ROUTT COUNTY

Community Wildfire Protection Plan - Update

September 28, 2023

PREPARED FOR

Routt County
2025 Shield Drive
Steamboat Springs, CO 80487

Executive Summary

The purpose of the Community Wildfire Protection Plan (CWPP) is to minimize the threat of wildfire to human life and well-being and reduce the wildfire risk to community values.

Members of the Routt County community, in cooperation with local, county, state, and federal agencies and other interested parties, have collaboratively developed the Routt County CWPP. The CWPP was developed according to the Healthy Forests Restoration Act (HFRA) of 2003 and the Colorado State Forest Service (CSFS) Minimum Standards for Developing Community Wildfire Protection Plans (2022).

The previous Routt County CWPP was completed in 2010 and was referenced in the completion of this CWPP. The majority of the projects identified in the 2010 CWPP were acted upon or completed.

Technical assistance was provided by United States Forest Service (USFS), CSFS, and Routt County Geographic Information Systems (GIS) Department.

The CWPP provides a science based assessment of the wildfire threat in the wildland urban interface (WUI) of Routt County, Colorado. Priorities were defined in four categories, (1) life safety, (2) critical infrastructure, (3) economic drivers, and (4) property. It meets the CWPP requirements set forth in the federal HFRA, which include:

+ Identifying and prioritizing areas for fuel reduction and mitigation projects.
+ Stakeholder collaboration.
+ Addressing structural ignitability.

Routt County, in collaboration with Local, State and Federal partners, will work to reduce wildland fire hazards and associated risks through the use of strategies that include:

- Pre-Fire Planning.
- Short-Term (1-3 years): Public education and outreach to promote and implement fire adapted community practices. Implement a biomass removal program and initiate mitigation on critical infrastructure and values at risk.
- Long-Term (3-10 years and beyond): Vegetation management and fuel reduction at the landscape scale and community level, including the enforcement of defensible space standards on private lands. Secure sustainable funding and determine return intervals on mitigation projects.
- Reducing structure ignitability by promoting Home Ignition Zone (HIZ) best practices, and enforcing building codes, ordinances, and statutes.

Signatures

The 2023 Routt County Community Wildfire Protection Plan (CWPP) was developed The CWPP was developed according to the Healthy Forests Restoration Act (HFRA) of 2003 and the Colorado State Forest Service (CSFS) Minimum Standards for Developing Community Wildfire Protection Plans (2022). The plan was developed collaboratively among County stakeholders including local fire protection districts, city officials, federal-, state-, local-, and private-landowners, residents, community groups and neighboring fire agencies. The plan includes a prioritized list of hazardous fuel reduction strategies, measures that community members can take to reduce structural ignitability, as well as recommendations on additional studies, policy changes, educational programs, and other initiatives that can be conducted to provide a more holistic wildfire mitigation strategy in all stages of wildfire disaster risk management (i.e., prevention/mitigation, preparedness, response and recovery). The undersigned have reviewed and accept this document as the Community Wildfire Protection Plan for Routt County.

Timothy Redmond (Oct 30, 2023 10:45 MDT) — Oct 30, 2023

Timothy Redmond, Chair, Routt County Board of County Commissioners — Date

Chuck Cerasoli — Oct 26, 2023

Chuck Cerasoli (Oct 26, 2023 14:12 MDT)

Chuck Cerasoli, Fire Chief, Steamboat Springs Fire Rescue — Date

Trevor Guire — Oct 26, 2023

Trevor Guire (Oct 26, 2023 16:24 MDT)

Trevor Guire, Fire Chief, West Routt Fire Protection District — Date

Brady Glauthier — Oct 26, 2023

Brady Glauthier (Oct 26, 2023 16:40 MDT)

Brady Glauthier, Fire Chief, Oak Creek Fire Protection District — Date

Machia "Ky" Cox (Oct 26, 2023 16:56 MDT) — Oct 26, 2023

Machia “Ky” Cox, Fire Chief, Yampa Fire Protection District — Date

Matt Mathisen — Oct 27, 2023

Matt Mathisen (Oct 27, 2023 14:15 MDT)

Matt Mathisen, Fire Chief, North Routt Fire Protection District — Date

D A DeMorat — Oct 30, 2023

D A DeMorat (Oct 30, 2023 08:30 MDT)

David “Mo” DeMorat, Emergency Operations Director, Routt County Office of Emergency Management — Date

John Twitchell — Oct 30, 2023

John Twitchell (Oct 30, 2023 08:01 MDT)

John Twitchell, Supervisory Forester, Colorado State Forest Service — Date

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List of Acronyms

AHJ	Authority Having Jurisdiction
BLM	Bureau of Land Management
BLS	Basic Life Support
BMP	Best Management Practices
BTU	British Thermal Unit
CAP	Climate Action Plan
CAR	Communities at Risk
CSFS	Colorado State Forest Service
CSU	Colorado State University
CWPP	Community Wildfire Protection Plan
DBH	Diameter at Breast Height
DFPC	Division of Fire Prevention and Control
DHSEM	Division of Homeland Security and Emergency Management
EFF	Emergency Fire Funds
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
ERC	Energy Release Component
ESHA	Environmentally Sensitive Habitat Areas
FAA	Federal Aviation Administration
FAC	Fire Adapted Communities
FBFM	Fire Behavior Fuel Model
FBO	Fixed Base Operator
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FM	Fuel Model
FPD	Fire Protection District
GHG	Greenhouse Gas
GIS	Geographic Information System
HFRA	Healthy Forest Restoration Act
HIZ	Home Ignition Zone
HOA	Homeowner's Associations
IBHS	Insurance Institute for Business and Home Safety
ICC	International Code Council
IPAWS	Integrated Public Alert and Warning System
IWUIC	International Wildland Urban Interface Code
NFP	National Fire Plan

NFPA	National Fire Protection Association
NIFC	National Interagency Fire Center
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NRFPD	North Routt Fire Protection District
NWCG	National Wildfire Coordinating Group
NWS	National Weather Service
OCFPD	Oak Creek Fire Protection District
OEM	Office of Emergency Management
OP	Operating Plan
PIO	Public Information Officer
POD	Potential Operational Delineations
RAWS	Remote Automated Weather Station
RCC	Routt County Communications
RCP	Representative Concentration Pathway
RCWMC	Routt County Wildfire Mitigation Council
RMACC	Rocky Mountain Area Coordination Center
SPEI	Standardized Precipitation-Evaporation Index
SSFD	Steamboat Springs Fire District
TRA	Temporary Refuge Area
USFS	United States Forest Service
UTV	Utility Task Vehicle
UYWCD	Upper Yampa Water Conservancy District
VPD	Vapor Pressure Deficit
WAPA	Western Area Power Administration
WEA	Wireless Emergency Alert
WERF	Wildfire Emergency Response Fund
WFDSS	Wildland Fire Decision Support System
WIMS	Weather Information Management System
WRAP	Wildfire Risk Assessment and Portal
WRFPD	West Routt Fire Protection District
WUI	Wildland Urban Interface
YVEA	Yampa Valley Electric Association

1.0 Introduction

1.1 PURPOSE OF PLAN

The purpose of the Community Wildfire Protection Plan (CWPP) is to minimize threat of wildfire to (1) human life and well-being, and reduce the wildfire risk to (2) critical infrastructure, (3) economic drivers, and (4) property. The four categories for community values and assets presented above include evacuation routes, residential structures, businesses, the natural environment, and historic/cultural resources within the Planning Area.

The CWPP provides guidance for future actions of Routt County (County) officials, local fire protection districts, land management agencies, local residents, businesses, homeowner's associations, local community groups, and other interested parties in their individual and collective efforts to reduce the potential wildfire threat to the communities in the Planning Area and move towards resilient fire adapted communities. Successful implementation and long-term sustainability are subject to available funding and the collective action, engagement, and collaboration between stakeholder groups on all lands in Routt.

The plan must meet the requirements for a CWPP established by Colorado SB 09-001, C.R.S. 29-22.5-101, the 2003 Healthy Forest Restoration Act (HFRA), the Colorado State Forest Service (CSFS), and the most current Federal Emergency Management Agency (FEMA) and the Division of Homeland Security and Emergency Management (DHSEM) local mitigation planning requirements.

1.2 GOALS + OBJECTIVES

The primary objectives for the CWPP, as developed by the Routt County Wildfire Mitigation Council, are the following:

- Provide a local ground-truth assessment of values at risk, key vulnerabilities, and an updated wildland-urban interface (WUI) map for Routt County.
- Create an actionable and user-friendly wildfire mitigation and community resilience plan that prioritizes those communities determined to be at the most risk of wildfires.
- Promote inclusive, countywide participation, including government agencies and private property communities, which results in a plan that reflects local and county needs and priorities.
- Develop prioritized recommendations, based on the 4 categories of life safety, critical infrastructure, economic drivers and property, for specific and feasible actions, to include the following types:
    a. Forest management and ecosystem (e.g., watershed) protection and restoration
    b. Fuels treatment projects
    c. Other community resilience measures to improve public safety, to include but not limited to updated building and planning codes, multiple access and evacuation routes, and wildfire mitigation policies and standards
    d. Education and outreach activities
    e. Critical infrastructure protection
    f. Strategic plans and partnerships
    g. Improve public awareness of wildfire risk, knowledge of effective risk reduction measures, and willingness to take and to support mitigation actions

Table 1: Goals + Objectives of the 2023 Routt County CWPP

Goals	Objectives
Minimize the wildfire threat to life safety.	+ Assess wildfire hazards and risks within the Planning Area and utilize these results to set priorities to reduce threat to life safety. + Review the existing public alert protocols and evacuation procedures for wildfires and make recommendations for enhancement as necessary. + Develop fuel treatment methods and strategies for property owners and agencies that provide guidance for adequate defensible space for structures and transportation routes in all types of wildland fuels. + Develop a GIS product of existing and proposed vegetation treatments. + Improve collective action in reducing wildfire risk through enhancements to community engagement, participation, and education programs.
Reduce the wildfire threat to values/assets at risk	+ Identify values/assets at risk from wildfire in the Planning Area. + Utilize the wildfire hazard and risk assessments to develop prioritized mitigation strategies to reduce the threat to values/assets. + Identify and promote citizen-based actions that enhance structure hardening and the development of effective defensible space. + Identify strategies to reduce structure ignitibility.
Develop a community wildfire protection plan (CWPP) that sets priorities to mitigate risks and hazards identified	+ Create a CWPP that meets the requirements of the 2003 HFRA and FEMA's local hazard mitigation plan. + Facilitate collaboration between stakeholders, land managers, residents, the county, and local fire protection districts to address potential wildfire hazards and risks. + Identify opportunities to further build community and regional partnerships for the Planning Area. + Engage communities and agency leaders using the Steering Committee and interested community leaders. + Develop a public education strategy to inform the public of the CWPP findings and mitigations. + Identify initiatives to support and engage vulnerable groups.
Improve accountability, public trust, and efficiency in implementing action items identified in the CWPP.	+ Establish a plan to monitor and evaluate the County's progress in implementing action items and achieving the goals identified in the CWPP. + Create a method to monitor, track, and document completed action items identified in the CWPP. + Identify responsible individuals for carrying out action items and establish accountability for actions through annual reporting to the County Commissioners.

To help manage the implementation of the action items and achieve the goals identified in the CWPP, a monitoring and evaluation plan has been developed and is included in Section 8.0 of this document.

1.3 DEVELOPMENT TEAM

This section identifies the agencies, parties, or other organizations who were either involved and/or provided input into the development of this CWPP. The roles and responsibilities are indicated in the table below.

Table 2: CWPP Development Entities + Roles/Responsibilities

CWPP Development Entities	*Roles/Responsibilities*
Steering Committee (See Section 2.1.1 for specific agencies)	+ Manage CWPP development and consultants + Finalize CWPP document + Grant funding for CWPP + Develop GIS maps + Provide recommendations for projects + Coordinated public outreach + Distribute media releases about CWPP + Conduct direct outreach + Coordinate with neighboring jurisdictions + Provide general guidance, expertise, and support for CWPP
General Public and Other Interested Parties	+ Attend public outreach workshops + Provide responses to online survey + Provide input on CWPP values, values to protect, areas of concerns, community projects and ongoing grassroots initiatives
CWPP Consultant: Jensen Hughes	+ Develop draft CWPP + Provide recommendations for projects + Facilitate public engagement meetings

1.4 POLICY + REGULATORY FRAMEWORK

The following codes, standards, policies, and regulations at the federal, state, and local levels were consulted in the development of this CWPP.

Federal

- Disaster Mitigation Act (2000–present)
- National Fire Plan (NFP) 2000
- National Cohesive Wildland Fire Management Strategy (2023)
- National Fire Protection Association 1140
- National Incident Management System (NIMS)
- USFS and BLM NEPA documents

County

- Routt County OP
- Colorado Revised Statutes (C.R.S.) involving County Sheriffs and Wildfire – 2022
- C.R.S. § 30-11-107(1) (o). Powers of the Board of County Commissioners
- C.R.S. § 24-33.5-707. Local and Interjurisdictional Disaster Agencies and Service
- C.R.S. § 24-33.5-709 Local Disaster Emergencies
- C.R.S. § 24-33.5-1217.3. Authority to Permit Controlled Burns During Drought Conditions
- C.R.S. § 24-33.5-1217.5. Minimum Prescribed Burning Standards
- C.R.S. § 24-33.5-1218. Cooperation with Governmental Units
- C.R.S. § 24-33.5-1219. Wildland Fires – Duty of Sheriff to Report
- C.R.S. § 24-33.5-1222. Cooperation by Counties
- C.R.S. § 24-33.5-1223. Sheriffs to Enforce
- C.R.S. § 24-33.5-1224. Limitation of State Responsibility
- C.R.S. § 24-33.5-1225. Emergencies
- C.R.S. § 24-33.5-1226. Wildfire Emergency Response Fund (WERF)
- C.R.S. § 24-33.5-1228. Colorado Firefighting Air Corps
- C.R.S. § 24-33.5-1227(2)(a) Wildfire Preparedness Plan with the County Sheriffs of Colorado
- C.R.S. § 29-1-101, et seq. Local Government Budget Law
- C.R.S. § 29-22.5-101, et seq. Wildland Fire Planning
- C.R.S. § 30-10-512. Sheriff to Act as Fire Warden
- C.R.S. § 30-10-513. Duties of Sheriff – Coordination of Fire Suppression Efforts for Forest, Prairie, or Wildland fire - expenses
- C.R.S. § 30-10-516. Sheriffs to Preserve Peace – Command Aid

State

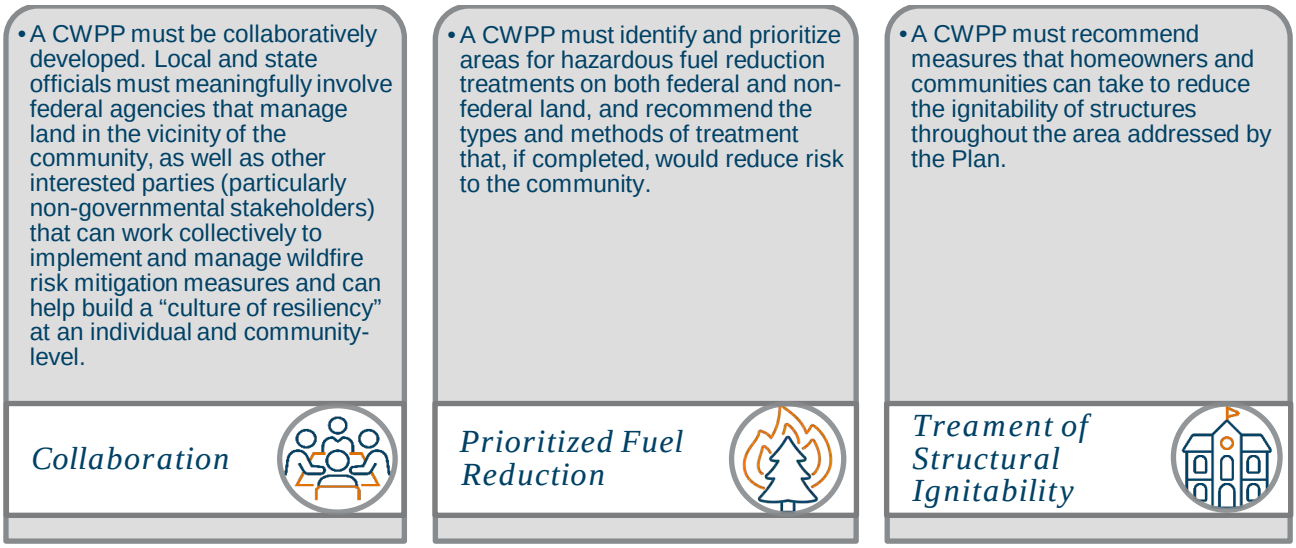
- SB-09-001. Community Wildfire Protection Plan Act
- HB22-1111. Homeowner Insurance Coverage Requirements
- Hb22-1132. Private Property Regulation for Controlled Burns for Mitigation
- SB114. Preservation of Historic Ponds for Fire Suppression
- C.R.S. § 24-33.5-1201. Division of Fire Prevention and Control
- C.R.S. § 24-33.5-1202. Definitions
- C.R.S. § 24-33.5-1203. Duties of Division
- C.R.S. § 24-33.5-1220. Funds Available – Emergency Fire Fund (EFF)
- C.R.S. § 24-33.5-1221. State Responsibility Determined
- “Colorado Statewide Post Fire Susceptibility”

Local

- Routt County Hazard Mitigation Plan
- Routt County CWPP, 2010
- Routt County Master Plan
- Routt County Evacuation and Sheltering Plan
- Routt County Climate Action Plan
- Fish Creek Critical Community Wildfire Watershed Protection Plan, 2019
- Steamboat Pines CWPP, 2004
- Upper Burgess Creek CWPP, 2004
- Stagecoach CWPP, 2007
- Fish Creek CWPP, 2007
- North Routt CWPP, 2007
- Fire Restrictions and Wildfire Threat Risk Adjective
- Collaborative Agreements
- Wildfire Codes

1.5 HEALTHY FOREST RESTORATION ACT REQUIREMENTS

As part of the 2003 HFRA, there are three minimum requirements for a CWPP, including:



1.6 COLORADO STATE FOREST SERVICE MINIMUM REQUIREMENTS

CSFS provides minimum standards for CWPP development and updates. The requirements also detail the level of specificity required based on the size of the Planning Area. Countywide CWPPs have different levels of specificity than individual communities. For a countywide CWPP, the plan must include landscape-scale fuels treatment projects for the highest hazard communities within the Planning Area. Communities within the Planning Area should develop effectively scaled CWPPs to support their needs.

According to CSFS, the following components MUST be included in the CWPP:

- A definition of the selected Planning Area and delineation of WUI areas within the boundary
- Identification of adjacent landowners
- A community risk analysis that considers fuel hazards, fire history, common structure vulnerabilities, and community values to be protected
- Recommended methods to reduce structural ignitability
- An implementation plan that includes identification of wildfire risk reduction projects and activities, a project map illustrating all proposed treatments, a narrative and table that details the relative priority of each project and recommends an agency, group, or other entity as an implementation leader

CWPPs SHOULD include the following:

- Locally appropriate emergency notification resources
- Evacuation information
- Socially vulnerable population considerations
- Commitment for revision

CWPPs MAY include the following:

- Post-fire considerations
- Integrated FEMA hazard mitigation plan elements

1.7 FEMA INTEGRATED HAZARD MITIGATION PLAN ELEMENTS

FEMA hazard mitigation plans consist of four core steps or elements that parallel those of the CWPP process. These steps are to organize the planning process and resources, assess risks and capabilities, develop a mitigation strategy, and adopt and implement the plan. These elements have been incorporated into this CWPP from the beginning stages of its creation and components of these elements can be found throughout the plan.

2.0 CWPP Process

2.1 COLLABORATIVE APPROACH

The development of a CWPP is a collaborative process where community stakeholders assess the wildfire threat, define the WUI boundaries, identify community values at risk, and ultimately, develop prioritized mitigation measures and actions to increase community resilience to wildfire threats. The language in the 2003 HFRA provides maximum flexibility for communities to determine the substance and detail of their CWPP action plan and the procedures they use to develop them. The CWPP planning process provides communities the autonomy to develop locally relevant plans that influence where and how federal agencies implement fuel treatment activities on federal land and the distribution of federal funds for projects on non-federal lands.

The CWPP planning process brings together broad and diverse local interests to identify common concerns and values related to public safety, sustainability of environmental and natural resources, and long-term resiliency and sustainability of the whole community. Since not all community members were able to attend workshops or meetings, it is important to provide continuing opportunities in which community members can provide input, voice issues and concerns, and participate in the process of creating resilient fire adapted communities.

In the development of a CWPP, the more inclusive the group and the greater the diversity of interests involved, the more likely the plan will represent the community as a whole. These three basic requirements, however, do not preclude the community from developing broader wildfire disaster risk management and capacity building efforts (e.g., evacuation/shelter-in-place planning, community emergency communications, early warning systems, post-fire recovery services, etc.)

2.1.1 Convene the Routt County CWPP Steering Committee

The CWPP update process was led by a core group of team members known as the Steering Committee. This committee included representatives from Routt County OEM, Routt County Building Department, Steamboat Springs Fire Rescue, North Routt Fire Protection District, Oak Creek Fire Protection District, West Routt Fire Protection District, Routt County Wildfire Mitigation Council, CSFS, United States Forest Service (USFS), Bureau of Land Management (BLM), Colorado Division of Fire Prevention and Control (DFPC), Mt. Werner Water, Steamboat Ski & Resort Corporation, and two citizens-at-large. Engagement with the Steering Committee was accomplished through monthly meetings and topic specific meetings. The Steering Committee was also responsible for providing oversight of the development and reviews of draft versions and the final version of the CWPP.

2.1.2 Agency and Community Organization Stakeholder Coordination

The CWPP team met with members of local agencies and interest groups to include utilities, environmental protection and sustainability groups, economic drivers, and agency representatives to gain feedback and input on values important to the community. This information was used to reinforce and strengthen ideas presented in the CWPP.

2.1.3 Community Engagement

Community engagement meetings were held to solicit feedback from residents on the critical values at risk within their communities as well as to gain an understanding of public awareness and perception of the wildfire problem in Routt. Four meetings were held (Steamboat Springs, Hayden, Stagecoach, and North Routt) that consisted of a presentation, polling/survey questions, and open discussion. The meetings were facilitated by Jensen Hughes, with members of the Steering Committee present at each meeting to engage in discussion. The polling results are provided in Appendix H.

An online survey was developed to solicit input from stakeholders that were unable to attend the public workshops. Survey questions focused on areas relating to wildfire protection and public safety. The survey opened October 20, 2022 and closed on December 20, 2022. The results from the online survey are available in Appendix I.

Community Meeting in North Routt on November 15, 2022.

Figure 1: North Routt Community Meeting

3.0 Community Overview

3.1 PLANNING AREA

Routt County is 1,515,815 acres (2,368 square miles) of which 683,113 acres are owned by the U.S. Department of Agriculture (USFS), 66,610 acres are managed by the Department of the Interior (BLM), and the remaining 766,185 acres are non-Federal. The City of Steamboat Springs and the Towns of Hayden, Oak Creek, and Yampa are located within Routt County. Figure 2: Communities and Planning Area Map2 illustrates the communities within the Planning Area.

Routt County is acknowledged as being a wildfire prone environment and has experienced several large fires within or adjacent to the Planning Area in recent years. The USFS has identified Routt County as having a higher risk of wildfire than 71% of counties in the United States. (USFS, n.d.)

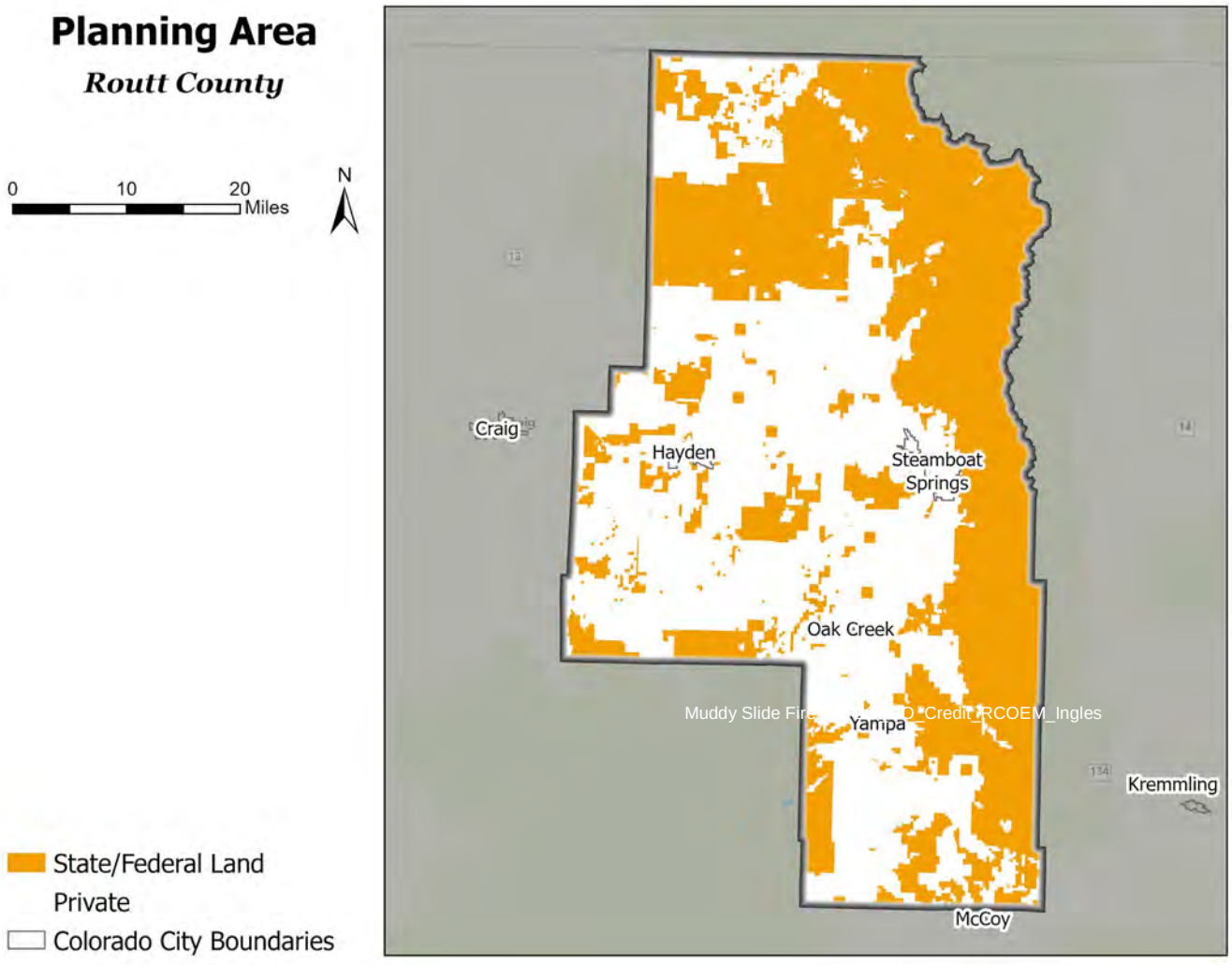


Figure 2: Communities and Planning Area Map

Figure 3: Land Ownership Map3 illustrates the federal, state, local, and private land ownership in Routt County.

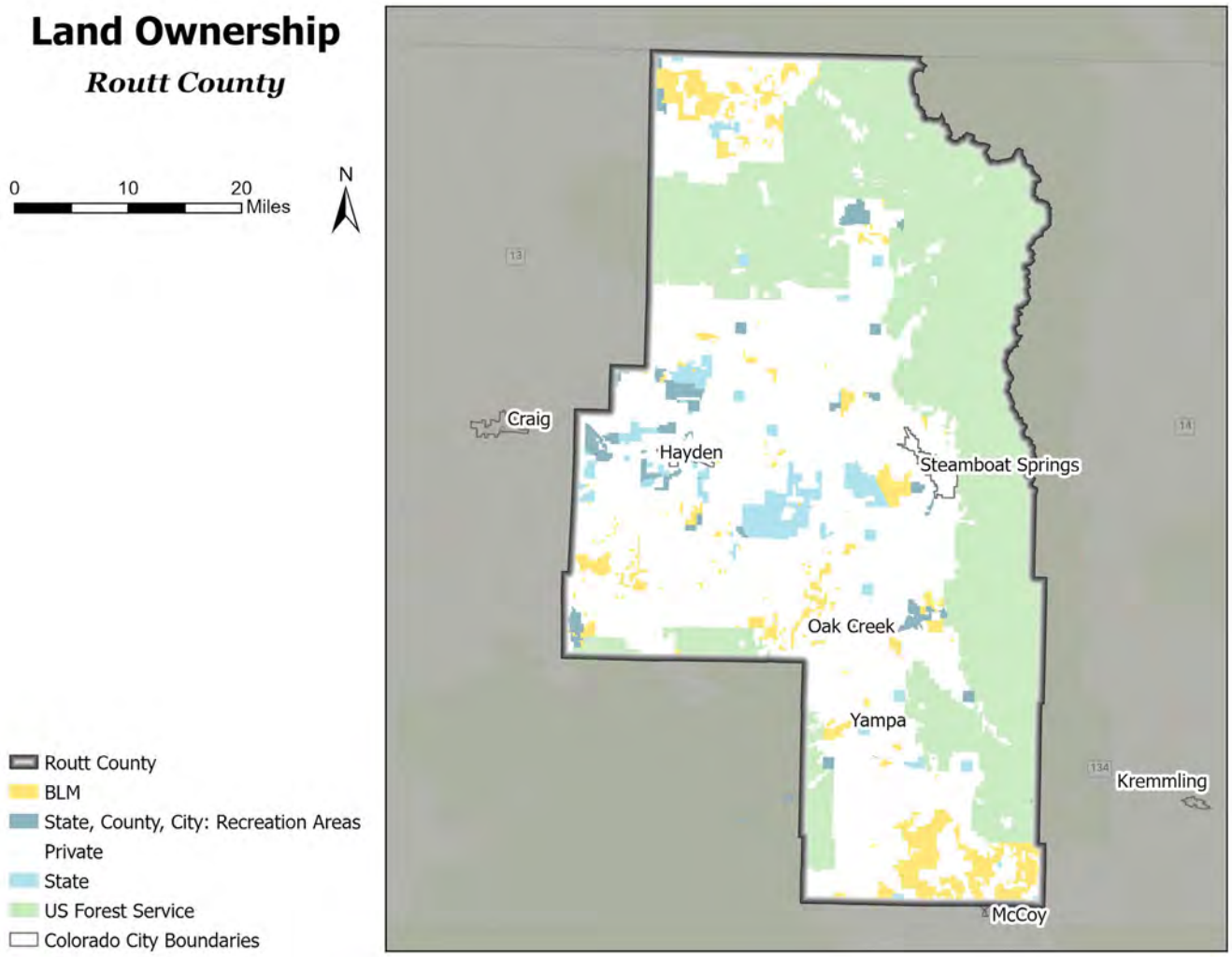


Figure 3: Land Ownership Map

3.2 CRITICAL VALUES

The Routt County CWPP identifies critical values in four main categories: (1) life safety, (2) critical infrastructure, (3) economic drivers, and (4) property. Identifying these values and analyzing the risk surrounding them allows the CWPP to provide recommended mitigation actions to offer protection to these values. These community assets are shown in Figure 4 below and further described in the following sections.

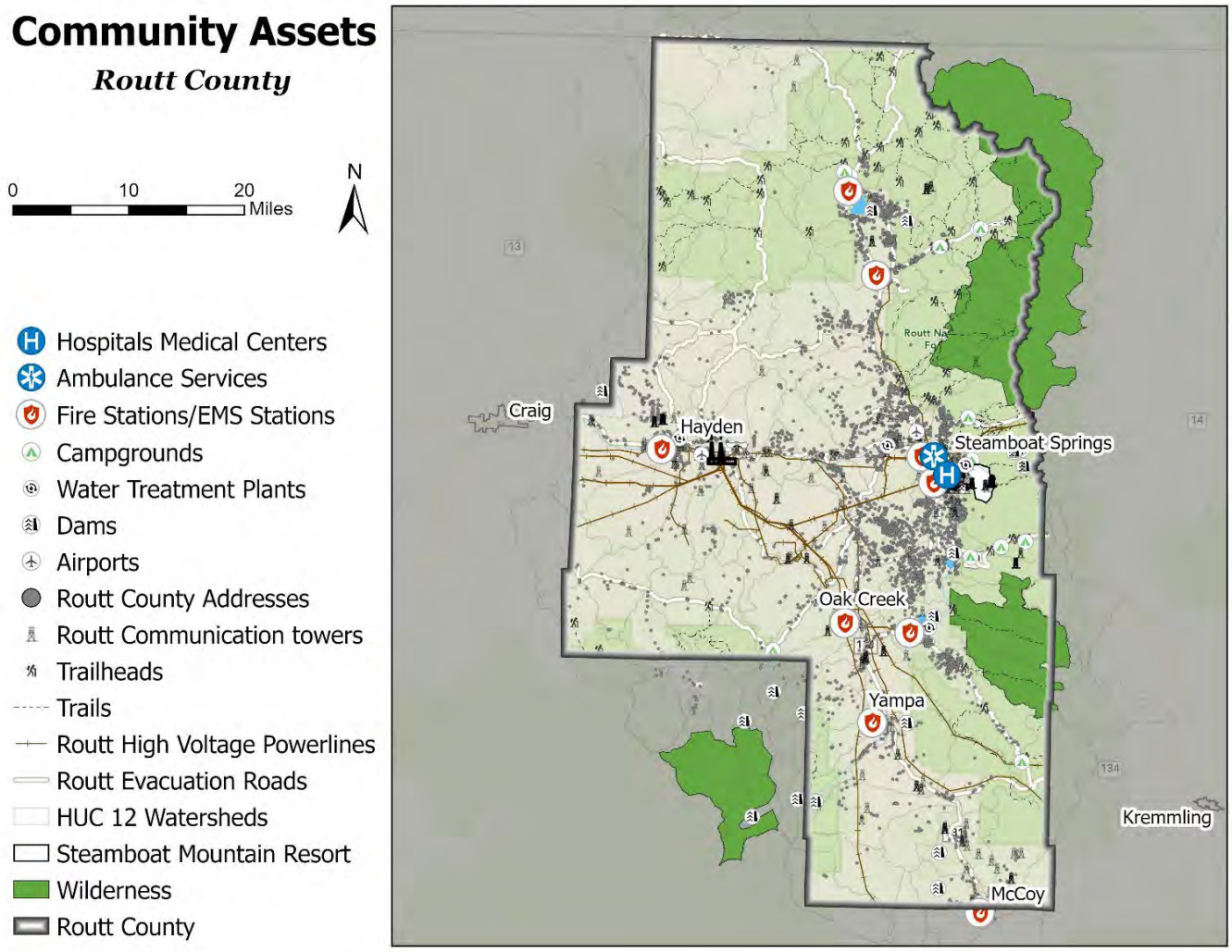


Figure 4: Community Assets

3.2.1 Life Safety

3.2.1.1 *Critical Transportation Routes*

Evacuation Routes

The ability for the public to travel throughout Routt County has limitations due to the rural nature of the area. Access and egress, particularly during a wildfire evacuation, present a major challenge to the residents and tourists. The primary routes for travel include U.S. Highway 40, State Highway 131, State Highway 134, and County Road 129. The remainder of the road system consists of USFS, County, neighborhood, and private roads, with many being unpaved, narrow, one-way, or a combination thereof.

Critical Supply Routes

Commercial food distribution and supply chains are essential to maintain during, and following, a wildfire event. This is heavily dependent on the transportation corridors remaining open and viable.

3.2.1.2 *Ingress and Egress for First Responders*

The conditions described above contribute to potential congestion and limited capacity. This presents a significant challenge to incoming first responders as well as evacuating residents. Additionally, many of the roads have adjacent hazard fuels receptive to fire. If these receptive fuel beds become involved with fire, egress routes have potential to become compromised. Historical wildfires in Colorado with similar topography and fuels have experienced evacuation routes that have become threatened or rendered unusable (Waldo Canyon Fire – 2012, Black Forest Fire – 2013, East Troublesome Fire – 2020).

Protecting the viability of road systems in the Planning Area is critical to the safety of the public and emergency responders. The maintenance of roadside rights-of-way and prevention of neighborhood landscape vegetation fires from encroaching onto the road networks will be imperative for the resiliency of not only protecting the physical transportation network, but also the capacity to provide access and egress to the first responders and the public during a major wildfire event.

3.2.2 Critical Infrastructure

3.2.2.1 *Drinking Water Supply (watersheds)*

Routt County is within the Colorado River Basin, which encompasses the Upper Yampa Basin. About 2% of the entire Colorado River Basin is fed by the Upper Yampa Basin. Routt County and the surrounding areas average 26.2 inches of precipitation annually (Koppen Climate Classification). Several municipal watersheds located within Routt County make-up the majority of the water infrastructure and geography of Routt County. These watersheds provide surface drinking water for communities (Table 3), provide irrigation water for ranching and farming, support recreation and tourism, and are critical for a healthy ecosystem.

The Upper Yampa Water Conservancy District, Mount Werner Water District, Steamboat II Metropolitan, Alpine Mountain Ranch, Catamount, Tree Haus, Timbers, Morrison Creek, and Phippsburg Water and Sanitation Districts, provide water to Routt County. The Upper Yampa Water Conservancy also manage the county's surface water, delivery, water storage, and diversion, and has identified numerous water sites for wildfire suppression, including dip and drafting sites. Mount Werner Water District provides drinking water to the City of Steamboat Springs and some adjacent areas.

Many of the water containment systems serving Routt County, such as dams and ponds, have been identified for potential fire suppression use (i.e., dip sites, drafting access, supply to hydrants). Any large-scale wildfire damage to the watershed itself, the ecosystem, any containment structures (dams and ponds), or wells would have a major impact on the county.

Table 3: Community Water Supplies – Routt County

System	Area	Source
Mt. Werner Water District	Steamboat Springs	Surface & Well
Steamboat II	Steamboat II	Surface & Well
Town of Oak Creek	Oak Creek	Surface
Morrison Creek Metro District	Stagecoach	Surface & Well
Town of Yampa	Yampa	Surface
Catamount Metro District	Catamount	Surface
Town of Hayden	Hayden	Surface
Steamboat Lake Water and Sanitation District	Steamboat Lake	Surface & Well
Upper Yampa Water Conservancy District	Routt County	Surface
Phippsburg Water and Sanitation	Phippsburg	Surface & Well

Large acreage fires in Colorado, particularly the Grizzly Creek Fire (2020), have demonstrated the importance of protecting watersheds. Heavy rains over the Grizzly Creek Fire area in July and August of 2021 resulted in significant runoff in the Colorado River. This runoff, consequently, damaged roads and deposited extensive debris downstream from the burn scar.

The Routt County water supply, including water storage facilities and dams, could be similarly impacted by wildfires. A wildfire could cause severe environmental damage including, but not limited to, carbon particulate from burn scar runoff that can lead to damage water treatment and filtration systems, soil erosion, soil sterilization, damage to fish habitat and fisheries, contribution to the spread of disease, insect infestations, and invasive plant species.

3.2.2.2 *Hospitals and Assisted Care Facilities*

Routt County has several medical facilities, including UCHealth/Yampa Valley Medical Center (Steamboat Springs), Rapid Care of Steamboat, UCHealth Urgent Care, and South Routt Medical Center (Oak Creek). The nearest trauma and emergency medical facilities are located in the City of Steamboat Springs. In addition to hospitals, facilities such as pharmacies, long-term care centers, and even home health care can be threatened from wildfire. Special attention should be given to health clinics, labs, and behavioral health as well as the medical supply chain. Critical supply routes are essential and are discussed above in Section 3.2.1.1.

3.2.2.3 *Electric Transmission Lines*

Yampa Valley Electric Association (YVEA), a local cooperative that purchases power from the Western Area Power Administration (WAPA) and Xcel Energy, provides electric service to 27,000 customers. Approximately 2,840 miles of transmission and distribution lines services the majority of Routt County, with the exception of the Town of Oak Creek. Wildfire is a direct threat to electrical infrastructure due to mitigation standards issues and proximity to hazard fuels. Overhead power lines are potential ignition sources and are susceptible to damage from fire. Identifying the location of these assets provides potential locations for fuel treatments and collaboration with other agencies for additional vegetation management.

The Town of Hayden is home to a coal-fueled power generation facility that is currently in the process of being decommissioned. Until the plant becomes inactive, wildfire remains a threat to power generation in the area. As new generation ideas are considered for sustainable energy in the future, such as solar panels, wildfire mitigation should be considered in the planning and development phase to reduce the risk to such infrastructure.

3.2.2.4 *Communication Towers*

Communications infrastructure comprises several tower sites including Emerald, Hayden, Farwell, King Mountain, Oak Creek, Mt. Werner, Buffalo Pass, and Walton Peak. Emergency communications are provided by Routt County Communications (RCC). RCC delivers public safety services to nine (9) primary fire, law enforcement, and EMS agencies and 21 support agencies, such as the Federal Aviation Administration (FAA), USFS Law Enforcement, Colorado Parks and Wildlife, Routt County Sheriff, Routt County Coroner, Routt County Search Rescue, Oak Creek Police, Hayden Police, Steamboat Police and Fire, North Routt Fire, Oak Creek Fire, West Routt Fire, and Yampa Fire Protection District. Cell and internet services are provided by AT&T, T-Mobile, CenturyLink, Comcast, Verizon, Zirkel Wireless, and Luminate Broadband. These cell and internet services share tower sites with the other communications infrastructure.

3.2.2.5 *Dams*

A high hazard dam is a dam for which loss of life is expected due to dam failure. A significant hazard dam would result in no probable loss of life but could cause economic loss, environmental damage, disruption of lifelines, or other impacts. Table 4 lists high and significant hazard dams in Routt County that could be impacted by wildfire.

Table 4: Hazard Dams with Impact Potential - Routt County

Dam	River	Hazard Class
Hahn's Peak Lake Dam	Willow Creek	High (Hazard 1)
YamColo Reservoir	Bear River	High
Stagecoach	Yampa River	High
Catamount	Yampa River	High
Fish Creek Reservoir	Fish Creek	High
Long Lake Dam	South Fork Fish Creek	High
Lester Creek Dam/Pearl Lake	Lester Creek	High
Stillwater #1 Dam	Bear River Tributary to the Yampa	High
Grimes-Brooks Reservoir	Red Dirt Creek	High
Willow Creek Dam/Steamboat Lake	Willow Creek	High
Sheriff Dam	Trout Creek	High
Gardner Park	Gardner Creek	Significant (Hazard 2)
Chapman Dam	Little Oak Creek	Significant
Allen Basin Dam	Middle Hunt Creek	Significant
Lake Creek Dam	Wheeler Lake Creek	Significant

Figure 5: Fish Creek Reservoir

3.2.2.6 *Shelters*

Routt County has identified several temporary shelter locations to be used in the event of an evacuation due to wildfire. Shelter sites should be hardened against wildfire and maintained in a condition suitable for sheltering. Shelter locations are identified in the Routt County Evacuation and Sheltering Plan.

3.2.3 Economic Drivers

3.2.3.1 *Recreation*

The popularity of outdoor recreation opportunities in Routt County by both residents and non-residents leads to significant consumer spending in the local economy. Recreational and day use activities (trail activities, fishing, hunting, hiking, mountain biking, winter sports, water based sports, wildlife based, etc.) are important economic drivers in the area. According to a 2017 Colorado Parks & Wildlife study, the northwest region amounts for the largest recreation spending at $10.3 billion. Because of the economic multiplier effect, this spending produces additional rounds of economic activity in the County. For example, hunting contributed over $13M in 2017 (CPW, 2017).

Figure 6: Routt County Campground

Key recreational areas include the Yampa River, the Steamboat Ski Area, Howelsen Hill Ski Area, Emerald Mountain, Strawberry Park Hot Springs, the Routt National Forest, and the Sarvis Creek, Mount Zirkel and Flat Tops wilderness areas. Four Colorado State Parks, Steamboat Lake, Pearl Lake, Stagecoach Reservoir and the Yampa River State Parks are full year-round. Many visitors to the area also enjoy the views along the Flat Tops Trail Scenic Byway from Yampa to Meeker.

There are numerous campgrounds and recreation areas throughout the county. These areas present a very specific heightened threat to life safety. Many of these areas are remote with little to no cell reception and very limited access/egress. Special consideration should be given to developing a comprehensive list of these locations for future use. These areas are also of critical importance for evacuations and should be treated as such.

3.2.3.2 *Ski Areas*

Steamboat Ski and Resort Corporation is a major contributor to the Routt County economy. The resort is a year-round recreation and tourism destination and brings in approximately 500,000 visitors annually for a variety of outdoor recreational activities (Steamboat Chamber, 2021). The Steamboat Ski Resort covers 2,965 acres, of which 80% is leased from the U.S. Department of Agriculture on the Routt National Forest. During the "traditional wildfire season", the resort is busy with guests hiking and biking the many miles of trails within the ski area boundary. This presents several issues, including notifying guests of the current fire danger, notification of a threatening fire, evacuations, accountability / census of visitors inside the ski area boundary, and fire suppression.

Figure 7: Steamboat Ski Resort

Howelsen Hill is Colorado's oldest continuously operated ski area, since 1915, and has the largest and most complete natural ski jumping complex in North America. Howelsen Hill, a City of Steamboat Springs' public park, has been the training ground for 100+ Olympians making over 150 Winter Olympic appearances. Howelsen Hill is located at the base of Emerald Mountain, another popular recreation area in Routt County and an area considered to be of higher risk to wildfire due to its fuels and relative location to the City of Steamboat Springs.

3.2.3.3 *Airports*

The Yampa Valley Regional Airport and the Steamboat Springs Airport (Bob Adams Field) provide service to a large portion of NW Colorado. Yampa Valley Regional Airport can handle large body aircraft with flights from all over the country. In 2021, the airport handled over 150,000 passenger boardings (Steamboat Pilot). The Steamboat Springs Airport is a small General Aviation / Fixed Base Operator (FBO) airport with 10,000 flights annually. Classic Air Medical provides air ambulance services out of this airport. It has also been used for wildfire air support, including supporting five (5) helicopters during the 2018 fire season, and as FAA / CAP resources.

