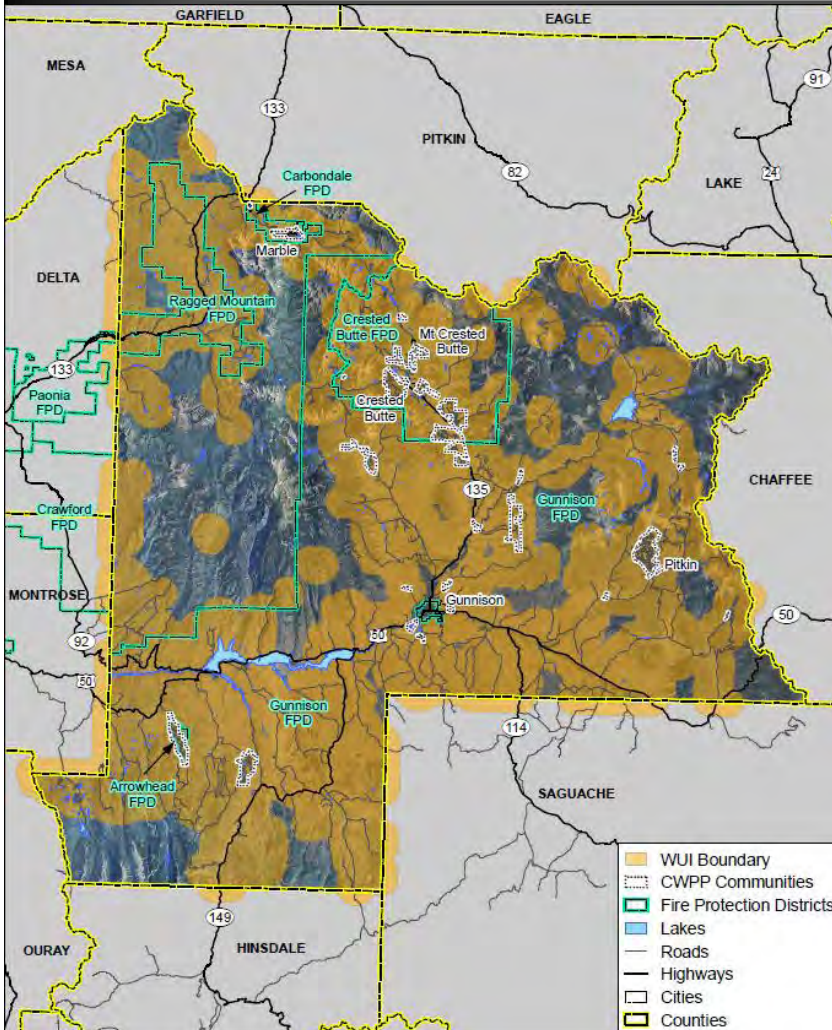


Gunnison County, Colorado

Community Wildfire Protection Plan



GUNNISON COUNTY, COLORADO
Community Wildfire Protection Plan
June 2011

Prepared by Gunnison County

In Coordination with the Gunnison 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.

County Sheriff

Date

County Emergency Manager

Date

Gunnison Fire Protection District

Date

Crested Butte Fire Protection District

Date

Arrowhead Fire Protection District

Date

Carbondale Fire Protection District

Date

Colorado State Forest Service

Date

US Forest Service

Date

West Region Wildfire Council

Date

Montrose Interagency Fire Management Unit

Date

GUNNISON 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 Gunnison 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). The plan presents the results of a county-level fire behavior analysis in conjunction with community-level analyses of wildfire risk. From this analysis recommendations have been generated to aid stakeholders and residents in preventing and/or reducing the threat of wildfire to community 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 Gunnison 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 Communities Ignitability Analysis Recommendations section of the main document

Addressing structural ignitability

See Communities 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 Protection District Capabilities section of the main document

Collaborating with stakeholders

See *Appendix B*

The Gunnison County CWPP is the result of an area-wide fire protection planning effort that includes extensive field data, a compilation of existing documents. It also included a scientific analysis of the fire behavior potential of the study area (based on fuels, topography, and historical weather conditions), and collaboration with homeowners and officials from several agencies including: the Gunnison Fire Protection, Crested Butte Fire Protection, Arrowhead Fire Protection, Carbondale Fire Protection, Ohio City, Gunnison Basin Wildfire Council, West Region Wildfire Council, Bureau of Land Management (BLM), Colorado State Forest Service, Montrose Interagency Fire Management Unit (MIFMU), US Forest Service, National Park Service (NPS), Colorado Division of Emergency Management, and representatives from local homeowners' associations and communities.

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 Gunnison 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 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, Gunnison 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 five broad categories, including: public education, structural ignitability/defensible space, water supply, access/evacuation, and street and home addressing. While many of the recommendations are general in nature, specific recommendations regarding landscape scale fuel treatments and evacuation routes are included in the community descriptions section of the report. General recommendations are provided for all communities within the study area; however, additional fuel reduction recommendations are provided for 22 CWPP communities. In all, 16 additional landscape-scale linked defensible space fuels reductions were recommended for 13 communities, two fuel breaks were recommended for two separate communities, an evacuation route improvement was recommended for one community, and eight roadside thinning/mowing projects were recommended for five of the communities. Additional recommendations regarding evacuation include maintaining primary egress routes, providing a secondary egress road, and educating residents on where their best evacuation routes are located. Recommendations for local communities in this CWPP should involve stakeholders and citizens from that area to ensure that the recommendations and/or projects are valuable and viable for that community. 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 the glossary defining technical terms before reading this document.

Appendix A: General Recommendations

Recommendations for individual communities are found in the Community Ignitability Analysis Recommendations Section of this plan. The solutions outlined in Appendix A pertain to overall recommendations for the County and all fire protection districts. Appendix A 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 is to assure community participation. A summary of the collaborative process undertaken for this project is found in Appendix B.

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 near the end of the document. 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 Gunnison 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 (e.g., 2010 Gunnison and Hinsdale County Wildfire Annual Operating Plan, 2010 Upper Crystal River Valley CWPP, 2008 Gold Basin CWPP, 2007 Blue Mesa CWPP, 2007 Arrowhead CWPP, 2003 Gunnison County Multi-Hazard Mitigation Plan), which will be valuable to citizens, policymakers, and public agencies in Gunnison County, Colorado. Participants in this project include Gunnison County, the Gunnison Fire Protection District, Crested Butte Fire Protection District, Arrowhead Fire Protection District, Carbondale Fire Protection District, Ohio City Volunteer Fire Department, Gunnison Basin Wildfire Council, West Region Wildfire Council, Bureau of Land Management (BLM), Colorado State Forest Service, Montrose Interagency Fire Management Unit (MIFMU), US Forest Service, National Park Service (NPS), Colorado Division of Emergency Management, representatives from home owners associations (HOA) 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 Gunnison County wildfire hazard and risk assessment.

As previously mentioned, a 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 WUI neighborhoods 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 Gunnison 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.

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 Department of Agriculture 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 Gunnison 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" based on relatively similar geographic and 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. Through the inventory of fire district capabilities weaknesses have been identified. Recommendations have been made to ensure sufficient firefighting resources.

COLLABORATION: COMMUNITY AND AGENCIES

Many people have been involved in the development of this plan. The names of representatives for the core team involved in the development of the Gunnison County CWPP are included in Table 1, along with their organizations and various current and future roles and responsibilities. For more information on the collaborative process, see **Appendix B, Project Collaboration**.

Table 1. Gunnison County CWPP Development Team

Name	Organization	Roles / Responsibilities
Scott Morrill, Emergency Manager Rick Besecker, Sheriff	Gunnison County	Primary development of CWPP and decision-making, community risk and value approval, development of community protection priorities, and prioritization of fuel treatment project areas and methods.
Dennis Spritzer, Fire Marshal Rick Ems, Fire Chief Brent Mims, Fire Chief Ron Leach, Fire Chief Jim Miles, Fire Chief	City of Gunnison Crested Butte Fire District Arrowhead Fire Protection District Carbondale Fire Protection District Gunnison Volunteer Fire District	Primary development of CWPP, community identification, community risk and value approval, development of community protection priorities, and prioritization of fuel treatment project areas and methods.
Chris Barth, Fire Mitigation & Education Specialist Jerry Chonka, Gunnison Zone FMO Dana Carter, Fuels FMO Michael Davis, Aviation and Operations FMO	Montrose Interagency Fire Management Unit	Fire trend data, fire occurrence data, and existing and planned fuels treatments information. Outreach on plan effort and support at public meetings.
Barbara Sharrow, Field Office Manager Ken Holsinger, Fuels Specialist	Bureau of Land Management (BLM) – Uncompahgre Field Office	Participation in plan collaboration and review
Brian St. George, Field Office Manager Dave Kinatader, Fuels Specialist	BLM – Gunnison Field Office	Participation in plan collaboration and review
Levi Broyles, District Ranger	US Forest Service – Paonia Ranger District	Participation in plan collaboration and review

Name	Organization	Roles / Responsibilities
Tammy Randall-Parker, District Ranger	US Forest Service – Ouray Ranger District	Participation in plan collaboration and review
John Murphy, District Ranger	US Forest Service – Gunnison Ranger District	Participation in plan collaboration and review.
Charles Richmond Forest Supervisor	US Forest Service – Grand Mesa, Uncompahgre, Gunnison (GMUG) Ranger District	Participation in plan collaboration and review
Connie Rudd, Park Superintendent Ross Oxford, Fuels Specialist	National Park Service (NPS) – Black Canyon/Curecanti	Participation in plan collaboration and review
Steve Ellis, Regional FMO	Colorado State Forest Service (CSFS)	Participation in plan collaboration and review
Tim Cudmore, District Forester Sam Pankratz, Forester	CSFS – Gunnison District	Past and planned fuels treatment data, public outreach and education, participation in plan collaboration and review.
Steve Denney, West Region Field Manager	Colorado Division of Emergency Management	Participation in plan collaboration and review
Lilia Colter, CWPP Coordinator	West Region Wildfire Council	Community outreach and engagement, public meeting support.
Rodrigo Moraga Chris White Karl Kumli 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

Gunnison County has a history of proactive wildfire planning and mitigation. The Gunnison County CWPP builds upon and is related to other planning efforts in the community, including:

- 2010 Gunnison and Hinsdale County Wildfire Annual Operating Plan
- 2010 Upper Crystal River Valley CWPP
- 2008 Gold Basin CWPP
- 2007 Blue Mesa CWPP
- 2007 Arrowhead CWPP
- Wilderness Streams CWPP
- 2003 Gunnison County Multi-Hazard Mitigation Plan
- Gunnison County Wildfire Hazard Mitigation and Response Plan
 - Gothic Townsite 2004
 - Blue Mesa Subdivision 2002
 - Quartz Creek Subdivision 2000
 - Arrowhead Subdivision 1998
 - Trappers Crossing at Crested Butte, Trappers Crossing at Wildcat, and Trappers Crossing South Subdivisions 1999
 - Crested Butte Highlands, Crested Butte Meadows and Northern Portion of Crested Butte South 1998
 - Gunnison Highlands 1998

The Gunnison County CWPP should be considered an umbrella document in relationship to local level CWPPs. The 2011 Gunnison County CWPP does not supersede the local CWPPs previously identified. It is intended to complement these earlier planning efforts in order to help Gunnison 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 Gunnison County. Gunnison County is located in central western Colorado and is bordered by Chaffee County to the east, Saguache and Hinsdale County to the south, Montrose and Delta County to the west, Ouray to the southwest, and Mesa and Pitkin County to the north. The total land area of the County is 3,260 square miles. 78% of this land area is federally owned and managed. The USFS holds 1,906 square miles, BLM holds 555 square miles, and the Curecanti National Recreation Area encompasses 63 square miles (www.gunnisoncounty.org/area_community_info.htm). Land stewardship in the county is shown below in Figure 1. According to the US census, the population of Gunnison County in 2010 was estimated at 15,324 people, a 9.8% increase since the 2000 census population of 13,956. In 2010, there were an estimated 11,412 housing units and 2.35 individuals per household. Primary transportation routes include US Hwy 50 and State Routes 133, 135, 92, 149 and 114.

Gunnison County is named for John W. Gunnison, a U.S. Army officer who surveyed the area for the transcontinental railroad. The area now encompassed by the County was originally home to the Utes, who were pushed out by ranchers, traders, and miners. Gunnison's wealth as a mining area was short lived, lasting only a few years. Much of the population that had settled in Gunnison departed at that point. On May 22, 1877, the Town of Gunnison became the official county seat. Today, the economic base of Gunnison County is rooted primarily in tourism. Western State College is located in the City of Gunnison.

Located in the heart of the Rocky Mountains, Gunnison County is known for its mountainous terrain connected by deep valleys. Gunnison County is classified as having a semiarid climate, with sunshine on over 300 days of the year, frequent winds, and low humidity. Temperatures range from the average high of 80° F in July and the average low of -7° F in January. Average precipitation is 10.43 inches per year, and average annual snowfall is 50.5 inches. Local vegetation includes grasses, shrubs, and timber.

Defining the Wildland Urban Interface (WUI) is an important aspect of the CWPP development process. In Gunnison County, the WUI was determined using a 1.5 mile buffer surrounding all private lands within the county boundary that are at risk from wildfire. Some areas, including those within the town of Gunnison, are not included because they were not determined to be threatened by wildfire. Specifically, the WUI boundary within Gunnison County is concentrated near the main highway areas, and does not include large, remote sections of federal land found throughout the County. The WUI is represented in Figure 2.

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 ranches and mining camps, and then later in small towns, homes now occur throughout all of the nonfederal portions of Gunnison County. 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, 32 individual communities were defined within the Interface and study area, identified below in Figure 3. This map can be referenced in an 11 x 17 format in Appendix D. These communities are shown within the boundaries of the Wildland Urban

Interface in Figure 2. 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 Interface. For the purposes of this project, 32 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, are considered in the overall hazard ranking of these communities. 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.

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 these 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 the 32 communities in the study area to fall between moderate and extreme hazard rating. 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 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 32 communities, seven “areas of special interest” (ASIs) have been identified: the Crested Butte Ski Area, Taylor Reservoir, Blue Mesa Recreation Areas, Roaring Judy Fish Hatchery, the Way Family Camp (and other dude ranches), the Black Canyon of Gunnison National Park, and the Curecanti National Recreation Area (CNRA). Although these areas may not include residences, they contain critical infrastructure, buildings, seasonal temporary populations and/or other structures that necessitate serious attention from a fire mitigation standpoint.

Figure 1. Gunnison County Land Stewardship

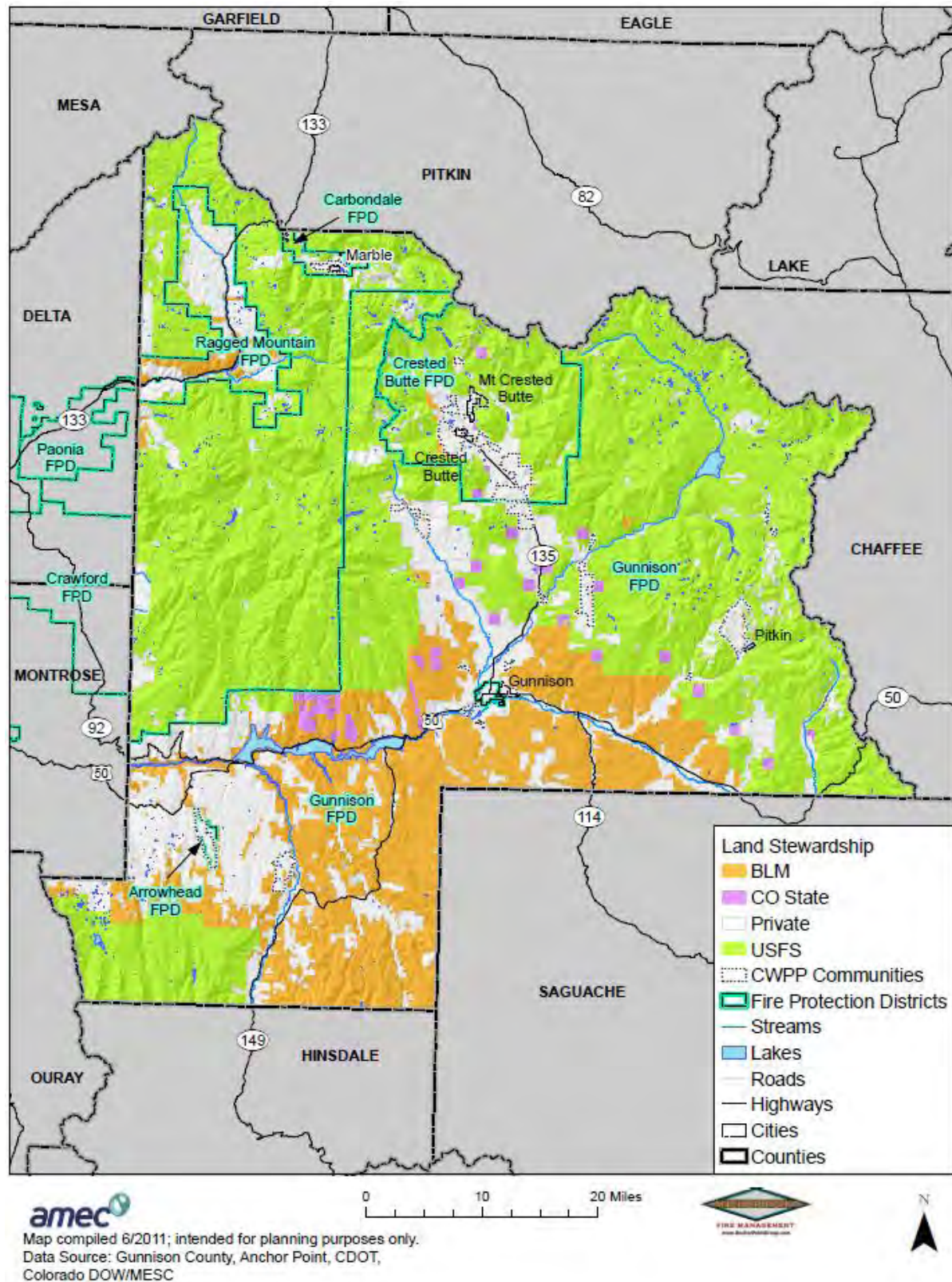


Figure 2. Gunnison County WUI Boundary

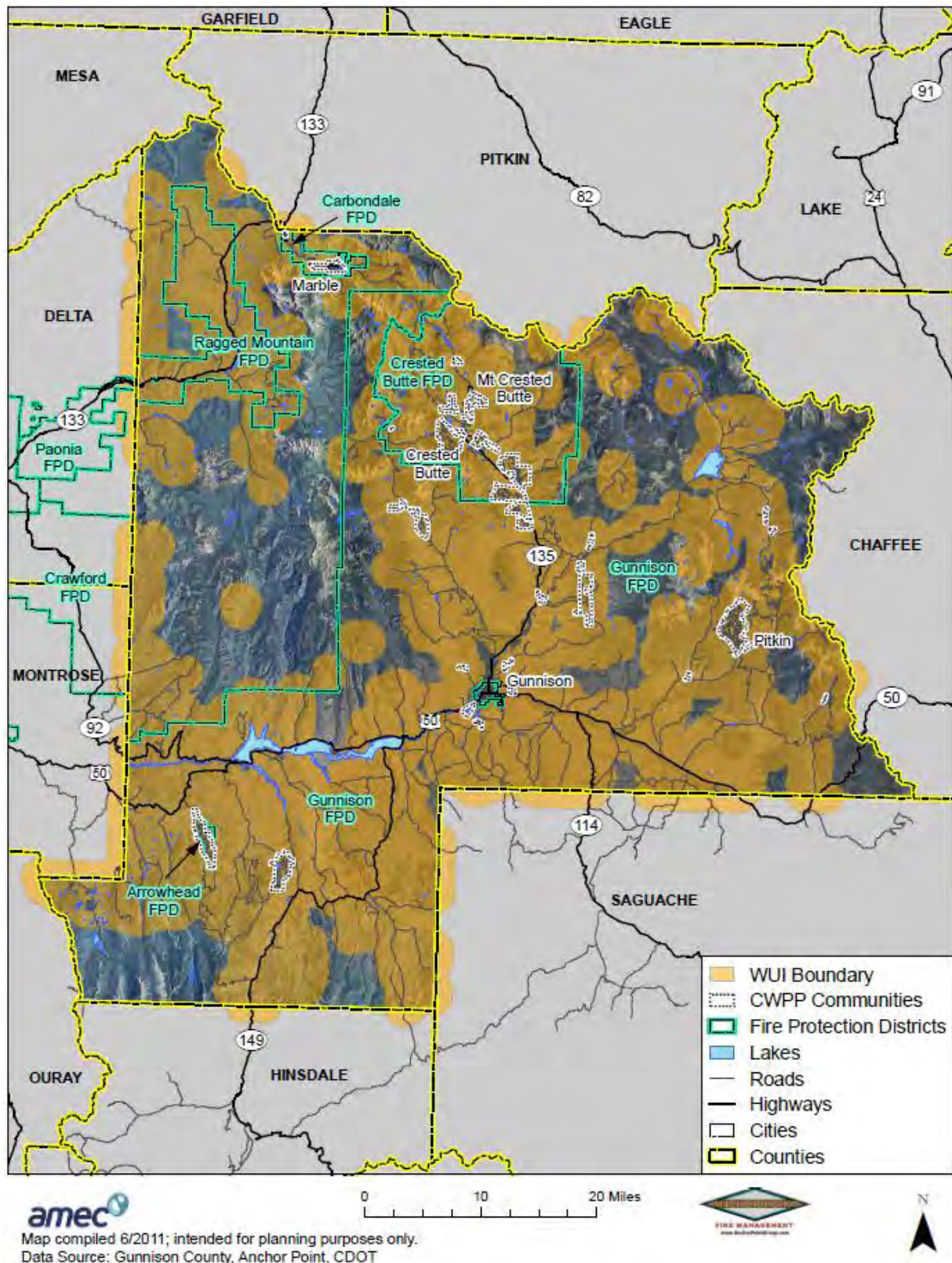
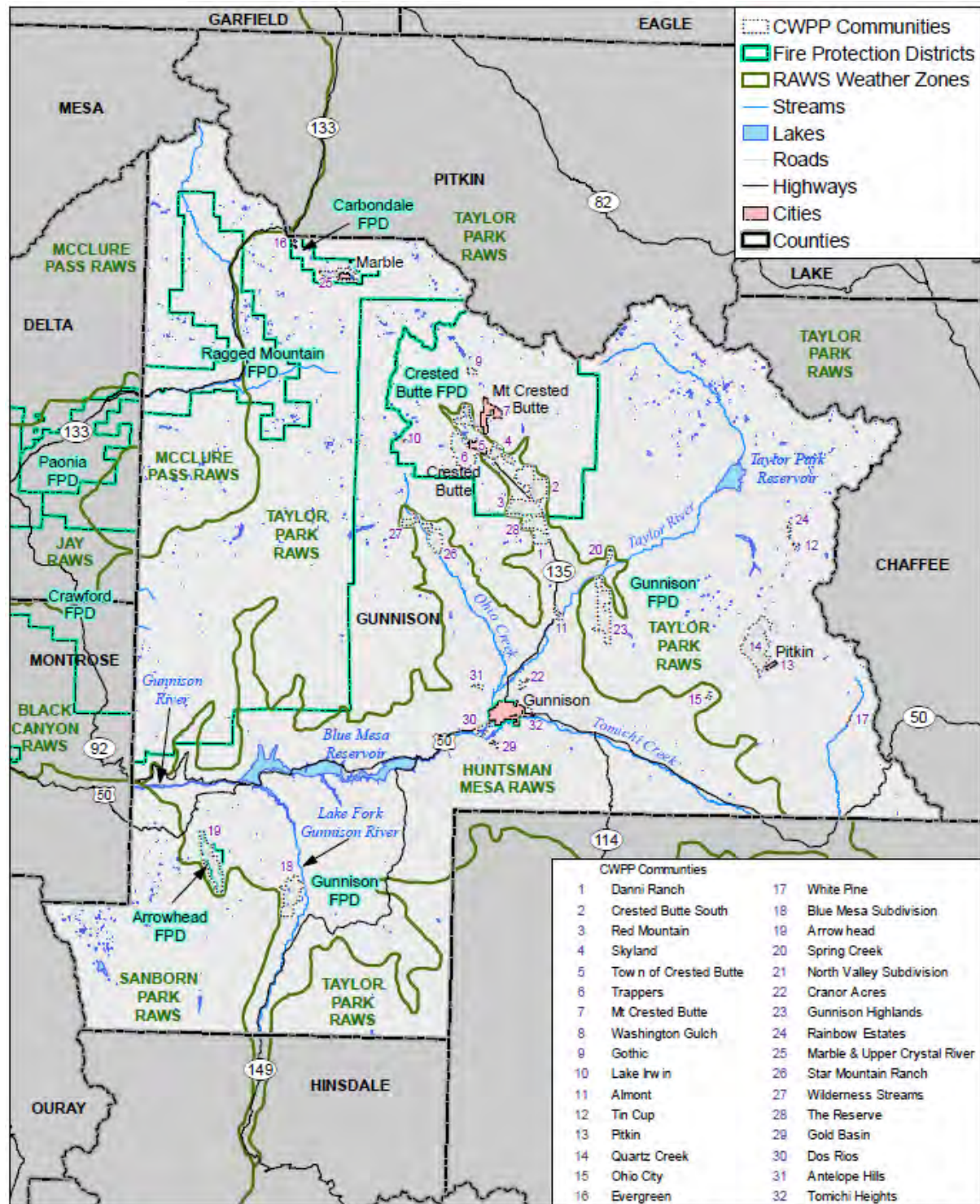


Figure 3. Gunnison County CWPP Communities



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

0 10 20 Miles



VALUES AT RISK

LIFE SAFETY AND HOMES

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 local and state governments on the need to mitigate such events where possible, and to prepare to cope with them when they are unavoidable. Individuals live in Gunnison County for a variety of reasons. Based on a public survey conducted during the development of this plan (Appendix B) residents value the area's natural beauty, clean water and air, and wildlife the most, followed by property values, access to public lands, and recreational opportunities. Protecting these assets also aids in preserving property values, another value to residents. Other values noted in the survey included ~~–safety from fires,~~ ~~–fire mitigation,~~ ~~–peace and quiet,~~ ~~–sense of community~~ and ~~–structured community that values items listed above (in survey).~~

Values at risk were identified in three community CWPPs for Gunnison County. The priority for all three communities was the protection of life with residential structures being a second priority. Other values at risk identified for these three communities varied from community structures to utility services. A list of values at risk that were identified in these three CWPPs includes:

Blue Mesa Subdivision CWPP

- *Human life*
- *Residential Structures*
- *The community clubhouse/fire shed*
- *Electrical and telephone services*

Gold Basin Subdivision CWPP

- *Human life*
- *Residential Structures*
- *The County Road #38 (CR38) Snow Fence*

Arrowhead Subdivision CWPP

- *Human life*
- *Residential Structures*
- *The community water system (pump stations and water shed)*
- *Telephone services*
- *The community's equipment storage shed*

Most of Gunnison County is part of the WUI, and wildland fires are a concern for the county's residents. The main concern to residents in the county is their personal safety, as well as the loss of their homes and decreased property values. The majority of homes within the study area have roofs constructed of fire-resistant materials such as metal or asphalt shingles, but decks and siding are often made 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 five Gunnison County fire protection districts (FPD), including the Arrowhead FPD, Gunnison FPD, Ohio City Volunteer Fire Department, Crested Butte FPD, and Carbondale FPD. The five FPDs are covered by the 2010 Gunnison and Hinsdale County Wildfire Annual Operating Plan (AOP), which details procedures and agreements to address the wildland fire threat in Gunnison County.
- Arrowhead Subdivision
- Blue Mesa Subdivision
- Crested Butte Highlands, Crested Butte Meadows and Northern Portion of Crested Butte South
- Gold Basin Subdivision
- Gunnison Highlands Subdivision
- Ohio City Subdivision
- Star Mountain Ranch Subdivision
- Upper Crystal River (including Marble)
- Wilderness Streams Subdivision

COMMERCE AND INFRASTRUCTURE

Additionally, the effect of wildland fires on employment can impact a study area's economy. Some of the largest employers in Gunnison County, such as the Gunnison Watershed RE1J School District and the City of Gunnison, are at risk to wildfire. If employees of these agencies and other businesses were out of work for either the short term or the long term due to wildland fires, Gunnison County's economy would be impacted. Furthermore, ranching, education, and tourism are important components of Gunnison County's economy. Wildland fires can have a direct impact on agricultural lands and the Gunnison County scenery, adversely affecting the ability of the County's residents to earn a living from these industries. Gunnison County's scenic beauty is a main draw for tourism, so the County could suffer economic losses from tourists not coming to the area due to wildfires.

Critical infrastructure in Gunnison County includes public safety and government buildings, physical infrastructure, water supply systems, wastewater treatment, power infrastructure, and schools. In the 2003 Gunnison County Multi-Hazard Mitigation plan, an evaluation using the Wildfire Evaluation System was performed to determine which, if any, critical facilities were located in WUI areas and vulnerable to wildfire. According to the results of the wildfire evaluation performed for the 2003 Gunnison County Multi-Hazard Mitigation Plan, all wildland interface areas and five communities were identified as high impact areas to wildfire. These five communities included Trappers Crossing, White Pine, Taylor Park, West Elk Wilderness, and Spring Creek and have critical facilities or community assets at risk to wildland fire. Major power transmission lines also traverse wildfire-prone areas within the County. This includes transmission lines owned or operated by WAPA, Tri-State, Xcel, and Gunnison Rural Electric. Xcel also has a natural gas pipeline in the county. 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 the areas of special interest section discussed later in this plan.

The Rocky Mountain Biological Laboratory (RMBL), located near Gothic, was also identified as a value at risk. Much ecological research is done at this internationally renowned facility. Depending on the time of year, over 150 people may reside at RMBL. Gothic, including the RMBL, has been identified as a CWPP community and is discussed further in the Community Ignitability Analysis Recommendations section.

ENVIRONMENTAL RESOURCES

Gunnison County's natural resources are of concern to its residents. The County's natural resources are one of the main reasons why residents live in the area.

Natural Resources

Taking action to prevent catastrophic wildfire in these areas is critical for maintaining biodiversity, and ecosystem function, and watershed health. 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. For example, wildfire can reduce dominant and dense species and in turn paving a way for new vegetation that is either slow growth or requires specialized conditions to establish, such as Quaking Aspen (*Populus tremuloides*). Additionally, wildfire is required for the cones of some pine species to release their seeds, a process known as serotiny, which is an ecological adaptation for those species. The regrowth of new vegetation and increased grass species also influences the return or development of wildlife populations. Preventing catastrophic wildfires is in the best interest of native vegetation, animals, and humans alike.

Natural resources potentially at risk to wildfire in Gunnison County include wetlands, endangered species, and imperiled natural plant communities. Impacts of wildfires on wetlands can include soil degradation, increased soil erosion, changes in vegetation composition, loss of vegetation, and 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 Gunnison 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 Gunnison County CWPP.

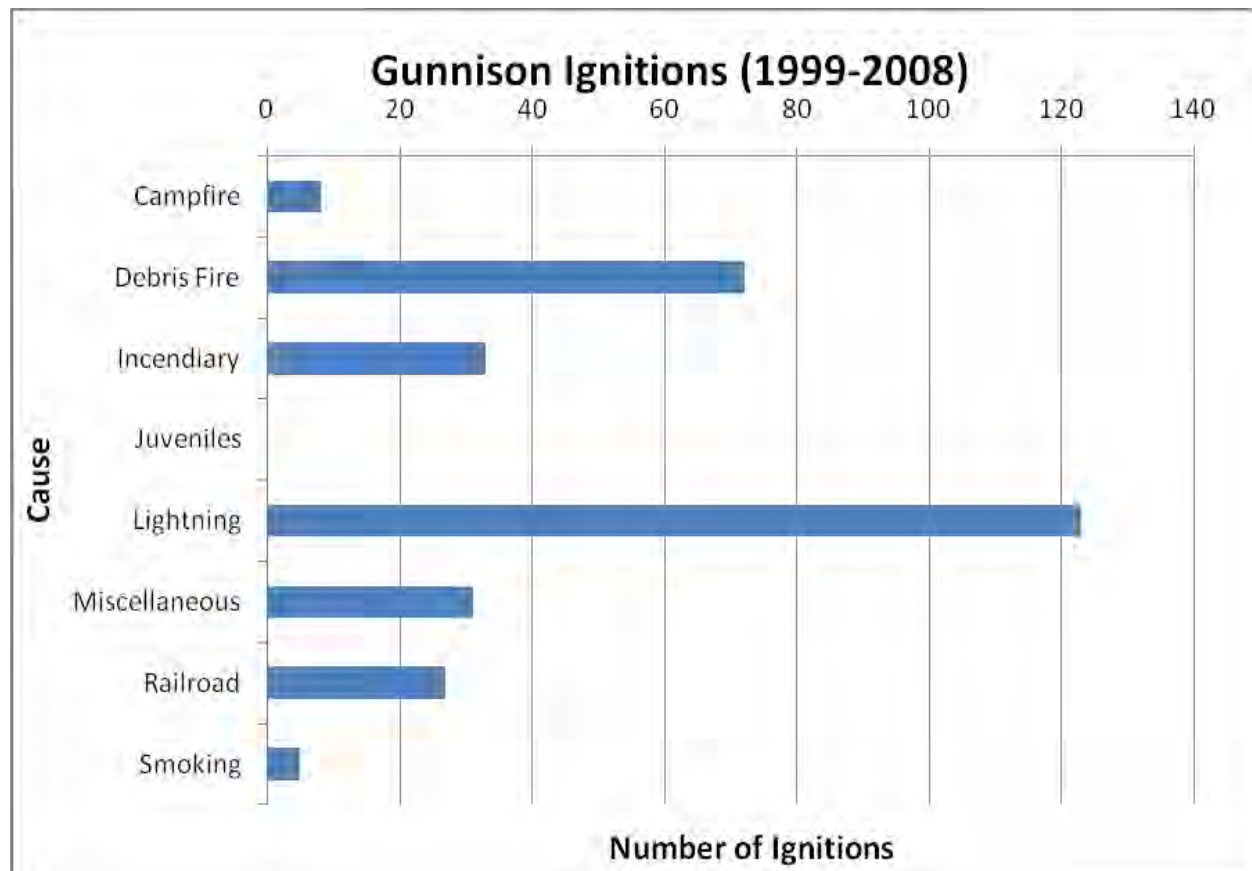
Most fires in Gunnison County are small (less than 100 acres) and never make it onto the lists of large fires. However, even small fires can present a threat to life, safety, and property. This is based on the availability of fuel (both vegetative and man-made), and subdivisions and community infrastructure, including ingress/egress routes, located in the WUI.

As seen in Figure 2, the majority of Gunnison County, including the primary population centers, is within the Wildland Urban Interface. Risk, in the context of wildfire planning, refers to the likelihood or probability of a wildfire occurrence. Most of the study area is at a high, very high, or extreme level of risk from wildfires. The high susceptibility to wildfires in this area is evidenced by the County's wildland fire history. Fire history data was obtained from the National Fire Incident Reporting System (NFIRS). The results of this data are displayed below in Table 2, Figures 4 and 5. The NFIRS data is the most accurate wildland fire history information currently available, but it is important to note that this data is subject to certain limitations as discussed in the disclaimer at the beginning of this section. An analysis of past wildfire ignitions based on NFIRS data was performed during the development of this CWPP, the results of which are presented in Figure 4. Between 1999 and 2008, a total of 299 ignitions were reported in Gunnison County. Of these ignitions, 123 were caused by lightning. As shown in Figure 5, most of the fires caused by lightning were distributed fairly evenly across the County. A cluster of fires related to other causes occurred in the far southwestern corner of the study area. This cluster is likely due to errors in the NFIRS data. Other errors in the data include railroad ignitions; there are no railroads in the county. As noted in the paragraph at the beginning of this section the NFIRS data has limitations but is the most comprehensive data set available.

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

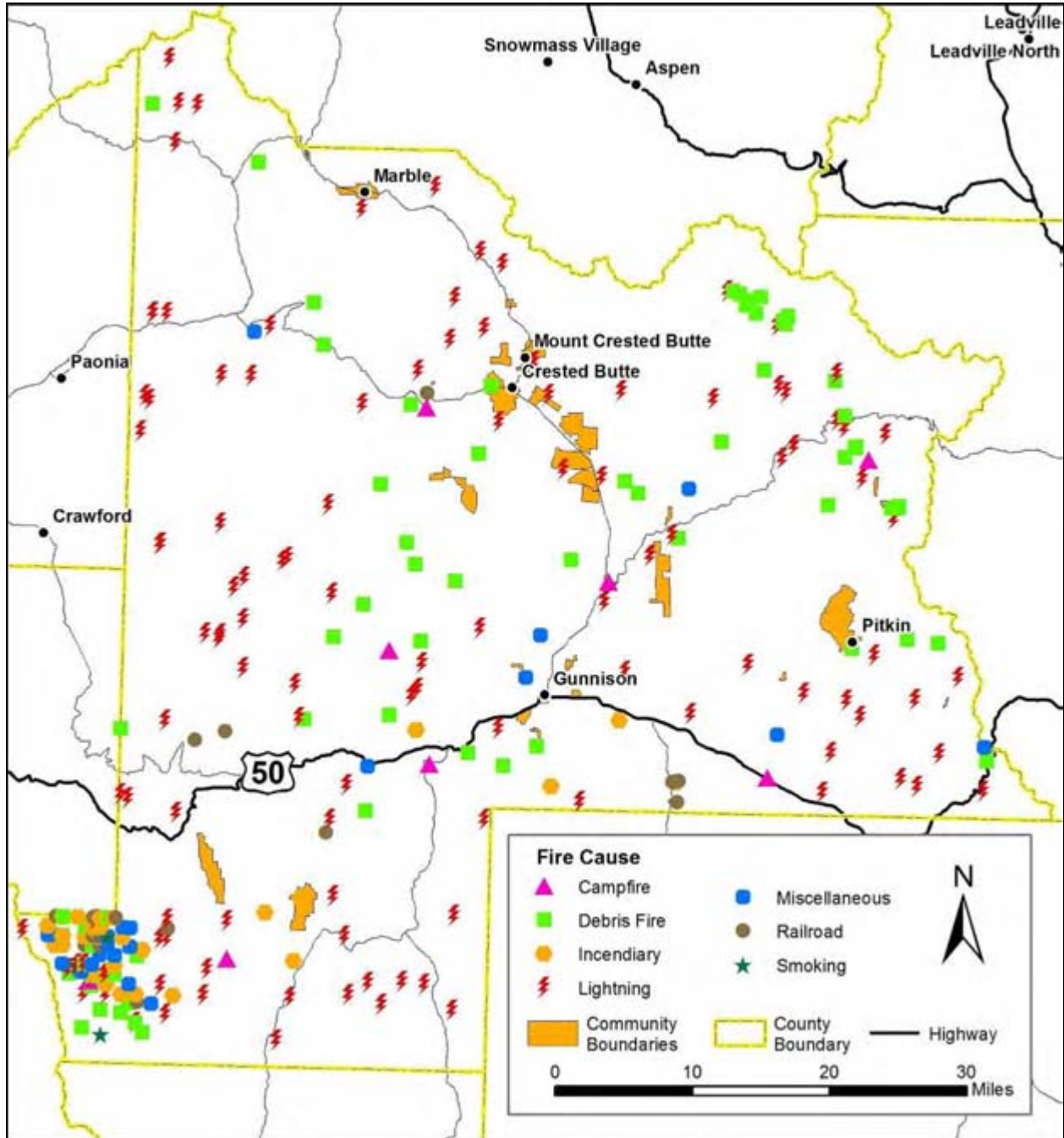
Ignition Cause	Number of Reported Ignitions
Campfire	8
Debris Fire	72
Incendiary	33
Juveniles	0
Lightning	123
Miscellaneous	31
Railroad	27
Smoking	5
TOTAL	299

Source: NIFRS

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

Source: NFIRS

Figure 5. Gunnison County Reported Wildfire Ignitions: 1999-2008

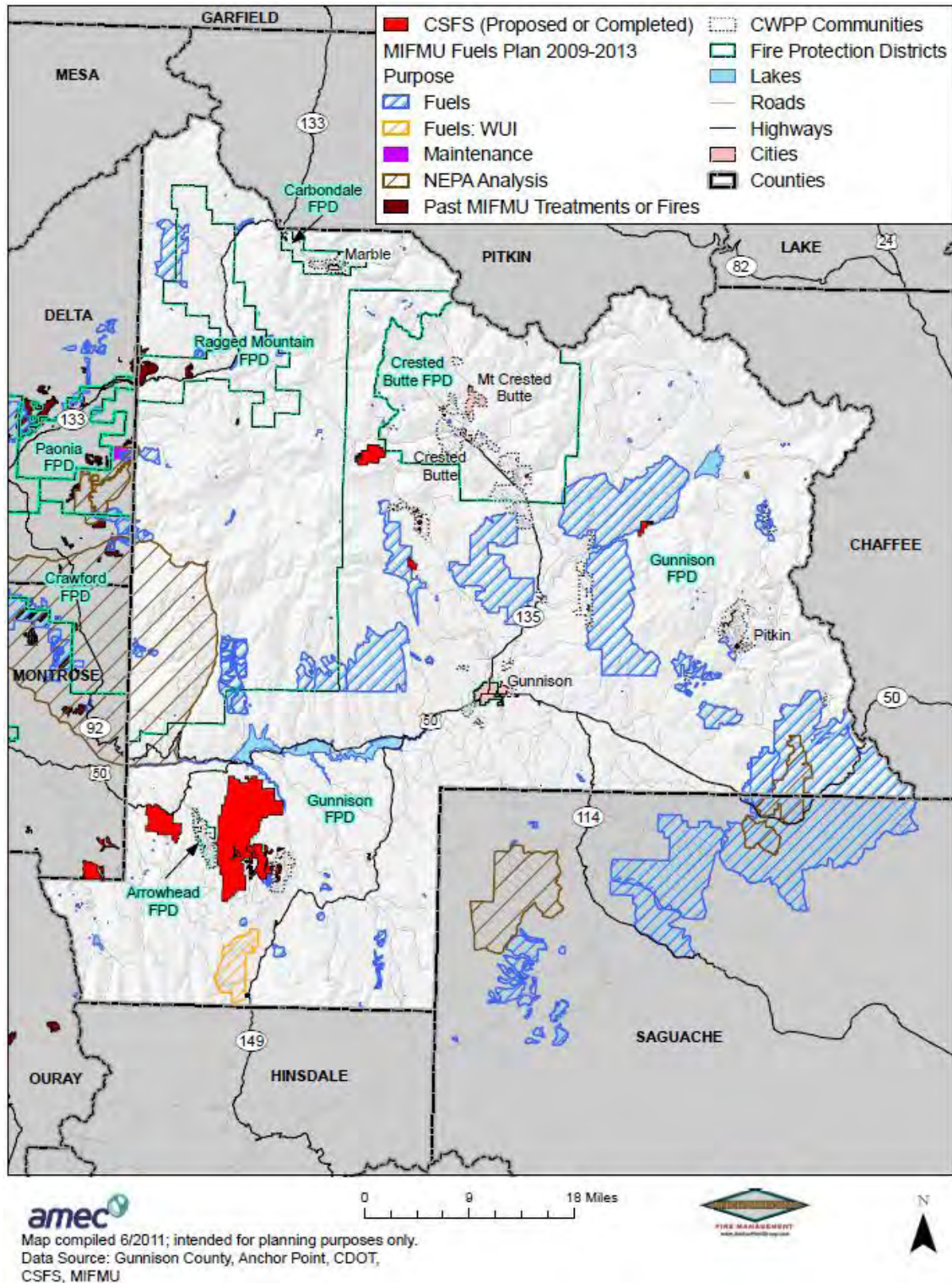


Source: NIFRS; Refer to NIFRS data limitations in text

Existing and Ongoing Fuels Treatments Efforts

The Montrose Interagency Fire Management Unit (MIFMU), in a combined effort of the USFS and BLM, has already performed fuels treatments within Gunnison County to alleviate the high level of wildfire risk. In addition, fuels treatments and defensible space efforts have been undertaken by the Colorado State Forest Service and homeowners in the County. A snapshot of these efforts and planned treatments as of late 2010 is captured in Figure 6. This map can be referenced in an 11 x 17 format in Appendix D. 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. Gunnison County and the individual communities within the study area can supplement these efforts with their own wildland fire mitigation initiatives, 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

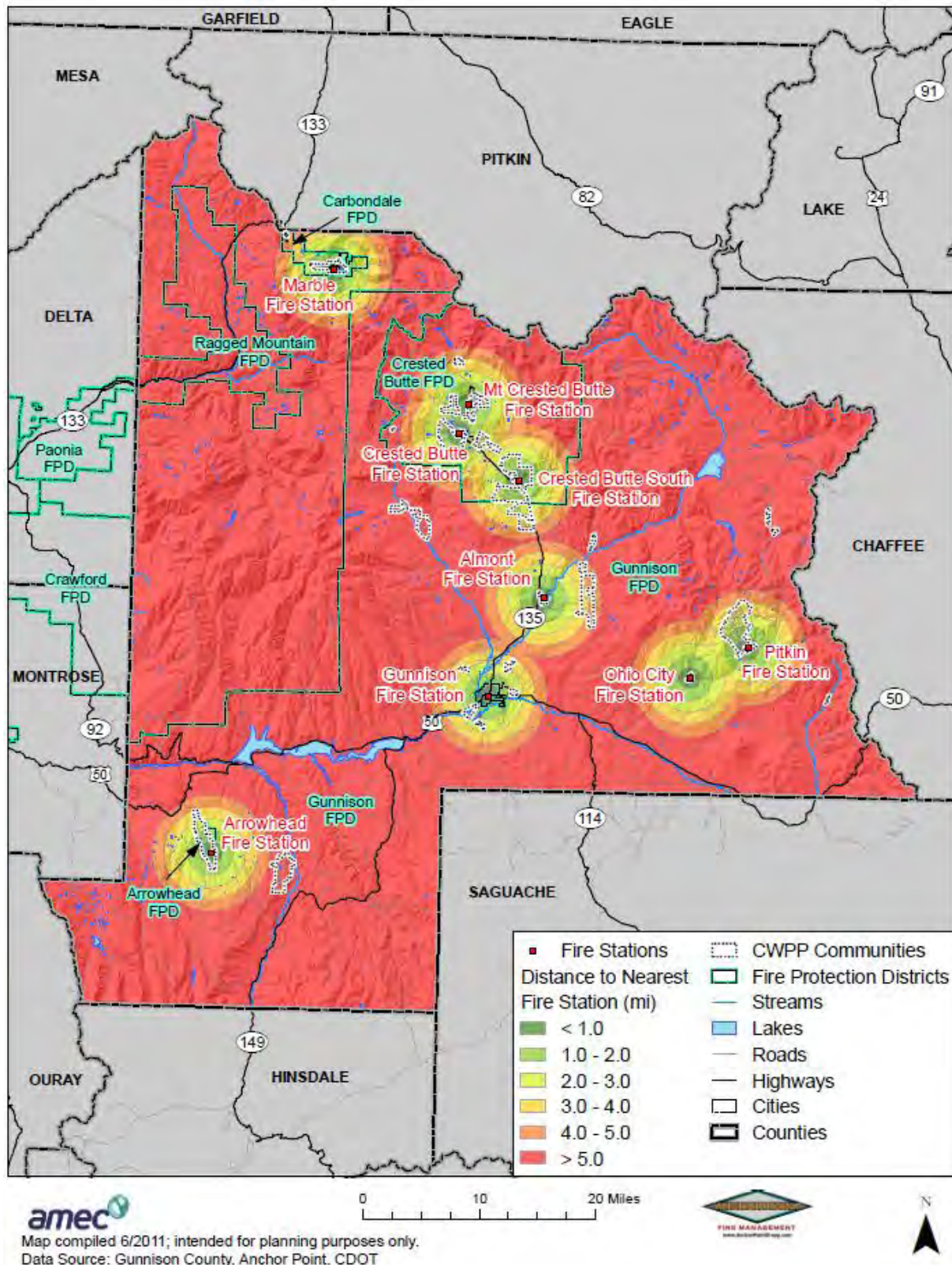


LOCAL PREPAREDNESS AND FIRE PROTECTION DISTRICT CAPABILITIES

The Gunnison County CWPP study area encompasses four fire districts and volunteer fire department: the Arrowhead Fire Protection District, Carbondale Fire Protection District, Crested Butte Fire Protection District, Gunnison Fire Protection District, and the Ohio City Volunteer Fire Department. At the time of this plan's development a fifth district, Ragged Mountain Fire Protection District, was in the process of re-forming and moving forward with plans for a firehouse. The following section describes the results of 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 the feedback forms and discussions with fire district 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 more specific needs of each individual district.

Figure 7 shows the locations of fire stations within the County and their proximity to communities within Gunnison County.

Figure 7. Gunnison County Fire Station Proximity Map



ARROWHEAD FIRE PROTECTION DISTRICT**Training**

The Arrowhead Fire Protection District (FPD) is composed of approximately 10 firefighters, nine Emergency Medical Services (EMS) responders, and 10 logistics/support personnel. Not all district members take the S-130/190 course, although other wildland fire training courses are offered and paid for by the district. Members do not take the pack test and fire refresher annually. The district holds a number of trainings each month: one firefighter specific training each month, one monthly training for EMS personnel, and one scenario-based training each month involving firefighters and/or first responders, and logistics/support personnel.

PPE

Arrowhead FPD provides members with Nomex pants and shirts, helmets, and fireline packs. Shelters and wildland boots are not provided.

Communications

The district has both VHF and 800 MHz radios but primarily uses VHF. Arrowhead FPD has approximately 12 handheld Motorola VHF radios and two 800 MHz radios, which were supplied by Gunnison County. All trucks are equipped with mobile radios.

Equipment

The Arrowhead FPD has five trucks and tenders. This includes one 750-gallon tanker, one 1,000-gallon tanker, two 4x4 brush trucks, and one 2,500-gallon tender.

Water Supply

Water sources available to the Arrowhead FPD include hydrants, cisterns, and ponds. There are three lakes that could be used for water supply, including Hazel Lake, Evergreen Lake, and Flint Lakes. Flint Lakes is regarded as the best water source. It has a capacity of 11,000,000 gallons when full and is accessible by helicopter; however, a pump is required to fill apparatus. Hazel Lake has a capacity of 6,000,000 gallons when full and is accessible by helicopter. A pump is required to draw from Hazel Lake. Evergreen Lake is the smallest of the three in terms of capacity (319,000 gallons when full). A pump is not required for Evergreen Lake, but it is not

accessible via helicopter. The district also has access to 84 pressurized hydrants. The flow rate of these hydrants is 100 GPM, though this can be doubled in case of an emergency. Cisterns are also available to the district, but they are not marked with their volumes.

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.
- Obtain wildland boots for all district members.
- Procure new generation shelters on every vehicle that responds to any wildland call.
- Obtain packs with new shelters for district volunteers.

Training – PRIORITY 2

- Officers should familiarize themselves and their crews with fire protection plans within their response area.

Water Supply – PRIORITY 3

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

CARBONDALE FIRE PROTECTION DISTRICT



Training

The Carbondale Fire Protection District is comprised of 70 active members in the district, including eight members in Marble. All members take the S-130/190 course. Additional trainings are offered and paid for by the district. Members take the pack test and fire refresher annually. Regular training programs are held periodically.

PPE

The Carbondale FPD provides Nomex pants and shirts, helmets, fireline packs, and next generation shelters to its members. Wildland boots are not provided by the district.

Communications

The district uses both 800 MHz and VHF radios, but Marble only uses VHF. Marble has eight King radios, and the district has 30 800 MHz radios.

Equipment

Marble has the following fire apparatus: a 1993 International 4x4 Pumper with a 750-gallon capacity; a 1970 Forest service 6x6 Tender with a 1000-gallon capacity; a Ford Excursion backcountry rescue vehicle; and an Arctic Cat ATV. The district has two Type 6 Brush Trucks, two Forest Service 6x6 Tenders, and seven Structural/Structure protection engines.

Water Supply

Marble has hydrants in town with draft sites on a map. The hydrant system is tested annually, and the flow rate is 1,500 GPM. The district water systems have a flow rate of 2,000 GPM and are tested annually.

Recommendations

Firefighter Safety – PRIORITY 1

- Obtain new brush trucks to replace two older models.
- Obtain new tenders to replace CSFS CM2 tenders.

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, and interest in, additional training for district members.

Water Supply – PRIORITY 3

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

CRESTED BUTTE FIRE PROTECTION DISTRICT**Training**

The Crested Butte Fire Protection District (FPD) has 35 volunteer firefighters and six paid staff members. All district members take S-130/190, and other training courses are offered and paid for by the district. The pack test is not an annual requirement for members, but they do take the fire refresher course every year. A regular training program is held bimonthly.

PPE

A full ensemble of wildland fire PPE is provided for members by the district. This includes Nomex pants and shirts, wildland boots, helmets, fireline packs, and next generation shelters that could outfit a 12-20 person team.

Communications

The Crested Butte FPD uses VHF radios for wildland fire operations. They have 19 mobile and 35 handheld Motorola VHF radios.

Equipment

The district has two tenders and one Type 6 brush truck. Additional tenders could be acquired through contractors if needed.

