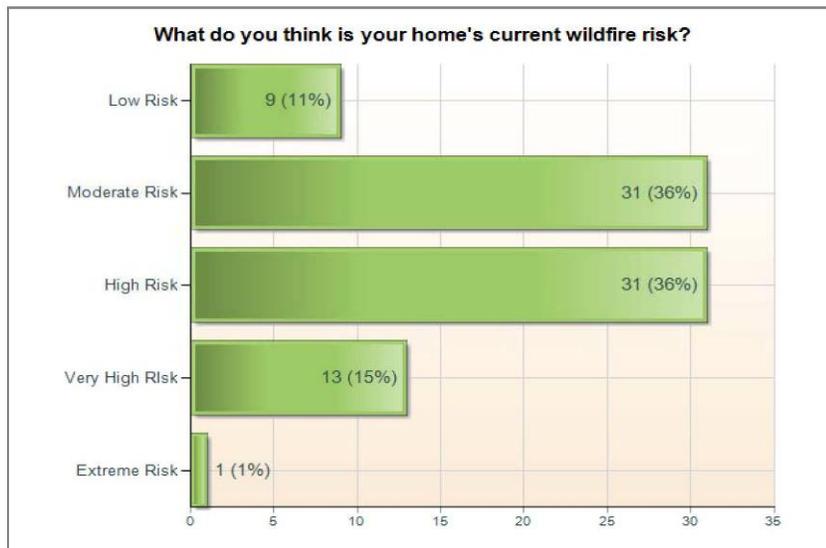
**Ouray County Community Wildfire Protection Plan Resident Survey:** What type of resident are you?



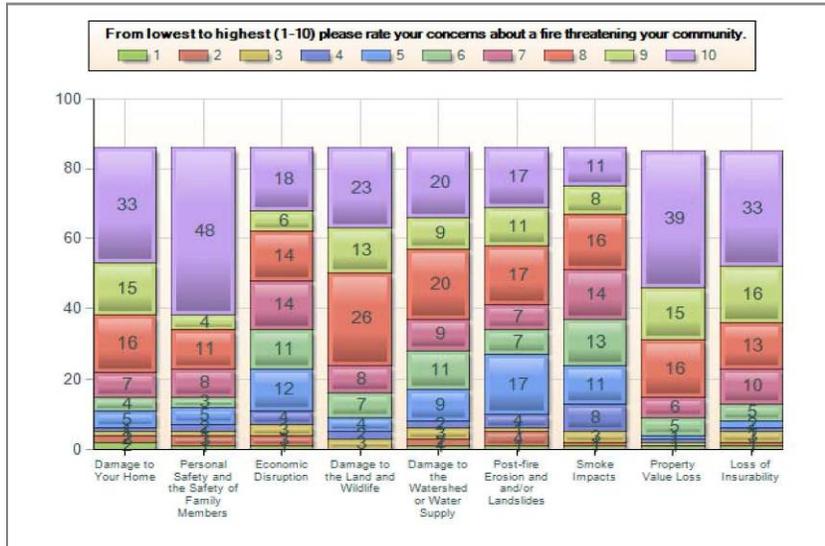
**Ouray County Community Wildfire Protection Plan Resident Survey:** Please rate from low to high (1 to 10) what you value most about where you live?



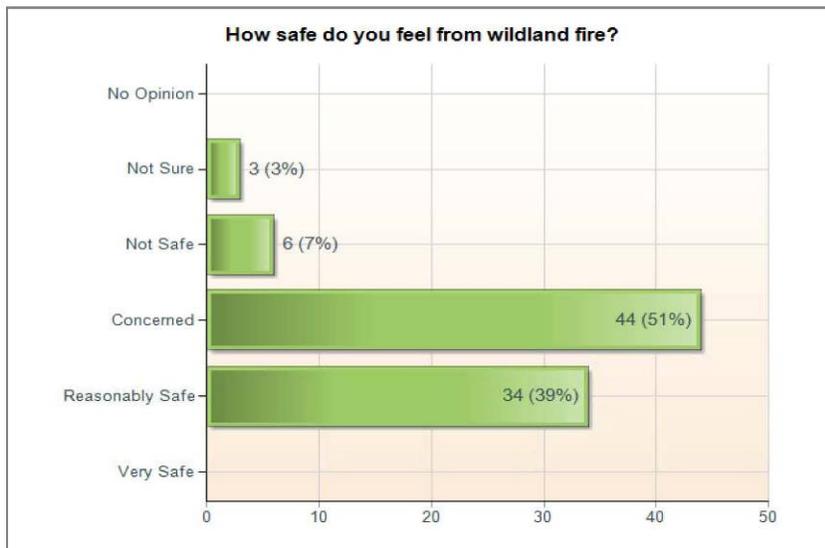
**Ouray County Community Wildfire Protection Plan Resident Survey:** What do you think is your home's current wildfire risk?



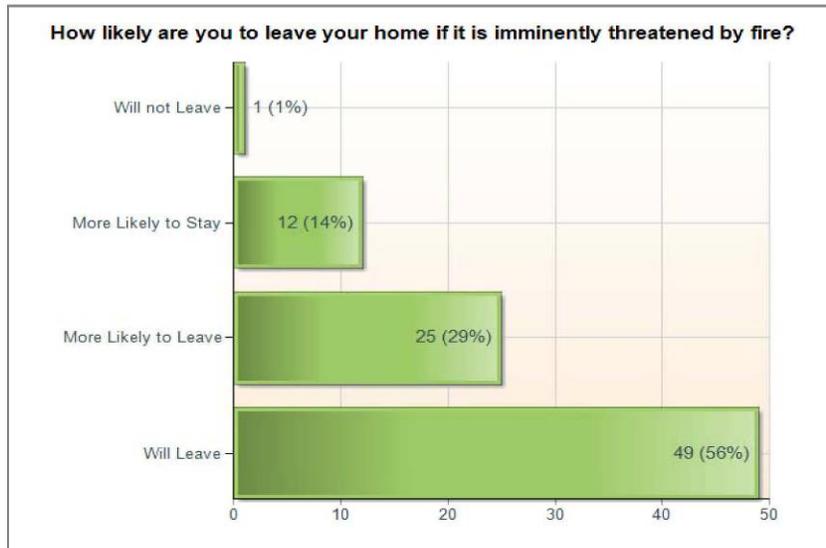
**Ouray County Community Wildfire Protection Plan Resident Survey:** From lowest to highest (1-10) please rate your concerns about a fire threatening your community.



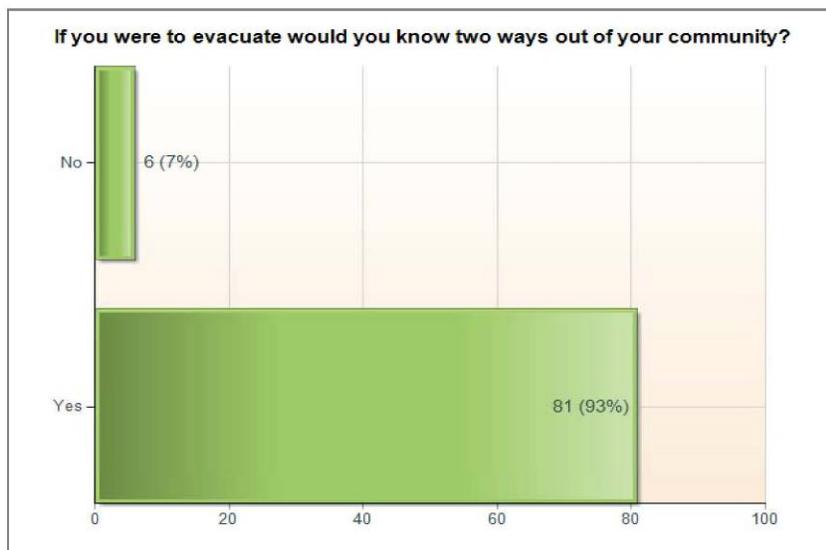
**Ouray County Community Wildfire Protection Plan Resident Survey:** How safe do you feel from wildland fire?



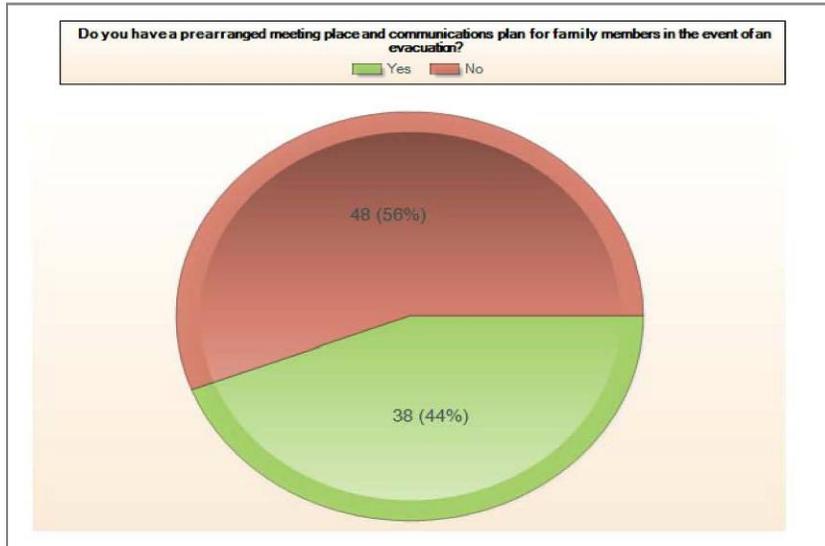
**Ouray County Community Wildfire Protection Plan Resident Survey:** How likely are you to leave your home if it is imminently threatened by fire?



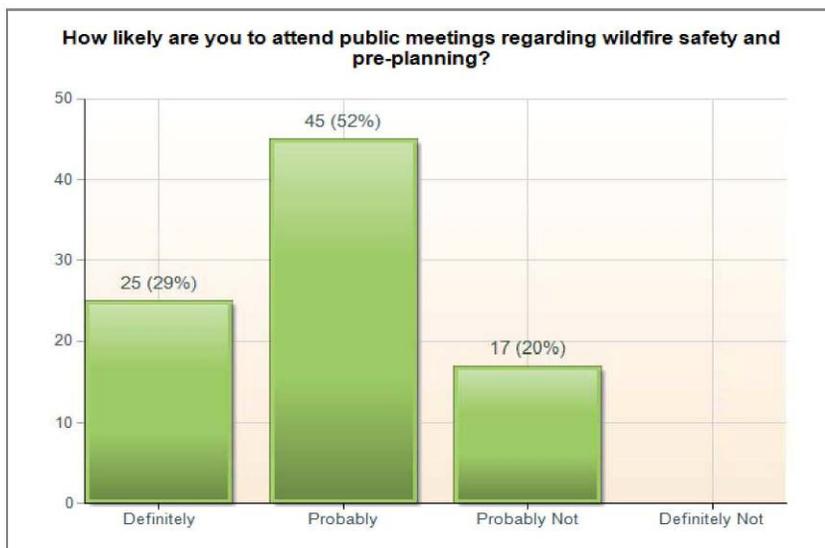
**Ouray County Community Wildfire Protection Plan Resident Survey:** If you were to evacuate would you know two ways out of your community?



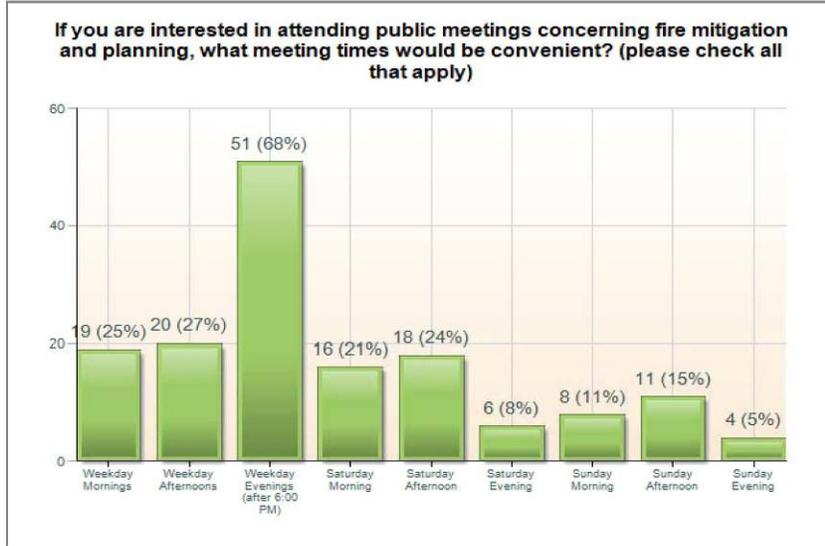
**Ouray County Community Wildfire Protection Plan Resident Survey:** Do you have a prearranged meeting place and communications plan for family members in the event of an evacuation?



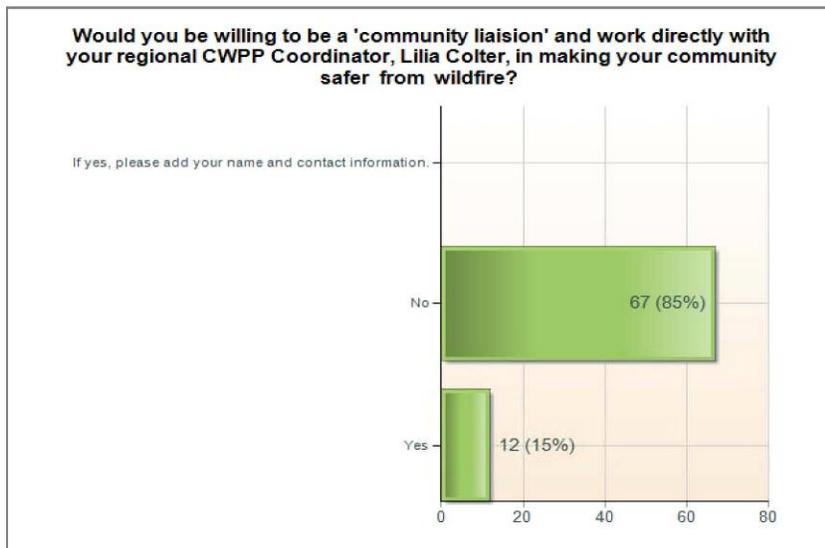
**Ouray County Community Wildfire Protection Plan Resident Survey:** How likely are you to attend public meetings regarding wildfire safety and pre-planning?



**Ouray County Community Wildfire Protection Plan Resident Survey:** If you are interested in attending public meetings concerning fire mitigation and planning, what ...



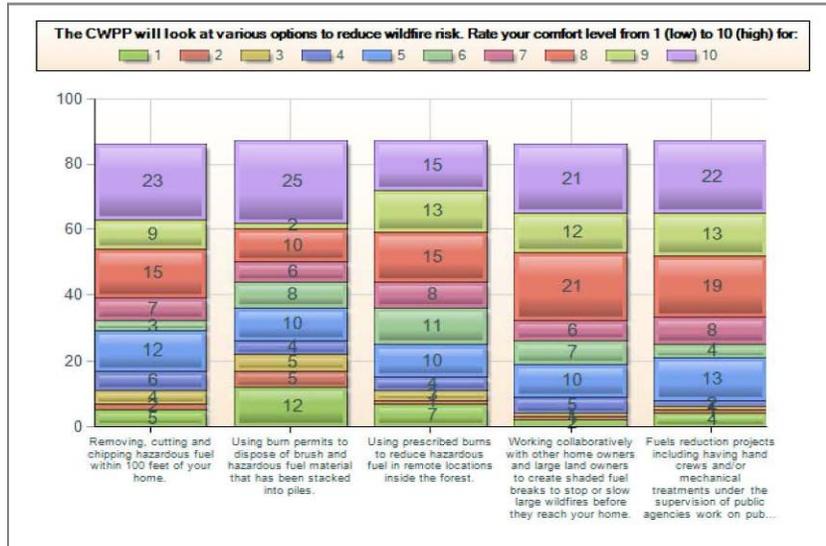
**Ouray County Community Wildfire Protection Plan Resident Survey:** Would you be willing to be a 'community liaison' and work directly with your regional CWPP Coord ...



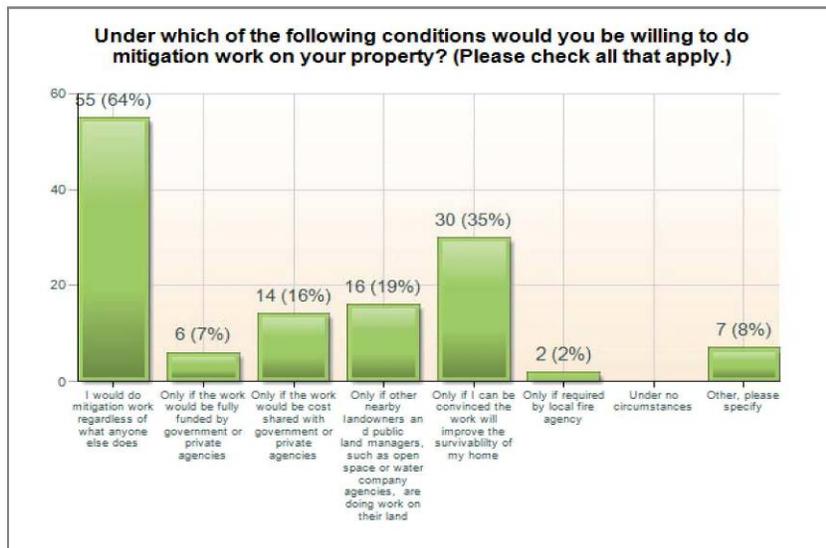
**Ouray County Community Wildfire Protection Plan Resident Survey:** The CWPP will look at various options to reduce wildfire risk. Rate your comfort level from 1 (low) to 10 (high)



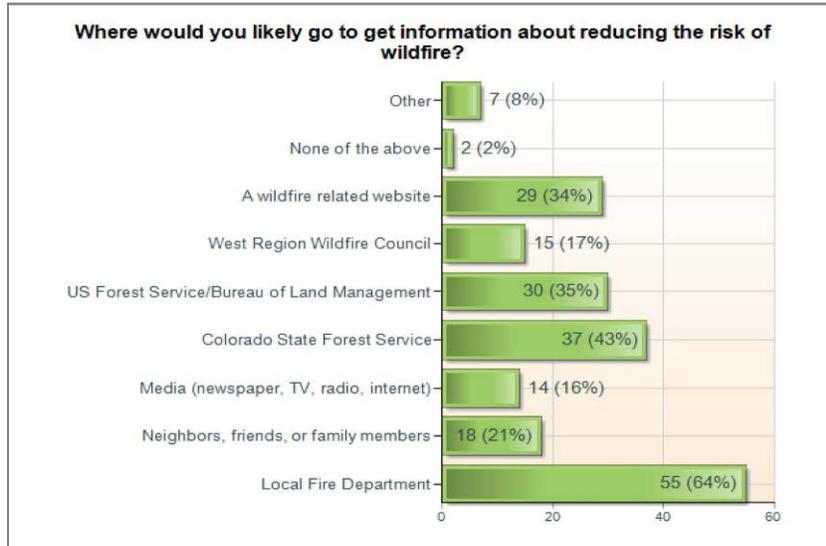
...



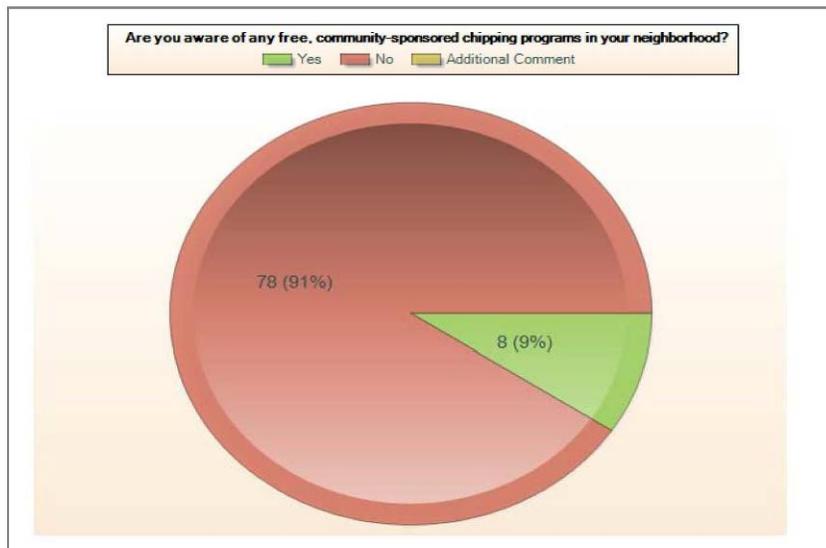
**Ouray County Community Wildfire Protection Plan Resident Survey:** Under which of the following conditions would you be willing to do mitigation work on your proper ...



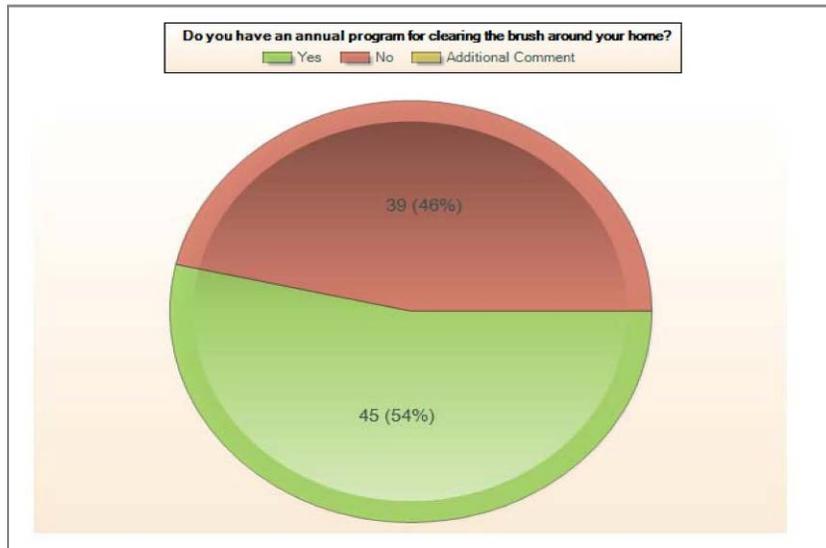
**Ouray County Community Wildfire Protection Plan Resident Survey:** Where would you likely go to get information about reducing the risk of wildfire?



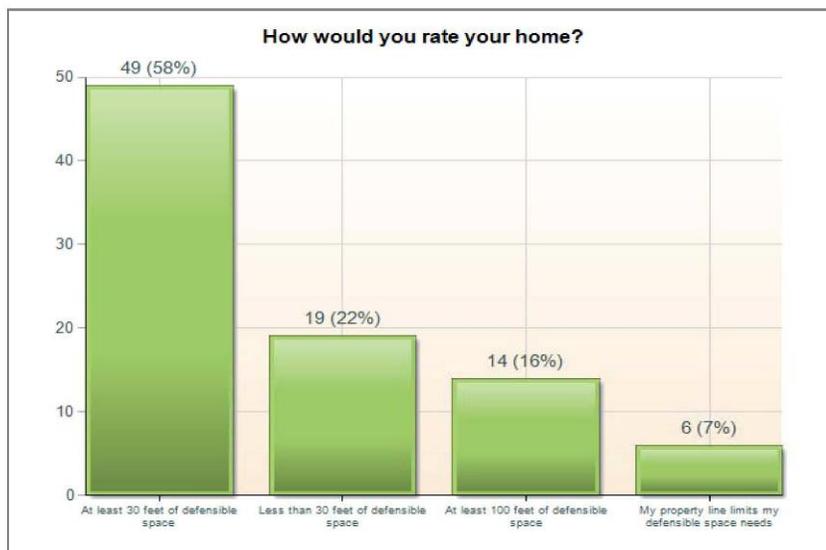
**Ouray County Community Wildfire Protection Plan Resident Survey:** Are you aware of any free, community-sponsored chipping programs in your neighborhood?



