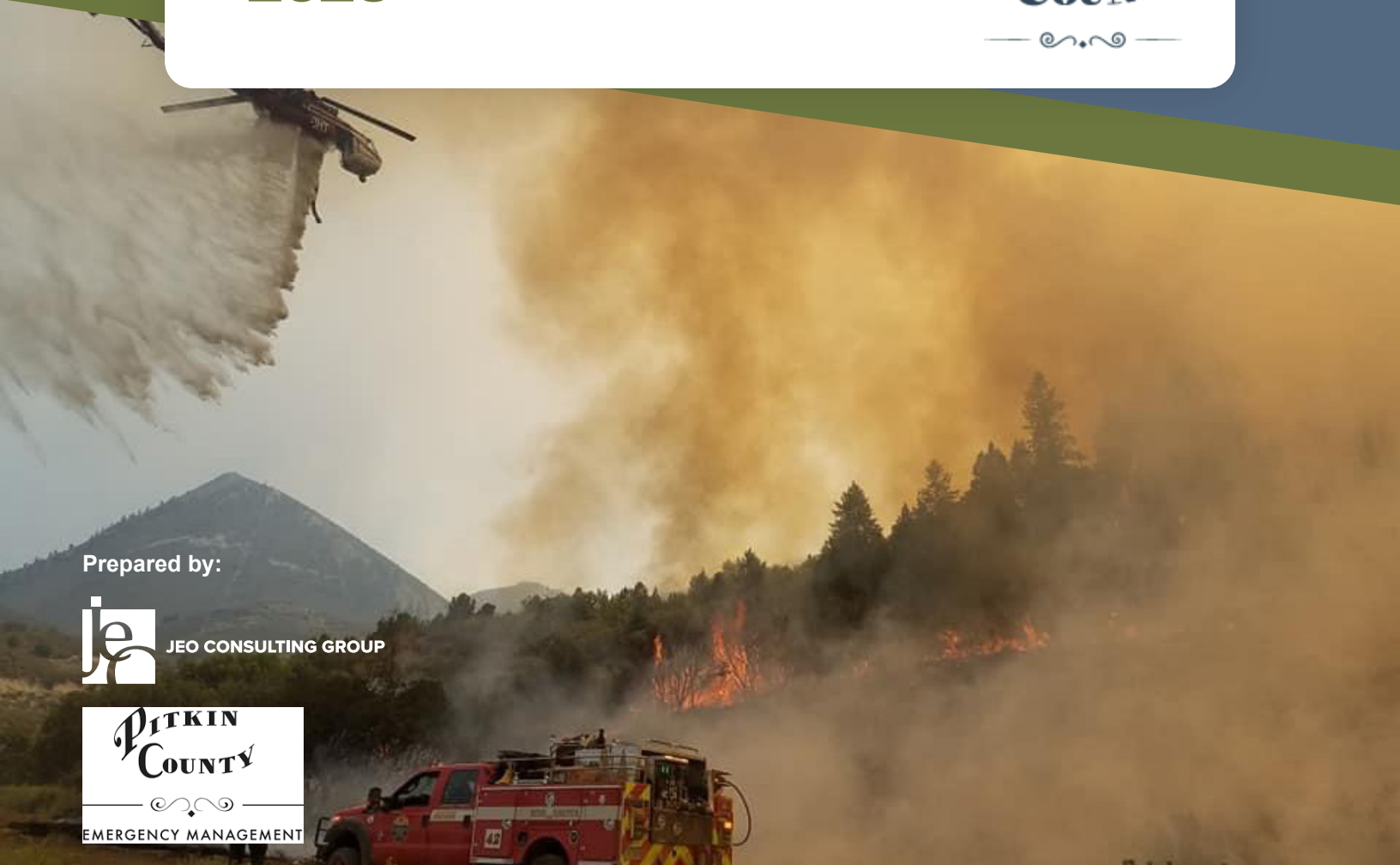
Pitkin County Wildfire Protection Plan

2023

Pitkin County



Prepared by:

JEO CONSULTING GROUP

Pitkin County
EMERGENCY MANAGEMENT

CWPP Certification

The Pitkin County Community Wildfire Protection Plan was developed in accordance with the guidelines set forth by the Healthy Forests Restoration Act (2003) and the Colorado State Forest Service's Minimum Standards for Developing Community Wildfire Protection Plans (2022).

- This plan was collaboratively developed through planning meetings with representatives from the fire protection districts, Pitkin County, federal agencies, state agencies, communities, and other organizations invited to participate.
- This plan identifies and prioritizes areas for vegetation-fuels reduction treatments to reduce the wildfire threat to human welfare and economic values at risk in the county.
- This plan recommends measures to reduce the ignitability of structures and loss of life.
- This plan provides recommendations on ways to improve wildfire response capabilities for the fire protection districts.

The following entities mutually agree with the contents of the Pitkin County CWPP:

Valerie MacDonald
Valerie MacDonald (Oct 16, 2023 15:33 MDT)

Oct 16, 2023

Valerie MacDonald, CWPP Project Manager for Pitkin County — Date

Parker Lathrop
Parker Lathrop (Oct 16, 2023 16:05 MDT)

Oct 16, 2023

Parker Lathrop, Pitkin County Interim Emergency Manager — Date

Michael Buglione (Oct 18, 2023 10:03 MDT)

Oct 18, 2023

Michael Buglione, Pitkin County Sheriff — Date

Jon Peacock
Jon Peacock (Oct 20, 2023 07:31 MDT)

Oct 20, 2023

Jon Peacock, Pitkin County Manager — Date

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Rick Balentine, Aspen Fire Protection District Fire Chief — Oct 20, 2023 — Date

Robert A. Goodwin
Robert A. Goodwin (Oct 23, 2023 08:44 MDT)

Rob Goodwin, Carbondale & Rural Fire Protection District Fire Chief — Oct 23, 2023 — Date

Scott Thompson
Scott Thompson (Oct 20, 2023 08:26 MDT)

Scott Thompson, Roaring Fork Fire Rescue Authority Fire Chief — Oct 20, 2023 — Date

Matthew Schiltz (Oct 24, 2023 09:26 MDT)

Matt Schiltz, Colorado State Forest Service — Oct 24, 2023 — Date

Jim Genung
Jim Genung (Oct 24, 2023 08:28 MDT)

Jim Genung, U.S. Forest Service — Oct 24, 2023 — Date

Larry W. Sandoval, Jr.
Larry W. Sandoval, Jr. (Oct 23, 2023 17:24 MDT)

Larry Sandoval, Bureau of Land Management — Oct 23, 2023 — Date

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List of Acronyms

AFPD – Aspen Fire Protection District
BLM – Bureau of Land Management
BTU – British Thermal Unit
CSFS – Colorado State Forest Service
CRFPD – Carbondale and Rural Fire Protection District
CWPP – Community Wildfire Protection Plan
DFPC – Colorado Division of Fire Prevention and Control
FEMA – Federal Emergency Management Agency
FPD – Fire Protection District
GIS – Geographical Information System
HFRA – Healthy Forests Restoration
HMP – Hazard Mitigation Plan
ISO – Insurance Services Office
MAMA – Mountain Area Mutual Aid Plan
NEPA – National Environmental Policy Act
RFFRA – Roaring Fork Fire Rescue Authority
EFF – State Emergency Fire Fund
UCRIFMU – Upper Colorado River Interagency Fire Management Unit
USFS – U.S. Forest Service
VCC – Vegetation Condition Class
WUI – Wildland-Urban Interface

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Introduction

The Purpose

The Pitkin County Community Wildfire Protection Plan (CWPP) is a strategic plan that identifies specific wildland fire risks facing communities and fire districts within Pitkin County, Colorado and provides prioritized mitigation projects and activities designed to reduce those risks. The need for a CWPP is crucial as families and businesses continue to develop into unincorporated areas of the county. Homes and infrastructure are being built near wildland vegetation-fuels and terrain that could be conducive to catastrophic wildfire. While Pitkin County has not experienced a major wildfire event, recent large-scale wildfires in nearby counties, Colorado, and the world have resulted in the devastating loss of structures, businesses, and human lives.

The development of CWPPs is authorized and defined in Title I of the Healthy Forests Restoration Act (HFRA) passed by Congress on November 21, 2003, and signed into law by President George W. Bush on December 3, 2003. CWPPs are designed to empower the county to take advantage of wildland fire and hazardous fuel management opportunities through collaborative planning with the Bureau of Land Management (BLM), U.S. Forest Service (USFS), and Colorado Division of Fire Prevention and Control (DFPC) to reduce the risks of wildfire. On July 1, 2012, the DFPC assumed the responsibilities for wildland fire prevention and protection as provided by House Bill 12-1283. Prior to July 1, 2012, it was the obligation of the Colorado State Forest Service (CSFS) to provide wildland fire prevention and protection.

The CWPP brings together diverse local interests to discuss their mutual concerns for public safety, community sustainability, and natural resources. The plan provides prioritized access to state and federal grant funding to support identified vegetation-fuel management projects and other mitigation activities to reduce the risks of wildfire throughout the county. The HFRA places renewed emphasis on community planning by extending a variety of benefits to counties, fire districts, and communities with a wildfire protection plan in place. Critical among these benefits are the opportunity for jurisdictions to establish a localized definition and boundary for the WUI and to identify or shape fuels treatment priorities on surrounding federal and non-federal lands in Pitkin County.

The implementation of effective wildfire mitigation is a dynamic process. The characteristics of forests and interface communities are constantly changing. Flexibility is designed into the CWPP implementation process to accommodate this changing landscape. Regular plan maintenance and annual updates can document these changes and highlight progress.

The Need

Wildfire is a naturally occurring and important component of the many vegetation types that dominate much of Pitkin County. Some of these vegetation types are “fire-dependent” ecosystems that have evolved over thousands of years to be resilient to wildfire occurrence, and in the case of many plant species, dependent on wildfire to maintain stand health and trigger reproduction. Even though fires naturally occur and are important for ecosystem function, they present considerable risks to human welfare and economic values.

Since the early 20th century rangeland and forest management practices across the western United States were designed around a simple protocol, “Prevent Wildfires.” While originally intended to protect human settlement and forest and rangeland resources, the practice of fire

suppression led to a wide range of negative consequences. Without natural wildfire cycles, weedy species such as cheatgrass, shrub growth, or other forest stands have accumulated to hazardous levels. With the county's continued population growth, there are more structures, residents, and supporting infrastructure in fire-prone areas than ever before, directly impacting human welfare, and compromising the safety of firefighters and emergency responders that serve the county. In addition, the lack of a large historical wildfire in the county has caused complacency with many in the public.

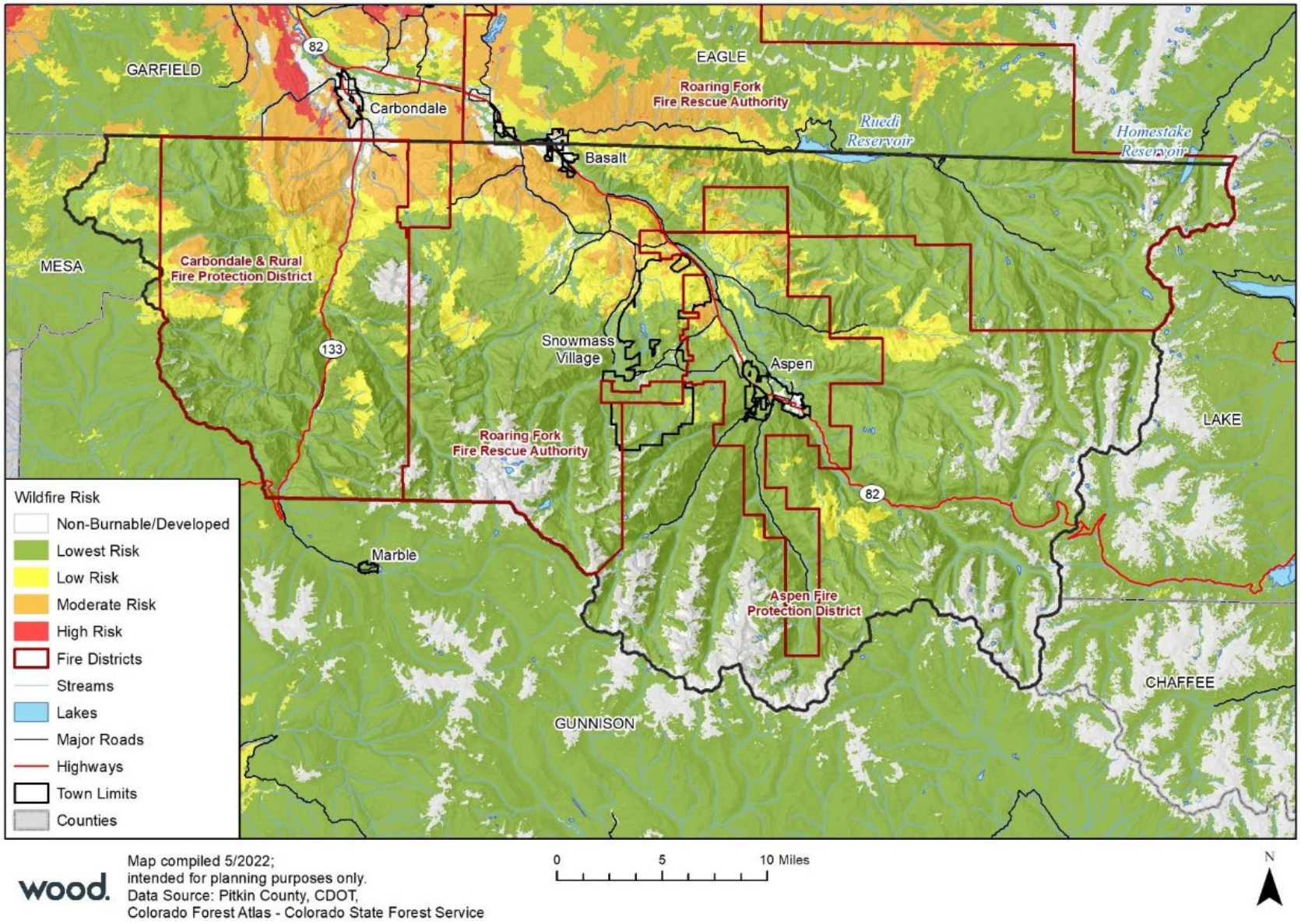
In 2017, CSFS sponsored a Risk Assessment Summary Report to assess the risk of wildfire in many of the forested counties including Pitkin County. The resulting report provided a wide range of information including a composite wildfire risk. Wildfire risk ratings are obtained by combining the probability of a fire occurring with the individual risk layers and values (WUI risk, drinking water risk, forest assets risk, and riparian areas risk) (Figure 1). Approximately, six percent of the county is classified with a moderate to high wildfire risk. The wildfire risk areas were identified through a spatial analysis using Geographical Information System (GIS) technology based on terrain, climate, vegetation-fuels, and wildfire history. Areas with moderate to high risk mainly occur in the northwestern edge of the county near Carbondale and Basalt.

Policy Framework

This CWPP is a planning document. There is no legal requirement to implement the recommendations herein. Actions on public lands will be subject to federal, state, and county policies and procedures such as adherence to the HFRA and the National Environmental Policy Act (NEPA). Action on private land may require compliance with county land use codes, building codes, and local covenants. The following documents set policy and provide guidance to the development of the CWPP:

- Colorado State Forest Service – Minimum Standards for Developing Community Wildfire Protection Plan (2022)
- HFRA (2003) – Federal legislation that promotes healthy forest and rangeland management, hazardous fuels reduction on federal land, community wildfire protection planning, and biomass energy production.
- National Fire Plan and 10-Year Comprehensive Strategy (2001) – Interagency plans that focus on firefighting coordination, firefighter safety, post-fire rehabilitation, hazardous fuels reduction, community assistance, and accountability.
- 10-Year Comprehensive Strategy: Implementation Plan (May 2002).
- National Cohesive Wildland Fire Management Strategy Phase II National Report (June 2012).
- Federal Emergency Management Agency (FEMA) Disaster Mitigation Act (2000) – Provides criteria for state and local multiple-hazard and mitigation planning.
- State of Colorado Forest Improvement District House Bill 07-1168 (2007) – provides for the creation of forest improvement districts for wildland fire management including vegetation-fuel management.
- Pitkin County Wildland Fire Operating Plan – sets forth standard operating procedures, agreed upon policies, and responsibilities to implement cooperative wildfire protection within Pitkin County
- Pitkin County Hazard Mitigation Plan 2023.

Figure 1: Wildfire Risk



Source: Pitkin County Hazard Mitigation Plan 2023

Existing CWPPs

As of June 2023, three other CWPPs have been completed and approved within Pitkin County. These CWPPs are on file with the Colorado Forest Service and can be accessed on their website. The existing CWPPs are listed below.

- Conundrum Area CWPP (2004)
- Shield-O Terrace Subdivision CWPP (2013)
- Upper Snowmass Creek Caucus CWPP (2018)

BLM and USFS Policy

Many communities within Pitkin County are surrounded by BLM and USFS lands that are undeveloped (83% of land in Pitkin County is federally owned) and a source of vegetative-fuels and wildfire ignition potential. The recommendations identified in the CWPP will assist the BLM and USFS in identifying and prioritizing forest and rangeland treatments on federal lands in relation to adjacent populated areas. The appropriate environmental analysis and documentation through the NEPA process for vegetation-fuel treatments on BLM and USFS lands needs to be completed prior to any ground disturbing or vegetation management activities occurring.

A completed CWPP does not authorize private landowners to conduct vegetation treatments on federal lands. Private landowners that own land adjacent to federal lands may not conduct defensible space treatments on BLM or USFS lands without written permission and the NEPA process being completed. The NEPA process can take up to a year to complete once a project location has been identified. The best approach for private landowners with property adjacent to federal lands is to contact the BLM or USFS and initiate appropriate planning.

Planning Process

The HFRA designed the CWPP to incorporate a flexible process that can accommodate a wide variety of needs. This CWPP is tailored to follow the standardized steps for developing a CWPP as outlined in Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities,[1] and the CSFS Minimum Standards for Community Wildfire Protection Plans.[2] Table 1 outlines the CWPP development process.

Table 1: CWPP Development Process

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

Source: Communities Committee et al, 2004

Core Planning Team

The initial step in the development of the CWPP is to organize a core planning team that serves as the decision-making committee (Table 2). The Pitkin County CWPP core planning team consisted of representatives from Pitkin County, fire protection districts (FPDs), BLM, CSFS, DFPC, Roaring Fork Conservancy, USFS, and Upper Colorado River Interagency Fire Management Unit (UCRIFMU). Local communities, businesses, and residents were stakeholders in this plan.

The planning team must mutually agree on the plan's final contents. The planning team collaborated closely with relevant affected land management agencies and active community stakeholders as the plan was implemented. Active collaboration between agencies and communities is an important CWPP component to promote the sharing of perspectives, plans, priorities, and other information useful in fuels and land management activities.

[1] Communities Committee et al. March 2004. "Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities." https://www.forestsandrangelands.gov/documents/resources/communities/cwpphandbook.pdf.

[2] Colorado State Forest Service. 2022. "Minimum Standards for Developing Community Wildfire Protection Plans." https://csfs.colostate.edu/wp-content/uploads/2022/03/2022-CSFS_CWPP_Min_Standards.pdf.

Core planning team meetings were convened throughout the course of the CWPP development. The purpose of each meeting focused on a specific aspect of the CWPP planning process. Meetings were convened on May 16, 2023, and August 2, 2023; virtually and in-person at the Carbondale Fire Department (first meeting) and Roaring Fork Fire Rescue Station (second meeting). Agendas and sign-in sheets for the core planning team meetings can be found in *Appendix C*.

Table 2: Pitkin County CWPP Core Planning Team Members

Name	Agency/Jurisdiction
Ali Hammond	Aspen Fire Protection District
Jake Andersen	Aspen Fire Protection District
Jake Spaulding	Aspen Fire Protection District
Chad Sewell	Bureau of Land Management
Bill Gavette	Carbondale & Rural Fire Protection District
Karl Oliver	Carbondale & Rural Fire Protection District
Jesse Moreng	Colorado Division of Fire Prevention and Control
Ryan McCulley	Colorado Division of Fire Prevention and Control
Chazz Lakin	Colorado State Forest Service
Matt Schiltz	Colorado State Forest Service
Valerie MacDonald	Pitkin County Emergency Management
Michael Buglione	Pitkin County Sheriff Office
Parker Lathrop	Pitkin County Sheriff Office
Christina Medved	Roaring Fork Conservancy
Kevin Issel	Roaring Fork Fire Rescue Authority
Richard Cornelius	Roaring Fork Fire Rescue Authority
Jim Genung	United States Forest Service, Upper Colorado River Interagency Fire Management Unit

As a strategic plan, the real success of this CWPP hinges on effective and long-term implementation. The CWPP planning and development process must include efforts to identify a core planning team that serves as the implementation organization and will oversee the execution of prioritized recommendations and maintain the CWPP as the characteristics of the WUIs change over time. Specific projects may be undertaken by individual FPDs, while larger-scale treatments may require collaboration among federal agencies, county agencies, communities, and private landowners. The Roaring Fork Valley Wildfire Collaborative is also actively engaged in identifying and implementing cross boundary wildfire projects in the county and surrounding region. Original CWPP core planning team representatives may assist in the implementation of the CWPP action plan. Continued public meetings and online engagement are recommended as means to generate additional support and maintain momentum.

CWPP vegetation-fuel treatment recommendations were prioritized through an open and collaborative effort with the core planning team. Prioritized treatments target wildfire hazard reduction in the WUI, including structural ignitability and critical supporting infrastructure. An action plan guides treatment implementation for high-priority projects over the span of several years.

The finalized CWPP represents a strategic plan with planning team consensus that provides prioritized wildfire hazard reduction treatment projects, preferred treatment methods, a base map of the WUI, and defensible space recommendations.

Fire Protection District Meetings

Meetings were held with each of the fire protection districts to identify WUI locations, current resource capacity, potential vegetation-fuel projects, evacuation information, and resource needs to improve response capabilities. Meeting information and attendees can be found below. An example agenda can be found in *Appendix C*.

Table 3: Roaring Fork Fire Rescue Authority Meeting

June 21st, Virtual Meeting
Attendees:
Kevin Issel, Roaring Fork Fire Rescue Authority
Valerie MacDonald, Pitkin County Emergency Management
Phil Luebbert, JEO Consulting Group
Karl Dietrich, JEO Consulting Group

Table 4: Aspen Fire Protection District Meeting

June 21st, Virtual Meeting
Attendees:
Ali Hager Hammond, Aspen Fire Protection District
Jake Andersen, Aspen Fire Protection District
Valerie MacDonald, Pitkin County Emergency Management
Phil Luebbert, JEO Consulting Group
Karl Dietrich, JEO Consulting Group

Table 5: Carbondale & Rural Fire Protection District Meeting

July 5th, Virtual Meeting
Attendees:
Karl Oliver, Carbondale & Rural Fire Protection District
Bill Gavette, Carbondale & Rural Fire Protection District
Paul Herr, Carbondale & Rural Fire Protection District
Valerie MacDonald, Pitkin County Emergency Management
Phil Luebbert, JEO Consulting Group
Karl Dietrich, JEO Consulting Group

Pitkin County Open Space & Trails Meeting

Pitkin County Open Space & Trails has property throughout the county that it oversees. While wildfire mitigation projects are not a part of the department's mission, many of their wildlife habitat improvement projects have the dual benefit of wildfire mitigation. During the planning process a meeting was held with individuals from Pitkin County Open Space & Trails to determine if any of their wildlife habitat projects would have wildfire mitigation benefits. If possible, collaboration with surrounding properties could be done to create a larger mutually beneficial project. Meeting information and attendees can be found in the table below.

Table 6: Pitkin County Open Space & Trails Meeting

June 28th, Virtual Meeting
Attendees:
Gary Tennenbam, Pitkin County Open Space & Trails
Liza Mitchell, Pitkin County Open Space & Trails
Valerie MacDonald, Pitkin County Emergency Management
Phil Luebbert, JEO Consulting Group
Karl Dietrich, JEO Consulting Group

Public Outreach

The success of any CWPP is dependent upon community involvement for both strategic input and long-term ownership and implementation. The CWPP needs to accurately reflect the county's interests, concerns, and priorities to promote legitimacy and long-term success. The public outreach strategy employed was a multi-tiered approach to engage interested parties, raise public awareness, and generate public input for mitigation recommendations through the following avenues.

- Survey
- Newspaper Ad
- Social Media
- Fire District Websites
- Participating Agency Websites
- County Website

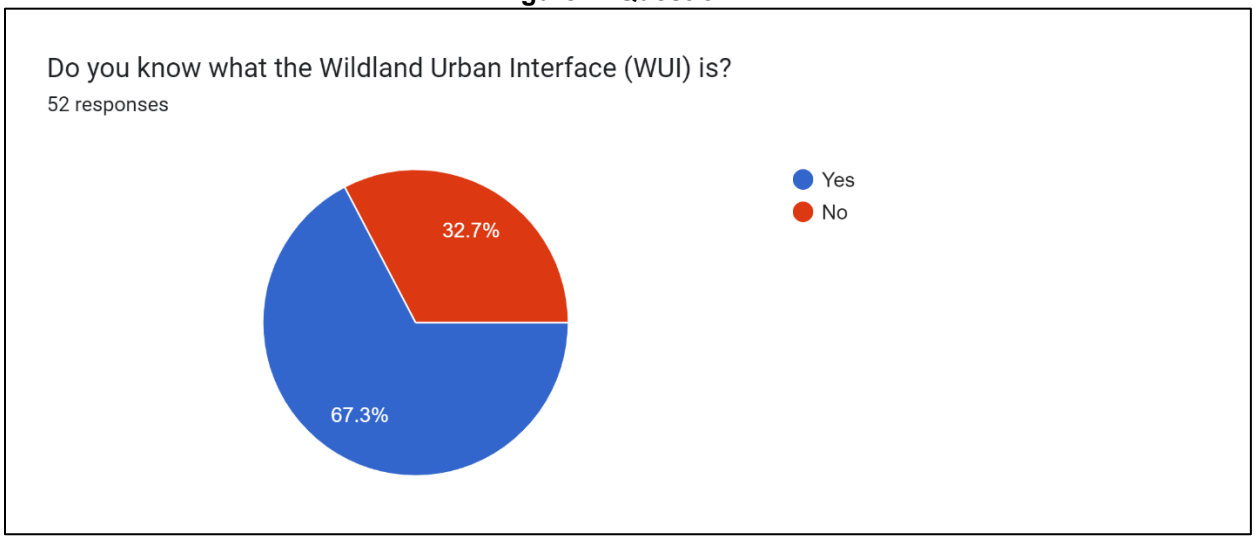
Finding effective ways to engage the public and gain feedback can be challenging because CWPPs are complex planning tools. The plan addresses issues that community members may be unaware of and identifies potential impacts that people may not have dealt with. In addition, the CWPP showcases numerous solutions to local wildfire concerns or problem areas which emphasize the need to successfully engage the public.

The goal of the public involvement activities for the Pitkin County CWPP was two-fold: 1) to inform the community of the CWPP project and proposed actions to reduce hazardous vegetation-fuels and improve wildfire response capacity; and 2) to stress the value of public input during the development of the CWPP. Because this is a community-based plan, it was essential to obtain as much information as possible about the perceptions, concerns, and issues of residents in the county.

Public Survey

As a method to engage the public and receive more local input on wildfire risks and concerns in the county, a public survey was developed by Pitkin County. The goal was to capture local concerns, priorities, and ideas. Social media posts (examples can be found in *Appendix C*) were created and shared by Pitkin County and FPDs which linked to a public survey. The survey was also sent directly to all core planning team members who were also encouraged to share the survey with their teams, departments, and local stakeholders. There were 52 total responses to the public survey. Questions and summary responses are listed below, and the entire survey can be seen in *Appendix C*.

Figure 2: Question 1



The first question in the survey asked residents about the WUI and the second asked if residents currently live in a WUI zone. In response to, a little over 32% did not know what the WUI is and nearly 29% were unsure if they live in a WUI or fire prone area. These responses indicate a need for additional education outreach from local fire officials to residents to help define fire risk locations.

Figure 3: Question 2

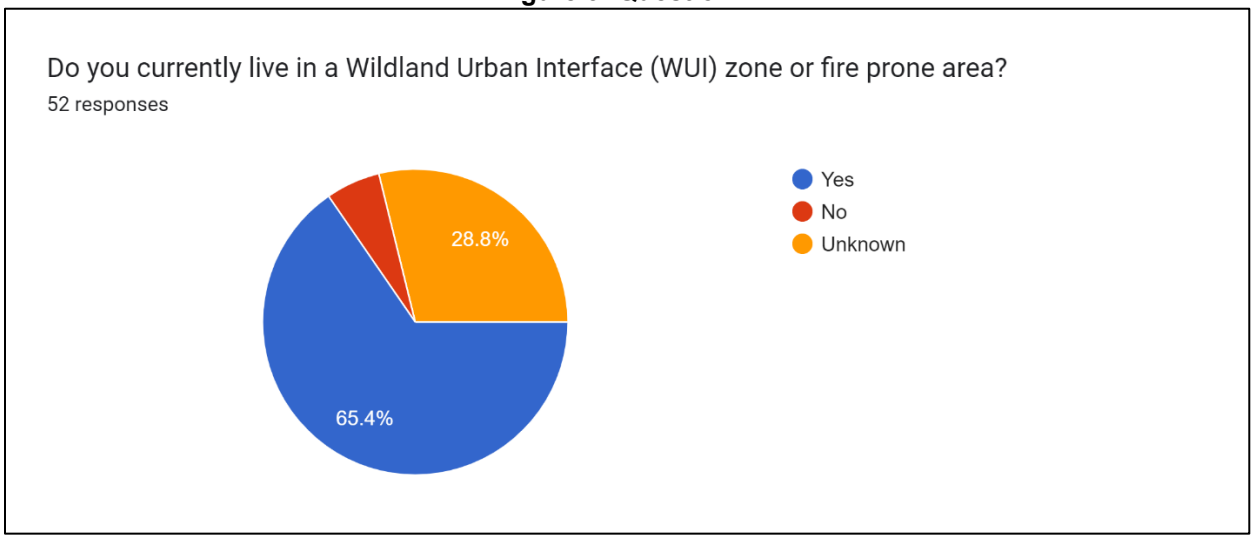


Figure 4: Question 3

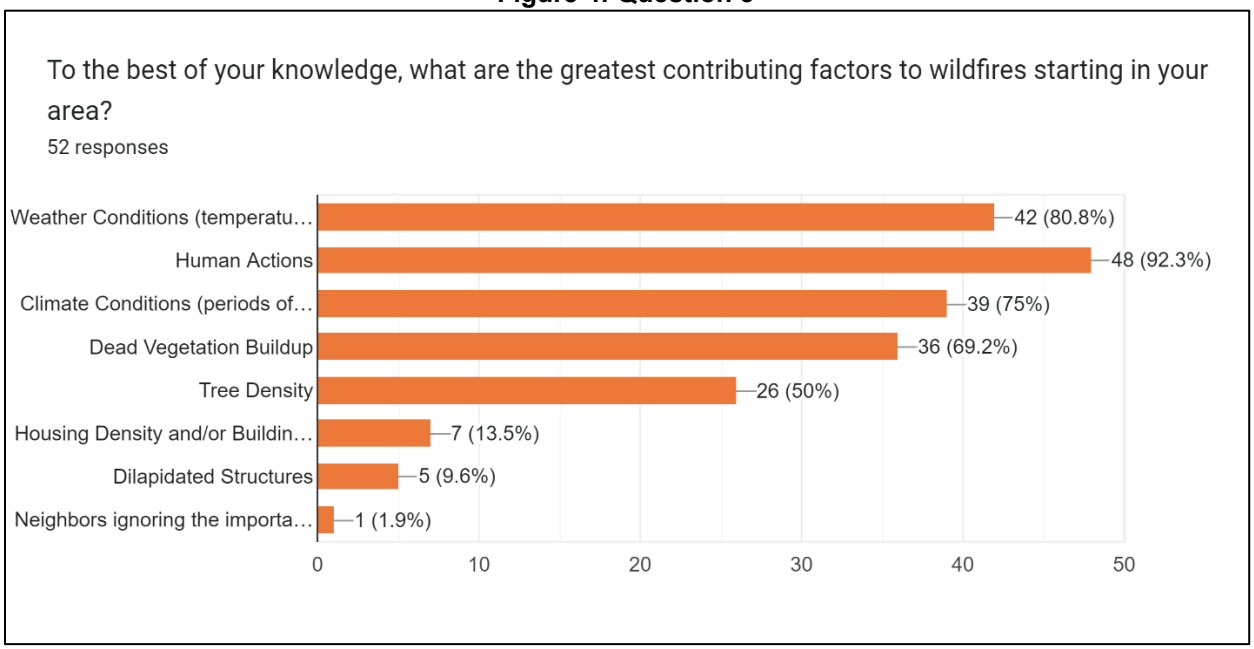


Figure 5: Question 4

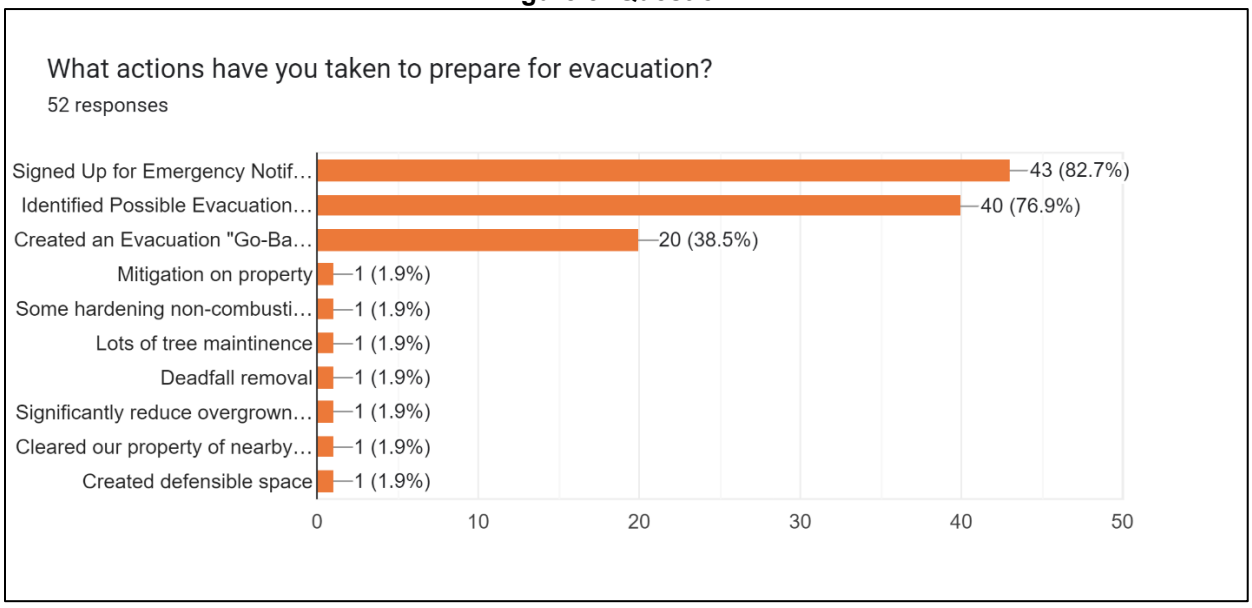
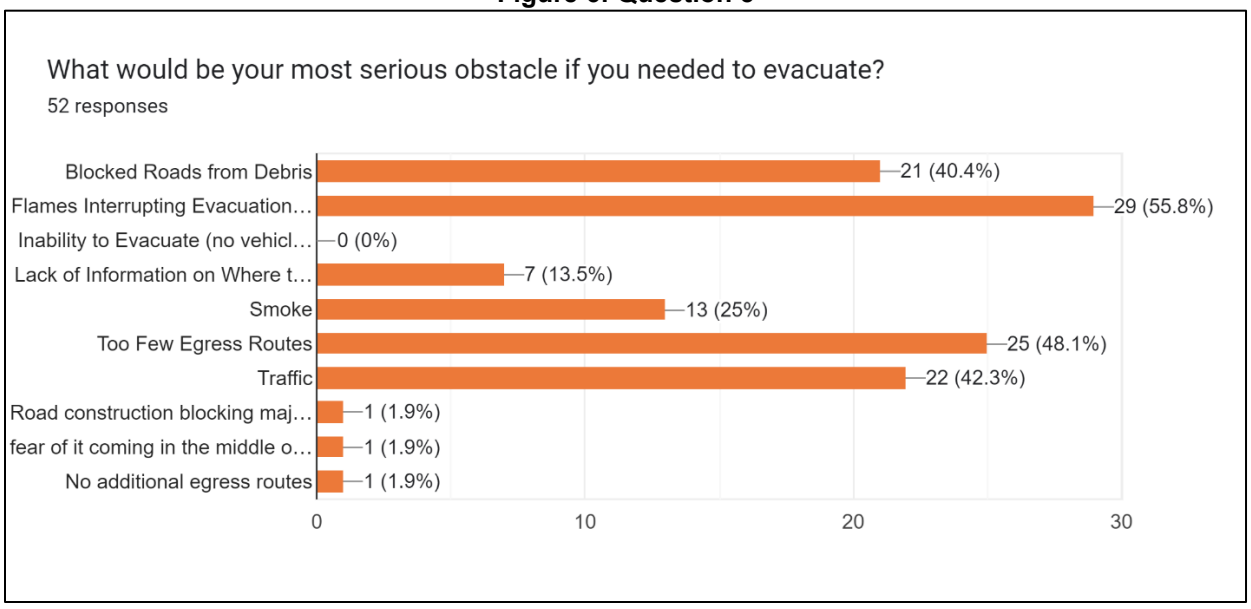


Figure 6: Question 5



Questions 4 and 5 asked about actions taken to prepare for evacuation and obstacles to evacuation. Around 80% of responders have signed up for emergency notifications and have identified possible evacuation routes. However, only 48% identified too few egress routes as an obstacle to evacuation. County and fire officials have identified a lack of egress routes as their primary concern for evacuation. This disconnect in perception should be addressed, as many neighborhoods in the county only have one or two ways in and out.