Water Supply

The district created a water source map with coordinates and water availability based on the season. Hydrants, cisterns, and ponds are all present in the district. Hydrants are also available in Crested Butte, Crested Butte South, and Skyland. Testing is up to the municipality or water district. Hydrants are gravity-fed and have generally high flow rates. Volumes are not marked on cisterns.

Recommendations**Firefighter Safety – PRIORITY 1**

- Obtain grant funding to acquire additional training facilities and equipment storage space.

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, and interest in, additional training for district members.
- Hire a training officer

Water Supply – PRIORITY 3

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

GUNNISON FIRE PROTECTION DISTRICT**Training**

The Gunnison Fire Protection District has 38 active members along with four inactive members. All district members take S-130/190, though not necessarily before they begin their career. Other wildland fire training courses are offered or paid for by the district. All volunteers may go to the Colorado Wildfire Academy if they can find time. Any other reasonable training that volunteers find is paid for by the fire district. The fire refresher is mandatory every year, but the pack test is optional. Regular fire trainings are held weekly by the district.

PPE

A full PPE ensemble including Nomex pants and shirts, wildland boots, helmets, fireline packs, and shelters are provided by the Gunnison FPD. Shelters are next generation.

Communications

Both 800 MHz and VHF radios are used by the Gunnison FPD. Every apparatus has a VHF radio. In addition, three trucks have DTR radios. All officers carry a portable VHF radio, and six VHF radios are available at the fire station. Ten portable DTR radios are available for mutual aid.

Equipment

The Gunnison FPD has several wildland fire trucks at its disposal. The district has One Type 1 engine, two Type 2 engines, one Type 4 engine, two Type 6 engines, one Type 1 tender, and one Type 2 tender.

Water Supply

Gunnison FPD has access to hydrants, cisterns, and ponds for wildland firefighting water supply. All hydrants, both dry and municipal, are mapped and are relatively abundant throughout the district. If a hydrant is not available, the district has all resources necessary to use any water supply available. Flow rates depend on a number of factors including location, water supply, and the time of year. As of 2010, hydrants are not tested annually. However, a

program is in development for the dry hydrants in the district. Hydrants in the City of Gunnison are tested regularly by the water department.

Recommendations

Firefighter Safety – PRIORITY 1

- Obtain grant funding to acquire additional training facilities and equipment storage space.

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, and interest in, additional training for district members.

Water Supply – PRIORITY 3

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

OHIO CITY VOLUNTEER FIRE DEPARTMENT**Training**

The Ohio City Volunteer Fire Department is composed of 15 firefighters. Some of the district members have completed S-130/190. If volunteers seek additional training courses, they are paid for by the district. Members do not take the pack test or fire refresher course annually. The district does have a regularly scheduled training program.

PPE

The Ohio City Volunteer Fire Department provides a full complement of wildland fire gear. This includes Nomex pants and shirts, helmets, next generation shelters, and fireline packs.

Communications

The district uses VHF radios for communications. All trucks are equipped with radios. In addition, the district has nine handheld HT-1250 radios.

Equipment

The Ohio City Volunteer Fire Department has one brush truck and one 1,200-gallon tender.

Water Supply

Water supply sources include one dry hydrant, several ponds, and multiple streams and creeks. The flow rate for the dry hydrant is somewhat unlimited during the summer, but the winter flow rate is approximately 1,200 gallons every 30 minutes. This hydrant is tested or used in training on an annual basis at the least.

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.
- Purchase additional equipment including a 1 ½ inch hose.

Training – PRIORITY 2

- Officers should familiarize themselves and their crews with fire protection plans within their response area.

Water Supply – PRIORITY 3

- Maintain and test hydrants systems annually, especially in areas where water supply is inconsistent.
- Map hydrants and make the information available on apparatus.
- When possible, install additional hydrants in areas with limited water availability.
- Obtain dry hydrant funds.

COMMUNITY IGNITABILITY ANALYSIS RECOMMENDATIONS

PURPOSE

The purpose of this section is to examine the communities in greater detail. Of the 32 WUI communities defined in the Gunnison County study area, three communities were found to represent an extreme hazard. Six were rated as very high hazard, seventeen were rated as high hazard, and the remaining six 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.¹ 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. Note that the WHR ratings developed for this plan are specific to the CWPP communities within, and may differ from the WHR portrayed on the Gunnison County Wildfire Hazard map that is used for applying development and local defensible space regulations.

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 district official, HOA leader, or an involved community member. 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 (ASIs).

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

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

sheriff identified values at risk from wildfire. In the following weeks, Anchor Point staff met one-on-one with fire district personnel, the sheriff, 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 and are discussed in a separate section in this Plan. 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. An 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 county-wide CWPP. Therefore, projects within an 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.

Gunnison County has several communities and other areas of concern that are covered by RPAs. These communities do not qualify as CWPP communities for a variety of reasons, including small population size, absence of a distinct grouping of homes, etc. However, they are still important to identify as they are at risk to wildland fire. Gunnison County’s RPAs are shown in Figure 8. This map can be referenced in an 11 x 17 format in Appendix D. The communities and areas of concern that are included within the Gunnison County RPAs include the following:

- Crystal Creek Properties
- Five Mile subdivision including White Water Resort
- Taylor Canyon/Taylor Park
- USFS campgrounds
- Harmels
- Murdie subdivision
- Illinois Creek

- Roaring Judy subdivision
- Waunita Hot Springs
- The Lake Fork drainage
- Goose Creek
- Powerhorn/Cebolla Creek
- Cement Creek including the Cement Creek summer home group
- Pitkin fish hatchery
- Ohio Creek
- Steuben Creek

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. 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. Backburn or burn-out operations can begin at a fuelbreak, and they are also useful places for tankers to drop retardant or water. An overarching recommendation that can be made throughout the Gunnison County study area includes completing treatment along the roads. A few specific planning units and roads were identified for treatment in the plan because they were identified as crucial because of the fuel loading and frequent use. However, all roads within the study area boundaries are viable options for fuels treatments, as they are used for ingress and egress.

Each community section includes a table with wildfire mitigation recommendations that were based on the community and fire behavior analyses. Not every community has specific fuels projects identified including Red Mountain, Skyland, Washington Gulch, Almont, Danni Ranch, Star Mountain Ranch, The Reserve, and Dos Rios. Defensible space is determined to be the greatest benefit for the least cost for landowners and is recommended for every community. 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 Gunnison County CWPP, 32 WUI areas were identified within the study area. For the purposes of the CWPP, the 32 areas were examined in more detail. In the community

descriptions which follow, the headings correspond to the various Gunnison County fire protection districts, while the subheadings numbered below correspond to the individual WUI communities within the fire protection districts. The individual communities are organized primarily by risk level from very high hazard to high hazard, and then alphabetically within their hazard rating. The location and hazard rating of these communities are shown below in Figure 9. This map can be referenced in an 11 x 17 format in Appendix D.

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

<u>Community Name</u>	<u>Fire Protection District</u>	<u>Hazard Rating</u>
Cranor Acres	Gunnison	Moderate
Dos Rios	Gunnison	Moderate
Mt. Crested Butte	Crested Butte	Moderate
North Valley Subdivision	Gunnison	Moderate
Tomichi Heights	Gunnison	Moderate
Town of Crested Butte	Crested Butte	Moderate
Almont	Gunnison	High
Antelope Hills	Gunnison	High
Blue Mesa Subdivision	Gunnison	High
Crested Butte South	Crested Butte	High
Danni Ranch	Gunnison	High
Evergreen	Carbondale	High
Gold Basin Meadows	Gunnison	High
Marble and Upper Crystal River	Carbondale	High
Ohio City	Gunnison	High
Pitkin	Gunnison	High
Rainbow Estates	Gunnison	High
Red Mountain	Crested Butte	High
Skyland	Crested Butte	High
Star Mountain Ranch	Gunnison	High
The Reserve	Gunnison	High
Tin Cup	Gunnison	High
Washington Gulch	Crested Butte	High
Arrowhead	Arrowhead	Very High
Gothic	Crested Butte	Very High
Gunnison Highlands	Gunnison	Very High
Spring Creek	Gunnison	Very High
White Pine	Gunnison	Very High
Wilderness Streams	Gunnison	Very High
Lake Irwin	Crested Butte	Extreme
Trappers	Crested Butte	Extreme
Quartz Creek	Gunnison	Extreme

Figure 8. Gunnison County Rural Planning Areas

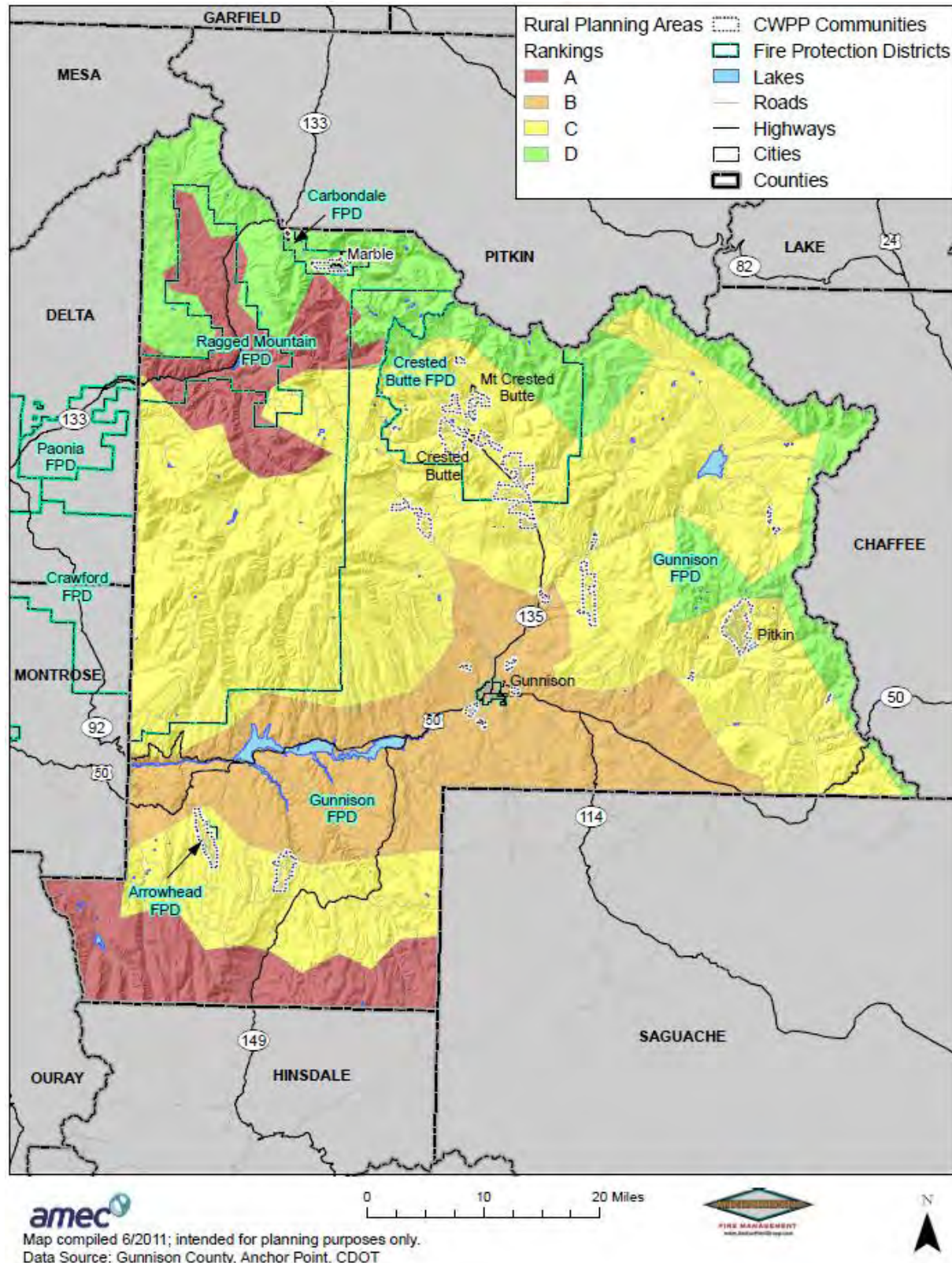
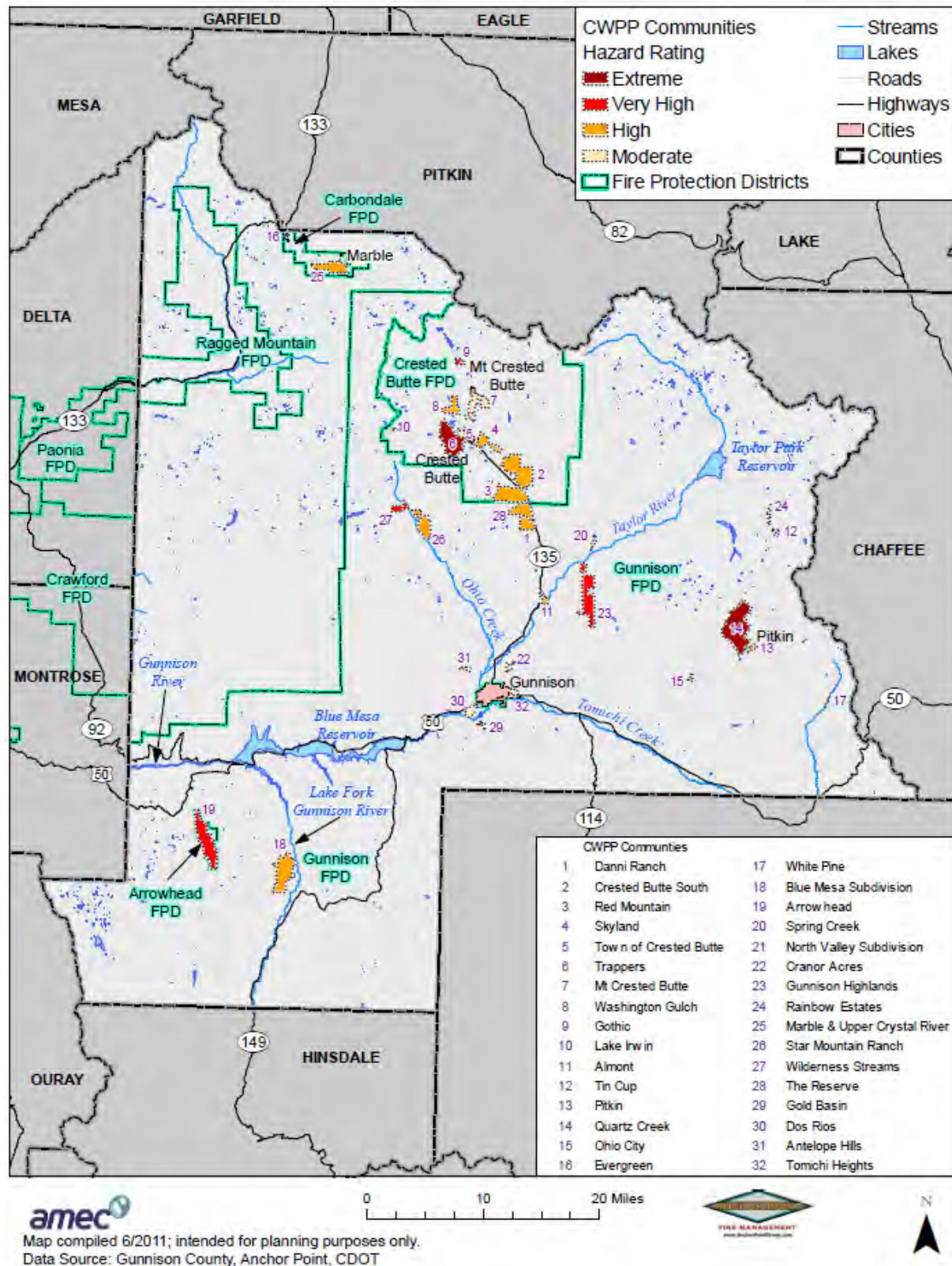


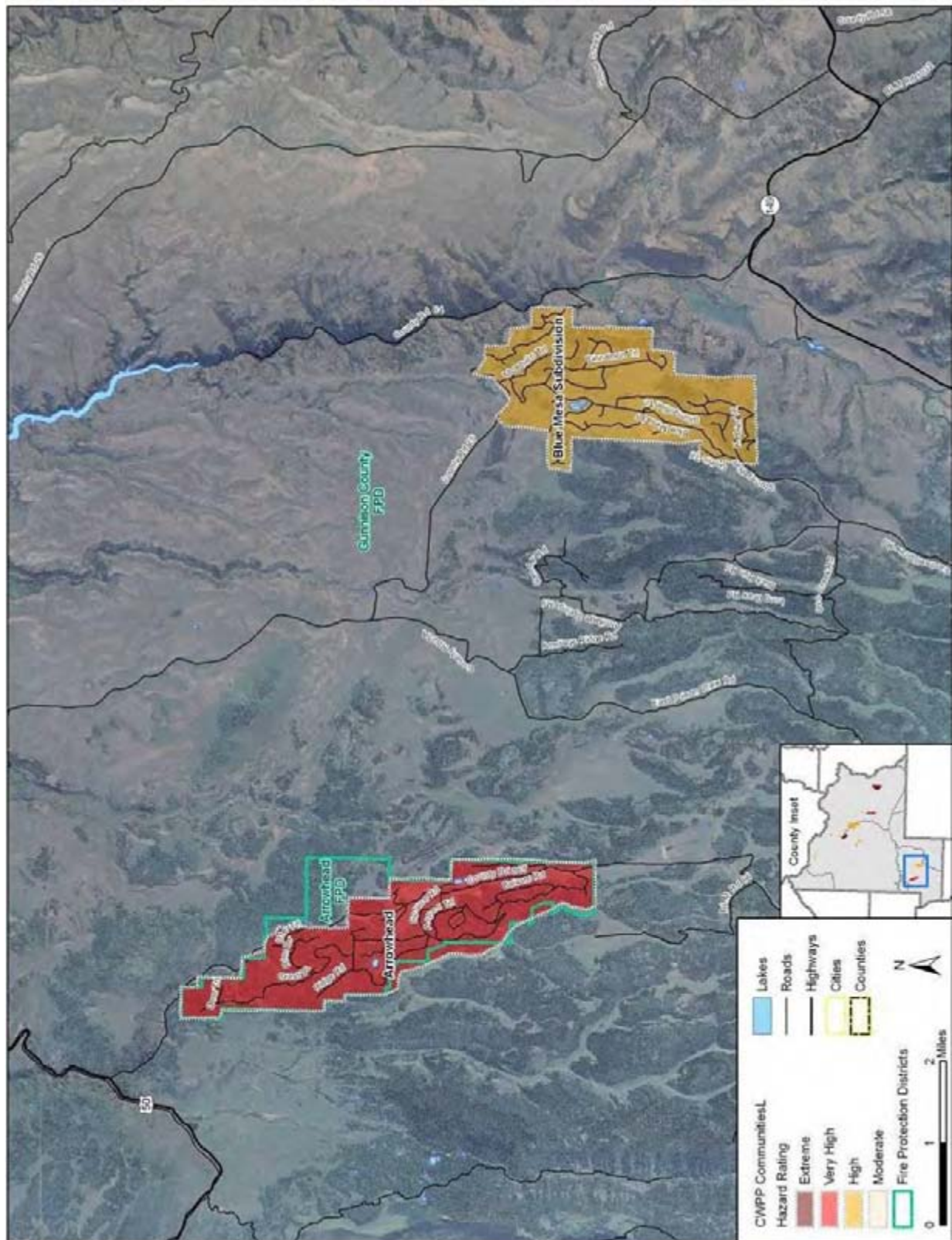
Figure 9. Gunnison County CWPP Communities and Hazard Rating



ARROWHEAD FIRE PROTECTION DISTRICT

One CWPP community, Arrowhead, was identified within the Arrowhead FPD. This very high hazard community is shown below in Figure 10. This community's ignitability analysis recommendations are discussed in the following pages. This community also has its own individual CWPP.

Figure 10. Arrowhead FPD CWPP Communities



1. Arrowhead



Hazard Rating: Very High

The community of Arrowhead is located in eight miles south of Blue Mesa Reservoir on County Road 887 (Figure 11). This community has an individual CWPP, and the community has been actively engaged in implementing fuels treatment projects and defensible space. The main access route into the community is one-way along CR 887. Other roads throughout the community are well maintained dirt roads with minimal slope. Street signage is present throughout the community but is not reflective, which could create problems for firefighters in a smoky environment or during the night. Addressing is also inconsistent throughout the community, potentially creating additional navigation problems. The community is located on top of a mesa with steep drainages on all sides. Arrowhead has a timber cover-type throughout the community. In general, houses are built on nearly level ground, though a few homes overlook steep drainages. Roofs are made of fire resistant materials, but decks and siding are a mix of combustible materials. Typically, defensible space is only partially implemented or not implemented at all. Driveways do not offer adequate turnaround space. Utilities are located below ground, reducing their potential exposure to wildfires. Hydrants are present throughout the community, offering firefighters a source of water. The Arrowhead FPD is nearby, and response times are typically between 10 and 15 minutes. Lightning and agricultural burning on ranches are the primary ignition sources for this community. The Arrowhead population is largely seasonal.

The Arrowhead community has heavy timber fuel throughout. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. The fire behavior will primarily be wind dependent on the mesa top due to a lack of topography; however, steep mesa sides can accelerate and increase fire behavior. Once established as extreme fire behavior, it is less likely to subside on the flat ground in a timber fuel type than it might be with other fuels.

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 4. Arrowhead Fuels Treatment Recommendations

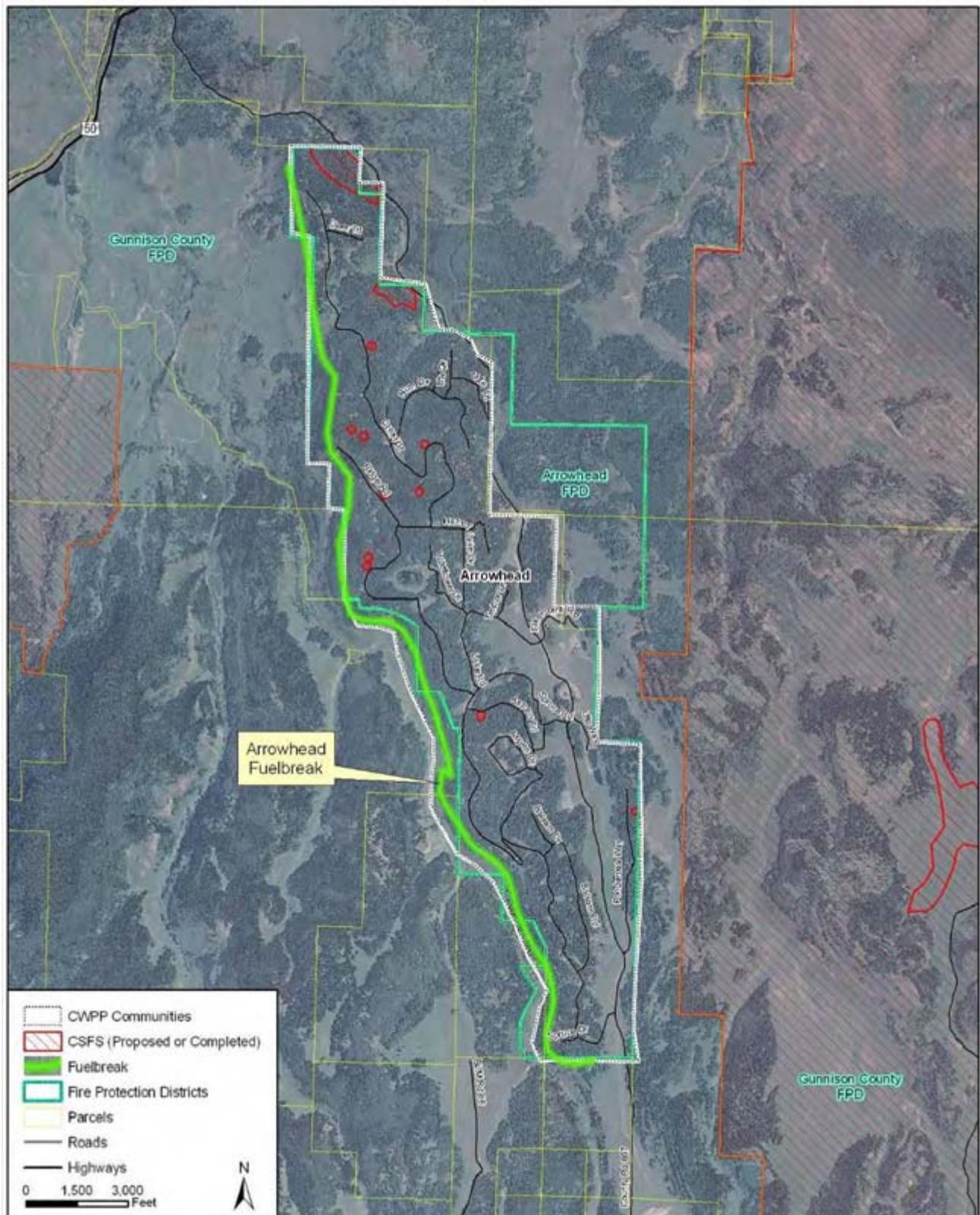
Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Arrowhead Fuel Break	4	The Arrowhead fuel break is located on the western edge of the mesa. This fuel break is recommended to provide a buffer between the community and the large acreage ranches on the western side.	Hand felling and limbing near homes or on steep slopes; mowing; some mechanical treatment further from homes	110 acres
Infrastructure	5	See Appendix A	See Appendix A	n/a
Preparedness Planning	6	See Appendix A	See Appendix A	n/a
Patch Cutting	7	Multiple acre patch cuts should be spread out throughout the community on the	Hand felling and limbing near homes and on steep	5-15 acres per patch cut.

Name	Priority	Description	Methods*	Acres**
		property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	slopes, mechanical thinning should be used where it is logical	

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 11. Arrowhead Fuels Treatment Recommendations



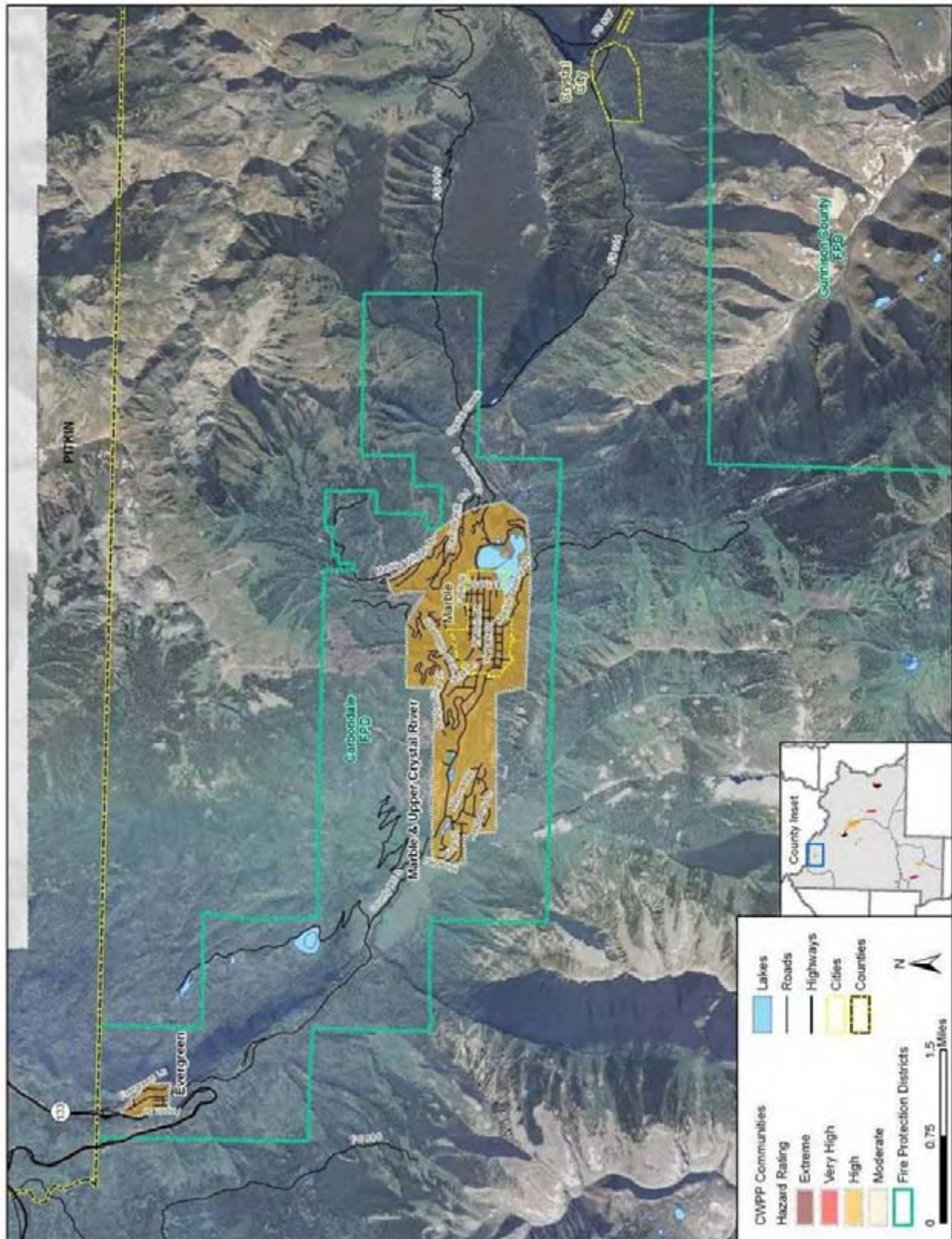
CARBONDALE FIRE PROTECTION DISTRICT

Evergreen and the Marble / Upper Crystal River are two CWPP communities that were identified within the Carbondale FPD. These communities and their hazard ratings are identified in the table below and shown in Figure 12. Each community's ignitability analysis recommendations are discussed in the following pages. These areas are also covered by an individual CWPP, the Upper Crystal River Valley CWPP.

Table 5. Carbondale Fire Protection District CWPP Communities by Hazard Rating

High
Evergreen Marble and Upper Crystal River

Figure 12. Carbondale FPD CWPP Communities



2. Evergreen



Hazard Rating: High

The community of Evergreen is located in the northern corner of the county near the junction of Highway 133 and County Road 3 (Figure 13). CR 3 serves as the main access into the community. Other access roads within Evergreen are paved or improved dirt, with slopes ranging from 0-20% grade. Street signage within the community is present and reflective. Addressing, however, is not consistent and could complicate navigation during wildfire response or evacuation operations. The community sits at the bottom of a large drainage along the Crystal River. Roofs are noncombustible, but deck and siding construction materials are highly flammable. Defensible space is not present in most areas, and driveways do not have adequate turnaround space for fire engines and tenders. Propane tanks are above ground, but there are no power or communication lines. There are hydrants within the town of Marble, but Evergreen is without its own water resources. Fire response would come from Marble, so response times are approximately 15-20 minutes. One of the primary wildfire ignition sources for the community of Evergreen is lightning.

The community at Evergreen is a heavily timbered area that is located on both sides of a stream. The riparian influence will usually serve to help reduce fire behavior; however, the timber fuel model still has potential. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. Fire return intervals would be even less frequent in this area due to the riparian influence than in most similar timbered areas.

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 6. Evergreen 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Linked Defensible space	6	Linked defensible space in this area will provide a buffer between the community and the county road. The county road is one of the primary concerns for ignitions	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	12
Patch Cutting	7	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it is logical	5-15 acres per patch cut.

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 13. Evergreen Fuels Treatment Recommendations



3. Marble and Upper Crystal River



Hazard Rating: High

The Marble and Upper Crystal River community is in the northern corner of Gunnison County (Figure 14). Main ingress and egress into the community is County Road 3. Roads in the community are paved or well maintained dirt, with slopes ranging from 0-20% grade. Street signs are present throughout the community and made of reflective materials. The community is located at the bottom of a large drainage, with homes scattered mid-slope on the south aspect of the drainage. Like other communities in the county, homes have noncombustible roofs but highly combustible decks and siding. Defensible space is not present in most areas, and addressing is inconsistent. Driveways do not provide adequate space for turnarounds. Utilities are located above ground, increasing the chance that they could be damaged during a wildfire. Lightning is one of the primary ignition sources for this community. There are fire hydrants in Marble, providing first responders with water supply. The fire station is based in Marble, so response time is between 5 and 20 minutes.

The fuel type throughout the community is high altitude timber. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. In town there is some riparian influence with cottonwoods, aspen, and willow, which will have lower fire behavior.

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. Marble/Upper Crystal River Fuels Treatment Recommendations

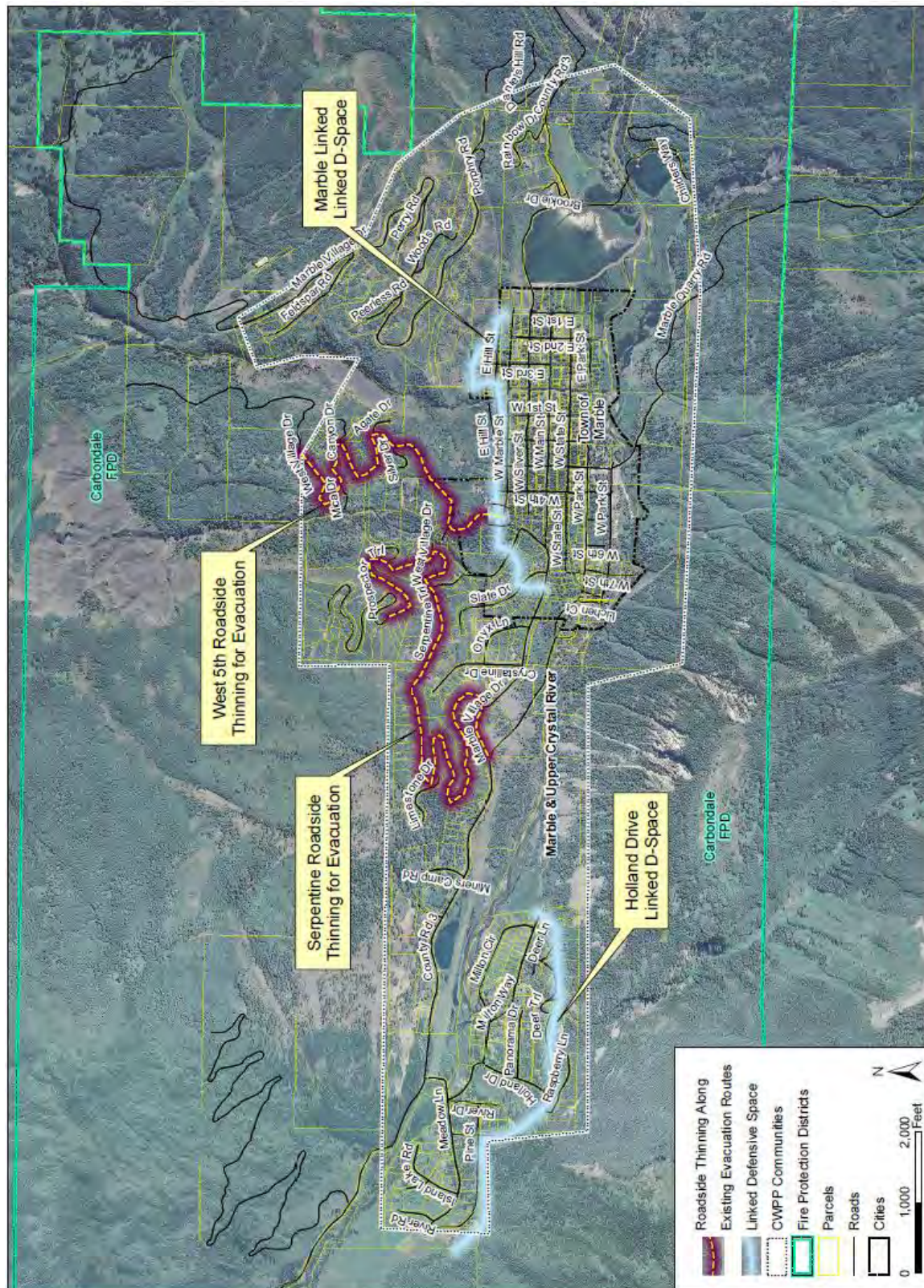
Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Serpentine Rd	3	Serpentine Rd has a single access point, which is heavily timbered. This project is recommended to reduce the hazard along this single access route to aid in civilian egress and firefighter access to the community	Hand felling and limbing near homes or on steep slopes; mowing; some mechanical treatment further from homes	69
West 5 th St.	4	West 5th St has a single access point, which ends in the town of Marble, further complicating evacuation and firefighter access. This project is recommended to reduce the hazard along this single access route to aid in civilian egress and firefighter access to the community	Hand felling and limbing near homes or on steep slopes; mowing; some mechanical treatment further from homes	41
Home Construction	5	See Appendix A	See Appendix A	n/a
Preparedness Planning	6	See Appendix A	See Appendix A	n/a
Infrastructure	7	See Appendix A	See Appendix A	n/a
Marble Linked Defensible Space	8	The Marble Linked defensible space recommendation runs along the north side of the town of Marble and separates the continuous fuels on the hillside from the more discontinuous fuels within the town. The density of homes in town necessitates that any defensible space work will be	Hand felling and limbing near homes or on steep slopes; mowing; some mechanical treatment further from homes	35

Name	Priority	Description	Methods*	Acres**
		linked defensible space.		
Holland Drive Linked Defensible Space	9	A linked defensible space fuel break the south side of the sub-division would separate the low fuel loading within the community from the heavier fuels along the southern edge. Expanded defensible space will provide an effective fuel break.	Hand felling and limbing near homes or on steep slopes; mowing; some mechanical treatment further from homes	41
Patch Cutting	10	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it is logical	5-15 acres per patch cut.

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 14. Marble and Upper Crystal River Fuels Treatment Recommendations



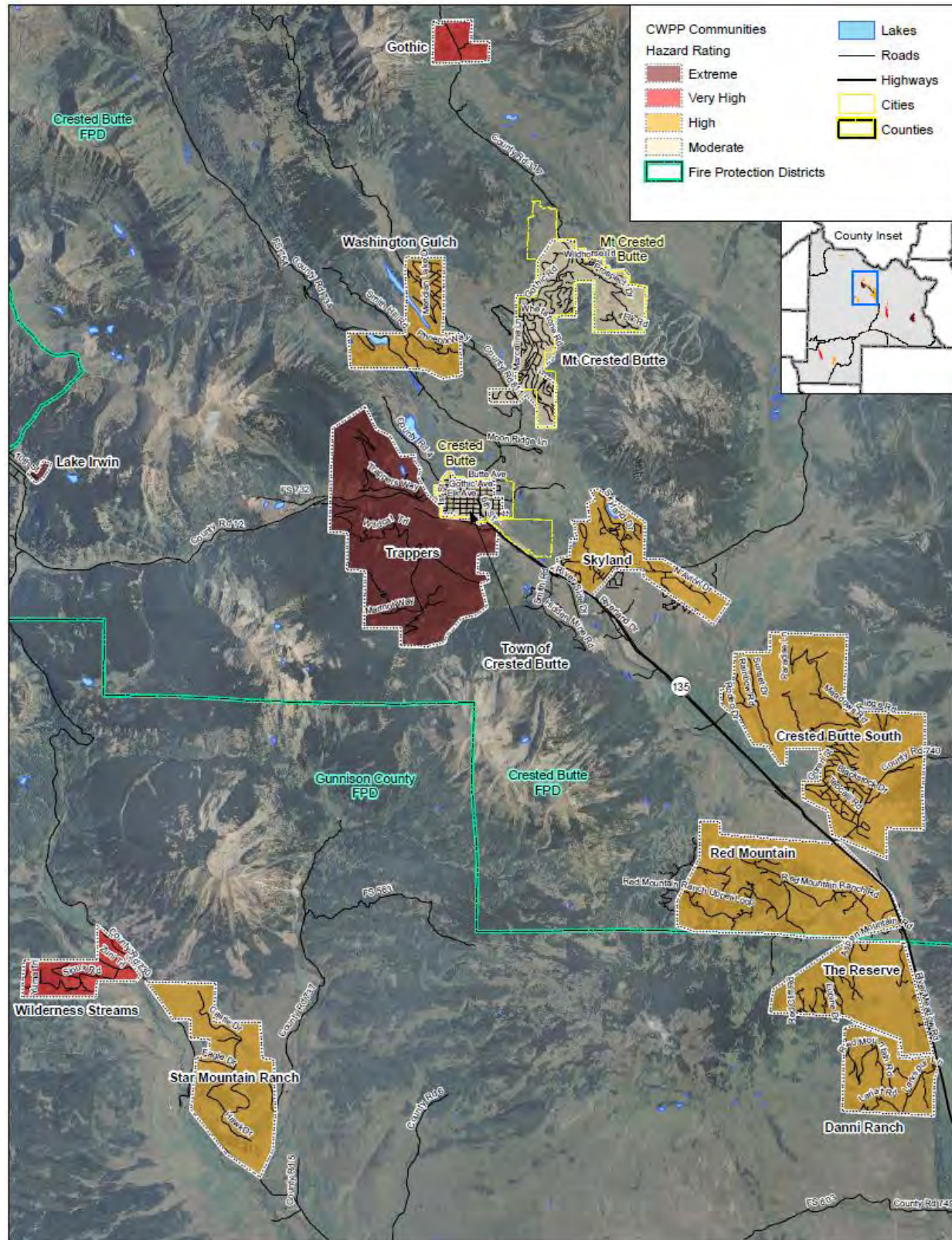
CRESTED BUTTE FIRE PROTECTION DISTRICT

Nine CWPP communities were identified within the Crested Butte FPD including Lake Irwin, Trappers, Gothic, Crested Butte South, Red Mountain, Skyland, Washington Gulch, Crested Butte, and Mt. Crested Butte. These communities and their hazard ratings are identified in the table below and shown in Figure 15. Each community's ignitability analysis recommendations are discussed in the following pages, with the most at risk communities discussed first.

Table 8. Crested Butte Fire Protection District CWPP Communities by Hazard Rating

Extreme	Very High	High	Moderate
Lake Irwin Trappers	Gothic	Crested Butte South Red Mountain Skyland Washington Gulch	Crested Butte Mt. Crested Butte

Figure 15. Crested Butte FPD CWPP Communities



4. Lake Irwin



Hazard Rating: Extreme

Lake Irwin is eight miles northwest of Crested Butte off of County Road 12, which is the main access road and single entry point for this community (Figure 16). Other roads within the community are steep, seasonal dirt roads less than 20 feet wide. Street signage is not present and addressing is inconsistent. Homes are built mid-slope in a tight drainage. Roofs are made of noncombustible materials, but siding and decks are not. Combustible debris around homes is a major issue for the Lake Irwin community. Defensible space is not present in most areas, and driveways do not have adequate turnaround space for fire engines. Propane tanks are above ground, but there are no power or communication lines. Water is not available within the community itself, so the closest resource would be Lake Irwin. Fire response would come from Crested Butte, so response times are 20 minutes or more. Limited access to the community and poor road conditions could complicate the fire district's response.

Lake Irwin is a very small community located in a steep terrain chimney below Lake Irwin on a southwest aspect. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. The steep slopes and narrow chimney where the community is located will greatly increase rates of spread and fire behavior. The high altitude of the community reduces the fire season to a very narrow window.

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.

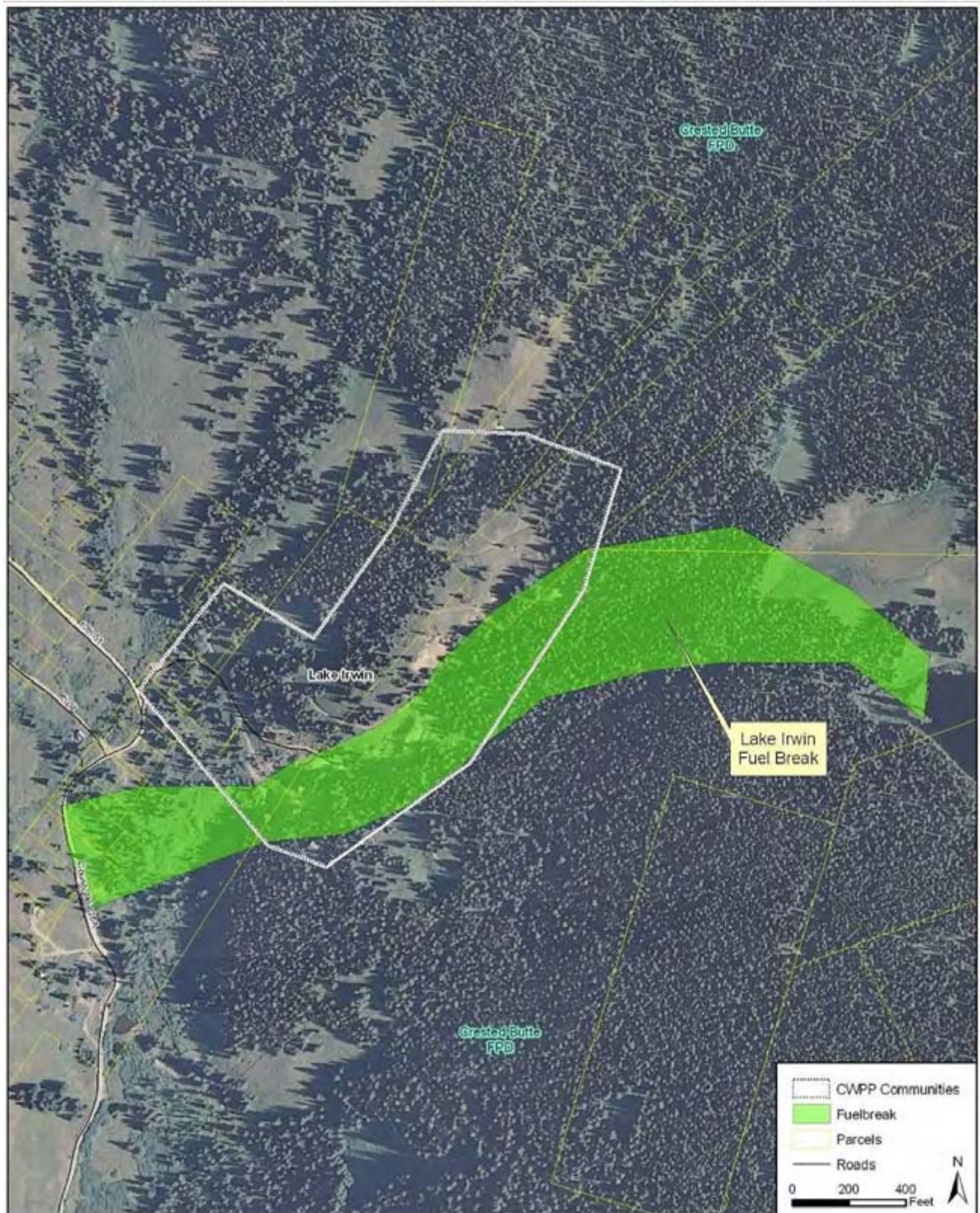
Table 9. Lake Irwin Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Lake Irwin Fuel Reduction Project	6	The entire community is located in a heavily timbered and steep drainage. The area needs extensive thinning. This recommendation will create a shaded fuel break along the drainage	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	26
Patch Cutting	7	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it is logical	5-15 acres per patch cut.

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 16. Lake Irwin Fuels Treatment Recommendations



5. Trappers



Hazard Rating: Extreme

Trappers is an extreme fire hazard community one mile west of Crested Butte on County Road 12 (Figure 17). The main ingress/egress route is a single entry point to each part of the community off of CR 12. Other access roads throughout the community are maintained dirt. Many of these roads have dead ends. No roads are greater than a 12% grade. All streets have a sign, although the signs are small and combustible. All residences built after 2000 have approved turnarounds. Residence built prior to 2000 may not have adequate turnaround space and could pose a challenge to navigating a fire truck. All residences have installed a monitored NFPA 13D automatic fire suppression system. Fuels in the community are mostly timber. Topography in the area includes steep slopes and prominent drainages. All homes are mid-slope and some are built in the drainages. These homes have noncombustible roofs, but decks and siding are constructed of highly combustible materials. Defensible space is lacking in most areas. Utilities are located below ground. Water resources are not available in Trappers and pose another challenge to firefighters. The Crested Butte FPD is roughly 15 minutes away from the community. Other significant factors that affect Trappers' overall wildfire risk include high winds and a population that is not present year-round.

Trappers is a community that is located on a northwest aspect. The community is covered by heavy timber with steep slopes. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. Steep slopes will also increase rates of spread which are usually lower in timber fuels than they are in grass or shrub fuels.

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. Trappers Fuels Treatment Recommendations

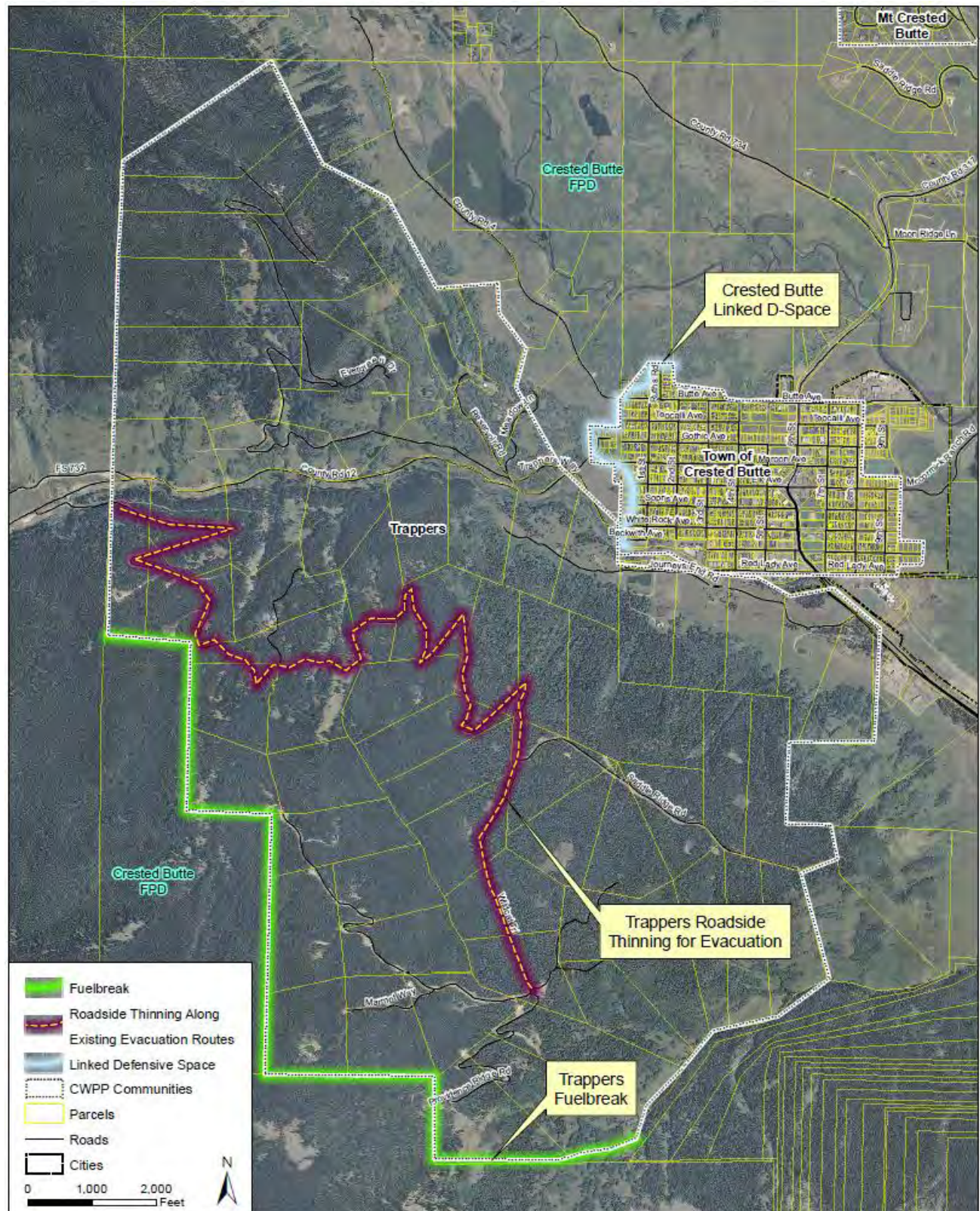
Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Trappers Roadside Thinning***	6	Trappers is an extensive community with a heavily fueled road network. Fuel reduction along the roadway will reduce the hazard for civilian egress, and firefighter access	Hand felling and limbing near homes or on steep slopes; mowing; some mechanical treatment further from homes	138
Trappers Fuel Break	7	This fuel break is designed to tie into work that is being done by federal and state agencies on adjoining land	Mechanical and hand felling	100
Patch Cutting	8	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it is logical	5-15 acres per patch cut.

* 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 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.

