Rio Arriba County, New Mexico

Community Wildfire Protection Plan - 2024 Update

Cover Photo: Looking southwest towards Chama and Rabbit Peak. Credit: Joe Carrillo, Chama District Forester, NM Forestry Division.

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Rio Arriba County Community Wildfire Protection Plan: 2024 Update

We the undersigned, approve the Rio Arriba County Community Wildfire Protection Plan: 2024 Update.

Resolution No. 2025-014

BOARD OF COUNTY COMMISSIONERS FOR
RIO ARRIBA COUNTY, NEW MEXICO

Alex M Naranjo — For/Against
Chairman, District II

Brandon M. Bustos — For/Against
Commissioner, District I

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ATTEST:
Sarah Archuleta, County Clerk

Rio Arriba County Fire Chief

Signature: _____ Date: 8/20/24
Name and Title: Enrico Trujillo, Rio Arriba County Fire Chief

Signature	Printed Name	Date
	Jose P. Carrillo Jr.	8/16/2024
District Forester	EMNRD-Forestry Division, Chama District	
Norman Vigil	Norman Vigil	8/19/2024
Chairman	Upper Chama SWCD	
Martha Graham	MARTHA GRAHAM	August 21, 2024
SOURCE WATER PROTECTION SPEC.	NMRWA	

Title / Organization

Rio Arriba County Community Wildfire Protection Plan: 2024 Update

We the undersigned, approve the Rio Arriba County Community Wildfire Protection Plan: 2024 Update.

	Sarah DeMay	8/28/2024
Signature	Printed Name	Date
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Title	Organization	
	Gabe Kohler	08/28/24
Signature	Printed Name	Date
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Executive Summary

The 2024 Update of the Rio Arriba County Community Wildfire Protection Plan (RAC CWPP) functions to document, update, and formalize past, current, and future community wildfire risk management planning efforts and accomplishments across all jurisdictions and agencies within the county. Since the 2017 RAC CWPP Update, much has changed within the natural, political, professional, and social wildland fire environments surrounding our urban and rural wildland-urban interface communities. This CWPP update attempts to capture this dynamism and utilize this information to assist in stakeholder reassessment of shared priorities and goals for the purpose of leveraging funding and facilitating implementation of critical risk mitigations and fuel reduction projects for improved safety, health, and resilience for the citizens and communities of Rio Arriba County. This CWPP should be considered an actionable plan for moving proposed priority actions towards on-the-ground implementation. Outreach and hiring to fill the currently vacant Wildland Fire Coordinator position to facilitate and administer this implementation is one of the highest priorities identified within this plan.

The CWPP collaborative development process began in August of 2023 and continued through August of 2024. Collaborative engagement included core team meetings with key organizational and agency representatives, public meetings across the county in the Winter and early Spring of 2024, over a dozen key informant interviews, and a public survey to Rio Arriba County residents. The priority actions, community risk ratings, and the documentation of accomplishments herein reflect that collaborative process.

The most important elements of this CWPP are the priority actions and fuels projects, community risk ratings, and the updated wildland-urban interface (WUI) designation developed in consultation with the Core Team and community stakeholders. Taken together, these items are intended to provide a systematic approach to prioritizing investments in wildfire risk reduction across Rio Arriba County.

To align with existing planning documents, including the 2020 Forest Action Plan and the 2023 San Juan-Chama Focal Area Atlas, priority actions are organized within specific HUC-12 focal watersheds as well as within wildland-urban interface (WUI) areas county-wide. Focal watersheds include Brazos-Tierra Amarilla, Rio Chama Headwaters, Nutrias-Cebolla Canjillon, El Rito-Vallecitos, Puerco Canones, Tusas San Antonio, and the Middle Rio Chama. WUI focal areas include Downstream water users and bosque Corridors, Dixon and surrounding communities, Jicarilla Apache Nation, and Santa Clara Pueblo. These priority actions, organized in focal watersheds and focal WUIs across the county provide a starting point for proposal development and wildfire risk reduction programming in Rio Arriba County.

In addition to priority actions, this CWPP provides updated community risk ratings for the 94 communities within Rio Arriba County. Based on a combination of wildfire hazard data and local knowledge from our core team, 34 communities are at high wildfire risk, 50 communities are at medium wildfire risk, and 10 communities are at low wildfire risk.

The 2024 updated WUI GIS layer includes significantly more area than previous plans with a total of 876,471 acres. To effectively map WUI in a rural area with dispersed development, we employed a combined methodology integrating the USGS building-based approach with the Silvis Lab method to

map where homes are at risk (Carlson et al. 2022; Radloff et al. 2023). The USGS approach provided higher spatial resolution compared to previous methods based on housing density data, offering more precise locations of buildings at risk. The Silvis Lab method analyzes landscape patterns, land cover types, and human settlement distributions to delineate census tracts where human development interfaces with wildland vegetation, offering data helpful in identifying connectivity of in development patterns.

As we complete this update in 2024, we continue to learn from and adapt to the effects of recent catastrophic wildfires. The 2022 Hermit's Peak/Calf Canyon fire scar continues to experience devastating floods and cause severe damage to the Las Vegas water system and other rural water supplies. Additionally, and concurrently, the Salt and South Fork Fires, on the Mescalero Apache Reservation near Ruidoso, NM, have claimed two lives, devastated homes, and caused severe and catastrophic postfire flooding. These wildfires bring many lessons learned, policy changes, and subsequent funding opportunities that alter the priorities and roles of this CWPP both locally and within broader state and national contexts.

Surface Ownership

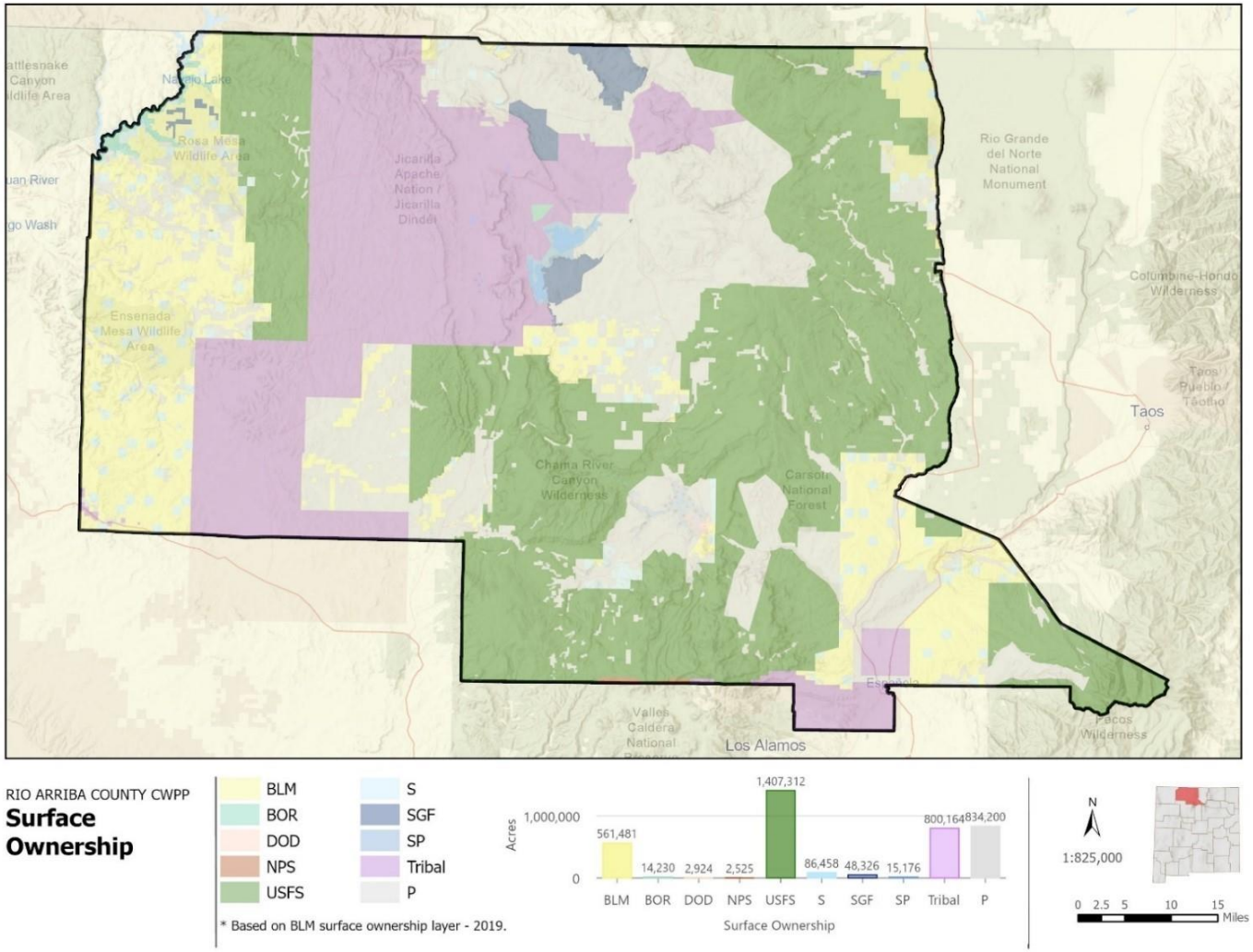


FIGURE 1: SURFACE OWNERSHIP

Introduction

Please refer to the 2017 Update to the Rio Arriba County CWPP, the NMFAP, and the Focal Area Atlas for comprehensive and specific information regarding both human and natural environmental and historical conditions contributing to wildfire risk and preparedness within Northern New Mexico. The 2017 plan provides extensive background information for this CWPP, including demographics, cultural history, geography, vegetation, fire history, and various wildfire science topics including fuel treatment alternatives and their varying effectiveness. Most of this information is still valid and therefore the 2024 CWPP Update only includes information from the 2017 CWPP where applicable. We encourage readers to refer to the 2017 plan for any background information not included within this update.

Rio Arriba County is the fifth largest county in New Mexico and spans over 5,860 square miles of public, private, and Tribal land in Northern New Mexico. According to the Wildfire Risk to Communities mapping tool, Rio Arriba County has a greater likelihood of wildfire than 44% of counties in New Mexico, a greater risk of home loss than 53% of counties in New Mexico, and a high proportion of vulnerable populations from a socioeconomic standpoint, including the Tribal communities of Jicarilla Apache Nation and Santa Clara Pueblo as well as many Hispanic communities (67%) (Scott et al. 2020). 1,407,000 acres within Rio Arriba County are managed by the Carson and Santa Fe National Forests, with private and Tribal lands being the next largest holdings, at 834,000 acres and 801,000 acres, respectively (Figure 1). The majority of Rio Arriba County is considered high priority for fuel reduction and mitigation treatments according to the 2020 NM Forest Action Plan.

Rio Arriba County is situated within the San Juan-Chama region. The San Juan-Chama region encapsulates the entire Rio Chama watershed as well as the headwaters of three tributaries of the San Juan River (Navajo River, Little Navajo, and Rio Blanco) which get diverted into the Rio Chama as part of the San Juan-Chama Project. These watersheds are exceptionally important to downstream water users. The Rio Chama and San Juan basins are the most important watershed areas in terms of surface water resources for New Mexican public water systems. With the extraordinary importance of the San Juan-Chama region, there is a need to protect the watersheds in Rio Arriba County against the effects of severe wildfire and post-fire erosion.

Rio Arriba County is also considered high risk and a wildfire risk reduction priority according to national standards. According to Wildfirerisk.com (Homepage - Wildfire Risk to Communities), "Rio Arriba County has a high risk of wildfire—higher than 88% of counties in the US, with a high risk to homes and a high wildfire likelihood". Additionally, homes are identified as being "predominantly in the Direct Exposure Zone" and "may be ignited by adjacent vegetation, flying embers, or nearby structures". Recommended mitigations include home hardening, defensible space, and hazardous fuel reduction, strategies which are all discussed in detail in this plan (Scott et al. 2020).

In addition to high wildfire risk, Rio Arriba County is also identified by wildfirerisk.com as having high prevalence of vulnerable populations: "Social and economic factors can make it more difficult for some people to prepare for, respond to, and recover from wildfire. Vulnerable populations may lack access to resources, experience cultural and institutional barriers, have limited mobility, or have medical conditions exacerbated by stress or smoke. For example, people over age 65 and people who are

disabled are more susceptible to air pollution and particulates associated with wildfire smoke. Language barriers can make it difficult to follow directions during an evacuation or to access support after a disaster. Race and ethnicity are strongly correlated with disparities in health and access to aid and resources. Wildfires disproportionately impact people with low incomes because of factors such as inadequate housing and a diminished ability to evacuate or relocate (Scott et al. 2020)."

Indicator	Number	Percent
Families in poverty	1,379	15.9%
People with disabilities	6,356	15.8%
People over 65 years	8,155	20.2%
People under 5 years	2,150	5.3%
People of color	35,432	88%
Black	255	0.6%
Native American	6,029	15%
Hispanic	28,711	71.3%
Difficulty with English	855	2.2%
Households with no car	532	3.8%
Mobile homes	5,291	37.6%

TABLE 1: CENSUS BUREAU DATA FOR VULNERABLE POPULATIONS WITHIN RIO ARRIBA COUNTY

This high level of wildfire risk in combination with a high prevalence of vulnerable populations is an accurate characterization for much of Rio Arriba County and must be considered when assessing preparedness and capacity needs for improved safety and resilience. This 2024 Update assesses wildfire preparedness both within Rio Arriba County as a whole, and also within specific communities at risk, addressing issues such as evacuation planning, powerline and electric utility wildfire mitigation planning, fire district preparedness and needs, county-level capacity building, partnership capacity-building for wildfire risk reduction project implementation, the safe and appropriate use of prescribed fire, water resource protection planning, and community-level outreach and education through Firewise, Fire-Adapted Communities, and new programs intended to align with insurance industry standards.

This CWPP should be considered an actionable plan for moving proposed priority actions towards on-the-ground implementation. The most important elements of this CWPP are the priority actions and fuels projects developed in consultation with the Core Team and community stakeholders. This CWPP is intended to be used in tandem with the 2020 New Mexico Forest Action Plan (NMFAP) which "...provides an assessment of the current conditions of our natural resources and sets forth strategies that address key issues in forest and watershed management in a changing climate". The NMFAP recognizes local land planning undertaken by counties, municipalities, and soil and water conservation districts, including Community Wildfire Protections Plans (CWPPs) developed through a critical planning process at the county or local community level. CWPPs both inform and are informed by the NMFAP. This plan also lays out strategies that implement the collaborative policies of, and the three tenets of, the National Cohesive Wildland Fire Management Strategy: building resilient landscapes; fire adapted communities; and safe and effective wildland fire response. Concepts from these documents provide foundational underpinnings for this Plan (EMNRD 2020; NCWFMS 2019).

Why does Rio Arriba County need a CWPP?

The Healthy Forest Restoration Act (HFRA) (Public Law 108-148 2003) acknowledges the fact that the federal government cannot provide funds to reduce hazardous wildland fuels for all communities at risk. The HFRA therefore established a mechanism to prioritize communities at risk to ensure that federal funds to reduce hazardous fuels go to those communities at highest risk. This mechanism is the CWPP (Public Law 108-148 2003). With a completed CWPP a community or group of communities can apply for federal funds to accomplish hazardous fuels reduction or other prioritized actions that have been identified through the CWPP process.

The minimum requirements for a CWPP as described in the Healthy Forests Restoration Act are:

> (1) Collaboration: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.
>
> (2) Prioritized Fuel Reduction: A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.
>
> (3) Treatment of Structural Ignitability: A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

The HFRA requires that three entities mutually agree to the final contents of a CWPP:

- The applicable city or county government:
- The local fire department(s); and
- The state entity responsible for forest management.

Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities was released in 2004 and provided a basic outline for CWPP preparation. This was supplemented in 2008 by the more comprehensive *Community Guide to preparing and implementing a Community Wildfire Protection Plan.* Both guidance documents can be accessed at: https://www.forestsandrangelands.gov/resources/communities/index.shtml. These guidance documents are excellent and the links and resources section in the 2008 document is especially useful for CWPP implementation and tracking accomplishments and progress.

CWPP Updates

Plans require periodic updates to remain relevant. The New Mexico Fire Planning Task Force recommends that CWPPs be updated every five years to reassess conditions and hazards and monitor progress made since the last update. However, this CWPP is a living document and as new information becomes available, lessons are learned, and conditions on the ground change, priorities and plans may warrant updating prior to the recommended 5-year interval.

In 2021, the New Mexico Association of Counties (NMAC), in collaboration with New Mexico State Forestry (NMSF) and the Forest Stewards Guild (FSG), developed guidelines for updating CWPPs (EMNRD, 2021). The 2021 guidelines were designed to improve CWPP effectiveness based on actual experiences from the planning process. You can view these guidelines in full by visiting: https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/State-Forestry-CWPP-Requirements-2021.pdf.

How to Use this CWPP Document

CWPPs represent the formal and recommended process for organizing wildfire risk-reduction projects and priority actions across jurisdictional boundaries and at a local level. In this case, information is organized at the county level. The community risk ratings in this plan (high, medium, and low) and priority action items can be used to build rationale for funding proposals. A wildfire risk reduction project that is documented as a priority action within a CWPP and is located within or adjacent to a Community at Risk with a "high" rating will be more likely to be prioritized as such for funding.

To use this document most effectively, users are advised to find areas of overlap between priority areas in the 2020 NM Forest Action Plan, Shared Stewardship priorities between the US Forest Service and NM State Forestry Division, and priority action items within this 2024 Update, community-level CWPPs, and Source Water Protection Plans. Planning projects in areas where priorities overlap in high-risk areas will improve the likelihood of receiving funding. CWPPs should also be considered living documents and amended when necessary to leverage funds and resources for critical work.

The Shared Stewardship portal is a tool for exploring possible overlap and benefits of proposed actions within Shared Stewardship priority areas: https://nmssp.org/#/. Much of Rio Arriba County is within these Shared Stewardship Priority Areas.

Previous and Ongoing Wildfire Planning in Rio Arriba County

2017 County Wildfire Protection Plan

In accordance with the HFRA of 2003, the County completed a CWPP update in 2017. This update was collaboratively written by The Forest Stewards Guild, Chama Peak Land Alliance, and Unique Places. It is available at New Mexico State Forestry (NMSF) website:

https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/RioArribaCWPP_2017_FINAL.pdf

The 2017 plan provides extensive background information for this CWPP, including demographics, cultural history, geography, vegetation, fire history, and various wildfire science topics including fuel treatment alternatives and their varying effectiveness. Most of this information is still valid and therefore the 2024 CWPP Update only includes information from the 2017 CWPP where applicable. We encourage readers to refer to the 2017 plan for any background information not included within this update.

The 2024 CWPP Update expands upon 2017 recommendations to advance wildfire preparedness and also includes updated mapping of values and wildfire risk.

Community Level Wildfire Protection Plans

Within Rio Arriba County, multiple community level CWPPs have been completed or are in the process of being completed or updated. These plans are also available at the NMSFD website, and include CWPPs for the following communities:

Dixon Community CWPP (2023): https://dixonnmvfd.org/wp-content/uploads/2023/08/Dixon-CWPP-2023_Final-with-signatures.pdf

Upper Rio Chama (2008): https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/UpperChamaCWPP2008.pdf

Santa Clara Pueblo (*in progress 08/2024*)

Accomplishments since 2017 CWPP

There have been many accomplishments that have advanced Rio Arriba County's wildfire preparedness since 2017. One goal of a CWPP update is to catalog these accomplishments and determine how wildfire risk has been reduced. However, with an 8-year span since the original plan, documenting all accomplishments could become impractically burdensome. The following listing is therefore a synopsis of accomplishments identified during the compilation of the 2024 CWPP Update. Presumably many other important accomplishments occurred that are not listed here. Refer to Figure 2 for a landscape summary of fire and fuel treatments.

County

2024 CWPP Update

Private Land

- Over 800 acres of hazardous fuel reduction treatments on private lands administered through NMFD and Upper Chama Soil and Water Conservation District (UCSWCD)
- 2024 Community Wildfire Defense Grant (CWDG) funding approved through NMFD for hazardous fuel reduction treatments on private lands
- Hazardous Fuel Reduction on Non-Federal Lands within communities at risk adjacent to USFS lands

FIGURE 2: WUI HAZARDOUS FUEL REDUCTION ON PRIVATE LAND IN BRAZOS CANYON. PHOTO CREDIT: JOE CARRILLO, CHAMA DISTRICT FORESTER, NM FORESTRY DIVISION

FIGURE 3: "FIREWOOD FOR SENIORS" AT UPPER CHAMA SWCD. THIS IS AN ONGOING COLLABORATIVE PROJECT UTILIZING WOOD FROM PRIVATE LANDS FUEL REDUCTION PROJECTS FOR THE BENEFIT OF THE COMMUNITY. PHOTO CREDIT: SARAH DEMAY. 2021.

Fire District Improvements

- 2023 Dixon Community Wildfire Protection Plan update

Tribal Lands

- Santa Clara CWPP development (in progress)
- Santa Clara Pueblo – 1, 220 acres of Wetland restoration and non-native phreatophyte eradication

Federal lands

- BLM (Bureau of Land Management)
    - Over 750 acres of hazardous fuel reduction and forest health treatments adjacent to communities at risk and priority watersheds

- Santa Fe National Forest
    - Over 1,400 acres of hazardous fuel reduction and forest health treatments adjacent to communities at risk and priority watersheds.
    - 2024 Indios Fire- 11, 500 acres managed for resource benefit 7 miles north of Coyote and surrounding communities at risk and priority watersheds.

- Carson National Forest
    - 4, 932 acres of hazardous fuel reduction and forest health treatments within currently identified WUI.
    - Canjilon Wildland Urban Interface Project benefits communities at risk during adjacent 2024 managed wildfires made possible by successive thinning and prescribed fire treatments
    - Successful public outreach initiatives enable fuels reduction projects adjacent to communities to continue after Hermit's Peak-Calf Canyon.
    - Successfully implementation of prescribed fire for resource objectives including hazardous fuel reduction:
        - Blas Prescribed Fire (2023) – 842 acres
        - Montoya Prescribed Fire (2024) – 899 acres
    - Jicarilla Wildlife Habitat Improvement Project (JWHIP) archaeological survey and forest thinning project.
    - Safe and effective implementation of wildfire managed for resource benefit including the following fires and acreages:
        - Bonita Fire 2017 7,295 acres
        - Hondito Fire 2017 7,012 acres
        - 1860 Fire 2017 80 acres
        - Francisquito Fire 2019 2,009 acres
        - Gurule Fire 2019 2,364 acres
        - Poso Fire 2021 1,983 acres
        - Midnight Fire 2022 1,411 acres
        - Comanche Fire 2023 1,976 acres
        - Yeso Fire 2024 650 acres

FIGURE 4: BLAS PRESCRIBED FIRE, 2024. TREATED VS UNTREATED PONDEROSA PINE FOREST. PHOTO CREDIT: ANGIE KRALL, WEST ZONE DISTRICT RANGER, CARSON NATIONAL FOREST.

Community Organizations

- Dixon Firewise Association
    - Firewise Re-certification
    - Fire mitigation planning/CWPP implementation

- Brazos Canyon Firewise Association
    - Community organization of Brazos Fire Mitigation Team and implementation of fire mitigation planning and implementation to improve safety within Brazos area communities.
    - Completion of community outreach video “Defending Property from Wildfire” to help educate residents about fire risk and mitigation.
    - Chipper acquisition and utilization by residents for hazardous fuel reduction on private lands:

FIGURE 5: COMMUNITY CHIPPING FOR HAZARDOUS FUEL REDUCTION IN BRAZOS CANYON. PHOTO CREDIT: KURT SCHUMACHER, BRAZOS CANYON RESIDENT AND FIREWISE ASSOCIATION AND MITIGATION TEAM LEADER.