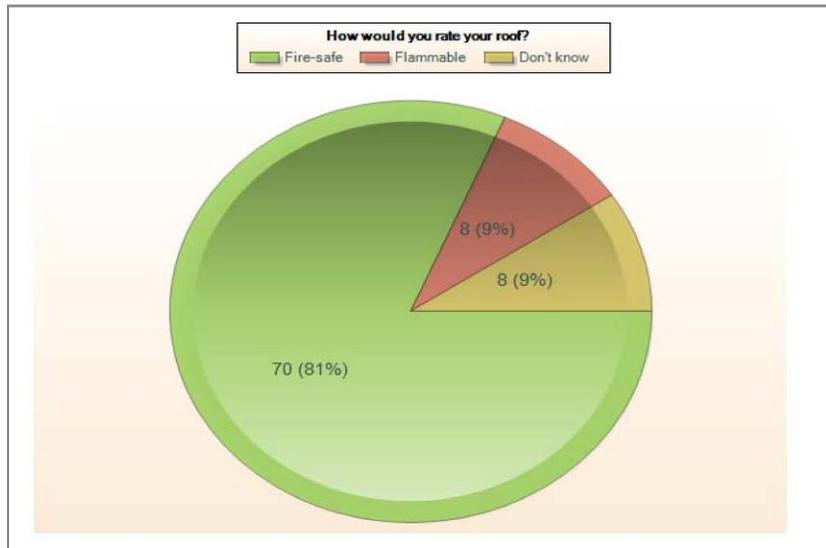
**Ouray County Community Wildfire Protection Plan Resident Survey:** Do you have an annual program for clearing the brush around your home?



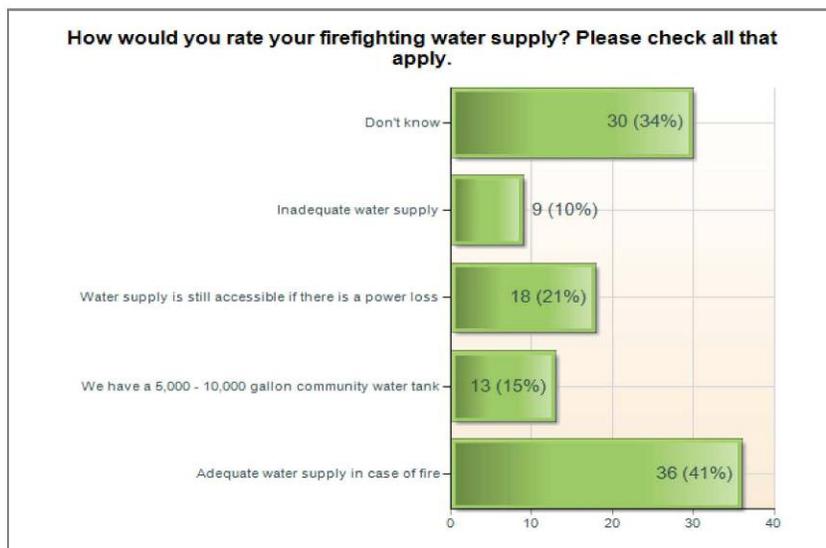
**Ouray County Community Wildfire Protection Plan Resident Survey:** How would you rate your home?



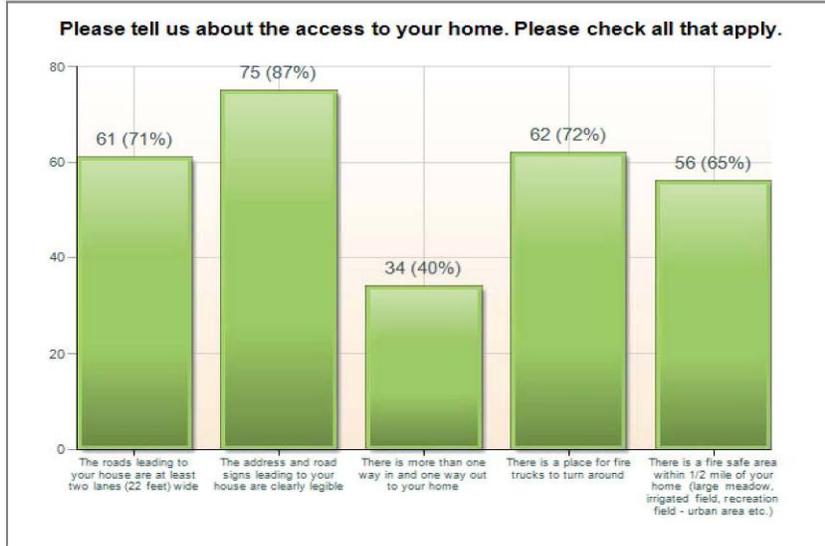
**Ouray County Community Wildfire Protection Plan Resident Survey:** How would you rate your roof?



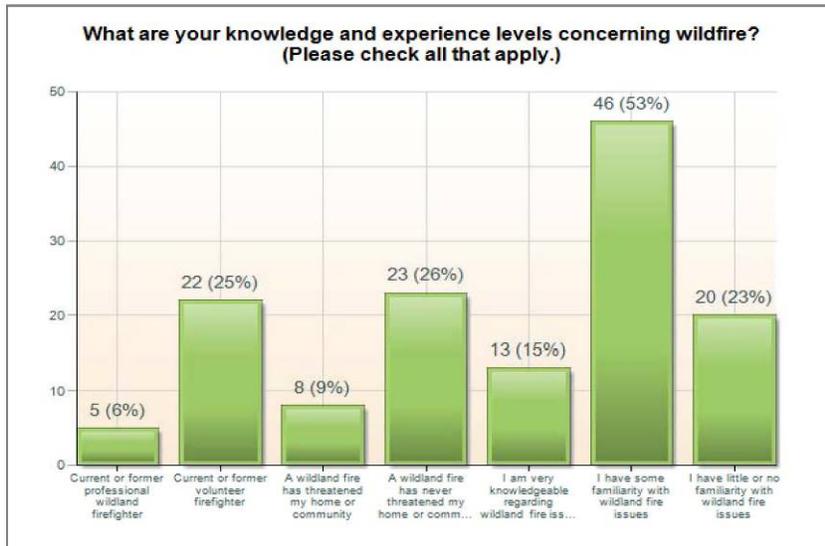
**Ouray County Community Wildfire Protection Plan Resident Survey:** How would you rate your firefighting water supply? Please check all that apply.



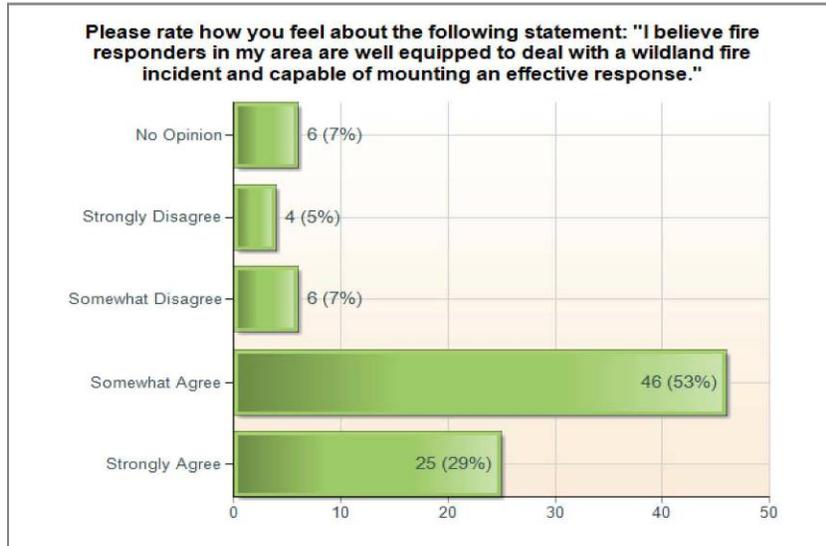
**Ouray County Community Wildfire Protection Plan Resident Survey:** Please tell us about the access to your home. Please check all that apply.



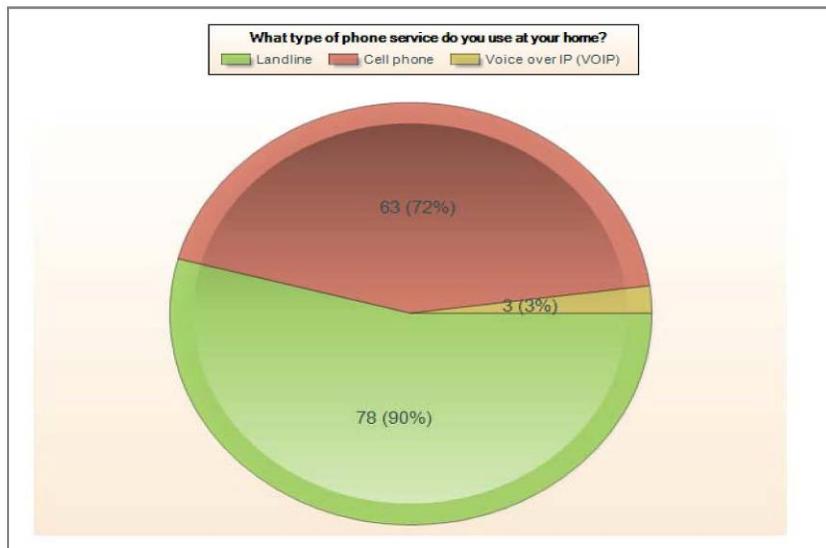
**Ouray County Community Wildfire Protection Plan Resident Survey:** What are your knowledge and experience levels concerning wildfire? (Please check all that apply.)



**Ouray County Community Wildfire Protection Plan Resident Survey:** Please rate how you feel about the following statement: "I believe fire responders in my area are ...



**Ouray County Community Wildfire Protection Plan Resident Survey:** What type of phone service do you use at your home?



**ADDITIONAL PLANNING PROCESS DOCUMENTATION**

**Letter of invitation to public meetings sent to at least one Wildfire Mitigation Advocate within each CWPP community**



541 4th Street · P.O. Box C · Ouray, Colorado 81427 · 970-325-7320 325-4961 · Fax 970-325-0452

February 14, 2011

Dear Ouray County resident,

Anchor Point Group, AMEC, and the West Region Wildfire Council would like to invite you to attend a public meeting on behalf of Ouray County to learn about your Community Wildfire Protection Plan (CWPP).

A CWPP enables the community to participate in planning how it will reduce the risk of wildfire. A CWPP identifies strategic sites for fuel reduction projects across the landscape and jurisdictional boundaries. Further, the CWPP process is effective for improving coordination and communication between emergency response agencies and the community. Spending an adequate amount of time developing a CWPP can help clarify and refine priorities to protect life, property, infrastructure, and valued resources. This process can lead communities through critical discussions about private and public land management, as well as identifying opportunities for wildfire mitigation within the wildland urban interface.

Once completed, the CWPP can improve access to funding sources for wildfire mitigation on both public and private lands. Federal financial assistance for hazardous fuel reduction projects on non-federal lands is available through state and federal partners for wildland urban interface communities identified in CWPPs.

**Ouray County Community Wildfire Protection Plan Meeting:**

**Wednesday, March 9th**

**Ouray County 4-H Events Center**

**7:30 PM**

17561 U.S. Hwy 550

Ridgway, CO 81432

The purpose of the meetings will be to raise awareness of the planning efforts, engage interested citizens, present hazard and risk assessment results, and get input and feedback on preliminary mitigation recommendations.

The Ouray County Community Wildfire Protection Plan meetings will be a combination of presentation and open house. The presentation will be facilitated by Anchor Point Group and AMEC and last approximately 30 minutes. Representatives from Ouray County, the West Region Wildfire Council, the Colorado State Forest Service, the Bureau of Land Management, and US Forest Service will be in attendance to give an overview of their wildfire programs and mitigation efforts. After the presentations there will be a general Q&A session (approximately 30 minutes); followed by an open house.

To date, the development of the Ouray County CWPP has relied on the collaboration of local fire districts; county, state, and federal government representatives; and the West Region Wildfire Council working with Anchor Point Group and AMEC as the wildfire management consultants.

**Your participation to the development of the CWPP at this point is critical to the long term success of the plan.** The West Region Wildfire Council will be also asking for assistance with an ongoing effort to inform and educate others in the community of the risks of wildfire.

Thank you for your interest in the safety of your community. We look forward to your attendance at one of the upcoming public meetings.



**Letter soliciting participation as a community wildfire mitigation advocate (WMA)**

**Be Your Community's Wildfire Advocate**



The success of Community Wildfire Protection Plan (CWPP) will ultimately be determined by the ability of both the public and community stakeholders to implement the recommendations in order to mitigate wildfire risk and protect life, property, infrastructure, and resources. The West Region Wildfire Council is dedicated to working with the public and our regional partners to implement recommendations to make our communities safer in the event of a wildfire.

The mission of the West Region Wildfire Council is to support interagency efforts to develop and implement plans to better mitigate the threat of catastrophic wildland fire to communities and natural resources in the Colorado counties of Delta, Gunnison, Hinsdale, Montrose, Ouray and San Miguel. This is accomplished by encouraging the exchange of information and collaboration between local communities and state and federal fire managers for fuels management, wildfire suppression, enhancing capability, planning and collaboration.

To support the CWPP and the collaborating agencies, the West Region Wildfire Council is interested in working with individuals in each community to:

- act as a community liaison and maintain a working relationship with their fire chief, federal, state and county representatives
- become educated, and educate others on the importance of being Firewise
- know how to leverage the technical expertise and financial assistance of partners to reach the goals of their community
- spread the word of available grant funds to the people in their community
- help their community connect with the resources necessary to accomplish the mitigation recommendations outlined for their community

If you would be interested in representing your community and its efforts to mitigate the threat of wildfire, please fill out the information below and return to:

**West Region Wildfire Council  
102 Par Place, Suite 1  
Montrose, CO 81401**

---

NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_  
 COMMUNITY NAME: \_\_\_\_\_  
 PHONE: \_\_\_\_\_  
 EMAIL: \_\_\_\_\_

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Or email Lilia Colter, West Region Wildfire Council CWPP Coordinator at: [wrrwc.lilia@gmail.com](mailto:wrrwc.lilia@gmail.com)

**West Region Wildfire Council**  
 102 Par Place, Suite 1, Montrose, Colorado 81401  
 Phone: (970) 249-9051 ext. 125 • Email: [wrrwc.lilia@gmail.com](mailto:wrrwc.lilia@gmail.com)

**Advertisement for press release**

FOR IMMEDIATE RELEASE:

2-15-2011

CONTACT: Ouray County Emergency Management

**Public invited to Community Wildfire Protection Plan Meetings**

Please join neighbors and friends for a meeting to discuss the County's draft Community Wildfire Protection Plan. The Ouray County public meeting is scheduled for **7:30pm Wednesday, March 9<sup>th</sup> at the Ouray County 4-H Events Center, 17561 U.S. 550**. The meetings are an opportunity for the public and stakeholders to provide feedback on what will become the *Ouray County Community Wildfire Protection Plan*. The meetings will present an overview of the County's communities at risk to wildfire along with prospective hazard reduction and fuels treatment measures intended to reduce the wildfire risk to people, structures, and community values. County staff and Federal and State partners will be present to discuss planned risk reduction measures and provide information on what you can do to reduce your risk from wildfires.

There will be an opportunity to win door prizes at the meetings. Cookies and refreshments will be provided.

Feedback on wildfire-related concerns can also be provided through an on-line survey: **<http://www.zoomerang.com/Survey/WEB22BTU69C8RR/>**

**For more information, please contact:**

Alan Staehle, Ouray County Emergency Management  
[awsouray@aol.com](mailto:awsouray@aol.com), 970-325-4823

Lilia Colter, West Region Wildfire Council CWPP Coordinator  
[wrtc.lilia@gmail.com](mailto:wrtc.lilia@gmail.com), 970-249-9051 ext 125

Junior Mattevi, Ouray County Sheriff  
[dmattivi@ouraycountyco.gov](mailto:dmattivi@ouraycountyco.gov), 970-325-7273

Flyer for public meeting in Ridgway

## Community Wildfire Protection Plan

# PUBLIC MEETING NOTICE



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**DATE:** Wednesday, March 9th  
**TIME:** 7:30 PM  
**LOCATION:** Ouray County 4-H Events Center, 17561 U.S. Hwy 550 Ridgway, CO 81432

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Please join us on Wednesday March 9th to discuss Ouray County's draft Community Wildfire Protection Plan. The meeting is an opportunity for the public and stakeholders to provide feedback on what will become the *Ouray County Community Wildfire Protection Plan*. The meeting will present an overview of the county's communities at risk from wildfire, along with prospective hazard reduction and fuels treatment projects intended to reduce the risk to people, structures, and community values. County staff and federal and state partners will be present to discuss planned risk reduction measures and provide information on how you can reduce your risk from wildfires. The plan is being prepared with assistance from Anchor Point and AMEC.

**Chance to win Ouray Hot Springs passes and other great door prizes!!**  
*Cookies and refreshments will be provided*

We want your feedback! Take our online survey at:  
<http://www.zoomerana.com/Survey/WEB22BTU69C8RR/>

For more information, please contact:  
Lilia Colter, West Region Wildfire Council, [wrrc.lilia@gmail.com](mailto:wrrc.lilia@gmail.com) 970-249-9051 x125  
Jeff Brislaw, AMEC Earth and Environmental, [jeff.brislaw@amec.com](mailto:jeff.brislaw@amec.com) 303-443-7839

**PARTNERS:**

- Ouray County
- West Region Wildfire Council
- Log Hill, Ouray and Ridgway Fire Protection Districts and the Horsefly Fire Protection Association



Public meeting rosters - March 9th 2011 Meeting in Ridgway

Ouray County Community Wildfire Protection Plan Public Meeting					
Name	Community Designation	Email	Phone Number	Address	Home Phone / Fax
1. Glenn Case	Ridgway AEA	sacase@starband.net	626-5273	545 RIDGE B, Montrose	80740
2. Kandle A. Gardner	Ridgway	blackhawk@ridgway.com	325-4923	601 Diderot St Ridgway	
3. Dan Bartholomew	Ridgway		626-5640	423 N. Amelia Ridgway	
4. Bob Luttrell	Log Hill		626-5477	840 BEAR CUPS	
5. Denise Borg	Ridgway	Theborg54@yahoo.com	325-7371	497 Marip Rd ↓	
6. Steve Borg	Ridgway	↓	↓		
7. Steven Boice	Ridgway	smcsteo@yaboo.com	970-318-5077	300 S Elyabeth St.	
8. John Young	Ridgway	JOHN@DALLS MEDICALS johnyounglenda@g.com	626-5043	151 W CAMP SPRING CRT	
9. Patrick Romatelli	City of Ouray	romatelli@cityofouray.co.us	325-7060	POB 468 Ouray 81427	
10. Russ Evans	Log Hill Village	evanslawanda@gmail.com	626-4194	1523 Juniper Rd N 81432	
11. Brian Wallin	COMBESTONE	BRADW@COMBESTONE.COM	497-8313	1000 COMBESTONE TR. MONT 81405	
12. Bill Steele	RIDGWAY	URSTEELE@PMM.COM	946-3603	PO Box 801 81432	
13. Norm Rooker	OUTRIPPING OUTRIPPING	normrook@comboy.com	316-0000	PO Box 1205 O. 81427	
14. Carol Ashby	LOG HILL				
15. Lena Gunn	Log Hill	LOVENATAY@AOL	626-5875	30 Hummingbird 81427 N	
16.					
17.					
18.					
19.					
20.					
21.					

Ouray County Community Wildfire Protection Plan Public Meeting				
Name	Community Designation	Email	Phone Number	Address
1 Anna Pierce	Danewood Rd.	dona.pier@montrose.net	209-2629	35 Gypsy Ln.
2 Kristin Copeland	AST	Kristin.cape.knd@state.co.us	626-5833	28555 Hwy 55D
3 COLETTE MILNE	CEEMS	CEMILNE@COERCOUNTY.CO.US	325-2775	13042 Co Rd One
4 KULANTHAKRAN	So Slope	juliamj88@gmail.com	626-4317	374 Amantia Dr.
5 Katy Miller	Summitoneis	pmi1862939@gmail.com	626-3274	800 Amantia Dr
6 Dennis Elvasip	Promontones	ddelvaso@hobart.com	626-3404	3880 MARINER DR.
7 TOM CORNER	L-14 UFD	TCMCR@Q.COM	626-4470	150 Cinnamon Dr.
8 Rachel Barth	Vista Terrace	r.barth@me.com	202-6441	1523 Timber Rd N
9 Al Lowande	Log Hill Village	evanslowanda@msn.com	626 4194	372 Pleasant Valley Dr
10 Seth Williams	Pleasant Valley Vlk	s.williams2001@verizon.com	626-26-2579	345 Birtzie M Dr.
11 Mary Dezenhad	Wisteria	mdezenhad@ouraycounty.co.us	626-3302	Fireman Concrete Rd
12 Dawn Wilson	Log Hill F.D.	dawn.wilson@q.com	626-3971	240 Vista Dr.
13 Jeanne Claire Luyckx	Vista Terrace		626 4429	
14 JONIOR HATTEN				
15				
16				
17				
18				
19				
20				
21				

Ouray County Community Wildfire Protection Plan Public Meeting				
Name	Community Designation	Email	Phone Number	Address
1 DAVE PIERCE	Dorewood Rd	DAVP1ER@montrose.net	209-7261	35 Grey Ln 81403
2 DUDLEY CASE	RIDGE RD	mdu.case@mac.com		345 RIDGE RD 81449
3 DARRYL HARRISON	RACHS NEIGHB	some11nart@gnpsno	626-5315	38 DAMASC, RIDGWAY
4 OLAF RASMUSSEN	PROMONTORVES	olrasmusse144@hotmail.com	626-3274	774 Promontior R'way
5 DAVE DREW	Ridgway	dave@drewllc.com	626-244	225 S. ANSELIA ST. RIDGWAY
6 STEVE KING	LOG HILL	PLATEAUCONTROLS@GMAIL	626-5175	230 S UNROSE LN.
7 Dick Kneutgen	Log Hill	r.kneutgen@msn.com	626-5868	642. Marmer Dr.
8 PHIL GOULD	RIDGWAY/LHW	HCLT@MAC.COM	376-0991	PO BOX 908 RIDGWAY
9 Anthony Gerauff	Ridgway	agerauff@comcast.net	626-9442	611 Terrace Dr. Ridgway
10 Charles Herwood	Pleasant Hills	HeyChuckE@qmail.com	626-9840	2131 Pleasant Hills Ct. Ridgway
11 Bill Stowers	LOG HILL	BSTOWERS@MONTROSE.NET	240-1643	684 C.R. #22
12 Bob Mitten	Log Hill		626-3299	116 Penrose Dr.
13				
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**Letter soliciting comments on final plan**



Dear Ouray County Resident,

Ouray County is in the final stages of completing their Community Wildfire Protection Plan (CWPP). The plan details the nature of the wildfire hazard within the county and includes specific information on communities at risk. The plan also details wildfire risk reduction recommendations for each defined community.