Figure 7: Question 6

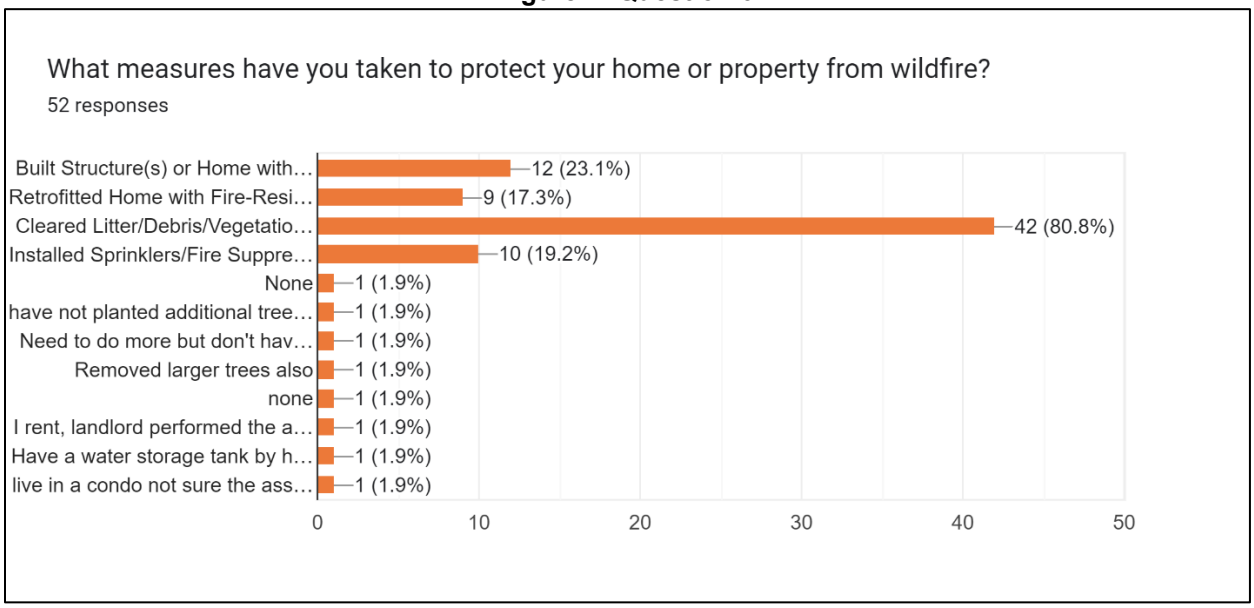
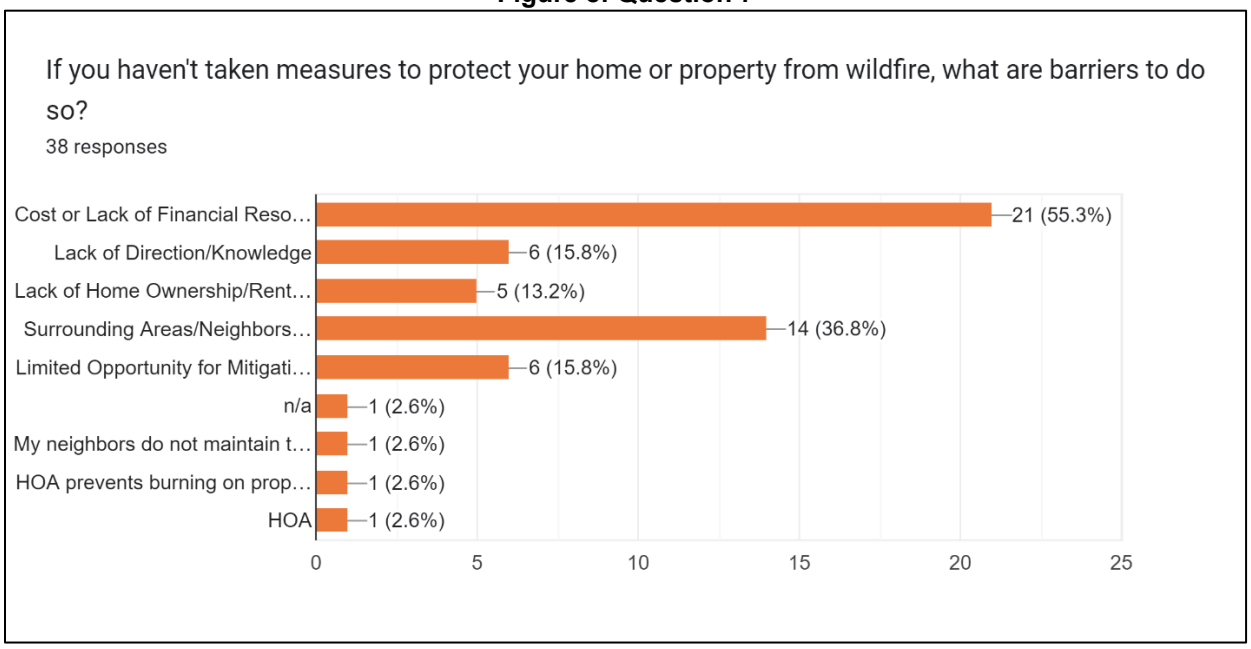


Figure 8: Question 7



Questions 6 and 7 asked the public about what measures have been taken to protect their property from wildfire and what barriers exist in taking those measures. Over 80% of respondents have cleared debris, litter, and vegetation surrounding their homes. This is a great percentage because private landowner mitigation can make large reductions in fuel, especially in high risk WUI areas. However, in response to what barriers are in place, 37% said “surrounding areas/neighbors pose a greater risk”. Additional education should be done to ensure residents realize that even with greater nearby risk, doing property mitigation can help slow a wildfire or even save their house.

Figure 9: Question 8

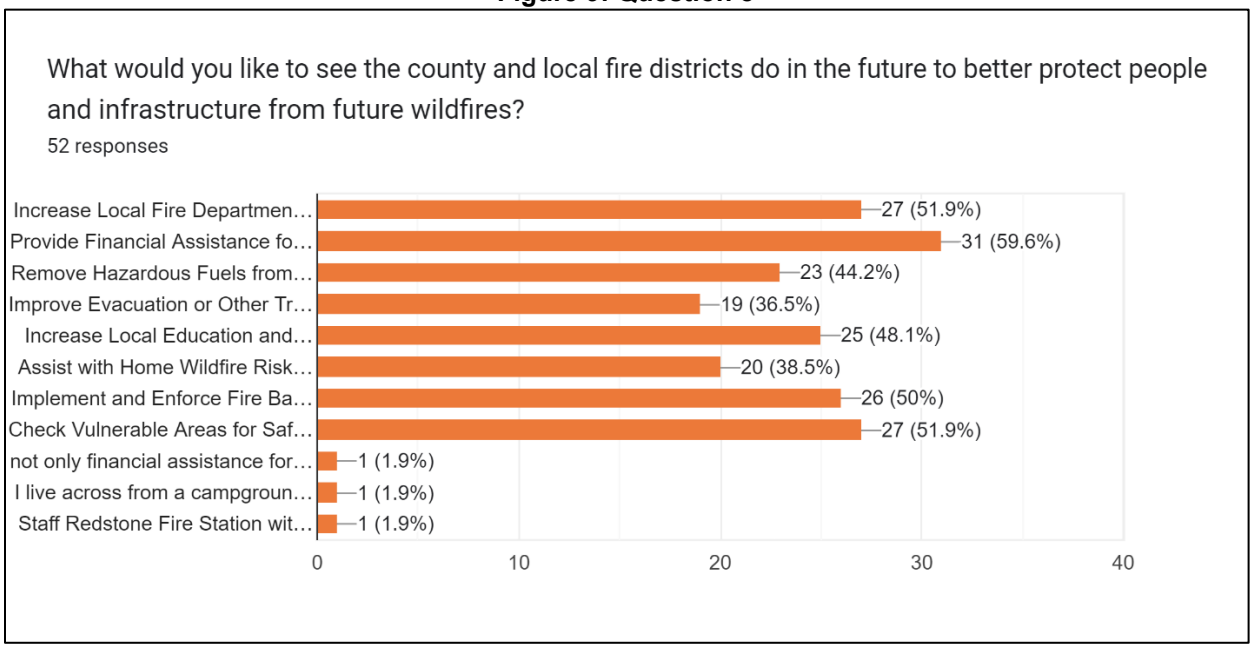
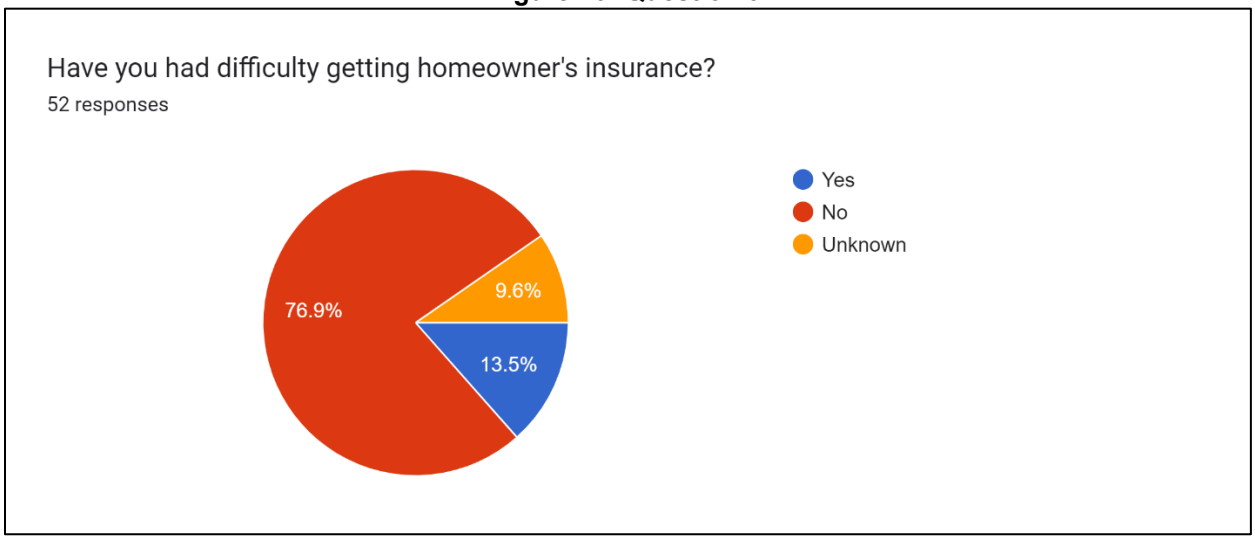


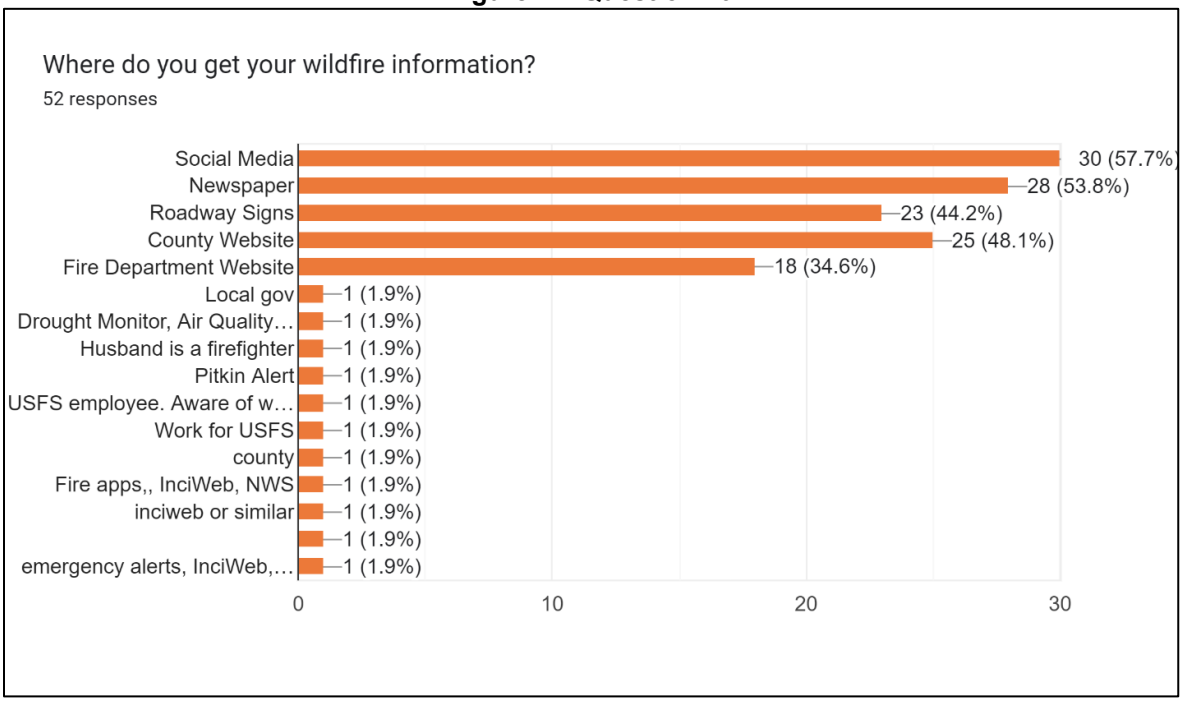
Figure 10: Question 9



Question 8 asked residents what they would like to see the county and local fire districts do in the future to better protect people and infrastructure. Almost all of the options received over 20 votes with the highest being “provide financial assistance for hazardous fuels mitigation/removal”. This may be difficult with limited funds for both the county and fire districts. Of note is the 20 votes for “assist with home wildfire risk assessments”. All fire districts currently offer this service, so getting the word out may be very helpful for homeowners.

Question 10 asked individuals where they get their wildfire information. Social media, newspapers, roadway signs, the county website, and fire department websites all received many votes. This shows the variety of different ways people consume information. Pitkin County and the fire districts should continue to offer wildfire information on a wide range of platforms.

Figure 11: Question 10



Core Planning Team Review and Public Review

All core planning team members were sent a copy of the draft plan for review and comment. Each member had two weeks to review the plan and provide comments if needed. Pitkin County received comments from all core planning team jurisdictions and updated the plan based on those comments. After review by the core planning team, the CWPP was put out for public review and comment. A link to the draft CWPP was put on the Pitkin County website and the public was notified using social media and a paper advertisement. Copies of the social media posts can be found in *Appendix C*. The plan was updated based on comments received from public review prior to finalization.

Pitkin County Characteristics

County Overview

Pitkin County is located in west-central Colorado and is the 24th largest county in the state out of 64 counties, encompassing approximately 975 square miles (626,832 acres). The ownership of the county is dominated by United States Department of Agriculture, Forest Service lands. 494,709 acres (79% of the county) is owned by the White River National Forest, 27,522 acres (4.4%) is owned by BLM, 800 acres (less than 1%) is owned by the State (primarily the Colorado Division of Wildlife), and 95,473 acres (15.3%) is privately held.[3] The county is surrounded by Garfield County, Eagle County, Lake County, Chaffee County, Gunnison County, and Mesa County. Landowners surrounding the county are primarily the U.S Forest Service (east, south, west, and parts to the north) with some private conservation land, BLM, private land, and state land (north, near Basalt).

Most private lands and homes are located along the major river corridors, the Roaring Fork and Crystal River valleys. Other homes and developments follow other river drainages, including the Frying Pan River, Snowmass Creek, Woody Creek, Castle Creek, Conundrum Creek and East Sopris Creek. New developments are occurring in the towns of Basalt and Snowmass Village and along Highway 82 and 133. Incorporated communities include the City of Aspen (County Seat), the Town of Basalt, and the Town of Snowmass Village.

Key transportation routes in the county include State Highway 82, which travels through all three communities, and State Highway 133, which travels north-south through the western portion of the county. No rail lines travel through the county. The Aspen/Pitkin County Airport is the only public airport in the county.

Population

Pitkin County has a population of 17,358 in 2020 according to the U.S. Census Bureau. Population growth has been minimal at 1.2% since 2010 when the population in the county was 17,148. The City of Aspen is the most populous community with 40% of the county's population. All communities in Pitkin County have grown in population since 2010. Of note, nearly 19% of the population lives in rural unincorporated areas of the county. These individuals may be at higher risk of wildfires.

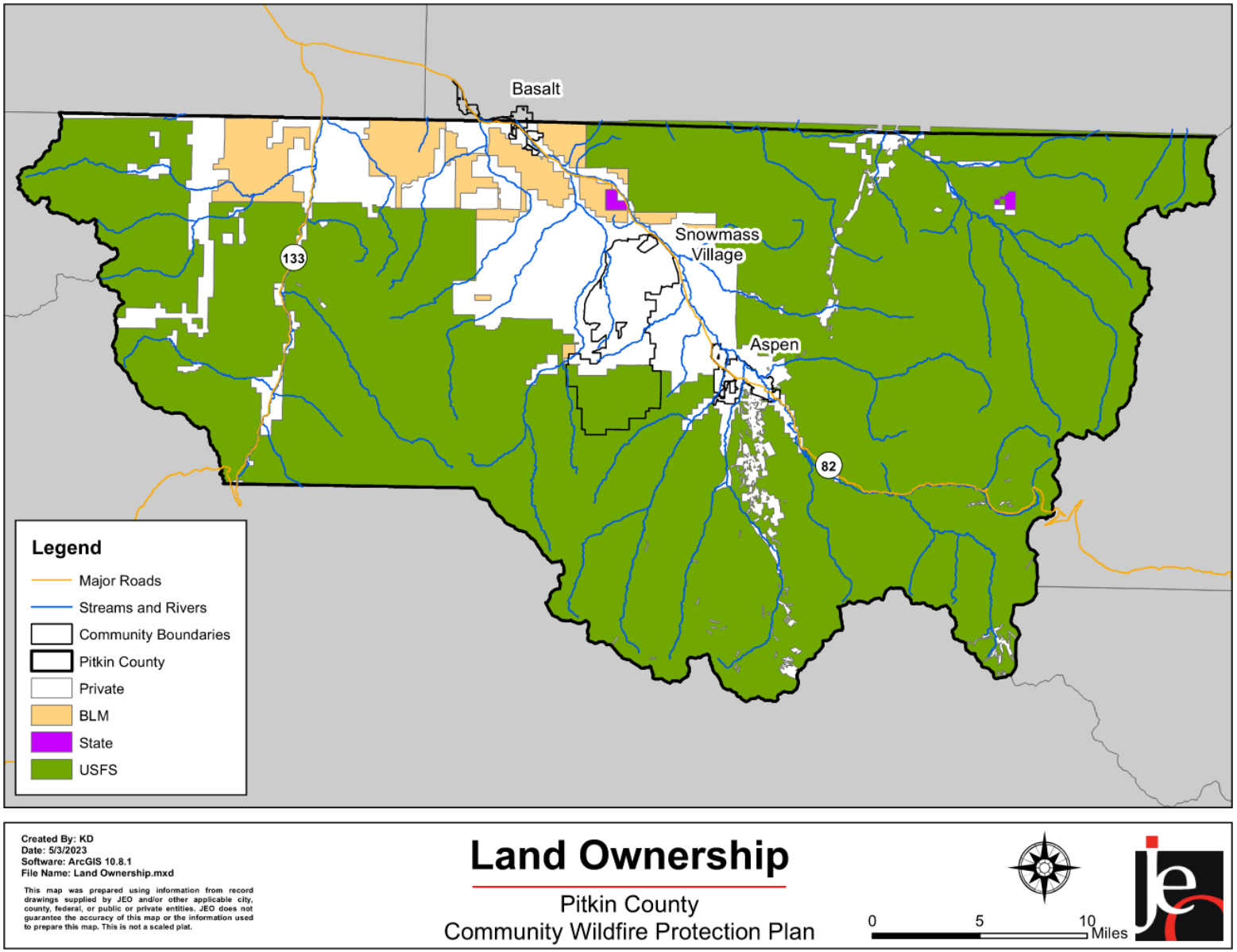
Table 7: Population in Pitkin County (1970-2020)

Jurisdiction	1970	1980	1990	2000	2010	2020
Aspen	2,437	3,678	5,049	5,914	6,658	7,004
Basalt	419	529	1,128	2,681	3,857	3,984
Snowmass Village	-	999	1,449	1,822	2,826	3,096
Unincorporated Pitkin County	3,329	5,132	5,035	4,455	3,807	3,274
Total	**6,185**	**10,338**	**12,661**	**14,872**	**17,148**	**17,358**

Source: U.S. Census Bureau

[3] Pitkin County. 2023. "Pitkin County Hazard Mitigation Plan". https://pitkincounty.com/1477/Hazard-Mitigation-Plan#:~:text=The%20Pitkin%20County%20Hazard%20Mitigation,comment%20before%20it%20is%20finalized.

Figure 12: Land Ownership



Social Vulnerability

The Centers for Disease Control and Prevention has developed the Social Vulnerability Index that measures the resilience of communities when confronted by external stresses from hazardous events. The Social Vulnerability Index looks at 15 factors broken down into four categories: socioeconomic status, household composition and disability, minority status and language, and housing and transportation. The table below shows countywide estimates for the 15 factors, how they compare to other Colorado counties, and overall vulnerability.

That data shows that Pitkin County has low social vulnerability compared to the rest of the State of Colorado. There are two categories that have high vulnerability in the county. The first is "Multi-Unit (10+) Structures" and the second is "Households without Vehicles". This is important for wildfire risk because multi-unit structures and households without vehicles will be more difficult to evacuate.

Table 8: Pitkin County Social Vulnerability Index

Theme	Variable	Countywide Estimate	Rank Compared to Colorado Counties	Vulnerability
Socioeconomic Status			**10%**	**Low**
	Below Poverty	7.2%	14%	Low
	Unemployment	4.3%	43%	Below Average
	Per Capita Income	$56,180	0%	Low
	No High School Diploma (25+)	3.7%	16%	Low
Household Composition and Disability			**19%**	**Low**
	Age 65 and Older	17.2%	48%	Below Average
	Age 17 and Younger	17.2%	13%	Low
	Disability Estimate	3.8%	0%	Low
	Single-Parent Household	8.1%	73%	Above Average
Minority Status and Language			**22%**	**Low**
	Minority	14.5%	25%	Below Average
	Speaking English "Less than well"	0.8%	22%	Low
Housing and Transportation			**29%**	**Below Average**
	Multi-Unit (10+) Structures	25.6%	95%	High
	Mobile Homes	4.2%	22%	Low
	Units with More People in Rooms	1.4%	17%	Low
	Households without Vehicles	5.5%	79%	High
	Group Quarters	0.7%	21%	Low
Overall Social Vulnerability			**16%**	**Low**

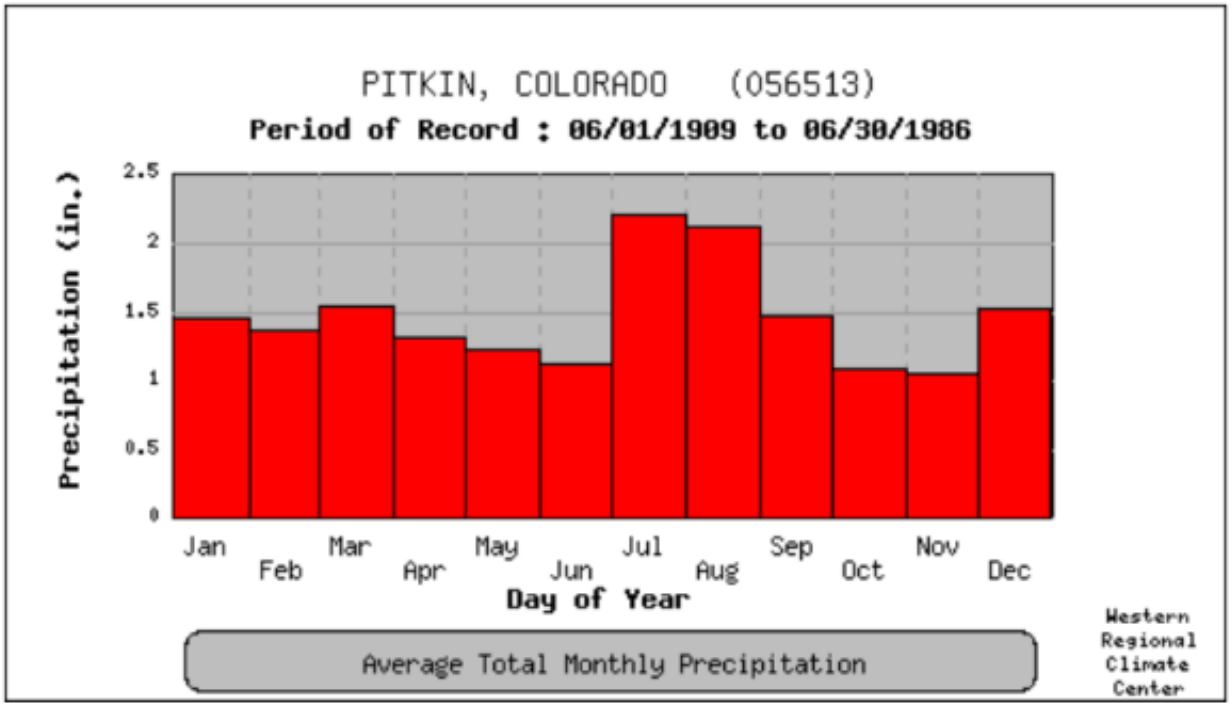
Source: U.S. Centers for Disease Control and Prevention[4], Pitkin County Hazard Mitigation Plan 2023

Climate

Pitkin County has low humidity and annual precipitation that varies widely due to high peaks and low valleys. Rainfall in the county can be as much as 48 inches in the Maroon Bells, to a dry 13 inches in the lower Crystal River valley south of Carbondale. Afternoon thunderstorms are common during the summer months. Precipitation is highest in the months of July and August (Figure 13). Temperature in Pitkin County ranges from an average high of 76°F in summer to an average low of 24°F in the winter (Figure 14).

[4] U.S. Centers for Disease Control and Prevention. 2020. "CDC/ATSDR Social Vulnerability Index". https://www.atsdr.cdc.gov/placeandhealth/svi/index.html.

Figure 13: Monthly Average Rainfall for Pitkin County (1909-1986)



Source: Pitkin County Hazard Mitigation Plan 2023

Figure 14: Pitkin County Temperature Summary - Aspen 1SW Station (1980-2022)

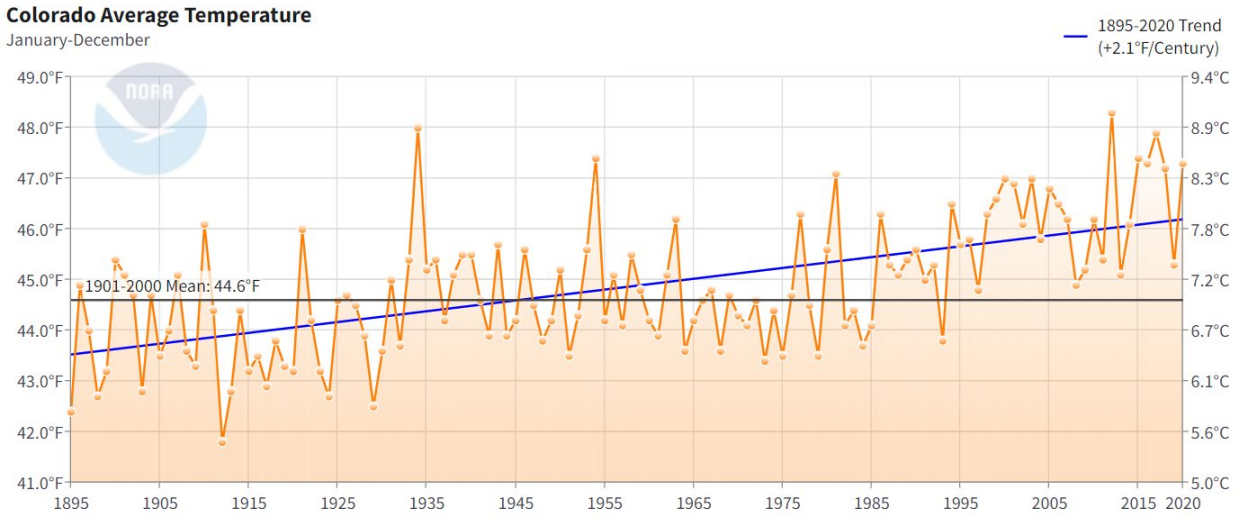
Period Of Record	1980-2022
Winter Average Minimum Temperature	9.0°F
Winter Mean Temperature	24.0°F
Summer Average Maximum Temperature	76.0°F
Summer Mean Temperature	60.0°F
Maximum Temperature	91°F; July 7, 1989
Minimum Temperature	-25°F; February 7, 1989
Average Annual Number of Days >90°F	0.0
Average Annual Number of Days <32°F	211.9

Note: Winter: December, January, February; Summer: June, July, August
Source: High Plains Regional Climate Center (https://hprcc.unl.edu/stationtool/index.php); Colorado Climate Center (https://climate.colostate.edu/)

Source: Pitkin County Hazard Mitigation Plan 2023

Since 1895 Colorado's overall average temperature has increased by 2.1°F. While overall temperature shifts have not been consistent, the trend for increasing temperatures is apparent. Climate modeling suggests warmer temperature conditions will continue in the coming decades and rise steadily into the mid-century. This trend will likely contribute to an increase in the frequency and intensity of wildfire events, due to reduced snowpack, drought conditions, and higher temperatures.

Figure 15: Colorado Average Temperature (1895-2020)



Source: National Oceanic and Atmospheric Administration, 2020[5]

Additionally, the length of the frost-free season has been increasing nationally since the 1980s. While a longer warm season may provide some additional recreational opportunities in western Colorado, concurrent changes in temperature, water availability, pest pressures, and tree mortality may exacerbate wildfire event conditions. Since 1895, yearly annual precipitation for Colorado has decreased slightly (decline by 1.8" per century). Snow droughts can arise from a lack of precipitation (dry snow drought), temperatures that are too warm for snow (warm snow drought), or a combination of the two. Rivers and reservoir water sources are increasingly important to communities and residents in the planning area to meet water needs during periods of shortage.

Topography

Pitkin County is dominated by several large mountain ranges. The Elk Mountains roughly forms the western and southern sides of the county, while the Sawatch Range runs along the eastern border of the county. The Fryingpan River is dammed to form the Ruedi Reservoir and the Roaring Fork River runs northwest from the high peaks. The Crystal River is on the western side of the county.

In between these mountain ranges, valleys hold most of the population, as well as most private ownership lands. The elevations in the county range from 6,250 feet along the Crystal River south of Carbondale, to over 14,000 feet on several peaks in the Maroon Bells/Snowmass Wilderness Area. The majority of Pitkin County is dominated by high elevation forests and alpine environments, with the lower valleys dominated by irrigated farmlands and urban developments. In between the high elevation forests, alpine habitats, and the lower farmlands lay pinion/juniper woodlands, oakbrush stands, aspen forests, and much of the rural population.

[5] National Oceanic and Atmospheric Administration, 2020. "Climate at a Glance: Statewide Time Series". Accessed May 2023. https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/statewide/time-series/5/tavg/12/12/1895-2020?base_prd=true&begbaseyear=1901&endbaseyear=2000&trend=true&trend_base=100&begtrendyear=1895&endtrendyear=2020

Wildland Vegetation

Pitkin County is approximately 64% forested with many of the remaining vegetation types dominated by pinyon/juniper, oak shrubland, shrubland, grasslands and barren land. The forested areas are primarily spruce-fir, aspen, mixed conifer, and lodgepole pine.[6] Wildland fuels are comprised of both live and dead vegetation that are available for combustion. Recent drought events weakened many fir trees in the county making them susceptible to beetles. These beetle infestations have killed many fir trees adding to the fuel load in many places.

Engelmann Spruce & Subalpine Fir

Spruce-fir covers approximately 192,729 acres or 30.9% of the county.[7] Spruce-fir stands develop on moist, cool sites typically above 10,200 feet and experience infrequent stand replacing fires. The low branches in these stands allow for the initiation of crown fire, and crown fire is readily propagated through the dense canopy under the right conditions. It requires unusually dry conditions to support large scale fires in these forests, but the abundance of ladder fuels and closed canopy can support high intensity crown fires. These thin barked species are extremely sensitive to fire and will be killed by even low intensity fires.

Quaking Aspen

Aspen exists in a post-disturbance seral stage or in stable, self-perpetuating stands. This thin barked species is easily top killed by fire, but readily regenerates from the surviving root system. From many standpoints, aspen stands are a desired forest type in the WUI. They provide some privacy screening for residences, are widely used by wildlife species, and are aesthetically pleasing while being generally fire resistant. The high thin crowns resist crown fire initiation and spread. Aspen stands also provide summer shade while allowing for winter sun. In Pitkin County, approximately 77,525 acres (12.4% of land) of aspen occurs, but another 61,486 acres (9.9% of land) of aspen occurs as a codominant with other conifer species.[8]

Gambel Oak and Serviceberry

Gambel oak and serviceberry is prevalent in WUI areas and is primarily located in northern Pitkin County. They typically can be found between the pinyon/juniper zone and aspen or ponderosa pine zone. These oak shrublands cover 44,948 acres or 7.2% of the county.[9] Their appearance can range from dense thickets with little understory to moist areas with an understory of shrubs, grasses, and wildflowers. Gambel oak does not burn easily unless it is dried out during prolonged drought periods. Late frosts can kill the leaves which tend to stay attached to the stem and act as dry aerial fuels. When dry, fires in these oak shrublands can spread quickly.[10]

Pinyon Pine and Rocky Mountain Juniper

Pinyon pine and rocky mountain juniper grow in similar habitats with rocky soils in lower elevation areas in the northern portion of the county. Both trees are very flammable because of their resinous wood and accumulation of dead lower branches. While only covering 8,109 acres[11] in the county, these trees can drastically increase fuel load and are found in many identified Wildland Urban Interface areas. Without proper management and thinning, tree densities can increase to

[6] Colorado State Forest Service. 2017. “2017 Colorado Wildfire Risk Assessment Summary Report”.
[7] Colorado State Forest Service. 2017. “2017 Colorado Wildfire Risk Assessment Summary Report”.
[8] Colorado State Forest Service. 2017. “2017 Colorado Wildfire Risk Assessment Summary Report”.
[9] Colorado State Forest Service. 2017. “2017 Colorado Wildfire Risk Assessment Summary Report”.
[10] Colorado State Forest Service. 2008. “Gambel Oak Ecology”. https://static.colostate.edu/client-files/csfs/pdfs/06311.pdf.
[11] Colorado State Forest Service. 2017. “2017 Colorado Wildfire Risk Assessment Summary Report”.

a level that would support damaging crown fires. Dead trees are also resistant to decay which can increase fuel loads if not removed.[12]

Western Balsam Bark Beetle[13]
The western balsam bark beetle primarily impacts subalpine fir within Pitkin County. A prolonged drought prior to 2022 weakened the fir trees which makes them more vulnerable to bark beetles. The CSFS anticipates that it will take several years of sufficient precipitation for the subalpine fir trees to recover enough to fend off the western balsam bark beetle. Infestations are generally not widespread and tend to be patchy within a stand of trees. Subalpine fir tree needles will turn reddish when killed by the beetles. Many of the visible impacts in the county can be seen near the City of Aspen.

Dead trees will usually fall adding to the fuel load in stands. Newly infested trees can be removed prior to the adult beetles emerging the next year to infest other trees. However, due to the spotty nature of infestation and difficult terrain management can be difficult.

Douglas-Fir Beetle[14]
The Douglas-fir beetle causes a high rate of mortality for many Douglas-fir trees in Pitkin County. Mortality from the beetle can occur in pockets of trees to an entire stand. Drought conditions prior to 2020 have stressed trees, reducing their ability to defend against the Douglas-fir beetle. The Roaring Fork Valley has seen the largest increase in activity with the beetle since the 2018. Pheromone packets have been used successfully to deter beetles from infesting trees.

Mountain Pine Beetle
The mountain pine beetle killed large amounts of lodgepole pine stands in the early to mid-2000s. While the threat of the beetle has subsided in recent years, the fallen dead trees have created increased surface fuels in areas. Pitkin County is less impacted than other counties in northwest Colorado due to the lower percentage of lodgepole pine stands (4.7% of land in the county). Mortality was most pronounced on Mount Sopris, Wood Creek, Independence Pass, and Smuggler Mountain but thinning, fuel breaks, and defensible space have helped to clear these dead trees.

Western Cedar Bark Beetle
This beetle is commonly found in all native junipers. Trees and branches are subject to attack from the beetle due to girdling roots and drought. The Western Cedar Bark Beetle is primarily found in the lower sections of Pitkin County and on south facing slopes leading to dryer climates.

Wildfire Protection Authorities

The wildland fire protection authorities that operate in Pitkin County include three fire protection districts, Pitkin County Sheriff, UCRIFMU, and DFPC. The fire protection districts include Aspen Fire Protection District (AFPD), Carbondale & Rural Fire Protection District, and Roaring Fork Fire Rescue Authority (RFFRA). Table 9 lists the fire protection authorities in the county.

[12] Colorado State Forest Service. 2022. “Pinon-Juniper Management”. https://static.colostate.edu/client-files/csfs/pdfs/120866_PinonJuniperGuide_www.pdf.
[13] Colorado State Forest Service. 2022. “Report on the Health of Colorado’s Forests”. https://csfs.colostate.edu/forest-management/forest-health-report/northwest-colorado/.
[14] Colorado State Forest Service. 2022. “Report on the Health of Colorado’s Forests”. https://csfs.colostate.edu/forest-management/forest-health-report/northwest-colorado/.

Table 9: Wildfire Protection Authorities

Fire Protection Authority
Aspen Fire Protection District
Carbondale & Rural Fire Protection District
Roaring Fork Fire Rescue Authority
Pitkin County Sheriff
Upper Colorado River Interagency Fire Management Unit
Colorado Division of Fire Prevention and Control

Authority for wildland fire suppression on non-federal land rests with local fire protection districts or the County Sheriff for any areas outside of fire protection district boundaries. Mutual aid agreements among the agencies provide guidance for the initial wildfire attack and support during an incident. Wildfire protection within the county cannot be accomplished by solely one authority because of the complexity of land ownership. Cooperation and coordination are keys to effective wildfire and fuels management, which is coordinated through the Pitkin County Wildland Fire Operating Plan.

Aspen Fire Protection District

The Aspen Fire Protection District spans 87 square miles covering the entire City of Aspen, as well as several unincorporated areas in Pitkin County, including Woody Creek, Brush Creek, and Starwood. The district provides 24-hour response to structural, wildland, and urban interface fires. Fire inspections, burn permits, fire code enforcement, community education, and wildfire mitigation consulting and resources are also performed by the fire district.

Carbondale & Rural Fire Protection District

Founded in 1953, the Carbondale and Rural Fire Protection District (CRFPD) provides fire protection for approximately 16,000 residents in a 300-square-mile area of central Colorado. The response area includes the Towns of Carbondale in Garfield County, unincorporated areas in Pitkin County including Redstone, and the Town of Marble in Gunnison County. The district also provides fire prevention and fire inspection services.

Roaring Fork Fire Rescue Authority

The Roaring Fork Fire Rescue Authority was formed in 2018 by joining the Basalt Fire and the Snowmass Wildcat Fire Protection District. RFFRA's service area is over 500 square miles and covers the Town of Basalt, Town of Snowmass Village, and unincorporated areas in Pitkin and Eagle Counties. Due to the large coverage area, the authority has six fire stations. Fire prevention, fire inspections, burn permits, fire code enforcement, and public education is also performed by the Roaring Fork Fire Rescue Authority.

Pitkin County Sheriff

The Pitkin County Sheriff is responsible for fire protection on all non-federal lands in the county that are outside of the fire protection district boundaries. However, the County Sheriff has very little actual suppression capability. The County Sheriff relies largely on the FPDs for resources as needed. Fire restrictions are enacted and enforced by the County Sheriff on all non-federal lands in the county.