3.2.3.4 *Agriculture and Ranching*

Agriculture is a major contributor to Routt County's economy; 887 ranching/farming properties cover 465,000 acres in Routt County, including 43,000 acres of irrigated land. These properties contribute 31.5 million dollars annually to Routt County's economy. In addition to the loss of revenue, land, and property, evacuation of livestock can create challenges during a wildfire event.

3.2.3.5 *Railway*

Railway is still common for transportation of freight within Routt County. The majority of cargo is coal being shipped between mines and power generation sites. Disruption to railways could have serious consequences including disruption of commerce and supply shortages of coal for coal-fueled power generation following a fire event. In addition, rail systems are a potential ignition source in remote areas. Areas adjacent to the railroad should be considered in mitigation planning and fuels reduction projects.

3.2.4 Property

Residents choose to live in locations like Routt County due to the opportunities afforded and the beauty of the natural environment. Several participants in the community engagement meetings also noted that they consider the environment a valued asset needing increased protection, particularly mitigation and hazard fuels treatments.

3.2.4.1 *Residences*

Private property accounts for approximately 50% of the land use by acreage in Routt County. According to the Routt County Assessor, there are 24,980 properties in the County with an assessed value of $23.71 billion. This includes agricultural, commercial, and vacant land. When this information is filtered down to only single-family residential, multi-family residential, mixed-use, mobile/manufactured homes, and condos/townhomes, there are 13,903 residential properties with a total assessed value of $18.1 billion (Routt County, 2023). Residences are concentrated within City and Town boundaries, and other identified areas for growth (i.e: Stagecoach) as defined by the County's Master plan.

3.2.4.2 *Government Facilities*

Law Enforcement Facilities

Routt National Forest has one (1) Law Enforcement Officer (LEO) located in the Yampa District Office. The Combined Law Enforcement Facility is located in Routt County and houses the Routt County Sheriff's Office, Steamboat Springs Police Department, RCC, and the Jail and Detention Center. There are three (3) Municipal Police Department facilities in Routt County, including one (1) each in the Town of Hayden, the Town of Oak Creek, and the City of Steamboat Springs.

Fire Protection & Response

Fire protection in Routt County is provided by federal, state, and local agencies. Each fire district has individual stations located within their jurisdiction, while federal resources have stations located throughout the county. Refer to Appendix C for more details on specific station information as well as firefighting resources. Figure 8 shows the fire protection response areas in Routt County.

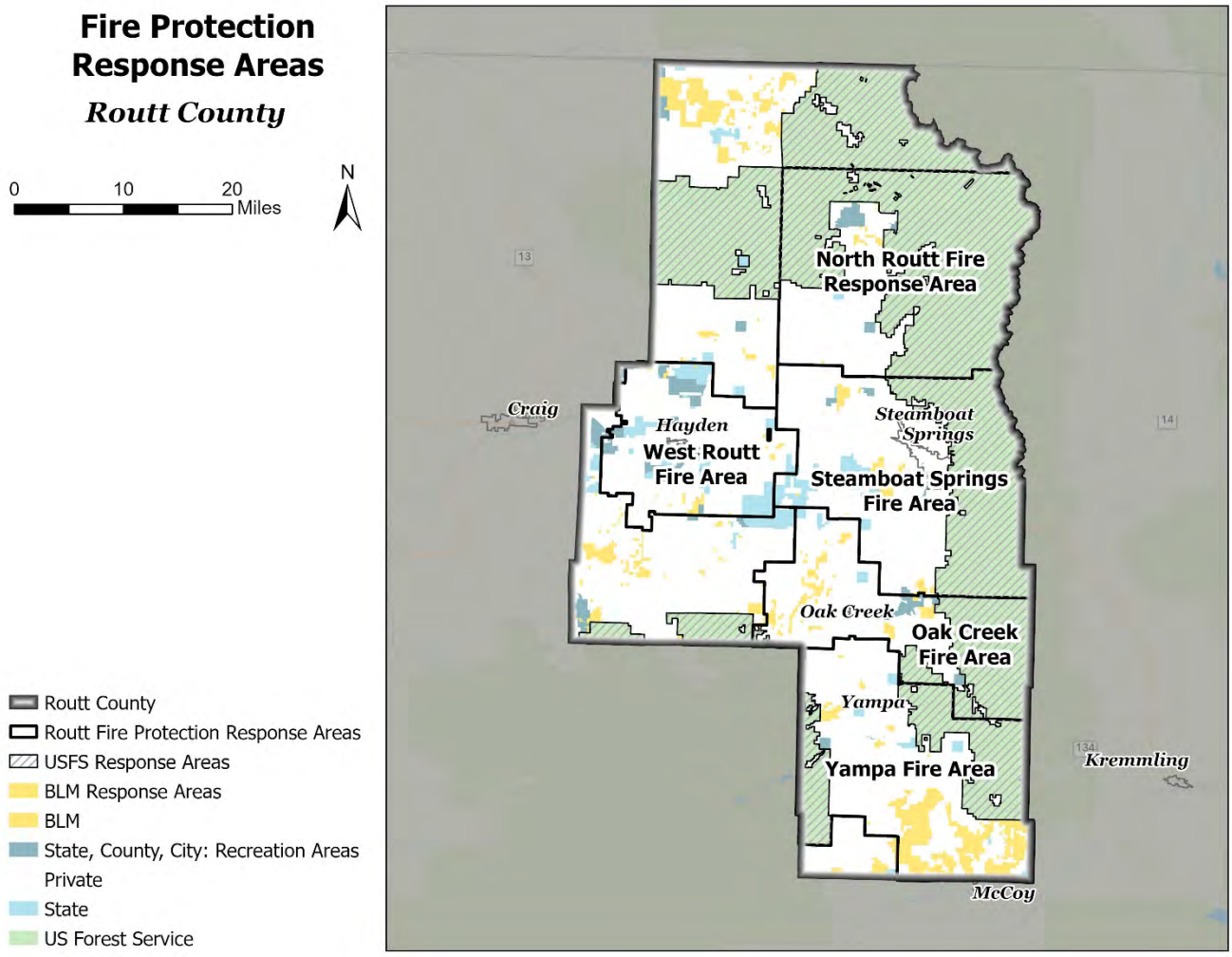


Figure 8: Fire Protection Response Areas

Steamboat Springs Fire Protection District

Steamboat Springs Fire Rescue is comprised of the City of Steamboat Springs and the Steamboat Springs Area Fire Protection District. It is the central-most local response agency in the Planning Area, and services approximately 380 square miles.

North Routt Fire Protection District

The North Routt Fire Protection District (NRFPD) is the northern-most local response agency in the Planning Area. The district covers approximately 441 square miles in Routt County.

West Routt Fire Protection District

The West Routt Fire Protection District (WRFPD) is the western-most local response agency in the Planning Area.

Oak Creek Fire Protection District

The Oak Creek Fire Protection District (OCFPD), located in Routt County on Highway 131, is seventeen miles south of Steamboat Springs. The district covers approximately 278 square miles.

Yampa Fire Protection District

The Yampa Fire Protection District is the southern-most local response agency in the Planning Area. The district has a total response area of 356 square miles and is the only district still comprised of 100% volunteers.

Additional Agencies

Craig Rural Fire Protection District

The Craig Rural Fire Protection District is located in Moffat County but has a response area of 100 square miles within Routt County by Elkhead Reservoir.

Colorado State Forest Service (CSFS)

CSFS serves the citizens of Colorado by actively leading and collaborating in the stewardship of Colorado's forests. CSFS provides technical forestry assistance, wildfire mitigation expertise and outreach and education to help landowners and communities achieve their forest management goals. The CSFS can work on federal, state, and private lands, and the ability to work across boundaries will be important in implementing some of the recommendations of this plan.

Colorado Division of Fire Prevention and Control (DFPC)

The Colorado Division of Fire Prevention and Control is the lead state agency for fire management and works with local, county, and federal agencies to coordinate wildland fire management on a statewide basis.

U.S. Forest Service (Hahns Peak and Yampa Ranger District)

The Hahns Peak/Bear's Ears and Yampa Ranger Districts manage approximately 980,000 acres of public lands.

BLM (Little Snake Field Office)

The Bureau of Land Management manages about 50,000 acres of public lands in Routt County.

Search and Rescue

Search and Rescue is provided at the county level with the headquarters located in the City of Steamboat Springs. Routt County Search and Rescue equipment includes eight (8) ATVs, eight (8) snowmobiles, one (1) tracked side-by-side vehicle (SSV), two (2) rescue trucks, one (1) staff SUV, and one (1) mobile communications center.

Government Services

Continuity of government functions are critical during and following a wildfire event. Government facilities and infrastructure are a significant component of maintaining continuity during an event. These facilities include the Office of Emergency Management, the Clerk and Recorder Office, Assessor, CSU Extension, Coroner, Motor Vehicle Registration, courts, Regional Building Department, other local and county government administration offices, maintenance and equipment centers, schools, and historical and cultural resources.

3.2.4.3 *Education*

There are a total of five (5) primary and secondary school districts within Routt County. There are five (5) public schools in Steamboat Springs, one (1) in Hayden, two (2) in Oak Creek, one (1) in Yampa, and one (1) in North Routt. Steamboat also has four (4) private schools and one (1) charter K-6 school. There is one (1) community college and one (1) performing arts school, both located in the City of Steamboat Springs.

3.3 CURRENT SITUATION

Since 2011, Colorado has averaged 5,618 wildfires annually (RMACC). The frequency of wildfires is on the rise. Wildfires that usually occurred during the "traditional summer fire season" are now being reported throughout the calendar year. Unhealthy forests, climate change, and frequency of fires, whether human caused or by lightning, has contributed to an increase in civilian and first responder fatalities and injuries, infrastructure damage, property damage, impacts on watersheds, natural resources, and wildlife habitats.

There are several reasons why a small number of fires reported annually become large destructive events. Large fires are usually the result of environmental conditions that align with each other, including dry fuels, wind, and low humidity. A delay in the fire being discovered and/or reported or local resources unable to suppress and contain the fire during initial or extended attack, allow these wildfires to become major events. In rare instances, a wildfire may be managed and left to burn naturally.

Effective development of a mitigation strategy that addresses the potential negative effects of a wildfire within the Planning Area requires an understanding of the fire history, fire ecology, climatology, and human interactions with these various facets.

3.3.1 Fire History

Fire history provides an understanding of fire frequency, fire season, fire behavior and characteristics, major sources of ignition, and identifies portions of the landscape that are the most vulnerable.

Disastrous wildfires are not uncommon throughout Colorado. Recent examples of fires in Northwest Colorado include the Cameron Peak Fire (Larimer County, largest in Colorado's history), East Troublesome Fire (Grand County), Mullen Fire (Jackson County), and Middle Fork Fire (Routt County, Mt. Zirkel Wilderness), all occurring in 2020.

Since 2011, Routt County has had 14 large wildfires. Large fires include rangeland/grass fires 300 acres or larger, and timber/forested area fires exceeding 100 acres. These notable fires are identified in Table 5: Wildfires Within and Adjacent to CWPP Planning Area.

Table 5: Wildfires Within and Adjacent to CWPP Planning Area

Fire Name	*Date*	*Fire Size (acres)*	*Fire Name*	*Date*	*Fire Size (acres)*
Elk Run	2021	100	Irwin	2018	87
Muddy Slide	2021	4,100	Steer Park	2017	450
Morgan Creek	2021	7,500	Mill Creek	2017	459
Middle Fork	2020	20,517	Deep Creek	2017	4,222
Indian Run	2019	165	Big Red	2016	2,940
Silver Creek	2018	20,127	Silver Creek	2016	461
Murphy	2018	685	Cog	2013	1,010

Figure 9 illustrates historical fires from 2000-2023 within Routt County that are greater than 100 acres in size. It does not include all ignitions.

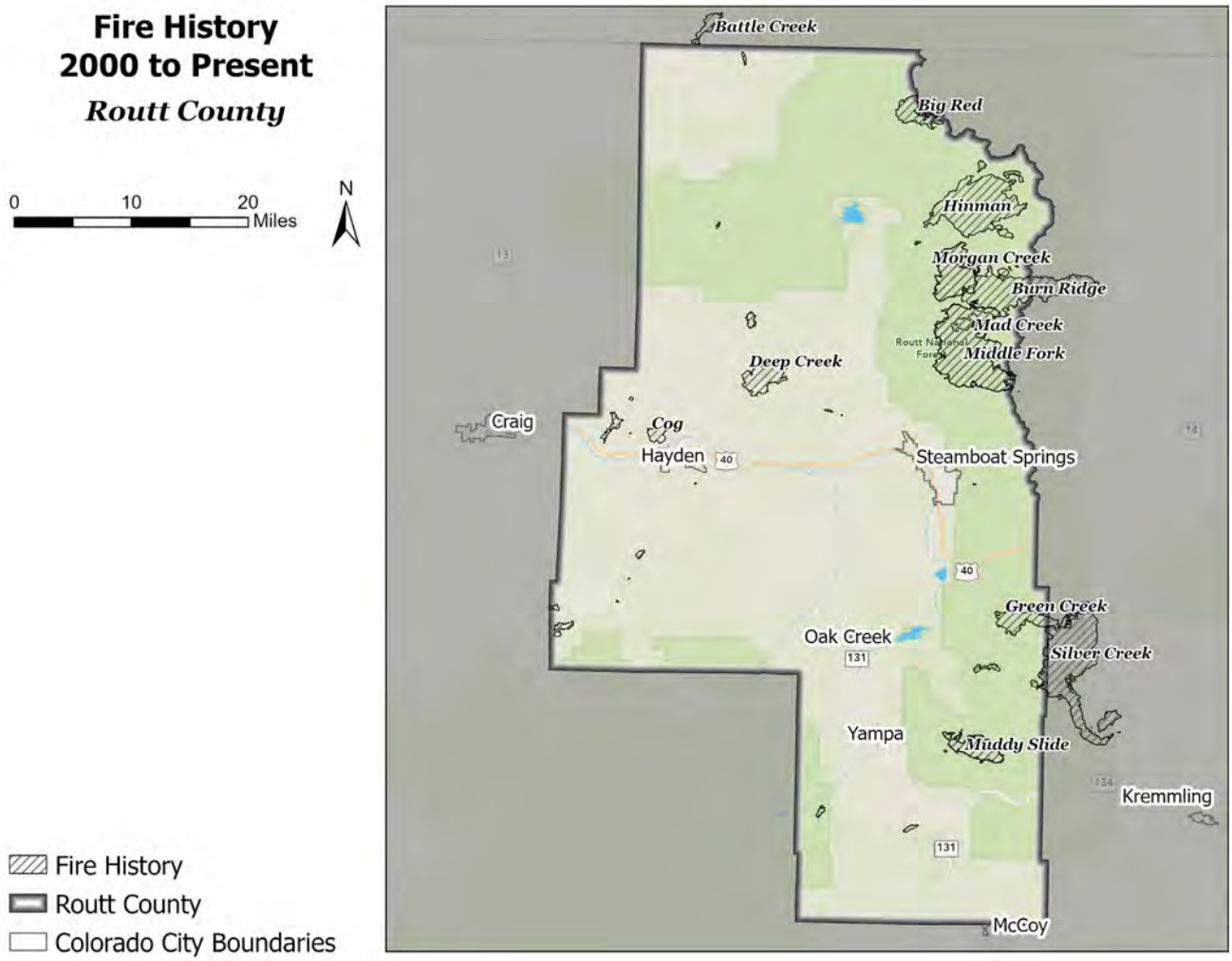


Figure 9: Fire History Map

3.3.2 Fire Ecology

Throughout history, wildfire has been a dominant disturbance factor affecting the structure and composition of various ecosystems. Fire alone, however, is not the sole determining factor. Topography and climate play a vital role in the successional stages of these ecosystems. As a result, fire frequency and severity have been critical links in determining which plant species exist and grow at a particular site.

Each vegetation type reacts differently to fire. Lodgepole pine, for example, has adapted to fire by requiring fire for regeneration. When lodgepole seeds, dense “dog-hair” stands are formed and often remain until destroyed by another wildfire. While these dense “dog-hair” stands are very common, a given species composition is dependent on several factors such as current forest conditions, weather, topography, and the individual fire intensity.

Many decades of fire suppression throughout Colorado have altered fire regimes, and Routt County has not been impervious to these changes. Suppression activities, combined with the lack of forest management, the public’s misunderstanding of forestry and fire ecology, and the introduction of people into this fire ecology, have

resulted in years of fuel accumulation. Combined with the increasing number of individual homes and communities in these forested areas, a significant wildfire problem has been created. As years pass without these issues being addressed, the potential for disaster continues to increase.

3.3.3 Climate and Climate Change

Routt County has begun taking steps towards reducing greenhouse gas (GHG) emissions through their Climate Action Plan (CAP) described in the following sections. The CAP identifies the top five climate risks for Routt County as drought, extreme heat, flooding, shifts in seasonal weather patterns, and wildfire.

3.3.3.1 *Routt County Climate*

The Routt County climate is considered a "temperate continental climate/humid continental climate" zone (Koppen Climate Classification), with 26.2 inches of annual precipitation falling primarily in the winter and early spring months. Average temperatures peak in July in the low 70s °F, with the winter mean low of approximately 8°F. See Figure 10. Extreme temperatures, such as the record high of 100°F in Steamboat Springs on June 29, 1990 (NOAA), occurs primarily during the summer months, and is often associated with exceptional drought conditions.

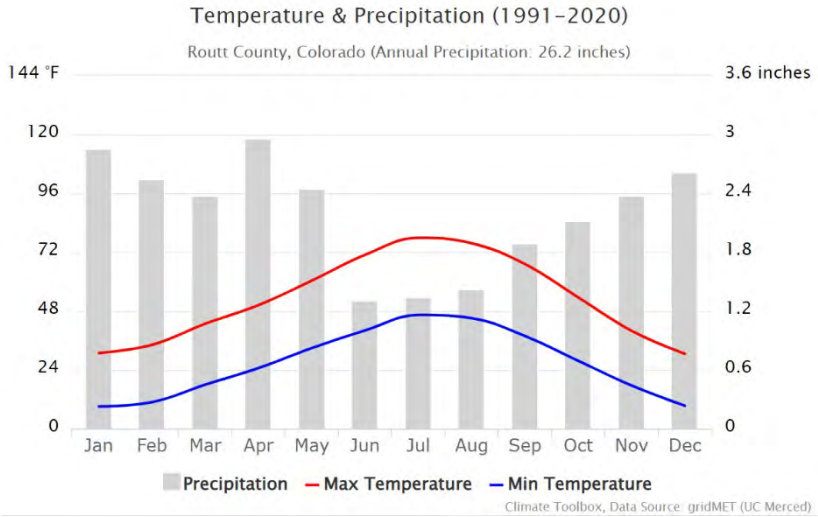
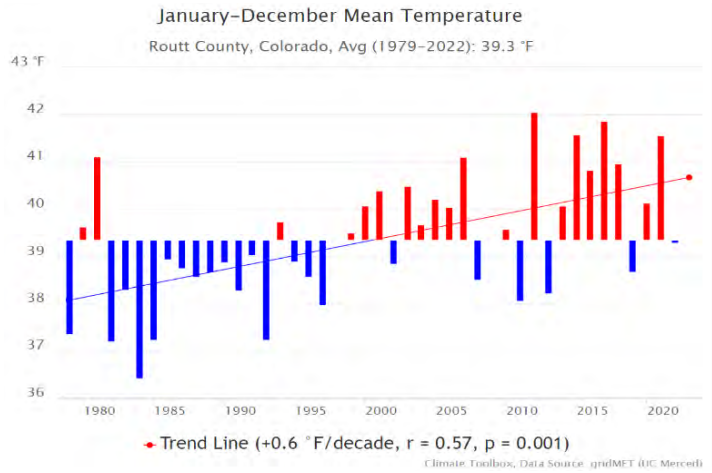


Figure 10:Temperature and Precipitation Trends

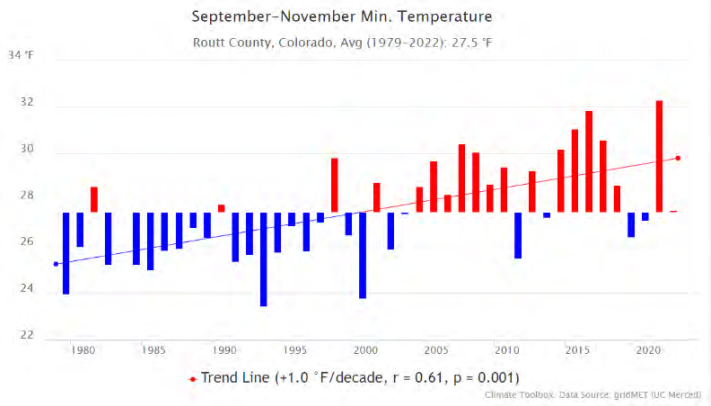
3.3.3.2 *Evidence of Climate Change*

Wildfires tend to occur under extreme conditions, such as extreme heat events concurrent with abnormally dry fuels. Therefore, it is critical to understand how climate change impacts the frequency and intensity of these extreme weather events, through temperature, precipitation, drought, and vapor pressure deficit changes. The information below identifies the trend of climate variables over the past 30 years.



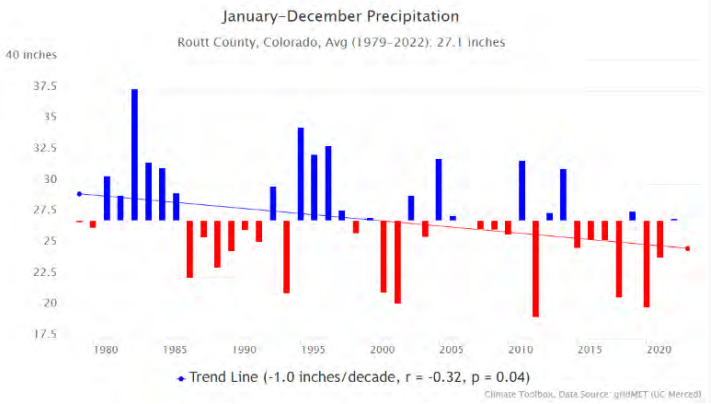
Annual mean temperatures are trending up.

Over the past 30 years, annual average mean temperatures have increased in Routt County. Warming temperatures exacerbate drought, reduced snowpack and spring runoff, extreme heat conditions, air quality, and health hazards. Warming temperatures can also weaken trees to disease and infestation, which has been prevalent in Routt County starting in 1996 as a pine beetle epidemic killed close to 346,000 acres of lodgepole pine.



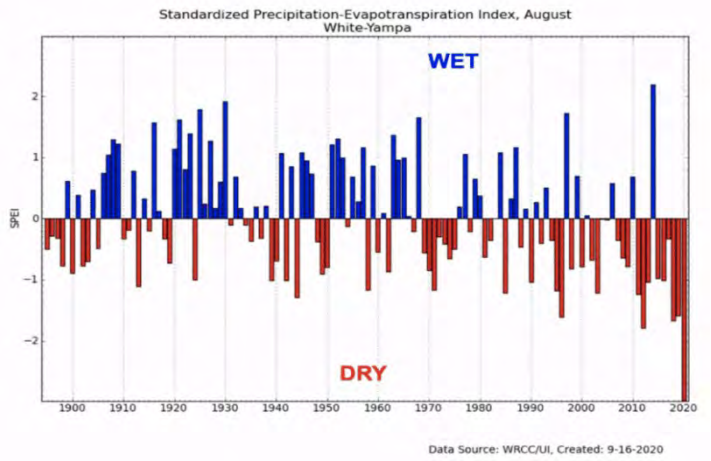
Fall (September – November) minimum temperatures are trending up.

Reduced nighttime humidity recovery, particularly during the fall season, is an observed inclination towards increased minimum daytime temperatures as a proxy for fire danger.



Precipitation is trending down.

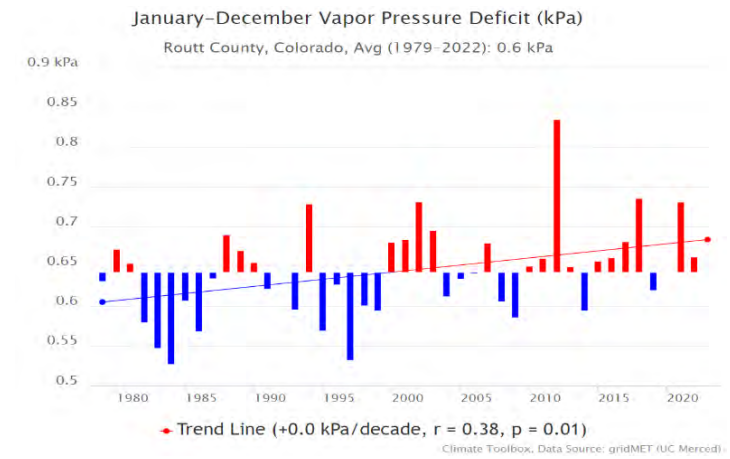
Evidence indicates that it is the decline in summer precipitation that is a main driver of a dry season.



Standardized Precipitation-Evaporation Index (SPEI) is trending down (dry).

The SPEI considers temperature, precipitation and evapotranspiration (the moisture the earth loses to the atmosphere from both evaporation and transpiration from plants). It can be used for determining the onset, duration, and magnitude of drought conditions with respect to normal conditions in a variety of natural and managed systems such as crops, ecosystems, rivers, water resources, etc.

Drought indices such as SPEI were found to have the strongest correlations to fire danger outputs, projecting to increase wildfires frequency, intensity, and size.



Vapor pressure deficit (VPD) is trending up.

Research indicates that climate change is increasing vapor pressure deficit. VPD is used to measure dryness, or aridity, near the Earth's surface. It is directly related to the rate at which water is transferred from the land surface to the atmosphere. (Climate Signals via Quest, n.d.)

"Vapor pressure deficit has increased over the past 40 years across most of the American West, largely because warmer air can hold more water. This is a primary mechanism by which global warming is elevating wildfire hazards." (Garthwaite, 2022)

Figure 11: Evidence of Climate Change

3.3.3.3 *Climate Projections*

Future climate change projections are shaped by natural climate variability and human emissions (i.e., GHG). Studies published in the last decade, including the Abatzoglou and Williams article, "Impact of anthropogenic climate change on wildfire across western US forests", concludes, in high confidence, that future climate projections will have implications for fire, and that these recent trends are not exclusively due to Earth's natural climate variability.

In Routt County, there is a projected temperature increase of an additional 5 to 10°F by Year 2100, with increases seen across all seasons, applicable for both maximum and minimum daily temperatures. This projection is shown in Figures 12 and 13, which is using the RCP8.5 emissions trajectory (i.e., very high baseline emission scenario, representing the 90th percentile) and RCP4.5 emissions trajectory (i.e., moderate baseline emission scenario, representing the 50th percentile). Although warming temperatures are projected with certainty, there is little evidence related to climate changes impact on precipitation trends.

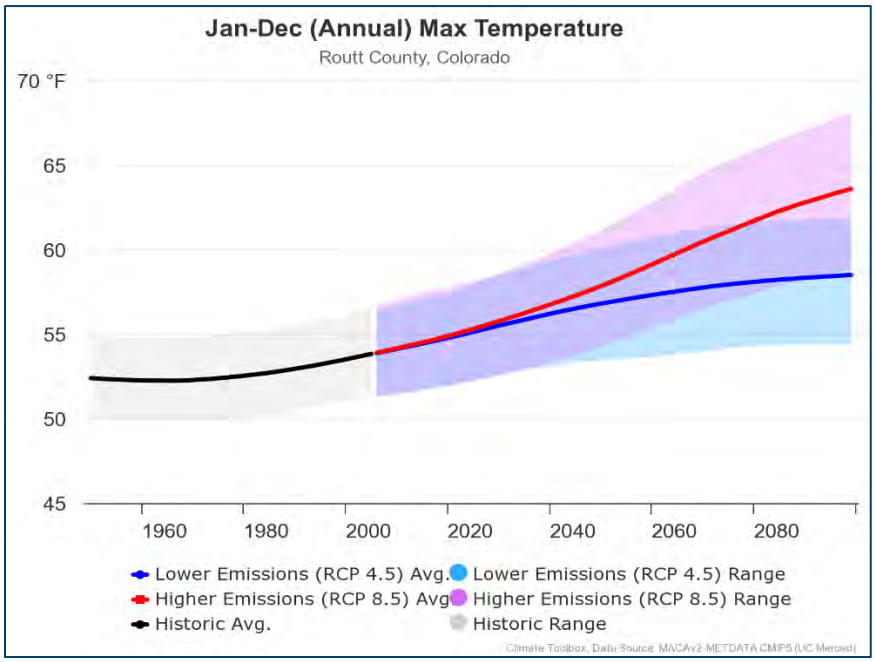


Figure 12: Annual Maximum Temperature

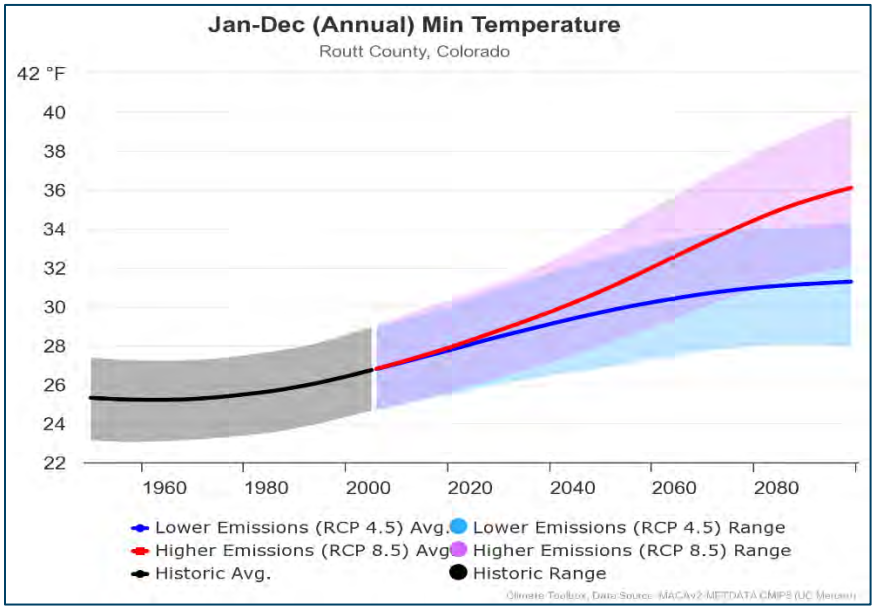


Figure 12: Annual Minimum Temperature

In evaluating the most extreme fire danger days (historic 95th percentile conditions) for both the winter/spring period (Figure 14) and the summer/fall period (Figure 15), fall and winter are projected to see the greatest increase in extreme fire danger days.

Figure 13:
Projected Changes in Winter and Spring Months

Figure 14:
Projected Changes in Summer and Fall Months

3.3.3.4 *Routt County's Climate Action Plan (CAP)*

In 2020, Routt County, along with its partners (the City of Steamboat Springs, Steamboat Ski and Resort Corp., and the Steamboat Springs Chamber), began an effort to understand the communities' impact on climate change and identify relevant and impactful GHG emissions mitigation strategies.

The CAP resulted in various climate action strategies, actions, and tactics that can aid communities to immediately begin taking action to address the climate crisis through local policies, programs, and initiatives. The strategies to reduce GHG emissions span across energy, transportation, waste, land use, and economy sectors of Routt County. It is anticipated that Routt County can reduce GHG emissions by 35% by Year 2030 and 74% by Year 2050 if all 22 strategies and associated actions are implemented successfully (Routt County Collaborative, 2021).

As stated previously, future climate change projections are impacted by human emissions of GHG and natural climate variability. With Routt County's significant efforts to reduce GHG emissions, higher emission climate projections shown in Figures 24 and 25 may be minimized.

AS STATED IN THE ROUTT COUNTY CLIMATE ACTION PLAN (CAP)

"Routt County recognizes the urgent need to reduce emissions and prevent the worst impacts of climate change. If current emissions levels are not abated, the County and similar mountain communities and local tourism-based economies across Colorado and the Southwest are in danger of experiencing significant impacts from changes in the regional climate.

These impacts may include changes in precipitation and the seasonability of precipitation, increased wildfire risk, and reduced snowpack, leading to lower flow levels in waterways, reduced water availability, and decreased agricultural yields. These impacts are likely to result in complex variations that will significantly impact the economy."

3.3.4 Topography

Topography has a significant role in wildland fire behavior as it influences local winds by sheltering areas from the prevailing wind or by channeling wind through prominent canyons and drainages. Topographical features that affect fire behavior include slope, aspect, terrain features, and elevation with the steepness of slope being the most influential on fire behavior.

Routt County is described as being on the "Western Slope," meaning it is located on the western side of the Continental Divide at 40*29' North, 106*59' West. The elevation ranges from the highest point at the summit of Mount Zirkel (12,180 feet) to the lowest point (6,400 feet) along the Yampa River in the western area of the County.

The topography of the Planning Area is widely varied. Generally, the terrain in the lower elevations consists of watershed drainages and valleys, open range, ranch land, agricultural fields, rolling meadows, and hills. The northern and eastern portions of the county are predominantly steep, rugged mountain terrain. While slope is not a major factor at the lower elevations, there is enough elevation change, particularly in canyons, arroyos, and drainages that would accelerate a fire's rate of spread or growth.

The steep slopes of the mountains, with numerous ridges and saddles, provide topography conducive for preheating fuels, high rates of spread, and long-range spotting. However, the same topography has become an attractive environment to live in and has allowed for occluded interface neighborhoods and isolated structures to appear throughout the county.

A topography map uses elevation contour lines to show the shape of the Earth's surface. Figure 15 is a topography map that uses colors to distinguish the elevation changes across Routt County.

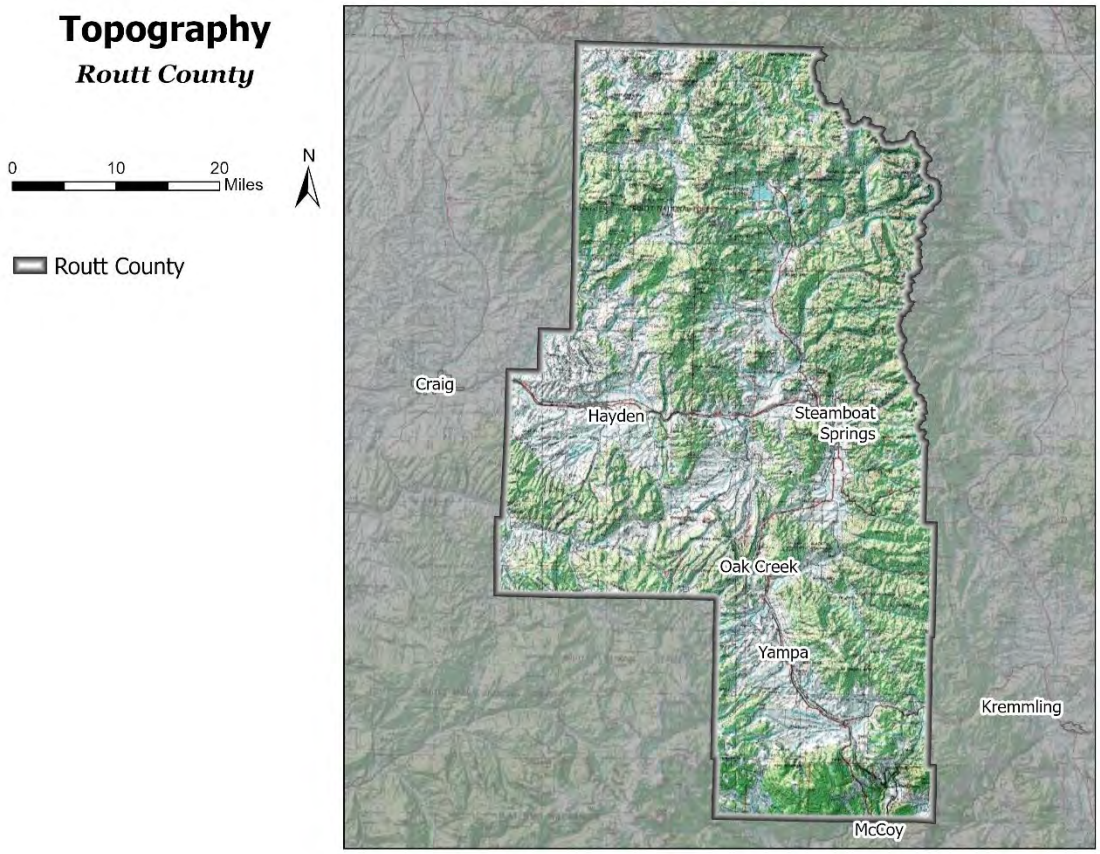


Figure 15: Topography Map

3.3.5 Fuels

Vegetation is the primary fuel source for wildfires, and along with weather, are key factors in determining the risk of wildfire hazards. The risk of a large-scale, destructive wildland fire can be linked to the proximity of vegetation to population, property, critical infrastructure, and natural resources.

The fuels (vegetation) in Routt County can be characterized by four unique zones determined by elevation. The four zones are Lower Montane, Upper Montane, Subalpine and Alpine. Fire occurrence intervals are assumed to be between 15 to 400 years in the lodgepole pine types and sub-alpine fir types (National Park Service, 2021).

The fuels displayed in Figures 17 and 18 are consolidated into four categories of grass, shrubs, timber, or slash for simplicity. Different fuel types create different fire behaviors. Grasses will have shorter flame lengths, but the rate of spread is much higher. Inversely, fire behavior in timber will move at a slower rate but will have the largest flame lengths. Identifying the type of fuels in recommended project areas decides the treatment method best suited for the area.

Figure 16: Vegetation Gradient in Routt County

The vegetation in all four elevation zones is categorized by the following wildland fuel groups:

Figure 17: Wildland Fuel Groups

The key characteristics of wildland fuels that affect fire behavior include fuel moisture, volume of fuel, resins and terpenes, horizontal continuity, and vertical arrangement. Understanding fuel models, their effects on fire behavior, and how the models change after the implementation of a fuel treatment can help fire managers design effective wildfire mitigation strategies.

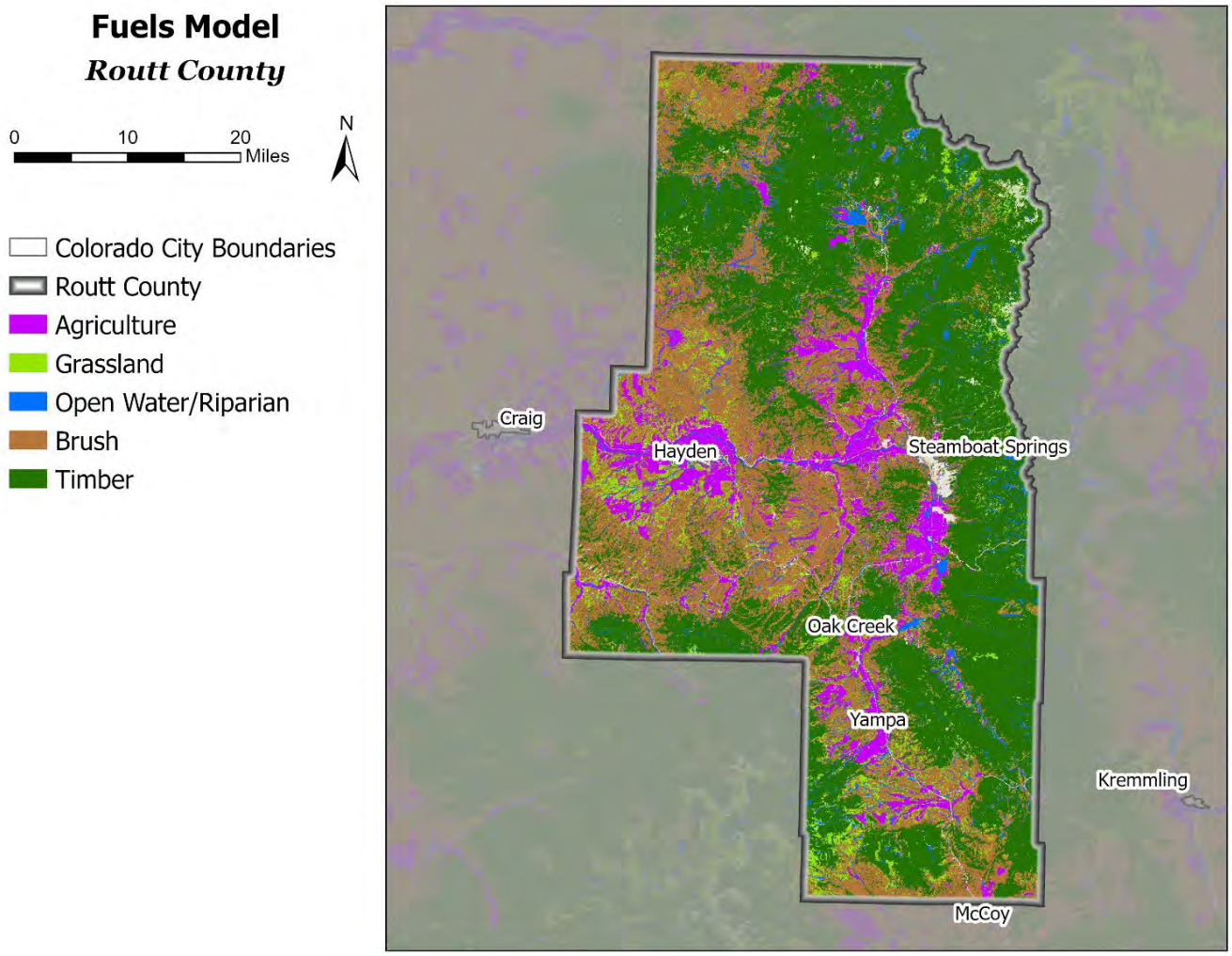


Figure 18: Routt County Fuels Model

4.0 Wildfire Hazard + Risk Assessment

4.1 WILDFIRE HAZARD ASSESSMENT

Wildfire hazard assessments conducted for this CWPP were completed using data from the State of Colorado's recently updated Colorado Wildfire Risk Assessment (CO-WRA, 2022). The CO-WRA provides a consistent, comparable set of scientific results to be used as a foundation for wildfire mitigation and prevention planning in Colorado. The layers can be found in the applications within the Colorado Forest Atlas, a website that serves the public and partners to access this statewide geospatial data related to forestry and natural resources. The results of the assessment and the theme layers can be used as a decision support tool to respond to community priorities in their wildfire risk reduction efforts and will be updated every 3-5 years.

Different CO-WRA theme layers were used to assess hazards and define higher risk areas for the four priority categories of (1) life safety, (2) critical infrastructure, (3) economic drivers, and (4) property. The theme layers were utilized to inform the risk to each value, aid in the development and definition of the Routt County WUI, and to inform priority fuels treatments. The CO-WRA data used to assess each priority are described in further detail below. Additional details and a link to the full CO-WRA report for Routt County are provided in Appendix B.

4.1.1 Life Safety

The risk assessment of life safety priorities was determined using the CO-WRA Fireline Intensity Scale (FIS) layer. This layer "identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist" (CO-WRA, 2022). Fire intensity scale is a fire behavior output, which is influenced by three environmental factors: fuels, weather and topography - and represents an average fire intensity map at a 20-meter resolution, appropriate for county level planning efforts. This layer was utilized for life safety assessment because fire intensity poses the greatest risk to evacuation and critical transportation routes. When this layer is overlaid with the life safety priorities discussed in Section 3.2, it helps "identify areas where dangerous fire behavior potential exists in relationship to nearby homes or other valued assets" (CO-WRA, 2022). The CO-WRA report identifies over 52% of the Routt County Area as high intensity FIS and over 41% as moderate intensity FIS.

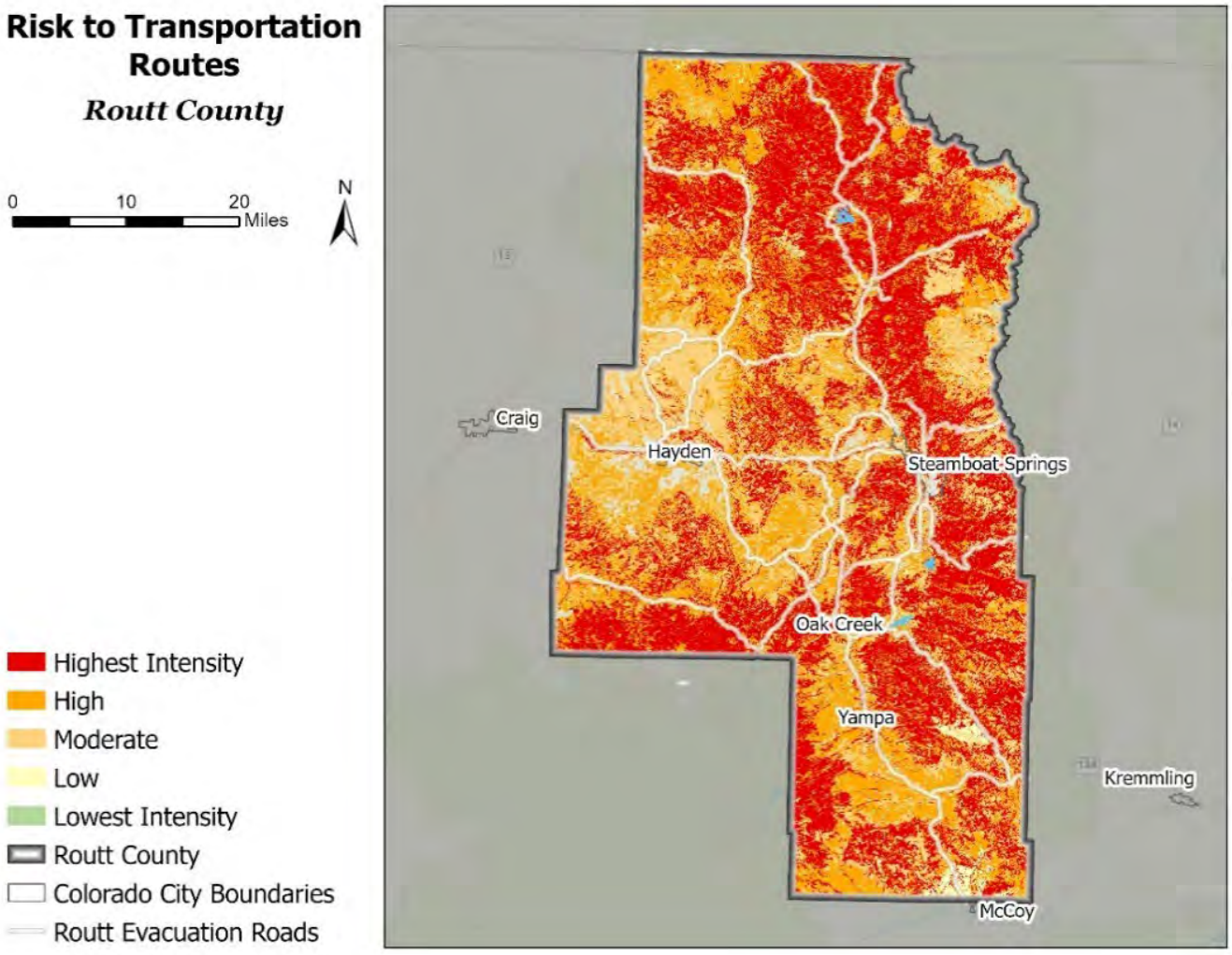


Figure 19: Risk to Transportation Routes

4.1.2 Critical Infrastructure

The risk assessment of critical infrastructure was determined using the CO-WRA Watershed Protection Risk layer. This layer identifies risk to watersheds based on potential negative impacts from wildfire. This is important because "in landscapes subjected to high, or even moderate-burn severity, the post-fire threats to public safety and natural resources can be extreme" (CO-WRA, 2022). All of the critical infrastructure within Routt County, including drinking water infrastructure, hospitals and assisted living facilities, transmission lines, communications towers, dams, and shelters, are contained within watershed protection areas. Protection of watersheds, and the critical infrastructure contained within, is critical for the health and sustainability of the community. The risk index shown below identifies areas with the highest negative impact (-9) representing areas where critical infrastructure is within high potential fire intensity and high importance for ecosystem services. Areas with the lowest negative impact (-1) represent areas where critical infrastructure is within low potential fire intensity and a low importance for ecosystem services. High and moderate risk areas make up about 30% of the County's total area.