The county along with the planning contractors are looking to area specific residents to provide feedback and comments on their specific community's section in the plan.

Enclosed you will find:

- Wildfire Hazard Rating and brief community description
- General and or specific fuels reduction recommendations
- A map of your community outlining fuels reduction recommendations (where appropriate)

We encourage you to review your community's section of the plan and make comments and suggestions. The public review period is an essential part to ensuring the success of this plan.

Please direct any comments or suggestions to Jeff Brislaw, one of the consultants contracted through the county to complete the plan. Comments will be accepted by phone, fax, email or can be mailed in directly to AMEC Earth & Environmental through April 13<sup>th</sup>

Jeff Brislaw  
AMEC Earth & Environmental, Inc.  
1002 Walnut St, Suite 200 Boulder, CO 80302  
Phone: 303.443.7839  
Fax: 303.442.0616  
[jeff.brislaw@amec.com](mailto:jeff.brislaw@amec.com)

The entire plan is also available for review on the Ouray County website. There are also hard copies of the plan available at:

**Ouray County Court House**  
541 4th St  
Ouray, CO 81427  
970-325-7320

**Ouray County Land Use Office**  
111 Mall Road  
Ridgway, CO 81432  
970-626-9775

As a reminder, the online survey will be available through April 1<sup>st</sup>. The survey can be found at:  
<http://www.zoomerang.com/Survey/WEB22BNTLUA82N/>

If you would like to be involved in helping your community implement the recommendations in the plan or would like information on grant opportunities or becoming your community's Wildfire Advocate, please contact Lilia Colter with the West Region Wildfire Council.

We look forward to hearing from you,

Lilia Colter  
West Region Wildfire Council  
CWPP Coordinator

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**West Region Wildfire Council**

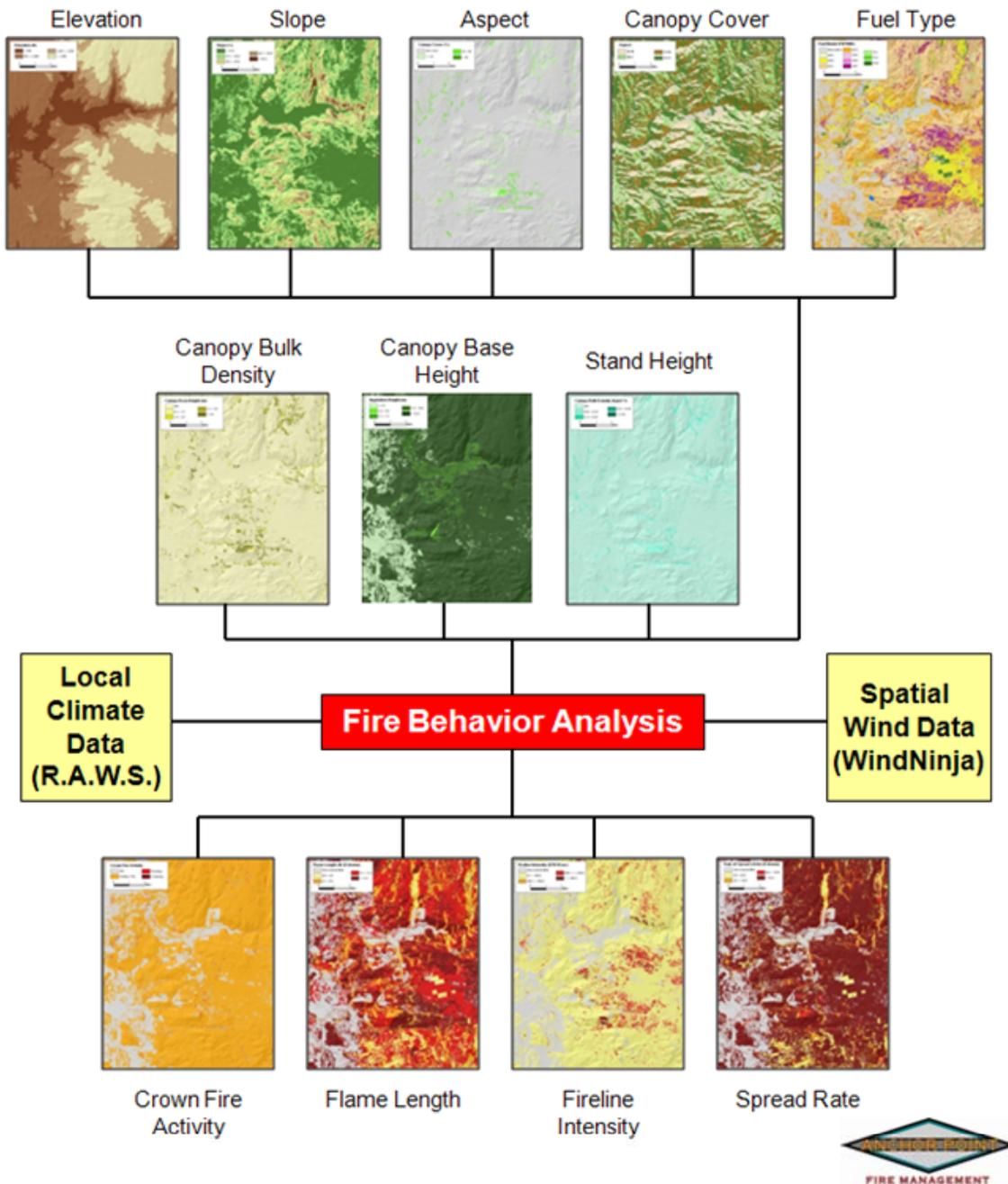
102 Par Place, Suite 1, Montrose, Colorado 81401  
Phone: (970) 249-9051 ext. 125 • Email: [www.lilia@gmail.com](mailto:www.lilia@gmail.com)

## APPENDIX C: FIRE BEHAVIOR TECHNICAL REFERENCE FIRE BEHAVIOR POTENTIAL ANALYSIS METHODOLOGY

### Purpose

The purpose of this document is to describe the methodology used to evaluate the threat represented by physical hazards such as fuels, weather and topography to values at risk in the study area, by modeling their effects on potential fire behavior potential.

Figure C1. Flow Chart for Fire Behavior Modeling Process



The fire behavior potential analysis graphically reports the probable range of spread rate, flame length, and crown fire potential for the analysis area, based upon a set of inputs significant to fire behavior. The model inputs include aspect, slope, elevation, canopy cover, fuel type, canopy bulk density, canopy base height, stand height, and climate data. The model outputs are determined using FlamMap, which combines surface fire predictions with the potential for crown fire development.<sup>2</sup>

## **Modeling Limitations and Discussion**

This evaluation is a prediction of likely fire behavior, given a standardized set of conditions and a single point source ignition at every point. It does not consider cumulative impacts of increased fire intensity over time and space. The model does not calculate the probability that a wildfire will occur. It assumes an ignition occurrence for every 30m x 30m cell. These calculations may be conservative (under-predict) compared to observed fire behavior.

Weather conditions are extremely variable and all possible combinations cannot be accounted for. These outputs are best used for pre-planning and not as a stand-alone product for tactical planning. Whenever possible, fire behavior calculations should be done with actual weather observations during the fire. The most current Energy Release Component (ERC) values should also be calculated and distributed during the fire season to be used as a guideline for fire behavior potential.

Anchor Point's fire behavior modeling process for surface fire draws heavily from the BEHAVE fire behavior prediction and fuel modeling system.<sup>3</sup> BEHAVE is a nationally recognized set of calculations used to estimate a surface fire's intensity and rate of spread given certain topographical, fuels, and weather conditions.

The BEHAVE modeling system has been used for a variety of applications, including predictions of current fires, prescribed fire planning, fuel hazard assessment, initial attack dispatch, and fire prevention planning and training. Predictions of wildland surface fire behavior are made for a single point in time and space, given user-defined fuels, weather, and topography. Requested values depend on the modeling choices made by the user.

## **Assumptions of BEHAVE:**

- Fire is predicted at the flaming front (fire behavior is not modeled for the time after the flaming front of the fire has passed)
- Fire is free burning (uncontrolled by suppression efforts)
- Behavior is heavily weighted towards the fine fuels (grasses and small-diameter wood)
- Fuels are continuous and uniform
- Fires are considered to be surface fires (crown fire activity is modeled separately)

BEHAVE makes calculations at a single point. In order to make calculations for an entire landscape (important for pre-planning the effects of a wildfire at the community, district, or

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<sup>2</sup> Mark Finney, Stuart Brittain and Rob Seli. The Joint Fire Sciences Program of the Rocky Mountain Research Station (USDA Forest Service, Missoula, Montana), the Bureau of Land Management and Systems for Environmental Management (Missoula, Montana).

<sup>3</sup> Patricia L. Andrews, producer and designer, Collin D. Bevins, programmer and designer, The Joint Fire Sciences Program of the Rocky Mountain Research Station (USDA Forest Service, Missoula, Montana) and Systems for Environmental Management (Missoula, Montana).

county scale), fire behavior is modeled using FlamMap which models surface fire predictions and the potential for crown fire development.<sup>4</sup>

### **Assumptions of FlamMap:**

- Each calculation in a given area is independent of calculations in any other area. Fire is not modeled dynamically across the landscape but statically as a series of individual calculations.
- Weather inputs such as wind and fuel moistures do not change over time
- Fire behavior modeling calculations are performed in a series of uniform squares (or “pixels”) across the landscape. These pixels determine the level of detail and nothing smaller than a pixel (30m x 30m in this case) is included in the modeling.

Crown fire activity, rate of spread, and flame length are derived from the fire behavior predictions. A limitation of FlamMap is that crown fire is not calculated for shrub models. The best method of determining the probability of crown fire in shrubs is to look at the flame length outputs and assume that if the flame length is greater than ½ the height of the plant, it will likely torch and/or crown. The following maps graphically display the outputs of FlamMap for both moderate and high weather conditions.

This model can be conceptually overlaid with the Community Wildfire Hazard Ratings (WHR) or other values at risk identification to generate current and future “areas of concern,” which are useful for prioritizing mitigation actions. This is sometimes referred to as a “values layer.” One possibility is to overlay the fire behavior potential maps with the community hazard map. This will allow for a general evaluation of the effects of the predicted fire behavior in areas of high hazard value (that is, areas where there are concentrations of residences and other man-made values). However, one should remember that the minimum mapping unit used for fire behavior modeling is one acre; therefore, fine-scale fire behavior and effects are not considered in the model. The fire behavior prediction maps are best used for pre-planning and not as a stand-alone product for tactical planning. If this information is used for tactical planning, fire behavior calculations should be done with actual weather observations during the fire event. For greatest accuracy, the most current Energy Release Component (ERC) values should be calculated and distributed during the fire season to be used as a guideline for fire behavior potential.

### **FlamMap**

Anchor Point used FlamMap to evaluate the potential fire conditions in the fire behavior study area. The study area encompasses 346,880 acres (542 square miles).

The study area is broken down into grid cells 30m x 30m, each of which fire behavior is predicted based on input fuel, weather and topographic information. For the FlamMap run, data from the Landfire Rapid Refresh Program were used for surface fuels, aspect, slope, elevation and canopy closure, canopy base height (CBH) and canopy bulk density (CBD).<sup>5</sup> Because of the coarse resolution, changes to the landscape since the data collection, and inaccuracies in mapping of the Landfire data, fuel model customization was required for several areas within the study area. Based on field observations, appropriate fuel models were chosen and hand digitized to create a more accurate fuels layer that was then used by FlamMap.

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<sup>4</sup> Van Wagner, C.E. 1977. Conditions for the start and spread of a crown fire. Canadian Journal of Forest Research. 7: 23-24.

<sup>5</sup> <http://www.landfire.gov/>

The final set of input data for the FlamMap model consist of reference weather and fuel moisture information summarized from a Remote Automated Weather Station (RAWS) site. Due to the size of the county, the variation in elevation and topography several RAWS were used. See the section below for details on RAWS information.

## **Fire Behavior Inputs**

The major factors influencing fire behavior are topography (aspect, slope and elevation), weather, and fuels (type and coverage). The following pages contain a brief explanation of each.

### **Reference Weather Used in the Fire Behavior Potential Evaluation**

As stated above, climate and fuel moisture inputs for FlamMap were created by using data collected from several RAWS.

The moderate condition class (16<sup>th</sup> to 89<sup>th</sup> percentile, sorted by ERC) was calculated for each variable (1 hour, 10 hour, and 100 hour fuel moisture and 20-foot wind speed) using Fire Family Plus. This weather condition class most closely represents an average fire season day.

A second set of weather conditions were calculated to capture a high fire day (in terms of fuel moistures and wind speed). Values in the data set that were in the 90<sup>th</sup> percentile (sorted by ERC) or greater class were used to calculate the high condition class.

Wind speeds in RAWS data sets consist of 10-minute averages. During this 10-minute average, conditions are likely to be experienced that may exhibit substantially faster wind speeds than those represented by the 10-minute average. These faster wind speeds could have a profound impact on the ability of a fire to transition from a surface fire to a crown fire.

### **Dead Fuel Moisture**

Dead fuel moisture responds solely to ambient environmental conditions and is critical in determining fire potential. Dead fuel moistures are classed by timelag. A fuel's timelag is proportional to its diameter and is loosely defined as the time it takes a fuel particle to reach two-thirds of its way to equilibrium with its local environment. Dead fuels in the National Fire Danger Rating System (NFDRS) fall into four classes: 1, 10, 100, and 1000 hour.<sup>6</sup>

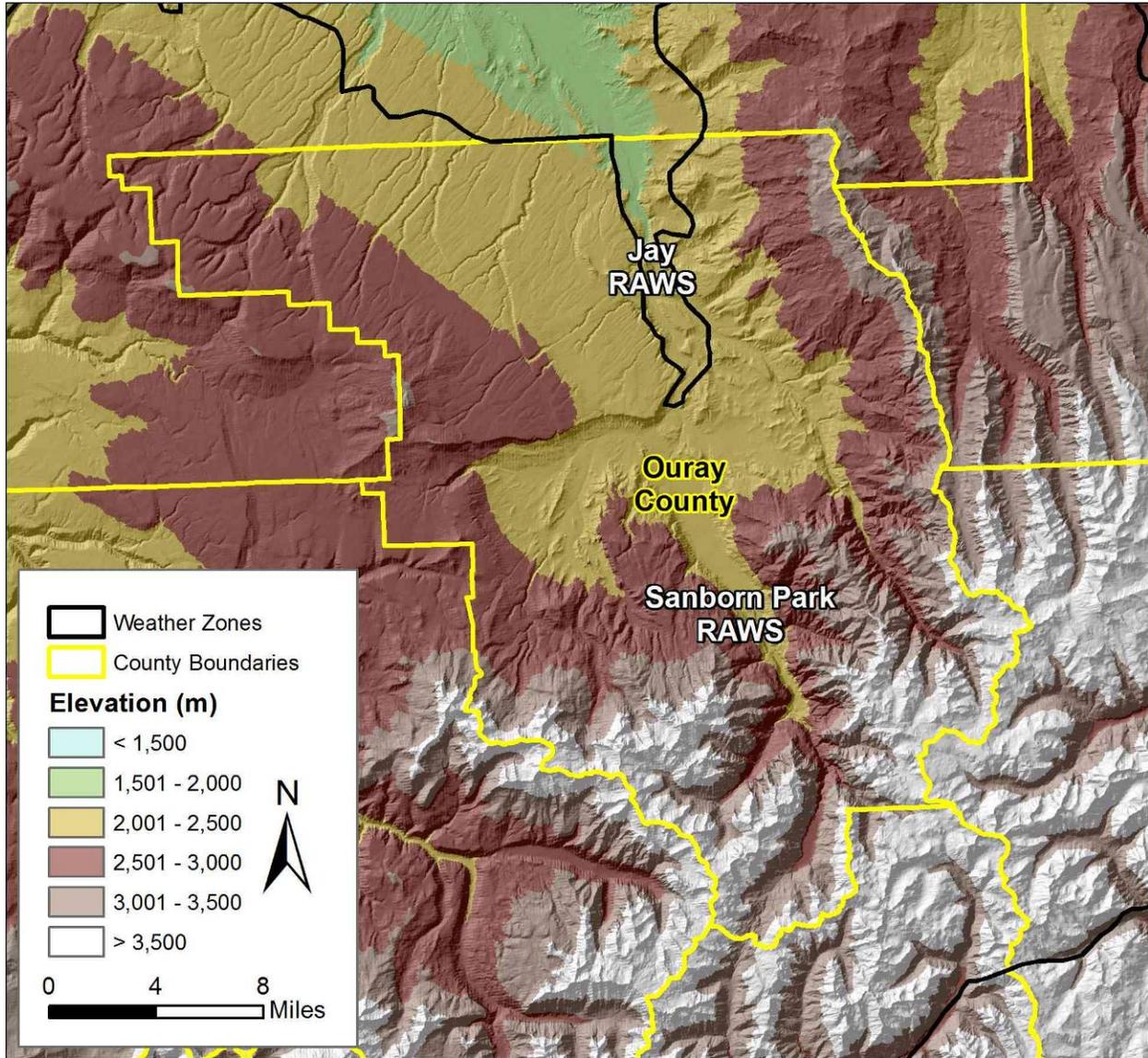
### **Live Fuel Moisture**

Live fuel moisture is the amount of water in a fuel, expressed as a percent of the oven-dry weight of that fuel. Fuel moisture between 300% and 30% is considered live. Anything below 30% is considered dead fuel. Fuel moistures can exceed 100% because the living cells can expand beyond their normal size to hold more water when available.

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<sup>6</sup> U.S. National Fire Danger Rating System Overview: INT-GTR-367 - FIRES: Fire Information Retrieval and Evaluation System - a Program for Fire Danger Rating Analysis

Figure C2. Ouray County RAWS Sites



**Table C1. Ouray County RAWS Information**

Ouray County	Weather Condition	Jay	Sanborn Park
Elevation (ft)		6257	7930
Latitude		38.85	38.19
Longitude		-107.73	-108.22
Years Included		2000 - 2009	1984 - 2009
Fire Season		May 1 - October 31	May 1 - October 31
Wind Direction		Always upslope	Always upslope
Wind Speed (mph)	Moderate	11	8
	High	29	17
1-hour Fuel Moisture	Moderate	4	6
	High	3	3
10-hour Fuel Moisture	Moderate	5	9
	High	3	5
100-hour Fuel Moisture	Moderate	8	11
	High	6	7
Herbaceous Fuel Moisture	Moderate	30	38
	High	30	33
Woody Fuel Moisture	Moderate	77	95
	High	70	74

**Fuel Models and Fire Behavior**

In the context of fire behavior modeling, “fuel models” are a set of numbers that describe fuels in terms that the fire behavior modeling equations can use directly. There are seven characteristics used to categorize fuel models:

- Fuel Loading
- Size and Shape
- Compactness
- Horizontal Continuity
- Vertical Arrangement
- Moisture Content
- Chemical Content

Each of the major fuel types present in the study area is described below. Unless otherwise noted, fuel model descriptions are taken from Scott and Burgan’s *Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel’s Surface Fire Spread Model*, a national standard guide to fuel modeling.<sup>7</sup> **For specific information about the fuel models’ affects on**

<sup>7</sup> Scott, J.H. and R. Burgan. 2005. *Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel’s Surface Fire Spread Model*, United States Department of Agriculture Forest Service, RMRS-GTR-153.

**the landscape of each community see the discussion in the Community Ignitability Analysis Recommendations section of the main plan.**

In *Standard Fire Behavior Fuel Models*, Scott and Burgan describe 40 fuel models in the following six groups: Non-Burnable (NB), Grass (GR), Grass/Shrub (GS), Shrub (SH), Timber Understory (TU) and Timber Litter (TL). The study area is represented primarily by the following fuel models (FM):

**Table C2. Fuel Models Found in the Study Area**

Grass Fuel Models	Shrub Fuel Models	Timber Fuel Models	Non-Burnable
*FM101 (GR1)	*FM141 (SH1)	FM161 (TU1)	*NB3 (93) Agricultural
FM102 (GR2)	*FM142 (SH2)	FM165 (TU5)	NB9 (99) Bare Ground
*FM121 (GS1)		*FM188 (TU8)	
FM122 (GS2)			

\*Some fuel models may exist, but not in quantities (less than 5% on the landscape) sufficient to significantly influence fire behavior across the landscape.

## **Fuel Group Descriptions and Comparisons**

### **Grass Fuel Type Models (GR)**

The primary carrier of fire in the GR fuel models is grass. Grass fuels can vary from heavily grazed grass stubble or sparse natural grass to dense grass more than 6 feet tall. Fire behavior varies from moderate spread rate and low flame length in the sparse grass to extreme spread rate and flame length in the tall grass models.

All GR fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong.

### **Grass-Shrub Fuel Type Models (GS)**

The primary carrier of fire in the GS fuel models is grass and shrubs combined; both components are important in determining fire behavior.

All GS fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.

### **Shrub Fuel Type Models (SH)**

The primary carrier of fire in the SH fuel models is live and dead shrub twigs and foliage in combination with dead and down shrub litter. A small amount of herbaceous fuel may be present, especially in SH1 and SH9, which are dynamic models (their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content). The effect of live herbaceous moisture content on spread rate and flame length can be strong in those dynamic SH models.

### **Timber-Understory Fuel Type Models (TU)**

The primary carrier of fire in the TU fuel models is forest litter in combination with herbaceous or shrub fuels. TU1 and TU3 contain live herbaceous load and are dynamic, meaning that their live herbaceous fuel load is allocated between live and dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.

### **Timber Litter Fuel Type Models (TL)**

The primary carrier of fire in the TL fuel models is dead and down woody fuel. Live fuel, if present, has little effect on fire behavior.

### **Comparison of fuel models in the study area**

The following graphs show the predicted fire behavior according to fuel type given the same weather and fuel moisture inputs.

