

JUNE 2025

SANDOVAL COUNTY



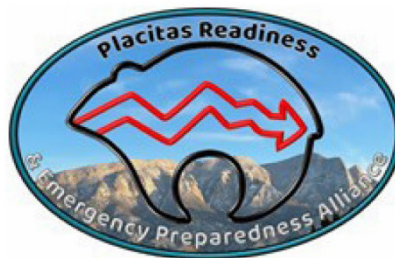
COMMUNITY WILDFIRE PROTECTION PLAN

Working together to build
fire adapted communities,
resilient to wildfire



SWCA[®]
ENVIRONMENTAL CONSULTANTS

IN COLLABORATION WITH:



We would like to formally thank the Core Team and all stakeholders for contributing their time and expertise throughout the planning process. Your participation has contributed to creating resilient landscapes, implementing public education, reducing structural ignitability, and ensuring safe and effective wildfire response.

For additional information, questions, or concerns regarding this project, please contact Project Manager Cody Stropki cstropki@swca.com.

We would like to thank our partners who contributed to this project.


For all your planning and implementation needs, please visit www.swca.com.



DISCLAIMER

The purpose of the risk assessment process described herein is solely to provide a community and landscape-level overview of general wildfire risks within Sandoval County as of the date hereof, and to provide a potential resource for community pre-fire planning. This risk assessment process is premised on various assumptions and models, which include and are based upon data, software tools, and other information provided by third parties (collectively, "Third-Party Information and Tools"). SWCA, Incorporated, doing business as SWCA Environmental Consultants ("SWCA"), relied on various Third-Party Information and Tools in the preparation of this Plan and SWCA shall have no liability to any party in connection with this Plan including, without limitation, as a result of incomplete or inaccurate Third-Party Information and Tools used in the preparation hereof. SWCA hereby expressly disclaims any responsibility for the accuracy or reliability of the Third-Party Information and Tools relied upon by SWCA in preparing this Plan. SWCA shall have no liability for any damage, loss (including loss of life), injury, property damage, or other damages whatsoever arising from or in connection with the risk assessment products contained herein, including any person's use or reliance on the information contained in those risk assessment products. Any reproduction or dissemination of the risk assessment products or any portion hereof shall include the entirety of this Plan disclaimer.

The entities listed below participated in the development of and/or reviewed and are in support of the Sandoval County Community Wildfire Protection Plan:



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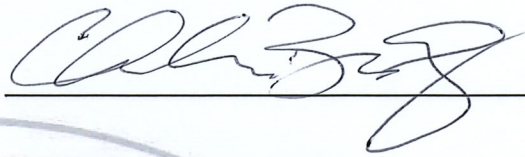
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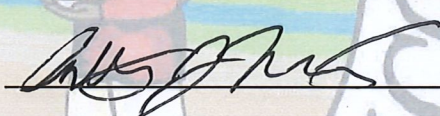
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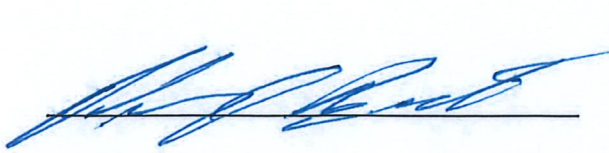
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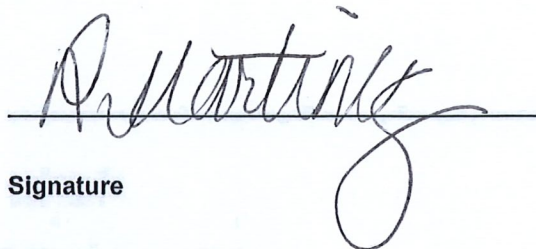
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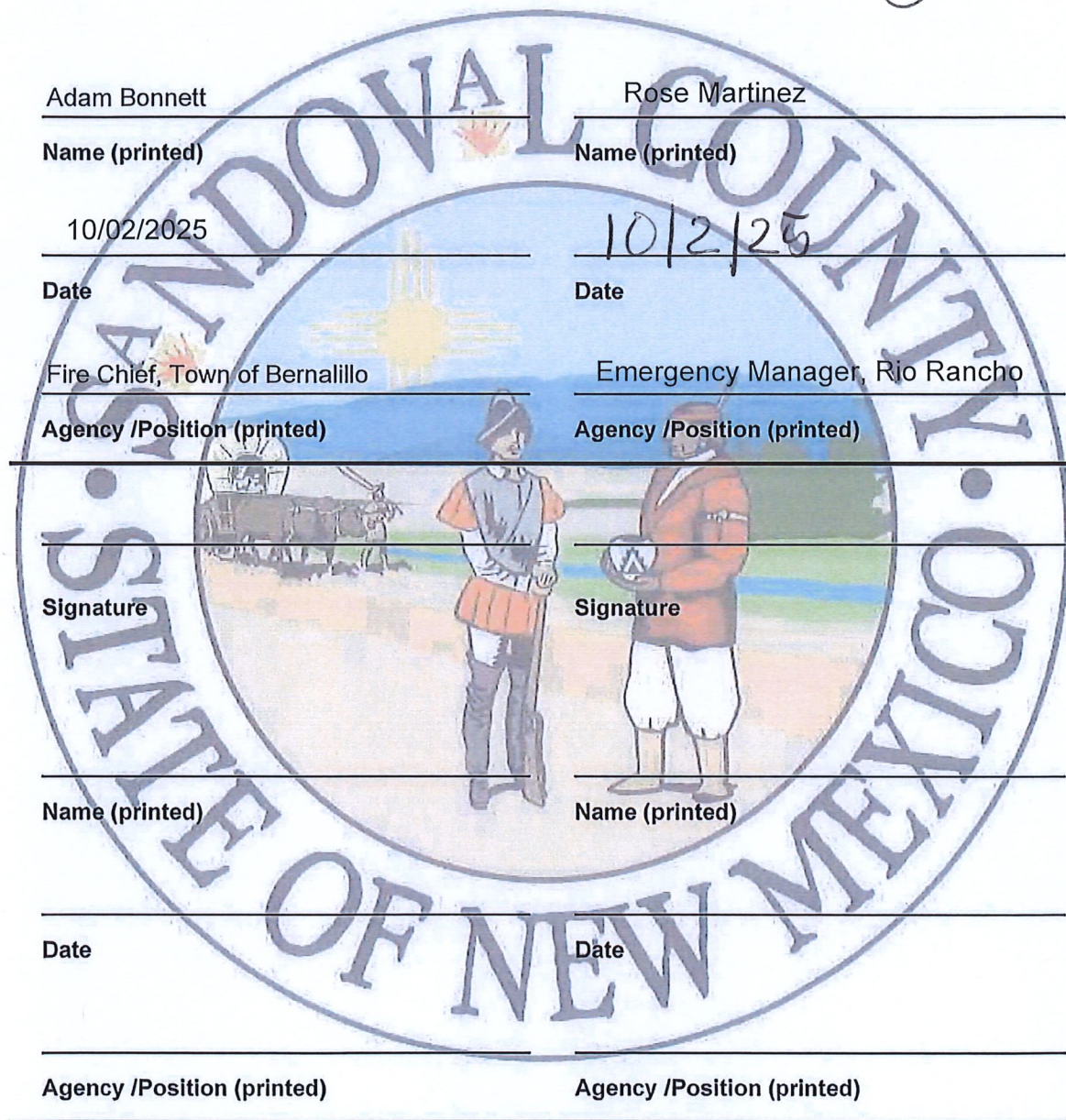
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RESOLUTION Pg. 1 of 1
Anne Brady-Romero Sandoval Cnty Clerk B: 428 P: 18726

SANDOVAL COUNTY BOARD OF COUNTY COMMISSONERS

RESOLUTION NO. 8-13-25.11

ADOPTION OF SANDOVAL COUNTY COMMUNITY WILDFIRE PROTECTION PLAN

WHEREAS, Community Wildfire Protection Plans ("CWPP") are authorized and defined in Title I of the Healthy Forests Restoration Act (HFRA) passed by Congress on November 21, 2003, and signed into law by President Bush on December 3, 2003; and,

WHEREAS, CWPPs, as described in the HFRA, brings together diverse local interests to discuss their mutual concerns for public safety, community sustainability, and natural resources; and,

WHEREAS, a CWPP for Sandoval County, New Mexico (hereinafter referred to as the "Plan") has been developed by the Sandoval County Office of Emergency Management and the people of the County; and,

WHEREAS, CWPPs offer a positive, solution-oriented environment in which to address challenges such as: local firefighting capability, the need for defensible space around homes and subdivisions, and where and how to prioritize land management on both federal and non-federal land; and,

WHEREAS, a series of public and planning team meetings were held to develop and review the Plan to the specifications set forth by the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division.

NOW THEREFORE BE IT RESOLVED by the Sandoval County Commissioners that: The Community Wildfire Protection Plan for Sandoval County, New Mexico, is hereby adopted as an official plan.

APPROVED and ADOPTED by the Board of County Commissioners, Sandoval County, this 13TH day of AUGUST, 2025.



ATTEST:

Anne Brady-Romero, County Clerk

APPROVED AS TO FORM:

Michael Eshleman, County Attorney

SANDOVAL COUNTY COMMISSION:

Michael Meek, Chairman

Jordan Juarez, Vice Chairman

Katherine Bruch, District 1

Jon Herr, District 2

Joshua A. Jones, District 5



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EXECUTIVE SUMMARY

Sandoval County produced its first community wildfire protection plan (CWPP) in 2008 and updated it in 2012. Since the last update in 2012, significant efforts have been made to mitigate wildfire risk (see previous accomplishments table in Chapter 1). At the same time, evolving conditions have increased wildfire risks. Population growth, particularly among older adults, and continued WUI expansion have heightened exposure to wildfire hazards, while limited road networks create evacuation challenges. The rise of renewable energy infrastructure introduces new fire risks, and aging electrical and water systems may impact firefighting capabilities. Climate change–driven drought and extreme weather conditions are expected to intensify fire activity. Additionally, reliance on digital emergency notifications presents challenges in areas with poor connectivity.

The 2025 Sandoval County CWPP is a full update to the 2012 Sandoval County CWPP. The update serves multiple purposes in addressing the risk of wildfires and protecting human life and property. It aims to provide a comprehensive assessment of wildfire hazards and risk as well as protection needs across the county, bringing together various stakeholders involved in wildfire management and suppression. By identifying gaps and deficiencies, the plan provides a framework for future planning and implementation of mitigation measures. It also includes a list of actionable projects to mitigate the identified risks.

The plan's development involved a core planning team (the Core Team) consisting of local, state, and federal agencies, and community organizations with extensive experience in fire management and prevention. The planning process brought together wildfire responders and land managers in a collaborative effort, modeling and mapping wildfire risk, identifying physical hazards, and incorporating public input. Public meetings, surveys, workshops, and online platforms facilitated community engagement and awareness. The project recommendations and draft plan underwent review and feedback from community members. Additionally, projects identified in the plan are in alignment with the wildfire-specific hazard mitigation actions identified in the 2023 State of New Mexico Hazard Mitigation Plan, 2020 New Mexico Forest Action Plan, 2019 Sandoval County Natural Hazards Mitigation Plan, and 2014 Sandoval County All Hazard Mitigation Plan.

This CWPP has been developed in response to the federal Healthy Forests Restoration Act of 2003 (HFRA). The CWPP meets the requirements of the HFRA and the New Mexico State Forestry CWPP requirements by addressing the following:

- Having been developed collaboratively by multiple agencies at the state and local levels in consultation with federal agencies and other interested parties.
- Prioritizing and identifying fuel modification treatments and recommending the types and methods of treatments to protect at-risk communities and pertinent infrastructure.
- Suggesting multi-party mitigation, monitoring, and outreach.
- Recommending measures and action items that residents and communities can take to reduce the ignitability of structures.
- Soliciting input from the public on the draft CWPP.
- Describing accomplishments and progress since the previous CWPP update.
- Including a list of communities at risk with individual hazard risk ratings.
- Identifying new potential risks and noting changes in community risk ratings since the previous update.

- Aligning objectives and goals with county plans (e.g., Hazard Mitigation Plan).
- Including a table of new prioritized projects.

Sandoval County, located in north-central New Mexico, spans 3,716 square miles and is home to 155,936 residents (in 2023). The county includes private, local, state, and federal lands and provides fire response services through eight fire districts while participating in multiple local, regional, and state agreements.

Sandoval County has experienced multiple large wildfires in recent years, including the 2000 Cerro Grande Fire (43,000 acres), 2011 Las Conchas Fire (156,293 acres), 2013 Thompson Ridge Fire (50,000 acres), and the 2022 Cerro Pelado Fire (45,605 acres). Fire seasons are extending further into July and August due to prolonged warm, dry conditions, with the onset of monsoon season becoming less predictable due to climate change. Historically, fire activity followed established seasonal patterns, but shifting climate conditions are altering fire regimes. Sandoval County's diverse topography—including mountain ranges, canyons, river basins, and rolling hills—strongly influences its climate and contributes to variations in fire risk across the county. Given that wildfire is a natural and recurring element in Sandoval County's landscape, building community resilience is essential.

This plan identifies key wildfire risks and outlines mitigation strategies aligned with the National Cohesive Wildland Fire Management Strategy's three goals: resilient landscapes, fire-adapted communities, and safe and effective wildfire response. Resilient landscape recommendations focus on vegetation management and hazardous fuel reduction to reduce high-intensity wildfire threats near structures and promoting forest health through fuel reduction along roadways, in and adjacent to WUI communities, and around critical infrastructure. These efforts rely on a collaborative approach involving tribal entities, private landowners, land and watershed management organizations, and local, state, and federal agencies.

Community adaptation strategies emphasize public education and proactive measures to reduce human-caused risks. Initiatives include raising awareness of fire department response needs, promoting defensible space and home hardening, organizing community cleanups, publicizing funding opportunities, and engaging seasonal visitors and vulnerable populations. To enhance wildfire response, recommendations include improving coordination between agencies, strengthening public safety communications, expanding evacuation planning, increasing fire response resources, and securing funding for long-term resilience and post-fire recovery efforts.

CWPPs do not have the authority to mandate the implementation of any recommendations. However, the core message of this document is that the most effective fire mitigation can be achieved through the joint actions of individual property owners and partner, local, state, and federal governments. The true value of a CWPP lies in its ability to provide a framework for collaboration among the public, governments, agencies, and other partner entities to develop solutions and strategies for wildfire management and mitigation.

This CWPP should be regarded as a dynamic document that necessitates regular updates, particularly after significant fire events. Consistent revisions are essential to incorporate changes, modifications, or new information. These updates are crucial for effectively reducing wildfire risks across Sandoval County and ensuring the CWPP's core ideas and priorities remain relevant for the long-term benefit of the communities it serves.

In addition to this CWPP, the County developed a hub site to share information with the public and gather input on the plan. This dynamic, interactive platform presents the CWPP through multimedia content, web maps, and a project tracker. Beyond facilitating information sharing, it allows for easy updates to keep the CWPP current. Access the hub site at: <https://sandoval-county-cwpp-hub-site-sandovalgis.hub.arcgis.com/>



CHAPTER 1 – INTRODUCTION

The United States is facing urgent forest and watershed health concerns. In recent years, the 2020 fire season had the most acreage impacted in a single year at 10.1 million acres nationally, and 2018 was the second highest with 8.8 million acres (Congressional Research Service 2023). In addition, the state of New Mexico is experiencing an increase in drought conditions, according to the National Integrated Drought Information System (2024). Locally, Sandoval County is experiencing abnormally dry and moderate drought conditions. These statistics demonstrate that wildfires and concerns for watershed health are becoming larger and increasingly impactful.

New Mexico's 2020 Forest Action Plan states that New Mexico, like other western states, faces urgent issues concerning extreme wildfire events, insect epidemics, and shifting climate conditions that are unprecedented and threaten the sustainability of ecosystems and increase risk to communities, firefighters, and water resources. These issues were exemplified in the 2011 Las Conchas Fire, which burned in excess of 150,000 acres in the Jemez Mountains, destroyed 112 structures, and deteriorated wildlife habitat and key watersheds (New Mexico Energy, Minerals, and Natural Resources Department [EMNRD] Forestry Division 2020).

The responsibility for implementing wildfire mitigation treatments lies at the discretion of the landowner.

As wildfire severity increases, communities need a plan to help prepare for, reduce the risk of, and adapt to wildfire events. Community wildfire protection plans (CWPPs) help accomplish these goals. A CWPP provides recommendations that are intended to reduce, but not eliminate, the extreme severity or risk of wildfire.

The development of the CWPP is rooted in meaningful collaboration among many stakeholders, including local, state, federal, and tribal officials. The planning process involves looking at past fires and treatment accomplishments using the knowledge and expertise of the professional fire managers who work for the various agencies and governing entities in Sandoval County. From there, the CWPP ultimately identifies the current local wildfire risks and needs that occur in the county, which is further supported with relevant science and literature from the southwestern region of the United States.

In addition, this document, the 2025 Sandoval County CWPP Update, reviews, verifies, and/or identifies potential new priority areas where mitigation measures are needed to protect from wildfire the irreplaceable life, property, and critical infrastructure in the county. However, this CWPP does not attempt to mandate the type and priority for treatment projects that will be carried out by the land management agencies and private landowners. The responsibility for implementing wildfire mitigation treatments lies at the discretion of the landowner; the 2025 Sandoval County CWPP Update will only identify potential treatments and a suggested priority for these projects.

1.1 GOAL OF A COMMUNITY WILDFIRE PROTECTION PLAN

The goal of a CWPP is to enable local communities to improve their capacity to reduce the risk of wildfire while working with government agencies to identify high-fire-risk areas and prioritize areas for mitigation, fire suppression, and emergency preparedness, and to enhance public awareness by helping residents better understand the natural and human-caused risks of wildfires that threaten lives, safety, and the local economy. The minimum requirements for a CWPP, as stated in the Healthy Forests Restoration Act of 2003 (HFRA), are:

- **Collaboration:** A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies or other interested parties.
- **Prioritized Fuel Reduction:** A CWPP must identify and prioritize areas for hazardous fuel modification treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and their essential infrastructure.
- **Treatments 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.

It is the intent of this 2025 CWPP update to provide a countywide scale of wildfire risk and protection needs and then bring together all of the responsible wildfire management and suppression entities in the county to address the identified needs and to support these entities in planning and implementing the necessary mitigation measures. Additional information on the planning process is available in Appendix A.

1.2 ACCOMPLISHMENTS SINCE PREVIOUS PLAN

Since Sandoval County's last CWPP update in 2012, significant efforts have been made to mitigate wildfire risk (Table 1.1). The County and its partners have treated or are actively treating over 169,000 acres in the wildland-urban interface (WUI) and surrounding landscapes. These treatments (see Table 1.2 below and Figure 4.1 in Chapter 4) span the county, including the Santa Fe and Cibola National Forests, tribal and state lands, and other public areas. While multiple fuel treatment databases exist (e.g., LANDFIRE and U.S. Forest Service [USFS]), the New Mexico Highlands University Database was selected for its comprehensiveness, as it includes USFS treatments. To prevent duplication and overcounting, standalone USFS data were not used.

Table 1.1. Accomplishments Since 2012

Project	Date	Entity	Serves to
Structural Ignitability Projects			
Reduce hazardous fuels on non-federal lands/private properties.	2014–present	Jemez Mountains Firewise Association (JMFA)	Create defensible space and home-hardening.
Treated 550 acres in Middle Rio Grande Conservancy District (MRGCD)–owned bosque.	2012–2024	MRGCD	Increase resiliency in the bosque.
Maintenance of a fire response safety corridor and Corrales levee riverside (26 acres).	2024–present	MRGCD and Village of Corrales	Increase firefighter and public safety.
Assess and improve accessibility to property; create ordinance for address signs and enforce roadway clearances.	2019–present	Corrales Fire and Code Enforcement	Inform homeowners about the importance of keeping driveways accessible to fire trucks and emergency responders as well as keeping legible address signs to allow them to be located.
Implement periodic Chipper Days.	2013–present	Coronado Soil and Water Conservation District (Coronado SWCD)	Assist homeowners in fuel reduction.
Fire Response Projects			
Integrate geographic information system locations and basic information on Jemez Alliance of Water Systems (JAWS) public water systems' critical infrastructure into Wildland Fire Decision Support System (WFDSS) and the Shared Stewardship database.	2024	New Mexico State Forestry Bernalillo District, and USFS Jemez Ranger District	Support decision making, planning, and resource allocation for forest treatments and during a wildfire event.
Acquire and install a 30,000-gallon water storage tank in Sierra Los Pinos.	2021–present	Sandoval and JMFA	Increase fire suppression operational capabilities.
Increase funds for the fire department.	2012–present	Corrales Fire	Write and receive VFA grants, New Mexico State Fire Safe Council grants, and capital outlay to improve ISO rating.
Train all firefighters.	2019–present	Village of Corrales	Train all new hires to S130/190 I 100 standards as well as structural fire fighting.

Project	Date	Entity	Serves to
Update dated apparatuses.	2012–present	Village of Corrales	Make sure response apparatuses are functioning properly.
Increase water sources adding hydrants, lines and backup power for tanks and pumps.	2012–present	Village of Corrales	Increase fire suppression operational capabilities.
Map water supply.	2024–present	Village of Corrales	Increase fire suppression operational capabilities.
Public Education and Outreach Projects			
The JAWS informs water systems, their communities, and agencies about the importance of identifying and prioritizing drinking water sources and other critical infrastructure.	2023–present	All entities	Improve awareness of drinking water systems' vulnerabilities to wildfire and postfire and actions systems and others can take to prepare for and prevent/mitigate these events.
Hosted Annual Fire Preparedness Workshop.	2013–present	La Cueva Volunteer Fire Department (LCVFD) & JMFA	Educate local community residents on Firewise.
Targeted wildfire information sessions.	2012–present	Corrales Fire	Deliver a clear and consistent message that the impacts of wildfire are far-reaching as well as defensible space awareness.
Strengthen ordinances to allow enforcement of trash and debris cleanup on private property.	2019–present	Corrales Code Enforcement	Allow for communication of hazards and enforcement when not remedied.
Agency promotion of Red Flag Days.	2012–present	Corrales Fire	Use social media to emphasize the risk associated with Red Flag Days to reduce human-ignited wildfire.
Hosted emergency preparedness meetings.	2012–present	Corrales Fire	Improve preparedness by facilitating communication between family members and neighbors about what procedures to follow in the event of a wildfire; initially annual meetings, now quarterly.
Initiated neighbors for defensible space program.	2012–present	Corrales Fire	Provide information to individuals and neighborhoods on best practices for defensible space

Project	Date	Entity	Serves to
Hosted defensible space workshops	2012–present	Corrales Fire	Empower homeowners to make affordable and effective changes to reduce the vulnerability of individual homes.
Improve enforcement of burn bans and illegal fireworks.	2012–present	Corrales Fire	Increase firefighter presence around and on July 4 for patrol; send out messaging about the dangers of fireworks and what is legal and illegal.
Hosted the Firewise Placitas wildfire awareness event at Las Placitas Presbyterian Church	2013	Firewise Placitas and USFS	Inform and educate community members.
Hosted the Firewise Placitas evacuation/emergency preparedness workshop	2013	Firewise Placitas, USFS, Sandoval County Sheriff's Office, Red Cross, Sandoval County Fire Department, and Coronado SWCD	Inform and prepare community members on evacuation procedures and preparedness.
Fuel Treatments			
Develop fuels projects for the pueblos under the Southern Pueblos Agency; a 4-year Program of Work is documented in the <i>Interior Fuels and Post-Fire Reporting System</i> (a module of <i>InFORM</i>).	Present	Bureau of Indian Affairs (BIA) Southern Pueblos Agency	Increase community safety and wildfire resiliency throughout the pueblos.
Develop fire and fuels plans, including spatial information, for all the tribes serviced by the BIA.	2014–present	BIA Southern Pueblos Agency	Increase community safety and wildfire resiliency throughout the pueblos.
Extend or develop fuels projects on USFS and private lands to protect some public drinking water sources in the Jemez Mountains.	2024–present	Private landowners, Cuba Soil & Water Conservation District, NM State Forestry Bernalillo District, USFS Jemez Ranger District	Protect drinking water sources for communities in the Jemez Mountains.
Develop a regional biochar production facility to reconstitute slash.	2024–present	JMFA and Building Rural Economies	Create a commercial operation for fuel reduction.

Project	Date	Entity	Serves to
Strategically target funding to treat fuels around water sources.	2020–present	JMFA, Jemez Springs Domestic Water Association, CSWCD, NMSF	Mitigate threats to domestic water from wildfires.
Thin fuels in Placitas (seven properties).	2013	Coronado SWCD	Reduce fuel loads.

Table 1.2. Treatments in Sandoval County Since 2012

Type	Acreage
Biomass removal	797
Burn piles constructed	6,147
Chemical treatments	46,810
Chipping	377
Invasive species treatment	949
Lop and scatter	3,826
Mastication	2,316
Mowing	533
Prescribed burning	40,088
Prescribed grazing	17
Range control	29,890
Thinning	28,061
Tree planting	5,049
Other (physical treatments)	4,916
Total (all treatments)	169,776

Source: New Mexico ArcGIS Database

1.3 EVOLVING WILDFIRE RISKS SINCE 2012

Since the previous CWPP update in 2012, Sandoval County has experienced significant changes that contribute to evolving wildfire risks. The county's population grew by 13.4% from 2012 to 2022, with the fastest increase occurring among residents aged 65 and older (USA Facts 2025). This demographic shift underscores the need for enhanced evacuation planning and emergency response strategies, particularly for vulnerable populations.

Development in the WUI continues to expand, increasing wildfire exposure for both structures and residents. As communities grow and new developments emerge, access challenges have become more pronounced, with limited road networks and constrained evacuation routes exacerbating emergency response difficulties.

Additionally, the county has seen an increase in renewable energy infrastructure, including solar farms and battery storage facilities. While these developments support energy sustainability, they also introduce new fire risks associated with electrical faults, battery malfunctions, and the need for specialized firefighting strategies.

Beyond current risks, potential new threats may further shape the county's wildfire landscape. Climate change is leading to warming temperatures, prolonged drought conditions, and unpredictable weather patterns, which in turn may intensify wildfire activity. These shifting conditions necessitate adaptive fire management strategies to mitigate longer and more severe fire seasons.

Aging infrastructure also presents a growing concern, particularly electrical and water systems that may not have been upgraded in pace with community growth. Aging power lines could contribute to ignition risk, while water infrastructure limitations could affect firefighting capabilities.

Finally, the increasing reliance on digital platforms for emergency alerts and evacuation notices introduces a new challenge. In areas with poor cell service or limited internet access, residents may not receive critical notifications in a timely manner.

1.4 PLAN ALIGNMENT WITH THE NATIONAL COHESIVE STRATEGY

The 2025 CWPP is aligned with the Cohesive Strategy and its Phase III Western Regional Action Plan by adhering to the nationwide goal “to safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and collectively, learn to live with wildland fire.”

The primary, national goals identified as necessary to achieving the vision are:

- **Resilient Landscapes** – Landscapes, regardless of jurisdictional boundaries are resilient to fire, insect, disease, invasive species and climate change disturbances, in accordance with management objectives.
- **Fire-Adapted Communities** – Human populations and infrastructure are as prepared as possible to receive, respond to, and recover from wildland fire.
- **Safe, Effective, Risk-based Wildfire Response** – All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

For more information on the Cohesive Strategy, please visit:

<https://www.forestsandangelands.gov/strategy/index.shtml>

Alignment with these Cohesive Strategy goals is described in more detail in Chapter 4, Mitigation Strategies.

In addition to aligning with the Cohesive Strategy, the CWPP also incorporates information on post-fire recovery, the significant hazards of a post-fire environment, and the risk that post-fire effects pose to communities (Figure 1.1).



Figure 1.1. The CWPP incorporates the three primary goals of the Cohesive Strategy with post-fire recovery to serve as holistic plan for fire prevention and resilience.

1.5 CORE TEAM

The Sandoval County administrators invited engagement from local and regional government agencies in the development of the Sandoval County CWPP, some of which had been involved in the previous two iterations of the CWPP. Stakeholder involvement is critical in producing a meaningful document that includes all collaborators’ diverse perspectives. The project was kicked off in June 2024; the Core Team met for the first time on August 21, 2024, convened again on November 19, 2024, and met for the final time on May 1, 2025.

Members of the Core Team are listed in Table 1.3 below.

Table 1.3. Core Team

Name	Organization
Dan Heerding	Sandoval County Fire Department
Ryan Louchard	Sandoval County Fire Department

Name	Organization
Eric Masterson	Sandoval County Fire Department
Ishalem Howard	Town of Bernalillo
Lucas Jenuches	Town of Bernalillo
Tanya Lattin	Village of Corrales
Anthony Martinez	Village of Corrales
Martha Graham	New Mexico Rural Water Association
Anthony Thompson	Bureau of Indian Affairs
Jerry Lazzari	Jemez Pueblo
John Galvan	Jemez Pueblo
Loren de Azevedo	Santa Ana Pueblo
Mario Garcia	Santo Domingo Pueblo
Brian Fox	Sandia Pueblo
Lawrence Crane	New Mexico State Forestry
Kevin Pacheco	New Mexico State Forestry
Yasmeen Najmi	Middle Rio Grande Conservancy District
Paul Lisko	Jemez Mountains Firewise Association
Steven T. Decker	USFS, Santa Fe National Forest
Jeremy A. Golston	USFS, Santa Fe National Forest
Abel J. Salaz	USFS, Santa Fe National Forest
Brad Tausan	USFS, Cibola National Forest
Pete Rivera	Bureau of Land Management
Rich Nieto	Los Alamos National Labs
Jess Lewis	Sandoval County Fire Department
Victoria Amato	SWCA Environmental Consultants
Cody Stropki	SWCA Environmental Consultants
Montiel Ayala	SWCA Environmental Consultants

1.6 PUBLIC INVOLVEMENT

A key element in the CWPP process is the meaningful discussions it generates among community members regarding their priorities for local fire protection and forest management (Society of American Foresters 2004). SWCA Environmental Consultants (SWCA) released a community survey to the public and received responses from several communities throughout the county. SWCA hosted in-person public meetings at the Community Center at the Sandoval County Fairgrounds on November 19, 2024, at Jemez Mountain Baptist Church on November 20, 2024, and at the Village Council chambers on February 12, 2025, to inform the public about the CWPP and gather community input. These local events drew substantial crowds, providing the opportunity to engage a broad cross-section of the county. A summary of the community outreach process is provided in Appendix G.

The draft CWPP and project recommendations were made available for public review from May 5, 2025, through May 19, 2025.

Every effort was made to include a broad cross section of the county in the outreach process, and different communication channels, including social media postings, flyers, press releases, email distributions, and in-person activities, were used to engage as many members of the public as possible. All county residents were welcomed and encouraged to participate in the community events. Moreover, all county residents were provided multiple opportunities to provide input, such as the community survey and the CWPP document review period.

Recommendations for future community engagement and outreach are in Chapter 4.

1.7 PLANNING AREA

The planning area includes the entirety of Sandoval County as delineated by its geographic and political boundaries (Figure 1.2).

Sandoval County is located in the north-central portion of New Mexico and encompasses an area of 3,716 square miles. Sandoval County is bordered by Rio Arriba, Los Alamos, Santa Fe, Bernalillo, McKinley, and San Juan Counties.

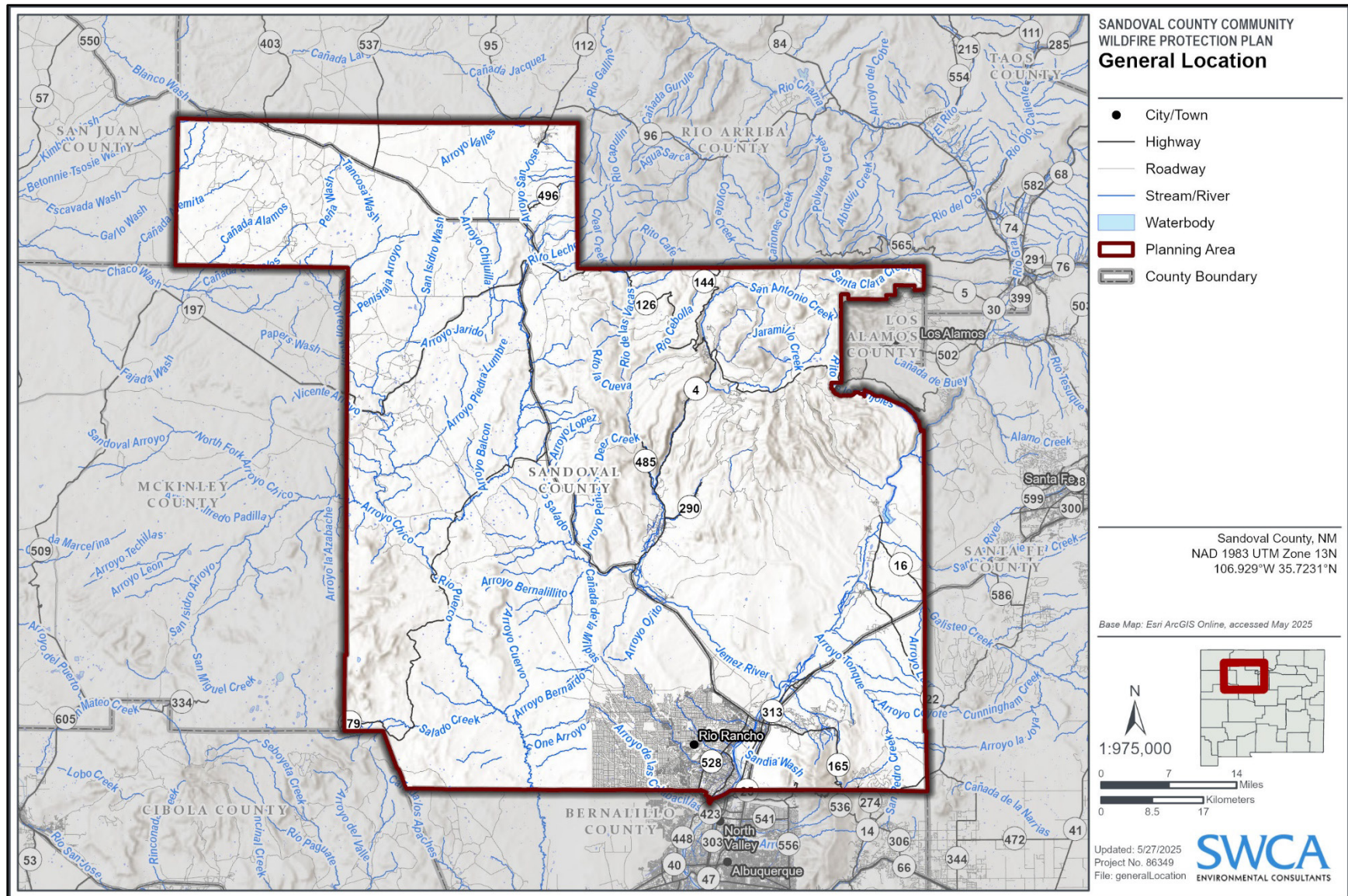


Figure 1.2. Sandoval County planning area.

1.7.1 PUEBLOS AND NATIONS IN SANDOVAL COUNTY

Sandoval County is home to several tribal nations and pueblos, including Santa Clara Pueblo, Jicarilla Apache Nation, Cochiti Pueblo, Santo Domingo Pueblo, San Felipe Pueblo, Santa Ana Pueblo, Sandia Pueblo, Zia Pueblo, Jemez Pueblo, Laguna Pueblo, and the Navajo Nation. Each has its own unique history, cultural practices, and governance. A brief background as well as relevant fire management efforts for each entity are described below. This information has been synthesized from publicly available data provided by tribal and local government organizations.

The following pueblos participated in the development of this plan: Jemez, Sandia, Santa Ana, and Santo Domingo.