Figure 17. Trappers Fuels Treatment Recommendations



6. Gothic



Hazard Rating: Very High

Located at the base of a large drainage, the community of Gothic is located seven miles north of Crested Butte on County Road 317 (Figure 18). There is a small group of research buildings located on the south aspect at the confluence of three drainages. The main ingress/egress route is County Road 317. A wildfire in this community has the potential to impact important research conducted at the Rocky Mountain Biological Laboratory (RMBL). Much ecological research is done at this internationally renowned facility. Depending on the time of year, over 150 people may reside at RMBL. Most of the secondary access roads are narrow, double-track jeep roads with potholes and steep grades. Four-wheel drive vehicles become increasingly necessary the further from the main road one travels. Street signage is not present and addressing is inconsistent, so navigating through the community could be problematic for first responders not familiar with the area. The main fuels in the community are grasses with a timber component around the perimeter of Gothic. Homes are built on level ground at the base of the drainage and constructed of fire resistant roofing with combustible decks and siding. Defensible space is not present in most areas, and utilities are below ground. Water is only available from the East River, and a portable pump is needed to draw water from this source. Fire response would come from Crested Butte or Mt. Crested Butte. Response times are at least 20 minutes. Complicating factors include high winds. The main ignition source could be campfires as recreational camping is popular in the area.

The dominant fuel type in the area is timber, both aspen and coniferous forest. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. The aspen component will have very low fire behavior by comparison. This mixture of coniferous and deciduous timber cover creates a patchwork fire behavior model.

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.

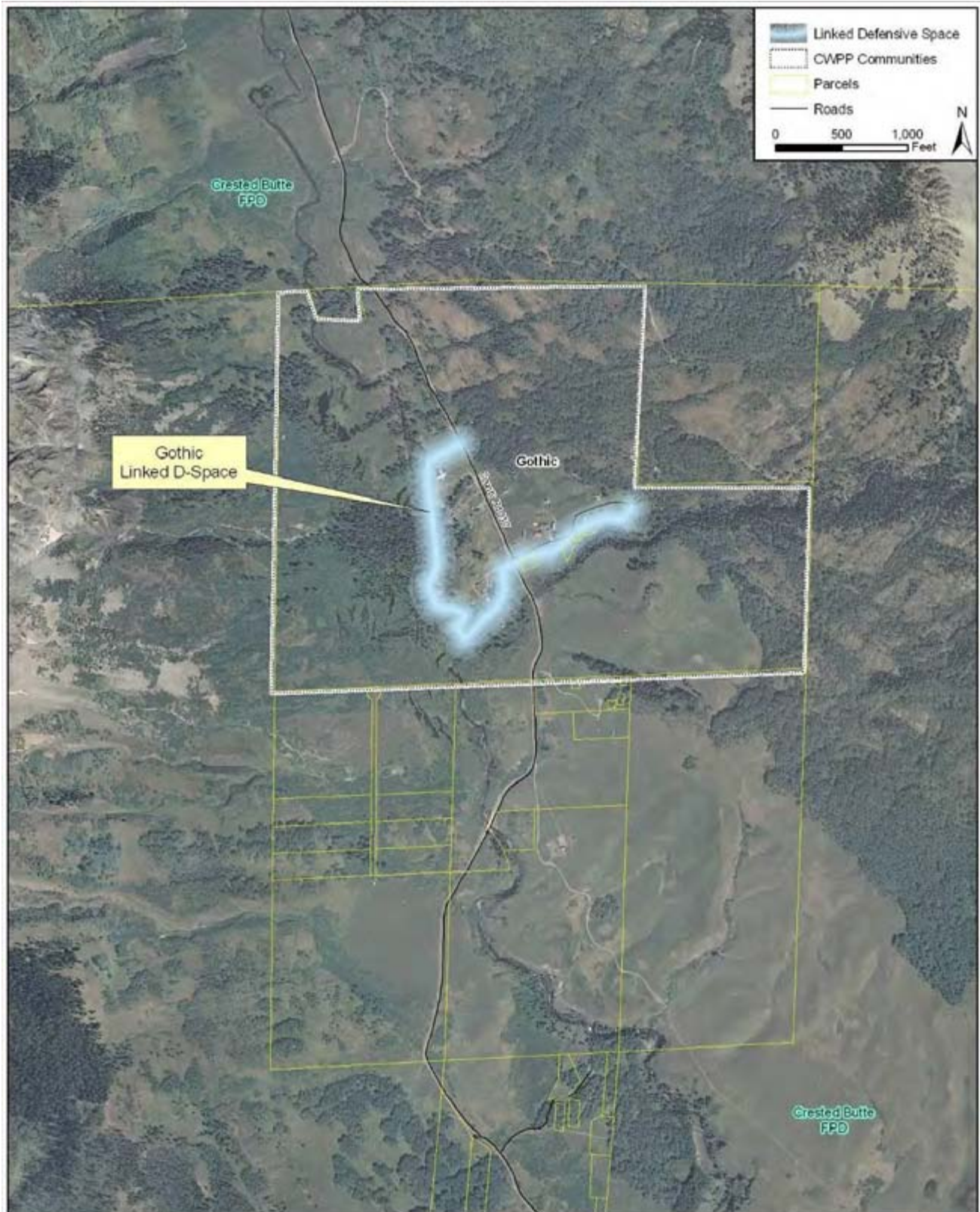
Table 11. Gothic Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Gothic Linked Defensible Space	6	The heaviest fuels in the community are along the southwest side; this area also has some of the steepest slopes. Linking defensible space thinning throughout this area will provide greater protection for the homes in the community	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	26

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 18. Gothic Fuels Treatment Recommendations



7. Crested Butte South



Hazard Rating: High

Crested Butte South, five miles south of Crested Butte on Highway 135, was built near the foothills of the East River valley (Figure 19). Crested Butte South has a west aspect, and vegetation in the area includes a grass and shrub fuel model throughout. General house location is mid-slope on a gentle slope. Consistent with home construction in other Gunnison County communities, homes in Crested Butte South have fire resistant roofs and decks and siding made of combustible materials. Fortunately, defensible space is present due to landscaping. Utilities are located below ground. Residences with driveways longer than 150 feet to the building footprint have approved turnarounds. All other residences are accessible from the main roads. Most streets in Crested Butte South have two means of ingress and egress. Homes located outside of the boundaries of Crested Butte South are located on 35-acre parcels, most without adequate water supply and located on dead end roads with minimal turnarounds. Other roads in the community are either paved or well maintained dirt and have minimal slope. Street signage is present and reflective, but addressing in Crested Butte South is inconsistent. Hydrants provide the Crested Butte FPD with a water supply. There is a Crested Butte fire station in the subdivision, so response time is roughly 10-15 minutes. Agricultural burning is the primary ignition source, and fire likelihood and severity could be influenced by the high winds in the area. Like many of the other Gunnison County communities, Crested Butte South has a seasonal population and there are homes that are unattended for substantial portions of the year.

Crested Butte South is predominantly a grass and shrub fuel type with pockets of coniferous timber and aspen present at higher elevations. The community has a very broken up fuel continuity due to the heavy development. The grass fuel model, which is the primary carrier of fire in this community, is a mixture of pasture, native and invasive grasses. All of these fuels are perennial and therefore build up a fuel bed every year that they are not burned. The grass regrows quickly with a fire return rate of 5-10 years. This fuel is also the most affected by short weather patterns. Weekly or monthly weather patterns can create high fire potential in this fuel type. Rates of spread can be very high; however, prolonged fire activity is unlikely.

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.

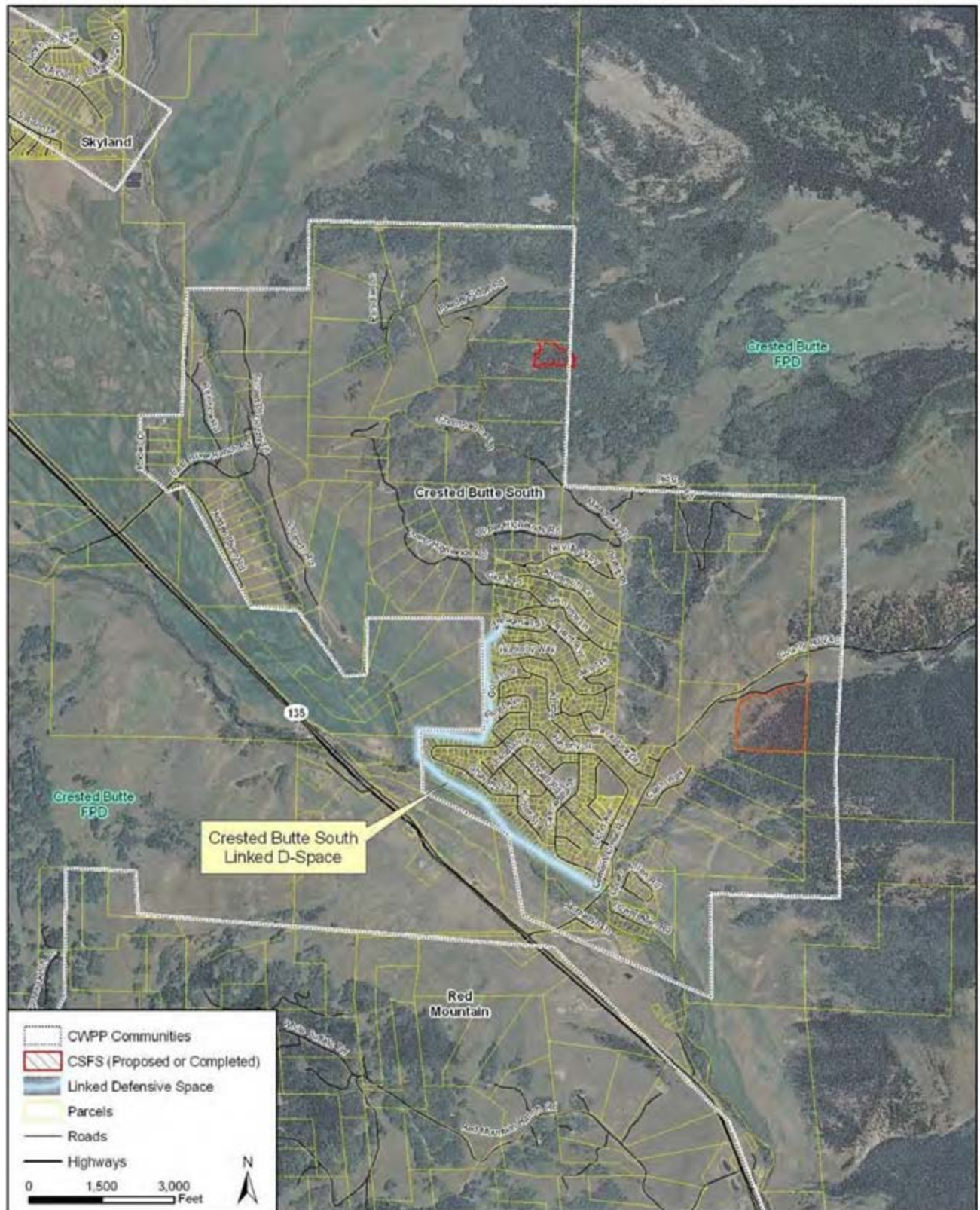
Table 12. Crested Butte South Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
CB South Linked Defensible Space	6	The defensible space that is present among some homes on the southwest side of CB South should be expanded to all of the homes in order to produce a strong buffer between the community as a whole and HWY 135 and the agricultural land, which are primary sources of ignition	Hand felling and limbing near homes or on steep slopes; mowing; some mechanical treatment further from homes	64

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 19. Crested Butte South Fuels Treatment Recommendations



8. Red Mountain



Hazard Rating: High

Red Mountain is a gated community eight miles south of Crested Butte on Highway 135, which provides the main ingress and egress for the community (Figure 20). Other roads are well maintained dirt with minimal slope and a width of 20-25 feet. Street signage is present and reflective. Topography includes rolling foothills coming out of the East River valley. Homes are built mid-slope on a very gentle rise. Home construction is consistent with other Gunnison County communities with fire resistant roofs and combustible decks and siding. Defensible space is not present in most areas. Red Mountain Road is a loop road at the top third of the subdivision. All driveways have an approved turnaround for emergency vehicles. Addressing in the community is not consistent. Street signage is present but not necessarily reflective; for example, it may consist of black iron letters on native rocks. Addresses present at every driveway although not necessarily reflective. Utilities are located below ground. Minimal water is available from some seasonal stock ponds and any cisterns that may be present are not accessible for firefighting purposes. All residences have installed a monitored NFPA 13D automatic fire suppression system. Wildfire response would come from Crested Butte, so response time is 15 minutes or more. Other significant factors include high winds and agricultural burning, which is the primary ignition source for Red Mountain.

Red Mountain is located on an east aspect in a sage fuel type with some aspen in the higher elevations. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. Wind is the primary factor in this fuel type which can produce the high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. The aspen component supports a grass understory which is the primary carrier of fire; however fire behavior is much less intense in aspen groves.

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.

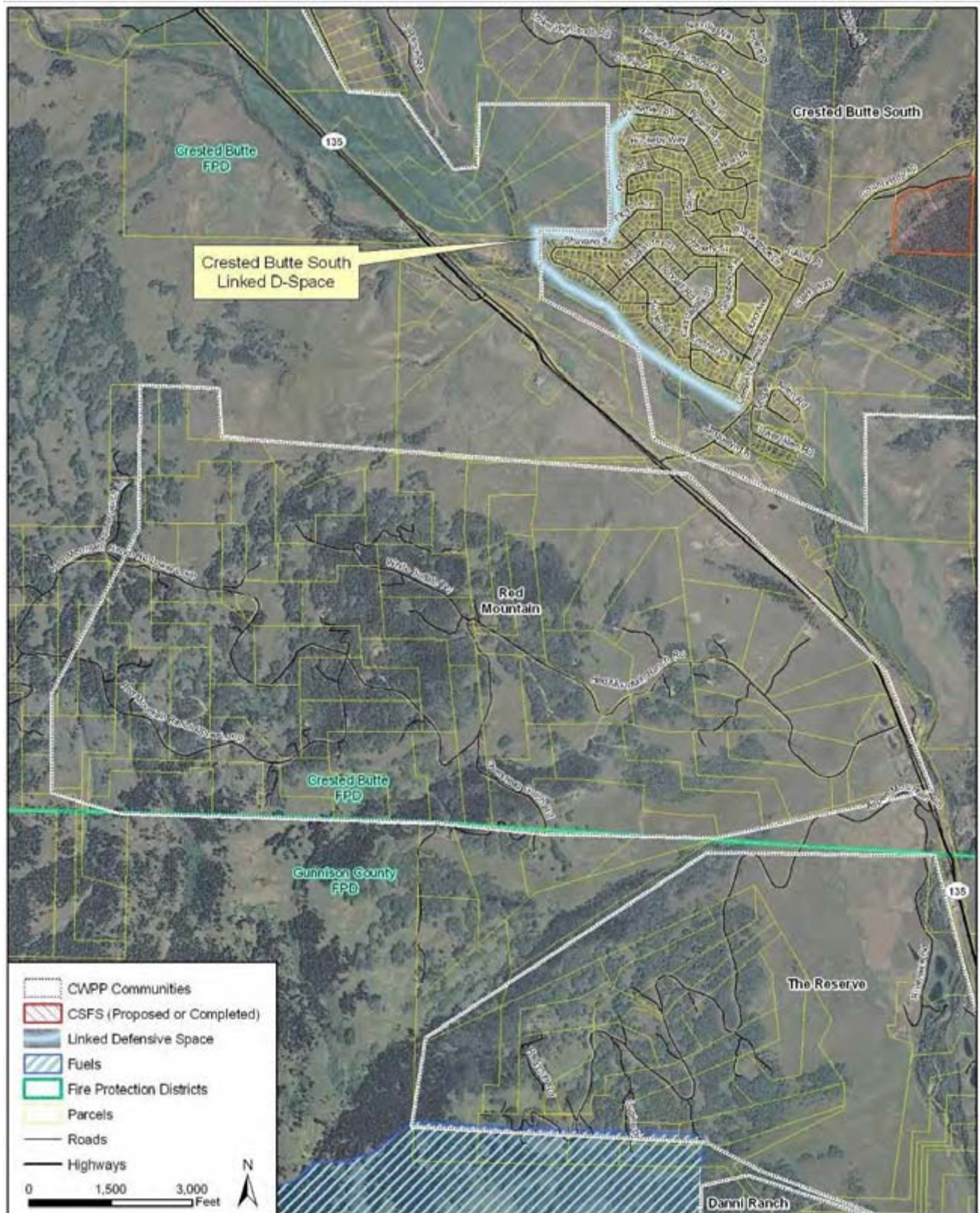
Table 13. Red Mountain Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 20. Red Mountain Fuels Treatment Recommendations



9. Skyland



Hazard Rating: High

Four miles south of Crested Butte on Highway 135, the community of Skyland is located in the foothills coming off of the Slate River valley with steeper slopes above the community and a west aspect (Figure 21). Houses are generally built mid-slope on a gentle slope. Homes located in the east and northeast portions of Skyland are located in pines on a moderate slope of the south facing aspect of Crested Butte Mountain. Some roofs are fire resistant, but most are wood shake shingles. Deck and siding construction materials are combustible. Fuels in the area are grasses and shrubs. The community has worked on landscaping, providing homes with defensible space. Utilities are below ground, and hydrants are present in the community. The primary ingress/egress route into Skyland is one access point off of Highway 135. Roads throughout the community are paved and have minimal slope. Both street signage and addressing are present but not always reflective. Driveways do not offer adequate turnaround space for fire engines and tenders. Additional issues of concern that contribute to this community's hazard rating include high winds and agricultural burning in the area.

Skyland is a community covered by a grass and shrub fuel type. Fire in this type of fuel has high rates of spread. Grass and shrubs fuel model are the primary carrier for fire in this community. A mixture of pasture, native and invasive grasses, as well as intermittent shrubs like sage and rabbit brush exist. These grasses are perennial and build up a fuel bed every year that they are not burned. The grass regrows quickly with a fire return rate of 5-10 years. This fuel is also the most affected by short weather patterns. Weekly or monthly weather patterns can create high fire potential in this fuel type. Rates of spread can be very high; however prolonged fire activity is unlikely. Given the fuel type, flame lengths throughout the community are likely to be short.

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.

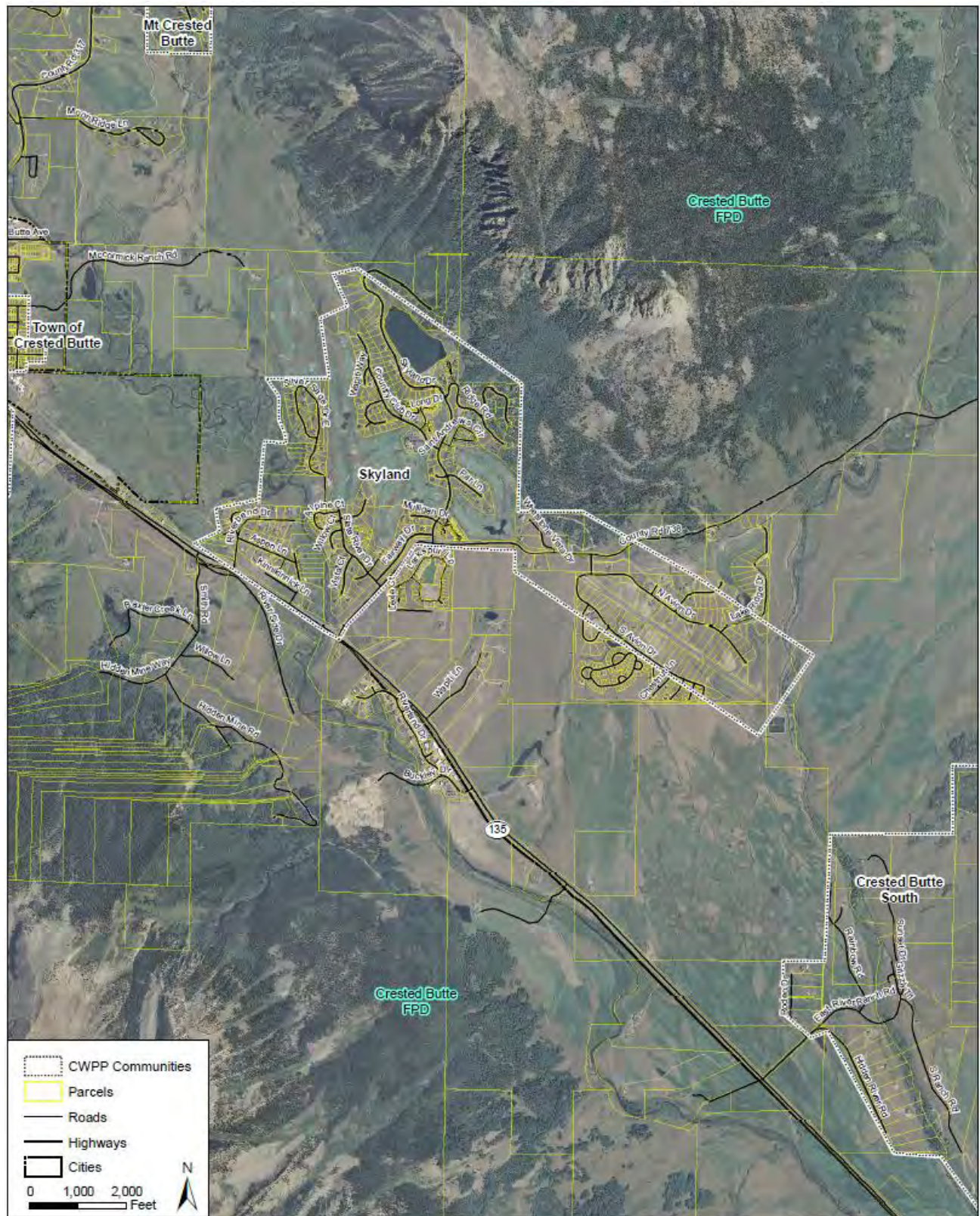
Table 14. Skyland Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 21. Skyland Fuels Treatment Recommendations



10. Washington Gulch



Hazard Rating: High

Washington Gulch is three miles north of Crested Butte off of Washington Gulch Road (Figure 22). Washington Gulch Road provides the primary access into the community. Roads throughout Washington Gulch are well maintained dirt roads with slopes of less than 5%. Street signage and addressing are inconsistent, so navigation could be an issue for first responders. The community sits in a pair of wide drainages with lakes at the bottom of each. Homes are built mid-slope, above the lakes, in the drainage bottoms. In general, roofs are constructed of fire resistant materials, but decks and siding are a mix of combustible materials. Defensible space is partially present due to landscaping. Most homes in Washington Gulch are accessible from the main roads and those that have driveways in excess of 150 feet generally have approved turnarounds. There is a central water supply consisting of a pump hose, 110,000 gallon storage and fire hydrants (although water flows are minimal due to insufficient amount of storage). Wildfire response would come from Mt. Crested Butte with a response time of 15 minutes or more. Washington Gulch has a grass and shrub fuel model. High winds and lightning increase the wildfire vulnerability in the community.

This community is located in a drainage which is aligned with the prevailing winds in the area. The dominant fuel type throughout the community is sage shrub. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. Wind is the primary factor in this fuel type. Wind can produce high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. High rates of spread and embercast are two of the primary concerns due to the topographic alignment with the prevailing winds.

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.

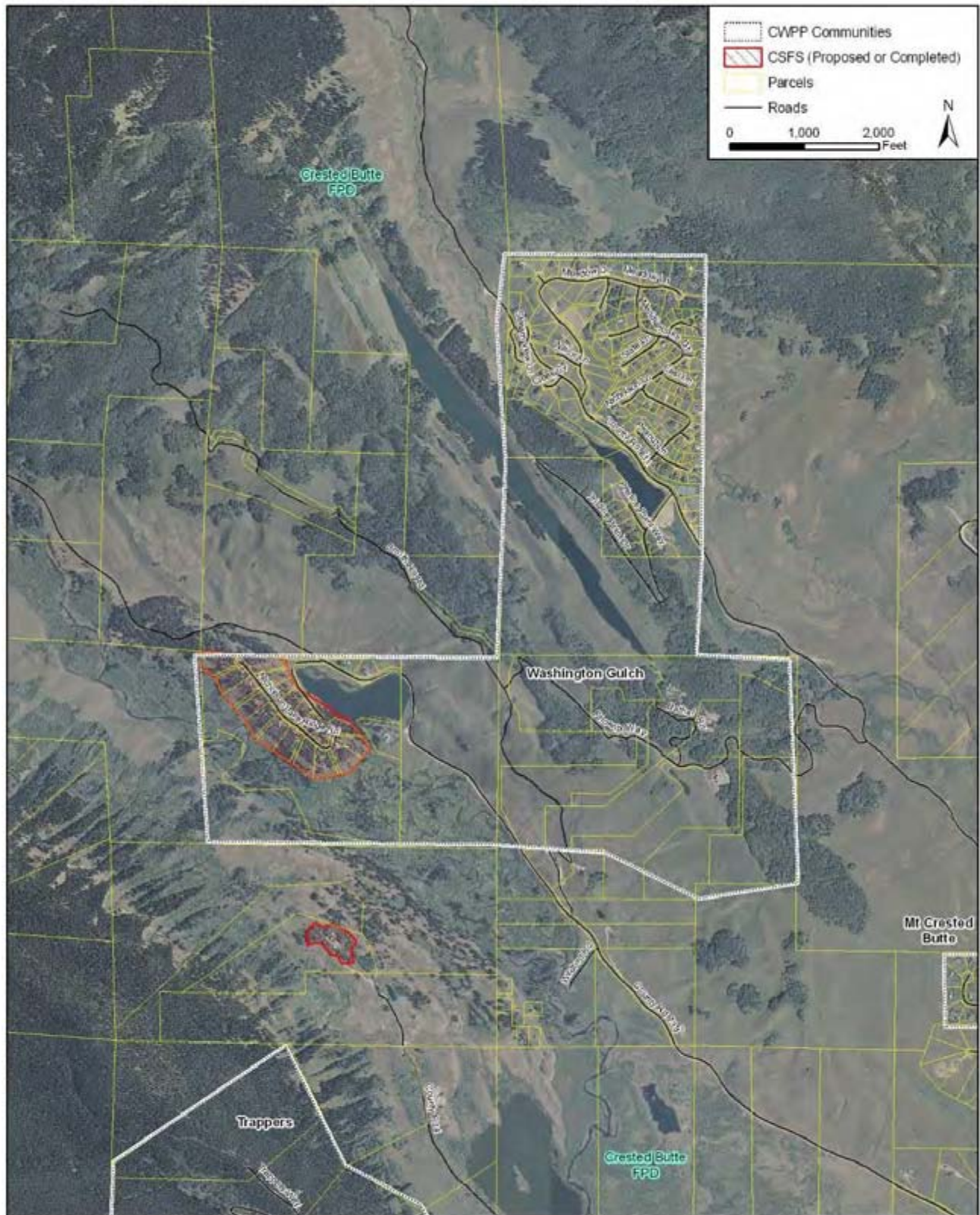
Table 15. Washington Gulch Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 22. Washington Gulch Fuels Treatment Recommendations



11. Crested Butte



Hazard Rating: Moderate

Crested Butte is 28 miles north of the town of Gunnison on Highway 135 (Figure 23). The community has multiple ingress and egress routes which are paved throughout the area. Street signage is present and reflective, but addressing is inconsistent. The community is level on the valley floor of the Slate River valley, with grasses being the primary fuel in the area. General house location is tightly packed in an urban community environment on level ground. Roofing material varies in combustibility, but deck and siding construction is highly combustible. Defensible space is present due to the urban development scheme. However, perimeters should be improved to decrease the community's fire vulnerability, especially given the fact that combustible debris is an issue throughout the community. Utilities are located both above and below ground, and hydrants are located throughout Crested Butte. Response times are very rapid; Crested Butte Fire Station 1 is located within town limits. Turnaround space is not an issue in this community. As in other Gunnison County communities, high winds increase Crested Butte's wildfire vulnerability.

The Town of Crested Butte is a small urban area surrounded by wildland fuels. The fuel type adjacent to town is predominantly grass and shrub mix. The grass and shrub fuel model which is the primary carrier of fire in this community is a mixture of pasture, native and invasive grasses, as well as intermittent shrubs like sage and rabbit brush. These grasses are perennial and build up a fuel bed every year that they are not burned. The grass regrows quickly with a fire return rate of 5-10 years. This fuel is also the most affected by short weather patterns. Weekly or monthly weather patterns can create high fire potential in this fuel type. Rates of spread can be very high; however, prolonged fire activity is unlikely. Fire behavior directly adjacent to town will be limited by the watered riparian areas that are located on three sides 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 16. Crested Butte 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Crested Butte Linked Defensible Space	6	Defensible space needs to be expanded, improved, or created along the western edge of Crested Butte. Due to construction density, urban conflagration, or structure to structure ignitions are a concern. Keeping fire out of the community in the first place is the best line of defense for Crested Butte and a linked defensible space is a good place to start.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	200

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 23. Crested Butte Fuels Treatment Recommendations



12. Mt. Crested Butte



Hazard Rating: Moderate

The community of Mt. Crested Butte is located on a shoulder of the mountain for which it is named. Mt. Crested Butte has a west aspect and is four miles north of the Town of Crested Butte on Highway 135 (Figure 24). Hwy 135 is the main ingress/egress road to the community. The north end of the town accesses Gothic Townsite four miles to the northwest. Seasonal four-wheel drive roads are available in the short summer season via Gothic. Other roads throughout the community are paved and well maintained. Street signage is present and reflective. Addressing is also present and consistent throughout the community but not necessarily reflective. Driveways do not have adequate turnaround space. Homes and structures are laid out in an urban setup, with buildings ranging from single family homes to large hotels and condominium complexes. Roofs are noncombustible, but deck and siding construction varies in combustibility. Fuels in the area include grasses, shrubs, and forests, though landscaping has created defensible space around homes and other buildings. Sprinklers are present in all commercial buildings. Utilities are located below ground, and hydrants in the area provide a water source for firefighters. The Crested Butte FPD has a station in the Mt. Crested Butte Community, so response times are less than 10 minutes. Other significant factors include high winds and a seasonal population.

Mt. Crested Butte is located on a northwest aspect in a mix of grass and shrub fuel models. The grass and shrub fuel model which is the primary carrier of fire in this community is a mixture of pasture, native and invasive grasses, as well as intermittent shrubs like sage and rabbit brush. These grasses are perennial and build up a fuel bed every year that they are not burned. The grass regrows quickly with a fire return rate of 5-10 years. This fuel is also the most affected by short weather patterns. Weekly or monthly weather patterns can create high fire potential in this fuel type. Rates of spread can be very high; however prolonged fire activity is unlikely. Fire behavior is also increased by the fact that the community is located in a saddle which increases wind speed and rates of 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.

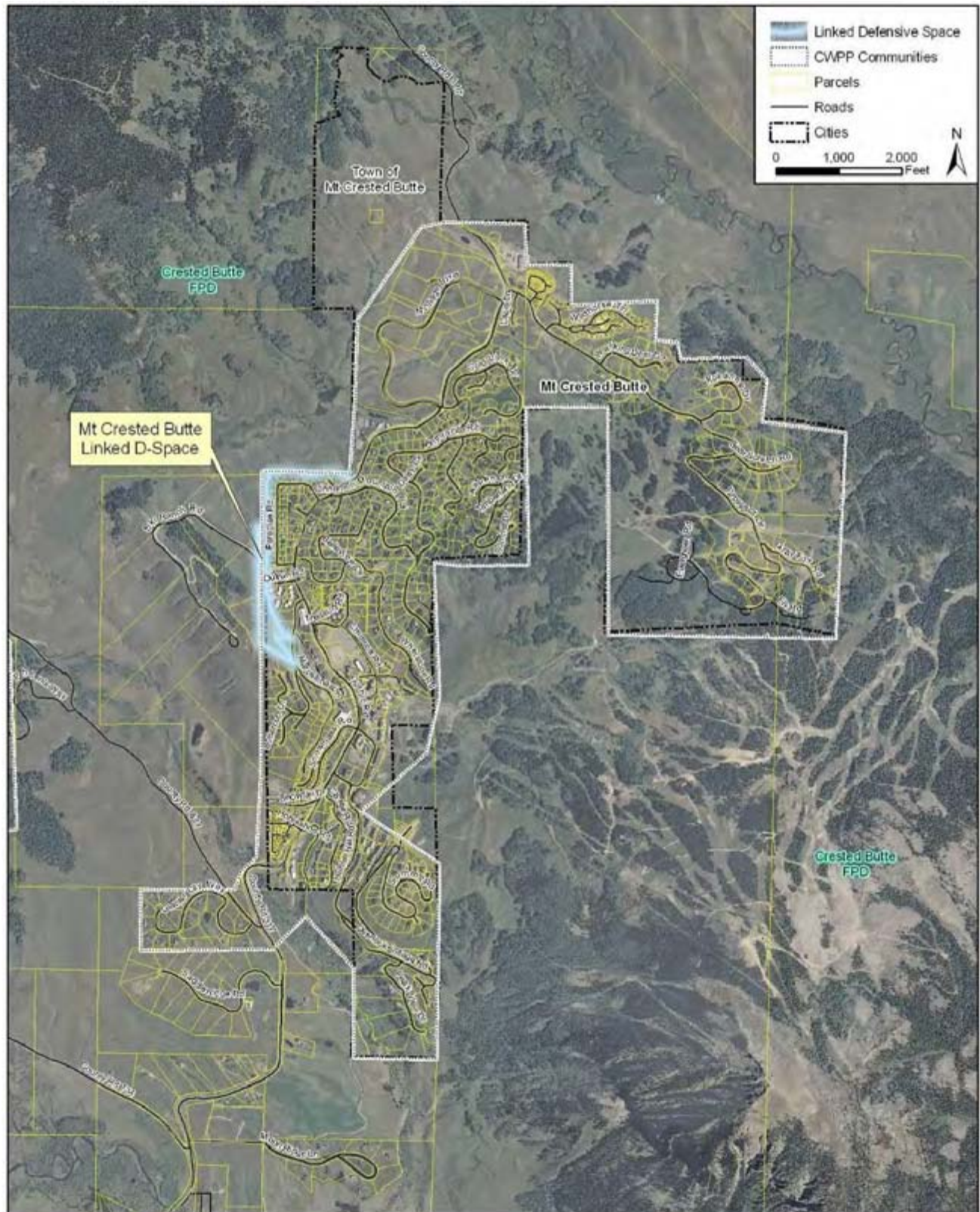
Table 17. Mt. Crested Butte Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Mt Crested Butte Linked Defensible Space.	6	The linked defensible space in Mt Crested Butte is focused on the primary area of the community where homes are not separated from the primary wildland fuels by a road or some other barrier. This will also provide an extra barrier for the rest of the community.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	150

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 24. Mt. Crested Butte Fuels Treatment Recommendations



GUNNISON FIRE PROTECTION DISTRICT

The Gunnison FPD covers a large area within the County, as seen in Figure 6. Twenty CWPP communities were identified within the Gunnison FPD. These communities and their hazard ratings are identified in Table 18. Blue Mesa, Gold Basin Meadows, and Wilderness Streams communities each have their own individual CWPP.

Table 18. Gunnison Fire Protection District CWPP Communities by Hazard Rating

Extreme	Very High	High	Moderate
Quartz Creek	Gunnison Highlands Spring Creek White Pine Wilderness Streams	Almont Antelope Hills Blue Mesa Subdivision Danni Ranch Gold Basin Meadows Ohio City Pitkin Rainbow Estates Star Mountain Ranch The Reserve Tin Cup	Cranor Acres Dos Rios North Valley Subdivision Tomichi Heights

These communities are shown in Figures 25, 26, 27 and 28. Each community's ignitability analysis recommendations are discussed in the following pages, with the most at-risk communities discussed first.

Figure 25. Gunnison FPD CWPP Communities

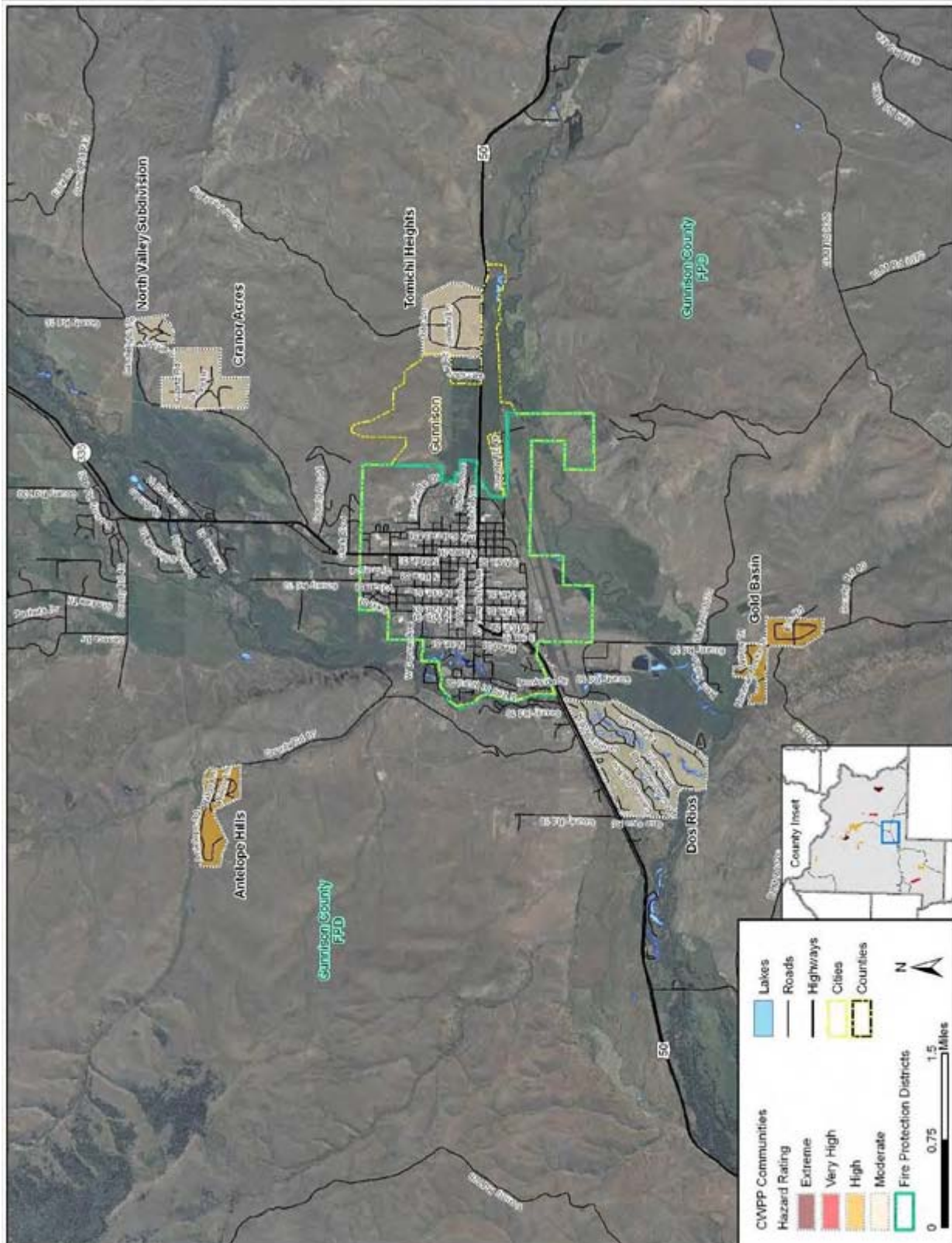


Figure 26. Gunnison Highlands Area CWPP Communities

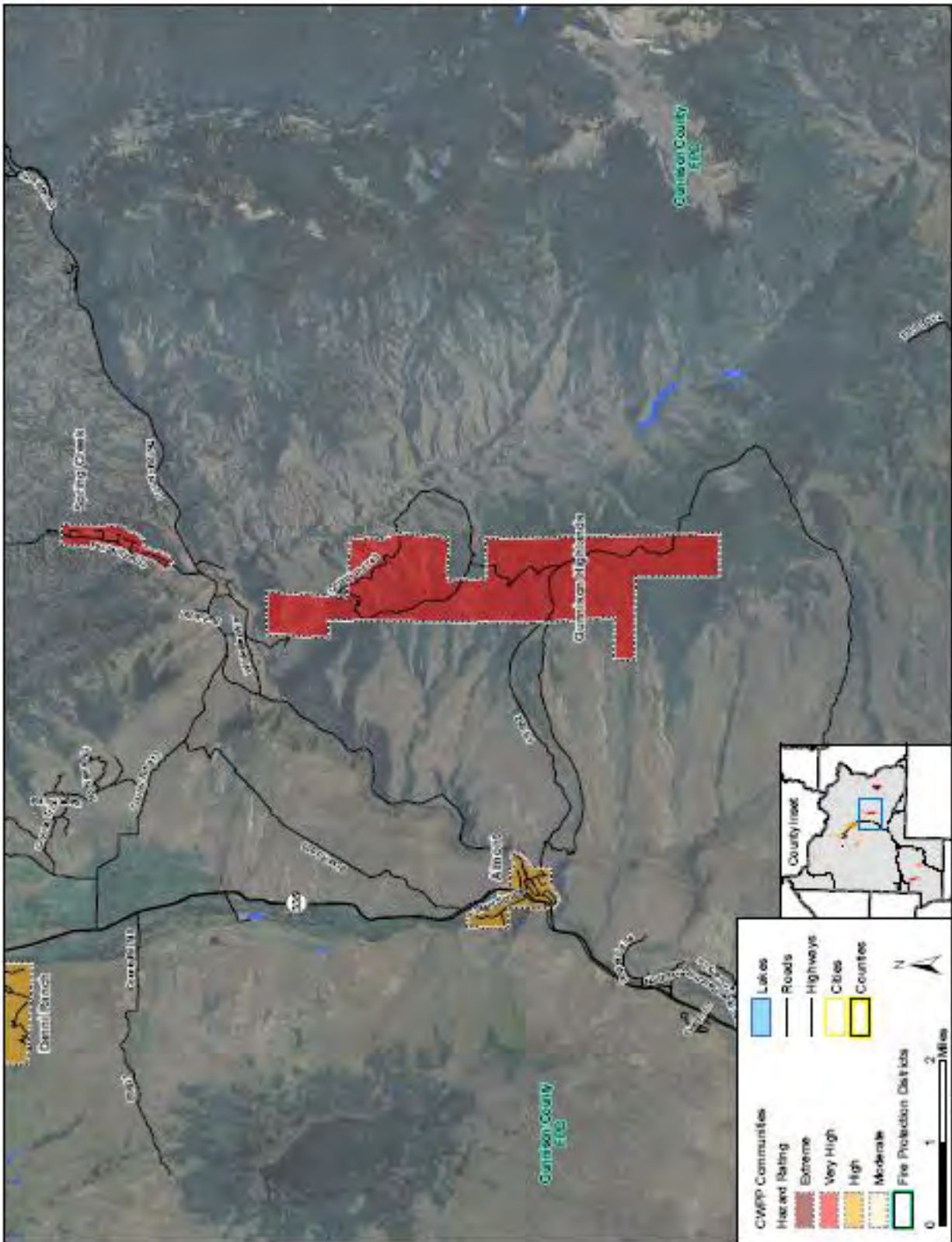


Figure 27. Pitkin Area CWPP Communities

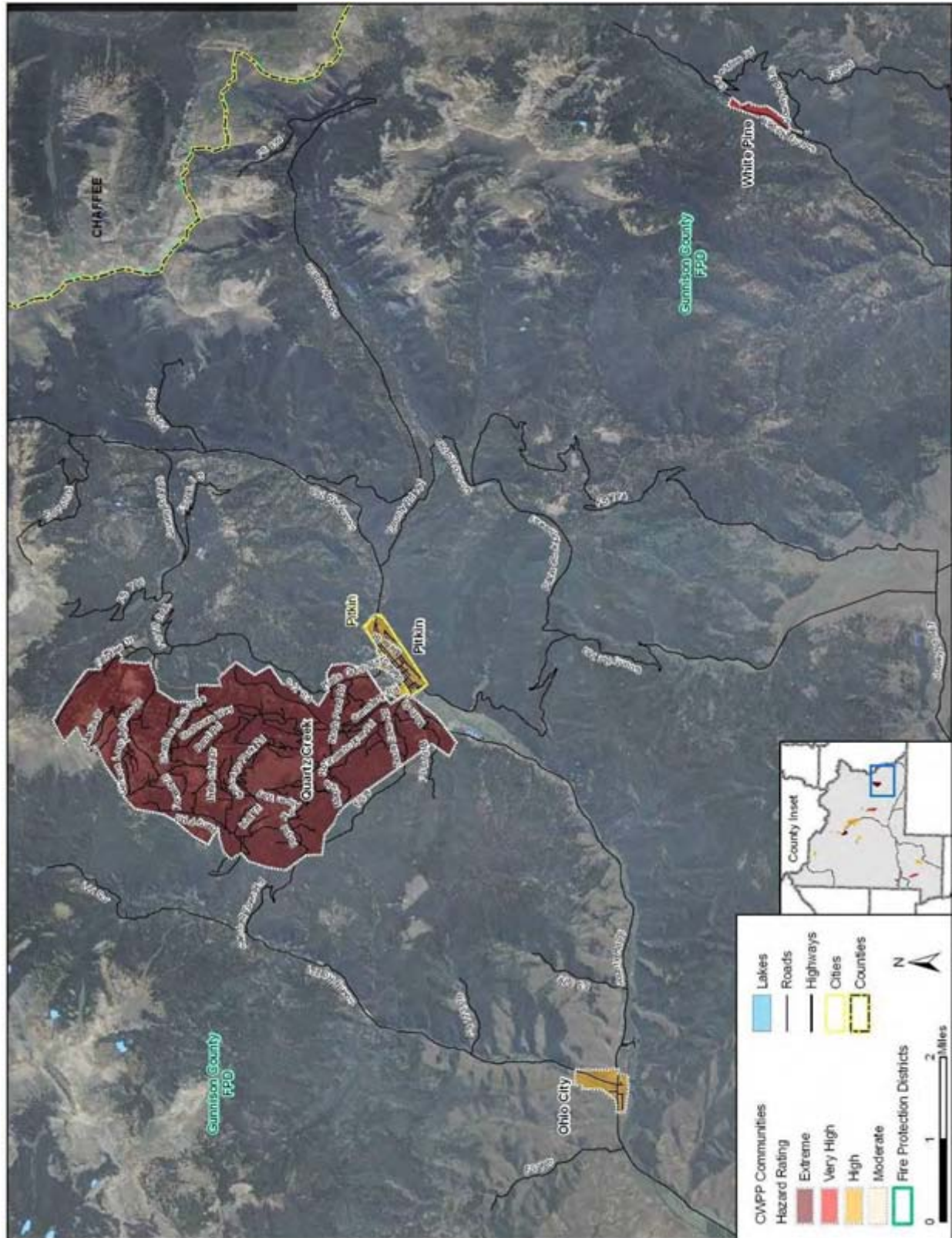
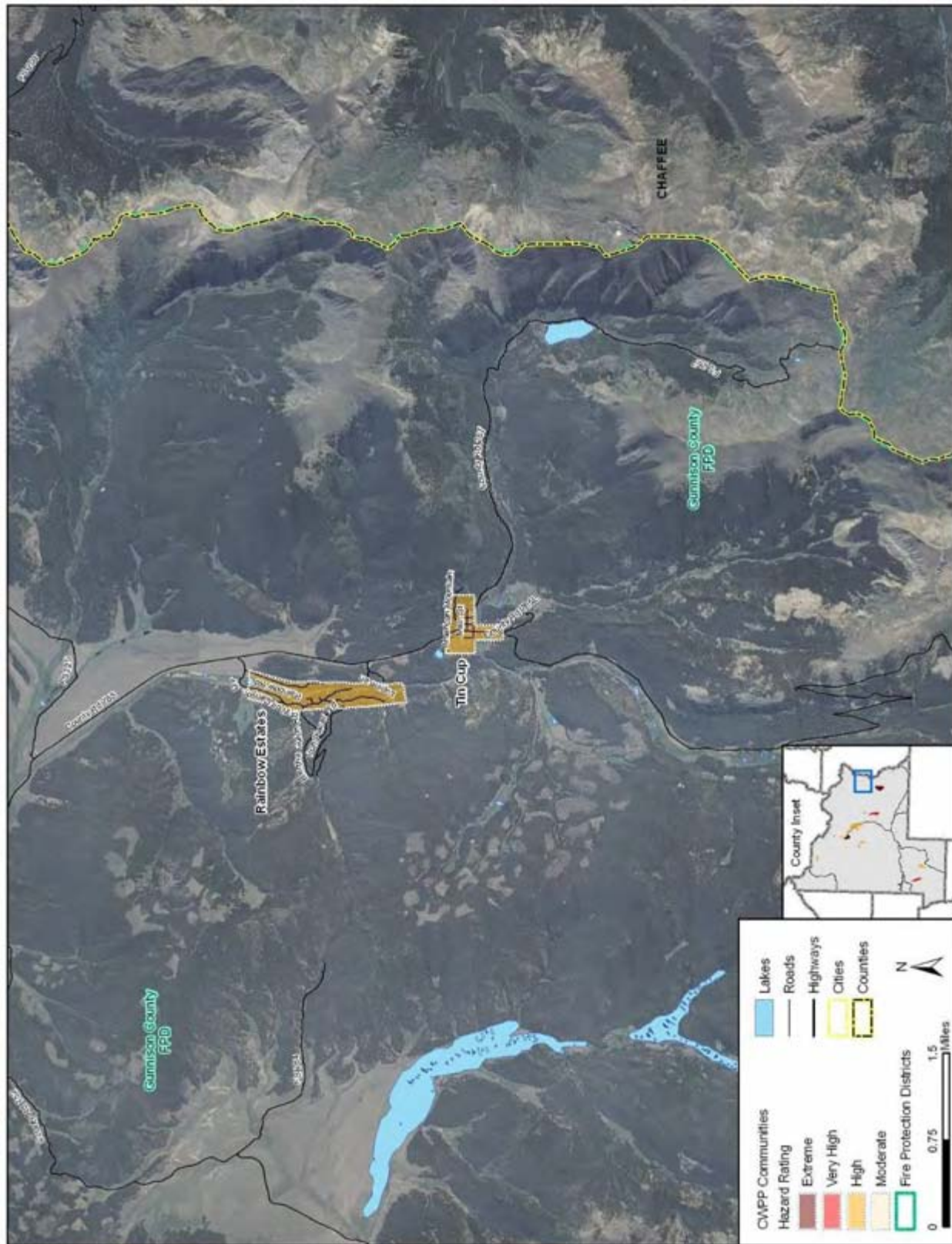


Figure 28. Tin Cup Area CWPP Communities



13. Quartz Creek



Hazard Rating: Extreme

The Quartz Creek community is located off of County Road (CR) 76 in eastern Gunnison County, on the slope above the town of Pitkin (Figure 29). Ingress/egress is single access, half a mile west of Pitkin off of CR 76. Roads within the community are dirt and in various degrees of maintenance, ranging from graded and maintained dirt roads to four-wheel drive trails. Street signage is not present in the community. Quartz Creek sits on a south aspect which is divided by multiple drainages. Homes are built mid-slope, and some are located in chimneys, greatly increasing their wildfire risk. Roofing materials are primary noncombustible metal roofing, but decks and siding materials are unanimously combustible with clapboard and shingle siding as well as wooden decking material around homes. Defensible space in Quartz Creek is minimal if at all present. Addressing is largely absent, and is poor and nonreflective when present. Driveways are steep, narrow, and poorly maintained. There are no turnarounds at the end of driveways to accommodate emergency vehicles. Additionally, there is combustible material ranging from fire wood stacks to construction material and other debris close to homes throughout the community. Utilities are located above ground. Overhead power lines and above-ground propane tanks are the primary concern in regard to utilities. Water resources are not present in Quartz Creek. Fire district response for the community would come from a small fire brigade with basic training and equipment located in Pitkin, which is a 5–15 minute response. Other significant factors include lightning and high levels of recreation along USFS roads including all-terrain vehicle (ATV) usage.

The Quartz Creek community is a large timbered community on a southeast aspect. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The timber is the dominant fuel throughout the community even with the presence of some clearings. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained 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 19. Quartz Creek 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Charlie's Challenge Roadside Thinning***	6	The Charlie's Challenge roadside thinning is located along one of the primary access routes into the Quartz Creek Subdivision. This roadside thinning is designed to increase the emergency access and civilian egress.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	120
Road 879 Roadside Thinning***	7	This second egress recommendation is focused on improving and maintaining a USFS road so that it is a viable access to the southwest side of the community. Also thinning the fuels along the egress route would provide safer egress for civilians and provide an access for response from Ohio City.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	121
Quartz Creek Fuel Treatment	8	This fuels treatment area is designed to expand the impact of the Charlie's Challenge Rd by encouraging further stand management.	Mechanical and hand felling	500
Patch Cutting	9	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it	5-15 acres per patch cut.