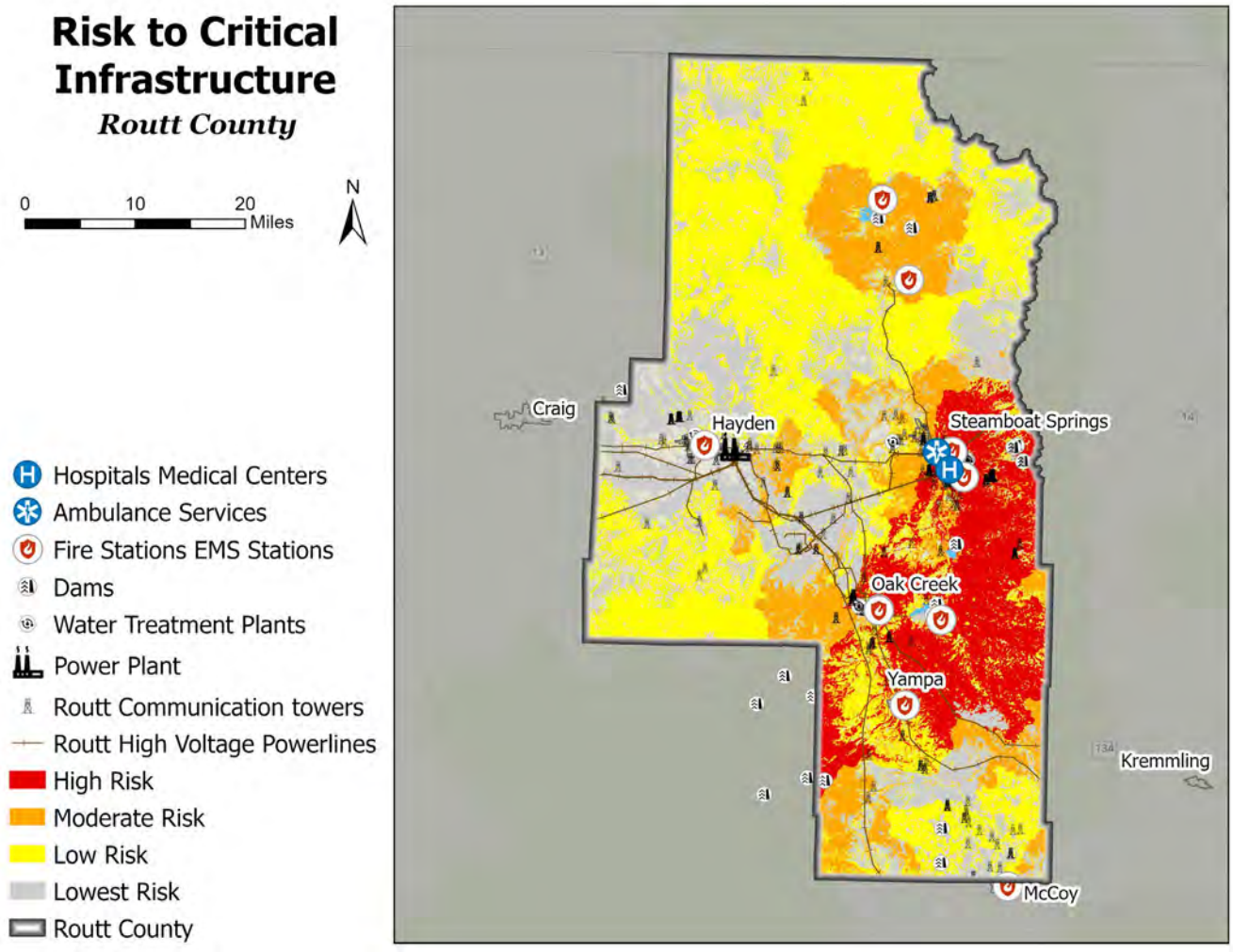


Figure 20: Risk to Critical Infrastructure

4.1.3 Economic Drivers

The risk assessment of economic drivers was determined using the CO-WRA Values at Risk Rating layer. This layer "is an overall rating that combines the risk ratings for the wildland urban interface (WUI), Forest Assets, Riparian Assets, and Watershed Protection Areas into a single measure of values-at-risk" (CO-WRA, 2022). Different weightings are used for each of the input layers with the highest priority placed on protection of people and structures (i.e., WUI). The weightings represent the value associated with those assets. By using this theme layer together with the County's self-defined WUI boundary, human development and community values most susceptible to damage from wildfires can be identified and prioritized.

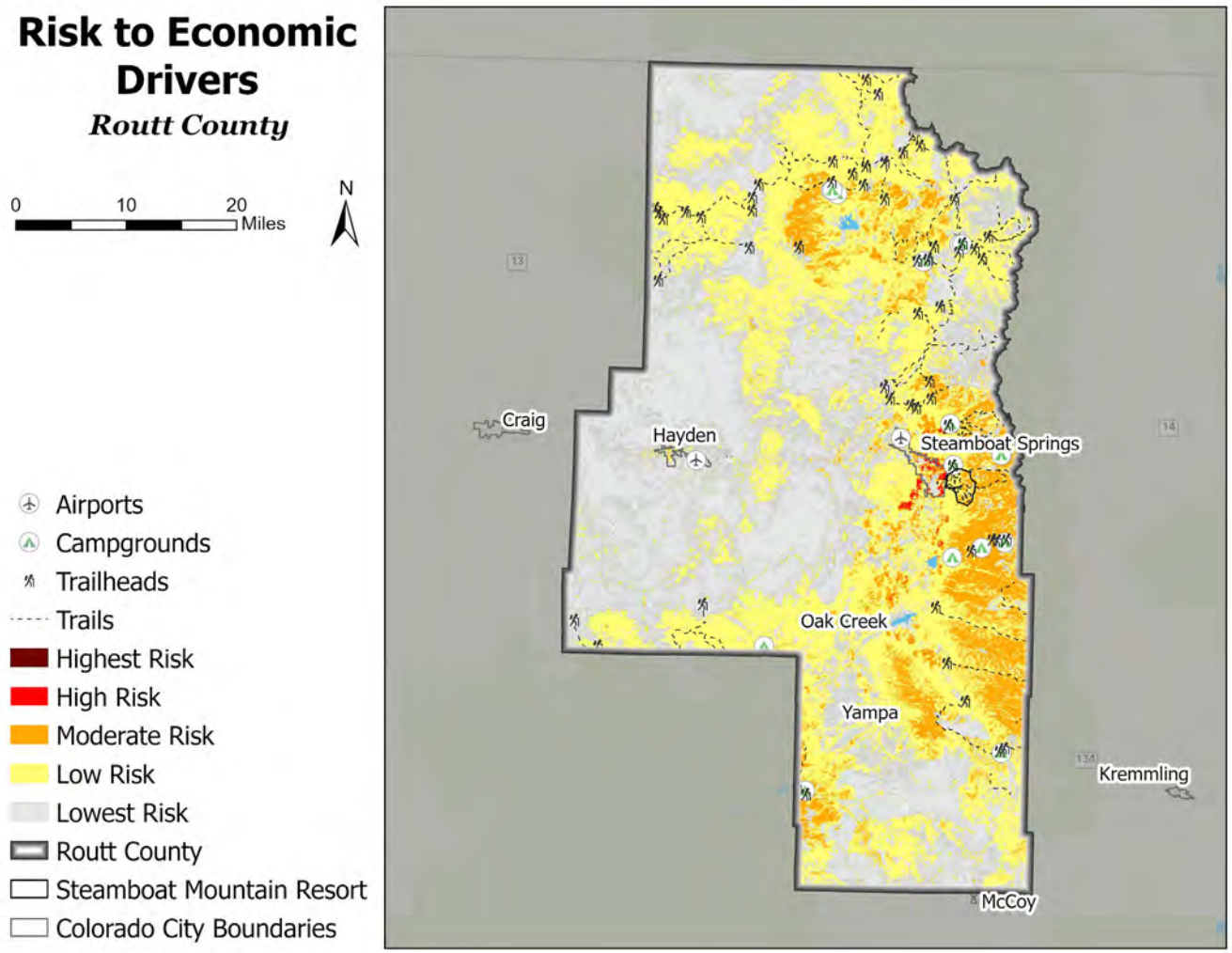


Figure 21: Risk to Economic Drivers

4.1.4 Property

The risk assessment of property was determined using the CO-WRA Building Damage Potential layer. This layer provides “a measure of the number of potential buildings lost based on the number of buildings threatened by fires in the specific area” (CO-WRA, 2022). This metric has been used by other agencies for risk forecasting, and the CO-WRA report identifies that over 1/3 of the buildings in Routt County have a High or Very High potential for building loss due to wildfire.

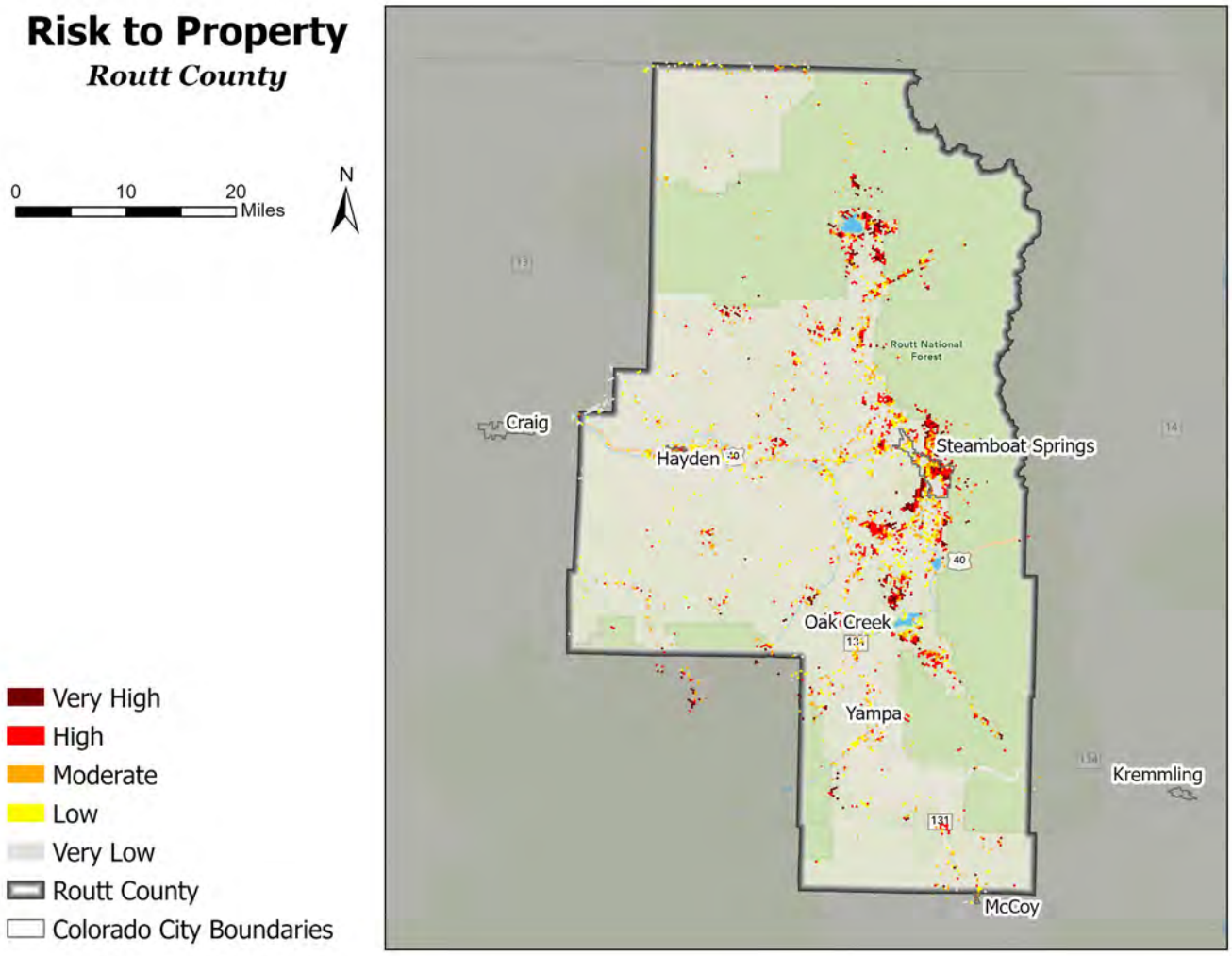


Figure 22: Risk to Property

4.2 OTHER FACTORS IMPACTING RISK

4.2.1 Spotting/Embers

The National Wildfire Coordinating Group (NWCG) defines spotting as the "behavior of fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire" (NWCG).

+ A major cause of structure loss are embers. Thousands of burning embers, or "firebrands", can be carried by the wind and can rain down on a structure. These embers can be parts of twigs or branches, pinecones, or wood shingles torn from burning roofs. While any vegetation can create embers, trees are the most problematic since they travel the furthest distance. Spotting potential is dictated by several factors described in Figure 23 and below:
  - The source, size, and number of firebrands.
  - The distance the firebrand is carried downwind.
  - The probability of igniting a new fire at the downwind location.

The risk of structural ignition associated with ember cast was considered in the creation of the Routt County WUI map. The one-mile buffer leaves a cushion around the prioritized community values in the event of a wildfire.

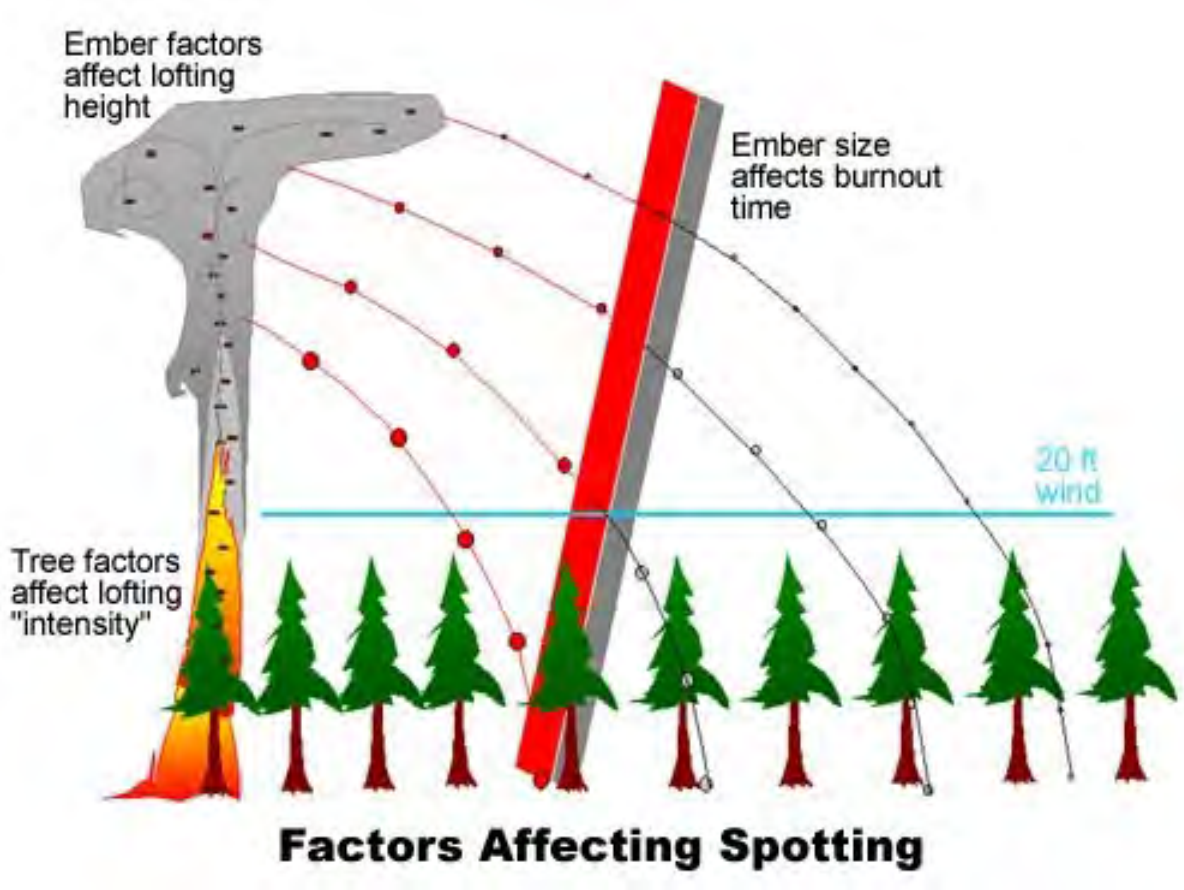


Figure 23: Factors Affecting Spotting (NWCG)

4.2.2 Wildfire Structure Defensibility

Research studies of structure loss during wildfires have shown that one of the key determinants influencing structural defensibility is whether firefighters are able to have sufficient operational space to safely defend a structure for wildfire (e.g., direct flaming, embers, or flying debris). Defining the degree to which a structure might be defendable is highly complex and typically requires an on-site inspection of an individual property. The assessment includes a range of factors that can influence risk (e.g., site layout, local topography, proximate vegetation, building materials and construction, local landscaping, outbuildings, access, water supplies). The Incident Response Pocket Guide by the NWCG provides a list of broader tactical challenges of fighting fire in the WUI, almost all of which occur in the County (NWCG, 2014). Below is a list of some of these challenges:

- Narrow roads, unknown bridge limits, and septic tank locations
- Ornamental plants and combustible debris next to structures
- Poor driveway access and low clearances
- Lack of home and street address signage; limited visibility of address signage
- Limited opportunities to observe the main fire
- Wooden siding and/or wooden roof materials
- Structural components, such as open vents, eaves, decks, and other ember traps
- Fuel tanks, propane tanks, and hazardous materials
- Power lines
- Limited water sources or low water flow rates
- Civilians at risk

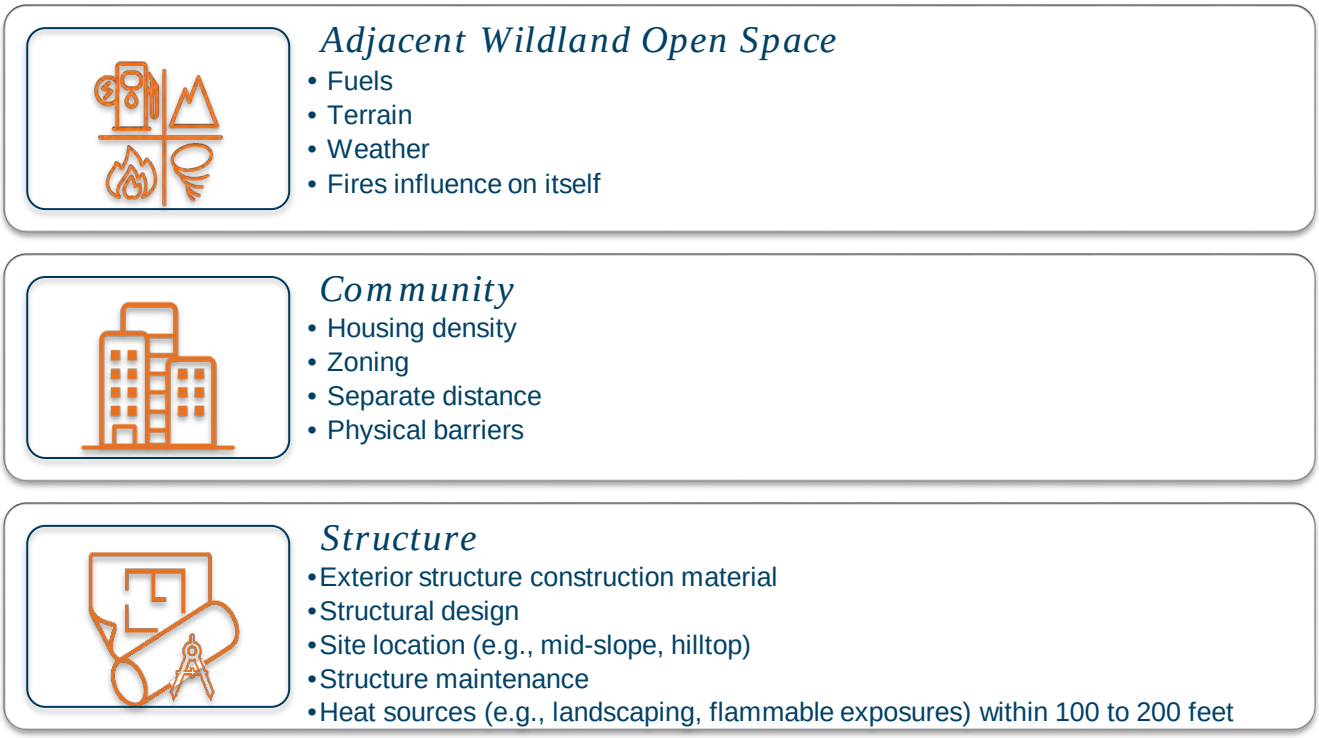
For the purpose of this plan, a more generalized approach to defensibility has been adopted to help identify areas of the county where structure defensibility may be challenging. Defensibility has been defined as a function of both flame length and fireline production rate criteria. Fireline production rate is based on how quickly firefighters can establish a fireline given various vegetative fuel types. Generally, grass and low brush have faster fireline production rates than do heavy brush or timber-based fuel models.

4.2.3 Structure Vulnerability

From 2004 to 2019, the National Interagency Fire Center (NIFC) estimates that on average, approximately 2,593 structures per year are lost due to wildfires across the United States, with more than half of these losses as primary residences (NIFC, 2020).

Research has shown repeatedly that the main reason for structure loss during a wildfire is due to the ignitability of the structure itself, which is not always associated with large, high intensity fires. Low intensity fires can destroy structures that are highly ignitable while structures with low ignitibility can survive high intensity fires (Cohen, 2000).

Wildfires can ignite structures in numerous pathways. These pathways depend on a variety of characteristics found in the WUI; examples include:



The risk of a structure's ignition is a direct result of the thermal exposure by wildfire, and the vulnerability or ignitability of the structure (i.e., building materials and construction).

The latest publication from the CSFS on the Home Ignition Zone goes into great detail about how to mitigate some of these vulnerabilities (see Appendix E). For example, structure ignitability is tied to the amount of receptive fuel beds immediately around the structure, and can include ornamental landscaping, dead vegetation, litter, debris build up in rain gutters, mulch beds, etc. Enclaves, islands, riparian corridors of wildland vegetation, and ornamental vegetation are also interspersed with structures and subdivisions throughout the County. These create significant opportunities for wildfires to ignite, establish, and destroy structures.

Wildfire will continue to threaten the communities within Routt County despite all efforts to prevent it from occurring by addressing the natural environment. However, stakeholders can and should take proactive measures to mitigate this threat within the built environment through home hardening known best practices.

4.2.4 Land Use / Zoning

The Routt County Zoning and Subdivision Regulations control the use, development, and subdivision of land within unincorporated Routt County. They are important resources for implementation of Master Plan goals and policies. Planning staff maintains, updates, and administers these regulations. These community plans address land use designations, distributions, locations, and extent, as well as specific goals, policies, and actions relating to community development. These land use designations are intended to preserve the existing rural character of the community, protect natural resources, and minimize the overburdening of local infrastructure, while also allowing for reasonable residential and commercial development where within the local geological (e.g., steep hillsides, unstable soil and subsurface conditions, extreme fire hazards) and land use density constraints. These land use and development codes provide for some wildfire hazard mitigation activities within the implementation activities these codes establish.

4.2.5 Hazardous Materials

Facilities storing or producing hazardous materials are prone to unintentional release during wildfire events. These facilities can create environmental challenges in addition to the damage from the wildfire. Hazardous materials facilities should be identified for preplanning consideration.

4.2.6 Fire Protection Responsibility

A focus and concern of the CWPP is the many values at risk in a large geographical area and the number of resources to adequately respond during a wildland fire event. Response agencies, including local fire protection districts and State and Federal agencies, have recognized that they are co-dependent and force multipliers for each other. These capabilities must be maintained and improved upon.

The majority of these agencies have routinely provided each other support during wildland fire suppression activities in the form of mutual aid. The overarching goal has been the timely suppression of wildland fire in order to protect life and property. As part of the Routt County Fire Plan, the local Fire Protection Districts in Routt County adopted standardized wildland fire fighting training (beginning with basics taught in S-130/190), to acquire and use wildland fire personal protective equipment, to acquire appropriate wildland fire apparatus (when afforded the opportunity), and to use the Incident Command System in an ever-increasing fashion.

All five (5) local fire protection districts provide structural and wildland fire protection within their districts and response areas, as well as mutual aid to surrounding areas. Additionally, the USFS has responsibility for wildland fire suppression within the Routt National Forest, and similarly, the BLM with suppression on BLM lands.

4.2.7 Safe, Effective, Risk-Based Wildfire Response

4.2.7.1 *Suppression Capabilities*

Routt County, because of its unique population (residents, transient residents, tourism), interface, size, topography, fuels, access, and egress, presents a challenging scenario for wildfire response. The county depends on multijurisdictional services for firefighting and EMS response. There are nine (9) agencies, including USFS Medicine Bow-Routt National Forest, US BLM Little Snake Field Office, Colorado Department of Fire Prevention and Control Northwest District, North Routt Fire Protection District, West Routt Fire Protection District, Steamboat Fire Rescue, Oak Creek Fire Protection District and Yampa Fire Protection District, responsible for wildfire management and fire suppression. All agencies are well trained to NWCG and the National Fire Protection Association (NFPA) industry standards for fighting wildland fires. However, each agency is co-dependent upon the other, particularly if a fire escapes initial attack or there is an immediate need to evacuate residents. Because of the number of occluded interfaces and public exposure, it is a realistic possibility that all first arriving fire suppression resources will be engaged in evacuations instead of fire suppression.

Additional information about agency-specific suppression resources is available in Appendix C.

5.0 Wildland Urban Interface

The entire Planning Area has been identified as wildfire prone, leading to the need to define the extent of the Wildland Urban Interface (WUI) within the planning area. According to the NWCG, the WUI is a zone of transition between unoccupied lands and human development. CSFS and the HFRA also use similar descriptors when defining the WUI. The majority of the population of Routt County is within the WUI, and the developments and population in this transition zone will continue to expand. As this density continues to expand, there is an increased risk of structure loss from wildfire. Strategic wildfire mitigation across the WUI will increase safety of residents, visitors, wildland firefighters and can reduce home and structures losses.

The Routt County WUI was mapped by including four prioritized categories of human developments: (1) life safety, (2) critical infrastructure, (3) economic drivers, and (4) property, as discussed in Sections 3.0 and 4.0.

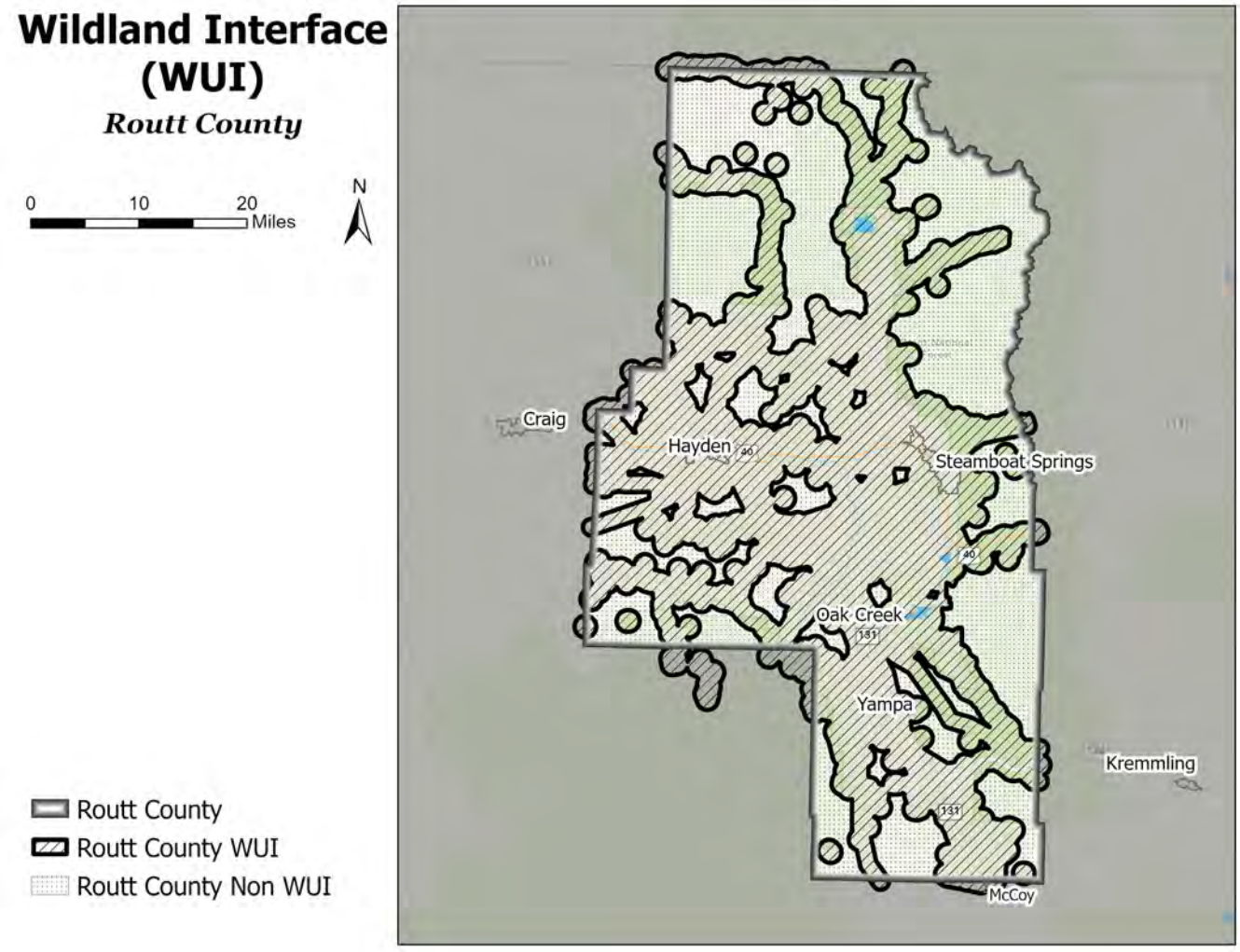


Figure 24: The Routt County WUI

A one-mile buffer around these four priority categories forms the WUI boundary. The HFRA recommends that a buffer around human developments extend between 0.5 to 1.5 miles. During the risk assessment for this CWPP, the Steering Committee reviewed the four priority areas of human development and associated vulnerabilities and concluded a 1-mile buffer was appropriate for identification of the Routt County WUI. As mapped, the WUI includes 946,616 acres across Routt County.

The CO-WRA report, which has a much narrower definition of the Routt County WUI, estimates over 22,000 people (88% of the population of the County) live within the WUI area of approximately 105,000 acres.

6.0 CWPP Recommendations

6.1 CURRENT PROGRAMS

It is important to acknowledge the work that has been done and is currently being completed across the County. Collaboration and engagement by all stakeholders are critical for the success of emergency preparedness. The challenge for Routt County is how to engage the community to affect change at the individual and community level in a locally relevant and sustainable way. Communicating accurate and timely information before, during, and after a wildfire is a challenge that communities are addressing through a variety of programs before an event escalates. The following is a list of current preparedness actions and measures that are in place.

6.1.1 County and Regional Programs

Routt County Wildfire Mitigation Council

The Routt County Wildfire Mitigation Council was developed to create resilient, fire-adapted communities to reduce the potential impacts of wildfire in Routt County. The council is comprised of city and county officials, local, state, and federal agency representatives, homeowner's associations, local businesses, and private landowners. More information about the council's programs and projects can be found **here**, including their Neighborhood Ambassador Program, Free Chipping Program, and more.

Ready, Set, Go!

This program was developed through the cooperation of numerous agencies and includes information on defensible space, structural hardening, evacuation, preparing families before and during a wildfire, and developing checklists to help residents prepare before a wildfire that may impact their community. More information on Ready, Set, Go! Can be found **here**.

Colorado State Forest Service Home Ignition Zone

This program was developed to provide guidance to homeowners to increase the survivability of their homes. The program educates homeowners on structural hardening and creating defensible space. More information on home ignition zone can be found **here**.

NFPA Firewise

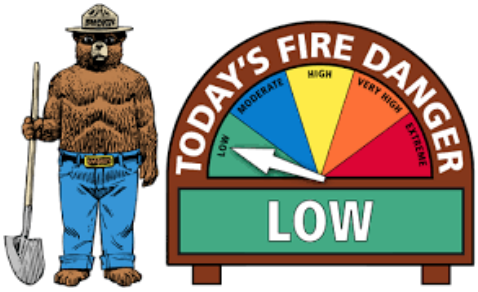
This program provides a framework for organizing neighborhoods around the common goal of reducing vulnerability and increasing resilience. More information about Firewise can be found at the NFPA's website **here**.

Live Wildfire Ready

This program provides an array of resources to the citizens of Colorado to prepare their homes for wildfire, with maps and information on wildfire risk in different parts of Colorado, and downloadable checklists of actions to reduce wildfire risk now. More information can be found on their website **here**.

Red Flag Warnings

Red Flag Warnings identify weather conditions that are favorable or dangerous wildfire conditions. Red Flag Warnings are intended to make the public more aware of their behaviors and limit activities that could lead to fire ignitions. More information about Red Flag Warnings can be found at the National Weather Service's website **here**.



Fire Danger Ratings

Understanding current fire danger can help residents understand the current fire conditions. The Craig Interagency Dispatch Center posts daily fire danger ratings for Routt County **here**.

6.1.2 Fire Restriction Plan

Routt County coordinates with the Craig Interagency Dispatch Area to set restrictions based on eight predetermined factors. Find more information on fire restrictions and the factors for enacting restrictions **here**.

6.1.3 Area Notification Systems

Routt County Alerts (Everbridge® Disaster Notification System)

Routt County Alerts is operated through the Everbridge platform. This service is contracted by the county to allow immediate mass distribution of critical information and instructions in case of large-scale disasters, such as wildfires, major road closures, evacuations, or other catastrophic incidents.

Residents can register cellphone numbers (for voice and/or text message), home or work phones, or email addresses to receive time-sensitive emergency messages on multiple devices, no matter where they are.

More information and registration can be found **here**.

Wireless Emergency Alerts (WEAs)

Wireless Emergency Alerts (WEAs) are short emergency messages that can be broadcast from cell towers to any WEA-enabled mobile device in a locally targeted area. WEAs can be sent to mobile devices without the need to download an app or subscribe to a service. WEAs are messages that warn the public of an impending natural or human-made disaster. The messages are short and can provide immediate, life-saving information. RCC can send WEAs, if required due to the circumstances.

Integrated Public Alert and Warning System (IPAWS)

As indicated in the Routt County Evacuation and Sheltering Plan, IPAWS is used as the primary method for distributing emergency alerts for most emergencies, as it does not require registration. When IPAWS is not the appropriate method, Routt County Alerts will be used as the primary method.

National Weather Service (NWS)

The NWS transmits continuous weather information on 146.425 and 146.525 MHz frequencies. NWS severe weather broadcasts are preceded with a 1050 Hz tone that activates weather monitor receivers equipped with decoders. The NWS can also access the National Warning System to announce severe weather information.

RECOMMENDATIONS

Inform

- Continue to inform the public by promoting existing programs, especially the ones around home hardening best practices and HIZ.
- Continue to inform the public of emergency notification systems.
- Encourage Routt County residents to sign up for Routt County Alerts.

Monitor

- Continue to monitor the effectiveness of each program.
- Adapt and modify as needed.

6.1.4 Social Media and Media Programs

Local agencies use social media. Appendix J summarizes some of the primary social network links for emergency preparedness in Routt County.

RECOMMENDATIONS

Expand

- Expand social media presence throughout the county for use in distribution of wildfire risk reduction messaging and evacuation notifications.

Reach

- As shifts towards social media use for information gathering becomes more common, having a robust social media presence will allow the county to reach a broader audience.
- Collect and track accomplishments geospatially to share information for further action and prioritization among stakeholders.

6.1.5 Existing Fuel Treatment Activities

Routt County has completed fuels treatment and mitigation projects. Federal and state agencies, insurance companies, Homeowner's Associations (HOAs), neighborhood groups, fire districts and individual property owners have contracted mitigation companies or completed projects on their own. The CSFS and the Routt County Wildfire Mitigation Council continue to encourage forest health management and fuel reduction through different education programs and grant opportunities.

The recognition of levels of risk and associated threat will continue to be key drivers in implementing reduction strategies, fire mitigation, and awareness.

Figure 25 shows the location of completed vegetation management projects defined in the 2010 Routt County CWPP. This list is not comprehensive, as it only reflects what state and federal agencies were involved with or made aware of. Keeping up with this list and updating this spatially will be a key task of the 2023 CWPP implementation plan and will require timely communication among CWPP stakeholders. An important recommendation is to collect and track these accomplishments geospatially, and develop a shared platform to be able to do so. More critically, the commitment of stakeholders to share and report on their acitvities would be essential for the success of the shared platform, and the Routt Wildfire Mitigation Council could play a critical role in this endeavor.

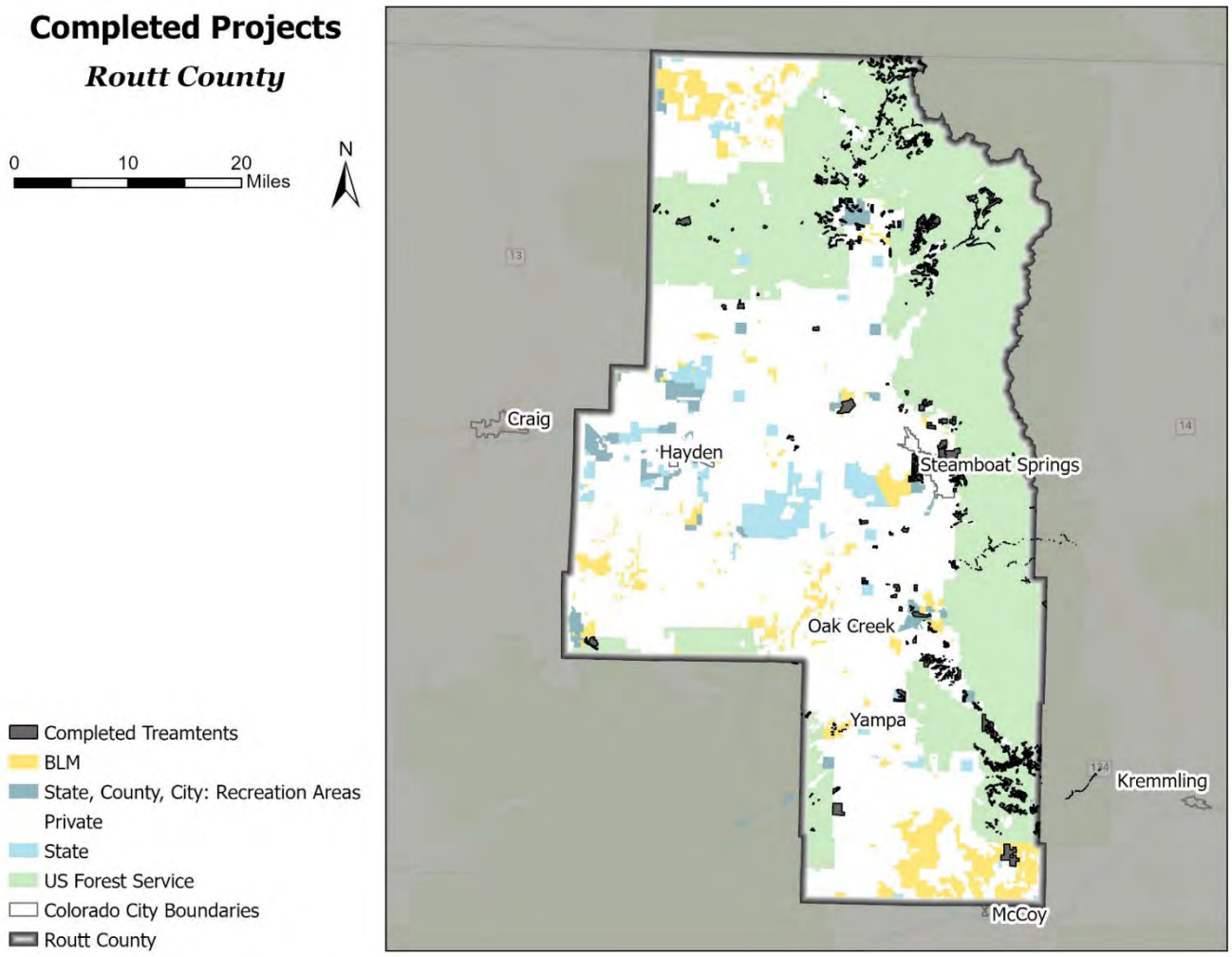


Figure 25: Existing Fuel Treatment Projects

6.2 COUNTY-WIDE AREAS FOR IMPROVEMENT

County level project recommendations are high-level recommendations focused on the four priority areas of (1) life safety, (2) critical infrastructure, (3) economic drivers, and (4) property, while also including recommendations for public education and implementation. These projects can help mitigate the hazards and risks of wildfires in the Planning Area over the next 3 to 10 years. An important part of implementing these recommendations is finding sustainable funding sources to accomplish meaningful work throughout the County.

This section describes actions to enhance protection of values at risk in the Routt County Planning Area. These recommendations are specific to projects that help protect one of the four priority areas of life safety, critical infrastructure, economic drivers, and property. The Figure below shows the primary and secondary ranking of all critical values in Routt County. This map was developed by overlaying the Community Assets Layer (Figure 4 - 1. life safety, 2. critical infrastructure, 3. economic drivers, and 4. property) within the defined WUI boundary of 1 mile to these critical values at risk (Figure 25) with the CO-WRA Fire Intensity Scale layer. For illustration purposes, and to assist with prioritization, the Fire Intensity Scale (FIS) was simplified from a gradient (highest to lowest) to two categories (primary and secondary): the areas within the WUI at highest intensity scale are shown as Primary while areas within the WUI that are high to low intensity areas are grouped together as Secondary. The All Values Mitigation Ranking Map highlights evacuation corridors and population centers throughout the County.