1.7.1.1 Cochiti Pueblo

Cochiti Pueblo is a Keresan-speaking pueblo in north-central New Mexico. It is approximately 50 miles north of Albuquerque and 35 miles southwest of Santa Fe, with the Rio Grande to the east (Pueblo de Cochiti 2024). Approximately 1,500 people live in the Pueblo (U.S. Census Bureau 2020a). The Pueblo also has a Department of Natural Resources and Conservation that works to create and implement management plans, build the Pueblo's cultural resiliency, and restore and protect the environment (Pueblo de Cochiti n.d.).

1.7.1.2 Jemez Pueblo

Jemez Pueblo is located about 55 miles northwest of Albuquerque. State Route 4 and the Jemez River run through the Pueblo, which is situated in the southern end of the Jemez Mountains. The Pueblo is the only Towa-speaking culture and has 3,800 tribal members. The village called Walatowa within Jemez Pueblo is the home to many of its people. Jemez Pueblo is also known for its artisans and particularly their pottery (Jemez Enterprises n.d.).

Jemez Pueblo has Emergency Management and Natural Resources Departments. The Emergency Management Department, in conjunction with other Pueblo departments and partners, works to assess the risks posed by different hazards, including wildfires, to the Pueblo (Pueblo of Jemez n.d.a). Additionally, the Pueblo's Natural Resources Department strives to protect the Pueblo's natural and cultural resources. The department has a tribal forestry manager who works to reduce wildfire risk, respond to wildfires when they occur, and provide general stewardship of the Pueblo's forest resources (Pueblo of Jemez n.d.b).

1.7.1.3 Jicarilla Apache Nation

The Jicarilla Apache Nation Reservation is located in north-central New Mexico. A portion of the northern border falls along the Colorado state line. The San Juan and Navajo Rivers intersect the northern tip of the reservation, and the Rio Chama runs along and intersects the eastern border. The land varies from predominately high desert with sagebrush flats in the south to mountains with coniferous forests in the north. The only community within the Jicarilla Apache Reservation is Dulce, New Mexico, which is where the Jicarilla Apache Tribal Headquarters is located (Ten Tribes Partnership n.d.a). Dulce is a census-designated place with a population of just over 2,800 (U.S. Census Bureau 2020b).

The Jicarilla Apache Nation, with had a population of 3,254 in 2010, is part of the Ten Tribes Partnership (Ten Tribes Partnership n.d.a, n.d.b). The partnership is a group of 10 Upper and Lower Colorado River

Basin Tribes formed to expand the influence of tribes in decisions about the management and access to the Colorado River's waters.

1.7.1.4 Laguna Pueblo

Laguna Pueblo, located about 45 miles west of Albuquerque, has approximately 7,800 tribal members (Laguna Department of Education n.d.). Both I-40 and Route 66 run through the Pueblo. Their name comes from the presence of a lake, which the Laguna people constructed through a dam hundreds of years ago. Six villages are located within the Pueblo: Laguna, Mesita, Paguete, Seama, Paraje, and Encinal (Pueblo of Laguna n.d.a).

The Pueblo also has an Environmental and Natural Resources Department and a Department of Public Safety. The Environment and Natural Resources Department works to manage, monitor, and protect the Pueblo's land, water, and air for the health of the community, future generations, and the environment itself (Pueblo of Laguna n.d.b). The Department of Public Safety has a fire and rescue program with three fire stations and 27 career firefighters who conduct fire suppression, disaster preparedness, and community outreach, along with other efforts to protect the community (Pueblo of Laguna n.d.c).

1.7.1.5 Navajo Nation

The Navajo Nation is located in Arizona, Utah, Colorado and New Mexico and is more than 25,000 square miles (Navajo Parks and Recreation Department 2024). As a whole, the Nation has a population of over 250,000 people (Navajo Nation n.d.). The Nation also has a variety of unique environments that are preserved and managed by their Parks and Recreation Department (Navajo Parks and Recreation Department 2024).

The Navajo Nation Emergency Management Department works to prepare for hazards and respond to and recover from threats that may impact the Nation, such as fires. The department also works with local, state, regional, and federal partners to increase safety for residents (Navajo Nation Emergency Management n.d.). The Bureau of Indian Affairs (BIA) Navajo Region further sponsors a Navajo Interagency Hotshot Crew based in Fort Defiance, Arizona which has been a Type 1 Wildland firefighting crew since 2005 (U.S. Department of the Interior [DOI] n.d.a).

There are multiple chapters of the Navajo Nation. Three chapters overlap Sandoval County boundaries: the Counselors Navajo Chapter in the northwestern portion of the county, the Ojo Encino Navajo Chapter in the western portion, and the Torreon Navajo Chapter in the western portion (see Sandoval, New Mexico n.d.).

1.7.1.6 San Felipe Pueblo

San Felipe Pueblo is located between Albuquerque and Santa Fe at the base of Black Mesa. The Rio Grande runs through the Pueblo, and Interstate 25 (I-25) cuts through Pueblo lands diagonally from southwest to northeast. The Pueblo has about 3,700 tribal members (San Felipe Pueblo n.d.a).

The Pueblo's Natural Resources Department works to manage air, land, and water resources in line with traditional and cultural beliefs (San Felipe Pueblo n.d.b).

1.7.1.7 Sandia Pueblo

Sandia Pueblo is located immediately north of Albuquerque. I-25 runs through the Pueblo, and the Rio Grande runs along its western border. The Sandia Mountains to the east provide a variety of natural

resources to the Sandia people and, most importantly, is where their spirituality originates. The Pueblo has approximately 500 tribal members. The Pueblo also has multiple businesses that employ more than 2,000 people in the area (Pueblo of Sandia n.d.a).

The Pueblo's Environment Department work includes, but is not limited to, water management, protecting water rights, restoring habitat, managing waste, and conducting GIS mapping (Pueblo of Sandia n.d.b). The Pueblo's Emergency Management department further provides resources and information on a variety of hazards, including wildfires. Their website connects users to wildfire preparedness guides from Federal Emergency Management Agency (FEMA), the Centers for Disease Control and Prevention (CDC), and the American Red Cross (Pueblo of Sandia n.d.c).

1.7.1.8 Santa Ana Pueblo

Santa Ana Pueblo is located about 25 miles north of Albuquerque on the Rio Grande with I-25 running through the eastern edge. The villages of Rebahene, Ranchitos, and Chicale are located within the Pueblo. Part of the town of Bernalillo also falls within the Pueblo's southern edge. The Pueblo has over 800 tribal members, many of whom speak Keresan in addition to English (Santa Ana Pueblo n.d.a).

Santa Ana Pueblo's Department of Natural Resources is undertaking efforts to reduce the risk of wildfires within the Pueblo to protect natural, cultural, and economic resources as well as their communities. An example is the Oneseed Juniper Density Reduction Project, which began in 2004 and has led to juniper thinning through more than 780 acres followed by prescribed burns for more than 120 acres. The Pueblo also has an Upland Vegetation Strategic Management Plan that addressed woody vegetation thinning as an important component to preventing wildfires (Santa Ana Pueblo n.d.b).

1.7.1.9 Santa Clara Pueblo

Santa Clara Pueblo is located along Santa Clara Canyon and Santa Clara Creek. The westernmost section of the Pueblo lies in the Jemez Mountains, while a significant portion of the city of Española lies in the easternmost section. State Road 30 also runs through the eastern edge of the Pueblo. Grasslands, meadows, woodland, and forest ecosystems can be found in the Pueblo (Santa Clara Forestry Department n.d.).

The Pueblo is Tewa speaking with around 2,500 tribal members. There are about 11,000 individuals living in Santa Clara Pueblo in total (Southwest Tribal Fisheries Commission n.d.). The city of Española has a population of nearly 10,500 (U.S. Census Bureau 2023a), though not all of the city falls within the Pueblo.

Santa Clara has experienced several disastrous wildfires in the last 20 years. The Oso, Cerro Grande, and Las Conchas Fires collectively burned almost 80% of the Pueblo's forested lands. New Mexico's monsoon season has worsened the impacts of these fires and resulted in severe erosion and debris flows. Santa Clara Pueblo is working to implement a variety of strategies to improve the resiliency of their forests in collaboration with a variety of organizations. These strategies include stream restoration, flood and erosion mitigation, prescribed fire, reforestation, vegetation thinning, and increasing internal capacity to respond to disasters (Santa Clara Forestry Department n.d.).

1.7.1.10 Santo Domingo Pueblo

Santo Domingo Pueblo (also known as Kewa Pueblo) is located about 40 miles northeast of Albuquerque and 35 miles southwest of Santa Fe. The Rio Grande and I-25 run through the Pueblo (Santo Domingo Pueblo n.d.a). Kewa Pueblo has more than 4,500 members. The Pueblo has been known for their potters and jewelers for centuries, and artisans continue to sell their pieces today (Santo Domingo Pueblo n.d.b).

The Pueblo additionally houses the Santo Domingo Fire and Emergency Medical Services (EMS) Department, which provides emergency services, including fire response, to the area. The department's EMS covers San Felipe Pueblo and offers secondary response in Pueblo de Cochiti as well (Santo Domingo Pueblo n.d.c).

1.7.1.11 Zia Pueblo

Zia Pueblo is 35 miles northwest of Albuquerque in the Sierra Nacimiento Mountains. The Jemez River runs through the Pueblo. The Pueblo has about 850 tribal members. The sun symbol displayed on the New Mexico state flag and license plates originates from the spirituality of the Zia people (Zia Pueblo n.d.).

1.7.2 COMMUNITIES AT RISK DESIGNATION

The National Fire Plan allocates funding to reduce wildfire risks to communities, with an initial list of high-risk communities within the WUI published in the Federal Register in 2001. These communities are designated and updated through collaboration between states and federal agencies. Briefly after its inception, states took over the responsibility for updates. The New Mexico Fire Planning Task Force (NM-FPTF) is responsible for identifying WUI areas with high vulnerability to wildfires in the state and creates building codes and ordinances to mitigate the threats. Determinations of at-risk communities and high vulnerability are made by the NM-FPTF based on the CWPPs of those communities (EMNRD Forestry Division 2023a). Table 1.4 outlines Sandoval County's communities listed as high, moderate, and low risk.

Table 1.4. Sandoval County Communities at Risk (2025)

High-Risk Communities	Moderate Risk Communities	Low-Risk Communities
Regina	Cuba	
La Jara	Zia Pueblo	
Jemez Pueblo	San Ysidro	
Ponderosa North	Cañon	
Ponderosa South	Santo Domingo Pueblo	
485 Corridor (Gilman and Cañones)	Santa Ana Pueblo	
Jemez Springs	Sandia Pueblo	
Area 1*	Cochiti Lake	
Area 2*	Bernalillo	
Area 3*	Corrales West	
La Cueva	Cochiti Pueblo	
Thompson Ridge	Rio Rancho	
126 Corridor	Puertocito	
Girl Scout Ranch*		
Seven Springs		
Deer Lake*		

High-Risk Communities	Moderate Risk Communities	Low-Risk Communities
Sierra Los Pinos		
Algodones		
San Felipe Pueblo		
Peña Blanca		
Sile		
Corrales East		
Placitas Corridor		
Historic Placitas		
La Madera		
Evergreen Hills		

*2025 CWPP Community Assessment Rating listed as “Extreme”

1.7.3 SOCIAL VULNERABILITY

FEMA defines social vulnerability as the susceptibility of social groups to the negative impacts of natural hazards (e.g., wildfire), which include disproportionate death, injury, loss, or disruption of livelihood (FEMA 2023). A sole hazard occurrence can bring about considerably different impacts for distinct individuals, even if the magnitude of the hazard was the same for the entire community. Specific groups of individuals may be more susceptible to natural hazards because of socioeconomic status, physical state, or other factors. For instance, elderly individuals may have more difficulty in quickly evacuating during wildfire emergencies, which may make them more susceptible to entrapment.

Socially vulnerable populations can be assessed using a social vulnerability index (SVI), which approximates the social vulnerability of a location based on multiple indicators, including socioeconomic status, household characteristics, racial and ethnic minority status, and housing type and transportation. This CWPP uses SVI data acquired from the Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR). These data are derived from the U.S. Census Bureau’s 2020 American Community Survey 5-year estimate. For more information, visit <https://www.atsdr.cdc.gov/place-health/php/svi/index.html>.

According to the CDC/ATSDR SVI for 2022, Sandoval County has a range of social vulnerabilities, with medium-high and high vulnerability scores for most of the western half of the county (Figure 1.3).

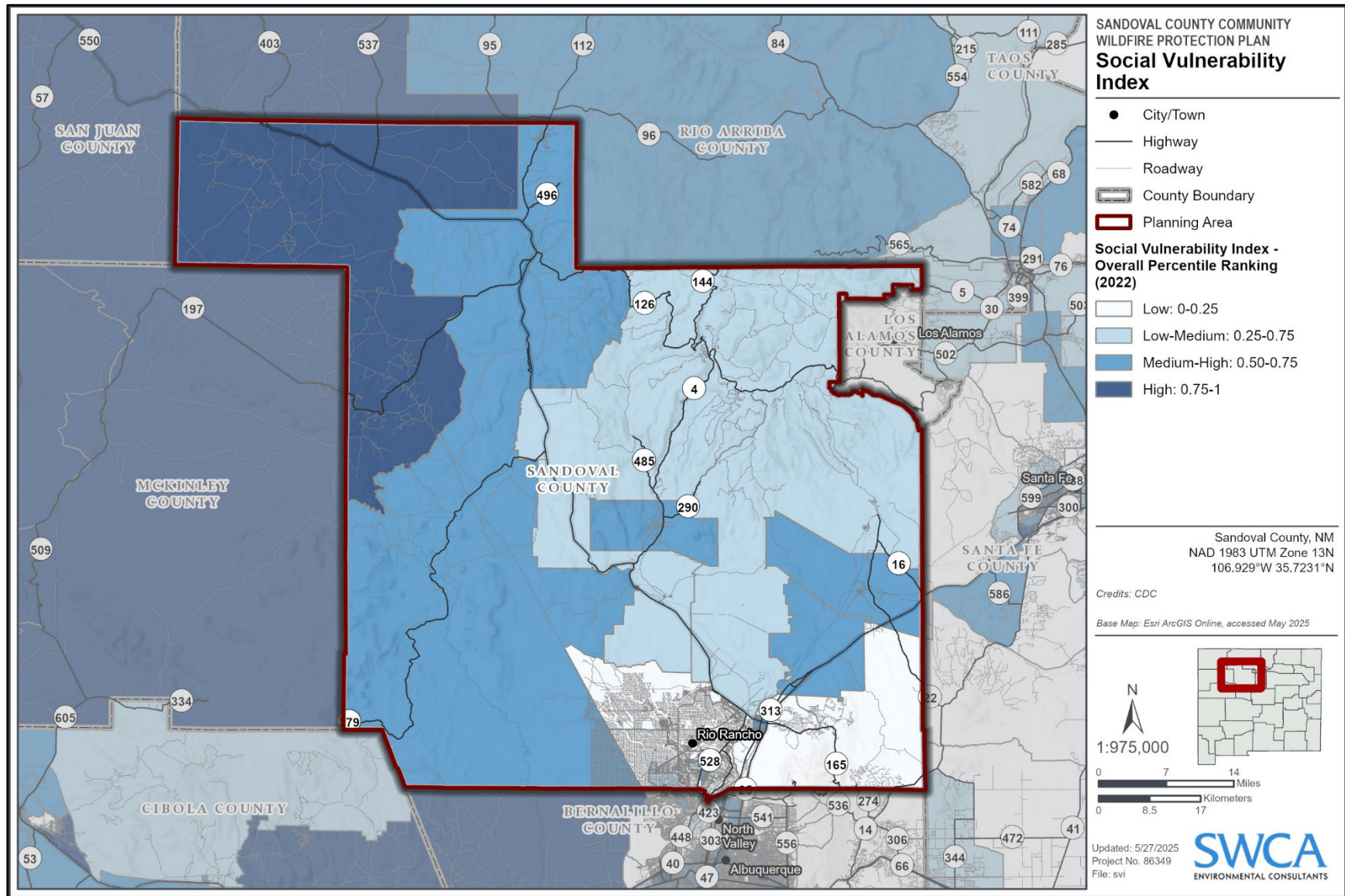


Figure 1.3. CDC overall social vulnerability index (SVI) for Sandoval County.

1.7.4 LAND OWNERSHIP

Sandoval County possesses a relatively diverse range of federal, state, local, private, and other land ownership. The BIA accounts for the largest share at 42.9%, followed by the Bureau of Land Management (BLM) at 22.4%, and private land at 14.7%. National Forest covers 12.9% and National Parks cover 4.0% of the total land, and include the Valles Caldera National Preserve, Bandelier National Monument, Santa Fe National Forest, San Pedro Parks Wilderness, and Cibola National Forest. Smaller land cover percentages are allocated to categories such as New Mexico State, Department of Education, and Department of Defense, each representing a relatively small portion of the total land area (Table 1.5, Figure 1.4).

Table 1.5. Land Ownership Within Sandoval County

Ownership	Acres	Percent
Bureau of Indian Affairs	1,285,372.9	42.9
Bureau of Land Management	627,116.6	22.4
Private	441,197.9	14.7
U.S. Forest Service	387,367.2	12.9
National Park Service	120,728.0	4.0
State of New Mexico	77,675.4	2.6
Department of Education	4,936.9	0.1
Department of Defense	2,178.2	<0.0

1.7.5 ROADS AND TRANSPORTATION

The primary routes across the county include I-25, U.S. Highway 550, and New Mexico State Road 4. Much of Sandoval County is accessible via surfaced roads and highways; however, some communities, mainly those within the WUI, are accessed only via unsurfaced roads, which are often narrow and winding. In addition, some communities adjacent to the WUI are limited to one major road in and out, have dead ends or locked access gates, or are located on steep slopes. These access roads are particularly hazardous during emergency evacuation, especially where they are lined by thick, dense, and/or overhanging vegetation. Fuel treatment may be needed along some roads with encroaching vegetation that could prevent safe evacuation of residents or safe access by emergency responders.

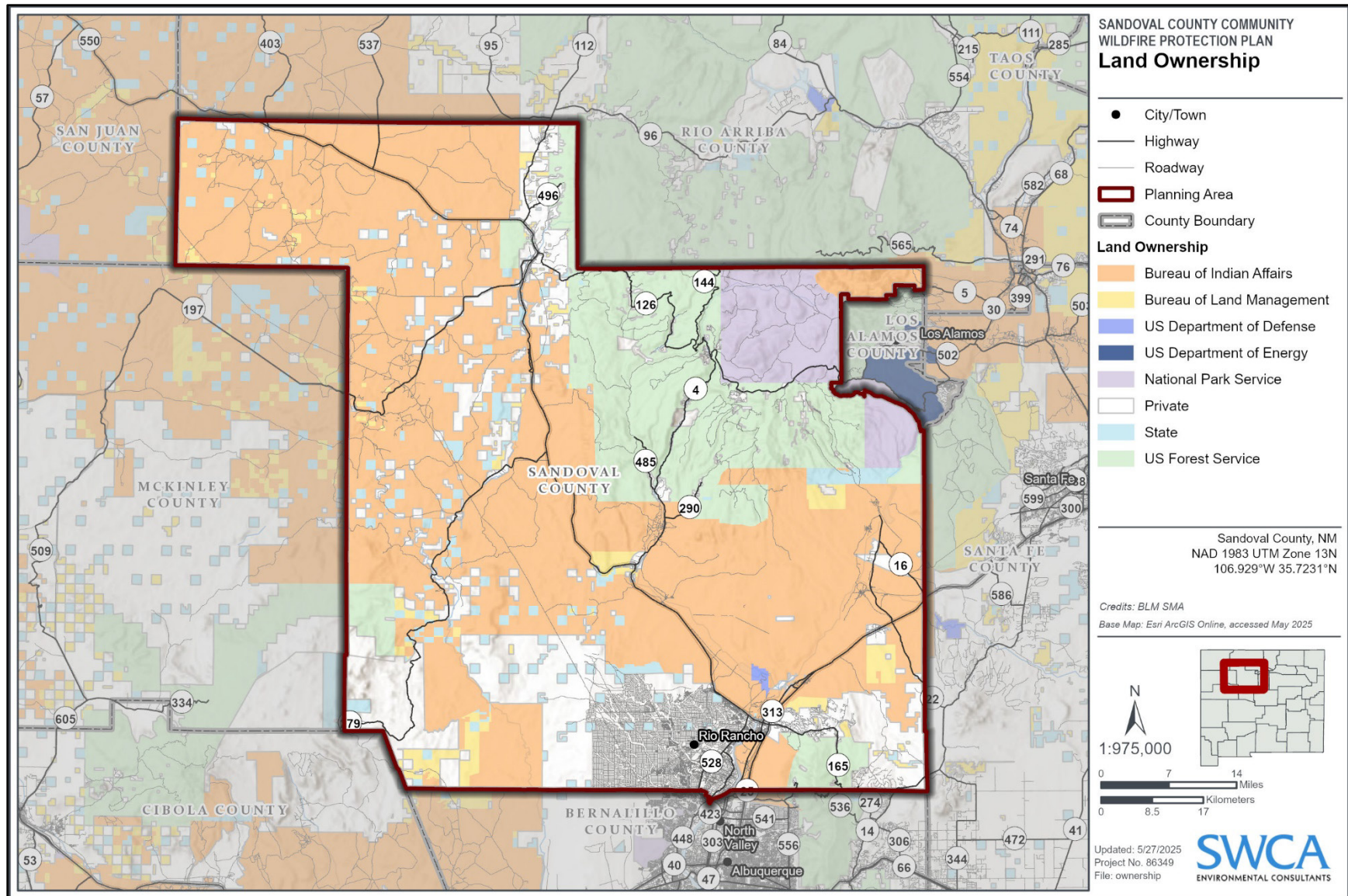


Figure 1.4. Sandoval County land ownership.

1.7.6 TOPOGRAPHY

Sandoval County contains a diverse topographical landscape that includes mountain ranges, canyons, river basins, a giant caldera, rolling hills, and relatively flat terrain (Figures 1.5 and 1.6). Elevations in Sandoval County range from 5,026 feet to 11,257 feet. Three major river systems transect Sandoval County: the Rio Puerco in the west half, the Jemez River in the central portion, and the Rio Grande in the county's southeast corner.

The Rio Grande watershed, of which Sandoval County is part, is the fifth largest in North America, and for much of its course, the river follows the Rio Grande Rift, which extends from central Colorado to southern New Mexico. The Rio Grande Rift is bordered by three major physiographic provinces: the Colorado Plateau to the northwest, and the southern Rocky Mountains and Great Plains to the east (New Mexico Bureau of Geology and Mineral Resources 2007). The west half of Sandoval County lies within the Colorado Plateau, and the east half within the southern Rocky Mountains. Below the Cochiti Dam, the river flows into a relatively broad basin as it eventually flows out from the county's southeast corner.

The Jemez Mountains are located in the county's northeast corner as a subrange of the Southern Rocky Mountains and extend into Los Alamos County and a small portion of Santa Fe and Rio Arriba counties. The highest peak in this range within Sandoval County is Redondo Peak at 11,254 feet; this peak is within the Valles Caldera National Preserve, which encompasses the massive caldera of Valle Grande.



Figure 1.5. Mountainous, tree-covered landscape in Sandoval County where topography may contribute to more intense wildfire behavior.



Figure 1.6. Lower-lying landscape in Sandoval County showing the contrast between topographic hazards.

1.7.7 POPULATION

Sandoval County, which was very rural and sparsely settled in the past, has far exceeded every other county in the state in population growth (Mid-Region Council of Governments 2008). In 2023, the human population within Sandoval County was 155,936, which represented less than 1% of the entire population of New Mexico. Populations within the county have grown over the past several years and are continuing to grow. The population in Sandoval County has experienced a steady increase of about 42% from 1990 to 2000, increased by 25.6% from 2000 to 2006 to an estimated population size of 113,772, and has continued to grow by 37% from 2006 to 2023 to an estimated population size of 155,936 (U.S. Census Bureau 1990, 2001a, 2001b, 2023b).

Within the entire range of the planning area, economic and employment statistics are quite variable depending on the community and available employment opportunities. The state of New Mexico had an overall median household income of \$58,722, while Sandoval County had a median income of \$76,424. Communities within the county such as the Village of Corrales and Placitas had much larger median household incomes of \$105,216 and \$94,966 in 2023, respectively.

1.7.8 RECREATION

Sandoval County has a variety of outdoor recreational opportunities at the several county, state, and national parks within the county. Sandoval county has one state park, Fenton Lake State Park, managed by New Mexico State Parks Division of the EMNRD , which offers 700 acres, including 37 acres of lake surface. The park provides one trail for cross-country skiing, as well as fishing access for the stocked lake from fall through spring, winter ice-fishing, and many campsites. Valles Caldera National Preserve, managed by the National Park Service (NPS) and spanning 88,900 acres, offers a unique landscape

shaped by a volcanic caldera. The preserve offers a wide variety of ecosystems due to the unique formation; the landscape is a juxtaposition of large grassland meadows and forest-covered volcanic domes. The preserve offers hiking fishing, mountain biking, horseback riding, and cross-country skiing opportunities. The Santa Fe National Forest spans 1.6 million acres with over 1,000 miles of hiking trails, camping, hunting, fishing, mountain biking, and winter sports. San Pedro Parks Wilderness is part of the Santa Fe National Forest and contains more than 168,000 acres of wilderness area. Recreation activities include hiking, backpacking, camping, hunting, and fishing. The Cibola National Forest is 1,633,786 acres. The Sandia District encompasses land in southeastern Sandoval County. The Sandia are the most visited mountains in New Mexico, providing visitors with hiking, rafting, mountain biking, equestrian activities, and winter sports. Bandelier National Monument provides camping, hiking, and wildlife viewing, as well as historical and cultural sites. In addition, the bosques in Corrales, Bernalillo, and Peña Blanca provide low impact, non-motorized access for fishing, trail uses (including hiking, biking, and equestrian), picnicking, and river activities.

Areas of Sandoval County with high recreational opportunity, when paired with the influx of tourists to the county from spring through fall, may be at a greater risk for human-caused wildfire ignitions and complicated emergency management and evacuation. County, state, and national park organizations may want to consider an increase in wildfire pre-planning to establish evacuation routes for recreationists. These organizations may also consider additional education and outreach programs to teach visitors about wildfire safety and prevention within recreational areas as visitation increases.

1.7.9 VEGETATION AND LAND COVER

Vegetation types within Sandoval County are primarily a function of elevation, slope, aspect, substrate, and associated climatic regimes. Characteristics in vegetation communities are quite variable from site to site because elevation and topography exhibit a broad range across the county. The county has a wide variety of land cover types including mountainous forested regions, expansive open-shrubland, herbaceous habitat, agricultural land, and developed and sparse land cover (Figure 1.7).

Dominant vegetation types within the county are described based on a large spatial scale and represent the overall community structure that will play a general role in fire occurrence and behavior. Although the vegetation types are outlined and described for the entire county in this plan, site-specific evaluations of the vegetative composition and structure in each area of focus should be taken into consideration when planning fuels treatments.

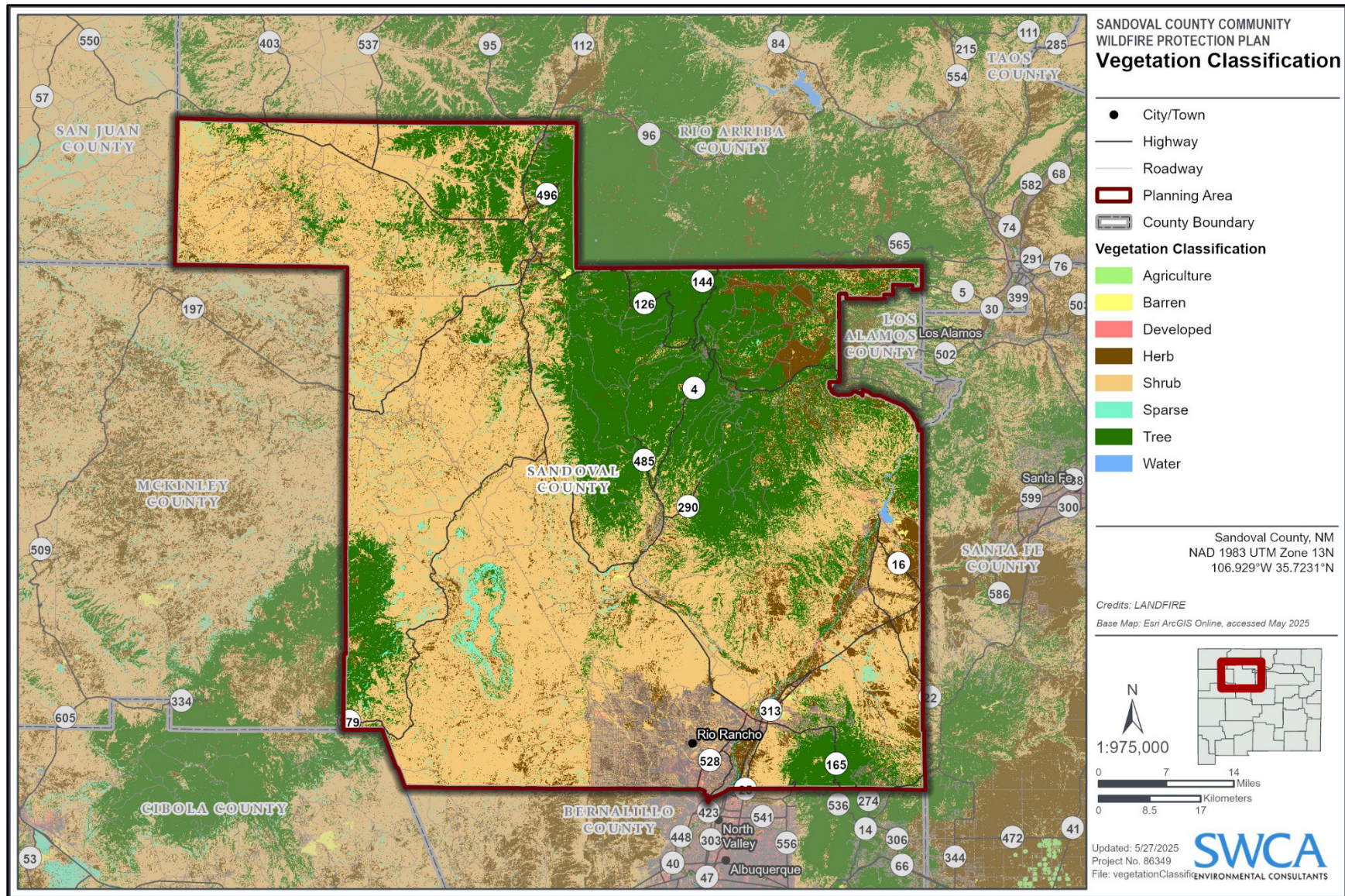


Figure 1.7. Sandoval County existing vegetation cover.

1.7.10 FOREST HEALTH CONSIDERATIONS

1.7.10.1 Tree Mortality

Rising temperatures, drought, and insect outbreaks have contributed to increased tree mortality in and around Sandoval County. Tree mortality due to the aforementioned factors is a natural process in forest ecosystems. However, if due to compound disturbances or other factors a significant number of trees die in a brief time period over large regions, forest health may be negatively affected. In addition to disrupting ecosystem processes, widespread tree mortality near developed or recreational areas present hazards as trees can fall and potentially endanger the public and infrastructure. Moreover, dead trees function as a fuel that will readily burn as they contain lower moisture and, in conjunction with the fuel aridity of the surrounding environment, may result in larger and more intense fires (Goodwin et al. 2021).

Approximately 90% of tree mortality in New Mexico each year has been due to native bark beetles. Insects have caused more tree mortality than any other biotics or abiotic agent, including wildfire (Raffa et al. 2008). Under healthy forest conditions bark beetles play a beneficial role in ecosystem function by killing stressed, over-mature, overstocked, or otherwise unhealthy trees. In stressed or otherwise unhealthy forest conditions bark beetle induced tree mortality can have substantial negative impacts to ecological processes, such as altering the carbon uptake of forests. Even if drought conditions improve in a given year, trees continue to be severely drought-stressed; significant trends in decreased drought conditions must continuously occur to decrease overall forest drought stress. As of 2023, 1.6 million acres of forests across the state have been mapped with bark beetle killed trees over the last decade, 298,000 of which were spruce beetle kill, 500,000 were bark beetle kill in ponderosa pine forests, 307,000 were mixed-conifer beetle kill, and 357,000 were piñon bark beetle kill (EMNRD Forestry Division 2022).

1.7.10.2 Impact of Climate Change

Frequent drought, fire suppression-based forest management tactics, and climate change have all worked together to increase forest vulnerability. Removing natural fire from a fire-dependent ecosystem, drought, insects, and diseases have resulted in increased fuel buildup and alterations to vegetation composition (Goodwin et al. 2021). These forest changes can increase the risk of uncharacteristically large high-severity fires (Goodwin et al. 2021; Schoennagel 2017). In the past few years, fires have grown to record sizes and are burning earlier, longer, hotter, and more intensely than they have in the past (Westerling et al. 2006; Westerling 2016).

According to the National Interagency Fire Center (NIFC), occurrence of catastrophic wildfires has greatly increased over the last 20 years. Westerling et al. (2006) claim that a study of large (>1,000 acres) wildfires throughout the western United States for the period of 1970 to 2003 saw a pronounced increase in fire frequency since the mid-1980s (1987–2003 fires were four times more frequent than the 1970–1986 average).

An update to Westerling et al.'s 2006 work found that the frequency of large wildfires has continued to increase with each decade since 1970 (Westerling 2016). Within just the last 10 years, a record number of acres have burned, and numbers consistently remain high (NIFC 2023a). In 2023, 56,580 fires were reported nationwide, burning 2.7 million acres (NIFC 2023a). In New Mexico, 123,792 acres were burned by wildfire in 2021 (NIFC 2021). This was followed by 859,906 acres burned by wildfire in 2022 and 212,378 acres in 2023 (NIFC 2022b, 2023b). To date in 2024, 58,123 acres have burned in New Mexico (NIFC 2024). With increased fires comes increased suppression costs; federal firefighting costs hit

\$3,166,300,000 in 2023, with average spending over the past 5 years reaching nearly \$3 billion per year (NIFC 2023c).

The shifting climate, particularly rising temperatures, frequent drought, and the extension of the fire season, are considerably escalating wildfire risk across the state. The length of the fire season in the southwestern United States has increased significantly since 1979; and since the 1970s, the frequency of large fires has increased dramatically. Specifically, the occurrence of large fires has increased by 462% in southwestern U.S. forests (Schoennagel 2017). When accounting for climate change, this pattern is expected to amplify in the future and promote wildfire potential across western U.S. forests (Abatzoglou and Williams 2016). However, it should be noted that the impact of climate change to a particular fire regime will be contingent upon year-to-year climate variability and ecosystem type. For instance, synchronous fires across spruce-fir forests in New Mexico coincide with drought conditions or, in the case of open ponderosa pine forests, a wet year followed by a dry year (NPS 2017).

New Mexico has already begun to experience the impacts of increased fire occurrence and severity. In fact, the five largest wildfires in New Mexico's recorded history occurred in the last 15 years. In 2022, the Calf Canyon/Hermits Peak Fire burned 341,735 acres and the Black Fire burned 325,136 acres. The 2013 Silver Fire burned more than 138,000 acres with another 297,845 acres burned in the 2012 Whitewater-Baldy Fire. The Las Conchas Fire burned another 156,593 acres in 2011 (Cook 2024). It is evident that large and severe fire events continue to pose a significant threat to New Mexico's communities.

In addition to direct damage (e.g., structure and property damage) caused by wildfires, abnormally large and severe wildfires also cause indirect impacts to the environment and ecosystem. Uncharacteristically large and severe wildfires may deteriorate local and regional air quality, pollute waterways, displace native species (animal and plant), and increase carbon dioxide emissions. The increased carbon dioxide emissions are of special concern since carbon dioxide is a greenhouse gas. Greenhouse gases are implicated in climate change, and climate change is a critical factor exacerbating frequency and severity of wildfires (NPS 2017).