Fuel Reduction Accomplishments - Over Time and Across the Landscape

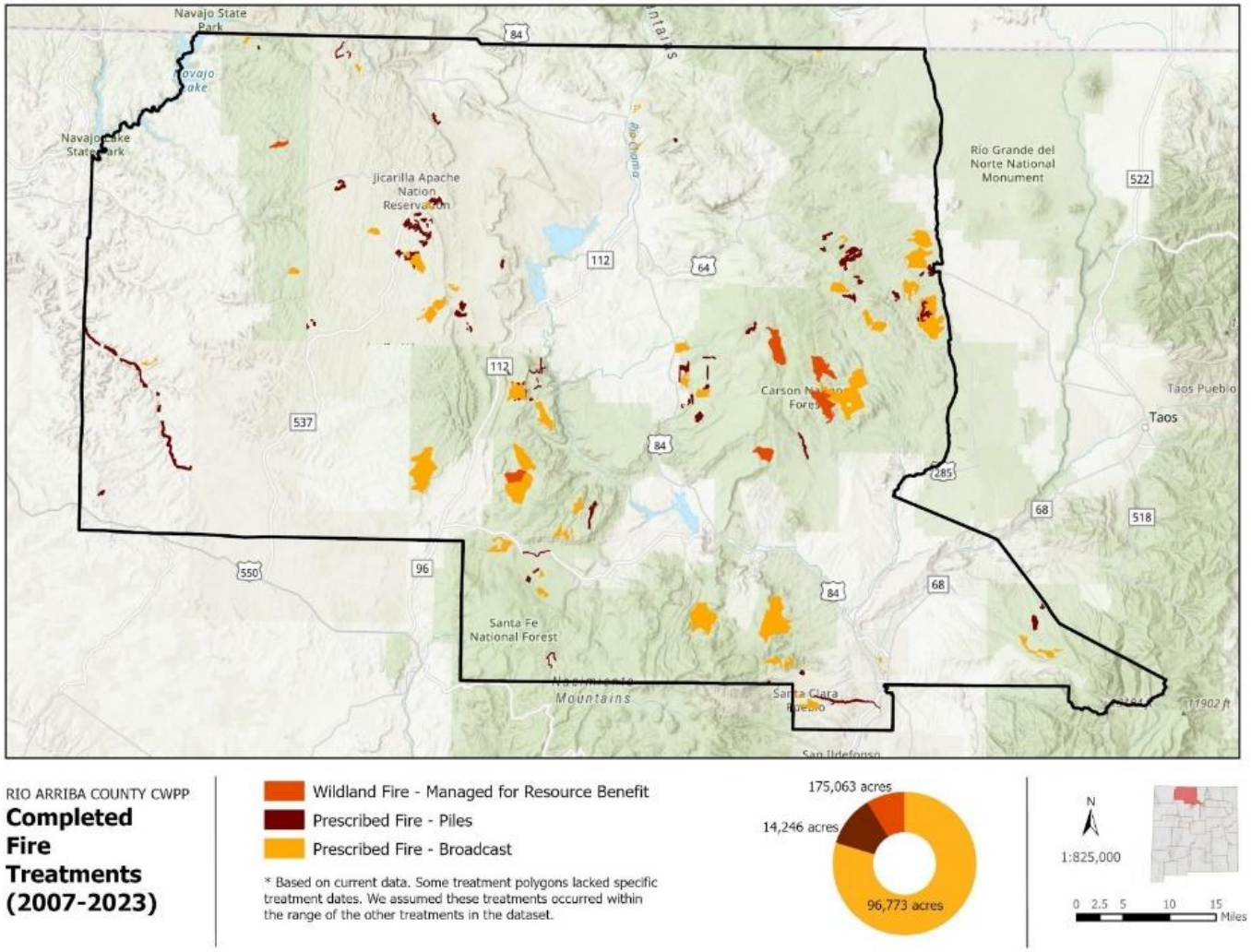


FIGURE 6: COMPLETED PRESCRIBED AND MANAGED FIRE TREATMENTS 2007-2023

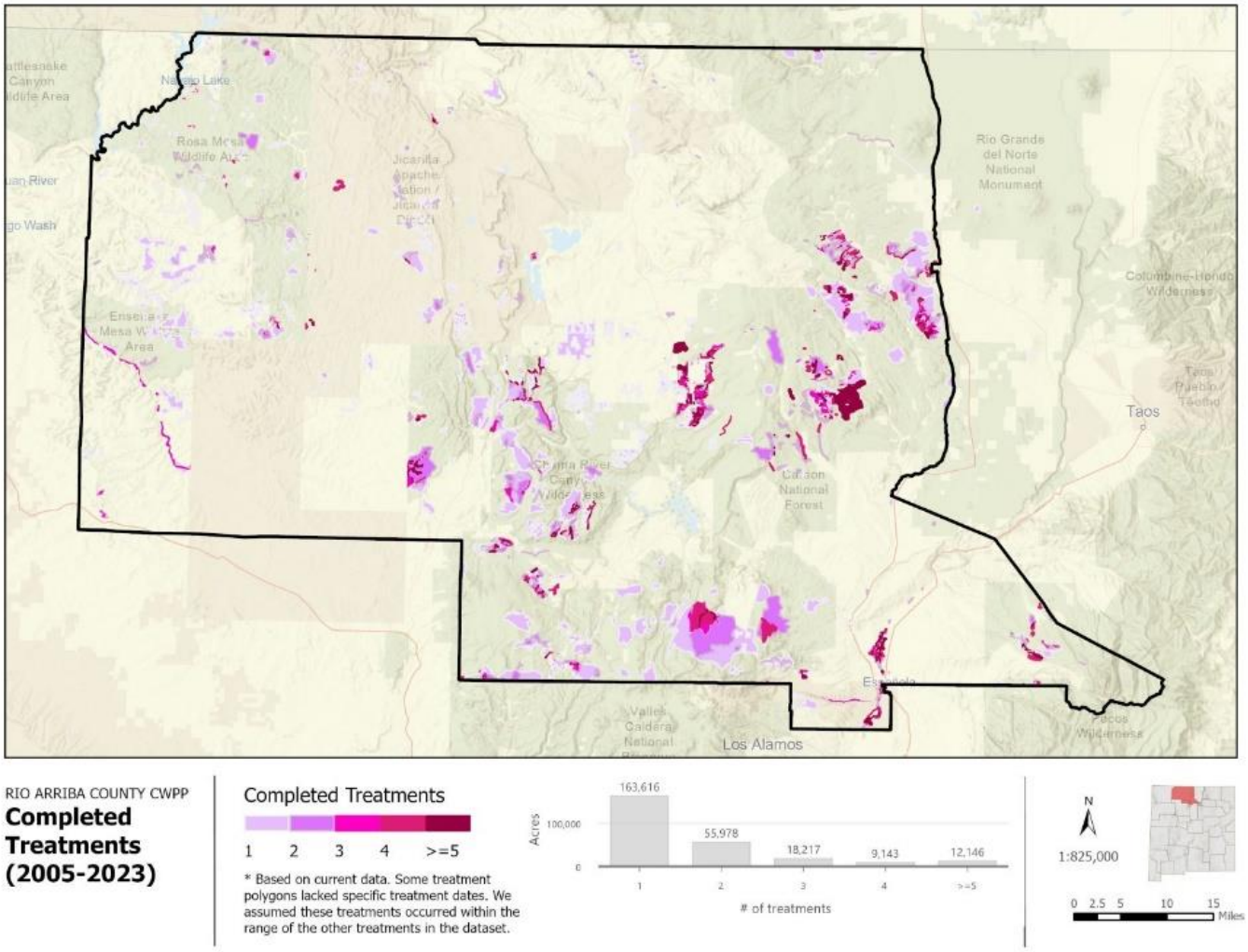


FIGURE 7: COMPLETED TREATMENTS (MECHANICAL AND PRESCRIBED FIRE) 2005-2023

Companion Plans

This CWPP is more of an umbrella document than a stand-alone plan, with the intent to find overlap and alignment between identified priorities and needs and pre-existing and current plans which are considered Companion Plans within this document. These Companion Plans include, but are not limited to, The 2020 Forest Action Plan, the 2023 Focal Areas Atlas, The Dixon CWPP, and Source Water Protection Plans.

The NMFAP states “Communities that are located in or adjacent to natural areas pose a challenge to natural resource managers and community members. In these places where development and wildlands overlap, hazards easily transmit across boundaries. Nearly every community in New Mexico is a wildland

community that could be impacted by hazards common in wildlands." The NMFAP identifies many forests, watersheds, and Wildland-Urban Interface areas and communities within Rio Arriba County as high to very high priority areas for intervention. Priority areas are identified within the NMFAP utilizing current science and analysis as described in Section 2. Natural Resources Assessment: "The Natural Resources Assessment section of the Forest Action Plan provides a geospatial analysis of the conditions and trends of forests and other natural resources in New Mexico as well as threats to forested lands, natural and cultural resources, life and property."

Strategies based on the science and analyses described in Section 2 are identified in Section 3; "The Assessment portion of the 2020 Forest Action Plan depicts natural resource conditions, values and threats spatially throughout the state, and the Strategy Chapter guides what work should be done, often based on the Assessment. This section is broken down into ten main strategies, four of which pertain directly to this CWPP:

1. **Restore Forests and Watersheds** addresses the legacy of fire exclusion and current land conditions to mitigate catastrophic wildfires burning much hotter than previously experienced with forest management treatments.

2. **Fire Management** restores the ecological role of fire to foster resilient landscapes and watershed health; sustains wildfire response on state and private lands; supports regional, state, and national wildfire response on all jurisdictions; and fosters collaboration of post-fire response after high severity wildfire.

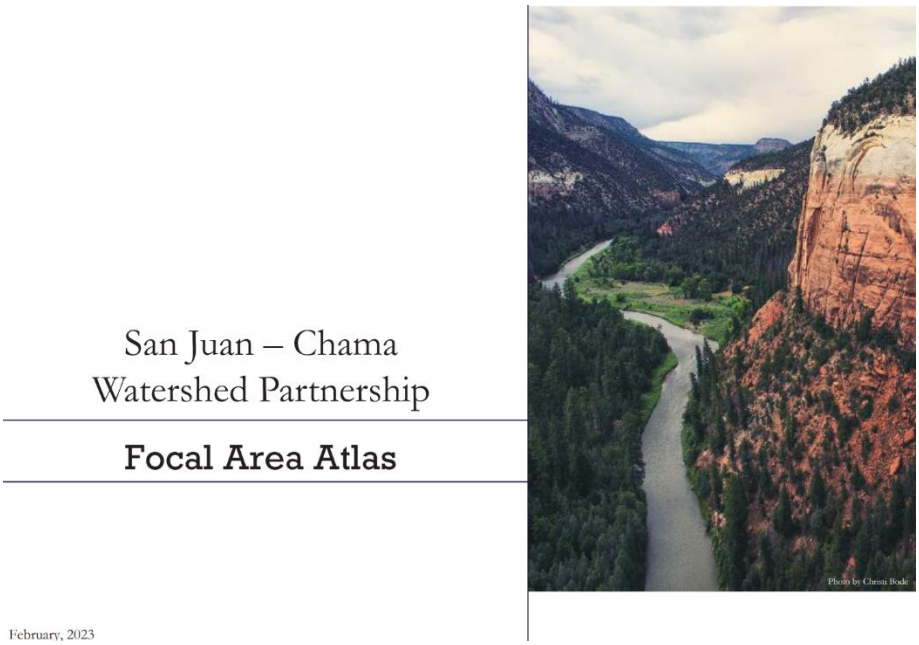
3. **Private Land Stewardship** provides strategies to improve and support private land stewardship and provide services to assist landowners, including both government agencies and non-governmental organizations (NGOs), with tools for resource stewardship that contributes substantial public benefits.

4. **Utility Rights of Way** addresses the risk of wildfire ignition and threat of damage to utility infrastructure by increasing vegetation management along right of ways.

Many areas and watersheds within Rio Arriba County are identified as shared stewardship priorities due to very high wildfire risk to biodiversity, human communities, and water supplies. Private lands within the county are also within these priority areas and rank high for shared stewardship funding and technical support. Additionally, the NMFAP identifies watersheds within northern Rio Arriba County as having the highest possible ranking in the state for supplying the greatest population of Native American communities and Spanish/Mexican land grant communities with water.

The priority actions and priority fuel reduction projects within this CWPP are intended to align with the goals and strategies within the NMFAP. Effective implementation of the CWPP will therefore also further the goals of the FAP and reduce risks to biodiversity, communities, and water resources in the county and to the state of New Mexico as a whole.

San Juan-Chama Watershed Partnership Plans



The 2023 San Juan-Chama Focal Area Atlas informs assessment processes for identifying priority fuel reduction projects within priority watersheds.

This 2024 CWPP references the Focal Area Atlas throughout. The Atlas is available online at: https://static1.squarespace.com/static/5ad7a235d274cb433e19134a/t/64662f89a8661a3462ab9321/1684418477819/SJCWP+Focal+Area+Atlas_FINAL_compressed-1.pdf

In 2019, partners in the San Juan Chama-Watershed Partnership (SJCWP) obtained grant funding to update geographic priority areas for watershed protection needs. This task, however, proved challenging due to the large landscape size of the San Juan-Chama region, the large area at risk of severe wildfire, and the many local values at stake. Rather than assigning priorities to areas, partners decided to identify watershed-based "Focal Areas" that partners may use to conduct their own watershed planning and prioritization. Continued funding for watershed planning allowed expansion into the current Atlas framework to share with land management partners.

The goals for the Focal Area Atlas were as follows:

1. Use both local and scientific knowledge to help identify watershed protection issues and needs in the SJCWP landscape.

2. Describe watershed areas, land jurisdictions, relevant planning and implementation efforts, and important values at risk within mid-scale watershed areas.

3. Use spatial products from the New Mexico Forest Action Plan to show threat of severe wildfire and threat of postfire erosion for mid-scale watershed areas in the SJCWP region.

4. Show potential treatment locations for dry and mesic forest types that are accessible to forestry machinery.

5. In 2022 NMFD submitted these Focal Area boundaries to the NM Shared Stewardship Portal. The Atlas is designed to help provide context for these areas and to aid in land management planning.

6. Make this information available so that partners can more easily list relevant planning and implementation efforts for an area while applying for new grant funding.

To accomplish these goals, the SJCWP first delineated separate watershed-based Focal Areas at a mid-range scale of between 100,000 – 300,000 acres in size. They used combinations of HUC-12 watershed areas to accomplish this, making sure that every HUC-12 was ranked as one of the top 500 priority watersheds in the 2020 New Mexico Forest Action Plan. They conducted outreach to folks working in these areas to gain information about important issues and relevant planning and implementation efforts.

For each Focal Area in the Atlas, they include a narrative page and 5 accompanying maps. For the spatial analysis and map making, they used a variety of spatial products, including threat of severe wildfire and threat of post fire erosion layers from the 2020 New Mexico Forest Action Plan. In addition to these, they collected land ownership information and vegetation types, and then they built a layer to show dry and mesic forest types that are under 40% slope and accessible by common forestry equipment (they did not exclude wilderness areas in this analysis). For each of these maps, they quantified the different values and included the information in charts included in the narrative section of each Focal Area.

The Focal Area Atlas is utilized within this CWPP update as a science and data-based methodology for identifying and prioritizing attainable fuel reduction projects within a vast landscape of urgent treatment needs.

NM Rural Water Users Association and Source Water Protection Plans

The New Mexico Water Association (NMRWA) provides technical assistance and training to public drinking water systems throughout the state. NMRWA's Source Water Protection Program works with public water systems to identify potential threats to their drinking water and develop a plan to address these threats. An important focus of NMRWA's Source Water Protection Program is articulating the relationship between drinking water systems, wildfire, and postfire effects.

Martha Graham of the New Mexico Rural Water Association's Source Water Protection Program prepared the 2019 *Vallecitos MDWCA Source Water Protection Plan***,** considered a companion plan within the 2024 CWPP update.

SOURCE WATER PROTECTION PLAN

For

Vallecitos MDWCA

PWS #NM 3503521

March 30, 2019

New Mexico Rural Water Association
8336 Washington Place NE
Albuquerque, NM 87113
505-884-1031
www.nmrwa.org

Within this Source Water Protection Plan, Graham comprehensively addresses the potential effects of severe wildfire on drinking water in general, and for Vallecitos specifically:

Vallecitos's hazard rating in 2007 was moderate and was changed in 2017 to medium. In 2005, Vallecitos and nearby communities had significant fuel reduction treatments on adjacent Carson National Forest-El Rito Ranger District lands. While "those treatments have been shown by the 2017 Bonita Fire to reduce wildfire intensity and have allowed natural ignitions to be managed for resource benefits close to communities" (Chama Peak Land Alliance et al. 2017), unfortunately an untreated canyon also burned. That canyon feeds into the Rio Vallecitos above Vallecitos. Not surprisingly, this canyon experienced the highest severity burn and a subsequent rainstorm in the same area resulted in a postfire sediment flow event that overwhelmed the Vallecitos MDWCA's infiltration gallery and treatment facility. The RAC CWPP notes the risk of flooding because of the number of residences in the floodplain. Typically, CWPPs do not call out the impacts that flooding and debris flows could have on water infrastructure, although this is beginning to change. As critical infrastructure, fire/postfire effects on water system infrastructure might be worth more specific consideration. Sadly, the plight of the Vallecitos MDWCA after the Bonita Fire has raised awareness on this issue.

Initial effects of wildfire might be in the form of debris-flows impacting reservoirs, intakes, and other water treatment facilities (Sham et al. 2013). The first heavy rains could significantly affect water quality. Affects to water quality could include elevated turbidity, dissolved organic carbon, increased nitrogen and phosphorous, increased pH and alkalinity, and elevation of some heavy metals and minerals. One possible outcome of wildfire would be changes in how, or whether, the source water is treated. The water system may see watershed and water quality effects that last for over a year (Sham et al. 2013, citing Clark 2010). Other research has showed a return to pre-fire water quality for some systems that spans 5-10 years (SWCA 2018). The effects that wildfire and postfire debris-flows would have on a water system are highly variable, depending on factors ranging from the severity of the fire to the topography to the nature of the water system. Surface water systems are likely to experience more immediate and more long-term effects than are groundwater systems, although the infrastructure of both types of systems is vulnerable. The Vallecitos MDWCA's infrastructure was already antiquated and problematic before the Bonita Fire and the subsequent runoff. Nevertheless, it is worth noting that the Vallecitos MDWCA is not unique among New Mexico's water systems in this regard. When factoring in when and how to approach wildfires and managed burns – as well as prescribed treatments in New Mexico's forests – firefighters and forest managers need to know the locations of municipal water systems' sources and critical infrastructure and take into consideration their vulnerabilities. The ramifications of forest treatments, wild/prescribed fire and postfire processes on drinking water systems is not well or explicitly integrated into forest management plans. Fortunately, this situation is changing. Initially, it might take additional effort on the part of water systems and their communities to reach out to the USFS, New Mexico State Forestry, and others to educate them about the importance of maintaining high quality drinking water for communities. Stressing the vulnerability of antiquated infrastructure while acknowledging that these are the systems on which communities are relying is also important.

Geospatial Analysis and Map Descriptions

The maps within this document are dual purpose. They are integral to assessments of risk, priorities, and needs as identified within this plan. The data used for these analyses is the best available, primarily sourced from the NMFAP, and in alignment with the companion plans. The maps are also intended to serve the purpose of effective communication and to function as an accurate visual representation of conditions and risks within the County, and ideally to advocate for an appropriate level of concern and for identification and alignment of cross-jurisdictional and Shared Stewardship goals.

Map Title	Map Description
Surface Ownership (Figure 1)	The surface ownership map displays the ownership of land by the various public land managers and private entities within the County.
Completed Rx Fire Treatments (2007-2023) (Figure 6)	Prescribed fire treatments were identified from project partners and the New Mexico Forest Treatments map. This map is a collaborative effort to record and make available key data about projects that are occurring across all jurisdictions in New Mexico to facilitate well informed decision making for future planning. It is hosted by the New Mexico Forest and Watershed Restoration Institute (NMFWRI) and managed by the NMSF Division's Forest

	and Watershed Health Office. This map includes pile burns, broadcast burns, and natural ignitions managed for resources benefits.
Completed Treatments – all (Rx Fire and Mechanical)(2005-2023) (Figure 7)	Mechanical and prescribed fire treatments were identified from project partners and the New Mexico Forest Treatments map. This collaborative effort aims to record and provide access to key information about only fire projects across all jurisdictions in New Mexico, supporting informed decision-making for future planning. It is hosted by the New Mexico Forest and Watershed Restoration Institute (NMFWRI) and managed by the NMSF Division's Forest and Watershed Health Office.
Communities at Risk (Figure 8)	This Communities at Risk Map displays communities that are at risk of wildfire within Rio Arriba County and their Community Hazard Rating (CHR) of high, medium, or low. See Figure 4 for GIS data information.
Wildland Urban Interface (Figure 9)	The Wildland Urban Interface (WUI) map represents the areas where human development meets natural wildland vegetation. The WUI area includes structures and infrastructure located near forests, grasslands, or other natural environments. The WUI layer encompasses areas identified by the USGS and SILVIS Lab as WUI. Additionally, we have included 500-meter buffer zones around water infrastructure—such as points of diversion and conveyances identified by the NM Office of the State Engineer—, evacuation routes, and the Cumbres and Toltec railroad. These additions were considered important for firefighting efforts, community resilience, and emergency preparedness during wildfires.
Wildfire Risk to Communities (Figure 10)	The Wildfire Risk to Communities Map displays the threat of severe wildfire overlaid by community resources and hazards including: communities at risk, Wildland Urban Interface, Specific Values at risk (addresses, buildings, cell towers, evacuation routes, and railroads), general hazards (oil and gas wells and transmission lines), and community water resources (points of diversion, conveyances, and public water systems). Threat of severe wildfire is represented by modeled burn severity and was obtained from the NM Forest Action Plan (EMNRD, 2020). Burn severity after a wildfire is influenced by various factors, such as fuel loading, topography, fuel moisture, and weather conditions. The NMFAP model, however, relies solely on canopy cover to predict burn severity.
Post-Wildfire Erosion Threat (Figure 13)	This map displays post-fire debris flow threat and community water resources, including: diversions, conveyances, and public water systems. Post-fire debris flow data was obtained from the 2020 NM Forest Action Plan (EMNRD, 2020) Debris flow hazard is a combination of probability of a debris flow and potential volume of debris flow. An important caveat is that this dataset shows where debris flows will originate and not necessarily where they will end up. This zone shows where floods are likely to occur and areas where communities should be prepared for a post fire debris flow if a wildfire occurs above them in the watershed. These data were compiled for the entire state, a locally specific effort for Rio Arriba County would yield more applicable results.

TABLE 2: DATA SOURCES AND ADDITIONAL MAP DESCRIPTIONS

Communities At Risk

Rio Arriba County has 96 identified Communities at Risk, each of which has been assigned a Community Hazard Rating (CHR) of High, medium, or low. CHR ratings are reassessed and reassigned by the Core Team with each CWPP update. Most of the 2024 CHRs in Table 3 remain unchanged since the 2017 update which utilized the following rating matrix:

Community hazard ratings matrix			
Consideration	**Low**	**Medium**	**High**
Location on Flame Height Map (appendix 8)	From map	From map	From map
Vegetation in community	Fuels are generally fine, such as grasslands or sparse shrub, or forest < 40 ft2 basal area	Fuel conditions are heavier than low and lighter than high	Closed forest canopy, often with ladder fuels
Vegetation adjacent to community	Fuels are generally fine, such as grasslands or sparse shrub, or forest < 40 ft2 basal area	Fuel conditions are heavier than low and lighter than high	Closed forest canopy, often with ladder fuels
Access	Multiple ways of ingress and egress to community, fuels along roads are well managed.	Road access conditions are not as good as low, or as bad as high	One way in, one way out. Fuels along road may compromise evacuation route
Dominant construction materials	Majority of structures include non-flammable building materials such as metal roofs, adobe walls, enclosed decks, etc.	Structures are generally good throughout community, but improvement is possible	Majority of structures have issues such as un-enclosed porches, trees incorporated in construction, flammable building materials, etc.
Firewise Community Designation	Has had designation more than 2 years	Currently applying or recent designation	No designation
Fire adapted communities event or awareness activity	Has at least one event or activity each year - to remove fuels or clean up around home	Has more than one event or activity each year – to remove fuels or clean up around homes.	No events or community awareness

TABLE 3: COMMUNITY HAZARD RATING MATRIX FROM 2017 RAC CWPP

All CHR changes indicated in Table 4 *Communities At Risk – Community Hazard Ratings (CHRs)* are due to reassessment, not actual changes in values, hazards or risk. For the purposes of this document, "community" is a loosely defined term intended to include any and all of the following: incorporated communities (Chama and Espanola), tribal communities (the Jicarilla Apache Nation, Santa Clara Pueblo, Okay Owingeh Pueblo), and unincorporated villages, subdivisions or any grouping of residents that has a place name and location that is recognized by local residents. To establish a Community Hazard Rating (CHR) for these communities, CWPP core teams use a collaborative process to identify values such as homes, power and water infrastructure, watersheds and drinking water sources, cultural resources, economic resources, etc., and then to rate the objective hazards and subsequent risk, or CHR, to these values. The risk to these values can be assessed using the following data and criteria: Relative Value,

Threat of Severe Wildfire (see Wildfire Risk to Communities Map), Vegetation and fuel conditions and treatment effectiveness, topography, distance to and capacity of nearest suppression resources, response time for first responders and law enforcement, contingency resource availability, evacuation safety and planning, emergency alert capability, effectiveness of defensible space treatments, construction materials/ignitability, community wildfire risk awareness and planning, prevalence of vulnerable populations, capacity of residents to do necessary mitigation and/or evacuate safely (for example, older populations will be higher risk), and threat of post-fire erosion and flooding.

The communities with a “high” rating are generally the focus of the priority actions identified within this plan. Within these high-risk communities, wildfire poses a direct and potentially catastrophic threat to life and property as rated using the above criteria. This list should be used to prioritize how fire mitigation work occurs in the county. Also, this list should be updated as CHRs change due to mitigation or other factors.

Communities at Risk Map

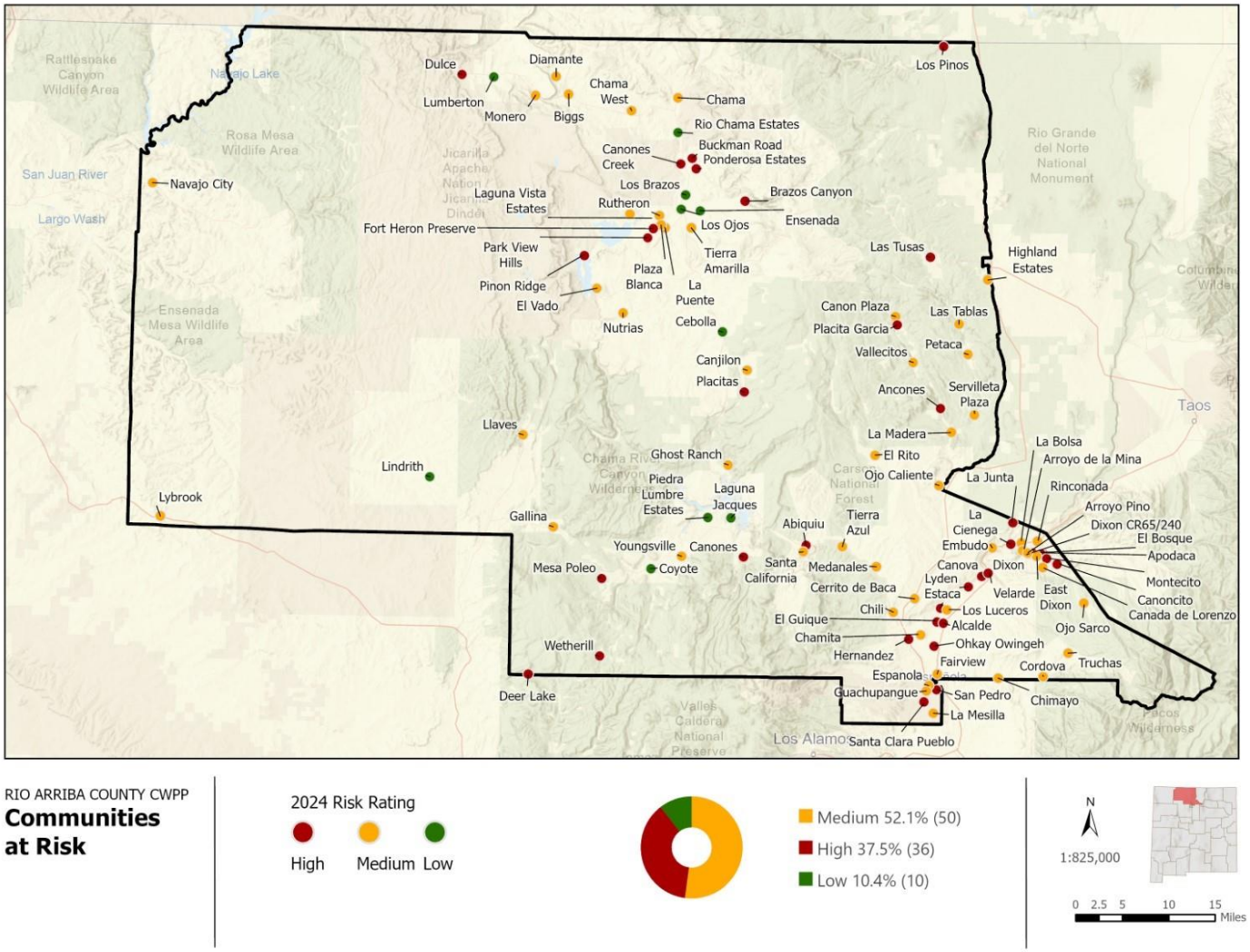


FIGURE 8: COMMUNITIES AT RISK MAP

Communities at Risk - Community Hazard Ratings (CHRs)

Community At Risk (CAR)	2018 Community Hazard Rating (CHR)	2024 Community Hazard Rating (CHR)	Change
Abiquiu	H	H	
Alcalde	H	H	
Ancones	H	H	
Apodaca		H	
Arroyo de la Mina		M	
Biggs	H	M	Down
Brazos Canyon	H	H	
Buckman Road	H	H	
Canada de Lorenzo		M	
Canjilon	M	M	
Canon Plaza	M	M	
Canoncito		H	
Canones	H	H	
Canones Creek	H	H	
Canova	H	H	
Cebolla	L	L	
Cerrito de Baca	M	M	
Chama	M	M	
Chama West	M	M	
Chamita	M	M	
Chili	M	M	
Chimayo	L	M	Up
Cordova	M	M	
Coyote	L	L	
Deer Lake		H	

Diamante	H	M	Down
Dixon	M	H	Up
Dixon Arroyo Pino		M	
Dixon CR 65/24		H	
Dulce	H	H	
East Dixon		M	
El Bosque		H	
El Guique		H	
El Rito		M	
El Vado	M	M	
Embudo	L	M	Up
Ensenada	L	L	
Espanola	M	M	
Estaca	H	H	
Fairview	M	M	
Fort Heron Preserve		H	
Gallina	M	M	
Ghost Ranch	M	M	
Guachupangue	M	M	
Hernandez	H	H	
Highland Estates	M	M	
La Bolsa		M	
La Cienega	L	H	Up
La Junta		H	
La Madera	M	M	
La Mesilla	M	M	
La Puente	M	M	

Laguna Jacques	L	L	
Laguna Vista Estates	M	M	
Las Tablas	M	M	
Las Tusas	H	H	
Lindrith	L	L	
Llaves	M	M	
Los Brazos	M	L	Down
Los Luceros	M	M	
Los Ojos	L	L	
Los Pinos	H	H	
Lumberton	L	L	
Lybrook	M	M	
Lyden	H	H	
Medanales	M	M	
Mesa Poleo	H	H	
Monero		M	
Montecito		H	
Navajo City	M	M	
Nutrias	M	M	
Ohkay Owingeh	H	H	
Ojo Caliente	M	M	
Ojo Sarco	M	M	
Park View Hills		H	
Petaca	M	M	
Piedra Lumbre Estates	L	L	
Pinon Ridge	H	H	
Placita Garcia	M	H	

Placitas	M	H	
Plaza Blanca	M	M	
Ponderosa Estates		H	
Rinconada	L	M	Up
Rio Chama Estates	L	L	
Rutheron	M	M	
San Pedro	M	H	Up
Santa California	M	M	
Santa Clara Pueblo	H	H	
Servilleta Plaza	M	M	
Tierra Amarilla	L	M	Up
Tierra Azul	M	M	
Truchas	M	M	
Vallecitos	M	M	
Velarde	M	H	Up
Wetherill		H	
Youngsville		M	

TABLE 4: COMMUNITIES AT RISK – 2024 COMMUNITY HAZARD RATINGS (CHR

Wildland Urban Interface (WUI)

The Wildland Urban Interface (WUI) is loosely defined as areas where human development meets natural wildland vegetation. For the purposes of this plan, WUI includes both "urban" and "intermix", which refers to less dense rural development and is a more accurate characterization for much of Rio Arriba County. The designated WUI area includes structures and infrastructure located near forests, grasslands, or other natural environments. **The 2024 updated WUI GIS layer includes significantly more area than previous plans with a total of 876,471 acres.** To effectively map WUI in a rural area with dispersed development, we employed a combined methodology integrating the USGS building-based approach with the Silvis Lab method to map where homes are at risk (Carlson et al. 2022; Radloff et al. 2023). The USGS approach provided higher spatial resolution compared to previous methods based on housing density data, offering more precise locations of buildings at risk. The Silvis Lab method analyzes landscape patterns, land cover types, and human settlement distributions to delineate census tracts where human development interfaces with wildland vegetation, offering data helpful in identifying connectivity of in development patterns. Furthermore, we expanded our mapping methodology by including 500-meter buffered locations for water infrastructure, specifically NM office State of Engineer

points of diversion and conveyances, as well as evacuation routes. See Table 2 and Figure 5 for more information on how this layer was compiled. As noted in the 2020 NM Forest Action Plan, "Wildfire threatens buildings, water infrastructure and communications sites. These resources are characterized as being susceptible to wildfire when flame lengths exceed six feet. Post-fire debris flow threatens major roads". The 2024 WUI layer was updated to include the area around not only structures and communication sites (20 cell towers), but also water resources and infrastructure, roads that serve as primary evacuation routes (2,263 miles), and the Cumbres-Toltec Railroad corridor (32 miles). Protection of these areas and resources will work towards the goals of improving public and firefighter safety and ensuring the long-term health and resiliency of communities and the lands and watersheds that sustain them.