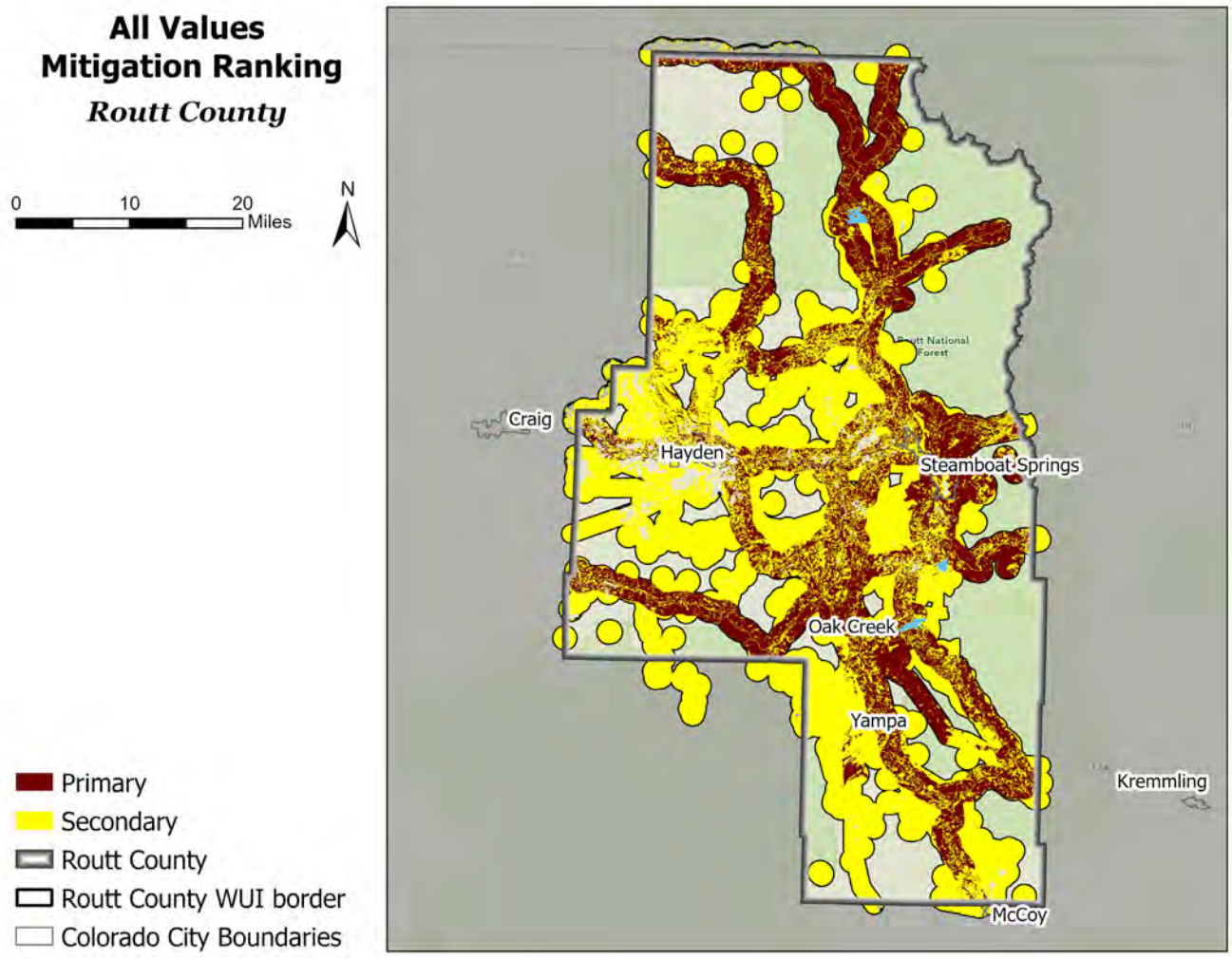


Figure 26: All Values Mitigation Ranking

6.2.1 Life Safety

Routt County presents numerous life safety challenges including:

- Emergency evacuation and management
- Difficult and potentially congested travel routes for use during evacuations
- Poor egress and access for citizens, firefighters, and law enforcement
- Limited and/or deficient defensible space in certain neighborhoods
- High percentage of existing building stock with deficient structural hardening

Collectively, the action items described in this plan aim to help reduce the potential risk to human life – both in the public and private sectors. At a minimum, individual community members can become aware and actively engaged in understanding the various wildfire hazards and risks that may impact where they live and work, and take the necessary steps to prepare themselves, their homes, and their family members to minimize risk.

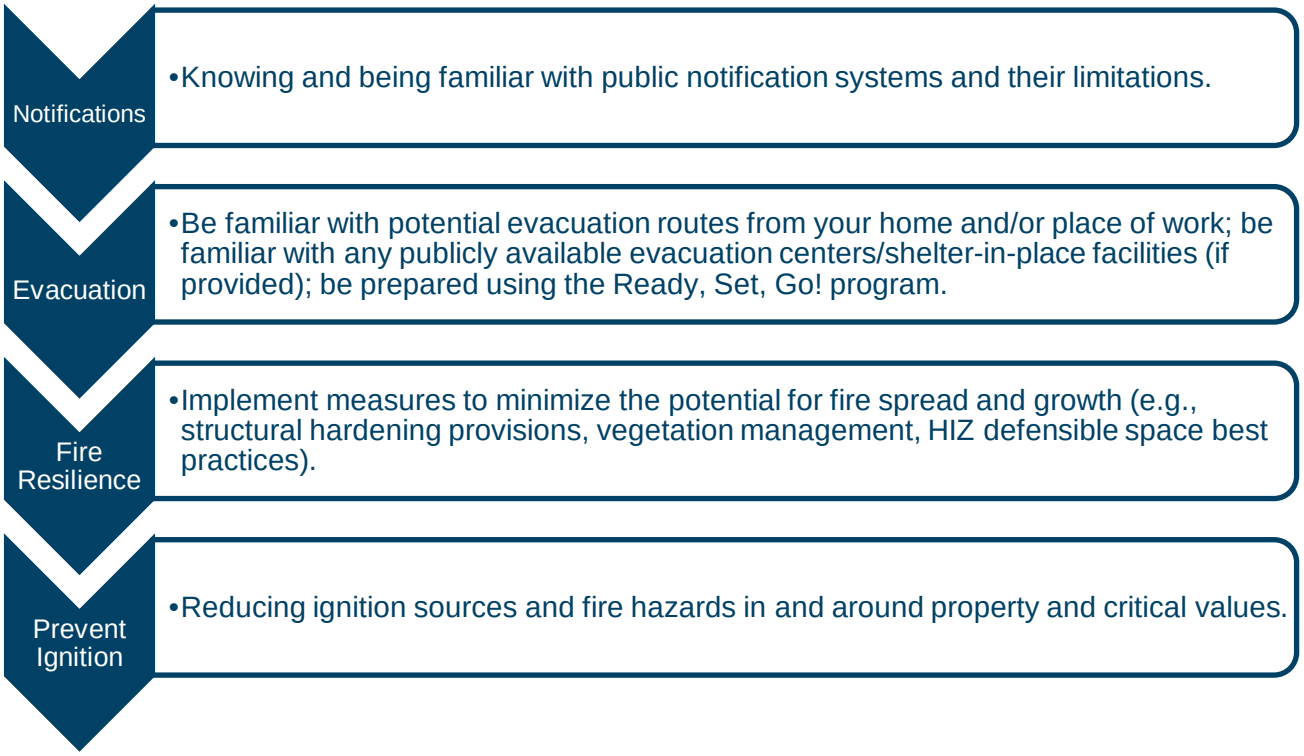
6.2.1.1 *Firefighter Safety*

There are many factors that affect the ability of firefighters to protect structures and other community assets. Firefighters perform an assessment or "triage" to determine whether a structure or asset is defendable. Prior to engaging in structure protection activities, firefighters look for access and egress issues, whether a structure or improvement has characteristics of vulnerability, hazardous material issues, adequate water sources, adequate defensible space, and whether the defensible space provides them safe operational space.

6.2.1.2 *Public Safety*

As with any natural hazard, minimizing the risk of wildfire threats to human life and public safety necessitates a comprehensive approach from prevention and mitigation to preparedness, response, and recovery.

The list below covers the key concepts of fire life-safety for residents:



6.2.1.3 *Vulnerable Populations*

The most critical priority for the county is human life-safety. Evidence suggests the most socially vulnerable people are often disproportionately affected when fire strikes, as these populations may have limited capacities to prepare for, respond to, and/or recover from a major wildfire incident (Palaiologos Palaiologou, 2016). While young children, the elderly, and people with disabilities may require additional assistance, research shows that people living near or below the poverty line, ethnic minorities, and renters all experience some degree of more severe effects from disaster than the general population (TetraTech, 2020). Vulnerable populations are also less likely to engage in wildfire mitigation activities.

Additional information regarding population demographics and vulnerable populations can be found in the Routt County Hazard Mitigation Plan.

6.2.1.4 *Evacuation*

Routt County is a relatively isolated, rural area of Colorado. There are limited transportation corridors and access and egress routes. The majority of roadways within the county are two lane roads, which limit capacity of both egress and access. Roadways that contain more than two lanes are present but pose challenges such as pinch points and bottlenecking. For planning purposes, the capacity of all roadways should be assumed as two lanes. Additionally, there is a robust tourism industry year-round, which presents a significant logistics issue for residents and visitors if they are required to evacuate an area due to a wildfire. Non-residents and tourists not familiar with the road system can easily become confused and further complicate the evacuation effort. There are areas within these travel routes that have vegetation encroachment that presents a significant risk during a wildfire and may be impacted or rendered unsafe.

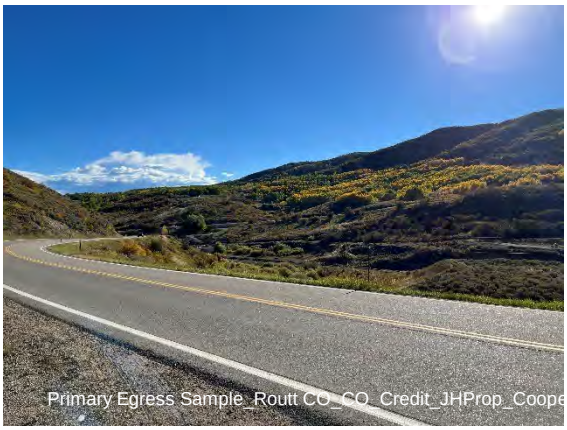


Figure 27: Primary Egress Route (Highway 131)

During an emergency, “flow-contra flow” (opposing traffic movements) is a major concern. Many roads have security gates or cattle guards and are very narrow, have steep grades, are not paved, have switchbacks, and/or have sharp curves, all of which present challenges for fire personnel responding into an area and residents leaving.

There are numerous Forest Service roads, neighborhood roads, private roads, and secondary routes that lead to primary routes. These primary routes include County Road 129 to the North, U.S. 40 to the West and East, and State Highways 131 and 134 to the South. Part of the short-term solution is to provide public education and situational awareness to residents living in and tourists visiting these areas. The long-term solution is to reduce and/or eliminate hazard fuels threatening access and egress routes.

Figure 28: County Road 129

Figure 29 identifies evacuation corridors within the County and the risk associated with each. These roadways are the anticipated evacuation corridors but are not restrictive. Other roads within the county may be used during an evacuation. Some

roadways have been identified as potential future evacuation corridors. These roads require improvements or mitigation work adjacent to the roadway to be suitable for use during a wildfire evacuation. Figure 29 ranks risk to transportation routes in Routt County by overlaying the CO-WRA FIS layer over the mapped transportation routes. The highest intensity areas are marked Primary, while the High to Low intensity areas are grouped together to form the Secondary ranking.

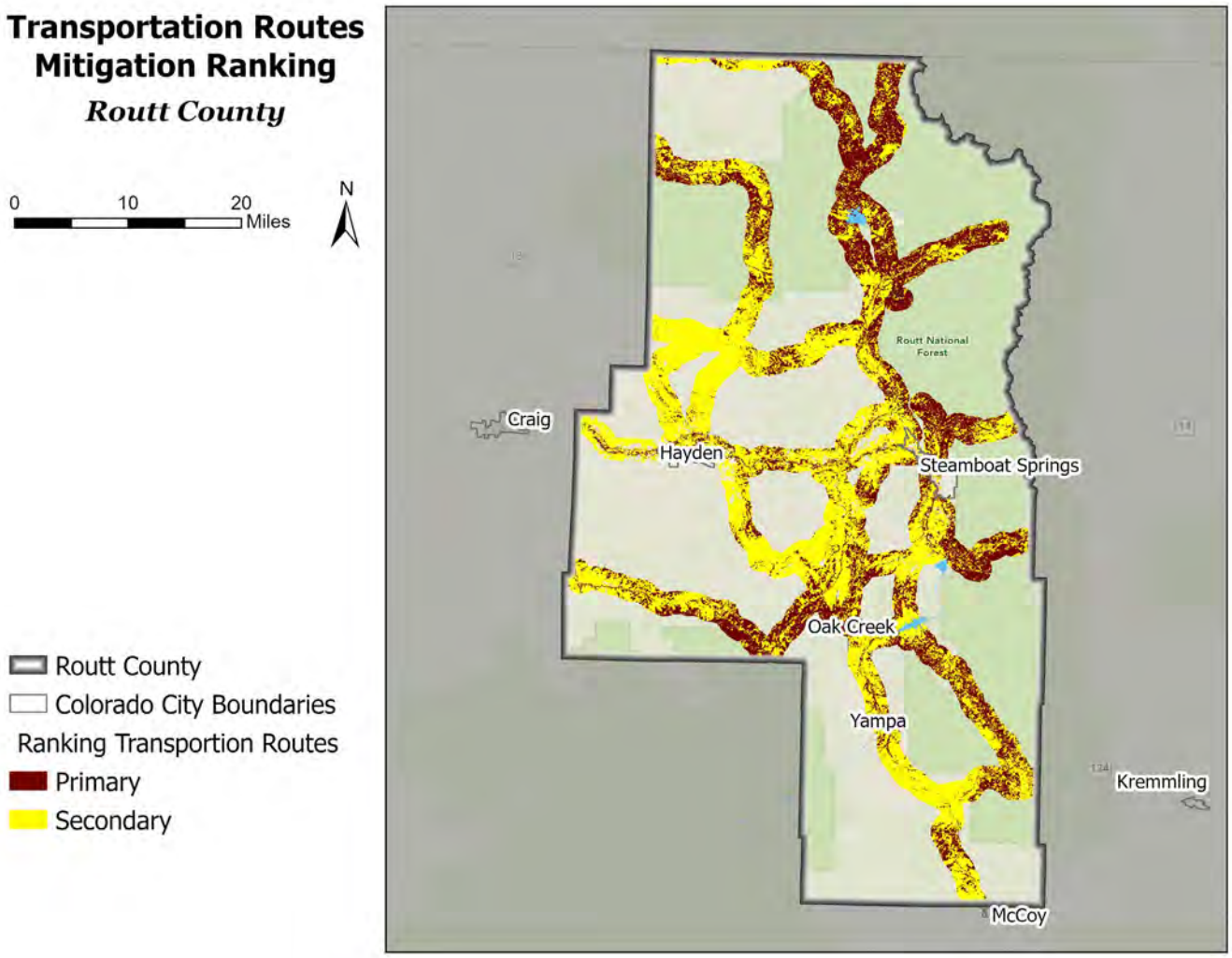


Figure 29: Mitigation Ranking of Critical Transportation Routes

Potential Evacuation Issues

The following outlines a few issues that may be encountered with evacuation and should be considered by the emergency operations planning staff responsible for evacuation planning:

- Residents and business-owners likely do not have established preparedness plans. Public outreach and education will correct this.
- Residents and business-owners may choose not to evacuate but rather to stay and defend their homes/businesses or decide to shelter-in-place until the fire danger passes. These residents and business-owners can put their life safety at risk, as well as that of emergency personnel. While they should be aware of alternatives, they must understand the potentially fatal consequences of not having a wildfire preparedness plan (Ready, Set, Go!).

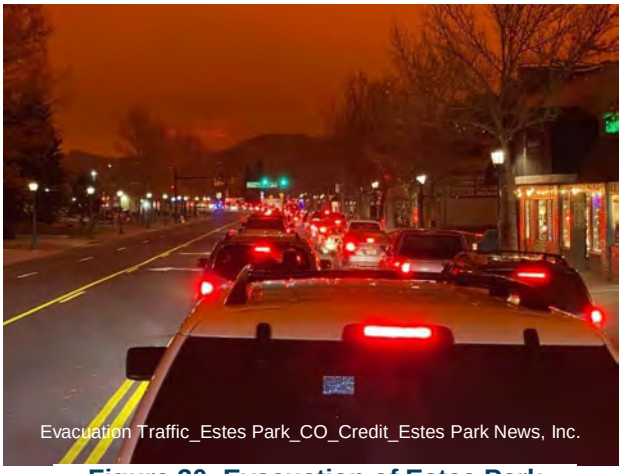


Figure 30: Evacuation of Estes Park During East Troublesome Fire

- Individuals often delay their evacuation with the intent of defending their property, or to shelter-in-place, or are slow to leave their homes due to packing personal items and thereby jeopardizing their life safety. Through public education, they must be made aware of the consequences.
- Latest research in social behaviors in wildfire evacuations indicate that people tend to take multiple vehicles when fleeing their homes. This can introduce additional demands on the transit networks and should be considered as part of an evacuation management plan.
- Vulnerable populations and/or individuals with limited mobility may need additional support, assistance, and time during an evacuation from wildfire.
- Evacuating pets, service animals, and large animals pose significant problems since panicked animals behave unpredictably and may refuse to respond to normal handling approaches.

Temporary Refuge Areas

A Temporary Refuge Area (TRA) is a last resort where a person can survive convective and radiant heat. This typically is an area devoided of wildland fire fuels. The purpose of the TRA is to give evacuees and firefighters temporary relief from life threatening heat and smoke and the opportunity to reevaluate conditions and determine if escape routes are viable. TRAs include road intersections, irrigated fields, sports complexes, parking lots, or large open areas with little or no fuel. Even the inside of a structure can protect a person from extreme heat and smoke and provide a temporary haven during the passage of a fire front. The primary goal is to evacuate the area ahead of the fire. However, it is possible that civilians may not be able to leave before the fire front encroaches upon their location and a TRA is the only alternative. Locations of potential TRAs should be developed at the local level and would be shared through Routt County Alerts at the time of the event.

6.2.2 Critical Infrastructure

Critical infrastructure was identified as one of the four priority areas of this plan due to its importance to essential functions, its prevalence throughout the county, and its risk of negative impacts from wildland fire. The importance of protecting critical infrastructure is highlighted throughout the Marshall Fire Mitigation Assessment Team: Best Practices for Wildfire-Resilient Subdivision Planning report, which FEMA wrote following the 2021 Marshall Fire in Boulder County, Colorado, to provide local agencies with wildfire resiliency planning strategies. In the report, the Fire Mitigation Assessment Team states:

> *Though there are some regulations and guidance on mitigating wildfire risks for electrical infrastructure (e.g., vegetative management around poles and lines), other types of critical infrastructure (e.g., communication systems, road networks, power supplies, water supplies) at various scales have few codes, standards and/or guidance documents for wildfire resiliency, or post-wildfire hazards particularly at the subdivision planning scale. As most critical infrastructure is designed and managed at city and regional scales, most developers, contractors, engineers, and planners have little influence over the wildfire safety provisions for those large-scale systems. Recent and past wildfires have resulted in significant short- and long-term impacts to critical infrastructure (e.g., loss and/or damage of water tanks and associated pumps, post-fire debris flows and landslides washing out transit networks) that have resulted in greater financial losses, increased downtime, extended recovery and rebuilding periods, and general disruption to social capital in communities. Understanding what risks wildfire threats present to critical infrastructure (during and post-incident) in a subdivision, and what types of measures are necessary to protect these assets (pre-, during and post-incident) is critical, particularly where a developer, contractor or designer has control over the protection of those lifeline services* (FEMA, 2023).

Figure 31 ranks risk to critical infrastructure across Routt County by taking the mapped locations of all critical infrastructure and overlaying the CO-WRA FIS layer. The Highest and High intensity areas were grouped to show the Primary risk ranking, while Moderate to Low intensity areas were grouped to show the Secondary risk ranking.

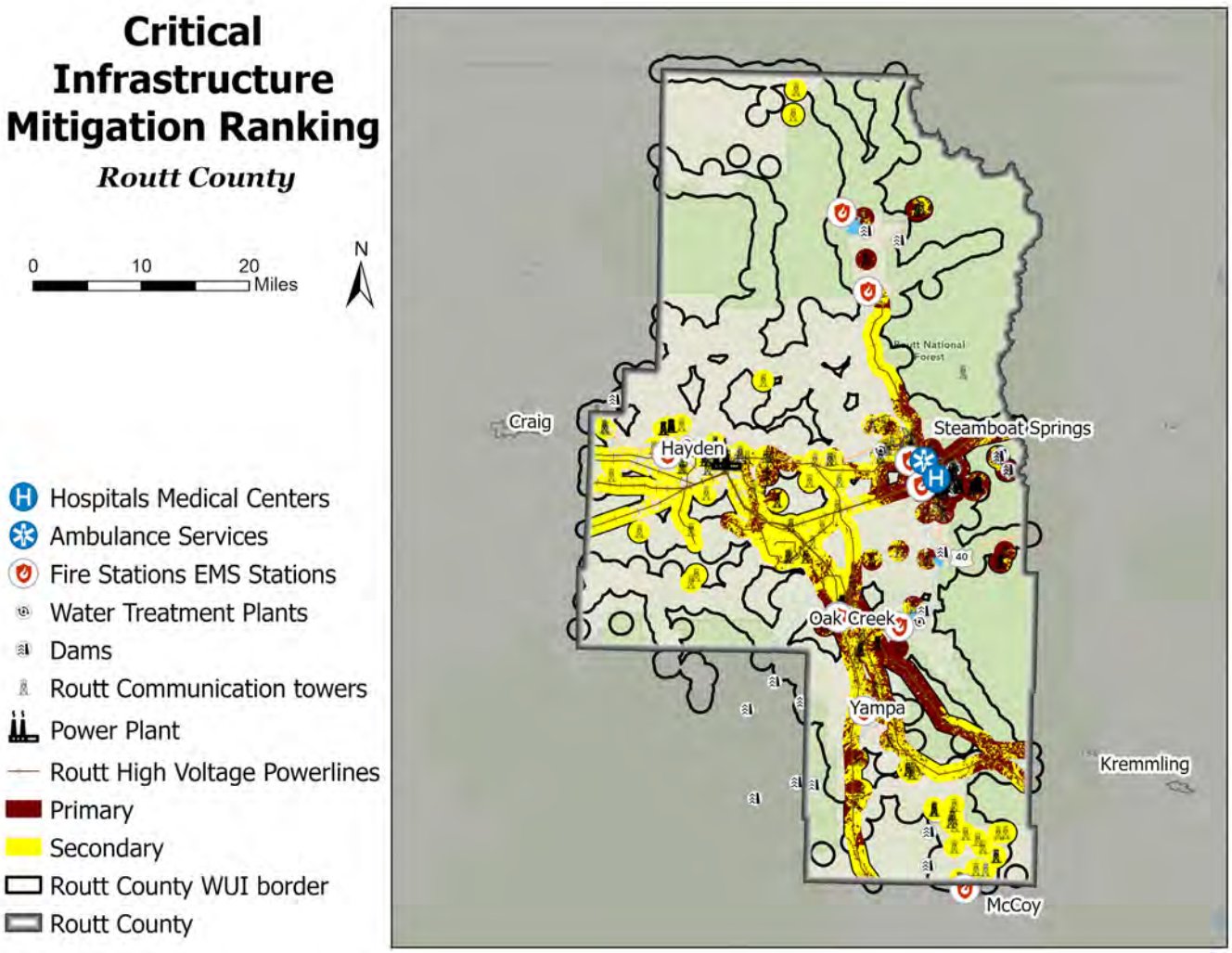


Figure 31: Mitigation Ranking of Critical Infrastructure

6.2.3 Economic Drivers

The economic impacts of wildland fire to a community extend beyond suppression costs and structures lost. To understand the potential economic impact of wildland fire to Routt County, the Steering Committee looked at tourism, recreational use, agriculture, mining, and other economic drivers, and the risk to each, to understand the full impact and prioritize projects to potentially minimize negative impacts. The Southern Fire Exchange, as part of the Joint Fire Science Program, conducted a study on potential economic impacts of wildfire and found, "Among other negative economic effects for communities, wildfires can burn timber, make recreation and tourism unappealing, and affect agricultural production. Local communities often become concerned about the effects of smoke on health and safety, as well. Depending on the severity and location of a wildfire, post-disaster recovery can come with a considerable price tag. Factors that affect state and local budgets in the long-term include replacement of lost facilities and associated infrastructure, watershed and water quality mitigation, and sensitive species and habitat restoration" (Diaz, 2012).

Figure 32 ranks risk to economic drivers across Routt County by taking the mapped locations of all critical infrastructure and overlaying the CO-WRA FIS layer. There were no areas of Highest intensity risk, so High and Moderate intensity areas were ranked as Primary, while Low to Lowest ranked as Secondary.

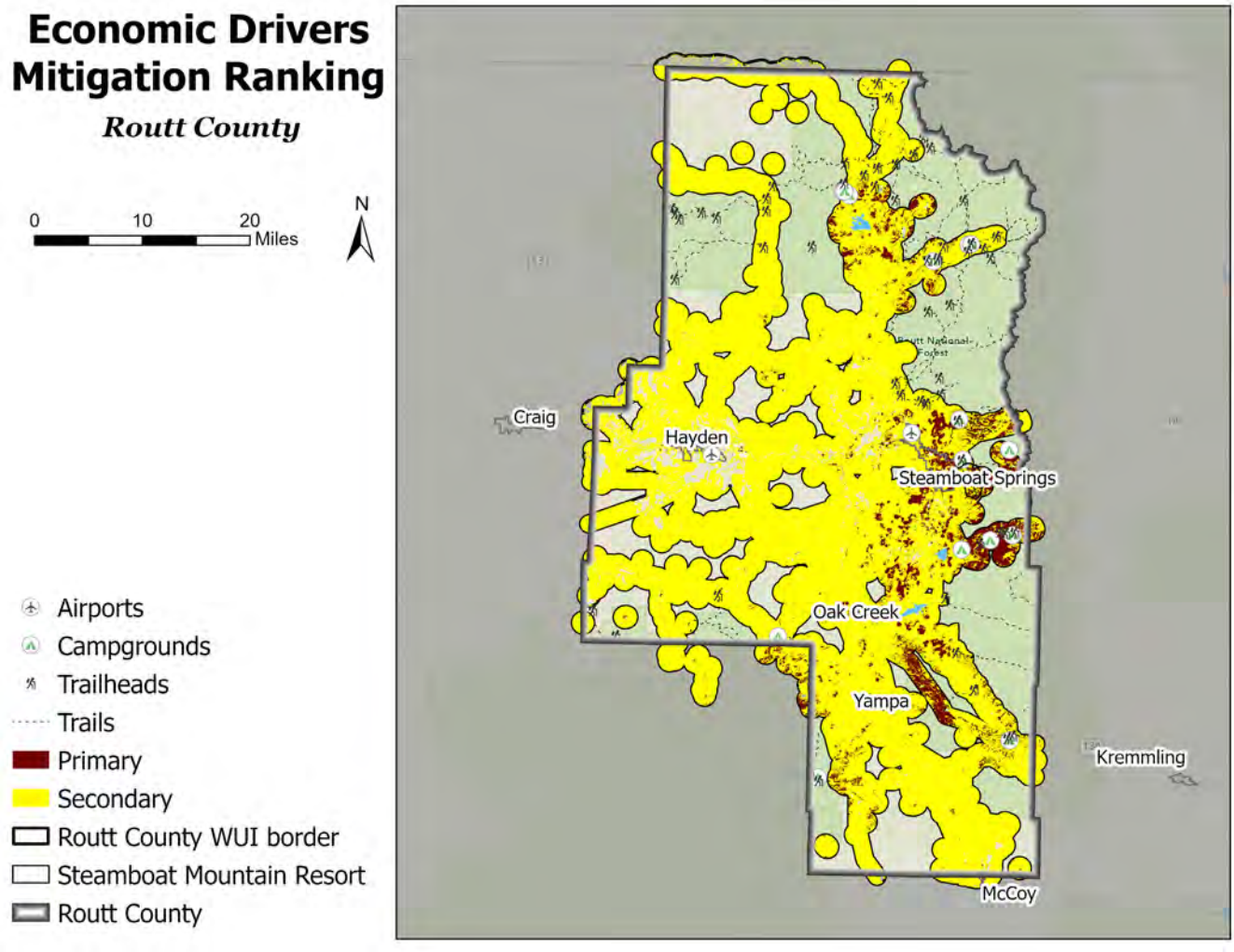


Figure 32: Mitigation Ranking of Economic Drivers

6.2.4 Property

Given that approximately 50% of the land within the Planning Area is held by individuals and not local, state, or federal government, much of the responsibility for mitigating wildfire hazard will fall on individual property owners. These guidelines are also useful for protecting critical infrastructure and economic drivers.

+ Follow defensible space and structural hardening guidelines (HIZ Publication, CSFS 2020).
+ Remove fire susceptible species from the defensible space zones.
+ Remove all combustibles within five feet of a structure. The first five feet from a structure should be free of combustible material of any kind. A recent study focused on the flammability of landscape mulches and found that all of the mulches evaluated were combustible under the test conditions of dry, hot, and windy weather and more than 2½ months of outdoor exposure (University of Nevada Cooperative Extension, 2011). Key recommendations from the study are:
    - Since all mulch tested is flammable, maintain a noncombustible, ignition–resistant area immediately adjacent to the house and other structures. During a wildfire, embers may accumulate in this area, providing an ample source of ignition for combustible materials.
    - Composted wood chips demonstrated the least hazardous fire behavior of the eight mulch treatments tested and would be the best choice for use in a residential landscape in the 5 feet to 30 feet defensible space zone.
+ Implement vegetation treatment standards on larger parcels. On larger parcels where ownership allows for the manipulation of vegetation beyond the defensible space zones, property owners should consider fuel treatments presented in this plan. Additional details are available in Appendix E.

Figure 33 ranks risk to property across Routt County by taking the mapped locations of all property and overlaying the CO-WRA FIS layer. Areas of Highest and High intensity ranked as Primary, while areas of Moderate to Very Low ranked as Secondary.

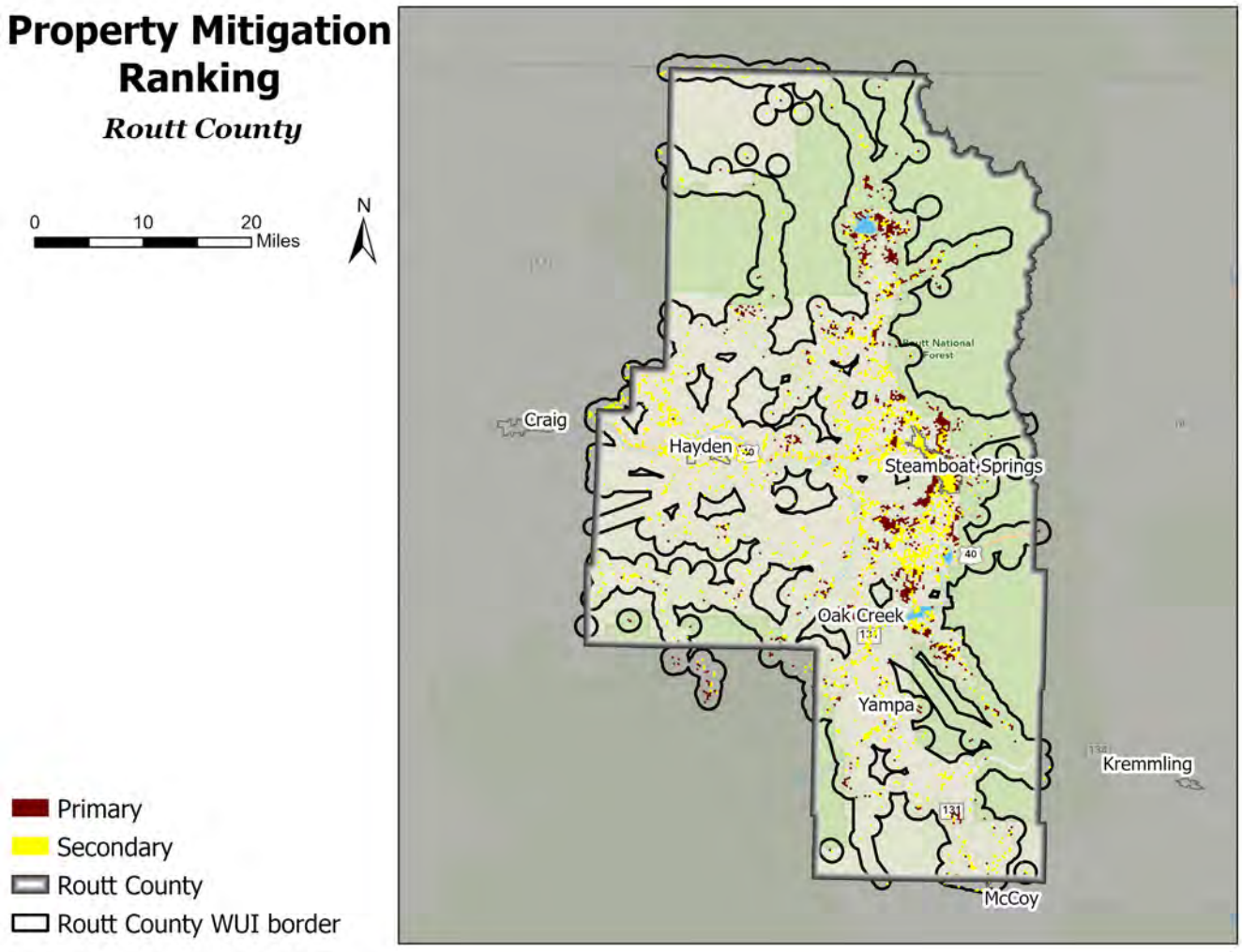


Figure 33: Mitigation Ranking of Property

6.2.5 Countywide Project Recommendations

Routt County has identified the need for high-level, broad project recommendations that should be implemented across the County by various stakeholders or private property owners. The table below identifies these project recommendations.

Table 6: Countywide Project Recommendations

Priority	Action	Responsible Official	Target Completion Date
Life Safety	Conduct roadside fuel treatment projects. Where possible, mitigation on both sides of the roadway is recommended to reduce the potential of spotting across roadways	Local agencies and land managers	Ongoing
	Create a program to identify Temporary Refuge Areas and educate the public on their use, including notification procedures for use of these areas	Agencies having jurisdiction	May 2024
	Evaluate, improve, and implement evacuation plans for communities at risk	All stakeholders	Ongoing
	Evaluate where improvements can be made to existing rights-of-way to improve evacuation capability	Routt County OEM, Routt County Road and Bridge, Local jurisdictions	July 2024
	Implement improvements to existing rights-of-way	Routt County Road and Bridge	2028
	Develop community or district level CWPPs for areas that need additional assessment	Fire protection districts, private property owners, HOAs	As needed
	Improve road signage throughout Routt County	Routt County Road and Bridge, HOAs	Ongoing
Critical Infrastructure	Monitor and update the existing Routt County Evacuation and Sheltering Plan annually	Routt County OEM	Annual
	Develop and implement a plan to harden critical infrastructure assets to include, electric distribution, communication systems, public utility infrastructure, hospitals, schools, temporary refuge locations, etc.	All stakeholders	December 2024
	Using the information on potential water supply sites provided to the county, establish agreements and permissions with landowners pertaining to water supply for fire suppression	Routt County OEM	December 2024

	Develop a list of dry hydrant and cistern locations throughout the county in an effort to create a comprehensive database of water supply locations	Routt County OEM, Fire Protection Districts	July 2024
	Conduct inspection, testing, and maintenance of dry hydrants and cisterns throughout the county to ensure these water supplies are operational when needed	Fire Protection Districts	Ongoing
	Research and evaluate feasibility of implementing lightning protection systems	RCWMC	December 2024
	Increase early detection and suppression capabilities	RCWMC, Fire Protection Districts	Ongoing
	Develop collaboration and contract to install and monitor AI cameras across Routt County	RCWMC	
Economic Drivers	Develop a plan to increase capability for livestock evacuations through shelter locations and transportation of livestock.	Routt County OEM, CSU Extension	May 2024
	Develop a Wildfire Mitigation Plan for the Steamboat Ski Resort	Steamboat Ski Resort	December 2025
Property	Provide guidance and resources for homeowners to protect their homes through structural hardening measures, including defensible space standards and home ignition zone program development and implementation	Routt County PIO, RCWMC, Fire Protection Districts, Local Jurisdictions	December 2024
	Establish biomass removal programs across the county to assist homeowners in their efforts to reduce the risk to personal property.	Routt County OEM, Fire protection districts, RCWMC	August 2024
	Adopt the International WUI Code for new construction and homes and businesses located within fire hazard severity zones identified in the Fire Hazard Severity Zone Map.	Routt County Building Department	December 2024
	Adopt an addressing ordinance to require minimum address markings in accordance with Chapter 13 of NFPA 1140 for Premises identification.	Routt County Building Department	July 2024

	Increase Home Ignition Zone resilience through implementation of vegetation management and structural hardening on individual properties.	Routt County Residents	Ongoing
Public Information	Implement a public messaging campaign targeted at wildfire preparedness	Routt County PIO, CSFS, RCWMC	December 2023
	Adopt and promote NFPA Firewise, CSFS HIZ Guidance, and Ready, Set, Go! Programs across the county to provide consistent messaging	CWPP Steering Committee	December 2023
	Conduct "walk and talk" meetings with HOAs to demonstrate recommended mitigation practices and answer questions about fuels mitigation on private property	Fire protection districts	May 2024
	Conduct HIZ assessments with Neighborhood Ambassadors to expand the reach of education efforts	CSFS, RCWMC, Fire protection districts	August 2024
	Educate the public on grants, tax credits, and other potential funding sources to remove hurdles for mitigation projects on personal property	Routt County OEM	May 2024
	Create notifications through Routt County Alerts in Spanish and any other languages prevalent in Routt County	Routt County OEM	May 2024
Implementation	Monitor progress of recommended priority projects and update as necessary.	Routt County OEM, CWPP Steering Committee	Annually
	Identify opportunities to leverage programs like the Good Neighbor Authority and other opportunities to collaborate across agencies for fuels treatment projects.	All agencies	Ongoing
	Pursue funding opportunities for mitigation projects through multiple avenues to include grants, taxes, mill levies, and any other potential sources.	Local jurisdictions and land managers, RCWMC	Ongoing

6.3 PRIVATE PROPERTY RECOMMENDATIONS

6.3.1 Structural Resiliency Guidance

In the event of a wildfire, firefighting resources may be quickly overwhelmed. Resources will not match the number of structures or values at risk. It may not be safe for firefighters to engage in structure protection due to a variety of factors (e.g., intensity of the fire, weather conditions, local topography, access issues, lack of water supplies etc.). The survivability of a structure in a wildfire event may depend on the overall resilience of the property.

Most actions to reduce the ignition potential of a structure are associated with the structure itself and the surrounding environment from 100-200 feet out from the structure. The primary responsibility for protecting a structure lies with the property owner and is the area within the Home Ignition Zone (HIZ).

The HIZ includes the structure itself and everything from the foundation out 100 to 200 feet depending on fire behavior conditions and CSFS recommendations (CSFS, 2021). Within this 200-foot area, there are three zones:

+ **Zone 1:** Encompasses the structure and all its attachments (e.g., wooden decks, fences, and patios) for at least 30 feet on all sides. In this area:
  - 0-5 feet ("ember-resistant" zone) – The first five feet surrounding any structure and attached deck are the most vulnerable to ignition caused by embers. Avoid anything combustible in this area, including woody plants, mulch, woodpiles, combustible trellises, and stored items. This is an excellent location for walkways, or hardscaping with pavers, rock mulch, decomposed granite, or pea gravel. This should include a six-inch noncombustible zone between the ground and the start of the building's exterior siding
  - Ornamental and wildland vegetation should be carefully spaced, low growing, well-watered, and free of resins, oils and waxes that burn easily.
  - Mow regularly and prune trees up six to ten feet from the ground.
  - Create space between tree crowns and trim back any trees that overhang the house.
  - Create a "fire-free" area within five feet of the home, using non-combustible landscaping materials and/or high-moisture-content annuals and perennials.
  - Remove dead vegetation from under deck, combustible piles, and within 10 feet of house.
  - Consider fire-resistant material for patio furniture, etc.
  - Remove firewood and/or stacks or piles of combustible material; they should not be located in this zone.
  - Water vegetation and mulch regularly.
  - Consider xeriscaping.
+ **Zone 2:** 30 to 100 feet from the home. Vegetation in this zone should be low growing, well irrigated, and less flammable. In this area, provide the following:
  - Leave 30 feet between clusters of two to three trees, or 20 feet between individual trees.
  - Encourage a mixture of deciduous and coniferous trees.
  - Create breaks in vegetation, such as driveways, gravel walkways, and lawns.
  - Prune trees up six to ten feet from the ground.

+ **Zone 3:** 100 to 200 feet from the home. Thinning in this area should occur, although less thinning is required than in Zone 2. In this area, provide the following:
  - Thin vegetation and remove heavy accumulation of combustible growth, ground litter, and debris.
  - Reduce the density of tall trees so canopies are not touching.

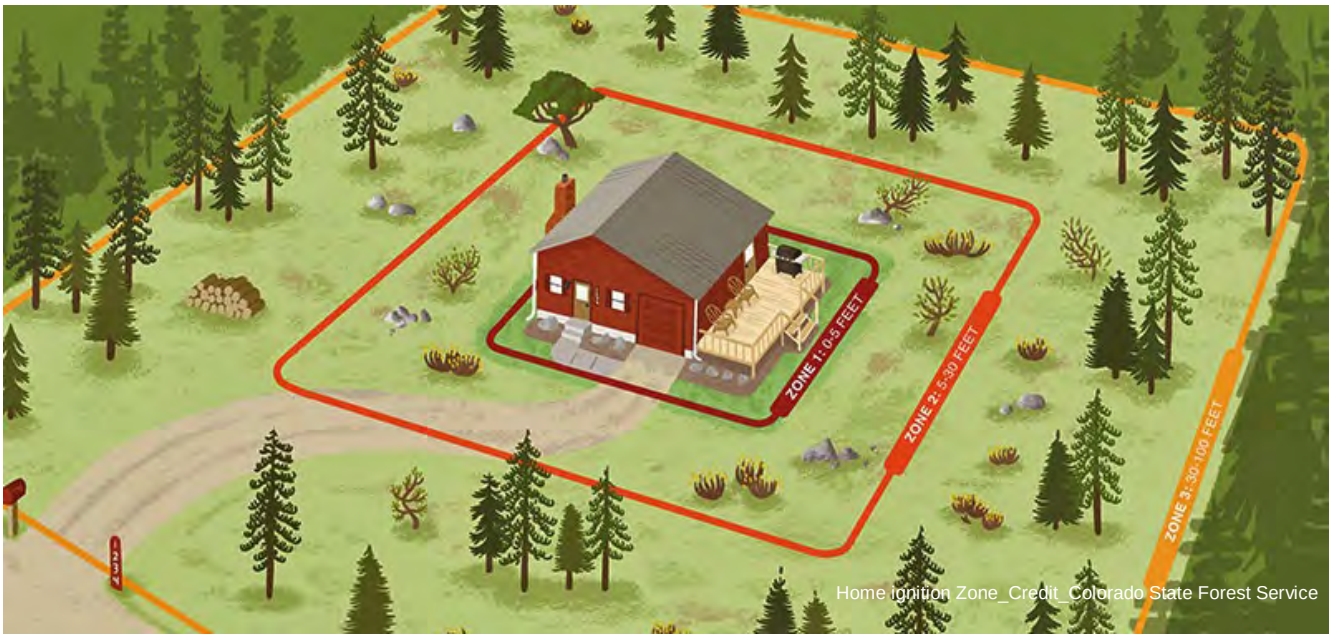


Figure 34: Defensible Space Zones

Table 7 shares specific actions property owners can take to protect their homes.

Table 7: Structure Mitigation Actions

Structure Component	Mitigation Actions
Defensible Space	Refer to HIZ Guidance
Addressing	Provide premises identification at the entrance of the driveway in a manner that is visible from both directions. Characters should be minimum 4 inches tall with a minimum stroke width of ½ inch.
Roof	Replace wood-shake or shingle roofs with a Class-A material suitable for extreme fire exposure. Plug openings in roofing materials, such as the open ends of barrel tiles, to prevent ember entry and debris accumulation. Regardless of the type of roof, keep it free of bird's nests, fallen leaves, needles and branches.
Chimneys	Screen chimney and stovepipe openings with an approved spark arrestor cap with a 1/2-inch screen.
Eaves	Cover the underside of the eaves with a soffit, or box in the eaves, which will reduce the ember threat. Enclose eaves with fiber cement board or 5/8-inch thick, high-grade plywood. If enclosing the eaves is not possible, fill gaps under open eaves with caulk.

Structure Component	Mitigation Actions
Exterior Siding	Noncombustible siding materials (e.g., stucco, brick, cement board, and steel) are better choices. If using noncombustible siding materials is not feasible, keep siding in good condition and replace materials in poor condition.
Windows and Skylights	Single-pane windows and large windows are particularly vulnerable in older homes built prior to current fire codes. Recommend installing windows that are at least double-glazed and that utilize tempered glass for the exterior pane. The type of window frame (e.g., wood, aluminum, or vinyl) is not as critical; however, vinyl frames can melt in extreme heat and should have metal reinforcements. Keep skylights free of leaves and other debris and remove overhanging branches. If using skylights in the WUI, they must be flat skylights constructed of double-pane glass and must be kept free of vegetation.
Vents	All vent openings should be covered with 1/8-inch or smaller wire mesh. Another option is to install ember-resistant vents. Do not permanently cover vents, as they play a critical role in preventing wood rot.
Rain Gutters	Always keep rain gutters free of bird's nests, leaves, needles, and other debris. Roof gutters shall be provided with a means to prevent accumulation of leaves, needles, and debris. Check and clean them several times during the year.
Decks	Keep all deck materials in good condition. Consider using fire-resistant rated materials or heavy timber construction. Routinely remove combustible debris (e.g., pine needles, leaves, twigs, weeds) from the gaps between deck boards and under the deck. Enclosing the sides of the deck may reduce this type of maintenance. Do not store combustible material under the deck.
Combustible Items	Keep the porch, deck, and other areas of the home free of flammable materials (e.g., baskets, newspapers, pine needles, debris). Keep firewood, bales of hay or straw, and other combustible/flammable materials at least 30 feet away from a structure.
Detached Accessory Structures	All detached accessory structures should ideally follow the same provisions as the main structure. Detached accessory structures should be constructed of non-combustible materials or of ignition-resistant materials.

RECOMMENDATION

Provide

- Provide guidance and resources for residents to protect their homes and businesses through structural hardening measures.

6.3.2 International Wildland Urban Interface Code Adoption

The county is in the process of adopting the International Wildland Urban Interface Code (IWUIC) published by the International Code Council (ICC). The IWUIC is a model code that requires defensible space and hardened structure elements based on classification through Fire Hazard Severity Zones. Fire Hazard Severity Zones are determined based on the fuel model, slope, and critical fire weather days annually. Table 8 below shows Table 502.1 from the IWUIC which provides the fire hazard severity categories. These categories dictate different levels of protection required for structures.

Table 8: IWUIC Table 502.1 Fire Hazard Severity

Fuel Model[b]	Critical Fire Weather Frequency								
	≤ 1 Day[a]			2 to 7 Days[a]			**≥ 8 Days[a]**		
	Slope (%)			Slope (%)			Slope (%)		
	≤ 40	41-60	≥ 61	≤ 40	41-60	≥ 61	≤ 40	41-60	≥ 61
Light Fuel	M	M	M	M	M	M	M	M	H
Medium Fuel	M	M	H	H	H	H	E	E	E
Heavy Fuel	H	H	H	H	E	E	E	E	E

E = Extreme Hazard; H = High Hazard; M = Moderate Hazard

a. Days per annum; b. Where required by the code official, fuel classification shall be based on the historical fuel type for the area.