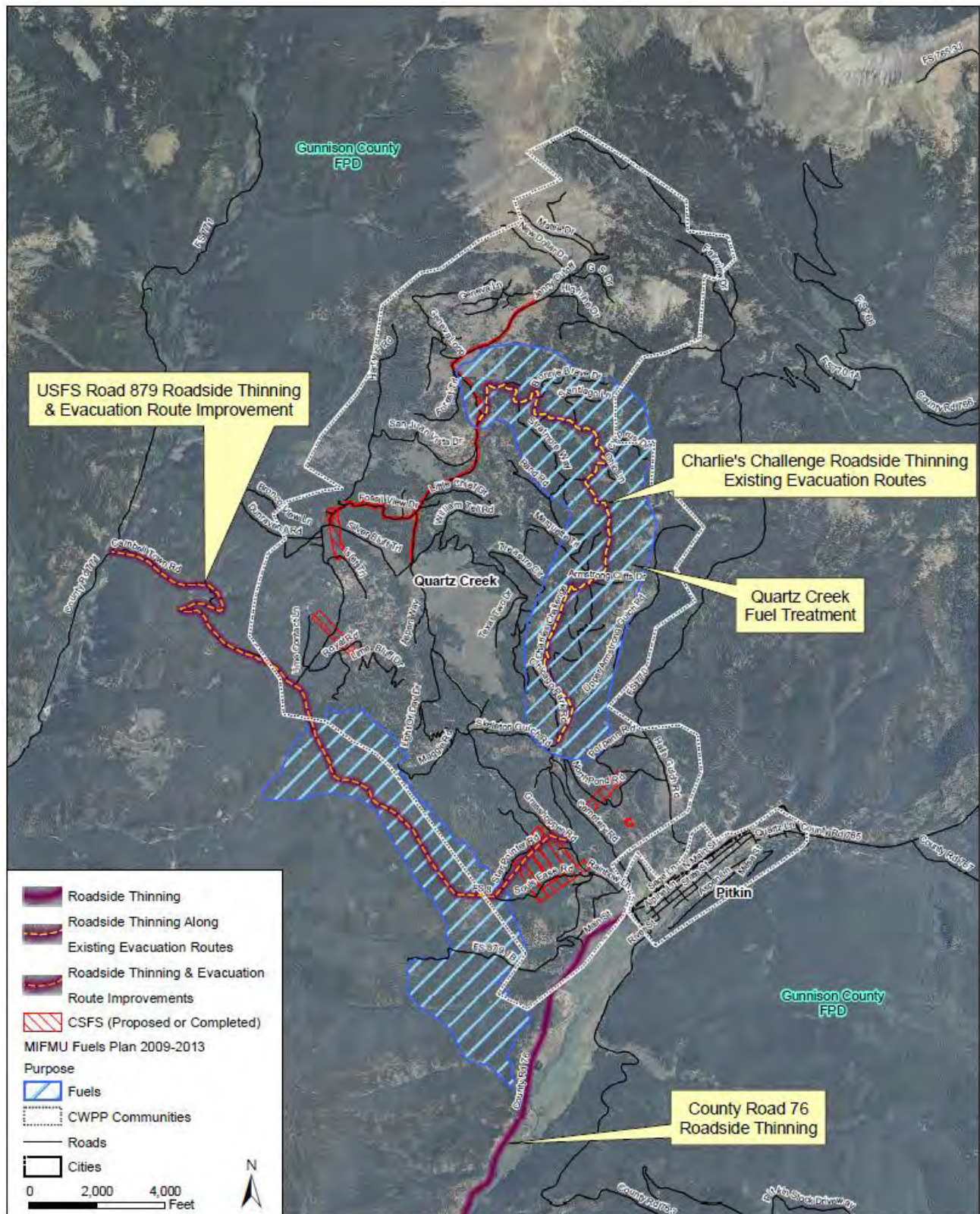
Name	Priority	Description	Methods*	Acres**
		community.	is logical	

* 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 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.

Figure 29. Quartz Creek Fuels Treatment Recommendations



14. Gunnison Highlands



Hazard Rating: Very High

The Gunnison Highlands community is 15 miles northeast of Gunnison (Figure 30). Main access to the community is along USFS Road 743. This road is single seasonal access. Other roads in the community are poorly maintained, narrow at under 20 feet wide, and have slopes averaging 5%. Street signage is not present. The general topography is rolling hills with slopes between 5-40% and a range of aspects. Most homes are located on the tops of hills or mid-slope. No homes are located in drainages. Home construction is consistent with other Gunnison County communities discussed in this CWPP. Defensible space is partially present due to landscaping and mowing on some properties. Addressing is inconsistent when present and is not reflective. Driveways do not have adequate turnaround space or even adequate access in some cases. Utilities are located above ground. There are no electricity or phone lines in this community. Water is only available from ponds and streams. Fire district response would come from Gunnison. Response times are very lengthy, estimated at one hour. Lightning is considered the primary ignition source, but recreationists present additional ignition sources due to hunting and motorized recreation in the area.

The community is located in rolling hills with a variety of aspects. This area is heavily timbered with a combination of coniferous and aspen cover types. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. Aspen however will produce substantially less extreme fire behavior; with lower flame lengths and a very low likelihood of torching.

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. Gunnison Highlands 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Gunnison Highlands Roadside Thinning ***	6	Gunnison Highlands has a single access point, which has a heavily timbered and narrow section. This project is recommended to reduce the hazard along this section of the access route to aid in civilian egress and firefighter access to the community	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	95
Gunnison Highlands Fuel Break	7	This fuel break is designed to tie into work that is being done by state and federal agencies on adjoining land	Mechanical and hand felling	100
Gunnison Highlands lodgepole pine treatment	8	The majority of the community consists of grass and shrub fuels or aspen trees with a grass understory. There are some areas in the community that have dense lodgepole pine stands which have potential to produce destructive fire behavior. These areas should be evaluated by a	Hand felling and limbing near homes or on steep slopes; mowing; some mechanical treatment further from homes	150

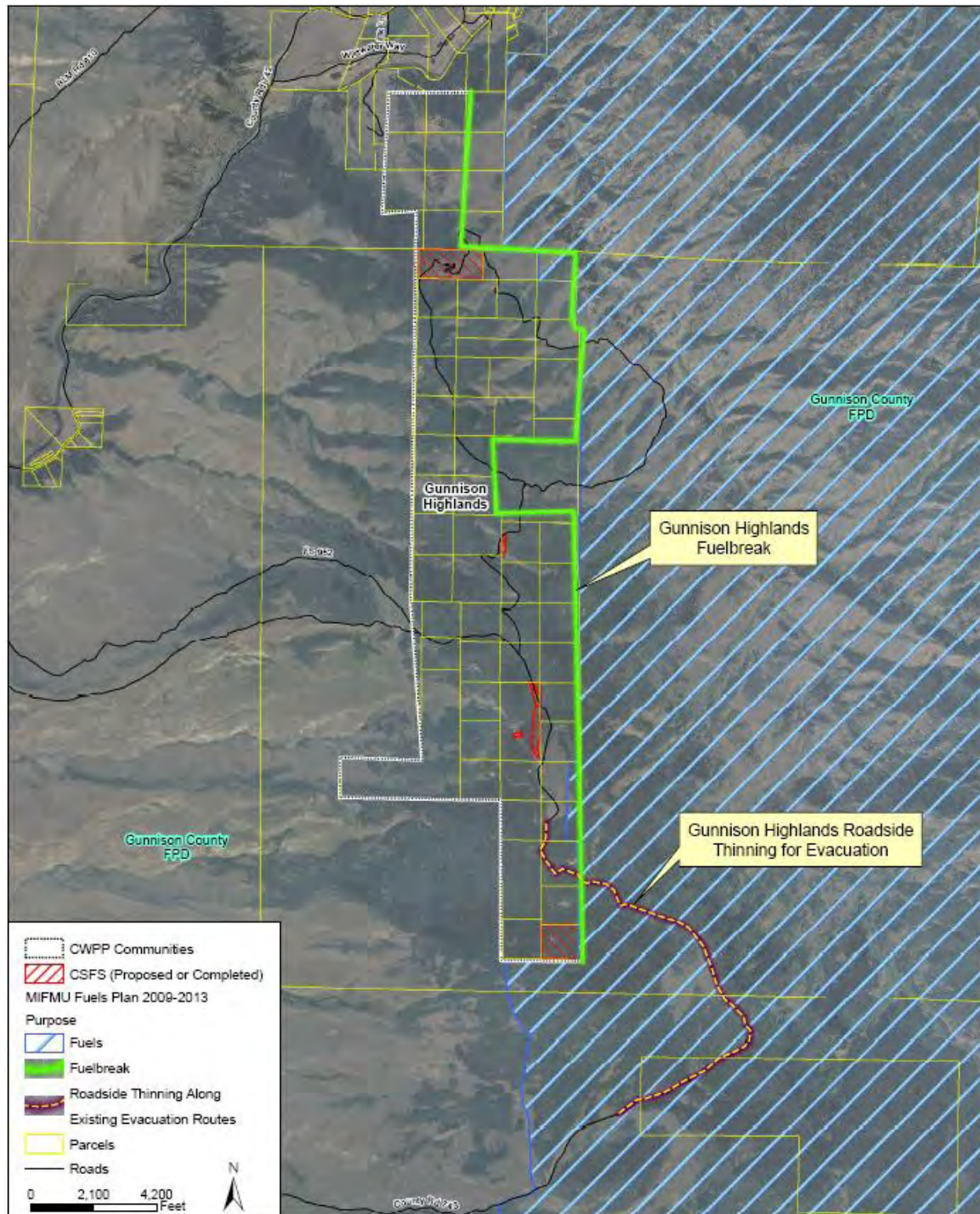
Name	Priority	Description	Methods*	Acres**
		representative of the Colorado State Forest Service. This will provide a better understanding of the steps that can be taken to mitigate the risk from the lodgepole fuel		
Patch Cutting	9	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it is logical	5-15 acres per patch cut.

* 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 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.

Figure 30. Gunnison Highlands Fuels Treatment Recommendations



15. Spring Creek



Hazard Rating: Very High

Spring Creek is 17 miles northeast of Gunnison off of County Road 742 (Figure 31). County Road (CR) 742 is the main ingress/egress route for Spring Creek and is one-way in and out. Other roads are well maintained dirt or paved roads with minimal slope. Street signage is made of nonreflective materials and is inconsistent. The community is located at the bottom of a steep, narrow drainage. Homes are built on either side of the creek in the drainage bottom. Some homes are slightly upslope, but not enough to be considered mid-slope. Roofs are made of noncombustible materials, but decks and siding are highly combustible. Defensible space is not present in most areas. Addressing in Spring Creek is not consistent, and driveways do not have adequate turnaround space for fire engines and tenders. Utilities include electricity, communication lines, and propane, all located above ground. Water is available from Spring Creek. Fire district response would be based out of Gunnison. Given the distance from Spring Creek, response times would be 40 minutes or more. Recreationists, including campers, present a potential ignition source and safety issue in the event of an evacuation.

The Spring Creek community is a heavily timbered area that is located on both sides of a stream. The riparian influence will usually serve to help reduce fire behavior; however, the timber fuel model still has potential. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. Fire return intervals would be even less frequent in this area, due to the riparian influence, than in most similar timbered areas.

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 21. Spring Creek Fuels Treatment Recommendations

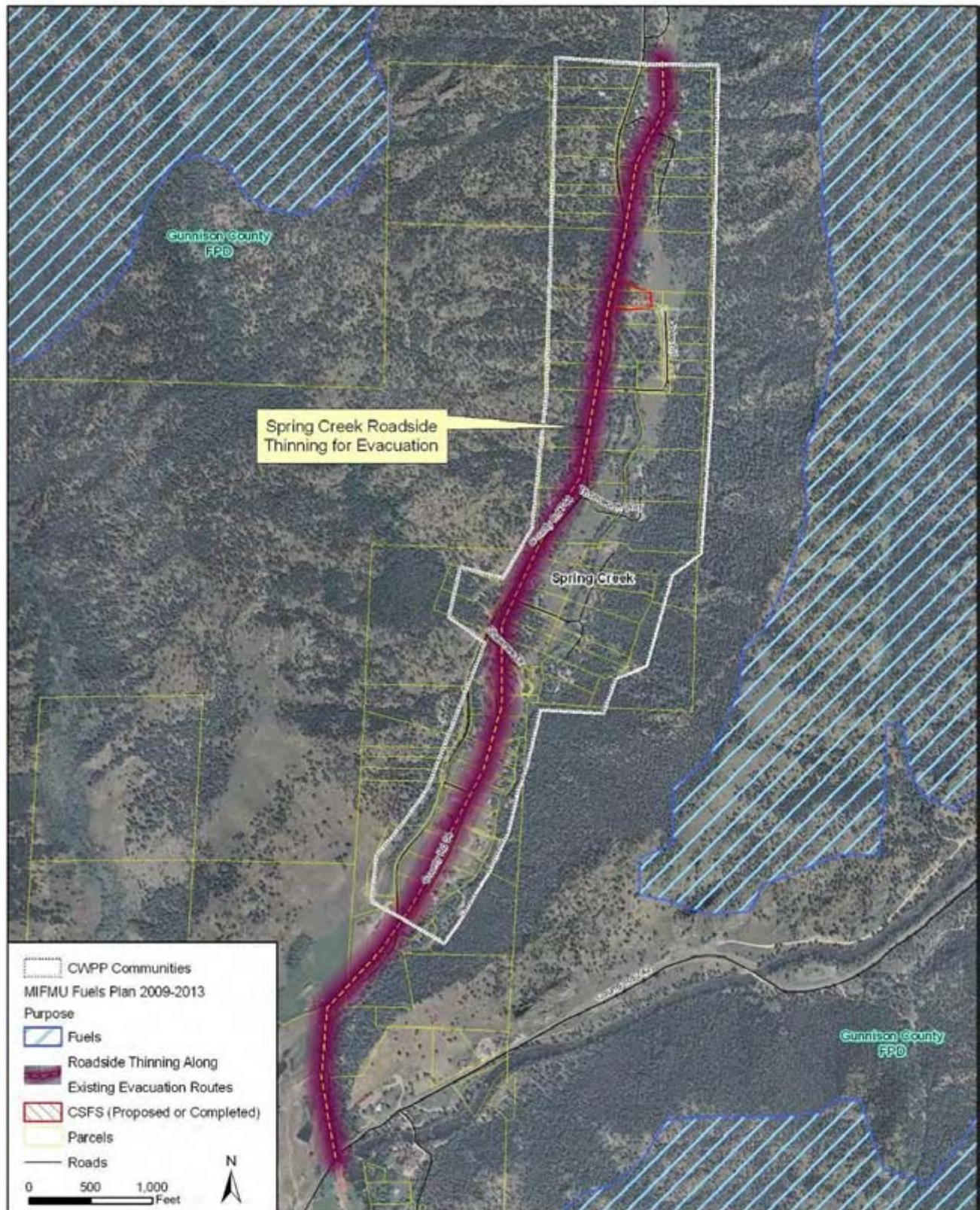
Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Spring Creek roadside thinning***	6	Spring Creek has a single access point, which is heavily timbered. This project is recommended to reduce the hazard along this single access route to aid in civilian egress and firefighter access to the community	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	105
Patch Cutting	7	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it is logical	5-15 acres per patch cut.

* 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 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.

Figure 31. Spring Creek Fuels Treatment Recommendations



16. White Pine



Hazard Rating: Very High

The community of White Pine is located along County Road (CR) 888 north of the community of Sargents (Figure 32). There is single primary access, and secondary access is manageable only with a four-wheel drive vehicle. Most driveways are off of CR 888. Any side roads are narrow at less than 20 feet in width and steep with grades of greater than 10%. There is no street signage or addressing in the community. White Pine is located at the bottom of a steep and narrow canyon that is heavily timbered with an east aspect. Homes are mid-slope just above the creek at the canyon bottom, just above the riparian zone. Metal roofing offers high fire resistance, but decks and siding materials are combustible. Defensible space is not present. As described above, driveways are steep and narrow and provide no turnaround space. Factors that increase fire risk in White Pine are abandoned homes and wood piles throughout the community. Utilities are located above ground and include power lines and propane tanks. Draftable cisterns offer a water source, though there is no indication of capacity on any of the cisterns. Fire response for the community is based out of Gunnison, so response times may exceed an hour. Other significant factors include high winds, lightning, and recreationists in the campgrounds located along CR 888. Recreation in the area includes heavy all-terrain vehicle (ATV) usage.

White Pine is a heavily timbered community in a steep, narrow canyon. The fire behavior will be driven by the heavy fuel loads and the steep topography. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. The steep and narrow canyon makes extreme fire behavior a real possibility in this community. Also, the fact that the community is removed from the riparian zone at the canyon bottom means that the riparian effect will not help to moderate fire behavior.

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. White Pine Fuels Treatment Recommendations

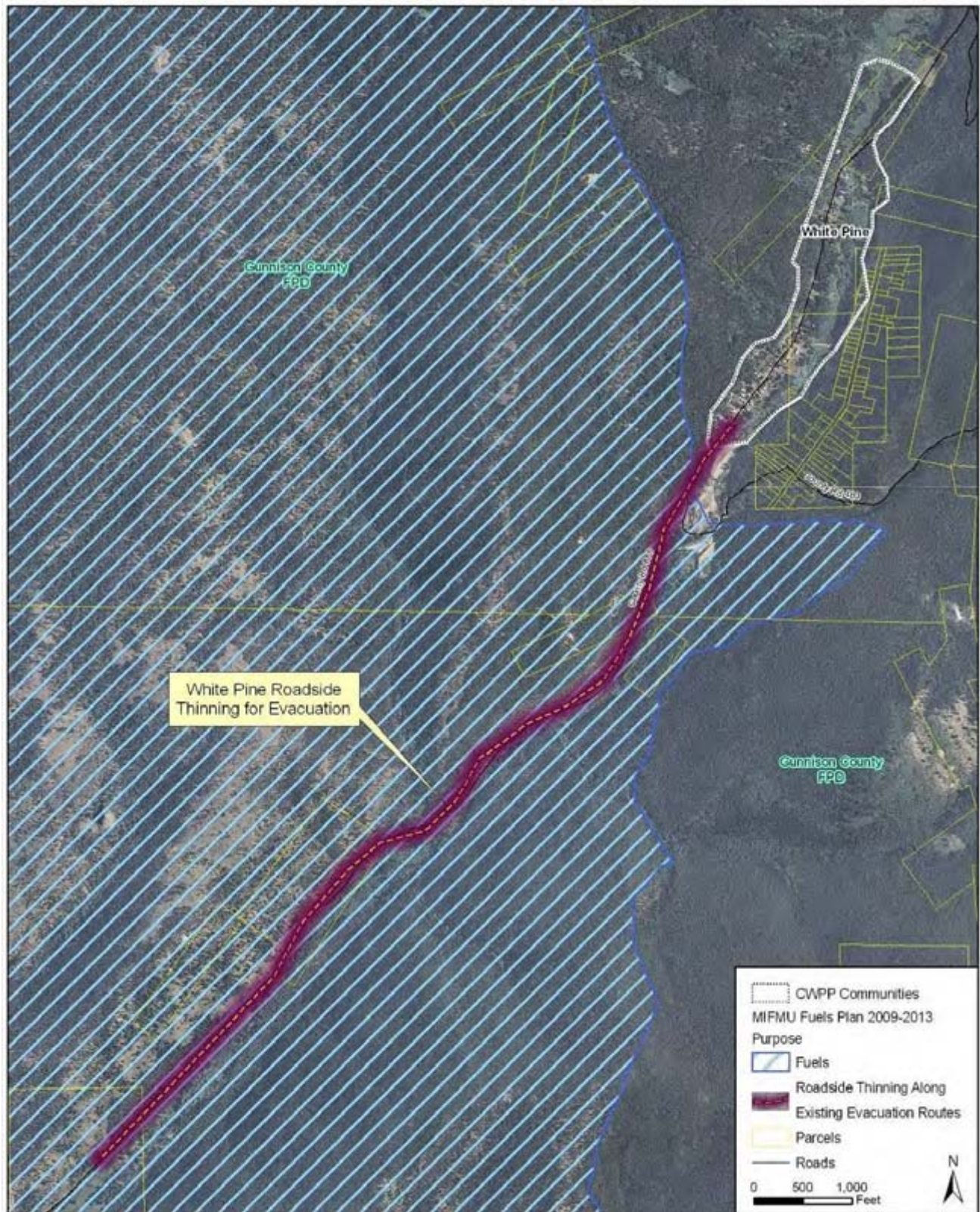
Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
White Pine roadside thinning ***	6	White Pine has a single access point, which is heavily timbered and located in a steep, narrow canyon. This project is recommended to reduce the hazard along this single access route to aid in civilian egress and firefighter access to the community	Hand felling and limbing near homes and on steep slopes; mowing; some mechanical treatment further from homes	86
Patch Cutting	7	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it is logical	5-15 acres per patch cut.

* 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 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.

Figure 32. White Pine Fuels Treatment Recommendations



17. Wilderness Streams



Hazard Rating: Very High

The community of Wilderness Streams is located 18 miles northwest of Gunnison off of County Road (CR) 730 (Figure 33). Main access to the community is a single access point through a gate at the junction of CR 730 and Zuni Trail. Roads throughout the community are well maintained gravel roads of 20-25 feet in width. Street signage is not present, and addressing is either inconsistent or not present. The community is centered in one valley with some hills on the bench above the valley. There are some mid-slope homes but the majority are located on the valley bottom. Home construction is consistent with other Gunnison County communities. Defensible space is partially present due to mowing, though many homes still need to implement defensible space work. Like many other communities in the area, driveways in Wilderness Streams do not have sufficient turnaround space. Utilities are all located above ground and include power lines, phone lines, and propane tanks. Ponds and streams offer the community's only water sources. Fire response would come from Gunnison, and response times are estimated to be half an hour or more. The primary ignition threat in the community is posed by agricultural burning.

Wilderness Streams is a community located in a drainage bottom and dominated by a grass and shrub fuel type. There is some timber but it is relegated to the ridges. The grass and shrub fuel model which is the primary carrier of fire in this community is a mixture of pasture, native and invasive grasses, as well as intermittent shrubs like sage and rabbit brush. These grasses are perennial and build up a fuel bed every year that they are not burned. After a fire, the grass regrows quickly and has fire return rate of 5-10 years. This fuel is also the most affected by short weather patterns. Weekly or monthly weather patterns can create high fire potential in this fuel type. Rates of spread can be very high; however, prolonged fire activity is unlikely.

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.

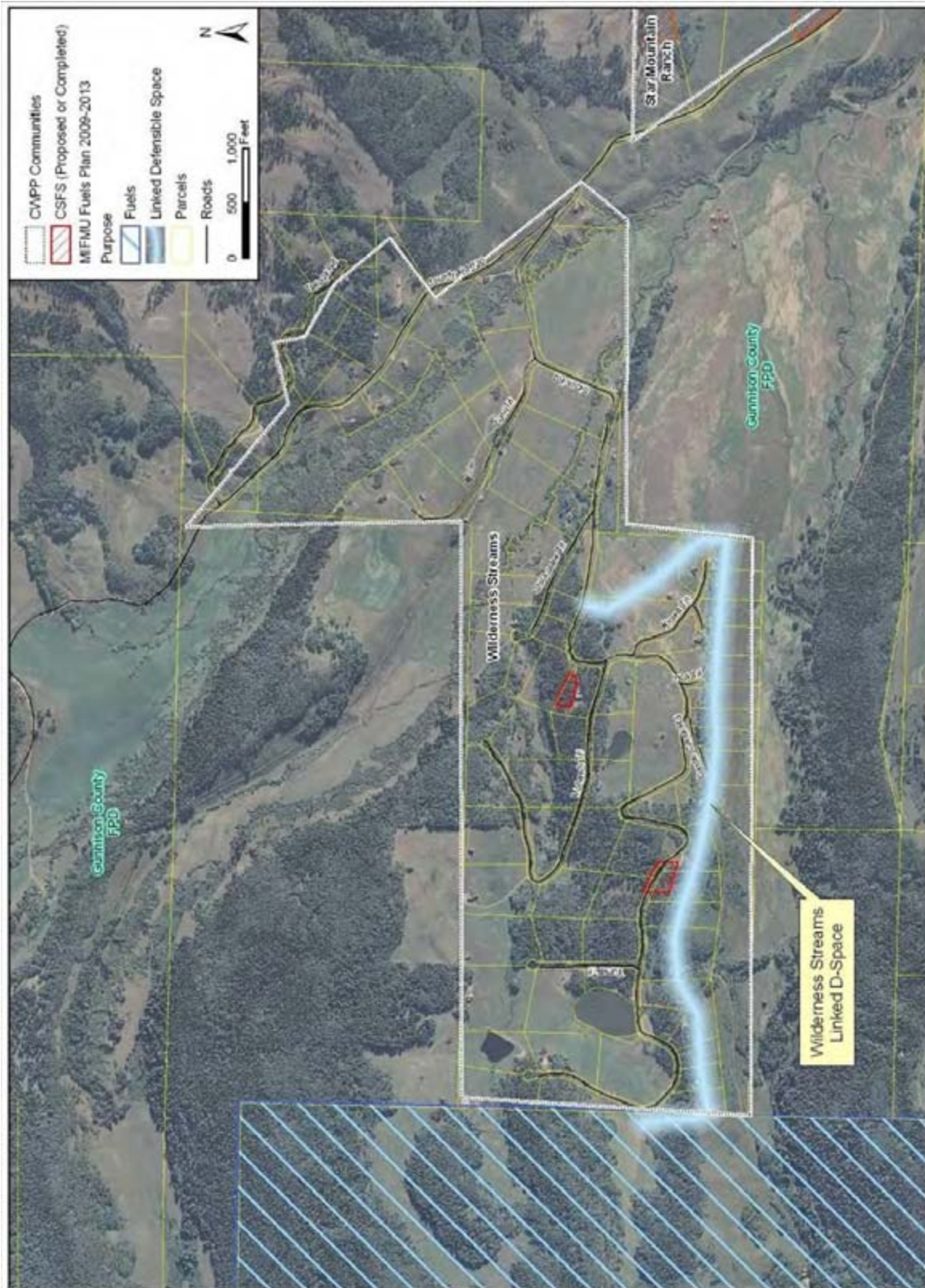
Table 23. Wilderness Streams Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Wilderness Streams linked Defensible Space	6	These homes are located along a ridge and are more tightly spaced than any other homes in the community. Defensible space work, coordinated between neighbors, will provide a very effective fuel break	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	56

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 33. Wilderness Streams Fuels Treatment Recommendations



18. Almont



Hazard Rating: High

Almont is 10 miles north of Gunnison along Highway 135 (Figure 34). Main ingress and egress into the community is along Highway 135 or County Road 742. Roads throughout the community are paved and nearly level. Street signage is present and reflective, though addressing is inconsistent. Almont is located at the bottom of a junction of two primary drainages in the area, and homes are primarily located in the riparian corridors of these drainages. Roofs are noncombustible and offer fire resistance, but decks and siding are highly combustible. Defensible space is not present in most areas, and driveways do not provide adequate turnaround space for emergency vehicles. Utilities are located above ground, increasing the chance that they could be damaged in a wildfire. Local water resources include streams and ponds. Gunnison would respond to fire in Almont, and response times are estimated to be at least 20 minutes. Other significant factors include recreationists, primarily campers along the river corridors, and agricultural burning.

The community is primarily a sage and shrub cover type with a major riparian influence. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. The wind is the primary factor in this fuel type and can contribute to high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. The riparian corridors have a very low occurrence of fire; however both conifers and cottonwood trees are susceptible to burning under the right conditions, rates of spread are very low.

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. Almont 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 34. Almont Fuels Treatment Recommendations



19. Antelope Hills



Hazard Rating: High

The Antelope Hills community is three miles northwest of Gunnison, with main access off of County Road 17 (Figure 35). Other roads throughout the community are dirt and have less than 10% slope. Street signage is not present, and addressing is inconsistent. Antelope Hills is located on the north aspect of an east-to-west drainage. General house location is mid-slope. Housing construction is similar to that of other Gunnison County communities. Some homes have partial defensible space from mowing. Turnaround space in driveways is not a concern in Antelope Hills, and utilities are located below ground. Fire hydrant resources are available in the community. Fire district response would come from Gunnison, and response times are estimated at 20 minutes or more. High winds and agricultural burning increase the wildfire threat in this community.

The Antelope Hills community has a dominant cover type of sage shrub. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. The wind is the primary factor in this fuel type and can contribute to high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. The other primary concern for the community is the adjacent agricultural land which experiences frequent burning.

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 25. Antelope 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Antelope Hills East Linked Defensible Space	6	The Antelope Hills East linked defensible space is recommended to create a buffer along the western edge of a group of homes within the community. By creating defensible space buffers along one side of the community, the entire community can be better protected	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	65
Antelope Hills West Linked Defensible Space	7	The Antelope Hills west linked defensible space is recommended to create a buffer along the western edge of a group of homes within the community. By creating defensible space buffers along one side of the community, the entire community can be better protected	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	115

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 35. Antelope Hills Fuels Treatment Recommendations



20. Blue Mesa Subdivision



Hazard Rating: High

The community of Blue Mesa Subdivision is found nine miles south of Blue Mesa Reservoir on County Road 25 (CR) (Figure 36). CR 25 is the main ingress/egress route in the community and is two-ways in and out. Roads in Blue Mesa Subdivision are maintained dirt with minimal slope. Street signage is present and reflective, but addressing in the community is inconsistent. In general, the community is on the west side of a major drainage, with homes built above the drainage. Home construction materials are consistent with that of other communities in Gunnison County. Defensible space is partial and inconsistent in Blue Mesa Subdivision, and driveways do not have adequate turnaround space for emergency vehicles. Utilities are located below ground, which will help prevent them from being damaged in the event of a wildfire. Water is available only from ponds in the community. Possible ignition sources include agricultural burning and recreationists camping in the area.

This community is located on a mesa top with a sage shrub fuel model and some coniferous and aspen trees throughout the community. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. The wind is the primary factor in this fuel type and can contribute to high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. The timber is a concern for torching and embering. Fire behavior is most likely to be extreme while moving up the mesa sides out of the adjacent drainages.

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.

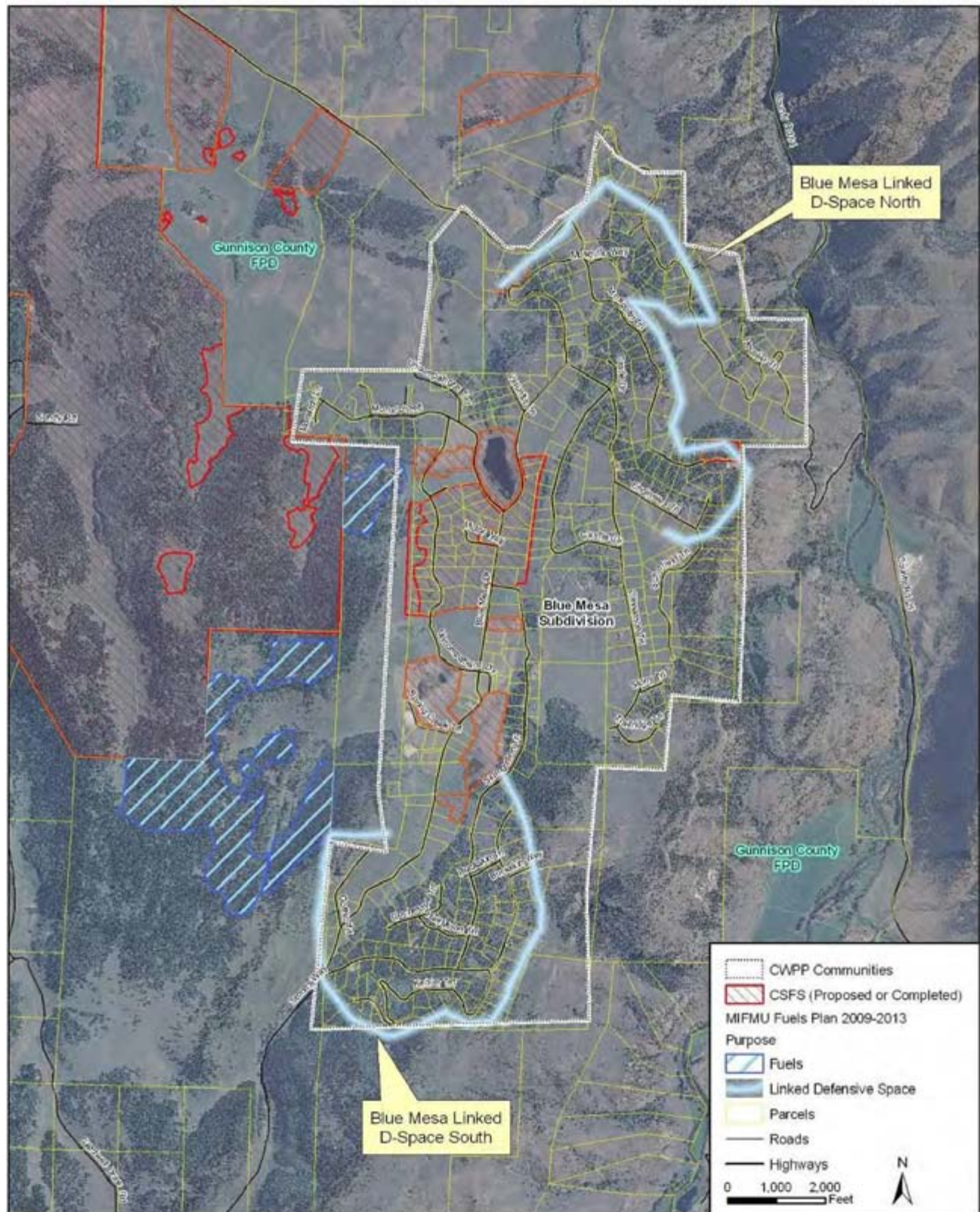
Table 26. Blue Mesa Subdivision Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Blue Mesa Linked Defensible Space	6	A fuel break created by linked defensible space on the north and south would provide protection for the community from fire spread on the steep slopes below the community. The combination of steep slopes and the presence of HWY 149 are good reasons to increase the defensible space around these homes	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	220

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 36. Blue Mesa Fuels Treatment Recommendations



21. Danni Ranch



Hazard Rating: High

Danni Ranch is a gated community 16 miles north of Gunnison off of Highway 135, which is the single access road into the community (Figure 37). Other roads throughout the community are maintained dirt of 20-25 feet in width with minimal slope. Street signs are made of reflective material. Addressing is not consistent, which could complicate fire response efforts. Topography in the area is generally rolling foothills coming out of the East River valley, and homes are built mid-slope on a very gentle rise. Roofs are noncombustible, but decks and siding are made of highly combustible materials. Defensible space is not present in most areas, and like most other communities, driveways do not provide sufficient turnaround space. Utilities are located below ground. There is little or no water supply. Fire response would come from Gunnison with mutual aid from Crested Butte. The estimated response time is 30 minutes or more. High winds and agricultural burning increase the wildland fire risk in Danni Ranch.

Danni Ranch is located on an east aspect in a sage fuel type with some aspen in the higher elevations. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. The wind is the primary factor in this fuel type and can contribute to high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. The aspen component supports a grass understory which is the primary carrier of fire; however, fire behavior is much less intense in aspen groves.

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 27. Danni Ranch 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 37. Danni Ranch Fuels Treatment Recommendations



22. Gold Basin Meadows



Hazard Rating: High

Gold Basin Meadows, two and a half miles south of Gunnison, is accessed via County Road 38 (Figure 38). Roads throughout the community are maintained dirt with slopes of less than 5%. Navigation in the community is aided by consistent, reflective street signage and present addressing. The community is located on a slight rise coming up from the agricultural fields in the Gunnison valley; homes are built on level ground or on a very slight slope. In general, roofs are constructed of fire resistant materials, but decks and siding are a mix of combustible materials. Defensible space is partially present, and driveways do not have adequate turnaround space. Utilities are located below ground. Water resources in the community are scarce. Gunnison would respond to fires in Gold Basin Meadows, and response times are estimated at 15 minutes or more. Other significant factors include high winds and agricultural burning, along with other ignition sources.

Gold Basin is a community which is dominated by a sage shrub fuel model. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. The wind is the primary factor in this fuel type and can contribute to high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. The other primary concern for the community is the adjacent agricultural land which experiences frequent burning.

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.

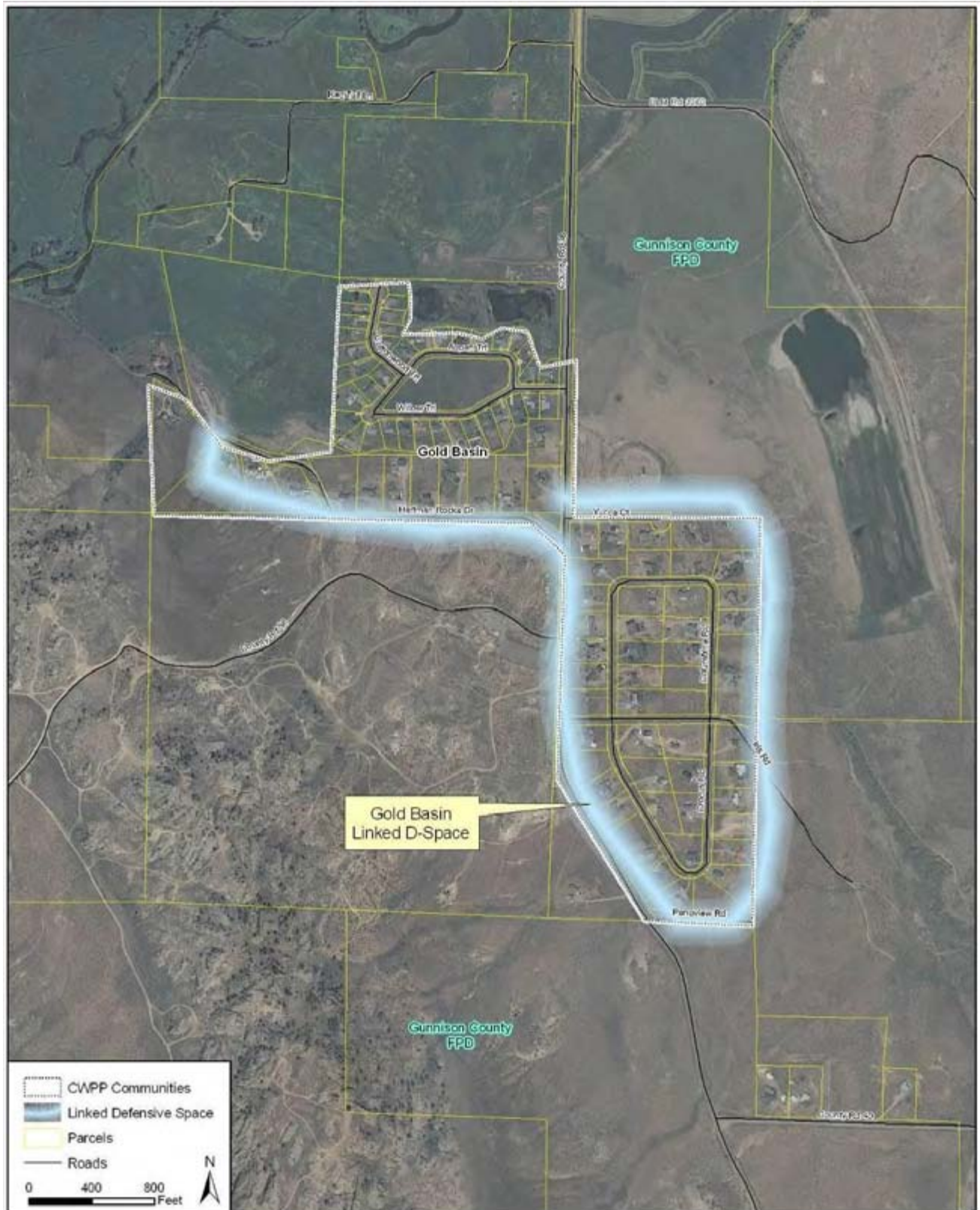
Table 28. Gold Basin Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Gold Basin Linked Defensible Space	6	The Gold Basin community has a large boundary that backs up to the wildland fuels on the south, west and east sides. A linked defensible space project is recommended to provide a buffer for the community from those fuel	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	98

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 38. Gold Basin Fuels Treatment Recommendations



23. Ohio City



Hazard Rating: High

Ohio City is located east of Gunnison on County Road 76, approximately nine miles from the junction of CR 76 and Highway 50 (Figure 39). County Road 76 is the primary access to the community, but USFS roads provide secondary access. Roads within the community are paved or well maintained dirt with minimal slope and 20-24 feet in width. Street signage is mixed; reflective signage is only present on county roads but not on adjacent secondary roads. Ohio City is located on the valley floor at the junction of two drainages. Topography in the area is flat. Homes are built on the valley floor. Roofing throughout the community is fire resistant metal roofing, but decks and siding are all highly combustible. Defensible space is partially present in some areas. Combustible materials lie around homes and outbuildings throughout Ohio City. Addressing within the community is inconsistent and nonreflective, and driveways do not have turnaround space. Utilities, including power and communication lines as well as propane tanks, are all above ground. Water in the area is scarce and limited to creeks and ponds. Creeks are tapped with standpipe. The community is divided between the Ohio City Volunteer Fire Department and Gunnison FPD. The response from Ohio City would be more rapid but also more limited in capability than the fire response from Gunnison FPD, which is 30 minutes away from the community. Primary ignition sources include lightning, agricultural burning, and recreationists.

Ohio City is a community at the confluence of two drainages. The dominant cover type is a sage shrub fuel model. There is some timber on the hillsides above the community. The primary concern from the timber component would be embers moving into the community. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. The wind is the primary factor in this fuel type and can contribute to high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. There is also a small riparian area along both streams; the fire behavior would be reduced in this 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 29. Ohio City Fuels Treatment Recommendations

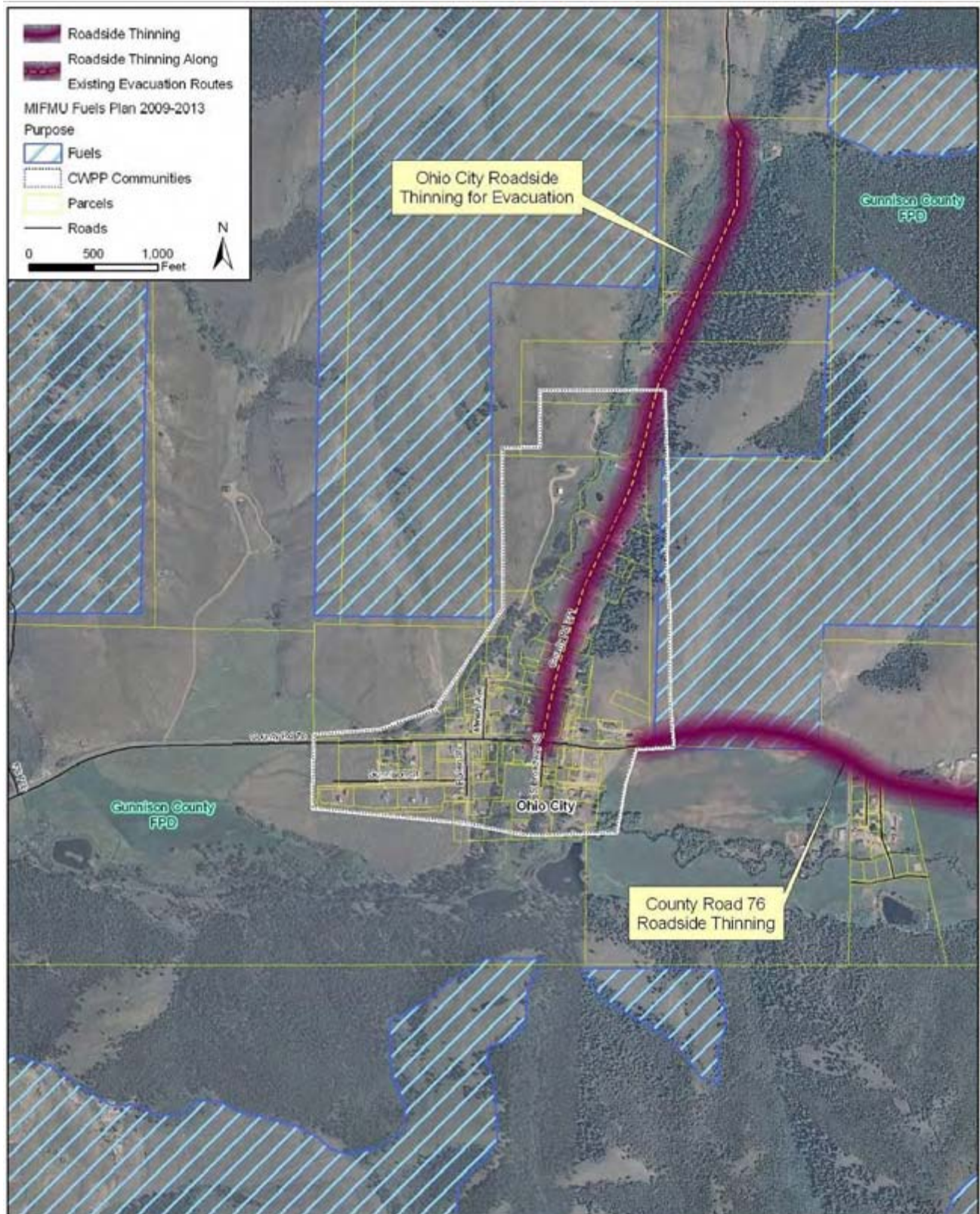
Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Ohio City roadside thinning***	6	The canyon section of the Ohio City community has a single access point, which is steep, narrow and has heavy fuel loading. This project is recommended to reduce the hazard along this single access route to aid in civilian egress and firefighter access to the community	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	84

* 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 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 thing projects.

Figure 39. Ohio City Fuels Treatment Recommendations



24. Pitkin



Hazard Rating: High

The Pitkin community is located in a narrow valley along County Road 76, seven miles northeast of Ohio City (Figure 40). CR 76 is the single primary access into the community. There are secondary egresses via USFS roads which travel east and south out of town. Roads throughout the community are generally paved or well maintained dirt. Street signage is present, but not always made of reflective materials. Addressing is inconsistent and nonreflective. The community is located at the bottom of a steep narrow valley. House construction is focused in the valley floor. Roofs are generally made of metal and are highly fire resistant, but decks and siding are highly combustible. Additionally, there is combustible material near homes and outbuildings throughout the community. Defensible space is not present in Pitkin, and driveways do not have adequate turnaround space to accommodate fire engines or tenders. Utilities including power and communication lines and propane tanks are all located above ground. The community has no emergency water infrastructure, so water would have to be drafted from ponds and streams. The Pitkin Fire Brigade, with one station and two apparatuses located in Pitkin, would provide the primary fire response. Gunnison would provide additional aid if needed, with an estimated response time of 45 minutes. High winds in the area could increase fire risk and severity. Ignition sources include agricultural burning and recreational ATV use on USFS roads in the community.

Pitkin is a community located in a high altitude valley with a grass and shrub fuel component and heavy timber around the perimeter of the community. The grass and shrub fuel model which is the primary carrier of fire in this community is a mixture of pasture, native and invasive grasses, as well as intermittent shrubs like sage and rabbit brush. These grasses are perennial and build up a fuel bed every year that they are not burned. The grass regrows quickly with a fire return rate of 5-10 years. This fuel is also the most affected by short weather patterns. Weekly or monthly weather patterns can create high fire potential in this fuel type. Rates of spread in the grass fuels are the primary concern. However, in the timbered area the primary concern is flame length and embering.

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 30. Pitkin Fuels Treatment Recommendations

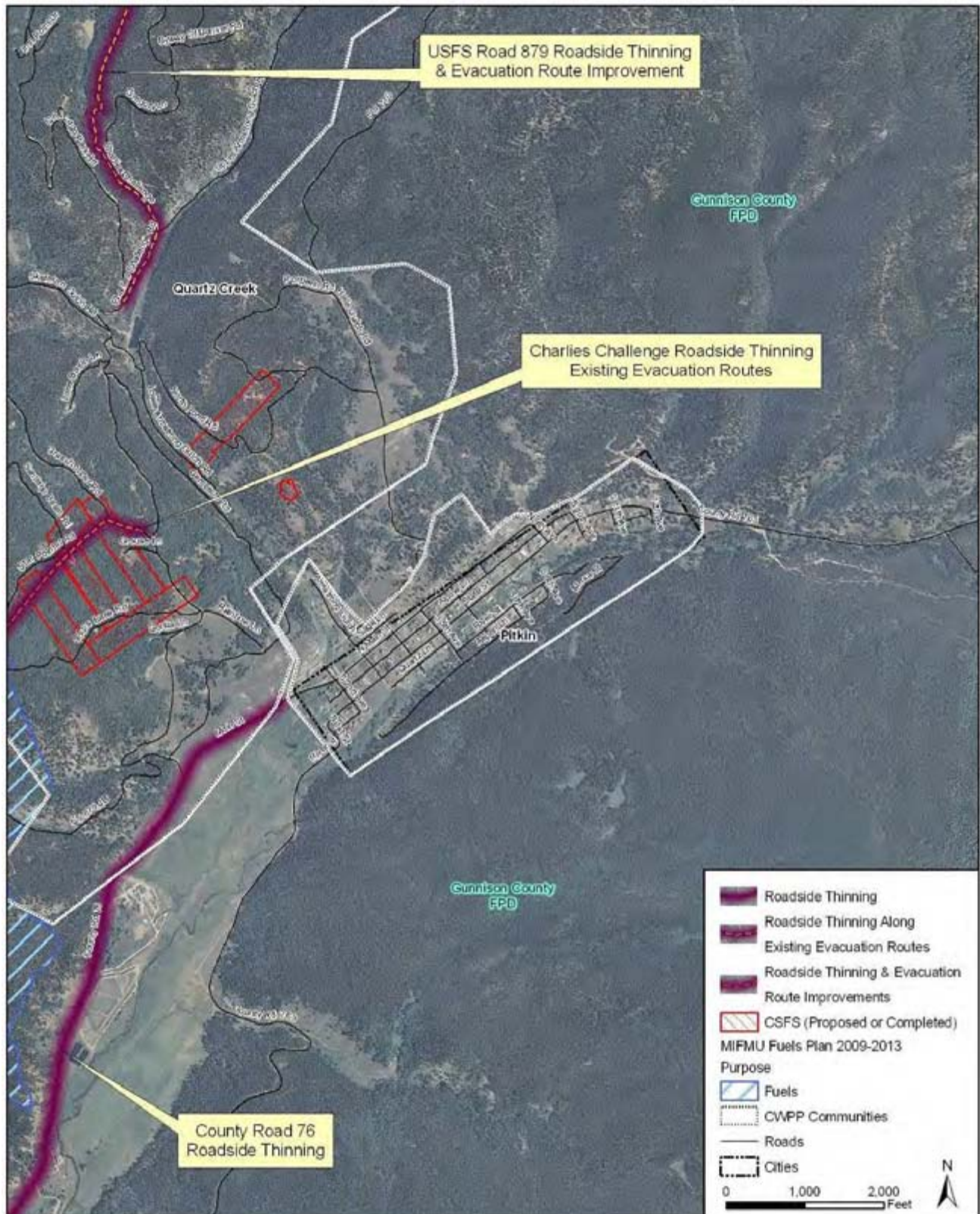
Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
County Road 76 Roadside Thinning***	6	The County Road 76 roadside thinning is located between the communities of Pitkin and Ohio City. The purpose of this project is to reduce fuel loading along the county road so that the road can provide a more effective fuel break between the agricultural fields on the south side and the wildland fuels on the north side of the road	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	185

* 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 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 thing projects.

Figure 40. Pitkin Fuels Treatment Recommendations



25. Rainbow Estates



Hazard Rating: High

Rainbow Estates is located in the eastern part of Gunnison County along County Road 765W (Figure 41). Roads throughout Rainbow Estates are dirt and seasonally maintained. Street signage is inconsistent, and addressing is not present. The community is centered in a valley bottom, with houses located along the valley floor and tucked back into the timber. Home construction is consistent with other Gunnison County communities in terms of fire resistance. Driveways in Rainbow Estates do not have sufficient turnaround space for emergency vehicles. Utilities are all located below ground, including power and communication lines. A few residences have above-ground propane tanks. Water resources are scarce and mostly limited to streams, although there is a small pond of about 2.5 acres in size at the northern end of the community. Fire response would come from Gunnison, so the estimated response time is 90 minutes. Primary ignition sources include lightning and recreationists who are mainly campers and all-terrain vehicles (ATV) riders.

This is a high altitude community centered around a creek bed on a flat aspect. The cover type is high altitude timber. The timber fuels in the community are predominantly lodgepole pine and spruce/fir. The fuels can produce extreme fire behavior due to heavy fuel loading and a major ladder fuel component. However, due to the long fire return interval in this fuel type, fire will have to be preceded by a prolonged, multi-season drought capable of producing receptive burning conditions. An ignition source will need to be paired with a high fire weather day to produce sustained fire spread. The riparian micro-climate will affect the fire behavior further by increasing the fuel moisture and local relative humidity, therefore, decreasing further the frequency of fire events.

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. Rainbow 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Rainbow Estates linked Defensible Space	6	The linked defensible space in Rainbow Estates is recommended to use the individual defensible space thinnings, some of which are already present, to isolate the homes and the riparian corridor from the rest of the fuel bed around the community	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	126
Patch Cutting	7	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it is logical	5-15 acres per patch cut.

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 41. Rainbow Estates Fuels Treatment Recommendations



26. Star Mountain Ranch



Hazard Rating: High

Star Mountain Ranch is 15 miles northwest of Gunnison off of County Road 730 (Figure 42). There are two access roads: County Roads 730 and 737. Other roads throughout Star Mountain Ranch are well maintained dirt with slopes of less than 10%. Neither street signage nor addressing is present in the community. Star Mountain Ranch straddles a bench of land between two drainages at the foot of a peak. Homes are all located mid-slope or on ridge tops. Roofing is noncombustible, but deck and siding construction materials are all highly combustible. Defensible space is complete for most homes due to landscaping and mowing, and driveways have adequate turnaround space. Utilities are below ground, and water is only available from ponds and individual home cisterns. Fire district response is based out of Gunnison, so response times would be 30 minutes or less. Other significant factors include recreationists, primarily hunters. Each home in the community has a hunting allotment as part of the property. Agricultural burning is a potential ignition source.