2.1 WILDLAND-URBAN INTERFACE

The wildland-urban interface (WUI) is composed of both interface and intermix communities and is defined as areas where human habitation and development meet or intermix with wildland fuels (DOI and U.S. Department of Agriculture [USDA] 2001:752–753).

Interface areas include housing developments that meet or are in the vicinity of continuous vegetation. Intermix areas are those areas where structures are scattered throughout a wildland area where the cover of continuous vegetation and fuels is often greater than cover by human habitation.

In addition, the WUI has an area of influence, or influence zone. This area is described with respect to wildland and urban fire; it is an area with a set of conditions that facilitate the opportunity for fire to burn from wildland fuels to the home and or structure ignition zone (National Wildfire Coordinating Group [NWCWG] 2021).

A CWPP offers the opportunity for collaboration of land managers to establish a definition and a boundary for the local WUI; to better understand the unique resources, fuels, topography, and climatic and structural characteristics of the area; and to prioritize and plan fuels treatments to mitigate for fire risks.

According to the HFRA, the WUI can be defined by a CWPP. In this CWPP, the WUI (Figure 2.1) is defined as:

- An area extending 1.5 miles from the boundaries of the communities in each corridor as evaluated in the 2007–2008, 2012, and 2025 Sandoval County CWPP.
- The 2007–2008, 2012, and 2025 Sandoval County CWPP identified five corridors: Greater Cuba, Jemez Springs, Jemez Mountains, Rio Grande, and Sandia Mountains

Additionally, in the event a strategic fuel project enhances community protection, the WUI boundary may extend beyond the traditional 1.5-mile buffer to include areas where the strategic project would be

completed. For example, sustained slopes and ridgelines may continue beyond the 1.5-mile buffer. However, it is still important that project work is completed in those high-risk areas. Therefore, the entire strategic planning area would be considered as WUI, not just the sections within the 1.5-mile buffer.

Communities were delineated prior to the on-the-ground community hazard assessments and were based on the presence of homes and structures surrounded by wildland fuels. Buffers representing the 1.5-mile area for WUI as defined above are presented in Appendix C for each community.

Figure 2.1 shows the WUI locations in Sandoval County, and Figures 2.2 and 2.3 are photographs of the WUI in the county.

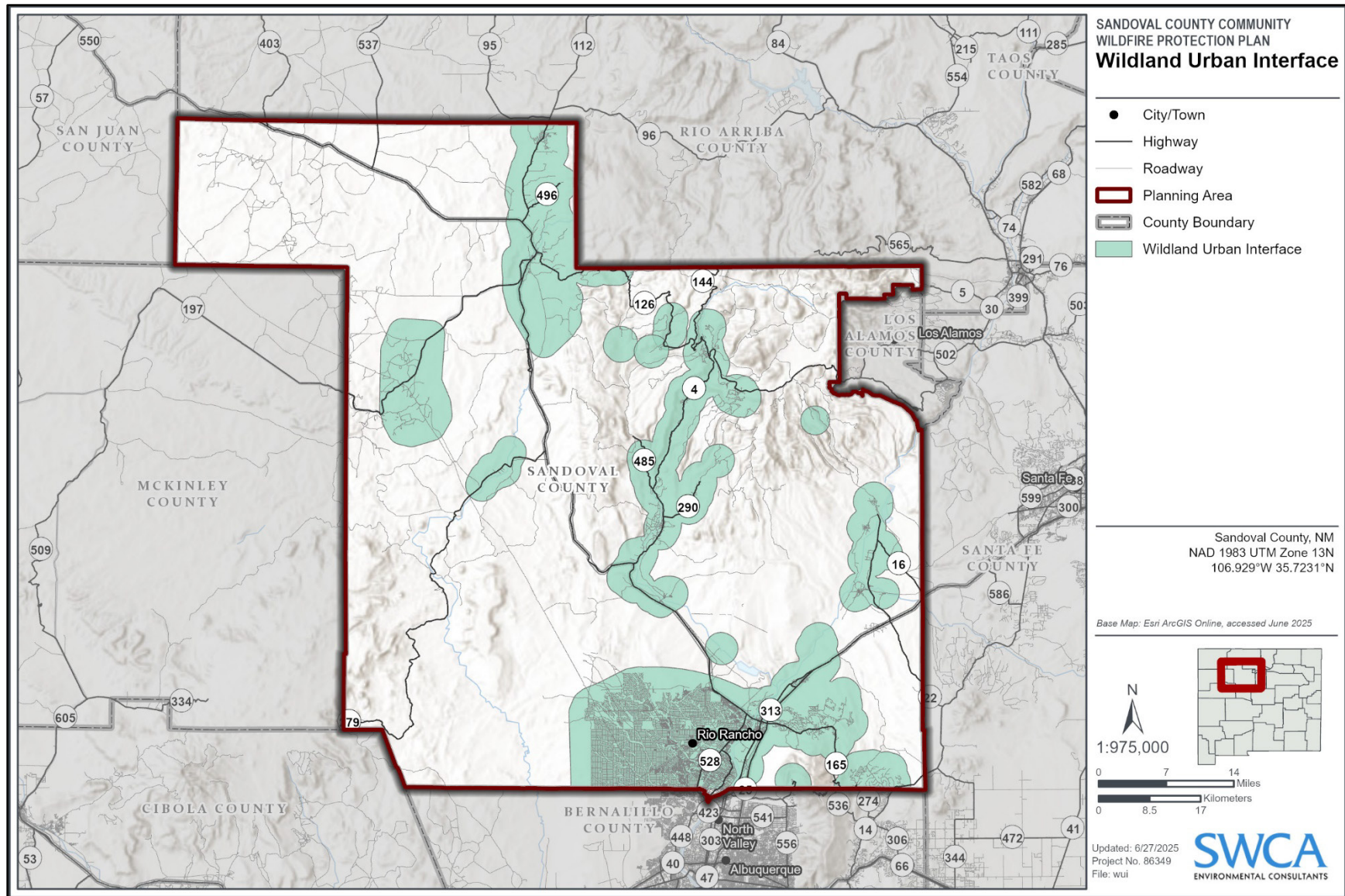


Figure 2.1. WUI in Sandoval County.



Figure 2.2. Example of the WUI intermix in Jemez Springs.



Figure 2.3. Example of the WUI intermix in Sierra Los Pinos.

2.1.1 FUELS AND TOPOGRAPHY WITHIN THE WILDLAND-URBAN INTERFACE

The west half of the county is predominantly composed of grassland fuels, transitioning into grass-shrub and shrubland-dominated fuels with increasing elevation. Grassland communities are primarily characterized by semidesert grasslands, which are relatively sparse and usually occur on flat to rolling topography at lower elevations. Grasslands may occur as pure herbaceous stands, a shrub-steppe community, or a juniper savanna. Grasslands fuel types are found predominantly in the southeastern portion of the county and in scattered patches throughout the western portion of the county. Grasslands are typically sparse and discontinuous, occurring at lower elevations on flat or rolling topography as pure stands or juniper savanna. Grassland fires move quickly under windy or steep conditions and can easily spread into adjacent fuel types.

At lower to mid-elevations, piñon-juniper woodlands are the primary fuel type. Due to changes to fire regimes within these stands, they have dramatically changed from being open and patchy maintained by frequent, low-intensity surface fires, and are now composed of dense stands with a closed canopy. The results of fire suppression in this fuel type has led to a higher likelihood of stand-replacing crown fires, especially if wind is present or on steep topography.

At high elevations, pure stands of ponderosa pine are present in the northeastern portion of the county in the Jemez Mountains. These stands currently exist as dense stands with an understory of saplings and younger trees. Current conditions lead to increased likelihood of a wildfire to extend to the canopy due to the presence of adequate ladder fuels.

Sandoval County's vegetation communities can be categorized into fuel models based on expected fire behavior. These models are grouped by fire behavior characteristics, as shown in Figure 2.4. Detailed descriptions of each fuel model and its anticipated fire behavior are provided in Section 3.3.3.1 of Chapter 3.

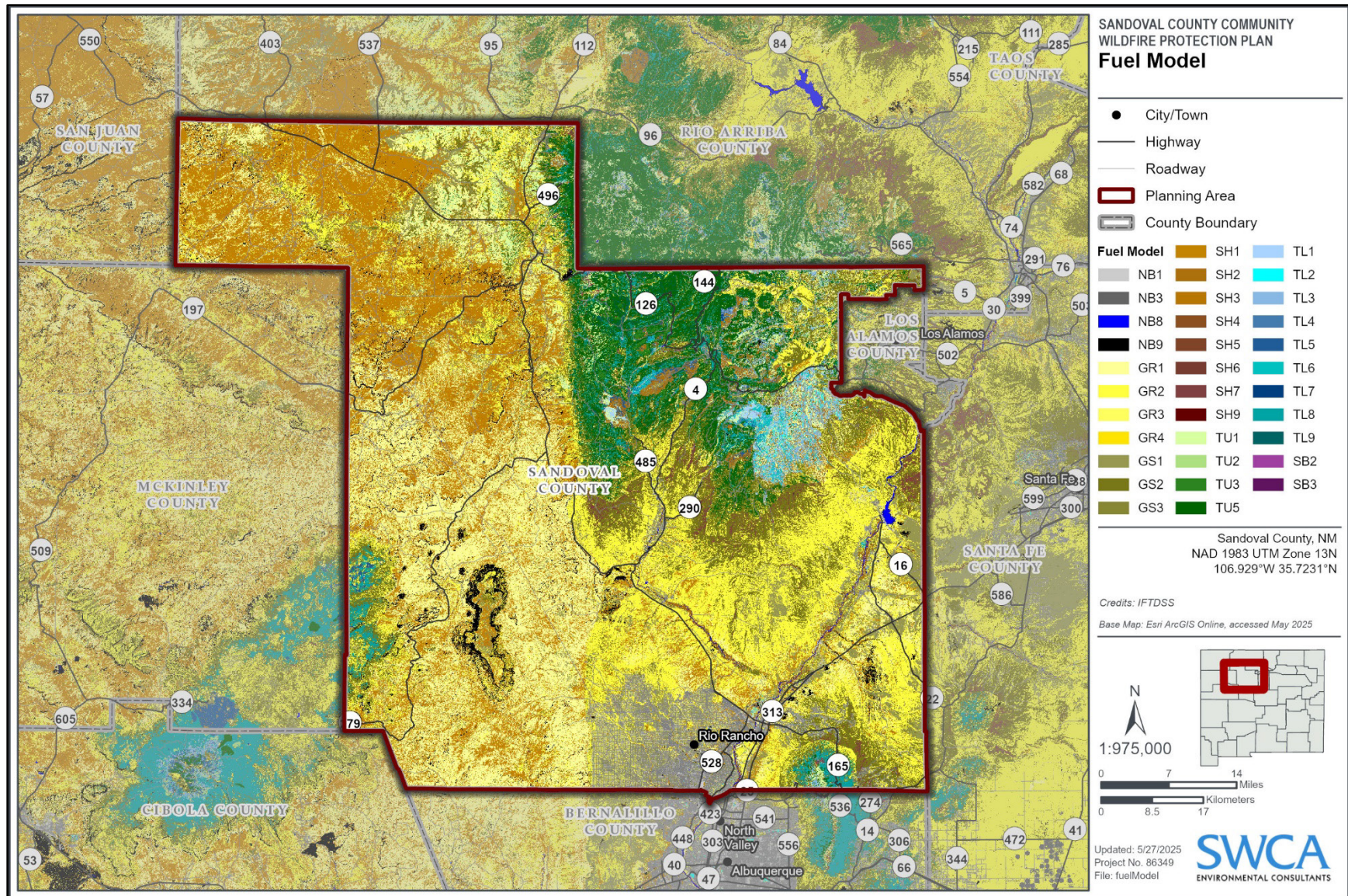


Figure 2.4. Scott and Burgan Fire Behavior Fuel Models across Sandoval County.

2.2 FIRE REGIMES

Fires are characterized by their intensity, the frequency at which they occur, the season in which they occur, their spatial pattern or extent, and their type. Combined, these attributes describe the fire regime. In order to classify, prioritize, and plan for fuels treatments across a fire management region, methods have been developed to stratify the landscape based on physiographic and ecological characteristics. Fire regimes in the western United States have changed dramatically within the past several decades.

Prior to European settlement throughout the West in the 1800s, human and lightning caused fires burned more frequently and less intensely across the landscape. Following European settlement, landscape alterations ranging from fire suppression, increase in livestock grazing, and land use change has dramatically changed natural conditions and fire regimes (Stephens and Sugihara 1996).

Historically, fire regimes within the wildlands in Sandoval County were largely a function of the dominant vegetation, where grasslands, open shrub-steppe communities, and ponderosa pine forests had relatively frequent, low-intensity surface fires. Piñon-juniper woodlands and sub-alpine forests, however, typically experienced infrequent high-severity fires. These historical regimes would typically create a mosaic of different stages of vegetative structure across the landscape. For the most part, these fires have helped to preserve an open vegetative community structure by consuming fuels on the ground surface, which has maintained open meadows and cleared the forest understory of encroaching vegetation. However, the forested portions of the county, e.g., the Santa Fe and Cibola National Forests, have departed from historical fire regimes (USFS 2022a). This departure from historical fire regimes has caused recent wildland fires to burn much more intensely and unpredictably in many areas of New Mexico (EMNRD Forestry Division 2020).

It is important to address here the common misconception that all southwestern forests have historically exhibited low-intensity frequent surface fire regimes. This is not always the case, as many of the higher-elevation (8,500 feet and above) spruce-fir and mid-elevation mixed-conifer forests would have naturally experienced infrequent stand-replacing fires as part of their natural regeneration cycle (Fulé et al. 2003; Touchan et al. 1996), so for these forest types, restoration to more open stands is not always appropriate. At lower elevations, plants and animals are adapted to historical frequent, low-severity fire regimes and are therefore not resilient to the high-severity, extensive wildfires burning today (Keane et al. 2002). Human influences regarding fire regimes have therefore been greatest at these low-elevation sites. An additional factor contributing to the natural disturbance regime in southwestern forests are outbreaks of bark beetle (*Ips*, *Dendroctonus*, and *Scolytus* spp.), which have locally killed significant numbers of spruce (*Picea* sp.), fir (*Abies* sp.), Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), and piñon pine (*Pinus edulis*) trees throughout the planning area (EMNRD Forestry Division 2023b).

2.2.1 GRASSLANDS AND SHRUB-STEPPE

This vegetation type covers an elevational range from approximately 4,700 up to 7,600 feet in the surrounding foothills. Grassland fires can move quickly under dry, windy, and steep conditions, often reaching speeds of over 300 feet per minute. Previous work has suggested that the historical fire return intervals for grasslands and steppe throughout the seventeenth to early nineteenth centuries were every 10 to 30 years (Schussman et al. 2006). Recent fire suppression policies may have contributed to declining fire frequency in this vegetation type, but other interacting factors may have contributed as well. Beginning in the latter half of the nineteenth century, intensive livestock grazing is thought to have been responsible for a decline in grassland fires (Touchan et al. 1996; West 1984). Heavy grazing reduced the

fuels available to propagate fire spread and also reduced competition with herbaceous plants, tipping the balance in favor of the woody species. Woodland encroachment, increased tree density, and altered fire behavior characterize many former grasslands of the Southwest. Once woody plants become dominant, their long lifespans and their ability to extract both shallow and deep soil moisture can maintain a woodland condition indefinitely (Burgess 1995). Frequent fire plays a significant role in grassland nutrient cycling and successional processes, and long-term exclusion may produce irreversible changes in ecosystem structure and function (McPherson 1995).

2.2.2 PIÑON-JUNIPER WOODLANDS

The fire ecology of piñon-juniper woodlands is complex and not fully understood. Fire disturbances in these woodlands are believed to have been relatively infrequent, playing a more significant role in transitioning piñon-juniper areas to savannah and ponderosa pine ecotones. Romme et al. (2007) categorized piñon-juniper into three subtypes: areas of potential woodland expansion and contraction, piñon-juniper savannas, and persistent woodlands.

Woodland Expansion and Contraction:

These zones represent areas where piñon-juniper boundaries have historically shifted, often encroaching into grasslands due to various environmental factors. The expansion of woodlands into these areas is part of long-term trends rather than solely recent land use changes.

Piñon-Juniper Savannas:

Typically found in lower-elevation sites with deep soils, savannas consist of scattered trees in a grass matrix. The natural fire return interval in savannas is believed to be more frequent due to the higher density of ground fuels compared to that of persistent woodlands.

Persistent Woodlands:

Located on rugged uplands with shallow soils, these woodlands are characterized by older, denser trees and sparse understory vegetation. Research suggests that their natural fire regime involved infrequent, high-severity fires, with fire return intervals potentially spanning hundreds of years.

Overall, frequent low-intensity surface fires are not typical in piñon-juniper woodlands. Fire exclusion may not have significantly impacted these ecosystems, and restoration efforts should be cautious given the uncertainties about historical conditions and natural fire regimes.

2.2.3 PONDEROSA PINE FORESTS

Recent studies indicate that the mean fire return interval in New Mexico's Ponderosa Pine ecosystems is approximately nine years (McKinley 2023). Ponderosa pine stands, which exist in higher-elevation and steeper portions within the county, are fire-adapted ecosystems that were historically maintained by frequent, low-intensity fires. Throughout the Southwest, extensive fire history studies have documented historic fire frequencies in ponderosa pine forests using tree-ring data (Allen et al. 2002). Large variation in the spatial and temporal scales of fires in ponderosa pine forest was common and was usually based on forcing factors, such as seasonality, regional climate, elevation, aspect, and other site conditions. The effects of fire exclusion on forest structure are thought to be more profound in forests that previously sustained frequent, low-intensity surface fires (Westerling et al. 2006), and it is likely that fire exclusion was a primary cause of departure from historical conditions in ponderosa pine forests. Historically, frequent fire would have consumed fuels on the ground surface and culled young trees to maintain an

uneven age distribution and mosaic pattern throughout the forest (Allen et al. 2002). Frequent fire disturbance maintained an open, park-like forest structure with canopy openings and an abundant herbaceous and shrubby understory (Cooper 1960; Covington and Moore 1994; Weaver 1947). In contrast to this historic structure, modern ponderosa stands are often overly dense with an understory of younger trees, increasing the likelihood for a fire to be lifted into the canopy. In areas where canopy spacing is less than 20 feet, there is increased crown fire hazard and potential for long-range spotting, especially in the presence of wind and steep slopes.

2.2.4 MIXED-CONIFER/SPRUCE-FIR FORESTS

Often forest patches affected by low- and high-severity fire are closely juxtaposed in a transition zone made up of a forest type known as mixed conifer (Fulé et al. 2003). Fire histories in mixed-conifer forests vary with forest composition, landscape characteristics, and human intervention, but tend to exhibit mixed-severity fire regimes with both low-intensity surface fires and patchy crown fires (Touchan et al. 1996). Mixed-severity fire regimes are the most complex fire regimes in the western United States because of their extreme variability (Agee 1998, 2005).

A mixed-severity fire regime exists where the typical fire, or combination of fires over time, results in a complex mixture of patches of different severity, including unburned, low-severity, moderate-severity, and high-severity patches (Agee 2005). Ponderosa pine was once co-dominant in many mixed-conifer forests with relatively open stand structures, but fire suppression has allowed the development of dense sapling understories, with regeneration dominated by the more fire-sensitive Douglas-fir, white fir (*Abies concolor*), and Engelmann spruce (*Picea engelmannii*). Forest stand inventory data from Arizona and New Mexico show an 81% increase in the area of mixed-conifer forests between 1962 and 1986. Herbaceous understories have been reduced by denser canopies and needle litter, and nutrient cycles have been disrupted. Heavy surface fuels and a vertically continuous ladder of dead branches have developed, resulting in increased risks of crown fires (Touchan et al. 1996). Thus, across New Mexico there has been an increase in both mixed-conifer forests and the likelihood of these forests experiencing high-severity fire.

Spruce-fir forests that occur at higher elevations across the southwestern United States typically exhibit high densities (782–1,382 trees/acre), high basal areas (28–39 square meters per hectare [m^2/ha]), continuous canopy cover (52%–61%), and increased woody debris (28–39 m^2/ha). These forest characteristics naturally support high-intensity and severe stand-replacing fires (Fulé et al. 2003) and an infrequent fire regime. Approximately 80% or more of the aboveground vegetation is either consumed or dies as a result of such fire.

2.2.5 RIPARIAN WOODLAND COMMUNITIES

Native riparian vegetation in the bosque is not adapted to fire, and fires did not typically occur within this ecological zone. As a result, fire can influence the composition and structure of riparian ecosystems. The ecology of this habitat type has changed significantly over time, as fire-adapted invasive species such as saltcedar (*Tamarix* spp.) and Russian olive (*Elaeagnus angustifolia*) have invaded many areas. Once saltcedar has been established at a location, it increases the likelihood that the riparian area will burn and, as a result, alter the natural disturbance regime. This is of particular concern along the WUI that borders the Rio Grande riparian areas. Saltcedar and Russian olive both sprout readily after fire, and although cottonwood (*Populus* sp.) will also regenerate after fire, it typically has limited survival of resprouting individuals. Studies have found that the density of saltcedar foliage is higher at burned sites than unburned sites within riparian areas (Smith et al. 2006).

2.3 CLIMATE AND WEATHER PATTERNS

The climate of the county is heavily influenced by its topography and elevation. New Mexico has a generally warm and arid climate, with elevation being the contributing factor to most variation within the state. Within the county, areas of lower elevation experience higher peak temperatures during the summer months, when peak temperatures occur. Areas of high elevation throughout the county experience cooler winter temperatures on average than areas of the county in lower-elevation ranges. For portions of the county in mountainous regions of higher elevation, precipitation also occurs in the winter months in the form of snowfall.

Precipitation in Sandoval County is typical of New Mexico, with the highest amounts of precipitation occurring in July and August. Precipitation in summer months is referred to as monsoons, and are typical in New Mexico, monsoon season typically lasts from June through September, it is associated with heavy rainfall and potential thunderstorms. Monsoons typically indicate the end of the fire season in New Mexico as the increased precipitation reduces ignitability and increases relative humidity of fuels. Precipitation ranges from 3.35 inches per month in the mountainous regions to 1.7 inches per month in the lower-elevation region of the county during monsoon season.

The annual average temperature ranges from 25 to 72 degrees Fahrenheit, with lower temperature extremes dropping to 10 degrees in winter months and highs rising over 90 degrees in summer months. Winter temperatures range from 10 to 55 degrees with an average temperature of approximately 30 degrees. Spring temperatures range from 24 to 80 degrees with an average of approximately 50 degrees. The temperature range for summer is 36 to 95 degrees with an average temperature of approximately 75 degrees.

Monthly climate normals (30-year averages) for the county are graphed by weather stations below (Figures 2.5–2.7). Differences in average temperature and precipitation occur across the county and should be noted when considering local conditions.

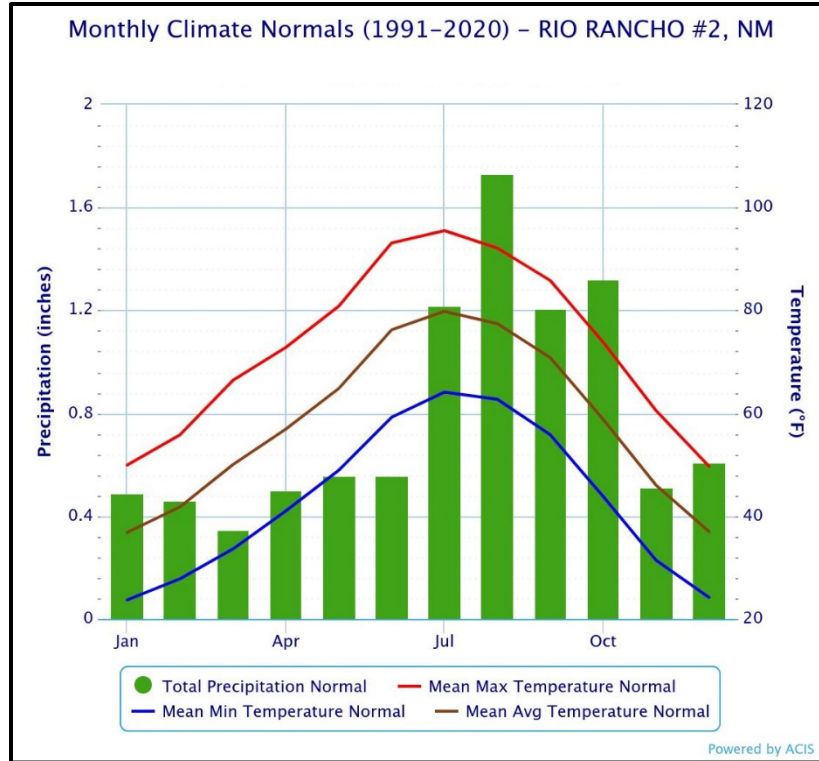


Figure 2.5. Average temperature and precipitation in Rio Rancho.

Source: National Weather Service (2024a)

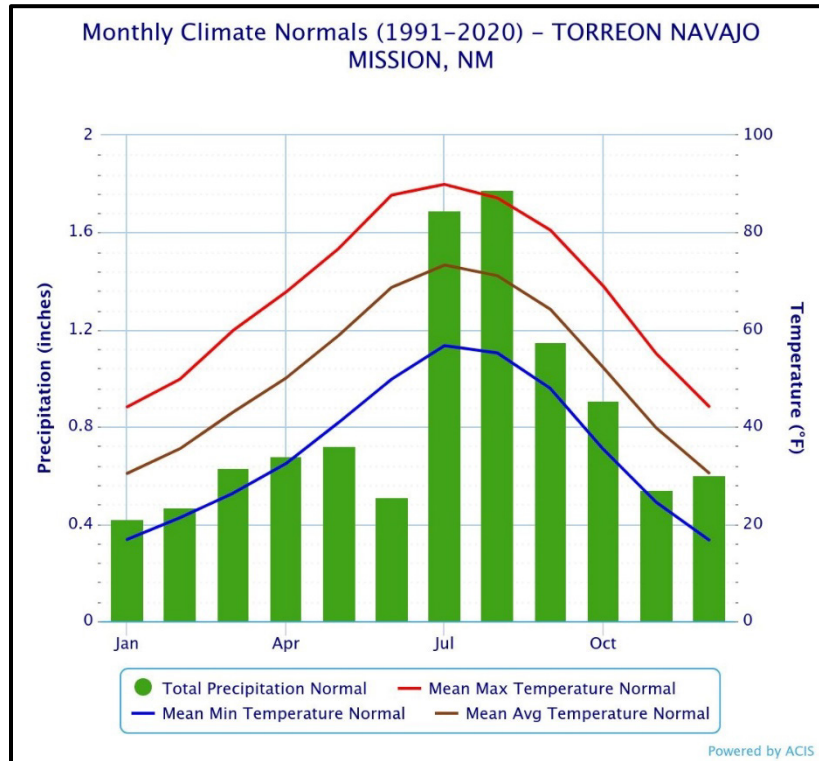


Figure 2.6. Average temperature and precipitation in Torreon Navajo Mission.

Source: National Weather Service (2024b)

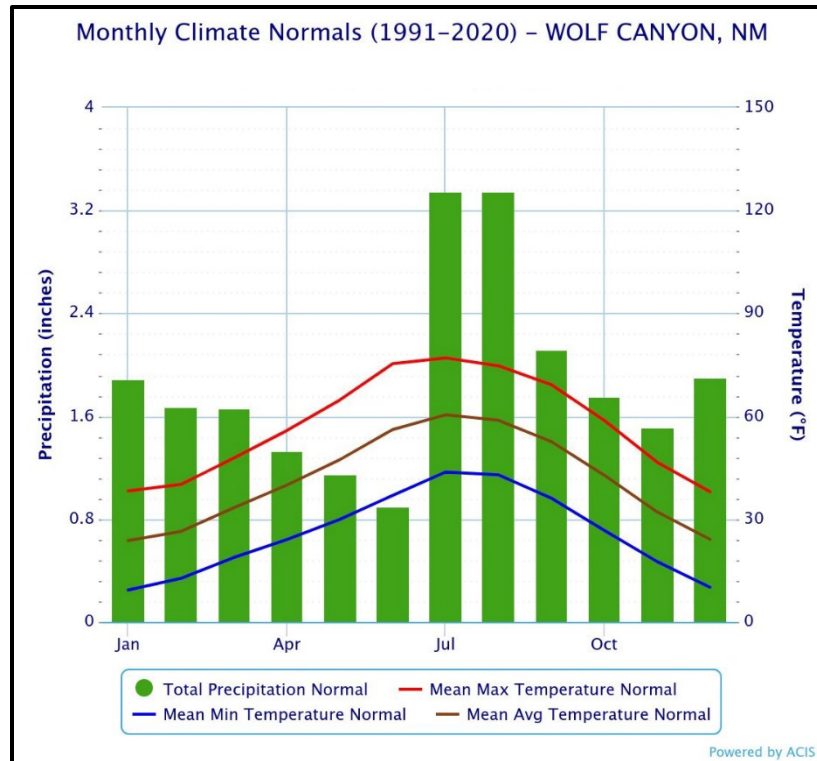


Figure 2.7. Average temperature in Wolf Canyon.

Source: National Weather Service (2024c)

2.4 FIRE HISTORY

Fire is a natural part of New Mexico's varied landscapes and is essential to many ecosystems across the state. Fire controls the density and composition of young trees, recycles nutrients, clears debris and litter from the ground, and creates wildlife habitat at different scales. Many of New Mexico's ecosystems, such as forest, grassland, and savanna ecosystems, are fire-dependent or fire-adapted (Forest Stewards Guild 2017). Native plant species and wildlife are adapted to a specific set of fire regimes (fire frequency, severity, and spatial extent), which are typically of moderate-frequency, low-severity fires (Forest Stewards Guild 2017; Schoennagel et al. 2017). Historically, many New Mexico Native American tribes recognized this interdependence between fire and the ecosystem and were actively engaged in fire management to maintain and restore ecosystem health, among other objectives (Raish 2005). However, more than a century of suppression efforts have resulted in dense stand conditions, pest outbreaks, and increased susceptibility to fire (Forest Stewards Guild 2017; Schoennagel et al. 2017; Young et al. 2019). Wildland fire suppression practices, in conjunction with other management actions such as human expansion into the wildlands and warming temperatures, have resulted in an imbalance between wildfire and ecosystem interactions (Schoennagel et al. 2017).

Beginning in the early 1900s, the policy for handling wildland fire by the USFS leaned heavily toward suppression. Over the years, other agencies, such as the BLM, BIA, and NPS, followed the lead of the USFS and adopted fire suppression as the proper means for protecting the nation from wildfire. As a result, many areas now have excessive fuel buildups, dense and continuous vegetative cover, and tree and shrub encroachment into open grasslands. However, more recently, there has been acknowledgement of the need to reintroduce fire at a significant scale and to utilize natural ignitions for natural resource management and benefit. For example, in 2023, the Biden-Harris administration

established the Wildland Fire Mitigation and Management Commission, which emphasized the need for a proactive approach to wildfire management. Their comprehensive recommendations include strategies for transforming the nation's relationship with wildfire, which involves using prescribed fire and cultural burning to restore fire-adapted ecosystems (USDA 2023).

2.4.1 RECENT FIRE OCCURRENCE

Over recent decades, Sandoval County has experienced fires occur countywide, with a notable concentration in the mountainous and forested northeast, where extreme weather events and increased recreational use raise fire risks (Figures 2.8–2.10). Fire incidents have surged, rising from an average of 30 fires per decade between 1970 and 2009 to 532 incidents from 2010 to 2019 and already reaching 344 from 2020 to 2024—a 4-year period that surpasses previous decades (Figure 2.11). This increase also coincides with growing fire sizes, with more than 250 fires between 300 and 1,000 acres in the 2010–2024 period and over 200 within the past 4 years alone (Figure 2.12). Total acreage burned reflects this trend: nearly 300,000 acres burned in 2010–2019, five times the next-highest decade (1990–1999), and over 50,000 acres have burned in the current, incomplete decade (Figure 2.13). Fire causes have remained balanced between natural and human sources over the past 24 years, though many remain undetermined (Figure 2.14). Fires most frequently occur from March to September, peaking from May through August (Figure 2.15).

Major fire events in Sandoval County that were greater than 1,000 acres are listed in Table 2.1. These data are derived from available state and federal sources.

Table 2.1. Significant Fire Events in Sandoval County

Name	Acres	Cause	Year
Las Conchas	156,593	Human	2011
Cerro Grande	47,650	Human	2000
Cerro Pelado	45,605.0	Human	2022
Thompson Ridge	24,000	Human	2013
Dome	16,575	Human	1996
La Mesa	15,270	Human	1977
Molina	7,165	Natural	2003
Oso	5,185	Unknown	1998
Pino	4,300.0	Natural	2014
Venado	4,150.0	Natural	2018
Stable Mesa Unit - West Mesa RX BP	1,950.0	Undetermined	2017
Stable Canyon Rx	1,595.0	Undetermined	2021
Cebollita Rx - West Mesa BP	1,534.0	Undetermined	2018
Encino	1,514.0	Human	2017
Cajete	1,412.0	Human	2017
Virgin RxBP	1,350.0	Undetermined	2016
Tent Rocks Rx	1,314.0	Undetermined	2019

Name	Acres	Cause	Year
Valle Grande Unit 1 Rx	1,300.0	Undetermined	2016
Banco Bonito Rx	1,200.0	Undetermined	2017
Deer creek	1,021.8	Undetermined	2017
Naranjo	1,010.0	Natural	2019

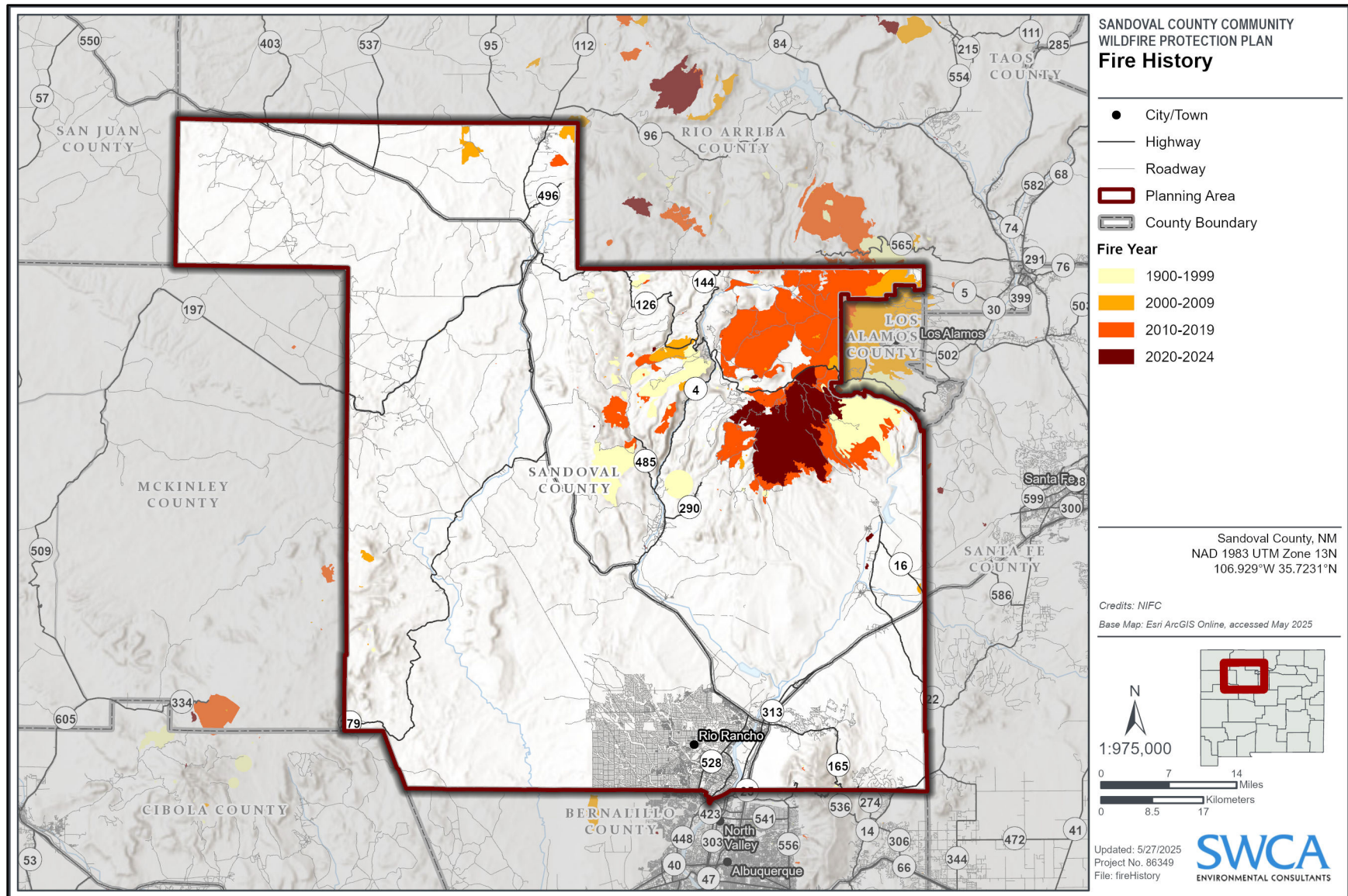


Figure 2.8. Historic fire perimeters for Sandoval County from 1900 through 2024.