Figure C3. Flame Length Outputs for Ouray Fuel Models

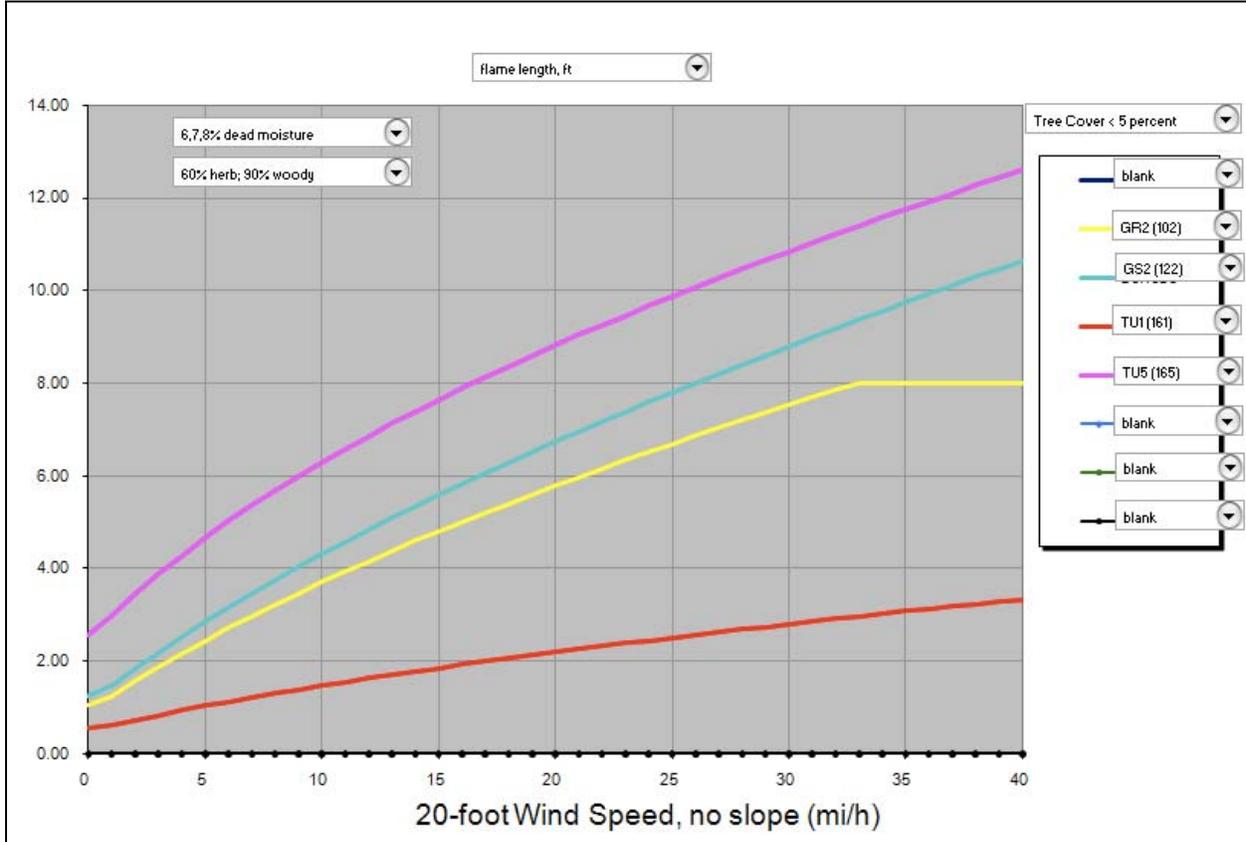
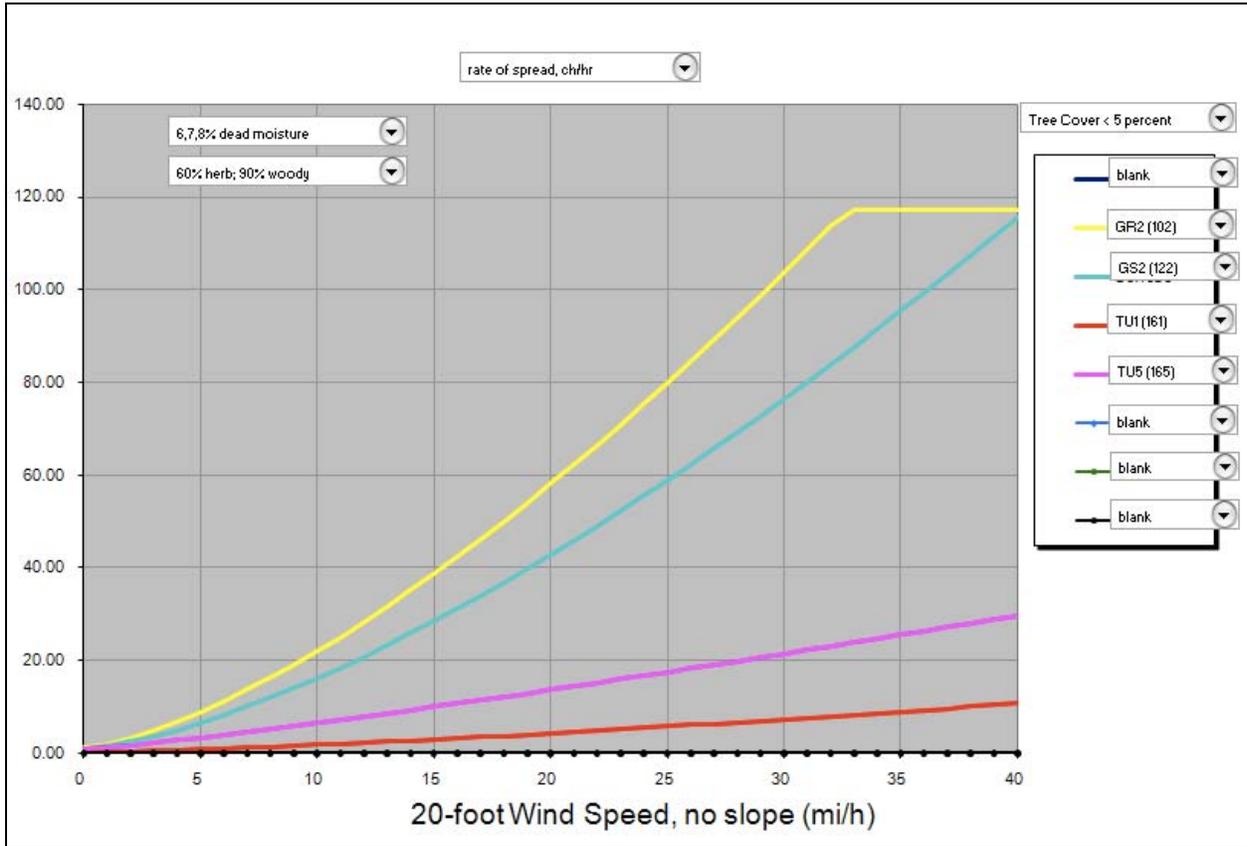


Figure C4. Rate of Spread Outputs for Ouray Fuel Models



## **Fire Behavior Outputs**

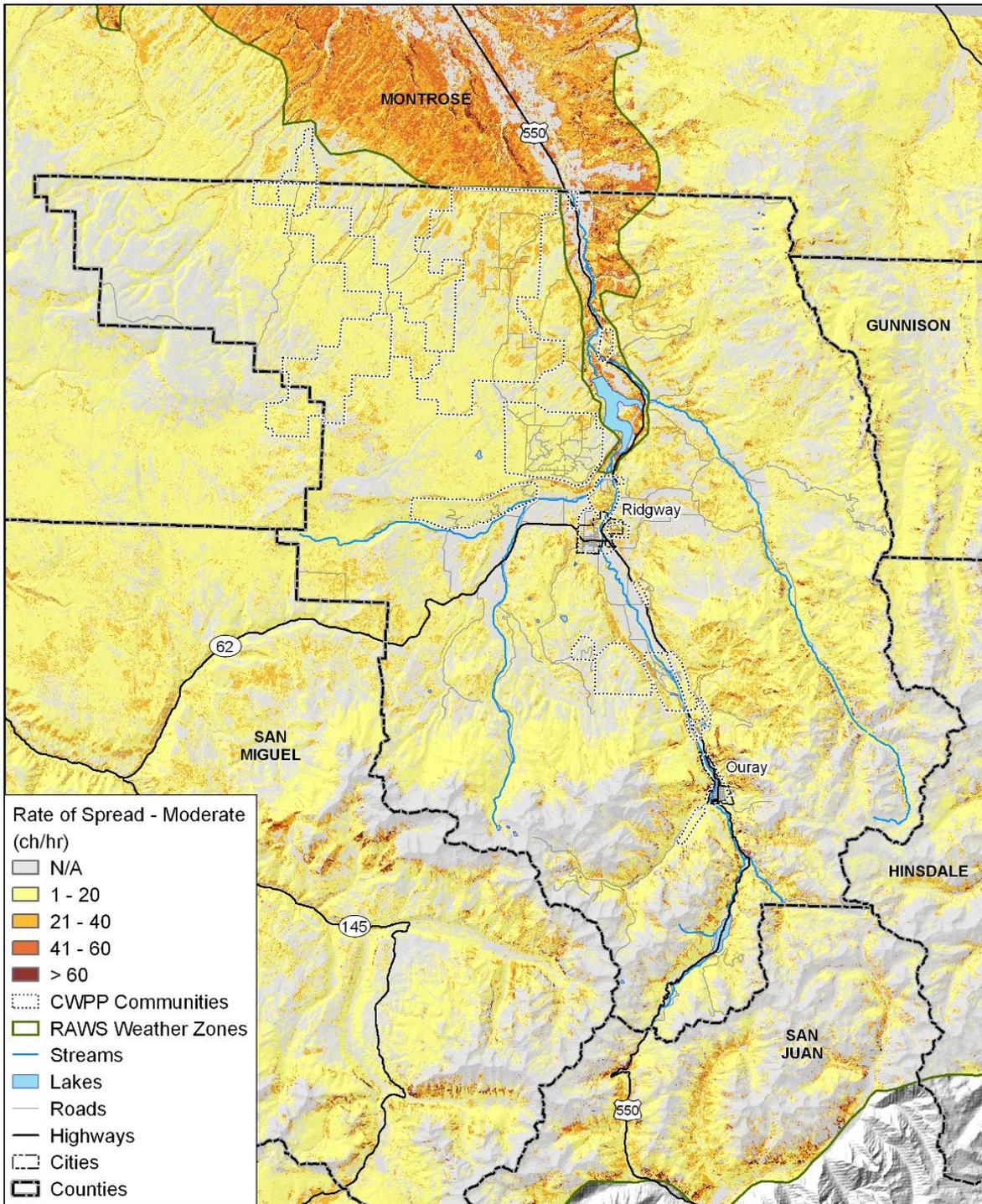
### **Rate of Spread**

Spread rate values are generated by FlamMap and are classified into four categories based on standard ranges: 0-20 ch/h (chains/hour), 20.1-40 ch/h, 40.1-60 ch/h, and greater than 60 ch/h. A chain is a logging measurement that is equal to 66 feet. One mile equals 80 chains. 1 ch/h equals approximately 1 foot/minute or 80 chains per hour equals 1 mile per hour.

\*It should be noted that a high rate of spread is not necessarily severe. Fire will move very quickly across grass fields but may not cause any major damage to the soil.

Figure C6 can also be referenced in an 11x17 format in Appendix E.

Figure C5. Predicted Rate of Spread Under Moderate Weather Conditions



Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

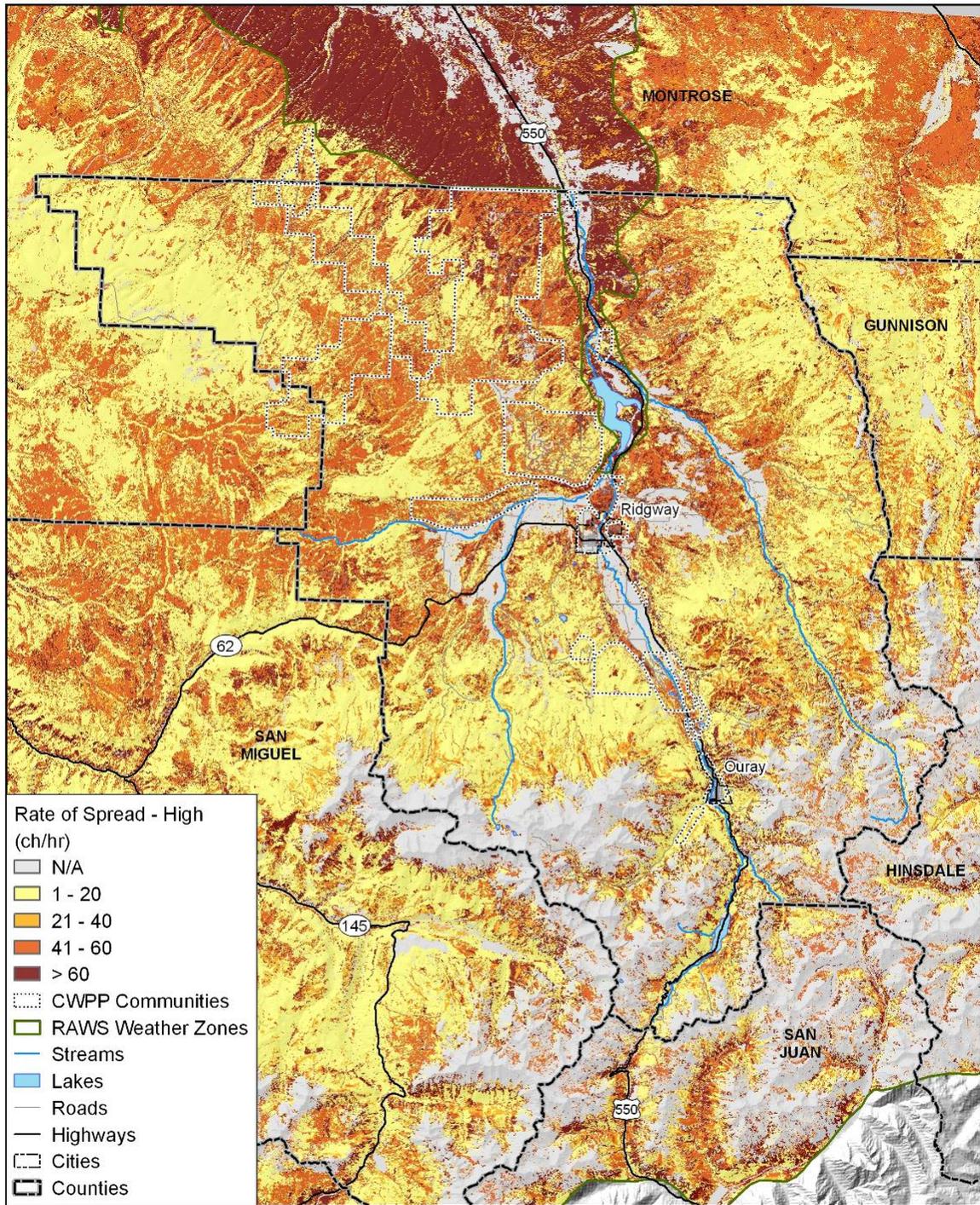
0 5 10 Miles



\* Ouray County data shown on this map is to be considered a draft and subject to revision.

**Rate of spread in chains/hour**  
**(1 chain=66 ft) (80 chains/hr = 1 MPH)**

**Figure C6. Predicted Rate of Spread Under High Weather Conditions**



Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

0 5 10 Miles



\* Ouray County data shown on this map is to be considered a draft and subject to revision.



**Rate of spread in chains/hour**  
**(1 chain=66 ft) (80 chains/hr = 1 MPH)**

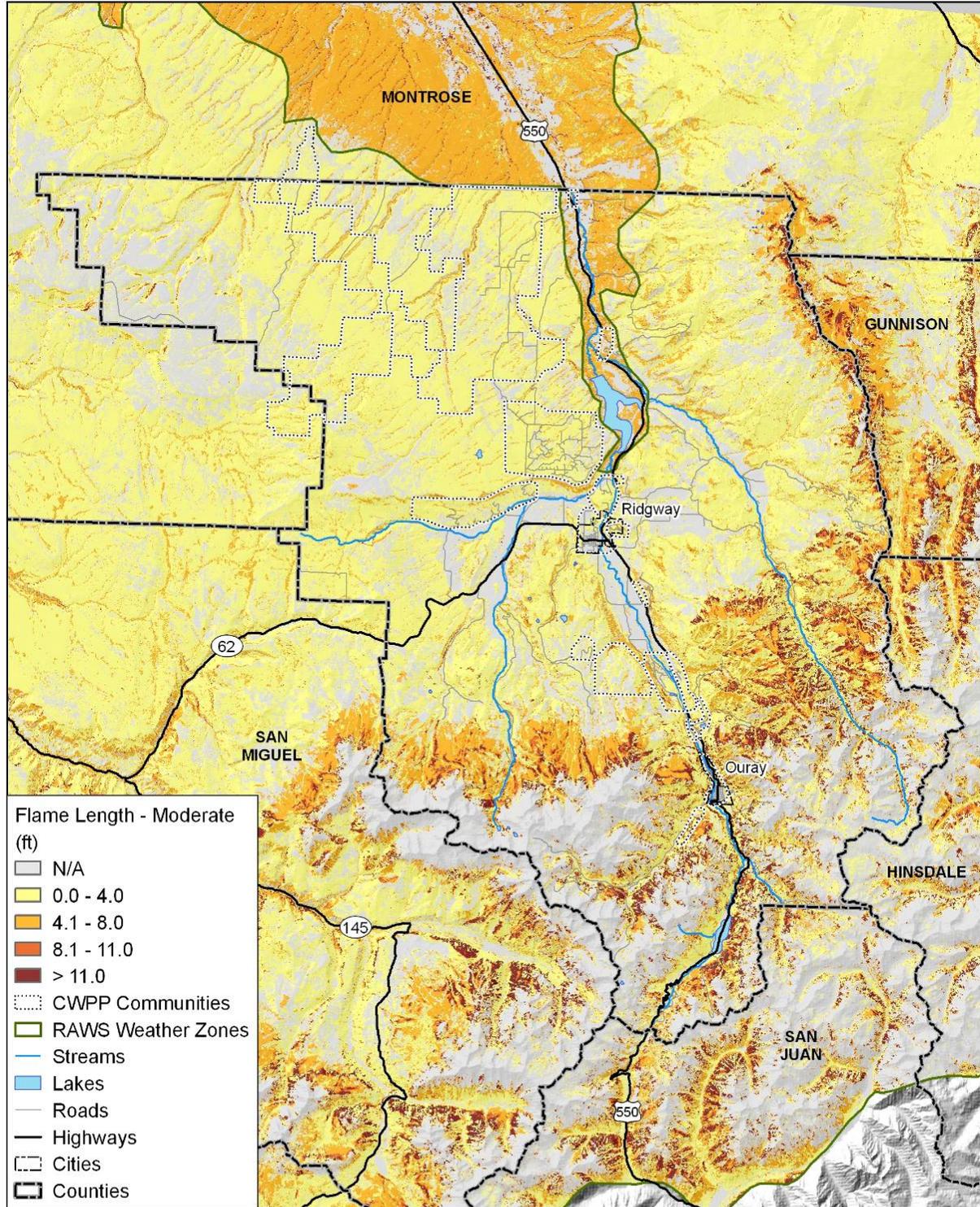
## **Flame Length**

Flame length values are generated by the FlamMap model and were classified into four categories based on standard ranges: 0.1-4.0 feet, 4.1-8.0 feet, 8.1-11.0 feet and greater than 11.0 feet.

The legend boxes display flame length in ranges which are meaningful to firefighters. The flame lengths are a direct measure of how intense the fire is burning. Flame lengths of four feet and less are deemed low enough intensity to be suitable for direct attack by hand crews, and therefore represent the best chances of direct extinguishment and control. Flame lengths of less than eight feet are suitable for direct attack by equipment such as bulldozers and tractor plows. Flame lengths of eight to 11 feet are usually attacked by indirect methods and aircraft. In conditions where flame lengths exceed 11 feet, the most effective tactics are fuel consumption ahead of the fire by burnouts or mechanical methods. It should be noted that much higher flame lengths of 60-100 feet or more were modeled on steeper slopes with heavy fuel loads.

Figure C8 can also be referenced in an 11x17 format in Appendix E.

**Figure C7. Predicted Flame Lengths Under Moderate Weather Conditions**



- Flame Length - Moderate (ft)**
- N/A
  - 0.0 - 4.0
  - 4.1 - 8.0
  - 8.1 - 11.0
  - > 11.0
  - CWPP Communities
  - RAWs Weather Zones
  - Streams
  - Lakes
  - Roads
  - Highways
  - Cities
  - Counties

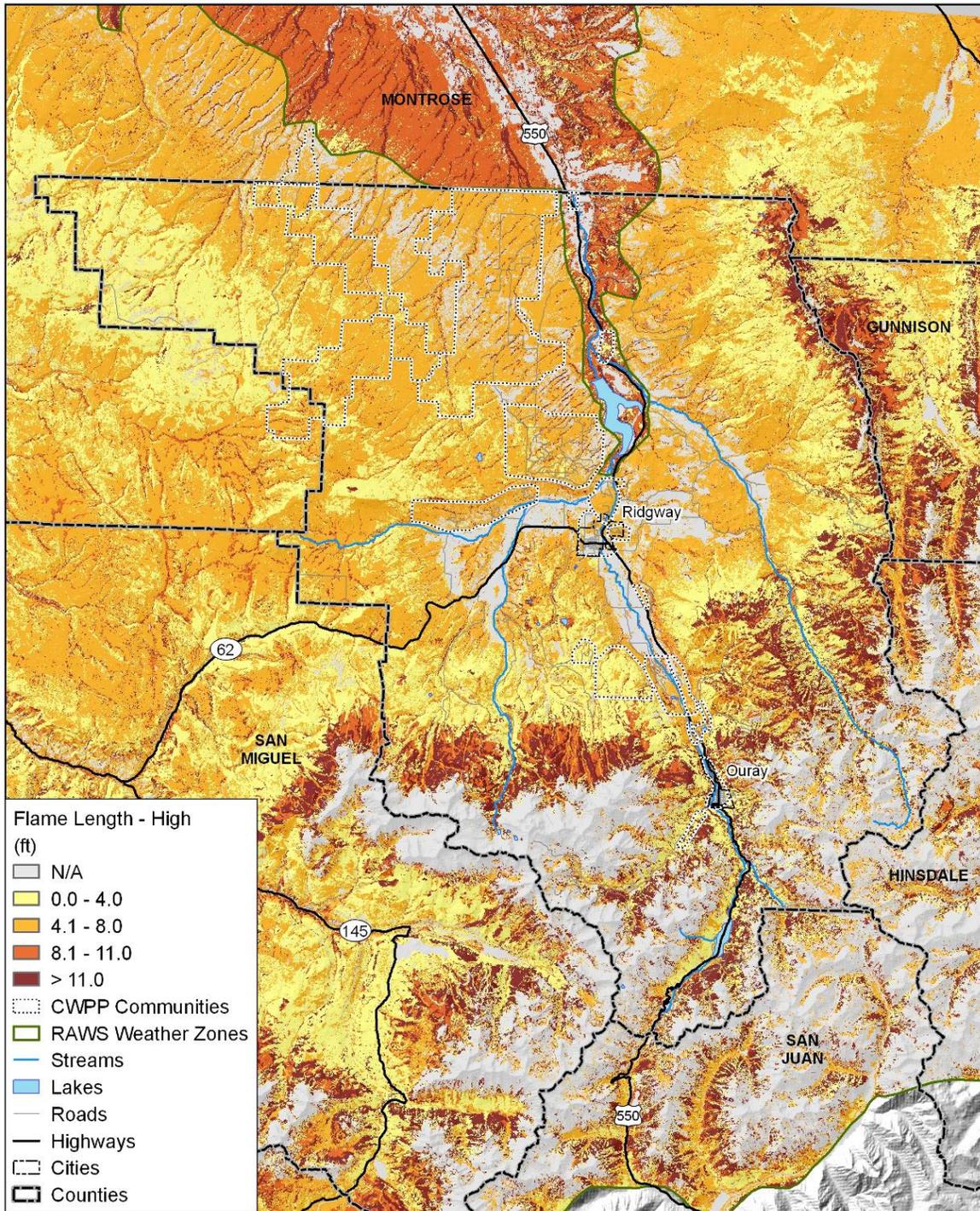


Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



\* Ouray County data shown on this map is to be considered a draft and subject to revision.