RECOMMENDATION

Adopt

- Adopt the International Wildland Urban Interface Code, as described below

The county plans to adopt the code with local amendments and not in its entirety at this time. The county plans to adopt the following chapters of the 2021 Edition of the IWUIC:

+ **Chapter 1 Scope and Administration:** This chapter outlines the applicability of the code as well as regulatory authority provided to the jurisdiction through adoption.
+ **Chapter 2 Definitions:** Identifies and defines key terminology used throughout the code.
+ **Chapter 3 Wildland Urban Interface Areas:** Defines how WUI areas are determined throughout the planning area and the frequency with which those defined areas should be evaluated and updated.
+ **Chapter 4 Wildland Urban Interface Area Requirements:** This chapter includes requirements for access roads for new developments, water supply, and Fire Management Plans to be submitted for review, which includes vegetation management information as it relates to the site for all new construction.

- **Chapter 5 Special Building Construction Regulations:** Specific requirements will be provided in three classes of ignition resistant construction based on the hazard severity zone where the property is located. Specific components addressed in this chapter include roof assemblies, protection of eaves, gutters and downspouts, exterior walls, appendages and projections, exterior glazing, exterior doors, vents, and detached accessory structures. The county intends to exclude the requirements for 1-hour rated exterior wall construction for this adoption.
- **Chapter 6:** Provides requirements for defensible space including vegetation management and other combustible materials stored on the property. Chapter 6 also includes provisions for residential sprinklers to be installed where Class I Ignition Resistant construction is required.

6.4 PRIORITIZING FUEL TREATMENT ACTIVITIES

Prioritization of projects was determined by a number of inputs: data from the CO-WRA report and theme layers, values at risk, community input, boots on the ground analysis, existing fuels treatments, collaboration potential, and fire history. Proposed mitigation measures are provided below. Projects that have potential to reduce risk through more than one risk component will be given a higher priority. Fuels reduction projects have potential to reduce risk to community values, impact from the hazard, and probability of occurrence and are therefore considered to have the greatest cost to value ratio for community wide risk reduction efforts.

Fuel treatment units should be designed to enhance protection to identified values at risk. This is by no means an exhaustive list, but it provides a starting point for a more targeted fuel management program that can expand over time. By developing a public/private network of fuel treatments, the county can further reduce the unwanted consequences of wildfire. See Appendix E for Prescriptive Guidelines and Best Management Practices for Fuel Treatments.

6.5 COUNTY-WIDE PROJECTS

The following projects are identified as having countywide impact and should be a priority for the county. These are identified projects, not prescriptions. A prescription will be required for each project area by the responsible party or contractor.

Table 9: Countywide Projects – Life Safety

Priority: Life Safety			
Mitigation Project	**Type**	**Method(s)**	**Implementation Leader(s)**
CR 64 Seedhouse Road - Evacuation, EMS Access	Hazardous Fuels Reduction, Road Improvements	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, USFS, NRFPD, CSFS
CR129 - Evacuation, EMS Access	Hazardous Fuels Reduction, Road Improvements	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, USFS, NRFPD
CR 62	Hazardous Fuels Reduction, Road Improvements	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, USFS, NRFPD, CSFS
Stagecoach HOA Common Space	Hazardous Fuels Reduction, adjacent private property hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Town of Oak Creek Fuel Break	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Stagecoach Community Undeveloped Lot Mitigation	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Stagecoach Ski Resort Access/Egress Hardening	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Stagecoach Ski Area Fuel Break (Shaded and Unshaded)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD

CR 25 to CR 27 West of Oak Creek Fuel Break (Shaded and Unshaded)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD, Routt County, Private landowner
HOAs of Stagecoach, Youngs Creek, Henderson Park Wildfire Mitigation	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Lynx Basin Common Areas Wildfire Mitigation	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Cheyenne Trail Access/Egress Hardening	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
CR 8, 14, 16, 25, 27, 134 Access/Egress Hardening	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD, CDOT, USFS
Communities of Blacktail, Trout Creek, Sarvis Creek, Catamount, Henderson Park	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Thorpe Mountain Dr.	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Improve Fuels Treatment Capabilities/Equipment	Capacity Building	Grant Funding, RFP & Implementation	Oak Creek FPD
First Responder Training for all phases of Wildfire Response	Training	Gap analysis, seeking funding, developing/hosting/evaluation training(s)	Oak Creek FPD
County Road 129 - Big Creek to 44A Junction	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, USFS, Private Landowner, CSFS
County Road 129 - 208 Junction to Taylor Creek Drainage	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, CSFS, Private Landowner
County Road 129 - Franz Creek to Wagonwheel Drive	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, CSFS, Private Landowner
County Road 129 - North Fence of Crystal Blue Ranch to Neptune Place	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, BLM, CSFS, Private Landowner
County Road 129 - North Routt Station 2 to Alder Lane	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, USFS

Yellowjacket Pass - Hibbert Lane to CR 220	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Private Landowner
Highway 131 - Oak Creek Wastewater Plant to Clear Springs Trail	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	CDOT
Lynx Pass - Colt Trail to 16/18A Intersection	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, Private Landowner, CSFS
Lynx Pass - 20755 CR 16 to Three Strands	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, USFS, Private Landowner, CSFS
Lynx Pass - 17405 CR 16 to (40.158365, -106.730630)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, USFS, Private Landowner
Lynx Pass - 14500 CR 16 to 270	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, USFS, Private Landowner
Highway 134 - From Toponas Creek Ranch to 270 Junction	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	CDOT
County Road 27 - ½ Mile North of 27/131 intersection to 45Z	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, Private Landowner
County Road 27 - 29/27 Intersection to 27/ Rimrock Trail	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, Private Landowner
Hwy 40 Corridor- Evacuation Routes	Hazardous Fuels Reduction, Ingress-Egress Protection	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	CDOT, USFS, City of Steamboat Springs, Private landowner
Walton Creek Road	Hazardous Fuels Reduction, Ingress-Egress Protection	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs, Private landowner
Fish Creek Falls Road - Evacuation Route	Hazardous Fuels Reduction, Ingress-Egress Protection	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs, Private landowner
RCR 129/RCR44/RCR33/RCR 36/RCR 38 - Evacuation Routes	Hazardous Fuels Reduction, Ingress-Egress Protection	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County, Private landowner

Hwy 131 Evacuation Route	Hazardous Fuels Reduction, Ingress-Egress Protection	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	CDOT, Private landowner
Personnel for Wildfire Response/Mitigation Capability and Capacity	Continue to evaluate needs and increase capability to perform mitigation work and respond to wildfires	Follow SSFD Strategic Plan staffing recommendations	City of Steamboat Springs, SSAFPD
Mitigation and Response equipment capacity building	Continue to evaluate needs and increase equipment capability and capacity to perform mitigation and response	Follow SSFD Strategic Plan staffing recommendations	City of Steamboat Springs, SSAFPD
Increase/Maintain First Responder Training	Continue to monitor and evaluate needs for increase responder and mitigation crew training	Follow SSFR Strategic Plan recommendations regarding training needs	City of Steamboat Springs/SSAFPD
Purchase and implement Bio Char burner and waste diversion and reduction program	Develop program and equipment to assist in removal of fuels and biomass product generated from mitigation efforts	Grant Funding, RFP & Implementation	City of Steamboat Springs,RCWMC
AI Cameras	AI Cameras in Routt County	Develop collaboration and contract to install and monitor AI Cameras	RCWMC
Bears Ears Fuels Reduction and Restoration Project	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS, CSFS
South Routt Fuels Reduction Project	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char, Timber Sale	USFS
FS 440 (closed section - open for secondary evacuation)	Hazardous Fuels Reduction, Road Improvements	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS
550 Fuel Break	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS

CR 129 Fuel Break	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS
Buffalo Pass Fuel Break and Road Improvement	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char, Road Improvements	USFS
Walton Peak East	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS
Walton Peak West	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS
Seedhouse Corridor - including Guard Station, Trailheads, Evacuation Routes,	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS
Canyon Valley Subdivision	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	West Routt FPD
Fish Creek CWP2 (2019)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication	City of SS, MT Werner Water, USFS
Clean Air Shelters & Air Quality Monitors	Air Quality Concerns	Set up a network of public shelters in keay areas of the County. Set up a network of Air Quality Monitors and inform public on these resources	Routt County, Council

Table 10: Countywide Projects – Critical Infrastructure

Priority: Critical Infrastructure			
Mitigation Project	**Type**	**Method(s)**	**Implementation Leader(s)**
King Mountain Repeater Site	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	BLM
Willow Creek Dam - Steamboat Lake SP	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	CPW
Steamboat Lake Water and Sanitation District (SLWSD) Water Treatment Plant (RCR 129)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	SLWSD, NRFPD
SLWSD Wells	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char, Annual Mowing	SLWSD, NRFPD
NRFPD Stations 1 & 2	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char, Mowing	NRFPD
NRFPD Dry Hydrants	Maintain Access, Road Improvements	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char, Road Maintenance	NRFPD
Cell Phone repeater sites	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Various
County Roads south of Clark (56, 54, 52)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County
Subdivision roads	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	HOAs, NRFPD
Repeater and Communication Sites within OCFPD	Hazardous Fuels Reduction, Infrastructure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Secure Temporary and Permanent Housing for Fire Staff	Capacity Building	Grant Funding, State and Federal Assistance, RFP & Implementation	Oak Creek FPD
Aid in Emergency Response by Improving Road Signage	Capacity Building, Access-Egress Improvement	Grant Funding, State and Federal Assistance, Community Engagement	Oak Creek FPD

City of Steamboat Springs owned and managed facilities - Focus on critical facilities	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs
Emerald Mountain Radio Towers and Infrastructure	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs,Ortons
Mt. Werner Water Treatment Plant	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs,Mt. Werner Water
Mt. Werner Water Treatment Plant	Water Supply Infrastructure Projects	See details on pages 72 and 73 of FCCWP2 plan	City of Steamboat Springs,Mt. Werner Water
Waste Water Treatment Plant	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs
Yampa Wells Treatment Plant	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs, Mt. Werner Water
Water Pump Stations	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs
Gas Lines, Transfer Stations, Propane Supply	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Atmos,Xcel,Ferrell Gas
Fish Creek Reservoir	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS,City of Steamboat Springs
Yampa River Corridor	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs, YVSC, CSFS
County Shop Facility	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County
Routt County Justice Center	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County
Routt County Jail/CLEF	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Routt County/City of Steamboat Springs
Communications Repeater Sites - Farwell, Sand Mountain, Moon Hill	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS

Flattops Fuels Reduction Project	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS
Buffalo Pass Repeater Site	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS
Walton Peak Repeater Site	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS
Bear River Wildfire Ready Action Plan	Study	Engineering Analysis, Recommended Actions	UYWCD
Bear River Fuels Mitigation Project	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	UYWCD
Hayden Tower Site	Hazardous Fuels Reduction	Mowing	West Routt FPD
Yampa Valley Electric Substation North Routt	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	YVEA
Aboveground Power Lines Districtwide	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	YVEA
High Voltage and Critical Power Lines and transformer stations w/in Steamboat Springs Area Fire Protection District and City of Steamboat Springs	Hazardous Fuels Reduction, Structure Hardening within 100 ft. of power lines	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	YVEA, WAPA
High Voltage and Critical Power Lines	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Xcel Energy

Table 11: Countywide Projects – Economic Drivers

Priority: Economic Drivers			
Mitigation Project	**Type**	**Method(s)**	**Implementation Leader(s)**
Steamboat Lake State Park	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	CPW, CSFS
Pearl Lake State Park	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	CPW, CSFS
Marina @ Steamboat Lake State Park	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	CPW, CSFS
The Cabins at Historic Columbine	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner, CSFS
Vista Verde Guest Ranch	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Home Ranch	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Livestock ranches	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char, Road Improvements	NRFPD, Private Landowner
High Mountain Snowmobile Tours cabin	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS Permittee
Develop and maintain District Wide Community Chipping Program	Capacity Building	Planning, education, capacity building, outreach, implementation	Oak Creek FPD
Steamboat Ski Area	Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Steamboat Ski Resort, USFS, CSFS
Emerald Mountain	Hazardous Fuels Reduction, Fuel Break	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat, BLM, CSFS, CPW, CSLB, Private Landowners
Howelsen Hill Complex	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs

Steamboat Springs Airport - Bob Adams	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs
Steamboat Springs School Properties	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Steamboat Springs School District
Yampa Valley Medical Center	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	UCHealth YVMC
Seedhouse Guard Station (overnight rental)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS
Steamboat Ski Area	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS
Seedhouse Corridor Trailheads	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS
Emergency Watershead Program	Accomplish Pre-work to participate in EWP should the need arise	Cooperative planning and contract development	NRCS, Routt County and City of SS

Table 12: Countywide Projects – Property

Priority: Property			
Mitigation Project	**Type**	**Method(s)**	**Implementation Leader(s)**
BLM Lands within North Routt Fire Protection District	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	BLM
Colorado State Land Board Sections within North Routt Fire Protection District	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	CSFS, CSLB
Pearl Lake	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner, CSFS, CPW
Badger Meadows	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Aspen Heights	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Willow Creek/Steamboat Lake	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner, CSFS
Hahns Peak Village	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Columbine	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner, CSFS
Ranches at Steamboat Lake	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Red Creek	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Captains Cove	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Murphy Larson	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner

Clark	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Elk Ridge	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Seedhouse Road (Jct 129 to Hinman Park)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Hahns Peak inholdings	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Moonhill	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
North Routt Charter School	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, School District
Glen Eden Resort	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Elk River Guest Ranch	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Steamboat Lake Outpost	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Del's Triangle 3	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication	NRFPD, Private Landowner
Clark Store	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication	NRFPD, Private Landowner
Hahns Peak Café	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication	NRFPD, Private Landowner
Steamboat Lake Northwest (CR129-FS42)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner

Steamboat Lake Southwest (FS42 - CR129 @ Clark)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Hahns Peak/Pearl Lake vicinity	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
Clark South (CR56, 54, 52, 44 and other roads)	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner
The Cabins at Historical Columbine - Nat'l Historic Dist	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	NRFPD, Private Landowner, CSFS
Stagecoach Cross Country Ski Area	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Oak Creek FPD
Spring Creek Corridor - From Oak Street to Dry Lake Parking area	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs/USFS
Emerald Mountain	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs
Rita Valentine Open Space Area	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs
Fish Creek Falls Road Adjacent to Cherry Drive, Old Fish Creek Falls Trail Open Space	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs
Willett Heights Open Space	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	City of Steamboat Springs
Fairview/Brooklyn	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Downtown Residential Steamboat	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Commercial District Steamboat	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD

CMC Hillside Area	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
West Steamboat, Milner, Curve, Copper Ridge	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Tree Haus, Steamboat Pines, Dakota Ridge, Country Green, etc.	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
East Steamboat Mountain Area	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Fish Creek Falls, Blue Sage, Huckleberry, Tamarack, Hilltop area	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Elkins Meadows, Steamboat Blvd	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Resort Area, Condos	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Alpine Ranch, Catamount, Storm Mountain	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Fox Estates, Timber Village, Timbers Preserve	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
South Valley, Sydney Peak	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Thorpe Mountain, Yellow Jacket Pass, Blacktail	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD

Whitecotton, Whitewood, Big Valley	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
RCR 33, RCR 33A, RCR 43, Cow Creek, Big Creek Area	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Catamount Lake	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Rural West Steamboat, Milner	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
North Steamboat Springs Area, RCR 129, Elk Park, Mad Creek area	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
Atwood Property - North of CMC	Hazardous Fuels Reduction and Removal	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, SSAFPD
RCR 36/RCR 38, Buffalo Pass, Strawberry Park, Hot Springs Area	HIZ Assessments, Hazardous Fuels Reduction, Structure Hardening	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	Individual Property Owners, HOAs, RCWMC, Routt County, USFS, SSAFPD
USFS Lands within North Routt Fire Protection District	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS
Summit Creek Guard Station - National Historic Register	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Bio Char	USFS
Hahns Peak Lookout	Structure Hardening	Structural improvements within historical context	USFS
Argentine Timber Sale	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS, CSFS
North Routt Fuels Reduction Project	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS, CSFS

Prospector Fuels Reduction Project	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS, CSFS
Steamboat Front Fuels Reduction Project	Hazardous Fuels Reduction	Hand/Mechanical Thinning, Chipping, Piling, Burning, Material Removal, Prescribed Fire, Mastication, Timber Sale	USFS, CSFS

Hazardous Fuels Reductions includes fuel breaks, fuels reduction, vegetation management, wildfire risk and intensity reduction, hazard tree removal, material reduction, removal of all cut material and fuels, etc.

7.0 Strategies for Implementation

This section summarizes the fuels treatment strategy for the County's Planning Area and is based on the need to provide enhanced wildfire protection for the community, while also protecting visual, biological, and cultural resources. This strategy provides broad direction on where and how to manipulate vegetation to reduce wildfire hazard. While the local jurisdictions, county, and state and federal agencies play an important role in fuel mitigation, the greatest responsibility for improvements in the protection of the community rests with individual property owners. The development of adequate defensible space and structural hardening are common needs in the majority of the locations evaluated for this plan and are a priority.

Fuel mitigation treatments are conducted using a strategic plan and the application of treatment techniques. These strategies and techniques are selected based on the fuel types, topography, and the type of protection best suited for the area. The following sections outline the different strategies and techniques as well as the environments in which they are best suited. These are not the same as prescriptions. The prescriptions will use strategies and techniques to provide specific treatment parameters for an area. Some combination of different techniques may be applicable depending on the size and scope of a project.

7.1 FUEL TREATMENT STRATEGY

The fuel treatment strategy for Routt County is to adopt and implement a plan to reduce the severity, threat, and damage from a wildfire through reduction or removal of fuels. This is accomplished through treatments at different scales including:

- **Landscape Scale:** Strategically implemented fuels treatments across the entire planning area
- **Local Level:** Single or multiple agencies implement fuels treatments within their community
- **Individual:** Property owners implement fuels treatments on their properties or neighborhood common areas

7.1.1 Fuel Treatment Techniques

7.1.1.1 *Fuel Breaks*

Fuel breaks are natural or manmade changes in fuel characteristics that affect fire behavior so that fires burning into them can be more readily controlled. In addition to slowing the spread of fires, fuel breaks provide firefighters with anchor points to begin or tie in control lines during fire suppression efforts. The reduced fire intensity through these areas allows firefighters a safer place to operate during a fire and increase the defensibility of adjacent areas. Fuel breaks range from areas where most of the woody vegetation has been removed to areas where a portion of the forest overstory is retained.

- **Shaded Fuels Breaks:** Fuel breaks built in timbered areas where the trees on the break are thinned and pruned to reduce the fire potential yet retain enough crown canopy to make a less favorable microclimate for surface fires. This includes the removal of ladder fuels, downed and dead vegetation, and surface litter.
- **Non-Shaded Fuel Breaks:** Fuel breaks built in timbered areas that are thinned to remove vegetation including the canopy to reduce fire potential.

Figure 35: Example of a Non-Shaded Fuel Break

- **Ingress/Egress Route Fuel Breaks:** Fuel breaks built adjacent to roadways as a means to reduce fire intensity directly adjacent to the roadway, allowing for safe ingress/egress. These breaks are critical to life safety of both civilians and firefighters.
- **Potential Operational Delineations (PODs)** are pre-determined boundaries created to identify the safest and most effective places to control a wildfire. These PODs also allow fires to be managed in small areas. PODs have been developed by the USFS and should be considered in pre-fire planning.

7.1.1.2 *Defensible Space*

Defensible space is the area around homes or structures that has been treated to reduce the structure ignition potential. This includes removal of vegetation and other combustible materials around the structure. Defensible space allows firefighters a safe space to operate during a wildfire but does not guarantee that the structure will not burn.

Figure 36: Example of a Structure Provided with Defensible Space

Defensible space should be provided within the Home Ignition Zone (HIZ). More information about the HIZ can be found at the Colorado State Forest Service website **here**.

7.1.2 Fuel Treatment Methods

7.1.2.1 *Burning*

Broadcast Burn

Broadcast burning is a very efficient and effective method for reducing slash and surface fuels. Broadcast burning also supports natural forest ecology and allows fire dependent species to flourish. This method of treatment is typically cheaper than mechanical treatments but does present some challenges. There are limited opportunities to conduct burns under appropriate fire weather conditions, requires careful planning and execution, public concerns related to smoke and flames, as well as the potential for escape are all things that make broadcast burning difficult to achieve.

Understory Burning

A prescribed fire ignited under the forest canopy that focuses on the consumption of surface fuels but not the overstory vegetation. Underburning is generally used following a pre-treatment such as thinning and/or pile burning to further reduce the surface fuels, help maintain the desired vegetation conditions and enhance the overall health and resiliency of the stand. (US Department of the Interior, n.d.)

Pile Burning

Pile burning involves stacking of slash and litter into piles. These piles are then ignited and monitored until the material has been consumed. Pile burning is an efficient way to remove biomass but still requires labor to remove and stack the slash. Pile burning reflects the same challenges as broadcast burning but is lower in complexity and can be achieved during winter months when there is snow on the ground.

7.1.2.2 *Mechanical*

Mastication

Mastication involves the use of specialized machinery to grind trees, shrubs, and litter into wood chips that are broadcast onto the forest floor. This method is more time efficient than hand thinning but can be costly due to the need for specialized machinery and operators. Special care must also be taken to ensure chip depth does not exceed four inches. Chips deeper than four inches can suffocate new growth while providing an increased surface fuel load.

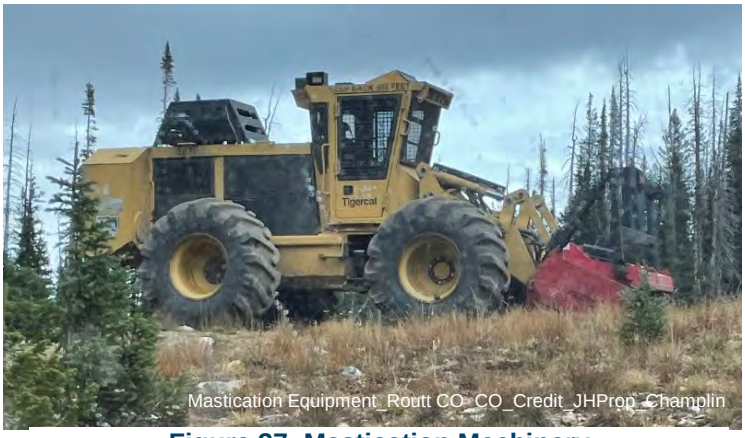


Figure 37: Mastication Machinery

Mowing

Mowing reduces the intensity of fire in light flashy fuels like small shrubs and grasses. Keeping grasses short, especially adjacent to roadways and structures is critical for slowing fire growth and reducing intensities. Mowing is labor intensive and does require maintenance for the treatment to be effective. Mowing also does not address woody surface fuels such as branches that may have accumulated.

7.1.2.3 *Manual*

Hand Thinning and Stacking

This technique involves the manual removal and piling of ladder fuels, standing dead, small diameter trees, and slash. The piles are then removed, chipped, or burned. This process is very labor intensive but is still an effective method of reducing the fuel loading.

Figure 38: Hand Thinning + Stacking

Grazing

Grazing is used to accomplish the same objectives as mowing, through the use of goats or other animals. Grazing is an environmentally friendly option and does have added benefits of native plant and habitat restoration.

7.1.2.4 *Biomass Removal*

Biomass removal is not an issue unique to Routt County, but it is important to establish biomass removal plans and programs. Mitigation efforts are often more effective with biomass removals, although not all mitigation treatments require the removal of biomass. Mastication is often used to change the orientation of fuels, and thus the potential fire behavior, without the need to remove the masticated materials to meet objectives. Examples of biomass removal include chipping programs, pile burning, slash collection yards, selling for manufacturing or repurposing, and air curtain burners.

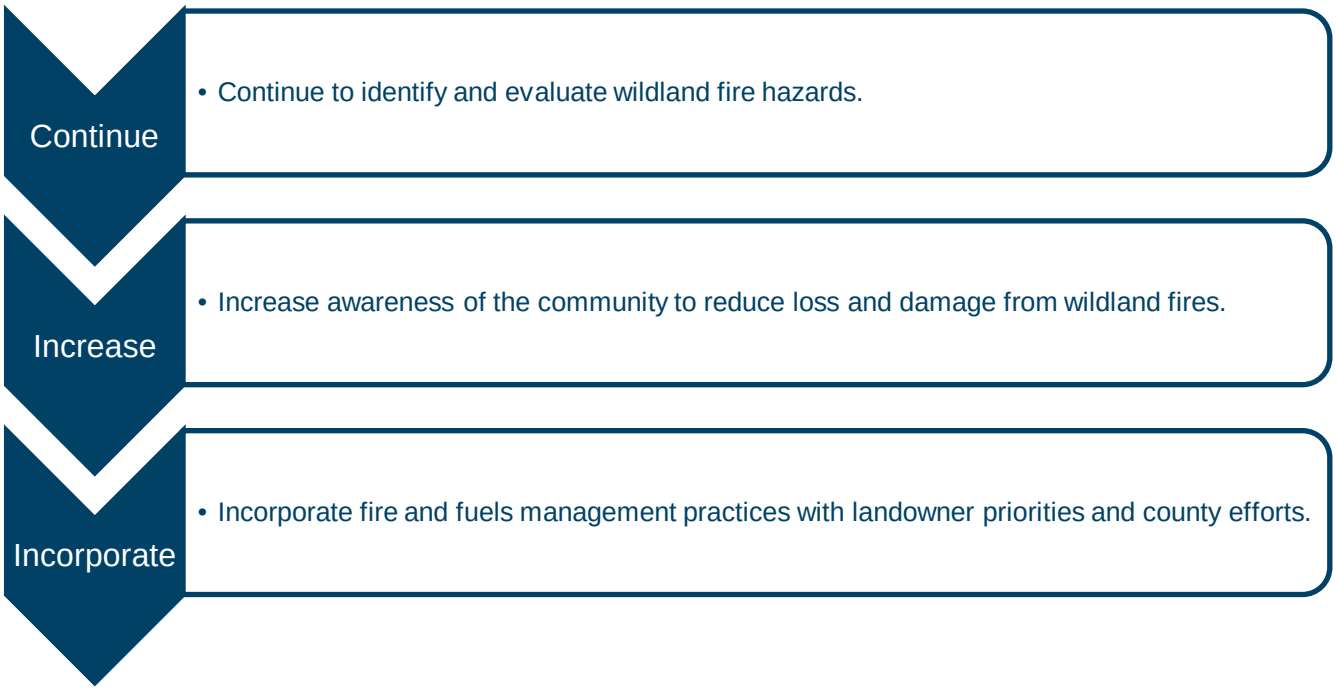
Slash piles represent a concentrated fuel load of dried and cured fuels with potential for high fire intensity and increased ember production. Timely burning of piles is important, and landowners should work with their local fire district to ensure safe and legal burning.

Every effort should be made to work between agencies and with landowners to develop reasonable methods for removal of biomass. Biomass removal was a consistent concern heard from the public during the community engagement meetings.

8.0 Monitoring

This CWPP is intended to provide a foundation for continued multi-agency collaboration and cooperation for fire protection planning efforts in the county. Effective monitoring of wildfire planning efforts provides important opportunities to evaluate the overall success of the CWPP in reducing wildfire risk and improving planning processes. This plan does not end when it is adopted, but evolves with a continuous cycle of collaborative planning, implementation, monitoring, and adapting strategies based on lessons learned.

Basic recommendations that will lead to a successful program are:



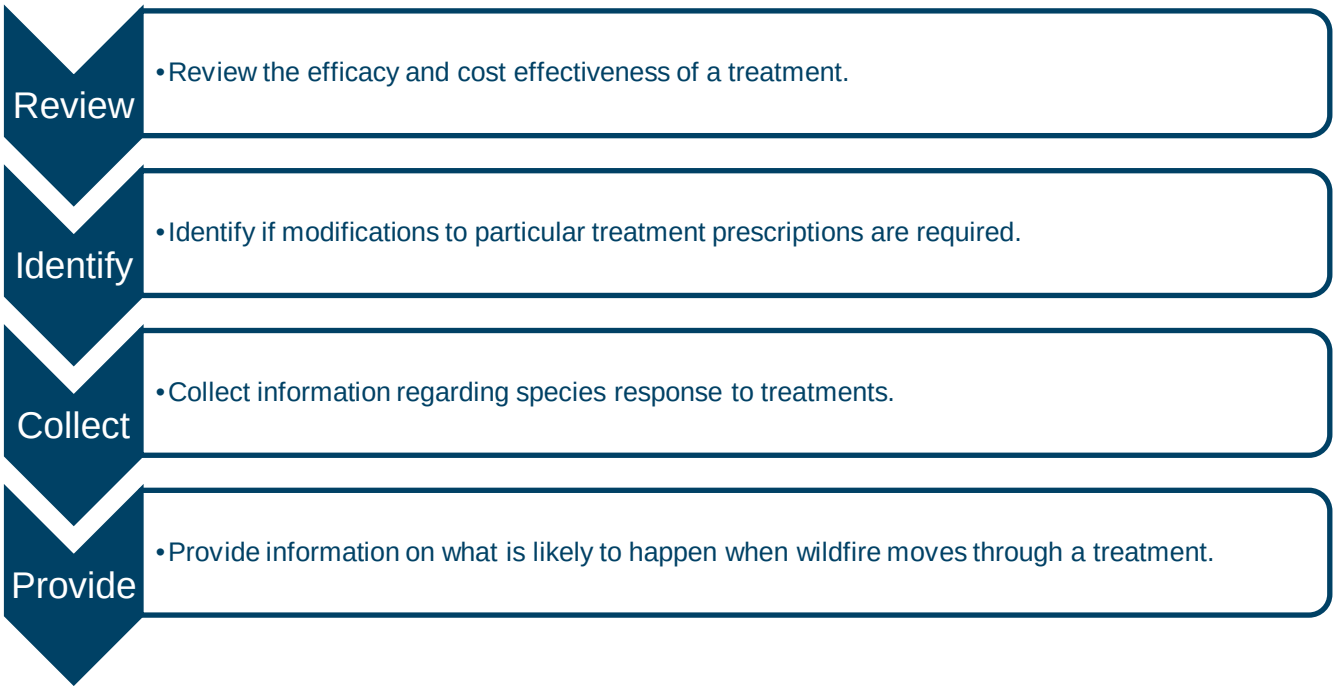
8.1 CWPP MONITORING

The CWPP should be monitored and updated as needed to reflect changes in conditions. At a minimum, the County should revisit the plan annually for a review and to update any changes to the environment or the community. This includes monitoring project progress for both fuels treatments and other recommended projects. The CWPP should have a thorough review and update process conducted every 3-5 years. The process for updates should begin in year three with completion by year five.

8.2 FUEL TREATMENT MONITORING AND MAINTENANCE

Monitoring of fuel treatments is the only way to validate that activities on the ground are progressing towards the goals of more resilient landscapes and the increased safety of people and property. Commitment to monitoring of the Plan can lead to more effective fuels management programs by providing an understanding of how treatments affect wildland fire spread or protect local values at risk.

Monitoring information should be used to:



Developing targeted questions to guide monitoring can aid in formulating a monitoring plan. By focusing on addressing a few key questions, it ensures that the right information is collected to efficiently address specific objectives.

There are essentially three phases of fuels management monitoring: short-term, medium-term, and long-term. Short-term monitoring addresses the immediate results of a treatment, while long-term monitoring can provide information about the effectiveness of fuel treatments to enhance community wildfire resiliency.

The Colorado Forest Restoration Institute has developed simple guidelines for photo monitoring **here** (pages 11-13), which can be applied to any treatment unit.

8.3 DOCUMENT REVIEW AND REVISION

It is recommended to update the CWPP every 5 years, at minimum. In Routt County, this can be done by finding synergies with the update of the County's All Hazards Mitigation Plan, since the CWPP is an annex to the AHMP.

The CWPP Steering Committee will do a review of the CWPP every year, updating project tables, accomplishments, and reviewing priorities. A critical component will be the verification of project reporting on the shared geospatial platform (to be developed by Routt County OEM in the near future). A CWPP Annual Report will be published following each annual review.

Additionally, Routt County OEM, in coordination with the Routt County Wildfire Mitigation Council, will also provide CWPP updates and status on the OEM and/or Wildfire Mitigation Council websites.

The 5 year- update to this plan should include:

- A description of progress made since the CWPP was created.
- A description of demographic changes in the community and other important infrastructure changes.
- Identification of new risks in the community.
- Updated risk analysis if major changes have happened between revisions.
- Updated and prioritized projects for the community with maps and descriptions

The suggested review process involves:

- Reviewing the existing CWPP
- Engaging partners that have a vested interest in the plan
- Hosting collaborative meetings
- Documenting completed projects and demographic and landscape changes
- Developing updated wildfire risk reduction priorities
- Updating maps
- Distributing updated drafts to key partners for review and input prior to final approval
- Finalizing with Planning Group signatures and submit to Colorado State Forest Service.

As the CWPP is a living document, projects can be added as identified and are assigned priority by the Steering Committee responsible for managing the CWPP. Submitted projects will include a prescription for the project area and may be attached as an appendix to this document during its useable life.

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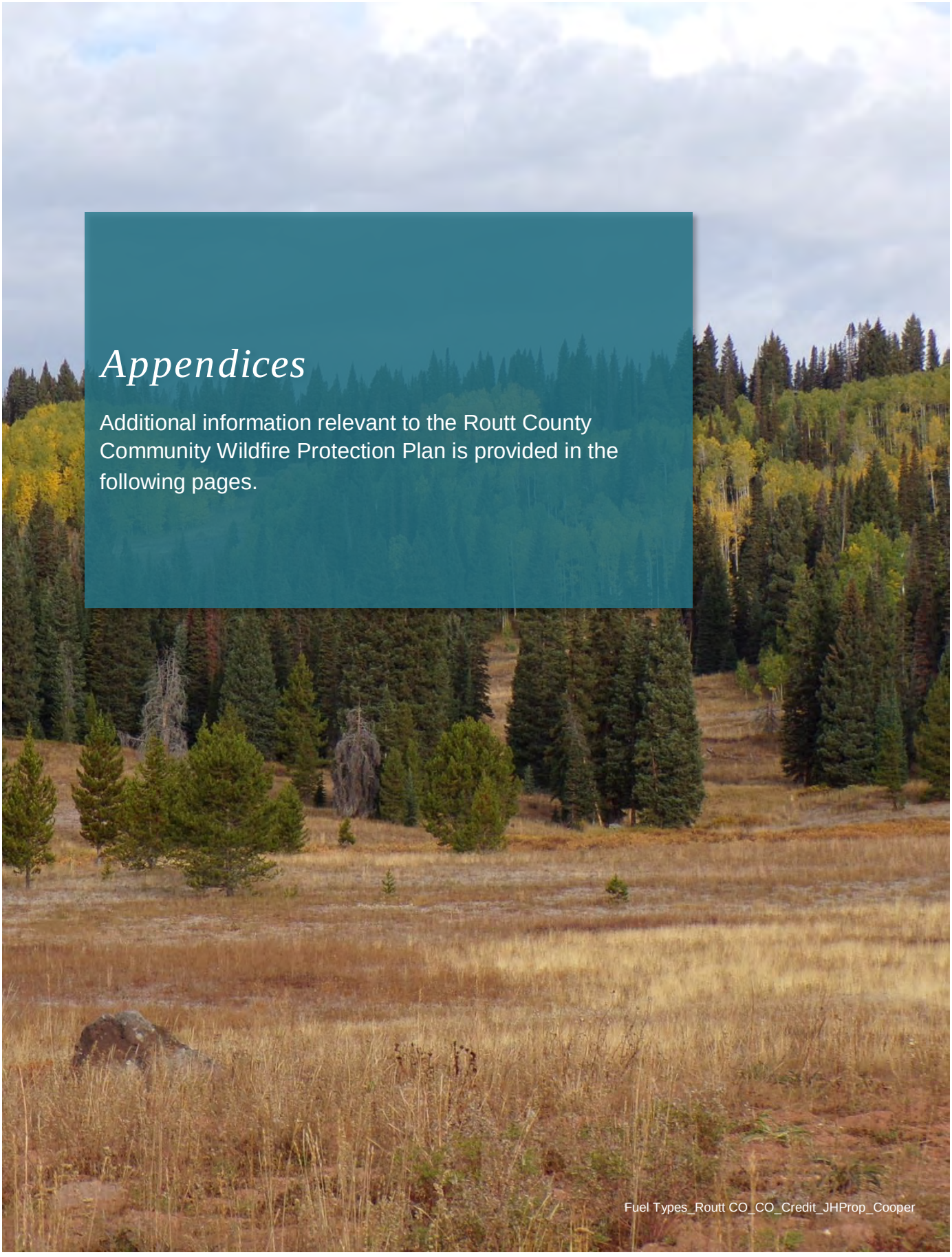
10.0 List of Tables

11.0 List of Figures

Appendices

Additional information relevant to the Routt County Community Wildfire Protection Plan is provided in the following pages.



Fuel Types_Routt CO_CO_Credit_JHProp_Cooper

Appendices Table of Contents

Appendix A – *Glossary of Key Terms*

The following provides a description of terms and words found in or are related to this plan (additional terms are available at http://www.nwcg.gov/glossary):

1-Hour Timelag Fuels (One-hour 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.

10-Hour Timelag Fuels (Ten-hour Fuels): Dead fuels consisting of roundwood ¼ to 1 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.

100-Hour Timelag Fuels (Hundred-hour 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.

1,000-Hour Timelag Fuels (Thousand-hour Fuels): Dead fuels consisting of roundwood 3 to 8 inches in diameter and the layer of the forest floor more than 4 inches below the surface.

Active Crown Fire: A fire in which a solid flame develops in the crowns of trees, but the surface and crown phases advance as a linked unit dependent on each other.

Aspect: Direction a slope faces.

Canopy Spacing: The distance from the edge of one tree canopy to another. Crown spacing varies from open (with 10 feet or more of space between tree canopies) to closed (where trees may be growing in very close proximity with little space between them).

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 atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.

Direct Attack: A method of fire suppression where actions are taken directly along the fire's edge. In a direct attack, burning fuel is treated directly, by wetting, smothering, or chemically quenching the fire or by physically separating burning from unburned fuel.

Fire Apparatus Access Roads (Fire Lanes): The means for emergency apparatus to access a facility or structure for emergency purposes. Roadways must extend to within 150 feet of all portions of the exterior of the first floor of any structure and must meet specified criteria for width, pavement characteristics, roadway gradient, turning radius, etc.

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

Fire Frequency: Temporal fire occurrence described as a number of fires occurring within a defined area within a given time period.

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

Fire Lane Identification: Signs or curb markings that allow fire apparatus access roads to be readily recognized so that they will remain unobstructed and available for emergency use at all times.

Fire Potential: The likelihood of a wildland fire event measured in terms of anticipated occurrence of fire(s) and management's capability to respond. Fire potential is influenced by a sum of factors that includes fuel conditions (fuel dryness and/or other inputs), ignition triggers, significant weather triggers, and resource capability.

Fire Regime: The characterization of fire's role in a particular ecosystem, usually characteristic of particular vegetation and climatic regime, and typically a combination of fire return interval and fire intensity (i.e., high frequency, low intensity/low frequency, high intensity).

Fire Return Interval: The length of time between fires on a particular area of land.

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

Flame Length: The distance from the base to the tip of the flaming front. Flame length is directly correlated with fire intensity.

Flaming Front: The zone of a moving fire where combustion is primarily flaming. Behind this flaming zone, combustion is primarily glowing. Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front.

Fuel: Any combustible material, which includes but is not limited to living or dead vegetation, human-built structures, and chemicals that will ignite and burn.

Fuel Bed: An array of fuels usually constructed with specific loading, depth, and particle size to meet experimental requirements. Also, commonly used to describe the fuel composition.

Fuel Loading: The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

Fuel Model: Mathematical descriptions of fuel properties (e.g., fuel load and fuel depth) that are used as inputs to calculations of fire danger indices and fire behavior potential.

Fuel Moisture Content: The quantity of moisture in fuels expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit.

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.

Gates and Barriers: Devices that restrict pedestrian and vehicle ingress and egress to and from a facility.

Gate and Barrier Locks: Devices that are installed on gates and barriers to secure a property or facility.

Goals: A goal is a broad statement of what you wish to accomplish, an indication of program intentions.

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

Intensity: The level of heat radiated from the active flaming front of a fire, measured in British thermal units (BTUs) per foot.

Ladder Fuels: Fuels that provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. Ladder fuels help initiate and ensure 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.

Mid-flame Windspeed: The speed of the wind measured at the midpoint of the flames, considered to be most representative of the speed of the wind that is affecting fire behavior.

Objectives: They contribute to the fulfillment of specified goals and are measurable, defined, and specific.

Passive Crown Fire (Torching or Candling): A fire in the crowns of trees in which single trees or groups of trees torch, ignited by the passing front of the fire.

Safety Zone: A preplanned area of sufficient size and suitable location in the wildland expected to prevent injury to fire personnel without using fire shelters.

Red Flag Warning: Term used by fire weather forecasters to alert forecast users to an ongoing or imminent critical fire weather pattern.

Riparian: Situated or taking place along or near the bank of a watercourse.

Spotting: Refers to the behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire.

Strategy: The general plan or direction selected to accomplish incident objectives.

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

Surface Fuels: 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.

Topography (Terrain): The term also refers to parameters of the “lay of the land” that influence fire behavior and spread. Key elements are slope (in percent), aspect (the direction a slope faces), elevation, and specific terrain features such as canyons, saddles, “chimneys,” and chutes.

Understory: Term for the area of a forest that grows at the lowest height level below the forest canopy. Plants in the understory consist of a mixture of seedlings and saplings of canopy trees together with understory shrubs and herbs.

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

Wildland Fire Environment: The surrounding conditions, influences, and modifying forces of fuels, topography, and weather that determine wildfire behavior.

Wildfire Risk Area: Land that is covered with vegetation, which is so situated or is of such an inaccessible location that a fire originating upon it would present an abnormally difficult job of suppression or would result in great or unusual damage through fire, or such areas designated by the fire code official. For purposes of this document, Wildfire Risk Area includes Very High Fire Hazard Severity Zones, Wildland-Urban Interfaces (WUI), and similarly hazardous areas.

Appendix B – *2022 CO-WRA Routt County Summary*

Appendix C - *Firefighting Capacity + Fire Behavior Correlation*

Evaluating the effectiveness of firefighting resources against wildfire is a complex matter. On the same wildland fire, there are locations where firefighters can be successful in defending structures or securing portions of the fire's perimeter, while at the same moment in time firefighters elsewhere on the fire are being over matched by the intensity and rate of spread of the fire. Elements such as the alignment of the fire spread (head or flacking fire versus backing fire) can significantly change the fireline intensity faced by firefighters. Other elements which can influence firefighter success include access, topography, the ability to secure a safe operational space, and the availability of aerial resources to support ground operations.

A common standard used to evaluate the potential of firefighting resources to succeed on the fire ground are fire suppression interpretations based on flame length found in the Wildland Fire Incident Management Field Guide (NWCG, 2014). Generally, these interpretations evaluate what type of firefighting resources would be required to successfully suppress the head of a wildland fire based on the observed fire length (Table 19). Since flame lengths can be directly related to potential firefighting success, these breakpoints are used for classifying modeled fire behavior throughout the CWPP.

Table C1: Suppression Capabilities Based on Flame Lengths

Flame Lengths (feet)	Fireline Intensity (BTU/foot/second)	Interpretation
0-4	0-100	Fires can be generally attacked at the head or flanks by persons using hand tools. Handlines should hold the fire.
4-8	100-500	Fires are too intense for direct attack at the head of the fire by persons with hand tools. Handlines cannot be relied upon to hold the fire. Equipment such as dozers, engines and retardant aircraft can be effective.
8-11	500-1,000	Fires may present serious control problems – torching out, crowning, and spotting. Control efforts at the head of the fire will probably be ineffective.
11+	1,000+	Crowning, spotting and major fire runs are common. Control efforts at the head of the fire are ineffective.
Caution: These are not guidelines to personnel safety; fires can be dangerous at any level of intensity. Wilson (1977) has shown that most fatalities occur on small fires or isolated sections of large fires. **Source:** NWCG Fireline Handbook, Appendix B, Fire Behavior, April 2006		

The classifications in Table C1: Suppression Capabilities Based on Flame Lengths provide insights into resource capabilities but can be misinterpreted if applied out of context. For example, 8 foot flame lengths can be successfully suppressed by engine crews using hose lays, if they are able to approach the fire from a direction where convective and radiant heat are focused away from the firefighter. The same 8 foot flame length will likely overwhelm firefighters positioned in a manner where they are receiving large portions of the heat flux from the fire. This can be the case where firefighters are performing structure defense or attempting a frontal assault on the advancing fire front. It has been found that convective energy transferred by wind gusts, fire whirls, or air turbulence can significantly increase the total heat transfer to the firefighter and increase the required safety zone size necessary to engage the fire (Butler, Cohen, 1998).

SUPPRESSION CAPABILITIES

Personnel & Apparatus

Some, if not all, members from the nine (9) agencies are trained for wildfire suppression. The local fire protection districts have well maintained state of the art tools, equipment, and apparatus. However, because of the distances responders must travel and limited access to rural areas of the county, there is a deficient number of firefighting personnel once on scene. It is critical that agencies receive early notification and can arrive early in the fires development to have any realistic chance of containing the fire during initial attack or the first burn period. There are areas within Routt County where the number of personnel available at any one time is not sufficient to contain and control a fire that escapes initial attack. In the past two (2) years, a significant effort has been made to increase wildfire response capability and capacity. Additional seasonal firefighters have been trained at Steamboat Springs Fire Rescue and Oak Creek FPD. However, any fire that escapes initial attack has the potential to become a devastating event to Routt County. The entire response system is very dependent on air resources during initial attack.

Oak Creek firefighters conducting training and vegetation management during the winter.