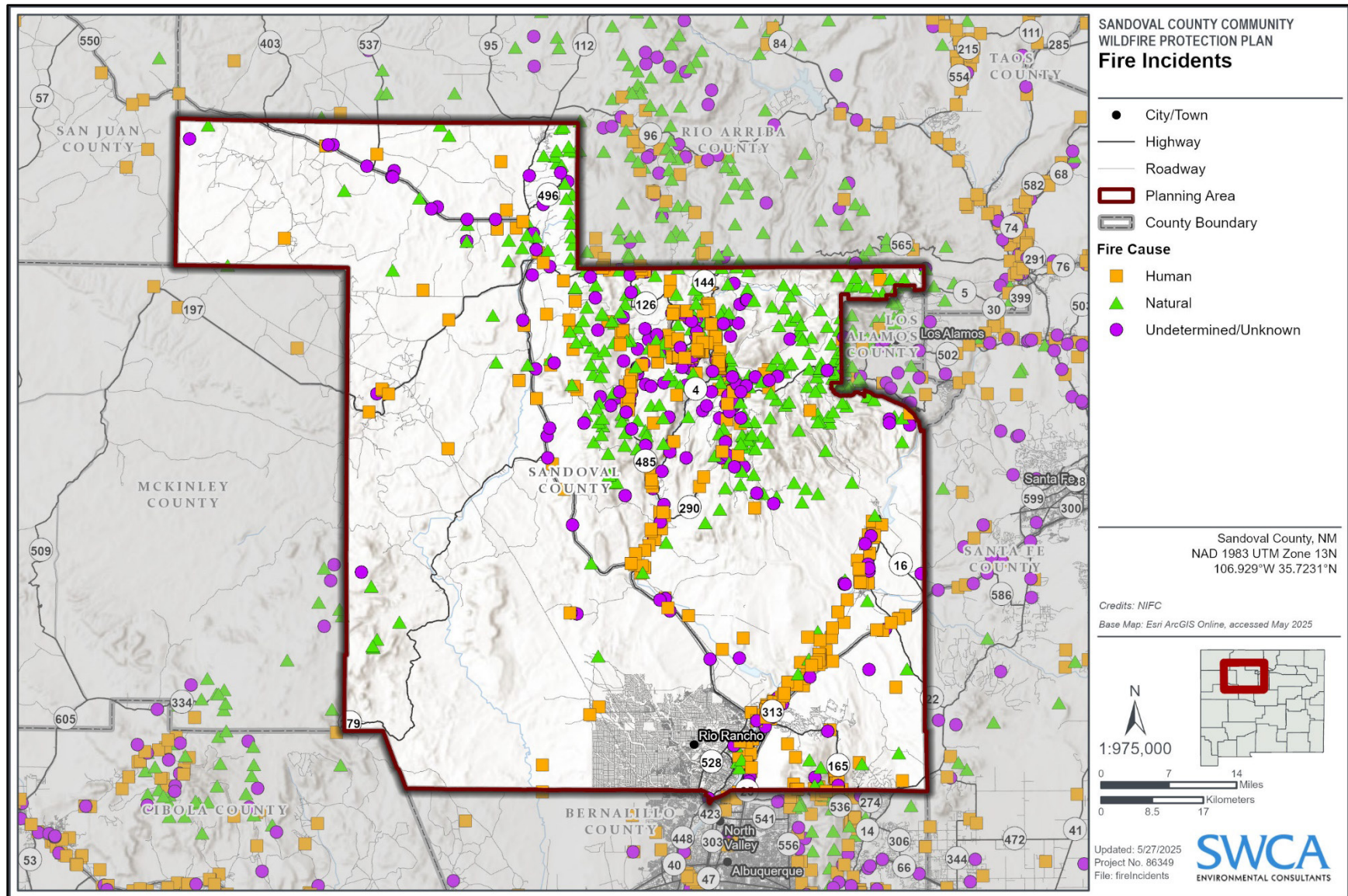


Figure 2.9. Fire incidents for Sandoval County from 1970 through 2024.

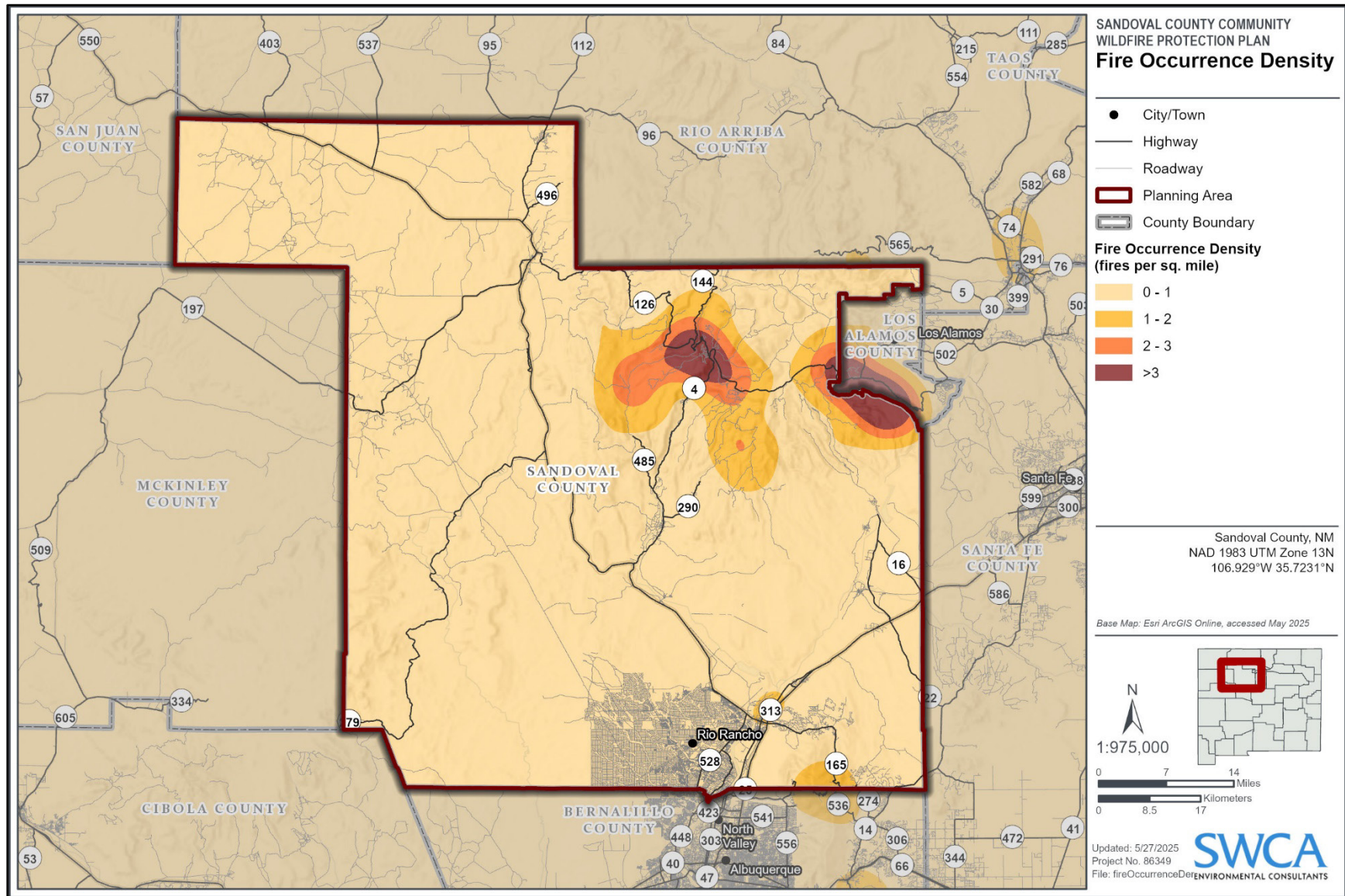


Figure 2.10. Fire occurrence density map illustrating fires per square mile.

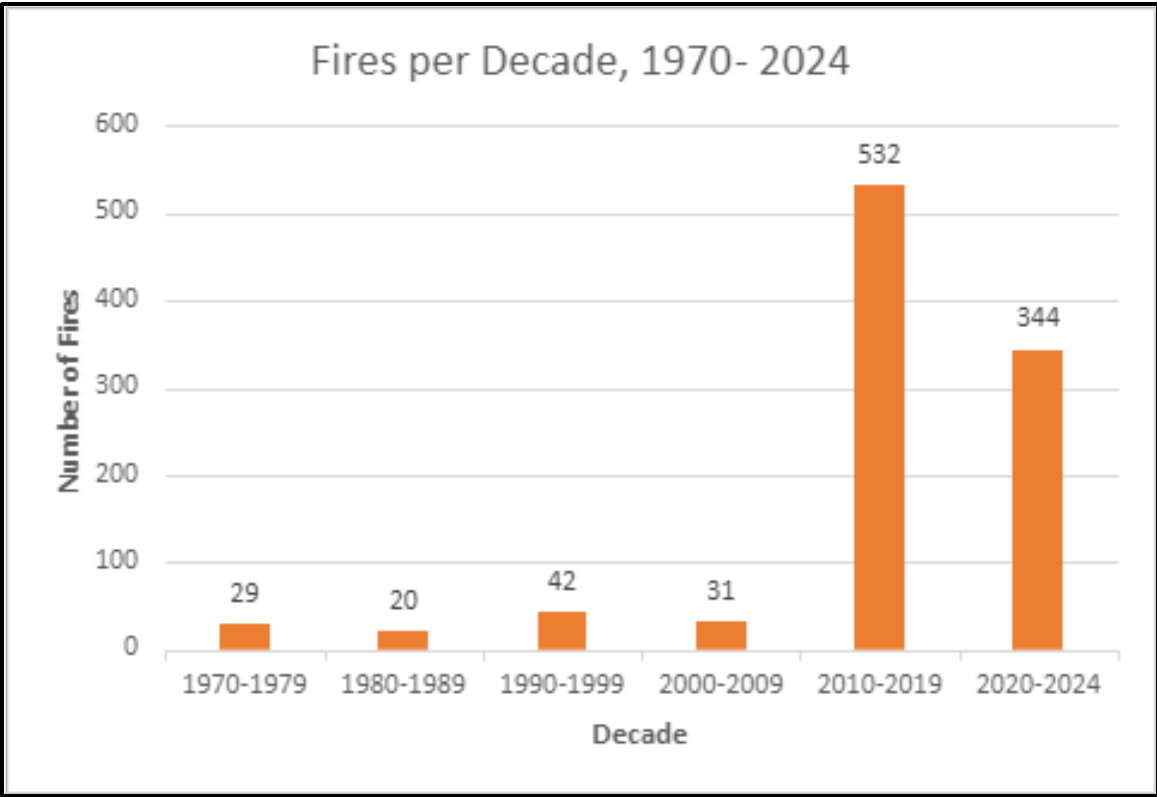


Figure 2.11. Decadal wildfire frequency in Sandoval County from 1970 through 2024.

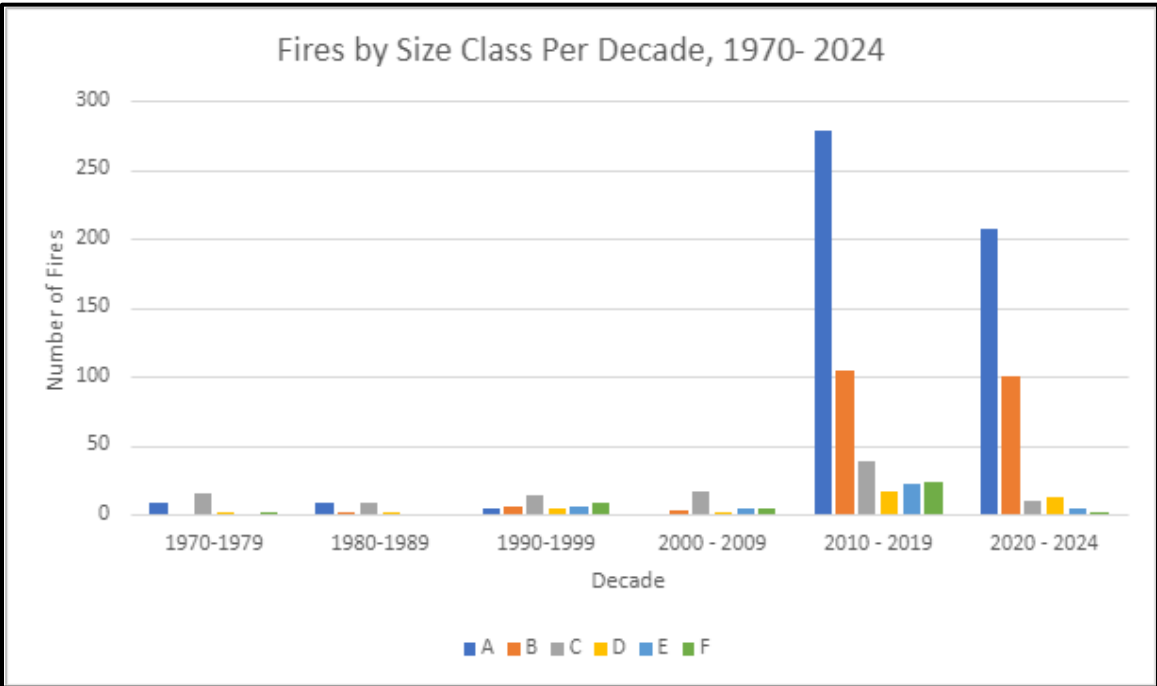


Figure 2.12. Sandoval County fire size statistics per decade from 1970 through 2024.

Size Class: A = 0.25 acre or less; B = greater than 0.25 to 10 acres; C = 10 to 100 acres; D = 100 to 300 acres; E = 300 to 1,000 acres; F = 1,000+ acres.

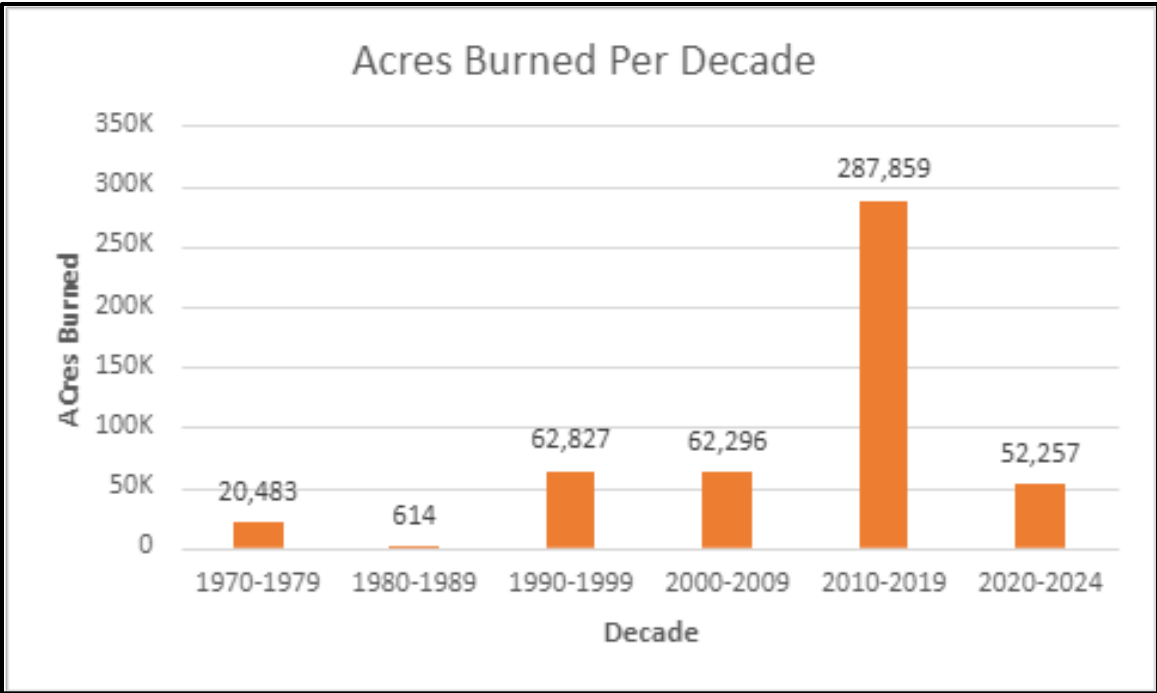


Figure 2.13. Sandoval County acres burned per decade from 1970 through 2024.

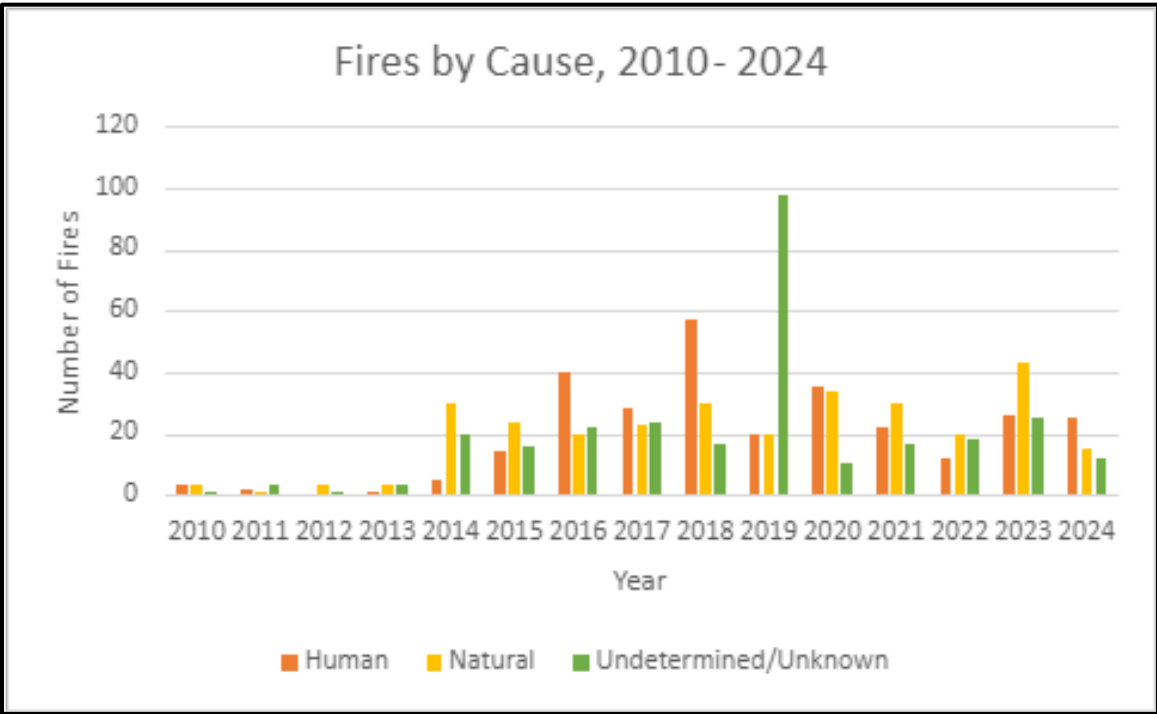


Figure 2.14. Sandoval County fire causes from 2010 through 2024.

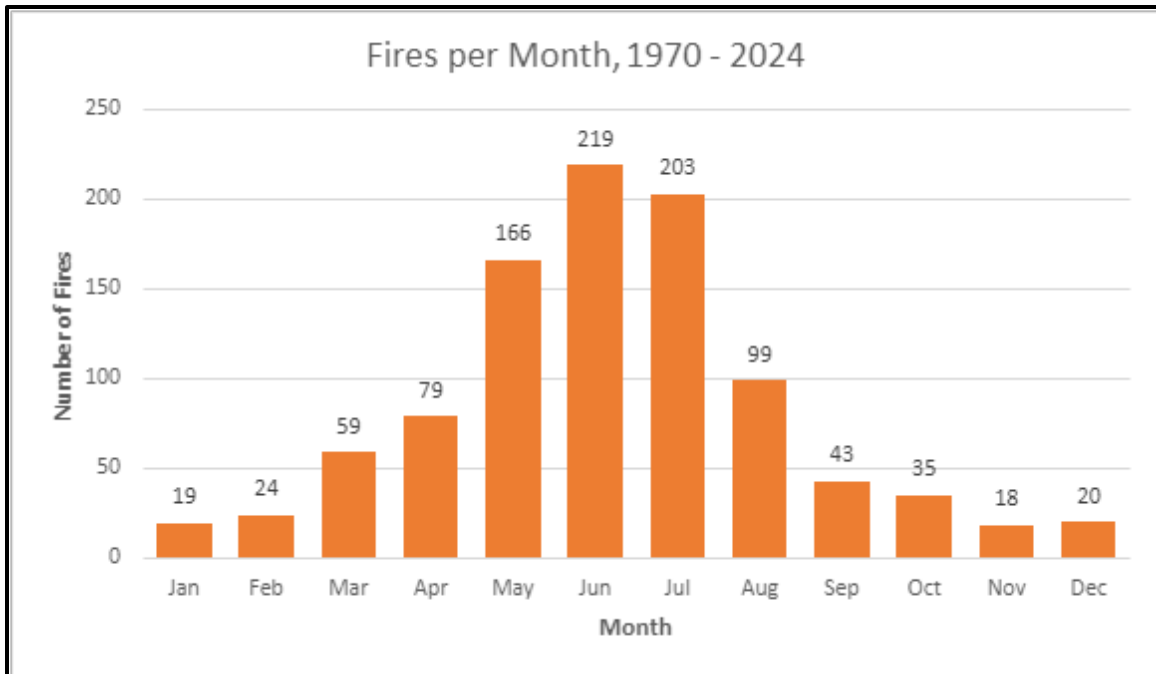


Figure 2.15. Sandoval County monthly fire frequency from 1970 through 2023.

2.5 FIRE RESPONSE

2.5.1 LOCAL RESPONSE

2.5.1.1 Sandoval County Fire Response

Sandoval County provides fire response services through eight fire districts (Figure 2.16), 20 fire stations, and approximately 280 career and volunteer firefighters and paramedics (Sandoval County Fire and Emergency Medical Services Department n.d.). These districts include the South, La Cueva, San Ysidro/Jemez Pueblo/Canon/Ponderosa/Zia Pueblo, Peña Blanca, SCFR NW, and La Madera Fire Districts. Sandoval County also works cooperatively with neighboring jurisdictions in Santa Fe County, City of Rio Rancho, Village of Corrales, Town of Bernalillo, Bernalillo County, and City of Albuquerque to fight wildland fires and conduct rescue operations.

The Sandoval County Fire and Rescue Department serves the people of Sandoval County by performing firefighting duties, providing emergency medical services, controlling burn restrictions, issuing burning permits, handling emergency management services, and participating in the Rio Grande Basin Heavy Technical Rescue Team. In addition, the department houses the Emergency Management Office for Sandoval County, which helps prepare plans to prevent, react to, and manage emergencies in the county.

Volunteer firefighters provide service throughout the county; however, the demand for their services is heightened in rural or outlying areas because the distance and access to these remote areas often slow the response time of the career departments. While volunteers may be closer in vicinity, volunteers often have full-time jobs and need additional travel time to respond to fires, as they must first travel from an unspecified location to the fire station and then to a fire. These factors and others contribute to the increased challenges of responding to fire in rural areas.

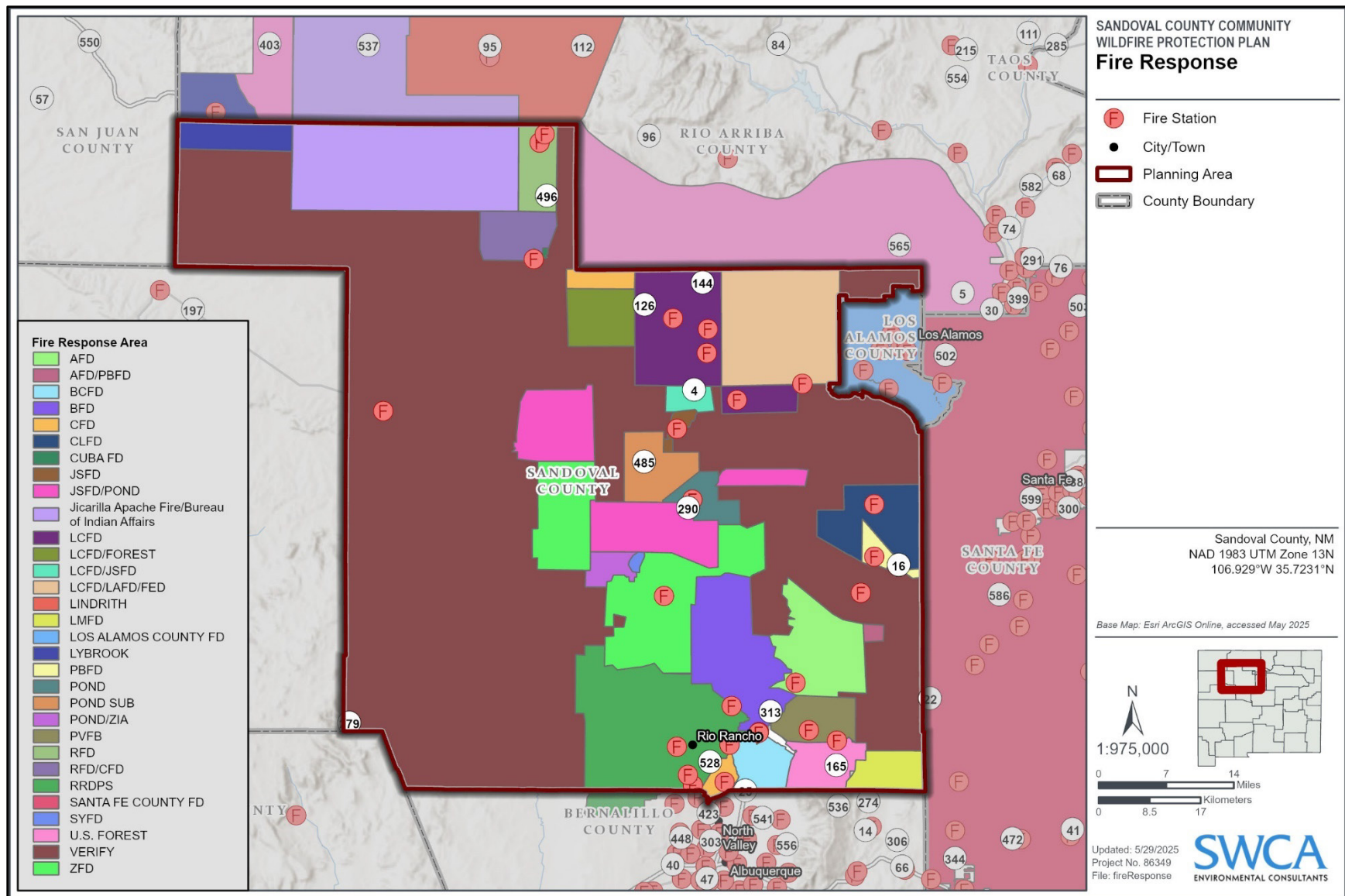


Figure 2.16. Fire response areas and fire station locations.

Volunteer fire departments within the county include Algodones, La Cueva, La Madera, Peña Blanca, Ponderosa, Placitas, Regina, Cuba, Torreon, Zia Pueblo, and Jemez Springs. The career fire departments include Corrales, Rio Rancho, Bernalillo, and Sandoval County.

Information regarding fire department and fire protection district equipment and personnel is available in Appendix C.

2.5.2 STATE RESPONSE

2.5.2.1 New Mexico Energy, Minerals, and Natural Resources Department Forestry Division

The EMNRD Forestry Division, established in 1957, focuses on wildfire response, fuels treatments, monitoring insect outbreaks and invasive insects that lead to tree mortality, conservation of rare plants, and promoting healthy watersheds. The EMNRD Forestry Division is headquartered in Santa Fe, with 141 full-time personnel working at nine locations throughout the state. In addition, the EMNRD Forestry Division trains and staffs about 300 emergency wildland firefighters and is responsible for fire suppression on 43 million acres of non-municipal, non-tribal, and non-federal land in the state (EMNRD Forestry Division 2022).

Dispatch, coordination, and logistical support is provided via the Southwest Coordination Center (SWCC) (DOI et al. 2015). Resource distribution for all-risk incidents, such as aircraft and equipment requests, is handled by the SWCC. The SWCC is a cooperative effort amongst various agencies, including the USFS, U.S. Fish and Wildlife Service (USFWS), NPS, BLM New Mexico State Office, BIA, and EMNRD Forestry Division (SWCC 2022).

The Bernalillo District of the EMNRD Forestry Division has primary responsibility for non-federal, non-municipal, non-tribal, and non-pueblo lands within the Sandoval County CWPP planning area. In the event of a wildfire on state land, local fire departments or other resources may be used for initial attack under the [New Mexico Joint Powers Agreements](#).

2.5.3 FEDERAL RESPONSE

2.5.3.1 Bureau of Indian Affairs

The BIA's Wildland Fire Management Branch mission is to "execute our fiduciary trust responsibility by protecting lives, property, and resources while restoring and maintaining healthy ecosystems through cost-effective and creative fire-management programs, collaboration, and promoting Indian self-determination" (DOI 2023). The BIA has trust responsibility to protect 55 million acres of Native American Lands. To fulfill its responsibility, the BIA provides direct services or funds self-governance for fire management programs throughout tribal lands (DOI 2023).

BIA Southwest Region

The BIA Southwest Region operates in New Mexico, Colorado, and Texas. Tribal land in these states comprise a total of 4,869,744 acres. In New Mexico, the BIA Southwest Region, through the Southern Pueblos Agency, serves the Pueblos of Sandia, Jemez, Laguna, Santa Ana, San Felipe, Zia, Cochiti, and Santo Domingo. The Southern Pueblo Agency has initial attack responsibility in each of these Pueblos.

Similarly, through the Jicarilla Agency, the BIA Southwest Region also serves the Jicarilla Apache Nation, where the Jicarilla Agency has initial attack responsibility (EMNRD Forestry Division 2023c). However, the EMNRD Forestry Division may also engage in initial attack activities for most Pueblos under the Southern Pueblos Agency (EMNRD Forestry Division 2023c).

BIA Navajo Region

The BIA Navajo Region operates solely within the Navajo Nation, which falls within Arizona, New Mexico, Utah, and the southwest corner of Colorado. The Navajo Region is responsible for 500,000 acres of commercial timber and 4.8 million acres of woodland. It additionally conducts hazardous fuel reductions and wildland fire management activities through the Navajo Nation and has an emergency firefighting force of almost 400 firefighters (DOI n.d.b). A portion of the Eastern Navajo Agency, which falls under the Navajo Region, is located in northwestern Sandoval County. The BIA Navajo Region has initial attack responsibility in the Eastern Navajo Agency, though EMNRD may also engage in initial attack for this agency.

2.5.3.2 U.S. Forest Service

On USFS land, the USFS has the responsibility for initial attack (initial response). The USFS maintains mutual aid agreements with the New Mexico State Forestry Division, Sandoval County, and the NPS. Under the agreements, agency personnel may respond to incidents outside their agency boundaries.

Santa Fe National Forest

The Santa Fe National Forest is located in the north-central part of New Mexico within Santa Fe, Sandoval, San Miguel, Mora, and Rio Arriba Counties. The forest is divided in half with an eastern and a western section. I-25 runs along the southern border, intersects the southeastern part of the forest, and then runs to the east. The Rio Grande, Rio Chama, and Jemez River each border or run through the forest. The Santa Fe National Forest administers over 1.5 million acres between the two sections, which contain parts of the Jemez and Sangre de Cristo Mountains. Elevations throughout the forest vary between 5,000 and 13,000 feet (USFS 2022a).

The Santa Fe National Forest provides fire response on USFS land in the county. Fire management and suppression protocols are guided by the Forest Plan.

Cibola National Forest

The Cibola National Forest Land Management Plan is the guiding policy for forest and fire management in the Cibola National Forest. Management considerations outlined in the plan primarily involve creating “suitable and desirable” conditions in the WUI, such as allowing wildland fires to sustain characteristic ecosystem function while preserving property and human health and safety. Furthermore, the plan states that fuel conditions in the WUI will be managed so that firefighters can suppress and manage fire safely and efficiently. The plan also states that prescribed fire and other fuel treatments will be used to create a return to more desired “natural” fuel conditions.

Outlined in the plan are objectives and goals for fire and fuels, which include, but are not limited to, setting acreage for plans for prescribed burns in needed areas; allowing natural wildfires to perform their ecological function in areas where there is minimal to no threat to human life or property; managing the forest ecosystem so it is resilient to uncharacteristic wildfire; and efficient coordination and collaboration across agencies and stakeholders for wildfire response, planning, mitigation, and research efforts.

Furthermore, Cibola National Forest works closely with neighboring entities to develop cross-boundary landscape projects focused on landscape resiliency and forest health.

Fire response for the Cibola National Forest is coordinated through the SWCC in partnership with the National Interagency Coordination Center. Dispatch, coordination, and logistical support are provided via the SWCC. Resource distribution for all-risk incidents, such as aircraft and equipment requests, is handled by the SWCC.

The Cibola National Forest is broken down into four ranger districts; a portion of the Sandia Ranger District is in south Sandoval County.

2.5.3.3 National Park Service

Bandelier National Monument

Bandelier National Monument is located in the northwest corner of Sandoval County. The park is approximately 34,000 acres, with the Santa Fe National Forest, Valles Caldera National Preserve, and Los Alamos National Lab falling along the park's borders. Its landscape contains mesas, mountains, and canyons. Bandelier is best known as a home of Ancestral Pueblo peoples from 1100 CE to 1550CE and the vast number of archaeological and cultural resources located within the park. The park also provides habitat to over 55 species of mammals, seven species of amphibians, and a variety of birds and reptiles, including the short-horned lizard (*Phrynosoma hernandesi*). The park is predominately composed of piñon-juniper woodlands, with some ponderosa pine savannah and forest, as well as mixed-conifer forests. These ecosystems support a variety of plant species, including cacti, succulents, and wildflowers. Bandelier National Monument also has a fire management program intended to protect their cultural resources and people while managing their natural resources through prescribed burns, fire suppression, and monitoring (NPS 2024a).

Valles Caldera National Preserve

Valles Caldera National Preserve is located in the northwest corner of Sandoval County. The preserve encompasses a 14-mile depression created by a volcanic eruption approximately 1.2 million years ago. The preserve contains riparian wetlands, montane forests, Felsenmeer rock fields, and is mostly covered by montane grasslands. These ecosystems support a variety of plant species. The preserve also helps improve water quality in the Jemez River watershed. There are volcanic domes located throughout the park along with other remnants of volcanic activity though the area is considered to be dormant. Valles Caldera National Preserve has deep cultural significance as indigenous peoples have a history going back 12,000 years in the area. The preserve is also considered spiritually significant to dozens of Tribes and Pueblos today. The park is home to a variety of animals, including 40 bird species of concern. The Jemez Mountains salamander (*Plethodon neomexicanus*), New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), and Mexican spotted owl (*Strix occidentalis lucida*) are also found in the preserve, all of which are threatened and endangered species. Valles Caldera National Preserve is additionally a landscape dependent on fire for ecosystem health. The preserve works to manage wildfires through prescribed burns, which reintroduce the fires that historically occurred in the landscape (NPS 2024b).