The input data included:

- Address Locations and Values at risk – The New Mexico RGIS database provided point data for all addresses in the county, these points were visually verified and buffered at 0.2 miles.
- Microsoft Building Footprints – this dataset contains computer identified building footprints across all 50 states. These data capture building locations that may not have been included in address data. These data were inspected and cleaned for use in Rio Arriba County. Verified points were buffered at .2 miles.
  https://wiki.openstreetmap.org/wiki/Microsoft_Building_Footprint_Data
- Primary Escape Routes – The Core team identified primary escape routes, and these were buffered at a tenth of a mile.
- Cell towers and Radio Repeaters- Homeland Infrastructure Foundation Level Data (HIFLD) provided a map of location and they were buffered at a quarter mile.
- Powerlines –Homeland Infrastructure Foundation Level Data (HIFLD) Major transmission lines were buffered at a tenth of a mile to indicate areas that are more prone to ignitions and should be considered for treatment.
- Oil and gas wells – New Mexico Energy, Minerals, and Natural Resources department (EMNRD) provided data on oil and gas wells in Rio Arriba County. Wells were buffered at a quarter of a mile.
- Rail lines were buffered at a tenth of a mile.
- Surface water for municipal supply based on data from New Mexico Department of Environment and the Office of the State Engineer

Wildland Urban Interface (WUI) Map

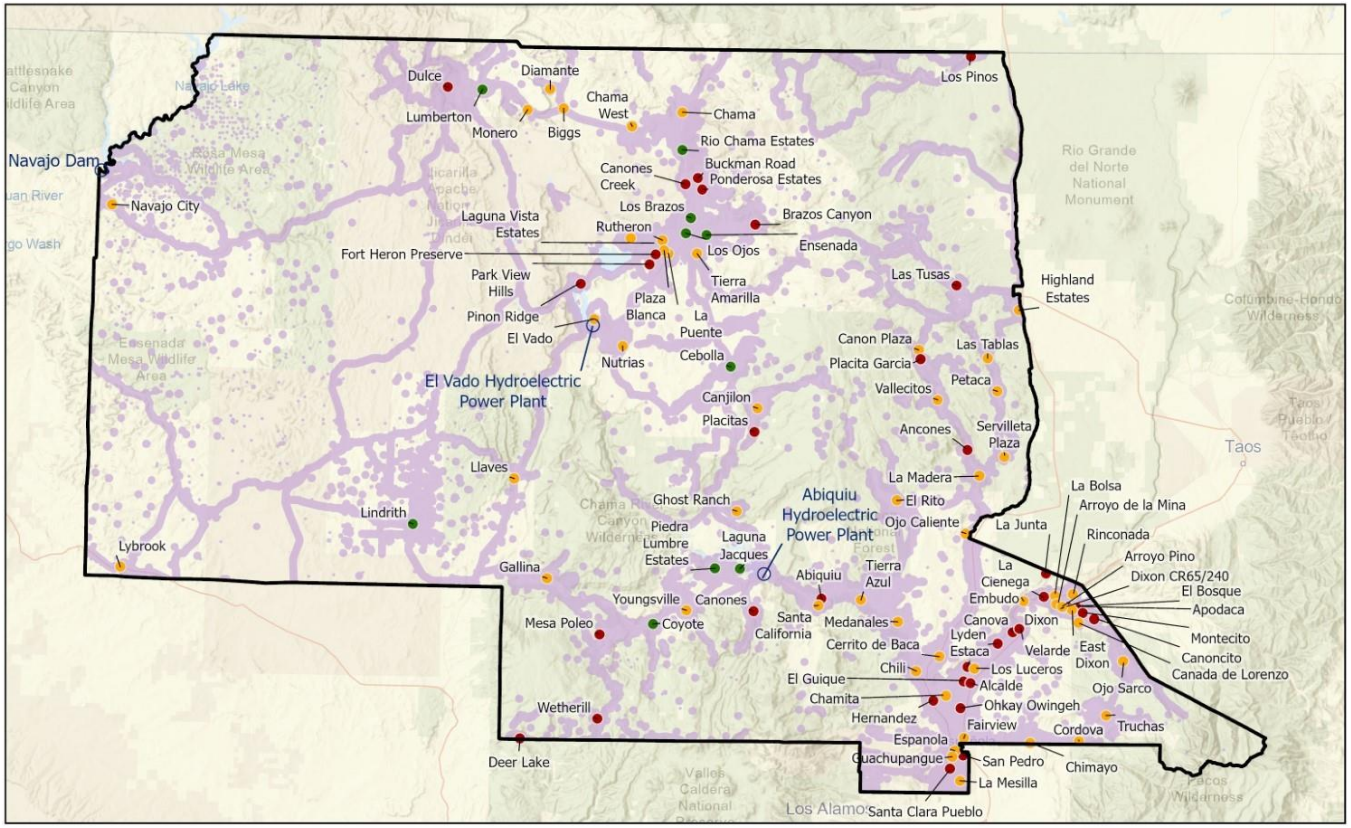


FIGURE 9: WUI MAP

Wildfire Risk to Communities

Wildfire risk can be understood as a combination of the likelihood and intensity (together called the "hazard" or "threat") and the exposure and susceptibility (together called "vulnerability") related to a wildfire event. In this plan, we use GIS data and fire behavior modeling to account for wildfire threat, and input from the core team and the public to understand the vulnerability of communities. Both the threat modeling and input from the core team can augment risk ratings. In some cases, the threat of wildfire may be low according to our modeling, but vulnerability is high enough that the overall risk will be considered high. Vulnerability accounts for things like the susceptibility of a community to losing an important water source or having limited financial resources to recover from wildfire, for example. To learn more about wildfire risk to communities, visit: https://wildfirerisk.org/understand-risk/.

This map combines the WUI layer, Communities at Risk, water resources, evacuation routes, and other values at risk with data representing the probability of high severity wildfire (referred to as "threat" within the NMFAP and this CWPP). This map clearly demonstrates that WUI in Rio Arriba County is often directly adjacent to and/or downstream of areas with significant threat of high-severity wildfire. This map is intended for use in conjunction with the Priority Action and Priority Fuel Reduction Projects tables.

Wildfire Risk to Communities Map

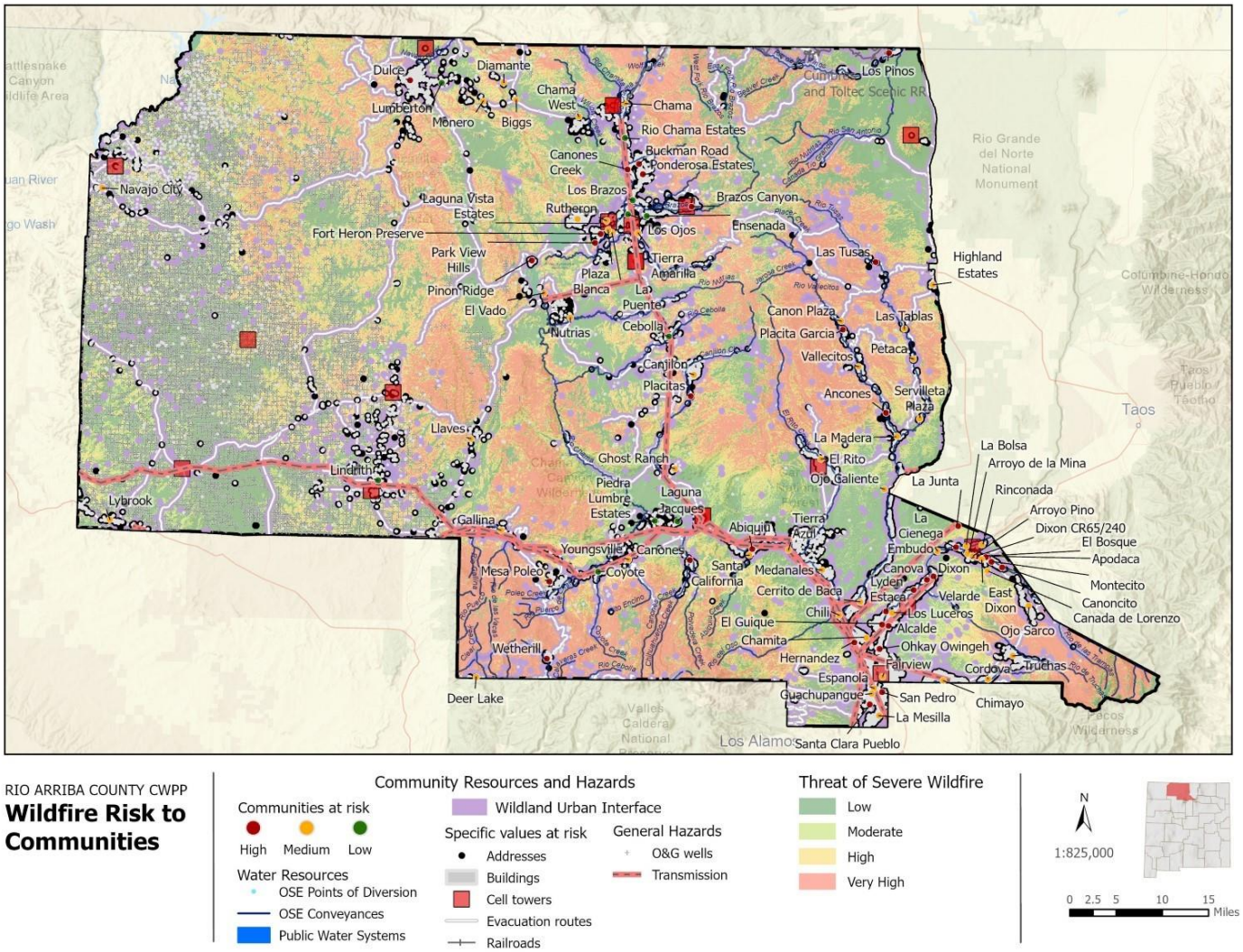


FIGURE 10: WILDFIRE RISK TO COMMUNITIES MAP

Priority Actions

The priority actions within this 2024 CWPP Update have been identified by utilizing foundational planning documents, research, legislation, feedback from two Core Team meetings and three public meetings, interviews with subject matter experts, an online survey, and after-action reviews and lessons learned from recent destructive wildfires that adversely affected communities. Foundational documents and legislation include the 2020 New Mexico Forest Action Plan, the 2023 San Juan-Chama Watershed Partnership Focal Area Atlas, the 2023 Dixon CWPP, the 2008 Upper Chama CWPP, Source Water Protection Plans for Chama and Vallecitos, and NM Executive Order 2021-052 Protecting New Mexico's Lands, Watersheds, Wildlife, and Natural Heritage. After Action Reviews and Lessons Learned documents were reviewed from the Hermit's Peak/Calf Canyon Fire, the Gallinas-Las Dispensas Prescribed Fire Declared Wildfire Review, the Camp Fire, the Marshall Fire, the Maui Fire Department, and the 2017 Bonita Fire. Current recommendations from *On Fire: The Report of the Wildland Fire Mitigation and Management Commission* were also considered.

It was not difficult to identify overarching priorities for this CWPP. The following topics were dominant themes at both the Core Team meetings and the public meetings, and are also priorities within existing planning efforts including the 2017 CWPP:

- Evacuation planning and safety
- Powerline right-of-way mitigation and infrastructure safety and modernization
- Watershed and source-water protection
- Defensible space and ignitability reduction treatments for structures and values at risk
- Targeted landscape WUI fuel reduction treatments, both mechanical and prescribed fire

The priority actions in this CWPP include both these broader objectives and more specific project-level priorities. In general, the broader objectives are intended to encompass critical work that still requires funding and planning for implementation. The more specific projects may already be "shovel-ready" or have funding identified. The tables are organized first by topic at the county level, and then by more specific areas at risk, referred to as Focal Areas within this plan.

Capacity deficiencies due to personnel and funding limitations represent significant bottlenecks and challenges for Rio Arriba County due to revenue and income disparities relative to adjacent counties and lower availability of qualified applicants within sparsely populated rural areas. Hence, increasing capacity by hiring and recruiting at both the county and fire district levels has been identified as a priority and will likely need to be addressed prior to achieving many of the other priorities identified within this section. Please refer to the maps to better inform many of the priority actions within these tables. Frequently used acronyms include the following: RAC, (Rio Arriba County), NMFD (New Mexico Forestry Division), and UCSWCD (Upper Chama Soil and Water Conservation District).

Priority Actions: Wildfire Preparedness – Countywide

Priority Level	Action & Detail
HIGH	**Hire Wildland Fire Coordinator position within Rio Arriba County to facilitate coordination and implementation of priority actions within this CWPP.**
	Detail: This position will provide increased capacity within RAC necessary for implementation of priority actions within this CWPP. If necessary, RAC could consider contracting or sharing this position with another county or municipality. Who: RAC Fire Chief and County Administrator
HIGH	**Obtain funding and technical support to develop a FEMA All Hazards Emergency Operations Plan**
	Detail: Find the FEMA planning guide here: slg101.PDF (fema.gov). This plan must be in place for FEMA funds to be utilized for pre-fire planning, preparedness and home hardening within Rio Arriba County. Funding assistance is available here: https://www.fema.gov/sites/default/files/documents/fema_hmgp-planning-grants-application-instructions.pdf Who: RAC Emergency Manager and Fire Chief, RAC Wildland Fire Coordinator (when hired) and/or contractor
HIGH	**Outreach and Education – human-caused ignition reduction**
	Detail: Implement public education campaign to reduce the number of human-caused wildfires, which account for the majority of NM large fires (Model program: Utah FireSense) Who: RAC, NMFD
HIGH	***Outreach and Education – Evacuation readiness including "Ready, Set, Go"***
	Detail: Ready, Set, Go! New Mexico - Forestry (nm.gov) Who: RAC Fire Chief, Fire Districts
HIGH	***Outreach and Education – Fire adapted Communities/Wildfire Prepared Homes***
	Detail: See next section: "Reducing Structural Ignitability and Improving Access to Homeowners' Insurance"
HIGH	**Outreach and education – Prescribed fire and mechanical thinning**
	Detail: To effectively implement and maintain thinning and prescribed fire WUI treatments, managers must continue working to build positive relationships with landowners and communities. Outreach and open two-way communications about the benefits, risks, and complex issues surrounding mechanical and prescribed fire

	treatments must continue if managers are going to continue to build trust and support within the communities that they are working to protect. Who: Rio Arriba County managers, county commissioners, federal land managers, NM Forestry Division, landowners
HIGH	**Align planning and funding requests with desired operational capacity**
	Detail: Lessons learned from recent catastrophic wildland-urban-interface fires recommend aligning planning and funding requests with desired operational capacities based on actual fuels conditions within and surrounding communities and corresponding expected fire behavior. (2023-Wildfire-After-Action-Report (mauicounty.gov), A Case Study of the Camp Fire - Fire Progression Timeline (nist.gov) Who: RAC Fire Chief and Emergency Manager

TABLE 5: PRIORITY ACTIONS: WILDFIRE PREPAREDNESS – COUNTYWIDE

Priority Actions: Reducing Structural Ignitability and Improving access to homeowners' Insurance- Countywide

Priority Level	Action & Detail
HIGH	**Develop and implement a Program to improve access to homeowners' insurance**
	Detail: Research and develop a program, possibly a certification program, that will improve access to insurance and is tailored to fit the rural communities and unique cultures and conditions within RAC. This will likely need to be implemented at a local, possibly fire district, level. The Wildfire Partners program can be used as an example but will require adaptation for use in RAC: Wildfire Partners – Wildfire Partners is a Boulder County program which is aligned with the IBHS (Insurance Institute for Business and Home Safety) Wildfire Prepared Homes standards Wildfire Prepared Home, a Program of IBHS - Resources. This program would have dual purpose and function to both decrease structural ignitability and to improve access to homeowner insurance. Who: RAC, Fire Districts
HIGH	**Align Building Codes and local ordinance with 2024 International WUI Code and IBHS Wildfire Prepared Homes standards for new construction and retrofit of existing structures.**
	Detail: Dual purposes include reducing structural ignitability and improved access to homeowner insurance. Codes and standards available here: 2024 INTERNATIONAL WILDLAND URBAN INTERFACE CODE (IWUIC) | ICC DIGITAL CODES (iccsafe.org) **and (**Wildfire Prepared Home, a Program of IBHS - Resources)

	Who: RAC Planning and Zoning, RAC County Commissioners, RAC fire Chief, Fire District Chiefs
HIGH	**Create a voluntary retrofit and home hardening assistance program**
	Detail: Obtain funding and develop program for home hardening assistance for residents within communities at risk to improve safety and access to homeowners' insurance through reducing structural ignitability through retrofit of existing construction. One avenue for this is through FEMA: Building Resilient Infrastructure and Communities | FEMA.gov but will first require development of an All Hazards Plan for RAC: slg101.PDF (fema.gov) . EMNRD may also be able to assist with administering FEMA funds for this program for RAC and other counties in need. Model Program- California's Home Hardening Assistance Program Wildfire Home Hardening Guide | Prepare for Wildfire | CAL FIRE (readyforwildfire.org) Who: RAC, EMNRD
HIGH	**Community-level Planning and Mitigation**
	Detail: Utilize current IBHS fire science and landscape-scale fire behavior modeling to address parcel-to-parcel and structure-to-structure fire spread potential. Firewise communities are already working towards this goal but can consider integrating IBHS Wildfire Prepared Homes Standards into current Firewise Firewise USA® - Forestry (nm.gov) recommendations and practices for improved resilience and insurance access. Who: All Communities at Risk, Fire Districts, Firewise Communities, NM Forestry Division, RAC

TABLE 6: PRIORITY ACTIONS: REDUCING STRUCTURAL IGNITABILITY AND IMPROVING ACCESS TO HOMEOWNERS' INSURANCE- COUNTYWIDE

Priority Actions: Initial Attack Resources and Equipment – Countywide

Priority Level	Action & Detail
HIGH*	**Ensure availability of rural domestic water supplies for firefighting**
	Detail: County-wide coordination and agreements to formalize the ability of Fire Districts and other inital attack resources to use rural domestic water supplies for initial and extended attack firefighting needs (utilize lessons learned from recent local fires). As a prerequisite to make this item feasible, public water systems need to have a backup generator in place and a meter or other means of tracking volume of water used for fire suppression or other fire management operations. If possible, using untreated water for suppression is preferable.

	Who: RAC Fire Districts, RAC Fire Chief, NMFD Fire Management- Chama District, Espanola City Fire Department, Santa Clara Pueblo Fire Department, Okay Owingeh Pueblo Fire Department, and Jicarilla Apache Nation Emergency Management
HIGH	**County or District-level strategic location and mapping of suppression water resources**
	Detail: Improve initial attack effectiveness and cooperator surge capacity by mapping existing suppression water sources and identifying strategic locations at which establishing an additional water source (such as an overhead or buried tank with a pump) would improve initial attack capacity for communities at risk and especially when environmental conditions warrant increased suppression capacity. Who: RAC Fire Districts, RAC Fire Chief, NMFD Fire Management- Chama District, Espanola City Fire Department, Santa Clara Pueblo Fire Department, Okay Owingeh Pueblo Fire Department, and Jicarilla Apache Nation Emergency Management
HIGH	**Testing and assessment of suppression resources**
	Detail: Testing and assessment of all critical fire district wildland fire suppression equipment and suppression water source equipment including trucks, engines, pumps, chainsaws, hydrants, back-up generators, and drafting pumps for safety and effectiveness. Assessments and needs will be communicated to the RAC Fire Chief. Who: RAC Fire Districts, RAC Fire Chief, NMFD Fire Management- Chama District, Espanola City Fire Department, Santa Clara Pueblo Fire Department, Okay Owingeh Pueblo Fire Department, and Jicarilla Apache Nation Emergency Management
HIGH*	**Firefighter recruitment**
	Detail: Increase effectiveness of outreach and Incentivization to fill volunteer fire district positions. If sufficient staffing is not available locally, alternative solutions should be explored during times of high fire danger. Who: RAC Fire Districts, RAC Fire Chief
HIGH*	**Provide Wildland Fire, ICS, and WUI training for all first responders**
	Detail: Coordination between State, Tribal, and County Emergency managers and law enforcement to provide basic wildland fire, ICS, and WUI training to all RAC first responders and emergency management personnel Who: RAC Fire Districts, RAC Fire Chief, NMFD Fire Management- Chama District, Espanola City Fire Department, Santa Clara Pueblo Fire Department, Okay Owingeh Pueblo Fire Department, and Jicarilla Apache Nation Emergency Management, RAC Sherrif, and Tribal law enforcement

HIGH*	**Assess and identify radio communication limitations and needs within fire districts**
	Detail: Utilize lessons learned from local fires, assess radio communication effectiveness and compatibility, and purchase adequate and standardized radio communication equipment for all RAC emergency management and fire district personnel. Ensure that frequencies for communications between fire districts and other RAC emergency management personnel and with other jurisdictions and medical resources such as VMED, air to ground, and Mutual Aid frequencies, are known and functional. Obtain funding for radio system upgrade if deficiencies exist. Who: RAC Fire Districts, RAC Fire Chief, NMFD Fire Management- Chama District, Espanola City Fire Department, Santa Clara Pueblo Fire Department, Okay Owingeh Pueblo Fire Department, and Jicarilla Apache Nation Emergency Management RAC Fire Districts, RAC Fire Chief, NMFD, Espanola City Fire Department, Santa Clara Fire, Okay Owingeh Fire, and Jicarilla Apache Nation Emergency Management
HIGH	**Fire district equipment and wildland fire apparatus**
	Detail: In addition to radios and frequencies, equipment and apparatus must be assessed and upgraded as needed for standardization and to meet required and necessary standards to improve firefighter safety and effectiveness: NFPA standards The List of 300+ Codes and Standards (nfpa.org). All basic equipment such as hose, fittings, and nozzles is critical and potentially life-saving, and standardization will improve compatibility with cooperators. Who: RAC Fire Districts, RAC Fire Chief, NMFD Fire Management- Chama District, Espanola City Fire Department, Santa Clara Pueblo Fire Department, Okay Owingeh Pueblo Fire Department, and Jicarilla Apache Nation Emergency Management
HIGH	**NWCG-qualified personnel and equipment - Fire District, County, Tribal, municipal**
	Detail: Collaboration between federal and state fire managers and non-federal fire departments to increase the number of National Wildfire Coordinating Group (NWCG)-qualified Volunteer and municipal (Espanola) fire department personnel and equipment for participation in the NMFD Resource Mobilization Plan and to promote increased interagency training and collaboration opportunities for both wildland and prescribed fire operations. Who: USFS, BLM, NPS, BIA, RAC Fire Districts, RAC Fire Chief, NMFD Fire Management-Chama District, Espanola City Fire Department, Santa Clara Pueblo Fire Department, Okay Owingeh Pueblo Fire Department, and Jicarilla Apache Nation Emergency Management

TABLE 7: PRIORITY ACTIONS: INITIAL ATTACK RESOURCES AND EQUIPMENT – COUNTYWIDE

Priority Actions: Evacuation planning – Countywide

Evacuation planning and safety is a primary concern for many rural residents, emergency managers, and the Office of the Rio Arriba County Sheriff. Every year, deadly wildfires remind managers and the public that rural communities are especially vulnerable to wildfire, hazardous fuel conditions remain, even where treated, hazardous during extreme environmental conditions, and evacuation safety is therefore potetially critical to survival for rural residents of Rio Arriba County. Good planning and collaboration utilizing science, fire behavior modeling, and lessons learned can mitigate some, although not all, risks and is a high priority within this CWPP. Please refer to *Figure 10 Wildfire Risk to Communities* and the *Focal Area Maps* for more detailed community-level descriptions of evacuation hazards and mitigation needs.

FIGURE 11: RURAL ROADS IN RIO ARRIBA COUNTY. PHOTO CREDIT: SAGE FAULKNER, COMMUNITY MEMBER.

Priority Level	Action & Detail
HIGH	**County-level, County-wide Evacuation Planning**
	Detail: Topics include coordination, lessons learned from recent and local large fire evacuations, identification of primary routes and road maintenance needs, identification of cellular dead zones and mitigations and emergency communication plans for these areas, identification of 911 addressing needs and mitigations, identification of residents requiring oxygen or extra assistance, ICS/unified command structure, training and equipment needs, public outreach for community-level evacuation planning including NIXL, routes, procedures. Who: RAC Fire chief, RAC Emergency Management, RAC Sheriff and Undersheriff, fire district chiefs, Tribal law enforcement and emergency managers, NM State Police, NM Forestry Division Fire Management, Santa Fe and Carson National Forest fire managers, electric utility managers, and a representative from the Cumbres-Toltec Scenic Railroad. Additionally, a representative from the NM Livestock board and FS Range management is needed for livestock evacuation planning, and coordination with the Rural Events Center to establish procedures for conversion into an evacuation center when needed.