Fuels Crew_Routt CO_CO_Credit_OCFPD_Glauthier

Figure C1: Training + Vegetation Management

All agencies have at least some apparatus designed for wildfire suppression. All agencies possess at least one (1) piece of wildland fire specific apparatus. Most agencies have some capacity to supply themselves with a water source in the early stages of a fire, however if the fire escapes, water delivery for fire suppression is a concern. In some areas water tenders can take up to 45 minutes to arrive on scene.

Figure C2: Oak Creek Type 6 Engine on the Muddy Slide Fire

Air Resources

Routt County OEM and fire agencies are very aware of the threat that any fire could easily escape during initial attack. Local agencies have become dependent on the notion air resources will support firefighting operations. Air resources have been prepositioned in Routt County and the DFPC Northwest District to assist with wildfire response. However, this resource is subject to availability. Weather and assignments to other fires may limit the effectiveness of using aircraft. Rotary and fixed wing platforms have been assigned to Routt County for the past three fire seasons. Additionally, exclusive use contracts have been secured to ensure air support.

Law Enforcement

Law enforcement, primarily the Routt County Sheriff and local police departments, have been trained to assist with evacuations, traffic control and scene security. However, as with the fire agencies, law enforcement capacity is challenged during a fire. Since deputies and officers maybe pressed into emergency evacuation duties initially, access and egress corridors, roads and highways may become congested, creating access problems for fire suppression personnel.

Fire Protection District Specifics

Steamboat Springs Fire Protection District

Steamboat Springs Fire Rescue is comprised of the City of Steamboat Springs and the Steamboat Springs Area Fire Protection District. It is the central-most local response agency in the Planning Area. The original Steamboat Springs Fire Department was formed in 1898 and has since evolved from a volunteer organization to a full-time career department. It has a total response area of 384 square miles. Steamboat Springs Fire Rescue operates out of three (3) stations, of which two (2) are manned and one (1) is unmanned, with a total staff of 38 career officers and firefighters. Ten (10) personnel staff, two (2) three-person engines, and two (2) two-person ambulances that provide a dual role. Their equipment includes two (2) Type-1 Engines, one (1) Aerial, one (1) Tower, one (1) Type-3 Engine, two (2) Type-6 Engines, two (2) Tactical Tenders, Four (4) Ambulances, and other associated equipment.

North Routt Fire Protection District

The North Routt Fire Protection District (NRFPD) is the northern-most local response agency in the Planning Area. The department was formed in 1974 as the Clark Ambulance Service and became a Special District in 1984, as the North Routt Fire Protection District. The district has a total response area of 687 square miles, 406 of which are the taxpayer district. The district is a combination agency with paid staff and volunteer staff. North Routt Fire Protection District operates out of two (2) fire stations with a total roster of 7 paid positions and 10 volunteer firefighters. Their equipment includes one (1) Type-1 Engine, one (1) 75 ft. Quint, one (1) Type-1 Tactical Tender, one (1) Type 2 Tactical Tender, two (2) Basic Life Support (BLS) Ambulances, one (1) Type-3 Engine, one (1) Type-4 Engine, one (1) Type-6 Engine, one (1) Type-7 Engine, one (1) 4x4 Utility Task Vehicle (UTV), and two (2) Inflatable Watercrafts.

West Routt Fire Protection District

The West Routt Fire Protection District (WRFPD) is the western-most local response agency in the Planning Area. The department was formed in 1963 and has a total response area of 310 square miles. The West Routt Fire Protection District provides fire and EMS service to an area that encompasses a ten (10) mile radius around the Town of Hayden. The West Routt Fire Protection District also provides fire and EMS service to an area outside the district from Wyoming state line to the North, to the Rio Blanco County line to the South, and to the Moffat County line to the West. The district charges a user fee for ambulance service. The district employs seven (7) full-time employees including the fire chief, an assistant chief, and five firefighters, all of whom are emergency medical providers. In addition to the full-time employees, West Routt Fire Protection District employs five (5) part-time EMS providers and one (1) part-time bookkeeper/administrative assistant. Thirteen (13) volunteer firefighters (paid-per-call) and three (3) volunteer (paid-per-call) firefighter/EMT's make up the rest of the department. The district's equipment includes three (3) Type-1 Engines, one (1) 77 ft. Quint Aerial, one (1) Type-6 Engine, one (1) Type-4 Engine, two (2) Type-1 Tactical Tenders, and other associated equipment.

Oak Creek Fire Protection District

The Oak Creek Fire Protection District (OCFPD), located in Routt County on Highway 131, is seventeen miles south of Steamboat Springs. The district's population is approximately 3,000. The district covers approximately 278 square miles. There are two main concentrations of populations: the Town of Oak Creek and the Stagecoach area (adjacent to Stagecoach reservoir). These two population centers are approximately ten miles apart. The OCFPD response is an All-Hazard fire district responding to all types of emergency incidents. OCFPD is also an EMS transporting agency.

The district has three stations: Headquarters located in Oak Creek, the Wildland Barn located in Oak Creek, and the Stagecoach Station located in the Stagecoach neighborhood, next to the Stagecoach State Park. Only one of the stations is manned 24 hours a day and that is the Stagecoach Station. This is because the Stagecoach Station is the only station with crew quarters.

The OCFPD has the following equipment for emergency response:

- Headquarters Station – one (1) Command Vehicle, one (1) Type-1 Engine, one (1) Type-1 Ambulance, one (1) 2,500 Gallon Tactical Tender
- Wildland Barn – one (1) Command Vehicle, four (4) Type-3 Engines, one (1) Type-6 Engine, one (1) Crew Transport, one (1) Chipper
- Stagecoach Station – one (1) Command Vehicle, one (1) Type-1 Engine, one (1) Type-6 Engine, one (1) Type-1 Ambulance, one (1) 2,500 Gallon Tactical Tender, one (1) Utility Vehicle

The Oak Creek Fire Protection District was founded in 1912. For 109 years, the all-volunteer force protected the district. In November 2020, the district was forced to become a combination district due to the significant drop in volunteer participation. The district now has one (1) fire chief, two (2) captains, one (1) lieutenant, five (5) firefighters, and six (6) volunteers, all of whom are full-time firefighters. The district also has a seasonal wildland firefighting division with fifteen (15) seasonal firefighters.

Yampa Fire Protection District

The Yampa Fire Protection District is the southern-most local response agency in the Planning Area. The department was formed in 1981 and has a total response area of 356 square miles. The department is 100% voluntary. Yampa Fire Protection operates out of two fire stations, Yampa and Phippsburg, with a staff of 15 volunteer firefighters and EMTs. Their equipment includes three (3) Type-1 Engines, one (1) Type-6 Engine, two (2) Tactical Tenders, one (1) Rescue, one (1) Ambulance, and other associated equipment.

ADDITIONAL AGENCIES

Craig Rural Fire Protection District

The Craig Rural Fire Protection District is located in Moffat County but has a response area of 100 square miles within Routt County by Elkhead Reservoir.

Colorado State Forest Service

While not a fire protection agency, CSFS serves the citizens of Colorado by actively leading and collaborating in the stewardship of Colorado's forests throughout the state. The CSFS provides technical assistance and forestry expertise to private, state, and federal landowners. It accomplishes its stewardship mission through the planning, implementation, and management of projects, grant funding to achieve forest health and wildfire mitigation, and through providing current science-based information regarding forest health and wildfire mitigation to the public. The Steamboat Springs Field Office of the CSFS is one of four field offices serving the multi-county area of Northwest Colorado.

Colorado Division of Fire Prevetion and Control

The Colorado Division of Fire Prevention and Control (DFPC) is the lead state agency for fire management and works with local, county, and federal agencies to coordinate wildland fire management on a statewide basis. Within Routt County, DFPC has one (1) district chief, one (1) battalion chief, and a suppression module able to assist with response.

United States Forest Service

The Hahns Peak/Bear's Ears and Yampa Ranger Districts manages approximately 980,000 acres of public lands. The agency maintains and staffs a ten (10)-person Wildland Fire Module with a Type-6 engine based in Yampa and a ten (10)-person Type-1 Wildland Fire module based in Steamboat Springs. The agency provides initial response on USFS lands and assists partners on initial response through mutual aid agreements. The agency has two (2) fuels assistant fire management officers: one in Yampa and one in Steamboat Springs. The agency utilizes prescribe fire and mechanical treatments to reduce hazardous fuels on USFS lands. The agency collaborates with local and state stakeholders to help reduce hazardous fuels across landscapes that are identified in the Routt County CWPP.

United State Bureau of Land Management

The Bureau of Land Management manages about 50,000 acres of public lands in Routt County. The agency staffs and maintains two (2) Type-6 Engines, one (1) Type-4 Engine, out of Craig and The Craig Hot Shots, and 1–4-person initial attack squad. The BLM provides support as outlined in the Operating Plan. Support and resource ordering is provided through the Craig Interagency Fire Dispatch Center. Routt County is a cooperator with the Northwest Colorado Fire Management Unit.

Appendix D – *NWCG Standards for Mitigation in the Wildland Urban Interface*

Appendix E - *Fuel Treatment Prescriptive Guidelines + Techniques*

This appendix provides fuel treatment prescriptions and guidelines to assist the county and property-owners in implementing fuel treatments. This prescriptive guidance incorporates fire behavior assessment factors and best management practices (BMPs) for achievable wildfire hazard mitigation actions. Understanding and working within BMP standards will help minimize impacts to surrounding natural resources.

E.1 ROADSIDE FUEL TREATMENT PRESCRIPTIVE GUIDELINES

The following table describes the intensity levels for roadside and driveway fuel treatments:

Table E1: Roadside Fuel Treatment Prescriptive Guidelines

Location – Primary Zone (A) (10' minimum; up to 50') (distance varies with terrain & accessibility)	
Fuel Type	**Guidelines**
Grass/forbs	Reduce fuel depth to less than 2-inch.
Surface dead/down material	Remove all large (>3-inches diameter) dead/down material.
Shrub	Remove all shrub vegetation within this zone. Retain the root system to provide for soil stabilization
Trees Overstory (without shrub understory)	Prune all trees to 6-feet or ½ of the live crown height, whichever is less. Remove dead standing trees and branches extending over roadways to a minimum height of 13 feet 6 inches.
Trees Overstory (with shrub understory**)**	Thinning specifications, same as Trees Overstory (without understory), but remove all understory shrubs below trees in this zone.

E.2 VEGETATION/FUEL TREATMENT PRESCRIPTIVE GUIDELINES

The following table describes prescriptive guidelines for vegetation management in the HIZ.

Table E2: Vegetation Management Prescriptive Guidelines

Location Fuel Type	Primary Defense Zone (A) (0 – 30' from a structure) Based on HIZ Recommendations	Fuel Reduction Zone (B) (30' – 100' from a structure)	Fuel Reduction Zone (C) (100' and greater from a structure) Based on Firefighter Safety
Grass/Forbs	Reduce fuel depth to 2-inches maximum.	Reduce grass height to 4" or less. Longer grass in discontinuous open areas is acceptable.	Treatment may not be needed.
Surface Dead/Down Material	Remove all dead/down materials.	Reduce dead/down flammable material to < 3" depth	Reduce heavier pockets of dead/down flammable material to < 5" depth.
Shrub	Remove all but individual specimen chaparral plants. Individual ornamental/native shrubs should be spaced at a minimum 2x shrub height.	Allow for intermittent small pockets or clumps of shrub vegetation. Pockets and clumps of shrubs remaining should be healthy, all dead material removed and limbed to 1/3 height of shrub crown.	Less intensive shrub vegetation removal with up to 30 feet for spacing of pockets and clumps of shrubs. The remaining pockets and clumps of shrubs should be healthy, all dead material removed.
Trees Overstory (without shrub understory)	Thin smaller trees leaving larger trees (>than 6-inches DBH) at 10-20 ft. crown spacing limb/prune lower branches 6-feet above grade level, or lower 1/3 of tree height on smaller trees. Remove dead standing trees.	Thin smaller trees leaving larger trees (> than 6-inches DBH) at approximately 10-foot crown spacing; limb/prune lower branches 6-feet up, or lower 1/3 of tree height on smaller trees; remove all broken limbs and dead material.	Limb and prune lower branches of larger trees up to 6-feet and remove all broken limbs and dead material.
Trees Overstory (shrub understory)	Thinning specifications: the same as Overstory without shrub understory Zone A. Understory: remove shrub; limb/prune healthy ornamental shrubs to 1/3 of	Thinning specifications are the same as Trees Overstory without shrub understory (Zone B). Understory: occasional less dense shrub or small	Thinning specifications are the same as Trees Overstory without shrub understory in Zone C. Understory specifications are the same as shrub in

Location Fuel Type	Primary Defense Zone (A) (0 – 30' from a structure) Based on HIZ Recommendations	Fuel Reduction Zone (B) (30' – 100' from a structure)	Fuel Reduction Zone (C) (100' and greater from a structure) Based on Firefighter Safety
	shrub height, maintain spacing between shrubs.	tree clump in openings is acceptable.	Zone C except the pockets and clumps are limited to tree openings (non-canopy).

E.3 IMPLEMENTATION GUIDELINES FOR FUEL TREATMENTS

The following describes possible restrictions to implement fuel treatments:

Noxious Weeds

- To limit the spread and establishment of invasive plant species (e.g., noxious weeds) into project areas, all off-road equipment used during project implementation will be washed free of invasive exotic weeds and seeds before entering project areas. If any equipment works in an area where weeds occur, it will be washed to remove weed propagules prior to entering other work locations.
- All equipment staging areas will be located away from known areas with noxious weed occurrences and outside of riparian habitat area.

Cultural Resources

- Any known cultural resources within the proposed treatment area will be protected. If any sensitive cultural resources are found, work will stop, and a qualified Archaeologist will be notified.

Soil and Watershed

- Every effort should be made to minimize damage to the soil surface in order to reduce potential for erosion and sediment transport due to project implementation activities.
- No mechanical equipment use on slopes greater than 30 percent with following exception: Mastication can occur on slopes greater than 30 percent where the equipment is operating on slopes less than 30 percent and accessing steeper slopes with a boom arm.
- Chipped or masticated material may be "blown" back onto the slope where feasible to enhance soil coverage.

E.4 RECOMMENDED BEST MANAGEMENT PRACTICES (BMPS)

- Shrubs will vary in size randomly scattered across the project area. Chipped material should not exceed 4-inches in depth.
- Boundaries between treatment levels will maintain free-form shapes and feathered edges that replicate natural patterns; avoid straight lines by scalloping and feathering along edges of vegetation. The feathering of edges includes undulating edges horizontally and diverse heights of the brush retained on site.
- Precautions will be taken to prevent scarring of trees or retained shrubs by equipment.
- Signs should be posted warning the public of potential hazards during fuel treatment activities.
- Environmentally Sensitive Habitat Areas (ESHA) will be marked on the project area maps.
- Known landslide and unstable areas should be avoided as vegetation treatment activities may result in increased potential for mass wasting and erosion.
- Heavy equipment should not work on slopes greater than 30%. Movement of any heavy equipment across slopes should be minimized. Heavy equipment will not be used in areas any ESHA.
- When operating equipment off of roadways, the use of rubber-tracked equipment, with a low ground pressure coefficient, is preferred.
- When treating herbaceous/grass fuels, mowing or weed whipping is the preferred over discing to limit soil disturbance.
- Required riparian zone setbacks will be identified, mapped, and flagged prior to project implementation work.
- Any project generated vegetation debris shall be removed from the stream course.
- Water bars and other erosion control structures will be located where necessary to limit erosion and associated run-off causing sediment movement into stream courses.
- No servicing or refueling of equipment will occur on site. Operators must remove residues, waste oil, engine coolants, and other harmful materials from all worksites. Spill containment will be established prior to any on-site servicing or refueling, even in approved on-site service locations.

Appendix F – *Community Values*

Routt County is home to several cultural and historical resources including cabins, barns, and homes built by early settlers and historic ranches. Because of the vast history and heritage of the Yampa Valley, several properties have been listed in the National Register of Historic Places. Special consideration should be given to protect these historical sites. See Table 21 for a list of historic places within Routt County.

Table F1: National Register of Historic Places – Routt County

Name	Location
Bell Mercantile	Oak Creek
Christian Science Society Building	Steamboat Springs
Columbine	Clark
Crawford House	Steamboat Springs
First National Bank Building	Steamboat Springs
Foidel Canyon School	Oak Creek
Hahns Peak Schoolhouse	Hahns Peak
Hayden Depot	Hayden
Hayden Rooming House	Hayden
Maxwell Building	Steamboat Springs
Mesa Schoolhouse	Steamboat Springs
Perry-Mansfield School of Theatre and Dance	Steamboat Springs
Rock Creek Stage Station	Toponas
Routt County National Bank Building	Steamboat Springs
Steamboat Laundry Building	Steamboat Springs
Steamboat Springs Depot	Steamboat Springs
Summit Creek Ranger Station	Columbine

Many ranches in Routt County, while not listed on the register, are historic and important to the community. A few are recognized as Centennial Farms for being owned and operated by the same family for over 100 years.

Table F2: Centennial Farms – Routt County

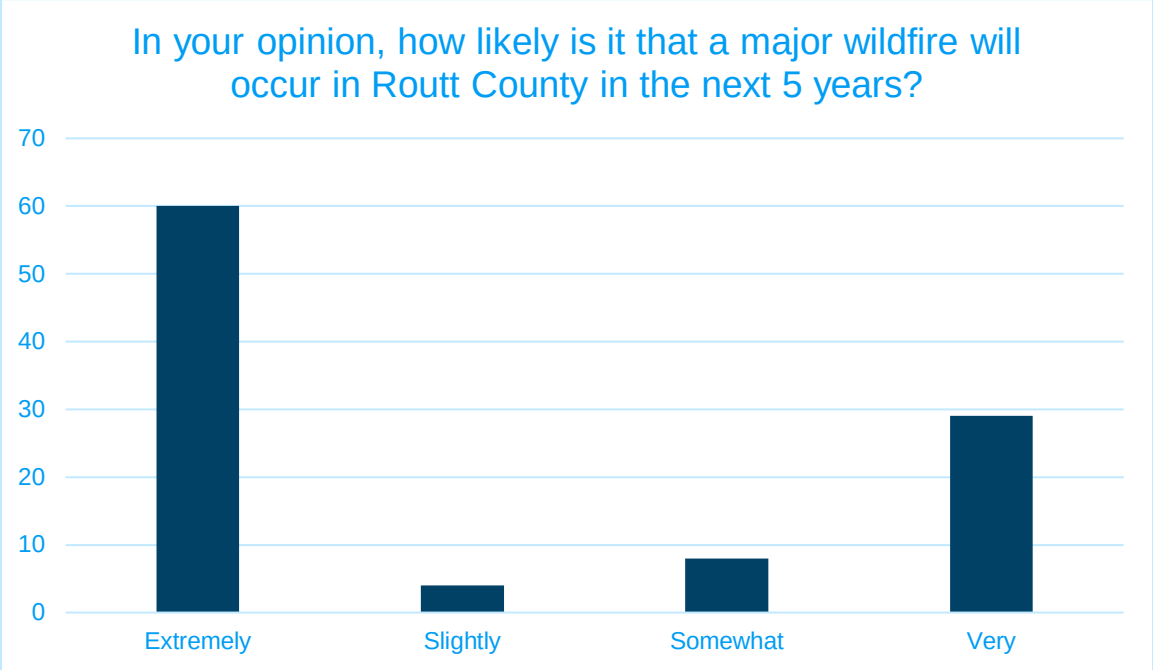
Name	Location	Established
Summer Ranch	Steamboat Springs	1889
Soash Ranch	Steamboat Springs	1904
Zehner Ranch	Hayden	1901
Crags Ranch	Hayden	1895
Hitchens Overlook Ranch	Milner	1886
Sullivan Ranch	Craig	1884

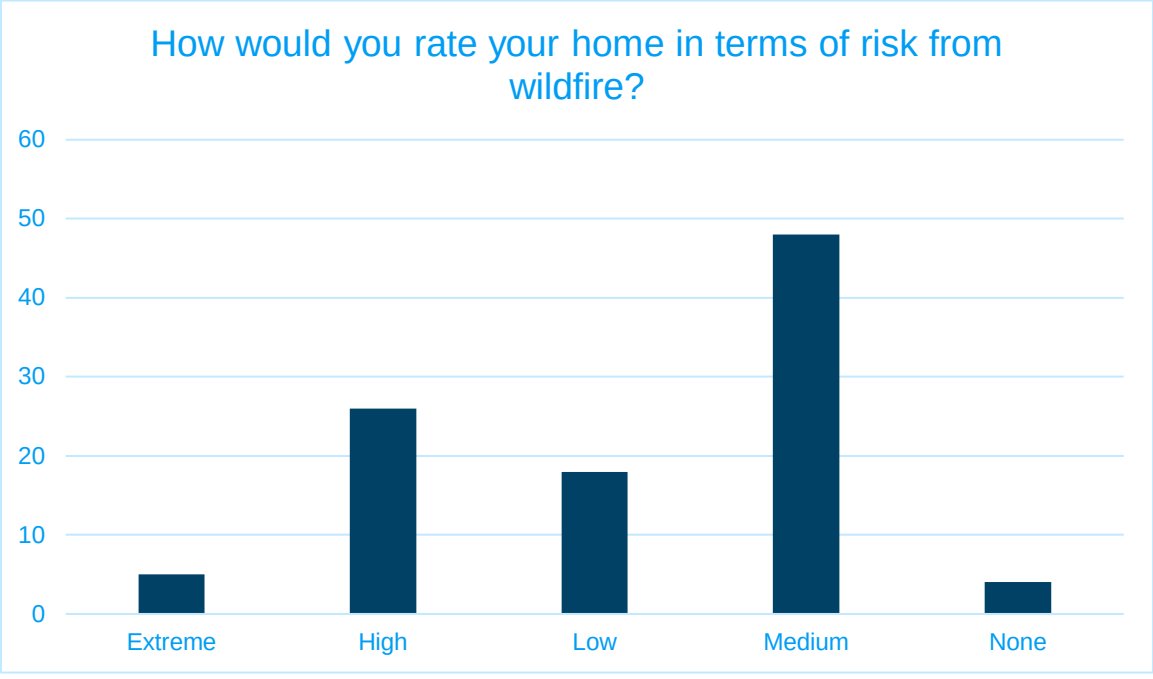
The existing CWPPs used in the development of this countywide plan, may include additional historic areas. Please reference those plans for more information.

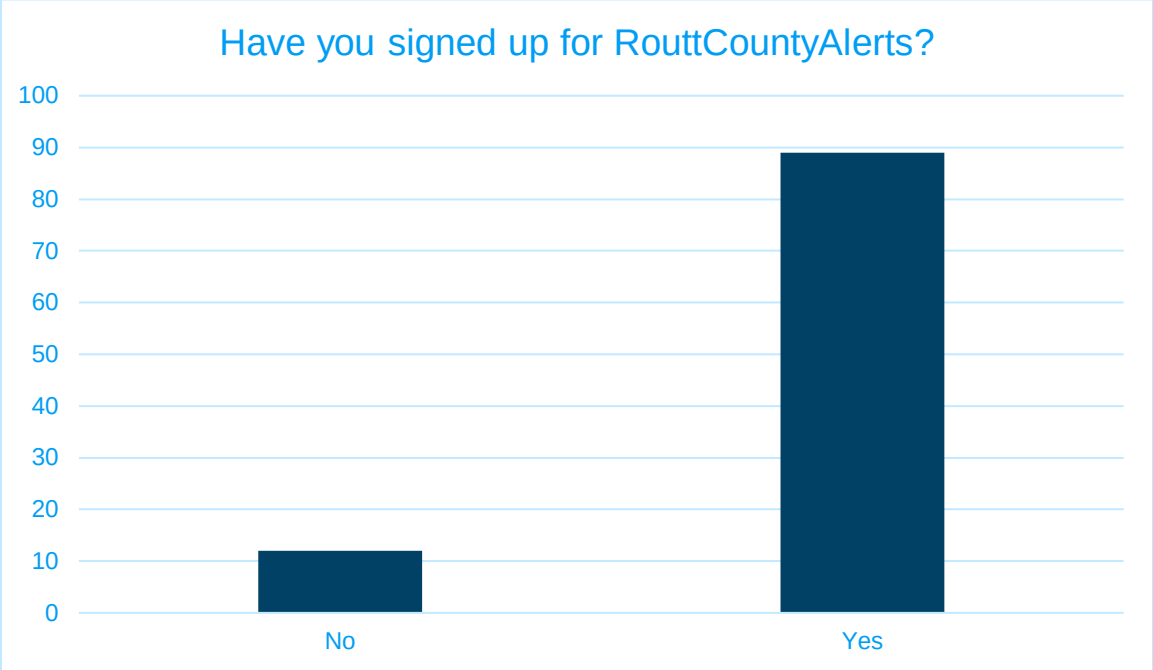
Appendix G - *Community Engagement Attendance*

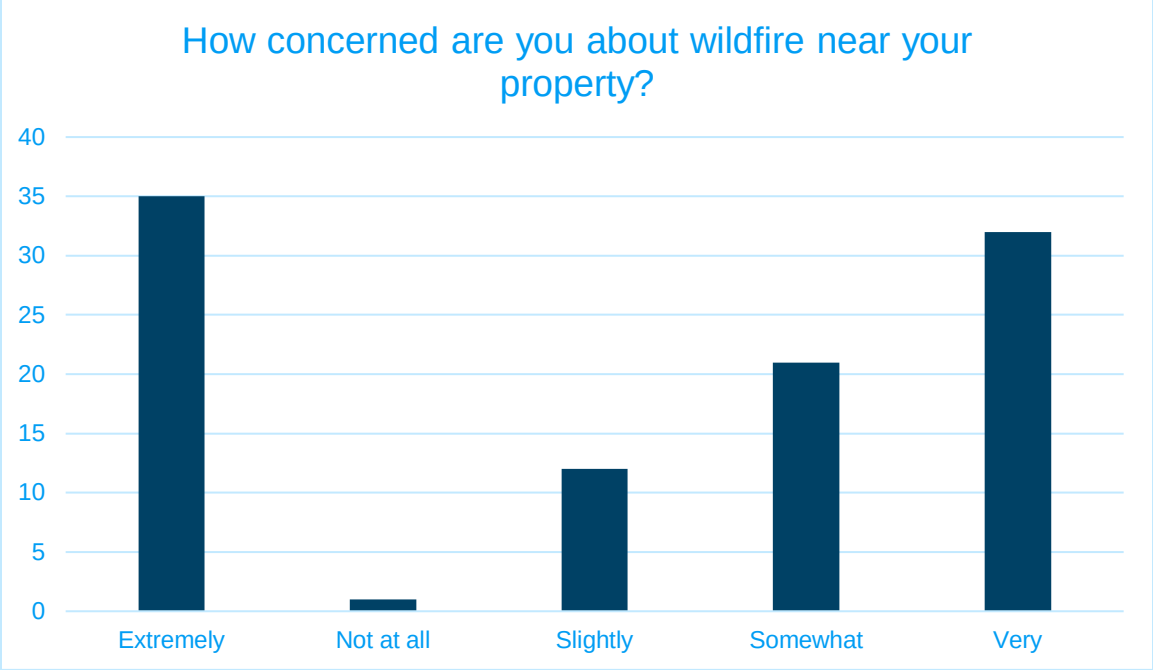
Appendix H – *Community Engagement Polling*

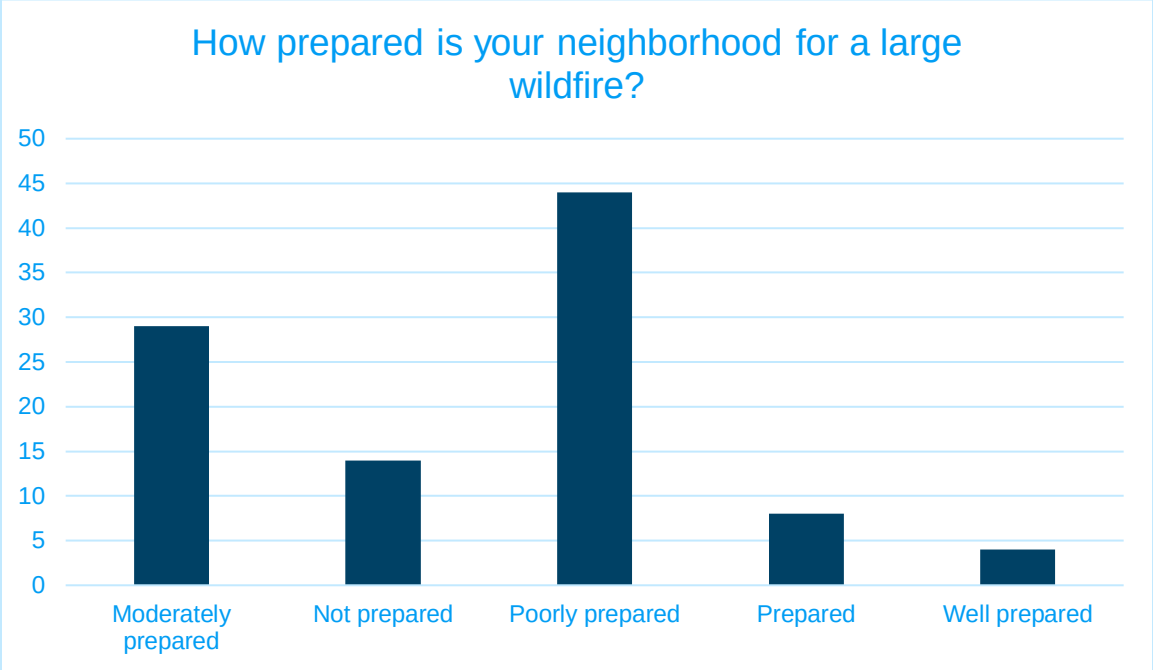
Appendix I – *Results of Public Survey*

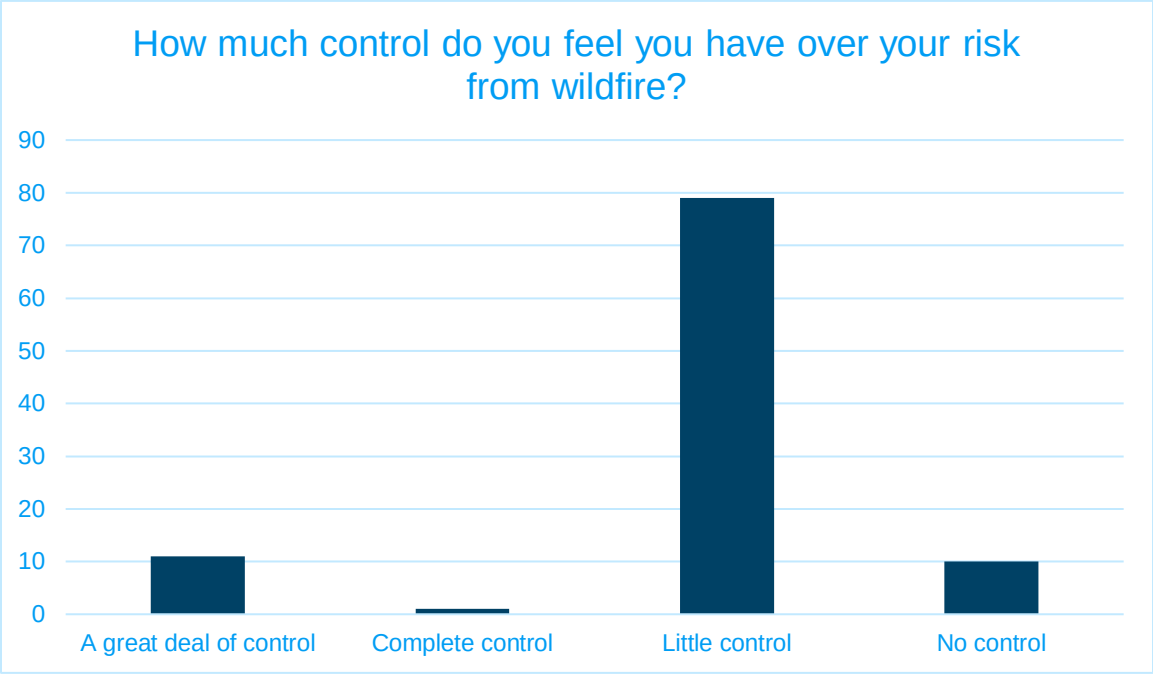


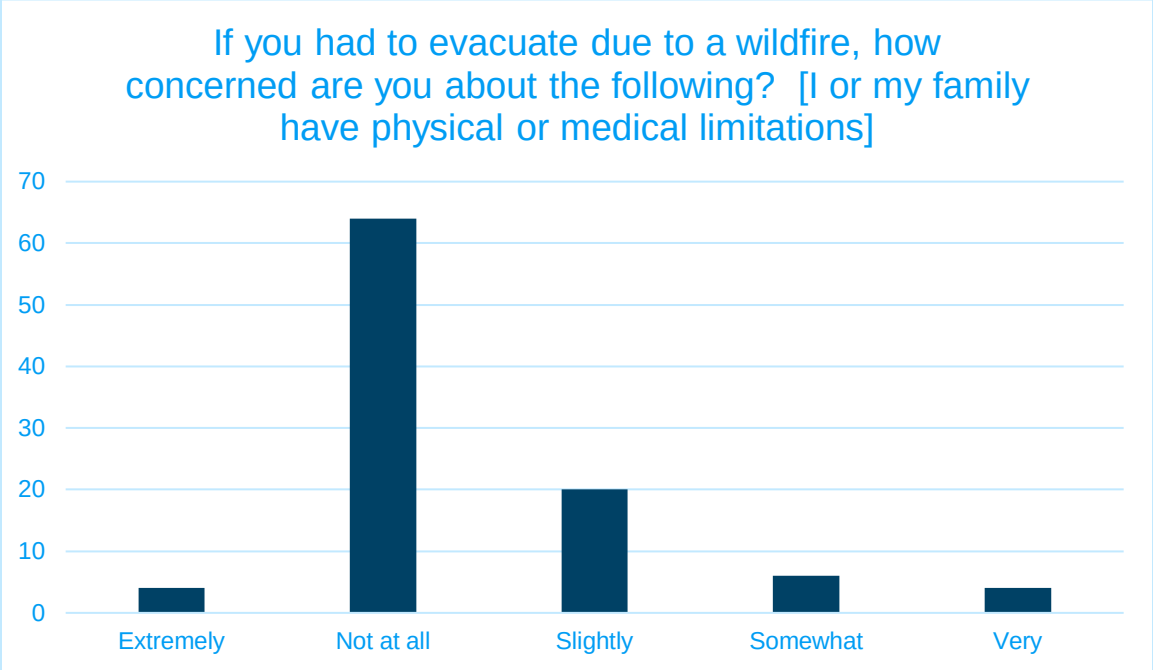


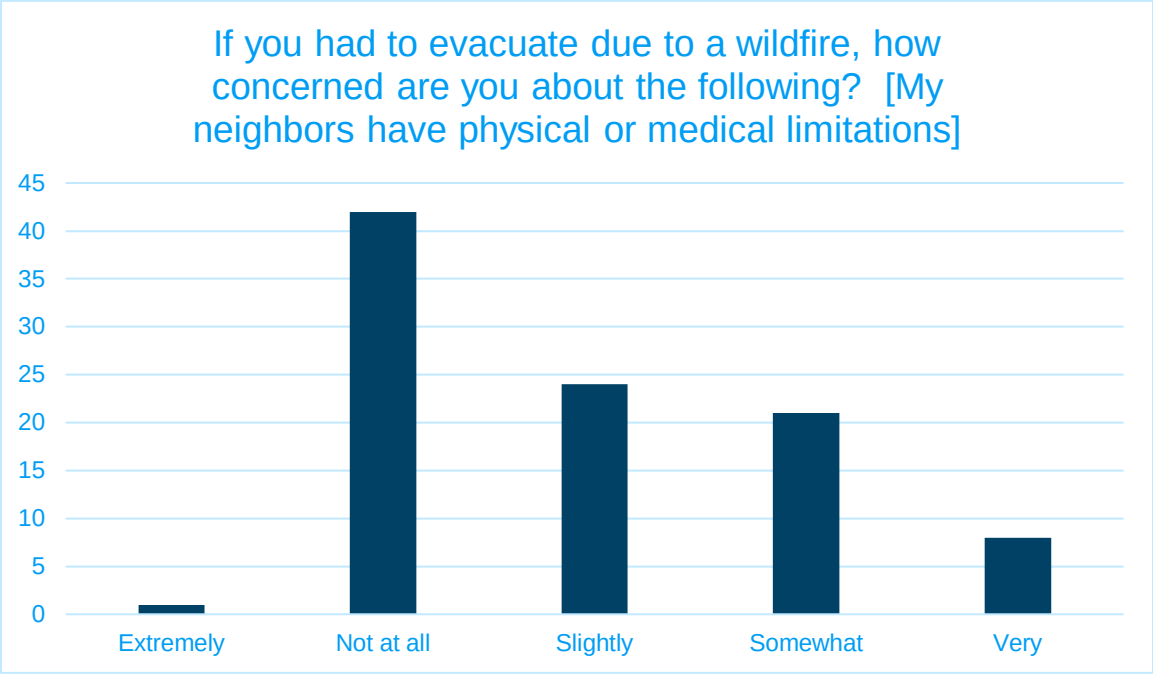

Have you signed up for RouttCountyAlerts?
100
90
80
70
60
50
40
30
20
10
0
No
Yes

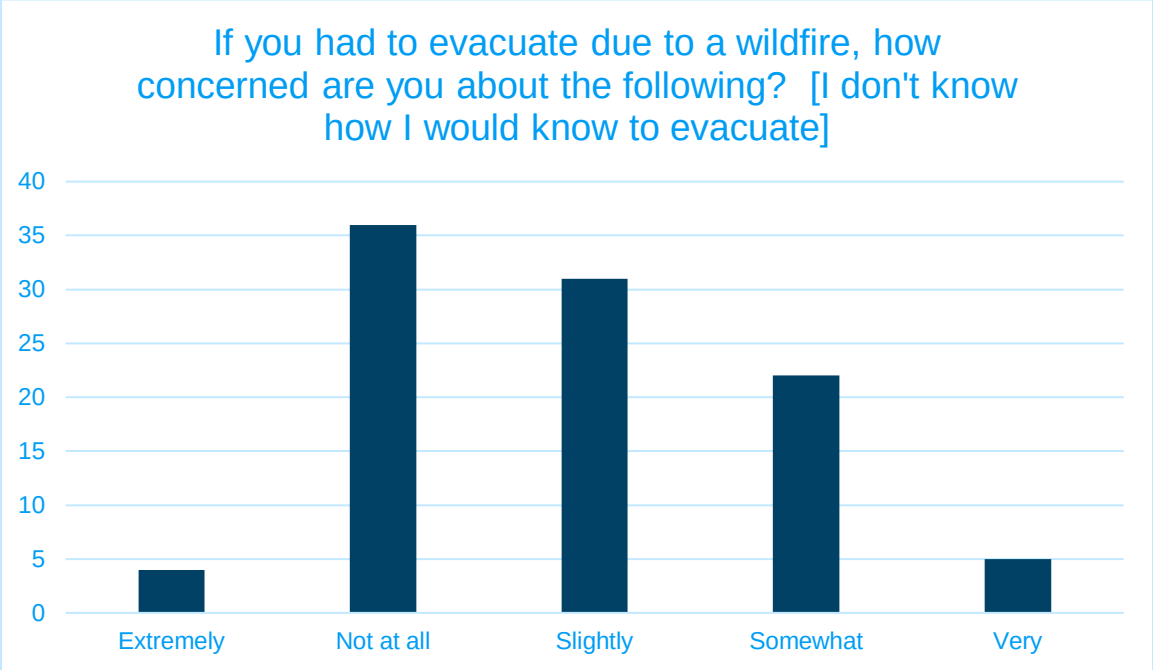

How concerned are you about wildfire near your property?
40
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

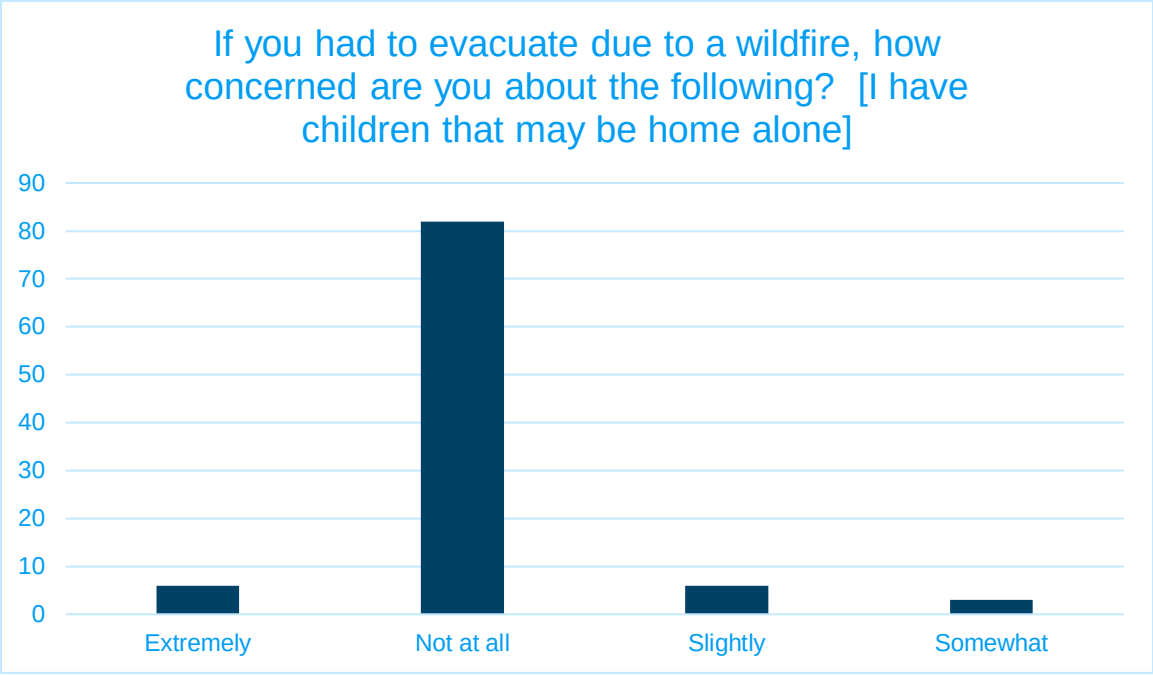

How prepared is your neighborhood for a large wildfire?
50
45
40
35
30
25
20
15
10
5
0
Moderately prepared
Not prepared
Poorly prepared
Prepared
Well prepared

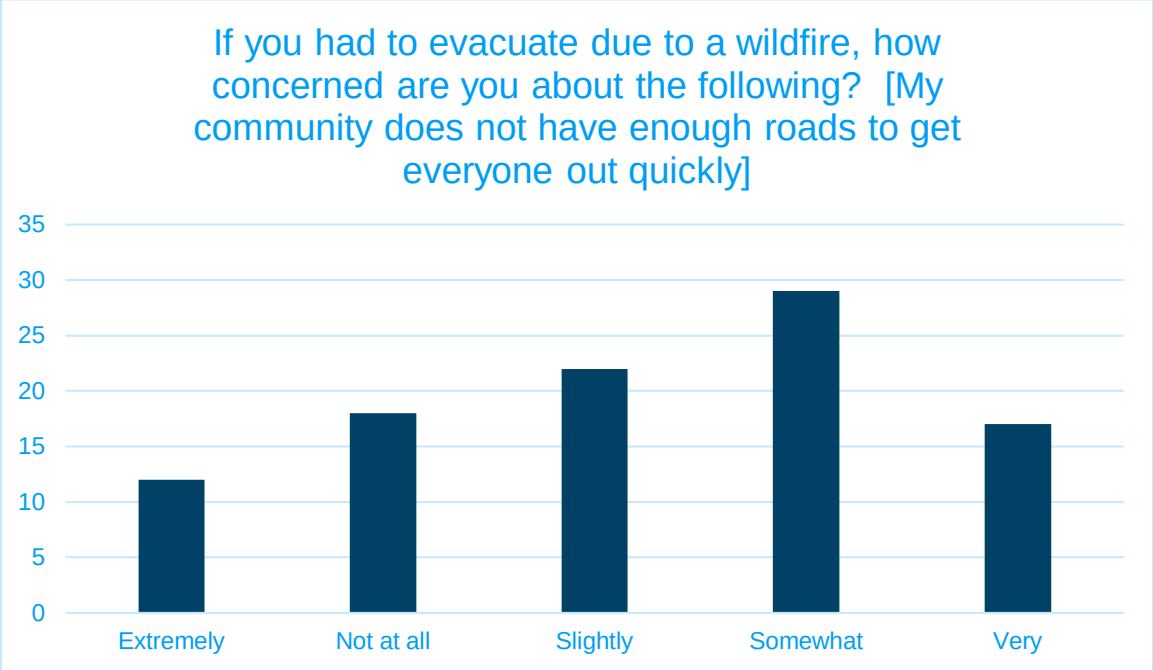

How much control do you feel you have over your risk from wildfire?
90
80
70
60
50
40
30
20
10
0
A great deal of control
Complete control
Little control
No control