**Figure C8. Predicted Flame Lengths Under High Weather Conditions**



Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

0 5 10 Miles



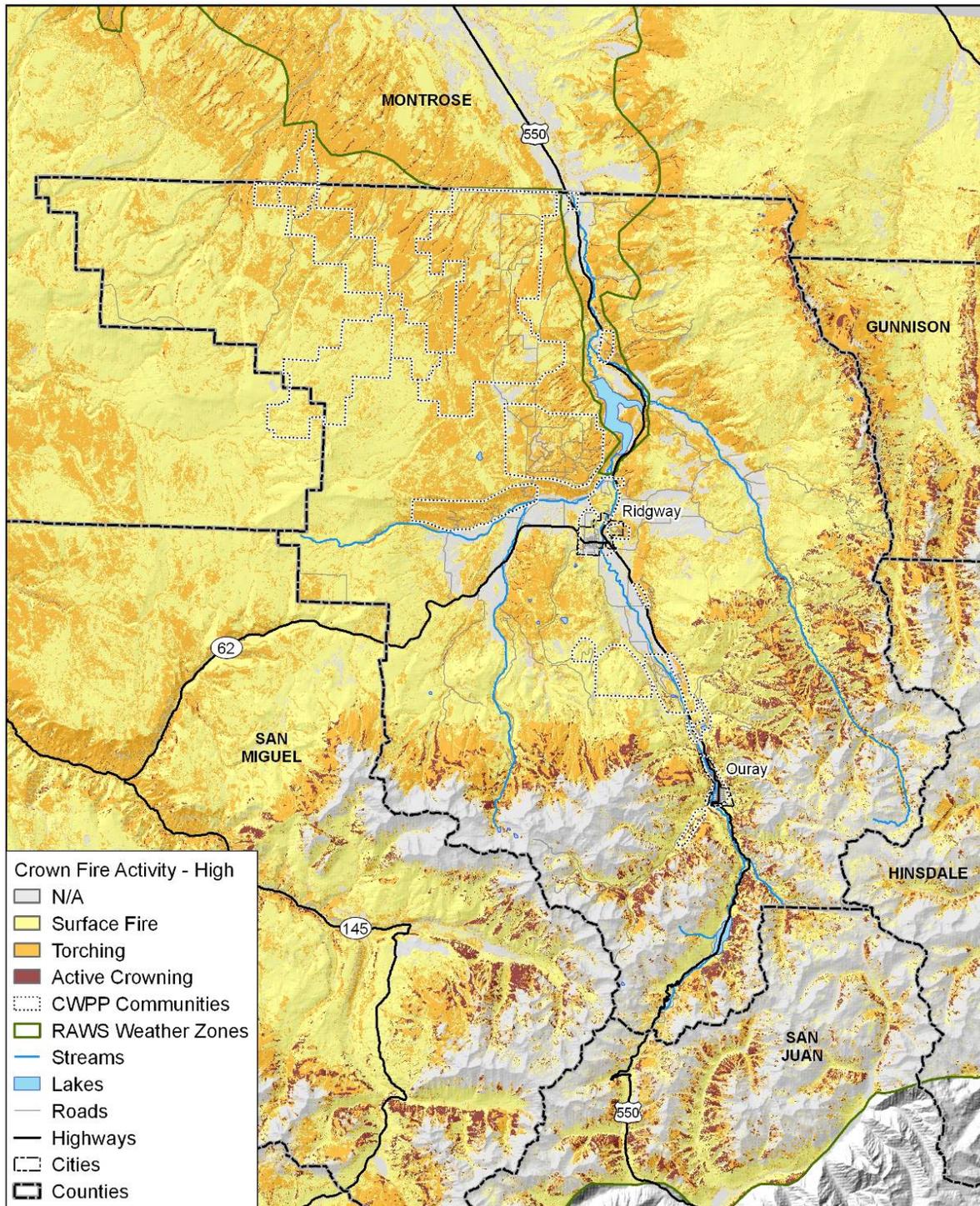
\* Ouray County data shown on this map is to be considered a draft and subject to revision.

## **Crown Fire**

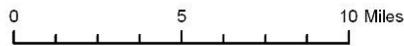
Crown fire activity values are generated by the FlamMap model and classified into four categories based on standard ranges: Active, Torching, Surface, and Not Applicable. In the surface fire category, little or no tree torching will be expected. During passive crown fire activity, isolated torching of trees or groups of trees will be observed and canopy runs will be limited to short distances. During active crown fire activity, sustained runs through the canopy will be observed that may be independent of surface fire activity. Only Crown fire under High fire weather conditions is included. Under moderate conditions no crowning occurred in the study area fuels. The model does not capture embercast in front of the main fire, which is likely if trees are torching and/or crowning. These embers can cause spot fires that will leapfrog in front of the main fire and then be filled in by the main fire front. Massive fire growth can occur rapidly under these conditions.

Figure C9 can also be referenced in an 11x17 format in Appendix E.

**Figure C9. Predicted Crown Fire Activity Under High Weather Conditions**



Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



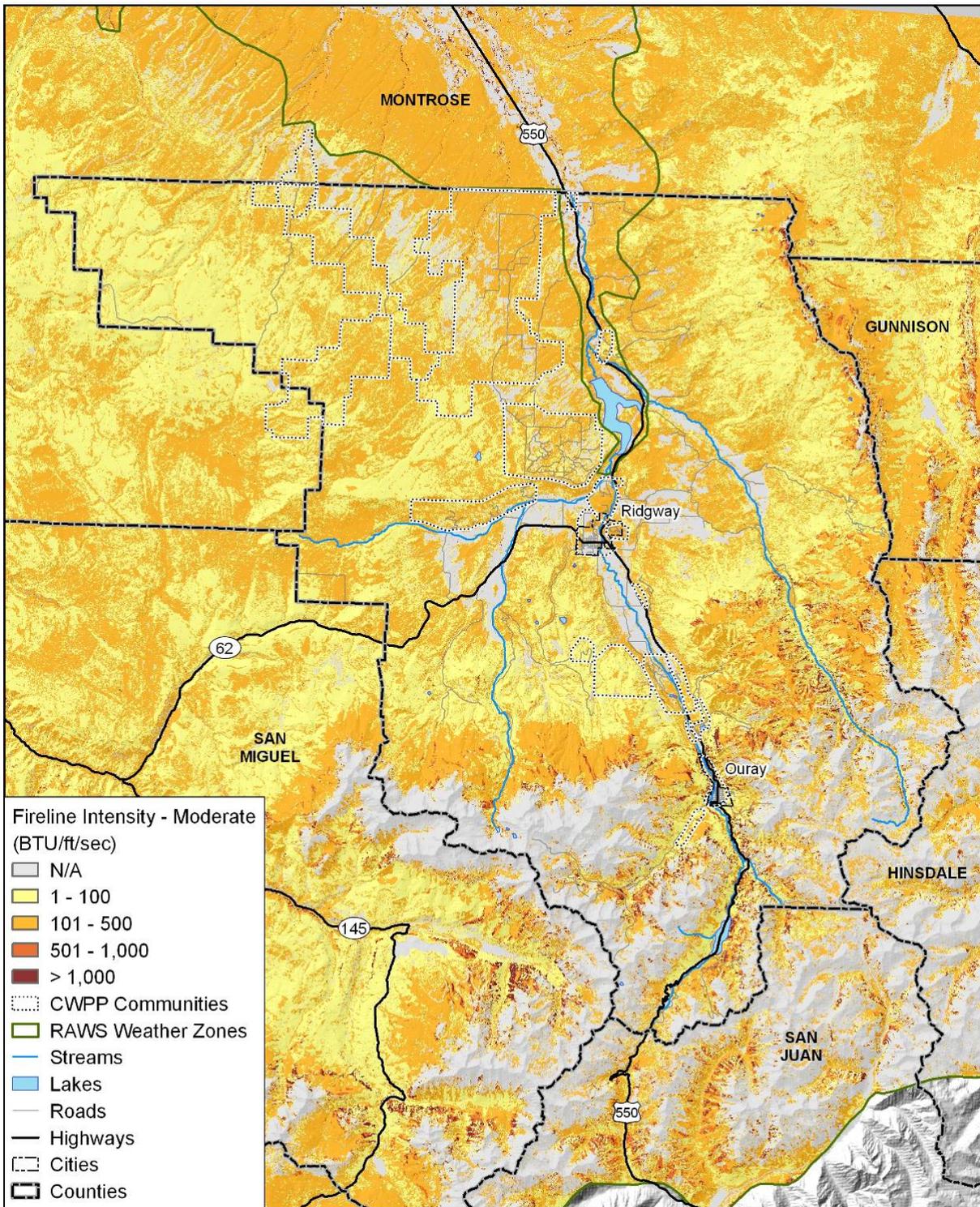
\* Ouray County data shown on this map is to be considered a draft and subject to revision.

## **Fireline Intensity**

Fireline intensity is a function of rate of spread and heat per unity area and is directly related to flame length. Fireline intensity and the flame length are related to the heat felt by a person standing next to the flames.

Figure C11 can also be referenced in an 11x17 format in Appendix E.

Figure C10. Predicted Fireline Intensity Under Moderate Weather Conditions



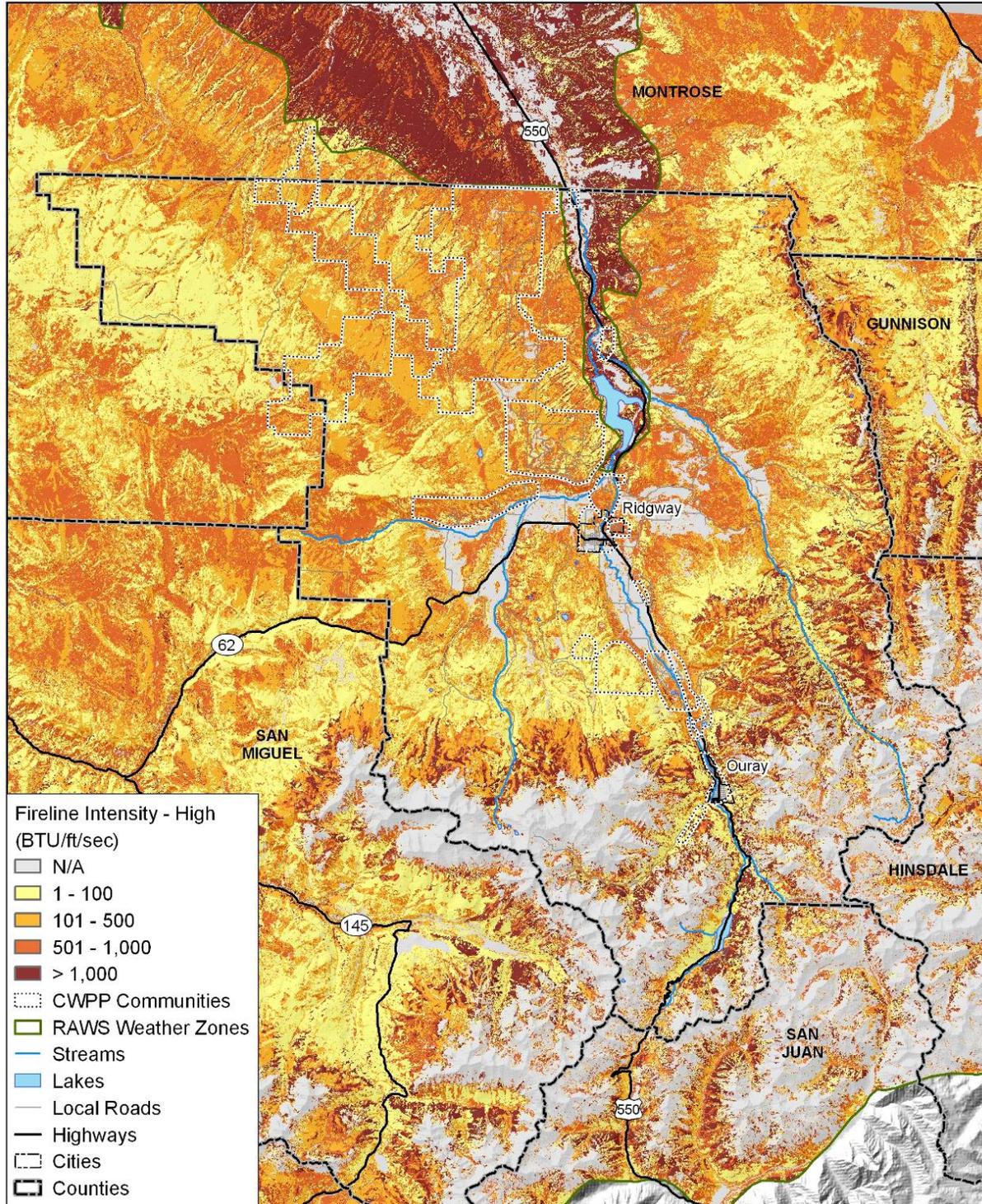
Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

0 5 10 Miles

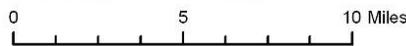


\* Ouray County data shown on this map is to be considered a draft and subject to revision.

**Figure C11. Predicted Fireline Intensity Under High Weather Conditions**



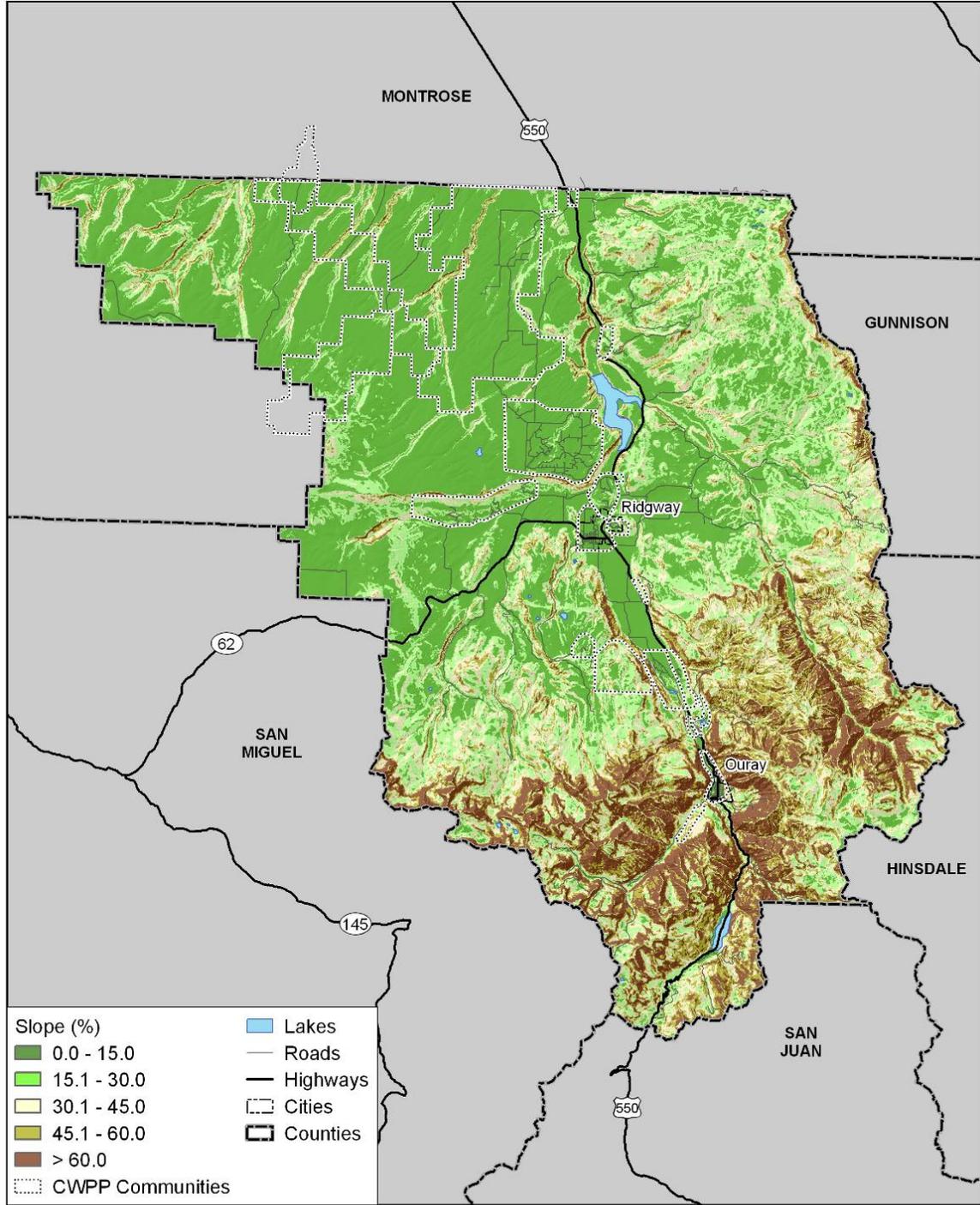
Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



\* Ouray County data shown on this map is to be considered a draft and subject to revision.

**Additional Fire Behavior Input Maps**

**Figure C12. Ouray County Slope**



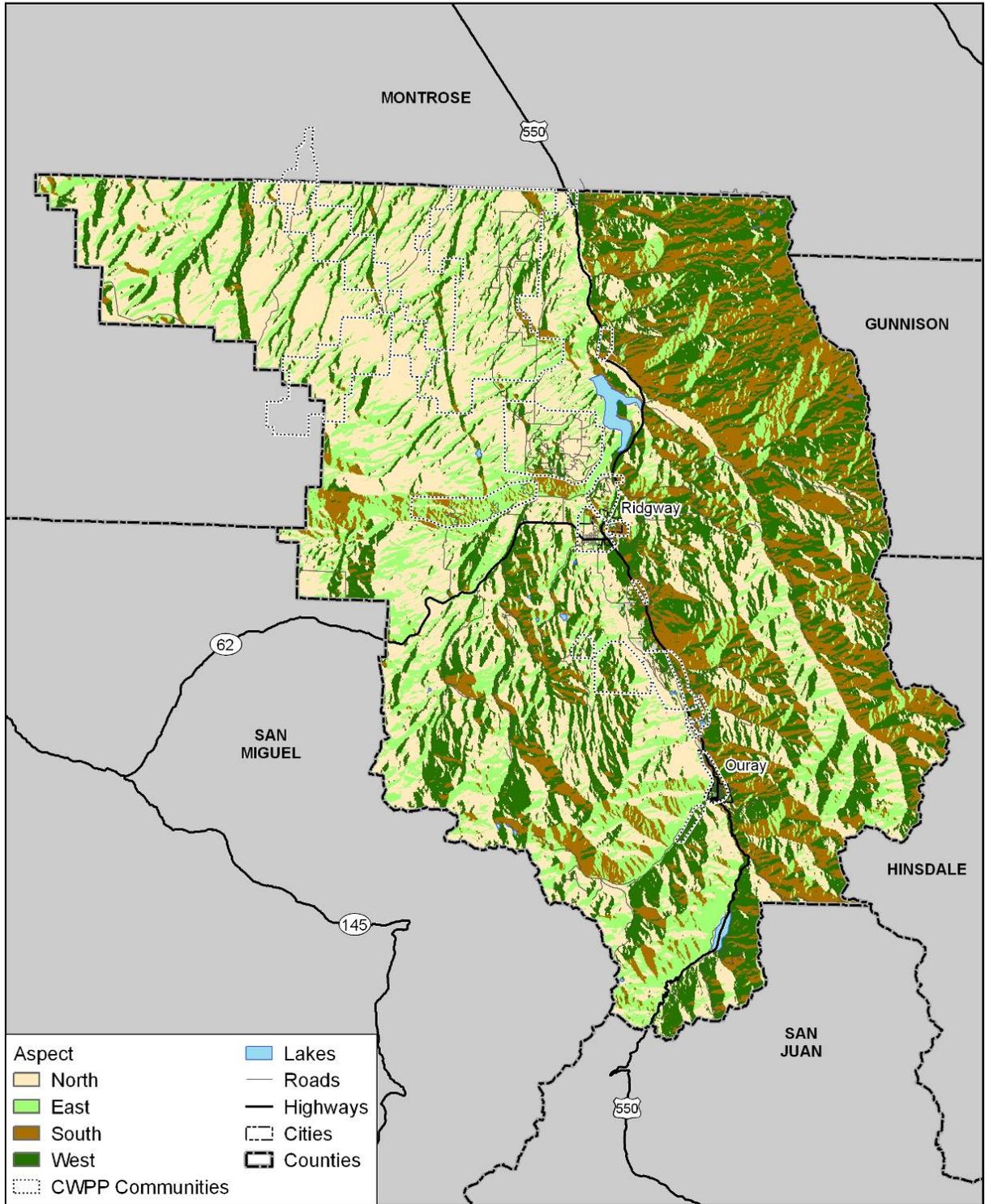
Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

0 5 10 Miles



\* Ouray County data shown on this map is to be considered a draft and subject to revision.

**Figure C13. Ouray County Aspect**



Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

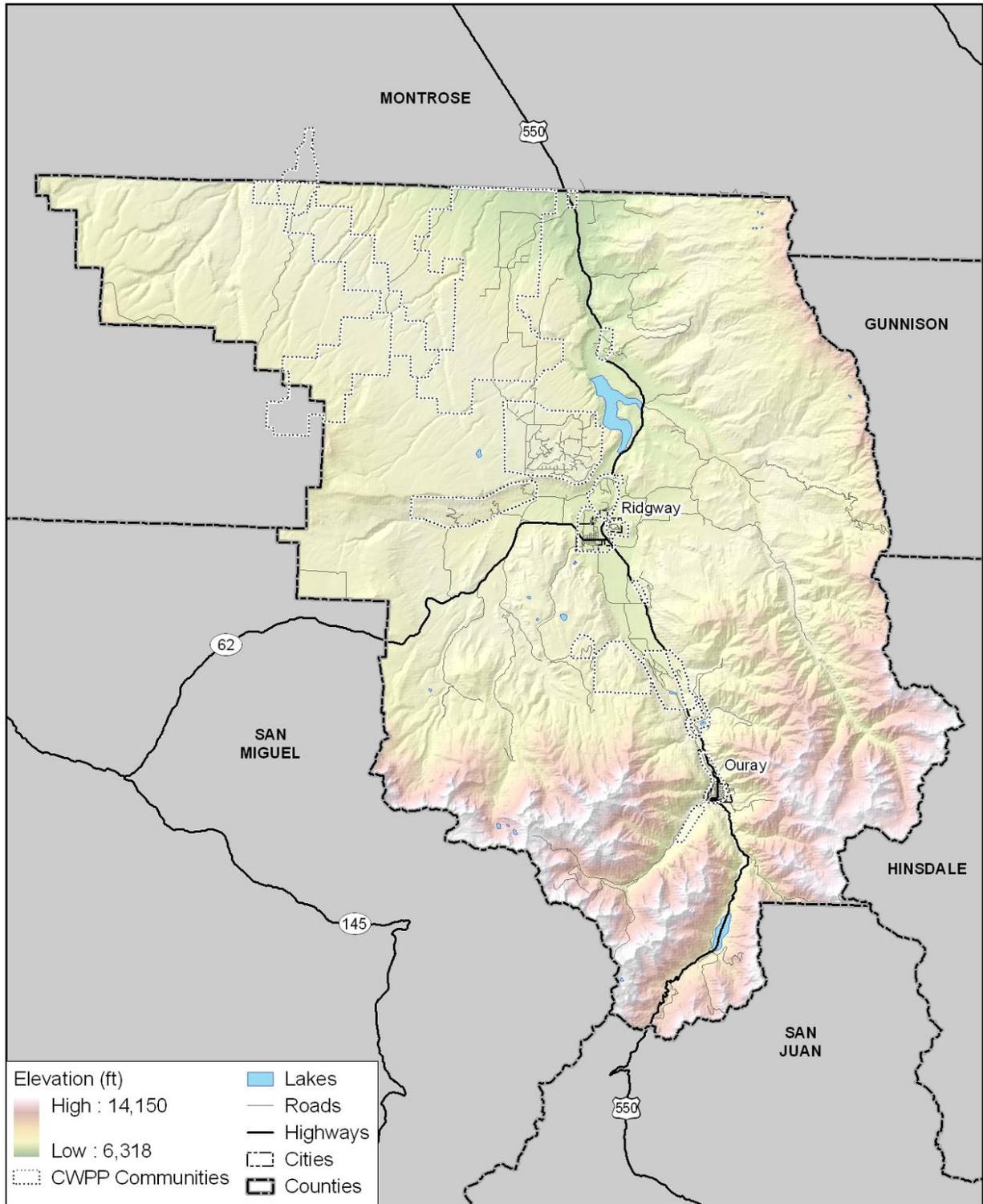
0 5 10 Miles



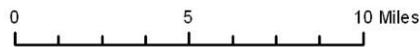
\* Ouray County data shown on this map is to be considered a draft and subject to revision.