The Star Mountain Ranch community is located on a knoll with a western aspect and a dominant sage shrub cover type. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. Wind is the primary factor in this fuel type, the wind producing the high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. High rates of spread are the primary risk in this fuel.

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 32. Star Mountain Ranch 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 42. Star Mountain Ranch Fuels Treatment Recommendations



27. The Reserve



Hazard Rating: High

The Reserve is a gated community located in 17 miles north of Gunnison on Highway 135, which is the single access point into the community (Figure 43). Access roads throughout The Reserve are maintained dirt roads of 20-25 feet in width and minimal slope. Street signage is present and reflective, but addressing is inconsistent. Topography in the area is generally rolling foothills coming out of the East River valley. Homes are built mid-slope on a very gentle rise. Roofs are fire resistant, but deck and siding materials are highly combustible. Defensible space is not present in most areas, and driveways do not offer adequate turnarounds. Utilities are below ground. There is little or no water supply. Gunnison would provide the primary fire response with mutual aid from Crested Butte. Response time is 30 minutes or more. Other significant factors include high winds and agricultural burning in the area.

The Reserve is located on an east aspect in a sage fuel type with some aspen in the higher elevations. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. Wind is the primary factor in this fuel type, the wind producing the high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. The aspen component supports a grass understory which is the primary carrier of fire; however, fire behavior is much less intense in aspen groves.

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.

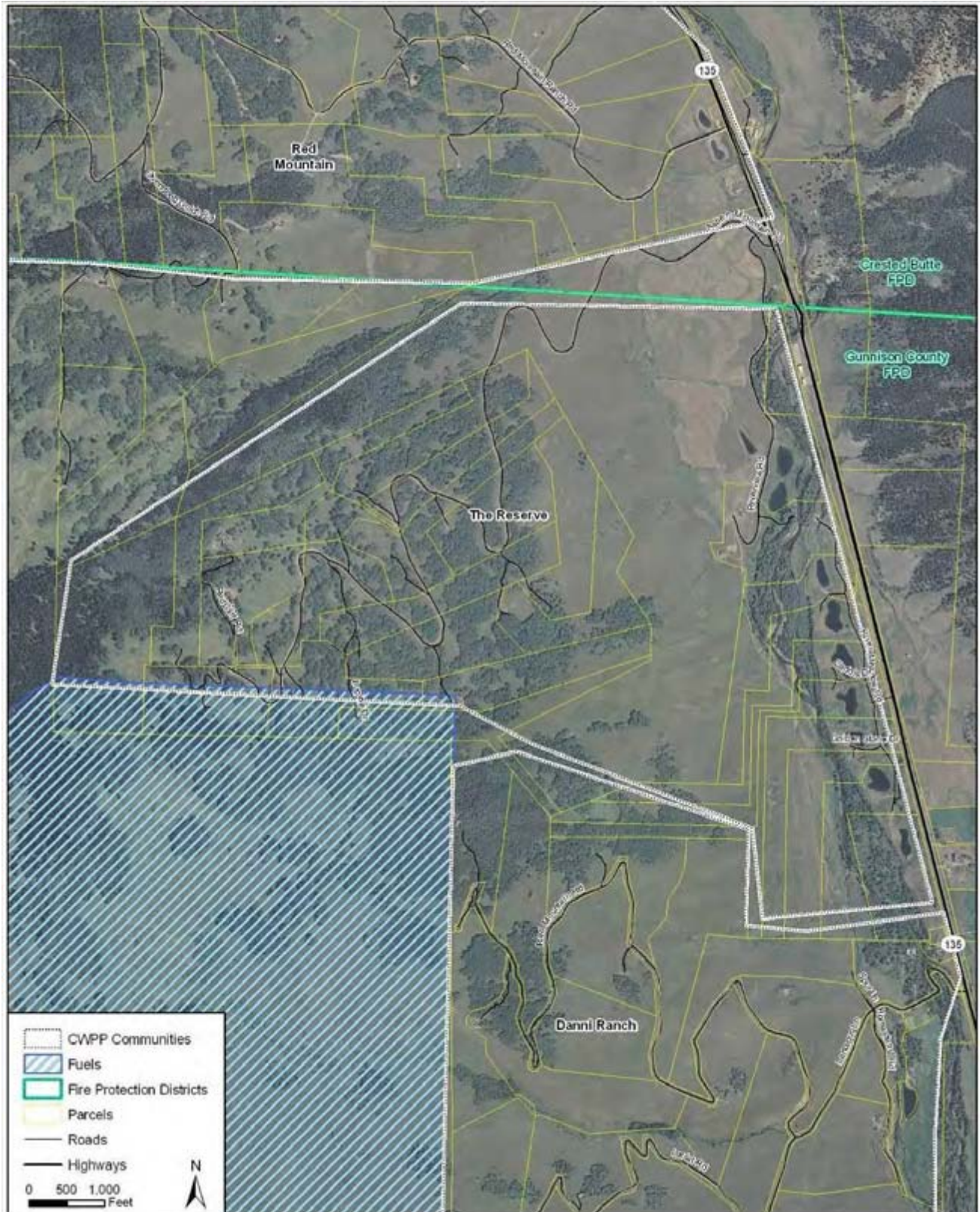
Table 33. The Reserve Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 43. The Reserve Fuels Treatment Recommendations



28. Tin Cup



Hazard Rating: High

The community of Tin Cup is located in eastern Gunnison County on County Road 765 (Figure 44). CR 765 provides north and south access into the community. Roads throughout Tin Cup are flat dirt roads, 20-24 feet wide. Street signage is not present, and addressing is inconsistent if present at all. The community is located in a flat valley bottom. In terms of fire resistance, home construction is similar to that of other communities in the study area. Defensible space is implemented around some homes, but more defensible space on the northeast edge of the community is needed. Many driveways do not have adequate turnarounds. Utilities are located above ground, increasing the risk that they could be damaged during a wildfire. Water sources are inconsistent and mostly available from streams and ponds. Gunnison would provide fire response, and response times are estimated at 90 minutes. Other significant factors include high winds, agricultural burning, and recreationists.

Tin Cup is a community located in a high altitude valley with a grass and shrub fuel component and heavy timber around the perimeter of the community. The grass and shrub fuel model which is the primary carrier of fire in this community is a mixture of pasture, native and invasive grasses, as well as intermittent shrubs like sage and rabbit brush. These grasses are perennial and build up a fuel bed every year that they are not burned. The grass regrows quickly with a fire return rate of 5-10 years. This fuel is also the most affected by short weather patterns. Weekly or monthly weather patterns can create high fire potential in this fuel type. Rates of spread in the grass fuels are the primary concern. However, in the timbered area the primary concern is flame length and embering.

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.

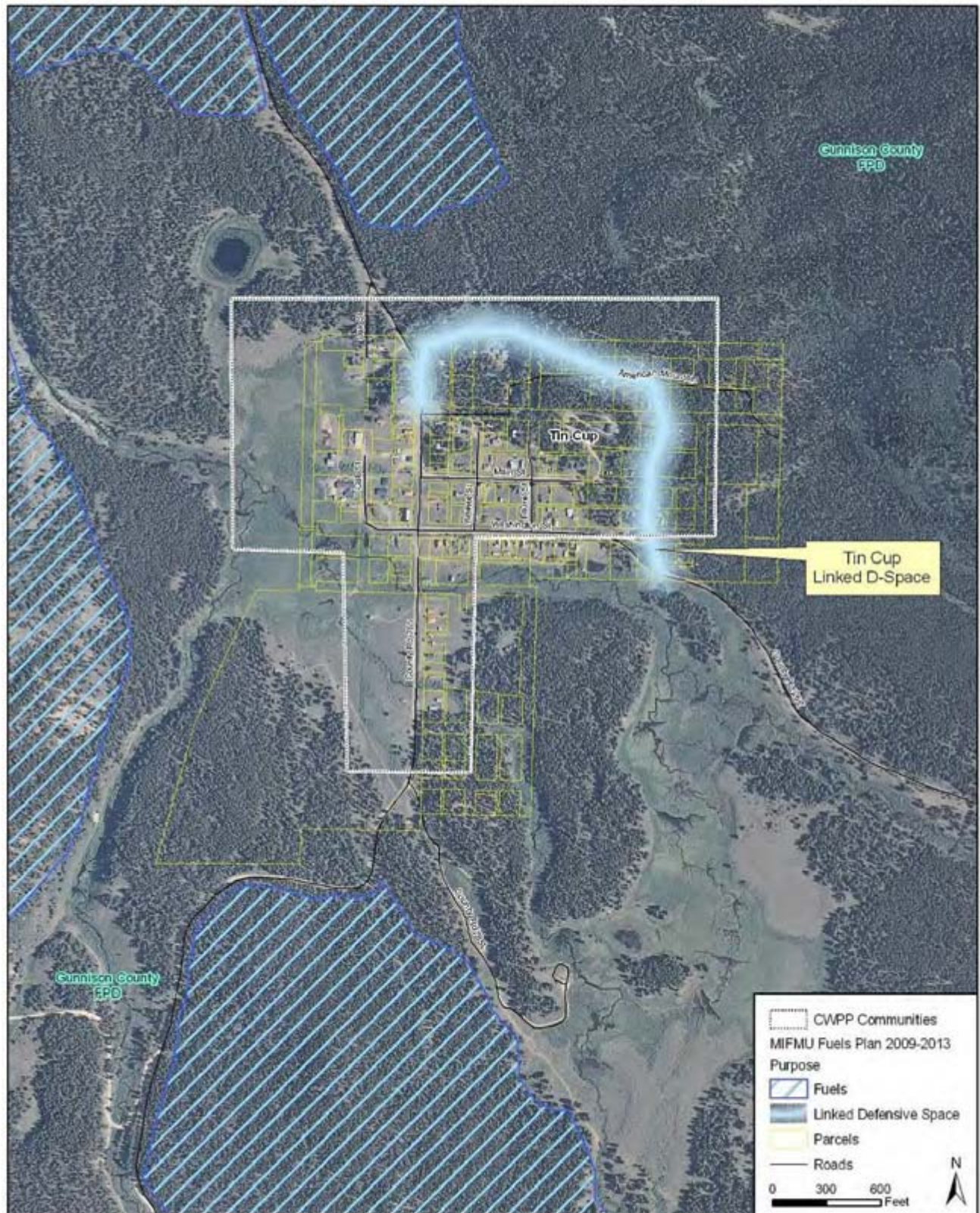
Table 34. Tin Cup Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Tin Cup linked Defensible Space	6	The heaviest fuels in the community are along the north east edge; this area also has the steepest slopes. Linking defensible space thinnings throughout this area will provide greater protection for the homes on this side of the community	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	65
Patch Cutting	7	Multiple acre patch cuts should be spread out throughout the community on the property of cooperating landowners in order to reduce the crown continuity of the spruce/fir and lodgepole pine fuels in the community.	Hand felling and limbing near homes and on steep slopes, mechanical thinning should be used where it is logical	5-15 acres per patch cut.

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 44. Tin Cup Fuels Treatment Recommendations



29. Cranor Acres



Hazard Rating: Moderate

Cranor Acres is located three miles northeast of Gunnison on Lost Canyon Road (Figure 45). Roads throughout the community are maintained dirt, and some have grades greater than 10%. Street signage is inconsistent, but what is present is made of reflective materials. Addressing is also inconsistent. The community sits at the mouth of a small drainage which opens into agricultural lands in the river basin. Homes are located either mid-slope or in drainage bottoms. Roofs are made from noncombustible materials, but decks and siding are highly combustible. Defensible space is partially present due to landscaping. Driveways do not have turnarounds for emergency vehicles. Power, communication, and propane utilities are all located above ground. Water is only available from streams and ponds. Fire district response would come from Gunnison, and response times are roughly 15 minutes or more. Other significant factors for Cranor Acres are high winds and agricultural burning, which is a major concern in the area.

Cranor Acres community has a dominant cover type of sage shrub. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. The wind is the primary factor in this fuel type and can contribute to high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. The other primary concern for the community is the adjacent agricultural land which experiences frequent burning.

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. Cranor Acres Fuels Treatment Recommendations

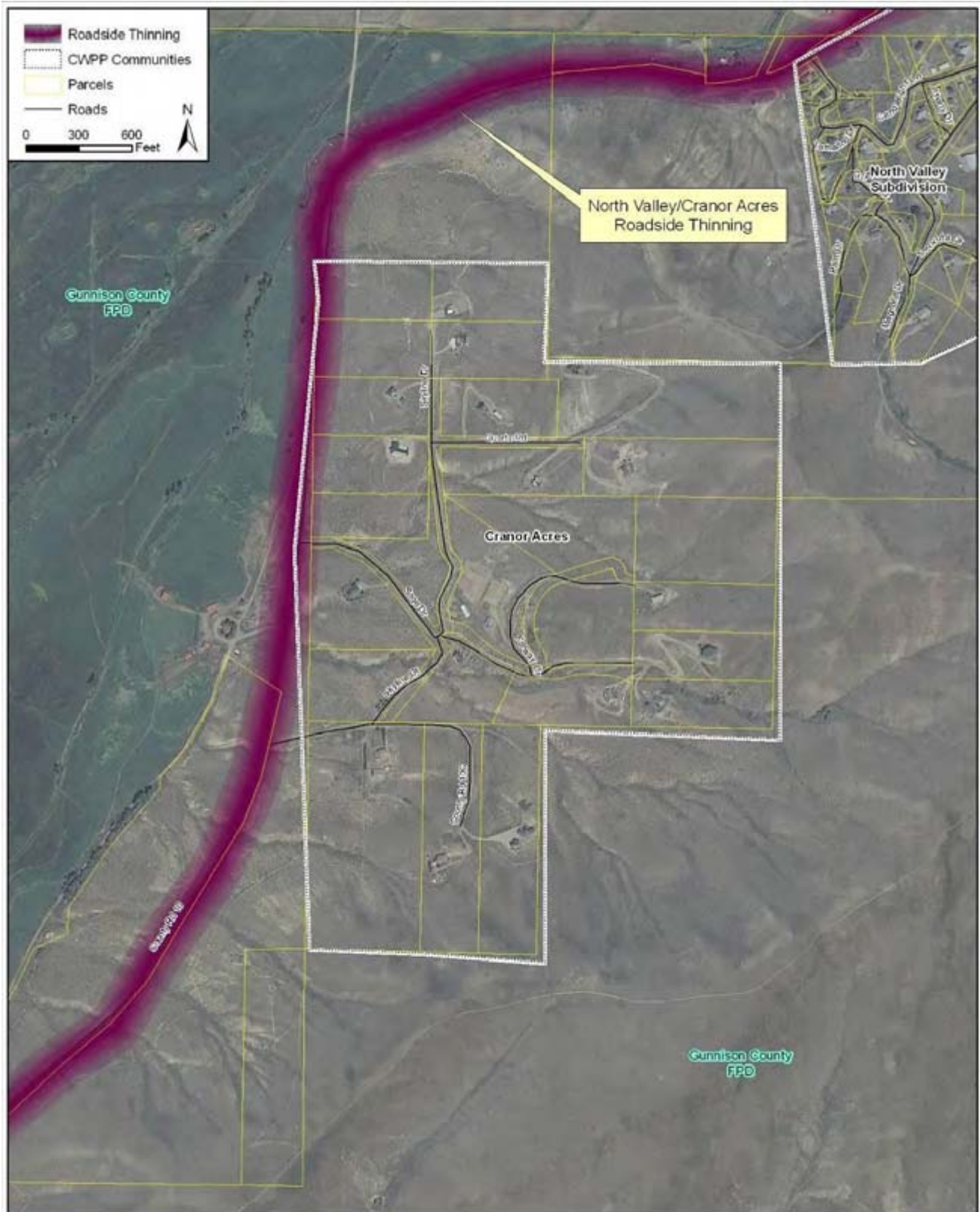
Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Cranor Acres Roadside Thinning***	6	Roadside thinning adjacent to this community is recommended to create a buffer between the agricultural areas, which have frequent burning, and the communities. Simultaneously this will provide safer egress for resident	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	110

* 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 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 thing projects.

Figure 45. Cranor Acres Fuels Treatment Recommendations



30. Dos Rios



Hazard Rating: Moderate

The Dos Rios community is just east of Gunnison on Highway 50 (Figure 46). There are multiple access points from Highway 50 into the community. Access roads throughout Dos Rios are paved and level. Street signage is present and made of reflective materials. Addressing is also present and consistent throughout the community. Topography is generally flat, and houses are mostly built on level ground along the Gunnison River. Home construction is consistent with that of other Gunnison County communities. Defensible space is full due to development and landscaping. Driveways in Dos Rios are short and do not present an issue due to development style. There is a golf course in the center of the community as well. Utilities are underground, and hydrants are present. Fire response would come from Gunnison, which would take approximately 10 minutes or more to respond. Agricultural burning is the primary ignition source for Dos Rios.

The community is located in a predominantly agricultural area with the Gunnison River and golf courses producing fuel breaks. The dominant type of wildland fuel in the area is grass and shrub. The grass and shrub fuel model which is the primary carrier of fire in this community is a mixture of pasture, native and invasive grasses, as well as intermittent shrubs like sage and rabbit brush. These grasses are perennial and build up a fuel bed every year that they are not burned. After a fire event, the grass regrows quickly with a fire return rate of 5-10 years. This fuel is also the most affected by short weather patterns. Weekly or monthly weather patterns can create high fire potential in this fuel type. Rates of spread can be very high; however prolonged fire activity is unlikely.

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 36. Dos Rios 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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 46. Dos Rios CWPP Community



31. North Valley Subdivision



Hazard Rating: Moderate

The North Valley Subdivision is four miles northeast of Gunnison on Lost Canyon Road (Figure 47). Roads in the community are maintained dirt, some with grades greater than 10%. Street signage is inconsistent but made of reflective materials. Addressing is also inconsistent. The community sits at the mouth of a small drainage which opens into agricultural land in the river basin. Homes are located either mid-slope or in the drainage bottoms. Roofs are noncombustible, but decks and siding are highly combustible. Defensible space is partial due to landscaping. Driveways do not have adequate turnarounds for fire engines or tenders. Utilities such as power lines, communication lines, and propane tanks are all located above ground, increasing their exposure to wildfires. Water is only available from streams and ponds in the community. Gunnison FPD, which would respond to fires in the North Valley Subdivision, would take 15 minutes or more to respond. Other significant factors include high winds and lightning.

The North Valley Subdivision is a community which is dominated by a sage shrub fuel model. The sage shrub fuels in the community become highly receptive to fire based on seasonal weather patterns. A period of high temperatures, sustained winds, and low humidity can rapidly create a flammable fuel bed. The wind is the primary factor in this fuel type and can contribute to high flame lengths that sustain fire spread. The fuel in the sage areas regrows slowly following a fire event, naturally burning every 50-100 years. However, invasive fuels such as cheatgrass can burn again more frequently. The other primary concern for the community is the adjacent agricultural land which experiences frequent burning.

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. North Valley Subdivision Fuels Treatment Recommendations

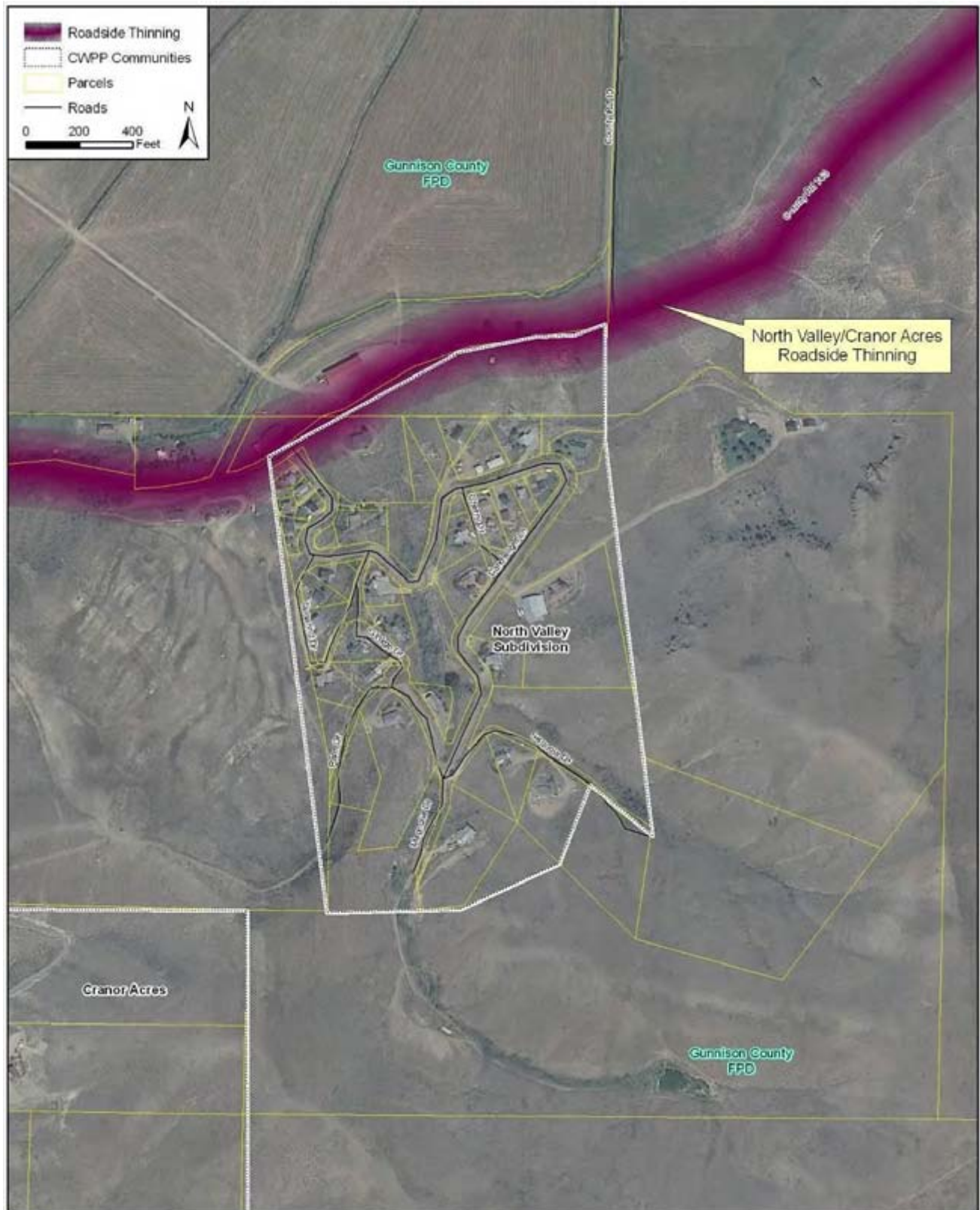
Name	Priority	Description	Methods*	Acres**
Defensible Space	1	Defensible space around individual homes. See CSFS 6.302 in Appendix A for details.	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
North Valley Roadside thinning ***	6	The roadside thinning adjacent to this community is recommended to create a buffer between the agricultural areas, which have frequent burning, and the communities. Simultaneously this will provide safer egress for residents	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	103

* 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 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.

Figure 47. North Valley Subdivision Fuels Treatment Recommendations



32. Tomichi Heights



Hazard Rating: Moderate

Tomichi Heights is located east of Gunnison along Highway 50 (Figure 48). There are multiple access points into the community, and the dirt roads throughout Tomichi Heights have slopes ranging from 0-20% grade. Street signage is present and reflective. Addressing is inconsistent and not made from reflective materials. The community is located on the slope north of the valley created by Tomichi Creek. Homes are built mid-slope. Roofs are noncombustible while decks and siding are all highly combustible. Some driveways in the community have adequate turnarounds or pull-throughs, but not all. Combustible debris around homes is an issue throughout the community. Utilities are all below ground, and water resources are scarce in the community. Gunnison FPD would respond to fires in Tomichi Heights, and response times are estimated at 15 minutes. High winds, lightning, and agricultural burning increase the wildfire risk for this community.

Tomichi Heights is a community located in a high altitude valley with a grass and shrub fuel component and heavy timber around the perimeter of the community. The grass and shrub fuel model which is the primary carrier of fire in this community is a mixture of pasture, native and invasive grasses, as well as intermittent shrubs like sage and rabbit brush. These grasses are perennial and build up a fuel bed every year that they are not burned. The grass regrows quickly with a fire return rate of 5-10 years. This fuel is also the most affected by short weather patterns. Weekly or monthly weather patterns can create high fire potential in this fuel type. Rates of spread in the grass fuels are the primary concern. However, in the timbered area the primary concern is flame length and embering.

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.

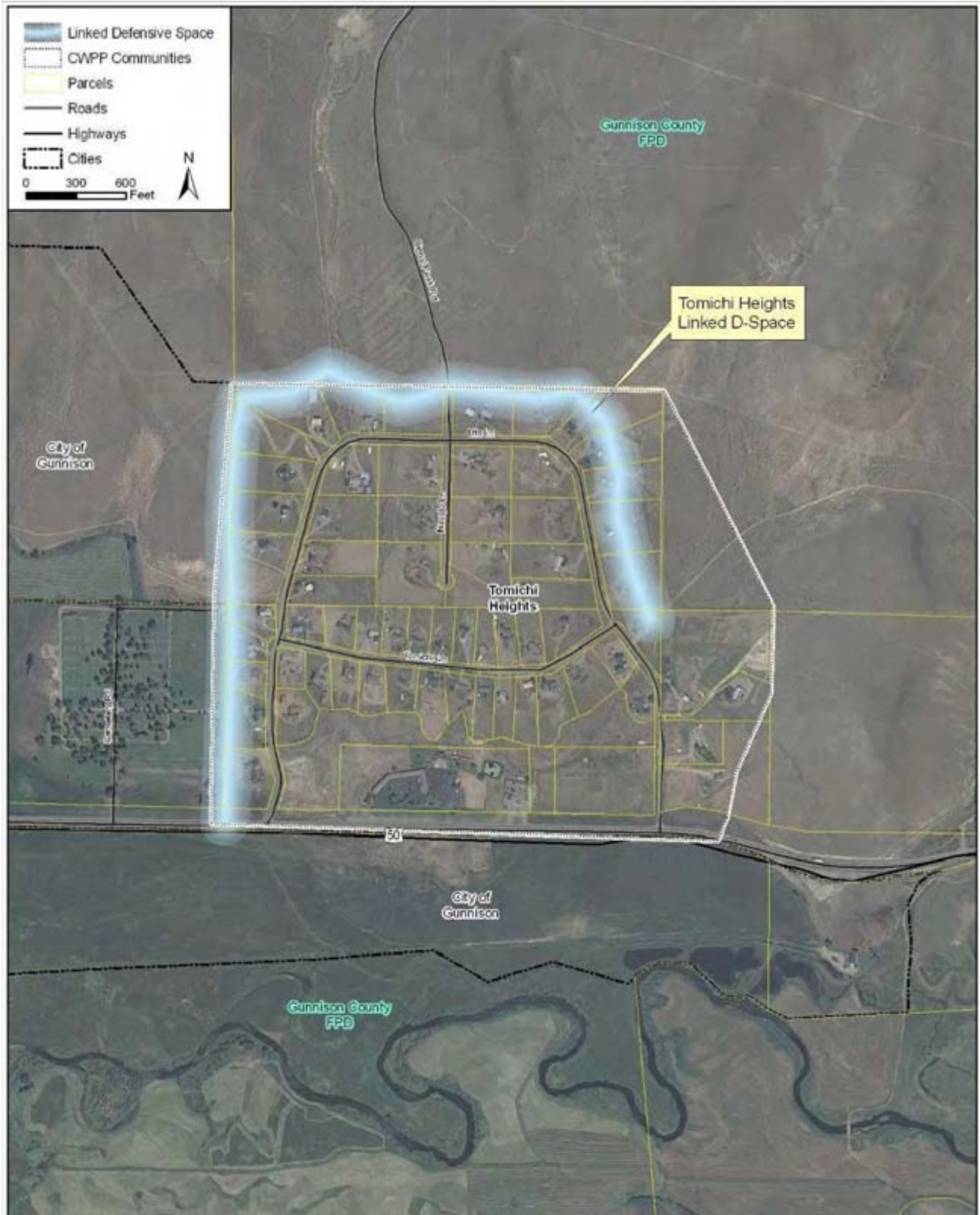
Table 38. Tomichi Heights Fuels Treatment Recommendations

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; some mechanical treatment further from homes	300' around the home
Landscaping/Fuels	2	See Appendix A	See Appendix A	n/a
Home Construction	3	See Appendix A	See Appendix A	n/a
Preparedness Planning	4	See Appendix A	See Appendix A	n/a
Infrastructure	5	See Appendix A	See Appendix A	n/a
Tomichi Heights Linked Defensible Space	6	The Tomichi Heights linked defensible space is recommended to create a buffer along the northern and western edges of a group of homes within the community. By creating defensible space buffers along one side of the community, the entire community can be better protected	Hand felling and limbing near homes; mowing; some mechanical treatment further from homes	45

* 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 are estimated based on assumption of 150' treatments on either side of the road. Actual acres treated may vary once project is implemented.

Figure 48. Tomichi Heights Fuels Treatment Recommendations

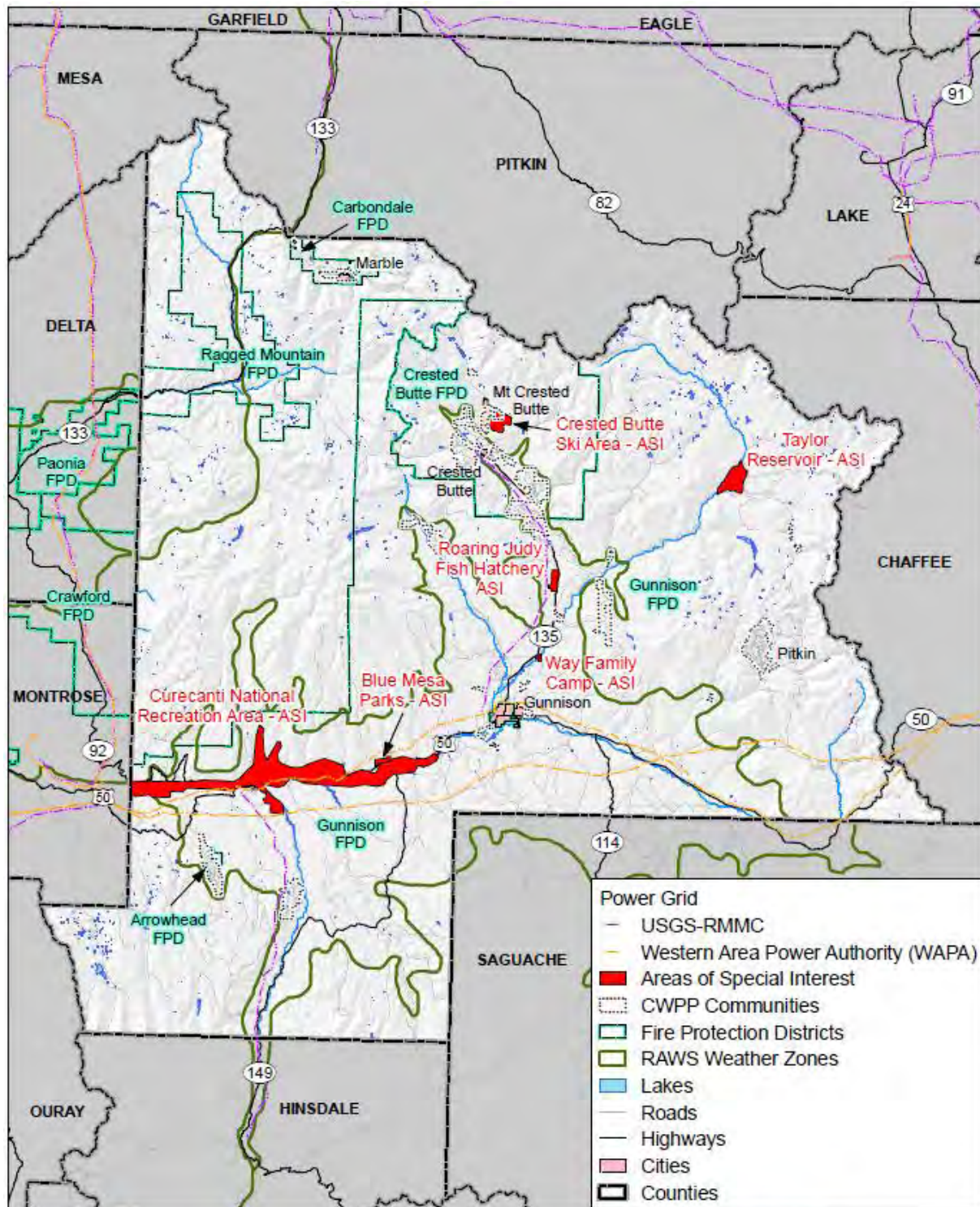


AREAS OF SPECIAL INTEREST

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 arrays. ASIs are identified separately from communities because of the size and a focus on recreation and infrastructure over residences. The Rocky Mountain Biological Laboratory is a unique value within the County that is addressed not as an ASI but in the Gothic community section due to the residences located in the area.

Sometimes there are specific fuels treatment recommendations that can help mitigate the fire risk to ASIs. Frequently, there are no significant recommendations for the ASIs, but the areas are still identified, as they are considered to be values at risk. Damage to these areas as a result of wildfire could impact the surrounding communities and areas. Figure 50 shows the location of the ASIs within the Gunnison County study area. This map can be referenced in an 11 x 17 format in Appendix D.

Figure 49. Gunnison County Areas of Special Interest



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

0 10 20 Miles



Crested Butte Ski Area

Crested Butte Ski area is located above the town of Mt. Crested Butte. It is one of the primary tourist attractions in Gunnison County. The ski area sees the vast majority of its visitation during the ski season when fire danger is low. However there is ample year round recreation on and around the ski area. The primary concerns for fire on the ski area are the proximity to the town of Mt Crested Butte and the impact that a fire would have on the visitation to the ski area during the winter. The damage to the aesthetic qualities of the ski area is of as much concern as the physical impacts of a fire.

Recommendations

- Mitigation and implementation of defensible space between the ski area and the structures in Mt Crested Butte.
- Provide S130/S190 training to any and all year round ski area employees

Taylor Reservoir

Taylor Reservoir is a primary water resource at high elevation in Gunnison County. The area immediately around the reservoir is largely cleared of vegetation. The clearing is due to fluctuating water levels as well as heavy use for RV parking and motorized recreation. The drainages that flow into Taylor reservoir are more heavily fueled and have some fire potential. The key in this area is to prevent any kind of catastrophic fire that would cause widespread erosion and compromise the reservoir. Also maintaining the water quality for the Taylor River downstream of the reservoir is a priority.

Recommendations

- Public education and outreach materials for visitors to increase knowledge about fire danger and fire prevention.
- Mitigation around any buildings and campsites that are not sufficiently mitigated.

Blue Mesa Recreation Areas

This refers specifically to the private recreation areas on the north side of Blue Mesa Reservoir. These areas include Lakeview Resort, Blue Mesa Recreation Ranch, and Pike Campground. These areas have high amounts of visitor traffic with a large number of motor vehicles, campfires, and other ignition sources. The primary risk in the area is the combustible nature of recreational vehicles, heavy use, and proximity to Curecanti Recreation Area.

Recommendations

- Mitigation around all campsites, trailer pads and cabins.
- Fire danger awareness, signs, flyers and information to each visitor as they come into the area.
- Simple fire suppression capacity (fire extinguishers) available at all trailer pads and cabins.

Roaring Judy and Pitkin Fish Hatcheries

The primary concern at any fish hatchery is water quality. Roaring Judy is no different in this regard. Its location, just north of the town of Almont is ideal for maintaining a high quality water source for the breeding and hatching of Colorado fish. The key risk from wildfire is due to contamination of the water source and the impacts on the water quality. Mitigating fuels around the hatchery can help to prevent direct contamination. Coordination with the USFS and United

States Fish Wildlife Service (USFWS) on how to best prevent contamination due to fires elsewhere in the watershed is the best way to protect the valuable wildlife resources being bread in the hatchery.

Recommendations

- Mitigation around buildings and infrastructure.
- Mitigation of upstream hazards.
- Coordination with USFS so that any post fire response takes into consideration the needs of the hatchery.

Way Family Camp (and other camps and dude ranches)

The Way Family Camp is representative of a large number of camps and dude ranches throughout Gunnison County. These are large pieces of private land with extensive infrastructure which are capable of supporting large numbers of people. The key concerns at Way Family Camp and other camps are ignition sources from the large number of visitors and, if necessary, evacuation of the large number of people. These camps often have full amenities including kitchens and electricity. Utilities are often above ground. These camps are usually accessed via one long driveway or some other single access point so evacuation of a large number of people can quickly become a logistical problem.

Recommendations

- Fire suppression devices (fire extinguishers) at every building, with multiple at high risk locations such as kitchens and fire rings.
- Provide the opportunity for employees and especially management to receive S130/190 basic wildland fire training.
- Develop an evacuation plan for the camp
- Create and maintain defensible space around all buildings.

Black Canyon of the Gunnison National Park

One of the most beautiful sights in Colorado, the Black Canyon of the Gunnison, was formed by the Gunnison River. The park is not at risk of wildfire from the perspective of potential fire behavior; most of the areas of high visitation lack significant fuel to sustain a fire. The larger risk stems from the sheer numbers of people visiting the national park, and the problems of evacuation given a fire outside of the Black Canyon. There is a significant fuel bed away from the canyon itself but still within the park boundary. Fire from outside of the park has plenty of fuel to spread to areas within the park that receive high numbers of visitors. The heavy use on the park spreads a high potential for ignition sources throughout the park as people move through the park.

Recommendations

- Mitigation around the campground to minimize the potential of accidental ignitions from the campground.
- Mitigation around the visitor center to create a safety zone and possible evacuation site for visitors in the event of a fire.

Curecanti National Recreation Area (CNRA)

<http://www.nps.gov/cure/index.htm>

CNRA is formed by three reservoirs, Blue Mesa, Morrow Point, and East Portal. The recreation area represents one of the largest tourist centers within Montrose and Gunnison Counties. The recreation area is bounded by both private and federal land and is bisected by HW 50.

Vegetation within the recreation center varies greatly and includes riparian species, shrublands, and timber, like ponderosa pine and aspen. Camping is one of the primary forms of recreation in CNRA, and as a result of fire rings in campgrounds spread throughout the recreation area and high volume of recreationists, there are a high number of potential ignition sources. The high amount of use combined with the values of the reservoirs means that fire prevention and response is a high priority for park and forest personnel in the area.

Recommendations

- Mitigation work has been conducted at many of the campgrounds in the recreation area and should be completed for all of them.
- Using modeled fire behavior, create evacuation plans for all campgrounds and tourists in the CNRA. Conduct trainings with employees to assist with these plans.
- Post "Fire Danger" signs at the entrance to the CNRA. Have information available on fire safety at kiosks and campgrounds.
- Maintain enforcement of all campfire policies, including areas of restricted burning, and seasonal fire restrictions.
- Provide S130/190 for all park rangers working at CNRA.

CONCLUSIONS AND NEXT STEPS

The Gunnison County Wildfire Protection Plan (CWPP) is a comprehensive analysis of wildfire-related hazards and risks in the Wildland Urban Interface (WUI) areas in Gunnison County, Colorado. This document follows the standards for CWPPs that have been established by the Healthy Forests Restoration Act, which was established in 2003.

This plan and its accompanying assessment of values at risk demonstrate that Gunnison 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 were also reviewed and refined by stakeholders groups. Stakeholders and citizens can use these results to guide the decision making process 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.

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 Gunnison 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 must be collaborative and include stakeholder representation.

WEST REGION AND GUNNISON BASIN WILDFIRE COUNCILS

It is recommended that the West Region Wildfire Council, in coordination with the Gunnison Basin Wildfire Council, oversee the implementation of this plan. 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. wrwc.lilia@gmail.com (970)249-9051 ext. 125

The Councils should focus on one goal in the first year. This may include creating and distributing a newsletter, setting up an additional public meeting(s) to gain community support, picking a single fuel mitigation project to complete as an example or producing an annual work

plan. The initial, first year goal set by the Council must be achievable to generate momentum. Successfully completing this initial task will serve to motivate the Councils and residents alike.

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 Fuel Modification Action Items identified by Anchor Point Group. This table gives a summary of all of the recommended fuels reduction projects for the Gunnison 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 Gunnison 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 39. Fuel Modification Action Items Summary Table

Community	Community Hazard Rating	Recommended Fuels Treatment Name	Priority (1 = highest, 10 = lowest)	Wildfire Mitigation Advocate Identified? (Y/TBD)
Almont	High	Defensible Space	1	Fire Chief
Antelope Hills	High	Defensible Space	1	Fire Chief
		East Linked Defensible Space	6	
		West Linked Defensible Space	7	
Arrowhead	Very High	Defensible Space	1	Y
		Fuel Break	4	
		Patch Cutting	7	
Blue Mesa Subdivision	High	Defensible Space	1	Fire Chief
		Linked Defensible Space	6	
Crested Butte South	High	Defensible Space	1	Fire Chief
		Linked Defensible Space	6	

Community	Community Hazard Rating	Recommended Fuels Treatment Name	Priority (1 = highest, 10 = lowest)	Wildfire Mitigation Advocate Identified? (Y/TBD)
Cranor Acres	Moderate	Defensible Space	1	Fire Chief
		Roadside Thinning	6	
Crested Butte	Moderate	Defensible Space	1	Y
		Linked Defensible Space	6	
Danni Ranch	High	Defensible Space	1	Fire Chief
Dos Rios	Moderate	Defensible Space	1	Y
Evergreen	High	Defensible Space	1	Fire Chief
		Linked Defensible Space	6	
		Patch Cutting	7	
Gold Basin Meadows	High	Defensible Space	1	Y
		Linked Defensible Space	6	
Gothic	Very High	Defensible Space	1	Y
		Linked Defensible Space	6	
Gunnison Highlands	Very High	Defensible Space	1	Fire Chief
		Roadside Thinning	6	
		Lodgepole pine fuel break	8	
		Fuel Break	7	
		Patch Cutting	9	
Lake Irwin	Extreme	Defensible Space	1	Fire Chief
		Fuel Reduction Project	6	
		Patch Cutting	7	
Marble/Upper Crystal River	High	Defensible Space	1	Y
		Serpentine Roadside thinning	3	
		West 5th St Roadside thinning	4	
		Marble linked Defensible Space	8	
		Holland Dr Linked Defensible Space	9	
		Patch Cutting	10	
Mt Crested Butte	Moderate	Defensible Space	1	Fire Chief
		Linked Defensible Space	2	

Community	Community Hazard Rating	Recommended Fuels Treatment Name	Priority (1 = highest, 10 = lowest)	Wildfire Mitigation Advocate Identified? (Y/TBD)
North Valley Subdivision	Moderate	Defensible Space	1	Fire Chief
		Roadside Thinning	6	
Ohio City	High	Defensible Space	1	Y
		Roadside Thinning	6	
Pitkin	Very High	Defensible Space	1	Y
		County 76 Roadside Thinning	6	
Quartz Creek	Extreme	Defensible Space	1	Y
		Charlie's Challenge Roadside Thinning	6	
		FS Road 879 Roadside Thinning	7	
		Fuels Treatment	8	
		Patch Cutting	9	
Rainbow Estates	High	Defensible Space	1	Y
		Linked Defensible Space	6	
		Patch Cutting	7	
Red Mountain	High	Defensible Space	1	Fire Chief
The Reserve	High	Defensible Space	1	Fire Chief
Skyland	High	Defensible Space	1	Fire Chief
Spring Creek	Very High	Defensible Space	1	Fire Chief
		Roadside Thinning	6	
		Patch Cutting	7	
Star Mountain Ranch	High	Defensible Space	1	Y
Tin Cup	High	Defensible Space	1	Fire Chief
		Linked Defensible Space	6	
		Patch Cutting	7	
Tomichi Heights	Moderate	Defensible Space	1	Y
		Linked Defensible Space	6	
Trappers	Extreme	Defensible Space	1	Fire Chief
		Roadside Thinning	6	
		Fuel Break	7	
		Patch Cutting	8	

Community	Community Hazard Rating	Recommended Fuels Treatment Name	Priority (1 = highest, 10 = lowest)	Wildfire Mitigation Advocate Identified? (Y/TBD)
Washington Gulch	High	Defensible Space	1	Fire Chief
White Pine	Very High	Defensible Space	1	Fire Chief
		Roadside Thinning	6	
		Patch Cutting	7	
Wilderness Streams	Very High	Defensible Space	1	Fire Chief
		Linked Defensible Space	6	

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 attainable. Additional projects at all scales should be considered by the West Region Wildfire Council, especially as Gunnison County begins to complete the initial projects identified in the CWPP.

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.

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://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 Gunnison County 2011 CWPP should be considered a living document, requiring regular maintenance, updates, and monitoring/evaluation of progress of recommended wildfire mitigation actions. The Gunnison County CWPP core group 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 Gunnison County that may require identification of a new CWPP community, large-scale wildland fire events in the County, and/or changes in Wildfire Mitigation Advocates for the CWPP communities.

GLOSSARY

The following definitions apply to terms used in the Gunnison 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.

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.

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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.

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- 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.

- **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:
Call: 970-641-6852
1000 Athletic Drive
Gunnison CO, 81230
<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/hmgrp/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
- **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
- **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/federal/funding.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/>
- **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: wrwc.lilia@gmail.com; 102 Par Place, Suite 1, Montrose, CO 81401; 970-249-9051 ext 125.
- **USDA Community Facilities Grant Program**
 - Purpose: to help rural communities. Funding is provided for fire stations.
 - More information: 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

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

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 Gunnison County Special Development Project Regulations (amended Sept 2009) Additional Standards for Projects in Wildfire Hazard Areas	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
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.	HOAs, County

Table A2. Landscaping and Fuels Recommendations

Action Items	Implementation Lead
Consistently maintain defensible space, see CSFS 6.302.	Individual homeowners, HOAs
Utilize and enforce fire protection district codes requiring defensible space for existing and new construction, such as those in Crested Butte Fire Protection District.	CBFPD, FPDs
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
Develop a parcel-level wildfire hazard analysis for all homes in the County for continued wildfire management, CWPP development, and public education purposes	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
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 soon as 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, -44391-14393 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
Implement fire prevention, fire preparedness, defensible space, and hazard reduction recommendations for each community.	County, state, communities, HOAs, GBWC, WRWC
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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> Bringing the concerns of the residents to the prioritization of mitigation actions Selecting demonstration sites Assisting with grant applications and awards Coordinate activities with GBWC and WRWC 	Communities, HOAs, FPDs, GBWC, 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
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
Areas with no water or inadequate water supply should be evaluated to improve existing hydrants, establish a stored water supply, or use firefighting resources.	County, FPDs
Map existing hydrants, water sources, and their volume. 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 capacity.	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, it is suggested that a trained individual be consulted 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. Certain fire protection district codes in Gunnison County already require defensible space for existing and new construction. Compliance with these guidelines and standards is encouraged.

Homes and structures exist outside of the defined CWPP community boundaries in Gunnison 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>.



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.



Putting Knowledge to Work

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NATURAL RESOURCES SERIES

FORESTRY

Creating Wildfire-Defensible Zones no. 6.302

by F.C. Dennis¹

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,

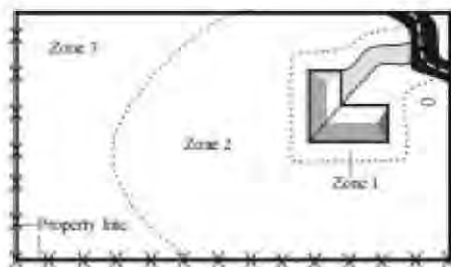


Figure 1: Forested property showing the three fire-defensible zones around a home or other structure.

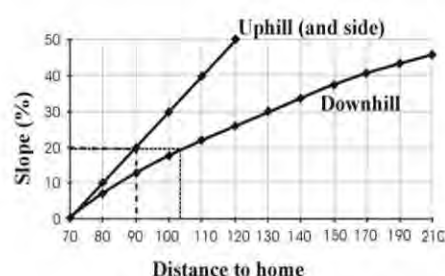


Figure 2: This chart indicates the *minimum recommended* dimensions for defensible space from the home to the outer edge of Zone 2. For example, if your home is situated on a 20 percent slope, the minimum defensible space dimensions would be 90 feet uphill and to the sides of the home and 104 feet downhill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

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

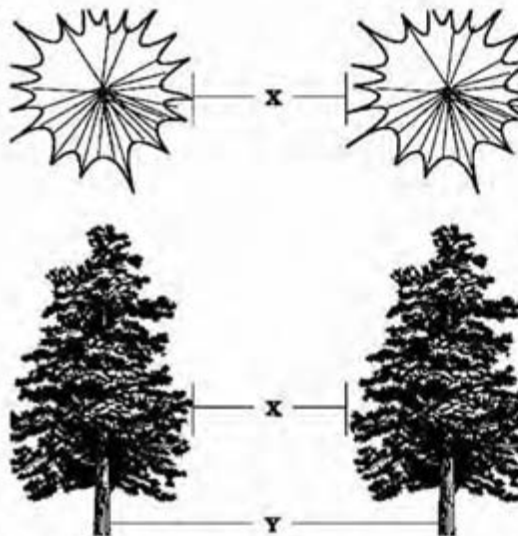


Figure 3: X = crown spacing; Y = stem spacing. Do not measure between stems for crown — measure between the edges of tree crowns

% 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.

¹Wildfire 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. Construction type, condition, age, the fuel loading of 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 Gunnison 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 fire codes of each district. 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.

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. 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. Specific publications that address these issues can be found at: www.firewise.org.

Infrastructure

Road Signs and Home Addresses

The majority of the streets within the county are adequately labeled with reflective signage. There are still a few places where signs are missing 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.

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, "44391-14393 Wilderness Lane"

Preparedness Planning

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. Golf courses 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.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 Gunnison Basin Wildfire Council and 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 municipal cities in the county have an adequate hydrant network, many of the communities identified do not. Flow rates are not adequate in all areas for large-scale suppression activities and hydrants are not tested annually.

RECOMMENDATIONS

- Areas with no water or inadequate water supply should be evaluated to improve existing hydrants, establish a stored water supply, or use 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 capacity.
- 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

Gunnison County used Title III funding to complete a community-wide hazard and risk assessment and the resultant Gunnison 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), Gunnison 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 Gunnison 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:

- Gunnison County Sheriff's Office
- Gunnison County residents
- Gunnison County Commissioners and Officials
- Gunnison Basin Wildfire Council
- Gunnison Fire Protection District
- Arrowhead Fire Protection District
- Crested Butte Fire Protection District
- Carbondale Fire Protection District
- Ohio City Volunteer Fire Department
- Montrose Interagency Fire Management Unit
- BLM - Uncompahgre and Gunnison Field Offices
- USFS - Grand Mesa, Uncompahgre, and Gunnison National Forests
- USFS - Paonia, Ouray, Grand Valley, and Norwood Ranger Districts
- CSFS
- National Park Service
- West Region Wildfire Council
- Colorado Division of Emergency Management
- Homeowner Associations (HOA)
- Anchor Point Group
- AMEC Earth and Environmental
- Community Points of Contact

Gunnison Basin Wildfire Council

Gunnison County is fortunate to have an active and engaged fire safe council called the Gunnison Basin Wildfire Council (GBWC). The GBWC is comprised of representatives from local fire districts and departments, Colorado State Forest Service, United States Forest Service, Bureau of Land Management, Gunnison County Sheriff and Gunnison County OEM. The GBWC has been involved in the development of local CWPP's since the 1990's. The GBWC formed the core stakeholder group for the development of this countywide CWPP and steered its development through participation at meetings, providing comments on drafts, and assisting with field visits.

Collaboration Tools

Development of the Gunnison 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 ensured on-time and on-scale project management and team collaboration in the final development of the Gunnison County CWPP.

Stakeholder and Public Involvement

The true collaborative process was initiated through a stakeholder meeting held on August 27, 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 district 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 Gunnison 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 Wildfire Council 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 Gunnison 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 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 Gunnison County emergency management.

In addition to the community collaboration efforts, two public meetings were 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 Gunnison 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. The meeting in Gunnison included 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. Several communities have been proactive in wildfire mitigation efforts. A representative from Arrowhead FPD discussed several ongoing defensible space and fuels treatments efforts. The Arrowhead HOA has passed a resolution in 2008 that will require resistant construction for new construction. The HOA has been successful in obtaining grants.

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

- Marble Fire Station - February 22, 2011. 4 people attended.
- City of Gunnison Recreation Center - February 24, 2011. 27 people attended.

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

Photo from the public meeting at the Marble Fire Station on February 22, 2011



Photos from the public meeting at the City of Gunnison Recreation Center on February 24, 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 Gunnison County Court House and Crested Butte Marshal's Office 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. Gunnison County Public Review: Comments and Responses

Commenter	Subject	Comment	Response
Ed Potkey	Rainbow subdivision	I have reviewed the comments pertaining to Rainbow Subdivision, in Taylor Park, Gunnison County. A few corrections are required. All of the utilities water, electric and telephone are underground. Additionally we have a small lake/pond approximately 2.5 acres at the north end of the inhabited area. There are some residences with above ground propane tanks. We are in process of developing a Wildfire Protection Plan for the subdivision and will take into consideration the recommendations provided.	Adjustments made in community description

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, the GBWC and 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. Seventy-five 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 are listed below, all of which are from Arrowhead residents:

"The Arrowhead plan of removing flammable material to a disposal site is much safer than allowing home owners to burn on their property."