2.5.3.4 Bureau of Land Management

In New Mexico along with parts of Texas, Oklahoma, and Kansas, the BLM is responsible for fire management on 13.5 million acres of public land in four BLM districts, including the Albuquerque District (BLM n.d.a). The BLM operates a fleet of 14 fire crews and engines across the state of New Mexico and holds mutual aid agreements with other agencies (BLM 2021a). Sandoval County falls under the Albuquerque District Office and the Rio Puerco Field Office, and patches of BLM-managed lands are spread throughout the county, particularly in the south.

2.5.4 MUTUAL AID

The wildland fire community is well known for its development of mutual aid agreements at the federal, state, and local levels. Such agreements allow for closest forces to respond to an incident as quickly as possible regardless of jurisdiction. Such agreements may also describe how reimbursement will be conducted; state resources responding to wildfires on federal land may have their associated costs reimbursed by the responsible federal agency, and the reverse is true for federal resources suppressing a wildfire on state land.

2.5.4.1 Sandoval County Mutual Aid Agreements

Sandoval County has mutual aid agreements with the surrounding counties and municipalities. In addition, the County has a joint powers agreement for fire protection at the both the state and national levels.

2.5.4.2 New Mexico Wildland Fire Management Joint Powers Master Agreement

Under the New Mexico Wildland Fire Management Joint Powers Master Agreement, personnel, equipment, supplies, services, and funds regarding wildland fire are coordinated and exchanged through participating agencies.

Participating agencies include the EMNRD Forestry Division; USFS Southwest Region 3; NPS Intermountain Region; USFWS Southwest Region; BIA Southwest Regional Office and Navajo Regional Office; BLM New Mexico State Office; and the U.S. Department of Energy, National Nuclear Security Administration, Los Alamos Site Office.

You can find more information on the agreement here:

https://gacc.nifc.gov/swcc/dc/nmadc/management_admin/incident_business/documents/New%20Mexico%20JPA.pdf.

2.5.4.3 New Mexico Master Cooperative Wildland Fire Management Response Agreement

The New Mexico Master Cooperative Wildland Fire Management Response Agreement facilitates the coordination and exchange of resources needed for wildfire management, such as equipment/supplies, personnel, services, and funds. The EMNRD Forestry Division; USFS Southwest Region 3; NPS Intermountain Region; USFWS Southwest Region; BIA Southwest Regional Office and Navajo Regional

Office, BLM New Mexico State Office, and National Nuclear Security Administration Los Alamos Field Office are all parties to the agreement.

In addition, for federal agencies, the agreement goes beyond wildland fire. Additional information regarding the agreement is provided here: <https://www.emnrd.nm.gov/sfd/master-cooperative-agreement-and-interstate-mutual-aid-agreement/>.

2.5.4.4 Interstate Mutual Aid Agreement for Wildland Fire Management Assistance

The EMNRD Forestry Division and Oregon Department of Forestry have come together to provide mutual assistance in wildland fire management. The exchange of equipment/supplies, personnel, and services is facilitated by the agreement.

Additional information about the agreement is provided here: https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/NMStateForestry_OregonDepartmentofForestry_MutualAidAgreementforWildlandFire.pdf.

2.5.4.5 Intrastate Mutual Aid System

Through the Interstate Mutual Aid System, Sandoval County holds mutual aid agreements with all local jurisdictions within New Mexico (New Mexico Association of Emergency Management Professionals 2014).

2.5.5 EMERGENCY NOTIFICATIONS AND EVACUATION

2.5.5.1 Evacuation Resources

The Sandoval County Emergency Management website provides information and resources related to emergency response in the Sandoval County area of New Mexico, including evacuations. The website outlines the department's primary responsibilities, such as trainings, public education, hazard planning and mitigation assistance, and activation of the Emergency Operations Center during emergencies (Sandoval County Emergency Management Department 2024). Included on the website is the Local Emergency Planning Committee Community Preparedness Guide, which provides essential guidelines for emergency and evacuation preparedness (Local Emergency Planning Committee 2020).

The Sandoval County 2015 All Hazards Emergency Operations Plan (EOP) discusses evacuation plans and procedures for the county as well as the roles county officials hold during disasters. For instance, the county manager is responsible for issuing evacuation orders, the fire chief is responsible for supporting evacuations with personnel and transportation, and law enforcement is responsible for identifying evacuation routes and implementing evacuations. The EOP also addresses various evacuation levels, warning efforts, and short- and long-term recovery steps. It further emphasizes the importance of ensuring the safety of emergency responders and the public during a disaster. The EOP also plans for mass care and sheltering in the event large numbers of people are displaced. The County's Shelter Plan is included in the appendices (Sandoval County Emergency Management Department 2015).

The Sandoval County Emergency Management website can be accessed here: <https://www.sandovalcountynm.gov/fire/emergency-management/>

2.5.5.2 Emergency Notification

The Sandoval County Emergency Management webpage hosts a tab dedicated to CodeRED, the County's emergency alert system, which offers alerts and warnings for disasters or other incidents requiring public notification. Through this website, residents are encouraged to stay informed and prepared for emergency conditions through various resources. They can also sign up to receive email, text, or phone call alerts from CodeRED or the download the CodeRED app. Requiring no sign-up and broadcasting alerts through a variety of channels, the emergency alert system (EAS) serves as a national warning system that provides alerts for local weather emergencies.

Please visit the following webpage to sign up for Sandoval County Emergency Alerts:

<https://www.sandovalcountynm.gov/codered/>

2.5.5.3 Animals and Livestock

In the event of a wildfire, it is important that residents, fire responders, and the Sandoval County Emergency Management Department have a plan for evacuation of pets and livestock. Evacuation planning often neglects to describe how animals will be evacuated and where they will be taken. The loading of horses, for example, during a fire and smoke situation, and transport of stock vehicles down narrow roads under stressful situations, can be very difficult. Public education could emphasize the need for individuals to have a plan for the evacuation of pets in addition to their family, ensuring a lack of planning doesn't slow or prevent evacuation.

There is also a need to identify where animals can be taken, such as county fairgrounds, for large animal shelter. Similarly, locations where small animals such as dogs and cats picked up in the fire area should also be identified, as well as the lead agencies, such as humane societies, coordinating this work.

Guidance and additional resources for preparing livestock for disasters, including wildfires, can be found at <https://www.avma.org/resources-tools/pet-owners/emergency-care/large-animals-and-livestock-disasters>

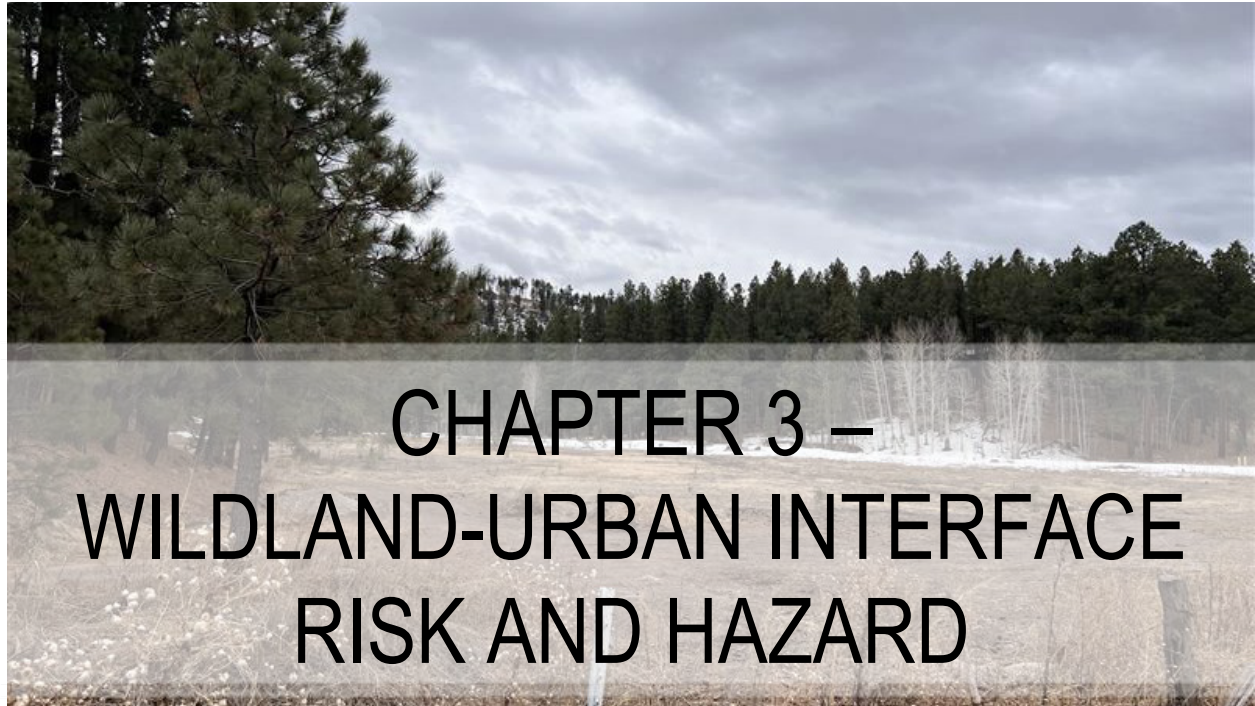
Animal Protection New Mexico: Pets

It is important for pet owners to prepare for disasters to protect the lives of pets and enhance the safety of disaster response efforts. Guidance and additional resources for preparing pets for disasters, including wildfires, can be found at <https://apnm.org/what-we-do/building-foundations-to-keep-animals-safe/disaster-preparedness/make-a-plan/>

2.5.6 WATER AVAILABILITY AND SUPPLY

Water supply is provided by hydrants, ponds, rivers, and tanks. However, many communities around the county have inconsistent, limited, or no permanent water supplies. Waterbodies include the Rio Grande, Cochiti Lake, Fenton Lake, community water sources, acequia and irrigation infrastructure, and in some years with good moisture, isolated stock ponds. Some communities like the Village of Corrales have developed and continue to develop an extensive water system that is off-grid from the municipal system and is strictly used for fire suppression activities.

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Disclaimer

The purpose of the risk assessment process described herein is solely to provide a community and landscape-level overview of general wildfire risks within County as of the date hereof, and to provide a potential resource for community pre-fire planning. This risk assessment process is premised on various assumptions and models which include and are based upon data, software tools, and other information provided by third parties (collectively, “Third-Party Information and Tools”). SWCA, Incorporated, doing business as SWCA Environmental Consultants (“SWCA”) relied on various Third-Party Information and Tools in the preparation of this plan, and SWCA shall have no liability to any party in connection with this plan including, without limitation, as a result of incomplete or inaccurate Third-Party Information and Tools used in the preparation hereof. SWCA hereby expressly disclaims any responsibility for the accuracy or reliability of the Third-Party Information and Tools relied upon by SWCA in preparing this plan. SWCA shall have no liability for any damage, loss (including loss of life), injury, property damage, or other damages whatsoever arising from or in connection with the risk assessment products contained herein, including any person’s use or reliance on the information contained in those risk assessment products. Any reproduction or dissemination of the risk assessment products or any portion hereof shall include the entirety of this plan disclaimer.

3.1 PURPOSE

CWPPs utilize wildfire risk and hazard analysis in order to guide wildfire mitigation efforts in the WUI and vulnerable landscapes. Although many definitions exist for hazard and risk, for the purpose of this document these definitions follow those used by the firefighting community:

Risk is defined as the chance of a fire starting as determined by the presence and activity of causative agents (NWCG 1998).

Fire Hazard is defined as the potential fire behavior or fire intensity in an area, given the type(s) of fuel present – including both the natural and built environment – and their combustibility (NWCG 1998).

The Sandoval County CWPP uses two separate methodologies for determining risk and hazard: field assessments that consider structural ignitability at a community scale (Section 3.2) and desktop modeling that integrates fire behavior analysis at a broader landscape scale based on wildland fuels (Section 3.3). The field assessments (see Appendix C), using National Fire Protection Association (NFPA) Structure Ignition Form 1144, evaluate structural hazards on a community scale through direct observation by trained personnel, resulting in an overall community risk rating. In contrast, the desktop analysis results in a Composite Risk-Hazard Model, which illustrates potential wildfire behavior in wildland fuels on a countywide scale using established fire behavior models and GIS tools, relying on national data sources like LANDFIRE. These two methods inform development of the CWPP at differing scales but are separate from each other.

Using these methods, land managers, fire officials, planners, and others can begin to prepare strategies and methods for reducing the threat of wildfire, as well as work with community members to inform them about methods for reducing the damaging impacts of fire. The fuel reduction treatments can be implemented on both private and public land, so community members have the opportunity to actively apply the treatments on their properties, as well as recommend treatments on public land.

3.2 FIELD ASSESSMENTS

The 2008 community field assessments were conducted using the NFPA 1144 form and were revisited during the update in 2012. During the 2025 update, there were a couple of changes to the assessments, including the use of an adapted NFPA Wildland Fire Risk and Hazard Severity Form 1144 (see Appendix C) and the reduction from four to three categories of risk per New Mexico state guidelines. A summary of the community field assessments is provided in Table 3.1. The NFPA standard focuses on individual structure hazards and requires a spatial approach to assessing and mitigating wildfire hazards around existing structures.

The purpose of the field assessments and subsequent ratings is to identify fire hazards and risks at a community scale and prioritize areas requiring mitigation and more detailed planning. Each community was rated based on conditions within the community and immediately surrounding structures, including access, vegetation (fuels), defensible space, topography, roof and building characteristics, available fire protection, and placement of utilities. Each score was given a corresponding rating of low, moderate, high, or extreme, as described in Appendix C.

Field assessments for Sandoval County were conducted in February 2025. The full community-at-risk hazard ratings from the field assessments are provided in Appendix C.

3.2.1 2025 FIELD RATINGS

Table 3.1. Communities at Risk Ratings with Community Field Evaluation Summary

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Greater Cuba Area				
Cuba	71 (high)	66 (moderate)	<p>Ingress and egress: main highway paved, at least two roads in and out of community</p> <p>Road Conditions: low-grade, paved roads</p> <p>Organized response: fire department in community</p> <p>Topography: low gradient through most of town. Most structures far from slopes</p> <p>Severe fire weather potential: low</p> <p>Separation of adjacent structures: high</p> <p>Deck and fencing: limited presence around homes</p>	<p>Fire Access: long access to some homes, limited turnaround points</p> <p>Vegetation: timber with grass and shrub understory. Mostly juniper and sagebrush, shrub/ slash filled gully through town.</p> <p>Defensible space: limited space around structures</p> <p>Building construction: combustible siding</p> <p>Utility placement: aboveground</p>
Regina	72 (high)	98 (high)	<p>Ingress/ Egress: 2 or more ways in and out of community</p> <p>Topography: most of community is in relatively flat valley</p> <p>Organized response: fire department within 5 miles of community</p> <p>Water source: water availability through hydrants</p> <p>Roof construction: mostly noncombustible metal roofing</p>	<p>Street signs: sun faded or not present</p> <p>Means of Access: neighborhood roads are narrow and unsurfaced</p> <p>Fire access: generally, >300 feet with no turnarounds</p> <p>Vegetation type: timber-litter, highly flammable</p> <p>Defensible space: vegetation encroaching on most homes. Many homes with debris in HIZ</p> <p>Building construction: combustible siding</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
La Jara	83 (high)	98 (high)	<p>Topography: community primarily in valley with homes far from slopes</p> <p>Separation of adjacent structures: homes well spaced</p> <p>Roofing Material: mostly metal roofing</p> <p>Deck and Fencing: very few fences, limited decking</p> <p>Organized response: fire department within 5 miles of community</p> <p>Water source: water availability through hydrants</p>	<p>Entrance/exit: only one road in and out of community</p> <p>Means of Access: narrow, unpaved roads</p> <p>Signage: decayed and unreadable in many locations</p> <p>Vegetation type: predominantly timber-litter and highly flammable</p> <p>Defensible space: vegetation and debris close to structures</p> <p>Building construction: combustible siding</p> <p>Decking and fencing: combustible</p>
Jemez Springs Corridor				
Zia Pueblo	46 (moderate)	50 (moderate)	<p>Ingress and egress: 2 or more roads in and out of community</p> <p>Fire access: >300 feet with turnarounds</p> <p>Street signs: visible and reflective</p> <p>Defensible space: >70 feet around most homes</p> <p>Decking and fencing: mostly not present</p> <p>Organized response: <5 miles from community</p>	<p>Building construction: combustible siding</p> <p>Utility placement: aboveground</p> <p>Building construction: close proximity to slopes</p> <p>Water source: water tanks</p>
Jemez Pueblo	75 (high)	85 (high)	<p>Ingress and egress: main highway paved, at least two roads in and out</p> <p>Predominant vegetation: well-spaced shrub, some denser vegetation near river and agricultural lands</p> <p>Topography: low slopes. Most of community in flat valley</p> <p>Organized response: fire department within 5 miles</p> <p>History of fire occurrence: low</p> <p>Severe fire weather potential: low</p>	<p>Road Conditions: narrow, unpaved roads off main highway</p> <p>Defensible space: <25 feet around most homes. Debris directly adjacent to many homes</p> <p>Building construction: combustible siding</p> <p>Utility placement: aboveground</p> <p>Spacing of structures: low</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Ponderosa, North	103 (high)	73 (high)	Defensible space: over 70 feet around most properties History of high fire occurrence: low Separation of adjacent structures: high Water source: water availability through hydrants Organized response: fire department less than 5 miles from community	Ingress and egress: 1 road in and out Road Conditions: narrow, unsurfaced roads Topography: rolling hills and channelized canyon above community Building construction: combustible siding Utility placement: aboveground Decking and fencing: combustible
Ponderosa, South	61 (moderate)	76 (high)	Defensible space: over 70 feet around most properties History of high fire occurrence: low Predominant vegetation: mostly shrub with rocky floor Separation of adjacent structures: high Water source: water availability through hydrants Organized response: fire department less than 5 miles from community	Ingress and egress: 1 road in and out Road Conditions: narrow, windy roads Topography: rolling hills and channelized canyon above community Building construction: combustible siding Utility placement: aboveground Decking and fencing: combustible
San Ysidro	71 (high)	65 (moderate)	Entrance/exit: 2 or more roads in and out Defensible space: >30 feet around most homes Topography: <9% slope History of fire occurrence: low Water source: water availability through hydrants	Fire access: >300 feet with few turnarounds to most homes Roads: unsurfaced roads off main highway Building construction: combustible siding Utility placement: aboveground Decking and fencing: combustible Organized response: >5 miles from community

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Cañon	73 (high)	60 (moderate)	<p>Ingress and egress: surfaced roadways, two or more roads in and out</p> <p>Defensible space: >70ft around most structures</p> <p>Separation of adjacent structures: high</p> <p>History of fire occurrence: low</p> <p>Decks and fencing: not many present in community, often made of noncombustible materials if present</p>	<p>Road conditions: unpaved, <24ft wide</p> <p>Fire access: >300ft with few turnarounds</p> <p>Topography: 21%-30% slope</p> <p>Building construction: <30 feet to slopes</p> <p>Organized response: >5mi to nearest station</p> <p>Utility placement: aboveground</p>
485 Corridor (Gilman and Cañones)	73 (high)	86 (high)	<p>Defensible space: >70ft around most structures</p> <p>Separation of adjacent structures: high</p> <p>History of fire occurrence: low</p> <p>Severe weather potential: low</p> <p>Decks and fencing: not many present in community, often made of noncombustible materials if present</p>	<p>Entrance and exit: 1 road in and out</p> <p>Road conditions: unpaved, <24ft wide</p> <p>Defensible space: <30ft around structures</p> <p>Fire access: >300ft with few turnarounds</p> <p>Organized response: >5mi to nearest station</p> <p>Utility placement: aboveground</p>
Jemez Springs	91 (high)	90 (high)	<p>Predominant vegetation: dry shrub with mostly rocky floor</p> <p>Water source: water availability through hydrants</p> <p>Building setback: >30 feet to slopes</p> <p>Organized response: fire department in community</p> <p>History of fire occurrence: low</p> <p>Severe fire weather potential: low; disjointed, slow burning fuels</p>	<p>Ingress/ Egress: 1 road in and out of community</p> <p>Road Conditions: unpaved and narrow</p> <p>Structure density: homes very close together and connected by wooden fencing</p> <p>Building construction: combustible siding</p> <p>Utility placement: aboveground</p> <p>Decking and fencing: combustible</p> <p>Defensible space: minimal, with some homes with poor maintenance and refuse in yard.</p> <p>Fuel reduction needed</p> <p>Access route improvements needed</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Area 1	130 (extreme)	114 (extreme)	<p>Organized response: fire department in community</p> <p>History of fire occurrence: low</p> <p>Roofing material: metal roofing</p>	<p>Ingress and egress: 1 road in and out of community</p> <p>Road conditions: narrow roads, often unpaved and steep in neighborhoods</p> <p>Street signs: often non-reflective and/or hidden by vegetation</p> <p>Fire access: >300ft with no turnarounds. Some bridges aging/ unknown capacity</p> <p>Dominant vegetation: timber-litter, highly flammable</p> <p>Defensible space: most homes with dense vegetation up to siding</p> <p>Water source: water trucked in</p> <p>Fuel treatment needed</p>
Area 2	125 (extreme)	114 (extreme)	<p>Organized response: fire department in community</p> <p>History of fire occurrence: low</p> <p>Roofing material: metal roofing</p>	<p>Ingress and egress: 1 road in and out of community</p> <p>Road conditions: narrow roads, often unpaved and steep in neighborhoods</p> <p>Street signs: often non-reflective and/or hidden by vegetation</p> <p>Fire access: >300ft with no turnarounds. Some bridges aging/ unknown capacity</p> <p>Dominant vegetation: timber-litter, highly flammable</p> <p>Defensible space: most homes with dense vegetation up to siding</p> <p>Water source: water trucked in</p> <p>Fuel treatment needed</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Area 3	126 (extreme)	114 (extreme)	<p>Organized response: fire department in community</p> <p>History of fire occurrence: low</p> <p>Roofing material: metal roofing</p>	<p>Ingress and egress: 1 road in and out of community</p> <p>Road conditions: narrow roads, often unpaved and steep in neighborhoods</p> <p>Street signs: often non-reflective and/or hidden by vegetation</p> <p>Fire access: >300ft with no turnarounds. Some bridges aging/ unknown capacity</p> <p>Dominant vegetation: timber-litter, highly flammable</p> <p>Defensible space: most homes with dense vegetation up to siding</p> <p>Water source: water trucked in</p> <p>Fuel treatment needed</p>
Jemez Mountains				
La Cueva	83 (high)	78 (high)	<p>Topography: low-grade roads and limited slope through community</p> <p>Separation of structures: homes are well spaced</p> <p>Deck and fencing: limited presence of structures and facets near homes</p> <p>Water sources: hydrants available</p> <p>Organized response: fire station in community</p> <p>Street signs: visible and reflective</p>	<p>Entrance/exit: only one road in/out</p> <p>Vegetation: predominantly timber with grass understory</p> <p>Fire Access: long roads with limited turnarounds for responding vehicles</p> <p>Defensible space: less than <30 feet around structures</p> <p>Utilities: all aboveground</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Thompson Ridge	98 (high)	103 (high)	<p>Road conditions: unpaved, >5% grade</p> <p>Building construction: metal roofs and fire-resistant siding</p> <p>Water source: no water availability through hydrants but large pond central in community</p> <p>Building setback: >30 feet to slope</p>	<p>Entrance/exit: One road in and out of community</p> <p>Road width: generally less than 24 feet wide</p> <p>Predominant vegetation: timber-litter, combustible</p> <p>Utility placement: aboveground</p> <p>Decking and fencing: combustible</p> <p>Defensible space: <30 feet</p> <p>Organize response: station >5 miles from community</p> <p>Road system improvements needed for safety and evacuations</p>
126 Corridor	72 (high)	95 (high)	<p>Street signs: present and reflective</p> <p>Fire truck access: <300 feet with turnaround</p> <p>Organized response: fire department within 5 miles of community</p> <p>Road width: >24 feet</p> <p>Separation of adjacent structures: high</p>	<p>Entrance/exit: one road in and out of community</p> <p>Building setback: <30 feet to slope</p> <p>Predominant Vegetation: timber-litter, highly flammable</p> <p>Defensible space: <30 feet around structures</p> <p>Building construction: combustible siding and decks</p> <p>Water source: no water availability through hydrants</p>
Girl Scout Ranch	Not applicable (N/A)	113 (extreme)	<p>Roof construction: metal roofing</p> <p>Building setback: >30 feet to slope</p> <p>Separation of adjacent structures: high</p>	<p>Entrance/exit: only one road in and out of community</p> <p>Predominant vegetation: timber-litter, highly combustible</p> <p>Water source: no water availability through hydrants</p> <p>Defensible space: <30 feet around structures</p> <p>Organized response: fire department over 5 miles from community</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Seven Springs	90 (high)	95 (high)	<p>Street signs: present and reflective</p> <p>Fire truck access: <300 feet with turnaround</p> <p>Organized response: fire department within 5 miles of community</p> <p>Road width: >24 feet</p> <p>Separation of adjacent structures: high</p>	<p>Entrance/exit: one road in and out of community</p> <p>Building setback: <30 feet to slope</p> <p>Predominant Vegetation: Timber-litter, highly flammable</p> <p>Defensible space: <30 feet around structures</p> <p>Building construction: combustible siding and decks</p> <p>Water source: no water availability through hydrants</p>
Deer Lake	129 (extreme)	112 (extreme)	<p>Street signs: present and reflective</p> <p>Fire truck access: <300 feet with turnaround</p> <p>Organized response: fire department within 5 miles of community</p> <p>Separation of adjacent structures: high</p>	<p>Entrance/exit: one road in and out of community</p> <p>Building setback: <30 feet to slope</p> <p>Predominant Vegetation: Timber-litter, highly flammable</p> <p>Defensible space: <30 feet around structures</p> <p>Building construction: combustible siding and decks</p> <p>Water source: no water availability through hydrants</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Sierra Los Pinos	134 (extreme)	95 (high)	<p>Street signs: present and reflective</p> <p>Water sources: available hydrants and spigots</p> <p>Fire response: fire station in community</p> <p>Roof construction: metal roofing</p> <p>Access: 2 or more roads in and out of the community</p>	<p>Means of Access: narrow, unsurfaced roads</p> <p>Predominant vegetation: timber with grass and shrub understory, highly combustible</p> <p>Defensible space: <30 feet around structures</p> <p>Topography: steep hills, consistent rolling hills.</p> <p>Siding, deck, and fencing materials: combustible (wood or vinyl)</p> <p>Fuel reduction needed</p> <p>Narrow roads with vegetation buildup</p> <p>Insufficient water supply</p> <p>Insufficient ROW for powerlines</p> <p>Area impacted by cascading post-fire events</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Rio Grande Corridor				
Algodones	56 (moderate)	74 (high)	Road conditions: surfaced roads Means of Access: 2 or more roads in and out Topography: <9% slope History of fire occurrence: low Severe fire weather potential: low Building setback: >30 feet to slope Organized response: fire station <5 miles from the community	Road Width: Narrow roads throughout community Predominant vegetation: timber with grass or shrub understory Defensible space: <30 feet around structures Separation of adjacent structures: low Water Source: No hydrants. Water trucked in for response
Santa Domingo Pueblo	60 (moderate)	69 (moderate)	Entrance/exit: 2 or more roads in and out Fire access: structures generally close to road and turnaround opportunities Street signs: present and reflective Topography: <9% slope History of fire occurrence: low Severe fire weather potential: low Water sources: available hydrants Organized response: fire station <5 miles from the community	Road width: <24 feet Defensible space: <30 feet around structures Separation of adjacent structures: low Siding, deck, and fencing materials: combustible (wood or vinyl) Utilities: aboveground
San Felipe Pueblo	69 (moderate)	83 (high)	Road conditions: wide, low-grade roads Means of Access: 2 or more roads in and out Topography: <9% slope Building setback: >30 feet to slope Roof and building construction: primarily metal roof and stucco siding Signage: present and reflective	Predominant vegetation: timber with slash understory Defensible space: <30 feet around structures Separation of adjacent structures: low Water Source: limited hydrants, mostly in new construction. Water can sometimes be pulled from river, but limited by flow and access Organized response: fire station >5 miles from the community

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Santa Ana Pueblo	Not assessed in 2012	52 (moderate)	<p>Topography: <9% slope</p> <p>Predominant vegetation: grass and shrub, low spread rate</p> <p>History of fire occurrence: low</p> <p>Separation of adjacent structures: high</p> <p>Building setback: >30 feet to slope</p> <p>Water sources: available hydrants</p> <p>Organized response: fire station <5 miles from the community</p>	<p>Entrance/exit: only one road in/out</p> <p>Road conditions: unsurfaced roads</p> <p>Defensible space: >30 <70 feet around structures</p> <p>Siding, deck, and fencing materials: combustible (wood or vinyl)</p> <p>Utilities: aboveground</p>
Sandia Pueblo	Not assessed in 2012	51 (moderate)	<p>Road conditions: surfaced roads</p> <p>Topography: <9% slope</p> <p>History of fire occurrence: low</p> <p>Defensible space: >100 feet around most structures</p> <p>Separation of adjacent structures: high</p> <p>Severe fire weather potential: low</p> <p>Building setback: >30 feet to slope</p>	<p>Siding, deck, and fencing materials: combustible (wood or vinyl)</p> <p>Utilities: aboveground</p> <p>Organized response: fire station >5 miles from the community</p>
Peña Blanca	64 (moderate)	92 (high)	<p>Topography: <9% slope</p> <p>History of fire occurrence: low</p> <p>Building setback: >30 feet to slope</p> <p>Water sources: available hydrants</p> <p>Organized response: fire station <5 miles from the community</p>	<p>Entrance/exit: only one road in/out</p> <p>Road conditions: <20ft wide, mostly unpaved</p> <p>Defensible space: <30 feet around structures</p> <p>Siding, deck, and fencing materials: combustible (wood or vinyl)</p> <p>Utilities: aboveground</p>
Cochiti Lake	71 (high)	65 (moderate)	<p>Entrance/exit: 2 or more roads in and out</p> <p>Road conditions: surfaced roads</p> <p>Fire access: <300 feet with turnarounds</p> <p>Street signs: present and reflective</p> <p>History of fire occurrence: low</p> <p>Building setback: >30 feet to slope</p> <p>Water sources: available hydrants</p>	<p>Defensible space: <30 feet around structures; encroaching vegetation</p> <p>Utilities: aboveground</p> <p>Severe fire weather potential: high</p> <p>Building construction: <30ft from slope</p> <p>Topography: 10-20% slopes with rolling hills</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Sile	62 (moderate)	90 (high)	<p>Topography: <9% slope</p> <p>Predominant vegetation: Shrub, mostly well-spaced with limited understory</p> <p>History of fire occurrence: low</p> <p>Severe fire weather potential: low</p> <p>Separation of adjacent structures: high</p> <p>Building setback: >30 feet to slope</p> <p>Water sources: available hydrants</p>	<p>Entrance/exit: only one road in/out</p> <p>Road conditions: <20ft wide, mostly unpaved</p> <p>Defensible space: <30 feet around structures</p> <p>Siding, deck, and fencing materials: combustible (wood or vinyl)</p>
Bernalillo	48 (moderate)	52 (moderate)	<p>Entrance and exit: 2 or more roads in and out</p> <p>Road conditions: surfaced roads, >24ft</p> <p>Topography: <9% slope</p> <p>Street signs: present and reflective</p> <p>History of fire occurrence: low</p> <p>Building setback: >30 feet to slope</p> <p>Water sources: available hydrants</p> <p>Organized response: fire station <5 miles from the community</p>	<p>Defensible space: 30-70 feet around structures</p> <p>Building construction/ deck and fencing: combustible</p> <p>Utilities: above ground</p>
Corrales East	94 (high)	85 (high)	<p>Topography: <9% slope</p> <p>History of fire occurrence: low</p> <p>Street signs: present and reflective</p> <p>Building setback: >30 feet to slope</p> <p>Water sources: available hydrants</p> <p>Organized response: fire station <5 miles from the community</p>	<p>Entrance/exit: only one highway in/out</p> <p>Road conditions: narrow and unpaved off main highway</p> <p>Predominant vegetation: timber-litter and highly combustible</p> <p>Defensible space: <30 feet around structures</p> <p>Siding, deck, and fencing materials: combustible (wood or vinyl)</p> <p>Utilities: aboveground</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Corrales West	50 (moderate)	61 (moderate)	<p>Road conditions: surfaced, low-grade roads</p> <p>Fire access: homes easily accessed by response vehicles</p> <p>Street signs: present and reflective</p> <p>Predominant vegetation: shrub with rocky/sandy floor</p> <p>History of fire occurrence: low</p> <p>Severe fire weather potential: low</p> <p>Water sources: available hydrants</p> <p>Organized response: fire station <5 miles from the community</p>	<p>Entrance/exit: only one highway in/out</p> <p>Defensible space: <30 feet around structures</p> <p>Siding, deck, and fencing materials: combustible (wood or vinyl)</p>
Cochiti Pueblo	N/A	67 (moderate)	<p>Road conditions: surfaced roads</p> <p>Fire access: <300 feet with turnarounds</p> <p>Topography: <9% slope</p> <p>History of fire occurrence: low</p> <p>Severe fire weather potential: low</p> <p>Building setback: >30 feet to slope</p> <p>Water sources: available hydrants</p>	<p>Entrance/exit: only one road in/out</p> <p>Defensible space: <30 feet around structures</p> <p>Siding, deck, and fencing materials: combustible (wood or vinyl)</p> <p>Utilities: aboveground</p>
Rio Rancho	N/A	66 (moderate)	<p>Entrance/exit: 2 or more roads in and out</p> <p>Road conditions: surfaced roads, >24 feet</p> <p>Topography: <9% slope</p> <p>Street signs: present and reflective</p> <p>History of fire occurrence: low</p> <p>Severe fire weather potential: low</p> <p>Building setback: >30 feet to slope</p> <p>Water sources: available hydrants</p> <p>Organized response: fire station <5 miles from the community</p>	<p>Defensible space: <30 feet around structures</p> <p>Separation of adjacent structures: low</p> <p>Siding, deck, and fencing materials: combustible (wood or vinyl)</p> <p>Utilities: aboveground</p>

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Sandia Mountains				
Placitas <i>(Note: There is great variability between the eastern and western portions of the Placitas area. Treatments should be planned according to site-specific conditions.)</i>	55 (moderate)	83 (high)	Road conditions: surfaced roads (in some areas) Fire Access: >300 feet with no turn around History of fire occurrence: low Water sources: available hydrants and tanks (in some areas) Organized response: fire station <5 miles from the community Roof and home construction: metal and stucco roofs; adobe and stucco construction	Entrance/exit: only one road in/out Topography: Road grade >5%; 10-20% slope near structures Defensible space: <30 feet around structures Separation of adjacent structures: low Building Construction: decks and fencing on most homes, <30 feet to slope
Historic Placitas	96 (high)	109 (high)	History of fire occurrence: low Organized response: fire station <5 miles from the community	Entrance/exit: only one road in/out Road Width: Narrow windy roads with vegetation encroachment Predominant vegetation: timber-litter and highly combustible Defensible space: <30 feet around structures Separation of adjacent structures: low Siding, deck, and fencing materials: combustible (wood or vinyl)
La Madera	87 (high)	100 (high)	Present and reflective road signs Active Community	Lack of formalized evacuation plan Extremely isolated community Many locked gates
Evergreen Hills	N/A	97 (high)	Present and reflective road signs Roof and building construction: primarily metal roof and stucco siding	Entrance/exit: only one road in/out Road Width: Narrow windy roads with vegetation encroachment Predominant vegetation: timber-litter and highly combustible Defensible space: <30 feet around structures Topography: Road grade >5%; 10-20% slope near structures

Community	Risk Rating (2012)	Risk Rating (2025)	Positives	Negatives
Puertocito	N/A	68 (moderate)	History of fire occurrence: low	Entrance/exit: only one road in/out Defensible space: <30 feet around structures Limited water supply Isolated community

3.3 COMPOSITE RISK-HAZARD MODEL INPUTS

3.3.1 FIRE BEHAVIOR MODELING APPROACH

The wildfire environment consists of three factors that influence the spread of wildfire: fuels, topography, and weather. Understanding how these factors interact to produce a range of fire behavior is fundamental to determining treatment strategies and priorities in the WUI. In the wildland environment, vegetation is synonymous with fuels. When sufficient fuels for continued combustion are present, the level of risk for those residing in the WUI is heightened.