**Figure C14. Ouray County Elevation**

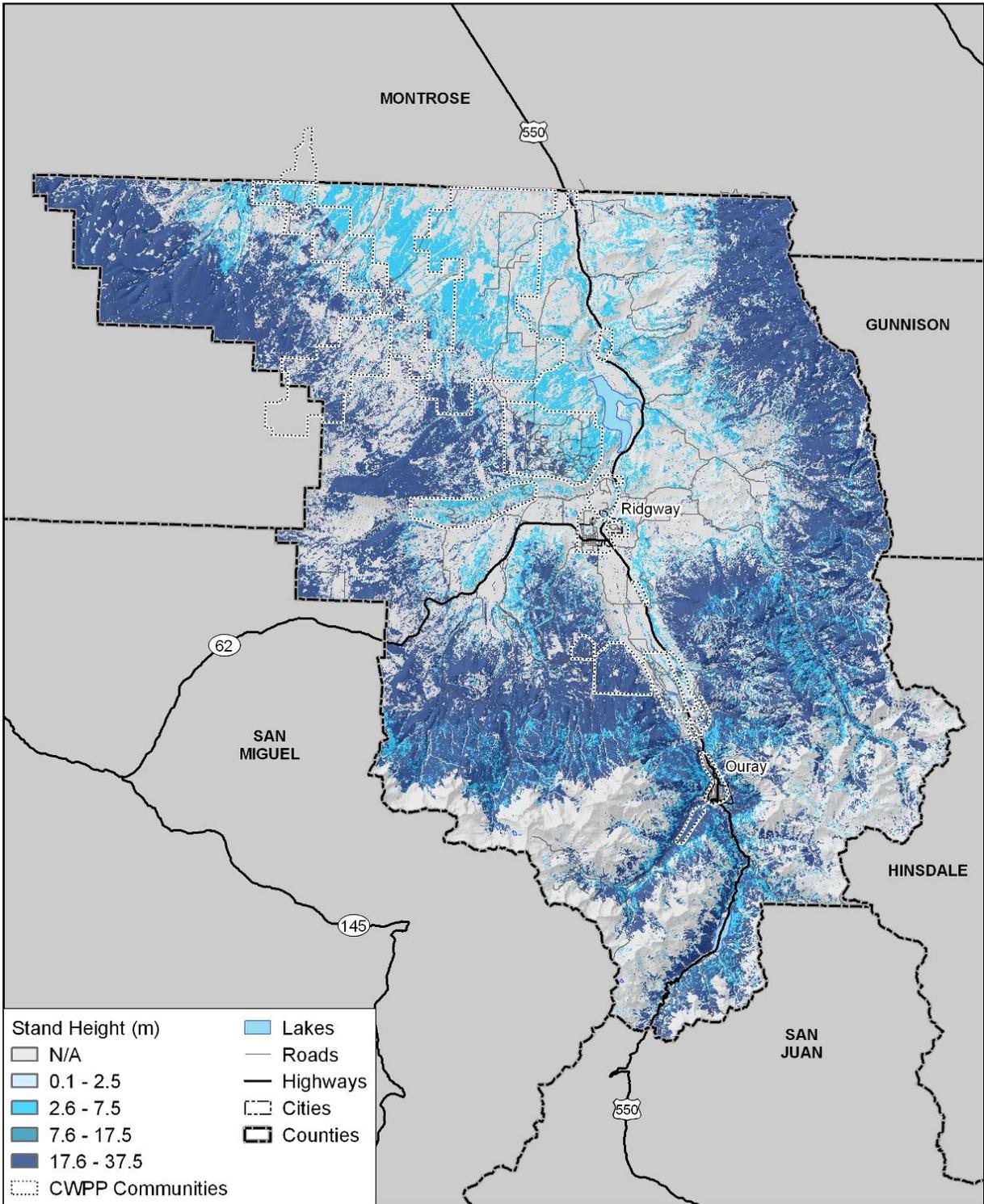


Map compiled 2/2011; intended for planning purposes only.  
 Data Source: Ouray County, Anchor Point, CDOT



\* Ouray County data shown on this map is to be considered a draft and subject to revision.

Figure C15. Stand Height

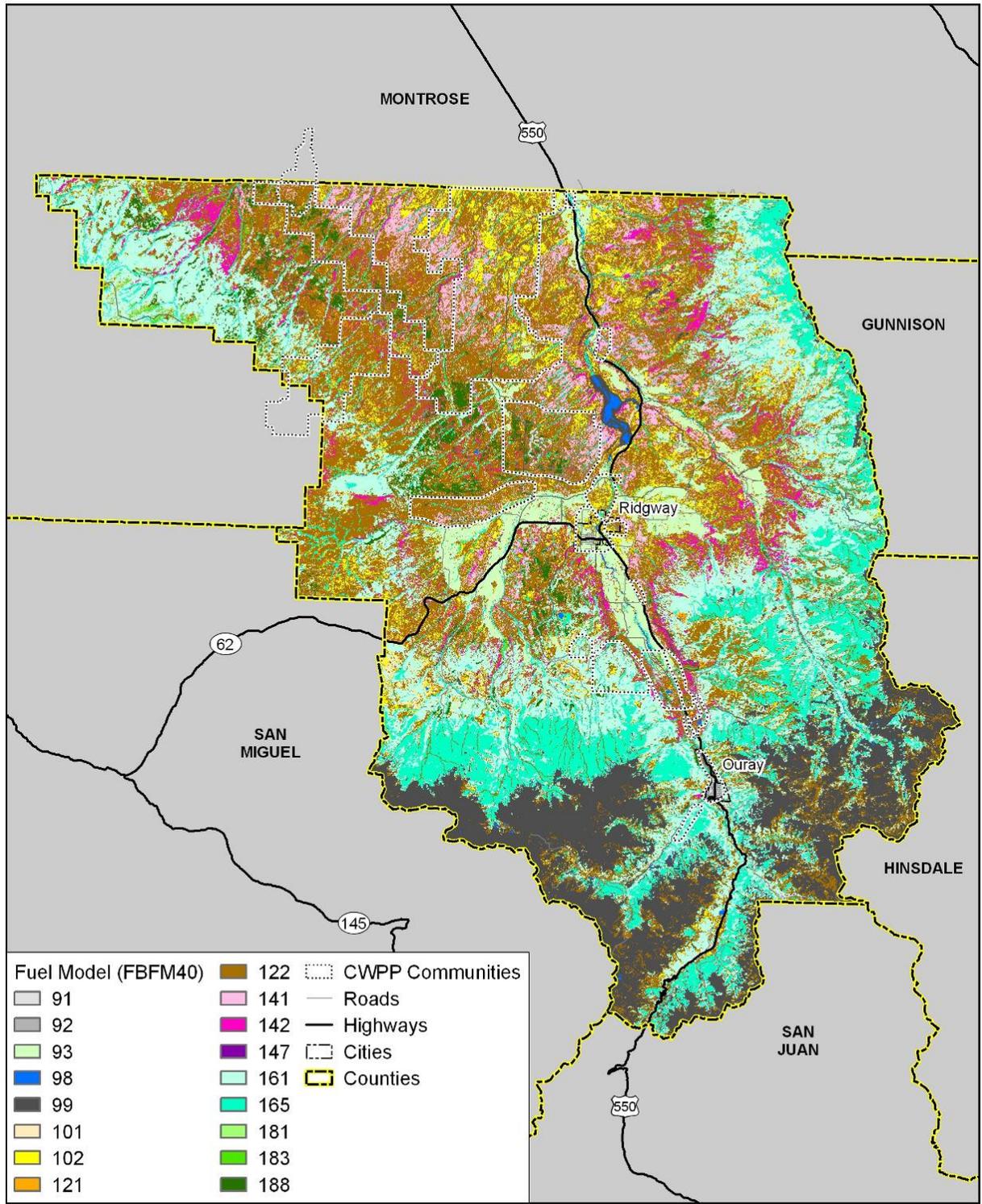


Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

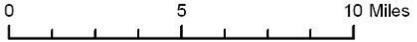


\* Ouray County data shown on this map is to be considered a draft and subject to revision.

Figure C16. Fuel Model

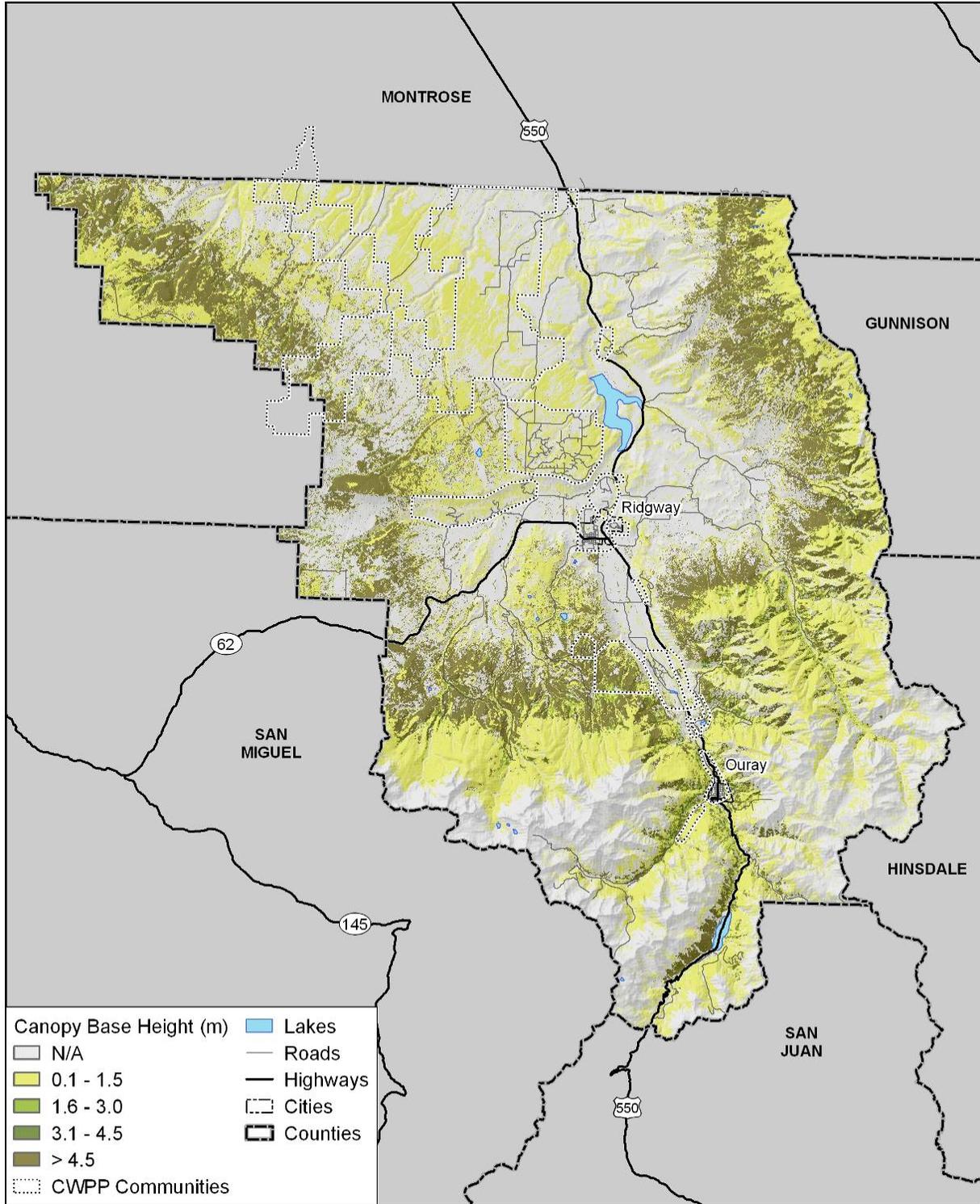


Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



\* Ouray County data shown on this map is to be considered a draft and subject to revision.

Figure C17. Canopy Base Height

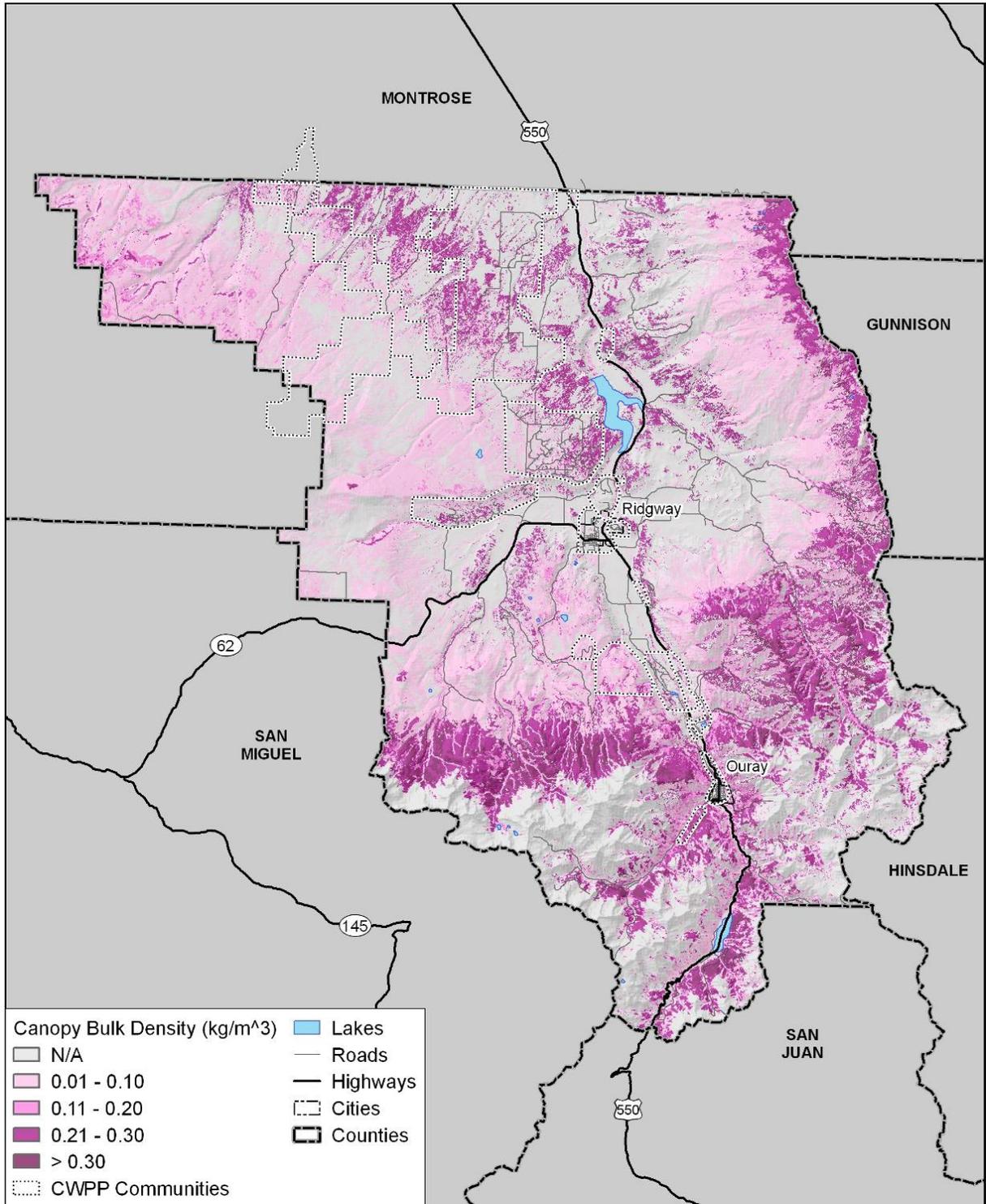


Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



\* Ouray County data shown on this map is to be considered a draft and subject to revision.

**Figure C18. Canopy Bulk Density**

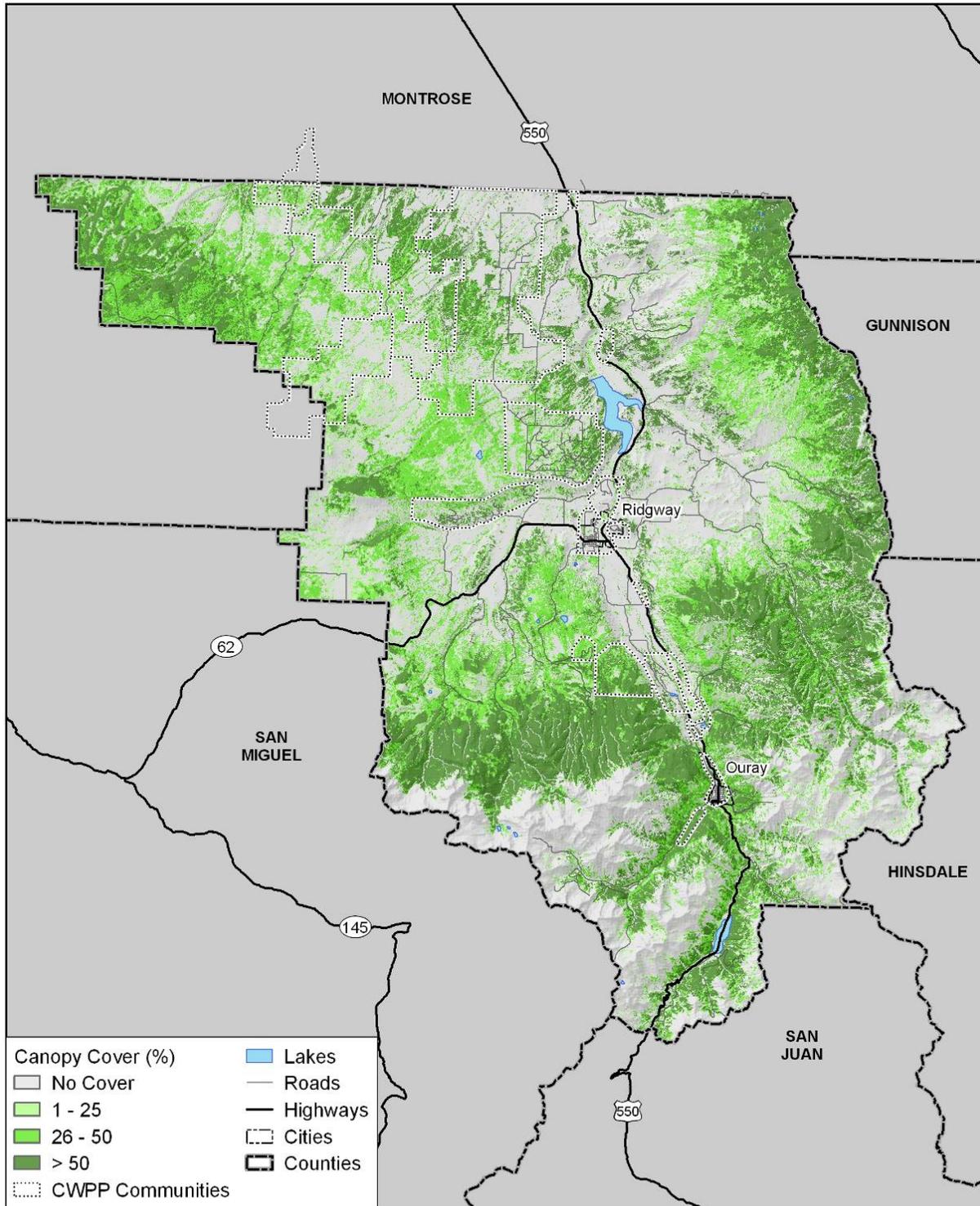


Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

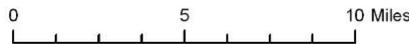


\* Ouray County data shown on this map is to be considered a draft and subject to revision.

Figure C19. Canopy Cover



Map compiled 2/2011; intended for planning purposes only.  
 Data Source: Ouray County, Anchor Point, CDOT



\* Ouray County data shown on this map is to be considered a draft and subject to revision.

## **APPENDIX D: OURAY COUNTY LAND USE CODE SECTION 24 – WILDFIRE MITIGATION REGULATIONS**

(Amended December 12, 2006, by Board of County Commissioners)

### **Section 24**

#### **WILDFIRE MITIGATION REGULATIONS**

##### **24.1 PURPOSE**

These regulations are for the purpose of reducing the threat of wildfire and the resulting damage to property as a result of fire. Ouray County has extensive forested and high desert lands that are subject to drought conditions that significantly increase the fire danger. Most of the County is a rural environment with relatively low density and with many residential dwellings located in forested or semi-forested areas. Ouray County is served by three locally based volunteer fire departments with specific district responsibilities and by the Montrose Fire District on the north end of the County. A significant amount of the County is not included in a fire district and some private properties do not have fire-fighting service available.

These regulations are intended primarily to improve the fire safety of structures and to reduce the threat of personal injury or residential loss of life and/or property resulting from fires. Implementation of accepted fire safety techniques and the availability of on-site fire fighting capability, primarily the availability of an adequate source of water, will reduce the potential for personal injury or death and/or the loss of property from fires.

##### **24.2 APPLICABILITY**

These regulations apply to:

- A. New Regular Planned Unit Developments (PUD's) receiving Preliminary Plan approval after the date these regulations are adopted.
- B. Limited Planned Unit Developments (PUD's) are exempted from these regulations at the subdivision approval stage; however, residential structures constructed on Limited PUD's are subject to these regulations upon application for a building permit.
- C. All new residential structures.
- D. Residential structures existing at the date these regulations are adopted, that are increased 50% or more in total square footage of living area.
- E. Accessory structures, except those that include a residential dwelling unit, are exempted from these regulations.

F. Resort Planned Unit Developments will be required to meet Uniform Fire Code regulations and other requirements deemed necessary as part of the approval of those development plans. Some sections of these regulations may be incorporated in developing the specific fire mitigation plan for a Resort PUD.

#### 24.3 ENFORCEMENT

A. All Planned Unit Development applications subject to these regulations must comply with the applicable provisions of this section before Preliminary Plan approval is granted by the County. Improvements and infrastructure as required by these regulations shall be completed or secured prior to Final Plat approval.