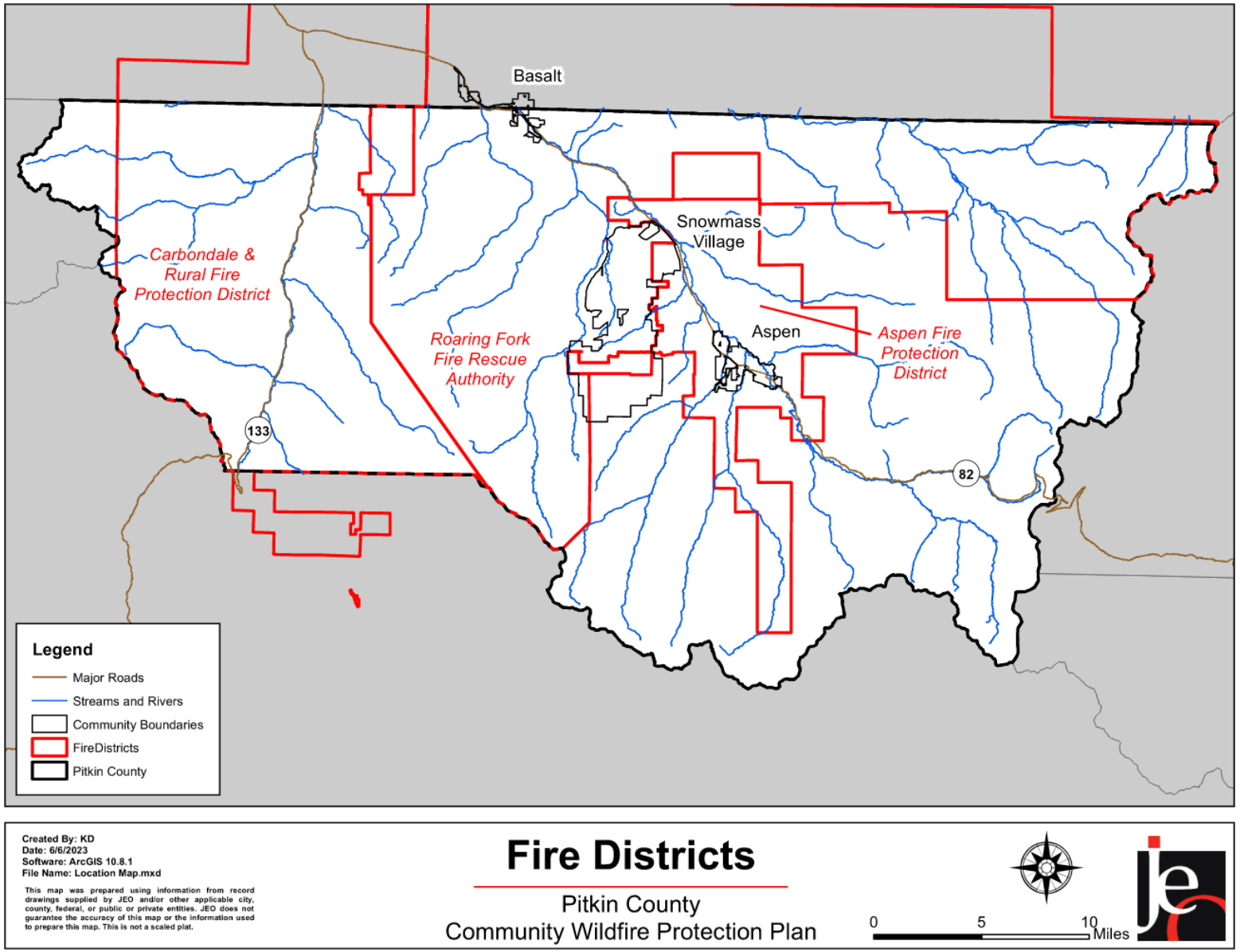
Upper Colorado River Interagency Fire Management Unit

The UCRIFMU provides a full range of fire management services including fuels treatments, fire prevention, and suppression to participating federal, state, and local jurisdictions in Western Colorado. The UCRIFMU is comprised of the Colorado River Valley and Grand Junction Field Offices of BLM, and the White River National Forest operated by the USFS.

Colorado Division of Fire Prevention and Control

When a wildfire exceeds the capability of the county to control or extinguish, the County Sheriff can request assistance from DFPC. DFPC's priority wildland fire mission is to assist and support local agencies and counties with a range of wildfire management programs.

Figure 16: Fire Districts



Insurance Service Office Fire Hazard Ratings

The Insurance Services Office (ISO) provides fire and wildfire hazard assessment services for residential and commercial property insurers to help establish a standardized basis for appropriate fire insurance premiums. The ISO ratings within Pitkin County range from 3 to 9 depending on proximity to fire stations (Table 10). The insurance industry surveys more than 44,000 fire-response jurisdictions regularly for up-to-date information concerning a community's fire protection services. The Fire Suppression Rating Schedule provides a standardized methodology for reviewing the firefighting capabilities of individual communities. The schedule measures major elements of a community's fire-suppression capacity and develops a numerical grading known as a Public Protection Classification. Ratings range from 1 (best) to 10 (worst). These ratings are established based on the following factors and are developed independent of any findings and conclusions stated in this CWPP:

- Fire Alarms – Ten percent of the overall grading is based on how well the fire department receives fire alarms and dispatches its fire-fighting resources.

- Engine Companies – Fifty percent of the overall grading is based on the number of engine companies and the amount of water a community needs to fight a fire. This includes suppression resource distribution, equipment maintenance, available personnel, and training.

- Water Supply – Forty percent of the grading is based on the community's water supply. In urban interface settings where a municipal water supply is available, the water supply is assessed for fire suppression capacity beyond daily maximum consumption, as well as the distribution of fire hydrants. In rural areas, documenting the ability to provide a continuous water supply to firefighting apparatus through a water tender relay may suffice.

Table 10: Pitkin County ISO Ratings

Fire Protection District	ISO Rating
Aspen Fire Protection District	4 – Lower in rural areas
Carbondale & Rural Fire Protection District	3 – All areas of the district
Roaring Fork Fire Rescue Authority	3 – Within five miles of fire stations 9 – Everywhere else

Protected Values

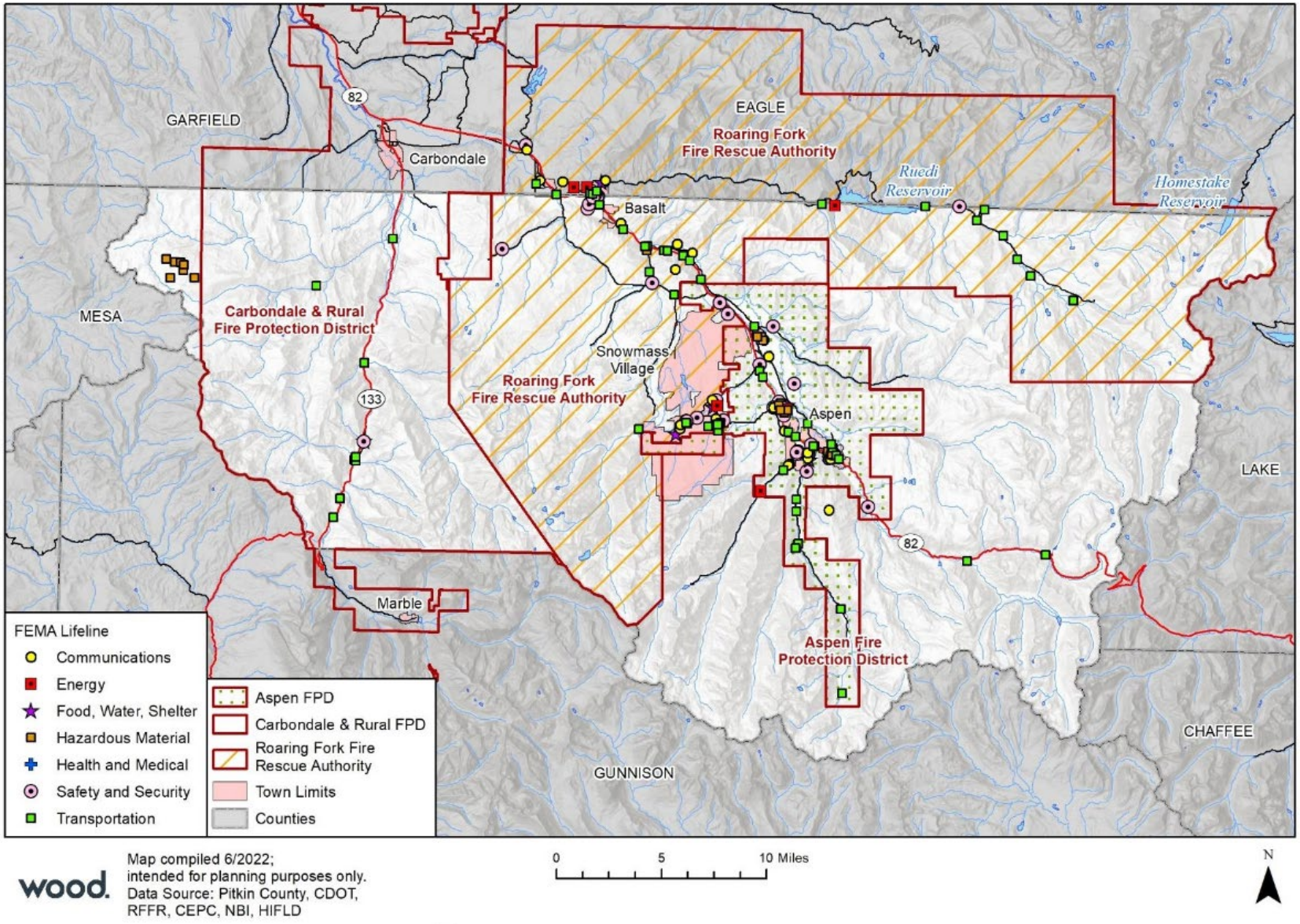
Firefighter safety and public safety are the first priorities during a wildfire event. Economic and ecological values are secondary to human welfare, however, the proper protection of these values through collaborative planning is an important goal of this CWPP.

Community Lifelines

The *2023 Pitkin County Hazard Mitigation Plan* (HMP) identified community lifelines for Pitkin County. A lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security.[15] During the HMP planning process community lifelines were identified for Pitkin County. The figure on the next page shows the location and category of the identified lifelines.

[15] FEMA. April 2023. "Community Lifelines". https://www.fema.gov/emergency-managers/practitioners/lifelines

Figure 17: Pitkin County Community Lifelines



Source: Pitkin County Hazard Mitigation Plan 2023

Historic and Cultural Resources

Pitkin County has many resources that are valued highly by communities and residents. Historic and cultural resources need to be protected for the future education and enjoyment of residents and visitors. The *2023 Pitkin County HMP* reviewed national and state historic inventories to identify historic and cultural assets in Pitkin County. The table below lists properties in Pitkin County that are located on either the Colorado State Register of Historic Properties or the National Register of Historic Places.

Table 11: Historic and Cultural Assets in Pitkin County

Property	Location	Year Listed
Armory Hall/Fraternal Hall	130 S. Galena St, Aspen	1975
Aspen Community Church	200 N. Aspen St, Aspen	1975
Boat Tow	700 S. Aspen St, Aspen	1990
Bowles-Cooley House	201 W. Francis St, Aspen	1987
Matthew Callahan Log Cabin	205 S. 3rd St, Aspen	1987
Collins Block-Aspen Lumber & Supply	204 S. Mill St, Aspen	1987
Dixon-Markle House	135 E. Cooper Ave, Aspen	1987
D.E. Frantz House	333 W. Bleeker St, Aspen	1987
Samuel L. Hallett House	432 W. Francis St, Aspen	1987
Holden Mining & Smelting Company	1000 W. Hwy 82, Aspen	1990
Hotel Jerome	330 E. Main St, Aspen	1986
Hyman-Brand Building	203 S. Galena St, Aspen	1985
Thomas Hynes House	303 E. Main St, Aspen	1987
La Flave Block	405 S. Hunter St, Aspen	1987
New Brick/The Brick Saloon/Red Onion	420 E. Cooper Ave, Aspen	1987
Riede's City Bakery	413 E. Hyman Ave, Aspen	1987
Judge Shaw House/Newberry House	206 Lake Ave, Aspen	1987
Sheely Bridge	Mill St Park, Aspen	1985
Shilling-Lamb House	525 N. 2nd St, Aspen	1987
Smith-Elisha House	320 W. Main St, Aspen	1989
Smuggler Mine	Smuggler Mountain	1987
Ute Cemetery	Ute Ave, Aspen	2002
Davis Waite House	234 W. Francis St, Aspen	1987
Henry Webber House/Pioneer Park	422 W. Bleeker St, Aspen	1987
Wheeler Opera House	330 E. Hyman Ave, Aspen	1972
Wheeler-Stallard House	620 W. Bleeker St, Aspen	1975
Ashcroft	White River National Forest	1975
Independence/Independence Mill Site	Independence/Hwy 82	1973
Maroon Creek Bridge	Hwy 82/Aspen Vicinity	1985
Osgood Castle/Cleveholm	Redstone Vicinity	1971
Osgood Gamekeeper's Lodge	18679 Hwy 133	1989
Osgood-Kuhnhausen House	642 Redstone Blvd	1983
Pitkin County Courthouse	506 E. Main St, Aspen	1975
Redstone Coke Ovens Historic District	Redstone Vicinity	1990
Redstone Historic District	Redstone	1989
Redstone Inn	82 Redstone Blvd	1980

Source: Directory of Colorado State Register Properties

Source Water Protection

The USFS Forests to Faucets project ranks areas within a watershed from 1 to 10 regarding relative importance to overall drinking water quality (10 being most important, 1 being least important). High important rankings highlight specific risks in Pitkin County when implementing wildfire management activities. Figure 18 shows that most of the county is in the 7-9 class range. Through discussions with the Core Planning Team, the following updates to the map better represent overall importance to drinking water quality:

- The Snowmass Village drinking water supply should be elevated to a 9.
- The area surrounding Basalt should be elevated to a 9.
- The area around Nettle Creek should be elevated to a 9, as it is a major source of water for Carbondale.
- The area surrounding Highway 133 should be elevated to a 9, as many unincorporated communities are located along the highway.
- The area surrounding Highway 82 between Aspen and Snowmass should be elevated to a 9, as there is development along the highway.
- The area around Norrie, Meredith, and Thomasville should be elevated to a 9.

Tourism and Recreation Features

Pitkin County is home to four large ski resorts: Aspen Mountain, Aspen Highlands, Buttermilk, and Snowmass. There is also 100+ miles of trails for hiking, mountain biking, and horseback riding. Other recreational activities include fishing, golf, rafting, canoeing, rock climbing, camping, snowmobiling, and snowshoeing. Because of this tourism accounts for more than half of the base industry employment in Pitkin County. The top four employment industries are food services (19%); government (12.4%); arts, entertainment, and recreation (11.8%); and real estate (11.5%).[16] The county also hosts many arts, cultural, and recreational events year-round. The table below lists the top ten employers in Pitkin County in 2021.

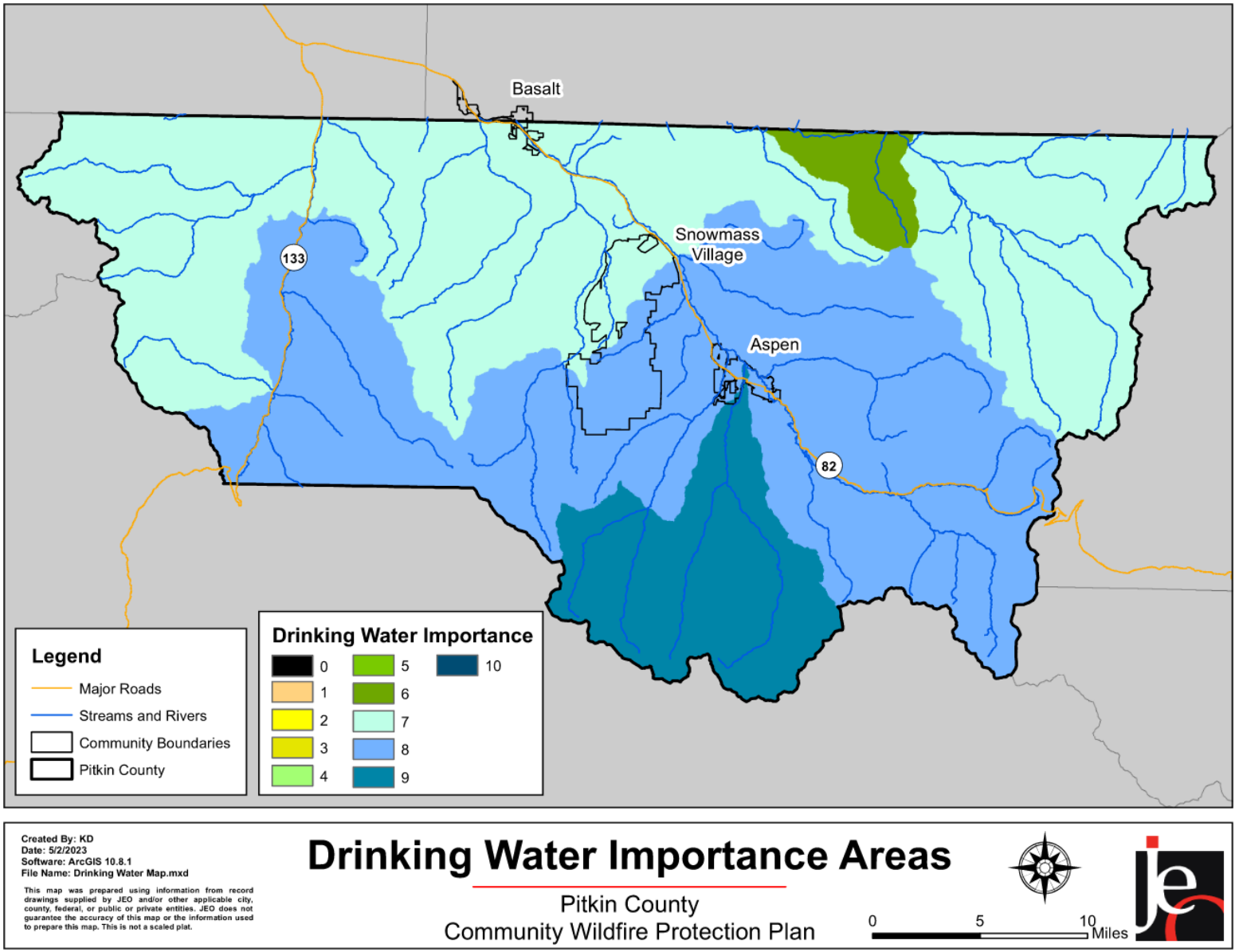
Table 12: Top Employers in Pitkin County in 2021

Employer	Number of Employees
Aspen Skiing Company	3,800
St. Regis Aspen	325
City of Aspen	313
Westin Snowmass Wildwood Resort	300
Roaring Fork Transit	295
Aspen Valley Hospital	292
Pitkin County	255
Aspen School District	241
Viceroy Snowmass Resort	223
Ritz Carlton	142

Source: Pitkin County, Colorado Comprehensive Annual Financial Report

[16] Pitkin County. 2023. "Pitkin County Hazard Mitigation Plan". https://pitkincounty.com/1477/Hazard-Mitigation-Plan#:~:text=The%20Pitkin%20County%20Hazard%20Mitigation,comment%20before%20it%20is%20finalized.

Figure 18: Drinking Water Importance Areas in Pitkin County



Wildlife Habitat

Natural resources in Pitkin County provide habitat for protected wildlife and can have beneficial functions that reduce the impacts from various natural hazards. Endangered and threatened species are protected by law and any future wildfire mitigation projects are subject to these laws. Endangered and threatened species located in Pitkin County are listed in the table below. Colorado Parks and Wildlife have identified High Priority Habitats across the state. Figure 19 shows the identified high priority habitat areas in Pitkin County.[17]

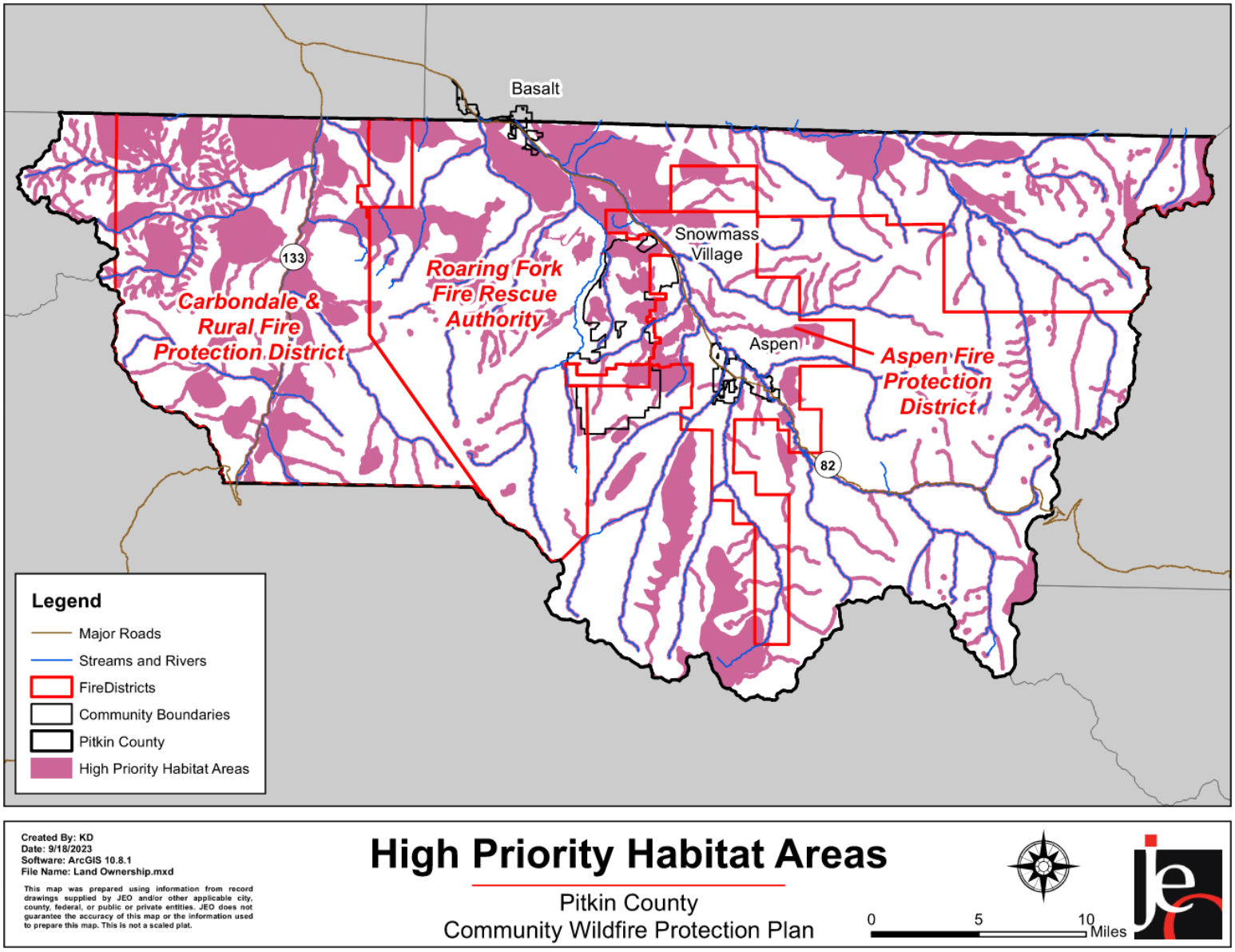
Table 13: Threatened and Endangered Species in Pitkin County

Species Name	Type of Species	Status
Canada Lynx	Mammal	Threatened
Greenback Cutthroat Trout	Fish	Threatened
Mexican Spotted Owl	Bird	Threatened
Uncompahgre Fritillary Butterfly	Insect	Endangered
Ute Ladies'-Tresses Orchid	Flowering Plant	Threatened
Yellow-Billed Cuckoo	Bird	Threatened

Source: U.S. Fish and Wildlife Service

[17] Colorado Parks and Wildlife. 2022. "Colorado Parks and Wildlife – HPH COGCC SB181 Data". https://www.arcgis.com/home/group.html?id=280f7c0420604edaa66ed6c0311d31d9#overview.

Figure 19: Colorado Parks and Wildlife High Priority Habitat Areas



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Wildfire Risk Assessment

People living in or near wildland settings in Pitkin County are vulnerable to the threat of wildfire. The development of homes and other structures is encroaching into the forest wildland and natural areas and is expanding the Wildland-Urban Interface (WUI). Interface neighborhoods are characterized by a diverse mixture of varying housing structures, development patterns, ornamental and natural vegetation, and natural fuels. Problems can arise if this new development increases the amount of fuel without coordinated thinning of the forests and the creation of defensible space around homes.

In the event of a wildfire, vegetation, structures, and other flammables can combine to create unwieldy and unpredictable events. Factors relevant to the fighting of such fires include access, firebreaks, proximity of water sources, distance from fire stations, and available firefighting personnel and equipment. The vulnerability of structures and homes in the interface area is increased by: combustible roofing and construction material; no/insufficient defensible space; poor access to structures; heavy natural fuel types; steep slopes; limited water supply; and winds over 30 miles per hour.

Pitkin County recently completed their *2023 Pitkin County Hazard Mitigation Plan*. Because of the recency of that plan, much of this section has information and data from the HMP. To review the entire HMP you can visit: https://pitkincounty.com/1477/Hazard-Mitigation-Plan.

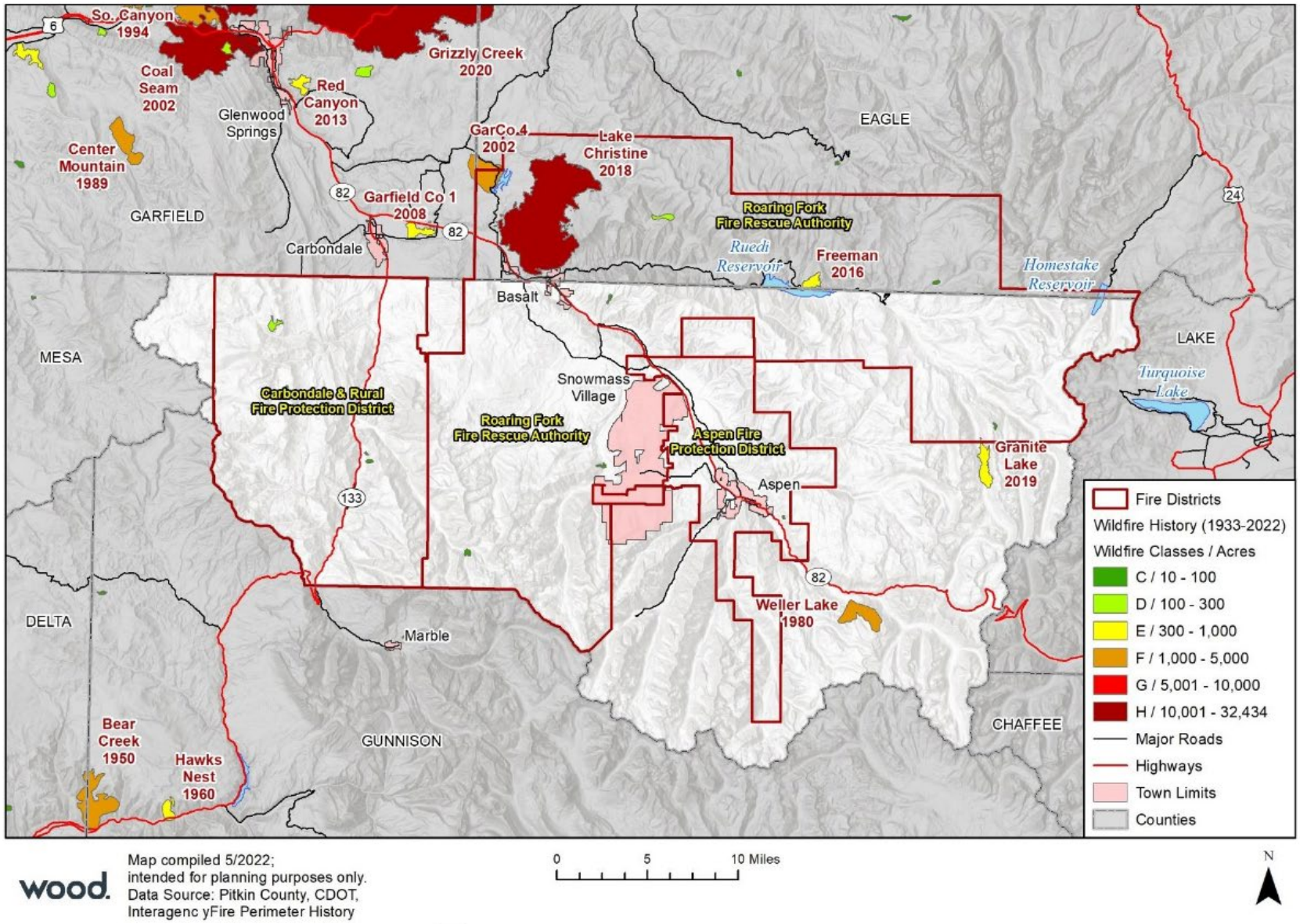
Fire History

Multiple wildfire events have impacted Pitkin County in the past. Most of the wildfire events are small (one acre or less) but larger wildfires have occurred in surrounding counties. Figure 20 below shows the location of historical wildfire events from 1933 to 2022. Most fires in the county are from human caused ignitions.

This map likely underrepresents the total number of wildfire events as historical occurrences are not well documented. Occurrence data is tracked by three agencies: the USFS/White River National Forest, BLM, and CFSF.

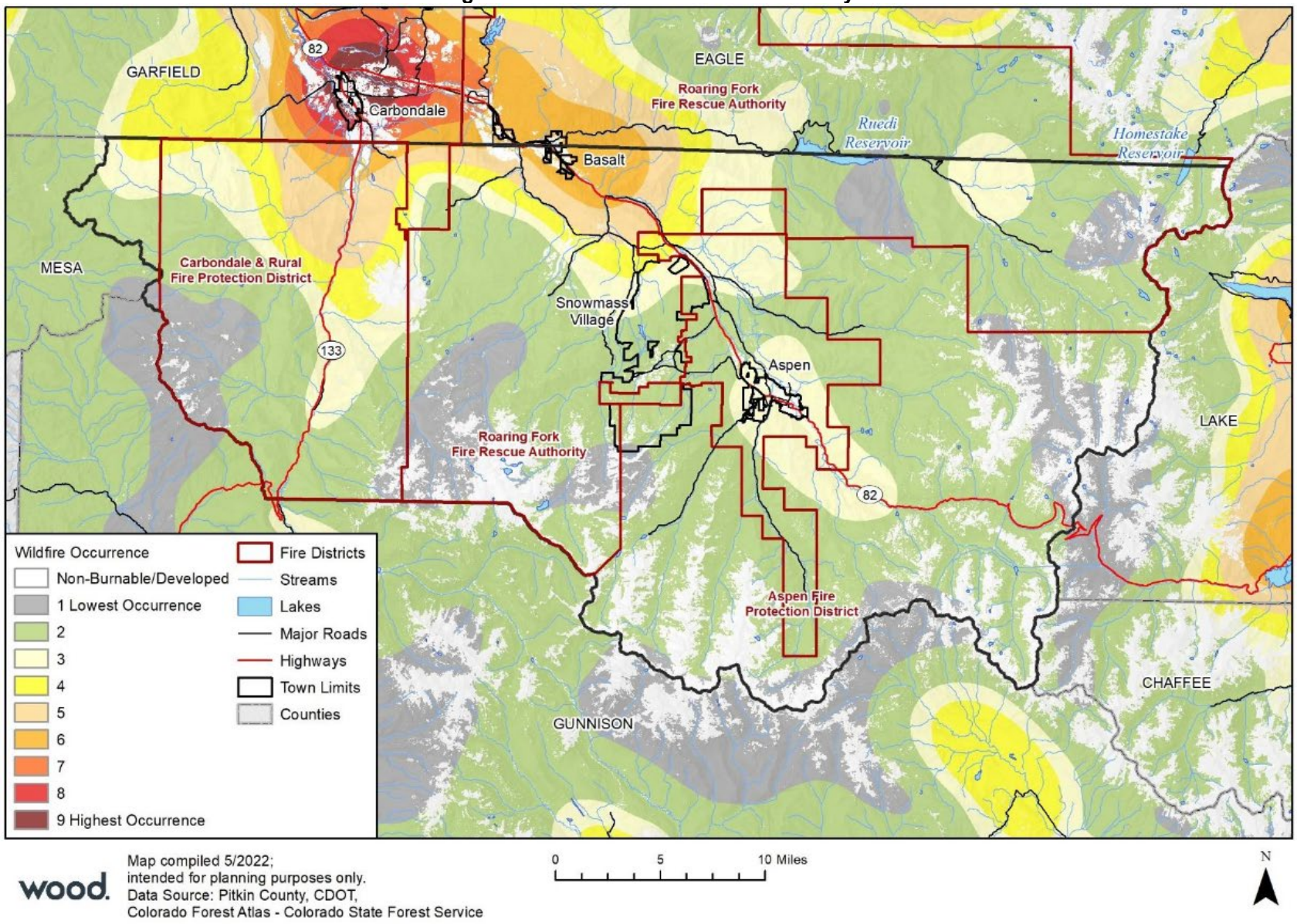
NCEI reports 20 wildfire events in Pitkin County since 2007. From these events there was $14.02 million in property damage reported. In 2002 Pitkin County was included in the federal disaster designation DR-1421 for wildfires.

Figure 20: Pitkin County Wildfire History, 1933-2022



Source: Pitkin County Hazard Mitigation Plan 2023

Figure 21: Wildfire Occurrence Probability



Source: Pitkin County Hazard Mitigation Plan 2023

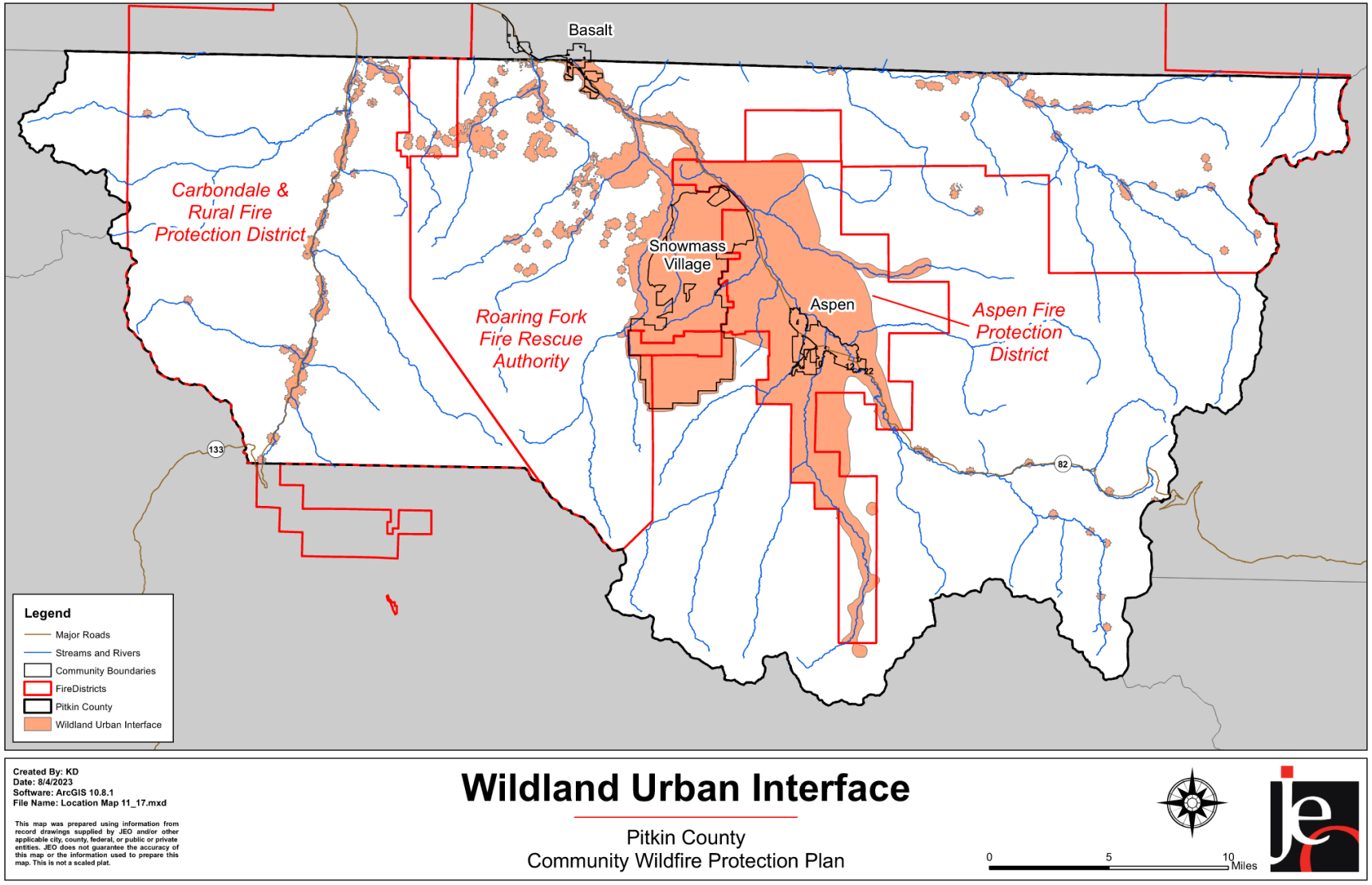
Probability of Future Events

Wildfire events are likely to occur in the future. The 2023 Pitkin County HMP states there is a 10-100% chance of wildfire in the county in any given year. Figure 21 above shows the annual probability of any location burning due to wildfire according to the Colorado Forest Atlas. Most of the county was rated a 2 on the scale with the northwestern edge of the county, including Basalt, being a 6 on the scale. Most of the county has a low probability of future occurrences, but probability increases near communities.

Wildland Urban Interface

The WUI should be flexible in its definition to be able to accommodate local areas of concern and priority landscapes. For this plan, the core planning team defined the WUI as the areas adjacent and within development which meet landscapes at risk to wildland fire. Also included in the definition are municipal watersheds and other landscapes (recreation amenities, viewsheds, etc.) that are important to the county and communities. This definition allows areas to be included in the WUI such as within a set radius of a community; those that have specific geographic features which influence fire behavior; areas surrounding key transportation corridors for evacuation; remote residential lots; or where tree mortality has significantly impacted available fuel loads. Specific areas of concern identified by members of the planning team were included in the WUI boundaries. The WUI boundaries were presented at a planning team meeting for discussion and approval. The Wildland Urban Interface map for Pitkin County can be found below (Figure 22). Zoomed in fire authority maps for the WUI can be found in *Appendix B*.