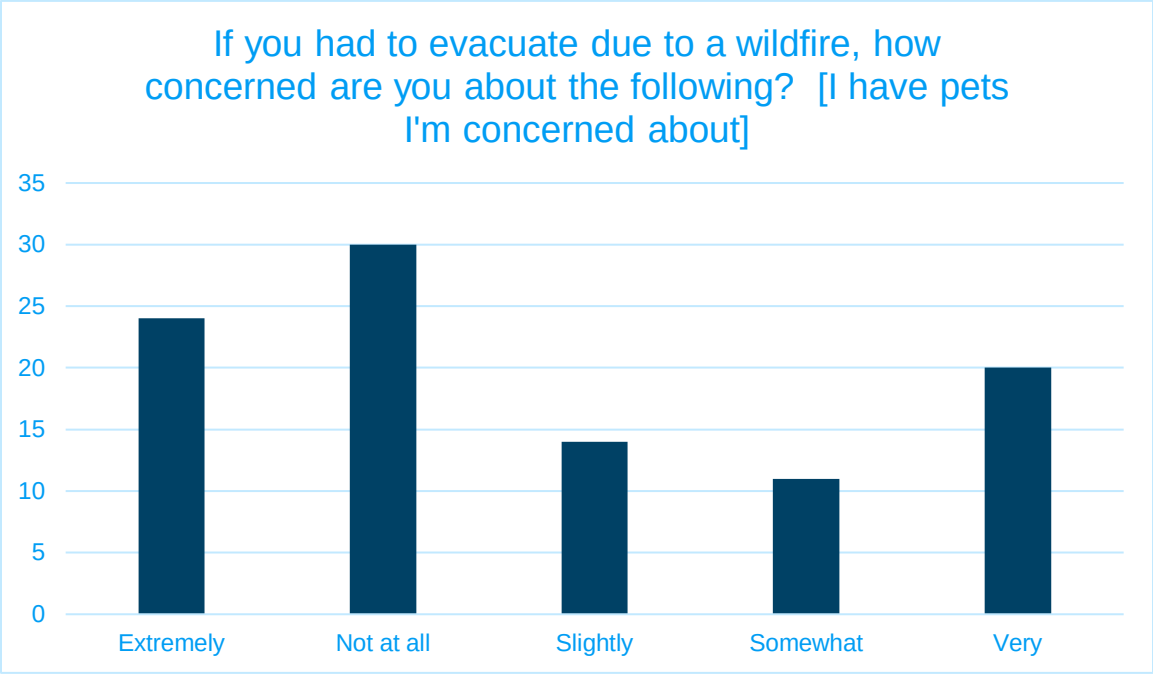

If you had to evacuate due to a wildfire, how concerned are you about the following? [I or my family have physical or medical limitations]
70
60
50
40
30
20
10
0
Extremely
Not at all
Slightly
Somewhat
Very

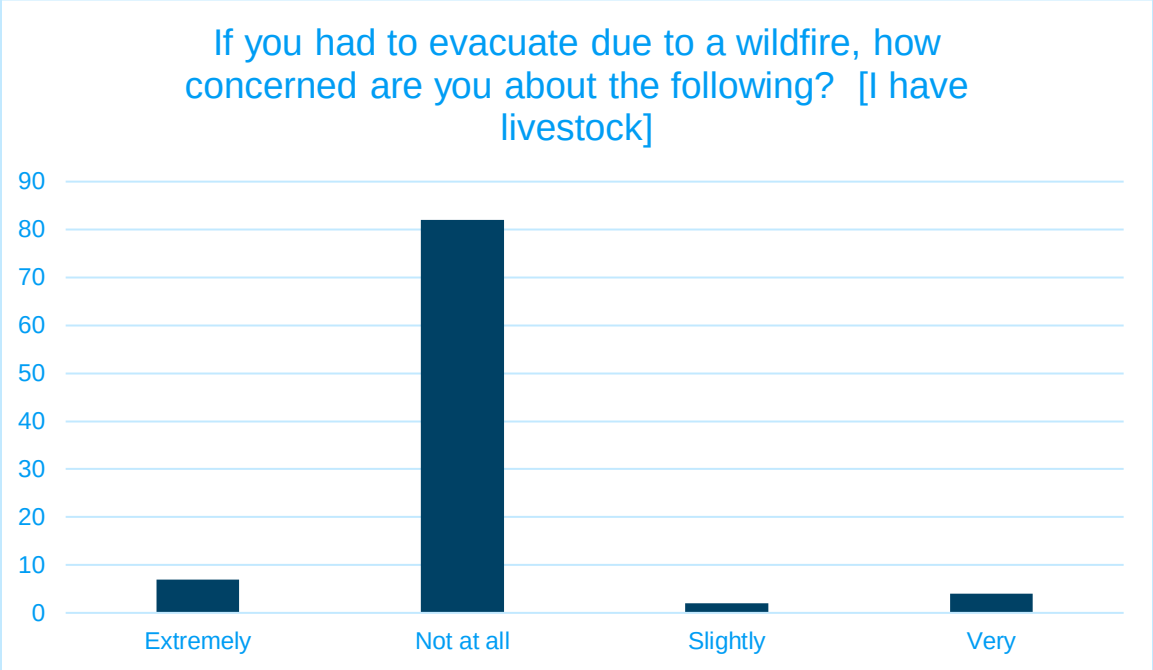

If you had to evacuate due to a wildfire, how concerned are you about the following? [My neighbors have physical or medical limitations]
45
40
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

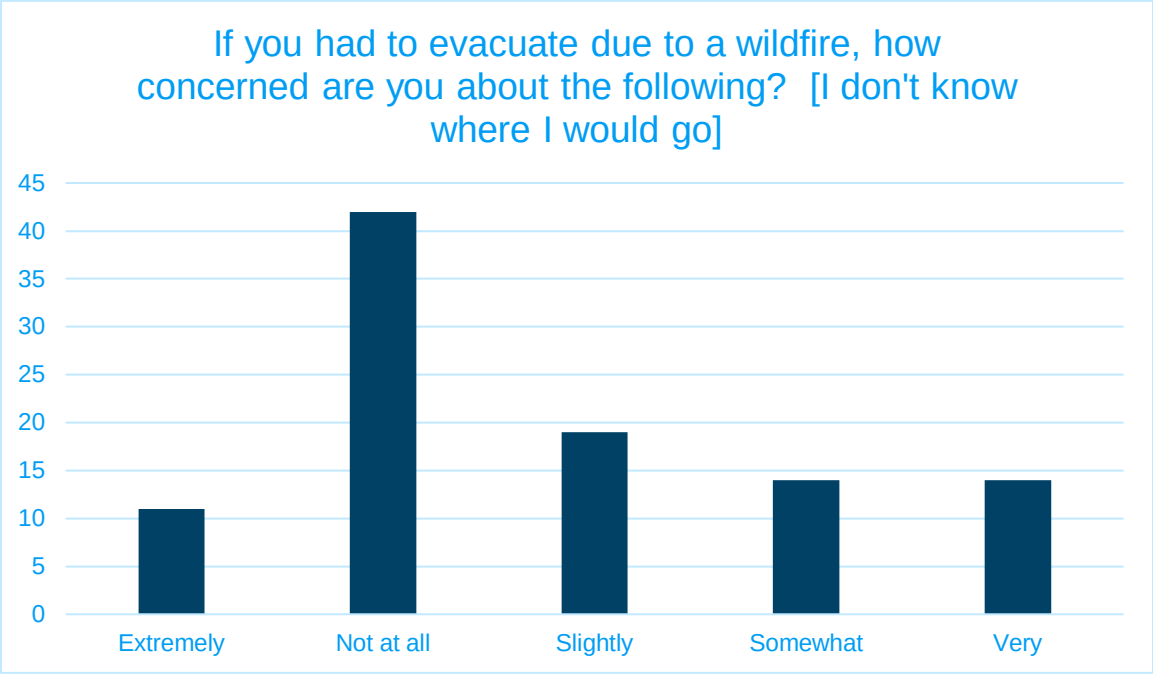

If you had to evacuate due to a wildfire, how concerned are you about the following? [I don't know how I would know to evacuate]
40
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

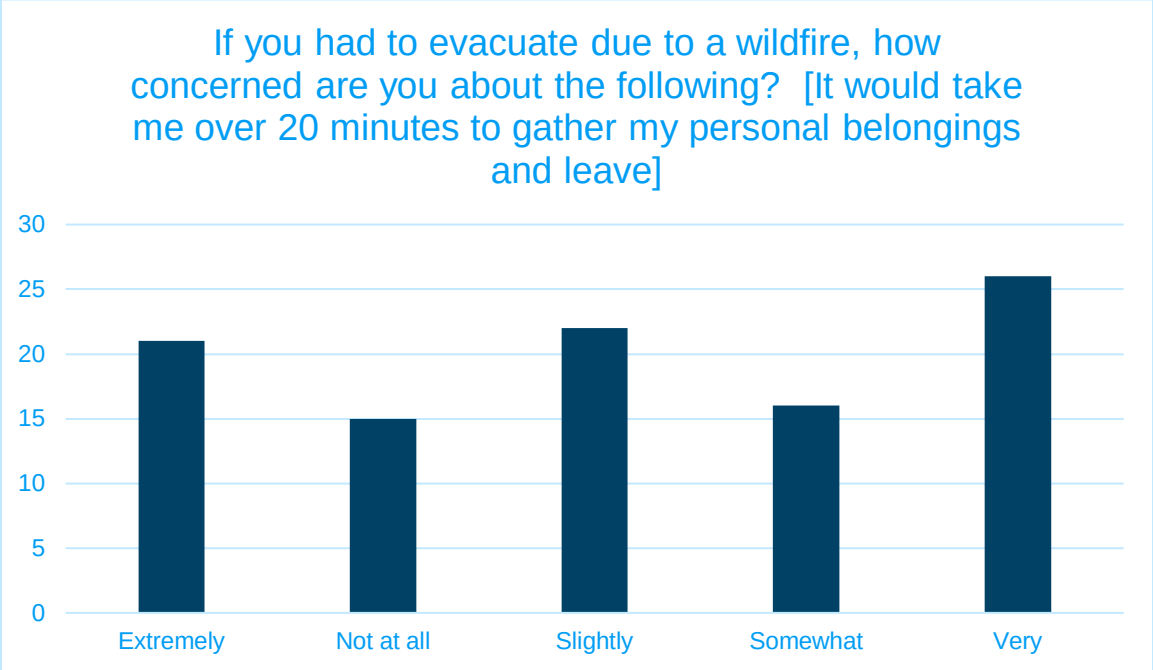

If you had to evacuate due to a wildfire, how concerned are you about the following? [I have children that may be home alone]
90
80
70
60
50
40
30
20
10
0
Extremely
Not at all
Slightly
Somewhat

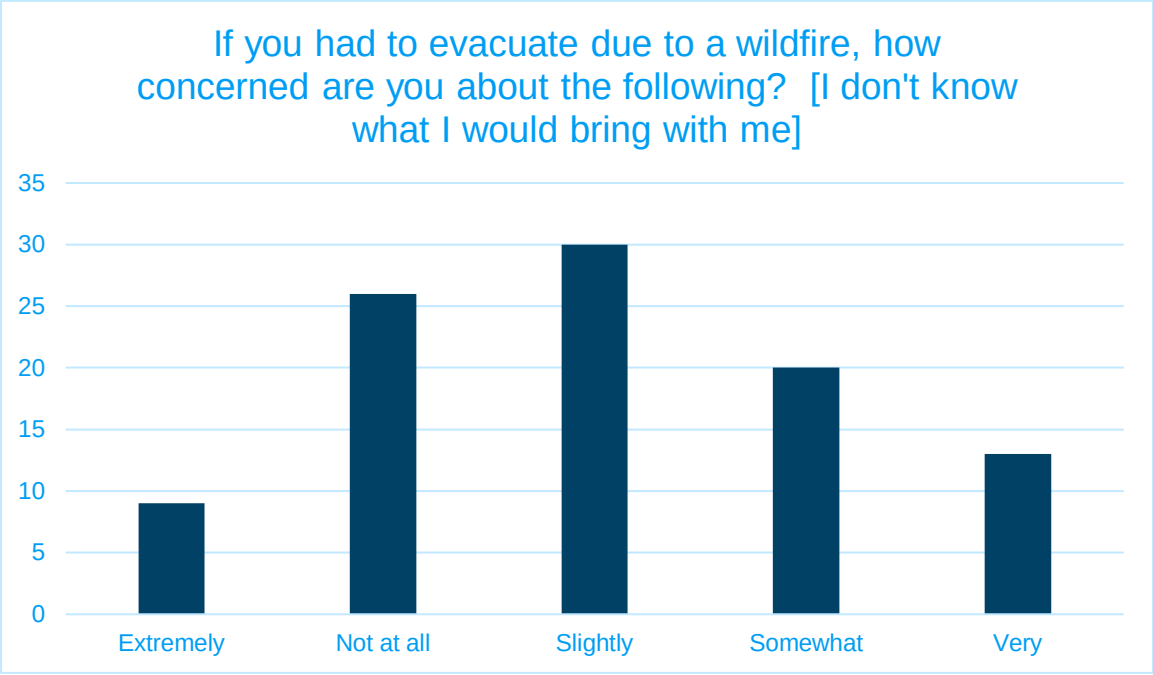

If you had to evacuate due to a wildfire, how concerned are you about the following? [My community does not have enough roads to get everyone out quickly]
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

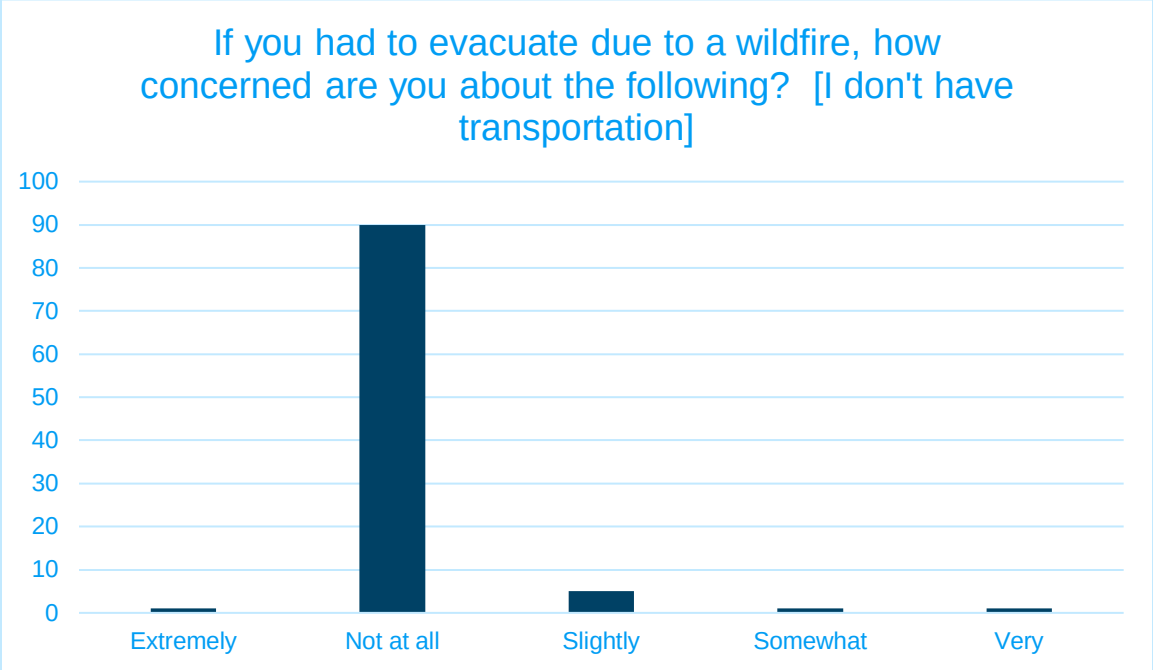

If you had to evacuate due to a wildfire, how concerned are you about the following? [I have pets I'm concerned about]
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

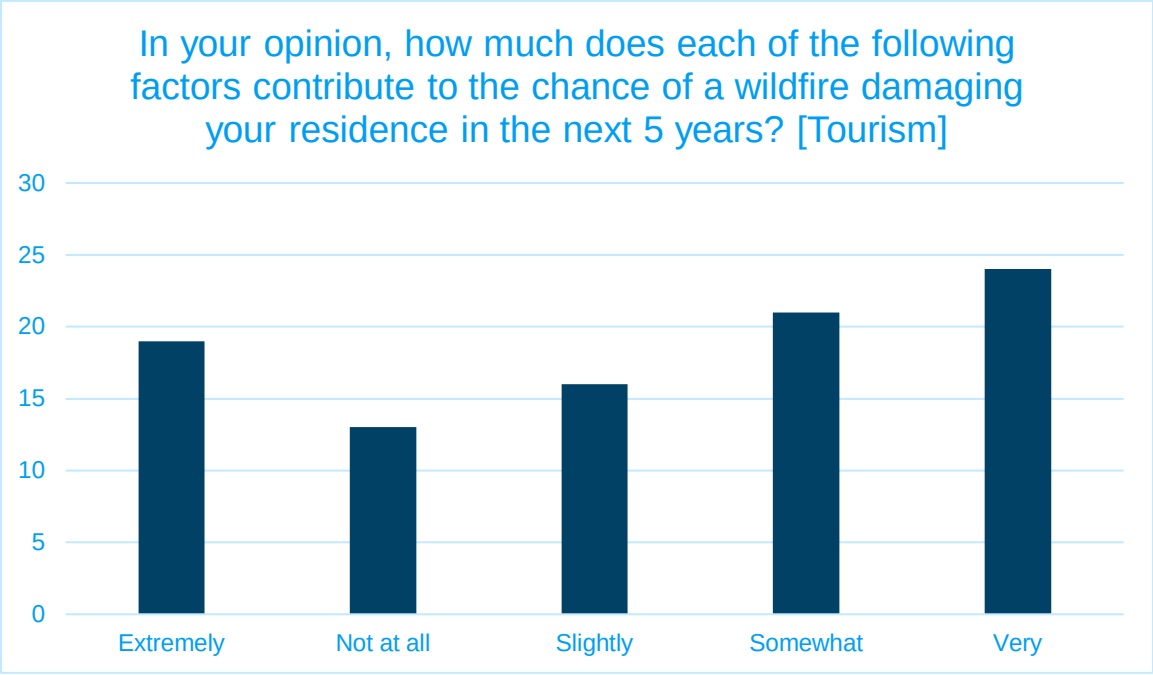

If you had to evacuate due to a wildfire, how concerned are you about the following? [I have livestock]
90
80
70
60
50
40
30
20
10
0
Extremely
Not at all
Slightly
Very

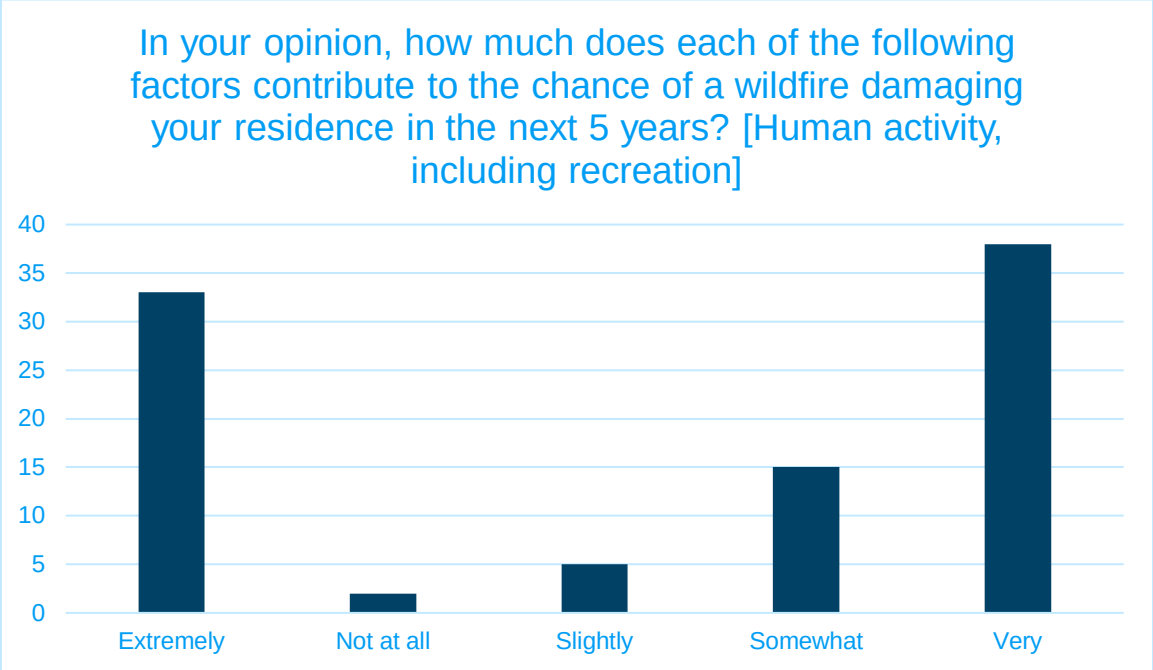

If you had to evacuate due to a wildfire, how concerned are you about the following? [I don't know where I would go]
45
40
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

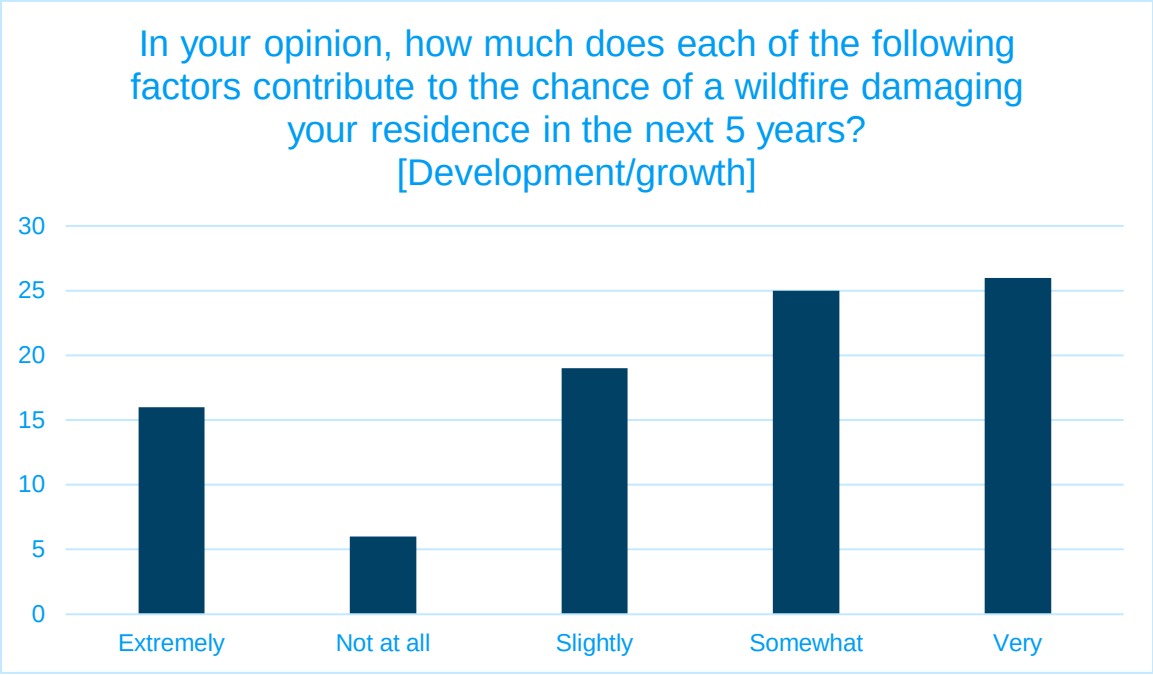

If you had to evacuate due to a wildfire, how concerned are you about the following? [It would take me over 20 minutes to gather my personal belongings and leave]
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

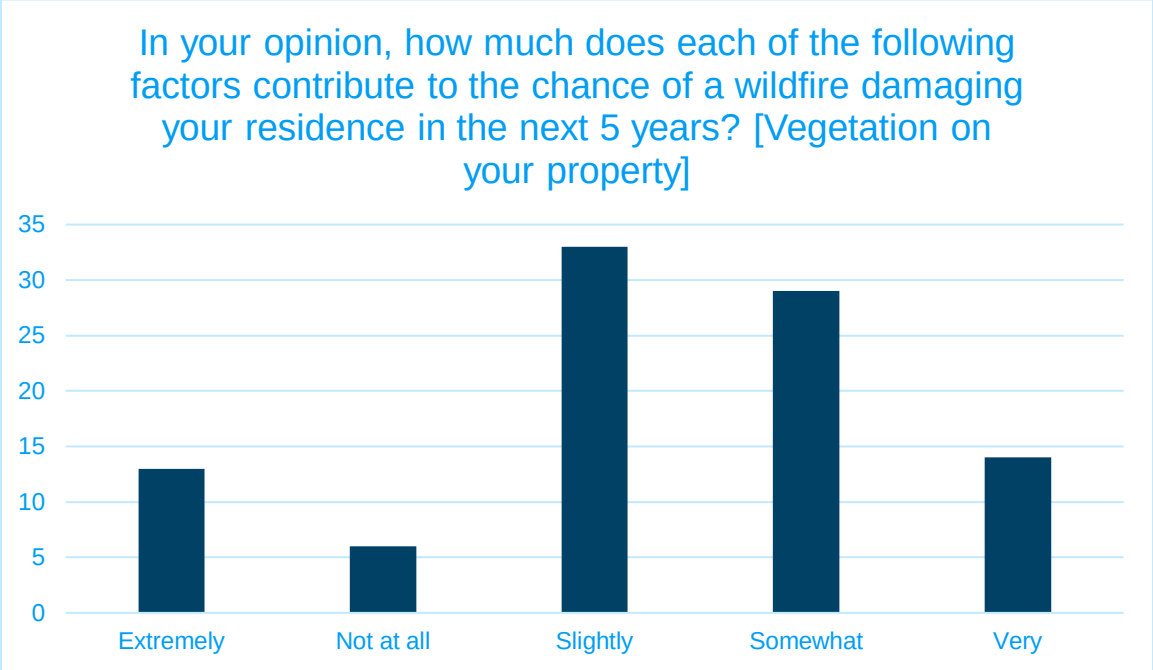

If you had to evacuate due to a wildfire, how concerned are you about the following? [I don't know what I would bring with me]
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

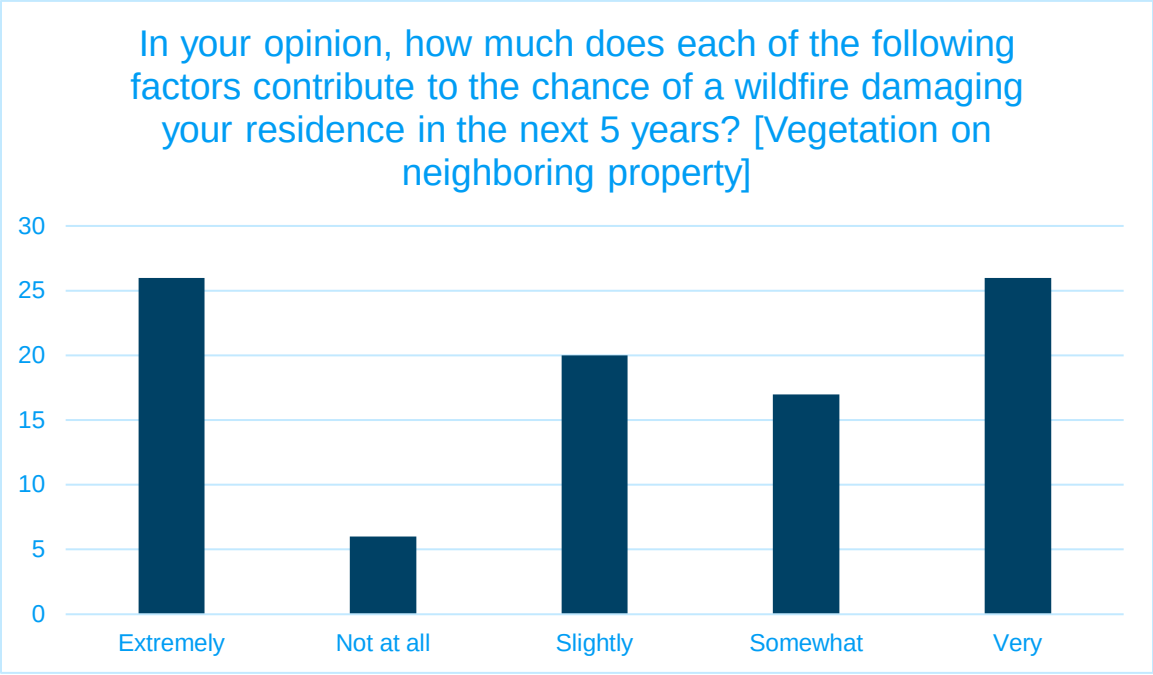

If you had to evacuate due to a wildfire, how concerned are you about the following? [I don't have transportation]
100
90
80
70
60
50
40
30
20
10
0
Extremely
Not at all
Slightly
Somewhat
Very

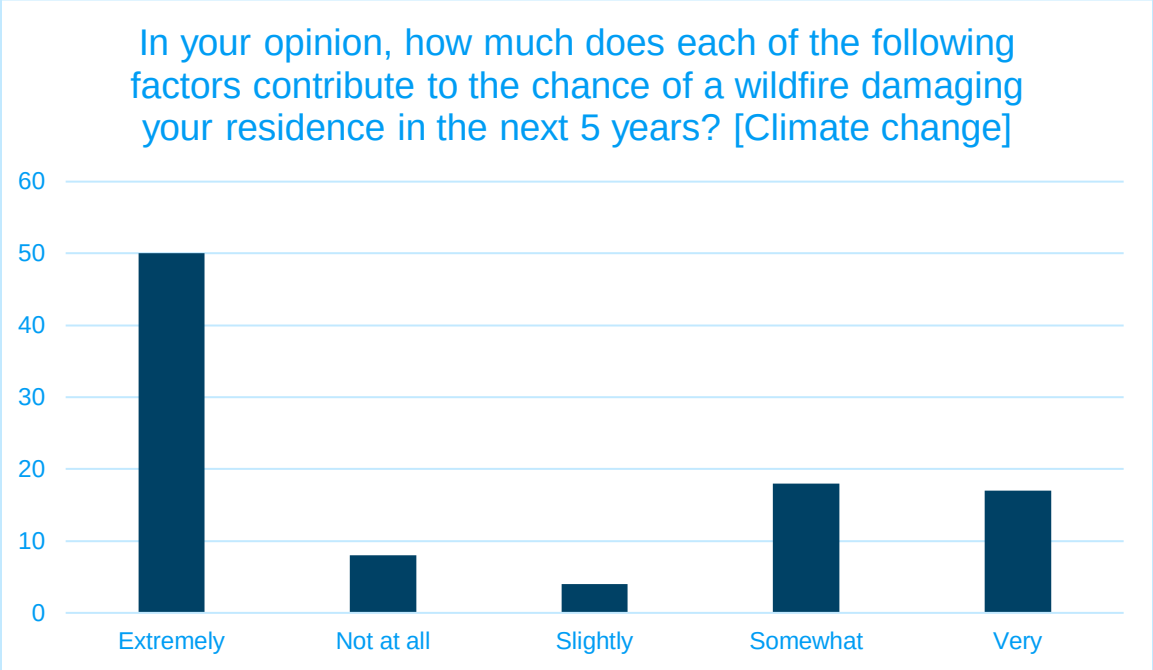

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Tourism]
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

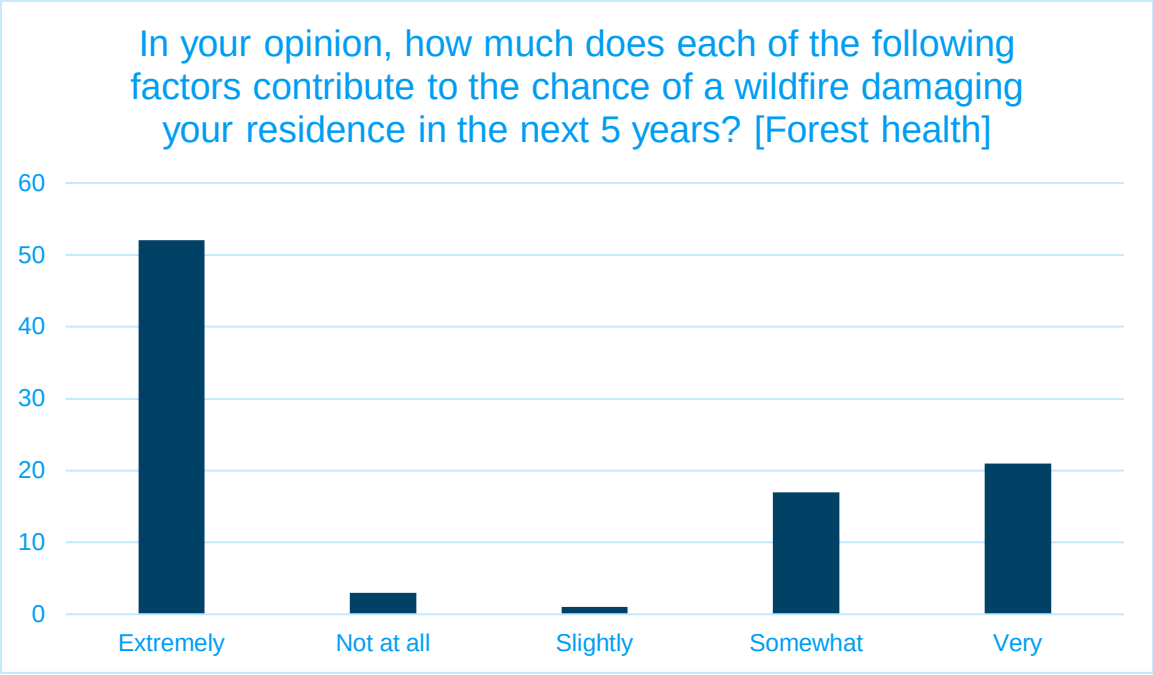

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Human activity, including recreation]
40
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

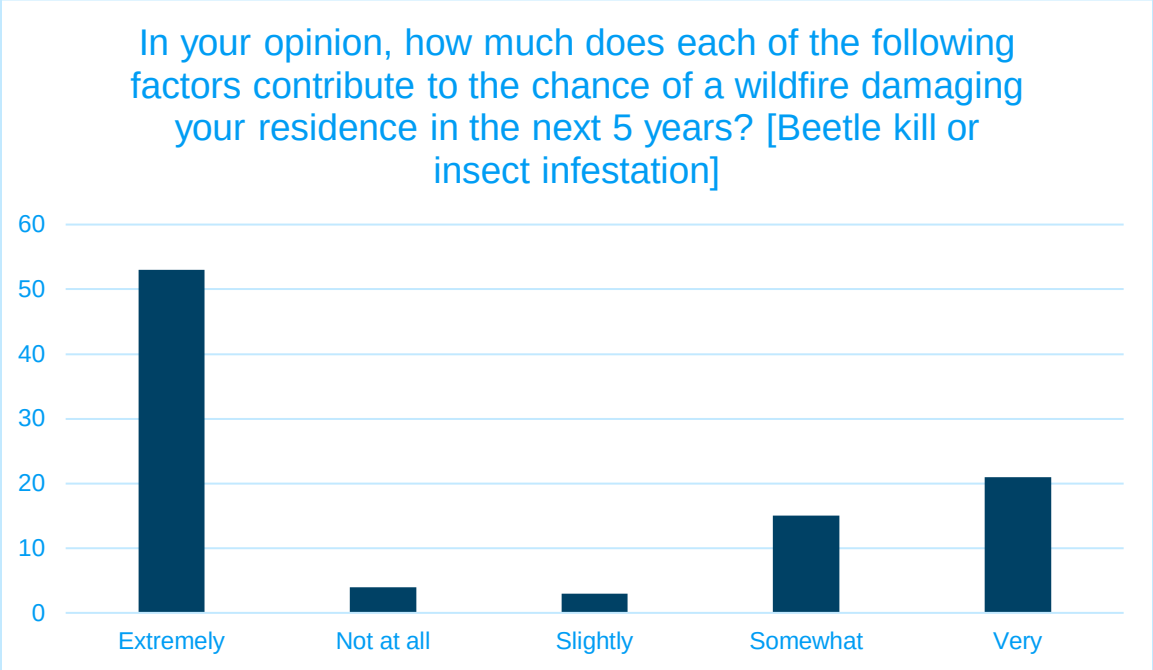

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Development/growth]
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

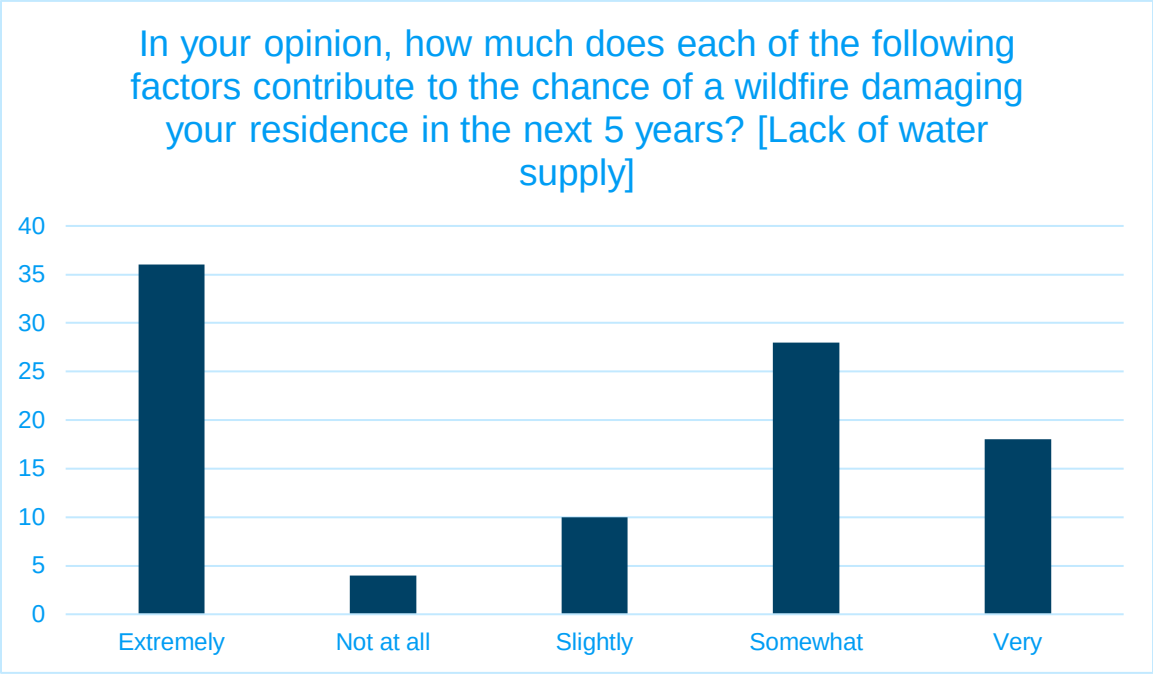

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Vegetation on your property]
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

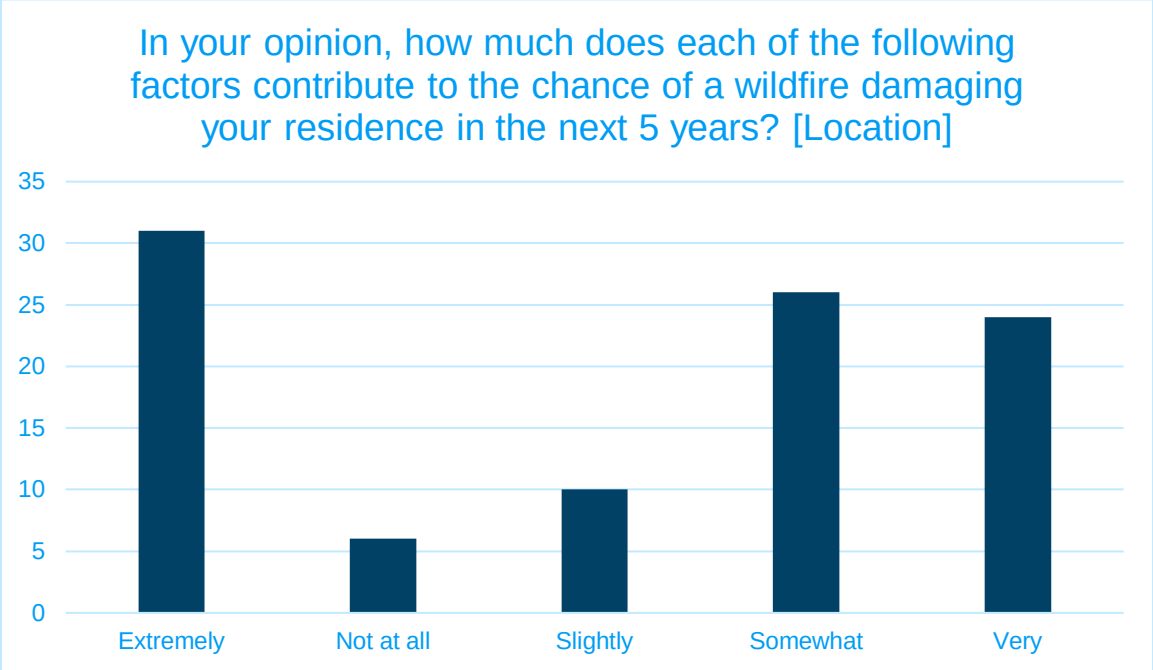

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Vegetation on neighboring property]
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

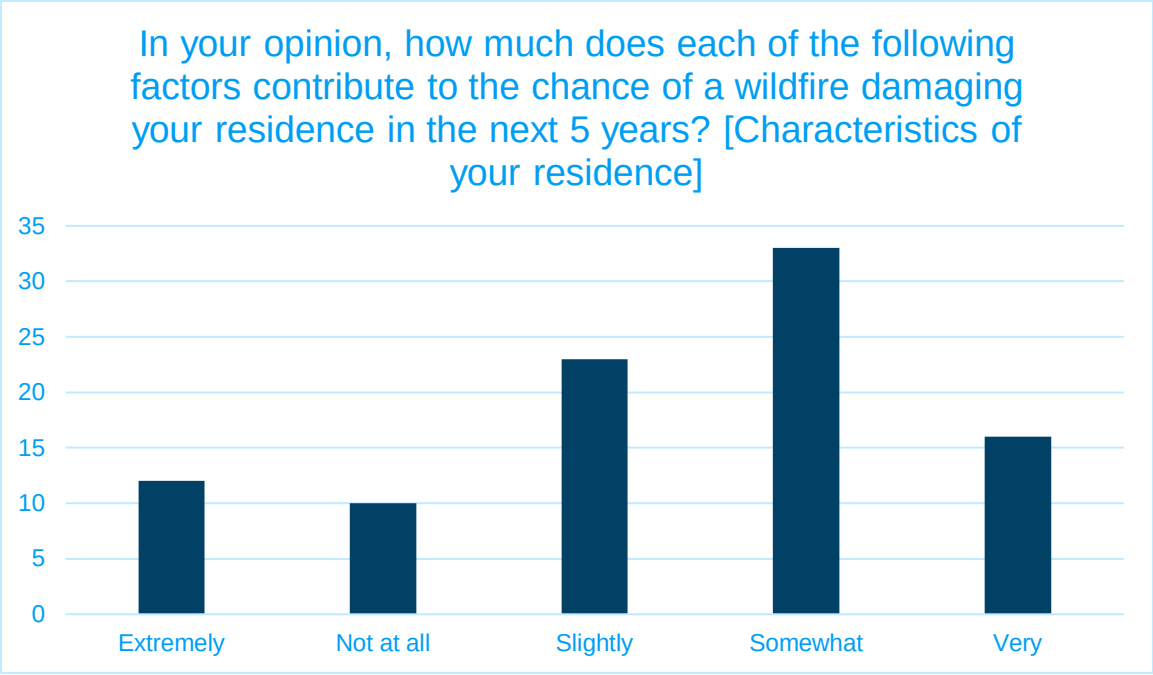

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Climate change]
60
50
40
30
20
10
0
Extremely
Not at all
Slightly
Somewhat
Very

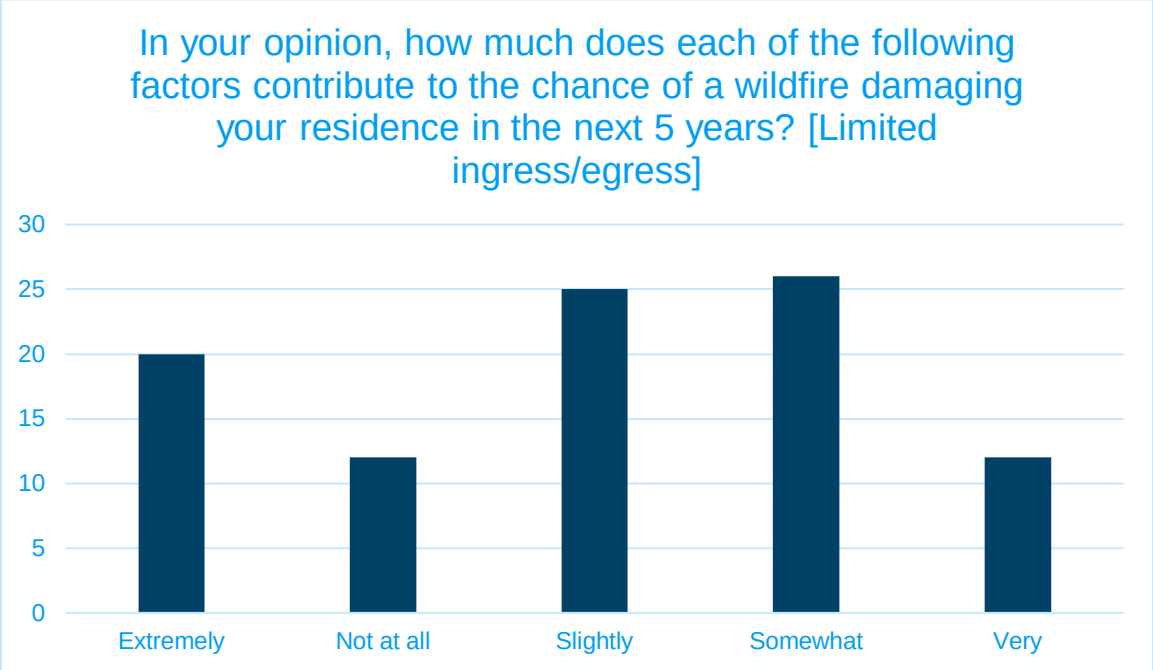

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Forest health]
60
50
40
30
20
10
0
Extremely
Not at all
Slightly
Somewhat
Very