HIGH	**Create a mapping system to assist with large fire evacuation scenarios**
	Detail: Coordinate with the New Mexico Forest and Watershed Restoration Institute (NMFRI) to create an ArcGIS mapping system for planning and public information in the event of complex evacuations Who: NMFRI, NMFD, RAC
HIGH	**Community-level evacuation planning for Communities at Risk with a "High" rating and/or limited, easily compromised, or one-way ingress/egress**
	Detail: The communities of Upper Brazos Canyon, Ponderosa Estates, Buckman Road, Laguna Vista Estates, Pinon Ridge, Fort Heron Preserve, La Puente, Plaza Blanca, and the Cumbres-Toltec Scenic Railroad have been identified as one-way ingress/egress communities that require community-level evacuation planning to mitigate potential high risk egress situations. Utilize Fire District personnel to identify other communities and areas with ingress/egress concerns and collaborate with Rio Arriba County emergency managers and adjacent landowners and managers to mitigate evacuation hazards. Who: RAC Fire Chief, Fire District Chiefs, RAC managers
HIGH	**Improve RAC Emergency alert system and identify and mitigate cellular dead zones**
	Detail: Promote and utilize NIXL alert system throughout the community. Utilize Fire District personnel to identify areas without adequate cellular coverage for NIXL alerts and make alternate local emergency alert plans where needed (consider sirens, satellite, radio, cellular repeaters and boosters where applicable). Who: RAC Fire Districts, RAC Fire Chief, NMFD Fire Management- Chama District, and Jicarilla Apache Nation Emergency Management
HIGH	**Mechanical fuels reduction treatments within NMDOT ROW**
	Detail: Establish MOA between NMDOT and EMNRD to Improve potential primary evacuation routes and establish fuel breaks through implementation of mechanical fuels reduction treatments within NMDOT ROW within communities at risk, specifically along NM state road corridors that are impeding visibility and harbor overgrown forested stands. State roads currently identified as primary evacuation routes for high-risk communities include State Highways 115, 512, and 221. Who: NMDOT, EMNRD, RAC Fire Districts, RAC Fire Chief, NMFD Fire Management-Chama District, land owners
HIGH	**Evacuation Center/ICP Capacity Improvements**
	Detail: Due to a central location and adequate facilities, the Abiquiu Rural Events Center has been used as a shelter for evacuees from Rio Arriba and surrounding counties during multiple large fires in recent years. It has also been used for Incident

	Command and public meetings. However, if the facility were to be utilized for a larger incident (comparable to Hermit's Peak-Calf Canyon or the Las Conchas Fire), the capacity of the stock pens and facilities would quickly be exceeded. To improve the capacity of the RAC Rural Events Center in the event of evacuations from a large fire, the following needs have been identified: Extra panels for building additional livestock pens, additional small animal pens that can accommodate pets or smaller livestock, additional stock tanks, extra hose, a back-up generator, emergency supplies such as sleeping bags, pads, water, food, diapers, etc, and an additional Conex for storage. Other improvements that should be considered include an upgrade to increase the capacity of the commercial kitchen, and upgrades to better facilitate use as an incident command center. Additional RV spots could be advantageous as well.

TABLE 8: PRIORITY ACTIONS: EVACUATION PLANNING – COUNTYWIDE

Priority Actions: Water Resource Protection – County-wide

The vast majority of Rio Arriba County's (and New Mexico's) water, for both drinking and irrigation, originates within forested watersheds that are at significant threat of high severity wildfire within the San Juan-Chama Priority Watersheds. The 2020 NM Forest Action Plan states that, according to a stakeholder survey "The resources and assets with the highest mean importance are "Riparian Corridors," "Public Water Supply Infrastructure" and "Water that meets State Surface Water Quality Standards". However, despite these being priorities for land managers in New Mexico, residents in Las Vegas, NM are currently, as this update is being written in 2024, experiencing a drinking water emergency a full two years after the Hermit's Peak/Calf Canyon Fire due to flooding and debris flows impacting their surface water drinking system. There is no easy post-fire solution to this problem. The only good solutions involve pre-fire preparedness and fuel treatments. These are tangible lessons that must be learned if Rio Arriba County is to be prepared to care for its own. Refer to F*igure 13 Postfire Erosion Threat Map* for more detailed information regarding wildfire threat to water resources.

The following map demonstrates the severe and direct threat that wildfire and post-fire erosion pose to soils, surface water resources, water and other infrastructure, roads, and communities in Rio Arriba County. The erosion threat is indicative of soil erosion at the source and potential for debris flows and flooding downstream. See Table 1 for more information regarding data and methods used to create this map.

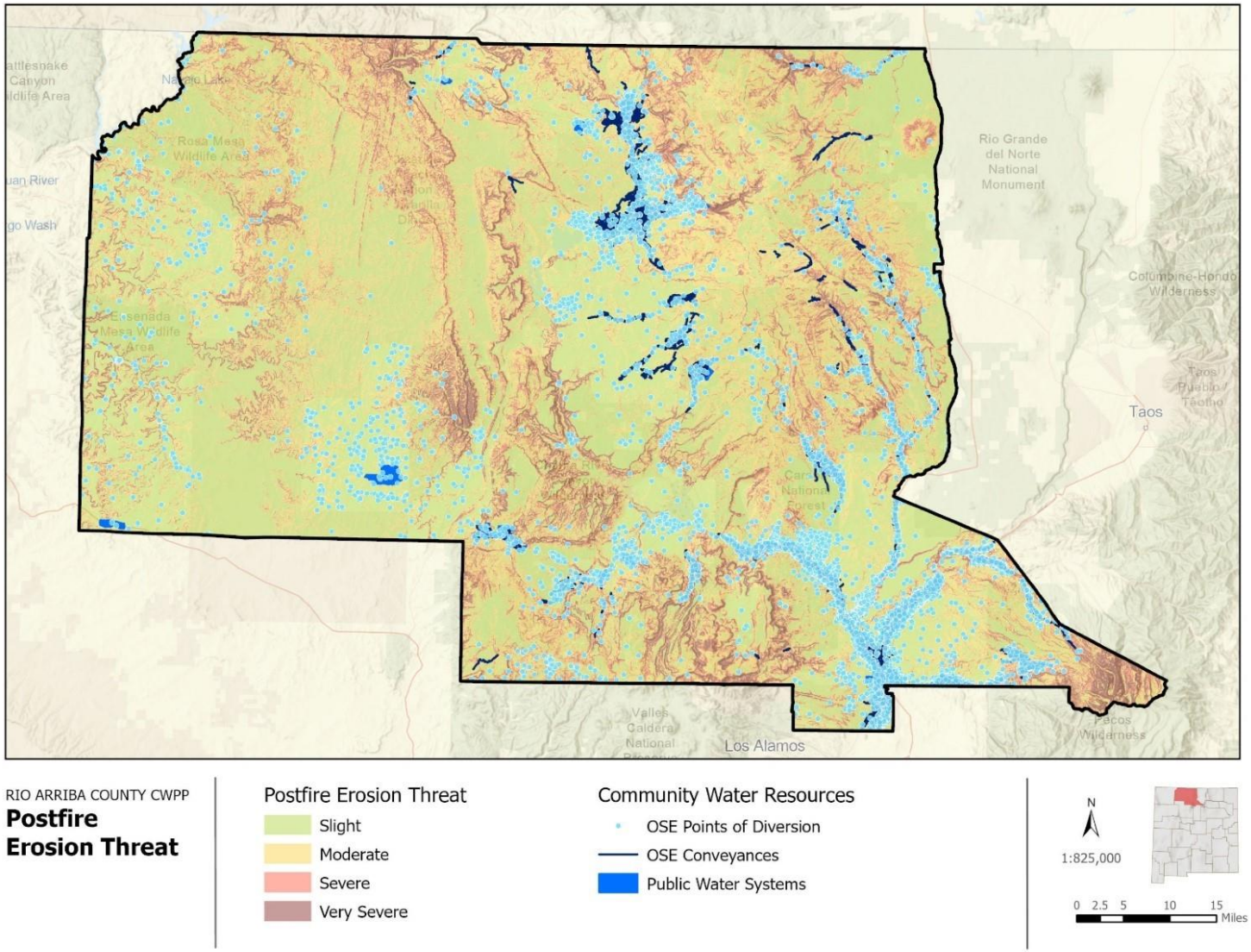


FIGURE 12: POSTFIRE EROSION THREAT MAP

Priority Level	Action & Detail
HIGH	**Fund and hire an additional planner to assist with Source Water Protection planning**
	Detail: Source Water Protection planning can help facilitate the complex cross-jurisdictional coordination and technical knowledge needed to protect entire water systems. Who: NMRWA, NM Environment Department- Drinking Water Bureau
HIGH	**Utilize Shared Stewardship portal for source water protection coordination across jurisdictions**
	Detail: Input fuel treatment projects and resource location data into the Shared Stewardship portal to identify priorities, treatment opportunities, and assist with coordination and planning. Who: All jurisdictions and water users
HIGH	**Watershed stewardship accountability**
	Detail: Acknowledgement and accountability for appropriate watershed management by upstream landowners and managers for the benefit of downstream water users. The General Revision Act of 1891 and the Organic Act of 1897 both acknowledge the responsibility of the US Forest Service to maintain the health of watersheds for the benefit of the American people. Who: Carson and Santa Fe National Forest managers, upstream landowners.
HIGH	**Source Water protection – Drinking Water**
	Detail: Community drinking water systems that utilize surface water are generally at much higher threat of severe post-fire erosional effects than those that utilize groundwater. (https://www.fs.usda.gov/rm/pubs_journals/2019/rmrs_2019_hohner_a001.pdf). Surface water-dependent drinking water systems are therefore also a higher priority for protection. Within Rio Arriba County, these systems provide drinking water for the communities of Dulce, Lumberton, Vallecitos, Chama and Rutheron. Chama and Rutheron utilize water directly from the Rio Chama, Vallecitos from the Rio Vallecitos. Corresponding focal areas are the Rio Chama Headwaters and El Rito-Vallecitos (See Figures 9 and 11). Dulce and Lumberton water systems utilize the Navajo River and associated headwaters of the San Juan Chama Project. In addition to these community drinking water systems and other rural water users such as acequia associations and irrigators, the Rio Chama watersheds also supply Heron, El Vado, and Abiquiu reservoirs, the Abiquiu and El Vado Hydroelectric plants, and many downstream urban users including Santa Fe and Bernalillo Counties. Targeted fuel reduction treatments within these watersheds can mitigate potential severe fire behavior and

	corresponding post-fire erosion that can harm vulnerable surface water systems and infrastructure. Who: USFS, NMFD, NMRWA, CPLA, Private landowners, Los Alamos County (operators of the hydroelectric plants), US Army Corps of Engineers.
HIGH	**Assess and Upgrade surface water system infrastructure to withstand potential increased sediment loads in the event of post-fire erosion.**
	Detail: Assess equipment needs and obtain funding for necessary improvements. An alert system upstream and capacity to shut off intake, presedimentation ponds, or a by-pass system could prevent overload and subsequent failure of infiltration galleries. Who: Chama, Rutheron, Vallecitos, Lumberton, and Dulce Water system managers, NMRWA, NMED- Drinking Water Bureau

TABLE 9: PRIORITY ACTIONS: WATER RESOURCE PROTECTION - COUNTYWIDE

Priority Actions: Powerline Wildfire Risk Mitigation – Countywide

Mitigating wildfire risk associated with powerlines and above-ground electric utility infrastructure is a priority for managing both ignitions and risk to firefighters and the public during wildfires and evacuations. Many recent large, destructive, deadly wildfires have been ignited by vegetation contacting powerlines during extreme hot, dry, and windy events; the 2011 Las Conchas Fire, the 2018 Camp Fire, the 2020 firestorm in Oregon, the 2021 Dixie Fire, and the 2023 Maui fires, just to name a few. Reducing ignitions from powerlines during these extreme weather events is critical. This priority is identified and addressed within the 2020 NM Forest Action Plan *Strategy #4: Manage utility right of ways to reduce the risk of ignition of wildfire and damage to utility infrastructure by identifying priority utility rights of way and implementing accelerated management.* Rio Arriba County is home to 290 miles of transmission line. Much of the infrastructure needs upgrade, and many ROWs are not adequately treated. The New Mexico Rural Electric Cooperative is working to obtain funding for ROW fuel reduction work and infrastructure improvements. Three rural electric cooperatives operate within Rio Arriba County: Northern Rio Arriba County Electric, Jemez Electric, and Kit Carson Electric.

HIGH*	**Rural Electric Cooperatives – implement ROW mitigation**
	Detail: In conjunction with NMFD, identify and map right-of-way (ROW) areas in high and extremely high wildfire risk areas to identify fuel reduction treatment needs that are outside of the normal scope of utility easement vegetation management practices. Identify who can perform these treatments and work with NM Forestry Division to obtain agreements and easements for working on private lands. *Who*: NMRECA, Jemez Electric, Northern Rio Arriba Electric, Kit Carson Electric, NMFD, Private landowners, Rio Arriba County

HIGH	**Secure additional funding sources**
	Detail: Secure additional funding from state and federal sources to shorten the vegetation management cycle for utility ROW tree clearance, fire suppressive grid hardening measure and grid modernization. Who: NMRECA, Jemez Electric, Northern Rio Arriba Electric, Kit Carson Electric, NMFD, Rio Arriba County
HIGH*	**Develop utility wildfire mitigation plans in coordination with Forestry Division and cooperators**
	Detail: 2020 NMFAP Strategy 4.1.A - "NMFD will provide technical assistance to utility companies by developing a toolkit that includes a sample vegetation management plan template and treatment guidelines for utility companies in New Mexico to assist with vegetation management plan development and more effective and efficient vegetation management and maintenance along utility rights of way". NMFD will work with electric cooperatives to identify and map electric facilities and critical structures in high and extremely high wildfire risk areas and identify all mitigation risk measures needed. Who: NMFD, Jemez Electric, Northern Rio Arriba Electric, Kit Carson Electric, NMRECA
HIGH*	**Apply grid hardening measures**
	Detail: to include modernized equipment like sparkless fuses, spacer wire, and alternate construction such as steel or other noncombustible materials. Additionally, accelerated line patrol, pole inspections and maintenance schedules in high and extremely high wildfire risk areas will be necessary to adequately mitigate risk. Who: Jemez Electric, Northern Rio Arriba Electric, Kit Carson Electric, NMRECA
HIGH*	**Apply grid modernization measures**
	Detail: install and or upgrade Supervisory Control and Data Acquisition (SCADA) to include remote control and monitoring of the electric grid Who: Jemez Electric, Northern Rio Arriba Electric, Kit Carson Electric, NMRECA
HIGH	**Coordinate Emergency Power Shut Off**
	Detail: Coordination between utility managers and emergency managers for coordination of emergency power shut-off during wildfires, evacuations, and during extreme hot, dry, and windy weather events during which an ignition could be catastrophic.

	Who: NMDHSEM, Rio Arriba County Emergency Manager, Local Fire Chiefs, Jemez Electric, Northern Rio Arriba Electric, Kit Carson Electric, NM Forestry, Community Leaders, Rio Arriba County

TABLE 10: PRIORITY ACTIONS: POWERLINE WILDFIRE RISK MITIGATION – COUNTYWIDE

Priority Actions Organized by Focal Area

The following focal area priority action tables are to be used in tandem with focal area summary maps that utilize the combined watershed boundaries identified within the San Juan-Chama Watershed Partnership Focal Area Atlas to summarize important planning and operational information at a more localized level. Communities, Hazards, Values, water resources, Potential Operational Delineations (PODs), evacuation routes, fire response and ownership, and threat are summarized for each area. Identification of these Focal Areas is based on the Assessments and Strategies developed within the 2020 NMFAP with the purpose of identifying high priority areas to concentrate funding for effective landscape-scale results.

Focal Area: Brazos-Tierra Amarilla

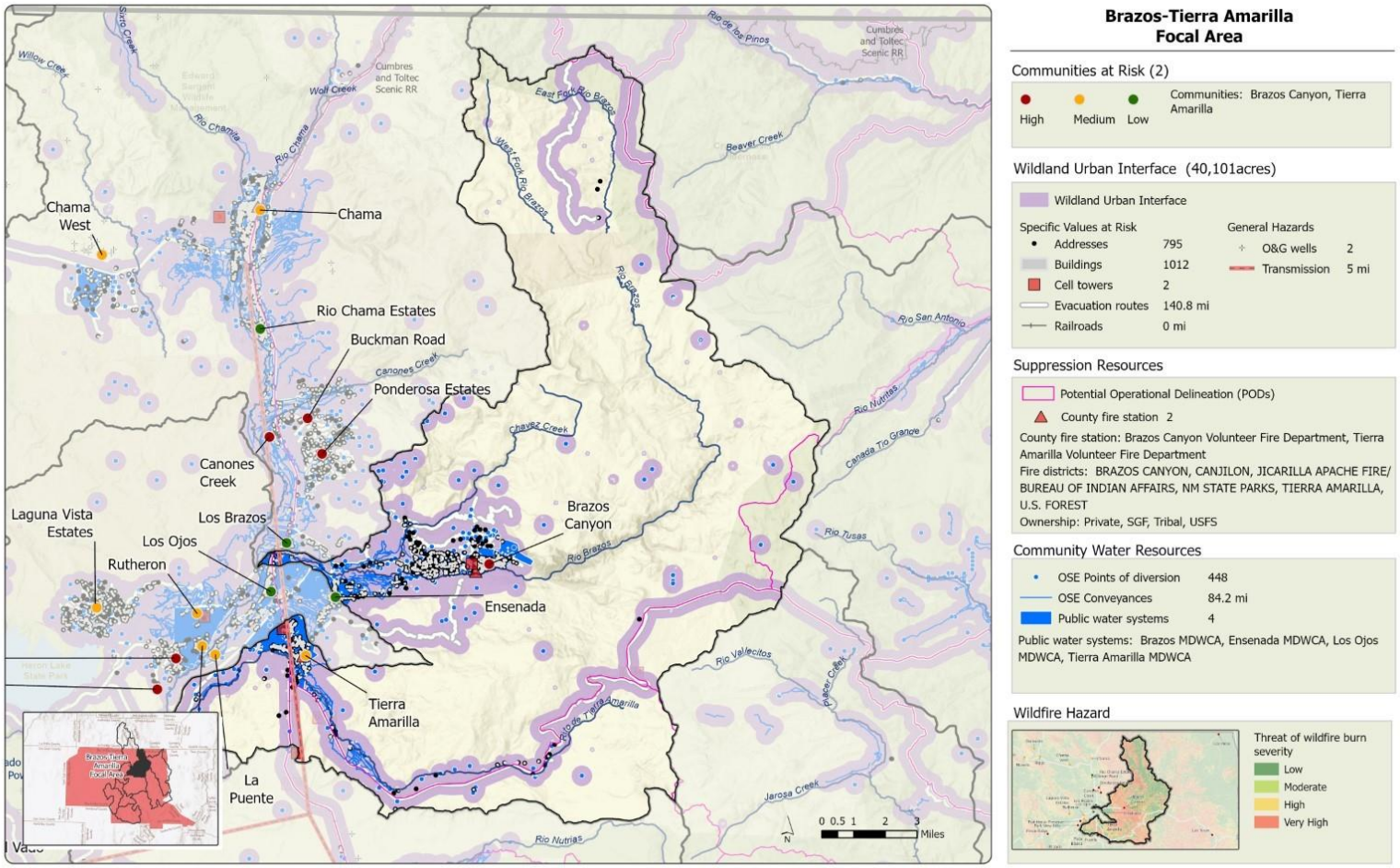


FIGURE 13: BRAZOS-TIERRA AMARILLA FOCAL AREA MAP

Specific Area at Risk: Brazos Canyon and Associated Subdivisions

This area is within the Brazos-Tierra Amarilla Focal Area and is characterized by dispersed, forested subdivisions with high fire risk due to fuels, steep terrain, and limited ingress/egress. Primary access is through NM 512 which is an unpaved secondary road less than 20 feet wide and with grades greater than 5%. Many residents are aware of the high fire risk in this area, are members of the active Brazos Firewise Association and associated Fire Mitigation Team, and have made significant improvements in defensible space and parcel-level fuels reduction. The Brazos Canyon VFD serves the highest risk subdivisions within the canyon but has limited capacity due to the seasonality of many residents and consequent lack of volunteers. Evacuation planning, defensible space treatments, and subdivision-level fuels reduction are critical needs for this area and identified communities at risk.

HIGH*	**Fire District Recruitment and Training**
	Detail - The Brazos Canyon Volunteer Fire Department must recruit and retain more volunteers for adequate response capacity. Many residents are seasonal, which makes recruitment challenging. The BCVFD leadership must incentivize increased participation and develop creative alternate solutions if necessary.
HIGH	**Emergency Notification System**
	Detail: There is no cellular coverage within the Brazos Canyon and therefore NIXL alerts cannot be received in this area. The BCVFD Chief needs to work with the RAC fire chief and Emergency Manager to identify and implement an alternate emergency alert strategy for this area. Who: BCVFD chief, RAC fire chief, RAC Emergency manager
HIGH*	**Evacuation Planning**
	Detail: Brazos Canyon is a one-way ingress/egress community with limited fire response or communication capacity. There are no large areas devoid of flammable fuels that would qualify as “survivable”. Due to private property easement issues, hazardous fuels adjacent to roads have been minimally treated. Evacuation routes could become compromised and impassable if fire were to become established below. The subdivisions in the lower part of the canyon may have more egress options but evacuation hazards are still significant. All State, County, and private roads including NM 512, County Road 341, Fishtail Road, Crown Point Road, and East Road, must be assessed and maintained through mowing or other mechanical means annually. Emergency alert notification is critical for residents in this area. Some subdivision-level evacuation planning has occurred, but it is recommended that the Firewise association, VFD members, and subdivision HOAs further collaborate with

	RAC Emergency Managers and the Fire Chief to implement worse-case scenario evacuation planning for all subdivisions and residents. Who: NMFD- Chama District, RAC Fire Chief, UBVFD, Brazos Firewise Association
HIGH*	**Community at risk defensible space improvements**
	Detail: Utilize CWDG funds obtained through NMFD to Implement 400+ acres of defensible space improvements within high-risk communities within the Upper Chama footprint. Landowners can inquire and coordinate directly with the Chama District State Forester and/or UCSWCD. *Who: Upper Chama Soil and Water Conservation Disctrict (UCSWCD), NMFD- Chama district, Brazos Firewise Association, landowners*
HIGH*	**Subdivision-level fuel mitigation**
	Detail: The Brazos Firewise Association can utilize existing organization and community engagement to continue to build upon previous efforts to mitigate fuels on a community, as well as individual parcel, level. CWDG funding is available through NM Forestry Division- Chama District for planning and implementation of these projects. Landowners can inquire and apply directly at the Chama District State Forestry Office or Upper Chama Soil and Water Conservation District. Who: Brazos Firewise Association, landowners, NMFD, UCSWCD
HIGH	**Mechanical fuels reduction treatments within NMDOT ROW**
	Detail: Establish Memorandum of Agreement (MOA) between the NM Department of Transportation (NM DOT) and EMNRD for implementation of mechanical fuels reduction treatments within NMDOT ROW with poor visibility due to overgrown forested stands. This has the potential to increase safety for residents and firefighters during incidents and evacuations by increasing visibility for drivers, decreasing potential fire behavior along these roads, and by decreasing the number of potentially hazardous trees. *Who:* NMDOT, EMNRD, NMFD- Chama District
HIGH	**UBVFD Equipment Needs**
	Detail: Equipment needs to improve safety and capacity for the Brazos VFD include a back-up generator, extra drafting pump and hose, and an additional emergency water storage tank. Who: BVFD Chief, RAC Fire Chief

TABLE 11: PRIORITY ACTIONS: BRAZOS CANYON AND BRAZOS AREA SUBDIVISIONS

Focal Area: Rio Chama Headwaters

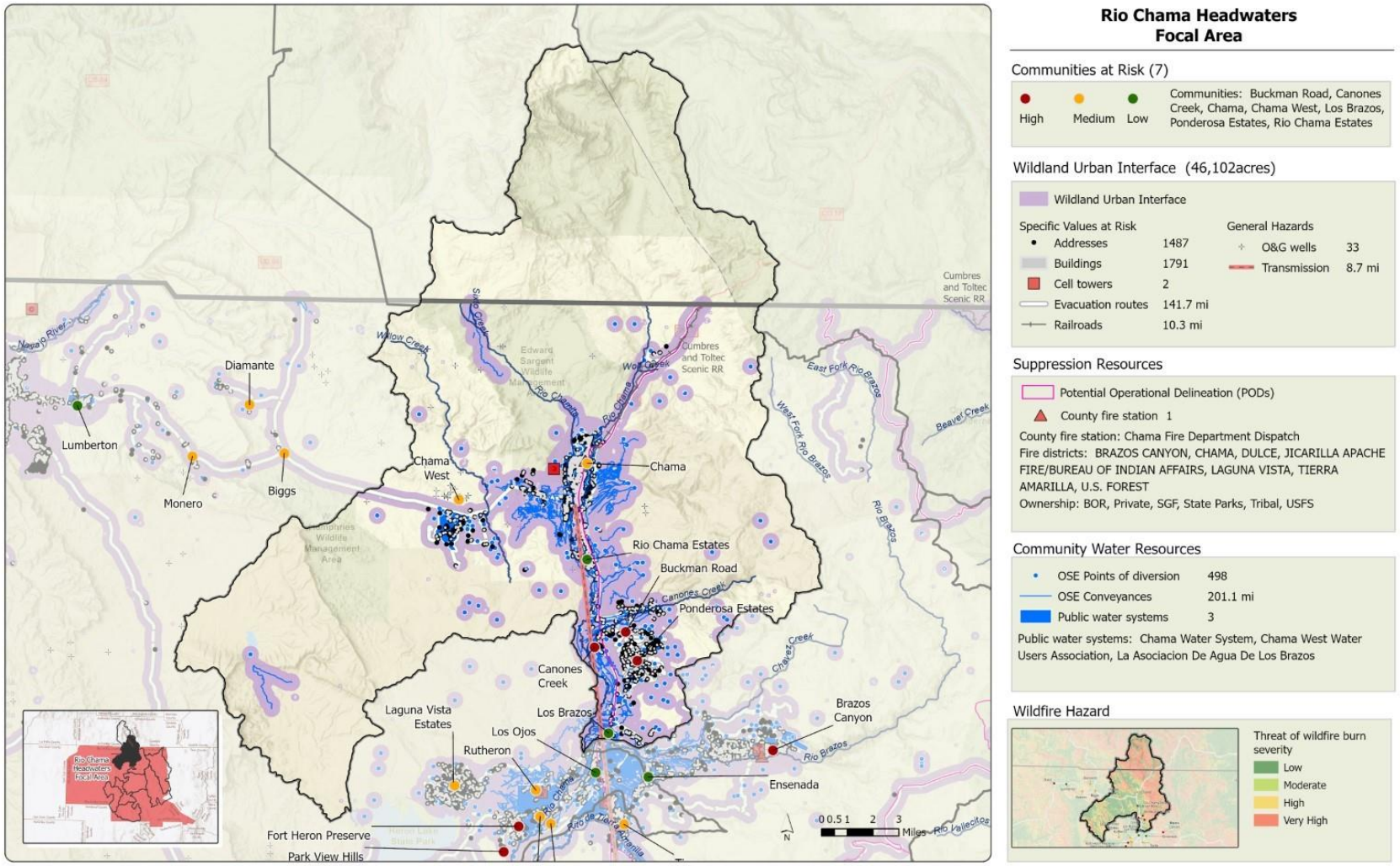


FIGURE 14: RIO CHAMA HEADWATERS FOCAL AREA MAP

Specific Area at Risk: Rio Chama Headwaters

The San Juan-Chama Project in combination with the Rio Chama is a primary source of drinking water for New Mexico. The Rio Chama Headwaters are amongst the top 500 watersheds identified by the Priority Landscapes Model and within the 2020 NM Forest Action Plan and an integral part of the Rio Chama CFLRP (Rio Chama CFLRP – 2-3-2 Cohesive Strategy Partnership (232partnership.org)