Figure 22: Wildland Urban Interface



Wildfire Risk Areas

The Colorado Forest Atlas calculates a composite wildfire risk rating for all of Colorado. Wildfire risk is defined by the Colorado Forest Atlas as the possibility of loss or harm occurring from wildfire. All values and risks (WUI Risk, Drinking Water Risk, Forest Assets Risk, Riparian Areas Risk) are combined to create the risk index (Figure 24). Zoomed in fire authority maps for the wildfire risk can be found in *Appendix B*

A Fire Intensity Scale is also conducted by the Colorado Forest Atlas. This scale uses fuels, topography, and weather to determine a relative intensity from Class 1 (lowest) to Class 5 (highest). A majority of the county has at least a moderate intensity rating as seen in Figure 25.

During the planning process each FPD and Pitkin County were able to identify their own locations of concern within their district or county. While these locations may not be identified as higher risk by the forest atlas, they are a concern due to various reasons such as being a critical evacuation route, nearby fuel loads, or potential economic impact. Locations of concern by FPD are listed below.

Aspen Fire Protection District Wildfire Risk Areas

The Aspen Fire Protection District, The City Aspen, and the Aspen Community Foundation have developed a district wide Wildfire Risk Assessment Map. The Wildfire Risk Assessment Map contains several layers of information with the two most vital being natural environment and the manmade environment. The natural environment risk layer captures vegetation, topography, and neighboring land features. The manmade environment risk layer illustrates the risk to homes and other structures by examining the building design and materials, vegetation density around the structure, and access to and from the structure. The Wildfire Risk Assessment Map can be seen below and can be found here: https://aspenfire.com/wildfire-risk-map.

In addition to their Wildfire Risk Assessment Map, the Aspen Fire Protection District identified these locations as areas of concern. The district also mentioned that a locally started wildfire on a windy day is their biggest concern.

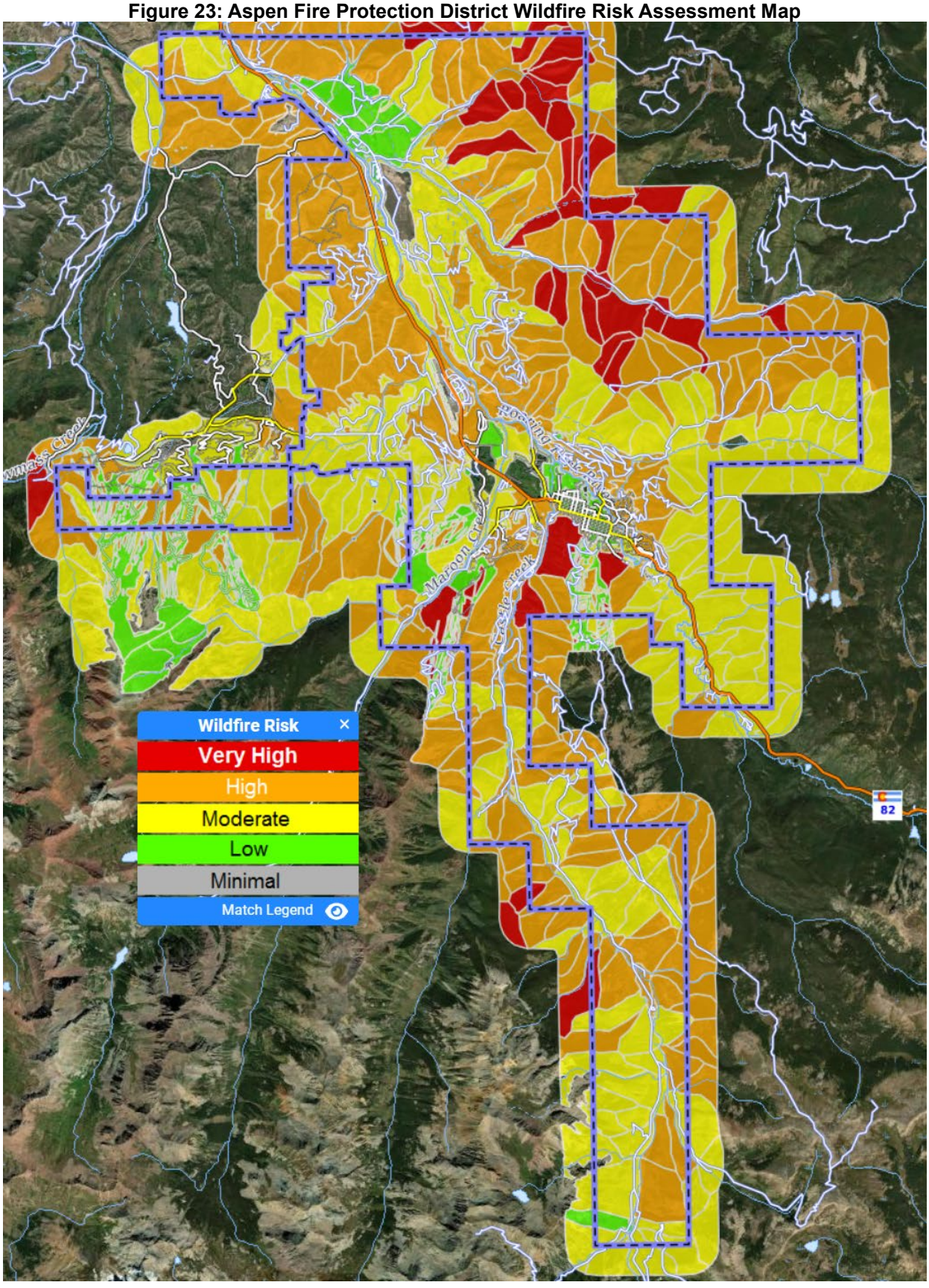
West End of Aspen – High possibility of structure-to-structure transfer if a fire was to occur in that area due to vegetation very near homes. This is also a critical entry and exit point for the city if an evacuation was needed. Topography and winds in this area would not be advantageous to containing a fire.

Red Butte Near Henry Stein Park – A wind driven event would likely come from this area. This has been identified as a weak point for the district because there is not a good area to contain or stop a potential fire. The north side of Red Butte would likely have very high winds during a wildfire event. This area also contains a primary route for first responders to come into the city.

Sides of the Ski Runs Near the City – Topography, dense vegetation, and large amounts of beetle kill make these areas very high risk of wildfire. They are very close to the city and suppression would be very difficult. Adjacent roads also have limited egress.

West of Airport Area – Winds off the mountains to the west could bring wildfire down to the city. The airport, airport business center, and water plant are critical pieces of infrastructure that would need to be protected in the event of a wildfire.

Figure 23: Aspen Fire Protection District Wildfire Risk Assessment Map



Smuggler Hiking Area / Red Mountain – Vegetation type, a southern exposure, and being located near the city makes this an area of concern. This area also is a mixture of different landowners so getting a project done here could be difficult.

Lower Brush Creek Neighborhood – There is a funneling of winds in this area and a lot of dry vegetation. There is also poor ingress and egress.

Lenado / Woody Creek – The area is south facing, has vegetation types that are easily combustible, and there is limited ingress and egress.

Starwood – The area has extremely limited egress, vegetation types that are easily combustible, a southern exposure, and bark beetle infestation. In addition, Bear Hollow gully acts as a wind funnel causing very high winds in the area.

Castle Creek – The area is dealing with significant slopes, a bark beetle infestation, and very limited egress.

Maroon Creek – The creek is very important for drinking water and is a popular tourism destination for the local economy. There is also very limited ingress and egress.

Independence Pass – It is a critical transportation route along a very steep and narrow path with heavy timber.

Carbondale & Rural Fire Protection District Wildfire Risk Areas

Campgrounds – There are five campgrounds that depend on Highway 133 for evacuation routes. The largest of these sites are the two in Redstone, which cater to large RV's that can slow the evacuation process if all are leaving in the same direction during the height of the tourist season.

Crystal River Country Estates – Consists of two areas with five homes along Crystal Lane with a narrow access road with overhanging vegetation. The second area of concern is Crystal Circle with 15 homes and four hydrants. Both areas have large fuel loads and one way out across a narrow lane bridge. This unincorporated community is failing in its communications with each other and creating difficulty in bring homeowners together on mitigation and evacuation plans.

Prince Creek Road – Two-way egress possibilities with one way over the crown to West Sopris Creek Road or back to Carbondale and Highway 133. This road is well maintained but is in a drainage area surrounded by heavy concentrations of Oak Brush. This area has been a popular area for camping and mountain biking. A nearby subdivision is located above the crown that would make the road congested during an evacuation order.

Redstone – This unincorporated community has population changes from the winter to the summer. In the summer the population can triple, especially during the weekends and daylight hours. The challenge for Redstone is the position of the community because the canyon narrows there and that may affect fire behavior with increasing winds and smoke dispersal. Evacuation routes are limited to Highway 133 either north or south.

Seven Oaks – This unincorporated community makes up the second largest subdivision with approximately 60 homes with three evacuation routes out of the subdivision. Main route is across a bridge on South Bill Creek Road at mile maker 61.75. Route 2 is North Bill Creek Road that

merged with Bain-Thomas Ditch, and third is S Bill Creek Road that connects with Crystal River Country Estates and a bridge at mile marker 60.5.

Swiss Village – Located on the west side of Highway 133 and makes up the third largest subdivision in Pitkin County along the highway corridor with 50 homes. This unincorporated community has committed time and money to reduce fuel loads over the last several years and has fire hydrants throughout. Fire risk for evacuation is affected by position on slope and by the limited ways in and out of the community via Shoshone Trail or Ute Trail at mile maker 56.5.

Roaring Fork Fire Rescue Authority Wildfire Risk Areas

Divide Road – This road is a critical means of egress for Snowmass Village.

Highway 82 Between Snowmass Village and Basalt – Homes located along the highway that are surrounded by wildland vegetation. This highway would also be critical if an evacuation was needed.

Snowmass Creek Road – Homes located all along the road surrounded by wildland vegetation.

Snowmass Village – The entire village is in the WUI and the potential economic impacts, especially tourism, of a fire would be massive.

Vegetation Condition Class

Vegetation Condition Class (VCC) indicates the general level to which current vegetation is different from the estimated historical vegetation reference conditions. Vegetation changes from historical conditions have resulted because of settlement and fire exclusion policy.

The VCC is based on changes to vegetation composition, structural stage, and canopy closure. VCC may be utilized, in combination with other factors, to help guide management objectives and set priorities for vegetation-fuel treatments and management. The classification of vegetation into VCC considers only wildland vegetation and not vegetation associated with agricultural or urban areas. VCC classes are shown in the table below. Most of the county falls in the 1.B or 2.A condition class (Figure 26). The northwestern portion of the county has the largest amount of 3.A condition class.

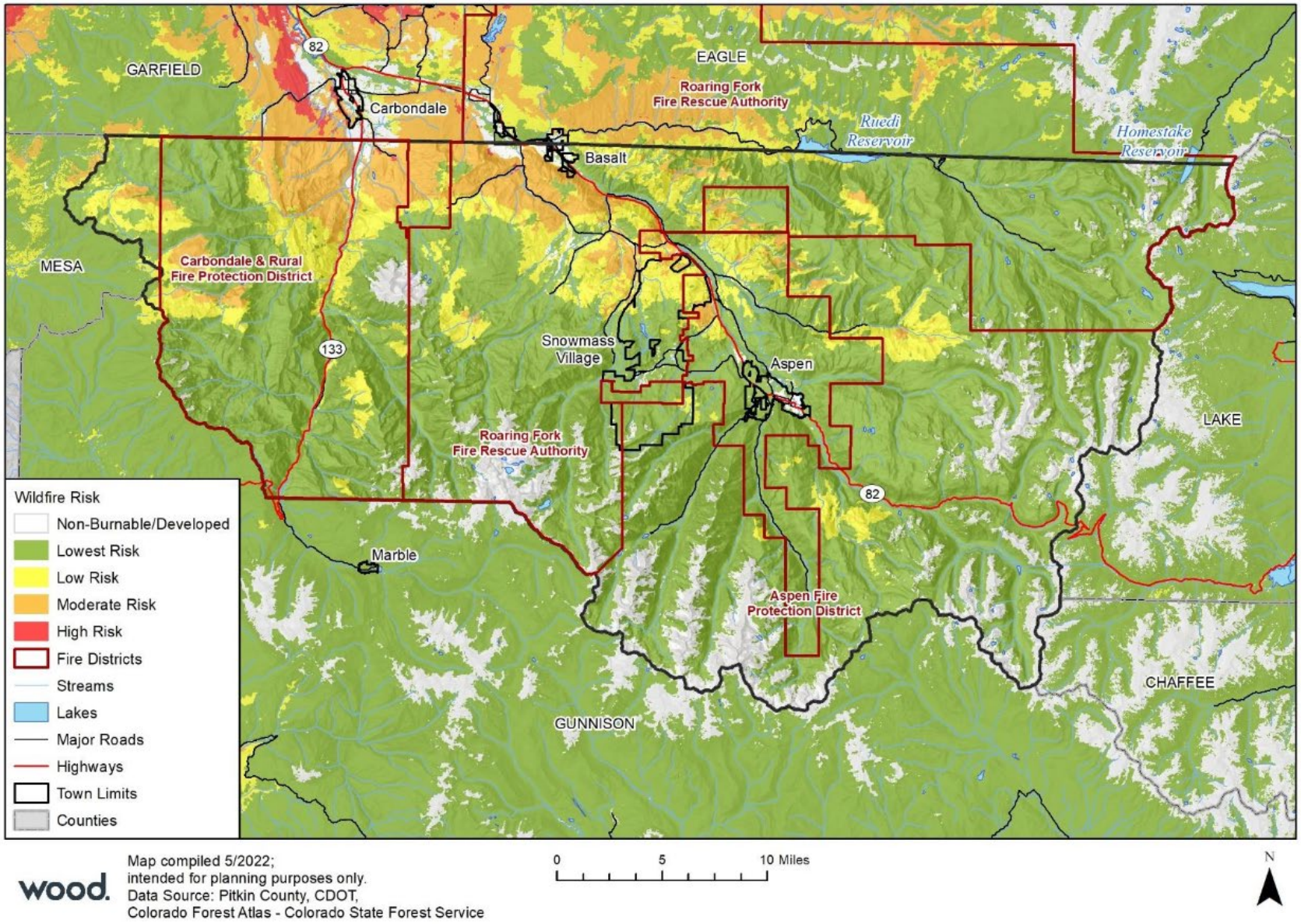
Table 14: Vegetation Condition Class

Vegetation Condition Class	Definition
VCC 1.A	Very Low Departure
VCC 1.B	Low Departure
VCC 2.A	Moderate to Low Departure
VCC 2.B	Moderate to High Departure
VCC 3.A	High Departure
VCC 3.B	Very High Departure

Source: LandFire, 2020[18]

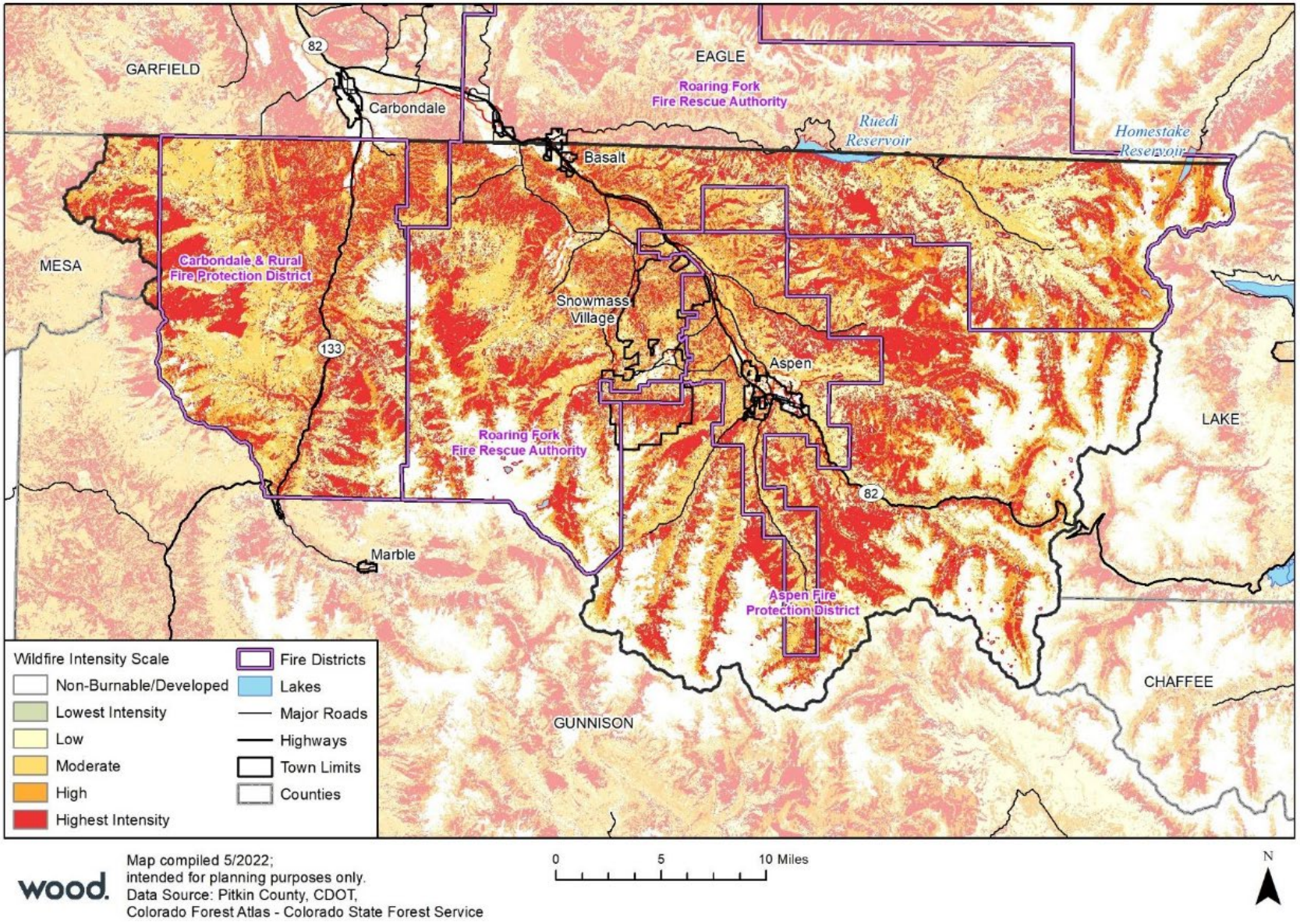
[18] LandFire. 2020. “Vegetation Condition Class”. Accessed May 2023. https://www.landfire.gov/viewer/.

Figure 24: Wildfire Risk



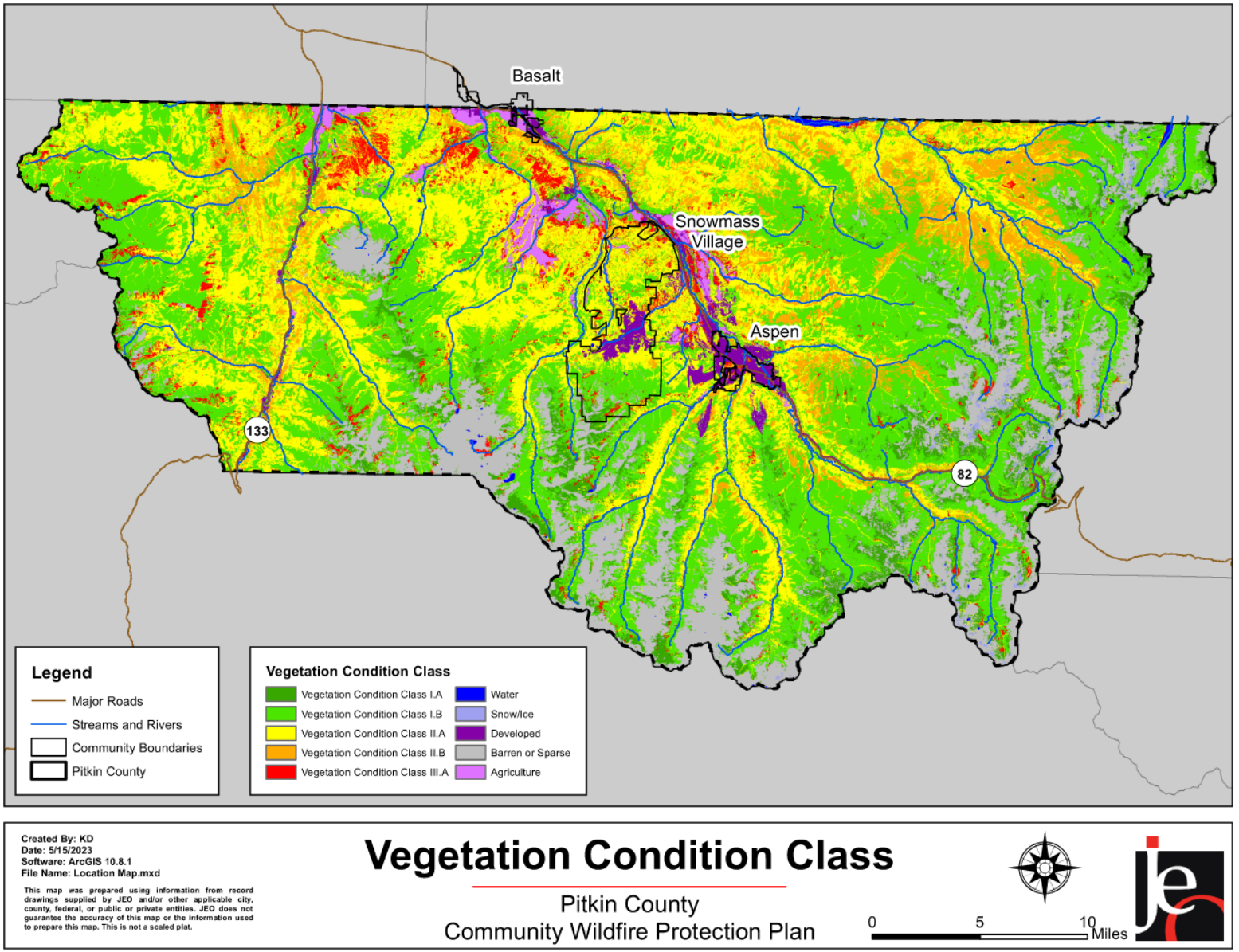
Source: Pitkin County Hazard Mitigation Plan 2023

Figure 25: Fire Intensity Scale



Source: Pitkin County Hazard Mitigation Plan 2023

Figure 26: Pitkin County Vegetation Condition Class



Population at Risk

Populations living in the WUI are most at risk of wildfire. The population living in WUI areas was estimated using the structure count of buildings in the WUI area and applying the census value of 2.35 persons per household for Pitkin County, 1.97 persons per household for Aspen, 2.26 persons per household for Basalt, and 2.22 persons per household for Snowmass Village.[19] The estimated population within the WUI is shown in Table 15.

Table 15: Population Within WUI Risk Areas

Location	Low Risk Population	Moderate Risk Population	High Risk Population
Aspen	3,489	2,742	3,735
Basalt	1,765	457	1,650
Snowmass Village	5,017	211	1,188
Unincorporated County	5,154	1,640	2,799
Total	**15,425**	**5,050**	**9,371**

Source: Pitkin County Assessor 2022, Eagle County Assessor Data 2022, Colorado Forest Atlas, WSP GIS Analysis

Public health impacts from smoke and air pollution can also occur from wildfires. Smoke, soot, tar, minerals, carbon monoxide, carbon dioxide, and other toxins can be released during a wildfire. Those with preexisting health conditions like respiratory and cardiovascular disease are especially vulnerable. Those fighting fires can also be impacted from smoke inhalation and heat stroke.

Values and Property at Risk

Property damage from wildfires can be severe and can even destroy entire communities. Loss estimations for the wildfire hazard were modeled by intersecting the Colorado Forest Atlas wildfire risk data with 2022 county tax assessor data for improved parcels and associated building footprints. Table 16, Table 17, Table 18, and Table 19, summarize the estimated exposed value of improvements in each wildfire risk category. Wildfires typically result in total building loss, including contents. Content values were estimated as a percentage of building value based on their property type, using FEMA/HAZUS estimated content replacement values. This includes 100% of the structure value for commercial and exempt structures and vacant improved land, and 50% for residential structures. Improved and contents values were summed to obtain a total exposure value. In all, a total of 5,012 parcels and 5,920 buildings are in areas exposed to wildfire risk areas, with a total value of over $16.99 billion. However, over 90% of those parcels are at either low or lowest risk; 424 parcels and 511 buildings worth $841 million are at moderate or high risk. The greatest exposure is in the unincorporated parts of the county.[20]

[19] Pitkin County. 2023. “Pitkin County Hazard Mitigation Plan”. https://pitkincounty.com/1477/Hazard-Mitigation-Plan#:~:text=The%20Pitkin%20County%20Hazard%20Mitigation,comment%20before%20it%20is%20finalized.

[20] Pitkin County. 2023. “Pitkin County Hazard Mitigation Plan”. https://pitkincounty.com/1477/Hazard-Mitigation-Plan#:~:text=The%20Pitkin%20County%20Hazard%20Mitigation,comment%20before%20it%20is%20finalized.

Table 16: Exposure and Value of Structures in the High Wildfire Risk Areas

Jurisdiction	Property Type	Improved Parcels	Building Count	Improved Value	Content Value	Total Value
Unincorporated County	Agricultural	5	7	$2,492,300	$2,492,300	$4,984,600
	Residential	24	29	$14,893,900	$7,446,950	$22,340,850
	Total	**29**	**36**	**$17,386,200**	**$9,939,250**	**$27,325,450**

Source: Pitkin County Assessor 2022, Eagle County Assessor Data 2022, Colorado Forest Atlas, WSP GIS Analysis

Table 17: Exposure and Value of Structures in the Moderate Wildfire Risk Areas

Jurisdiction	Property Type	Improved Parcels	Building Count	Improved Value	Content Value	Total Value
Basalt	Agricultural	1	1	$2,681,400	$2,681,400	$5,362,800
	Residential	22	22	$30,623,210	$15,311,605	$45,934,815
	Total	**23**	**23**	**$33,304,610**	**$17,993,005**	**$51,297,615**
Snowmass Village	Residential	3	3	$12,835,800	$6,417,900	$19,253,700
	Total	**3**	**3**	**$12,835,800**	**$6,417,900**	**$19,253,700**
Unincorporated County	Agricultural	21	33	$14,137,700	$14,137,700	$28,275,400
	Commercial	1	4	$9,104,900	$9,104,900	$18,2019,800
	Exempt	7	9	$6,685,500	$6,685,500	$13,371,000
	Residential	339	402	$455,281,200	$227,640,600	$682,921,800
	Vacant	1	1	$127,900	$127,900	$255,800
	Total	**369**	**449**	**$485,337,200**	**$257,696,600**	**$743,033,800**
Grand Total		**395**	**475**	**$531,477,610**	**$282,107,505**	**$813,858,115**

Source: Pitkin County Assessor 2022, Eagle County Assessor Data 2022, Colorado Forest Atlas, WSP GIS Analysis

Table 18: Exposure and Value of Structures in the Low Wildfire Risk Areas

Jurisdiction	Property Type	Improved Parcels	Building Count	Improved Value	Content Value	Total Value
Aspen	Exempt	1	1	$12,257,700	$12,257,700	$24,515,400
	Residential	15	15	$73,364,000	$36,682,00	$110,046,000
	Total	**16**	**16**	**$85,621,700**	**$48,939,700**	**$134,561,400**
Basalt	Commercial	1	1	$178,800	$178,800	$357,600
	Residential	58	58	$58,722,430	$29,361,215	$88,083,645
	Total	**59**	**59**	**$58,901,230**	**$29,540,015**	**$88,441,245**
Snowmass Village	Exempt	2	3	$1,098,600	$1,098,600	$2,197,200
	Residential	67	67	$103,982,100	$51,991,050	$155,973,150
	Total	**69**	**70**	**$105,080,700**	**$53,089,650**	**$158,170,350**
Unincorporated County	Agricultural	21	45	$32,851,700	$32,851,700	$65,703,400
	Commercial	4	11	$9,546,200	$9,546,200	$19,092,400
	Exempt	9	19	$6,255,500	$6,255,500	$12,511,000
	Mixed Use	8	9	$3,344,300	$3,344,300	$6,688,600
	Residential	433	508	$690,198,900	$345,099,450	$1,035,298,350
	Vacant	1	1	$7,700	$7,700	$15,400
	Total	**476**	**593**	**$742,204,300**	**$397,104,850**	**$1,139,309,150**
Grand Total		**620**	**738**	**$991,807,930**	**$528,674,215**	**$1,520,482,145**

Source: Pitkin County Assessor 2022, Eagle County Assessor Data 2022, Colorado Forest Atlas, WSP GIS Analysis

Table 19: Exposure and Value of Structures in the Lowest Wildfire Risk Areas

Jurisdiction	Property Type	Improved Parcels	Building Count	Improved Value	Content Value	Total Value
Aspen	Agricultural	4	9	$65,763,900	$65,763,900	$131,527,800
	Commercial	43	47	$52,227,800	$52,227,800	$104,455,600
	Exempt	23	57	$110,111,900	$110,111,900	$220,223,800
	Mining	1	1	$13,500	$13,500	$27,000
	Residential	710	762	$2,219,027,900	$1,109,513,950	$3,328,541,850
	Vacant	1	1	$28,400	$28,400	$56,800
	Total	**782**	**877**	**$2,447,173,400**	**$1,337,659,450**	**$3,784,832,850**
Basalt	Commercial	32	32	$38,631,240	$38,631,240	$77,262,480
	Exempt	5	5	$4,345,380	$4,345,380	$8,690,760
	Residential	408	418	$369,724,970	$184,862,485	$554,587,455
	Total	**445**	**455**	**$412,701,590**	**$227,839,105**	**$640,640,695**
Snowmass Village	Agricultural	2	2	$8,683,900	$8,683,900	$17,367,800
	Commercial	10	11	$79,238,600	$79,238,600	$158,477,200
	Exempt	15	19	$18,303,500	$18,303,500	$36,607,000
	Mixed Use	1	1	$1,922,300	$1,922,300	$3,844,600
	Residential	951	990	$1,752,717,100	$876,358,550	$2,629,075,650
	Total	**979**	**1,023**	**$1,860,865,400**	**$984,506,850**	**$2,845,372,250**
Unincorporated County	Agricultural	61	94	$129,673,500	$129,673,500	$259,347,000
	Commercial	38	80	$57,193,100	$57,193,100	$114,386,200
	Exempt	51	107	$73,686,500	$73,686,500	$147,373,000
	Mining	1	1	$26,100	$26,100	$52,200
	Mixed Use	16	23	$17,677,100	$17,677,100	$35,354,200
	Residential	1,93	2,009	$4,531,535,800	$2,265,767,900	$6,797,303,700
	Vacant	2	2	$2,300	$2,300	$4,600
	Total	**1,762**	**2,316**	**$4,809,794,400**	**$2,544,026,500**	**$7,353,820,900**
Grand Total		**3,968**	**4,671**	**$9,530,534,790**	**$5,094,031,905**	**$14,624,566,695**

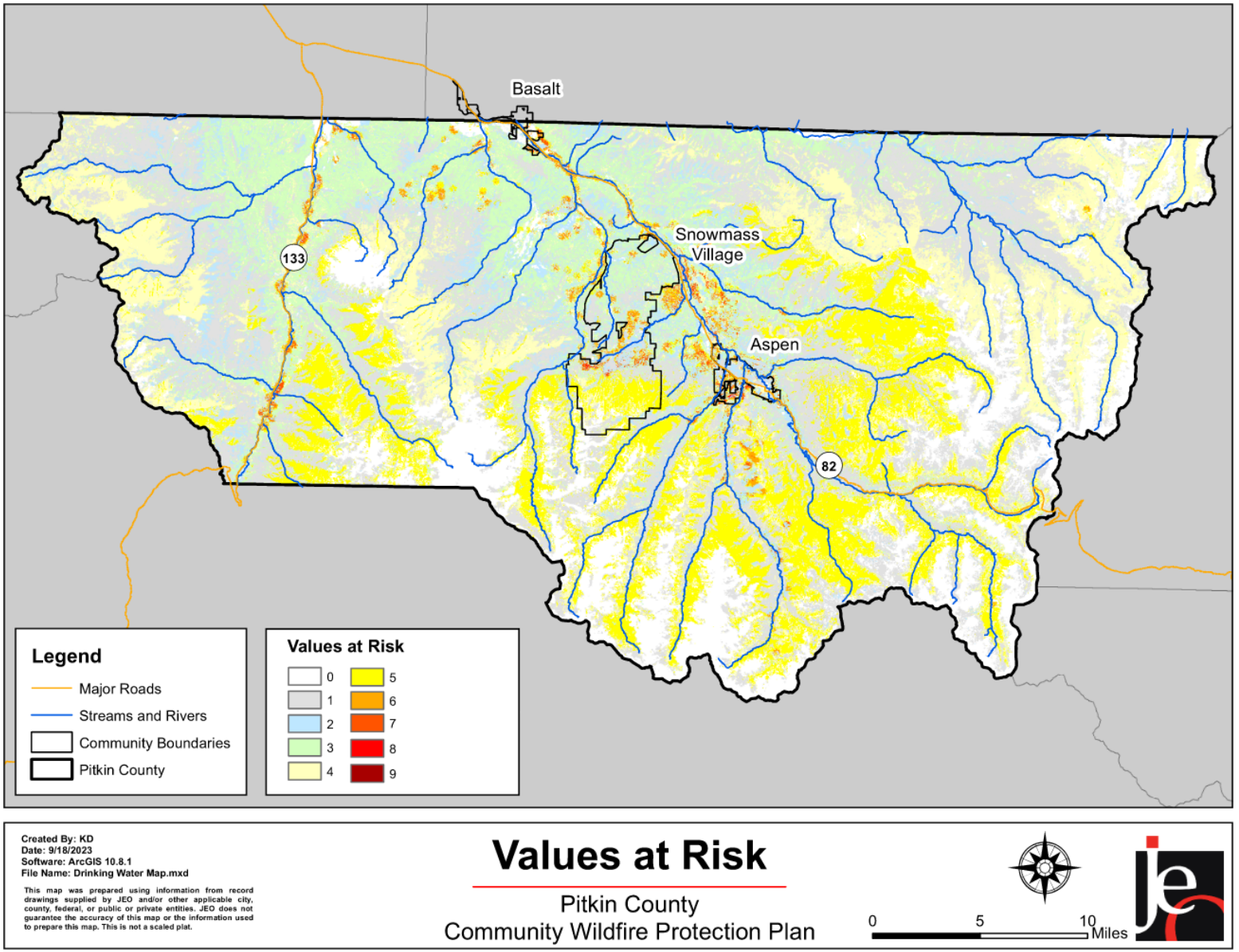
Source: Pitkin County Assessor 2022, Eagle County Assessor Data 2022, Colorado Forest Atlas, WSP GIS Analysis

Values at Risk

The Colorado Forest Atlas has a Values at Risk Rating that represents those values that would adversely impacted by wildfire. The values included are the WUI, Forest Assets, Riparian Assets, and Drinking Water Importance areas. A Risk Class of 1 (grey) has the least negative impact and 9 (dark red) has the most negative impact. Nearly 34% of the county had a value at risk class of 1, while only 1.4% had risk classes between 6 and 9 (Figure 27).[21]

[21] Colorado State Forest Service. 2017. “Colorado Wildfire Risk Assessment Summary Report – Pitkin County”.

Figure 27: Values at Risk



Community Lifeline Risk

Community lifelines are also at risk to wildfires with vulnerability depending on the type of construction materials. Wood power lines are at high risk of burning and pipelines can increase fuel load with the potential to explode. Roadways are not likely to be damaged but closed roads could cause issues for residents and first responders. Table 20, Table 21, and Table 22 summarize community lifelines that are exposed to wildfire risk. Note that no community lifelines were identified in very high- or high-risk areas.

Table 20: Community Lifelines Exposed to Moderate Wildfire Risk

Category	Pitkin County	Aspen Fire Protection District	Roaring Fork Fire Rescue Authority
Communications	-	-	1
Energy	-	-	-
Food, Water, Shelter	-	-	1
Hazardous Material	1	-	1
Health and Medical	-	-	-
Safety and Security	1	-	1
Transportation	1	-	1
Total	**3**	**0**	**5**

Source: Pitkin County, Colorado Forest Atlas, CEPC, HIFLD, NBI, RFFR

Table 21: Community Lifelines Exposed to Low Wildfire Risk

Category	Pitkin County	Aspen Fire Protection District	Roaring Fork Fire Rescue Authority
Communications	3	2	1
Energy	1	-	1
Food, Water, Shelter	-	-	1
Hazardous Material	3	1	-
Health and Medical	-	-	-
Safety and Security	5	3	2
Transportation	5	1	3
Total	**17**	**7**	**8**

Source: Pitkin County, Colorado Forest Atlas, CEPC, HIFLD, NBI, RFFR

Table 22: Community Lifelines Exposed to Lowest Wildfire Risk

Category	Pitkin County	Aspen Fire Protection District	Roaring Fork Fire Rescue Authority
Communications	4	3	8
Energy	2	2	3
Food, Water, Shelter	2	1	1
Hazardous Material	6	2	-
Health and Medical	-	-	1
Safety and Security	6	5	7
Transportation	24	8	17
Total	**44**	**21**	**37**

Source: Pitkin County, Colorado Forest Atlas, CEPC, HIFLD, NBI, RFRR

Drinking Water Risk

The inherent activities of wildland fire management are potential sources of source water contamination even though these actions are intended to protect human welfare, economic values, and ecological values. Vegetation-fuel treatments, wildfire suppression activities, and burned areas are potential sources for source water contamination. The types of potential contaminants delivered to surface waters resulting from vegetation-fuel projects depend on the type of treatment. For example, mechanical treatments may increase sediment loads to surface waters from soil-surface disturbances. Vegetation herbicide treatments could result in chemical contamination of surface waters. Prescribed fire may increase sediment and ash flows into surface waters. Wildfire suppression sources of contaminants may include increased sediment, debris, and ash flows into surface waters. The fire burned area or scar may also result in increased sediment, debris, and ash flows into surface water until vegetation is re-established. Burned areas can be especially susceptible to accelerated erosion from subsequent precipitation events for years after fire suppression.