B. Residential structures subject to this code will be required to meet the applicable provisions of this code prior to receiving a Certificate of Occupancy. The applicant must demonstrate an ability to comply prior to issuance of the building permit.

C. This section of the code will be administered by the designated county agent.

D. The costs of implementing this section of the code will be recovered through fees established by the Board of County Commissioners as a part of PUD, RST and building permit fees.

#### 24.4 FIRE SAFETY RATING

Fire Safety Ratings have been established for new Planned Unit Developments and for new residential structures subject to these regulations. Each new PUD and new residential structure, subject to these regulations, must meet the minimum points for each prior to receiving Preliminary Plan approval or a Certificate of Occupancy. The Fire Safety Rating is also intended to serve as an educational aid and for conducting voluntary evaluations of existing homes to assist in reducing potential fire danger.

#### 24.5 REQUIREMENTS AND PROCEDURES

##### A. PLANNED UNIT DEVELOPMENTS

(1) General: As part of the preliminary development plan submittal, the applicant will be required to provide an assessment of the location of the proposed development and a written report to include:

(a) A statement from the serving fire district or designated County agent indicating the ability in the County to respond to a fire emergency. Such statement should include: distance from the nearest fire station to the entrance of the PUD, response time,

available equipment, manpower, and any other factors deemed important to determine if factors other than those set out in the Fire Safety Rating for PUDs need to be addressed prior to receiving Preliminary Plan approval.

(b) An assessment of the vegetation coverage on the parcel and recommendations for reducing the wildfire hazard on the entire parcel, including the buildable areas as staked and identified on the preliminary plan plat, using Colorado State University Cooperative Extension Bulletin No. 6.302 (Creating Fire Safe Zones Around Your Forested Homesite") as the guideline. By Resolution of the Board of County Commissioners, the County may use updates of this bulletin or replace it with another standard.

(c) Recommendations by the serving fire district or the designated County agent for the location of fire hydrants

(d) A copy of the completed Ouray County Fire Safety Rating for PUD's form showing the rating number as determined by a designated County agent. The Fire Safety Rating will be signed by the applicant to acknowledge the fire rating received.

(2) Roads: The applicant shall be required to construct roads as required in Section 23 (Road Standards) of this code to insure adequate access for emergency response vehicles, including fire fighting equipment.

(3) Water Supply: The applicant shall be required to provide at least a minimum fireflow water supply by either a water utility capable of providing service meeting the minimum fireflow water supply or by installing a water storage and distribution system capable of delivering a minimum fireflow water supply to each hydrant.

(a) When the water supply is from a public or private water utility system, a written statement from the water supplier will be required that states the ability of that supplier to provide to all fire hydrants of the PUD a minimum fireflow water supply as defined in this code.

(b) When the water supply is from a water storage and distribution system, such system shall be capable of delivering the minimum fireflow water supply to each hydrant. This system will require certification by a Colorado registered licensed engineer prior to Preliminary Plan approval.

(c) The applicant will be required to place fire hydrants throughout the development at distances such that no point on a road (except driveways) is farther than 600 feet from a hydrant.

Additional hydrants may be required at the entrance to a development, along a public roadway serving the development, and/or other appropriate locations as recommended by the serving fire district or designated County agent. Location of the hydrants will be based on the recommendation of the serving fire district or designated County agent and will be noted on the Preliminary Plat for the PUD.

(4) Fire Safety Rating: The applicant is required to meet the required minimum number of points on the Ouray County Fire Safety Rating for PUD's established by the Board of County Commissioners. The total number of points the approved PUD has earned will be noted on the final approved plat for the PUD, along with a note that indicates the minimum total number of points required by the PUD Fire Safety Rating system at the time of Preliminary Plan approval. Meeting the minimum total number of points required by the PUD Fire Safety Rating system shall be sufficient to justify County approval under this Section 24, unless the County demonstrates that additional requirements are essential to preventing a substantial risk of personal injury, death, and/or loss of property from fire due to the special circumstances of the land on which the proposed PUD is to be located.

(5) Covenants: The applicant shall create covenants that will allow individual lot owners the ability to build dwelling units that can meet the total minimum points required by the Ouray County Fire Safety Rating for Residential Structures.

**B. RESIDENTIAL STRUCTURES SUBJECT TO THIS CODE**

(1) Driveways will be constructed to the standards set forth in Section 23 – Road Standards.

(2) Location, design, and construction of residences will be planned and completed to meet the minimum required points for the Fire Safety Rating for Residential Structures as a condition of receiving a Certificate of Occupancy.

(3) For new residences located in PUD's without central water systems and outside of PUD's where water supply is from an approved well(s) or other source, individual property owners will be required to have a reserve water supply (cistern or other approved storage) in an amount of at least one gallon per square foot of the total square foot area of all residential structures on the parcel. The water storage tank shall have fittings for attachment to fire truck pumping equipment as required by the closest serving fire district and have provisions for maintaining the required reserve water supply stipulated above at least 90% capacity.

C. COMMERCIAL STRUCTURES SUBJECT TO THIS CODE:

- (1) All Commercial construction shall meet the Uniform Building Code and the Uniform Fire Code provisions relating to fire mitigation as adopted by Ouray County.

**Ouray County  
Fire Safety Rating for  
New Residential Structures**

Owner/s: \_\_\_\_\_ Site address: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_

Effective Nov. 3, 1997, a minimum number of points is required for individual dwelling units at the time a Certificate of Occupancy is issued. See CSU Cooperative Extension publication 6.302, *Creating Wildfire Defensible Zones*, by F.C. Dennis, for more information.

Homes in Planned Unit Developments, or on parcels of less than 35 acres=800 pts.  
 Homes on parcels of 35 acres or more and not included in a PUD=700 pts.

**Category 1: Building Site**

Criteria	Available	Actual
A. 3 miles or less from a fire station	50	_____
B. Between 3 and 5 miles to a fire station	20	_____
C. More than 5 miles to a fire station	0	_____
D. Located where lot slope is 10% or less	50	_____
E. Located where lot slope is between 10% and 20%	0	_____
F. Located where lot slope is more than 20%	-50	_____
G. Located 50 ft. or less from a slope of 40% or more	-150	_____
H. Located 50 to 100 ft. from a slope of 40% or more	0	_____
I. Located 50 ft. or less from a slope between 20% and 40%	-50	_____
J. Located more than 100 ft. from a slope of 40% or more	150	_____
K. Located in open land, or where trees are widely scattered	50	_____
L. Located in open forest (crowns more than 5 ft. apart)	20	_____
M. Located in dense forest (crowns less than 5 ft. apart)	0	_____
N. Within 500 ft. of a natural fire barrier at least 20 ft. wide	20/barrier	_____
O. Within 500 ft. of a roadway more than 22 ft. wide	20/side	_____
P. Within 500 ft. of a constructed fire barrier >50 ft. wide	20/barrier	_____
Q. Within 500 ft. of a constructed fire barrier >100 ft. wide	50/barrier	_____

**Category 2: Building Construction**

Criteria	Available	Actual
A. Approved interior sprinkler system	200	_____
B. Approved exterior sprinkler system	200	_____
C. Structure size, as defined by Uniform Building Code:		
D. Less than 2,400 sq. ft.	25	_____
E. 2,400 to 4,000 sq. ft.	15	_____
F. More than 4,000 sq. ft.	0	_____
G. Roof material:		
1) Class A	150	_____
2) Class B	0	_____
H. Siding/foundation:		
1) All stone, brick, stucco	75	_____
2) Lower 4 ft. stone, brick, stucco	25	_____
3) Metal	25	_____
4) Logs more than 6 inches in diameter	15	_____
5) Wood, fiberglass, plastic	0	_____
I. Decks & balconies:		
1) None, or constructed of noncombustible material to the ground	15	_____
2) Enclosed, concrete or gravel beneath	10	_____
J. Eaves:		
1) Less than 2 ft. overhang or of noncombustible material	10	_____
2) More than 2 ft. overhang	0	_____
K. Approved, fire-resistant shutters on all windows	150	_____
L. No fireplace, coal or wood-burning stove	100	_____
M. Buried electric lines	20	_____
N. Overhead electric lines	-20	_____
O. Propane/fuel oil tank less than Uniform Fire Code standard, Sec. 58	-20	_____
P. Fire extinguishers: 10 points each	50 max.	_____

**Category 3: Defensible Space (See page 14 of this book.)**

Criteria	Available	Actual
Meets standards for:		
A. Zone 1	150	_____
B. Zone 2	100	_____
C. Zone 3	10	_____

**Category 4: Access**

Criteria	Available	Actual
A. Road to driveway does not meet county road standards and/or is not an all-weather road that can support at least 40,000 lbs.	-100	_____
B. Driveway more than 12 ft. wide, vertical clearance more than 15 ft.	0	_____
C. Driveway less than 12 ft. wide, vertical clearance less than 15 ft.	-20	_____
D. All-weather base on driveway, supports at least 40,000 lbs.	20	_____
E. Driveway lacks all-weather base	-20	_____
F. Driveway less than 400 ft. long, or w/ 8 ft.x 60 ft. turnouts every 400 ft.	20	_____
G. Driveway turnaround width radius within 50 ft. of dwelling	10	_____
H. Average grade less than 6%, with maximum of 10%	20	_____
I. Average grade between 6 & 10%, with maximum of 10%	0	_____
J. Maximum grade more than 10%	-20	_____
K. Address posted according to Sec. 8.1-F, County Land Use Code.	20	_____

**Category 5: Water Availability**

Criteria	Available	Actual
A. Less than 1,000 ft. from hydrant with minimum fire flow	250	_____
B. 1000 ft. to 1 mile from hydrant with minimum fire flow	100	_____
C. Less than 1 mile from hydrant with <u>less than minimum</u> fire flow	25	_____
D. Underground tank with storage capacity of at least 1 gal./sq. ft. of largest structure on premises (min. 1,500 gal.), properly plumbed for fire truck drafting and provision for maintaining at 90% of capacity, easily accessed and clearly marked.	150	_____

E. Less than 1,000 ft. from clearly marked draft site with all-weather access, granted right-of-way, and year-round water availability.	75	_____
F. 1,000 ft. to 1 mile from draft site like that described above.	50	_____
G. One yard hydrant within 50 ft. of structure	25	_____
H. Each additional hydrant within 50 ft. of other structures	10	_____
I. Second auxiliary water system available for fire dept. use: Add one point for each gallon/minute.	150 max.	_____
 Total points:		 _____

**Comments:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

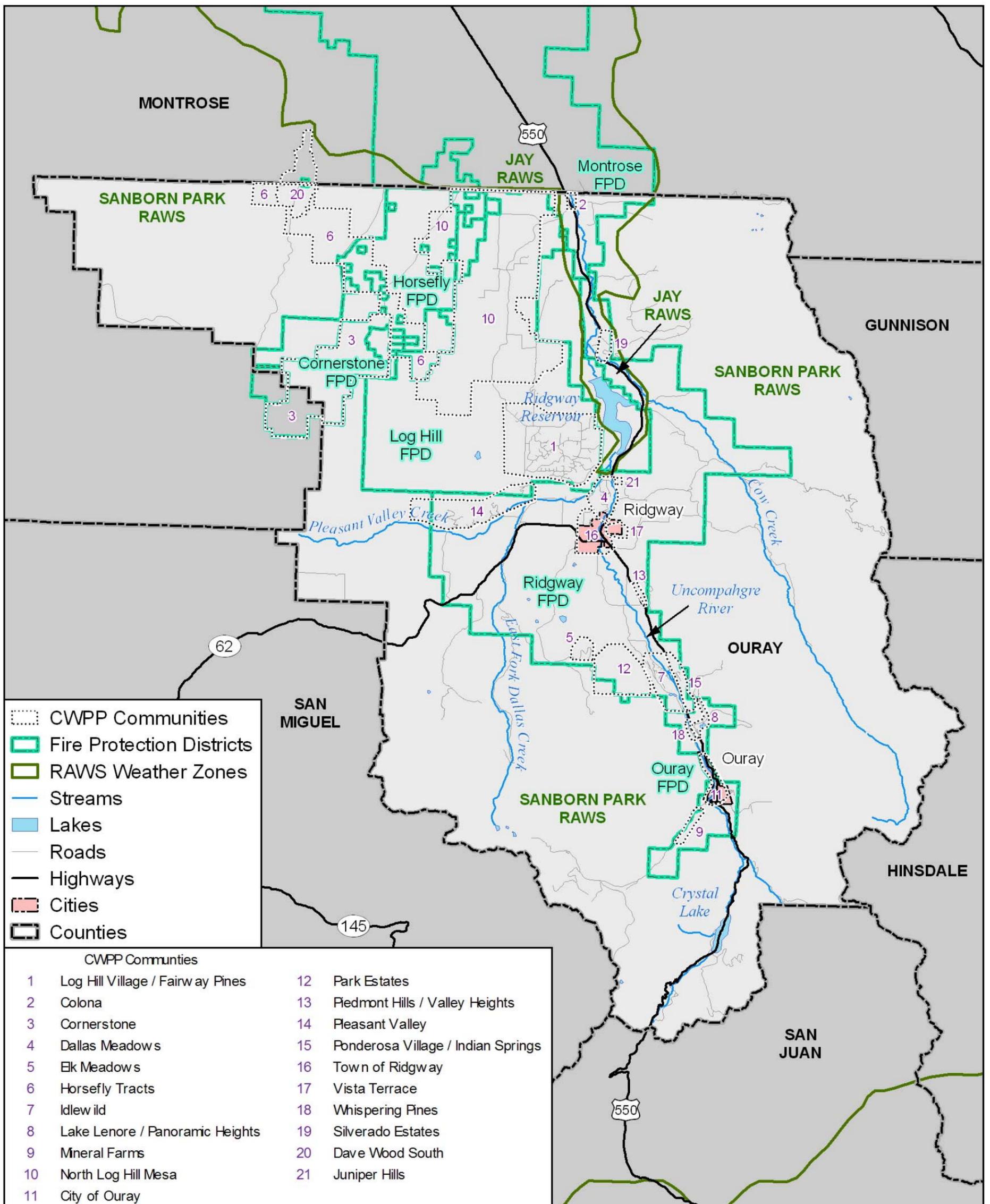
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## **APPENDIX E: 11 X 17 MAPS**

The following maps have been enlarged to 11 X 17:

- County CWPP Communities (figure 3)
- Other Agency Treatments (figure 6)
- County CWPP Communities and Hazard Ratings (figure 8)
- County Rural Planning Area (figure 9)
- Areas of Special Interest Map (figure 37)
- Predicted Rate of Spread Under High Weather Conditions (figure C6)
- Predicted Flame Lengths Under High Weather Conditions (figure C8)
- Predicted Crown Fire Activity Under High Weather Conditions (figure C9)
- Fireline Intensity Under High Weather Conditions (figure C11)

# Ouray County CWPP Communities



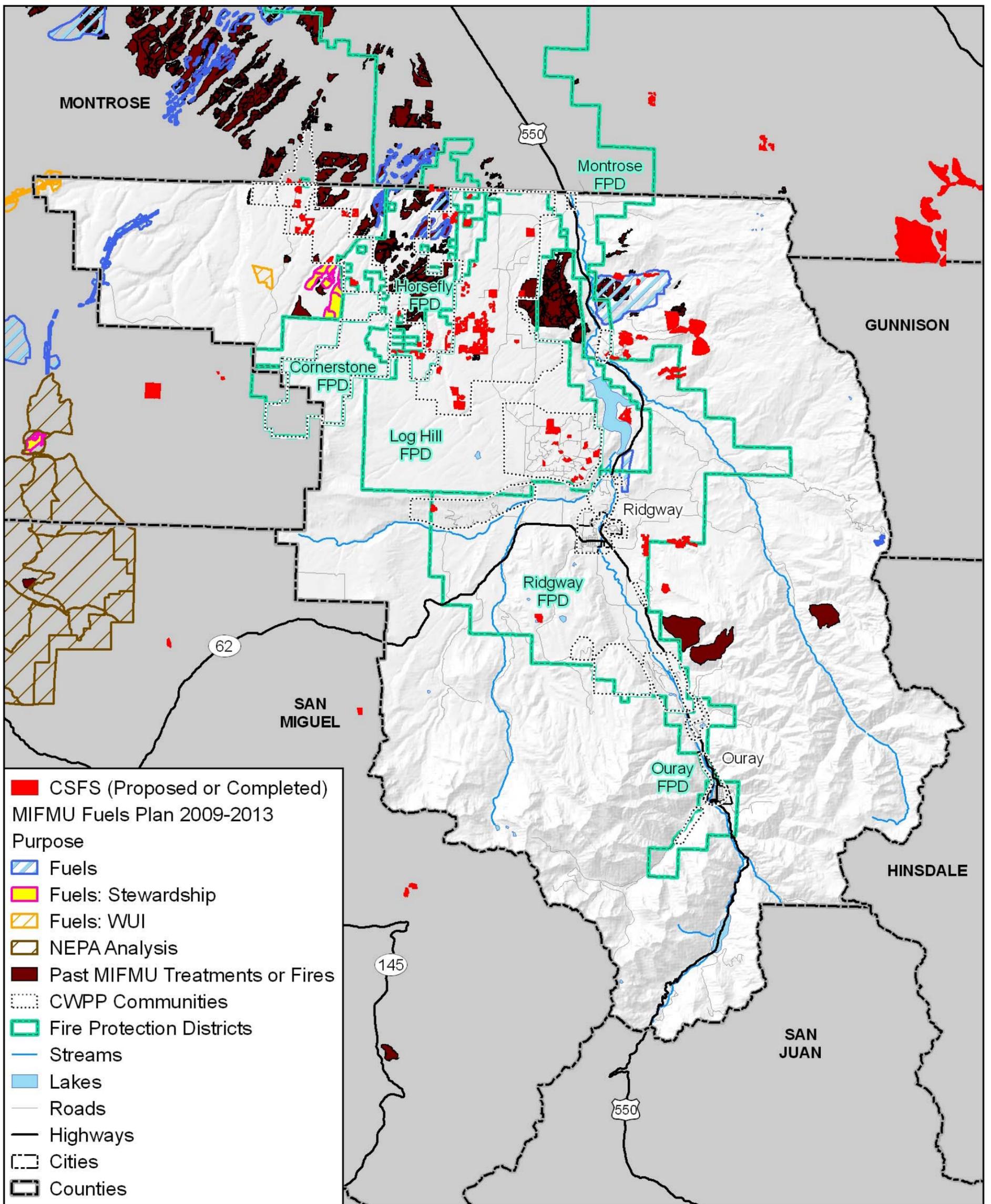
Map compiled 4/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

0 5 10 Miles



\*Ouray County data shown on this map is to be considered a draft and subject to revision.

# Ouray County Other Agency Treatments



Map compiled 2/2011; intended for planning purposes only.  
 Data Source: Ouray County, Anchor Point, CDOT, CSFS, MIFMU

0 5 10 Miles

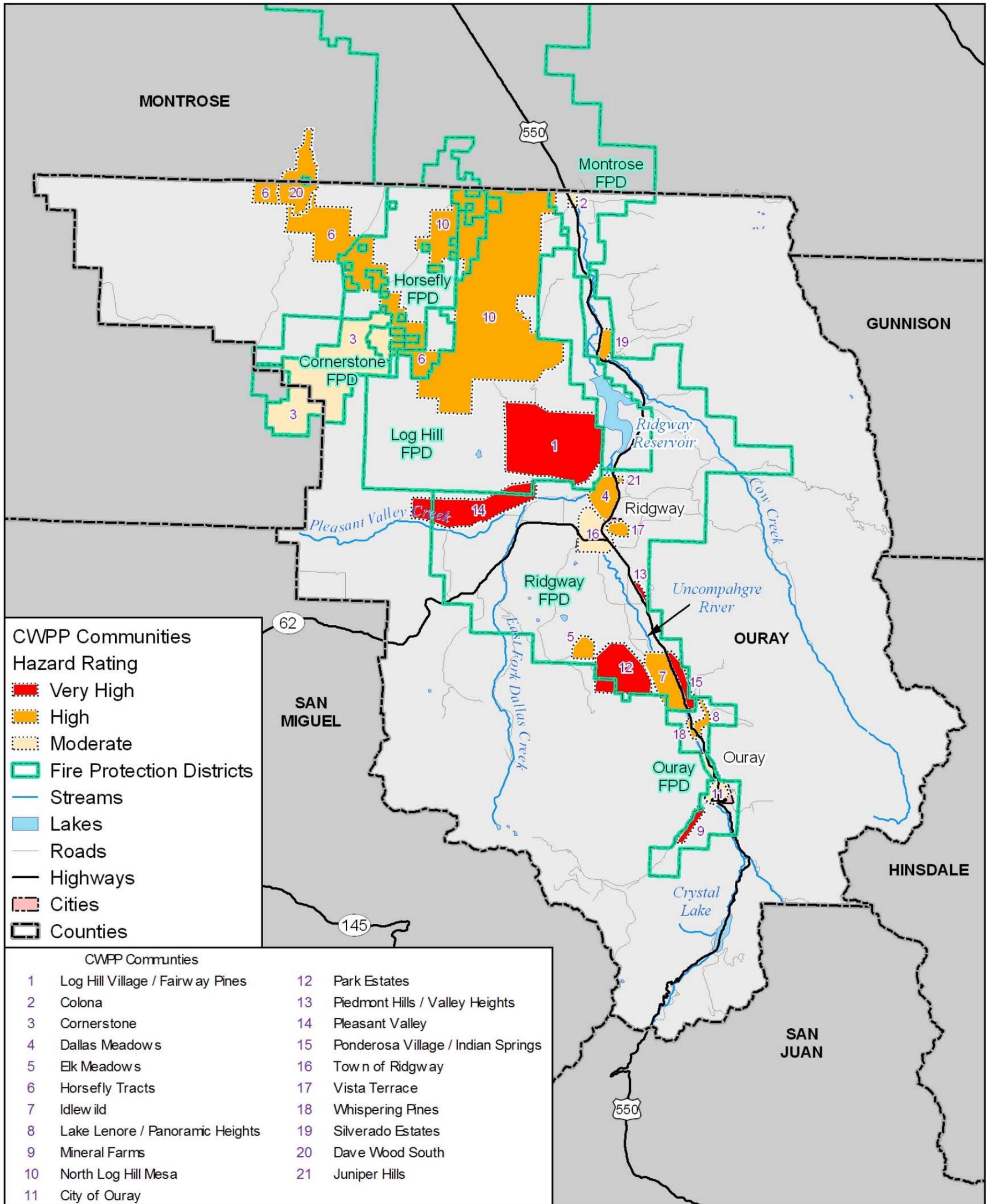


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\*Ouray County data shown on this map is to be considered a draft and subject to revision.