There are three primary modes of fire spread: surface fire spread (e.g., grasses and shrubs), crown fire (e.g., ladder fuels), and spotting (embers) (Figure 3.1). Surface fire spread occurs at ground level, crown fire spreads through the upper forest canopy, and spotting involves the transportation of embers ahead of the main fire.

For this plan, an analysis of fire behavior has been carried out using well-established fire behavior models: FARSITE, FlamMap, BehavePlus, and FireFamily Plus housed within the Interagency Fuel Treatment Decision Support System (IFTDSS), as well as ArcGIS Desktop Spatial Analyst tools. Data used in the Composite Risk-Hazard Model is largely obtained from LANDFIRE and the approach was intentionally aligned with the previous CWPP efforts, but utilizing contemporary data sets.



(A)

(B)

(C)

Figure 3.1. Three primary modes of wildfire spread: 1) fire spread along the surface (e.g., grasses, shrubs) (Image A), 2) fire spread through the tree canopy (e.g., ladder fuels) (Image B), and 3) spotting (embers) (Image C).

Images A and B were developed internally with the assistance of artificial intelligence.

Image C source: <https://www.nist.gov/feature-stories/piecing-together-timeline-californias-deadliest-wildfire>

3.3.2 FIRE BEHAVIOR MODELING PLATFORMS

3.3.2.1 LANDFIRE

LANDFIRE is a national remote sensing project that provides land managers a data source for all inputs needed for FARSITE, FlamMap, and other fire behavior models. The database is managed by the USFS and the DOI. More information can be obtained from <http://www.landfire.gov>.

3.3.2.2 FARSITE

FARSITE is a computer model based on Rothermel's spread equations (Rothermel 1983). FARSITE uses spatial data on fuels, canopy cover, crown bulk density, canopy base height, canopy height, aspect, slope, elevation, wind, and weather to model fire behavior across a landscape. This data and modeling is integrated into FlamMap.

3.3.2.3 FlamMap

FlamMap, with FARSITE integrated into the software, uses a spatial component for its inputs but only provides fire behavior predictions for a single set of weather inputs. In essence, FlamMap gives fire behavior predictions across a landscape for a snapshot of time; however, FlamMap does not predict fire spread across the landscape. FlamMap has been used for the plan to predict fire behavior across the landscape under extreme (97% worst case) weather scenarios. More information can be obtained from <https://research.fs.usda.gov/firelab/projects/flammap>.

3.3.3 FIRE BEHAVIOR MODEL INPUTS

3.3.3.1 Fuels

The fuels in Sandoval County are classified using Scott and Burgan's (2005) Standard Fire Behavior Fuel Model classification system. This classification system is based on the Rothermel surface fire spread equations, and each vegetation and litter type is broken down into 40 fuel models.

The general classification of fuels is by fire-carrying fuel type (Scott and Burgan 2005):

- (NB) Non-burnable
- (GR) Grass
- (GS) Grass-Shrub
- (SH) Shrub
- (TU) Timber-Understory
- (TL) Timber Litter
- (SB) Slash-Blowdown

Table 3.2 provides a description of each fuel type included in Sandoval County.

Figure 2.4 in Chapter 2 illustrates the fuels classification throughout the county.

Table 3.2. Fuel Model Classification for Sandoval County

1.	Nearly pure grass and/or forb type (Grass)
i.	GR1: Grass is short, patchy, and possibly heavily grazed. Spread rate is moderate (5–20 chains/hour); flame length low (1–4 feet); fine fuel load (0.40 ton/acre).
ii.	GR2: Moderately coarse continuous grass, average depth about 1 foot. Spread rate high (20–50 chains/hour); flame length moderate (4–8 feet); fine fuel load (1.10 tons/acre).
iii.	GR3: Very coarse grass, average depth about 2 feet. Spread rate high; flame length moderate (4–8 feet); fine fuel load (1.60 tons/acre).
iv.	GR 4: Moderately coarse continuous grass, average depth about 2 feet. Spread rate very high; flame length high (8–12 feet); fine fuel load (2.15 tons/acre).
2.	Mixture of grass and shrub, up to about 50% shrub cover (Grass-Shrub)
i.	GS1: Shrubs are about 1-foot high, low grass load. Spread rate moderate (5–20 chains/hour); flame length low (1–4 feet); fine fuel load (1.35 tons/acre).
ii.	GS2: Shrubs are 1–3 feet high, moderate grass load. Spread rate high (20–50 chains/hour); flame length moderate (4–8 feet); fine fuel load (2.1 tons/acre).
iii.	GS3: Moderate grass/shrub load, average grass/shrub depth less than 2 feet. Spread rate high; flame length moderate (4–8 feet); fine fuel load (3.0 tons/acre).
3.	Shrubs cover at least 50% of the site; grass sparse to non-existent (Shrub)
i.	SH1: Low fuel load, depth about 1 foot, some grass fuels present. Spread rate very low (0–2 chains/hour); flame length very low (0–1 feet).
ii.	SH2: Moderate fuel load (higher than SH1), depth about 1 foot, no grass fuels present. Spread rate low (2–5 chains/hour); flame length low (1–4 feet); fine fuel load (5.2 tons/acre).
iii.	SH3: Moderate shrub load. Fuel bed depth 2–3 feet. Spread rate low (2–5 chains/hour), flame length low (1–4 feet).
iv.	SH5: Heavy shrub load, depth 4 to 6 feet. Spread rate very high; flame length very high (12–25 feet).
v.	SH6: Dense shrubs, little to no herb fuels. Fuel bed depth about 2 feet. Spread rate high (20–50 chains/hour); flame length high (8–12 feet).
vi.	SH7: Very heavy shrub load, depth 4 to 6 feet. Spread rate lower than SH5, but flame length similar. Spread rate high; flame length very high (12–25 feet).
vii.	SH8: Dense shrubs, little or no herb fuel, depth about 3 feet. Spread rates high; flame length high (8–12 feet).
4.	Grass or shrubs mixed with litter from forest canopy (Timber-Understory)
i.	TU1: Low load of grass and/or shrub with litter. Spread rate low (2–5 chains/hour); flame length low (1–4 feet); fine fuel load (1.3 tons/acre).
ii.	TU2: Moderate litter load with shrub component. Spread rate moderate (5–20 chains/hour); flame length low (1–4 feet).
iii.	TU3: Moderate litter load with grass and shrub components. Spread rate high (20–50 chains/hour); flame length moderate (4–8 feet).
iv.	TU5: High load conifer litter with shrub understory. Spread rate moderate (5–20 chains/hour); flame length moderate (4–8 feet).

5. Dead and downed woody fuel (litter) beneath a forest canopy (Timber Litter)

- i. **TL1:** Low to moderate load, fuels 1–2 inches deep. Spread rate very low (0–2 chains/hour); flame length very low (0–1 foot).
- ii. **TL2:** Low load, compact. Spread rate very low (0–2 chains/hour); flame length very low (0–1 foot).
- iii. **TL3:** Moderate load. Spread rate very slow (0–2 chains/hour); flame length low (1–4 foot); fine fuel load (0.5 ton/acre).
- iv. **TL4:** Moderate load. Spread rate very slow (0–2 chains/hour); flame length low (1–4 foot).
- v. **TL5:** High load conifer litter. Spread rate slow (2–5 chains/hour); flame length low (1–4 foot).
- vi. **TL6:** Moderate load. Spread rate moderate (5–20 chains/hour); flame length low (1–4 foot).
- vii. **TL7:** Heavy load. Spread rate slow (2–5 chains/hour); flame length low (1–4 foot).
- viii. **TL8:** Long needle litter; long needle fuel. Spread rate moderate (5–20 chains/hour); flame length low (1–4 feet).
- ix. **TL9:** Very high load fluffy dead and downed fuel litter. Spread rate moderate (5–20 chains/hour); flame length moderate (4–8 feet).

6. Insufficient wildland fuel to carry wildfire under any condition (Non-burnable)

- i. **NB1:** Urban or suburban development; insufficient wildland fuel to carry wildfire.
- ii. **NB3:** Agricultural field, maintained in non-burnable condition.
- iii. **NB8:** Open water.
- iv. **NB9:** Bare ground.

7. Activity fuel (slash) or debris from wind damage (blowdown) (Slash-Blowdown)

- i. **SB2:** Fine fuel load is 7 to 12 tons/acre, evenly distributed across 0 to 0.25, 0.25 to 1, and 1 to 3 inch diameter classes, depth is about 1 foot. Spread rate moderate; flame length moderate(4-8 feet).
- ii. **SB3:** Fine fuel load is 7 to 12 tons/acre, weighted toward 0 to 0.25 inch diameter class, depth is more than 1 foot. Spread rate high; flame length high (8-12 feet).

Notes: Based on Scott and Burgan's (2005) 40 Fuel Model System.

3.3.3.2 Topography

Topography plays a vital role in shaping fire behavior as it encompasses several key factors. The steepness of slopes significantly influences how a fire progresses, as steeper slopes can accelerate the spread of flames due to increased fuel availability and the potential for fire to travel uphill more rapidly. The aspect, which refers to the direction a slope faces, also impacts fire behavior by influencing the amount of sunlight received and the moisture levels in the vegetation. Variations in elevation contribute to variations in temperature, which in turn affect fuel moisture content and atmospheric stability, further influencing fire behavior. Additionally, landscape features such as canyons, ridges, and valleys can channel winds, potentially affecting fuels and intensifying fire behavior by directing flames and increasing the rate of fire spread. Understanding and considering these topographic factors are crucial for assessing fire risk, predicting fire behavior, and implementing effective wildfire management strategies.

Assets close to steep slopes and dense fuel loads have the highest risk of loss.

3.3.3.3 Weather

Of the three fire behavior components, weather is the most likely to fluctuate. As downslope winds from the Jemez Mountains and rising temperatures dry fuels in the spring and summer, conditions can deteriorate rapidly, creating an environment that is susceptible to wildfire. Fine fuels (grass and leaf litter) can cure rapidly, making them highly flammable in as little as 1 hour following light precipitation. Low live fuel moistures of shrubs and trees can significantly contribute to fire behavior in the form of crowning and torching. With high winds, grass fires can spread rapidly, engulfing communities, often with limited warning for evacuation. The creation of defensible space is of vital importance in protecting communities from this type of fire. For instance, a carefully constructed fuel break placed in an appropriate location could protect homes or possibly an entire community from fire. This type of defensible space can also provide safer conditions for firefighters, improving their ability to suppress fire and protect life, property, and the environment.

One of the critical inputs for FlamMap is the fuel moisture files. The initial run of the Composite Risk-Hazard Model utilized the IFTDSS Auto 97th modeling parameters, which integrate historic fire weather data from nearby remote automated weather (RAW) stations.

3.3.4 FIRE BEHAVIOR MODEL OUTPUTS

The following is a discussion of the fire behavior outputs from IFTDSS.

3.3.4.1 Flame Length

Figure B.1 in Appendix B illustrates the flame length classifications for Sandoval County. Flame lengths are determined by fuels, weather, and topography. Direct attack by hand lines is usually limited to flame lengths less than 4 feet. In excess of 4 feet, indirect suppression is the dominant tactic. Suppression using engines and heavy equipment will move from direct to indirect with flame lengths in excess of 8 feet.

Flame lengths vary substantially across the county. The highest flame lengths are associated with the timber fuels found in the higher elevations of the county.

3.3.4.2 Fireline Intensity

Figure B.2 in Appendix B illustrates the predicted fireline intensity throughout the planning area. Fireline intensity describes the rate of energy released by the flaming front and is measured in British thermal units per foot, per second (Btu/ft/sec). This is a good measure of intensity and is used for planning suppression activities. The expected fireline intensity throughout the planning area is similar in pattern to predicted flame length, as fireline intensity is a function of flame length.

The pattern for fireline intensity is similar to flame length in that intensities range from low (less than 100 Btu/ft/sec) through moderate (100–500 Btu/ft/sec) high and extreme intensity (greater than 1000 Btu/ft/sec), which tend to be associated with areas dominated by tall shrub and timber fuel loads.

3.3.4.3 Slope and Rate of Spread

Figure B.3 in Appendix B illustrates the rate of spread classifications for the county.

The rate of spread, or the speed with which fire moves away from the point of origin, is influenced by the slope. Fire moves at a faster rate uphill than downhill, thus the steeper the slope the faster the rate of spread. Additionally, steep slopes bring the fuels above the fire closer to a growing fire, making them more susceptible to ignition. Another issue with steep slopes is the possibility of burning debris rolling down the hill and igniting fuel below the main fire. This is illustrated in Figure 3.2.

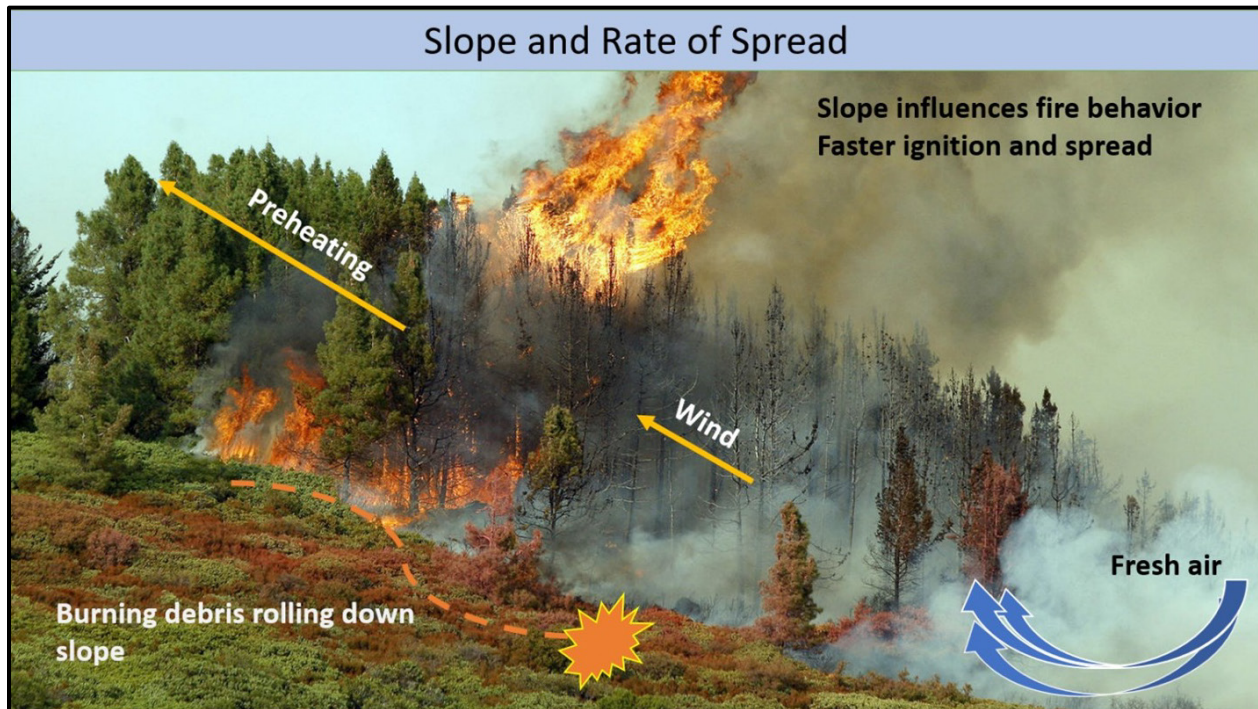


Figure 3.2. Demonstration of the effect of topography and wind patterns on fire behavior.

Rate of spread is typically measured in chains per hour (one chain is approximately 66 feet and is a common measure in wildland firefighting). Rates of spread vary significantly throughout the county. Low rates of spread are associated with timber-dominated areas, while moderate and high rates of spread are associated with grass and shrub fuels and riparian vegetation.

3.3.4.4 Crown Fire Potential

Figure B.4 in Appendix B illustrates the range of crown fire activity from surface fire (in grass-dominated areas) to passive and active crown fire (in timber-dominated fuels).

Surface fires burn on the ground (in grasses, shrubs, small trees, etc.) and are more receptive to control through suppression efforts.

Crown fires spread through the canopy of trees and are extremely difficult to control.

Removing ladder fuels and reducing fuel loads before a fire ignites is the best way to lower the risk of crown fires.

3.3.4.5 Fire Occurrence Density

Fire history data were used to determine the location where fires tend to occur more often. Figure B.5 shows the density of fire events within the county and reveals a higher incidence of fire events in the northeastern portion of the county, particularly in the vicinity of the Santa Fe National Forest.

3.3.4.6 Composite Risk-Hazard Modeling Process

Our Composite Risk-Hazard Model uses various inputs, which can be categorized into wildfire hazards and potential loss of valued assets. These inputs contribute to a raster data layer that assesses risk through weighting and summation. Hazard data sets consist of historical weather data, topography, vegetation, and fuel regimes. Threat data sets encompass fire behavior (fire intensity, rate of spread, flame length, and torching potential), fire station drive times, and fire history. Lastly, the values category includes data for the WUI (a proxy for people and property), critical infrastructure, and natural, cultural, and socioeconomic assets.

Similarly to the previous iterations of the CWPP, SWCA used the IFTDSS application to generate a landscape file for the county, incorporating various LANDFIRE data sets (fuels, slope, elevation, and aspect) into a single layer (Figure 3.3). Core Team input was used to refine the fuels model, resulting in customized fire behavior outputs. Subsequently, in Esri ArcGIS Pro, SWCA combined the fire history, fire station drive times, WUI, fire behavior, and highly valued resource and asset (HVRAs) data sets. Finally, to assess risk, a weighted sum raster process was conducted in ArcGIS Pro, assigning weights based on significance and Core Team input. As guided by the Core Team and fire behavior specialists, all eight inputs were given equal weight due to their potential impact to wildfire risk.

The distance from the nearest fire station(s) to the community typically determines fire response times. The WUI and HVRAs designate areas that constitute life, property, and critical infrastructure. Lastly, fire occurrence and fire behavior characteristics (crown fire activity, flame length, fireline intensity, and rate of spread) determine where a fire is likely to occur and the type, intensity, and speed at which the fire will spread.

It is important to note that information gathered during the field assessments is not used in the Composite Risk-Hazard Model. Only data gathered through the desktop analysis process is included.

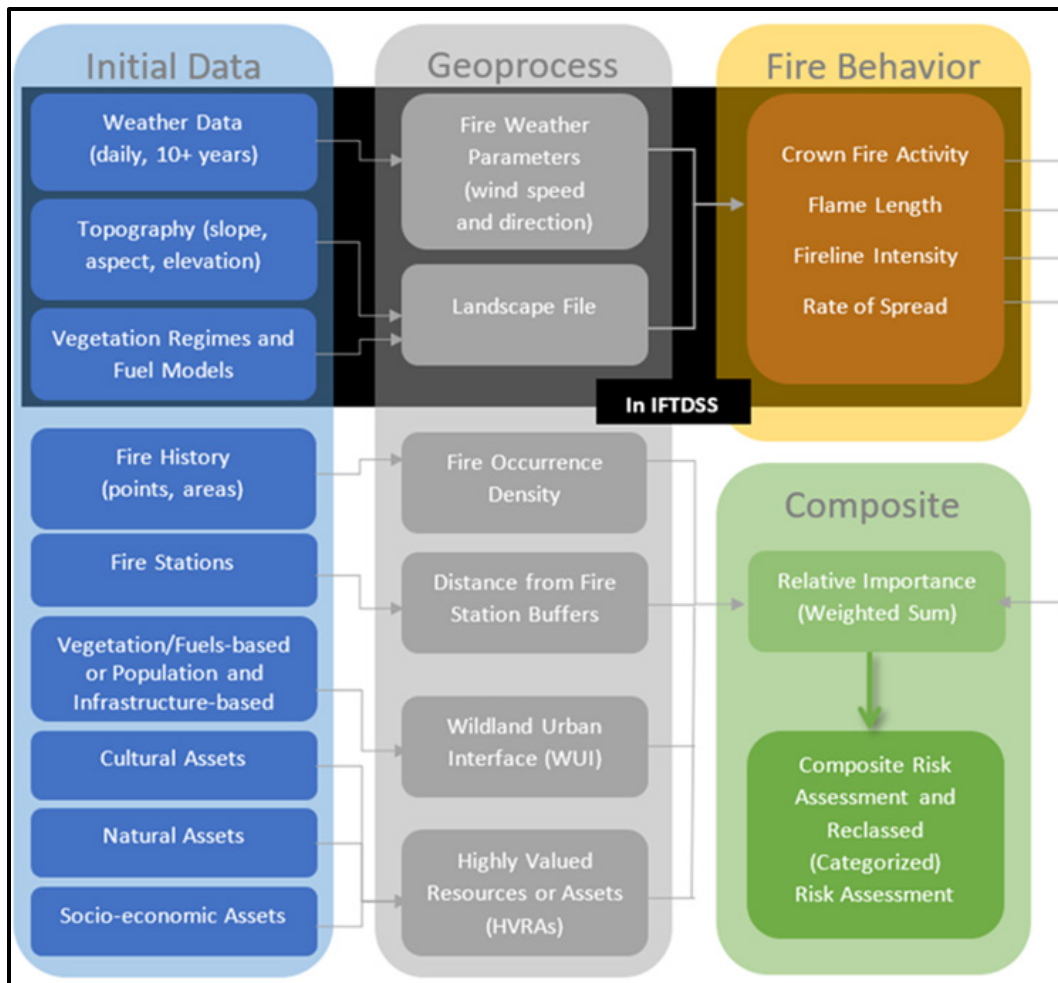


Figure 3.3. Composite Risk-Hazard Model breakdown.

3.4 COMPOSITE RISK-HAZARD MODEL RESULTS

Figure 3.4 illustrates the individual data sets and the relative weights assigned within the modeling framework. Table 3.3 shows the same data sets and weights but includes the data source. These include fire behavior parameters, HVRAs, WUI, fire history, and distance from fire stations. Figure 3.5 is the Composite Risk-Hazard Model for Sandoval County and classifies the county into low, moderate, and high-risk categories.

Overall, the Composite Risk-Hazard Model (see Figure 3.5) shows high-risk areas along north-central Sandoval County, particularly in and around the Jemez Mountains in the Sante Fe National Forest. There are also high-risk areas in the southeastern corner, specifically in the vicinity of the Sandia Mountains. Due to the resolution of the data used in the modeling process, the Composite Risk-Hazard Model is not designed to be used to determine risk to individual parcels.

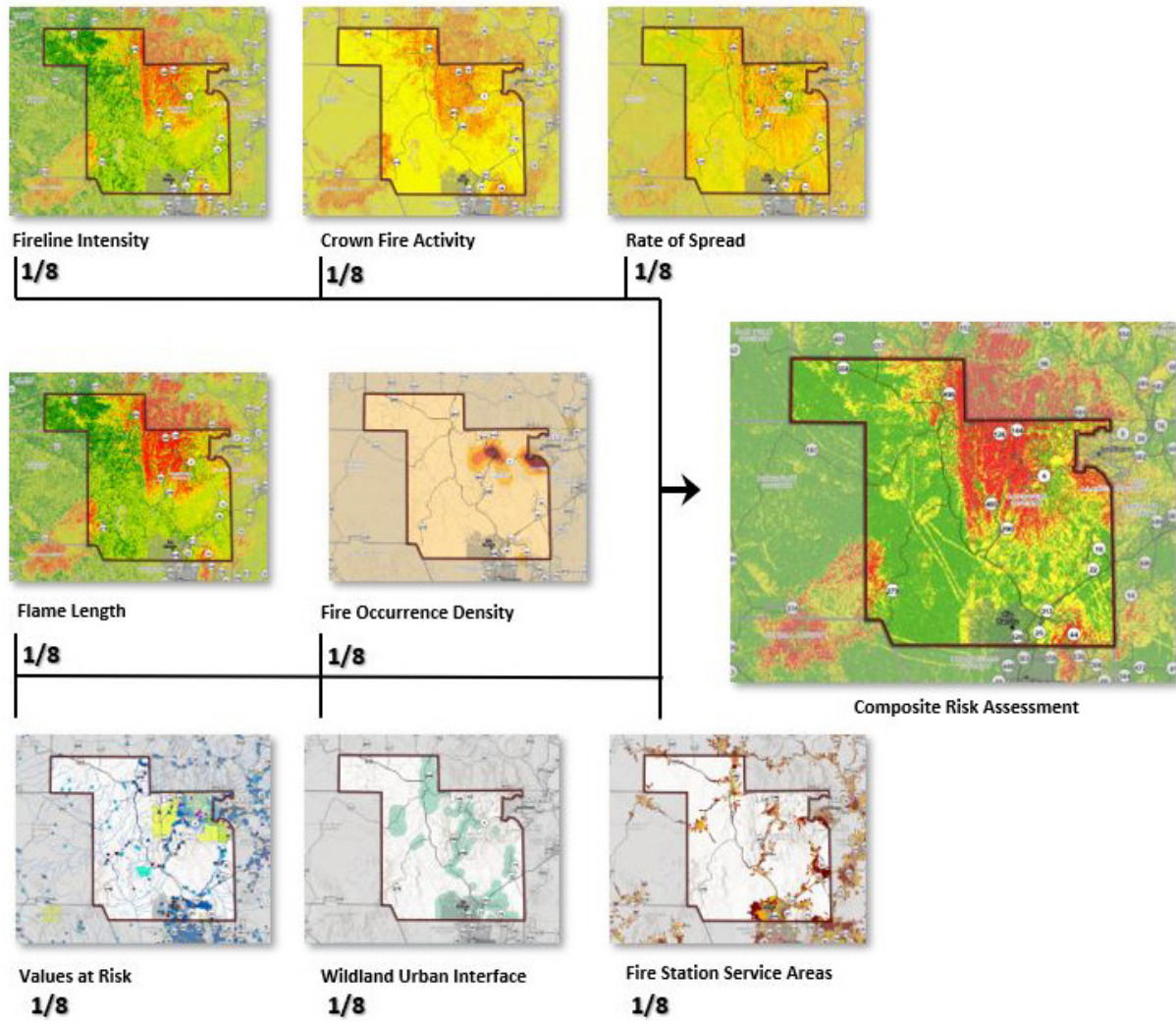


Figure 3.4. Composite Risk-Hazard Model overlay process.

Table 3.3. Composite Risk-Hazard Model Inputs, Sources, and Weights

Inputs	Source	Weight
Fireline intensity	IFTDSS, LANDFIRE	12.5%
Crown fire activity	IFTDSS, LANDFIRE	12.5%
Rate of spread	IFTDSS, LANDFIRE	12.5%
Flame length	IFTDSS, LANDFIRE	12.5%
Fire occurrence density	NIFC, EMNRD	12.5%
Values at risk	Homeland Infrastructure Foundation-Level Data	12.5%
WUI	Core Team delineation	12.5%
Fire station service areas*	Fire stations from IFTDSS	12.5%

Note: IFTDSS and LANDFIRE are federal databases for fire planning.

*Distance from fire stations was partitioned in 5-minute (rated 0), 10-minute (rated 1), 15-minute (rated 2), and >15-minute (rated 3) drive time intervals. SWCA used the Esri tool—generate service areas—and configured the analysis for access for emergency vehicles.

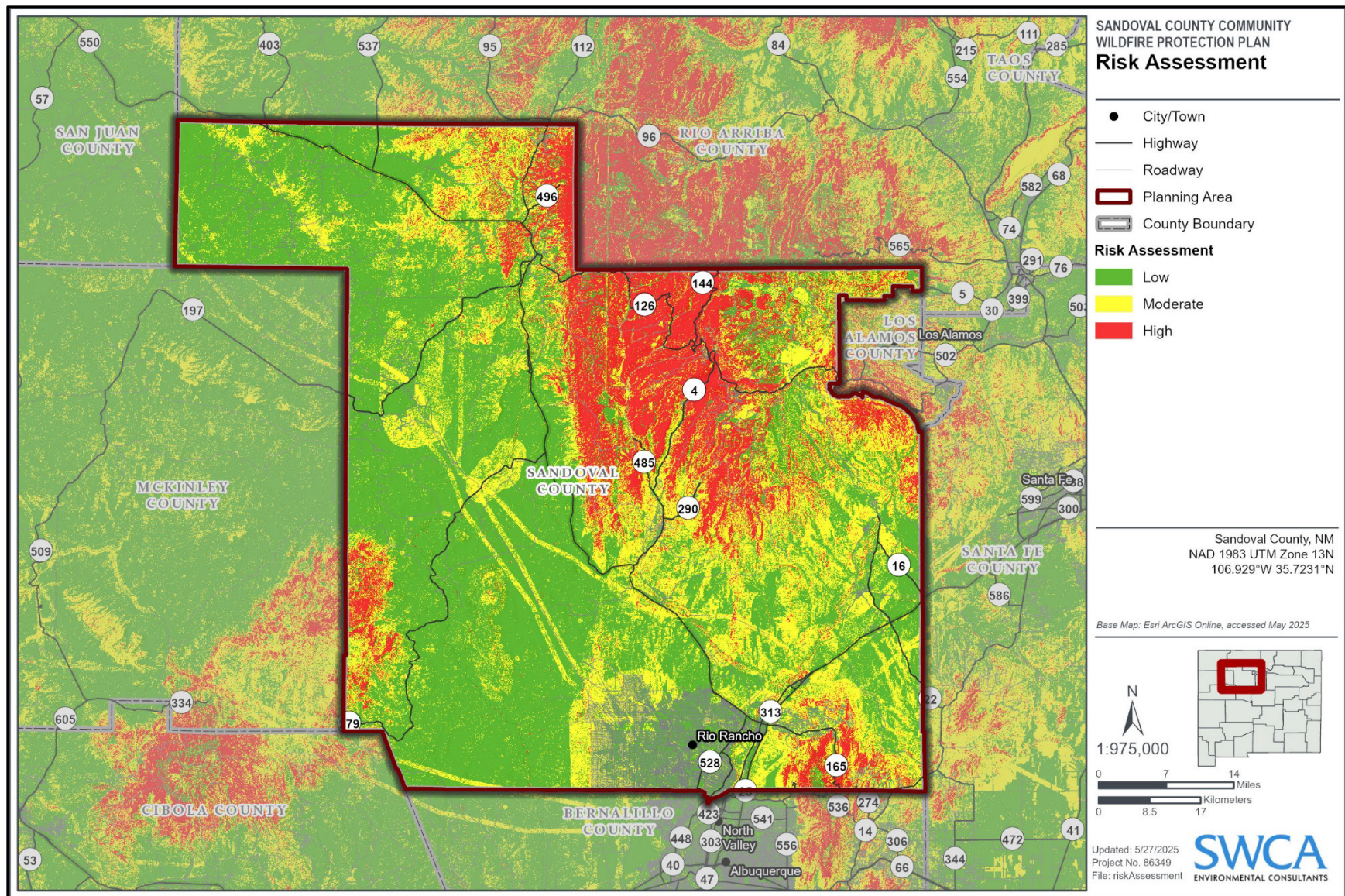


Figure 3.5. Composite Risk-Hazard Model for Sandoval County.

3.5 COMMUNITY VALUES

Earlier compilation of the critical infrastructure and resources in the county in the 2008 and 2012 iterations of the CWPP, coupled with the community assessments, public outreach, and Core Team input, has helped in the development of a list of community values that may be exposed to wildfire. These data are also supplemented with HVRA data, which is a data set that is being gathered nationwide and available through the IFTDSS.

In addition to critical infrastructure, other community values exposed to wildfire can include natural, social, and cultural resources. It is important to note that although an identification of values potentially exposed to fire can inform treatment recommendations, a number of factors must be considered in order to fully prioritize areas for treatment; these factors include appropriateness of treatment, land ownership constraints, locations of ongoing projects, available resources, and other physical, social, or ecological barriers to treatment.

Figures B.6 through B. 10 in Appendix B show the cultural, natural, and socioeconomic resources as well as critical energy, communication, transportation, and water infrastructure.

3.5.1 NATURAL VALUES

Sandoval County contains a wide variety of natural resources, including critical habitats, nature preserves, national monuments, parks and open spaces owned by city, state, federal, and private entities; waterways; and other important natural areas and resources (see Figure B.6 in Appendix B).

For residents and visitors alike, ecological values are central to the interests and aesthetics of Sandoval County. While wildland fire is a natural and necessary part of the local ecology, high-severity fire poses a hazard to numerous natural resources. Under a normally occurring fire regime, many ecological values will recover within a few years of a fire. Air quality should recover within days, but wildlife habitat may take years. However, severe or unseasonable wildfire may compromise ecosystem health producing conditions conducive to the spread of noxious and invasive weeds.

This CWPP update builds upon previous efforts (2008 and 2012 CWPPs) by continuing to emphasize public outreach across the county and highlighting the importance of protecting natural and ecological values (Figure 3.6). Examples of natural values and places identified by the public, Core Team, and previous planning efforts include the following:

- Local and regional parks
 - Tetilla Peak Recreation Area
 - Mountain View Park
- Wildlife and aquatic habitat
 - The Rio Grande and other water resources
 - Wetlands
 - Nearby forests
 - Natural vegetation communities
 - Air and soil stability
 - The bosque ecosystem
 - Fish hatchery
- Outdoor recreation areas
 - Scenic viewsheds
 - Trail systems
 - Scenic rural areas
 - Public campgrounds
 - Private campgrounds: Girl Scout, Hummingbird camp
- NPS lands
 - Valles Caldera National Preserve
 - Bandelier National Monument
- USFS lands
 - Santa Fe National Forest
 - Cibola National Forest
 - Jemez National Recreation District
 - National Forest: Soda Dam to La Cueva (fishing area)
- New Mexico State Parks lands
 - Fenton Lake State Park



Figure 3.6. Example of a scenic viewshed present within Valles Caldera National Preserve.

Source: <https://www.nps.gov/media/photo/gallery-item.htm?pg=7336297&id=a06ef5ca-4ad2-41b0-bd1a-5246adc48d0e&gid=4F684837-0F28-4929-8F1D-B78282CB1E6B>

3.5.2 SOCIOECONOMIC VALUES

Previous CWPP efforts (2008 and 2012) have supported the identification of the many socioeconomic values in Sandoval County, and this update continues to build on that foundation. Socioeconomic values include population, public institutions, infrastructure, commercial, and economic resources and the built environment (see Figure B.9 in Appendix B). Examples include the following:

- Communications infrastructure (e.g., cell phone and radio towers)
- Tourism values (e.g., restaurants, recreational facilities)
- Local, state, and national recreation areas
- Schools
- Hospitals
- Public safety infrastructure
- Highways
- Municipal infrastructure
- Industrial infrastructure
- Water supply and treatment sites
- Churches
- Care homes, senior housing, and day care
- Recreation sites (e.g., golf courses, trails, parks, rivers)
- Agricultural land and food systems



Figure 3.7. Example of a socioeconomic value: fire station.