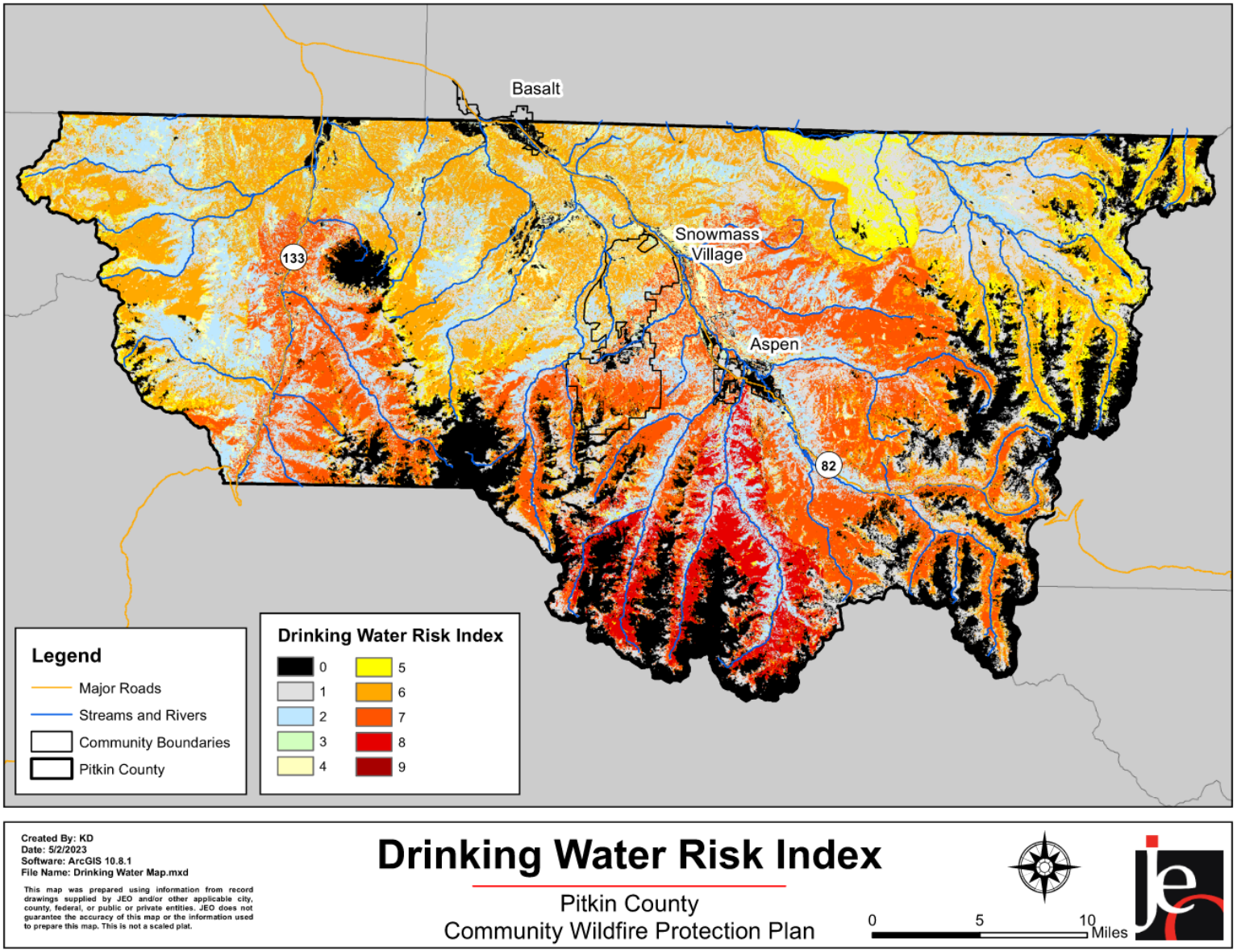
Several actions can occur to reduce the risks of source water contamination from wildland fire activities. BLM and the USFS would need to follow their fire management plans and resource management plan stipulations with regards to vegetation-fuel management, fire suppression, and post-fire stabilization. Private landowners should work with the CSFS, conservation district, or NRCS to address ways to protect water sources from wildland fire management on their properties. Additional caution such as installing site-specific erosion control devise around source water intake may be necessary during and after any wildland fire management activities.

The state developed an overall Drinking Water Risk Index to provide a measurement of risk to Drinking Water Important Areas based on the potential negative impacts from wildfire. In areas which experience low-severity burns, fire events can serve to eliminate competition, rejuvenate growth, and improve watershed conditions. But in landscapes subjected to high or moderate-burn severity, the post fire threats to public safety and natural resources can be extreme. Critical surface vegetation loss leaves forested slopes vulnerable to large-scale soil erosion and flooding during subsequent storms. These impacts threaten overall health, safety, and integrity of communities and natural resources downstream. The index for Pitkin County lists most of the county in the 6 class (26.1%), with the highest risk rating of 8 applying to 3.7% of total areas in the county (Figure 28).

During the planning process the Core Planning Team identified locations that should have elevated drinking water risk. While these locations may not be identified as higher risk by the forest atlas, they are a concern due to potential impacts on the communities drinking water. Locations of that should have elevated risk are listed below.

- Upstream Reaches of Snowmass Village's Water Supply – Snowmass Village does not have a backup water supply.
- Nettle Creek – Major source of Carbondale's drinking water.
- Basalt Area – Roaring Fork River is used as a water supply for many communities.
- Crystal River – A water supply for many communities.
- Fryingpan River – Used as a water supply for many communities.

Figure 28: Drinking Water Risk Index in Pitkin County



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Wildland Fire Emergency Operations and Capabilities

Pitkin County encompasses a mosaic of land ownership and jurisdictional boundaries, because of this interagency cooperation is essential not only for wildland fire suppression but also for prevention, preparedness, mitigation, and fiscal issues. Wildland fire management is governed by a variety of federal policies, state statutes, and cooperative agreements between jurisdictional agencies.

Within the FPDs, the Fire Chief has authority for wildfire suppression on all non-federal lands unless that authority is transferred to the County Sheriff. In addition to fire suppression, the FPDs offer emergency first response medical services, hazardous materials response, and fire prevention education. The County Sheriff has authority for all state and private lands outside of the FPDs. DFPC does not have jurisdiction on any lands, until authority and responsibility are transferred by mutual consent from the County Sheriff to DFPC. DFPC works closely with the FPDs and the County Sheriff in fulfillment of these responsibilities. The UCRIFMU provides fire suppression on federal lands in the county.

Interagency Cooperation

Dispatch Centers

The Pitkin County Regional Dispatch Center is the primary dispatch for the County Sheriff's Office and FPDs. This center acts as the dispatch for initial attack response on private and state lands within the county and will coordinate with the Grand Junction Interagency Dispatch Center for wildfire response on federal lands.

The Grand Junction Interagency Dispatch Center is the primary dispatch for initial attack and extended attack on all federal lands within the county. They can also help coordinate with the Pitkin County Regional Dispatch Center for wildfire response on private and state lands if needed.

Mutual Aid

As identified in the Pitkin County Wildland Fire Operating Plan mutual aid is considered county-wide. The period for mutual aid is defined as the first operational period or midnight of the second operational period if mutually agreed upon by all parties. All ground and aviation resources are considered mutual aid resources.

The Mountain Area Mutual Aid Plan (MAMA) establishes mutual aid between local fire and EMS agencies within Eagle, Garfield, Grand, Lake, Pitkin, Rio Blanco, Routt, and Summit Counties. When MAMA is implemented, an agency representative may be assigned to the incident to facilitate the tracking and allocation of MAMA resources and coordinate with the agency(s) having jurisdiction. Resources who respond under MAMA may be assigned to the incident and placed on a resource order for extended attack if needed and available.

State Emergency Fire Fund (EFF)

The EFF was established in 1967 by a few counties that recognized that some fires may exceed the capabilities of county resources and abilities. County participation is voluntary. Majority of the counties in Colorado participate including Pitkin County contribute into this insurance-type fund that can pay for catastrophic wildfires on state and private land that exceed a participating county's

capabilities including suppression costs. EFF funding must be requested by the county sheriff and can only be approved by the director of DFPC.

The EFF is strictly a fire suppression fund and cannot pay for rehabilitation. However, repair of damage directly related to suppression (e.g., water bars on cat lines) may be authorized by a DFPC line officer if accomplished as a suppression component at the time of the fire suppression effort. Alternate resources can be negotiated dependent on resources appropriate for the fire. The EFF is a necessary link to FEMA funds; however, federal agencies cannot obligate EFF funds.

Use and Reimbursement of Interagency Fire Resources

A cost share agreement should be considered for any multi-jurisdiction fire that goes beyond the mutual aid period or utilizes non-mutual aid resources. Cost share agreements should be negotiated as soon as practical, signed by agency administrators, and may be updated as needed.

All requests for additional resources and assistance beyond the mutual aid period shall be through Pitkin County Regional Emergency Dispatch Center. If assistance is needed beyond the capabilities of Pitkin County and mutual aid partners a Wildfire Immediate Need request can be made to DFPC. These requests shall be made through the Pitkin County Dispatch to the Grand Junction Interagency Dispatch Center or through the County Emergency Manager.

Aviation resources for wildland fire should be ordered through Grand Junction Interagency Dispatch. When aircraft are ordered, the request should include the following: type and kind of aviation resource being requested; latitude/longitudinal coordinates in degrees decimal minutes; ground contact for who will work with the aircraft on the incident; and aerial hazards in the area. An air attack will be ordered automatically under certain circumstances per the Interagency Aerial Supervision Guide.

Due to new federal fire reporting requirements, the UCRIFMU will require full size-up information for wildland fires originating on county lands when federal resources are requested for mutual aid. In addition, full size-up information is required when a county resource provides suppression on federal lands without federal resources on scene. Minimal required size-up information includes:

- Fire Name
- Incident Commander Name
- Location - Lat/Long and Ownership
- Estimated Size
- Fire Behavior/Threats
- Resources Needed

Federal and State Resources

U.S. Forest Service

The USFS is responsible for all fire management activities on National Forest system lands within Pitkin County and provides a portion of the staffing of the UCRIFMU. USFS lands in Pitkin County are all part of the White River National Forest. Fire Management in the White River National Forest is governed by the White River National Forest Fire Management Plan (2011), as well as the revised Land and Resource Management Plan for the White River National Forest (2002).

Included in this plan are the following standards and guidelines for fire management in the White River National Forest:[22]

- Decisions made concerning vegetation management activities including "no action" will minimize exposure of firefighters and the public to fire hazards.
- All ignitions will receive an appropriate management response (suppression or fire use) according to the White River Fire Management Plan.
- Where feasible and appropriate, utilize prescribed fire to accomplish resource management goals and objectives.
- Minimize ground-disturbing activities associated with fire management actions.
- Fire management activities should be designed to sustain ecosystems including the interrelated ecological, economic, and social components.
- Ignitions in areas covered by specific fire use plans (prescriptions) should be managed to accomplish resource management objectives.

Bureau of Land Management

The BLM is responsible for all fire management activities on BLM lands in Pitkin County. These lands are all covered by the Colorado River Valley Field Office. The BLM also provides a portion of the staffing of the UCRIFMU. A fire use module for prescribed fire and wildland fire use events in the UCRIFMU is hosted by the BLM.

Fire management on BLM lands is governed by the Federal Wildland Fire Management Policy, which directs federal agencies to achieve a balance between suppression to protect life, property, and resources, and fire use to regulate fuels and maintain healthy ecosystems. In addition, each BLM field office has a Fire Management Plan that becomes the on-the-ground, operational framework that implements national direction for wildfire suppression, wildland fire use, fuels treatment, emergency stabilization and rehabilitation, and community assistance/protection programs.

Colorado Division of Fire Prevention and Control

DFPC is designated the lead Colorado state agency for wildfires and maintains cooperative wildfire protection agreements with each county in Colorado. DFPC provides technical assistance to all counties and local fire protection districts upon request. At the request of a County Sheriff (or representative) and upon mutual agreement with the DFPC Director (or representative), DFPC may assume charge of wildfires that exceed the county's capabilities. DFPC provides a combination of ground and aviation resources that are positioned statewide to assist in wildfire suppression activities.

Pitkin County Resources

Emergency Notification

Pitkin County has several ways for residents and visitors to receive emergency hazard updates. Emergency information is listed on the county's website (https://www.pitkinemergency.org/). Fire restriction information has its own dedicated webpage (https://www.pitkinwildfire.com/) which is discussed more in depth on the next page. Residents can register for PitkinAlert which provides text message, phone call, and email alerts for emergencies, community news, severe weather, road closures, missing persons, and evacuations. For those that don't speak English, the county

[22] United States Forest Service. 2011. "White River National Forest Fire Management Plan". https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5302825.pdf.

has a Pitkin Alert Translation App which provides emergency information in 100 different languages. This can be downloaded on smart phones using the free ReachWell app. Pitkin County also uses FEMA's Integrated Public Alert & Warning System and Wireless Emergency Alerts that provide emergency information to the public through mobile phones, radio, television, and radio.

Aspen Public Radio can also be utilized to disseminate emergency information. The station has made investments to ensure they stay on the air, even with a loss of power and/or internet. Messaging can be made in real-time with the FM signal reaching all areas of the county. Currently, Aspen Public Radio and Aspen Fire Protection District are working on a memorandum of understanding to better streamline emergency communications.

Pitkin County Wildfire Webpage

Pitkin County Emergency Management hosts the Pitkin County Wildfire webpage: https://www.pitkinwildfire.com/. This webpage provides educational wildfire information to the local public and tourists along with up to the minute current active fire information. The public can sign up for emergency notification, download a wildfire action guide, learn how to create a wildfire action plan for their family, find out how to harden their home and create defensible space, and can request a professional evaluation to determine their home's wildfire risk. It also contains the latest air quality and smoke outlook for Pitkin County. For evacuation, the webpage has guided steps for the public to create and practice their own evacuation plan. All the information is available in English and Spanish.

Pitkin County Wildland Fire Operating Plan

The Pitkin County Wildland Fire Operating Plan sets the standards for operating procedures, agreed policies, and responsibilities to implement cooperative wildfire protection on lands within Pitkin County. The plan operates together with the Pitkin County Emergency Operations Plan. The Pitkin County Wildland Fire Operating Plan and Pitkin County Emergency Operations Plan guidelines are consistent with the standards and principles of the National Incident Management System endorsed by the National Wildfire Coordinating Group and Department of Homeland Security.

Wildfire Response Capacity Needs

Improving FPD response time and capacity in the county is an effective way to protect economic and ecological values from wildfire. Vegetation-fuels mitigation and improving FPD response capacity go hand-in-hand. The resources and training needs were identified by each of the FPDs and can be found on Table 23.

Table 23: Fire Protection District Resources and Training Needs

Fire Protection District	Resource Needs	Training Needs
Aspen Fire Protection District	- Heavy Equipment - Interagency Crew Sharing of Seasonal Employees for Fuels Mitigation - Additional GIS Resources - Project Managers for Mitigation Projects - Additional Firefighters - SIM Table - Alternate Communication (Super Hailer or Radio System)	- Training Use of Heavy Equipment - Increase the Number of Certified and Trained Responders

Fire Protection District	Resource Needs	Training Needs
	- Alternate Evacuation Plan for City of Aspen Including Areas of Refuge - Firewise Community Outreach - Plan for Air Handling for Interior of Refuge Buildings - Early Detection and Monitoring Systems - Explore Additional Firefighting Aviation Opportunities with Sardy Airfield	
Carbondale & Rural Fire Protection District	- County Road 112 Needs a 10,000-gallon Buried Water Tank - Develop an Alternative Evacuation Route for West Bank Mesa - Obtain an 1,800-gallon Tactical Tender for Station 85 - Obtain a Type 3 Engine for Station 81 - Firewise Community Outreach	- Annual National Wildfire Coordinating Group Wildfire Training - Maintain current National Wildfire Coordinating Group Certifications - Increase the Number of Certified and Trained Responders
Roaring Fork Fire Rescue Authority	- Burn Facility - Additional Firefighters	- Driver Training Facility - Larger Classrooms

Other Resources

Roaring Fork Valley Wildfire Collaborative

All of the FPDs and communities in Pitkin County have signed on to the Roaring Fork Valley Wildfire Collaborative. The collaborative works to identify, prioritize, and implement wildfire mitigation work across the Roaring Fork Valley. In total 18 agencies across Pitkin, Eagle, Garfield, and Gunnison counties have signed a memorandum of understanding to help facilitate cross-boundary work.

Firewise USA

The Firewise USA recognition programs is administered by the National Fire Protection Association and provides a framework for neighborhoods and communities to increase ignition resistance of homes and reduce wildfire risks locally.

Firewise participants in Pitkin County include Crystal River Country Estates and the Norrie Colony.[23] The Seven Oaks subdivision in the Carbondale and Rural Fire Protection District are creating a Metropolitan District that will help in bring homeowners together, improving the possibility of the establishment of a Firewise designation.

[23] National Fire Protection Association. 2023. “State of Listing Participants”. https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA/Firewise-USA-Resources/Firewise-USA-sites/State-listing-of-participants.

Community Access and Evacuation

Access and evacuation are an important component of any community's wildfire response. Community access characteristics dictate the efficiency of emergency evacuation as well as the effectiveness of emergency response. Preferably community road design provides for multiple points of ingress and egress, supports two-way traffic flow, and offers adequate emergency apparatus turnaround radius on dead end roads and cul-de-sacs. Road improvements to primary or secondary evacuation routes may be as straight forward as seasonal grading, constructing or improving turnarounds at dead ends, widening a particularly tight switchback, or improving a section of road that would not support fire access.

Local law enforcement agencies are responsible for evacuations and coordination of traffic control in their respective jurisdictions. The City of Aspen has their own Special Event emergency & Evacuation Plan that was completed in 2019. The city is also currently in the process of doing additional evacuation planning for zone-type evacuations.

One major vulnerability of concern in Pitkin County is the large number of locations throughout the county with limited ingress and egress points. This has the potential to impact both evacuation and response if one of those points is impacted during a wildfire event. There is not sufficient infrastructure in most places throughout the county, especially in Aspen, to facilitate a fast-moving evacuation. In addition, it would take a significant amount of time for additional first responders to reach most areas of the county due to geographic reasons. Pitkin County Public Safety Council members meet often to discuss and plan for evacuations. The council has developed an evacuation plan template for emergency responders to use during an emergency event. Based on real time fire information, responders will communicate with the public regarding evacuation notices. Due to the issues listed on the previous page, evacuation orders will be issued as early as possible and will cover large areas.

During the planning process FPDs, the county, and local law enforcement were asked to identify locations that could be more difficult to evacuate than others. Below are the locations along with reasons why they would be more difficult to evacuate. Many of the areas listed below are unlikely to be corrected unless new physical infrastructure is put in place like new roads or drivable bike paths. Evacuation safe zones could also be developed throughout the county.

<u>Pitkin County Sheriff's Office Evacuation Concerns</u>

- **Crystal Valley –** Depending on wildfire location, it would be difficult to locate evacuated individuals at an evacuation center for accountability and processing.
- **Mountain Valley –** One way in and out.
- **Red Mountain –** One way in and out.
- **Starwood Community –** One way in and out.
- **Holland Hills –** One way in and out plus it is primarily an elderly population.

<u>Aspen Fire Protection District & Aspen Police Department Evacuation Concerns</u>

In addition to the issues listed below, infrastructure in the city does not exist to facilitate a timely evacuation city-wide.

- **McSkimming Road Neighborhood –** One way in and out. Located in the WUI.
- **East End of Aspen –** Proximity to forested areas.
- **Cooper Avenue Bridge –** Proximity to forested areas.
- **Ute Avenue Neighborhoods –** One way in and out. Proximity to forested areas.

- **Highway 82 –** "S curves" and narrowing down to a single lane to the roundabout creates unavoidable congestion and long evacuation times. Evacuation will need to begin well before the risk to the city.
- **Red Mountain Neighborhoods –** There is only one way in and one way out of this area.
- **Mountain Valley Neighborhood –** There is only one way in and one way out of this neighborhood.
- **Lower Brush Creek Neighborhood –** There is also poor ingress and egress in this neighborhood.
- **Starwood Neighborhood –** There is only one way in and one way out of this neighborhood.
- **Castle Creek –** There is only one way in and one way out of this neighborhood and no cell service.
- **Marron Creek –** There is only one way in and one way out of this neighborhood and no cell service.
- **Downtown Aspen Core –** There is limited ingress and egress. Hotel guests are unlikely to have vehicles or other means of evacuation.
- **Popular Outdoor Recreation and Backcountry Areas –** This includes Ajax, Hunter/Smuggler, Sky Mountain Park, Independence Pass, Castle Creek, and Maroon Creek. People may not have a means of notification or evacuation vehicle.

Carbondale & Rural Fire Protection District Evacuation Concerns

The Crystal River Valley along Highway 133 makes up 24 miles of connected unincorporated communities that are dependent on Highway 133 to evacuate during a wildfire event. The populations in this area rise and fall with the changing seasons with the highest populations, nearly tripling, during the summer months. The greatest challenge for all these unincorporated communities will be communications. Cellphone services are limited at best from mile marker 62.75 to the south. Additional Colorado Department of Transportation digital sign boards are needed to provide information on evacuation directions.

- **Town of Marble, Gunnison County –** Marble was included in this due to its impact on evacuation routes in Pitkin County. The town is made up of permeant year-round residents with a population that can triple during the summer, especially during the weekends. Evacuation routes are a one way exit only along County Road 3 that intersects with Highway 133. At this point the quickest way out of the valley would be to go south and over McClure Pass.
- **Redstone –** Similar population changes from the winter to the summer that you see in the town of Marble but more transient during the daylight hours. Evacuation routes are limited to Highway 133 north or south.
- **Campgrounds –** There are five campgrounds that depend on Highway 133 for evacuation routes. The two largest located near Redstone have large RV's that can slow the evacuation if everyone is leaving in the same direction during the height of the tourist season.
- **Avalanche Ranch –** This a resort community made up primarily of tourists and operates year-round. The only evacuation route is either north or south on Highway 133.
- **Swiss Village –** There are limited ways in and out of the unincorporated community. The two options are Shoshone Trail or Ute Trail.
- **Crystal River Country Estates –** There is only one way out across a narrow lane bridge.
- **Red Dog Road Subdivision –** There are only two ways out and heavy fuel loading throughout the subdivision.

- **Seven Oaks Subdivision –** The concentration of people trying to leave this subdivision will be complicated by the one known egress route over a bridge and onto Highway 133.
- **Prince Creek Road Subdivision –** There are two egress possibilities. This area has been a popular area for camping and mountain biking that would make the road congested during an evacuation order.

Roaring Fork Fire Rescue Authority, Snowmass Village Police Department, and Basalt Police Department Evacuation Concerns

Possible evacuation centers for Snowmass Village include: The Snowmass Recreation Center at the Rodeo Lot, The Two Creek ski Area Buildings at Burnt Mountain Drive, The Snowmass Club Parking Lot at the Black Saddle Restaurant, and the Intercept Lot at Brush Creek and Highway 82. Evacuation Routes for Snowmass Village are Brush Creek Road, Owl Creek Road, and Sinclair Road. Areas of evacuation concern for the entire fire district are given below.

- **Snowmass Village –** Limited ingress and egress. Large number of tourists who may not be aware of the risks from wildfire and may not get evacuation notifications.
- **Frying Pan Road –** Limited ingress and egress.
- **Snowmass Creek Road –** Limited ingress and egress. Large number of tourists who may not be aware of the risks from wildfire and may not get evacuation notifications. Large, isolated homes in the area.
- **West and East Sopris Creek Road –** Limited ingress and egress.
- **Hillside District Above Downtown Basalt –** There are only two streets that pass through this area. Off of these two streets are many streets that go higher up Basalt Mountain and dead-end or dead-end downhill on steep hillsides above town. If a fire starts near the Downtown area there is no way to evacuate people downhill.
- **Original Road and Hillcrest Drive –** These are one way in and one way out dead-end roads that have many homes. If a fire or emergency starts at the bottom, downhill, there is no way to evacuate residents to safely avoid the threat.
- **Gardner Way, Basalt Vista Subdivision –** This is a one way in and one way out neighborhood. There is a dirt access road that is blocked off with ballads for emergency use on the east end of the neighborhood. That access can be used for evacuations, but it is very limited due to its narrow width and steep grade.
- **River Oaks Lane –** One way in and one way out of this subdivision.
- **Riverside Drive Subdivision –** There are only two roads in and out of this subdivision for hundreds of homes.
- **Elk Run Subdivision –** There are only two roads in and out of this subdivision for hundreds of homes.
- **Areas the Roaring Fork Club Golf Course Along the North and South Sides of Highway 82 –** Homes in the golf course, on both sides of Highway 82, are accessed by one way in and one way out dead-end streets. In this area there are large areas of golf course that can be used for evacuation safe zones.

Wildfire Risk Reduction Projects and Activities

Risk reduction projects and activities ultimately support the overarching CWPP goals of enhancing the safety and welfare of the county's residents and emergency responders and protecting assets of economic and ecological value. These goals are achieved by reducing the threat of catastrophic wildfire through fuel breaks and thinning, defensible space, and structural ignitability. More information about these wildfire risk reduction projects and activities is listed below. Collaborative planning among stakeholder groups, the core planning team, and private homeowners is necessary for effective wildfire mitigation to occur.

Fuel Breaks and Thinning

A fuel break occurs where trees and shrub density has been reduced to break-up horizontal and vertical fuel loads. Fuel breaks are proposed around communities to provide a degree of protection from wildfire and a few roads. Reducing the amount of vegetation-fuel near communities and along access roads enhances the effectiveness of the physical canopy break the road provides, as well as critical safety factors along likely evacuation and incident access routes. This creates a safer emergency ingress/egress scenario while greatly aiding potential tactical suppression efforts. Fue breaks can also be used effectively as a means to connect preexisting holding features. Fuel breaks can be created by harvesting dead, diseased, and malformed trees and shrubs; removing ladder fuels; and sufficiently thinning trees and shrubs so that there is approximately 10 to 15 feet between plant canopies. Because of the inherent access issues associated with these strategic locations, pile burning is often the only feasible option for the removal of slash.

Defensible Space

The purpose of defensible space is to reduce the amount of fuel near the home and provide a space for firefighters to protect the home. According to the CSFS, defensible space is the area around a home or other structure that has been modified to reduce fire hazards.[24] For a structure to survive a wildfire, radiated heat and fire intensity must be kept to a minimum. This is accomplished by a combination of clearing and thinning trees and other vegetation around the proposed or existing structures, and along the driveway. Defensible space requirements are designed to minimize the impact to the property while still providing safety for the structures, the inhabitants, and the firefighters.

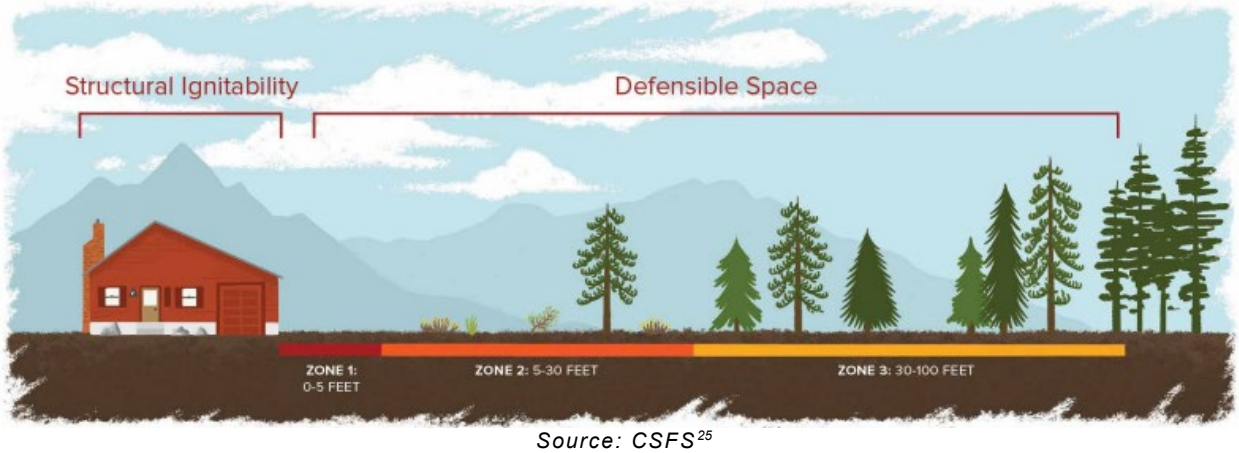
The Home Ignition Zone Guide developed by CSFS provides guidelines for creating a defensible space. To develop the most effective defensible space plan possible, the property is evaluated and divided into 3 Zones (Figure 29).

> **Zone 1** is the area nearest the home (0-5 feet). This zone requires the most vigilant work in order to reduce or eliminate ember ignition and direct flame contact with your home. Use nonflammable, hard surface materials in this zone, such as rock, gravel, sand, cement, bare earth or stone/concrete pavers.
>
> **Zone 2** is the area transitioning away from the home where fuels should be reduced (5-30 feet). This zone is designed to minimize a fire's intensity and its ability to spread while significantly reducing the likelihood a structure ignites because of radiant heat.

[24] Colorado State Forest Service. 2023. "Protect Your Home & Property from Wildfire". https://csfs.colostate.edu/wildfire-mitigation/protect-your-home-property-from-wildfire/.

Zone 3 is the area farthest from the home (30-100 feet). It extends 100 feet from the home on relatively flat ground. Efforts in this zone are focused on ways to keep fire on the ground and to get fire that may be active in tree crowns to move to the ground where it will be less intense.

Figure 29: Home Ignition Zones



Source: CSFS[25]

One of the major issues confronting defensible space and hazardous fuels mitigation is the need for ongoing maintenance. Treatment projects in timber or shrub fuels have an effective life span of approximately 10 to 15 years before vegetation regeneration once again creates hazardous fuel loads. In addition, defensible buffers and fuel breaks mowed in grasslands are beneficial only for one growing season.

Structural Ignitability

There are several characteristics of homes that make them more vulnerable to wildfires. These common characteristics are listed below.[26]

- Horizontal or nearly horizontal surfaces, such as wood decks
- Wooden or plastic fences
- Wood or shake-shingle roofs
- Roofs with eaves
- Combustible building materials
- Single-paned windows
- Vents with gaps that exceed 1/8 of an inch
- Fuels such as tall grass, woodchips, trees, or shrubs within five feet of a home or under decks
- Pine needles in gutters
- Firewood or propane tanks within 30 feet of the home

The use of fire safe building materials such as a Class A fire resistant roof and reducing vegetative fuels that surround homes are key to reducing structure ignitability. However, completely fireproofing structures can be prohibitively expensive. Conversely, trying to provide a defensible

[25] Colorado State Forest Service. 2021. "The Home Ignition Zone". https://csfs.colostate.edu/wp-content/uploads/2021/04/2021_CSFS_HIZGuide_Web.pdf.
[26] Colorado State Forest Service. 2021. "The Home Ignition Zone". https://csfs.colostate.edu/wp-content/uploads/2021/04/2021_CSFS_HIZGuide_Web.pdf.

space large enough for a typical, combustible structure may not be practical because firebrands are known to be carried by winds for over a mile away from a fire. Choosing a combination of these two strategies may be the best alternative for a particular site.

Research has demonstrated that homes with a Class A rated roof and a defensible space have about an 85% chance of surviving a wildfire. The Class A rated roof protects the home from firebrands that may blow onto the roof from a nearby wildfire. The structural integrity of the house can also be improved by using fire resistant siding and other building materials. Wooden decking should be avoided because it can be a significant source of home ignitions much like wood roofing material.

Improving the fire-resistant characteristics of a structure goes hand-in-hand with the development of defensible space. Extensive recommendations can be found in CSFS publications available at https://csfs.colostate.edu/wildfire-mitigation/protect-your-home-property-from-wildfire/.

The Pitkin County Land Use Code includes defensible space, access, water supply, and construction standards for wildfire hazard areas (low through severe). The level of hazard is determined primarily by slope and continuity of fuels. Generally, low hazard has slopes of zero to twenty percent with discontinuous fuels; moderate hazard has slopes of ten to twenty percent with continuous fuels, or on slopes greater than twenty percent with discontinuous fuels; and sever hazard has greater than twenty percent slopes with continuous fuels. Adopting a Wildland Urban Interface Code has been discussed but has not been implemented yet.

Identified Wildfire Risk Reduction Activities

Many wildfire risk reduction activities do not have specific locations or completion times. This is because many are ongoing projects that increase resilience across the entire county. These projects include things like wildfire education, defensible space, regular vegetation maintenance, and increased staffing. Separately identified vegetation-fuels reduction projects and locations are discussed in the next sub-section.

Core planning team members were asked to review wildfire risk reduction activities identified in the *2014 Pitkin County Community Wildfire Protection Plan* and provide a status update. Activities were also reviewed to determine if they were still needed. After updates were provided, agencies were given the opportunity to identify any new activities to add to this CWPP. Below is the list of Completed Activities, New Identified Activities, Kept Activities, and Removed Activities. Each newly identified and kept wildfire risk reduction activity includes background information, agencies involved, a general priority level, and a status update.

Completed Activities

Activity	**Develop Local Public Information Officers, Incident Management Group, and Type 3 Teams for Local Incidents**
Background	A local Incident Management Group or Type 3 Incident Management Team needs to be developed for managing wildfire suppression incidents, working towards National Wildfire Coordinating Group qualification for all members.
Status	Completed. Pitkin County has developed 15 Emergency Support Function Teams that would staff the county Emergency Operations Center to support the communities and the Incident Management Team during response and recovery.

New Identified Activities

Activity	Defensible Space
Background	Work with private homeowners and businesses to educate and create defensible space around structures.
Agencies Involved	AFPD, CRFPD, RFFRA, Pitkin County
Priority	High
Status	Ongoing. All fire protection districts will conduct free wildfire risk assessments on private property. Defensible space education can be found on the county website.

Activity	Early Fire Detection and Monitoring Systems
Background	Purchase, install, and use early detection and monitoring systems to improve operational capabilities in wildfire response.
Agencies Involved	AFPD, CRFPD, RFFRA, Pitkin County
Priority	High
Status	Ongoing

Activity	Explore Additional Firefighting Aviation Opportunities
Background	Work with Sardy Field on additional firefighting aviation opportunities and upgrades.
Agencies Involved	AFPD, CRFPD, RFFRA, Pitkin County
Priority	High
Status	Ongoing. Currently working on getting the capacity to refill SEAT out of the airport.

Activity	Roadway Vegetation Maintenance
Background	Regularly mow and remove excess vegetation around roadways throughout the county. Identify areas where additional vegetation maintenance is needed most.
Agencies Involved	AFPD, CRFPD, RFFRA, Pitkin County, CDOT, City of Aspen, Town of Basalt, Town of Snowmass Village
Priority	Medium
Status	Ongoing

Activity	Staffing Advocation
Background	Advocate for additional staffing for the FPDs, local communities, county, and federal agencies. All FPDs should have a full-time wildfire mitigation specialist. Pitkin County needs to have a full-time wildfire individual. Federal agencies need more staffing to identify and complete wildfire risk reduction projects. Municipalities need to devote staff to wildfire mitigation efforts.
Agencies Involved	AFPD, CRFPD, RFFRA, Pitkin County, USFS/BLM, General Public, City of Aspen, Town of Basalt, Town of Snowmass Village
Priority	High
Status	In Progress. AFPD has a full-time wildfire mitigation specialist.

Activity	County-Wide Wildfire Mitigation Working Group
Background	Create a Wildfire Mitigation Working Group that implements fuel reduction projects throughout Pitkin County. Personnel and resources will need to be shared between all the fire districts and the county.
Agencies Involved	AFPD, CRFPD, RFFRA, Pitkin County, USFS/BLM
Priority	Medium
Status	In Progress. This work has been started within the Roaring Fork Valley Wildfire Collaborative.

Activity	Evacuation Planning
Background	Create evacuation plans for all communities and neighborhoods with poor ingress/egress located in the WUI. Create more infrastructure where needed to facilitate evacuation needs.
Agencies Involved	AFPD, CRFPD, RFFFRA, Pitkin County, City of Aspen, Town of Snowmass Village, Town of Basalt
Priority	High
Status	Ongoing. The City of Aspen has an evacuation plan. Other communities and neighborhoods do not. The Pitkin County Public Safety Council has created an evacuation plan template for emergency responders to use during an emergency event.

Kept Activities

Activity	Improve Public Awareness
Background	The individual property owner/occupant has the primary responsibility to protect their property from a wildland fire event. Only limited numbers of citizens are aware of the wildland fire threat. Information is available, but a coordinated approach to educational outreach is needed.
Agencies Involved	Pitkin County, CSFS, USFS/BLM, AFPD, CRFPD, RFFRA, City of Aspen, Town of Basalt, Town of Snowmass Village
Priority	High
Status	Ongoing. There is a coordinated public outreach effort around fire preparedness. It is done by the County Emergency Manager and amplified by the local fire protection districts.

Activity	Develop Ways to Update News Media & Pitkin County Residents of Current Wildfire Danger
Background	Utilize news media outlets and Public Information Officers to inform the citizens of current wildland fire danger. Promote the use of CDOTs highway informational signs.
Agencies Involved	USFS/BLM, Pitkin County, AFPD, CRFPD, RFFRA
Priority	High
Status	Ongoing. Pitkin Alert, pitkinwildfire.com, campsite postings, Colorado Department of Transportation signs, and fire district social media are all used to notify the public of current wildfire danger. A website for Spanish speakers has been developed. This coordinated multi-media outreach is done every fire season.

Activity	Assist in Development of CWPPs
Background	Using the CSFS wildfire hazard maps and local knowledge, prioritize subdivisions in the county that should have Wildfire Protection Plans completed. Responsible Agencies will then need to work with subdivisions and/or homeowners associations to determine the identified mitigation, funding and cooperation.
Agencies Involved	Pitkin County, CSFS, DFPC, AFPD, CRFPD, RFFRA
Priority	High
Status	Not Started. While not CWPPs, all fire districts and Pitkin County Emergency Management have worked with HOA's to put together a wildfire mitigation plan to help them understand and mitigate wildfire hazards.

Activity	Coordination and Dissemination of Burn Restriction Information
Background	Guidelines exist within the AOP for determining the need for fire restriction and/or fire closures. Information as well as implementing or lifting closures/restrictions shall be coordinated with all agencies. Agencies should also discuss agricultural burning policies.
Agencies Involved	Pitkin County, DFPC, USFS/BLM, AFPD, CRFPD, RFFRA
Priority	High
Status	Ongoing. The Pitkin County Sheriff's Office and Emergency Management lead disseminating information on fire restrictions. This is amplified by fire protection districts and communities.

Activity	Continue to Conduct Required and Voluntary Wildfire Hazard Inspections and Disseminate Info to FPDs
Background	The Pitkin County Land Use Code mandates required inspections for new construction, and any project that requires a developmental review. Information on structures and subdivisions that are up to county code with regards to defensible space should be disseminated to local FPDs. Local Fire Marshals also inspect development proposals.
Agencies Involved	AFPD, CRFPD, RFFRA
Priority	High
Status	Ongoing. All fire protection districts will conduct free wildfire risk assessments on private property.

Activity	Identify Cross-Boundary Fuel Reduction Projects
Background	Under existing agreements CSFS, USFS/BLM, and Pitkin County are working together to identify cross-boundary fuel reduction projects within the wildland urban interface. Projects will focus on areas where agencies have planned actions to address environment and watershed issues and where residents have expressed interest and support.
Agencies Involved	CSFS, USFS/BLM, Pitkin County, AFPD, CRFPD, RFFRA
Priority	High
Status	In Progress. The Roaring Fork Valley Wildfire Collaborative is currently identifying and prioritizing cross-boundary projects. The Willoughby Way Firebreak is a cross-boundary project that is currently being constructed between Pitkin County, CRFPD, and RFFRA.

Removed Activities

Activity	Pitkin County Resource List
Background	Building on the list of resources in the Annual Operating Plan, including National Wildfire Coordinating Group certified personnel and qualification levels. This will improve multi-agency wildfire resource ordering and deployment. Utilize the Individual Qualifications System (IQS) database for tracking.