# Ouray County CWPP Communities and Hazard Rating

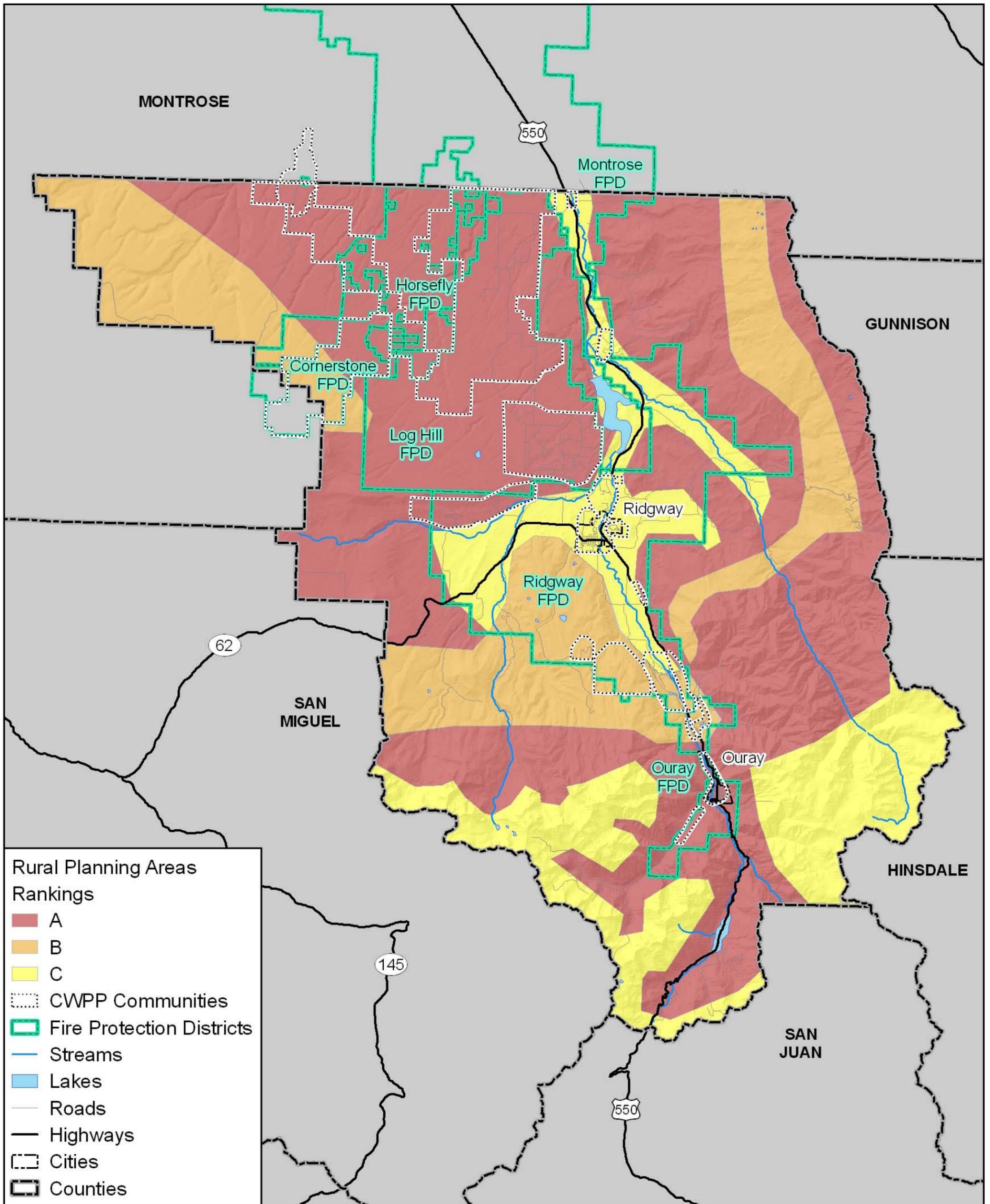


Map compiled 4/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



\*Ouray County data shown on this map is to be considered a draft and subject to revision.

# Ouray County Rural Planning Areas



Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

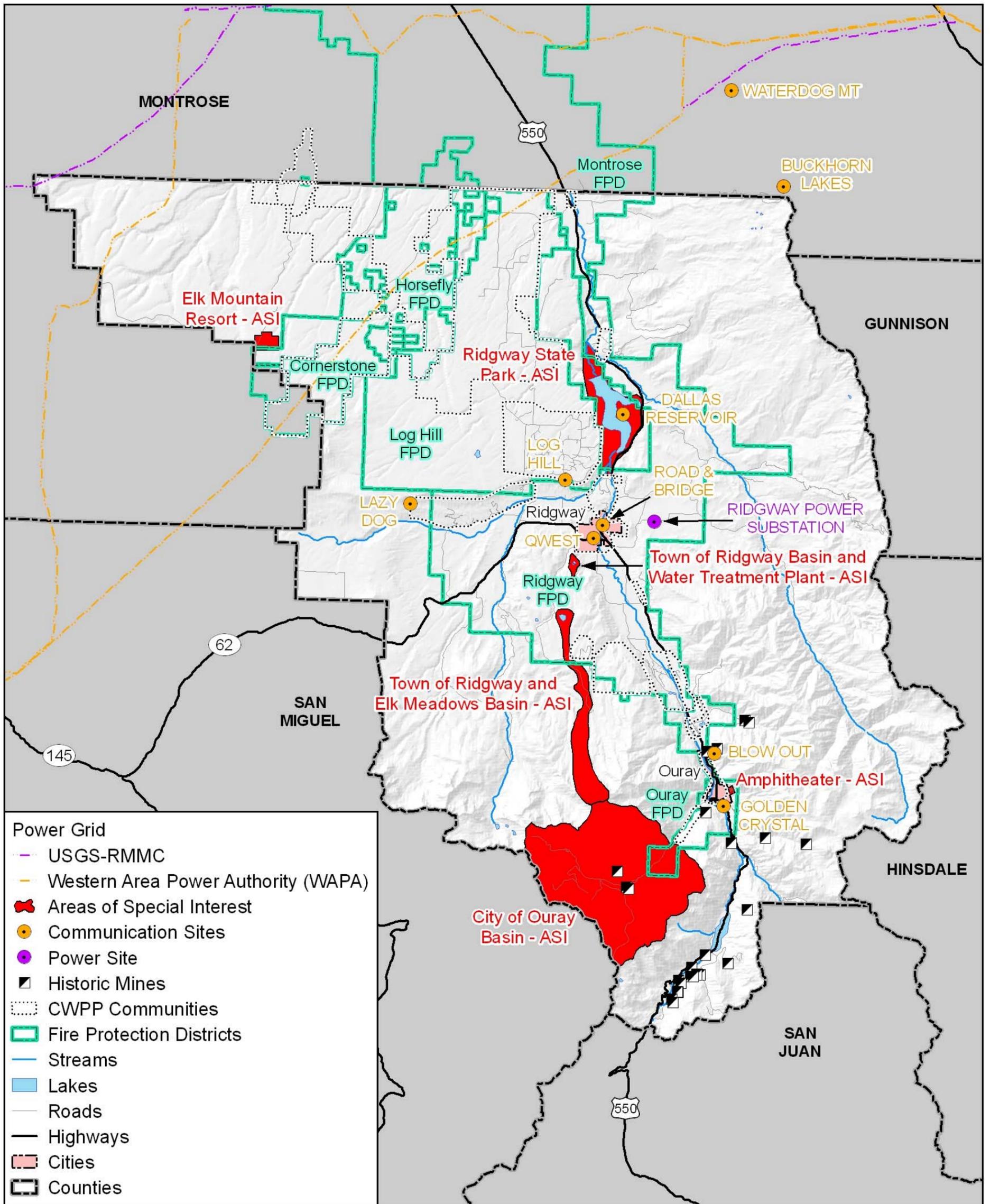


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\*Ouray County data shown on this map is to be considered a draft and subject to revision.

# Ouray County Areas of Special Interest

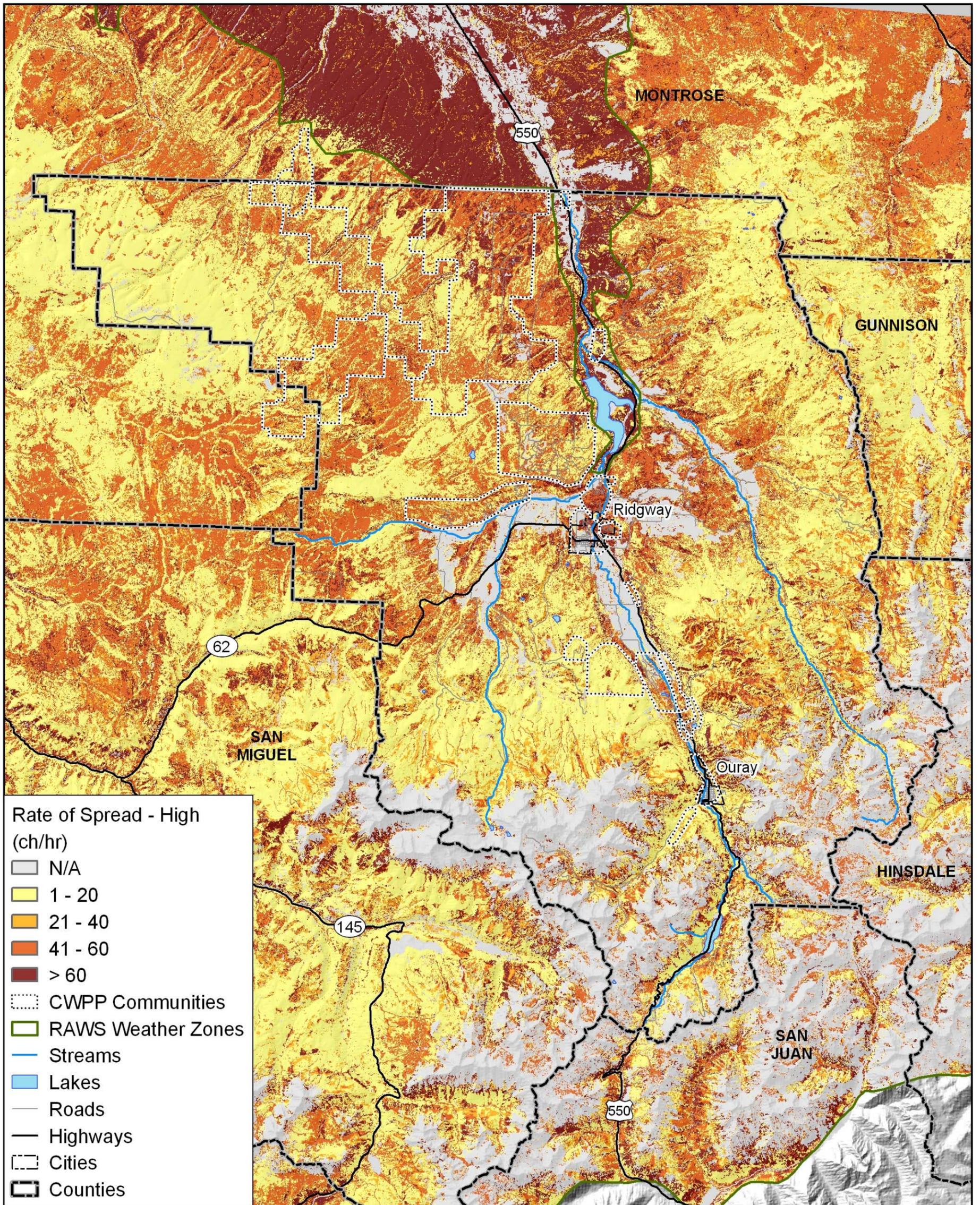


Map compiled 6/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT, MIFMU



\*Ouray County data shown on this map is to be considered a draft and subject to revision.

# Ouray County Rate of Spread High Weather Conditions



Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT

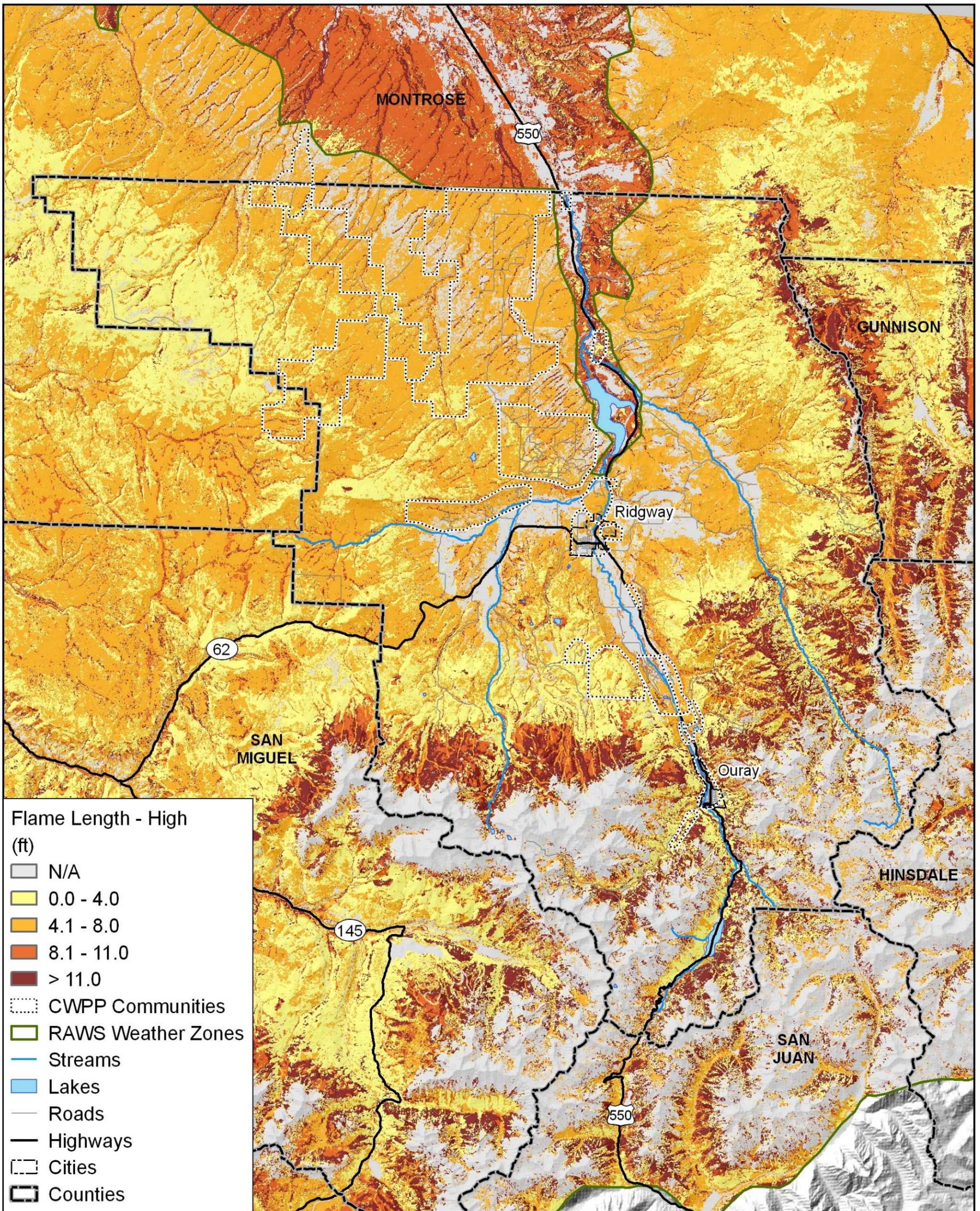
\* Ouray County data shown on this map is to be considered a draft and subject to revision.



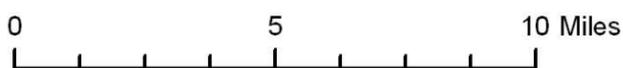
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# Ouray County Flame Length High Weather Conditions

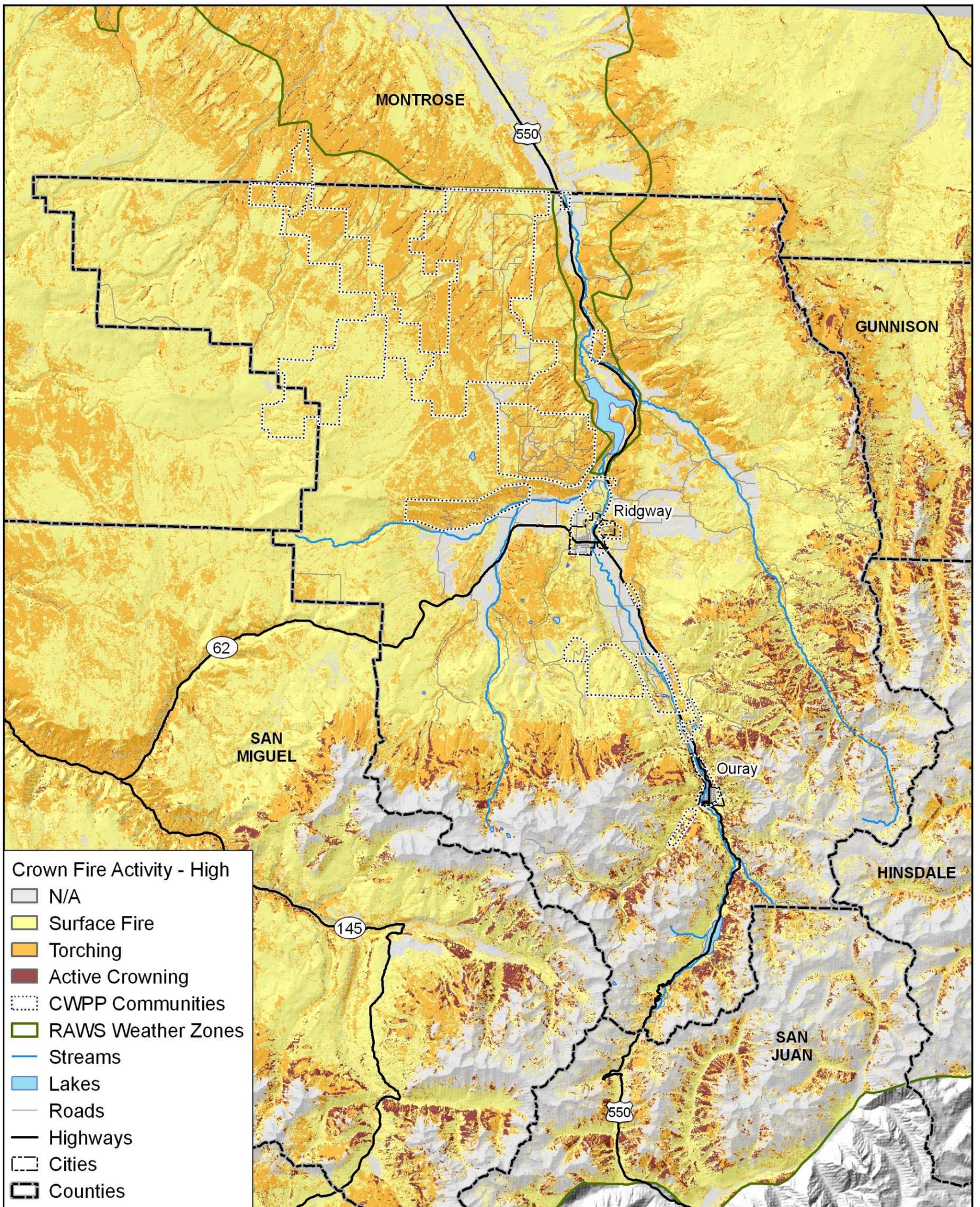


Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



\* Ouray County data shown on this map is to be considered a draft and subject to revision.

# Ouray County Crown Fire High Weather Conditions



- Crown Fire Activity - High**
- N/A
  - Surface Fire
  - Torching
  - Active Crowning
  - CWPP Communities
  - RAWs Weather Zones
  - Streams
  - Lakes
  - Roads
  - Highways
  - Cities
  - Counties

0 5 10 Miles



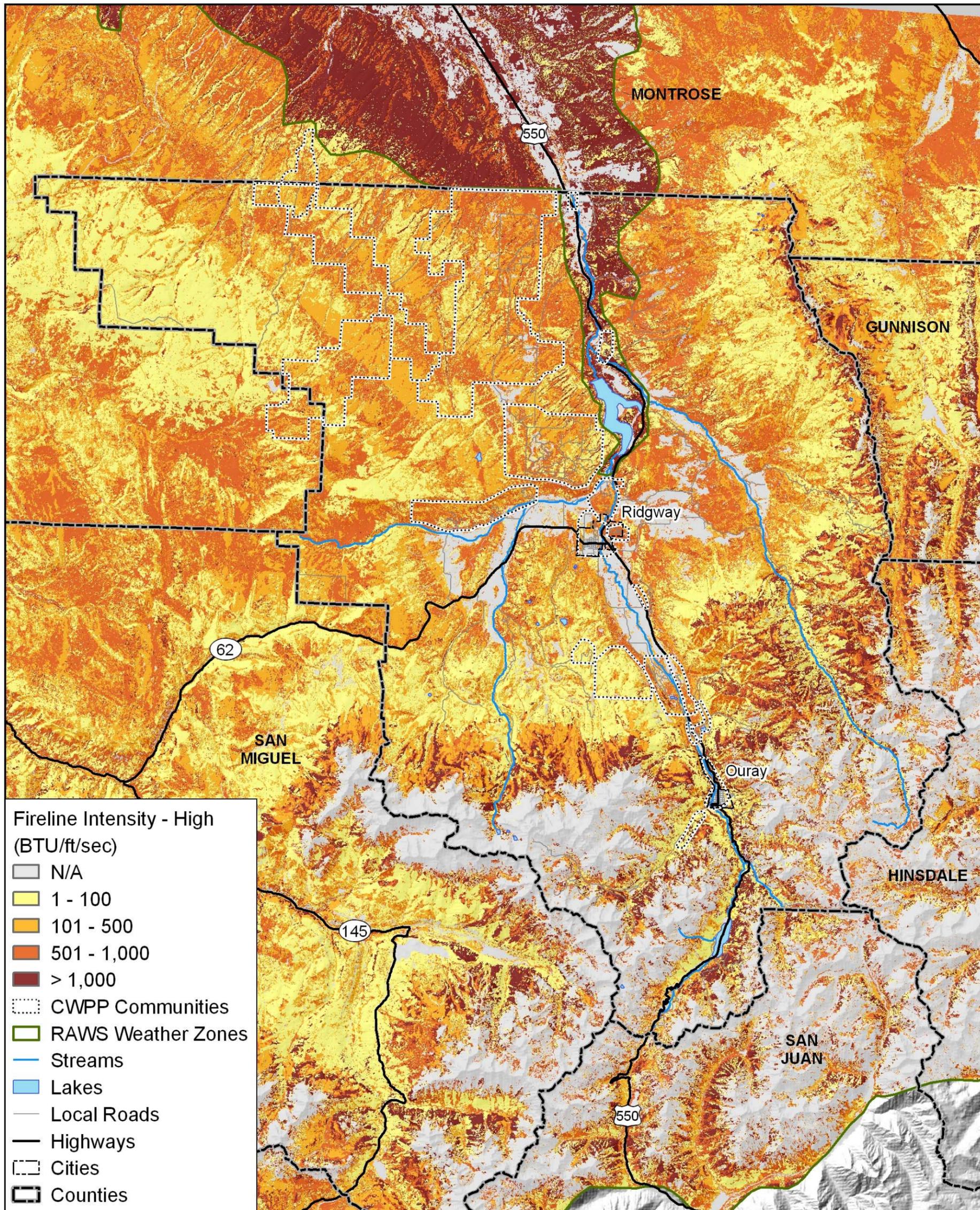
Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



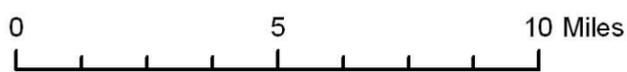
\* Ouray County data shown on this map is to be considered a draft and subject to revision.



# Ouray County Fireline Intensity High Weather Conditions



Map compiled 2/2011; intended for planning purposes only.  
Data Source: Ouray County, Anchor Point, CDOT



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