HIGH*	**Utilize the 2020 NM FAP, the 2023 FAA, approved project and fire management plans, and the Chama Source Water Protection Plan to identify and prioritize Fuel reduction treatments within the watersheds that comprise the headwaters of the Rio Chama.**
	Detail: With the goal of treating 30% of treatable priority acres by 2030, Who: All landowners and managers
HIGH	**Evacuation Planning**
	Detail: Due to private property easement issues, hazardous fuels adjacent to roads have been minimally treated. Evacuation routes could become compromised and impassable if fire were to become established below. All State, County, and private roads must be assessed and maintained through mowing or other mechanical means annually. Emergency alert notification is critical for residents in this area. Some subdivision-level evacuation planning has occurred, but it is recommended that the Firewise association, VFD members, and subdivision HOAs further collaborate with RAC Emergency Managers and the Fire Chief to implement worse-case scenario evacuation planning for all subdivisions and residents. Who: NMFD- Chama District, RAC Fire Chief, UBVFD, Brazos Firewise Association
HIGH	**Rio Chama headwaters fuels mitigation - private lands**
	Detail: Treatments will occur on steep slopes on private lands along the Rio Chama, north of the town of Chama. *Who:* NMFD- Chama District and landowner.
HIGH*	**Assess and Upgrade surface water system infrastructure to withstand potential increased sediment loads in the event of post-fire erosion.**
	Detail: Assess equipment needs and obtain funding for necessary improvements. *Who: Chama and Rutheron Water system managers, NMRWA, NMED- Drinking Water Bureau*

TABLE 12: PRIORITY ACTIONS: RIO CHAMA HEADWATERS

Focal Area: Nutrias-Cebolla-Canjilon

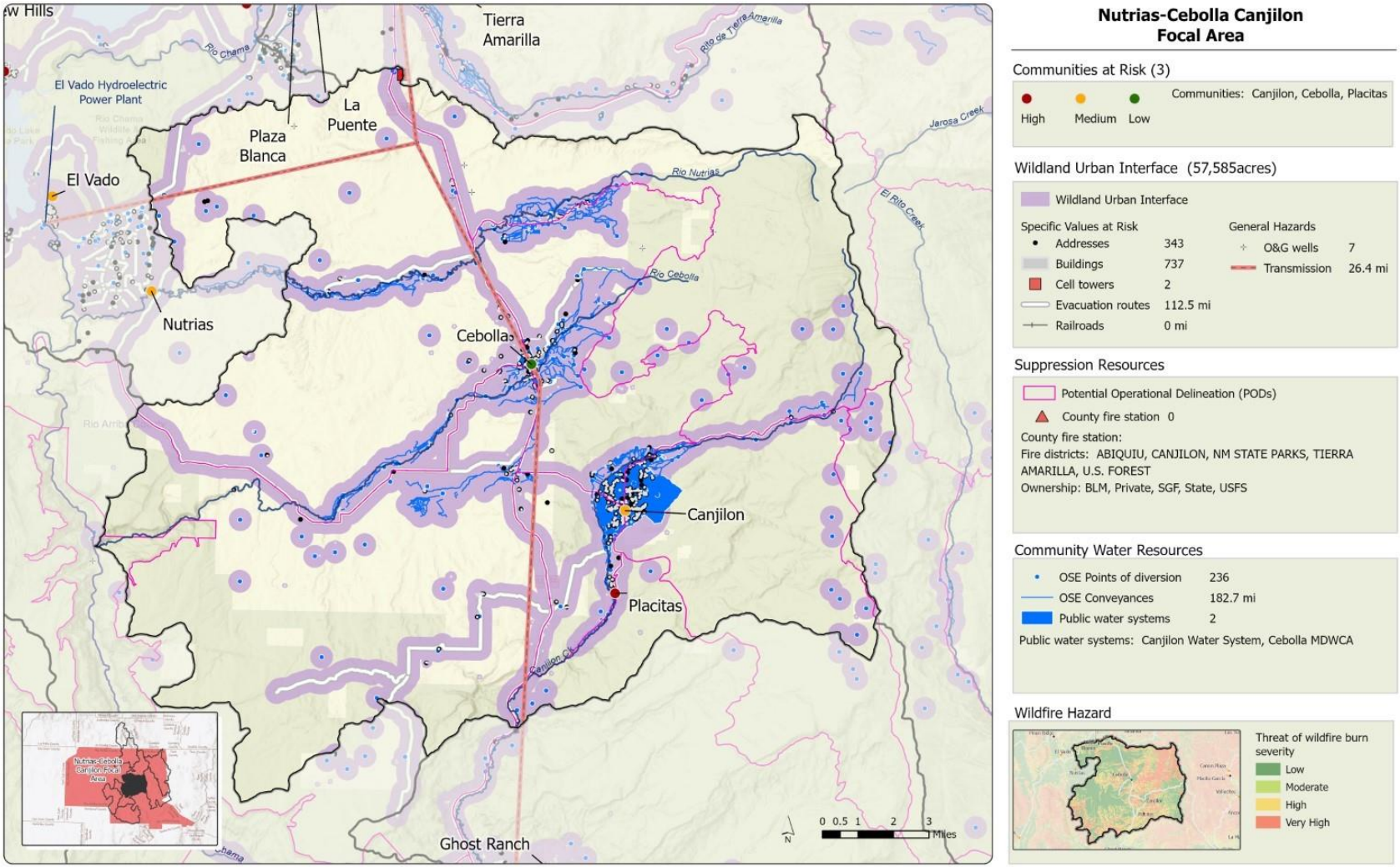


FIGURE 15: NUTRIAS-CEBOLLA-CANJILON FOCAL AREA MAP

Specific Area of concern: Cebolla-Canjilon Corridor

This corridor has seen significant investment in fuel reduction treatments over the past 15 years. As with the Mesa Poleo Corridor, these investments require maintenance through prescribed fire or mechanical treatments. Continued public outreach and defensible space treatments around homes are also needed to improve effectiveness of fuel reduction treatments around communities.

HIGH*	**Canjilon/Cebolla WUI and NFL projects**
	Detail: Collaborative WUI project utilizing State Capital funds to treat public lands and USDA-FS funds to treat private lands. 500-1,000 acres of thinning, mastication, and prescribed burning planned on USFS land, 248 acres of thinning planned on BLM land along Hwy 84 corridor south of NM 115. Hazardous Fuel Reduction on Non-federal Lands- treating 340 acres of private lands adjacent to USFS lands. *Who:* NMFD, UCSWCD, Carson National Forest, BLM, Private Landowners.
HIGH	**Community at risk defensible space improvements – CWDG funded**
	Detail: Implement 400+ acres of defensible space improvements within communities at risk within the Upper Chama Soil and Water Conservation District. *Who: Upper Chama Soil and Water Conservation District (UCSWCD), NMFD- Chama district, landowners.*
HIGH*	**Outreach and Education**
	Detail: To effectively implement and maintain thinning and prescribed fire WUI treatments, managers need support from the landowners and communities they are working to protect. Outreach and open communications about the benefits, risks, and complex issues surrounding mechanical and prescribed fire treatments warrant continued investment and effort. Who: Rio Arriba County managers, county commissioners, federal land managers, NMFD, landowners
HIGH*	**Evacuation Planning**
	Detail: This area is characterized by small communities and inholdings interspersed throughout federal lands. Primary fuel types include timber with brush understory. The terrain is mountainous. These communities are rural and often remote, and many residences are accessed via secondary Roads. NM 115 and County Roads 137 and 599 must be maintained through mowing and mechanical treatments for both fuel breaks and evacuation routes. Cellular coverage is a good option for most, but not all, areas. Emergency alert and evacuation planning must be implemented at the appropriate level for these rural communities and communicated ahead of time. Residents must

	be made aware of how to sign up for emergency NIXL alerts (Sign up to receive messages from Rio Arriba County Emergency Services! (nixle.com)), primary and secondary evacuation routes, and the "Ready, Set, Go" program (Ready, Set, Go! New Mexico - Forestry (nm.gov)). For residents that cannot receive cellular alerts, who do not have a 911 address, or who may need extra assistance, local Fire District personnel are the critical link for ensuring that everyone is accounted for. Who: Fire District Chiefs and VFD members, Carson National Forest Fire Staff, Sheriff and deputies, RAC Fire Chief
HIGH*	**Support for fuel reduction treatments on federal lands**
	Detail: The Carson National Forest is the largest land manager and thus also responsible for the bulk of the WUI fuel reduction work in this area. Effective communication and collaboration with the Forest Service in this work will improve the safety of our communities and watersheds. Who: RAC, Carson NF

TABLE 13: PRIORITY ACTIONS: CEBOLLA-CANJILON

Focal Area: El Rito-Vallecitos

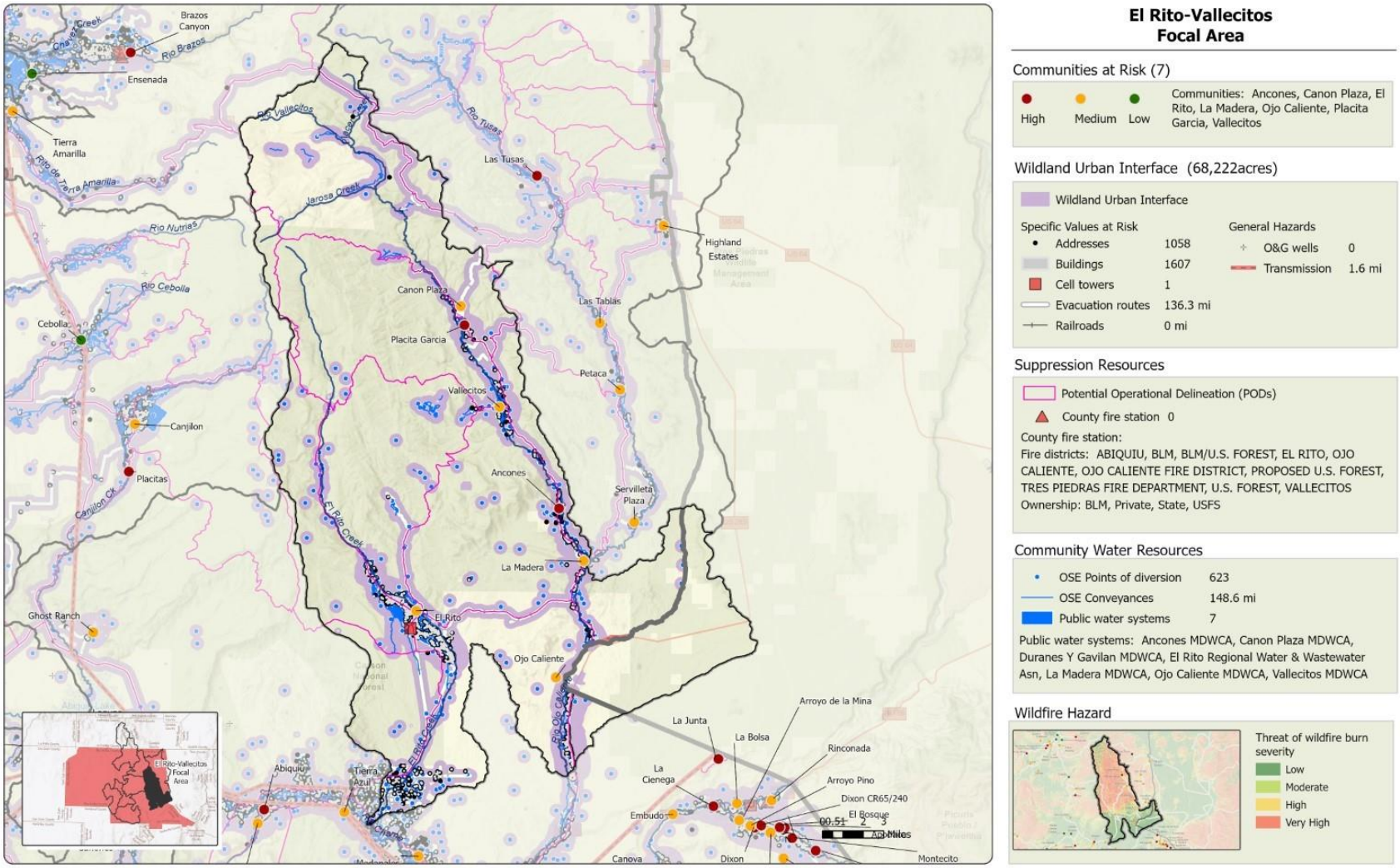


FIGURE 16: EL RITO VALLECITOS FOCAL AREA MAP

Specific Area at Risk: El Rito-Vallecitos-La Madera-Canon Plaza

These communities have benefited from significant fuel reduction treatments within the adjacent El Rito Ranger District of the Carson National Forest since 2005. The 2017 Bonita Fire demonstrated that these treatments are effective in reducing wildfire intensity and have allowed natural ignitions to be managed for resource benefit close to communities. Despite this success, post-fire flooding is still a significant threat to many residents and the Vallecitos drinking water supply. Continued public outreach and defensible space treatments around homes are also needed to improve effectiveness of fuel reduction treatments around communities.

Please refer to the SJCWP Focal Area Atlas: El Rito-Vallecitos Focal Area for more detailed area description.

HIGH*	**Evacuation Planning**
	Detail: This area is characterized by small communities and inholdings interspersed throughout federal lands. Primary fuel types are timber with brush understory. These communities are rural and often remote, and many residences are accessed via secondary Roads. Cellular coverage is a good option for most, but not all, areas. Emergency alert and evacuation planning must be implemented at the appropriate level for these rural communities and communicated ahead of time. Residents must be made aware of how to sign up for emergency NIXL alerts (Sign up to receive messages from Rio Arriba County Emergency Services! (nixle.com)), primary and secondary evacuation routes, and the "Ready, Set, Go" program (Ready, Set, Go! New Mexico - Forestry (nm.gov)). For residents that cannot receive cellular alerts, who do not have a 911 address, or who may need extra assistance, local Fire District personnel are the critical link for ensuring that everyone is accounted for. Who: Fire District Chiefs and VFD members, Carson National Forest Fire Staff, Sheriff and deputies, RAC Fire Chief
HIGH	**Source Water Protection – Vallecitos Community Water System**
	Detail: The Vallecitos community drinking water system depends on surface water from the Rio Vallecitos and is highly vulnerable to post-fire effects of severe wildfire. The 2017 Bonita Fire was a managed wildfire within the Rio Vallecitos watershed. The effects of this fire within one untreated drainage created enough sediment to damage the water system during a subsequent severe rainstorm. It is crucial to utilize this lesson learned to better manage this and all priority watersheds. It is important to protect the Vallecitos MDWCA source water from further damage by utilizing the Vallecitos Source Water Protection Plan through collaboration between the MDWCA, landowners and the Carson National Forest. The system infrastructure is also damaged and in dire need of assessment and a funding request for equipment upgrade to withstand and function within the predictable range of current and future sediment loads.

	Who: Carson National Forest, Vallecitos MDWCA, landowners, lessees, NM Environment Dept- Drinking Water Bureau
HIGH*	**Outreach and Education**
	Detail: To effectively implement and maintain thinning and prescribed fire WUI treatments, managers need support from the landowners and communities they are working to protect. Outreach and open communications about the benefits, risks, and complex issues surrounding mechanical and prescribed fire treatments warrant continued investment and effort. Who: Rio Arriba County managers, county commissioners, federal land managers, NM Forestry Division, landowners
HIGH*	**Support for fuel reduction treatments on federal lands**
	Detail: The Carson National Forest is the largest land manager and thus also responsible for the bulk of the WUI fuel reduction work in this area. Effective communication and collaboration with the Forest Service in this work will improve the safety of our communities and watersheds. Who: RAC, Carson NF

TABLE 14: PRIORITY ACTIONS: EL RITO- VALLECITOS

Focal Area: Puerco-Canones

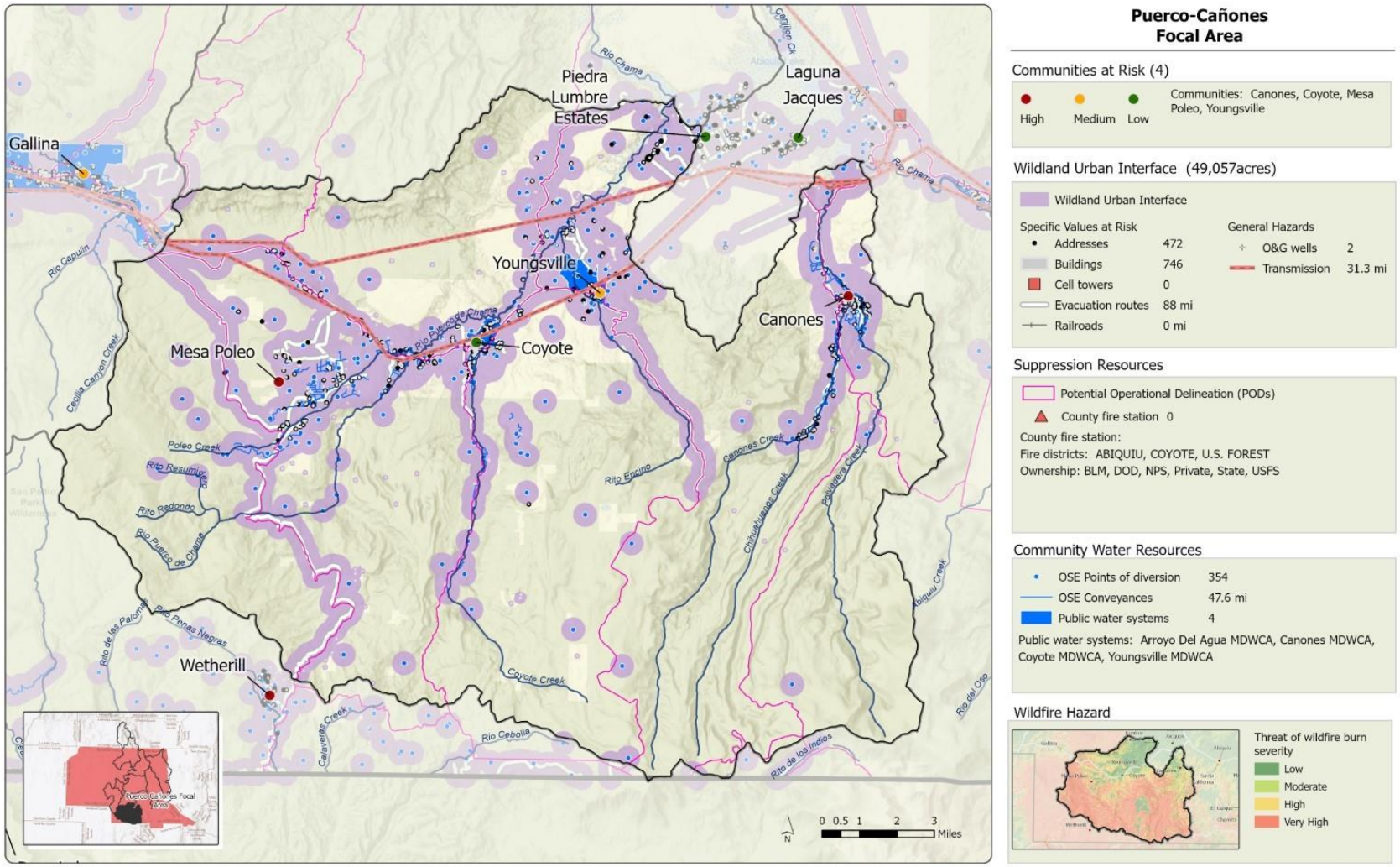


FIGURE 17: PUERCO-CANONES FOCAL AREA MAP

Specific Area At Risk: The Gallina-Mesa Poleo-Coyote-Youngsville Corridor

The communities of Mesa Poleo, Gallina, Youngsville, and area residents have seen significant fuel treatment investments followed by prescribed fire on adjacent Santa Fe National Forest lands. Recent investments include the 2024 Encino Vista Landscape Restoration Project. These predominately ponderosa pine forest treatments require continued maintenance with prescribed fire to remain effective. Additionally, it is important to increase private land and defensible space treatments, home hardening to reduce ignitability, and reduction of flammable home and ranch debris. Additionally, Canones Creek has been identified as a priority for watershed protection.

HIGH*	**Evacuation Planning**
	Detail: This area is characterized by small communities and inholdings interspersed throughout federal lands. Primary fuel types are timber with brush understory. These communities are rural and often remote, and many residences are accessed via secondary Roads. Cellular coverage is a good option for most, but not all, areas. Emergency alert and evacuation planning must be implemented at the appropriate level for these rural communities and communicated ahead of time. Residents must be made aware of how to sign up for emergency NIXL alerts (Sign up to receive messages from Rio Arriba County Emergency Services! (nixle.com)), primary and secondary evacuation routes, and the "Ready, Set, Go" program (Ready, Set, Go! New Mexico - Forestry (nm.gov)). For residents that cannot receive cellular alerts, who do not have a 911 address, or who may need extra assistance, local Fire District personnel are the critical link for ensuring that everyone is accounted for. Who: Fire District Chiefs and VFD members, Santa Fe National Forest Fire Staff, Sheriff and deputies, RAC Fire Chief
HIGH	**Outreach and Education**
	Detail: To effectively implement and maintain thinning and prescribed fire WUI treatments, managers need support from the landowners and communities they are working to protect. Outreach and open communications about the benefits, risks, and complex issues surrounding mechanical and prescribed fire treatments warrant continued investment and effort. Who: Rio Arriba County managers, county commissioners, federal land managers, NM Forestry Division, landowners
HIGH*	**Support for fuel reduction treatments on federal lands**
	Detail: The Carson National Forest is the largest land manager and thus also responsible for the bulk of the WUI fuel reduction work in this area. Effective

	communication and collaboration with the Forest Service in this work will improve the safety of our communities and watersheds. Who: RAC, Santa Fe NF

TABLE 15: THE GALLINA-MESA POLEO-COYOTE-YOUNGSVILLE CORRIDOR

Focal Area: Tusas San Antonio

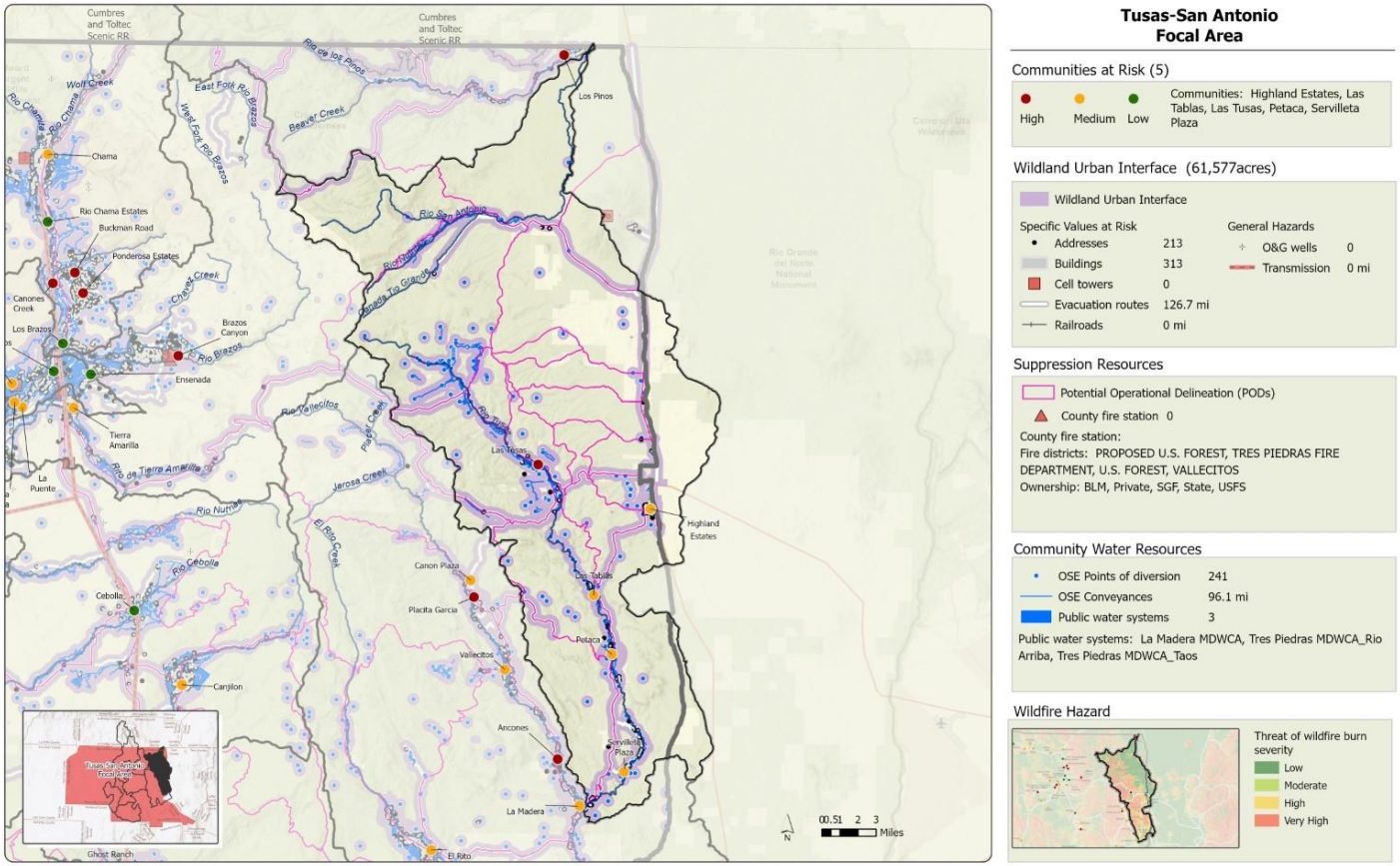


FIGURE 18: TUSAS-SAN ANTONIO FOCAL AREA MAP

The Tusas-San Antonio Focal area does not currently have a specific area of concern, but all of the county-wide priorities apply. This area is characterized by very rural, remote communities at risk, easily compromised evacuation routes and limited cellular coverage, and heavily forested watersheds and community water resources.