Activity	Identify, Prioritize, and Develop Cost Estimates
Background	Cooperators will identify, prioritize, and develop cost estimates for common management objectives. Cooperators will be identified that can contribute an amount. Other cooperators will then be able to submit future budget requests. This process will be reviewed on an annual basis.

Identified Vegetation-Fuel Reduction Projects

The FPDs, BLM, and USFS need to work together to reduce hazardous fuels throughout the county. Active vegetation-fuels management to reduce fire risks can improve forest and rangeland health, protect water quality, and improve wildlife habitat diversity. Unfortunately, actual application of these beneficial management projects is limited due to budget and staffing constraints from national to local level. With limited resources, supported projects need to be well defined and address multiple goals and issues. Collaborative planning is essential to maximize resource benefits from implemented vegetation-fuel projects.

Possible vegetation-fuel management projects were identified through core planning team meetings, communication with federal organizations, and individual FPD meetings (Table 24). Locations of the projects can be found on Figure 30. Note that the points are approximate locations, and some fuel reduction projects will cover several acres. The various fuels treatments include defensible space, fuel breaks, vegetation thinning, and prescribed burns. The following table includes several key pieces of information.

- **Lead Organization –** The organization who will be the responsible party for initiating and organizing efforts to carry out the fuel treatment.
- **# –** The associated number identified in the Fuel Reduction Project Locations map.
- **Fuel Treatments –** The name of the project and the likely type of fuel treatment(s) that will be used.
- **Methods –** The method(s) used to complete the identified fuel treatment projects.
- **Collaboration –** The various entities that will be involved with the identified fuel treatment projects.
- **Priority –** The purpose of the priority rating of high, moderate, or low is to identify the importance of the fuel treatment to protect infrastructure. The priority rating does not necessarily mean that the fuel treatments need to occur in a set order.

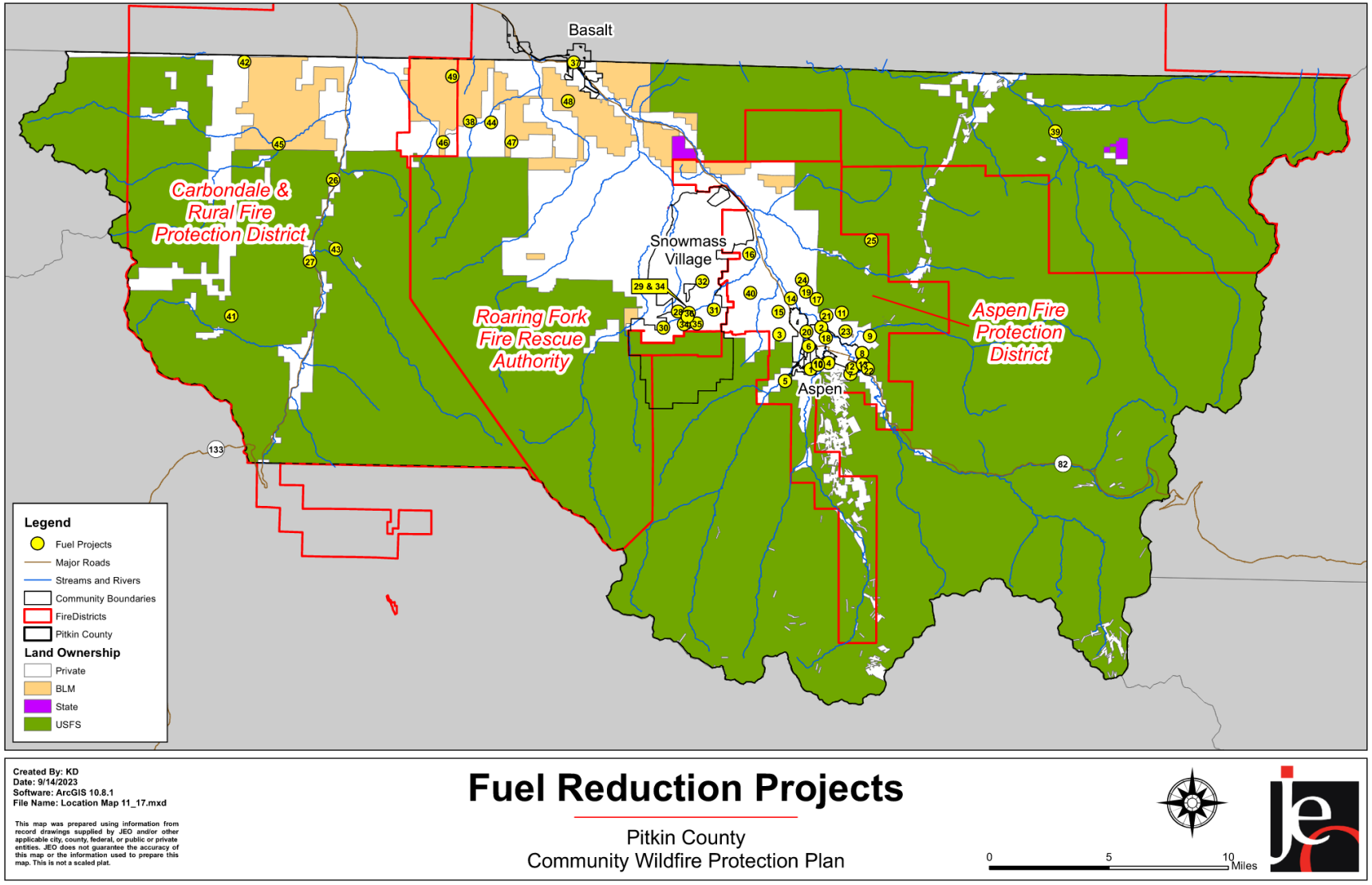
Table 24: Fuel Reduction Projects

Lead Organization	#	Fuel Treatments	Methods	Priority (H/M/L)	Collaboration
Aspen Fire Protection District	1	Meadowood – Fire Break Mowing, Thinning, Home Ignition Zones, Egress Route Maintenance	Selective Thinning, Mowing, Pruning, Mastication	M	Private Landowners, City of Aspen
	2	Red Butte Shadow – Neighborhood Firebreak on Slope, Defensible Space	Selective Pruning	H	Private Landowners
	3	Buttermilk Adjacent – Thinning, Fire Break	Mastication	M	-
	4	Shadow Mountain – Pheromone, Thinning, Green Belt Fire Break	MCH Packets, Selective Thinning	H	City of Aspen, Pitkin County, ACES, CSFS
	5	Highlands Adjacent – Thinning, Fire Break	Mastication, Hand Treatment, Logging	M	SkiCo
	6	Chapel Adjacent – Thinning, Fine Fuels Management	Mastication	M	City of Aspen
	7	Ute Mountain – Pheromone, Thinning, Green Belt Fire Break	MCH Packets, Selective Thinning	H	City of Aspen, Pitkin County, ACES, CSFS
	8	Smuggler – Thinning, Fire Break	Mastication	H	City of Aspen, Pitkin County, ACES, USFS
	9	Hunter Creek / Smuggler – Thinning	Mastication, Logging	H	Pitkin County, AVLT
	10	Water Department – Thinning	COA	H	AFPD, City of Aspen
	11	Red Mountain SW “Sunnyside” Face – Prescribed Burn (2025)	Prescribed Burn	H	USFS, Pitkin County, Private Landowners
	12	Ute Cemetery – Thinning	Fine Fuels, Logging	L	City of Aspen
	13	Aspen Grove Cemetery – Thinning	Mastication	M	Aspen Grove Cemetery Assoc.
	14	AABC Adjacent – Thinning, Fire Break	Mastication	H	Pitkin County
	15	Airport Adjacent – Thinning	Mastication	H	Pitkin County, City of Aspen
	16	Brush Creek Neighborhood – Thinning, Home Ignition Zones, Egress Route Maintenance	Hand Treatment, Mastication, Chipping	M	Metro District, Private Landowners
	17	Starwood – Fuel Break	Mastication	H	Pitkin County, Starwood HOA
	18	Castle Creek – Thinning	Mastication, Hand Treatment	H	City of Aspen, Private Landowners
	19	Bear Hollow – Thinning	Mastication, Hand Treatment, Logging	M	Starwood HOA
	20	Maroon Creek – Thinning	Mastication, Hand Treatment	H	City of Aspen, Private Landowners

Lead Organization	#	Fuel Treatments	Methods	Priority (H/M/L)	Collaboration
	21	Erickson – Fuel Break	Mastication, Hand Treatment	H	Private Landowners
	22	Mountain Valley – Thinning, Home Ignition Zones, Egress Route Maintenance	Hand Treatment, Mastication, Chipping	H	Private Landowners, Pitkin County
	23	Red Mountain – Thinning, Home Ignition Zones, Egress Route Maintenance	Mastication	H	Private Landowners, Pitkin County
	24	Starwood – Thinning, Home Ignition Zones, Egress Route Maintenance	Mastication, Hand Treatment	M	Pitkin County, Starwood HOA
	25	Collins Creek – Prescribed Burn	Prescribed Burn	L	USFS, Pitkin County, ACES
Carbondale & Rural Fire Protection District	26	Highway 133 Mile Marker 56 – Fire Break	Prescribed Burn, Mastication	H	Private Landowners, USFS, CDOT
	27	Crystal River Estates – Fire Break	Prescribed Burn, Mastication	H	Private Landowners, USFS, CDOT
Roaring Fork Fire Rescue Authority	28	Rim Trail – Thinning, Fire Line, Removal	Chip Broadcast	M	-
	29	May Fly Trail – Dead Fuels Reduction	Chip Broadcast	M	-
	30	Lot 7 Nature Trail – Dead Fuels Reduction	Chip Broadcast	H	-
	31	Fairway Drive (Behind Homes) – Dead Fuels Reduction	Chip Broadcast	H	-
	32	Horse Ranch Water Tank Infrastructure – Dead Fuels Reduction	Chip Broadcast	H	-
	33	Ridge Road Draw	N/A	H	-
	34	Deer Ridge (Below Housing) – Thin, Clump Fire Line	Chip Broadcast	H	-
	35	Faraway Road – Dead Fuels Reduction	Chip Broadcast	H	-
	36	Snowmass Mountain Seasons Four Resort – Dead Fuels Reduction	Chip Broadcast	H	-
	37	Ponderosa Trail (Off Emma Road) – Dead Fuels Reduction	Chip Broadcast	H	-
	38	Sopris Mountain Ranch – Dead Fuels Reduction	Mastication	H	Pitkin County
	39	Norrie Colony – Defensible Space, Fuel Break, and Thinning	Hand and Mechanical Methods	H	CSFS, USFS, Private Landowners
Pitkin County Open Space & Trails	40	Sky Mountain Park – Oak Treatments Phase 2 (2023)	Mastication	H	-
USFS	41	Braderich – Prescribed Burn	Prescribed Burn	M	Pitkin County, CRFPD
	42	Countyline – Prescribed Burn (Ongoing)	Prescribed Burn	M	-

Lead Organization	#	Fuel Treatments	Methods	Priority (H/M/L)	Collaboration
	43	Filoha Meadows / Avalanche Creek – Fuels Reduction	Prescribed Burn, Mastication	H	Pitkin County
	44	Sopris Creek – Fuels Reduction and Prescribed Burn (Spring 2024)	Prescribed Burn, Mastication	M	Private Landowners, Pitkin County, RFFRA, CRFPD, Colorado Parks and Wildlife
BLM	45	Thompson Creek Unit 1 – Thinning	Mastication, Lop & Scatter, Cut/Pile/Burn	M	-
	46	Thompson Creek Unit 2 – Thinning	Mastication, Lop & Scatter, Cut/Pile/Burn	M	-
	47	Thompson Creek Unit 3 – Thinning	Mastication, Lop & Scatter, Cut/Pile/Burn	M	-
	48	Light Hill – Thinning, Prescribed Burn (Ongoing)	Prescribed Burn, Goat Grazing	H	-
	49	Crown – Thinning (Ongoing)	Hand Cutting, Goat Grazing	H	-

Figure 30: Fuel Reduction Project Locations



Completed Projects

Projects recently completed in the county include the following listed in the table below.

Table 25: Completed Projects in Pitkin County

Project	Primary Organization
Oak Treatment at Sky Mountain Park (2014)	Pitkin County Open Space & Trails
Pinion Juniper Thinning at Filoha Meadows (2013)	Pitkin County Open Space & Trails
Oak and Mountain Shrub Treatment in Hunter Creek	Pitkin County Open Space & Trails, City of Aspen
Prescribed Burn Adjacent to Filoha Meadows	Pitkin County Open Space & Trails, USFS
Prescribed Burn Adjacent to Avalanche Creek	USFS
Beetle Kill Lodgepole Pine Thinning and Removal on Smuggler Mountain	Pitkin County Open Space & Trails, City of Aspen, USFS
Oak Treatments at the Base and Adjacent to Residences of Smuggler	Pitkin County Open Space & Trails
Oak Mastication at Red Butte Ranch OS (2023)	Pitkin County Open Space & Trails
Prescribed Burn at Collins Creek (2021 & 2023)	Aspen Fire Protection District, USFS
Prescribed Burn at Hunter Creek (2016 & 2022)	Aspen Fire Protection District, City of Aspen, Pitkin County, ACES, USFS
Fire Break at Willoughby (2023)	Aspen Fire Protection District, Pitkin County Open Space & Trails
Crystal River WUI	USFS
Pheromone Packets on Ute and Shadow Mountains	Aspen Fire Protection District, CSFS
Chipping Program in Mountain Valley	Pitkin County, Aspen Fire Protection District
Mastication North of Redstone	Pitkin County, Carbondale & Rural Fire Protection District
Swiss Village in the Crystal Village	USFS, Carbondale & Rural Fire Protection District, Pitkin County

Project Funding and Grants

This section provides information on resources that may be helpful in planning and preparing for wildfire risk reduction projects and activities. Grant funding support is often a necessary component of a fuels treatment project and can facilitate fuel reduction on both private and public lands.

USDA

Community Wildfire Defense Grant Program – The community Wildfire Defense Program is intended to help at-risk local communities plan for and reduce the risk of wildfire. It provides funds for CWPP development and implementation of projects identified in the CWPP. Funds for projects can be up to $10 million with a 25% non-federal match. For more information about the program visit: https://www.fs.usda.gov/managing-land/fire/grants.[27]

Landscape Scale Restoration Program – The Landscape Scale Restoration Program is a Forest Service State and Private Forestry competitive grant program that promotes collaborative, science-based restoration of priority forest landscapes. Landscape Scale Restoration projects address large-scale issues such as wildfire risk reduction, watershed protection and restoration, and the spread of invasive species, insect infestation and disease. The program pays up to 50% of the costs and requires a 50% non-federal match. Additional information about the program can

[27] U.S. Department of Agriculture. 2023. "Community Wildfire Defense Grant Program". https://www.fs.usda.gov/managing-land/fire/grants.

be found here: https://www.fs.usda.gov/managing-land/private-land/landscape-scale-restoration.[28]

FEMA

Assistance to Firefighters Grant Program – The primary goal of this program is to meet the firefighting and emergency response needs of fire departments. Eligible fire departments can receive financial assistance for critical training and equipment. In 2022 available funding for the grant program was $324 million. Additional information about the program can be found here: https://www.fema.gov/grants/preparedness/firefighters/assistance-grants.[29]

Staffing for Adequate Fire and Emergency Response Grant Program – The Staffing for Adequate Fire and Emergency Response Grants was created to provide funding directly to fire departments to help increase or maintain the number of trained firefighters. Available funding in 2022 was $360 million.

Visit https://www.fema.gov/grants/preparedness/firefighters/safer/documents for additional information about the program.[30]

Hazard Mitigation Grant Program – Post Fire – This program provides post fire assistance to help communities implement hazard mitigation measures after wildfire disasters. Funding for this program is only available after a declared wildfire disaster has occurred within the State of Colorado. Funding covers 75% of the cost for the project with 25% being a local match. More information about the program can found here: https://www.fema.gov/grants/mitigation/post-fire.[31]

Building Resilient Infrastructure and Communities – Building Resilient Infrastructure and Communities supports states, local communities, and fire departments undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. Funding is available annually and covers 75% of the costs of the project. For more information about the program visit: https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities.[32]

Colorado State Forest Service

The CSFS helps community groups, nonprofits, and other secure grants and assistance for projects that promote healthy forests and wildfire mitigation. Projects that benefit only one landowner do not qualify for these state-funded grant programs. Grant programs administered by CSFS are listed below.

CSFS also developed the Natural Resources Grants & Assistance Database to help interested groups and individuals search for natural resource project funding and assistance programs that

[28] U.S. Department of Agriculture. 2023. “Landscape Scale Restoration”. https://www.fs.usda.gov/managing-land/private-land/landscape-scale-restoration.
[29] U.S. Federal Emergency Management Agency. 2023. “Assistance to Firefighters Grants”. https://www.fema.gov/grants/preparedness/firefighters/assistance-grants.
[30] U.S. Federal Emergency Management Agency. 2023. “Staffing for Adequate Fire and Emergency Response”. https://www.fema.gov/grants/preparedness/firefighters/safer/documents.
[31] U.S. Federal Emergency Management Agency. 2023. “Hazard Mitigation Grant Program Post Fire”. https://www.fema.gov/grants/mitigation/post-fire.
[32] U.S. Federal Emergency Management Agency. 2023. “Building Resilient Infrastructure and Communities”. https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities.

promote the health and welfare of Colorado's natural resources: https://csfs.colostate.edu/natural-resources-grants-database/.[33]

Forest Restoration & Wildfire Risk Mitigation Grant Program – This program provides sate support through competitive grant funds that encourage community-level actions across the state for specific purposes:

- Reduce the risk of wildfire to people, property, and infrastructure in the WUI.
- Promote forest health and forest restoration projects.
- Encourage use of woody material for traditional forest products and biomass energy.

In 2023 the CSFS had $7,440,000 awarded for this program. There are no minimum or maximum amounts for each award. Local community groups, counties, municipalities, non-profit groups, and fire protection districts can all apply for funding. More information about the Forest Restoration & Wildfire Risk Mitigation program can be found here: https://csfs.colostate.edu/grants/forest-restoration-wildfire-risk-mitigation/.[34]

Wildfire Mitigation Incentives for Local Government Grant Program – This program provides sate support through competitive grant funds to match revenue raised by local governments for forest management or fuels reduction, or for local governments to expand existing, long-term programs dedicated to forest management and wildfire mitigation. CSFS had $9.5 million available for grant awards in 2023 for this program. More information about the Wildfire Mitigation Incentives for Local Government Grant Program can be found here: https://csfs.colostate.edu/grants/wildfire-mitigation-incentives-for-local-government/.[35]

Wildfire Mitigation Resources & Best Practices Grant Program – This program provides support to conduct outreach among landowners in high hazard areas. To be eligible, a recipient must be an agency of local government, a county, municipality, special district, tribal agency, or nonprofit organization. The CSFS has $300,000 available for grant awards through this program. For more information about the Wildfire Mitigation Resources & Best Practices Grant Program, visit: https://csfs.colostate.edu/grants/wildfire-mitigation-resources-best-practices-grant-program/.[36]

Programs for Private Landowners – The CSFS offers a variety of programs to assist landowners in managing their forest property. Programs include Forest Ag, Forest Legacy, Forest Stewardship, and Tree Farm. Information about these programs can be found here: https://csfs.colostate.edu/grants/.[37]

Mitigation Income Tax Subtraction – Colorado landowners with property located in a WUI area may qualify to receive a tax subtraction for the costs of wildfire mitigation work. To be eligible the taxpayer must own the property which the wildfire mitigation measures are performed, and the

[33] Colorado State Forest Service. 2023. "Natural Resources Grants Database". https://csfs.colostate.edu/natural-resources-grants-database/.
[34] Colorado State Forest Service. 2023. "Forest Restoration & Wildfire Risk Mitigation". https://csfs.colostate.edu/grants/forest-restoration-wildfire-risk-mitigation/.
[35] Colorado State Forest Service. 2023. "Wildfire Mitigation Incentives for Local Government". https://csfs.colostate.edu/grants/wildfire-mitigation-incentives-for-local-government/.
[36] Colorado State Forest Service. 2023. "Wildfire Mitigation Resources & Best Practices Grant Program". https://csfs.colostate.edu/grants/wildfire-mitigation-resources-best-practices-grant-program/.
[37] Colorado State Forest Service. 2023. "Grants & Funding Assistance". https://csfs.colostate.edu/grants/.

total subtraction cannot exceed 50% of the landowner's out-of-pocket expenses. The deduction is available through tax year 2025. The Colorado Department of Revenue has a fact sheet located here: https://tax.colorado.gov/sites/tax/files/Income65.pdf.[38]

Colorado Division of Fire Prevention & Control[39]

Volunteer Fire Assistance Grant – The Volunteer Fire Assistance Program's purpose is to provide financial, technical and other assistance to organize, train, and equip fire departments in rural areas and rural communities to prevent and suppress fires. A single fire department serving a rural area or a rural community with a population of 10,000 or less is eligible for funding.

Firefighter Safety Disease Prevention Grant – This grant provides funding or reimbursement for equipment designed to increase firefighter safety and prevent occupation-related diseases. Grants are limited to a maximum of $20,000 per fire department. Funding is decided through the senate and is not available every year.

Local Funding

Wildfire Community Action Fund – The Wildfire Community Action Fund is a special Aspen Fire Protection District fund that works to facilitate, plan, and execute fuels reduction projects within the district and across boundaries. Funds are raised through donations from the public. Since the launch in 2021 projects include a cross-boundary fuel break, prescribed fires, bark beetle treatments, and a homeowner chipper program.[40]

Pitkin County Assistance – The Pitkin County Commissioners have agreed to help fund projects on federal land to improve fire resiliency in the WUI. Pitkin County has also agreed to partner financially with the fire protection districts to help fund meaningful projects on private land.

[38] Colorado Department of Revenue. 2018. "Income 65: Wildfire Mitigation Measures Subtraction". https://tax.colorado.gov/sites/tax/files/Income65.pdf.
[39] Colorado Division of Fire Prevention & Control. 2023. "
[40] Aspen Fire Department. 2019. "Wildfire Community Action Fund". https://aspenfire.com/wcaf.

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Implementation, Monitoring, Evaluation, and Plan Update

Plan Implementation

The Pitkin County CWPP is a strategic planning document that is developed and approved by the Core Planning Team. An important component of the development process includes a CWPP Implementation Team that will move the plan forward, implement the mitigation recommendations, and maintain the plan as the characteristics of the WUI areas change through time and vegetation-fuel projects are completed. Organizing and maintaining the Implementation Team are often the most challenging components of the CWPP process. The Implementation Team is essential in the process of converting the CWPP proposed projects from a plan into action items. A recommendation is that the CWPP Core Planning Team transition into the CWPP Implementation Team.

The Implementation Team would work closely with the FPDs, community organizations, private landowners, and public agencies to coordinate and implement the identified vegetation-fuels treatments and other recommended risk reduction projects. Semi-annual meetings should occur to move the CWPP forward. Building partnerships among community organizations, FPDs, local governments, BLM, USFS, and private landowners is necessary in identifying and prioritizing measures to reduce wildfire risk. Maintaining this cooperation is a long-term effort that requires the commitment of all partners involved. The CWPP encourages communities and home-owner associations to take an active role in identifying needs, developing strategies, and implementing solutions to address wildfire hazards and risks by assisting with the development of local community wildfire plans and participating in fire prevention activities.

The Pitkin County CWPP is a valuable resource that provides the foundation for understanding wildfire risks and hazards, and presents attainable milestones designed to reduce potential losses from wildfire. Communities, home-owner associations, and FPDs can take further action by developing their own area-specific CWPP, which would tier to the countywide CWPP.

Sustaining CWPP Momentum

The Pitkin County CWPP serves as the foundation to develop safer WUIs through hazard assessments and strategic planning focusing on reducing the threat of wildfire to human welfare, and economic and ecological values. The risk reduction projects and actions outlined in this plan will greatly reduce wildfire risk, but only if implemented. Converting strategy into action is the key to achieving this important goal.

Communities can be made safer by reducing the risks of wildfire loss, and this CWPP presents realistic measures to achieve this goal. The CWPP process encourages homeowners to take an active role as fuel treatment strategies are developed and prioritized around their communities. Ownership of CWPP implementation at the local level is the most effective means to achieving successful results and sustaining the effort from year to year. Communities and homeowners can seek support and guidance through a variety of local, state, and federal resources identified in this plan including FPDs, DFPC, CSFS, BLM, and USFS.

Monitoring and Evaluation

Monitoring is a critical component of all plans. Monitoring provides information on whether a plan is meeting its goals. Adaptive management allows for changes to occur if they are warranted. The purpose of this monitoring strategy is to track implementation of planned activities and evaluate how the goals of the CWPP are being met over time. The data gathered will help to determine if the if updates need to be made and if the plan is useful and being implemented as envisioned. This CWPP must be continually monitored and updated as conditions and community values change. It is recommended that monitoring CWPP progress be maintained by the Implementation Team, and they provide updates to DFPC on a regular basis. The following are the components of effective monitoring:

- **Identify**: Did you identify what specifically needs to be done?
- **Plan**: Did you plan how the action would occur?
- **Implementation**: Was the project implemented according to plan?
- **Monitoring**: Did treatments meet the goals?
- **Verification**: Did actions lead to the outcomes that were expected?
- **Adaptive Management**: What changes to the plan, if any, need to be made to facilitate the execution of the next similar project?

Each functional element of the CWPP provides monitoring tasks for recommended action items. The following table provides a summary of monitoring tasks for each of these functional areas. Evaluations are to be conducted on an annual basis.

Table 26: Monitoring Tasks per Objective

Objective	Tasks
Risk Assessment	• Update GIS for fire occurrence and fire perimeter. Compile BLM, USFS, and county data. • Update hazards and risk assessments as new data becomes available. • Continue to assess values at risk and include additions in CWPP updates.
Fuels Reduction	• Identify, prioritize, and implement fuels treatment projects. • Track total acres of treatment on public and private lands. • Track grants and other funding sources and make appropriate applications. • Track defensible space projects on private lands. • Monitor project effectiveness and coordinate activities and strategies with UCRIFMU, and DFPC.
FPD Capacity Improvements	• Maintain compliance with the Pitkin County Emergency Operations Plan and Pitkin County Wildland Fire Operating Plan processes. • Track progress on water supply improvements and mapping. • Track progress of resource improvements. • Review mutual aid resources and agreements.
Public Outreach	• Review public outreach material and update as necessary. • Maintain web presence on the county site. • Coordinate with communities for presentations. • Coordinate with DFPC for neighborhood Firewise seminars and include CWPP discussion. • Evaluate techniques used to motivate and educate private landowners.

Plan Update

To serve their intended purpose and remain useful, CWPPs must go through a full update process on a regular basis. This ensures that a wildfire risk analysis is as up to date as possible. It also allows for community values and wildfire risk reduction projects to be updated based on changing priorities and landscapes. The Core Planning Team/Implementation Team is the best group of individuals to lead the update process. The Core Planning Team has committed that this CWPP will go through a full update at least every five years. Smaller updates to the plan may be incorporated more frequently, especially in the event of a large wildfire in the county.

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Appendix A: Wildland Fire Management Primer

Wildland fire is defined as any fire burning in wildland fuels and includes prescribed fire, wildland fire for resource benefit, and wildfire events. Prescribed fires are planned controlled fires ignited by land managers to accomplish specific natural resource improvement objectives. Fires that occur from natural causes, such as lightning, that are used to achieve management purposes under carefully controlled conditions with minimal suppression costs are known as wildland fire for resource benefits. Wildfires are unwanted and unplanned fires that result from natural ignition, unauthorized human-caused fire, or escaped prescribed fire.

Wildland fires may be further classified as ground, surface, or crown fires (see Appendix B for the glossary of terms). Ground fire refers to burning/smoldering materials beneath the surface including duff, tree or shrub roots, punky wood, peat, and sawdust that normally support a glowing combustion without flame. Surface fire refers to loose fuels burning on the surface of the ground such as leaves, needles, and small branches, as well as grasses, forbs, low and medium shrubs, tree seedlings, fallen branches, downed timber, and slash. Crown fire is a wildland fire that moves rapidly through the crowns and canopy of trees or shrubs. Crown fires are usually the most devastating and dangerous of the three fire types because of their rapid spread rates and difficulty to suppress.

When assessing wildfire hazard and risk, wildfire hazard refers to vegetation or wildland fuel in terms of its contribution to problem fire behavior and its resistance to control. Risk is the probability of an actual ignition of wildland fuels. Values at risk include human welfare, infrastructure, structures, and natural resources that are likely to suffer long-term damage from the direct impacts of a wildfire.

Wildland Fire Behavior

Fire behavior is the way a fire reacts to the influences of fuel, weather, and topography. Fire behavior is typically evaluated at the fire line and described most simply in terms of intensity, flame length, and rate of forward spread. The implications of observed or expected fire behavior are important components of suppression strategies and tactics, particularly in terms of the difficulty of control and effectiveness of various suppression resources. The fire behavior chart described in the table below is an excellent tool for measuring the safety and potential effectiveness of various fire line resources given a visual assessment of active flame length. The chart is valuable because it infers the relative intensity of the fire behavior to identify action stages for decision makers. Specific trigger points can indicate when to mobilize various resources, change fire suppression strategies, or request additional specialized equipment and/or assistance. It is important to note that the listed categories do not need to be used for personnel safety measures. Wildfire events are dangerous and can shift rapidly, putting first responders and staff at risk. According to Wilson (1977), most firefighter fatalities occur in small fires.

Table 27: Fire Behavior Characteristics Chart and Fire Suppression Interpretations

Flame Length (Ft)	Fire Line Intensity (BTU/Ft/Sec)	Interpretation
0-4	0-100	Fires can generally be attacked at the head or flank by people using hand tools. The handline should hold the fire.
4-8	100-500	Fires are too intense for direct attack on the head by persons using hand tools. Handline cannot be relied on to hold fire. Equipment such as dozers, engines, and retardant aircraft can be effective.
8-11	500-1,000	Fires may present serious control problems such as torching, crowning, and spotting. Control efforts at the head of the fire will probably be ineffective.
11+	1,000+	Crowning, spotting, and major runs are common. Control efforts at the head of the fire are ineffective.

Source: Fireline Handbook Appendix B (National Wildfire Coordinating Group, 2006)

Fire risk is the chance of a fire starting, as determined by the presence and activity of causative agents. Fire hazard is a fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree of ease of ignition and of resistance to control. Fire severity, on the other hand, is the degree to which a site has been altered or disrupted by fire; loosely, a product of fire intensity and residence time.

The characteristics of fuels, topography, and weather conditions combine to dictate fire behavior, rate of spread, and intensity. Wildland fuel attributes refer to both dead and live vegetation and include such factors as density, bed depth, continuity, density, vertical arrangement, and moisture content. Structures with flammable materials are also considered a vegetation-fuel source.

Fuels may also be described in terms of size. The terms one-hour, ten-hour, one-hundred-hour, and one-thousand-hour fuels refer to the amount of time required for the water content of the fuel particle to reach equilibrium with the ambient environment. This corresponds to the diameter of the fuel particle.

When fire burns in the forest understory or through grass, it is generally a surface fire. When fire burns through the canopy of vegetation, or overstory, it is considered a crown fire. The vegetation that spans the gap between the forest floor and tree crowns can allow a surface fire to become a crown fire and is referred to as ladder fuel.

For fire to spread, materials such as trees, shrubs, or structures in the flame front must meet the conditions of ignitability. The conditions needed are the presence of oxygen, flammable fuel, and heat. Oxygen and heat are implicitly available in a wildland fire. However, if the potential fuel does not meet the conditions of combustion, it will not ignite. This explains why some trees, vegetation patches, or structures may survive a wildland fire and others in the near vicinity are completely burned.

Groupings of trees comprise a mosaic and effective management of the mosaic can influence fuel loads, such as with Pinion/Juniper stands. Forestry managers may increase spacing between groups to reduce potential crown spread. However, in some species of trees, root interdependency is an important element for trees survival.

Potential surface fire behavior may be estimated by classifying vegetation in terms of Fire Behavior Fuel Models and using established mathematical models to predict potential fire behavior under specific climatic conditions. Weather conditions such as high ambient

temperatures, low relative humidity, and windy conditions favor fire ignition and high-intensity fire behavior. Under no-wind conditions, fire burns more rapidly and intensely on upslope than on level terrain. The effects of terrain can be particularly pronounced in steep narrow canyons often referred to as “chimneys” due to their convective characteristics. Wind tends to be the driving force in fire behavior in the most destructive WUI fires. Gusting or sustained winds can be problematic for firefighters.

The CFSF website has additional information on Fire Ecology in Colorado.

Ecological Benefits of Wildfire

Lightning-induced fire is a historic component of ecosystems in Pitkin County, and its occurrence is important to maintaining the health of rangeland and forest ecosystems. Native Americans used fire as a tool for hunting, improving wildlife habitat, land clearing and warfare. As such, many of the plant species and communities have adapted to recurring fire through phonological, physiological, or anatomical attributes. Some plants, such as lodgepole pine and western wheatgrass, require reoccurring fire to persist.

European settlers, land use policy, and changing ecosystems have altered fire behavior and fuel accumulation from their historic setting. Euro-American settlers in Pitkin County changed the historic fire regime in several interrelated ways. The nature of vegetation changed because of land use practices such as homesteading, livestock grazing, agriculture, water development, mining, and road construction. Livestock grazing reduced the number of fine fuels such as grasses and forbs, which carried low-intensity fire across the landscape. Mining activities led to large scale deforestation and removal of individual tree stands that formed the historical forest mosaic. The removal of the naturally occurring vegetation also facilitated the invasion of nonindigenous grasses and forbs, some of which create more flammable fuel beds than their native predecessors. Cheatgrass is an example of an introduced grass that is problematic for firefighters as it is highly flammable and burns rapidly. Because of its continuous nature in many vegetation types, it can easily carry fire across the landscape.

In addition, more than a century of fire-suppression has resulted in large accumulations of surface fuels, ladder fuels, and canopy fuels in western forests and shrublands. Fuel loads also increased as forests and shrublands encroached into grasslands. This increase in fuel loading and continuity has created hazardous situations for public safety and fire management, especially when found in proximity to communities. These hazardous conditions will require an array of tools, including prescribed fire and thinning treatments in order to manage vegetation to more desirable situations.

Prescribed Fire

Prescribed fire is a typically small scale, planned fire and may be used as a resource management tool under carefully controlled conditions. This includes pre-treatment of the fuel load and close monitoring of weather and other factors. Prescribed fire ultimately improves wildlife habitat, helps abate invasive vegetation, reduces excess fuel loads, and lowers the risk of future wildfires in the treatment area. These and other fuel management techniques are employed to protect human life, economic values, and ecological values. The use of prescribed fire in the WUI is carefully planned and enacted only under favorable weather conditions and must meet air quality requirements of the Colorado Department of Public Health and Environment Air Pollution Control Division. Burn Permits are required to conduct prescribed fires and can be obtained through the local FPD.

Prescribed fire may be conducted either in a defined area, as a broadcast burn, or in localized burn piles. Broadcast burns are used to mimic naturally occurring wildfire but only under specific weather conditions, fuel loads, and expert supervision. Burn piles are utilized to dispose of excess woody material after thinning if other means of disposal are not available or are cost prohibitive.

Hazardous Fuels Mitigation

Wildfire behavior and severity are dictated by fuel characteristics, weather conditions, and topography. Because fuel is the only variable of these three that can be practically managed, it is the focus of many mitigation efforts. The objectives of fuels management may include reducing surface fire intensity, reducing the likelihood of crown fire initiation, reducing the likelihood of crown fire propagation, and improving forest health. By breaking up vertical and horizontal fuel continuity in a strategic manner, fire suppression resources are afforded better opportunities to control fire rate of spread and contain wildfires before they become catastrophic. These objectives may be accomplished by reducing surface fuels, limb branches to raise canopy base height, thinning trees to decrease crown density, and/or retaining larger fire-resistant trees.

Improperly implemented fuel treatments can have negative impacts in terms of forest health and fire behavior. Aggressively thinning forest stands in wind-prone areas may result in subsequent wind damage to the remaining trees called wind-throw. Thinning can also increase the amount of surface fuels and sun and wind exposure on the forest floor. This may increase surface fire intensity if post-treatment debris disposal and monitoring are not properly conducted. The overall benefits of properly constructed fuel breaks are, however, well documented.

The WUI is the zone where communities and wildland fuel interface and is the central focus of this CWPP. Every fire season, catastrophic losses from wildfire plague the WUI. Homes are lost, businesses are destroyed, community infrastructure is damaged, and most tragically, lives are lost. Precautionary action taken before a wildfire event often makes the difference between saving or losing a home.

Creating a defensible space around a home is an important component in wildfire hazard reduction. Defensible space is defined as an area around a structure where fuels have been treated, thinned, or removed to reduce wildfire intensity as it moves towards a structure. Defensible space reduces the chances of a structure fire moving to the surrounding wildlands, and to provide room for firefighters to do their jobs. Providing an effective defensible space can be as basic as pruning trees, applying low-flammability landscaping, and cleaning up surface fuels and other fire hazards near a home. These efforts are typically concentrated within 100 feet of a home but may significantly vary based on the percentage of slope adjacent to the structure. The minimum distance is 30 feet from a structure. Recommended guidelines for creating effective defensible space are outlined in the CSFS Home Ignition Zone Guide.

In addition to the creation of defensible space, fuel breaks may be utilized to this end. These are strategically located areas where fuels have been reduced in a prescribed manner, often along evacuation routes, designated safety zones (for areas with limited evacuation routes) and community access roads. Fuel breaks may be strategically placed with other fuel breaks or with larger-area treatments. When defensible space, fuel breaks, and area treatments are coordinated, a community and the adjacent natural resources are afforded an enhanced level of protection from wildfire.