"As a community of 800+ landowners with 300 permanent homes and an additional 100+ summer lots for RV's we have in place some excellent protocols, however a large percentage of home/lot owners are never here and those properties are in need of mitigation. 7 of the 10 surrounding properties that make up my neighbors are what I consider high or even extreme danger areas and even though we have taken care of our properties and to some extent the common ground as well, these owners have not made any effort to clean up their properties. What recourse do we have?"

"Our community is unique because of its distance from civilization. Our one acre lots have either a 100 ft radius or 117' radius. I think mitigation must be modified to fit our lots. Arrowhead has a well trained fire department, thanks to Brent Mims and former fire chiefs. Fire hydrants located every 500 or 800 ft. I think we are working hard on mitigation thanks to Bob Rosenbaum. We also have trained first responders, thanks to Brent and answer more Medicals than fire. Thank Goodness."

"In our development, there are many undeveloped lots where owners have not mitigated. This is of concern to those of us with mitigated lots."

"Even though there is a fire department and established roads, there is high wildfire fuel in this area and if a major fire developed, we could not handle it."

"Some questions are too broad- what is the definition or size of a wildland fire in question 26? Our fire department has suppressed lightning strike fires but could not be expected to handle a 1000 acre blaze."

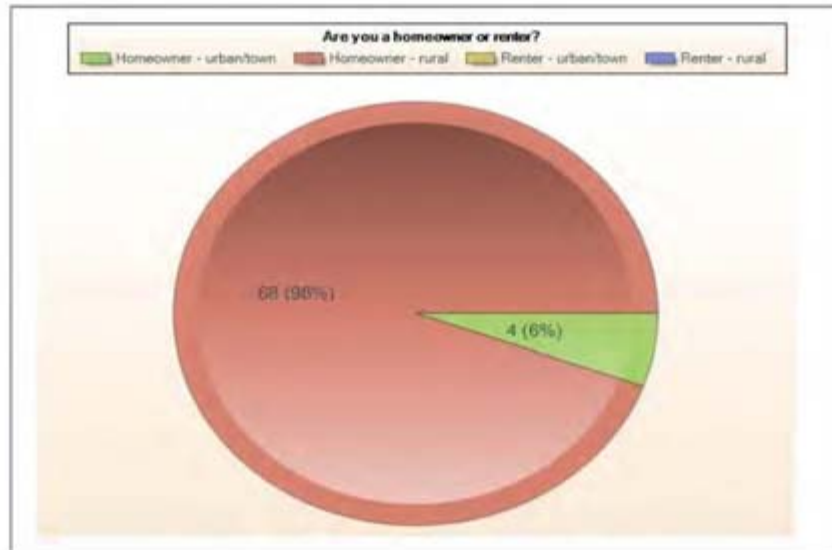
"The Arrowhead Ranch neighbors who have volunteered their time in support of the Arrowhead Fire Protection District and the Arrowhead Volunteer Fire Department provide outstanding guidance and support toward an annual improvement of our wildfire preparedness."

"We have a very knowledgeable Fire Chief: Brent Mims"

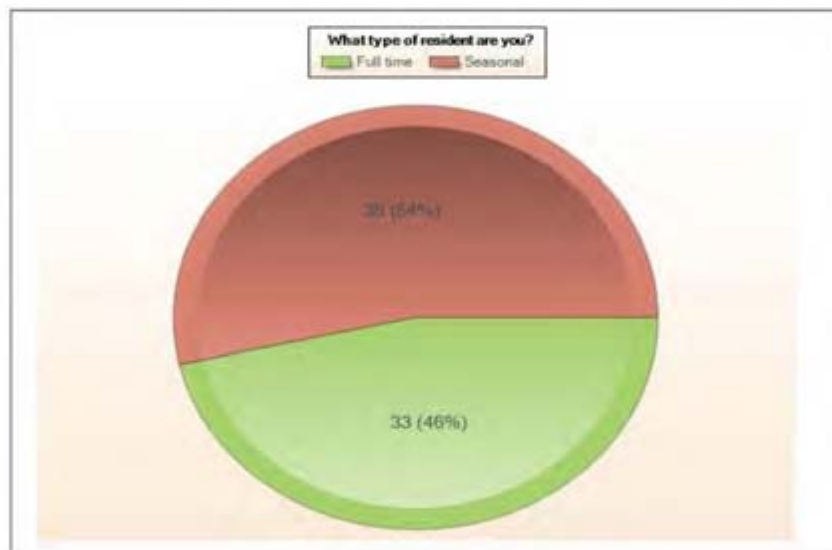
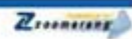
"Cost-sharing on mitigation efforts would be nice, as would some help in mitigation of vacant lots whose owners have not been on the lots for years. Some concern about notification of residents who do not have land lines as cell service is spotty at best."

The graphics below provide a visual summary of the respondents' answers to the posted survey. Additional planning process documentation follows the survey results.

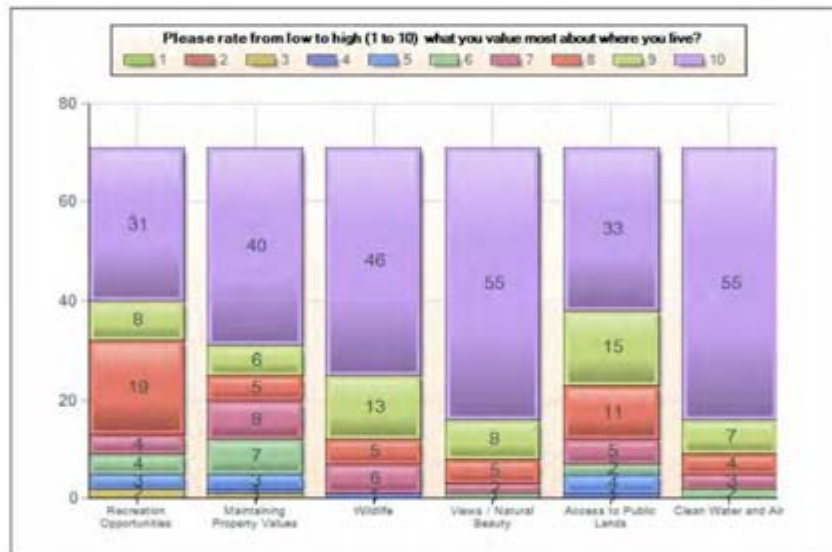
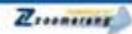
Gunnison County Community Wildfire Protection Plan Resident Survey: Are you a homeowner or renter?



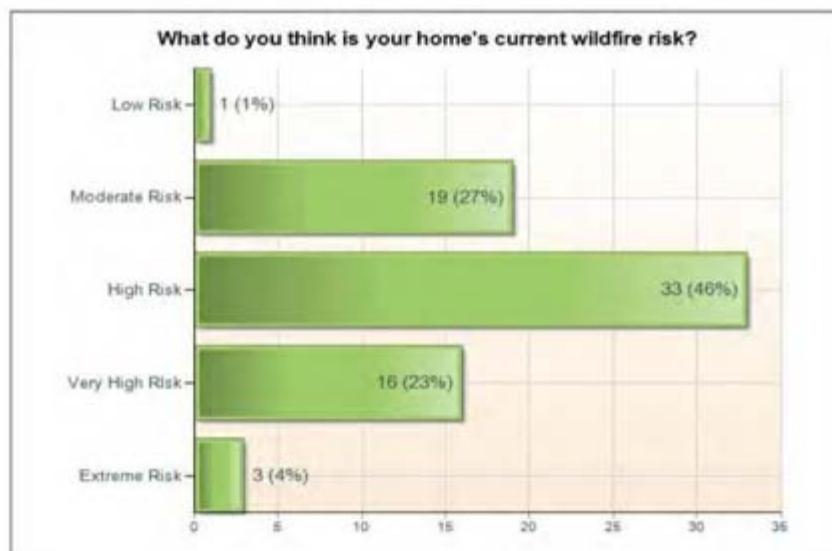
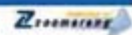
Gunnison County Community Wildfire Protection Plan Resident Survey: What type of resident are you?



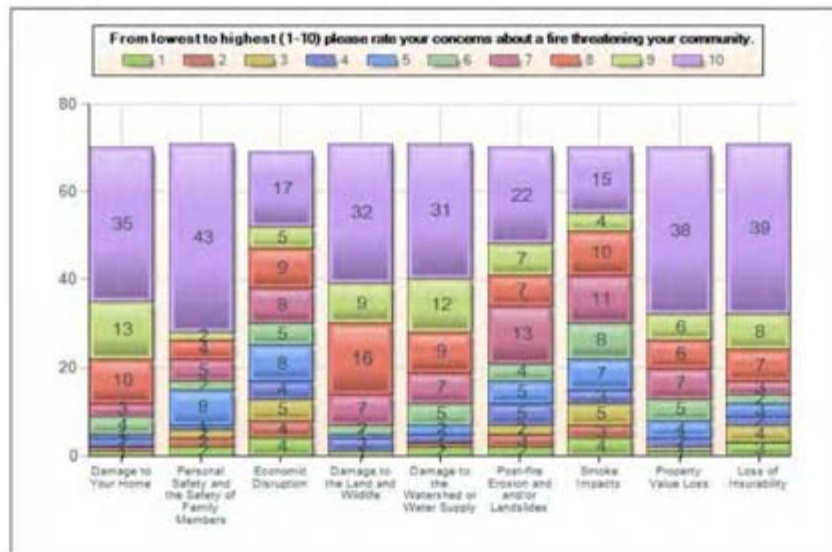
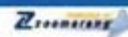
Gunnison County Community Wildfire Protection Plan Resident Survey: Please rate from low to high (1 to 10) what you value most about where you live?



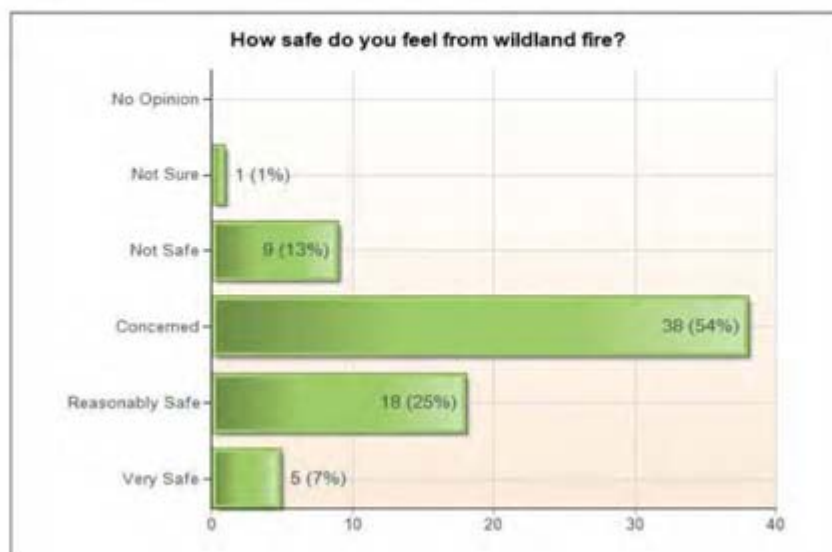
Gunnison County Community Wildfire Protection Plan Resident Survey: What do you think is your home's current wildfire risk?



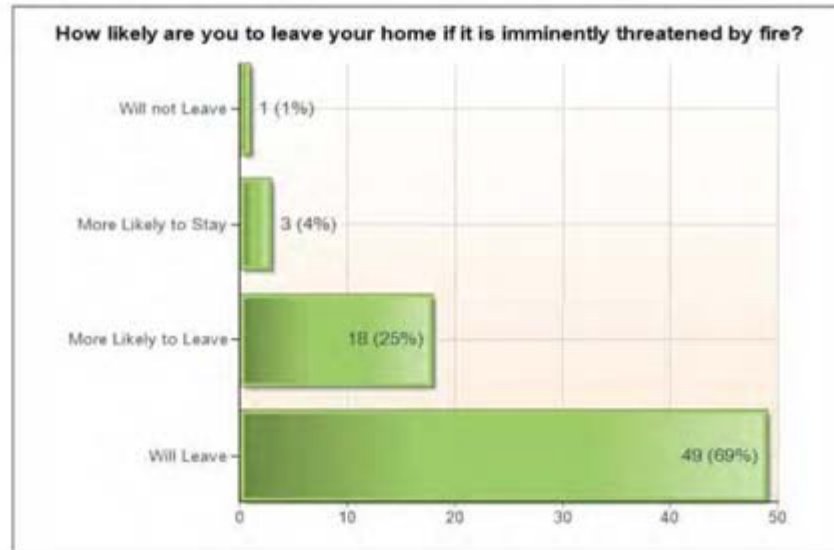
Gunnison County Community Wildfire Protection Plan Resident Survey: From lowest to highest (1-10) please rate your concerns about a fire threatening your community.



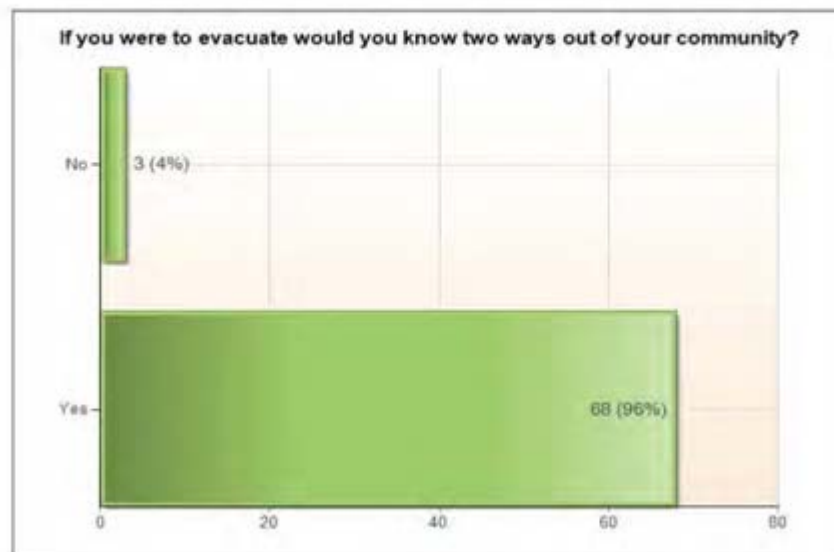
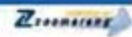
Gunnison County Community Wildfire Protection Plan Resident Survey: How safe do you feel from wildland fire?



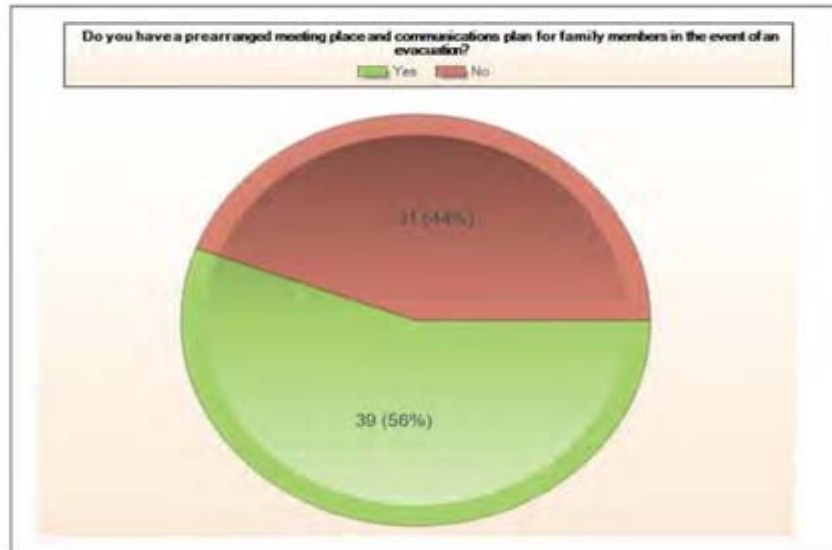
Gunnison County Community Wildfire Protection Plan Resident Survey: How likely are you to leave your home if it is imminently threatened by fire?



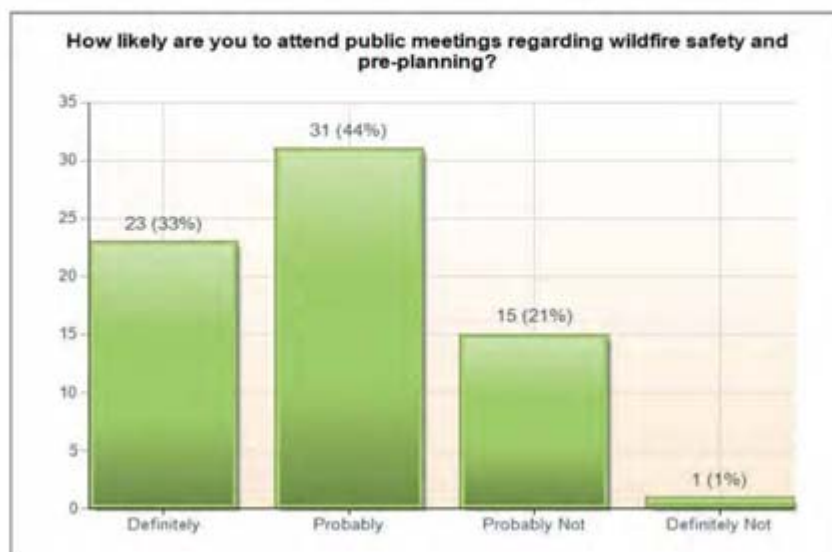
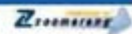
Gunnison County Community Wildfire Protection Plan Resident Survey: If you were to evacuate would you know two ways out of your community?



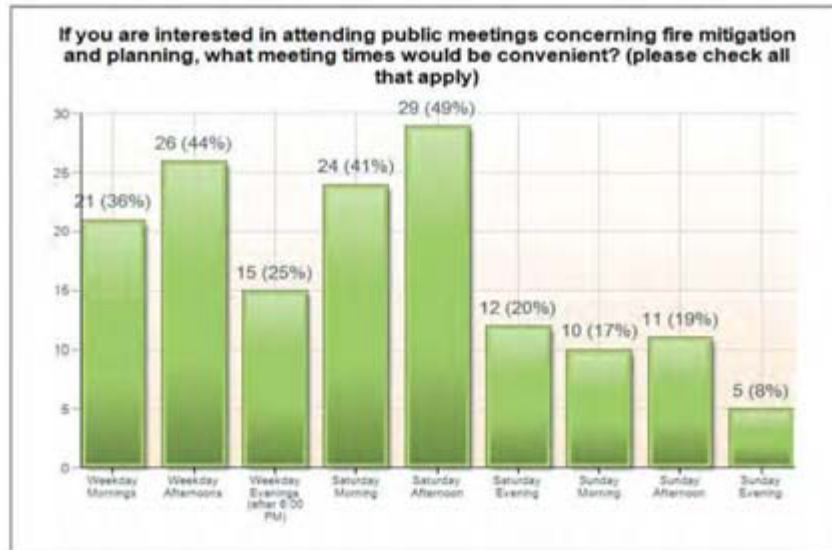
Gunnison County Community Wildfire Protection Plan Resident Survey: Do you have a prearranged meeting place and communications plan for family members in the event of an evacuation?



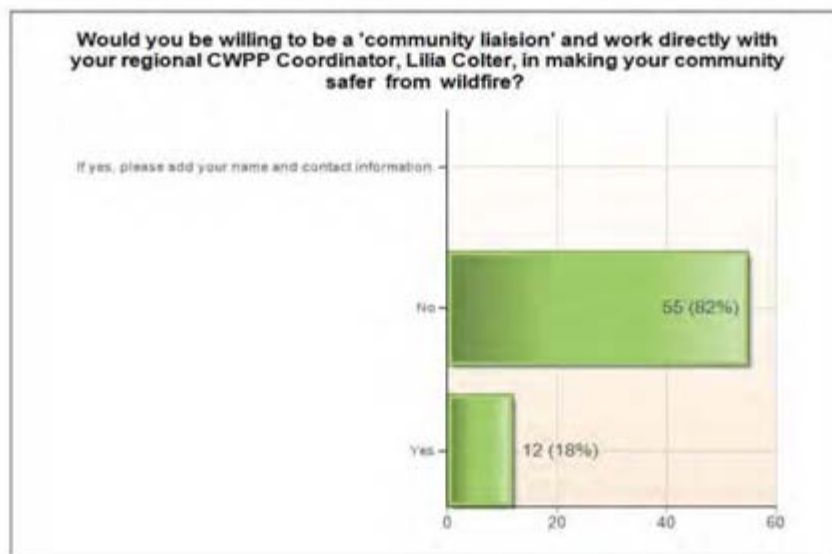
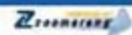
Gunnison County Community Wildfire Protection Plan Resident Survey: How likely are you to attend public meetings regarding wildfire safety and pre-planning?



Gunnison County Community Wildfire Protection Plan Resident Survey: If you are interested in attending public meetings concerning fire mitigation and planning, what ...

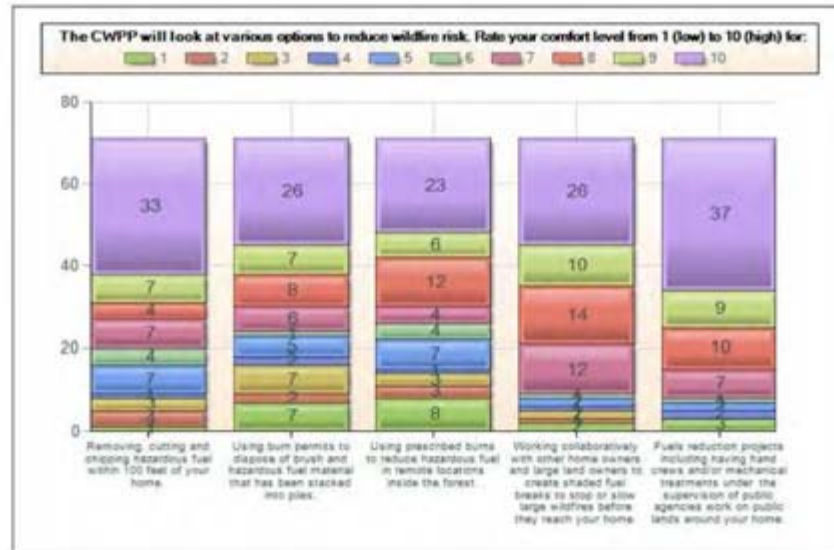


Gunnison County Community Wildfire Protection Plan Resident Survey: Would you be willing to be a 'community liaison' and work directly with your regional CWPP Coord ...

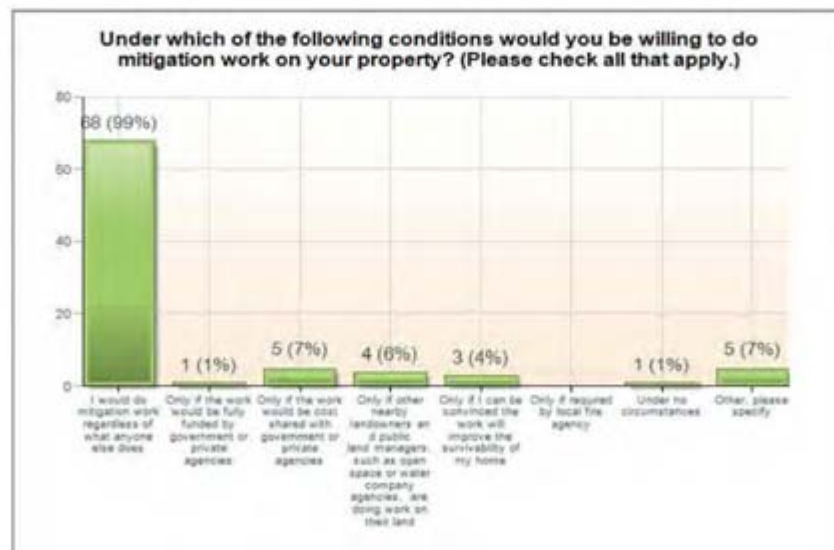


Gunnison County Community Wildfire Protection Plan Resident Survey: The CWPP will look at various options to reduce wildfire risk. Rate your comfort level from 1 (low) to 10 (high) for

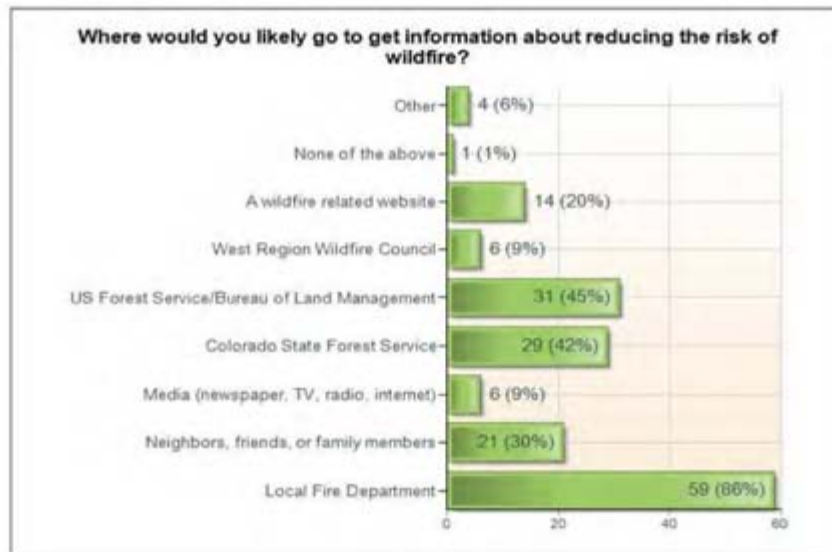
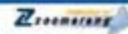
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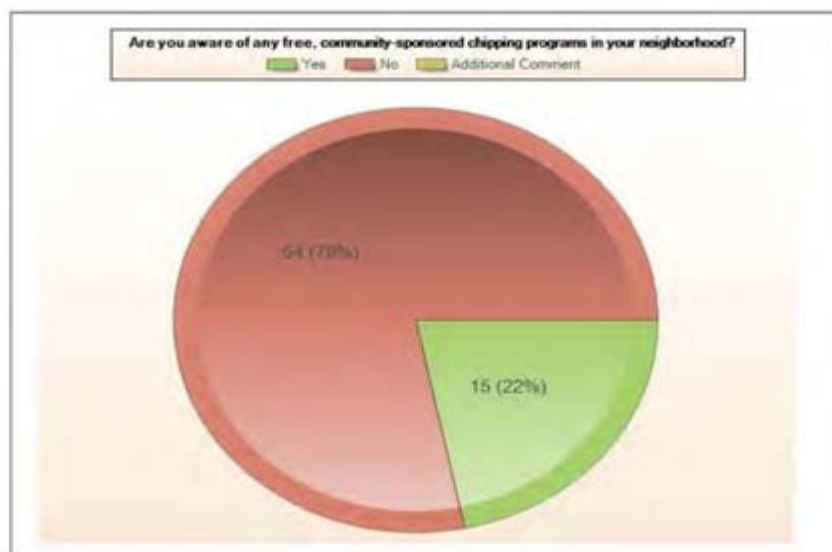
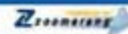
Gunnison County Community Wildfire Protection Plan Resident Survey: Under which of the following conditions would you be willing to do mitigation work on your property ...



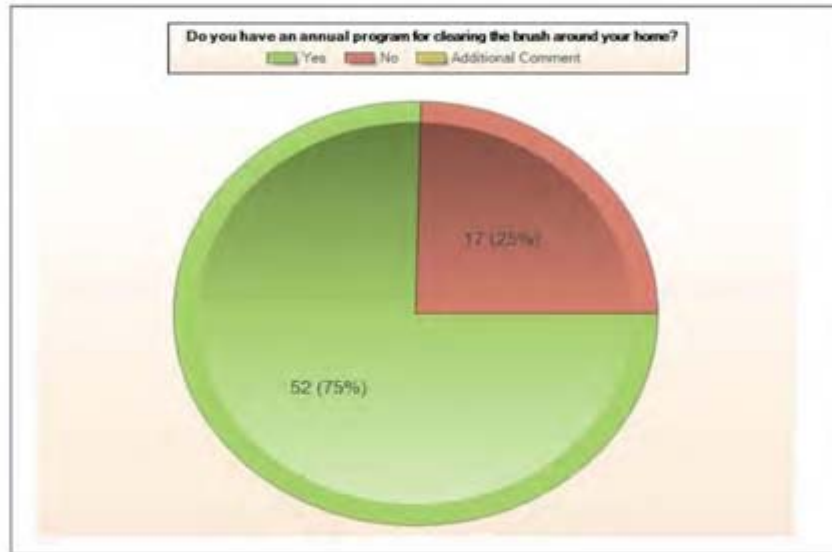
Gunnison County Community Wildfire Protection Plan Resident Survey: Where would you likely go to get information about reducing the risk of wildfire?



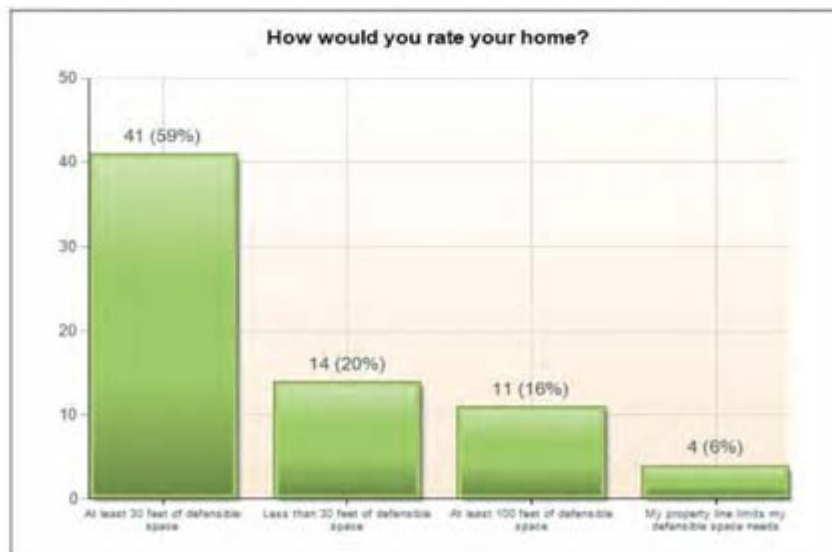
Gunnison County Community Wildfire Protection Plan Resident Survey: Are you aware of any free, community-sponsored chipping programs in your neighborhood?



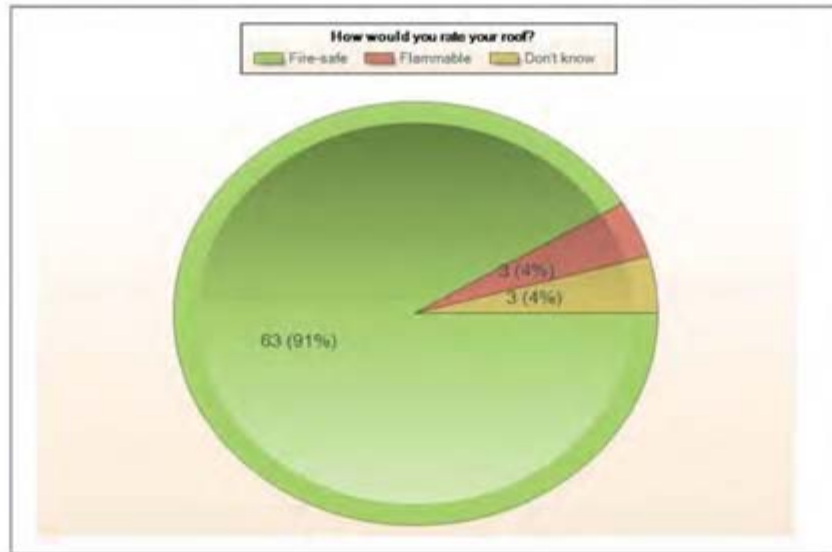
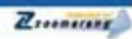
GunnisonCounty Community Wildfire Protection Plan Resident Survey: Do you have an annual program for clearing the brush around your home?



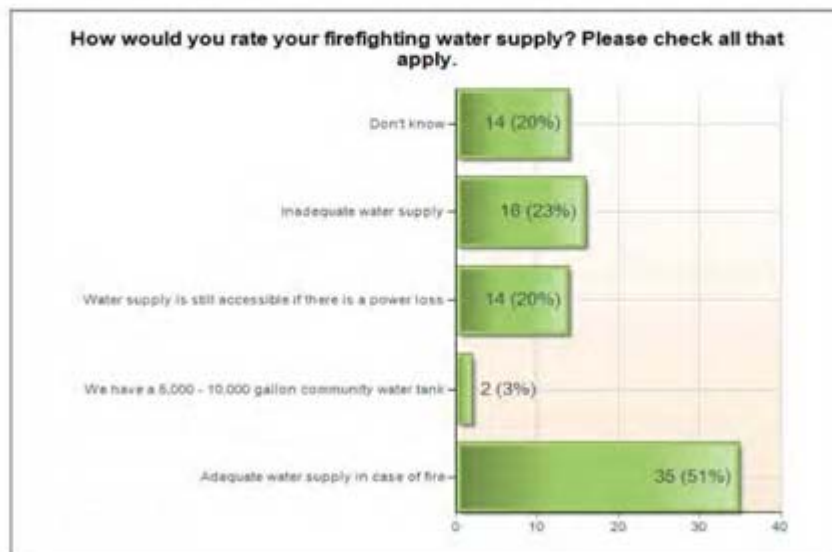
GunnisonCounty Community Wildfire Protection Plan Resident Survey: How would you rate your home?



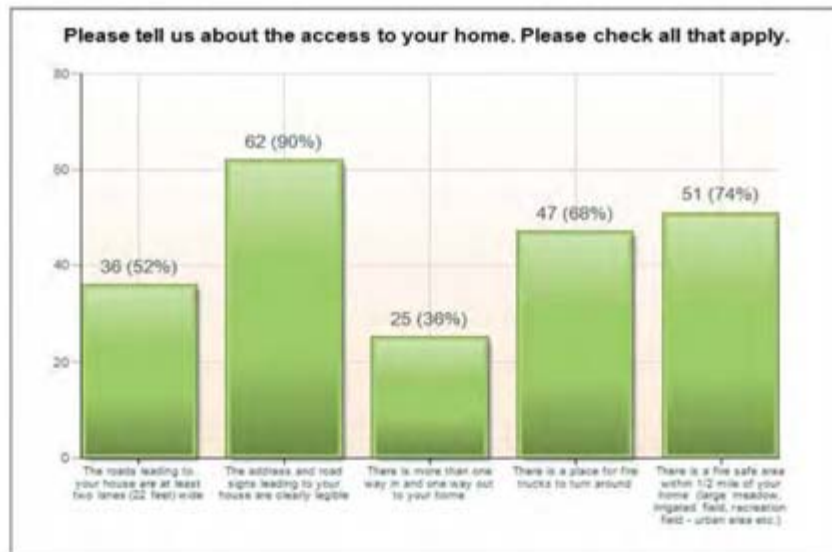
Gunnison County Community Wildfire Protection Plan Resident Survey: How would you rate your roof?



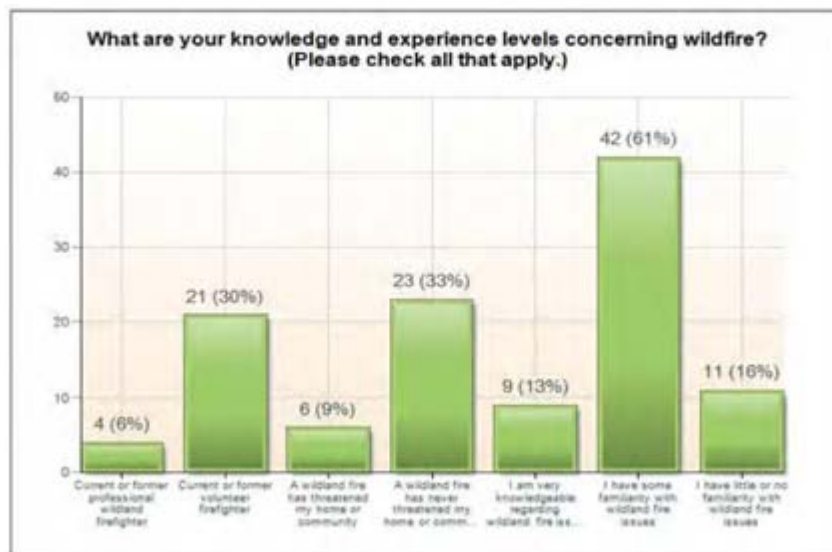
Gunnison County Community Wildfire Protection Plan Resident Survey: How would you rate your firefighting water supply? Please check all that apply.



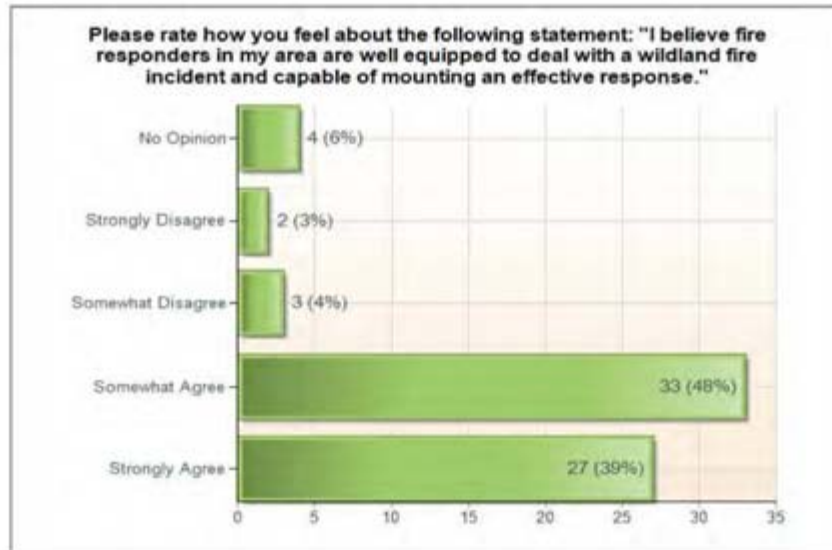
GunnisonCounty Community Wildfire Protection Plan Resident Survey: Please tell us about the access to your home. Please check all that apply.



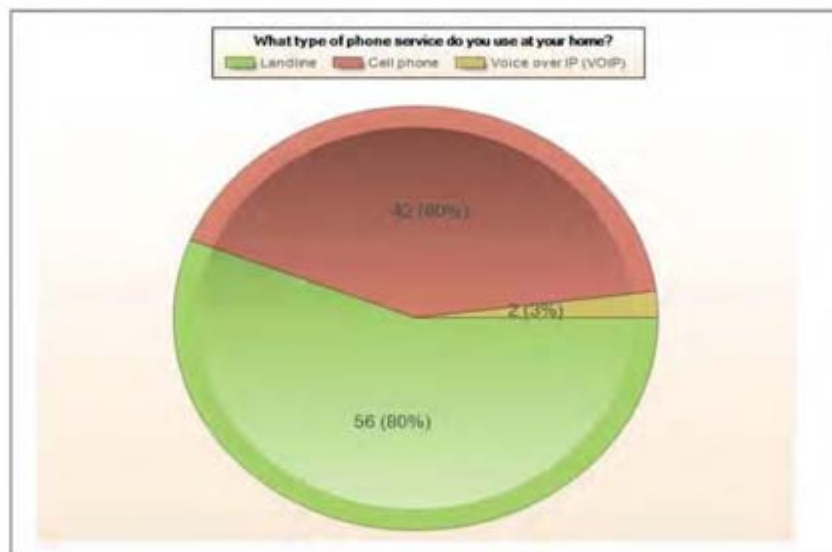
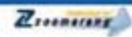
GunnisonCounty Community Wildfire Protection Plan Resident Survey: What are your knowledge and experience levels concerning wildfire? (Please check all that apply.)



GunnisonCounty Community Wildfire Protection Plan Resident Survey: Please rate how you feel about the following statement: "I believe fire responders in my area are well equipped to deal with a wildland fire incident and capable of mounting an effective response." are ...



GunnisonCounty 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



Office of Emergency Management

February 4, 2011

Dear Gunnison 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 Gunnison 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.*

Gunnison County Community Wildfire Protection Plan Meetings:

Tuesday, February 22nd

Marble Fire Station
6:00 PM
300 W Park Street
Marble, CO 81623

Thursday, February 24th

City of Gunnison Recreation Center
7:00 PM
200 E. Spencer Avenue
Gunnison, CO 81230

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 Gunnison 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 Gunnison 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 Gunnison 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.



200 E. Virginia Av., Gunnison, CO 81230 ~ 970-641-2481 ~ Fax: 970-641-7693

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: _____

Or email Lilia Colter, West Region Wildfire Council CWPP Coordinator at: wrwc.lilia@gmail.com

West Region Wildfire Council
102 Par Place, Suite 1, Montrose, Colorado 81401
Phone: (970) 249-9051 ext. 125 • Email: wrwc.lilia@gmail.com

Advertisement for press release

FOR IMMEDIATE RELEASE:

2-11-2011

CONTACT: Gunnison 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. Two meetings are planned, one in Marble 6:00pm **Tuesday, February 22rd at the Marble Fire Station, 300 W Park St** and one at 7:00 pm **Thursday, February 24th at the City of Gunnison Recreation Center, 200 E Spencer Dr.** The meetings are an opportunity for the public and stakeholders to provide feedback on what will become the *Gunnison 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 Gunnison Recreation Center meeting. 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/WEB22BTUEPCDWL/>

For more information, please contact:

Scott Morrill, Gunnison County Emergency Management
smorrill@gunnisoncounty.org, 970-641-2481
Lilia Colter, West Region Wildfire Council CWPP Coordinator
wrrwc.lilia@gmail.com, 970-249-9051 ext 125

Flyer for public meeting in Marble

Community Wildfire Protection Plan

PUBLIC MEETING NOTICE



DATE: Tuesday, February 22nd
TIME: 6:00 PM
LOCATION: Marble Fire Station, 300 W. Park Street Marble, CO 81623

Please join us on either date to discuss Gunnison 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 *Gunnison 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 consultant assistance from Anchor Point and AMEC.

Cookies and refreshments will be provided

We want your feedback! Take our online survey at:
<http://www.zoomerang.com/Survey/WEB22BTUEPCDWL/>

For more information, please contact:
 Lilia Colter, West Region Wildfire Council, wrrwc.lilia@gmail.com 970-249-9051 x125
 Jeff Brislawn, AMEC Earth and Environmental, jeff.brislawn@amec.com 303-443-7839

PARTNERS:

- Gunnison County
- West Region Wildfire Council
- Arrowhead, Carbondale & Rural, Crested Butte, Gunnison County and Ohio City Fire Protection Districts



Flyer for public meeting in Gunnison

Community Wildfire Protection Plan

PUBLIC MEETING NOTICE



DATE: Thursday, February 24th
TIME: 7:00 PM
LOCATION: City of Gunnison Recreation Center, 200 E. Spencer Ave Gunnison, CO 81230

Please join us on either date to discuss Gunnison 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 Gunnison 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 consultant assistance from Anchor Point and AMEC.

There will be an opportunity to win GREAT door prizes, so don't miss out!

Cookies and refreshments will be provided.

We want your feedback! Take our online survey at:
<http://www.zoomerang.com/Survey/WEB22BTUEPCDWL/>

For more information, please contact:

Lilia Colter, West Region Wildfire Council, wrrwc.lilia@gmail.com 970-249-9051 x125
 Jeff Brislawn, AMEC Earth and Environmental, jeff.brislawn@amec.com 303-443-7839

PARTNERS:

- Gunnison County
- West Region Wildfire Council
- Arrowhead, Carbondale & Rural, Crested Butte, Gunnison County and Ohio City Fire Protection Districts



Public meeting rosters

[illegible]

Gunnison County Community Wildfire Protection Plan Public Meeting						
Community		Email	Phone Number	Address	Home Info Y/N	
Name	Designation					
1. Lucinda Lusk	Quartz Creek Prop. Farmers Assoc.	Mayor K.C. @ aol.com	970 641-3475	PO Box 159 Pitkin 81241	Y	
2. Steven Ellis	CSFS	stevensellis@colorado.edu	970 288-8051	102 7th Piere Montrose		
3. WALTER Keith	SMR Ass. Rep.	.	641-2394	14255 C.R. 730	Y	
4. Dennis Spitzer	CUFD	dennis.spitzer@gunnisoncounty.org	641-8553	34400 Hwy 50	Y	
5. Cody Dyce	OCVFD	codyce@mac.com	641-0416	8486 CR 76 One City 81237	Y	
6. James Shurren	Pitkin	for more info @ www.mca.com	1241-8462	PO Box 858 Arrow 81441	Y	
7. Linda McLeath	Stamatt Ranch	lmcleath@stamatt.com	641-1772	251 STAR MT. DR. 81330	Y	
8. Bob Rosenthal	Arrowhead	bobros@pine.net	862-5244	636 Columbian Dr. 81220	Y	
9. Ron Benson	Arrowhead	drbenson@live.com	862-8365	572 Columbian Dr	Y	
10. Jeremy Speth	USFS	jspeth@fs.fed.us	642-4471	216 N. Colorado St	N	
11. Jeremy Chonka	USFS	jchonka@fs.fed.us	642-4411	216 W. Colorado, Gun 81230	N	
12. Scott Morrison	Gunnison OEM	smorrill@gunnisoncounty.org	641-2491			
13. Sam Panewitz	CSFS	sam.panewitz@colorado.edu	641-6852	PO Box 1390 Gunnison, CO 81400	Y/N	
14. Tim Culbreth	"	tim.culbreth@colorado.edu	"	"		
15. Abe Fisher	Mt. Tree Scapes	mtv.tree.scapes@gunbo.com	349-0191	PO Box 3063 C.R. 81224		
16. Ryan Hughes	USFS	richughes@fs.fed.us	862-44131	286 N Colorado	N	
17.						
18.						
19.						
20.						
21.						

Gunnison County Community Wildfire Protection Plan Public Meeting						attend file here in 6 VIN
Name	Community Designation	Email	Phone Number	Address		
1. Pat Holley	LCFR	chiepholley@lcfrc.org	576-6634	Lake City		
2. Steve Pinkston	Pitkin Gunnison	stpinkstn@pitkin-gunnison.com	641-5024	P.O. Box 181 Pitkin		✓
3. T. Anna Stone	Citizen on District Crista	stone.anna@montrose.net	275-8634	Bobbe Gunnison		✓
4. Chuck Vadel	manager Crista	colmv@montrose.net	641-3176	Almont		✓
5. Rand Markowitz	Pitkin Fire		641-4057	Pitkin P.O. Box 173		✓
6. Bob Lowrey	Gold Butte Med.					
7. Paul Dieken	Gunnison			Gunnison		
8. Scott Warner	CB FIRE	scott@crestedbutte.net	349-5333 x4	CB		
9. Matt Vase	Blanchard	mvase@montrose.net	641-2076	P.O. Box 372 Almont, CO 80420		✓
10. Brad Ayres	Retired	brad.ayres@montrose.net	641-6997	396 Montrose, Gunnison		✓
11. Brent Wines	Arrowhead	awf@arrowhead.com	862-8487	255 Wildflower Dr		✓
12.						
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Letter soliciting comments on final plan



Dear Gunnison County Resident,

Gunnison 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 Brislawn, 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 13th

Jeff Brislawn
AMEC Earth & Environmental, Inc.
1002 Walnut St, Suite 200 Boulder, CO 80302
Phone: 303.443.7839
Fax: 303.442.0616
jeff.brislawn@amec.com

The entire plan is also available for review on the Gunnison County website. There are also hard copies of the plan available at:

Gunnison County Court House
County Administrative Office
200 E. Virginia Ave
Gunnison, CO 81230
970-641-1113

Crested Butte Marshal's Office
508 Maroon Ave.
Crested Butte, CO 81224
970-349-5231

As a reminder, the online survey will be available through April 1st. The survey can be found at:
<http://www.zoomerang.com/Survey/WEB22BTUEPCDWL/>

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

West Region Wildfire Council

102 Par Place, Suite 1, Montrose, Colorado 81401
Phone: (970) 249-9051 ext. 125 • Email: www.wrwcouncil.com

Notice of CWPP draft for public review on Gunnison County website.







[Community Info](#) | [Office Directory](#) | [Sales, Use & Lodging Taxes](#) | [Employment Opportunities](#) | [Open Bids/RFPs](#) | [County Policies](#) | [Home](#)

OFFICE OF EMERGENCY MANAGEMENT
Monday, May 09, 2011 12:20:46 PM
[Need help? Click here to search this web site.](#)

DEPARTMENTS

- Administration
- Airport
- Assessor
- Attorney
- Boards & Commissions
- Citizen Survey
- Clerk & Recorder
- Commissioners
- Community Development
- Coroner
- Criminal Justice
- CSU Cooperative Extension
- Elections
- Emergency Management
- Environmental Initiatives
- Fairgrounds
- Finance
- GIS/Maps
- Gunnison Sage-grouse
- Health & Human Services
- Housing Authority
- Human Resources
- Information Technology

Draft Gunnison County Community Wildfire Protection Plan

Click here to view Draft #2 of the Gunnison County Community Wildfire Protection Plan. The public comment period for this draft plan runs from March 28, 2011 through April 13, 2011. Please address any comments to Emergency Manager Scott Morrill at (970) 641-2481 or via email to smorrill@gunnisoncounty.org.

Be Fire Wise

Though many parts of the State are under some type of fire restrictions or outright bans, Gunnison County currently has neither of these in place. It is very dry in the Gunnison Basin, and extreme care should be exercised when using fire anywhere in the County – whether for burning weeds, slash piles or for camping. Make sure you have the appropriate fire suppression tools/supplies readily available when starting your fire. Also ensure that you have in place a suitable buffer between your fire and potential combustibles. Finally, make sure your fire is completely out prior to leaving the area. **Your fire is your responsibility!** Make sure you use it in a safe, responsible manner.

Some fire reminders: Gunnison County ordinance requires persons igniting controlled burns or open fires (excludes recreational campfires) in unincorporated parts of the County to contact the Gunnison Communications Center 641-8000 before starting.

Open fires are not permitted in the Town/City limits of Crested Butte and Gunnison. In Mt Crested Butte, open fires are only permitted in pits, barrels or similar containers.

Fireworks: **Absolutely no fireworks** of any type are permitted on Federal or State lands, including: National Forests, BLM lands, National Parks, State Forests, State Parks, State Wildlife areas, or Division of Wildlife owned lands.

In unincorporated Gunnison County, the Towns of Crested Butte and Mt Crested Butte and the City of Gunnison, fireworks that leave the ground or explode are prohibited.

Fire officials from local, State and Federal Agencies meet regularly to review the situation in Gunnison County, and will initiate appropriate measures when and if necessary.

For additional information, contact the appropriate agency: Gunnison Sheriff 641-1113; Gunnison Fire Marshal 641-8153; Crested Butte Fire Dept 349-5333; USFS/BLM 641-0471; National Park Service 641-2337; Colorado State Forest Service 641-6852; or Gunnison County Emergency Management 641-2481.

Wildfire Information

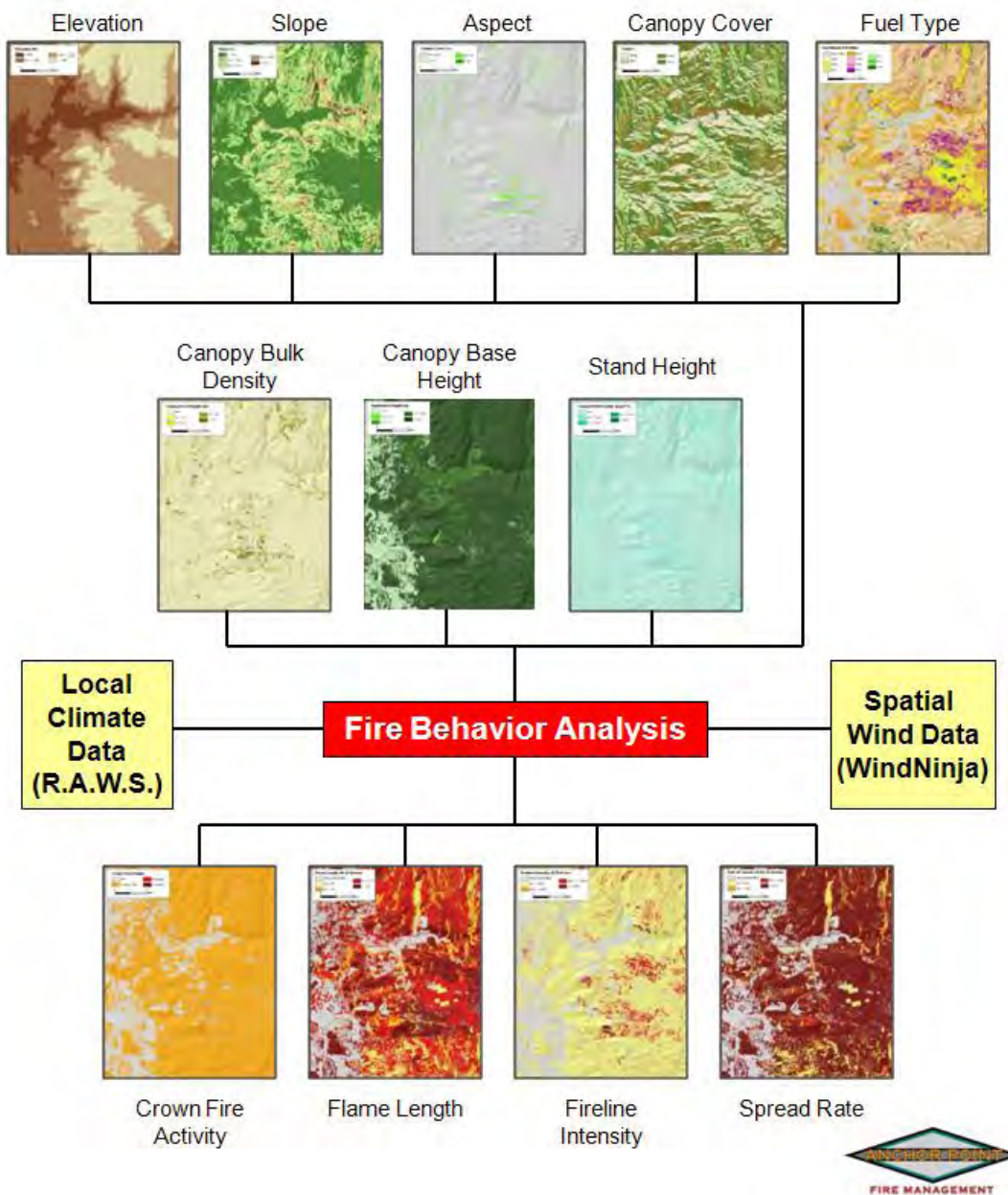
APPENDIX C: FIRE BEHAVIOR TECHNICAL REFERENCE

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.²

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 BEHAVEfire behavior prediction and fuel modeling system.³ 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

² 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).