Focal Area: Middle Rio Chama

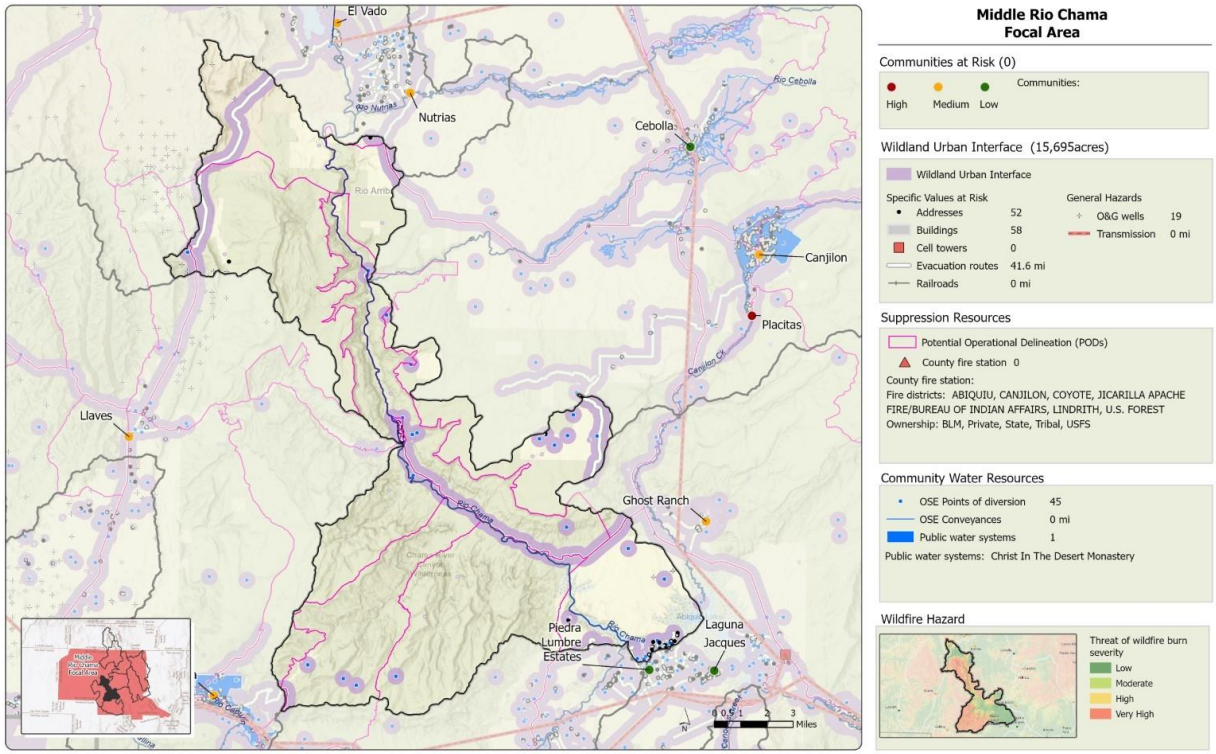


FIGURE 19: MIDDLE RIO CHAMA FOCAL AREA MAP

The Middle Rio Chama Focal Area encompasses the section of the Rio Chama between El Vado and Abiquiu Reservoirs and adjacent lands. The Rio Chama Cayon is a designated Wild and Scenic River. This area is primarily managed by the Carson and Santa Fe National Forests and is a heavily used recreation area for boating, fishing, and also for hiking and backpacking, with the Continental Divide National Scenic Trail crossing the river at Skull Bridge. This focal area does not have an identified specific area of concern but the county-wide priorities apply. Although this area does not have identified communities at risk, significant evacuation risks still exist due to volatile fuels and the popularity of this area for recreation during the summer months. Additionally, the Christ in the Desert Monastery is located within this area as well. Most of the camping , river use, and the monastery are all located along FR 151, a narrow one-way ingress/egress road used to access this popular area. As this area encompasses over 119 ,000 acres surrounding the Rio Chama, risks to downstream water users are also significant.

Focal Area: Bosque Corridors, Rio Grande (Espanola to Velarde) and Rio Chama (Espanola to Abiquiu) and Downstream Water Users

There is no focal area map associated with these areas. Please refer to Figures 10 and 13 for additional information. The primary wildland fire risk in this corridor is the threat from flammable non-native phreatophytes, and native riparian trees, and shrubs. Coupled with this flammable vegetation are many homes and small ranches and farms that have highly ignitable structures and debris. A combination of vegetation treatments, landowner engagement, efforts to reduce structural ignitability (home hardening) and debris cleanup is needed here. Additionally, the communities within this area are vulnerable to and at significant risk of upstream post-fire erosion and consequent flooding.

HIGH	**Non-native vegetation fuels mitigation along Rio Chama and Rio Grande corridors**
	Detail: NM WTB funded eradication of invasive non-native vegetation along the Rio Chama and Rio Grande corridors Who: Private landowners, East Rio Arriba SWCD
HIGH	**Post-fire Flood Preparedness**
	Detail: Utilize lessons learned from 2024 flooding in RAC to implement riverbank and acequia stabilization and infrastructure improvements to better withstand future post-fire flooding events. Who: RAC

TABLE 16: PRIORITY ACTIONS: BOSQUE CORRIDORS, RIO GRANDE (ESPANOLA TO VELARDE) AND RIO CHAMA (ESPANOLA TO ABIQUIU) AND DOWNSTREAM WATER USERS

Focal Area: Jicarilla-Apache Nation

There is no focal area map for this area. Please refer to Figure 10 for additional information. The Jicarilla-Apache Nation (JAN) is rugged, remote, and sparsely populated. Fire and emergency services are not readily available in many areas. Cellular communications are often not adequate for 911 services or NIXL alerts. The Dulce Fire District is the only suppression resource based year-round within JAN. Oil and gas wells are ubiquitous and account for both significant values as well as potential hazards and ignition sources. Tribal Fire Management is administered by the Bureau of Indian Affairs which adds an extra layer of administrative complexity. Outside of Dulce and Lumberton, residents rely on wells for drinking water, many of which are becoming less reliable, and potable water trucks are often needed to supply residents in times of drought. See *Figure 10 Wildfire Risk to Communities*

HIGH*	**Jicarilla Watershed Health Improvement Project (JWHIP)**
	Detail: 5,000 acres of cultural clearance pending Forest and Watershed Restoration Act Funding. 500 acres of upland forest thinning planned Who: NM Forestry, Carson National Forest, San Juan SWCD

HIGH	**Increase wildland initial attack capacity and preparedness.**
	Detail: Need to upgrade equipment for compatibility with BIA and increase internal initial attack capacity. Specifically, Dulce FD needs a Type 6 Wildland engine and crew and a water tender. Additionally, a type 2 crew based within the Jicarilla-Apache Nation would increase initial attack safety and effectiveness. The southern end of JAN currently is not within a fire district and has no local fire response capacity. Who: BIA, JAN Emergency Management, Dulce FD
HIGH*	**Equipment needs: Potable water trucks**
	Detail: Additional potable water trucks would benefit both the JAN and adjacent communities. During Fires and other drinking water emergencies, JAN needs the capacity to deliver water from their domestic water systems that utilize the Navajo river to those in need, both within the Jicarilla-Apache Nation and potentially other RAC communities also. Who: BIA, JAN, RAC
HIGH*	**Evacuation Planning**
	Detail: These communities are rural and often remote, and many residences are accessed via secondary Roads. Cellular coverage is a good option for most, but not all, areas. Emergency alert and evacuation planning must be implemented at the appropriate level for these rural communities and communicated ahead of time. Residents must be made aware of how to sign up for emergency NIXL alerts (Sign up to receive messages from Rio Arriba County Emergency Services! (nixle.com)), primary and secondary evacuation routes, and the "Ready, Set, Go" program (Ready, Set, Go! New Mexico - Forestry (nm.gov)). For residents that cannot receive cellular alerts, who do not have a 911 address, or who may need extra assistance, local Fire District personnel are the critical link for ensuring that everyone is accounted for. Who: JAN Emergency managers and law enforcement, Dulce Fire District Chief

TABLE 17: PRIORITY ACTIONS: JICARILLA-APACHE NATION

Focal Area: Dixon and Surrounding Communities

Rio Arriba County is vast and encompasses a wide variety of communities, fuel types, and priorities. To accomplish more effective local planning, the high-risk community of Dixon, including surrounding area communities, completed a community-level CWPP in 2023. The 2023 Dixon CWPP is a Companion Plan within the 2024 RAC CWPP.

https://dixonnmvfd.org/wp-content/uploads/2023/08/Dixon-CWPP-2023_Final-with-signatures.pdf.

Priority actions within the 2023 Dixon CWPP are considered valid and current within the context of the Rio Arriba County 2024 Update.

Focal Area: Santa Clara Pueblo

To accomplish more effective local planning, Santa Clara Pueblo is developing a community-level CWPP which will be considered a companion plan within the 2024 RAC CWPP when complete.

Priority Fuel Reduction Treatments

Fuel reduction treatments function to lower wildfire and/or prescribed fire intensity and within this plan focus on protecting life, homes, water, and watersheds.

FIGURE 20: VARIATIONS IN FIRE SEVERITY WITHIN THINNED AND UNTREATED AREAS. SOUTH FORK FIRE, 2024. PHOTO CREDIT: DICK COOKE, EMNRD.

Fuel reduction treatments and forestry projects in general require extensive planning with recommended techniques and prescriptions dependent on variables including location, topography, vegetation, fuel conditions, environmental restrictions, public input, and objectives. The 2017 RAC CWPP and Appendix A both provide general prescription guidelines but ultimately a professional forester is needed for technical assistance and approval. Within Rio Arriba County, NMFD has foresters on staff to assist with forestry project planning on private and other non-federal lands. Federal agencies have their own processes for planning, prioritizing, and implementing fuel reduction treatments on federal lands. Within Rio Arriba County, significant progress has been made in reducing hazardous fuels on both federal and non-federal lands utilizing a combination of mechanical and prescribed fire treatments.

Other forest treatments to improve forest health and resilience

Forest and watershed treatments often provide maximal benefit when used in tandem and/or when implemented as multiple entries over time. In addition to mechanical fuel reduction, the following treatment strategies are examples of treatments worth consideration for improvement of forest health and resilience to wildfire, and for postfire restoration: Treatments to improve moisture retention and prevent erosion, Stream and wetland restoration, Grazing management, Non-native invasive species management, Thinning for marketable timber, both small and larger diameter, Prescribed fire, Mastication of underbrush, slash, and woody debris, Road closures, maintenance, mowing, and thinning within ROW, Managing wild ungulate populations, Burned area restoration, including tree planting.

Priority Actions: Fuel Reduction Goals and Projects

Priority Level	Action & Detail
HIGH	**Prioritize fuel reduction projects across the landscape according to NM Executive Order 2021-052, Protecting New Mexico's Lands, Watersheds, Wildlife, and Natural Heritage**
	Detail: **"**Agencies are directed to individually review and utilize existing programs, funding, and authorities to reach the ambitious conservation targets of conserving at least 30 percent of all lands in New Mexico by 2030, with an additional 20 percent of lands designated as climate stabilization areas" Who: All land managers and stewards
	Utilize existing Programs, Authorities, and Plans to accomplish ambitious and critical wildland fire risk mitigation for communities and resources throughout Rio Arriba County.
	Detail: Utilize the 2020 NM Forest Action Plan, the 2023 San Juan-Chama Watershed Partnership Focal Area Atlas, Source Water Protection Plans, and other current and relevant fire management and planning documents to identify and prioritize Fuel reduction treatments within wildland-urban interface and intermix areas, priority watersheds, and priority cultural resource areas across the landscape. Who: All land managers
HIGH	**Priority Watershed Protection- treat 30% of treatable acres by 2030**
	Detail: The 2023 Focal Areas Atlas has identified treatable acres (areas <40% slope and therefore potentially accessible by forestry equipment) within priority watersheds (identified within the 2020 FAP), making available a more strategic methodology for identification of fuels reduction projects within priority areas that also works towards accomplishing the broader "30 By 30" goal. Who: All land managers
HIGH	**Improve Prescribed Fire safety and effectiveness across all jurisdictions**

	Detail: Utilize lessons learned from the escaped prescribed fires that caused the Hermit's Peak and Calf Canyon Fires (Gallinas-Las Dispensas Prescribed Fire Declared Wildfire Review (usda.gov) and the Gallinas Pile Rx Burn) to improve prescribed fire safety and reduce risk of escape. Utilize HB0057 (nm.gov) , the NM Prescribed Burning Act, which establishes that prescribed fire is in the public interest and also mandates a training and certification program to improve safety and effectiveness of burning on private lands. Who: All entities and agencies that utilize prescribed fire to treat hazardous fuels
HIGH	**Source Water protection – Surface Water**
	Detail: Community drinking water systems that utilize surface water are generally at much higher threat of severe post-fire erosional effects than those that utilize groundwater. (https://www.fs.usda.gov/rm/pubs_journals/2019/rmrs_2019_hohner_a001.pdf). Surface water-dependent drinking water systems are therefore also a higher priority for protection from wildfire. Within Rio Arriba County, surface water systems provide drinking water to the communities of Dulce, Lumberton, Vallecitos, Chama and Rutheron. Chama and Rutheron utilize water directly from the Rio Chama; Vallecitos from the Rio Vallecitos. Corresponding focal areas are the Rio Chama Headwaters and El Rito-Vallecitos. Dulce and Lumberton water systems utilize the Navajo River and associated headwaters. In addition to these community drinking water systems and other rural water users such as acequia associations and irrigators, the Rio Chama watersheds also supply Heron, El Vado, and Abiquiu reservoirs, the Abiquiu and El Vado Hydroelectric plants, and many downstream urban users including Santa Fe and Bernalillo Counties. Targeted fuel reduction treatments within these watersheds can mitigate potential severe fire behavior and corresponding post-fire erosion that can harm vulnerable surface water systems and infrastructure. Who: USFS, NM Forestry Division, NMRWA, CPLA, Private landowners, Los Alamos County (operators of the hydroelectric plants), US Army Corps of Engineers.
HIGH	**Cultural Resource Protection**
	Detail: Rio Arriba County is home to a diverse mix of people including the Jicarilla-Apache Nation, Santa Clara Pueblo, and Okay Owingeh Pueblo, whose ancestors have called this land home for many centuries. Cultural heritage and resources are a priority for the people of Rio Arriba County, and many are at significant risk of wildfire. Like water, these resources are present across all jurisdictions and a truly collaborative process is needed to protect them from the potential effects of wildfire and erosion. Who: Santa Clara Pueblo, Okay Owingeh Pueblo, Jicarilla-Apache Nation, NM Forestry Division, Federal agencies, Rio Arriba County
HIGH	**Tribal lands and watershed protection**

	Detail: The 2020 Forest Action Plan identifies “lands and waters relied on by tribal communities” as a priority for protection. Who: Tribes, adjacent and upstream land owners and managers
HIGH	**Jicarilla Watershed Health Improvement Project (JWHIP)**
	Detail: 5,000 acres of cultural clearance pending Forest and Watershed Restoration Act Funding. 500 acres of upland forest thinning planned Who: NM Forestry, Carson National Forest, San Juan SWCD
HIGH	**Canjilon/Cebolla WUI and NFL projects**
	Detail: Collaborative WUI project utilizing State Capital funds to treat public lands and USDA-FS funds to treat private lands. 500-1,000 acres of thinning, mastication, and prescribed burning planned on USFS land, 248 acres of thinning planned on BLM land along Hwy 84 corridor south of NM 115. Hazardous Fuel Reduction on Non-federal Lands- treating 340 acres of private lands adjacent to USFS lands. Who: NM Forestry Division, UCSWCD Carson National Forest, BLM, Private Landowners.
HIGH	**Community at risk defensible space improvements**
	Detail: Implement 400+ acres of defensible space improvements within high-risk communities within the Upper Chama SWCD footprint Who: Upper Chama Soil and Water Conservation Disctrict (UCSWCD), NM State Forestry Division- Chama district
HIGH	**NM Water Trust Board and NM Soil and Water Conservation Commission**
	Detail: Upland and riparian treatments in both the East Rio Arriba and Upper Chama SWCD footprints. Who: UCSWCD, ERSWCD, NM Forestry Division- Chama District
HIGH	**Mechanical fuels reduction treatments within NMDOT ROW**
	Detail: Establish MOA between NMDOT and EMNRD to Improve potential primary evacuation routes and establish fuel breaks through implementation of mechanical fuels reduction treatments within NMDOT ROW, specifically along NM state road corridors that are impeding visibility and harbor overgrown forested stands that create hazardous fuel conditions. Who: NMDOT, EMNRD, NM Forestry Division- Chama District
HIGH	**New Mexico Rural Electric Cooperative ROW fuels mitigation**

	Detail: Support Northern Rio Arriba Electric, Jemez Electric, and Kit Carson Electric Cooperatives in mechanical fuels reduction within the right-of-way surrounding all power lines and infrastructure Who: NORA, Jemez Electric, Kit Carson Electric, NM Forestry Division
HIGH	**USFS WUI Treatments – NEPA cleared**
	Detail: Implement and maintain Fuels reduction treatments, both mechanical and prescribed fire, adjacent to communities and identified WUI areas. Who: USFS
HIGH	**Utilize low to moderate intensity managed wildfire**
	Detail: low to moderate intensity managed wildfire is a controlled, cost-effective and ecologically beneficial hazardous fuel reduction strategy within and adjacent to communities and established WUI, watersheds, and fire-adapted landscapes in general. Who: USFS - Carson and Santa Fe National Forests
HIGH	**Community Wildfire Defense Grant (CWDG) implementation – hazardous fuels mitigation- UCSWCD footprint**
	Detail: 2,800 acres, various treatments Who: NM Forestry Division, UCSWCD, Private landowners
HIGH	**Hazardous Fuels Mitigation on private lands - countywide**
	Detail: Utilizing available funding sources, Implement hazardous fuels reduction on private lands within and surrounding Communities at Risk and watersheds with a High fire danger rating. Who: CPLA, NM Forestry Division, NRCS, Private landowners
HIGH	**Rio Chama headwaters fuels mitigation**
	Detail: Treatments will occur on steep slopes along the Rio Chama, north of the town of Chama Who: NM Forestry Division, private landowners
HIGH	**FHI projects**
	Detail: Forest and Fire management plans and treatments on private lands Who: Private landowners, NM Forestry Division
HIGH	**Non-native vegetation fuels mitigation along Rio Chama and Rio Grande corridors**

	Detail: NM WTB funded eradication of invasive non-native vegetation along the Rio Chama and Rio Grande corridors Who: Private landowners, East Rio Arriba SWCD
HIGH	**Fire Management planning for private lands**
	Detail: Develop Fire Management Plans for Private lands. Utilize the NM Forestry Division template and technical assistance where needed. Who: Landowners, NM Forestry Division

TABLE 18: PRIORITY ACTIONS: FUEL REDUCTION GOALS AND PROJECTS

Wildland Fire Training Planning and Scheduling

Wildland fire training for County and VFD personnel is administered by the NM Forestry Division, Chama District, Fire Management Officer. The Schedule is variable and fluid based on training needs. The FMO requests training needs from the Fire chief and VFDs in January and again in the fall and builds the training schedules accordingly. Instructors are approved via a Professional Services Agreement and under contract. Classes will be held virtually and at various locations across the county based on identified VFD needs. Nomination forms must be emailed to Pablo Montenegro at pablo.montenegro@emnrd.nm.gov

As an example of what will generally be available within Rio Arriba County, training and certifications provided in 2024 include the following:

RT-130 Annual Fire/Safety Refresher (5 opportunities)

S-130/190 and L-180 Introduction to Wildland Firefighting (3 opportunities)

S-131 Firefighter Type 1 (2 opportunities)

S-211 Portable Pumps and Water Use

S-212 Wildland Fire Chainsaws (2 opportunities)

L-280 Followship to Leadership (2 opportunities)

Pack Test (3 opportunities)

Capacity building for future action

Human Capacity

As investments in wildfire risk reduction and watershed resilience increase in 2024, the limiting factor is shifting from funding to implementation capacity. This is true for NGOs, government agencies, and private contractors. To account for these capacity gaps, it is critical that Rio Arriba County develop contractor and organizational capacity. This includes but is not limited to:

- Facilitation and strategic planning of watershed coalitions and collaboratives to support moving project ideas from this CWPP and other planning efforts towards shovel ready implementation
- Establish a wildland-urban interface coordinator at the county level
- Provide workforce development, support and incentives for forestry and wildland fire contractors that can provide needed capacity for mechanical fuel reduction and prescribed fire projects on all lands including private, federal, and tribal.
- Training and relationship-building with the NM Department of Homeland Security Emergency Management (DHSEM) related to FEMA funding pre- and post- wildfire (see post-fire section for details)
- Provide education and job training to local youth and volunteers
- Continue support for community-level Firewise organizations

To support the development of implementation capacity and to develop funding proposals requires dedicated staff at the county level. In many counties across New Mexico, this takes the form of a wildland-urban-interface coordinator. For this CWPP to be effective, it is essential that Rio Arriba County prioritize hiring or contracting a wildland-urban-interface coordinator that can champion the actions identified in this plan.

Infrastructure Capacity

The implementation of forest treatments and forest restoration actions in Rio Arriba County rely partially on local capacity to process slash and to market wood products. Currently, proposed forest treatments face the challenges of limited slash treatment equipment and a limited local and regional wood products industry and market. Highly irregular supply, long distance to markets, poor infrastructure, and a reduced employment market are among the key challenges for business investment and establishment in Rio Arriba County. Additionally, most of the timber in the area is of poor quality and low commercial value; there is a limited range of forest products that can realistically be produced from timber in Rio Arriba County. Therefore, it is necessary to both seek creative and alternative strategies tailored to local communities and to utilize methods and objectives that can be realistically accomplished with available resources and funding.

Ideally, a long-term forest treatment regime within the Rio Chama landscape will boost the existing forestry and wood products industry and attract new businesses and contractors. A market inquiry by Lance Forest Products shows that the industry can be boosted with treatments on 4,000 acres or more a year (Jansens 2021). To increase wood utilization capacity, however, significant investments in the industry must occur first. The following is a list of potential areas for investment in the wood products industry in RAC:

- Mills and drying installations
- Sort yards
- Trucking
- Road maintenance - for fire response and wood products industry
- Water and electric infrastructure for production
- Biochar production facilities

- Packaging facilities
- Training facilities
- Generators and secondary power support for mill infrastructure
- Relationships with lumber grading experts from elsewhere and/or training of regional grading experts
- Wood product standards reassessments in collaboration with the NM Construction Industries Division to improve the acceptance of local wood products in the construction marketplace
- Regional market development and marketing mechanisms (market studies, marketing networks, coops, etc.)
- Research and development for biomass power generation technology

In addition to infrastructure related to forest and watershed resilience projects, it is important that Rio Arriba County continue to invest in infrastructure to support effective use of prescribed fire and wildland fire response. This includes but is not limited to:

- Wildland Fire apparatus
- Personal Protective Equipment for all first responders
- An additional training facility located in Northern New Mexico for both VFD and wildland firefighters
- Communication infrastructure - sign boards, repeaters, sirens, radios
- Water storage and transport
- Generators and secondary power support for wildfire response

Potential Funding Sources

The following funding sources and opportunities are available for wildland fire preparedness and hazard mitigation and fuel reduction treatments

PRIVATE LANDS

Funding Source: Entity and Program	Funding Purpose/Focus	Funding Cycle	Eligibility Requirements	Amount Range & Match Needs
Community Wildfire Defense Grant	Assist communities and Tribes that are at risk of wildfires. CWDG helps communities plan for and lower the chances of wildfires	TBD; Cycle 3 likely in Fall of 2024	Local government; Non-profit organizations including homeowner associations; Indian Tribes;	Max $250k for CWPP development or update Max $10M for implementation 10% match for CWPPs

	happening, giving special attention to those that are in areas of non-federal land where wildfires are likely to occur, those that have lower income, and/or those that have been seriously affected by disasters that make wildfires more likely.		State forestry agencies	25% match for implementation
IRA Forest Landowner Support	Deliver technical and financial assistance to private forest landowners – including Tribes, underserved landowners, and small-acreage landowners – to participate in emerging private markets for forest resilience and climate mitigation.	August 21,2024	See grants.gov listing for full eligibility	$50,000,000 award ceiling; No match requirement
Urban and Community Forestry	Enhance and expand the nation's urban forest resources via tree planting, restoration, maintenance, and resilience. Additional programmatic goals are	TBD; typically early Spring	See annual RFP or website	$1,000,000 awards; 50% match requirement

	workforce development, planning and community engagement, and extreme heat mitigation.			
NM State Forestry Division (NMSFD) – Hazardous Fuels	Reduce fire threat for communities at risk adjacent to federal land, restoring fire adapted ecosystems	Applications due in March each year	Local and tribal governments; political subdivisions of the state	<$300,000; 10% non-federal match
NMSFD – WUI grants	Planning and implementation of hazardous fuels mitigation work to reduce fire threat in WUI areas; within boundaries of approved CWPP	Applications due in March each year	Local and tribal governments; political subdivisions of the state	<$300,000; 1:1 non-federal match
NMSFD – Forest Health Initiative	Reduce insect and disease risk; improve degraded (incl. over-stocked) forest land	Varies depending on funding	Landowners who own at least 10 acres of forest land and have a stewardship plan	<$100,000; 30% non-federal match

NRCS – Environmental Quality Incentives Program (EQIP)	Implementation of measures to protect soil, water, plant life, etc., including thinning and riparian restoration	Throughout the year; long process (decisions early in year)	Landowners of non-industrial forest lands; tribes and pueblos	Varies (reimbursements made after work completion and approval)
Soil and Water Conservation District (SWCD)	Dependent on funding programs pursued by the SWCD	Varies, depending on funding	Landowners	Varies
North-Central NM Watershed Restoration Project (coordinated by Deirdre Tarr)	Dependent on funding programs pursued by the NCNMWRP, based on NRCS Regional Conservation Partnership Program	Varies, depending on funding (allocated >$7M between 2014-2018)	Landowners (in collaboration with SWCD and NRCS)	Varies; projects with high match are more competitive
NM Forest and Watershed Restoration Act (FAWRA) – annual projects	State FAWRA Board selected projects for forest and watershed restoration, based on criteria TBD	TBD; possibly first RFP in fall 2020	TBD	TBD; $2.7M made available for FY2020

Coalitions and Collaboratives Inc. (COCO) AIM Grants	Capacity building for fire risk reduction and for increasing Fire Adapted Communities concepts in WUI areas next to USDA FS land	In January-February each year	Communities, non-profits, fire departments, counties, SWCD	TBD (rather small); 1:1 match
NM Finance Authority - NM Water Trust Board – Water Project Fund	Loans and grant programs for rehab of (1) water conservation and recycling; (2) flood prevention; (3) ESA collaborative projects; (4) water storage, conveyance & delivery; (5) watershed restoration and management	Annual cycle announced by NMFA; subject to detailed regulations (see nmfa.net website)	Mostly water management institutions, local and state government entities	Varies; often part loan and part grant funding
USDA Forest Service - Landscape Scale Restoration, through the Landscape Scale Competitive Grant Program	See: https://www.thewflc.org/landscape-scale-restoration-competitive-grant-program/fy-2022-landscape-scale-restoration	Annual in the fall	See website (mostly State Forestry Departments in relation to FAP)	See website

Table 17. Funding Sources: Private Lands

PUBLIC LANDS

Funding Source: Entity and Program	Funding Purpose/Focus	Funding Cycle	Eligibility Requirements	Amount Range & Match Needs
NM Forest and Watershed Restoration Act (FAWRA) – annual projects	State FAWRA Board selected projects for forest and watershed restoration, based on landscape-scale planning criteria with a focus on (a) on-the-ground restoration treatments, (b) project planning, (c) economic development programs to advance the use of small-diameter trees and wood biomass removed for hazardous fuel reduction and forest and watershed restoration, and (d) workforce development for wood utilization projects	annually around February 1	consult FAWRA application criteria annually at https://www.emnrd.nm.gov/sfd/forest-and-watershed-restoration-act-fawra/	varies between years
NM Game & Fish Department	Various funding programs aimed at protection of listed species and habitat restoration	TBD; depending on funding program	Non-profit organizations and/or private landowners	Variable

USDA Forest Service – Collaborative Forest Restoration Program (CFRP)	Public forest land restoration, wildfire prevention, planning, wood utilization, public education, and multi-party collaboration	Annually in January	Non-profit organizations, businesses, tribes, SWCDs, local government agencies	Up to $360,000 for 4 years with a required $90,000 (25%) non-federal match
National Forest Foundation	Collaborative and innovative programs on national forest lands: Matching Awards Program (for on-the-ground restoration work); Ski Conservation Funds (SCF) and Forest Stewardship Funds (FSF)	MAP: January and June (in 2 phases); SCF and FSF by invitation only (in December)	Non-profit organizations, universities and tribes	Average award: $25,000 with a 1:1 match

TABLE 19: FUNDING SOURCES: PUBLIC LANDS

PRIVATE AND PUBLIC LANDS

Funding Source: Entity and Program	Funding Purpose/Focus	Funding Cycle	Eligibility Requirements	Amount Range & Match Needs
Wood Innovations Grant Programs	Various	Opens in October	See specific RFPs on website	See specific RFPs on website

Private Donors	Mostly unrestricted	N/A	N/A	N/A
Volunteers	N/A	N/A	N/A	N/A
Trout Unlimited	Determined in collaboration with TU	TBD	TBD	TBD
Mule Deer Foundation	Determined in collaboration with MDF	TBD	TBD	TBD
Rocky Mountain Elk Foundation	Determined in collaboration with RMEF	TBD	TBD	TBD
National Fish & Wildlife Foundation	Various grant programs that sustain, restore and enhance fish and wildlife habitat	Dependent on grant program	Dependent on grant program	Dependent on grant program
Wildlife Conservation Society – Climate Adaptation Fund	Competitive grants for on-the-ground actions focused on implementing priority conservation actions for climate adaptation at a landscape scale with a focus on implementing priority actions and strategies	TBD	non-profit conservation organizations	Variable

	identified in State Wildlife Action Plans.			