While reducing hazardous fuels around a structure, it is very important to prevent fire loss. Recent studies indicate that, to a great extent, the structure hardening attributes determine ignitability. A

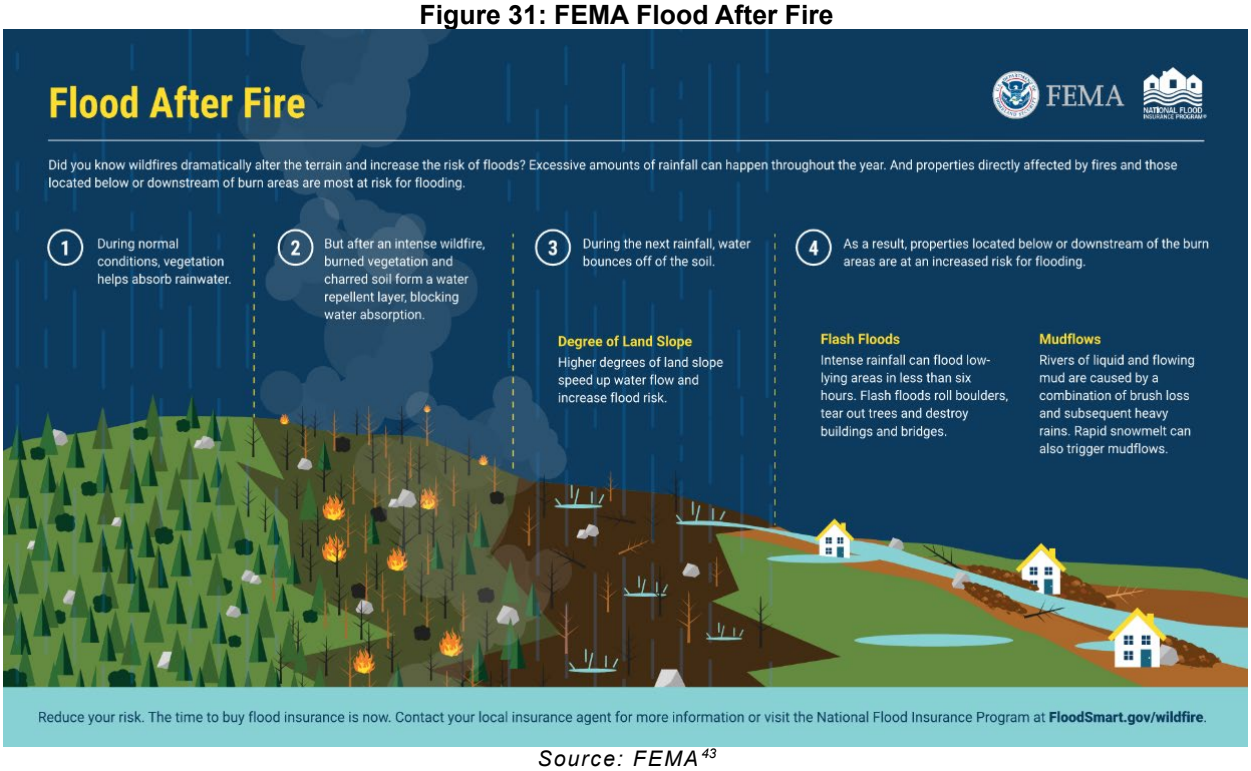
report from the National Fire Protection Association in 2017 noted that home ignition during extreme wildfire is primarily determined by the condition of the home in relation to its immediate surroundings.[41] Studies of home survivability indicate that homes with noncombustible roofs and a minimum of 30 feet of defensible space had an 85 percent survival rate. Conversely, homes with wood shake roofs and less than 30 feet of defensible space had a 15 percent survival rate.[42]

The Pitkin County website and CFSF website have additional resources for learning how to protect your home and property from wildfire.

Flood After Fire

Wildfire also contributes to an increased risk from other hazard events, compounding damage and straining resources. FEMA has provided additional information in recent years detailing the relationship between wildfire and flooding (Figure 31). Wildfire events remove vegetation and harden soil, reducing infiltration capabilities during heavy rain events. Subsequent severe storms that bring heavy precipitation can then escalate into flash flooding, dealing additional damage to jurisdictions.

Figure 31: FEMA Flood After Fire



Source: FEMA[43]

[41] National Fire Protection Association. 2017. Assessing Structure Ignition Potential from Wildfire.
[42] Foote, Ethan, Gilless, I.D. & Keith, J. 1996. Structural Survival. In California's I-Zone, ed. Slaughter, Rodney, 112-121. Sacramento, CA: California Fire Service Training and Education System.
[43] FEMA. 2020. "Flood After Fire." https://www.fema.gov/media-library-data/1573670012259-3908ab0344ff8fbf5d537ee0c6fb531d/101844-019_FEMA_FAF_Infographic-ENG-web_v8_508.pdf.

Site Restoration

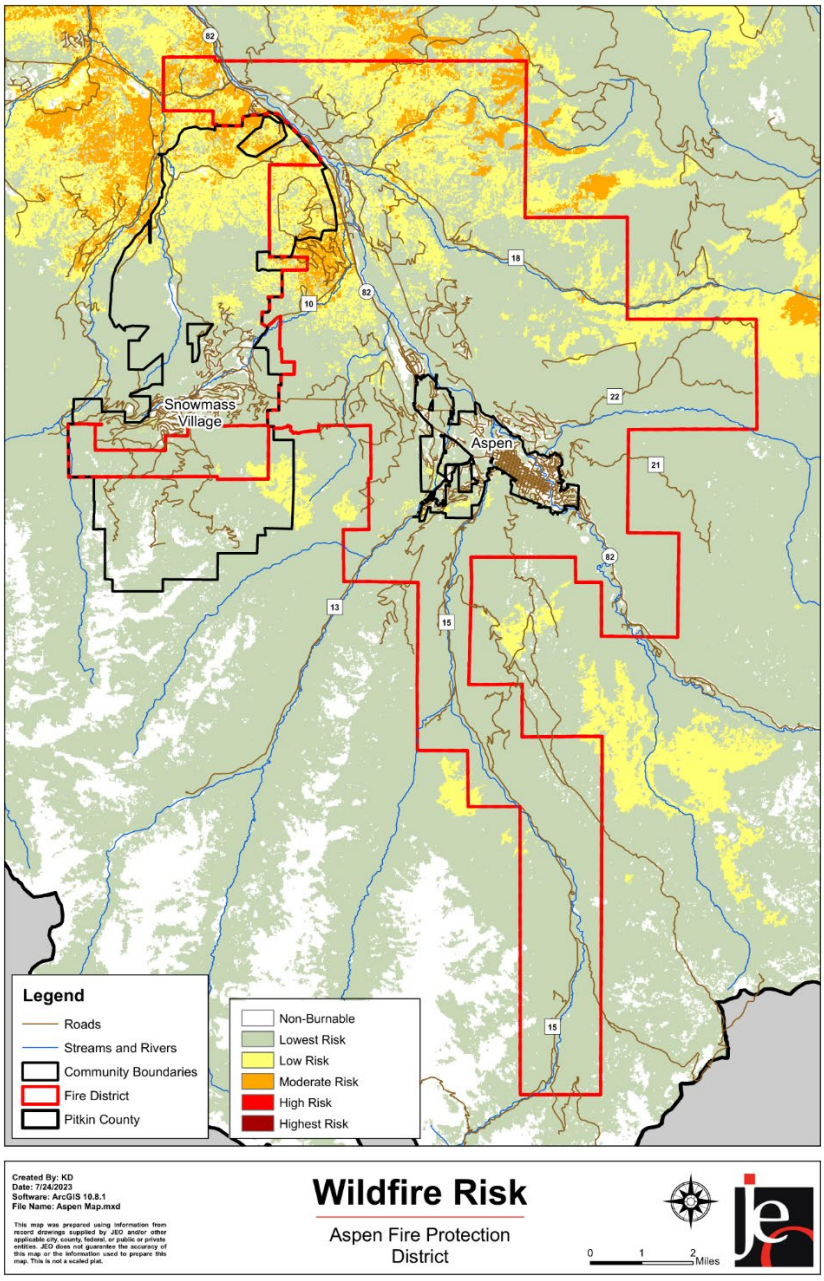
Many times, it is necessary to seed an area with an appropriate seed mix after a fuel treatment or fire because of the paucity of desirable plant seed or other propagules in the soil or from adjacent undisturbed vegetation. Reseeding the treated area with desirable species can be necessary to combat the establishment of weedy vegetation such as cheatgrass and annual mustards, which can exacerbate hazardous vegetation-fuel situation. Establishing a desirable plant cover as quickly as possible will also reduce the chances for soil erosion and is beneficial to restoring watershed quality and wildlife habitat. The seed mix should be adapted to the ecological conditions of the site and meet land management objectives. An appropriate seed mix can be developed through discussions with the CSFS, local conservation district, or Natural Resources Conservation Service.

Appendix B: Fire District Wildfire Risk, WUI, and Wildfire Risk Reduction Projects & Activities Maps

Aspen Fire Protection District

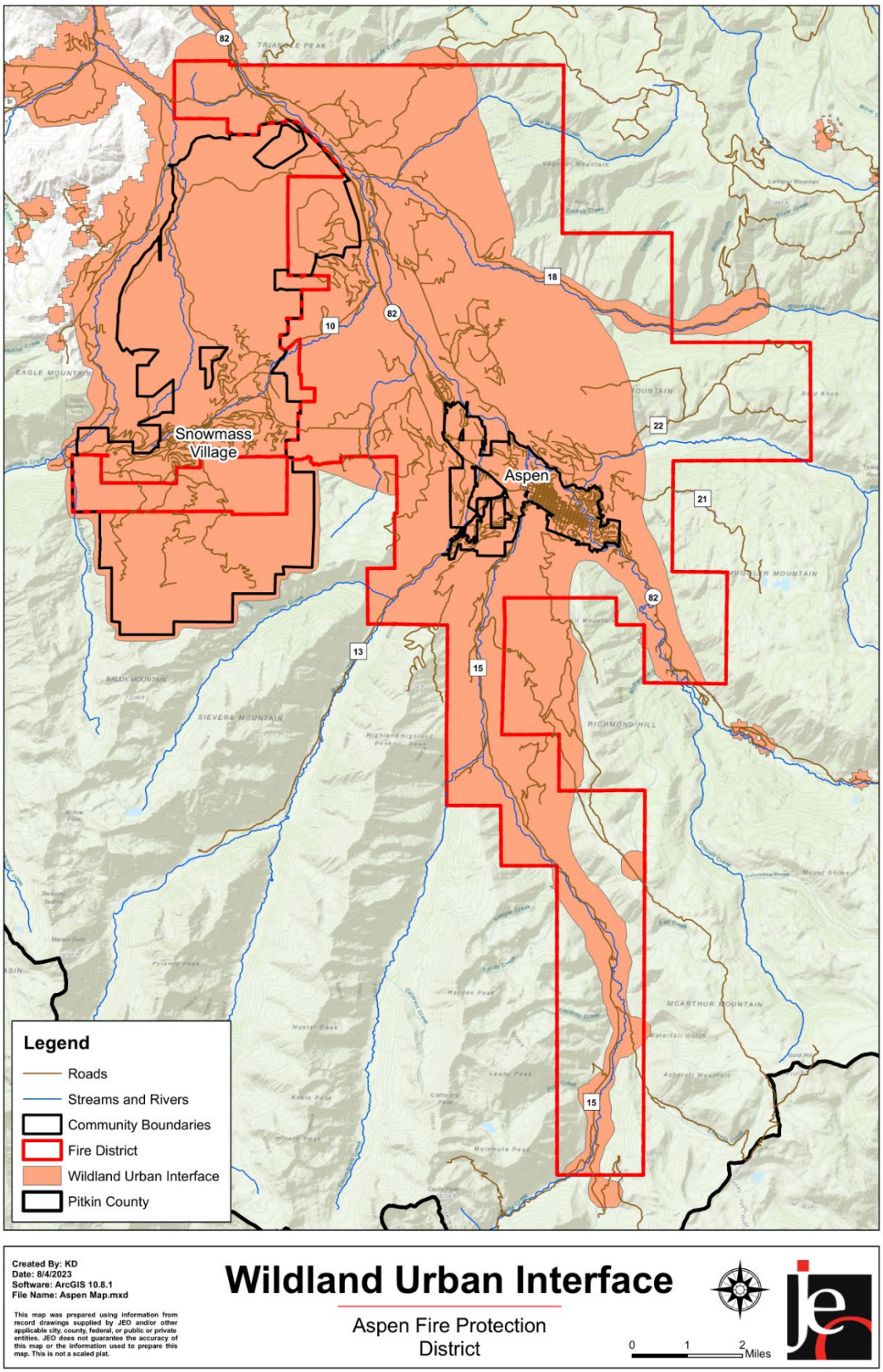
Aspen - Wildfire Risk Map

Figure 32: Aspen Wildfire Risk



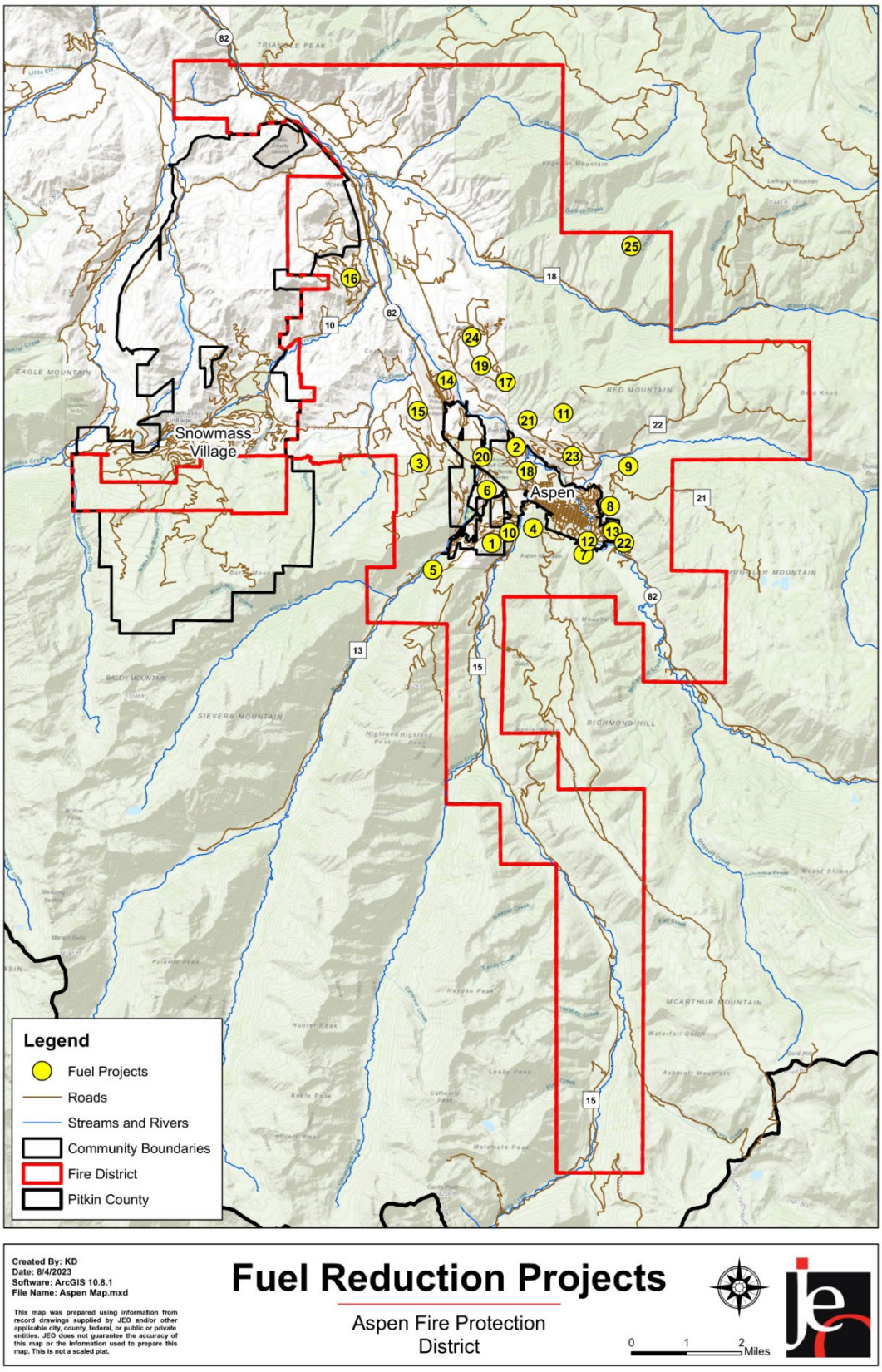
Aspen - WUI Map

Figure 33: Aspen WUI



Aspen - Fuels Reduction Projects

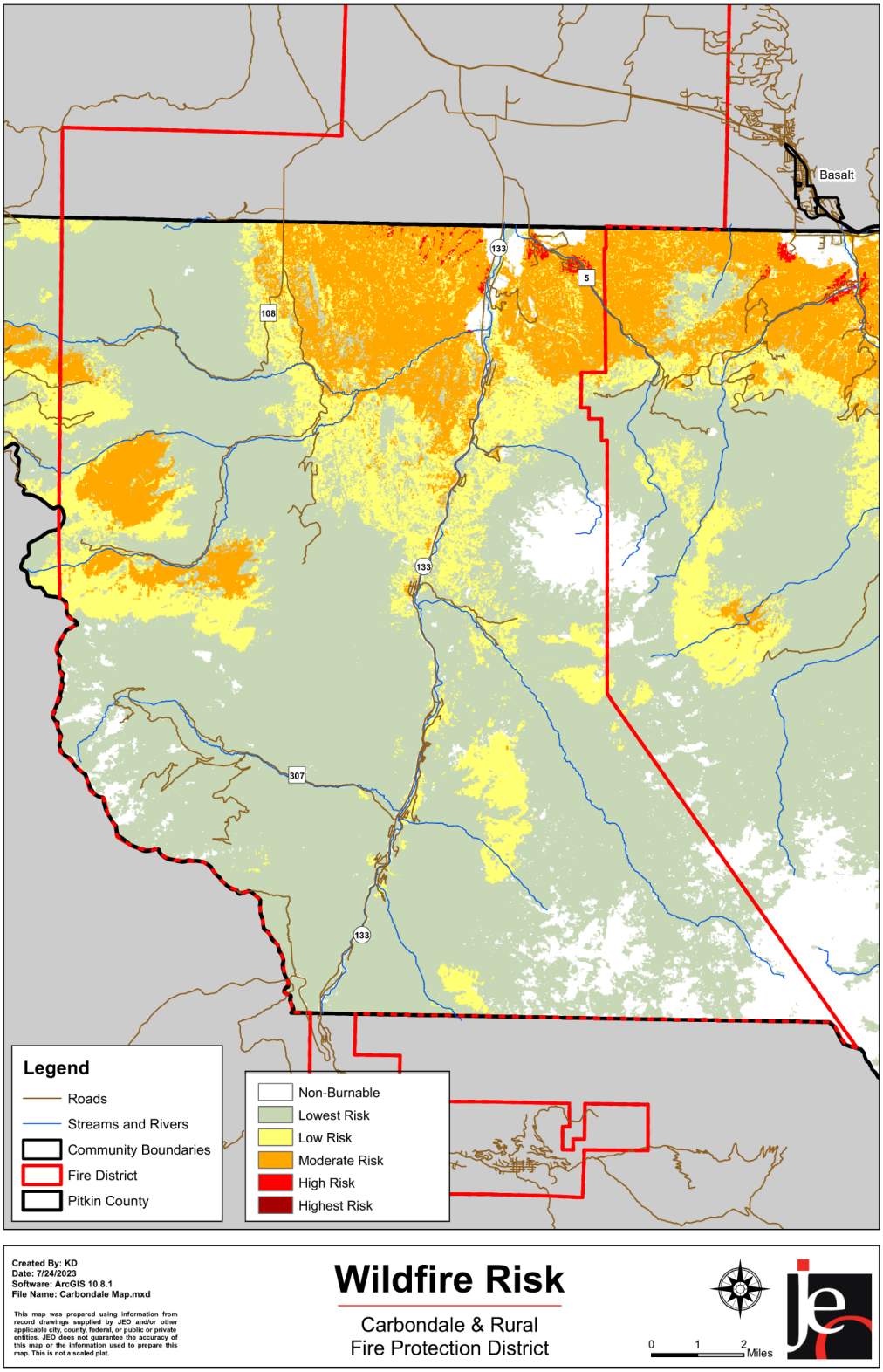
Figure 34: Aspen Fuel Projects



Carbondale & Rural Fire Protection District

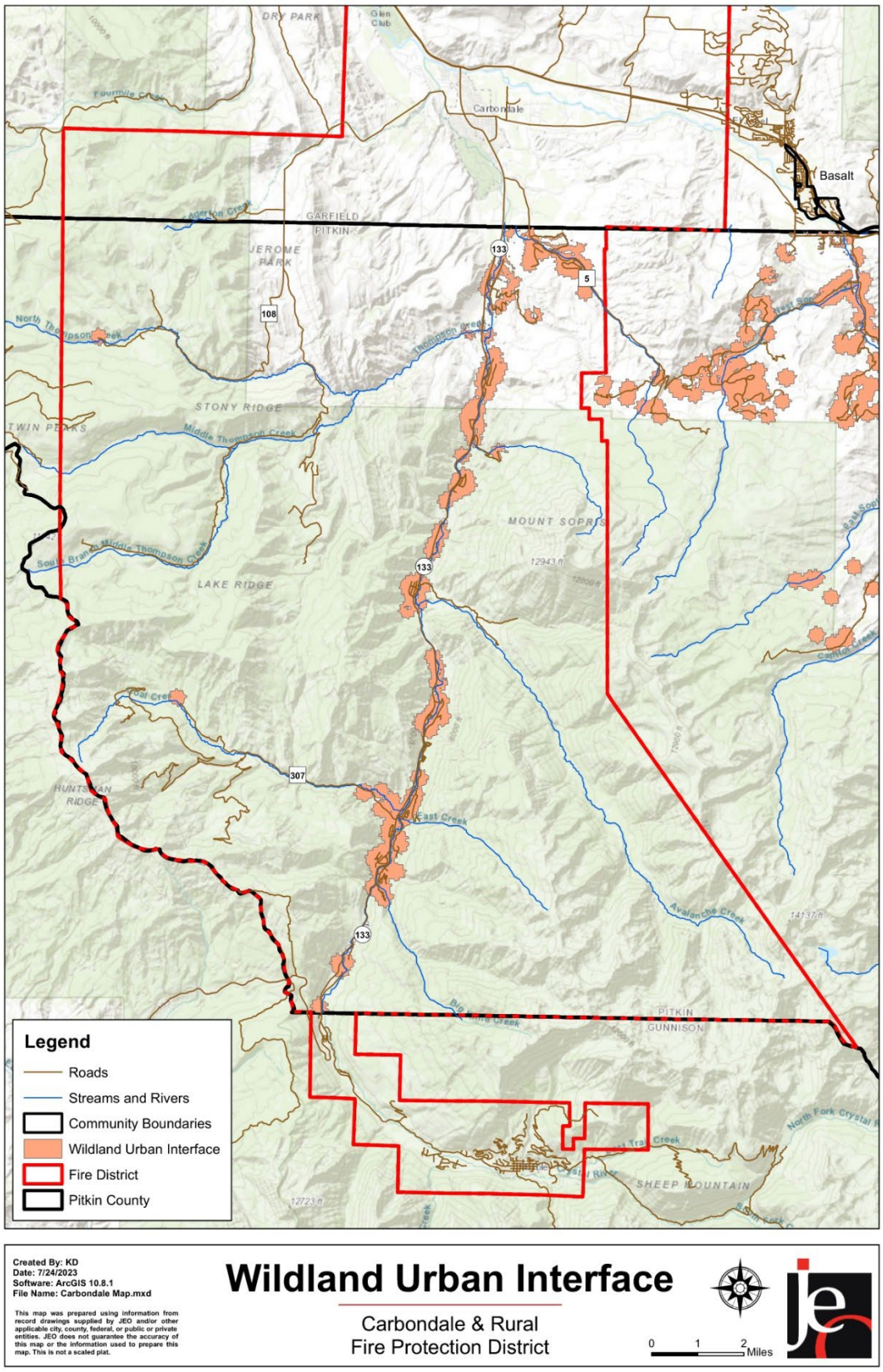
Carbondale - Wildfire Risk Map

Figure 35: Carbondale Wildfire Risk



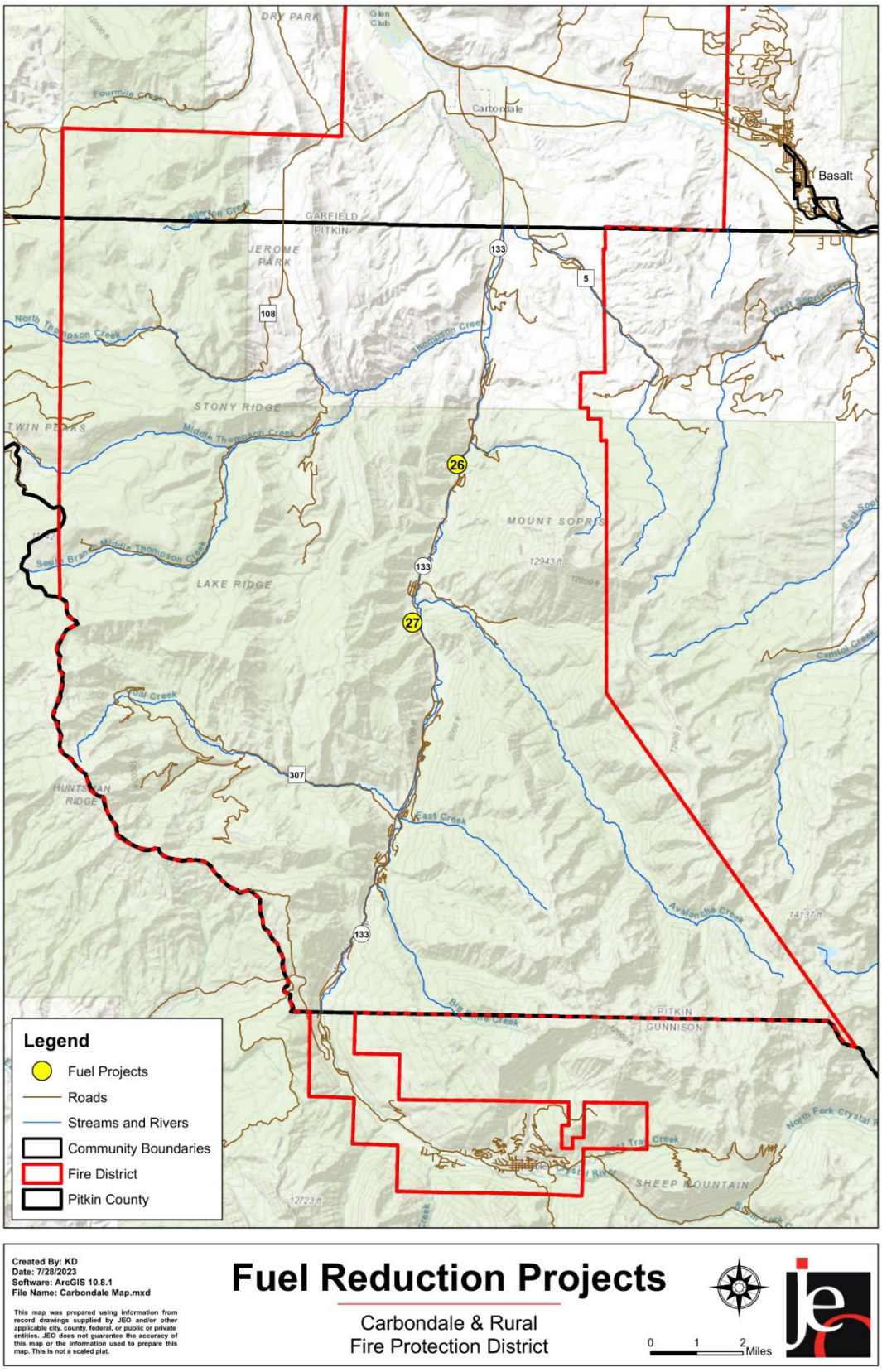
Carbondale - WUI Map

Figure 36: Carbondale WUI



Carbondale - Fuels Reduction Projects

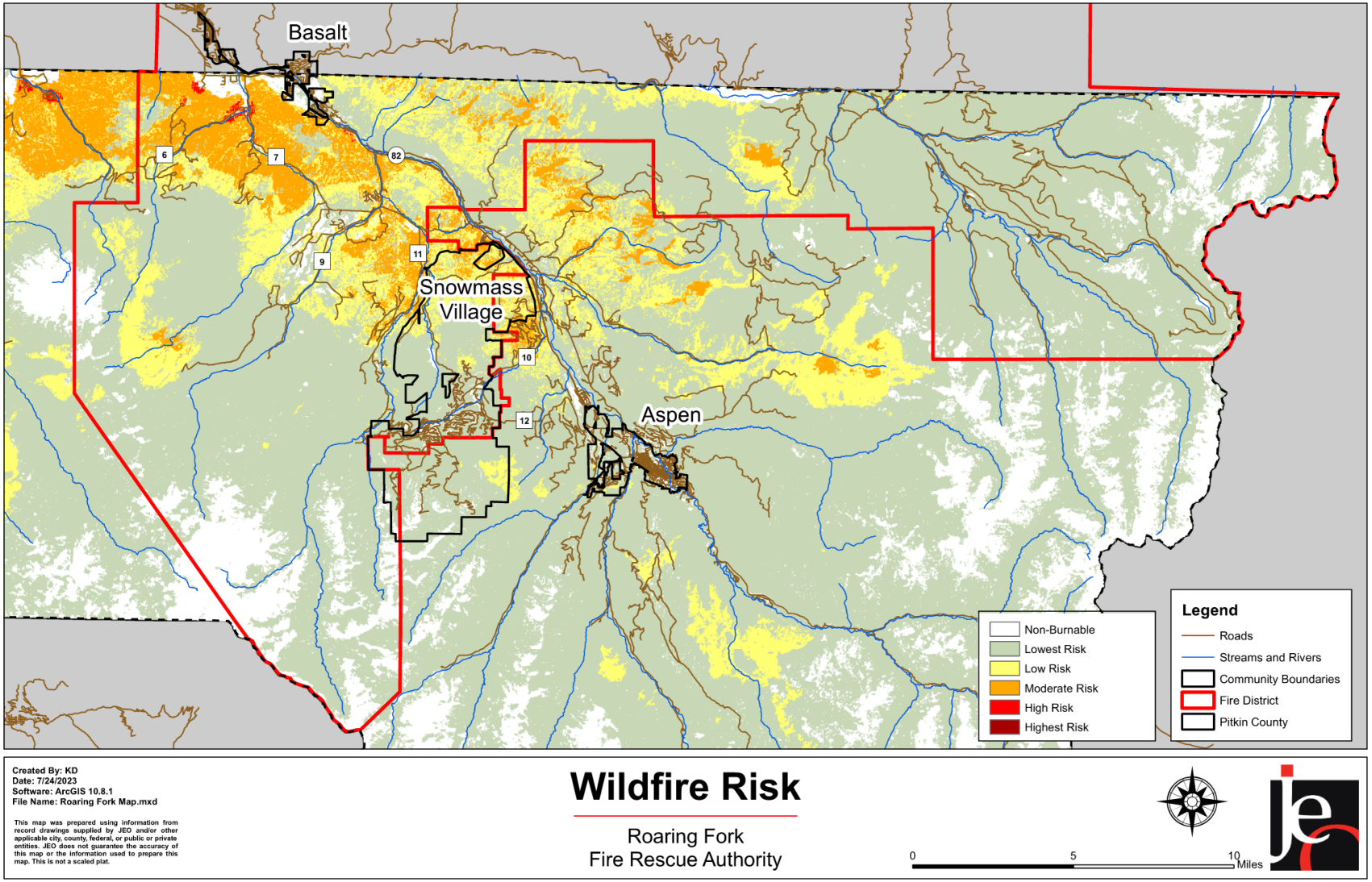
Figure 37: Carbondale Fuel Projects



Roaring Fork Fire Rescue Authority

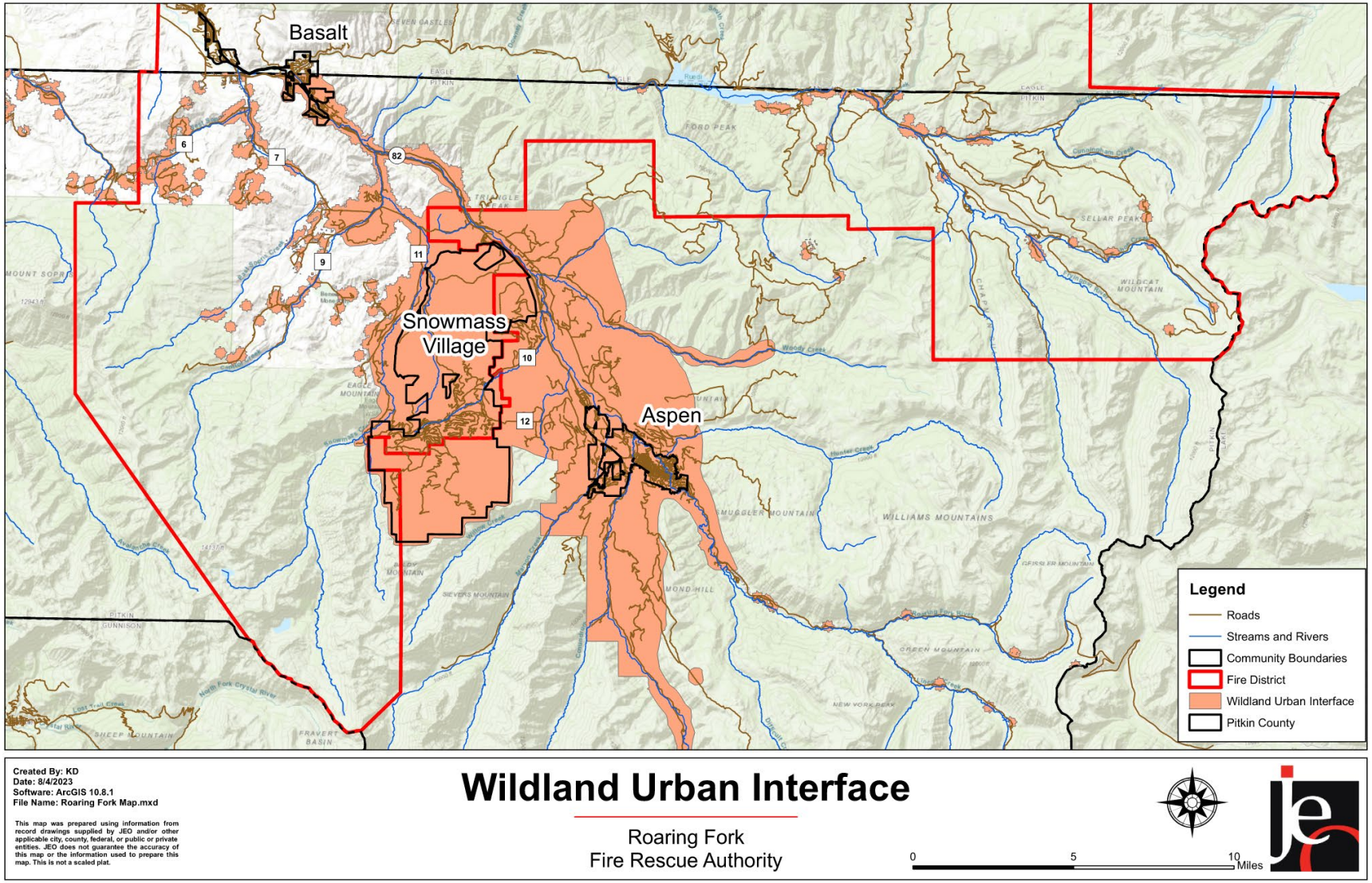
Roaring Fork - Wildfire Risk Map

Figure 38: Roaring Fork Wildfire Risk



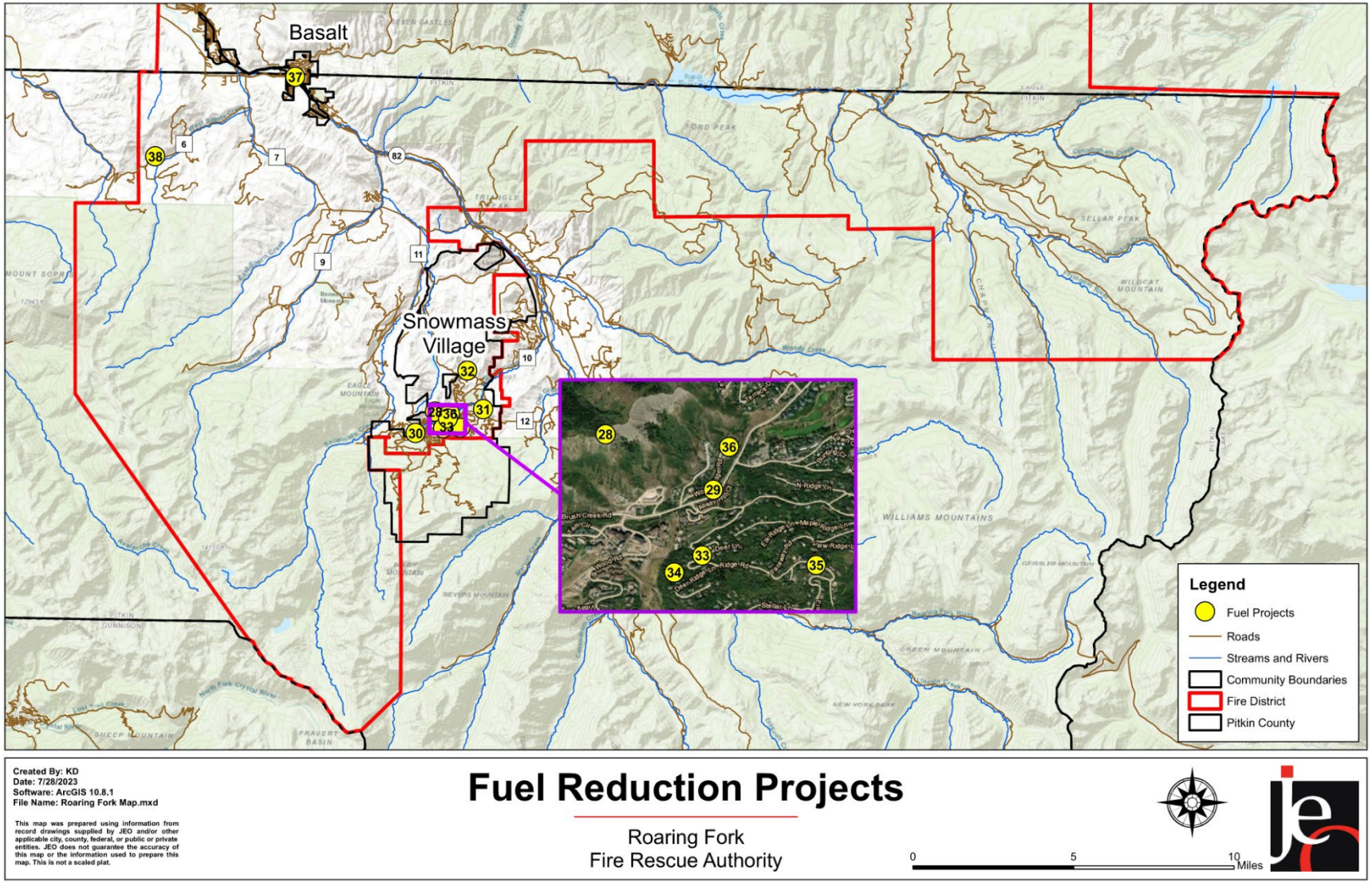
Roaring Fork - WUI Map

Figure 39: Roaring Fork WUI



Roaring Fork - Fuels Reduction Projects

Figure 40: Roaring Fork Fuel Projects



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Appendix C: Planning Process Documentation

May 16, 2023, Core Planning Team Meeting

Agenda

Pitkin County, CO
Community Wildfire Protection Plan
1st Planning Team Meeting Agenda
May 16, 2023

1. Introductions

2. CWPP Overview – What is it, benefits of updating the plan:
    a. Opportunity to define own WUI
    b. BLM and USFS give special consideration to CWPP identified projects
    c. Additional funding opportunities
    d. Proactive approach to address local risks and concerns

3. Planning Process – Who is involved? Roles and Responsibilities?
    a. Core Planning Team –
        i. Pitkin County, Fire Districts, CSFS, USFS, BLM
        ii. JEO - help facilitate the planning process, compile the data, provide a draft plan for review.
    b. Stakeholders – Public Safety Council, communities, other state agencies, natural resources groups, others?
        i. Who needs to be invited/involved?
    c. Project Schedule
        i. Core Planning Team Meetings
        ii. 1-on-1 Meetings with Fire Districts
        iii. Survey
        iv. Public Review Period

4. Plan Components
    a. See attached plan outline
    b. Questions, concerns, additions?

5. Work to Discuss Today
    a. WUI definition – text definition and map. Review and edits to map.
    b. Wildfire Risk Assessment – Review and edits to maps.
    c. Fire authorities meetings/worksheets – work to be completed later/during 1-on-1 meetings. Capabilities and equipment, ISO ratings, resource and training needs, local conditions, and concerns.
    d. Draft survey questions – any changes?
    e. Capability concerns? Evacuation concerns?