3.5.3 CULTURAL VALUES

Previous CWPP efforts (2008 and 2012) have supported the identification of the varied cultural values in Sandoval County, and this update continues to build on that foundation. Many historical landmarks are scattered throughout the county (see Figure B.10 in Appendix B). Cultural values include buildings, sites, and districts that are part of the National Register of Historic Places, tribal lands, and other structures and places identified by the public and Core Team. Examples of cultural values that have been identified by the Core Team and the public in the planning area are the following:

- Seven Springs hatchery registered landmark buildings
- Historic churches
- Historic plaza buildings
- Historic municipal buildings
- Historic buildings and houses (non-municipal) recognized on the National Register of Historic Places and New Mexico State Historic Registry
- Traditional irrigated agricultural lands in the bosque corridor and their corresponding acequia systems and acequia components and structures
- Prehistoric and historic pueblo sites along the Rio Grande
- State Parks and Monuments (Coronado, Jemez)
- Bandelier National Monument
- Archaeological sites
- Jemez National Recreation Area
- Jemez Pueblo
- Springs, pre-historic trails, shrines, special places, i.e. procurement sites



Figure 3.8. An example of a cultural value, Jemez National Historic Landmark.

Source: <https://www.jemezpuablo.org/places/jemez-historic-landmark/>

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This plan has been aligned with the Cohesive Strategy and its Phase III Western Regional Action Plan by adhering to the nationwide goal:

“To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.” (Forests and Rangelands 2014:3).

The plan recommendations have been structured around the three main goals of the Cohesive Strategy: restoring and maintaining landscapes, fire-adapted communities, and wildfire response. Many of the recommendations listed can be implemented at the homeowner or community level. Projects requiring large-scale support can be further prioritized based on the Composite Risk-Hazard Assessment.

Recommendation matrices are used throughout this chapter to serve as an action plan for implementation.

4.1 ONGOING EFFORTS IN FIRE PREVENTION AND MITIGATION

This CWPP is a full update to the 2012 plan, which itself built upon the 2008 CWPP. Throughout the years, significant efforts have been made to mitigate wildfire risk and include projects regarding community education, fuel reduction, firefighting capacity, water resources, and road accessibility, among others (refer to Section 1.2 in Chapter 1 for more information). These past efforts reflect a sustained commitment to wildfire planning, prevention, and mitigation. While many goals and priority projects from previous plans have been completed, others remain ongoing. This update continues and expands upon those efforts, reinforcing Sandoval County’s dedication to reducing wildfire risk and enhancing community resilience.

4.2 GOAL 1: RESTORE AND MAINTAIN LANDSCAPES

Goal 1 of the Cohesive Strategy and the Western Regional Action Plan is Restore and Maintain Landscapes: Landscapes across all jurisdictions are resilient to fire and other disturbances in accordance with management objectives.



“Sustaining landscape resiliency and the role of wildland fire as a critical ecological process requires a mix of actions that are consistent with management objectives. The West will use all available methods and tools for active management of the landscape to consider and conserve a diversity of ecological, social, and economic values. The West will coordinate with all partners and seek continued stakeholder engagement in developing market-based, flexible and proactive solutions that can take advantage of economies of scale. All aspects of wildland fire will be used to restore and maintain resilient landscapes. Emphasis will be placed on protecting the middle lands near communities.” (Western Regional Strategy Committee [WRSC] 2013:14).

In this CWPP, recommendations to restore and maintain landscapes focus on vegetation management and hazardous fuel reduction.

Refer to Appendix E for defensible space and fuel treatment (hazardous fuel reduction) methods.

4.2.1 POST-FIRE RESTORATION

Post-fire recovery and restoration are essential to achieving long-term wildfire resilience in Sandoval County. Wildfire impacts do not end when the flames are extinguished—post-fire conditions can pose serious risks to public safety, water quality, infrastructure, and ecosystem health. Recovery efforts provide an opportunity to stabilize landscapes, reduce erosion and flooding, and support the regeneration of native vegetation. They also allow communities to rebuild in ways that reduce future wildfire vulnerability, such as improving building materials, restoring defensible space, and updating local plans and codes. Emphasizing coordinated and proactive recovery not only supports resilient landscapes and fire-adapted communities but also strengthens future emergency response by restoring access routes, fire breaks, and suppression resources.

Post-fire recovery and restoration fall broadly under the Cohesive Strategy’s goal to “restore and maintain landscapes.” While not always addressed explicitly, this goal is reflected in several of the recommendations presented in Table 4.1 and, to some extent, Table 4.2. This CWPP also seeks to capture Sandoval County’s wildfire resiliency priorities, including efforts focused on post-fire recovery and restoration. However, due to the dynamic nature of wildfire risk and landscape conditions, it is not feasible to include every potential project. As such, the County may implement additional recovery and restoration efforts beyond those identified in this plan.

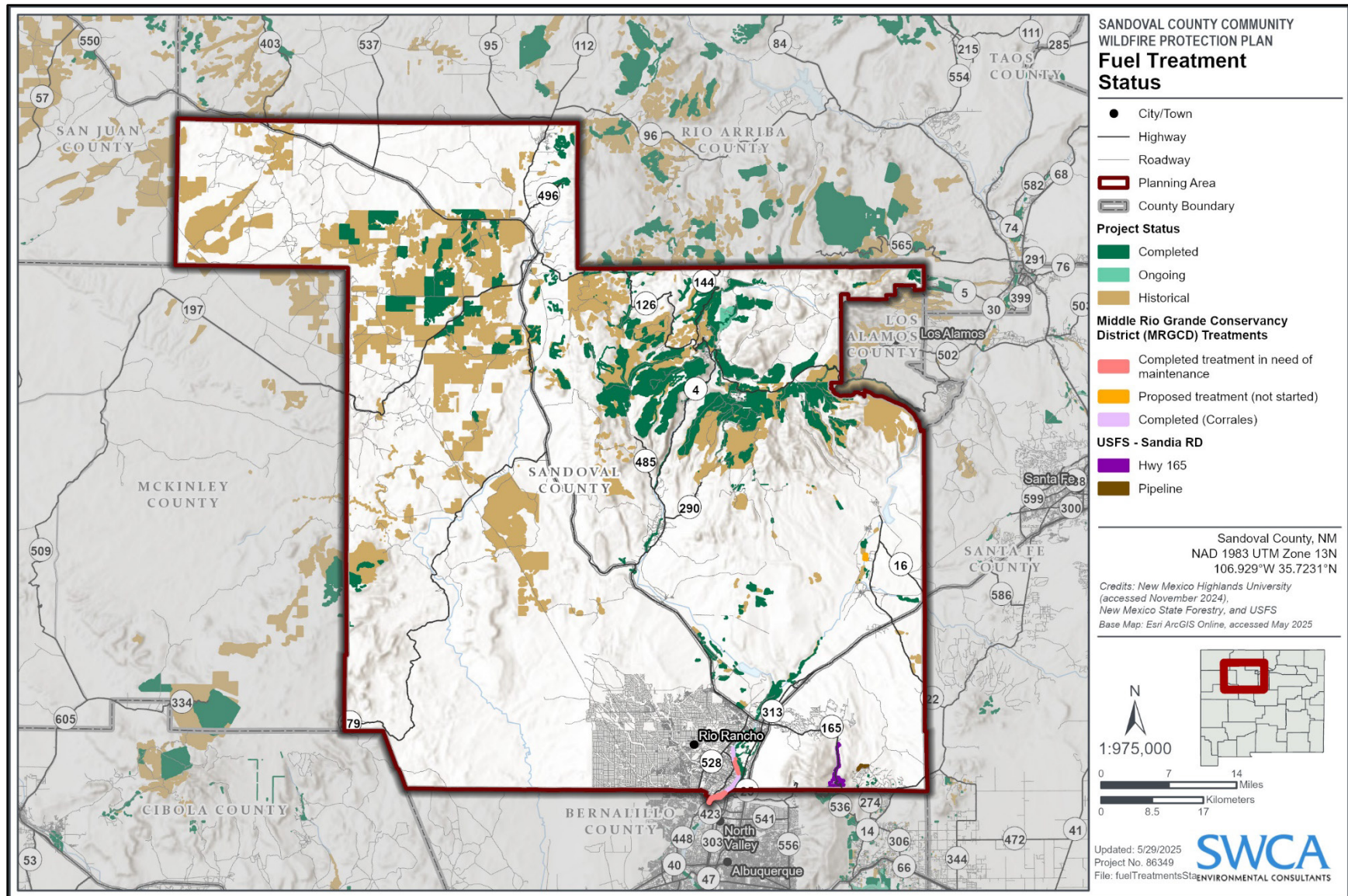


Figure 4.1. Past, ongoing, and completed fuels treatments in Sandoval County. An interactive map can be accessed here: <https://www.arcgis.com/apps/webappviewer/index.html?id=d078ddb32b8143c69245723d63afb08c>.

4.2.2 PAST, ONGOING, AND COMPLETED FUEL TREATMENTS IN SANDOVAL COUNTY

Sandoval County is composed of private and public lands, tribal lands, and other entities and municipalities that actively manage fuels and forest health. Figure 4.1 shows fuels treatments that are ongoing or have been completed in and around the county; these include historic treatment boundaries.

4.2.2.1 EMNRD

The Forestry Division, in collaboration with its partners, employs various treatment methods to safeguard New Mexico's forests from severe wildfires and bark beetle infestations. These methods include thinning, mastication, prescribed burning, and other vegetation management techniques (EMNRD Forestry Division n.d.). Ongoing, completed, and historical treatments by EMNRD and its partners are shown in Figure 4.1.

4.2.2.2 Middle Rio Grande Conservancy District

The Middle Rio Grande Conservancy District (MRGCD) plays a vital role in managing water resources and protecting riparian ecosystems in Sandoval County. As part of its stewardship, MRGCD engages in strategic fuel reduction and vegetation management to reduce wildfire risk and safeguard critical water infrastructure and bosque habitat (see Figure 4.1). Notable completed projects include the treatment of 80 acres in the Peña Blanca Bosque at Leyba Arroyo and 400 acres of shaded fuel breaks and restoration in the Corrales Bosque, in collaboration with the U.S. Army Corps of Engineers (USACE) and the Village of Corrales. Ongoing efforts include the creation of a 25-acre fire response safety corridor along the Corrales levee and riverside drain, jointly implemented by MRGCD and the Village of Corrales.

4.2.2.3 U.S. Forest Service

The Cuba and Jemez Ranger Districts in the Santa Fe National Forest had an active 2024 for fuel reduction projects, which included the following (SFNFPAO 2024; Santa Fe County 2024; USFS 2024):

Cuba Ranger District

- Tusas West Pile Burn – 49 acres
- Deer Lake Pile Burn – 77 acres
- Tusas West Unit 2 Thin and Pile Burn – 224 acres

Jemez Ranger District (Winter 2024–2025)

- Triangle Pile Burn – 43 acres
- Hill Pile Burn – 45 acres
- Joaquin North Rx - 1701 acres
- Holiday Fuelbreak
- Barley Canyon Thin and Pile Burn – 93 acres

Sandia Ranger District

- New Mexico Hwy 165 (Las Huertas Canyon) thin and pile – 1,298 acres
- Pipeline thin and pile, mechanical – 158 acres

4.2.2.4 National Park Service

The NPS undertakes efforts to reduce the risk of devastating wildfires and improve ecosystem health. In Bandelier National Monument, the NPS has conducted prescribed burns, thinning of surface and ladder fuels, and pile burns, as well as data collection on the impacts of treatments (U.S. Geological Survey [USGS] New Mexico Landscapes Field Station and Bandelier National Monument n.d.). The park is also in the process of creating an updated fire management plan to replace their 2005 plan (NPS 2005, 2024c). Similarly, the NPS implements prescribed fires and data collection in Valles Caldera National Preserve (NPS 2022). The preserve is in the process of creating a fire management plan which will help the NPS employ a variety of strategies, including prescribed burns, vegetation thinning, and implementation of defensible space, in collaboration with other entities to reduce wildfire risk and improve ecosystem health (NPS 2024d, 2024e).

Fuels management of public and private land in the WUI is key to the survival of homes during a wildfire event, as well as the means to meet the criteria of Goal 1.

4.2.2.5 BLM

The Rio Puerco Field Office, which falls under the Albuquerque District Office, conducts fuel treatments on BLM lands in Sandoval County. In December 2023 through the spring of 2024, the field office planned a series of prescribed burns throughout its jurisdiction. The treatments conducted in Sandoval County were a 1,000-acre broadcast burn in the Ignacio Chavez and Chamisa wilderness areas and a 55-acre pile burn near San Ysidro (BLM 2023a). The treatments in Ignacio Chaves and Chamisa wilderness areas were focused on Mesa Chivato where over 10,000 acres have been treated with prescribed fire and vegetation thinning by the BLM in recent years (BLM 2023b). Over the 2024–2025 winter, the BLM also planned to conduct a 50-acre pile burn near San Ysidro in Sandoval County (BLM 2024a).

4.2.2.6 BIA

The BIA Southwest Region and Navajo Region operate within portions of Sandoval County and are responsible for managing fuels. Numerous efforts fire treatment efforts have been undertaken in the Southwest region. Between 2000 and 2020, tens of thousands of acres were treated via mechanical thinning, prescribed burns, and herbicide treatments. In 2020, the Southwest Region began plans to take a landscape approach to fuel reduction. Under this plan, a couple 20,000-acre landscapes would be identified. Then, analyses would be conducted to develop and implement a burn plan (Southwest Regional Office Division of Forestry and Wildland Fire Management 2020).

4.2.3 RECOMMENDATIONS FOR HAZARDOUS FUEL MODIFICATION

Effective fuels management is vital for protecting homes during wildfires, aid suppression efforts, and safeguarding valued resources. Recommendations emphasize a strategic approach to reduce high-intensity wildfire threats near structures, adhering to Firewise and International Fire Code standards, while also promoting forest health and resilience in open space areas. Proposed projects target fuels management along roadways, in WUI communities, around critical infrastructure, and on private and

public lands, aiming to streamline treatments through a multipronged collaborative approach between tribal entities, private landowners, land and watershed management organizations, and local, state, and federal agencies.

Table 4.1 summarizes the types of treatments recommended throughout the planning area. The majority of the treatments are focused on higher-risk areas, as defined by the Composite Risk-Hazard Assessment and Core Team input. Many of these treatment recommendations are general across the communities because similar conditions and concerns were raised by fire responders for all communities that border wildland areas. Tables 4.1, 4.2, and 4.3 also address the requirement for an action plan and assessment strategy by providing monitoring guidelines and a timeline for implementation. This timeline is obviously dependent on available funding and resources, as well as National Environmental Policy Act (NEPA) protocols for any treatments pursued on public land.

When applying fuel treatments, every effort should be made to align treatments with 2020 New Mexico Forest Action Plan (EMNRD Forestry Division 2020) with consideration of all appropriate best management practices and sound science. In addition, treatments should be strategically located in areas to maximize effectiveness of other existing and ongoing projects (see Figure 4.1).

The treatment list is by no means exhaustive and should be considered purely a sample of required projects for the future management of the planning area. Many projects may be eligible for grant funds available from federal and/or state sources. For a list of funding sources, please refer to Appendix D.

4.2.3.1 Areas of Concern

To better prioritize resilient landscape recommendations, the Core Team delineated broad areas of concern within the county (Figure 4.2) using a variety of mapping products and local expertise, WUI, wildfire hazards, fuel models, and aerial imagery. The area of concern is used to demonstrate regions of the planning area that should be prioritized for mitigation actions to reduce risk to assets. This allows land managers and homeowners to better understand locations on the landscape that would benefit the most from wildfire mitigation and preparedness.

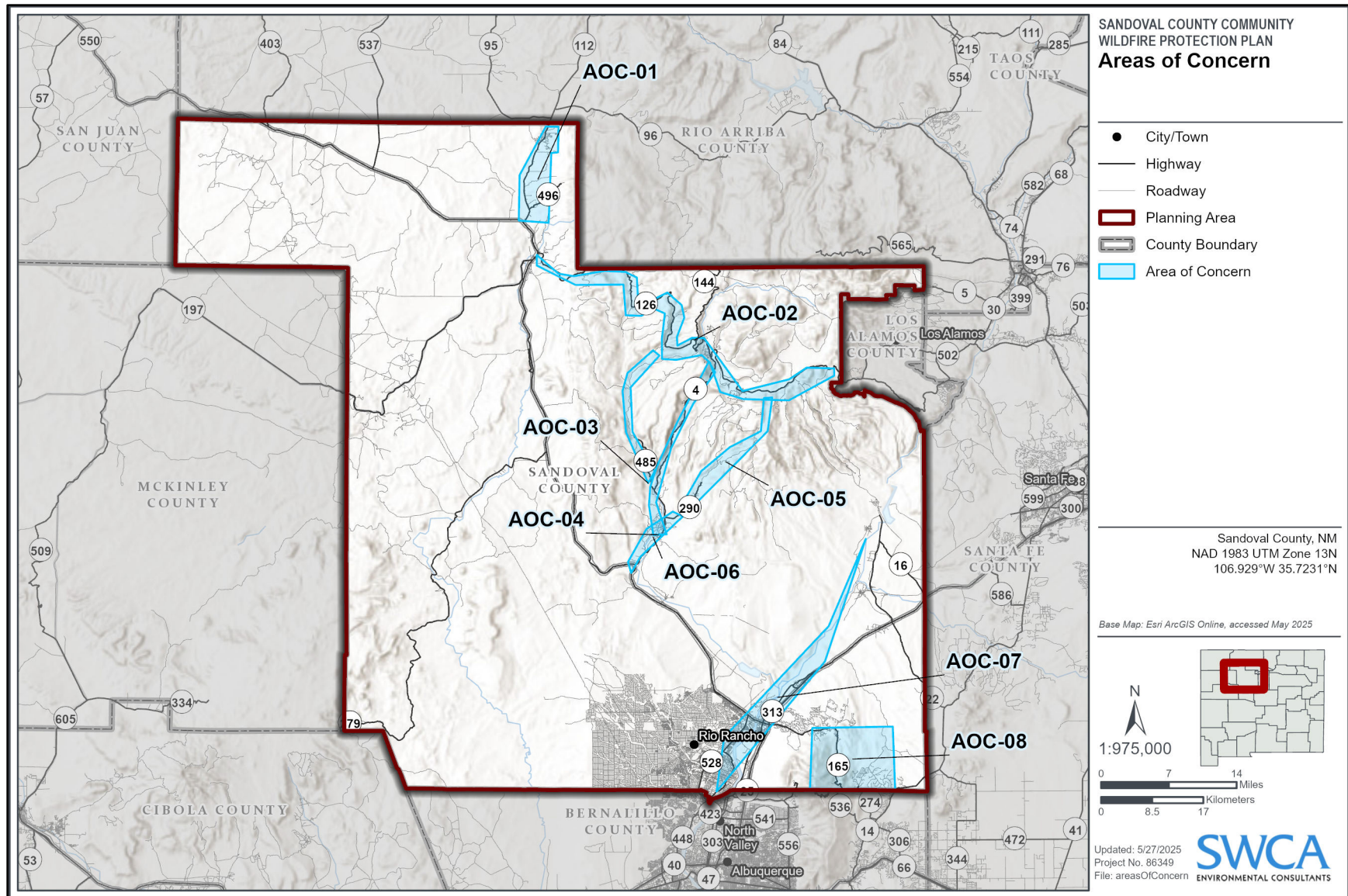


Figure 4.2. Areas of concern in Sandoval County.

Table 4.1. Recommendations for Creating Resilient Landscapes (hazardous fuels modification)

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
RL #1		High	Fall 2027	Fuel reduction Strategically install fuel breaks throughout the county in accordance with risk assessment findings and existing knowledge of fuel loading and high-risk areas.	Private and public lands throughout Sandoval County	Sandoval County, Pueblo partners, USFS, BLM, State, New Mexico State Land Office (NMSLO), homeowners' associations (HOAs), private landowners, MRGCD, and Village of Corrales	<ul style="list-style-type: none">• Work with community stakeholders to identify and implement treatments in high-risk areas.• Coordinate adjacent treatments with Pueblos and the USFS.• Conduct the thinning of buffer zones between USFS and private properties.• Mow around fence lines on ranchlands.• Reduce shrubs and remove invasives.• Plan prescribed burns on USFS lands.• Plan prescribed burns on state/private lands.• Purchase equipment for use in fuel reduction work, including heavy equipment.• Install fuel breaks in high-risk areas and prioritize underserved, remote, and isolated areas. Potential fuel break locations include the following:<ul style="list-style-type: none">◦ Along community perimeters◦ Perpendicular to average wind direction in vulnerable areas◦ Along rights-of-way (ROWs), including evacuation corridors◦ Along riparian corridors that lead into communities, strategically reducing ladder fuels and breaking up fuel continuity◦ Areas that support protection of the WUI◦ Areas that increase fire responder safety◦ Communities surrounded by steep topography and heavy fuels◦ Around critical infrastructure and facilities◦ Along strategic ridge tops◦ Near existing fuel breaks for improved effectiveness <p>Focus areas include the following:</p> <ul style="list-style-type: none">• Vegetation treatments coupled with educational outreach in and around Jemez Springs• Fuel reduction around King Ranch in Santa Ana Pueblo• Pile and broadcast burns in Areas 1, 2, and 3• Hazard reduction at the top of Fenton Hill• The USFS project to alleviate concerns around Hummingbird Music Camp and YCC Camp• Tree thinning around Fenton Lake• Sierra Los Pinos• Perimeter buffer zone between USFS lands and Jemez Mountains Firewise Association (JMFA) communities• Naturally occurring fuel breaks on Santa Fe National Forest land• Hazardous fuels in JMFA communities with Non-Federal Lands (NFL) treatments• Corrales Bosque, adjacent ROWs, and WUI areas• Re-treatment of 80 acres Peña Blanca Bosque at Leyba Arroyo	Provide access to fire personnel. Establish fuel breaks and fire containment lines. Create resilient landscapes and address potential for extreme wildfire behavior in and around the WUI. Protect communities and critical infrastructure and facilities.	Regular maintenance needed to keep effective fuels treatments.	<ul style="list-style-type: none">• New Mexico Fire Protection Grant• New Mexico Water Trust Board Grants• New Mexico Association of Counties: Wildfire Risk Reduction Program• National Forest Foundation (NFF); Innovative Finance for National Forests Grant Program• Building Resilient Infrastructure and Communities (BRIC) Grant Program• Firewise Grants• Natural Resources Conservation Service Regional Conservation Partnership Program (NRCS RCPP)• NMSF WUI/ Hazardous Fuel Treatments on NFL grant programs• New Mexico Water Trust Board• New Mexico House Bill 175 (HB 175)

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">100 acres in the Corrales Bosque (MRGCD and Village of Corrales)Re-treatment of USACE restoration sites and shaded fuel breaks in Corrales Bosque (400 acres)Fuels treatments (50 acres) on Corrales Riverside drain and Sandoval LateralPlacitas Corridor and Historic Placitas areasConsider revisiting the Coronado SWCD 2013 pilot study of seven properties to gather lessons learned on fuels reductions on residential propertiesContinue and support the Coronado SWCD's periodic Chipper Days			
RL #2		High	Fall 2027	Utility protection and improvements Protect power, transmission, and communication lines by reducing or removing fuels around infrastructure (e.g., power poles, substations, etc.). Assess existing infrastructure to determine needed improvements.	Utility ROWs, private and public lands in Sandoval County	Sandoval County, Pueblo partners, USFS, EMNRD Forestry Division, NMSLO, HOAs, private landowners, Village of Corrales, and Jemez Electric Cooperative	<ul style="list-style-type: none">Ensure adequate clearance between power lines and trees for enhanced safety and wildfire prevention.<ul style="list-style-type: none">Work with relevant utility companies to determine best practices.Work with utilities on vegetation management plans.Work with relevant agencies on requiring underground utilities and very limited variances.Identify funding to place existing electrical utilities underground.Assess existing infrastructure for age-related wear and implement necessary repairs and upgrades to reduce wildfire risk. <p>Focus areas include the following:</p> <ul style="list-style-type: none">Standard Form 299 management plan for ROW clearing along utility linesInadequate electrical transmission line easements (10 feet on each side) for preventing tree damage and subsequent fires in Sierra Los Pinos	Protect life and property by preventing the destruction of energy or communications infrastructures in the event of a fire.	Regular maintenance needed to ensure lines are clear of vegetation. Monitoring should occur prior to fire season (February) and in the fall (October).	<ul style="list-style-type: none">FEMA BRIC Grant ProgramFirewise GrantsNew Mexico Fire Protection GrantEmergency Forest Restoration Program (EFRP)
RL #3		High	Fall 2027	Roadside fuels reduction Implement roadside fuels treatments along critical ROWs, including potential evacuation corridors.	Sandoval County	Sandoval County, Pueblo partners, USFS, BLM, State, NMSLO, HOAs, private landowners, MRGCD, and Village of Corrales	<ul style="list-style-type: none">Apply thinning along roadways to allow for firefighting apparatuses and evacuations.Mow a 70-foot buffer along edge of roadway and remove invasive species along roadside.Remove piñon juniper and other shrubs encroaching on highway ROW. <p>Focus areas include the following:</p> <ul style="list-style-type: none">Vegetation thinning around Jemez communities to enhance safety and fire responseWith landowner approval, roads in Sierra Los Pinos require thinning to improve egress and safer passage of firefighting equipmentThinning of doghair thickets immediately adjacent to community roadway entrances using NFL funds on private property and government crews on Forest Service landRiverside drains, irrigation canals, and levee ROWs along the Middle Rio Grande adjacent to communities, Pueblos, and developments.	Reduce risk of roadside ignitions and protect functionality of evacuation routes.	Regular maintenance needed to ensure roadsides and railroads are clear of vegetation.	<ul style="list-style-type: none">FEMA BRIC Grant ProgramEFRPNew Mexico Fire Protection GrantFirewise grantsNMSF WUI/NFLNRCS RCPPNew Mexico Water Trust Board GrantsHB 175

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
RL #4		Medium	Fall 2026	Prescribed herbivory Identify continued prescribed herbivory in open spaces, targeting grasses, light fuels, and invasive and noxious weeds throughout the county.	Sandoval County	Sandoval County, Pueblo partners, Fire Protection Districts (FPDs), NMSF, USFS, BLM, MRGCD, and Village of Corrales	<ul style="list-style-type: none">• Use prescribed herbivory as fuel reduction and maintenance technique, especially adjacent to WUI areas.• Work with local ranchers to develop a regional prescribed herbivory plan.• Implement prescribed herbivory plans to eliminate dry grass and remove weeds and/or establish irrigation to regreen the parcel.• Employ prescribed herbivory as a solution for treating areas of high concern and challenging topography that would be unsafe for hand treatment.• Work with local personnel to investigate locations where prescribed herbivory would be most effective.	Reduce fuel loading of fine fuels that could increase wildfire spread to WUI areas.	Regular monitoring needed to ensure against environmental damage and invasive species. Update the CWPP project tracking tool with progress and relevant statistics.	<ul style="list-style-type: none">• Firewise Grants• New Mexico Fire Protection Grant• New Mexico Association of Counties: Wildfire Risk Reduction Program• EFRP• HB 175
RL #5		High	Fall 2026	Fuels break maintenance Sustain maintenance of existing fuel breaks and progress with execution of planned fuel breaks.	Sandoval County	Sandoval County, Pueblo partners NMSF, USFS, BLM, NMSLO, private landowners, MRGCD, and Village of Corrales	<ul style="list-style-type: none">• Implement a routine maintenance and inspection schedule for existing fuel breaks to ensure their effectiveness.• Maintain existing fuel breaks according to vegetation conditions.• Execute planned fuel break projects according to established timelines and priorities.• Collaborate with relevant agencies, organizations, and communities to ensure project success.• Integrate the mitigation of hazards, such as dead or diseased trees, into fuel break maintenance plans.• Assess if existing fuel breaks are sufficiently wide to be effective; expand fuel breaks where needed.• Implement fuel break around high-capacity sprinkler systems.• Work with volunteers for dead and down removal.• Work with volunteers for invasive species removal.• Acquire heavy equipment.	Maintain effectiveness of previously installed fuel breaks.	Regular evaluations and maintenance needed to keep fuel breaks effective.	<ul style="list-style-type: none">• New Mexico Association of Counties: Wildfire Risk Reduction Program• National Forest Foundation (NFF); Innovative Finance for National Forests Grant Program• BRIC Grant Program• Firewise Grants• NFP• NRCS RCPP• USFS CWDG• HB 175

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
RL #6		High	Spring 2028	Watershed protection Continue to identify and execute watershed-scale ecosystem projects across jurisdictions (i.e., private, federal, Tribal, state) to enhance wildfire resilience, wildlife habitat, and water quality.	Public and private lands within Sandoval County	Sandoval County, Pueblo partners NMSF, USFS, BLM, NMSLO, MRGCD, Village of Corrales, and New Mexico Rural Water Association	<ul style="list-style-type: none">Collaborate with agencies, environmental organizations, and community stakeholders to design and implement integrated watershed fuel reduction projects.Develop comprehensive project plans that outline specific mitigation strategies and ecological restoration goals.Use a combination of fuel reduction methods tailored to watersheds, including prescribed burns, mechanical thinning, debris removal, chipping, hand thinning, targeted herbicide treatments, mastication, and targeted vegetation management.<ul style="list-style-type: none">Ensure that mitigation efforts comply with environmental regulations and best practices to minimize ecological impacts.Build on the riparian maintenance documentation to streamline environmental review and permitting.Integrate restoration practices that promote water quality, soil health, and native vegetation recovery.Assess and prioritize watersheds based on<ul style="list-style-type: none">wildfire risk,presence of sensitive species, andwatershed health.Develop and implement a monitoring program to track the effectiveness of fuel reduction and restoration projects.Strategically targeted funding to treat fuels around water sources, with a focus on comprehensive community-wide treatments. <p>Focus areas include the following:</p> <ul style="list-style-type: none">Comprehensive community-wide treatments.Implement a legal code or ordinance for watershed protection during land development. The code/ordinance should align with the Santa Fe National Forest Land Management Plan's Objectives for Water Resources.Develop and train crews to engage in watershed restoration work following a wildfire using USACE "Engineering with Nature" principles.	Reduce hazardous fuels throughout the county. Create resilient landscapes and address potential for extreme wildfire behavior in and around the WUI. Ensure the protection of vulnerable ecosystems and values at risk.	Maintenance and updates as needed.	<ul style="list-style-type: none">New Mexico Fire Protection GrantUSFS CWDG GrantsFEMA BRICFEMA Hazard Mitigation Grant ProgramGeneral Services Administration Federal Excess Personal PropertyFirewise GrantsNRCS RCPPEmerging Contaminants in Small or Disadvantaged Communities ProgramNRCS RCPPNMSF WUI/NFLNew Mexico Water Trust BoardHB 175
RL #7		Medium	Winter 2026	Green waste disposal and recycling Promote green waste disposal resources and establish designated collection days to encourage community participation and proper disposal of green waste.	Sandoval County	Sandoval County, NMSF, and Village of Corrales	<ul style="list-style-type: none">Seek funding to acquire an industrial-sized chipper for the county.Conduct public outreach to ensure that residents are aware of all the resources for green waste disposal (e.g., slash disposal locations, etc.).Conduct regular green waste disposal days and ensure communities are informed about these events.Explore options for expanding waste disposal sites, ensuring accessibility where it is most needed.Engage the community in discussions about green waste disposal, gathering input on preferences and addressing concerns.Establish partnerships with adjacent counties for enhanced resource sharing and allocation.	Reduce fuel loading and continuity within and around communities. Enhance regional landscape resiliency.	Revise and review strategy on an annual basis. Track yearly progress.	<ul style="list-style-type: none">CWDGBRICNew Mexico Association of Counties: Wildfire Risk Reduction Program

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">Village of Corrales to host biannual Corrales cleanup days.Research biomass boiler units for municipal facilities following U.S. Environmental Protection Agency (EPA) guidelines for emissions.Develop partnerships with NMSF, county, municipalities, public, and Pueblo land managers for disposal and re-use or value-added products from woody by-products of fuels management and restoration such as mulch and slash. Focus areas include the following: <ul style="list-style-type: none">Bosque biomass disposal is an issue.Develop a proposal for a regional biochar production facility to reconstitute slash.Consider transporting the materials to local businesses, agencies, or organizations that could make use of the biomass.			
RL #8		High	Fall 2026	Water Resources Continue to protect critical water resources throughout the county.	Sandoval County	Sandoval County, Pueblo partners, local governments, HOAs, Firewise groups, private landowners, USFS, BLM, and Village of Corrales	<ul style="list-style-type: none">Assess wildfire risk posed to community water supply systems including drinking water sources outside the community or the water system service areas.Conduct baseline studies to assess the post-fire impacts (i.e., debris flow, flooding, and erosion) likely to affect drinking water sources in high-risk areas.Prioritize fuel reduction treatments along with other relevant pre-fire mitigation actions around community drinking water sources. Coordinate with private landowners as needed when water sources are on private lands.Harden critical infrastructure for community drinking water systems, particularly wellheads, springs, intakes, infiltration galleries, treatment plants, and storage tanks.<ul style="list-style-type: none">Identify and pursue opportunities for funding and education associated with this effort.Support infrastructure hardening efforts on land not owned by the water system.Collect baseline data on drinking water source quality and quantity.Pre-fire mitigation measures for post-fire recovery. Focus areas include the following: <ul style="list-style-type: none">Assessing wildfire risk posed to municipal water supplies on federal lands including but not limited to Jemez Springs DWA, Ponderosa Mutual Domestic Water Consumers Association (MDWCA), La Jara Water Utility Authority (WUA), Los Pinos HOA, and Regina MDWCA.	Increase the resilience of community drinking water systems.	Regular updates to data collection and conducted studies. Regular maintenance to ensure infrastructure remains clear of excess vegetation and up to date with other pre-fire mitigation actions.	<ul style="list-style-type: none">Fire Council GrantCapital outlayCongressional-directed spending

Note: In the Project ID column, RL = Resilient Landscapes.

4.3 GOAL 2: FIRE-ADAPTED COMMUNITIES



Goal 2 of the Cohesive Strategy/Western Regional Action Plan is: Fire-Adapted Communities: Human populations and infrastructure can withstand a wildfire without loss of life and property. The basic premise of this goal is:

“Preventing or minimizing the loss of life and property due to wildfire requires a combination of thorough pre-fire planning and action, followed by prudent and immediate response during a wildfire event. Post-fire activities can also speed community recovery efforts and help limit the long-term effects and costs of wildfire. CWPPs should identify high-risk areas and actions residents can take to reduce their risk. Fuels treatments in and near communities can provide buffer zones to protect structures, important community values and evacuation routes. Collaboration, self-sufficiency, acceptance of the risks and consequences of actions (or non-action), assisting those who need assistance (such as the elderly), and encouraging cultural and behavioral changes regarding fire and fire protection are important concepts. Attention will be paid to values to be protected in the middle ground (lands between the community and the forest) including watersheds, viewsheds, utility and transportation corridors, cultural and historic values, etc.” (WRSC 2013:15).

In this CWPP, recommendations for fire-adapted communities include public education and outreach actions and actions to reduce structural ignitability.

4.3.1 RECOMMENDATIONS FOR PUBLIC EDUCATION AND OUTREACH

Just as environmental hazards must be mitigated to reduce the risk of fire loss, so must human hazards. Lack of knowledge, lack of positive actions (e.g., failing to create adequate defensible space), and negative actions (e.g., keeping large amounts of flammable debris and rubbish on the property) all contribute to increased risk of loss in the WUI.

Methods to improve public education could include increasing awareness about fire department response and resource needs; providing workshops at demonstration sites showing Wildfire Prepared (a program of the Insurance Institute for Business & Home Safety) landscaping techniques or fuels treatment projects; organizing community cleanups to remove green waste; publicizing availability of government funds for treatments on private land; and, most importantly, improving communication between homeowners and local land management agencies to improve and build trust, particularly since the implementation of fuel treatments and better maintenance of existing treatments needs to occur in the interface between public and private land.

Please see Appendix E for a list of educational resources.

Table 4.2 lists public education recommendations to be implemented in the county.

4.3.2 RECOMMENDATIONS FOR REDUCING STRUCTURAL IGNITABILITY

Reduction of structural ignitability depends largely on public education which provides homeowners the information they need to take responsibility for protecting their own properties. Carrying out fuel reduction treatments on public land may only be effective in reducing fire risk to some communities; if homeowners have failed to provide mitigation efforts on their own land, the risk of home ignition remains high, and firefighter lives are put at risk when they carry out structural defense.