TABLE 20: FUNDING SOURCES: PRIVATE AND PUBLIC LANDS

Collaboration

A CWPP must be a collaborative effort involving all parties with a stake in wildfire risk in the County. This ensures that all viewpoints are represented, and the setting of priorities is balanced among all groups (Fleeger, 2008). The 2024 CWPP update was a collaborative effort between the CWPP core team, CWPP stakeholders and communities. This CWPP features a robust outreach effort that included Core Team and Community Meetings, an online survey, targeted interviews, and outreach to communities through print, email, and social media.

Table 20 below lists CWPP stakeholders who were invited to participate in the 2024 Rio Arriba County CWPP update process. In addition to these individual invitations, the CWPP update was also publicized through multiple outlets, including: the Chama Peak Land Alliance, Upper Chama Soil and Water Conservation District, the 2-3-2 Collaborative Partnership, Brazos Canyon Firewise, the Forest Stewards Guild, The Carson National Forest, Rio Arriba County, as well as through flyers, surveys, and other informational materials distributed by core team members. The CWPP update team also solicited input from area residents during community meetings and via an in-depth survey that was advertised at meetings, and on the Forest Stewards Guild's website, and on flyers that were sent out to be posted by core team members. All Rio Arriba County Fire Chiefs and municipal Fire Chiefs were contacted multiple times with a survey designed to capture their input on the CWPP update.

Name	Organization	Title
Joey Martinez	Chama Fire, Village	Chief
Deane Tafoya	Chama Fire	Secretary
Marya Roddis	Chama Resident	Resident

Kathleen Higgens	Brazos Firewise	Resident
Jolene Jessie	Rio Chama Reporter	Press
Kenneth Gill	Vallecito VFD	Firefighter
Paul Roberts	El Rito Resident	Resident
Marie-Louise Hadden	El Rito Resident	Resident
Judith Shatnell	El Rito Resident	Resident
Christopher Tafoya	Chama Fire/EMNRD	Firefighter/ Forestry Division
Meredith Pond	Brazos Firewise	Resident
Jane Wood	Brazos Firewise	Firewise Leader
Kurt Schumacher	Brazos Firewise	Firewise Leader
Deborah Ortiz	Resident	Resident
Lina Alegre	Northern New Mexico College	Director
Marlene Fahey	Vallecitos Mutual Domestic, VFD, Vallecitos Library	Resident
John Ussery	Renewable Taos	Resident
Lynn Lamoreux	Resident	Resident
Manny Trujillo	Chama valley local	Private citizen
Karen Wisdom	Jemez Electric Coop	Senior Manager of Contract Admin and Compliance

Delbert Crow	Jicarilla Apache Nation	Department of Agriculture
Donald Martinez	New Mexico State University	Agriculture Agent Abiquiu
-	Abiquiu VFD	-
-	Acalde VFD	-
-	Canjilon VFD	-
-	Agua Sana VFD	-
-	Brazos Canyon VFD	-
-	Chamita VFD	-
-	Coyote VFD	-
-	Dulce VFD	-
Pat Byrnes	Laguna Vista VFD	Chief
-	Lindreth/Llaves VFD	-
-	Dixon VFD	-
-	El Rito VFD	-
-	La Mesilla VFD	-
-	Ojo Sarco VFD	-
-	Tierra Amarilla VFD	-
Kenny Gill	Vallecitos VFD	-
-	Truchas VFD	-

-	Velarde VFD	-
-	Cuba FMO	-
-	Coyote FMO	-
-	Espanola FMO	-

TABLE 21: RIO ARRIBA COUNTY CWPP 2024 UPDATE STAKEHOLDER LIST

CORE TEAM

The CWPP core team makes up the heart of the CWPP. This group of County officials and individuals from other organizations participate in gathering information for the CWPP and guide the setting of priorities and designation of WUI and Communities at risk. For a CWPP to function and lower wildfire risk in the county it is crucial that the CWPP Core Team continue to gather well after the CWPP is completed and coordinate efforts to match the priorities set in the plan. Table 9 below lists the members of the CWPP core team that participated in 2024. This list should be modified as the Core Team changes.

Name	Organization	Title
Sarah DeMay	The Forest Stewards Guild	Lead CWPP Contractor
Jose Vialapando	USFS Coyote District	Fire Prevention
Amos Corrales	USFS Coyote District	AFMO
Gabe Kohler	The Forest Stewards Guild	Supporting CWPP Contractor
Enrico Trujillo	Rio Arriba County Fire	County Fire Chief
Carmen Campbell	NMRECA	Grant program manager
Joe Carrillo	NM State Forestry	District Forester, Chama
Pablo Montenegro	NM State Forestry	District FMP, Chama
Jovan Trujillo	Rio Arriba Co	Rio Arriba Co Emergency Manager

Caleb Stotts	Chama Peak Land Alliance	Executive Director
Sage Faulkner	Chama Peak Land Alliance	Program Manager
Martha Graham	NM Rural Water Association	Source Water Protection Program Lead
Daniel Denipah	Santa Clara Pueblo	Forest Program Director
Billy Merrifield	Rio Arriba County	Sheriff
Monica Salazar	Rio Arriba County	Undersheriff
Angie Krall	Carson NF	District Ranger- East Zone
George Allalunis	Carson NF	District FMO – East Zone
Jamie Long	Carson NF	Forest FMO
Anthony Mercure	NORA	Executive VP/GM
Richard Tafoya	NORA	Director of Operations
Sandra Imler-Jacquez	USFS	Espanola District Ranger
Mary Stuever	EMNRD	Former Chama District Ranger and 2017 CWPP core team member
Chris Holyfield	Jicarilla Apache Nation	Emergency Manager
Daniel Archuleta	Rio Arriba County	Public Works Director
Donald Martinez	NMSU/RAC Extension office	Ag Agent/County Program Director
Tommy Gallegos	New Mexico Livestock Board	Inspector – District 9
Josiah Salaz	Santa Fe National Forest	Fuels Specialist

Krista Bonfantine	Forest Stewards Guild	Watershed Restoration Program Manager
Agapito Candelaria	Upper Chama Soil and Water Conservation District	Board member and chair
Elroy Olivas	Upper Chama Soil and Water Conservation District	Board member

TABLE 22: RIO ARRIBA COUNTY CWPP 2024 UPDATE CORE TEAM LIST

Key Informant Interviews

To capture in-depth information from core team members, FSG conducted interviews with 10 key informants from the core team. Key informants were chosen to supplement in-person and survey data. Interviews attempted to represent the range of organizations, agencies, and private landowners across Rio Arriba County. Interviews were conducted over the phone and typically lasted around forty-five minutes. Thirteen interviews were completed, and interviewees represented 11 different organizations.

Name	Organization	Title
Joe Carillo	NM State Forestry	Chama District Forester
Mary Stuever	NM State Forestry	Former Chama District Forester
Jovan Trujillo	Rio Arriba County	County Fire Marshall and Emergency Manager
Alex Sisneros	Rio Arriba County	Former County Emergency Manager
Caleb Stotts	Chama Peak Land Alliance	Executive Director
Martha Graham	NM Rural Water Users Association	Source Water Protection Program
Angie Krall	Carson NF	East Zone District Ranger
Jamie Long	Carson NF	FMO East Zone
Chris Holyfield	Jicarilla Apache Nation	Emergency Manager
Krista Bonfantine	The Forest Stewards Guild	Watershed Program Manager

TABLE 23: KEY INFORMATIONAL INTERVIEWS FOR RIO ARRIBA COUNTY CWPP 2024 UPDATE

Community Meetings and Outreach

Multiple meetings for Rio Arriba County residents and stakeholders were held to discuss progress made since the 2017 CWPP; to determine updates to communities at risk ratings and priority rankings; and to identify priority action items for the 2024 CWPP update. The community meetings engaged members of various communities throughout the county to discuss issues of wildfire protection and preparedness. Some questions posed at these meetings engaged homeowners in assessing their own wildfire risk prevention practices, such as open space thinning, fuel breaks, and defensible space zone treatments. Table 11 below provides an overview of the core team and public meetings convened for the 2024 Rio Arriba County CWPP update and organizations that were represented at those meetings

FIGURE 21: CORE TEAM MEETING, ESPANOLA. PHOTO CREDIT: SARAH DEMAY.

Date	Meeting Type	# Of participants
November 15th, 2023	Core Team Meeting	8
February 28th 2024	Core Team Meeting	16
February 28th, 2024	Espanola Public Meeting	4
April 1st, 2024	Tierra Amarilla Public Meeting	12

March 4th, 2024	El Rito Public Meeting	12

TABLE 24: MEETINGS AND OUTREACH CONDUCTED FOR RIO ARRIBA COUNTY CWPP 2024 UPDATE

Large, printed maps were used as a tool through all community meetings to facilitate location-specific conversation about wildfire protection. Maps helped to prompt discussion between core team members and their communities about wildfire risk throughout the county,

Outreach about the CWPP update was completed through in-person visits, where flyers were hung on bulletin boards, and through social media and web outreach, where digital flyers were posted to partner websites and circulated via email.

In many ways, the process of developing this CWPP is as important as the document itself. With that in mind, we encourage core team members to think of this document as an actionable plan and work collaboratively from planning into implementation.

Community Surveys

In addition to meetings, stakeholders and members of the public were invited to complete a survey that helped inform priorities and action items for the 2024 update. This survey was available on the Forest Stewards Guild's website, was advertised at CWPP meetings, and on bulletin boards throughout the county on flyers that were distributed at CWPP meetings.

The working team solicited input from area residents on their actions, priorities, and concerns regarding wildfire risk mitigation. Of the 21 residents to respond, all are full-time residents. Together these residents represented the communities of Brazos, Brazos Canyon, Ponderosa Village, Abiquiu, and Chama.

Survey data provided direct input to initial drafts of the priority fuel reduction projects, priority action items, community risk ratings, and accomplishments sections of the CWPP. With Rio Arriba County being a geographically large County, the survey provided an important method for the public to provide input to the CWPP through a virtual process.

Wildfire Preparedness

Community Oriented Programs

Fuel reduction projects and wildfire risk reduction projects in general are just one component of a successful strategy to reduce the negative effects associated with wildfire. We must couple fuel reduction projects with education and outreach about how to live within landscapes that are prone to wildfire.

The following sections provides an introduction to the Fire Adapted Communities, Firewise, and Wildfire Prepared Homes frameworks. These sections provide a starting point to engage in a more in-depth discussion into each of these topics. See Appendix B for in-depth sections on: structure hardening, developing defensible space, conducting home ignition zone assessments, planning for evacuations, planning and improving ingress/egress systems and improving roadways, managing human sources of ignition, planning for smoke impacts and smoke impact mitigation, developing communication systems (emergency notifications and first responder communications), and forming a community emergency response team.

Fire Adapted Communities

The concept of "Fire Adapted Communities" comes from The National Cohesive Wildland Fire Management Strategy (NCWFMS), which was initiated in 2009. The NCWFMS is a strategic push to work collaboratively among all stakeholders and across all landscapes, using best science, to make meaningful progress towards the three goals: 1) resilient landscapes, 2) fire adapted communities, and 3) safe and effective wildland fire response. Since the NCWFMS, this reference of fire adapted communities has been refined conceptually and embedded within formal networks that are committed to putting the concept into action.

The core idea of a Fire Adapted Community (FAC) is an acknowledgement that with increasing frequency and severity of wildfire, our communities need to learn to coexist safely with wildfire. Improving community wildfire adaptation involves working across sectors to consider before, during, and after the wildfire. There are many roles within a fire adapted community, including: residents, fire departments, businesses, local governments, land management agencies, and other stakeholders. The process of developing a fire adapted community requires professional relationship building and peer-learning between residents, fire departments, businesses, local governments and land management agencies. This process is incremental and ongoing. Topic areas related to fire adapted communities include but are not limited to: resident mitigation; wildfire response; safety and evacuation; recovery; infrastructure and business; regulations policy and plans; prevention; public health; landscape treatments; and partnerships and community engagement. This approach differs from the Firewise Communities program, which focuses on public education and resident-led fire risk mitigation before a wildfire.

Components of a Fire Adapted Community			
	Before a wildfire	**During a wildfire**	**After a wildfire**

Residents	***Firewise***, defensible space, home hardening, packing a go-bag, signing up for alert systems.	***Ready, Set, Go!*** Evacuation for people and livestock	***After the Wildfire Guide***, Insurance claims, rebuilding/re-entry, erosion/flood mitigation, replanting.
Fire departments	Evacuation planning, wildland training, assessments, wildfire prevention campaigns, public education, fuel reduction treatments, establishing mutual aid agreements	Wildfire response, evacuation, emergency alerts systems, shelters, equipment and PPE.	Coordinating reentry, erosion/ flood mitigation, applying for post-fire funding.
Businesses	Backing up important documents, appropriate insurance policy, planning for evacuation and alternative income streams.	Evacuation, alternative income streams, communication to clientele	Insurance claims, rebuilding/re-entry, inventory.
Local governments	Codes and ordinances, responsible development, infrastructure to support wildfire response, community wildfire protection planning, education and outreach to residents, working with public health departments for smoke readiness	Alignment with emergency communications and evacuation, working from alternate locations in case of evacuation, smoke resources	Seeking post-fire funding, reentry/rebuilding, restoring utilities.
Land management agencies	Planning and implementing landscape scale fuel reduction, prescribed fire implementation, wildland training, establishing mutual aid agreements	Safe and effective wildland response, early rehabilitation and erosion mitigation,	Erosion/flood mitigation, replanting, salvage logging, infrastructure stabilization
Core processes: communication, peer-learning, relationship-building			

TABLE 25: COMPONENTS OF A FIRE ADAPTED COMMUNITY

New Mexico has the Fire Adapted New Mexico learning network (FACNM), which is set up to support communities in their incremental process of becoming more fire adapted. The statewide network hosts webinars, in-person events, monthly calls, and curated resources to support local leaders. The network

is committed to supporting local communities by working with local leaders to set up learning and networking opportunities. Past examples include workshops to share best practices for pile burning on private land, webinars about community smoke programs, home hazard assessment trainings, and many more.

The core of the FACNM network is its members, who can share lessons learned about how to approach wildfire adaptation efforts. We encourage anyone who is interested to visit the website www.facnm.org and consider joining the network as a member and for more information.

Both individuals and organizations can join FAC and FACNM to gain access to resources, tools, and connections with other members working toward wildfire resiliency. See Appendix B for additional information about FAC and the FACNM Learning Network.

Firewise Communities

Firewise Communities is a recognition program administered by the National Fire Protection Association (NFPA). Firewise Communities (i.e., communities with a Firewise USA Community designation) focus on reducing the loss of life and property from wildfire – particularly before a wildfire is burning -- for residents and homeowners. This is accomplished through providing resources that allow communities to responsibly build and maintain structures on their properties and to assist each other in preparing for, and recovering from, wildfire. Firewise emphasizes fuels reduction and gives recommendations for steps homeowners can take to reduce their individual risk to wildfire. For example, practices to reduce flammable materials close to the home and home maintenance practices that reduce the chance of a home catching fire. Several resources for homeowners, such as an online toolkit and checklist for steps to reduce wildfire risk can be found at www.firewise.org. Firewise recognition is achieved after a community completes a 6-step process:

1. Forming a Firewise board/committee of community residents and other applicable wildfire stakeholders
2. Verifying community risk to wildfire by obtaining a wildfire risk assessment as a written document from the local fire department, State Forestry Division, or US Forest Service. This assessment is a living document and needs to be updated every five years.
3. Developing an action plan based on the assessment, which should be updated every three years.
4. Hosting a “Firewise Day” outreach event.
5. Investing a minimum of $2 per capita in local Firewise actions for that year.
6. Submitting an application at portal.firewise.org to your Firewise state liaison.

Firewise recognition is an important tool for a community in the ongoing process of becoming fire adapted. Many communities working to become fire adapted begin by becoming recognized as a Firewise Community.

Wildfire Prepared Homes

In the current era of homeowner insurance upheavals due to recent catastrophic wildfires in the WUI and the resulting skyrocketing number of claims due to wildfire, the insurance industry, through IBHS (Insurance Institute for Business and Home Safety), has started doing their own research on what makes homes in the WUI safer and less likely to burn when impacted by high severity wildfire. Wildfire Prepared Homes utilizes these IBHS science-based standards and recommendations. Aligning Firewise

and Fire Adapted Communities standards and practices with the newer Wildfire Prepared Homes program may improve outcomes and, also importantly, improve access to homeowner insurance:

Wildfire Prepared Home, a Program of IBHS - Resources

Other Wildfire Preparedness Strategies

Besides getting organized and developing participatory learning experiences for residents, there are several key wildfire preparedness strategies that have become part of the standard package of community wildfire protection planning. The most important strategies are described in Appendix C and include:

- Structure Hardening
- Developing Defensible Space
- Conducting Home Ignition Zone Assessments
- Planning for Evacuations
- Planning and Improving Ingress/Egress Systems and Improving Roadways
- Managing Human Sources of Ignition
- Planning for Smoke Impacts and Smoke Impact Mitigation
- Developing Communication Systems (emergency notifications and first responder communications)
- Forming a Community Emergency Response Team

Planning for Post-Fire Recovery

As a wildfire will occur in, or around, Rio Arriba County, it is important to plan for how the county and individual communities will recover after a wildfire. NM SFD provides an excellent resource for thinking about post-fire recovery called *After Wildfire* (www.afterwildfirenm.org). For this CWPP we briefly cover some aspects of this topic. We recommend that the Core Team reconvene to discuss this topic at length and create detailed plans for the County.

Immediate Post Fire Safety

The foremost post-fire recovery concern is safety. After a wildfire, it is important that residents do not return to their homes or businesses until officials have determined it is safe. Because utility services can be disrupted by wildfire:

- Do not drink or use water from the faucet until officials say it is okay;
- Use extreme caution around trees, power poles, and other tall objects that may have lost stability during the fire;
- If you have a propane tank or system, contact a propane supplier, turn off valves on the system, and leave valves closed until the supplier inspects your system.

In addition:

- Be on the lookout for smoke or sparks that may still be burning.
- Be aware that smoke levels in the air may continue to be hazardous to health even after residents are allowed to return following an evacuation.

Flooding and Erosion

Post-fire flooding and erosion are high risk concerns for large parts of Rio Arriba County. The map in Figure 5 displays post-fire debris flow hazards and illustrates which population centers are most at risk from flooding. In these maps, post-fire debris flow was modeled using a standard methodology (Cannon et. al., 2010). Debris flow hazard is a combination of probability of a debris flow and potential volume of debris flow. An important caveat is that this dataset shows where debris flows will originate and not necessarily where they will end up.

The heavy monsoon-season rains common in New Mexico in the late summer and early fall can often bring flooding and debris flows after wildfire. These storms are typically local, very intense, and of short duration, delivering large amounts of rain in a short period of time. When such storms develop over burned areas, the ground cannot absorb the rain quickly enough, forcing the water and topsoil to run off the burned area, accumulate in streams, and produce flash floods. Post-fire debris flows pose a risk to water infrastructure, such as reservoirs and pipe systems. They can affect water quality through increased turbidity, or the introduction of contaminants such as heavy metals, nitrates, and *E. coli*.

FEMA flood risk maps can still help guide post-fire preparation for flooding. Some homes and businesses may want to reevaluate their flood insurance coverage as post-wildfire floods are often more extensive than the flood risk might indicate before a wildfire.

Important resources related to flooding in Rio Arriba County can be found at:

- NM Flood, Projects, and Maps: https://nmflood.org/?page_id=336
- New Mexico Multi-hazard Risk Portfolio: https://nmflood.org/wp-content/uploads/2013/10/NM_MHRP2015.pdf

NM After Wildfire Guide

The New Mexico *After Wildfire* guide (http://afterwildfirenm.org/) is a comprehensive resource for communities seeking to develop emergency plans ahead of potential wildfires. Besides offering guidelines on immediate safety and flood information, the guide also includes the following sections:

- Mobilizing your community – provides points to help local governments and community leaders get started on recovery coordination
- Who can help? - describes programs and services provided by agencies and non-profits for communities and individuals affected by wildfire
- Post-wildfire land management treatments to facilitate recovery
- Financial tips for individuals and communities after wildfire

The guide suggests that communities designate a Post Fire Coordinator (or multiple coordinators) to work directly with local, state or federal agencies, emergency response officials, volunteers, and other stakeholders to address needs and seek assistance. Post Fire Coordinators may be part of the CERT mentioned above in the Wildfire Preparedness section.

It may be appropriate to implement post-wildfire recovery efforts, such as erosion control or planting, in affected forested areas. First, however, communities should be sure to identify values-at-risk post-

wildfire and focus on treatments that reduce the threats to those values. The *After Wildfire* guide has a catalog of potential treatments that include:

- Seeding and mulching to reduce erosion;
- Contour log felling and other erosion barriers;
- Installation of check dams and other channel treatments; and
- Culvert modifications and other road treatments.

FEMA Hazard Mitigation Grants

There are numerous funding sources available for pre- and post- fire mitigation through FEMA grant programs. These include the Building Resilient Infrastructure and Communities (BRIC) program, the Flood Mitigation Assistance Program (FMA), the Hazard Mitigation Assistance Program, and the Hazard Mitigation Program - Post Fire. These grants require an investment of time and substantial training to obtain. One of the first steps for some of these, but not all, is to create a FEMA Hazard Mitigation Plan. There is funding available through FEMA to develop a Hazard Mitigation Plan. The first step to unlocking this funding is for a government entity (county) or an entity working on their behalf (non-profit) to contact the State Hazard Mitigation Officer with the New Mexico Department of Homeland Security (DHSEM). This person will support training and proposal development in partnership with the county to obtain FEMA funding. For an overview of FEMA grant programs offered through the DHSEM, visit: https://www.nmdhsem.org/preparedness-bureau/mitigation/

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APPENDIX A- Treatment Guidelines for Locally Appropriate Prescriptions by Vegetation Type

The pinyon-juniper woodland ecosystems should not be treated unless in specific circumstances. Such circumstances include (a) Wildland Urban Interface areas or (b) ecotones between PJ ecosystems with a grass component (e.g., PJ savannah) and fire-prone higher elevation ponderosa pine or dry mixed conifer forest that has a priority indication for protection.

PJ Treatment Protocol Recommendations

To determine the optimal treatments in PJ ecosystems in WUI areas and ecotones, first identify the PJ ecosystem type among the following choices:

(A) In Persistent Woodlands and Open (Persistent) Woodlands (rocky, gravelly or coarse soil texture, winter precipitation is an important or dominant source of moisture): avoid any tree removal; if thinning has to happen in the defensible space around homes or if slash or woody debris is present, redistribute slash and fuels (a) from beneath driplines of taller, older trees, (b) when in piles higher than 2 feet, (c) when mixed with herbaceous plants; and spread fuels over bare sites outside the 100-feet defensible space area in a depth no more than 12 inches off the ground.

(B) In PJ Shrubland, PJ Savannah, or Grassland with PJ (coarse to fine textured soil at mid- to lower elevations with many fine fuels): remove PJ, other conifer saplings, and shrubs (ladder fuels) beneath canopies of mature (tall, old) ponderosa pine and Douglas fir trees; identify natural clumps of PJ trees that are not mixed with ponderosa pines or Douglas firs (high density, multiple canopies, low crown base height at the edges) and keep these clumps intact; remove all but tall or old trees on finer textured soils that have higher amounts of herbaceous plants and/or sage or chamisa or other shrubs; create openings of 30-50 feet (where possible, stretched in E-W direction) between canopy edges of clumps or (groups of) tall trees; on northerly facing slopes clumps may remain larger and denser; on fine textured soils, remove parts of shrub cover to interrupt shrub cover continuity; use mastication whenever possible to remove trees, shrubs and slash; apply broadly spreading chip settings on equipment; redistribute slash and fine fuels from beneath taller trees and when in piles; spread over bare spots; apply soil conservation (erosion control) BMPs where necessary using the slash. These treatments and BMPs will help prevent cheat grass invasion and stimulate perennial, native grass cover. When removing pinyon and juniper, maintain naturally occurring or equal representation of each species; select on health and vigor. In more grassy, fine textured soils, remove all pinyon and all juniper trees, saplings and seedlings that appear to have encroached on the grassy ecosystem.

Dry mixed-conifer and ponderosa pine forest must be thinned to densities of 40 to 80 tree stems per acre (or 30 to 60 sq ft basal area per acre), with rates being higher at higher elevations and on cooler and moister sites (e.g., north facing slopes; Reynolds et al., 2013); all ladder fuels must be removed. For maximum benefits, the fuels reduction thinning should be followed with slash removal using a prescribed burn and/or mastication of the slash. For purposes of fire risk reduction and wildlife habitat selected areas can also be treated by maintaining denser groups or clumps of trees and creating inter-canopy openings of 0.5 to 1 acre. Canopy gaps should be 80-100 feet in diameter in a north-south direction on southern aspects and at most 200 feet in diameter at other aspects, and at most 375 feet in

size in an east-west direction to optimize moisture retention and minimize wind impacts (Jansens, 2021).