6. Work for Next Time
    a. Review survey results
    b. Mitigation actions – identified in HMP, workplans from agencies, prioritize actions

Sign In Sheet

Pitkin County CWPP 2023
1st Planning Team Meeting
Carbondale, CO - May 16, 2023

Name	Jurisdiction Represented	Phone	Email
Phil Luckett	JEO	402-474-8768	pluckett@jeo.com
Chad Sewell	BLM	(303) 810-3829	csewell@blm.gov
Jesse Moreno	DFPC	970 420 3852	jesse.moreno@state.co.us
Matt Schiltz	CSFS	970-887-3121	Matthew.Schiltz@colostate.edu
Jim Genung	UCR/URF	970-404-5411	james.genung@usda.gov
Ali Hammond	AFPD	970-452-7489	ali.hammond@aspenfire.com
Jake Andersen	AFPD	970 452 7488	jake.andersen@aspenfire.com
Christina Medved	Roaring Fork Conservancy	970 927 1290 x.103	christina@roaringfork.org
KEVIN KISSEL	ROARING FORK FIRE	970 319 3129	KISSEL@ROARINGFORKFIRE.org
VALERIE MACDONALD	PCSO EM	970 379 6748	
BILL GAVETTE	CARBONDALE FD	970-963-2491	GAVETTE@CARBONDALEFIRE.ORG
Ryan McCulley	DFPC	970-765-6279	ryan.mcculley@state.co.us
Chazz Lakin	CSFS	970-216-1890	Chazz.Lakin@colostate.edu

Meeting Outcome

There were several outcomes from this first Core Planning Team meeting. There was an initial discussion about who else needs to be involved in the plan. Because evacuation is a major concern in the county, it was determined that the County Sheriff and local police departments should be involved. During the meeting there was an initial discussion about determining WUI areas in the county. After the discussion, it was decided that each fire district would determine their own WUI areas in their district. The most important outcome from this meeting was finalization of the public survey. JEO provided a draft survey that all members of the Core Planning Team were able to provide comments on. Afte the meeting JEO was able to take those comments are provide a finalized survey that went out shortly after the meeting.

Fire District Meetings – Example Agenda

Pitkin County CWPP
1-on-1 Meeting Agenda
Aspen Fire Protection District

1. Introductions

2. Wildland Urban Interface Map
   - WUI Determination

3. Wildfire Risk Map
   - Locations of Concern

4. Data Needed From FPD
   - Insurance Service Office (ISO) Fire Hazard Ratings
   - Fire District Resources and Training Needs
   - Past Risk Reduction Projects and Activities Update
   - Proposed Fuel Projects
     - Any projects currently in the works?
     - What is needed in the future?
   - Evacuation Planning (if applicable)
     - Please send any current evacuation maps and information to JEO.
   - Plans, Assessments, and Mutual Aid
     - Please send any current plans, assessments, and mutual aid agreements to JEO.
   - New Development

5. Next Steps

6. Contact Information
   - Phil Luebbert, *pluebbert@jeo.com,* (402) 474-8768
   - Karl Dietrich, *kdietrich@jeo.com*, (402) 742-7213

JEO CONSULTING GROUP INC
JEO ARCHITECTURE INC

p: 402.435.3080
f: 402.435.4110

2000 Q Street, Suite 500
Lincoln, Nebraska 68503

jeo.com

Meeting Outcomes

Each fire district meeting had four main outcomes. The first was determining the WUI area for their district. During the meetings a draft WUI map was provided to each fire district that was then marked up with additional areas to include in the WUI. From that information a county wide WUI was then able to be created.

The second outcome was identifying wildfire risk locations of concern. Each fire district was given a wildfire risk map from the Colorado Forest Atlas and asked to identify other risk locations of concern. Those identified areas were added to the plan as a bulleted list and narrative.

The third outcome was updating projects from the previous CWPP and identifying new fuel reduction projects. Each fire district was asked to provide a list of projects, their location, priority level (high, medium, low), and any collaborative efforts. This list of projects was then combined into a county-wide table and map.

The final outcome was identifying evacuation locations of concern. Similar to wildfire risk locations, fire districts were asked to identify locations that had evacuation concerns or constraints. Those identified areas were added to the plan as a bulleted list and narrative.

County Sheriff and Local Police Department Worksheet

The following worksheet was emailed to all the local police departments in the county along with the County Sheriff. Worksheets were filled out and returned by all the agencies.

Jurisdiction: _____

Please identify any locations, neighborhoods, areas, etc. that could be more difficult to evacuate during a wildfire than others? For each please provide an explanation on why they are more difficult to evacuate.

How could evacuation be improved in the future?

Please provide any evacuation route maps or plans that you may have.

August 2, 2023, Core Planning Team Meeting

Agenda

Pitkin County, CO
Community Wildfire Protection Plan
2nd Planning Team Meeting Agenda
August 2nd, 2023

1. Introductions
2. Summary of Last Meeting
3. Survey Results
4. Summary of 1-on-1 Meetings
    a. WUI Map
    b. Locations of Concern
    c. Resources and Training Needs
    d. Updated Actions from Current Plan
    e. Proposed Actions
    f. Evacuation Discussion
5. Review of Updated WUI map
6. Mitigation Action Discussion
    a. Identify projects to be implemented within the next 1-2 years
    b. What projects do you need assistance with?
    c. What projects need additional coordination?
7. Next Steps and Project Schedule
    a. Final Draft Review
    b. Public Review
    c. Adoption and approvals

Sign In Sheet

In addition to the sign in sheet below. Valerie MacDonald – Pitkin County Emergency Manager, Chazz Lakin – CFSF, Mike Jones – BLM, and Chad Sewell – BLM attended the meeting as well.

Pitkin County CWPP 2023
2nd Planning Team Meeting
El Jebel, CO – August 2, 2023

Name	Jurisdiction Represented	Phone	Email
Phil Luebbert	JEO	402-499-4154	pluebbert@jeo.com
JAKE SPAULDING	ASPEN FIRE	970 379 2234	JAKE.SPAULDING@ASPEN FIRE.COM
MICHAEL BUGLIONE	PCSO	970-787-0400	MICHAEL.BUGLIONE@PITKINSHERIFF.COM
Jake Andersen	Aspen Fire	970 452 7488	jake.andersen@aspenfire.com
Matt Schiltz	CSFS	970-887-3121	Matthew.Schiltz@colostate.edu
Parker Lathrop	PCSO	970 379 3453	parker.lathrop@pitkinsheriff.com
Christina Medved	Roaring Fork Conservancy	970-927-1290	christina@roaringfork.org
Karl Oliver	Carbondale Fire	970-404-9959	KOliver@carbondalefire.org

Pitkin County CWPP 2023

2nd Planning Team Meeting

El Jebel, CO – August 2, 2023

Name	Jurisdiction Represented	Phone	Email
Ali Hammond	AFPD	970-452-7489	ali.hammond@aspenfire.com
RICHARD CORNELIUS	ROARING FORK FIRE	(970) 230-0575	rcornelius@roaringforkfire.org

Meeting Outcome

The primary outcome of the second and final Core Planning Team Meeting was reviewing the list of proposed fuel reduction projects, identifying which projects need additional coordination, and determining if there were any other wildfire mitigation projects to include in the plan. Participants were given the county-wide fuel reduction projects and map. Projects were then further discussed and finalized. After the meeting JEO was able to update the fuel reduction projects list/map and add other wildfire mitigation actions as tables in the plan.

Public Survey

1. **Do you know what the Wildland Urban Interface (WUI) is?**
    a. Yes
    b. No

2. **Do you currently live in a Wildland Urban Interface (WUI) zone or fire prone area?**
    a. Yes
    b. No
    c. Unknown

3. **To the best of your knowledge, what are the greatest contributing factors to wildfires starting in your area?"**
    a. Weather conditions (temperature, wind speed, lightning strikes)
    b. Human actions
    c. Climate conditions (periods of drought or extreme heat)
    d. Dead vegetation buildup
    e. Tree density
    f. Housing density and/or building materials types
    g. Dilapidated structures
    h. Other:

4. **What actions have you taken to prepare for evacuation?**
    a. Signed up for emergency notifications
    b. Identified possible evacuation options from your neighborhood
    c. Created an evacuation "go-bag" of supplies and documents
    d. Other

5. **What would be your most serious obstacle if you needed to evacuate?**
    a. Blocked roads from debris
    b. Flames interrupting evacuation route
    c. Inability to evacuate (no vehicle, funds to evacuate, pets)
    d. Lack of information on where to evacuate to
    e. Smoke
    f. Too few egress routes
    g. Traffic
    h. Other

6. **What measures have you taken to protect your home or property from wildfire?**
    a. Built structure(s) or home with fire resistant materials
    b. Retrofitted home with fire-resistant building or roofing materials
    c. Cleared litter/debris/vegetation/combustible materials from around your home
    d. Installed sprinklers/fire suppression resources
    e. Other

7. **If you haven't taken measures to protect your home or property from wildfire, what are barriers to do so?**
    a. Cost or lack of financial resources
    b. Lack of direction/knowledge
    c. Lack of home ownership/rent properties
    d. Surrounding areas/neighbors pose greater risk
    e. Limited opportunity for mitigation projects
    f. Other

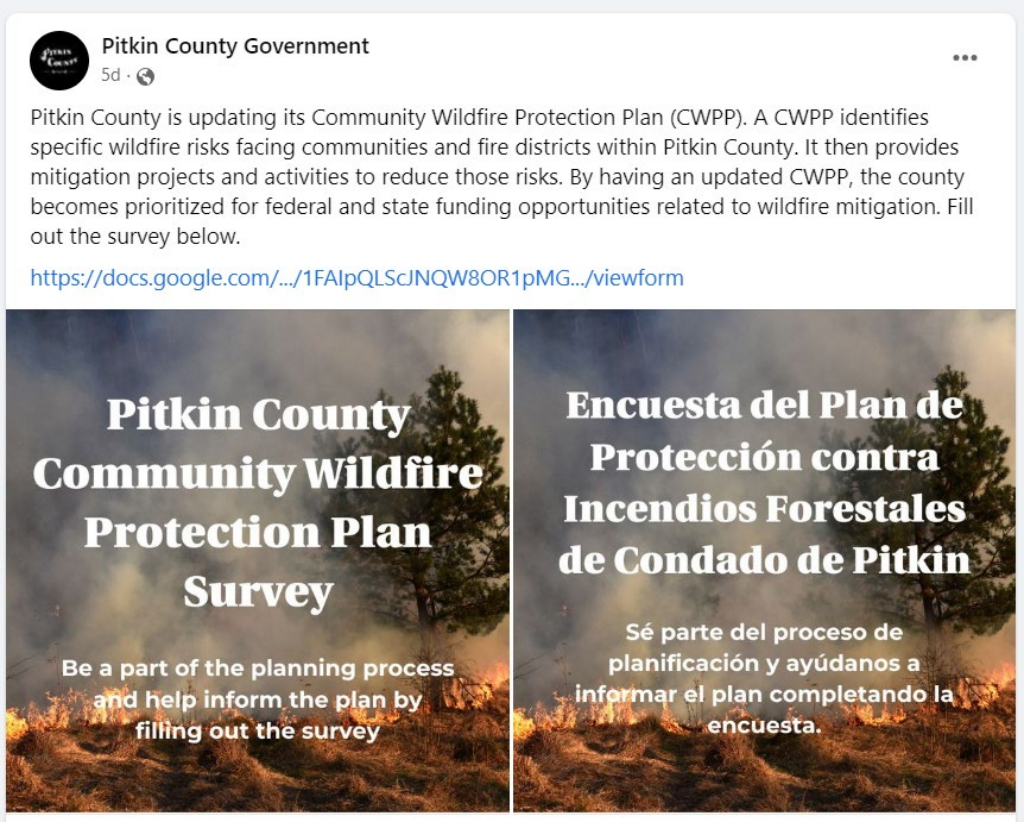
8. **What would you like to see the County and local fire districts do in the future to better protect people and infrastructure from future wildfires?**
    a. Increase local fire department funds to adequate staff departments and pursue projects
    b. Provide financial assistance for hazardous fuels mitigation/removal
    c. Remove hazardous fuels from public spaces and roadways
    d. Improve evacuation or other transportation routes
    e. Increase local education and encourage residents to identify evacuation routes, pursue household mitigation, and utilize emergency alert systems
    f. Assist with home wildfire risk assessments
    g. Implement and enforce fire ban ordinances and fire-resistant building codes
    h. Check vulnerable areas for safe fire practices (campers, campgrounds, national forests, etc)
    i. Other

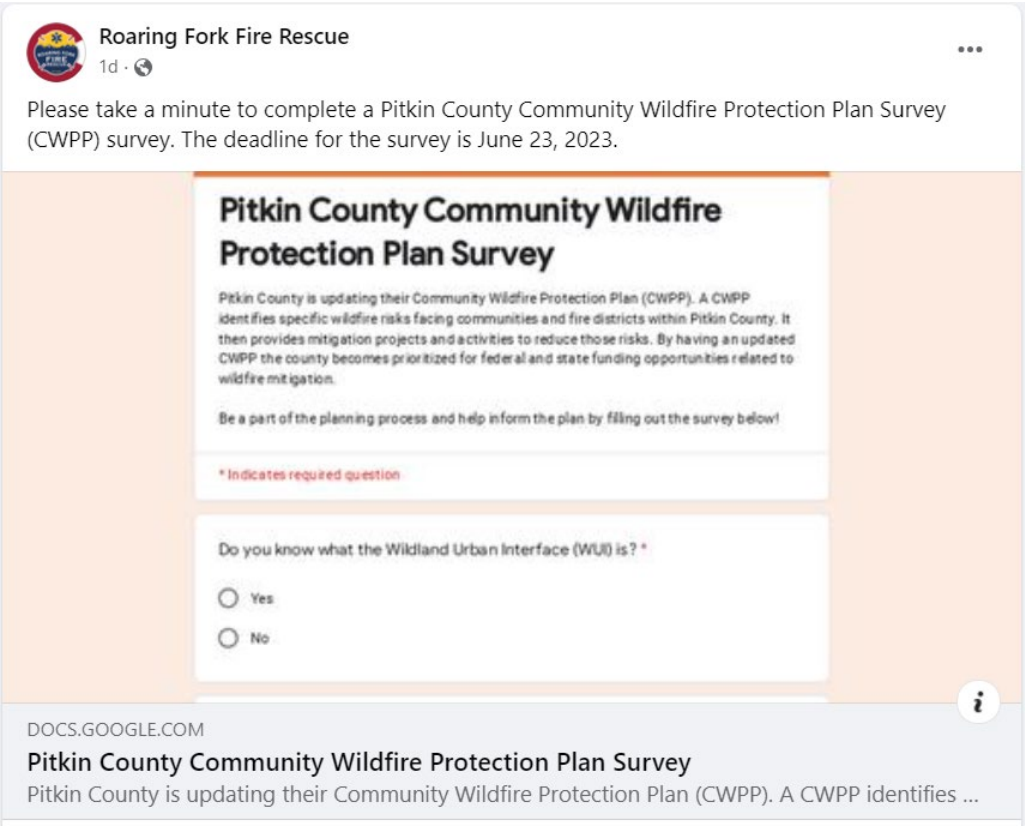
9. **Have you had difficulty getting homeowner's insurance?**
    a. Yes
    b. No
    c. Unknown

10. Where do you get your wildfire information?

a. Social media
b. Newspaper
c. Roadway signs
d. County website
e. Fire department website
f. Other

Social Media Survey Posts

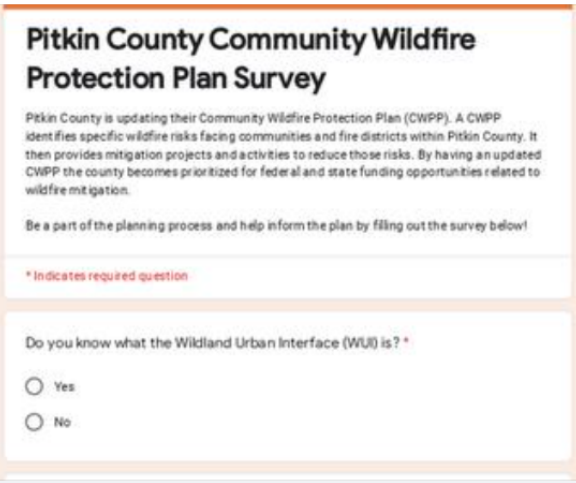




Carbondale & Rural Fire Protection District
Yesterday at 11:08 AM ·

Pitkin County residents - you are invited to complete this survey to help update the Pitkin County Community Wildfire Protection Plan (CWPP). A CWPP identifies specific wildfire risks facing communities and fire districts within Pitkin County. It then provides mitigation projects and activities to reduce those risks. By having an updated CWPP the county becomes prioritized for federal and state funding opportunities related to wildfire mitigation.

The deadline to participate is June 23



DOCS.GOOGLE.COM
Pitkin County Community Wildfire Protection Plan Survey
Pitkin County is updating their Community Wildfire Protection Plan (CWPP). A CWPP identifies ...

Aspen Fire
15h ·

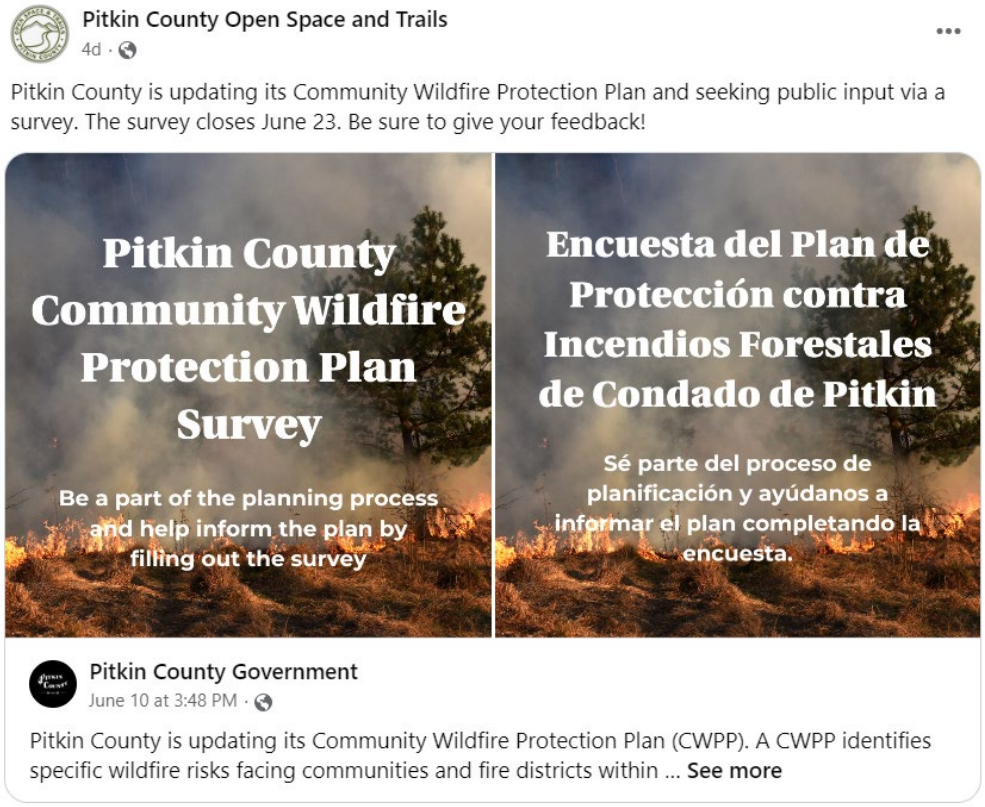
Pitkin County Government
June 10 at 3:48 PM ·

Pitkin County is updating its Community Wildfire Protection Plan (CWPP). A CWPP identifies specific wildfire risks facing communities and fire districts within Pitkin County. It then provides mitigation projects and activities to reduce those risks. By having an updated CWPP, the county becomes prioritized for federal and state funding opportunities related to wildfire mitigation. Fill out the survey below.

https://docs.google.com/.../1FAIpQLScJNQW8OR1pMG.../viewform

3 1 share


Pitkin County Emergency Management
5d ·
Pitkin County Community Wildfire Protection Plan Survey
Be a part of the planning process and help inform the plan by filling out the survey
Encuesta del Plan de Protección contra Incendios Forestales de Condado de Pitkin
Sé parte del proceso de planificación y ayúdanos a informar el plan completando la encuesta.
Pitkin County Government
5d ·
Pitkin County is updating its Community Wildfire Protection Plan (CWPP). A CWPP identifies specific wildfire risks facing communities and fire districts within Pitkin County. It then provides mitigation projects and activities to reduce those risks. By having an updated CWPP, the county becomes prioritized for federal and state funding opportunities related to wildfire mitigation. Fill out the survey below.
https://docs.google.com/.../1FAIpQLScJNQW8OR1pMG.../viewform


Pitkin County Open Space and Trails
4d ·
Pitkin County is updating its Community Wildfire Protection Plan and seeking public input via a survey. The survey closes June 23. Be sure to give your feedback!
Pitkin County Community Wildfire Protection Plan Survey
Be a part of the planning process and help inform the plan by filling out the survey
Encuesta del Plan de Protección contra Incendios Forestales de Condado de Pitkin
Sé parte del proceso de planificación y ayúdanos a informar el plan completando la encuesta.
Pitkin County Government
June 10 at 3:48 PM ·
Pitkin County is updating its Community Wildfire Protection Plan (CWPP). A CWPP identifies specific wildfire risks facing communities and fire districts within ... See more


8:49
LTE
Instagram
Pitkin County Community Wildfire Protection Plan Survey
Be a part of the planning process and help inform the plan by filling out the survey
4 likes
pitcogov Pitkin County is updating their Community Wildfire Protection Plan (CWPP). A CWPP identifies specific wildfire risks facing communities and fire districts within Pitkin County. It then provides mitigation projects and

Social Media Public Review Posts

Carbondale & Rural Fire Protection District
3h ·

Pitkin County is updating the county-wide Community Wildfire Protection Plan (CWPP). Carbondale Fire is participating with the CWPP update. A CWPP assists the county and local fire districts in gathering resources, evaluating wildfire risk, and identifying strategies and actions to reduce overall vulnerability to wildfire events. By updating the CWPP, the county and fire districts will remain eligible to apply for federal and state grants for vegetative fuels reduction efforts.

The draft Pitkin County CWPP is currently out for public review and comment until September 30th. To review and provide comments about the plan contact kdietrich@jeo.com.

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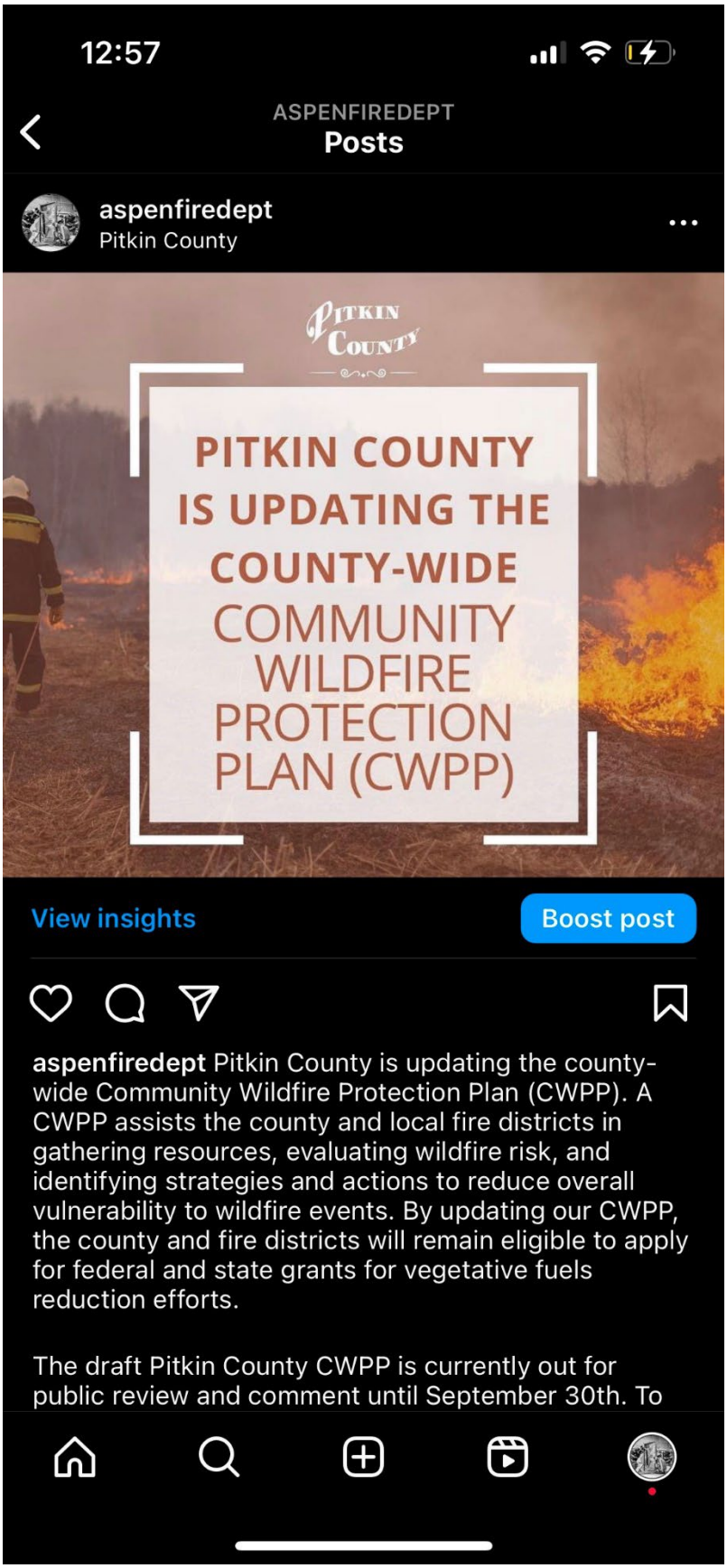
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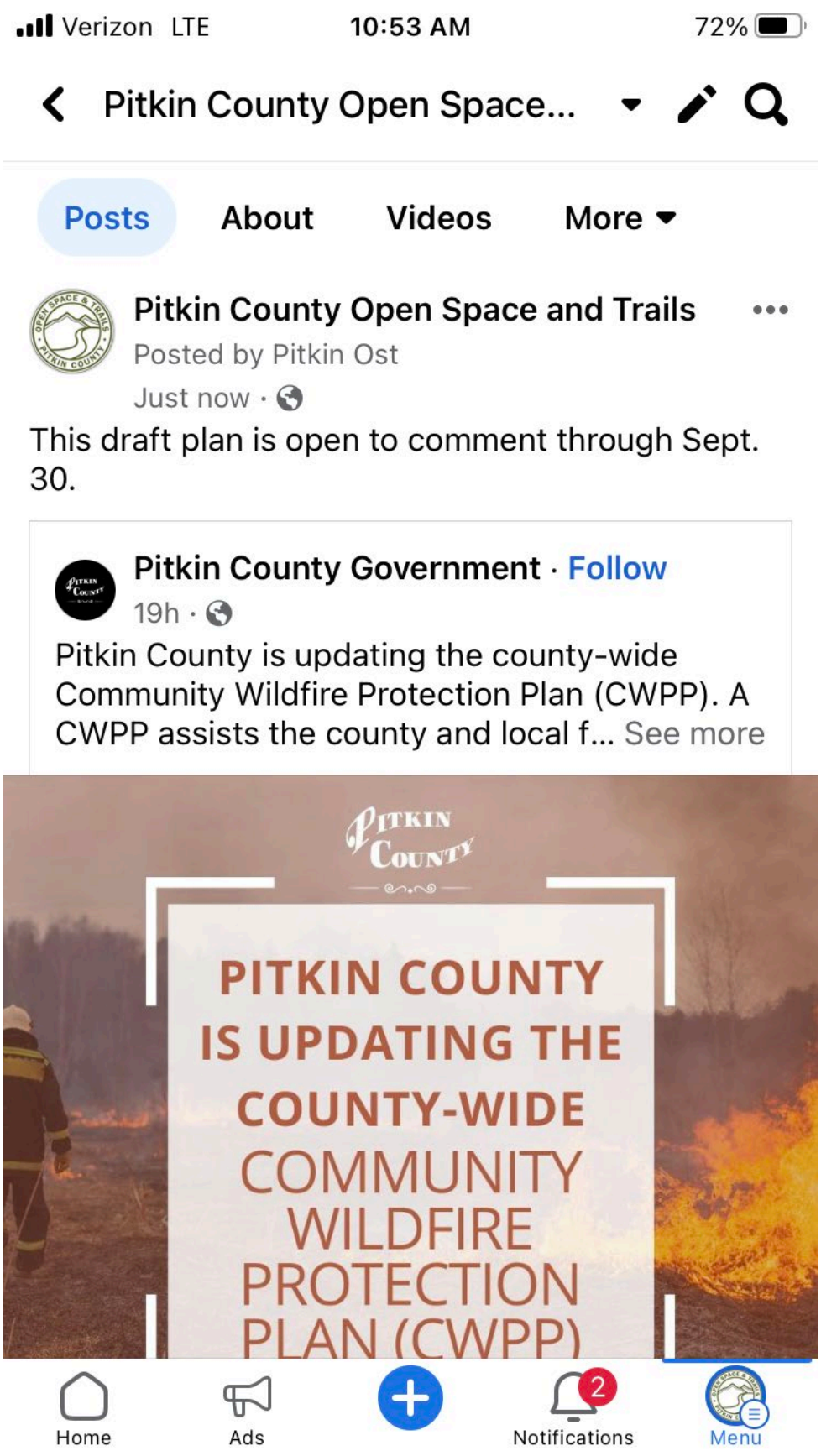
Click here to access the document.

To review and provide comments about the plan contact kdietrich@jeo.com.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ALL PITKIN COUNTY OFFICES WILL BE CLOSED ON MONDAY, OCTOBER 2ND IN OBSERVANCE OF CABRINI DAY
LEAP (Low-Income Energy Assistance Program) Outreach Events
Contact: (970) 920-5235
LEAP is a federally funded program that helps eligible Colorado families seniors and individuals pay a portion of their winter home heating costs. Staff will be on hand to answer questions and food will be served Monday, Sept 25 from 5:30-7 pm at Health & Human services building 405 Castle Creek Rd., Aspen. Tuesday, Sept. 26 from 5:30 - 7pm at Basalt Regional Library, 14 Midland Ave, Basalt. Spanish interpretation available in Aspen & Basalt. Thurs., Sept. 28 from 6:30 to 8pm at Redstone Inn, 82 Redstone Castle Dr., Redstone.
Board of Adjustment Special Meeting Tuesday, September 26 @ 5:30 PM
Contact: Planner of the Day 970-429-6108
https://pitkincounty.com/1001/Events-Agendas
Pitkin County Coordinated Election Public Logic and Accuracy Test Thursday, Sept. 28. 2023
Contact: Elections, 970-429-2732 - Elections@pitkincounty.com
Pitkin County Election Department will conduct a Public Logic and Accuracy Test of the voting system for the November Coordinated Elect
Members of the public are invited to observe any or all portions of the L
but please note that space is limited. For additional information on the timing, please contact the Pitkin County Elections office.
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Contact: Bidnetdirect.com/Colorado
Pitkin County is soliciting bids for the following goods and/or services
RFP 002.24 - 2024 Rooftop Solar Array Installation Services
Proposals due 10/16/2023
Pitkin County is updating the county-wide Community Wildfire Protection Plan (CWPP)
Contact: Valerie.MacDonald@pitkinsheriff.com
A CWPP assists the county and local fire districts in gathering resources evaluating wildfire risk, and identifying strategies and actions to reduce overall vulnerability to wildfire events. By updating our CWPP, the county and fire districts will remain eligible to apply for federal and state grants for vegetative fuels reduction efforts. The draft Pitkin County CWPP is currently out for public review and comment until September 30. View the plan: https://bit.ly/3LxR6aq. To provide comments about the plan, contact Valerie.MacDonald@pitkinsheriff.com.
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The Pitkin County Telecommunications Dept. is reviewing how it uses money from a property tax that funds free over-the-air TV in our region. Please share if you're watching TV on this county operated platform available in the Roaring Fork, Crystal, and Frying Pan Valleys by calling the translator line at (970) 920-5395.
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Appendix D: Glossary of Wildfire Terms

Aerial Fuels Standing and supported live and dead combustibles not in direct contact with the ground and consisting mainly of foliage, twigs, branches, stems, cones, bark, and vines.

Aspect Cardinal direction towards which a slope faces.

Chain Unit of measure in land survey, equal to 66 feet (20 M) (80 chains equal 1 mile). Commonly used to report fire perimeters and other fireline distances, this unit is popular in fire management because of its convenience in calculating acreage (e.g., 10 square chains equal one acre).

Chimney A steep gully or canyon conducive to channeling strong convective currents, potentially resulting in dangerous increases in rates of fire spread and fireline intensity.

Crown Fire A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire.

Dead Fuels Fuels with no living tissue in which moisture content is governed almost entirely by absorption or evaporation of atmospheric moisture (relative humidity and precipitation).

Defensible Space An area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss of life, property, or resources. In practice, “defensible space” is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

Direct Attack Any treatment applied directly to burning fuel such as wetting, smothering, or chemically quenching the fire or by physically separating the burning from the unburned fuel.

Fire Behavior The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Danger Sum of constant danger and variable danger factors affecting the inception, spread, and resistance to control, and subsequent fire damage; often expressed as an index.

Fire Front The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified, the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

Fire Hazard A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree of ease of ignition and of resistance to control.

Fire Intensity A general term relating to the heat energy released by a fire.

Fire Regime Description of the patterns of fire occurrences, frequency, size, severity, and sometimes vegetation and fire effects as well, in a given area or ecosystem. A fire regime is a generalization based on fire histories at individual sites. Fire regimes can often be described as cycles because some parts of history usually get repeated, and the repetitions can be counted and measured, such as fire return interval.

Fire Risk The chance of fire starting, as determined by the presence and activity of causative agents.

Fire Severity Degree to which a site has been altered or disrupted by fire; loosely, a product of fire intensity and residence time.

Fire Weather Weather conditions that influence fire ignition, behavior, and suppression. 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.

Flaming Front That zone of a moving fire where the combustion is primarily flaming. Behind this flaming zone combustion is primarily glowing or involves the burning out of larger fuels (greater than about 3 inches in diameter). Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front.

Fuel Any combustible material, especially petroleum-based products and wildland fuels. Combustible material that includes vegetation such as grass, leaves, ground litter, plants, shrubs, and trees that feed a fire. Not all vegetation is necessarily considered fuel. Deciduous vegetation such as aspen actually serves more as a barrier to fire spread and many shrubs are only available as fuels when they are drought-stressed.

Fuel Break A natural or manmade change in fuel characteristics that affects fire behavior so that fires burning into them can be more readily controlled.

Fuel Loading The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel (consumable fuel) or total fuel and is usually dry weight.

Fuel Type An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

Ground Fire Fire that consumes the organic material beneath the surface litter ground, such as a peat fire.

Ground Fuel All combustible materials below the surface litter, including duff, tree or shrub roots, punky wood, peat, and sawdust that normally support a glowing combustion without flame.

Indirect Attack A method of suppression in which the control line is located some considerable distance away from the fire's active edge. Generally done in the case of a fast-spreading or high-intensity fire and to utilize natural or constructed firebreaks or fuel breaks and favorable breaks in the topography. The intervening fuel is usually backfired; but occasionally the main fire is allowed to burn to the line, depending on conditions.

Intensity A measure of the rate of heat released by a fire. It includes both radiant and convectional heat.

Initial Attack A planned response to a wildfire given the wildfire's potential fire behavior. The objective of the initial attack is to stop the fire and put it out in a manner consistent with firefighter and public safety and values to be protected.

Ladder Fuels Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

Live Fuels Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.

One-Hour Timelag Fuels Fuels consisting of dead herbaceous plants and roundwood less than about ¼ inch (6.4 mm) in diameter. Also included is the uppermost layer of needles or leaves on the forest floor.

One-Hundred Hour Timelag Fuels Dead fuels consisting of roundwood in the size range of 1 to 3 inches (2.5 to 7.6 cm) in diameter and very roughly the layer of litter extending from approximately ¾ of an inch (1.9 cm) to 4 inches (10 cm) below the surface.

One-Thousand Hour Timelag Fuels Dead fuels consisting of roundwood 3 to 8 inches in diameter and the layer of the forest floor more than about 4 inches below the surface.

Prescribed Fire Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met, prior to ignition.

Rate of Spread The relative activity of a fire in extending its horizontal dimensions. It is expressed as a rate of increase of the total perimeter of the fire, rate of forward spread of the fire front, or rate of increase in area, depending on the intended use of the information. Usually, it is expressed in chains or acres per hour for a specific period in the fire’s history.

Surface Fire Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation.

Surface Fuel Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants.

Ten-Hour Timelag Fuels Dead fuels consisting of roundwood ¼ to l inch (0.6 to 2.5 cm) in diameter and, very roughly, the layer of litter extending from immediately below the surface to ¾ inch (1.9 cm) below the surface.

Topography The configuration of the earth's surface including its relief and the position of its natural and man-made features.

Torching The burning of the foliage of a single tree or a small group of trees, from the bottom up.

Wildfire An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.

Wildfire Susceptibility Index A metric that defines the probability of wildfire occurrence and its predicted rate of spread once an ignition occurs.

Wildfire Intensity Index A measure for the potential for high-intensity wildfire occurrence as defined by flame length and crown fire.

Wildland Fire Any non-structure fire that occurs in the wildland. Three distinct types of wildland fire have been defined and include wildfire, wildland fire use, and prescribed fire.

Wildland Fire for Resource Benefit The application of the appropriate management response to naturally ignited wildland fires to accomplish specific resource management objectives in pre-defined designated areas outlined in Fire Management Plans.