³ 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.⁴

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 (pinyon-juniper woodlands are modeled as shrubs) is to look at the flame length outputs and assume that if the flame length is greater than half 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 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 2,086,400 acres (3,260 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).⁵ 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.

⁴ Van Wagner, C.E. 1977. Conditions for the start and spread of a crown fire. Canadian Journal of Forest Research. 7: 23-24.

⁵ <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 counties, 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 (16th to 89th 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 90th 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.⁶

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.

⁶ 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. Gunnison County RAWS Sites

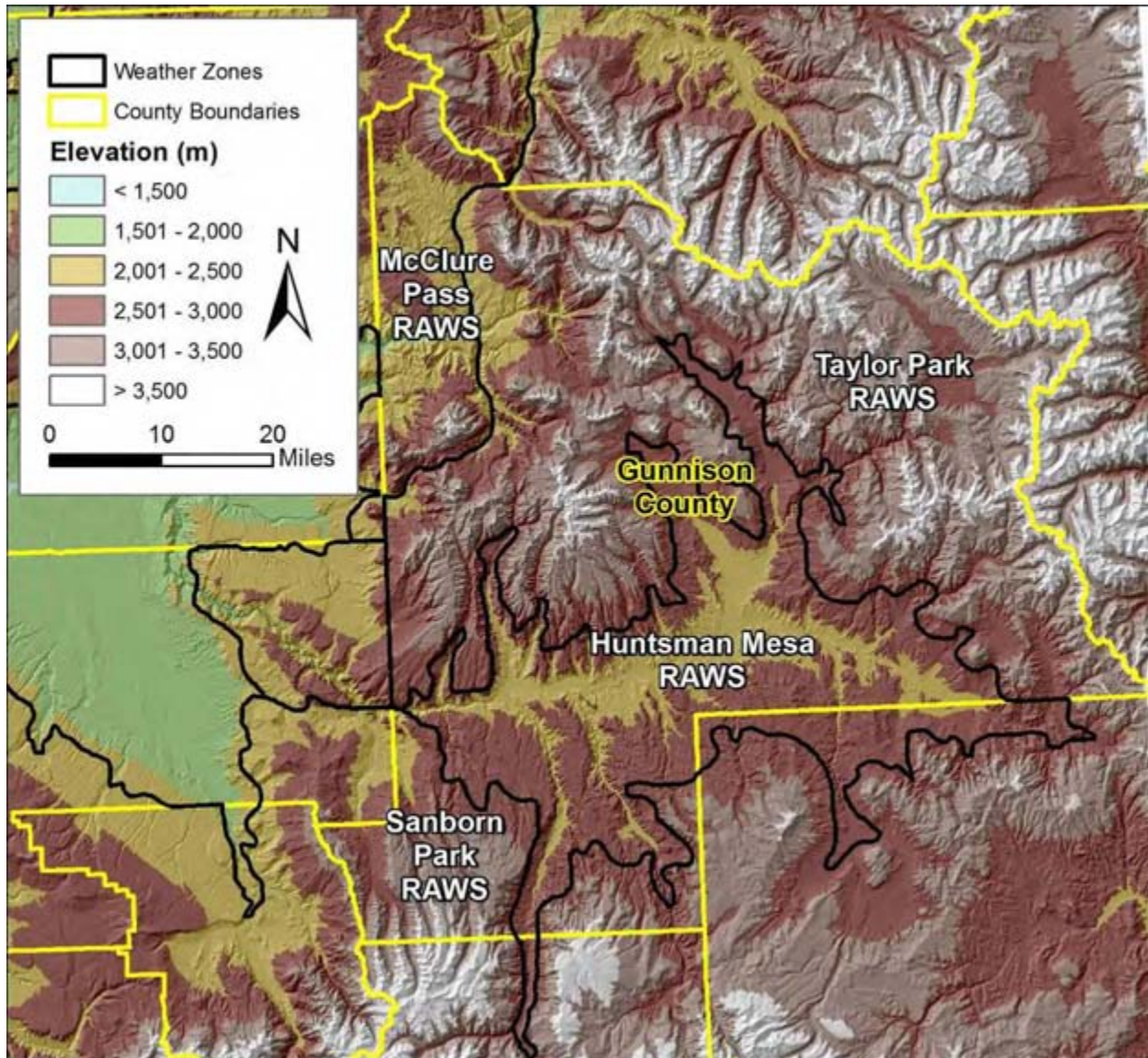


Table C1. Gunnison County RAWs Information

Gunnison County	Weather Condition	Huntsman Mesa	McClure Pass	Sanborn Park	Taylor Park
Elevation (ft)		9230	8980	7930	10410
Latitude		38.33	39.13	38.19	38.91
Longitude		-107.09	-107.28	-108.22	-106.6
Years Included		1991 - 2009	1985 - 2009	1984 - 2009	2000 - 2009
Fire Season		May 15 - September 30	May 15 - September 30	May 1 - October 31	May 15 - September 30
Wind Direction		Always upslope	Always upslope	Always upslope	Always upslope
Wind Speed (mph)	Moderate	10	9	8	12
	High	33	20	17	26
1-hour Fuel Moisture	Moderate	5	6	6	6
	High	4	4	3	4
10-hour Fuel Moisture	Moderate	6	8	9	12
	High	5	5	5	95
100-hour Fuel Moisture	Moderate	10	10	11	12
	High	7	7	7	9
Herbaceous Fuel Moisture	Moderate	43	42	38	47
	High	43	45	33	38
Woody Fuel Moisture	Moderate	89	90	95	100
	High	75	82	74	80

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.⁷ For specific information about the fuel models' affects on 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
FM102 (GR2)	*FM142 (SH2)	FM161 (TU1)	*NB3 (93) Agricultural
*FM121 (GS1)		FM165 (TU5)	NB9 (99) Bare Ground
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.

⁷ 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.

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 the combination of grasses and shrubs; 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 Gunnison Fuel Models

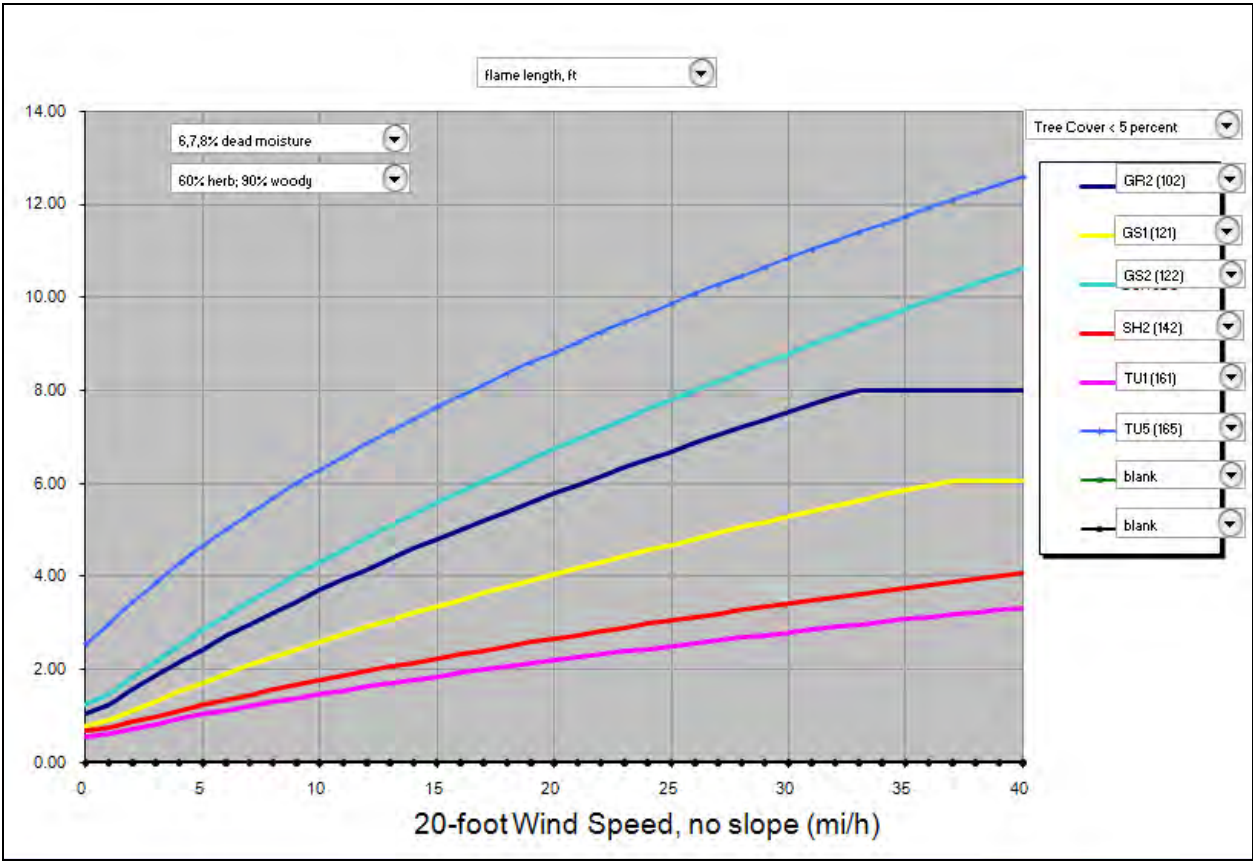
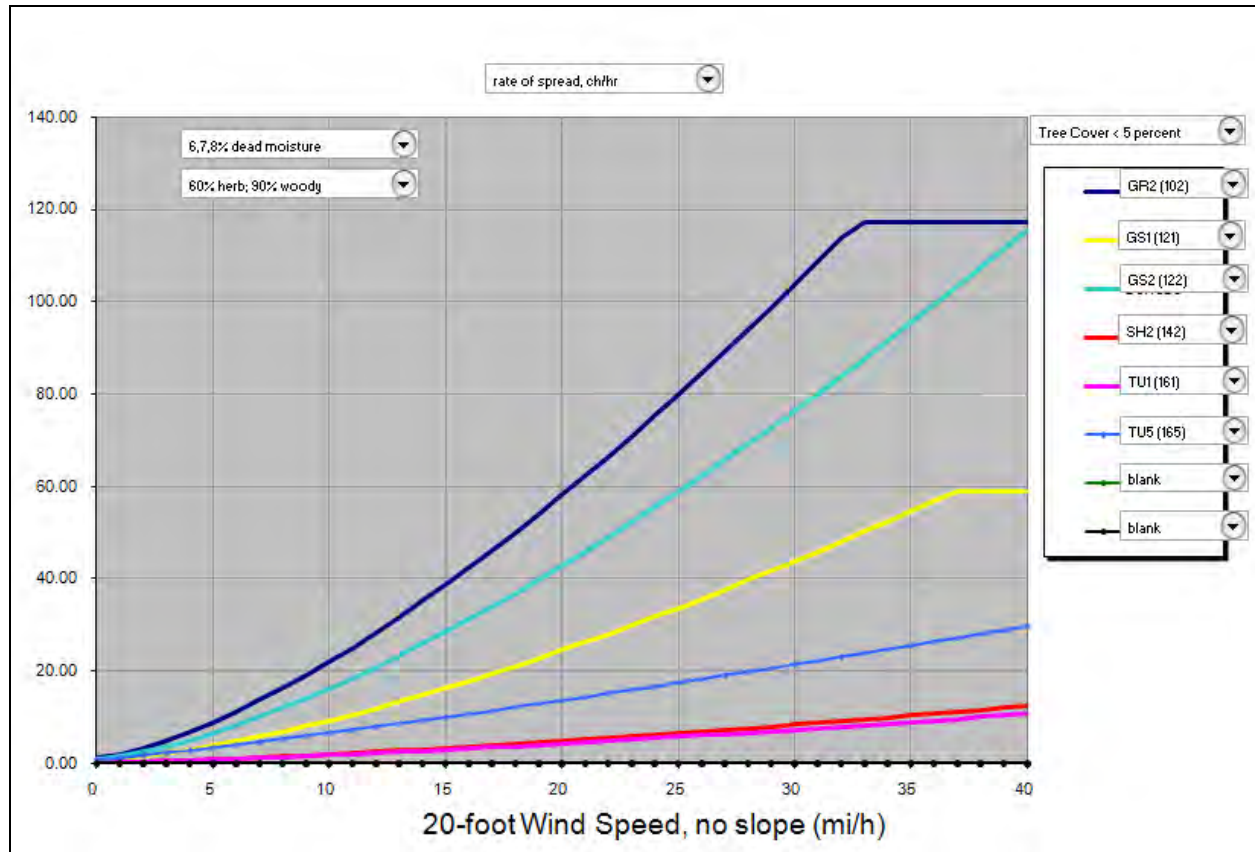


Figure C4. Rate of Spread Outputs for Gunnison Fuel Models



Fire Behavior Outputs

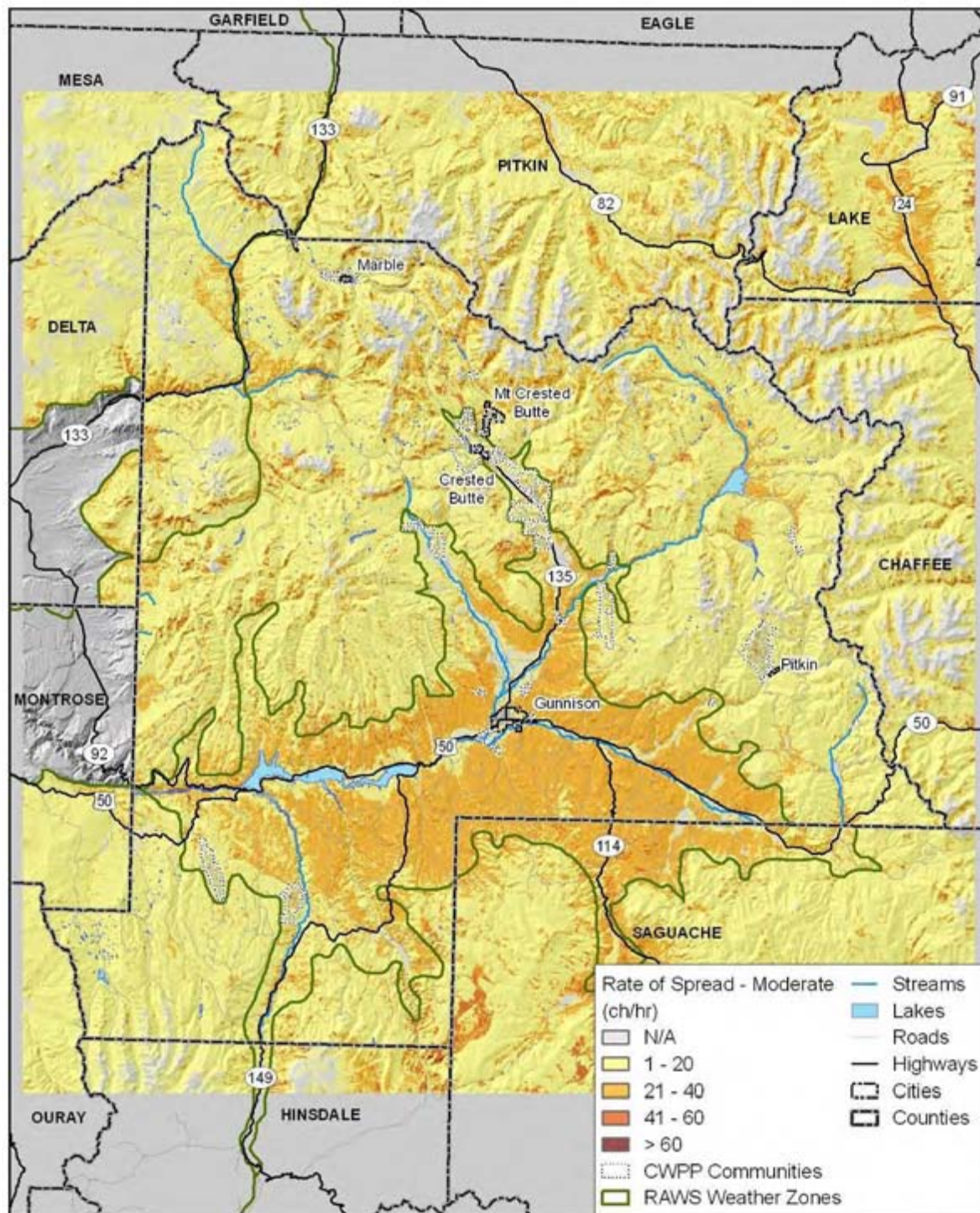
Rate of Spread

Rate of Spread (ROS) values are generated by FlamMap and are classified into four categories based on standard ranges: 0 to 20 ch/h (chains/hour), 20.1 to 40 ch/h, 40.1 to 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 (MPH).

*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 be referenced in an 11 x 17 format in Appendix D.

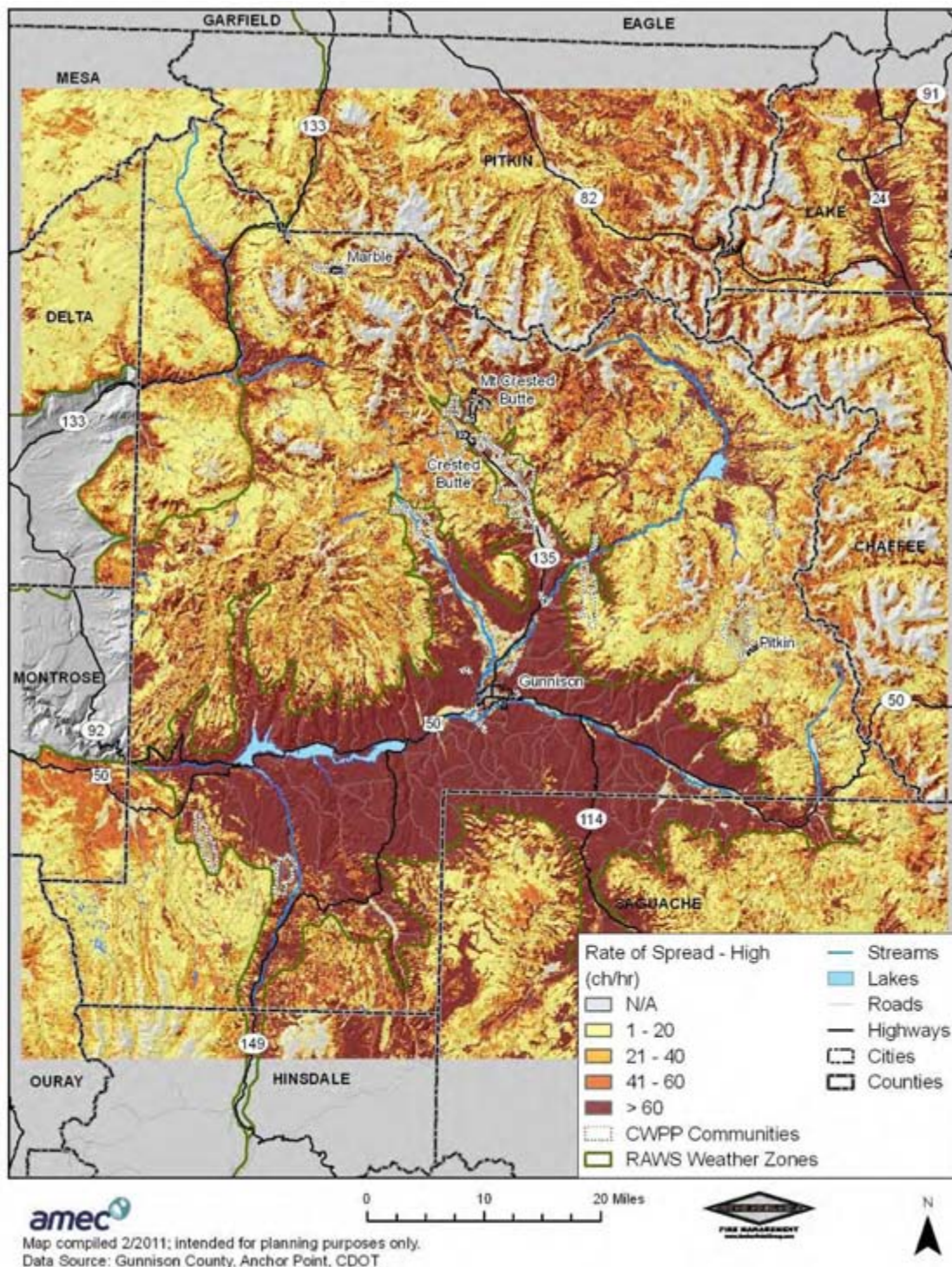
Figure C5. Predicted Rate of Spread Under Moderate Weather Conditions



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

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



Rate of spread in chains/hour
(1 chain=66 ft) (80 chains/hr = 1 MPH)

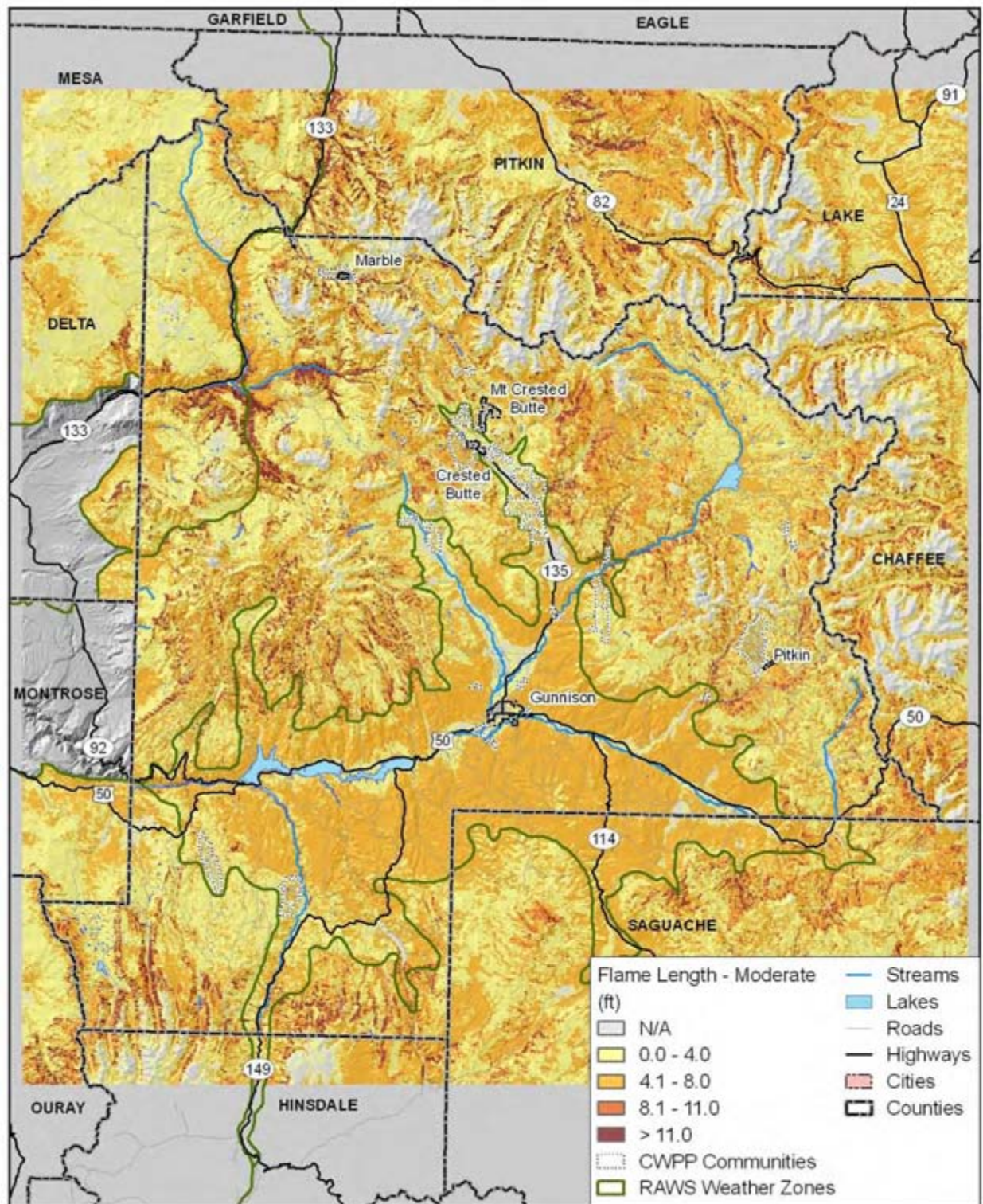
Flame Length

Flame length values are generated by the FlamMap model and were classified into four categories based on standard ranges: 0.1 to 4.0 feet, 4.1 to 8.0 feet, 8.1 to 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 be referenced in an 11 x 17 format in Appendix D.

Figure C7. Predicted Flame Lengths Under Moderate Weather Conditions



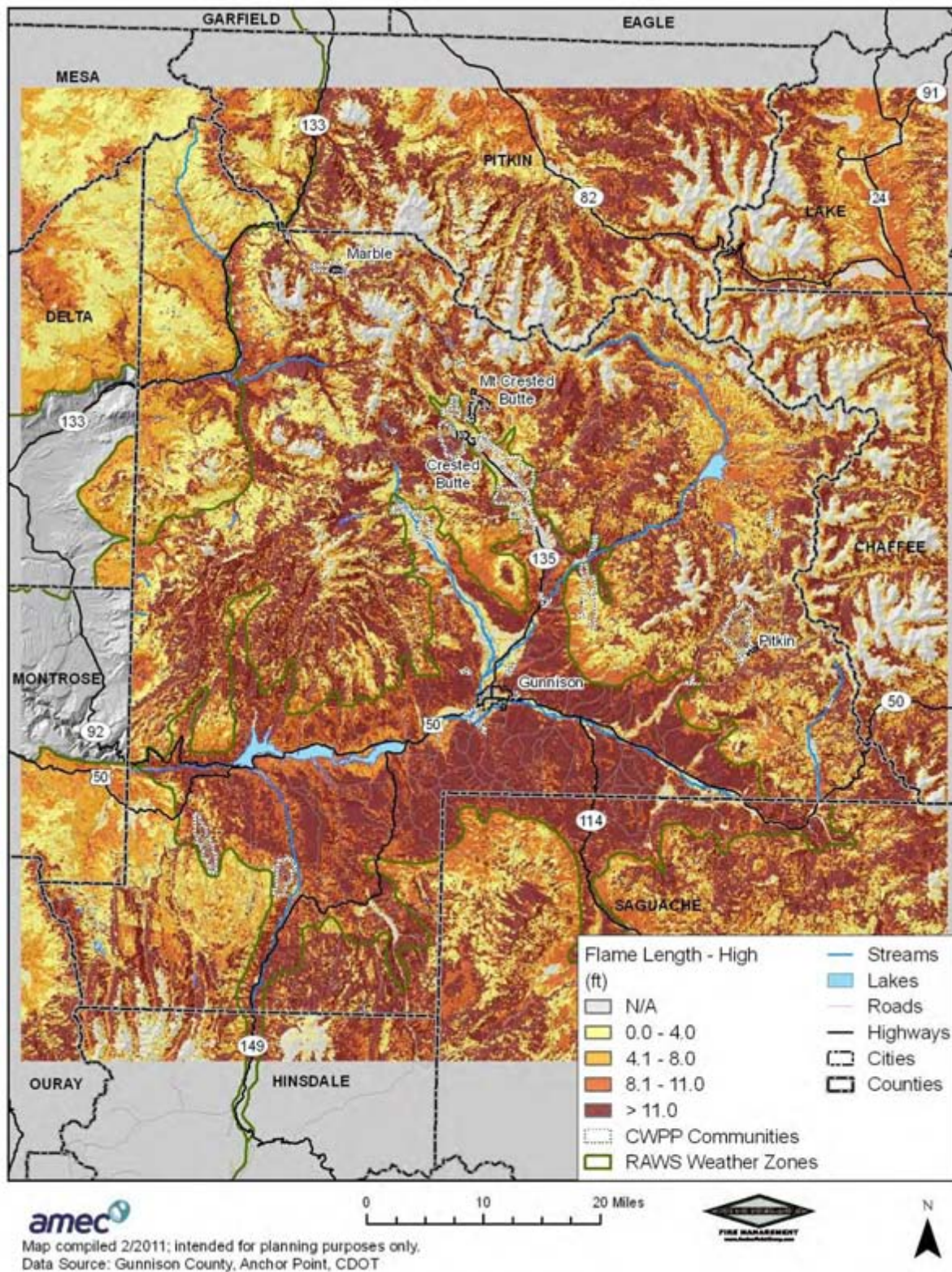
amec

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

0 10 20 Miles



Figure C8. Predicted Flame Lengths Under High Weather Conditions

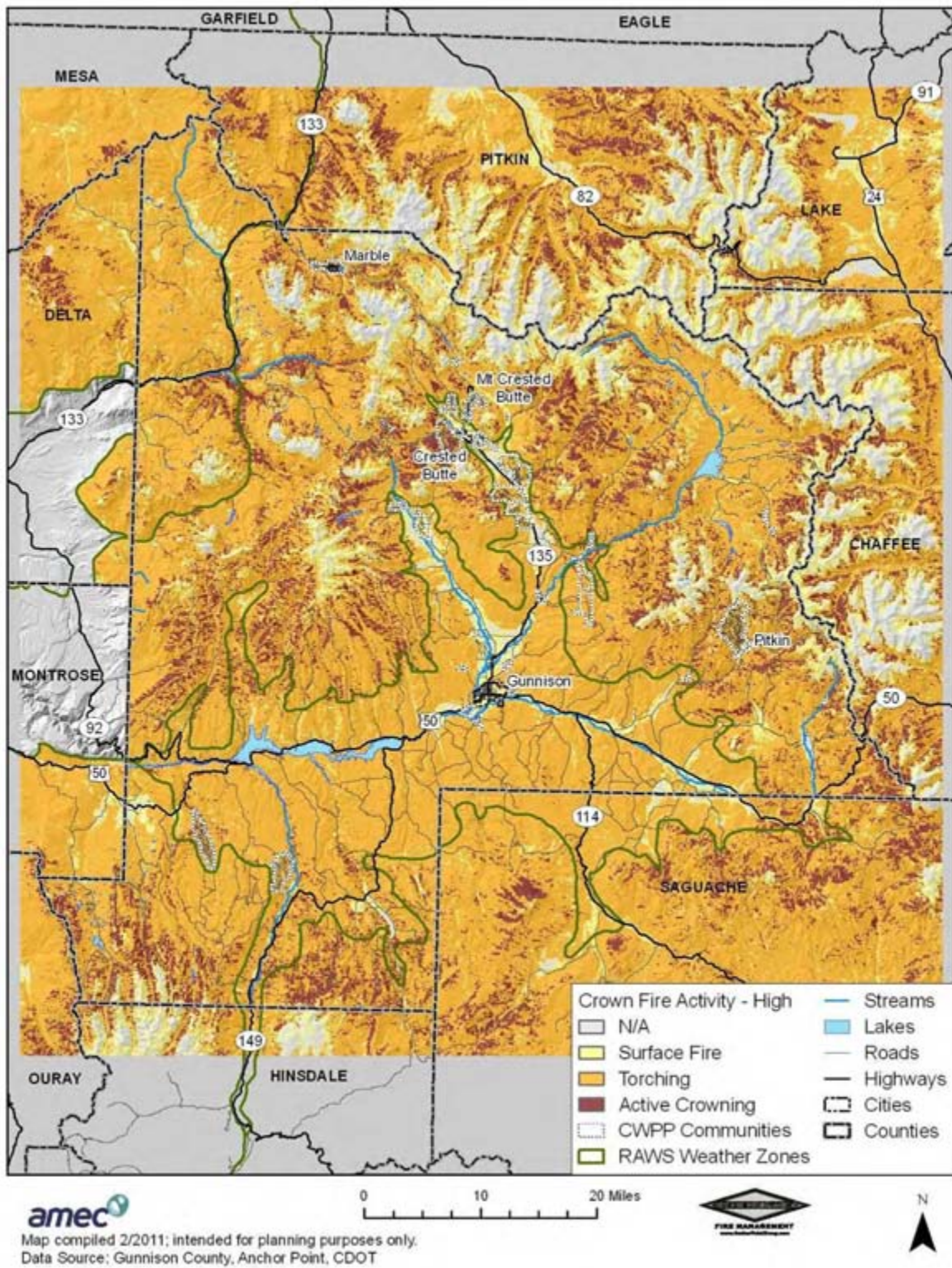


Crown Fire

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 be referenced in an 11 x 17 format in Appendix D.

Figure C9. Predicted Crown Fire Activity Under High Weather Conditions



Fireline Intensity

Fireline intensity is a function of rate of spread and heat per unit 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 be referenced in an 11 x 17 format in Appendix D.

Figure C10. Predicted Fireline Intensity Under Moderate Weather Conditions

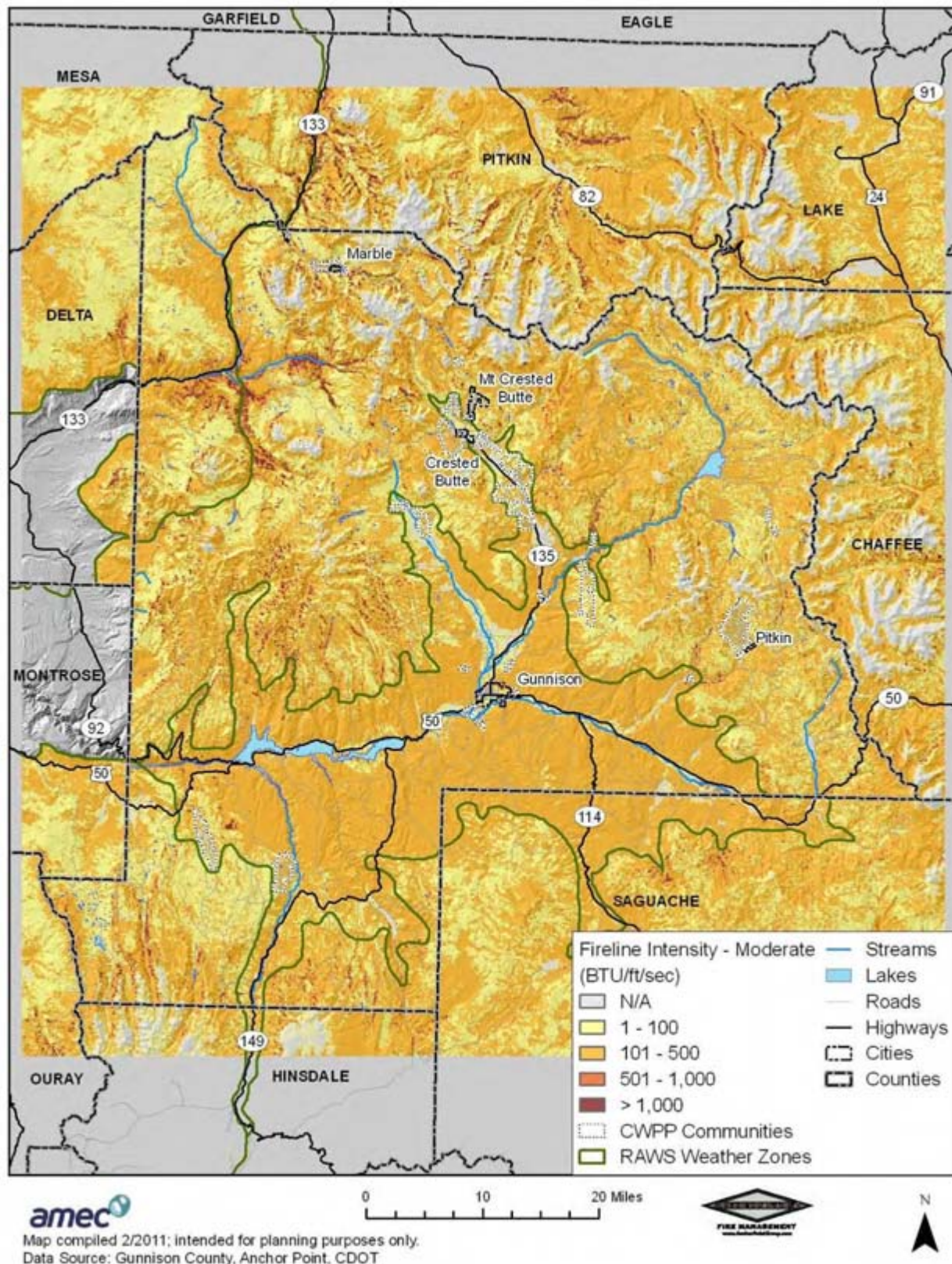
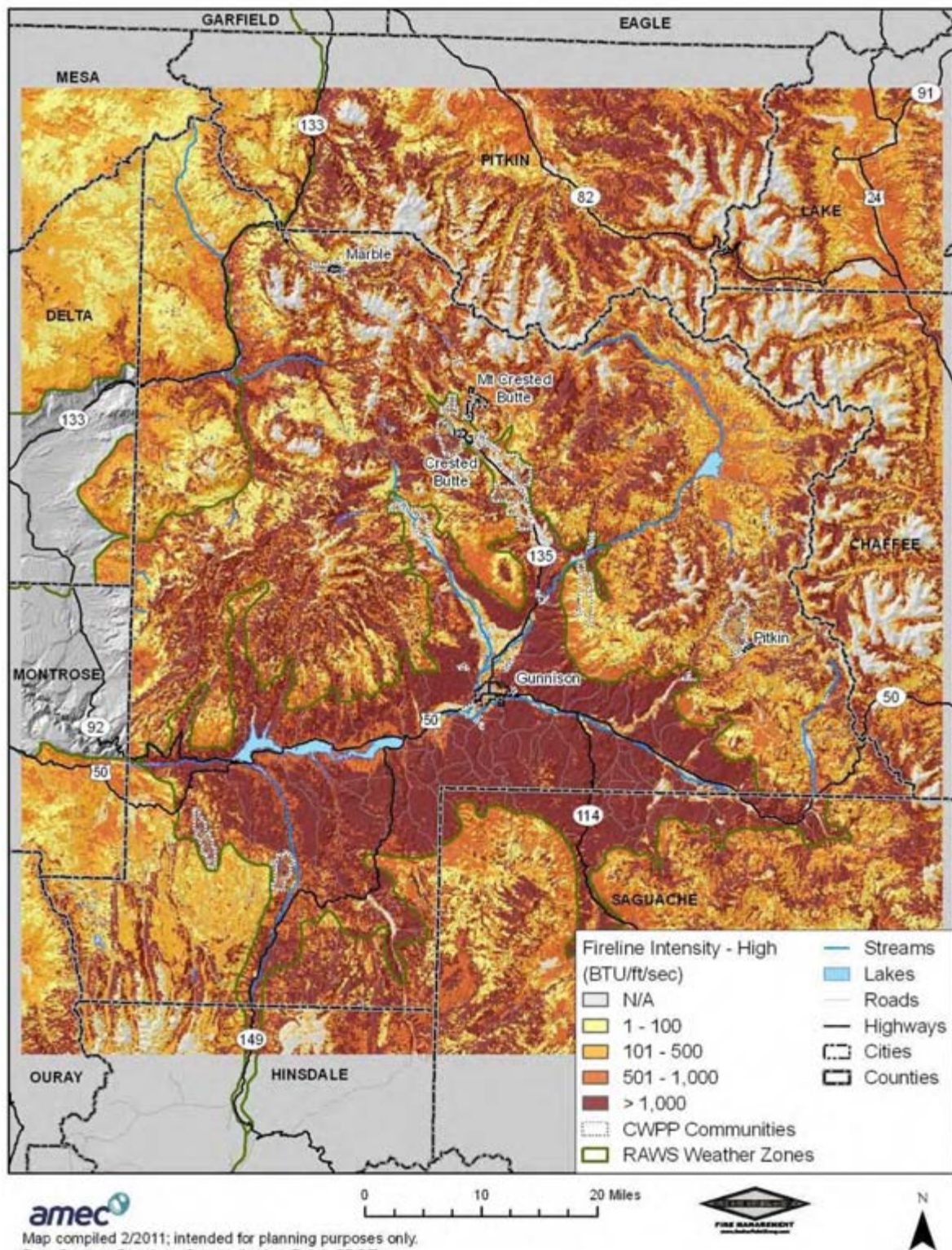
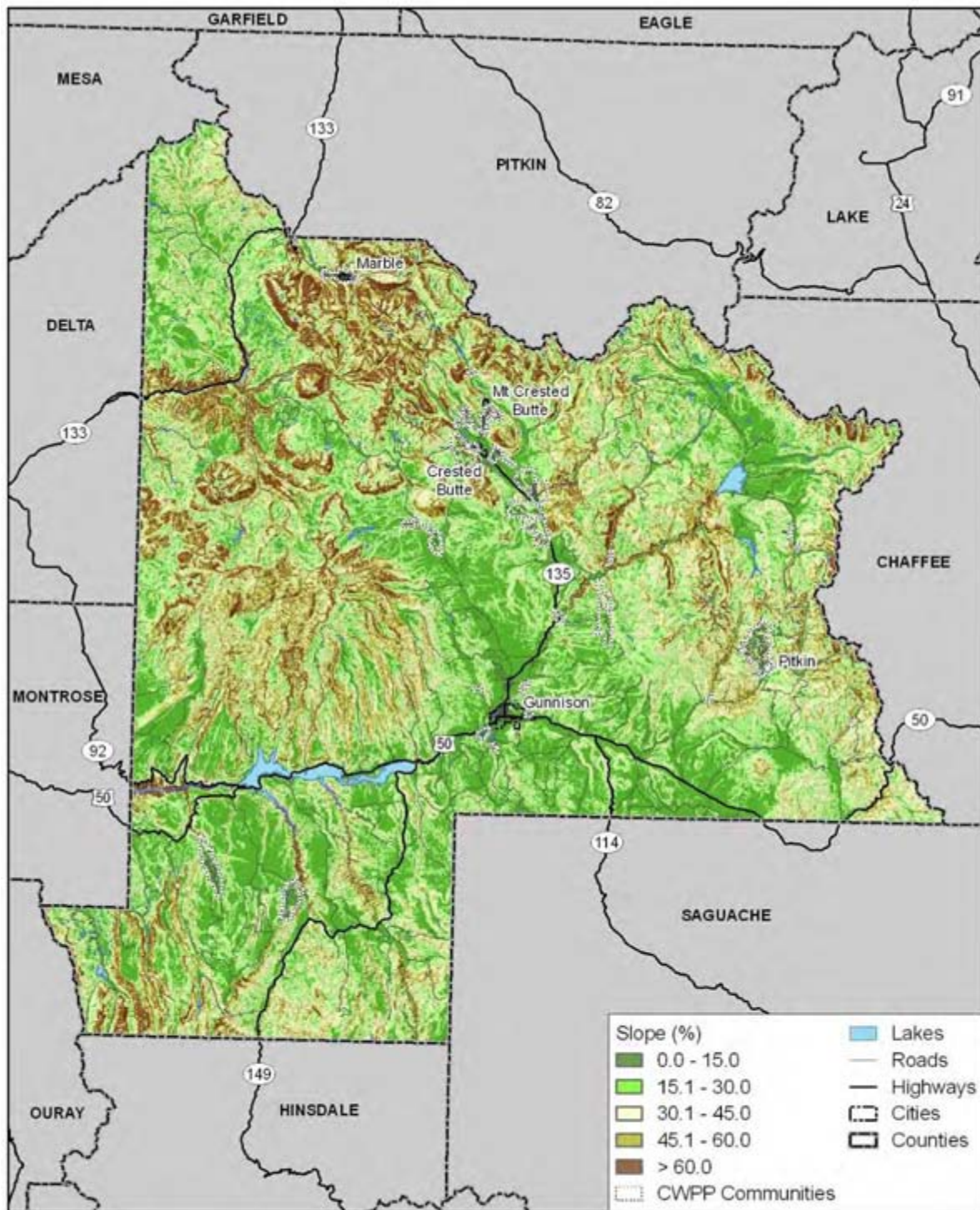


Figure C11. Predicted Fireline Intensity Under High Weather Conditions



Additional Fire Behavior Input Maps

Figure C12. Gunnison County Slope



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



Figure C13. Gunnison County Aspect

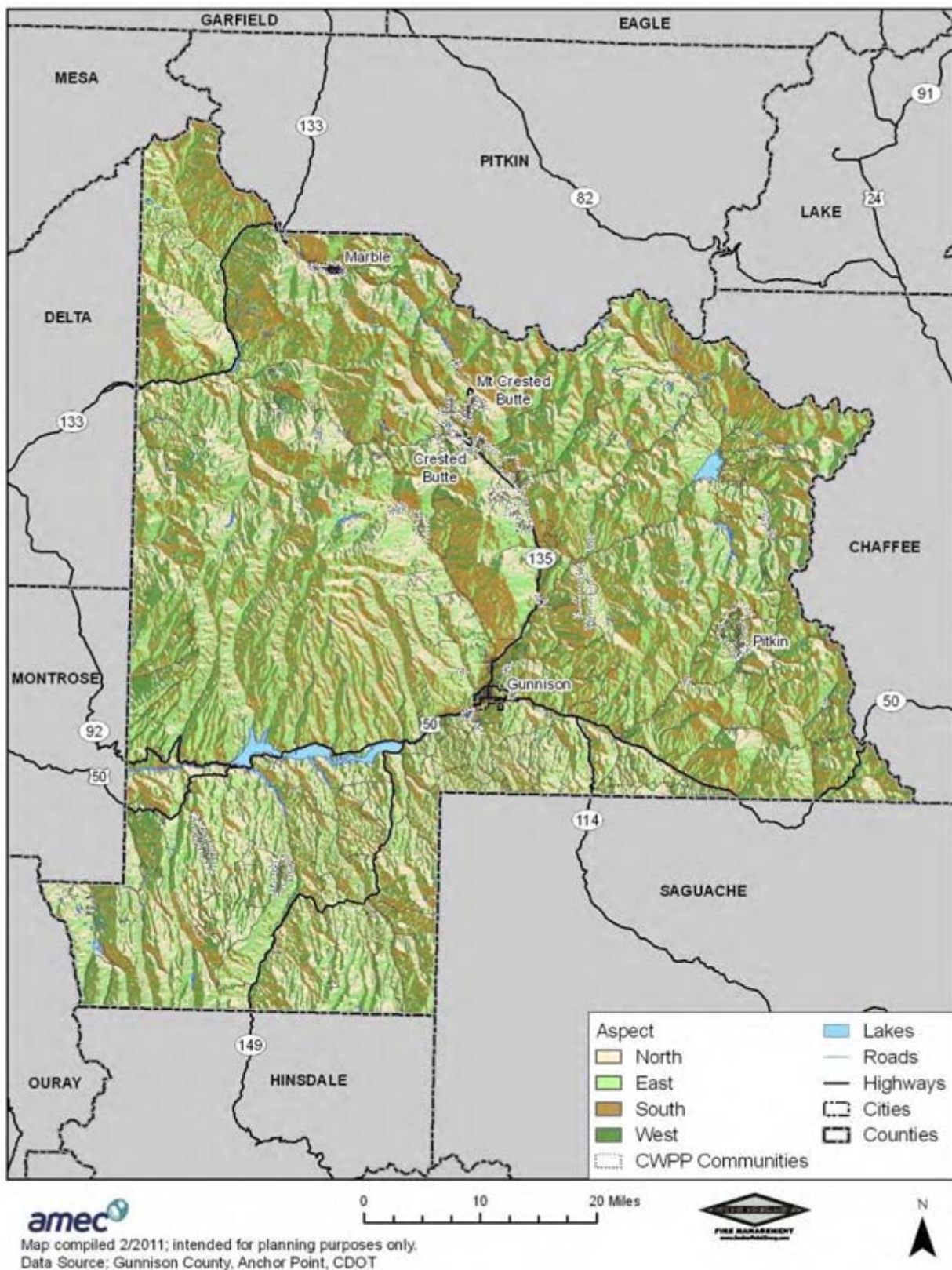
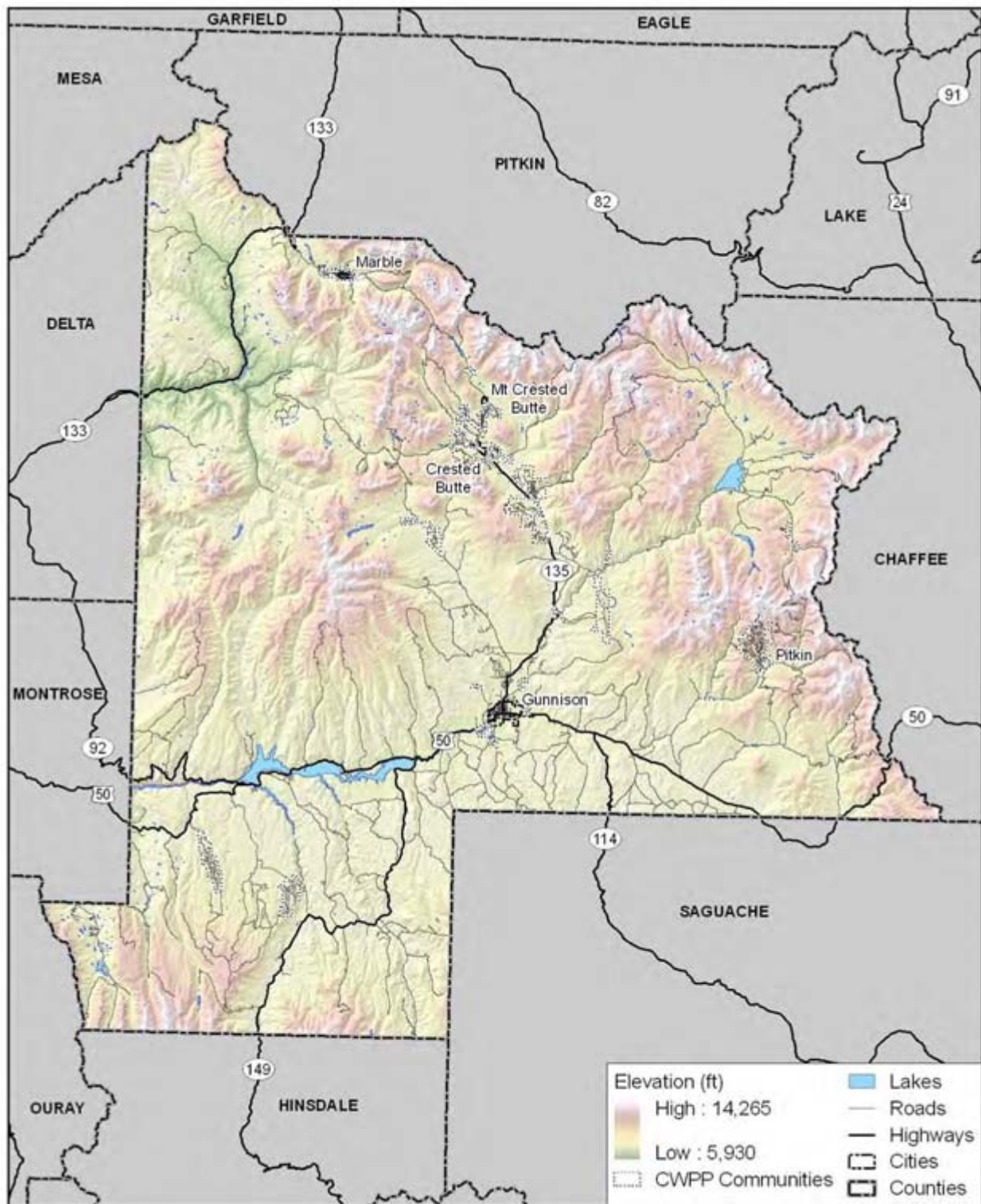