The cool and moist mixed conifer and spruce-fir forest within the WUI areas react differently to thinning and prescribed fire than do the previously mentioned forest types, and require treatment tailored to each individual stand. Wind throw of the residual stand is a concern anytime trees are removed from the canopy, as well as the fire susceptibility of the spruce and true fir species. This CWPP recommends that each proposed project that includes spruce-fir forest type be subjected to independent review by an experienced forester, such as a Society of American Foresters certified forester (www.safnet.org), a forester of the Association of Consulting Foresters (www.acf-foresters.org/), Forest Stewards Guild (www.forestguild.org), or the New Mexico State Forestry Division (www.emnrd.state.nm.us). Treatment should proceed upon agreement between the land manager and the reviewer. In WUI areas and in the defensible space around homes, patch cuts can be made that create small openings with irregular shapes or in a chevron or heart shapes with the apex of the opening pointing south (avoid creating south-facing forest edges and openings longer than 200 ft exposed to the southwest and southeast), separated by dense, closed-canopy groups of trees (canopies touching and intertwined). Canopy gaps should be 80-100 feet in diameter in a north-south direction on southern aspects and at most 200 feet in diameter at other aspects, and at most 375 feet in size in an east-west direction. The suggested gap sizes and shapes surrounded by dense stands will likely minimize wind impacts while optimizing accumulation of snow in the winter. Patch cuts will need to take place landscape wide in fire-sensitive areas and be repeated in cycles of about 50 years or less to maintain some level of fire resilience across the landscape. However, in places adjacent to large forest openings or where soils are shallow or often waterlogged, no patch cuts should take place to avoid the risk of severe wind damage on remaining trees in the forest edges.

In aspen stands, utilize existing terrain and vegetation features to guide implementation by creating a random pattern of canopy gaps and small, irregular or more-or-less circular openings, separated by dense, closed-canopy groups of trees (canopies touching). Openings should be no more than 200 feet in diameter. Using patch cuts, primarily remove concentrations of small (<5-8 inches in diameter) vegetation of conifers and over-mature aspen, groups of white fir, and stressed and diseased trees. Improve forest health by removing stress, damage, and mortality agents. Strive to maintain at least 30 percent canopy cover per acre and upwards to 60 percent for denser stands with an even spacing between stems. Favor mid-aged and mature aspen, Douglas fir, limber pine, and sub-alpine fir. Use existing clumps of aspen, Douglas fir, and sub-alpine fir groups as anchor points for action or use large/old trees as anchor points for creating nearby openings. Where Douglas fir groups exist, thin from below to create more space around leave trees. Leave mid-size and larger aspen, Douglas fir and sub-alpine fir of >16 inches DBH. Do not cut in any spruce stands that are mixed in with the aspen. On more productive sites more discretion is required to create openings. Look for depressions, flat areas, and high densities of smaller diameter trees as potential openings, especially where the potential for grass cover is high between the aspen. Within groups of trees, strive for homogeneity in age, height, and size classes (Jansens 2021).

Riparian forest stands in river and creek bottoms of Rio Arriba County normally are not of great concern when planning for wildfire because the natural vegetation associated with the river and creek bottoms are not particularly flammable. However, a crown fire entering a river or creek bottom from the outside could have devastating effects, particularly on wildlife habitat. The river and creek bottoms are important and unique wildlife habitat and should be treated to retain the wildlife

habitat characteristics. The primary fuels treatment for the benefit of the river or creek bottoms should be concentrated on the adjacent lands that contain coniferous trees. These adjacent lands should receive the same treatment as woodlands and forest lands receive in the WUI areas. Treatment should extend out one-half mile. This distance will be sufficient to turn an approaching crown fire into a surface fire. In addition to treating the adjacent area, the river or creek bottom itself should be treated by removing accumulated dead fall trees and limbs (except any logs in the streambed and on the floodplain), and more importantly, invading junipers and other coniferous trees should be removed, as they are more flammable and could accelerate the spread and intensity of a wildfire that travels into a river or creek bottom from adjacent areas.

APPENDIX B - Additional information on Community Oriented Programs

Fire Adapted Communities

One of the largest challenges in establishing Firewise and Fire Adapted Communities throughout Rio Arriba County is the lack of dedicated capacity for coordination from County and municipal government. In order to provide support to community leaders and implement the priority actions in this CWPP, Rio Arriba County must establish dedicated capacity to implement the actions identified in this plan. In other counties across the state of New Mexico, this has taken the form of a dedicated WUI coordinator that is part of the County fire department. The role of the WUI coordinator is to support the planning and development of wildfire risk reduction projects. This means taking the priority actions identified in this plan and seeking funding through grant programs and partnership agreements with land management agencies to get the work done. In addition to larger project planning, the WUI coordinator can play an important role in education and outreach to community leaders across the county about community wildfire adaptation. The Fire Adapted New Mexico learning network is a great resource to help the WUI coordinator get oriented in this role.

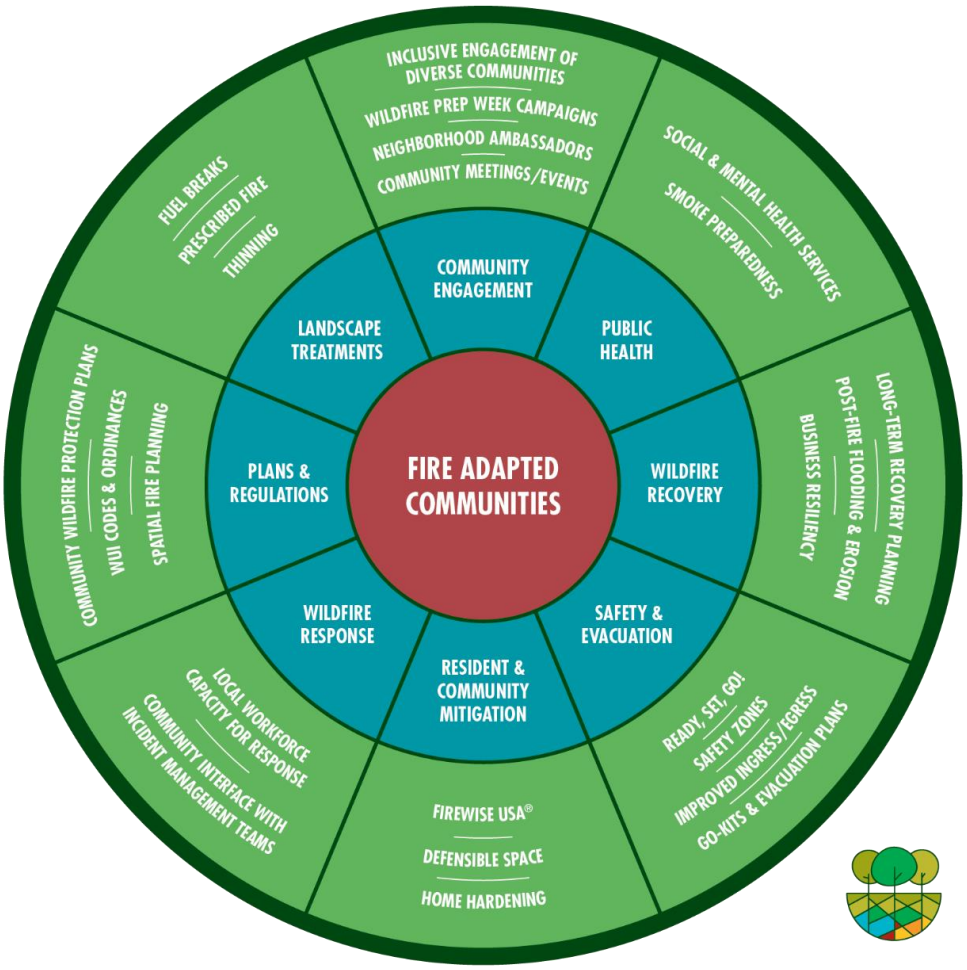

FIGURE 22 FIRE ADAPTED COMMUNITIES DIAGRAM: THIS DIAGRAM DISPLAYS THE MANY PIECES THAT MAKE UP A FIRE ADAPTED COMMUNITY.

The risk of wildfire is shared between neighbors, communities, and jurisdictions. The reduction of that risk is best accomplished through both top-down and grassroots approaches. Top-down strategies (regulations, zoning, ordinances, etc.) provide guidelines for residents to follow that require them to take responsibility for their own safety, as well as that of their communities and neighbors. However, some rural communities in New Mexico have opposed past ordinances regarding wildfire mitigation (Weinstein, 2014). In order to cultivate greater community support, the Fire Adapted Communities (FAC) Network utilizes a grassroots method focused on outreach, education, and the direct involvement of individuals residing in the WUI (https://facnm.org/). By promoting and developing a FAC, local governments and land managers may find alternatives to ordinances and regulations or find a more receptive and educated public when proposing such measures as defensible space thinning.

Part of being fire adapted is recognizing that not all members of the community can prepare for, respond to, and recover from a wildfire in the same ways. Research and experience have shown that socially vulnerable populations may not be able to mitigate and recover from wildfire to the same extent as the less vulnerable members of the community (Lynn & Gerlitz, 2005). Residents of an older age may not have the ease of mobility to move their wood pile, clean gutters and eaves, or rake needles and

debris. Households that are below the poverty threshold may not have access to funds to reduce structural ignitability by installing a new roof, or they may not be able to pay for fuels reduction treatments. Consideration to protect these groups form wildfire should be made when designing wildfire mitigation programs. For resources related to functional needs and accessibility in fire adapted communities, please see the following blogpost from the Fire Adapted New Mexico learning network: https://facnm.org/news/2022/5/11/wildfire-wednesdays-86-disability-and-wildfire

Visit Fire Adapted New Mexico at www.facnm.org or the national Fire Adapted Communities network at www.fireadaptednetwork.org for more information.

The Home Ignition Zone: Home Hardening and Defensible Space

Residents can significantly reduce their wildfire risk by creating defensible space around their homes and hardening their homes to the potential for ignition. The combination of home hardening and defensible space is considered the home ignition zone.

To learn more about how to prepare the home ignition zone for wildfire, visit the National Fire Protection Associations page: https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Preparing-homes-for-wildfire

For a collection of resources related to home hardening and defensible space, visit: www.facnm.org/prepare.

Structure Hardening

Addressing the materials and construction of the structure is important to reducing the risk of the home igniting. A significant resource that should guide residents as they consider new construction or retrofit of structures is the research from the Insurance Institute for Business and Home Safety on factors that contribute to home ignitions from wildfire. Their research addresses a wide variety of factors from vents that limit ember entry to buildings and materials that siding, and decks are constructed of that resist wildfire. Their research can be accessed at https://ibhs.org/risk-research/wildfire/ as well as in this series of one-page reviews on specific materials from NFPA available here https://facnm.org/prepare.

Defensible Space Zones

Targeting trees, shrubs, and other vegetation in the immediate vicinity of the house can also make the home more fire resistant. Firewise USA recommends three zones of defensible space that provide useful guidance for County residents (Firewise USA, 2016):

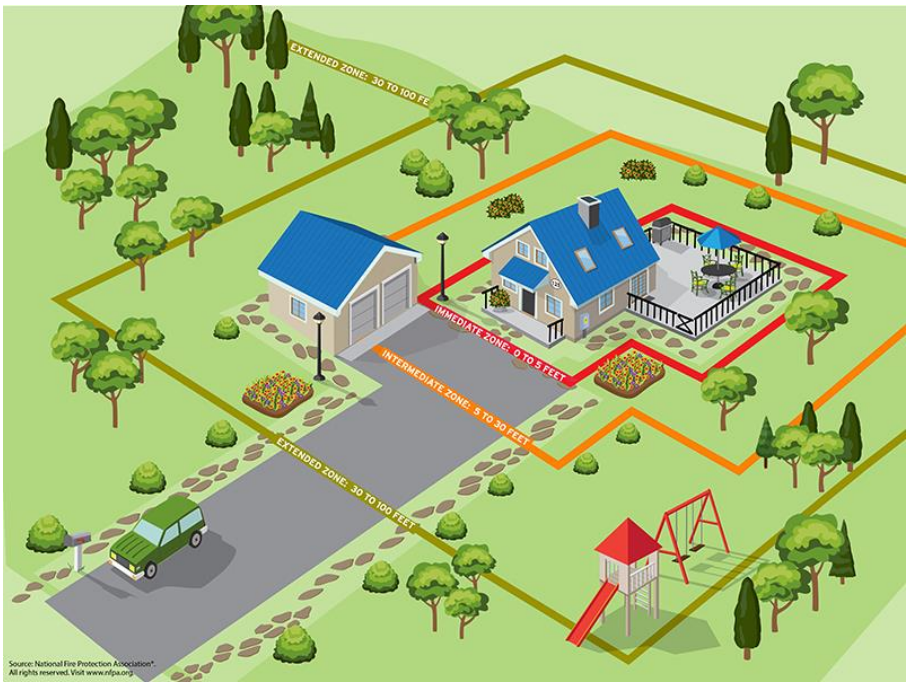

FIGURE 23 THREE ZONES OF DEFENSIBLE SPACE.

Immediate zone

The home and the area 0-5' from the furthest attached exterior point of the home; defined as a non-combustible area. Science tells us this is the most important zone to take immediate action on as it is the most vulnerable to embers. START WITH THE HOUSE ITSELF then move into the landscaping section of the Immediate Zone.

- Clean roofs and gutters of dead leaves, debris and pine needles that could catch embers.
- Replace or repair any loose or missing shingles or roof tiles to prevent ember penetration.
- Reduce embers that could pass through vents in the eaves by installing 1/8 inch metal mesh screening.
- Clean debris from exterior attic vents and install 1/8 inch metal mesh screening to reduce embers.
- Repair or replace damaged or loose window screens and any broken windows Screen or box-in areas below patios and decks with wire mesh to prevent debris and combustible materials from accumulating.
- Move any flammable material away from wall exteriors – mulch, flammable plants, leaves and needles, firewood piles – anything that can burn. Remove anything stored underneath decks or porches.

Intermediate zone

5-30' from the furthest exterior point of the home. Landscaping/hardscaping- employing careful landscaping or creating breaks that can help influence and decrease fire behavior

- Clear vegetation from under large stationary propane tanks.

- Create fuel breaks with driveways, walkways/paths, patios, and decks.
- Keep lawns and native grasses mowed to a height of four inches.
- Remove ladder fuels (vegetation under trees) so a surface fire cannot reach the crowns. Prune trees up to six to ten feet from the ground; for shorter trees do not exceed 1/3 of the overall tree height.
- Space trees to have a minimum of eighteen feet between crowns with the distance increasing with the percentage of slope.
- Tree placement should be planned to ensure the mature canopy is no closer than ten feet to the edge of the structure.
- Tree and shrubs in this zone should be limited to small clusters of a few each to break up the continuity of the vegetation across the landscape.

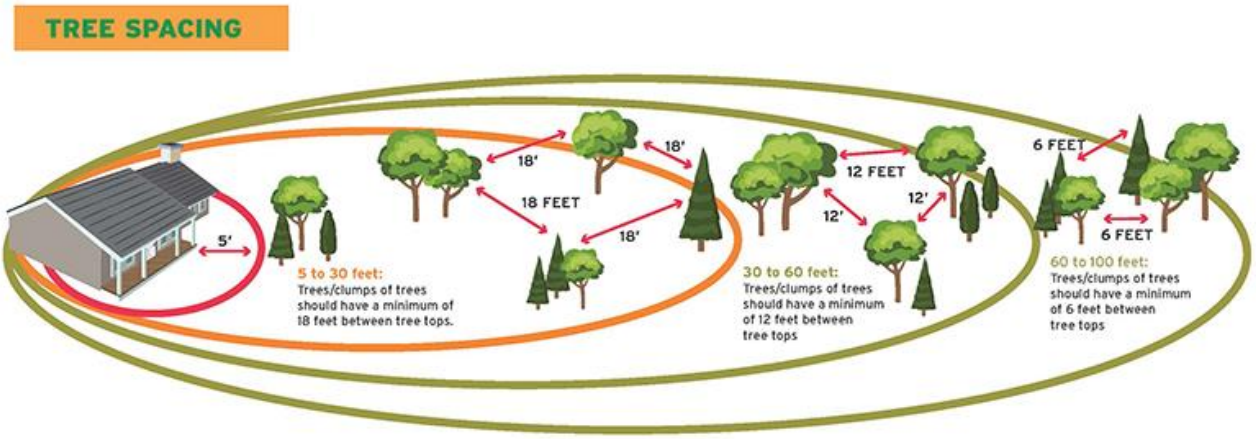

FIGURE 25: TREE SPACING FOR DEFENSIBLE SPACE

Extended Zone

30-100 feet, out to 200 feet. Landscaping – the goal here is not to eliminate fire but to interrupt fire's path and keep flames smaller and on the ground.

- Dispose of heavy accumulations of ground litter/debris.
- Remove dead plant and tree material.
- Remove small conifers growing between mature trees.
- Remove vegetation adjacent to storage sheds or other outbuildings within this area.
- Trees 30 to 60 feet from the home should have at least 12 feet between canopy tops.
- Trees 60 to 100 feet from the home should have at least 6 feet between the canopy tops.

Assessments

Many resources exist to assist people in making their homes more resistant to wildfire. An assessment of the factors that make a building vulnerable to wildfire is the best place to start. Individuals and fire departments can perform this assessment themselves with the help of a guide such as the one from Firewise https://www.nfpa.org/assets/gallery/riskassessment/story.html"

https://www.nfpa.org/assets/gallery/riskassessment/story.html or at https://facnm.org/assessmentools, or they can contact a local professional to help with the assessment. An assessment completed by a professional or the homeowner themselves will provide a plan to tackle the most hazardous issues first and then move to less hazardous issues.

Evacuation

Residents should be ready to leave as soon as evacuation is recommended by officials, in order to avoid being caught in fire, smoke, or road congestion. Evacuating early helps firefighters keep roads clear of congestion and lets them move more freely to do their job. Resources are available to help residents prepare ahead of time for evacuation (see the resources for residents section). Early preparation can help residents with everything from packing lists—essentials can include taking a supply of critical medications—to how to address pets and livestock.

Here is a list of resources related to evacuation:

- Ready, Set, Go. This is the best tool for residents to prepare for different stages of evacuation: https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/FINAL-new-mexico-RSG-guide-2017_000.pdf
- Rio Arriba County emergency alerts to learn about changes in evacuation plans: http://www.co.Rio Arriba.nm.us/government/emergency_management.php
- Past experiences and insights from evacuation: Firsthand Accounts: How to Prepare Your Community for a Wildfire Evacuation.
- Evacuation planning for fire departments:
    - https://www.fema.gov/sites/default/files/2020-07/planning-considerations-evacuation-and-shelter-in-place.pdf
    - https://fireadaptednetwork.org/evacuation-a-resource-round-up/

At the community level, the CWPP update includes a priority action item to establish safety zones and/or evacuation staging areas. A safety zone is an area without burnable fuel that is large enough so that the distance between the firefighters and flames is at least four times the maximum flame height. These should be established and made known in a community, but it should be made clear to residents that these safety zones do not allow any reduction in other preparations, since they should only be relied upon as a last resort.

Ingress and Egress/ Roads

Ingress (access for wildfire suppression equipment and personnel) and egress (ways for fire fighters, residents and visitors to escape the wildfire) are crucial to wildfire preparedness. Communities with only one way in and out, such as Idlewild, face a greater risk during wildfires. Planning evacuation routes at the community or fire district level is one way to identify hazards ahead of time. Actions to improve ingress and egress during a wildfire may include thinning along roadways, road condition improvements, and signage directing residents where to go during an emergency. The best course of action to remedy one way in one way out roads would be to add a second access route and the possibility of this should be assessed on a case-by-case basis. However, in many cases this is impractical and, in this case, widening roads and adding or improving turn outs will help ease this problem to allow for a two-way flow of traffic.

Many secondary roads that provide access for fighting wildland fires in Rio Arriba County are in poor condition and will hamper response by firefighters and evacuation by residents during an emergency. In addition, many communities have one way in and one way out access roads. An evaluation of roads in each district would be helpful to indicate where turnarounds are needed and to establish a point of no return for large fire apparatus. Specific roads that need evaluation and improvement are identified in the Priority Actions section.

Human Sources of Ignition

On average in the U.S., human-caused wildfires burn over half of the total acres burned by wildfire in a given year. Even in the Southwest, where lightning ignites many wildfires, people are responsible for many of the largest, most severe fires. Many of the human-caused ignitions originate from abandoned campfires and downed powerlines. Others arise from vehicles, fireworks, cigarettes, cook stove sparks, and burning yard waste. Understanding the patterns of human ignitions and effectiveness of prevention strategies is therefore crucial to reducing the impact of high-severity wildfire.

Since human ignitions are preventable, increasing education and awareness could be the key to reducing the number of large wildfires. In the planning and implementation of education and awareness initiatives, it is important to keep in mind:

- Prevention efforts should recognize the variation in how and where people start wildfires
- Prevention should be tailored to mode of ignition
- Outreach should be implemented to reach people who are likely to build campfires

For more information on human ignitions, risk awareness, and wildfire prevention in New Mexico, refer to FSG's March 2018 report: *Increasing Wildfire Awareness and Reducing Human-Caused Ignitions in Northern New Mexico* (http://forestguild.org/wildfire_prevention).

Campfires

In outreach and education efforts, it is important to understand the causes and patterns of ignition. Especially considering that 80% of wildfires are caused by campfires within a ¼ mile of a road, it is necessary to redouble efforts at campfire education (Evans 2018). The above-cited report provides the following insights into campfire ignitions:

- Abandoned campfires account for 44% of human-caused wildfires in the Southwest since 2011.
- 80% of wildfires started by campfires are within a quarter mile from a road.
- Campfire bans have demonstrated limited effectiveness, possibly due to their great importance to people recreating.

Power Lines

Electric power lines are increasingly becoming common ignition points for large wildfires in New Mexico. Three major incidents have occurred since 2011, and in May 2018 a power line ignited the Los Alamitos fire, which burned 67 acres in two hours. Part of the prominence of power line ignitions can be attributed to the fact that the conditions that often lead to downed powerlines—specifically high winds—also contribute to increasing the intensity and reach of wildfires, as well as the difficulty of firefighting (Mitchell, J. W. 2009).

In April 2013, the Forest Service held a summit with western utilities in Los Angeles to discuss the issue; the New Mexico representative identified 505 miles of transmission line at risk. This number likely underestimates the risk, as smaller energy cooperatives are underrepresented in this listing.

Greater collaboration is needed between the CWPP core team and local (Kit Carson Electric, Springer Electric Cooperative, Northern New Mexico Gas Company, etc.) utility companies. Strategies for reducing ignition potential from power lines include encouraging off the grid solar systems and burying future or expanded power lines networks. Communities and landowners have a role to play to identify power lines, poles, and transformers that are in poor condition or have excessive brush underneath and contact utilities or other authorities. Volunteer Fire Departments should work with communities to identify areas where power infrastructure poses the risk of wildfire ignition. Regular inspections of lines, poles, transformers, etc. will help reduce the likelihood of human-caused wildfires from faulty power infrastructure.

Smoke Impacts

Wildfire smoke can have significant negative effects on public health. This can be the case even from fires occurring miles away or after a local fire has been controlled. Some demographics are particularly at risk, including people over 65 years old, under 18, and pregnant women. People whose health may already be compromised may also be particularly vulnerable to the effects of wildfire smoke; for this reason, special consideration should be given to preparing hospitals, assisted living facilities, and other health service centers. Residents with heart or lung diseases or any kind of respiratory issues are at particularly elevated risk of adverse smoke impacts.

Personal Smoke Mitigations

For residents, the Center for Disease Control recommends the following measures to decrease the impact of wildfire smoke:

- Check local air quality reports.
- Keep indoor air as clean as possible by keeping doors and windows shut; consider obtaining high efficiency particulate air (HEPA) filters to aid in keeping indoor air clean. Installing a HEPA filter in bedrooms can provide around 8 hours nightly of clean breathing, regardless of air conditions outside and during waking hours.
- Avoid activities that increase indoor pollution such as smoking, burning candles, spraying aerosols, vacuuming, and using fireplaces or gas stoves.
- Assuming you are in a safe place, away from the fire, limiting physical exercise can help to limit smoke inhalation. During exercise, people can increase their air intake as much as 10 to 20 times over their resting level.
- Seek shelter in a designated evacuation center or away from the affected area if necessary.
- Above all, seek to limit your exposure to smoke.

Community Smoke Mitigation

For community leaders, here are some considerations and steps ahead of a potential wildfire to prepare your communities:

- “Safe spaces” should be designated and prepared where community members can have a respite from smoky air. Communities should explore installing integrated HEPA filters at key

locations such as public libraries, hospitals, nursing homes, and schools so that places provide clean air to vulnerable populations during their normal daily activities.

- Organizers should consider suspending certain outdoor activities and events if air quality is poor. Outdoor sports events and school recesses are examples of activities that can be canceled, postponed, or moved indoors to minimize exposure.
- Create a system to supply sensitive individuals with portable HEPA filters during times of smoke impacts. HEPA filter loan programs have been implemented on small scales that succeed in providing clear for the most vulnerable residents in an area.

Helpful websites include:

- New Mexico Fire Info, Smoke Management - New Mexico Fire Information - an interagency effort by federal and state agencies in New Mexico
- Air Now, Interactive Map of Smoke Monitors & Fire Current Conditions - Environmental Protection Agency
- Smoke and HEPA Filter Loan Program - from Fire Adapted New Mexico
- Protect Your Health on Smoky Days - from New Mexico Environmental Public Health
- Wildfire Smoke Frequently Asked Questions - Environmental Protection Agency
- New Mexico's Smoke Management Program - New Mexico Environment Department's Air Quality Bureau

Communication

Communication is one of the best tools for reducing the impact of wildfires. Good communication allows firefighters to efficiently suppress wildfires, residents to evacuate if the need arises, and responders to help those in need. In order to ensure good communication during an incident, it is crucial to have lines of communication established before an incident. Emergency responders from the County, VFDs, and state and federal agencies need to be sure they understand each other's communications protocols and requirements. Pre-wildfire season meetings of key individuals is a worthwhile investment to ensure seamless communication during a wildfire. These meetings also serve to build the personal connections and trust that can be very important during an incident.

Emergency Notifications

In addition to effective communication between first responders, a way to communicate emergency information to residents and visitors is crucial, especially in the event of an evacuation. The most basic version of this is going door to door during an emergency but this takes time and is usually only employed at the last moment during the early stages of an incident or during large incidents after additional staff has been brought in to handle this task. An up-to-date rural addressing system will aid in these door-to-door efforts. A coordination meeting between the different agencies that manage address data would be helpful to ensure that there aren't gaps in accountability across the county.

Another essential communication tool that is already in place in Rio Arriba County to assist with wildfire and other emergency notifications is the "Code Red" reverse 911 system. The Code Red system will send notifications to all landline phones in a selected area. The new system allows you to enter additional information into the emergency notification system to be notified through other devices cell phones, a text device, email address, fax number, or work phone number. This allows for mass notifications to be sent out in the event of any sort of emergency. It also allows for more frequent one-way communication from emergency managers, pre-evacuation notices, and any other early warnings can be sent out in the

early stages of emergencies well before evacuation notices. Other devices can be registered through the County's Emergency Management website: (https://www.co.Rio Arriba.nm.us/government/emergency_management.php).

Communication for First Responders

Communication is a challenge in some parts of Rio Arriba County. Steep canyons and mountains limit the extent of radio and cell phone coverage in many areas. The lack of timely communication is a concern that we heard of from many community members and core team members. Eliminating radio dead spots will provide for firefighter safety and effective response by allowing better communication with the county dispatch and fellow first responders.

Community members and firefighters both lack cell phone coverage in many areas of Rio Arriba County. Working with telecommunication companies to extend this coverage would also be a very worthwhile investment for managing wildfire suppression and evacuation. Both of these tasks are identified as priority actions in Table 2.

Community Emergency Response Team

The Federal Emergency Management Agency (FEMA) has a program called Community Emergency Response Team (CERT) to help community members take part in the response to disasters. The CERT program helps volunteers use training learned in the classroom and during exercises to assist others in their community after a disaster when professional responders are not immediately available to help.

More information on the CERT Program can be found on the following web pages:

https://www.ready.gov/community-emergency-response-team

https://www.fema.gov/news-release/2003/05/29/community-emergency-response-team-cert-program