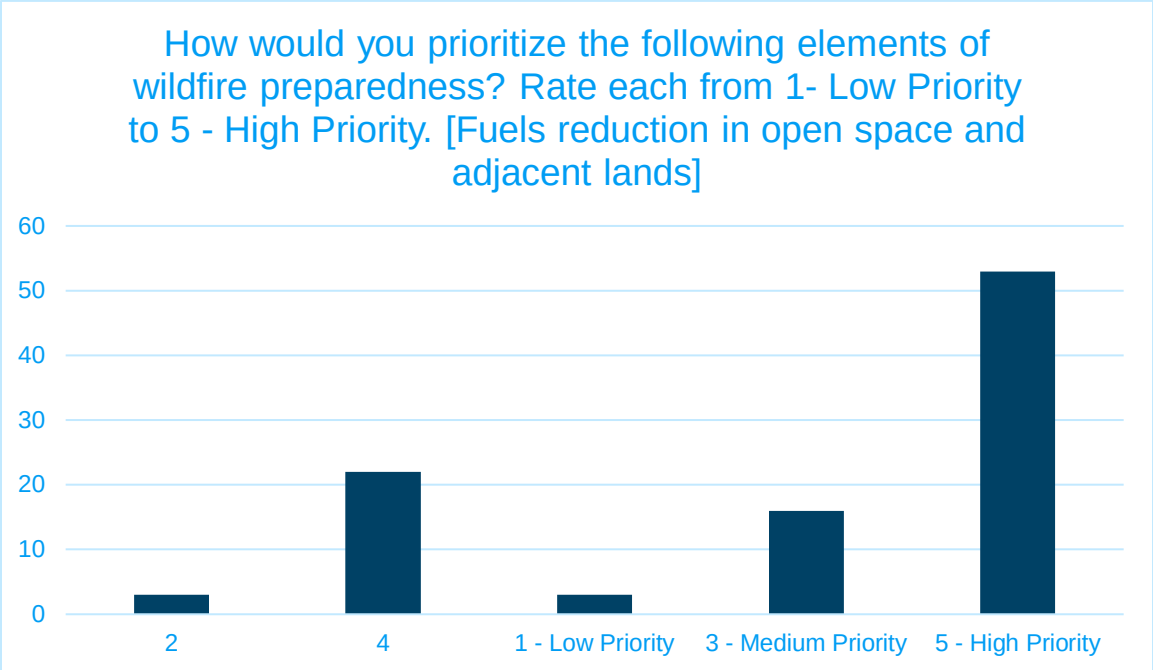

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Beetle kill or insect infestation]
60
50
40
30
20
10
0
Extremely
Not at all
Slightly
Somewhat
Very

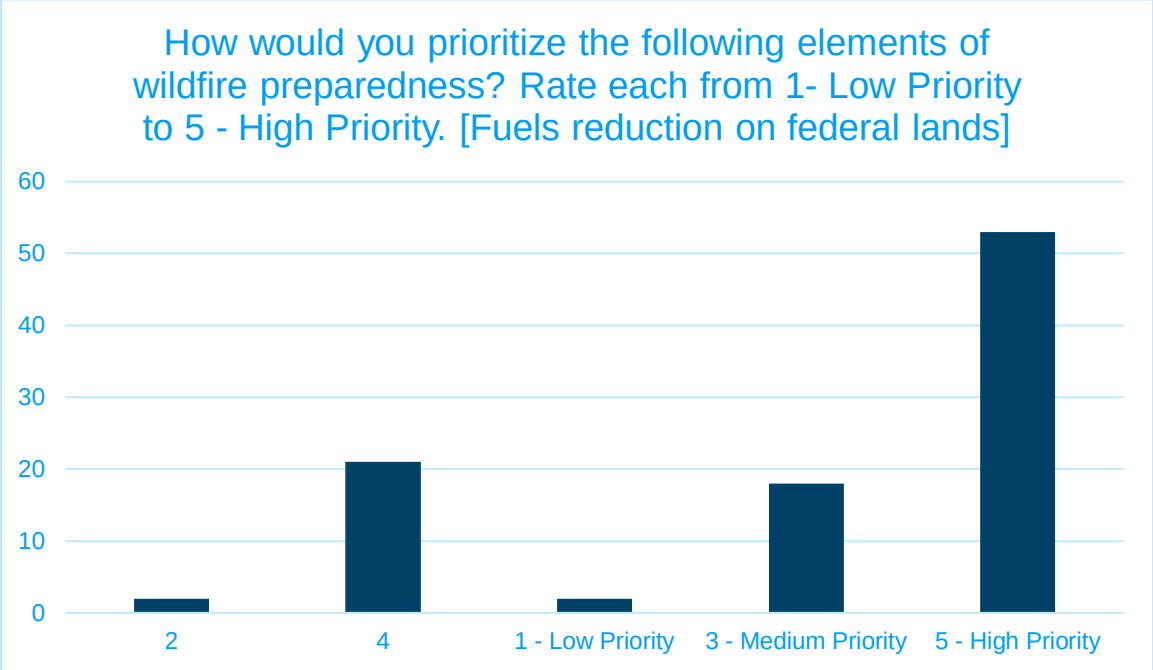

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Lack of water supply]
40
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

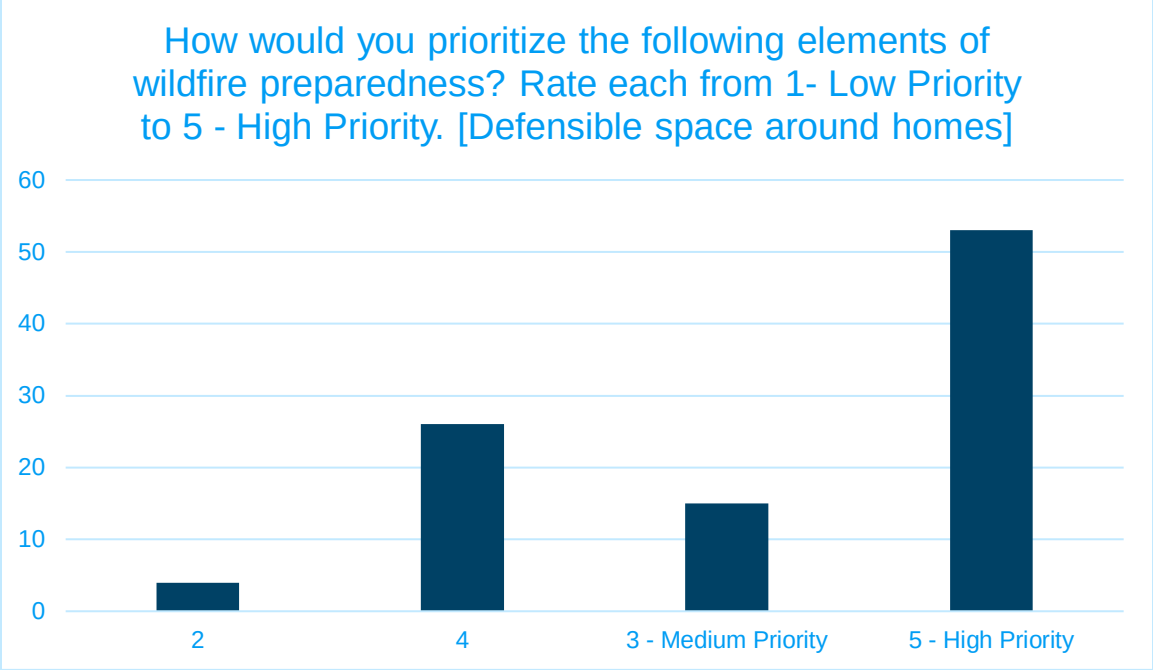

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Location]
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

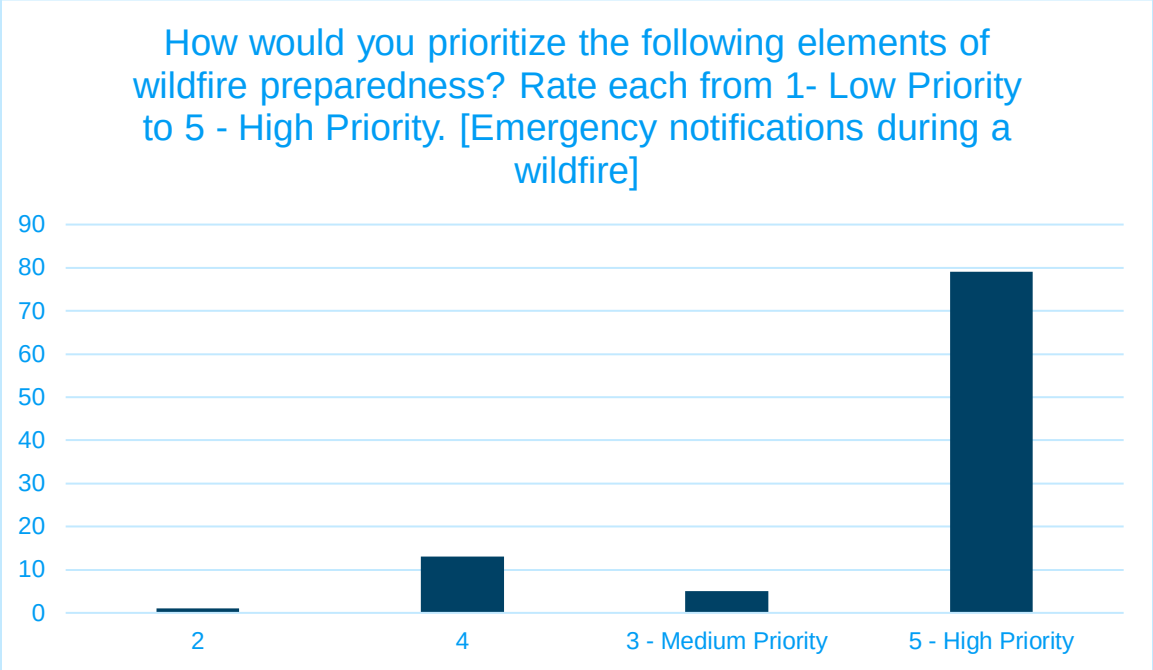

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Characteristics of your residence]
35
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

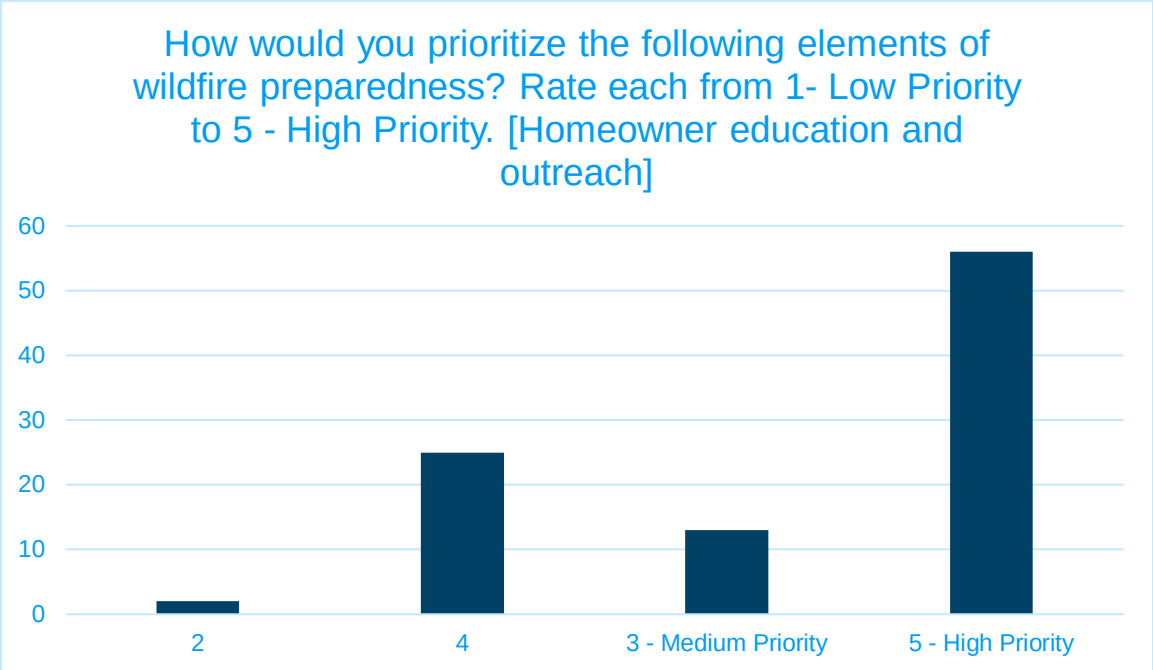

In your opinion, how much does each of the following factors contribute to the chance of a wildfire damaging your residence in the next 5 years? [Limited ingress/egress]
30
25
20
15
10
5
0
Extremely
Not at all
Slightly
Somewhat
Very

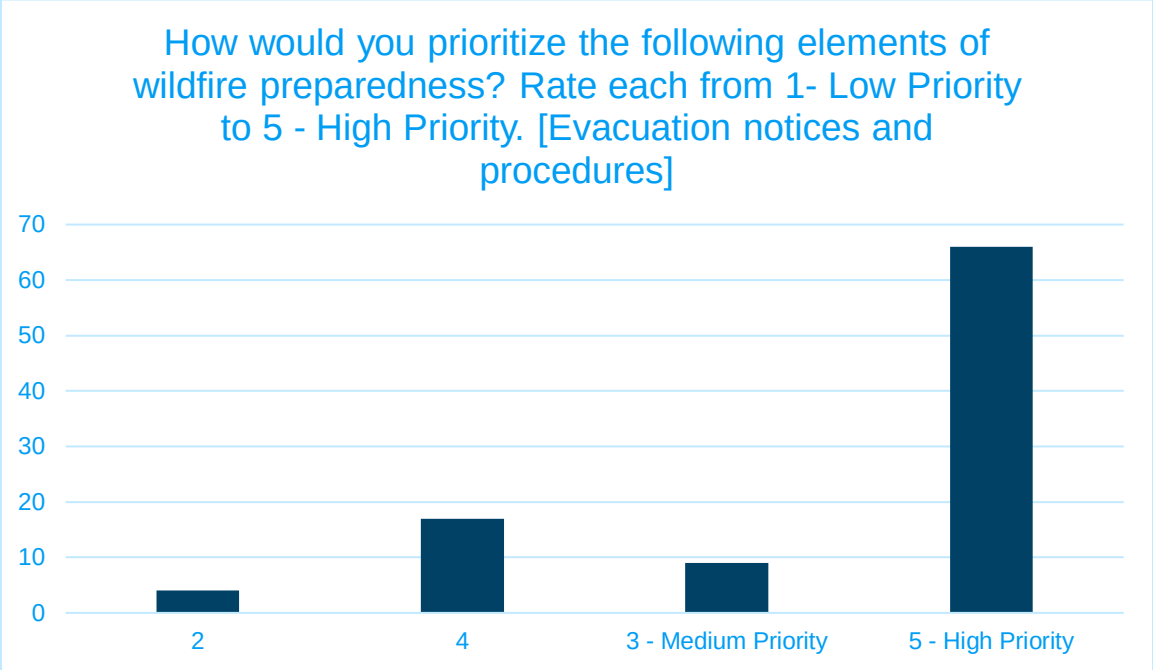

How would you prioritize the following elements of wildfire preparedness? Rate each from 1- Low Priority to 5 - High Priority. [Fuels reduction in open space and adjacent lands]
60
50
40
30
20
10
0
2
4
1 - Low Priority
3 - Medium Priority
5 - High Priority

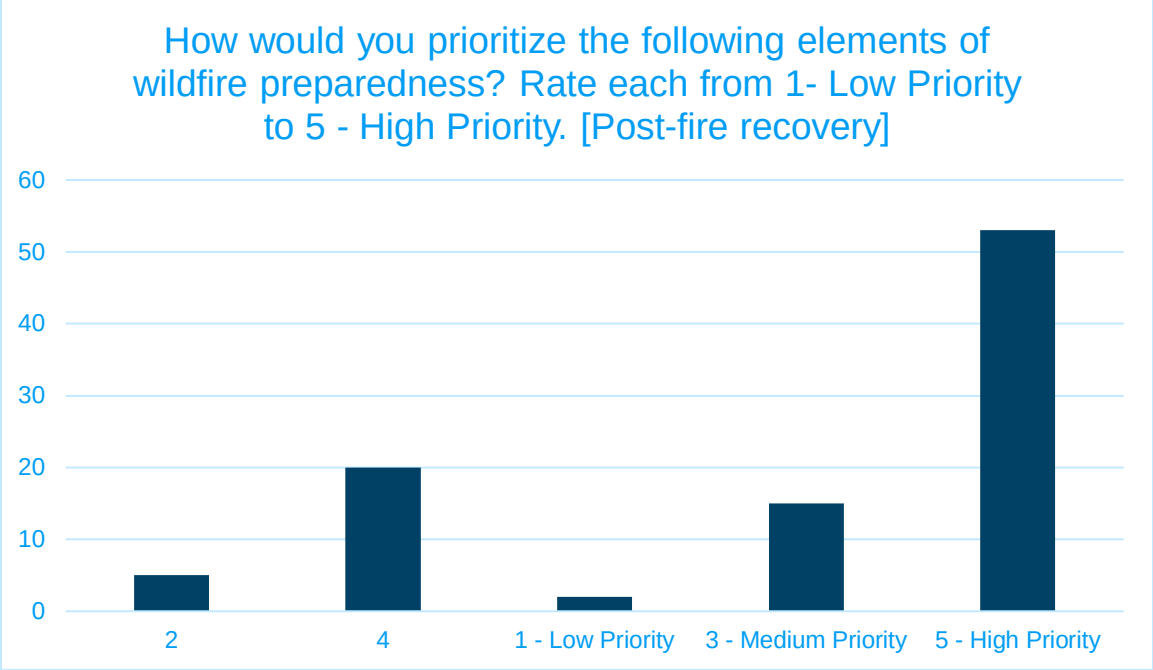

How would you prioritize the following elements of wildfire preparedness? Rate each from 1- Low Priority to 5 - High Priority. [Fuels reduction on federal lands]
60
50
40
30
20
10
0
2
4
1 - Low Priority
3 - Medium Priority
5 - High Priority

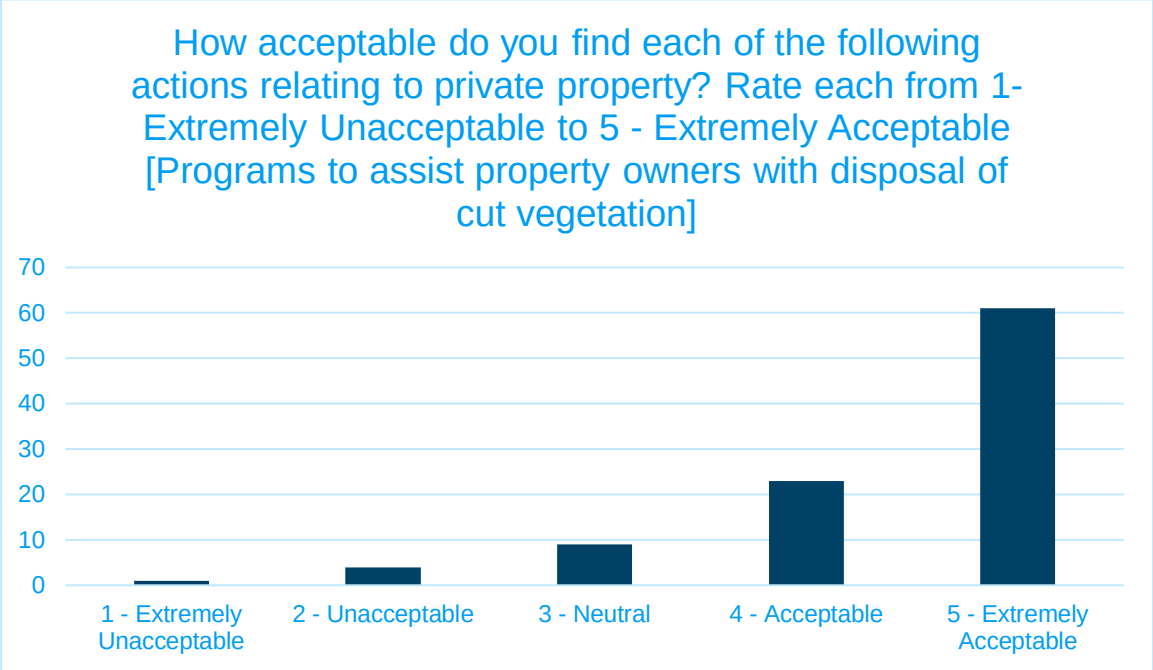

How would you prioritize the following elements of wildfire preparedness? Rate each from 1- Low Priority to 5 - High Priority. [Defensible space around homes]
60
50
40
30
20
10
0
2
4
3 - Medium Priority
5 - High Priority

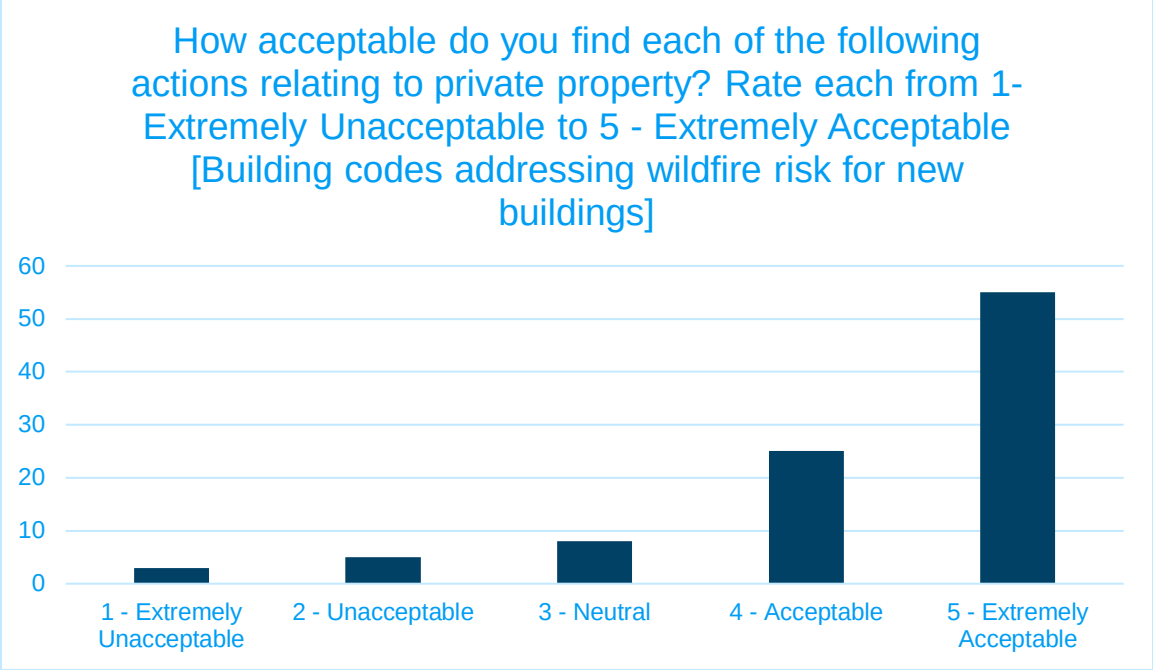

How would you prioritize the following elements of wildfire preparedness? Rate each from 1- Low Priority to 5 - High Priority. [Emergency notifications during a wildfire]
90
80
70
60
50
40
30
20
10
0
2
4
3 - Medium Priority
5 - High Priority


How would you prioritize the following elements of wildfire preparedness? Rate each from 1- Low Priority to 5 - High Priority. [Homeowner education and outreach]
60
50
40
30
20
10
0
2
4
3 - Medium Priority
5 - High Priority


How would you prioritize the following elements of wildfire preparedness? Rate each from 1- Low Priority to 5 - High Priority. [Evacuation notices and procedures]
70
60
50
40
30
20
10
0
2
4
3 - Medium Priority
5 - High Priority


How would you prioritize the following elements of wildfire preparedness? Rate each from 1- Low Priority to 5 - High Priority. [Post-fire recovery]
60
50
40
30
20
10
0
2
4
1 - Low Priority
3 - Medium Priority
5 - High Priority

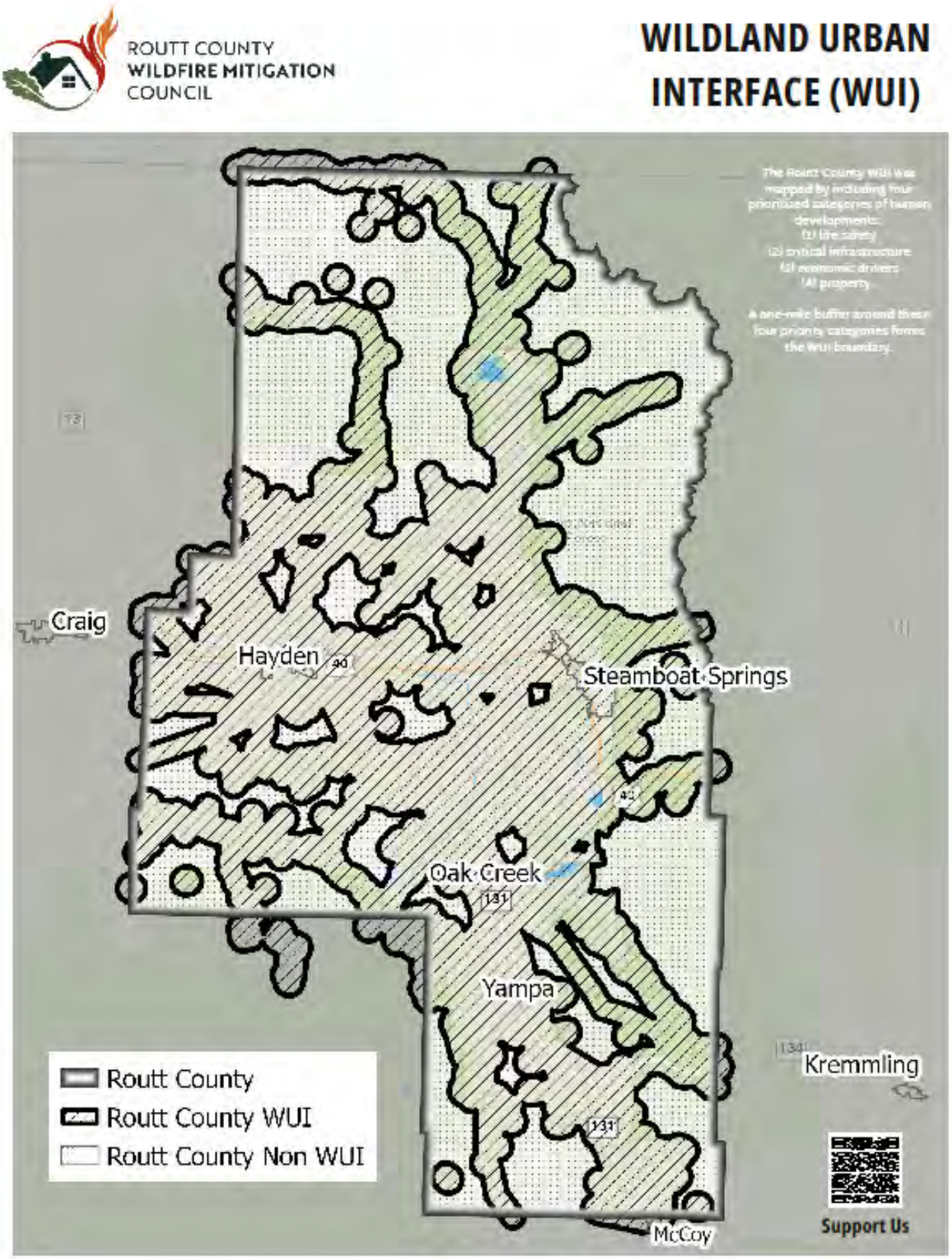

How acceptable do you find each of the following actions relating to private property? Rate each from 1- Extremely Unacceptable to 5 - Extremely Acceptable [Programs to assist property owners with disposal of cut vegetation]
70
60
50
40
30
20
10
0
1 - Extremely Unacceptable
2 - Unacceptable
3 - Neutral
4 - Acceptable
5 - Extremely Acceptable


How acceptable do you find each of the following actions relating to private property? Rate each from 1- Extremely Unacceptable to 5 - Extremely Acceptable [Building codes addressing wildfire risk for new buildings]
60
50
40
30
20
10
0
1 - Extremely Unacceptable
2 - Unacceptable
3 - Neutral
4 - Acceptable
5 - Extremely Acceptable

Appendix J - *Social Media Links*

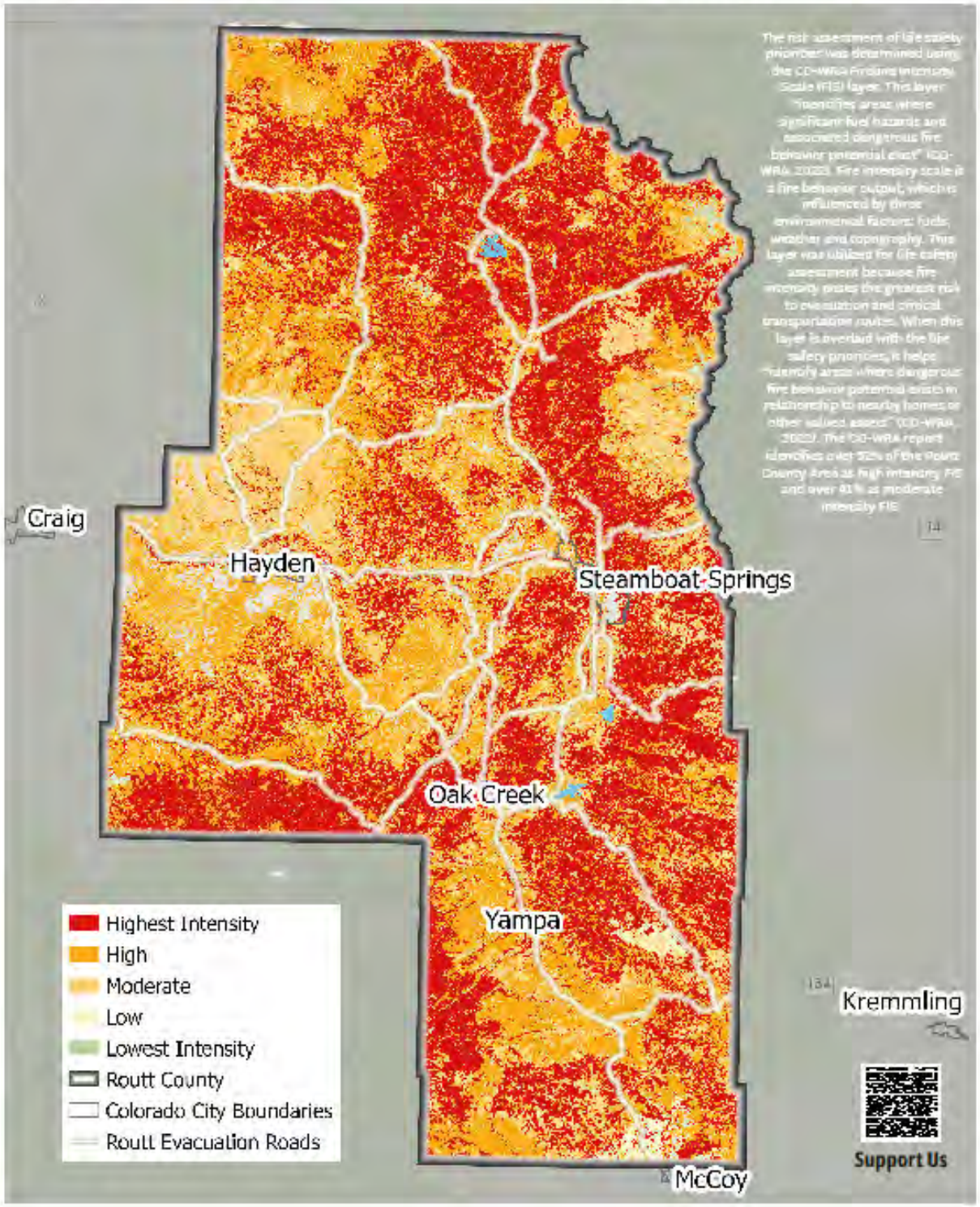
Source	Link
Routt County OEM	https://twitter.com/Routt_CountyCO
	https://www.facebook.com/routtcounty/
Routt County Communications	https://www.facebook.com/RouttCountyComm/
Routt County Sheriff's Office	https://www.facebook.com/RouttCoSheriff/
	https://twitter.com/routtcosheriff
Steamboat Springs Fire District	https://www.facebook.com/SSFireRescue/
North Routt Fire Protection District	https://m.facebook.com/@North-Routt-Fire-Protection-District-100064328455810/?__rdr
West Routt Fire Protection District	https://twitter.com/westrouttfire?lang=en
	https://www.facebook.com/WestRouttFire/
Oak Creek Fire Protection District	https://www.facebook.com/people/Oak-Creek-Fire-Rescue/100064829377372/
	https://mobile.twitter.com/oakcreekfire
Routt County Wildfire Mitigation Council	https://www.facebook.com/routtwildfire

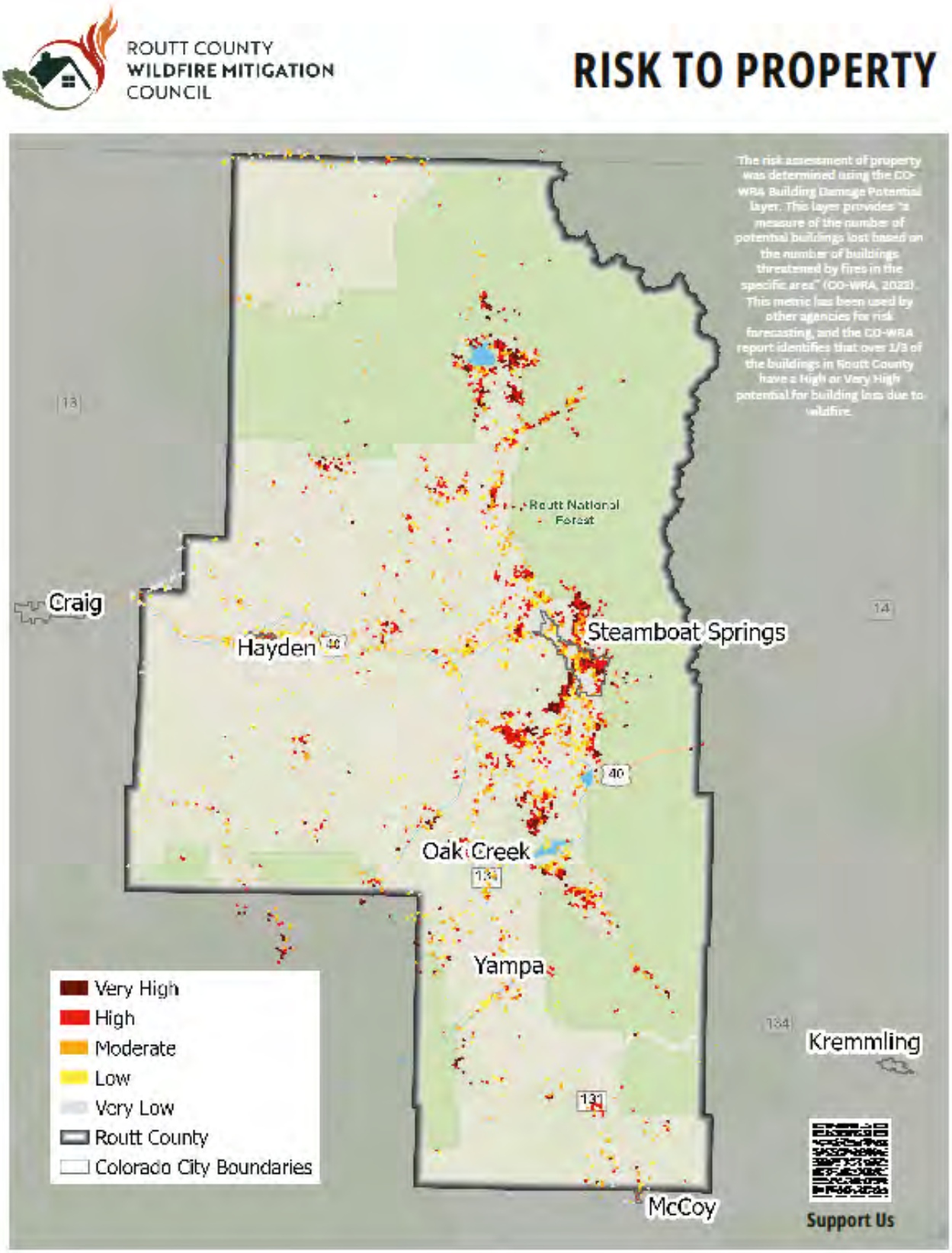
Appendix K - *Maps*


ROUTT COUNTY
WILDFIRE MITIGATION
COUNCIL
WILDLAND URBAN
INTERFACE (WUI)
The Routt County WUI was mapped by including four prioritized categories of human development:
(1) life safety
(2) critical infrastructure
(3) economic drivers
(4) property
A one-mile buffer around these four priority categories forms the WUI boundary.
Craig
Hayden
Steamboat Springs
Oak Creek
Yampa
Kremmling
McCoy
Routt County
Routt County WUI
Routt County Non WUI
Support Us

ROUTT COUNTY
WILDFIRE MITIGATION
COUNCIL

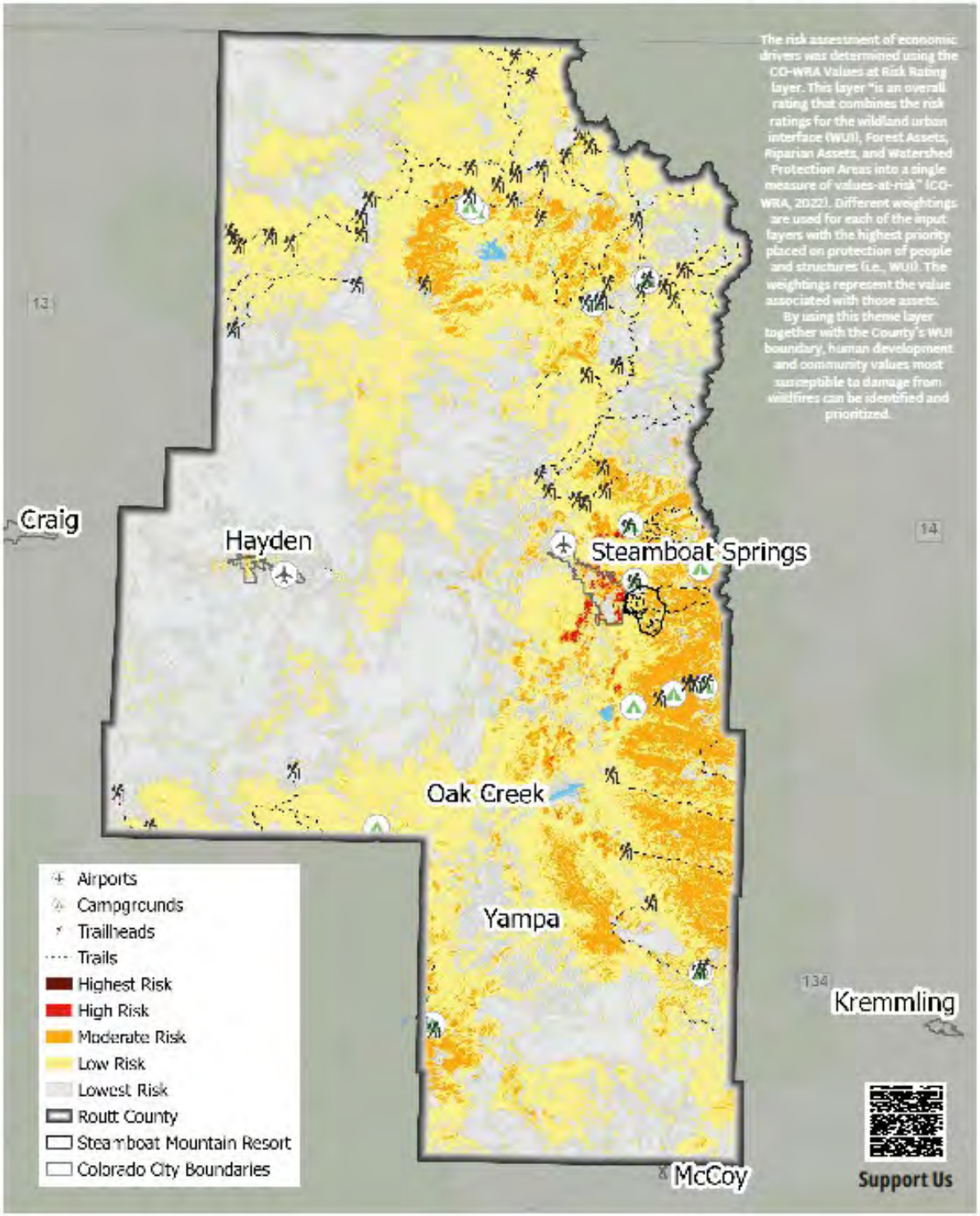
RISK TO EVACUATION & TRANSPORTATION ROUTES

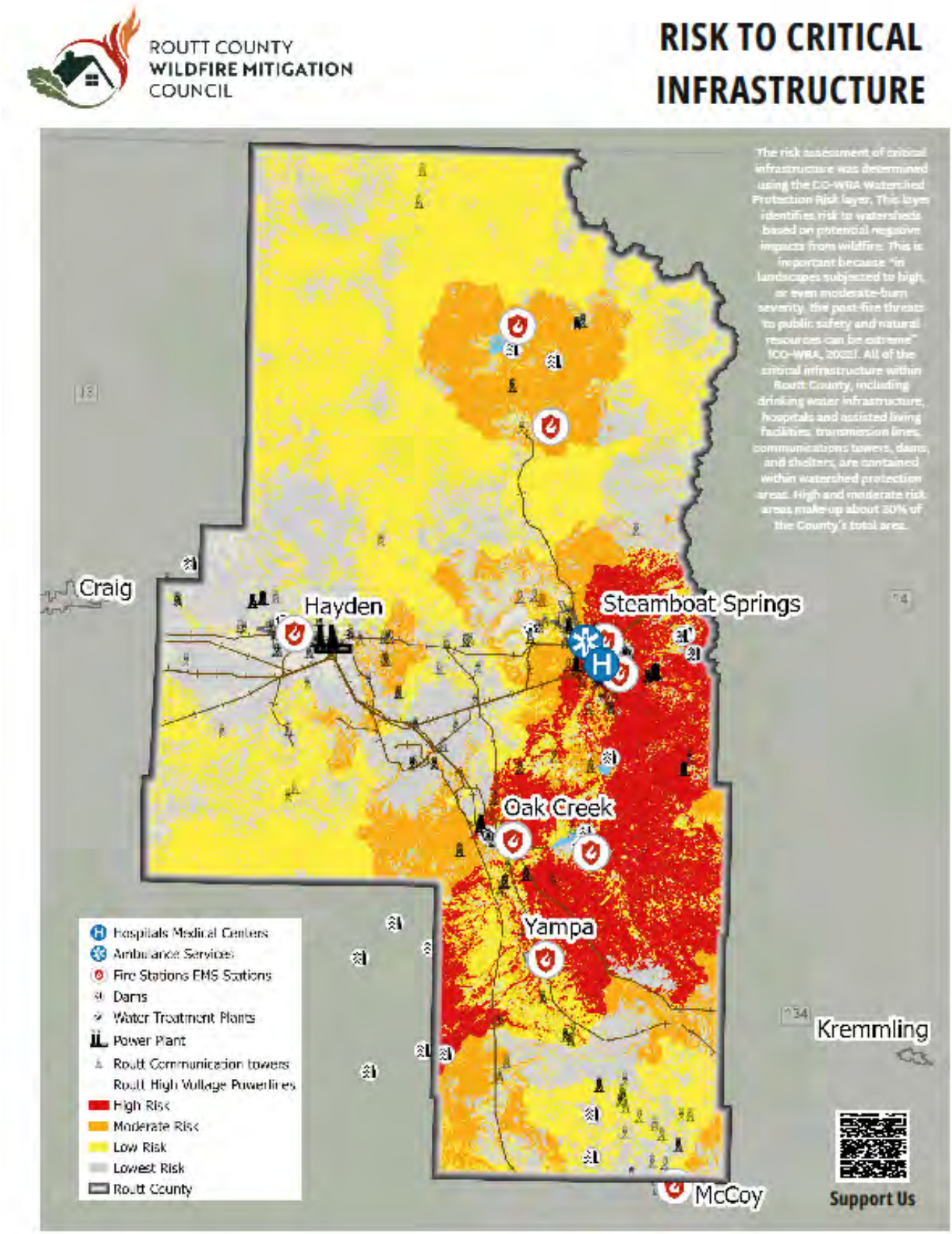



ROUTT COUNTY
WILDFIRE MITIGATION
COUNCIL
RISK TO PROPERTY
The risk assessment of property was determined using the CO-WRA Building Damage Potential layer. This layer provides "a measure of the number of potential buildings lost based on the number of buildings threatened by fires in the specific area" (CO-WRA, 2022). This metric has been used by other agencies for risk forecasting, and the CO-WRA report identifies that over 1/3 of the buildings in Routt County have a High or Very High potential for building loss due to wildfire.
Routt National Forest
Craig
Hayden
Steamboat Springs
Oak Creek
Yampa
Kremmling
McCoy
Very High
High
Moderate
Low
Very Low
Routt County
Colorado City Boundaries
Support Us

ROUTT COUNTY
WILDFIRE MITIGATION
COUNCIL

RISK TO ECONOMIC DRIVERS




ROUTT COUNTY
WILDFIRE MITIGATION
COUNCIL
RISK TO CRITICAL INFRASTRUCTURE
The risk assessment of critical infrastructure was determined using the CO-WRA Watershed Protection Risk layer. This layer identifies risk to watersheds based on potential negative impacts from wildfire. This is important because "in landscapes subjected to high, or even moderate-burn severity, the post-fire threats to public safety and natural resources can be extreme" (CO-WRA, 2022). All of the critical infrastructure within Routt County, including drinking water infrastructure, hospitals and assisted living facilities, transmission lines, communications towers, dams, and shelters, are contained within watershed protection areas. High and moderate risk areas make up about 30% of the County's total area.
Craig
Hayden
Steamboat Springs
Oak Creek
Yampa
Kremmling
McCoy
Hospitals Medical Centers
Ambulance Services
Fire Stations EMS Stations
Dams
Water Treatment Plants
Power Plant
Routt Communication towers
Routt High Voltage Powerlines
High Risk
Moderate Risk
Low Risk
Lowest Risk
Routt County
Support Us