Figure C14. Gunnison County Elevation



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



Figure C15. Stand Height

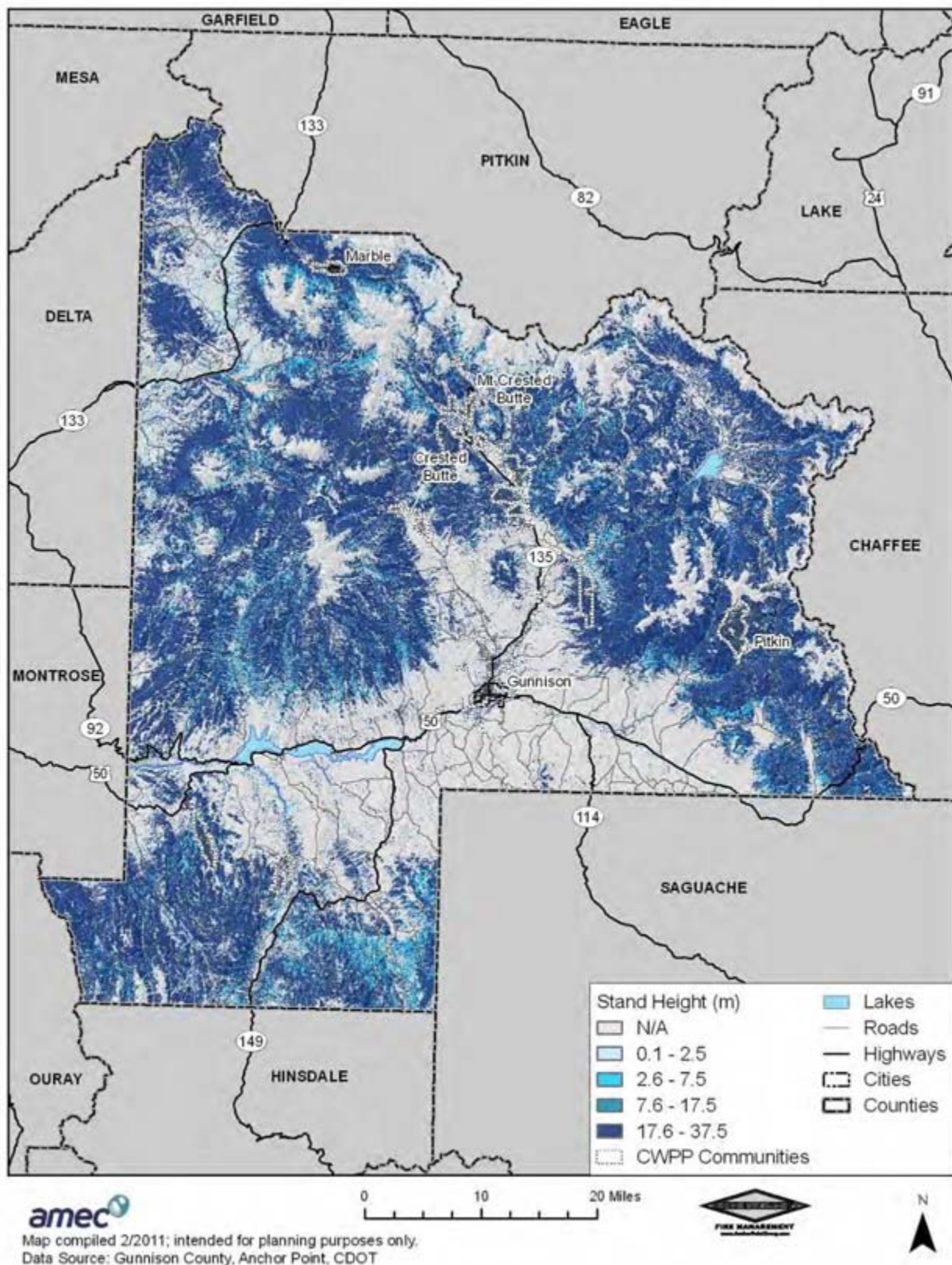


Figure C16. Fuel Model

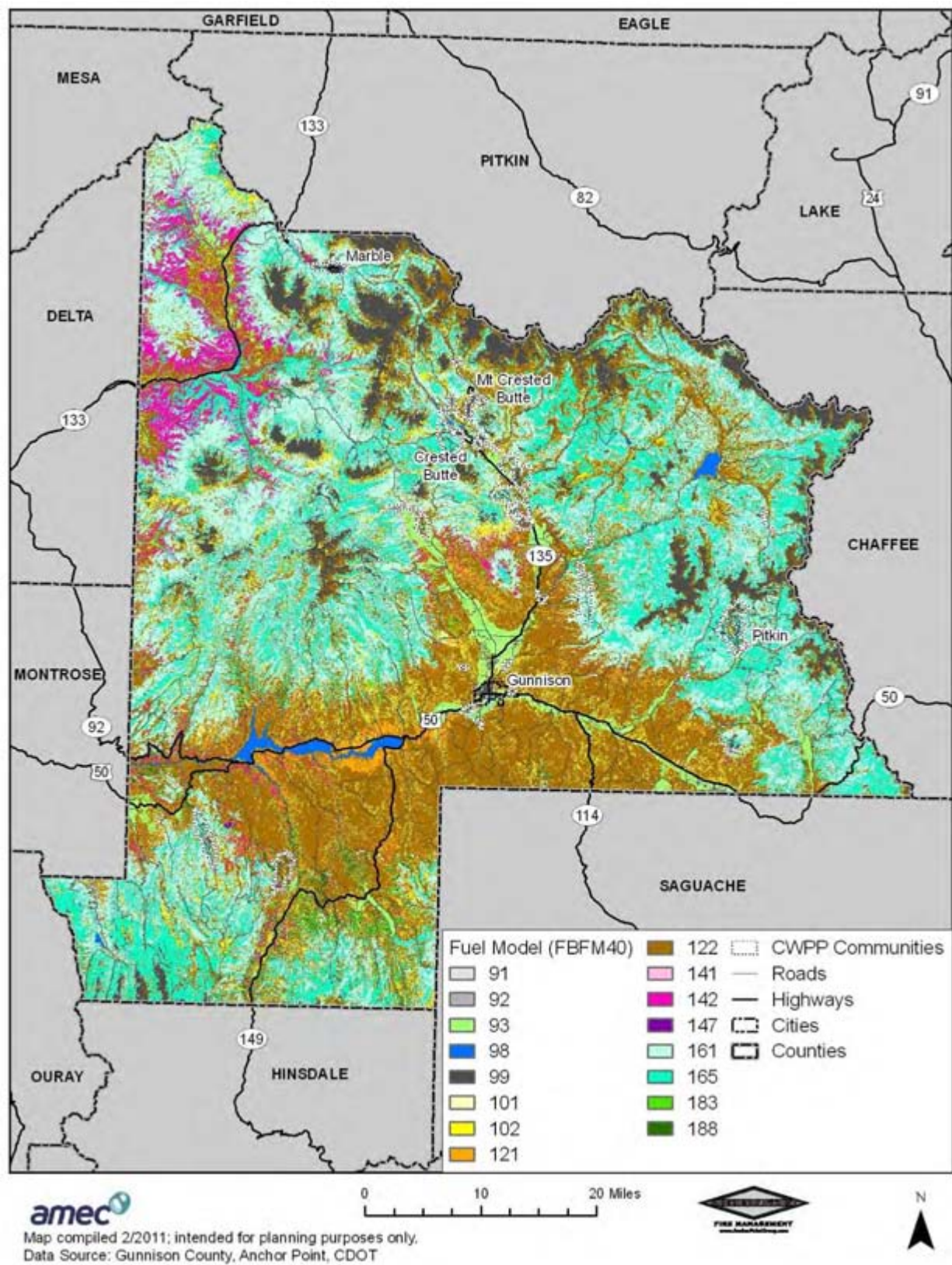
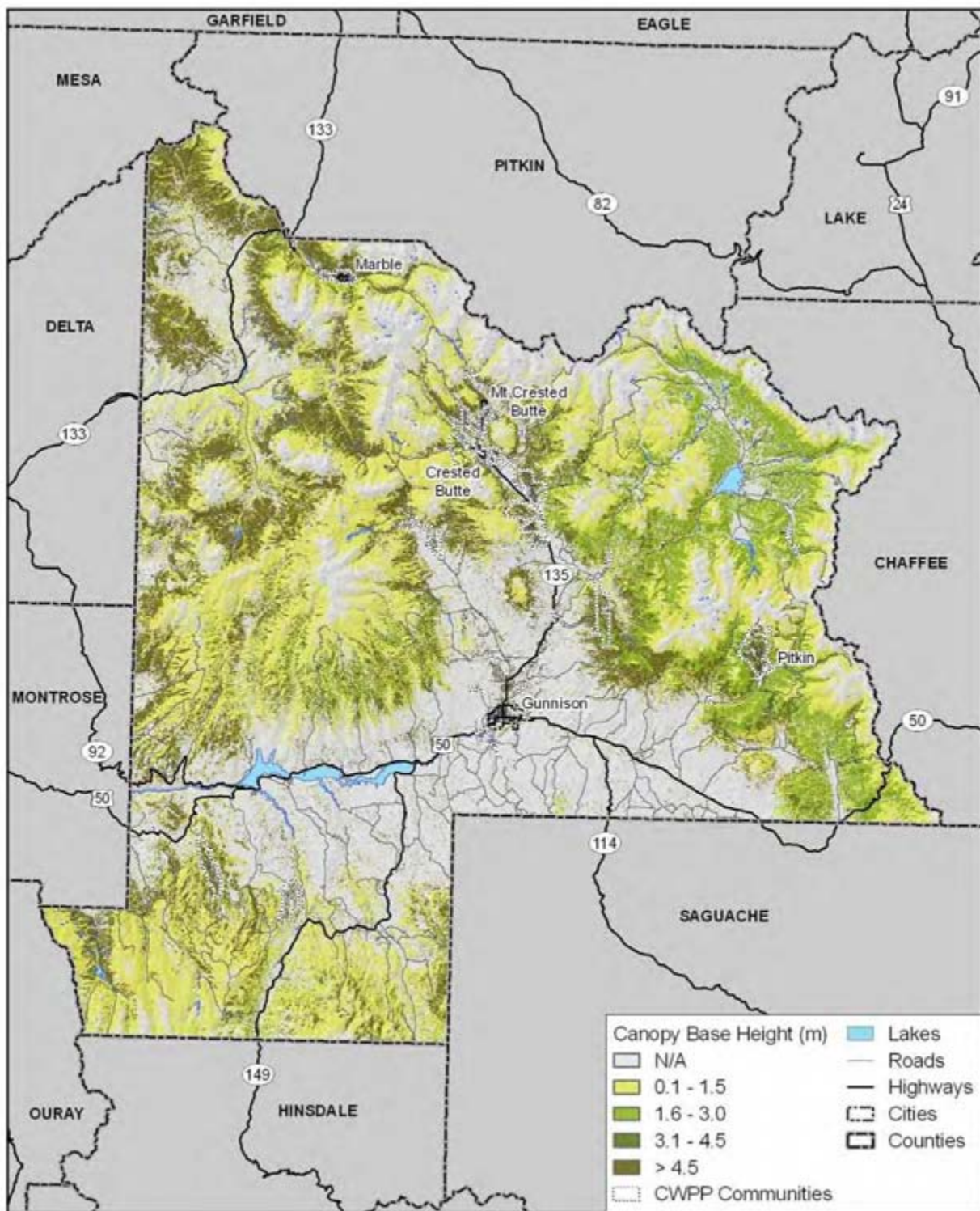


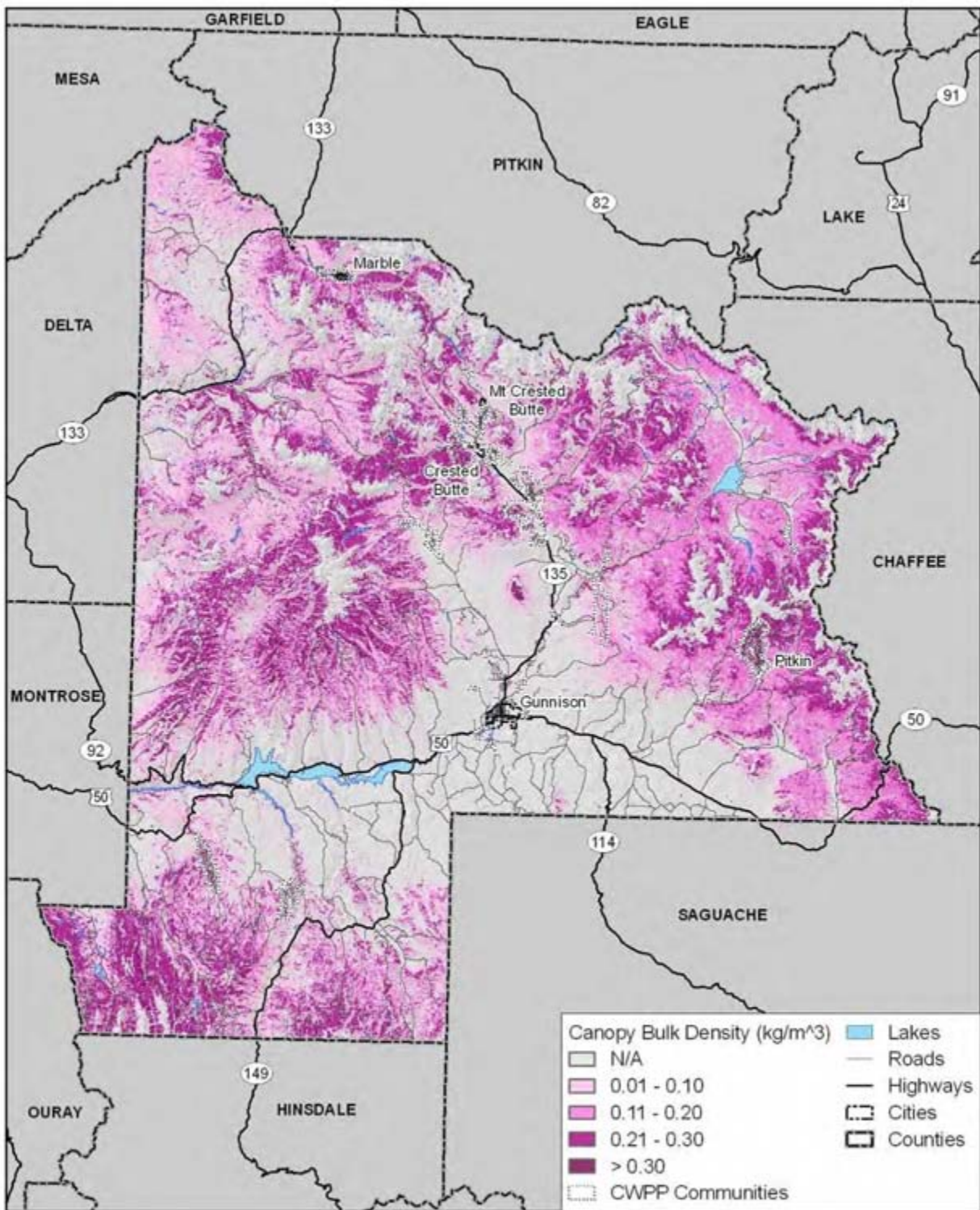
Figure C17. Canopy Base Height



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



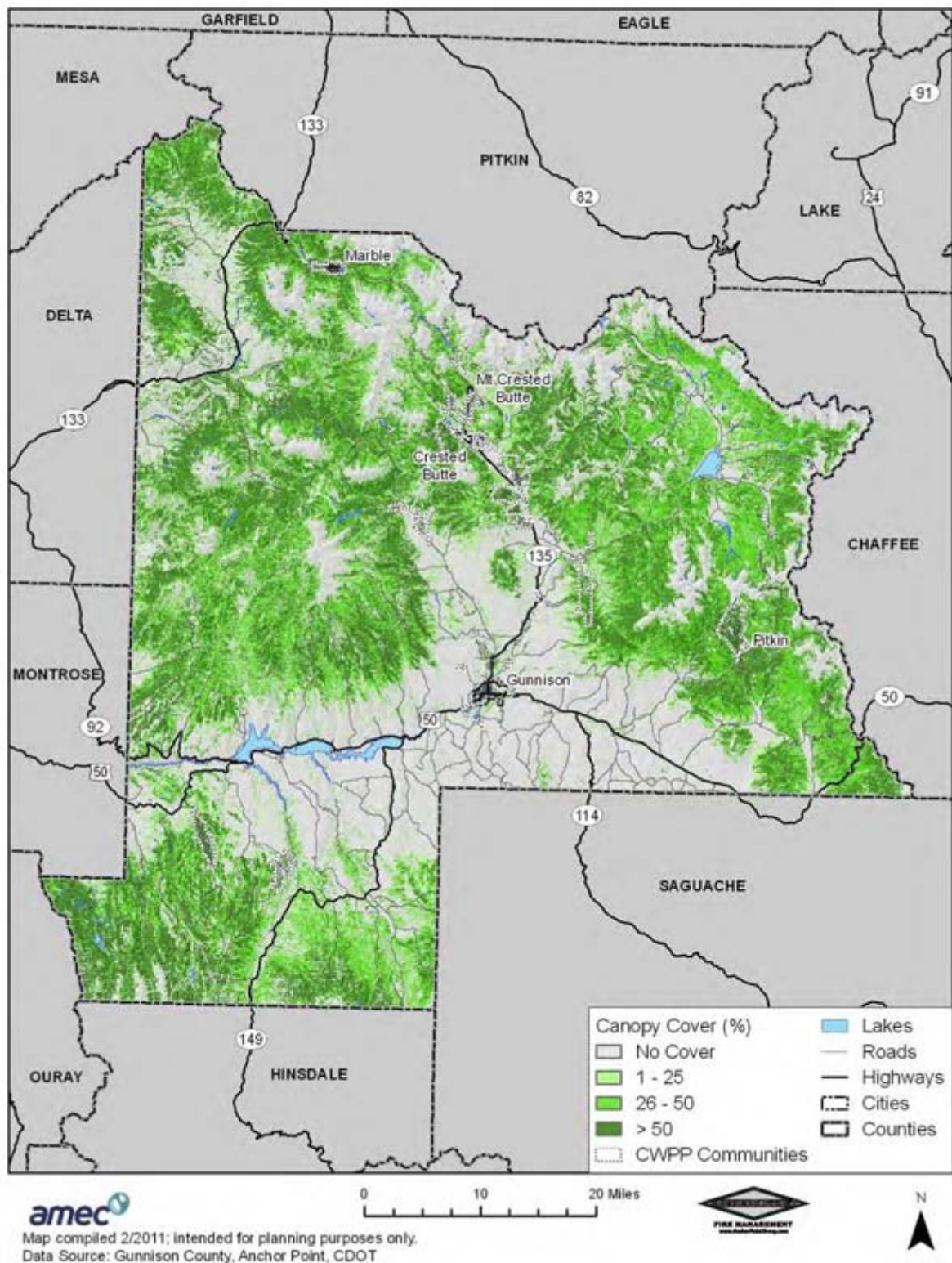
Figure C18. Canopy Bulk Density



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



Figure C19. Canopy Cover

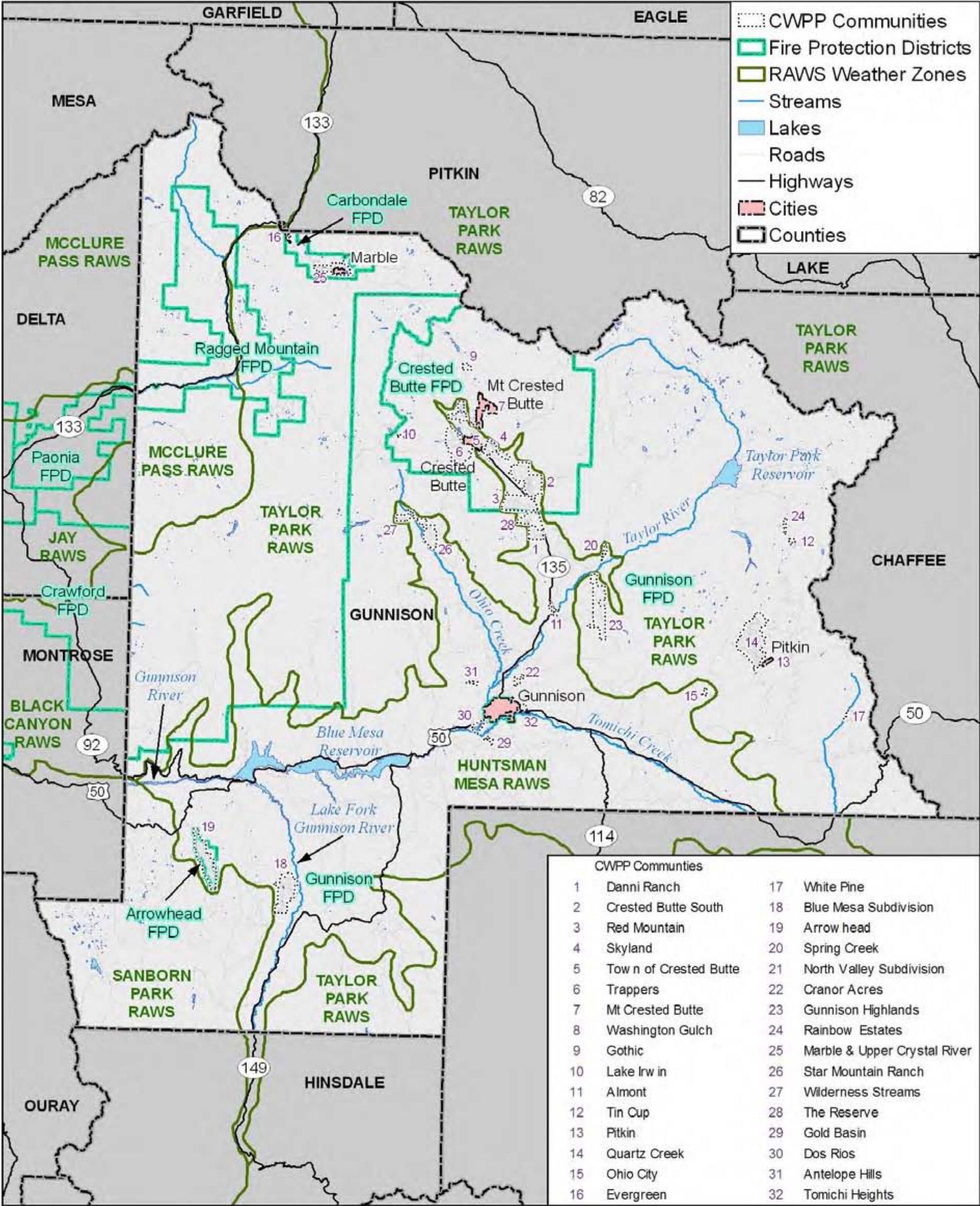


APPENDIX D: 11 X 17 MAPS

The following maps have been enlarged to 11 x 17:

- County CWPP Communities (figure 3)
- Other Agency Treatments (figure 6)
- County Rural Planning Area (figure 8)
- County CWPP Communities and Hazard Rating (figure 9)
- Areas of Special Interest Map (figure 8)
- 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)

Gunnison County CWPP Communities



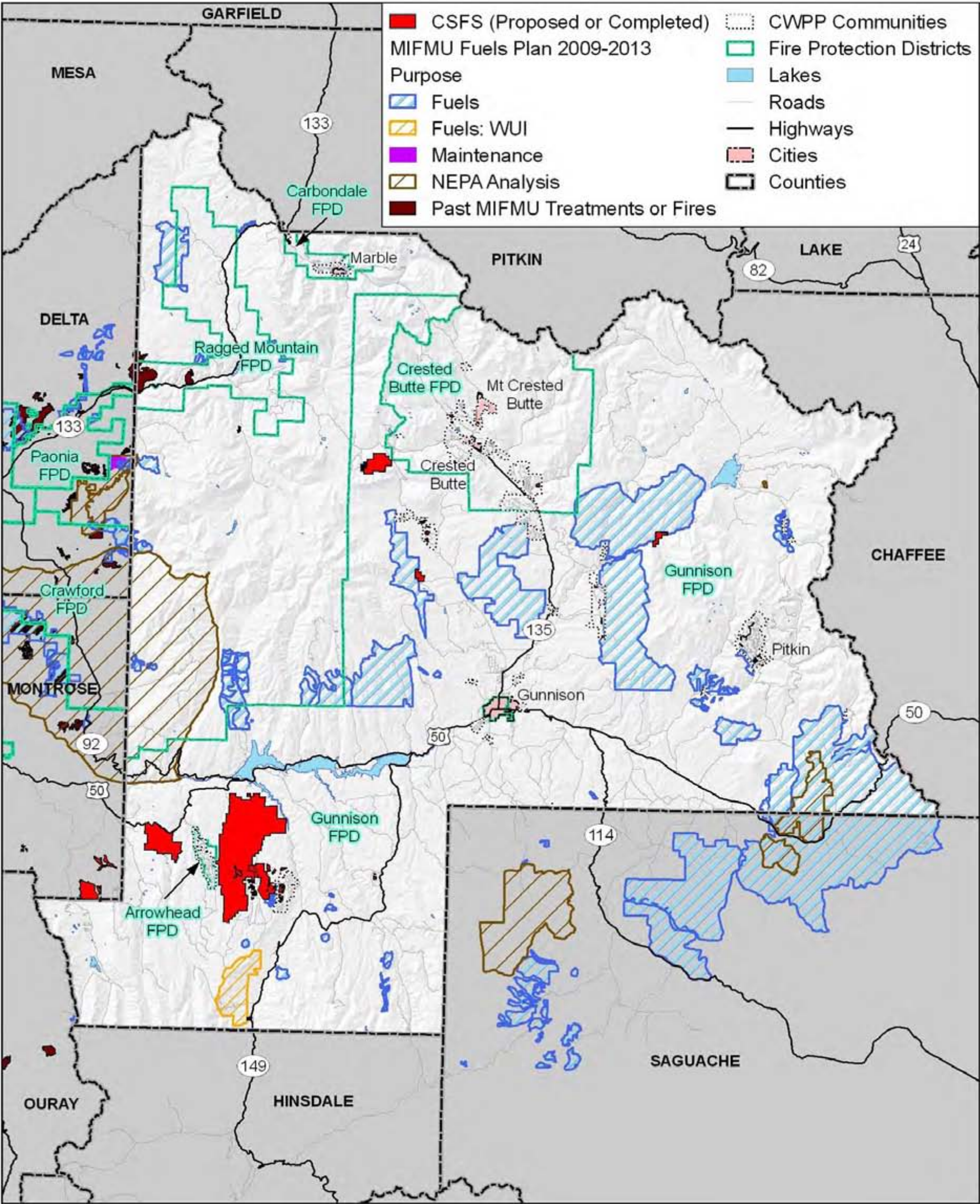
Map compiled 6/2011; intended for planning purposes only.
Data Source: Gunnison County, Anchor Point, CDOT

0 10 20 Miles



N

Gunnison County Other Agency Treatments

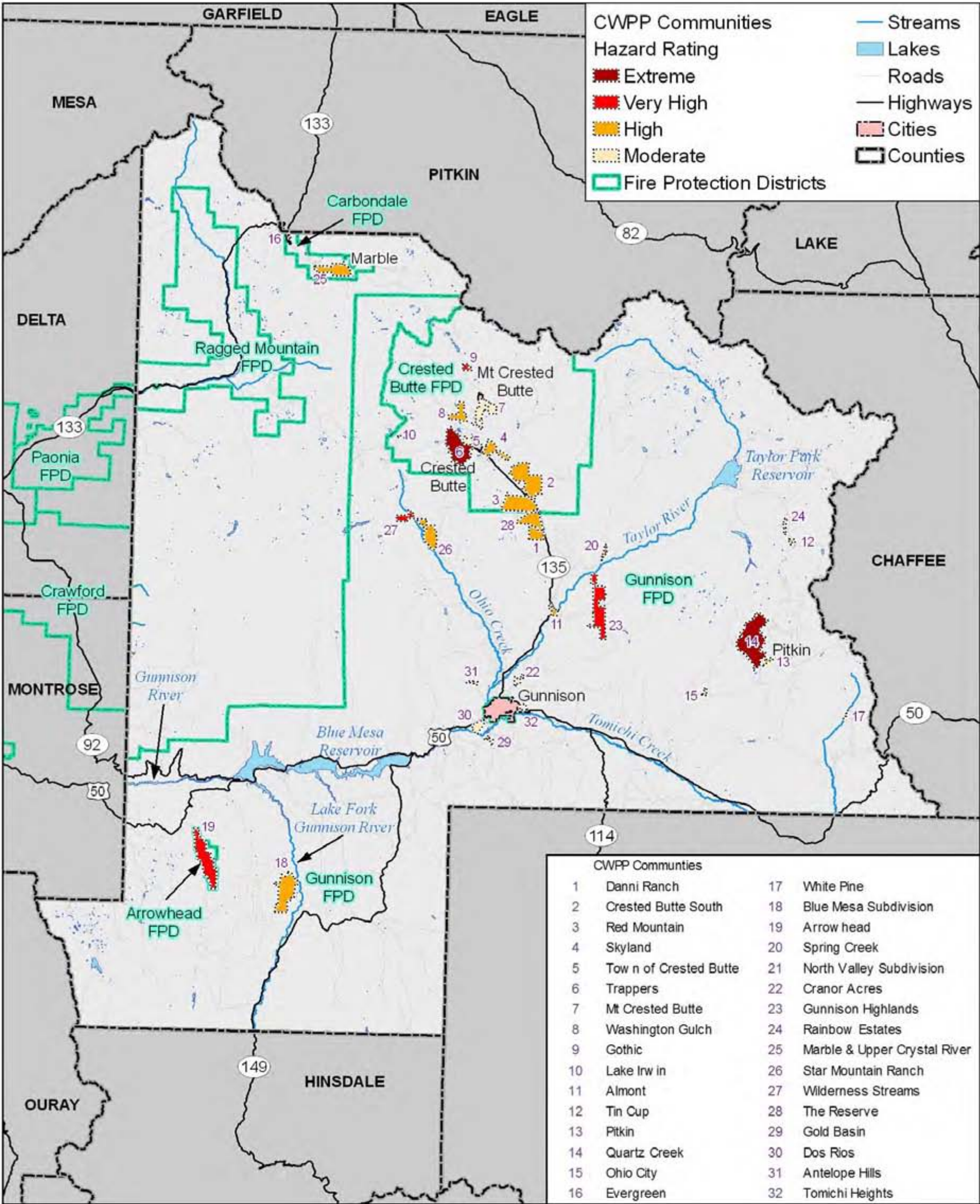


Map compiled 6/2011; intended for planning purposes only.
Data Source: Gunnison County, Anchor Point, CDOT,
CSFS, MIFMU

0 9 18 Miles



Gunnison County CWPP Communities and Hazard Rating

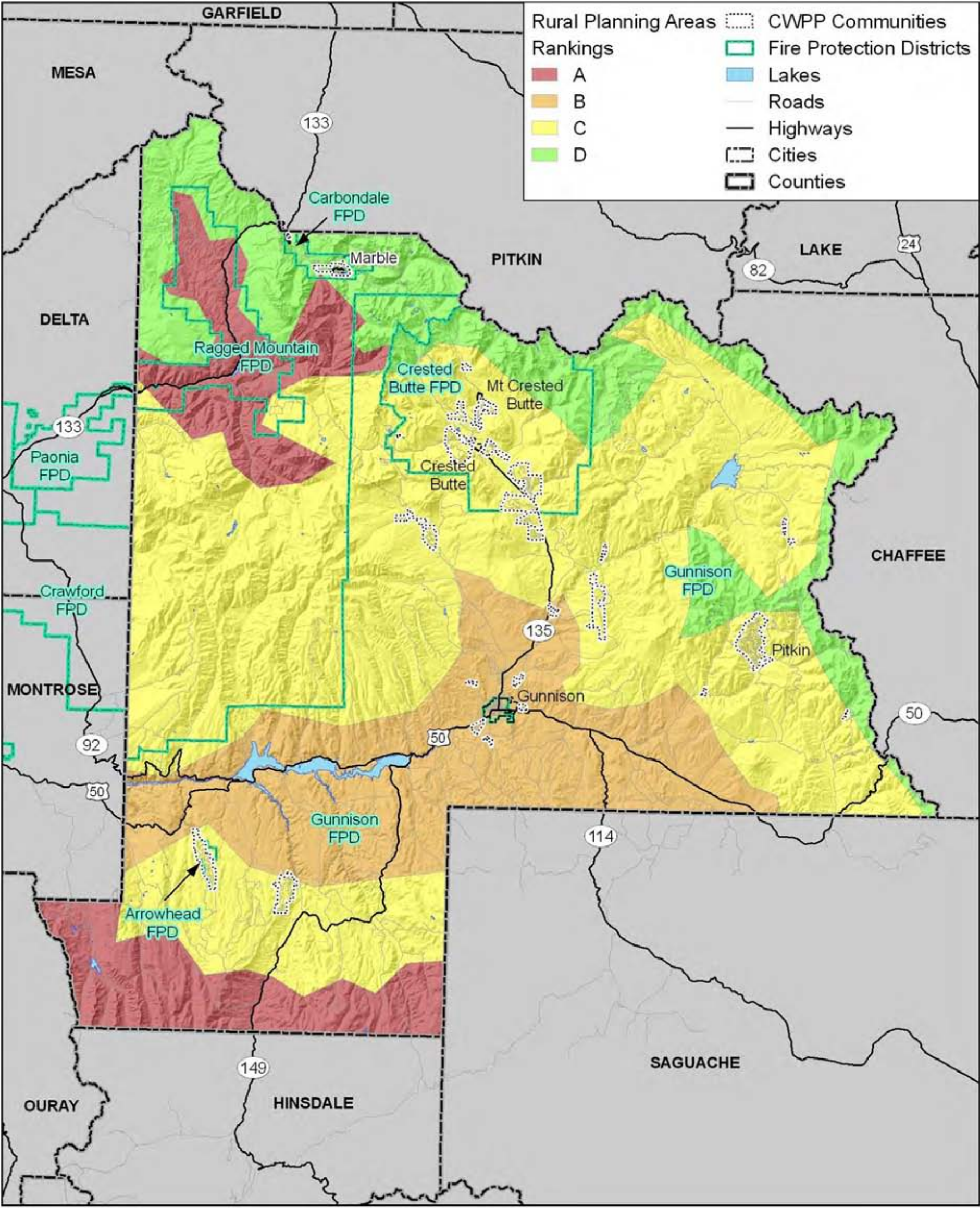


Map compiled 6/2011; intended for planning purposes only.
 Data Source: Gunnison County, Anchor Point, CDOT

0 10 20 Miles



Gunnison County Rural Planning Areas



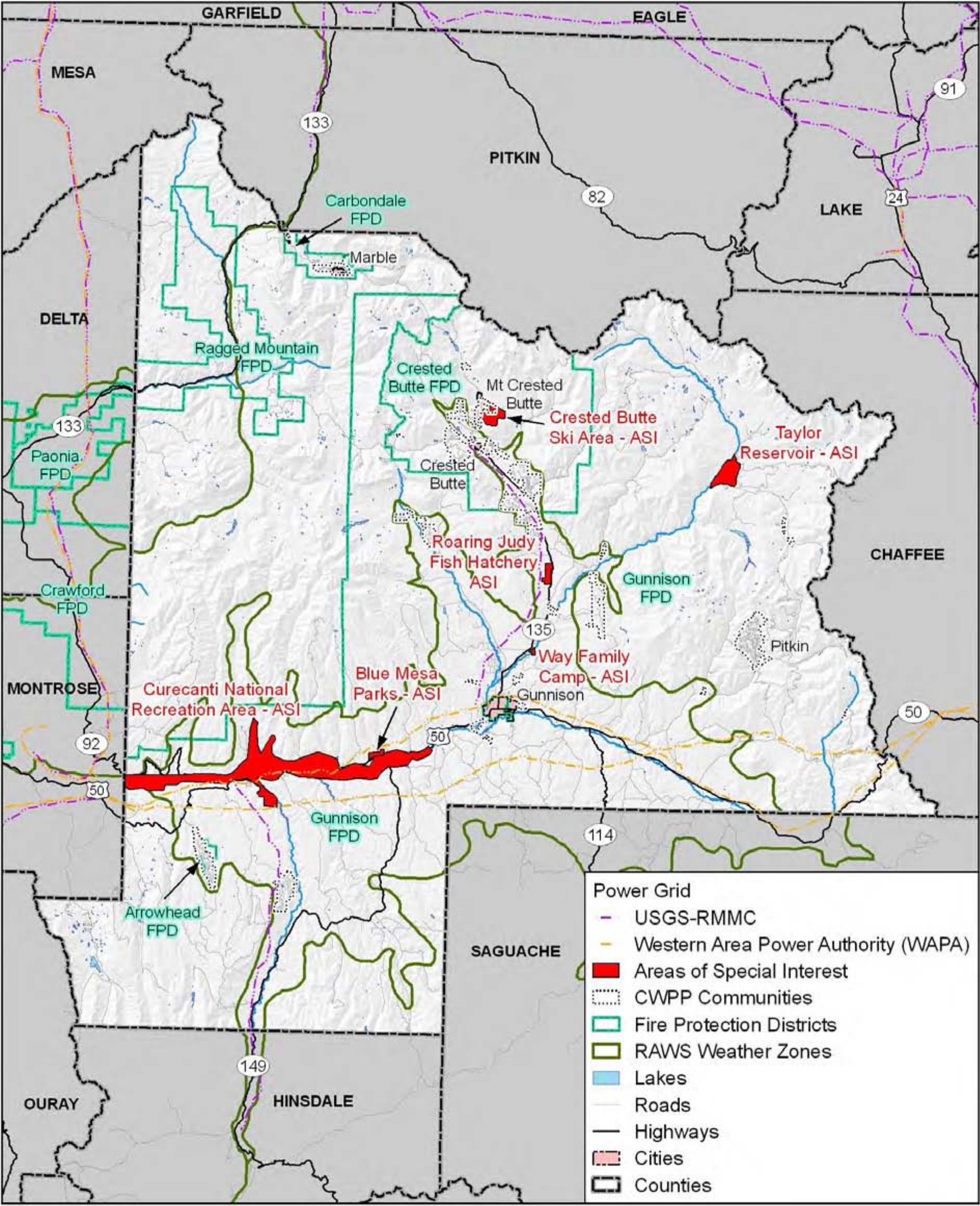
Map compiled 6/2011; intended for planning purposes only.
Data Source: Gunnison County, Anchor Point, CDOT

0 10 20 Miles



N

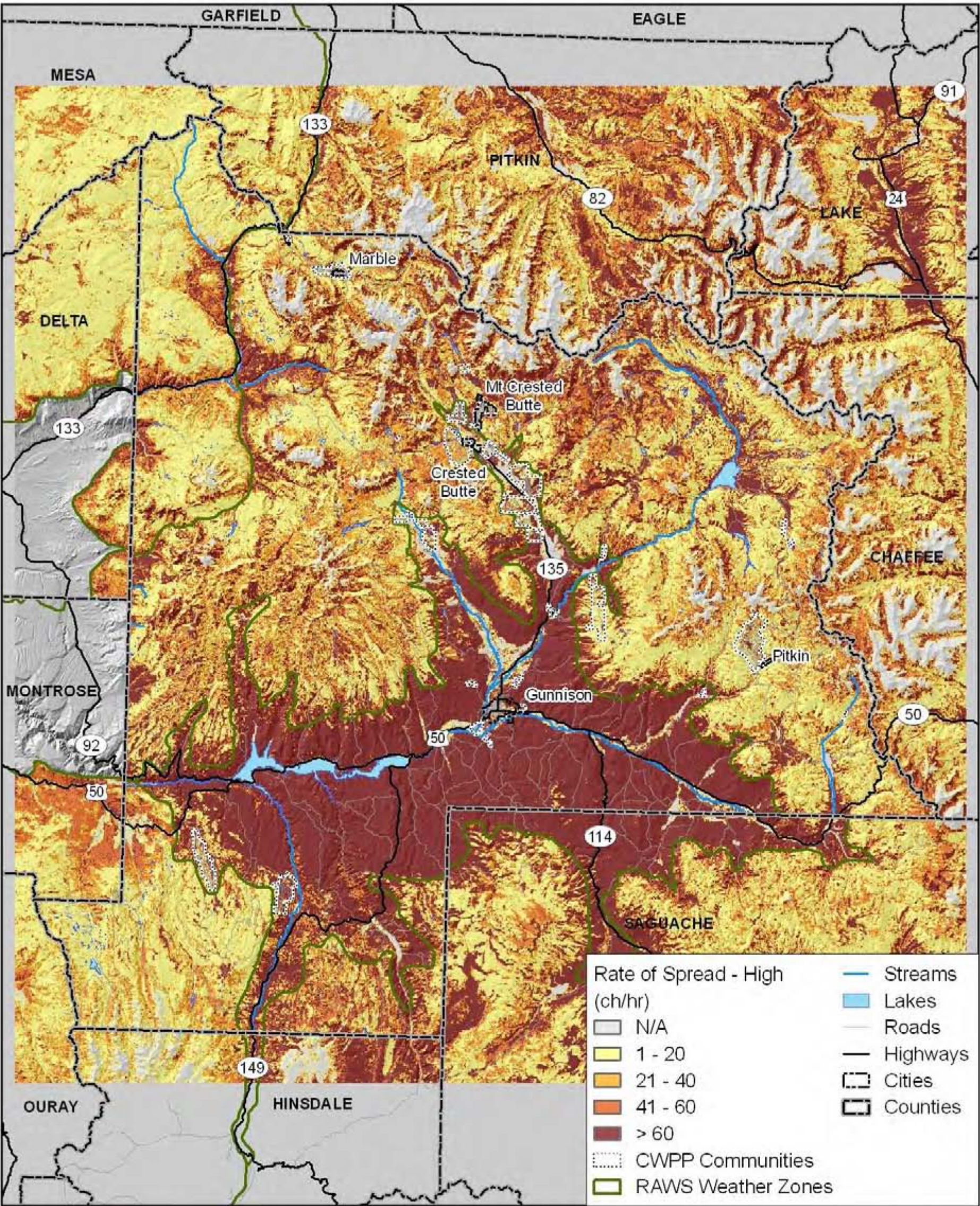
Gunnison County Areas of Special Interest



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



Gunnison County Rate of Spread High Weather Conditions

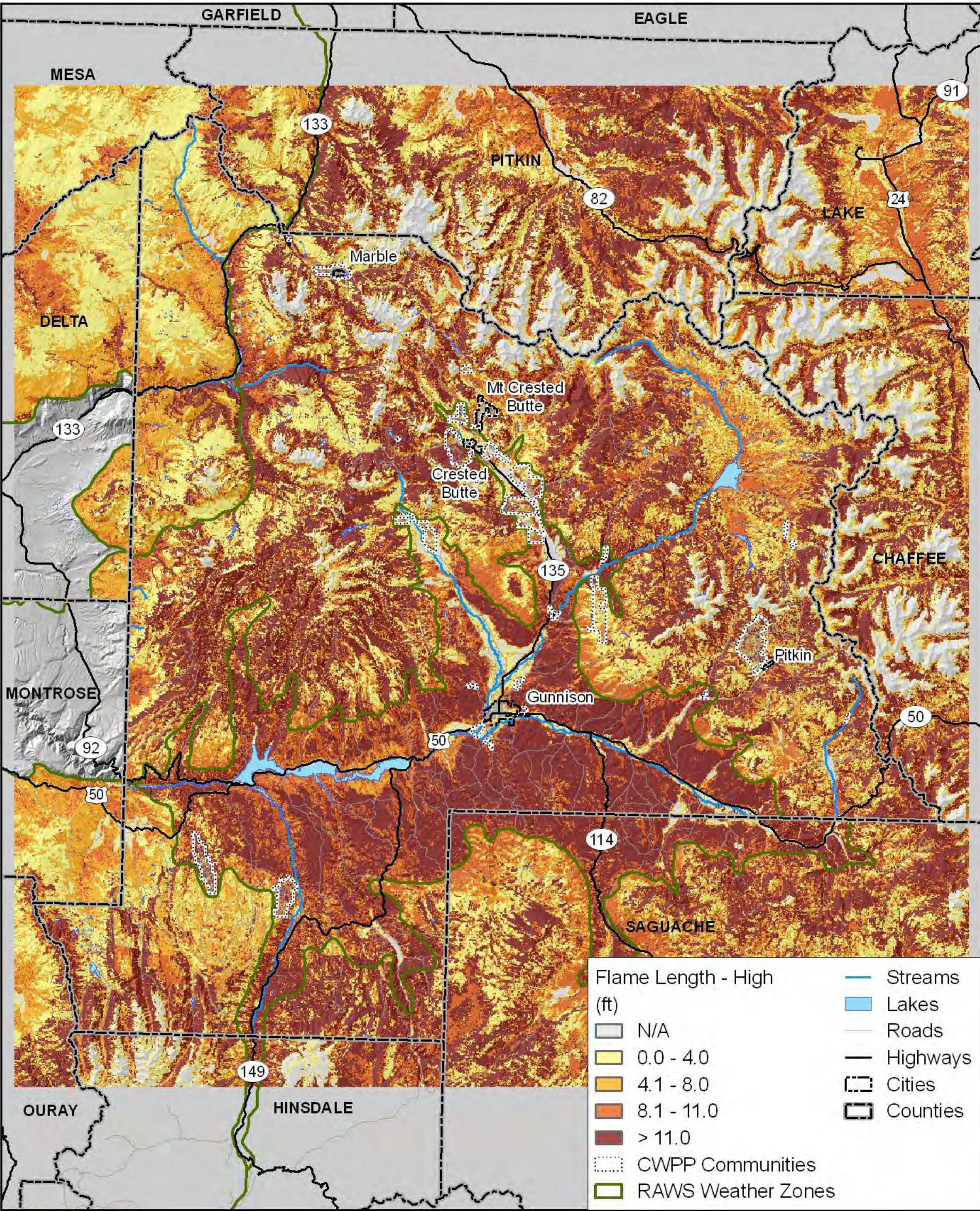


Map compiled 2/2011; intended for planning purposes only.
Data Source: Gunnison County, Anchor Point, CDOT

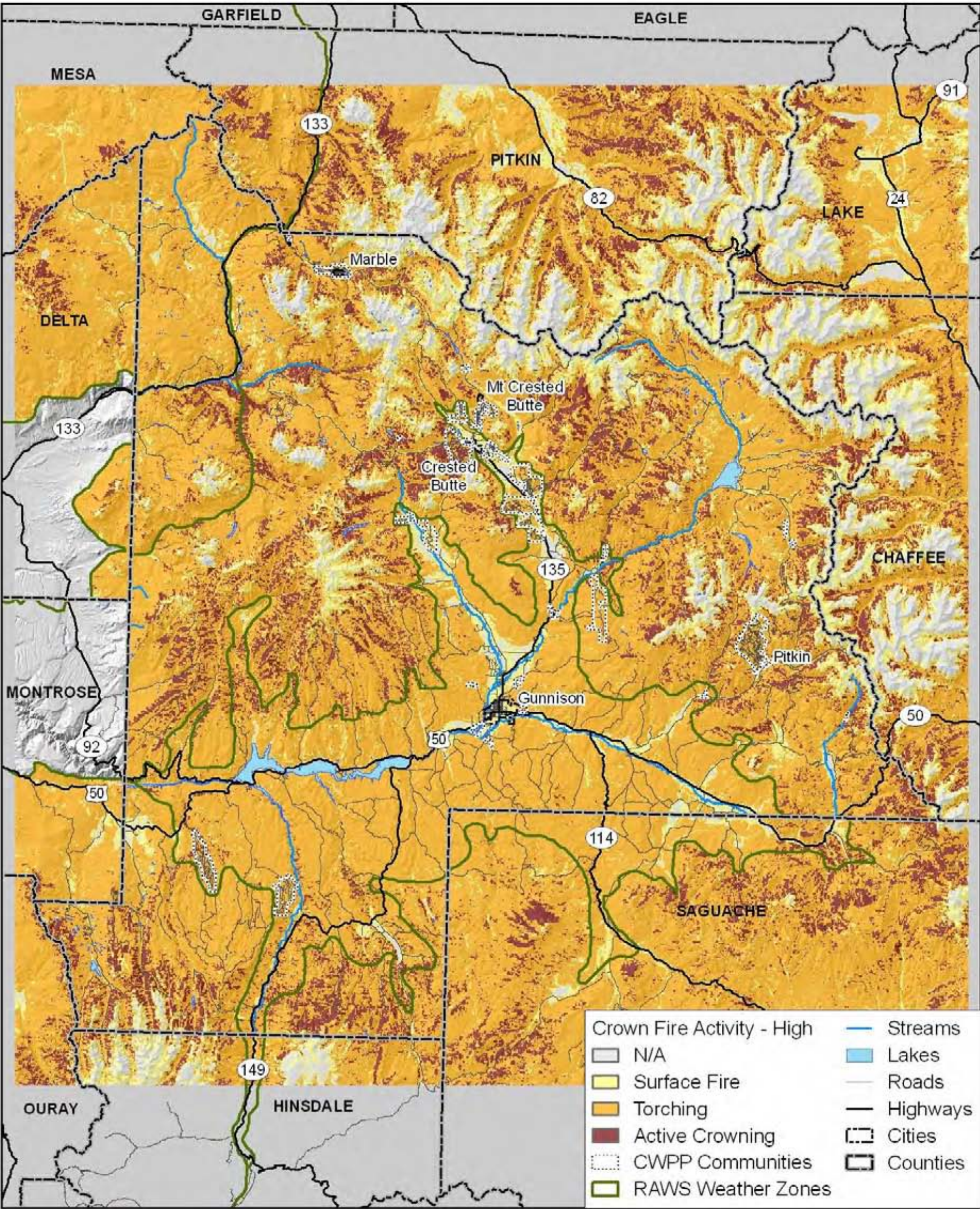
0 10 20 Miles



Gunnison County Flame Length High Weather Conditions



Gunnison County Crown Fire High Weather Conditions

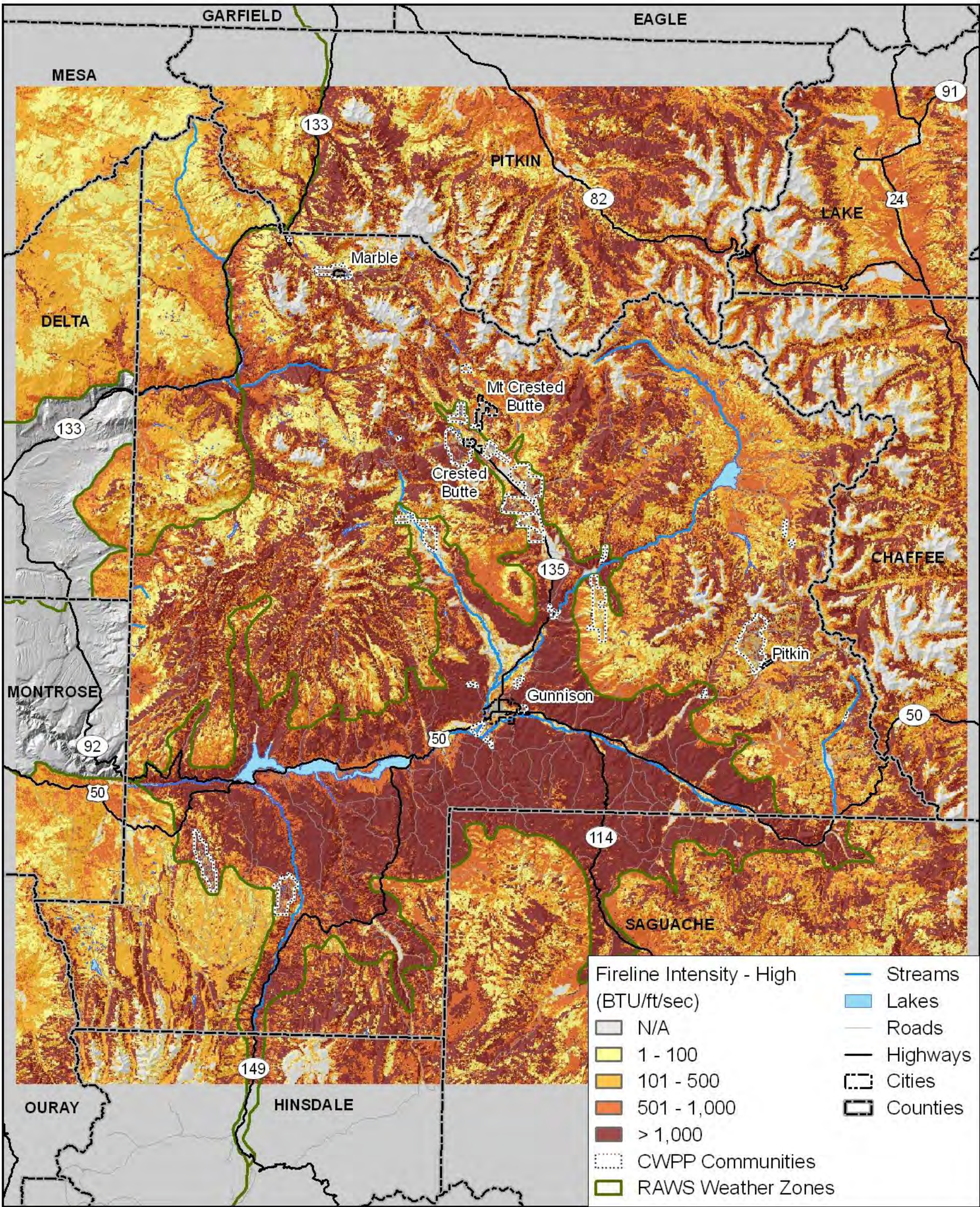


Map compiled 2/2011; intended for planning purposes only.
Data Source: Gunnison County, Anchor Point, CDOT

0 10 20 Miles



Gunnison County Fireline Intensity High Weather Conditions



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