A list of action items that individual homeowners can take regarding defensible space practices and to reduce structural ignitability can be found in Appendix E.

Preparing for wildland fire by creating defensible space around the home is an effective strategy for reducing structural ignitability as discussed under Cohesive Strategy Goal 1: Resilient Landscapes. Studies have shown that burning vegetation beyond 120 feet of a structure is unlikely to ignite that property through radiant heat (Butler and Cohen 1996), but fire bands that travel independently of the flaming front have been known to destroy or damage houses that had not been impacted by direct flame impingement. Hardening the home to ignition from embers, including maintaining vent coverings and other openings, is also strongly advised to protect a home from structural ignitability. Managing the landscape around a structure by removing weeds, leaves, pine needles, woody materials and combustible debris within a 30-foot radius and keeping the roof and gutters of a home clean are two maintenance measures proven to limit combustible materials that could provide an ember bed and ignite the structure. Combustible materials can include stacks of firewood and lawn furniture. In essence, reducing structural ignitability and creating defensible space are key for protecting from the potential loss and damage due to intense wildfires.

Table 4.2 provides a list of community-based recommendations to reduce structural ignitability that should be implemented throughout the county.

Table 4.2. Recommendations for Creating Fire-Adapted Communities (public education and structural ignitability)

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
FAC #1		Medium	Spring 2027	Firewise Communities Promote and support the formation of local Firewise communities for enhanced community wildfire preparedness. Note: for homeowner insurance purposes, the standards set forth in the Wildfire Prepared Program by the Insurance Institute for Business and Home Safety should be followed due to the passing of Senate Bill 33).	Sandoval County	Fire departments, County staff, HOAs, Village of Corrales, and Jemez Mountains Firewise Association (JMFA)	<ul style="list-style-type: none">Conduct a comprehensive needs assessment to identify areas within the county that would benefit from the establishment of local Firewise communities.Engage with communities to raise awareness of the benefits of Firewise communities.Collaborate with existing Firewise communities and organizations to provide training and guidance on establishing and managing Firewise communities.Define leadership roles and governance structures for Firewise communities, including selection of leaders and/or coordinators.Allocate resources, which may include grants and funding, to support the establishment and initial activities of Firewise communities.Use the risk assessment (Chapter 3) and the community summaries (Appendix C) to identify vulnerable areas and develop localized action plans for each Firewise community.Set up a meeting schedule for regular Firewise community meetings and reporting to track progress and outcomes.Encourage community participation in Firewise community activities, including community education, fuel reduction projects, home hardening, and evacuation planning.	Protect communities and infrastructure through increased awareness and defensible space.	Assess participation regularly.	<ul style="list-style-type: none">Firewise grantsUSFS CWDG Grants
FAC #2		High	Fall 2026	Increase community capacity Increase local capacity to address wildfire threats.	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">Foster collaborative relationships with the USFS, private landowners, and the community as a whole.Leverage community partnerships to increase public awareness and readiness to respond to wildfires as well as capacity to complete mitigation projects.Identify and apply for state and federal grants with community and stakeholder buy-in.Continue to apply for non-federal land vegetation thinning grants from NMSF.Build local capacity to pursue funding sources and implement funded mitigation projects. Focus areas include the following: <ul style="list-style-type: none">Collaborate with Office of Superintendent of Insurance on ideas to reduce wildfire risks.	Protect communities and infrastructure through increased awareness and capacity to complete mitigation work.	Assess capacity annually. Maintain strong community partnerships.	<ul style="list-style-type: none">Building Resilient Infrastructure and Communities (BRIC)USFS CWDG GrantsFirewise grants
FAC #3		Medium	Spring 2027	Wildfire danger signage Increase signage regarding fire danger. Consider installing electronic sign in high-risk areas that can have updated messages.	Sandoval County	Sandoval County, Pueblo partners, local governments, HOAs, Firewise groups, USFS, MRGCD, and Village of Corrales	<ul style="list-style-type: none">Add fire signage throughout the community to spread message of fire danger and reduce human ignitions.Inspect and maintain existing signage.	Protect communities and infrastructure by raising awareness of local citizens and tourists about wildfire threats.	Maintain signage regularly.	<ul style="list-style-type: none">Firewise grantsUSFS CWDG Grants

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
FAC #4		High	Spring 2027	Livestock evacuation Plan livestock evacuation routes and inform communities.	Sandoval County	Emergency management officials, livestock agencies, and Village of Corrales	<ul style="list-style-type: none">• Work with emergency management officials to plan evacuation of livestock and pets and develop an informational brochure that could be appended to the CWPP and posted on County Emergency Management websites.• Continue education outreach.• Work with local animal organizations and animal services to update current plans.• Streamline delivery methods for getting information to the public.	Protect communities, livestock, and infrastructure through increased awareness. Expedite evacuation of residents in event of mandatory evacuation.	Update evacuation routes regularly.	<ul style="list-style-type: none">• Firewise grants• USFS CWDG Grants
FAC #5		Medium	Winter 2028	Building fire codes Strengthen building codes.	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">• Review existing building codes and update them to align with the newest International Fire Code, which enforces building codes and ordinances for new development in the WUI.	Enhance community resiliency.	Not applicable (N/A)	<ul style="list-style-type: none">• FEMA BRIC• Firewise grants• USFS CWDG Grants
FAC #6		High	Winter 2027	Public Education Continue to develop a comprehensive public education and community engagement program.	Sandoval County	Sandoval County, Pueblo partners, local governments, HOAs, Firewise groups, MRGCD, and Village of Corrales	<ul style="list-style-type: none">• Increase awareness about the standards set forth in the Wildfire Prepared Program by the Insurance Institute for Business & Home Safety.• Inform and educate residents on public power safety shut-offs, including proper preparation such as having backup power for critical devices or equipment (e.g., medical devices and wells).• Develop model homes and community showcases to promote and convey fire safety practices, such as creating household evacuation plans and defensible spaces.• Develop a comprehensive outreach strategy that considers challenges in reaching rural residents.• Host field trips/picnics for the public to visit post-fire sites.• Identify communities for participation in evacuation drills and conduct drills.• Develop a SimTable of Horseshoe Springs to show the difference between 80% treatment and without treatment using local examples of pre/post treatment and patchwork versus full neighborhoods.• Increase awareness about common human ignition sources and associated dangers (e.g., dragging chains, equipment use, railroads, welding, debris burning, and unattended campfires).• Solicit community feedback on locations of high hazard areas/properties as well as mitigation strategies.• Increase awareness of the wildfire-related issues of invasive plants.• Ensure inclusivity and support for vulnerable populations (e.g., disabled residents, low-income individuals, land grant members, non-English-speakers, etc.) in wildfire planning, preparedness, and response efforts.• Partner with federal agencies, special districts, community associations, schools, and nonprofits to facilitate outreach efforts.• Identify and empower “community navigators” or “champions” who can advocate for wildfire preparedness and education within their communities.	Reduce risk of human-caused wildfire ignitions. Educate citizens about wildfire hazards.	Conduct regular review of outreach materials as needed. Track local engagement.	<ul style="list-style-type: none">• New Mexico Association of Counties: Wildfire Risk Reduction Program• BRIC• Firewise grants• Fire Prevention and Safety grants (FP&S)• USFS CWDG Grants

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">Develop a system for periodic updates and feedback collection from the community to ensure that outreach efforts remain effective and responsive to community needs.Tailor outreach materials and messages to address the specific concerns of each community, including issues related to fire protection, water resources, road access, and evacuation planning.Maintain a dedicated user-friendly website that centralizes wildfire safety information and resources.<ul style="list-style-type: none">Consider developing an ArcGIS fire hub site, using templates from New Mexico Highlands University (NMHU) and SWCA, for communities within the JMFA service area.Establish programs in schools to distribute wildfire safety information to students.Continue quarterly public meetings focusing on evacuation for family and animals, wildfire preparedness, and emergency plans. <p>Focus areas include the following:</p> <ul style="list-style-type: none">Increasing awareness of the Sandoval County Sierra Los Pinos clearing (USDA program to facilitate residents taking advantage of the project)Increase engagement in the annual Fire Preparedness Workshop at Jemez Mountain Baptist Church.			
FAC #7		High	Winter 2028	Defensible space and home hardening assistance programs Implement a countywide program to support property owners in defensible space and home hardening measures, green waste disposal, home assessments, and addressing and signage improvements.	Sandoval County	Sandoval County, Corrales, NM State Forestry, Cuba Soil & Water Conservation District, and JMFA	<ul style="list-style-type: none">Encourage homeowners to follow the standards set forth in the Wildfire Prepared Program by the Insurance Institute for Business and Home Safety.Develop a handbook that gives locally relevant and detailed information to help residents be more prepared for wildfire, including a defensible space checklist specific to local structural and wildland fuel consideration.Conduct an initial assessment to identify service gaps and deficiencies.Integrate this program with educational programs and proposed ordinances.Establish a defensible space and home hardening assistance program that covers funding and education.Offer wildfire mitigation assistance for disabled, elderly, and low-income residents.Promote and expand (if necessary) existing green waste disposal program to support residents in defensible space efforts.Offer regular community chipper days.Prioritize efforts in areas that are high-risk, remote, and lack adequate water supply.Consider the following:<ul style="list-style-type: none">Financial incentives such as tax credits for structure improvements	Support community defensible space and home hardening efforts.	Evaluate program annually and update as necessary. Complete regular assessments in heavily vegetated areas.	<ul style="list-style-type: none">New Mexico Association of Counties: Wildfire Risk Reduction ProgramFirewise grantsU.S Environmental Protection Agency (EPA) Environmental Education GrantsFP&S

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">○ Subsidies to offset mitigation costs (e.g., retrofits and new builds) for economically disadvantaged residents; for example, grants and cost-sharing opportunities○ Expanding technical assistance programs for communities at greatest risk with limited capacity○ Increasing financial support and technical resources to jurisdictions to hire staff and enhance capacity to adopt, enforce, and maintain building codes and standards that govern construction, design, and development in wildfire-prone areas○ Defensible space cost-sharing programs			
FAC #8		High	Summer 2026	Evacuation planning Explore and implement options to resolve limited access issues (e.g., potential bottlenecks, locked gates, heavy roadside fuels, etc.).	Sandoval County	Sandoval County in collaboration with Pueblo partners, Fire Protection Districts (FPDs), SWC, USFS, NMSLO, Private landowners, Village of Corrales, and HOAs	<ul style="list-style-type: none">• Conduct an initial assessment of ingress and egress issues to identify high-risk roads such as roads with potential bottlenecks, locked gates, or heavy roadside fuels.• Prioritize road maintenance and clearance efforts to ensure safe passage for emergency vehicles and residents.<ul style="list-style-type: none">○ Maintain fire access roads.○ Promote resident involvement in right-of-way (ROW) vegetation clearance efforts.○ Establish regular maintenance schedules to address encroaching vegetation, debris, and road surface conditions.• Maintain turn-around locations, where appropriate, for first responders, and determine the need for improving or construction of new ones.• Consider using back roads on public and private lands as alternative ingress and egress points (for instance, between Areas 1 & 3).<ul style="list-style-type: none">○ Work with relevant entities (e.g., the USFS) to assess feasibility.• Develop and communicate plans for communities with limited access. Ensure that residents are aware of all potential evacuation routes.• Inform homeowners about the importance of keeping driveways accessible to fire trucks and emergency responders.• Establish vegetation management programs and/or centralize existing plans from agencies that are responsible for ROW management.• Develop a community handbook for evacuation and emergency planning.• Conduct assessments of bridges with potential safety concerns.<ul style="list-style-type: none">○ Upgrade or replace wooden bridges and bridges that do not meet safety standards.○ Identify where unknown and document load-bearing capabilities of bridges, and ensure proper signage is posted at key bridges, to promote safety of first responders.	Provide safe and effective means of evacuation in case of emergencies.	Monitor and maintain regularly to ensure roads are drivable for emergency response vehicles	<ul style="list-style-type: none">• BRIC• Firewise grants• National Urban and Community Forestry Challenge Cost Share Grant Program• Private non-profits

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">• Collaborate with transportation authorities and agencies to address road safety concerns and explore funding opportunities for road improvements.• Install clear and informative directional signage in communities with dead ends, cul-de-sacs, and complex layouts to aid navigation for emergency responders.• Collaborate with county and municipal planners and community stakeholders to ensure that future development accounts for improved access and safety considerations.• Create and maintain a map with emergency access roads.• Conduct assessments of public and private roadways to ensure roads are safe for emergency vehicles and drivable.• Conduct vegetation management on public roadways and send notices to private road owners ensuring minimum standards <p>Focus areas include the following:</p> <ul style="list-style-type: none">• Improve smaller public roads such as Andrews Lane in Corrales to ensure feasible egress during evacuations.• Install emergency egress bridges and roadways.• The community/area of Applewood.• Purchase land to allow for ingress and egress on narrow public and private roads.• Purchase land for emergency evacuations on roadways that are narrow.• Plan for safety zones for the public if egress is blocked, working with both public and private lands.• Create an ordinance and review process for gates being installed on private roads.<ul style="list-style-type: none">◦ Create an ordinance to require Knox box system on all new gates.• Improve access routes, including alternate access routes, to enhance safety and fire response in Jemez communities.• Open and improve the decommissioned logging road between Areas 1 & 3 with USFS approval and direction to establish an alternate ingress/egress route.• Cerro del Pino and Thompson Ridge road systems require improvements to enhance safety and evacuation routes.• With landowner approval, roads in Sierra Los Pinos require widening to improve egress and safer passage of firefighting equipment.• Conduct improvements to roads and bridges so the infrastructure aligns with the Cooperative Forest Road Agreement with Sandoval County and Santa Fe National Forest in Thompson Ridge.			

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
FAC #9		Medium	Spring 2027	Private-public collaboration Develop an accessible and informative toolkit for private property owners to navigate the process of collaborating with land managers.	Sandoval County	Sandoval County, NMSF, NMSLO, and Village of Corrales	<ul style="list-style-type: none">Develop a comprehensive toolkit for private property owners, outlining the process and requirements for collaborating with land managers (e.g. USFS, NMSF, etc.) on fire mitigation projects.Ensure that the toolkit is easily accessible and transparent, with clear instructions and contact information for relevant land management agencies.Include a detailed map that clearly shows jurisdictional boundaries.Provide information on the legal and regulatory consideration for conducting fire mitigation work on land managed by governmental agencies (e.g., creeks and streams, areas with sensitive species, etc.).Include guidance on the permitting process, documentation requirements, and any associated fees or costs.Offer resources and contact details for agency representatives who can assist private property owners in project planning and implementation.Conduct outreach to inform homeowners about the toolkit's availability and importance.Establish a feedback mechanism to gather input and suggestions from property owners for toolkit improvement.	Increase collaboration. Enhance community resilience.	Update materials as needed.	<ul style="list-style-type: none">New Mexico Association of Counties: Wildfire Risk Reduction ProgramBRICFirewise grantsFP&SEPA Environmental Education Grants
FAC #10		Medium	Spring 2026	Collaboration with Rio Arriba County Establish a collaborative relationship with Rio Arriba County for wildfire planning, prevention, and preparation.	Sandoval and Rio Arriba Counties	Rio Arriba County	<ul style="list-style-type: none">Foster an environment that encourages and supports coordination and collaboration with Rio Arriba County.Identify joint objectives, shared goals, synergies, and opportunities for increased efficiencies and leveraging of resources.	Increase regional resiliency.	Meet regularly to ensure consistent communication.	<ul style="list-style-type: none">N/A

Note: In the Project ID column, FAC = Fire-Adapted Communities.

4.4 GOAL 3: WILDFIRE RESPONSE

Goal 3 of the Cohesive Strategy/Western Regional Action Plan is Wildfire Response: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions:



“A balanced wildfire response requires integrated pre-fire planning with effective, efficient, and coordinated emergency response. Pre-fire planning helps tailor responses to wildfires across jurisdictions and landscape units that have different uses and management objectives. Improved prediction and understanding of weather, burning conditions, and various contingencies during wildfire events can improve firefighting effectiveness, thereby reducing losses and minimizing risks to firefighter and public health and safety. Wildfire response capability will consider the responsibilities identified in the Federal Response Framework. Local fire districts and municipalities with statutory responsibility for wildland fire response are not fully represented throughout the existing wildland fire governance structure, particularly at the NWCG, NMAC, and GACC levels.” (WRSC 2013:15).

This section provides recommended actions that jurisdictions could undertake to improve wildfire response.

4.4.1 RECOMMENDATIONS FOR IMPROVING FIRE RESPONSE CAPABILITIES

The recommendations for promoting safe and effective wildfire response incorporate a variety of measures and actions that aim to enhance the county’s fire safety and emergency response capabilities. They include establishing improved response coordination, creating new positions, improving public safety communications, evacuation planning and preparation, and enhancing fire response resources and capabilities. Additionally, there is a focus on increasing budget and funding support as well as post-fire recovery efforts.

Educating the public so they can reduce dependence on fire departments is essential because these resources are often stretched thin due to limited personnel. Education to enhance community preparedness is a key factor in supporting local fire departments in fire response, particularly educating residents about emergency notifications and evacuation protocols so that residents are able to safely evacuate an area while emergency responders prepare to protect life and property.

Table 4.3 provides recommendations for improving firefighting capabilities. Many of these recommendations are general in nature to be tailored for response agencies across the county.

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Table 4.3. Recommendations for Safe, Effective, Risk-based Wildfire Response

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
FR #1		High	Summer 2027	Improve firefighter navigation Update maps used by fire responders across county jurisdictions.	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">Acquire funding for and conduct an update of fire behavior and fuel models using LiDAR and GIS layers.Update evacuation plans to account for updates to fuel modeling and high-risk areas.Assess and map the availability of alternative access routes for all communities considering the potential for road wash outs.Ensure all mapped resources are available to first responders.Acquire updated 911 GIS and mapping.Work with mapping and response application companies to use updated GIS. Focus areas include the following: <ul style="list-style-type: none">Assess on-the-ground risk by compiling LiDAR and GIS data where available to determine vegetation density near structures.	Increase fire responder and public safety.	Regular updates to maps.	<ul style="list-style-type: none">Firewise grantsUSFS Community Wildfire Defense Grants (CWDG)
FR #2		High	Fall 2028	Evacuation planning and preparation Assess evacuation strategies across the county, including identifying all potential egress routes, establishing potential temporary refuge areas, and implementing tailored evacuation plans and drills. It should be noted that actual incidents (evacuation orders) will determine appropriate procedures (e.g., which road to take, where to shelter, etc).	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">Collaborate with land management agencies and fire protection agencies to assess and update evacuation procedures.Develop detailed maps that show all roads with potential ingress and egress points into and out of each community along with potential pinch points and temporary refuge areas. Ensure residents have access to maps for their respective community.Engage community members in the planning process to incorporate their local knowledge and preferences.Identify high-risk communities with limited access and conduct evacuation drills in these communities, involving residents in practicing evacuation procedures under different scenarios.Allocate resources, including signage, emergency equipment, and personnel, to support implementation of evacuation plans.Assess and test emergency evacuations procedures to identify opportunities to improve communication systems, road systems, and community awareness and readiness.Periodically review and update community evacuation plans to ensure they remain relevant and effective. Focus areas include the following: <ul style="list-style-type: none">Develop formalized evacuation plans for Jemez Valley and La Madera that focus on defining road access and pinch points as well as modeling evacuation routes.Update Los Alamos evacuation plans with customized fuel models and prioritization of high-risk areas.Develop a tailored evacuation plan for Jemez corridor, including<ul style="list-style-type: none">identifying primary and alternate evacuation routes, pinch points, and potential funding;	Protect public and first responder life and safety.	Regular updates to evacuation plans and strategies.	<ul style="list-style-type: none">Building Resilient Infrastructure and Communities (BRIC)NRCS RCPPFirewise grantsUSFS CWDG Grants

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">○ developing education and outreach for evacuation routes;○ assessing deficiencies in the communication/notification system and identifying resolutions (e.g., air raid warnings); and○ implementing a test of the evacuation plan with interested communities.• Conduct a multi-agency evacuation training exercise at Fenton Lake State Park.• Develop and formalize evacuation routes<ul style="list-style-type: none">○ on the east side of Corrales Road,○ between Corrales Road and Loma Larga, and○ on the west side of Loma Larga.			
FR #3		Medium	Winter 2027	Suppression planning Preplan strategic staging areas.	Sandoval County	Sandoval County, Pueblo partners and Village of Corrales	<ul style="list-style-type: none">• Work with local schools, community groups, and neighboring counties to establish a preplanned staging area for suppression sources and crews.• Plan for fire stations in high-risk areas for pre-staging of fire suppression equipment. Priority areas would be Corrales Bosque and Loma Larga.	Protect life and property through improved firefighting response.	Not applicable.	<ul style="list-style-type: none">• BRIC• Firewise• NRCS RCPP• USFS CWDG Grants• Bonds• New Mexico Fire Grant Council
FR #4		High	Spring 2026	Water resources mapping Identify, assess, and map existing water resources for fire suppression, ensuring comprehensive coverage.	Sandoval County	Sandoval County, Pueblo partners, Fire Protection Districts (FPDs), and Village of Corrales	<ul style="list-style-type: none">• Assess existing water resources throughout the county and create a map and/or web map showing all water sources (e.g., tanks, hydrants, ponds, ditches, etc.).<ul style="list-style-type: none">○ Record flow rates, pressure, and overall condition for fire hydrants.○ Record water availability, proper fittings, and landowner willingness to collaborate for maintaining water tanks.○ For ditches, identify areas where drafting water is accessible (e.g., where there is little to no vegetation).○ Record areas where drafting water is feasible (e.g., ditches and ponds).○ Where applicable, identify alternative means of access to water sources.• Work with fire personnel to explore the best method to host, use, and maintain the information.• Identify stock tanks, water storage tanks, and hydrants, as well as funding to provide upkeep for these suppression sources and to provide retrofitting to allow utilization by fire departments. Add water resources to the GIS maps and differentiate between ephemeral and perennial water sources so dispatchers can direct fire crews to available supplies.• When public water system (PWS) sources are tapped,<ul style="list-style-type: none">○ coordinate between PWS and fire departments (FDs) to identify when water can be tapped before it is treated to drinking water standards, and	Improve efficiency and speed of wildfire response and suppression Reduce wildfire threats to life and property	Annual assessment/review of water resources.	<ul style="list-style-type: none">• Emergency Management Performance Grant (EMPG) (FEMA)• New Mexico Fire Protection Grant• Firewise grants• BRIC• NRCS RCPP• Emerging Contaminants in Small or Disadvantaged Communities Program (ECP)• USFS CWDG Grants

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">○ coordinate on metering usage, and communicate regarding system requirements such as pumping and storage capacities.			
FR #5		High	Spring 2027	Improve water resources for firefighting Investigate and explore approaches to enhancing water sources for firefighting purposes.	Sandoval County	Sandoval County, Pueblo partners, FPDs, and Village of Corrales	<ul style="list-style-type: none">• Assess and identify the effect of the loss of power (e.g., a power safety public shut-off) on local water supplies (resources and recharge times).• Establish relationships with private property owners and assess their interest in collaborating with FDs (i.e., making their tanks, ponds, wells, or ditches accessible to firefighters during emergencies).• Conduct community outreach to residents to increase awareness of firefighting water supply issues and provide a list of actions they can take to support firefighting efforts (e.g., collaborating to map water resources in the neighborhood; installing universal fittings to water tanks; and keeping water tanks full).• Maintain accessibility of water resources (e.g., reduce heavy vegetation near tanks, hydrants, and ditches).• Conduct outreach to agricultural or industrial operators with ample water sources (e.g., large water tanks) to assess interest in collaborating with FDs.• Consider painting fire hydrants according to their flow rates (NFPA standards).• Implement a regular testing and maintenance program for fire hydrants to ensure they are in good working condition.• Seek funding to implement rainwater harvesting on all volunteer FD buildings and other county properties. Need to ensure that water supply for volunteer FD does not impinge on municipal supply.• Increase number of water tanks and wells.• Increase fire suppression lines and hydrants.• Obtain water rights to support community.• Fund and install generators at wells and pump systems.• Develop and implement a plan to increase compatibility of firefighting resources across the county.<ul style="list-style-type: none">○ Improve water availability in small and rural communities including installing tanks and bladder bags, identifying strategic drop sites, and alleviating challenges associated with older systems.○ Increase homeowner access to water storage solutions like bladders to aid firefighting efforts.○ Work with willing private owners to install universal fittings to water tanks.○ Coordinate between FDs and PWSs to make the drinking water systems' hydrants more efficient for FD use.	Protect life and property through improved firefighting response.	Assess capacity annually.	<ul style="list-style-type: none">• FEMA Assistance to Firefighters Grants• FEMA Staffing for Adequate Fire and Emergency Response• BRIC• NRCS RCPP• ECP• Capital outlay

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">○ Develop agreements between the PWS and FDs that consider equipment concerns, water usage, and notification when FDs are accessing hydrants and water.• Purchase and install generators to ensure water systems remain accessible during power outages.○ Establish procedures to allow operators to run these systems during evacuation periods. Focus areas include the following: <ul style="list-style-type: none">• Ensure sufficient water storage to meet domestic and firefighting needs in Sierra Los Pinos, including during power outages/electric grid de-energization, by installing a 30,000-gallon NFPA-approved water storage tank. A portion of the funding for the tank has already been acquired.• Increase water availability for fire suppression in Jemez Mountains Firewise Association (JMFA) communities, potentially by redirecting a portion of federal Payment in Lieu of Taxes funds.			
FR #6		Medium	Spring 2026	Evaluate current notification systems Assess effectiveness of communication and alert systems and conduct necessary upgrades.	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">• Identify deficiencies of communication and alert systems, particularly focusing on accessibility issues in rural areas.• Develop and implement a strategy to ensure communication systems remain functional with cell service outages.• Conduct outreach to help people sign up for emergency notifications at community events.• Educate the public on the use of the <i>What 3 Words</i> application to get share location information.	Protect public and first responder life and safety.	Annual test and assessment of effectiveness.	<ul style="list-style-type: none">• BRIC• NRCS RCPP• FEMA Fire Prevention and Safety Grant• USFS CWDG
FR #7		Medium	Summer 2028	Pre-fire mitigation and post-fire rehabilitation Develop and implement plans for pre-fire mitigation and post-fire recovery.	Sandoval County	Sandoval County; local, state, and federal land managing agencies; and Village of Corrales	<ul style="list-style-type: none">• Integrate post-fire impacts, including post-fire floods and debris flows, into the county's hazard mitigation planning efforts.• Identify and implement strategies for post-fire response that can be put in place before fires occur.• Implement a county-wide ordinance requiring actions for post fire debris flow management. Focus areas include the following: <ul style="list-style-type: none">• Identify and implement pre- and post- fire mitigation strategies at the Ponderosa Infiltration Gallery.• Conduct mitigation activities in Las Jara, including at the infiltration gallery, as any fire in the community would be devastating for post-fire flooding.• Plan for pre-fire mitigation and post-fire recovery measures in Jemez Springs, Church Canyon, and surrounding areas.• Mitigate Cerro Pelado runoff.• Replace the wooden bridge in Area 2.• Integrate Horseshoe Springs CWPP into county planning efforts.	Enhance community protection	Annual assessment	<ul style="list-style-type: none">• BRIC• USFS CWDG

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">Pre-fire mitigation of the potential for cascading post-fire impacts in Sierra Los Pinos.Ensure communities' HVRAs are recorded, frequently updated, and mapped.Develop baseline measurement standards for watershed planning before a wildfire to allow for effective restoration post-fire. This planning effort would use topographic GIS data and be adapted from Colorado's Wildfire Ready Watersheds Program.Village of Corrales.			
FR #8		High	Spring 2027	Increase firefighting capacity Explore opportunities to strengthen countywide fire department capacity building as well as equipment upgrades.	Sandoval County	Sandoval County, Pueblo partners, and Village of Corrales	<ul style="list-style-type: none">Assist fire departments with grant applications and to find new sources of funding.Establish and/or expand relationships with high schools, colleges, and nonprofits to encourage volunteer recruitment.Educate communities about the challenges faced by FDs to emphasize the significance of supporting these organizations through volunteering, fundraising, and personal actions.Provide personal protective equipment for all firefighters.Maintain contact with state fire marshals and regularly seek grant money. Conduct regular evaluations of resource needs for each volunteer FD and make available to the public to raise awareness of shortages. Use local media to inform the the public of fire resources situation.	Protect life and property through improved firefighting response.	Assess capacity annually.	<ul style="list-style-type: none">FEMA Assistance to Firefighters Grants (AFG)FEMA Staffing for Adequate Fire and Emergency ResponseFirewise grantsNational Urban and Community Forest ProgramGeneral Services Administration Federal Excess Personal PropertyCapital outlay
FR #9		Medium	Spring 2028	Assess feasibility of using fire detection cameras or similar equipment Install a Countywide fire detection camera system.	Sandoval County	Sandoval County, FPDs, and Village of Corrales	<ul style="list-style-type: none">Determine costs, upkeep, and operational capacity of a fire detection camera system, and determine key locations for camera placement.Add strategically placed live-stream cameras within Corrales to cover high fire danger areas.	Improve early detection of new wildfire ignitions in Sandoval County.	Yearly testing and maintenance before peak wildfire season.	<ul style="list-style-type: none">AFGHazard Mitigation Grant ProgramEmergency Management Performance GrantRCPStaffing for Adequate Fire and Emergency Response
FR #10		Medium	Spring 2026	Proactive Planning for Renewable Energy Facilities Work with energy developers to proactively manage wildfire risk.	Sandoval County	Sandoval County, pertinent energy developers, and Village of Corrales	<ul style="list-style-type: none">The county and municipalities should collaborate with energy developers to ensure new utility infrastructure is designed with wildfire risk and management in mind. It is recommended that all new utility developments be required to prepare a utility wildfire mitigation plan.	Proactively manage new wildfire risks.	As needed.	<ul style="list-style-type: none">General fund

Note: In the Project ID column, FR = Fire Response.

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CHAPTER 5 – MONITORING AND EVALUATION

All stakeholders and signatories to this CWPP desire worthwhile outcomes. The amount of money and effort invested in implementing a plan such as this requires that there be a means to describe whether the goals and objectives expressed in this plan are being accomplished according to expectations. Furthermore, as the plan evolves over time, there may be a need to track changes in policy, requirements, stakeholder changes, and levels of preparedness. These can be significant for any future revisions and/or addendums to the plan.

It is recommended that project monitoring be a collaborative effort. There are many resources for designing and implementing community-based, multi-party monitoring that could support and further inform a basic monitoring program for the Plan (Egan 2013). Table 5.1 identifies suggested monitoring strategies.

Table 5.1. Recommended Monitoring Strategies

Strategy	Task/Tool	Lead	Remarks
Project tracking system	Online web app to track hazardous fuels projects spatially, integrating wildfire risk layer to show progress toward wildfire hazard and risk reduction. The web app would include attribute tables that outline project details	County	Interactive tool will be easily updated and identify areas that require additional efforts
Photographic record (documents pre- and post-fuel reduction work, evacuation routes, workshops, classes, field trips, changes in open space, treatment type, etc.)	Establish field GPS location; photo points of cardinal directions; keep photos protected in archival location	Core Team member	Relatively low cost; repeatable over time; used for programs and tracking objectives
Number of acres treated (by fuel type, treatment method)	GPS/GIS/fire behavior prediction system	Core Team member	Evaluating costs, potential fire behavior

Strategy	Task/Tool	Lead	Remarks
Number of HIZs/defensible space treated to reduce structural ignitability	GPS	Homeowner	Structure protection
Number of residents/citizens participating in any plan projects and events	Meetings, media interviews, articles	Core Team member	Evaluate culture change objective
Number of homeowner contacts (brochures, flyers, posters, etc.)	Visits, phone	Agency representative	Evaluate objective
Number of jobs created	Contracts and grants	Core Team member	Evaluate local job growth
Education outreach: number, kinds of involvement	Workshops, classes, field trips, signage	Core Team member	Evaluate objectives
Emergency management: changes in agency response capacity	Collaboration	Agency representative	Evaluate mutual aid
Codes and policy changes affecting the plan	Qualitative	Core Team	Plan changes
Number of stakeholders	Added or dropped	Core Team	Plan changes
Wildfire acres burned, human injuries/fatalities, infrastructure loss, environmental damage, suppression, and rehabilitation costs	Wildfire records	Core Team	Compare with 5- or 10-year average

5.1 IMPLEMENTATION

This CWPP makes recommendations for prioritized fuel reduction projects, measures to reduce structural ignitability, and methods for carrying out public education and outreach. Implementation of projects must be tailored to the specific project and will be unique to the location depending on available funding resources and regulations. Information pertaining to funding is provided in Appendix D.

5.2 PLAN EVALUATION

CWPPs are intended to reduce the risk from wildfire for a community and surrounding environment. However, over time, communities change and expand, vegetation grows back, and forests and wildlands evolve. As a fire-adapted ecosystem, Sandoval County has experienced considerable disturbance from wildfire and those disturbances shape residual and future fuels, the shared knowledge of residents, and provide lessons learned for wildfire management. The risk of wildfire to communities is constantly changing. The plans and methods to reduce risk must be dynamic to keep pace with the changing environment. An evaluation of this plan will gather information and identify whether the plans and strategies are on course to meet the desired outcomes or if modifications are needed to meet expectations. It is recommended that the plan be evaluated on an annual basis, which should be completed by convening the existing Core Team so that all entities contribute to the evaluation. The plan document and planning goals and objective should be updated annually, based on findings from the evaluation (Figure 5.1).

STEPS TO EVALUATE A CWPP

1

IDENTIFY OBJECTIVES:

What are the goals identified in the plan?
How are they reached? Is the plan performing as intended?



- Structural ignitability
- Fuel treatments (landscape and home ignition zone)
- Public education and outreach
- Multi-agency collaboration
- Emergency notifications/response

2

ASSESS THE CHANGING ENVIRONMENT:

How have population characteristics and the wildfire environment changed?

**Population change**

- Increase or decrease
- Visitor levels
- Demographics

Population settlement patterns

- Distribution
- Expansion into the WUI

Vegetation

- Fuel quantity and type
- Drought and disease impacts

3

REVIEW ACTION ITEMS:

Are actions consistent with the plan's objectives?



- Check for status, i.e., completed/started/not started
- Identify completed work and accomplishments
- Identify lessons learned, challenges, and best practices
- Identify next steps congruent with other hazard mitigation planning efforts

4

ASSESS RESULTS:

What are the outcomes of the action items?

**Multi-agency collaboration**

- Who was involved in the development of the CWPP?
- Have partners involved in the development process remained involved in the implementation?
- How has the planning process promoted implementation of the CWPP?
- Have CWPP partnerships and collaboration had a beneficial impact to the community?

Risk-hazard assessment

- How is the risk-hazard assessment utilized to make decisions about fuel treatment priorities?
- Have there been new wildfire-related regulations?
- Are at-risk communities involved in mitigating wildfire risk?

Hazardous fuels

- How many acres have been treated?
- How many projects are cross-boundary?
- How many residents have participated in creating defensible space?

Structural ignitability

- Have there been updates to fire codes and ordinances?
- How many structures have been lost to wildfire?
- Has the CWPP increased public implementation of structural ignitability and hazard reduction strategies?

Public education and outreach

- Has public awareness of wildfire and mitigation strategies increased?
- Have residents, visitors, and second homeowners been involved in wildfire mitigation activities?
- Has there been public involvement?
- Have vulnerable populations been involved?

Emergency response

- Has the CWPP been integrated into relevant plans (e.g., hazard mitigation or emergency operations)?
- Is the CWPP congruent with other hazard mitigation planning efforts?
- Has availability and capacity of local fire departments changed since the CWPP was developed?
- Have egress routes been publicized and mitigated?

Figure 5.1. Plan evaluations steps for CWPPs.

5.3 TIMELINE FOR UPDATING THE PLAN

The HFRA allows for maximum flexibility in the planning process, permitting the Core Team to determine the time frame for updating the plan. However, many funding sources require that a plan does not exceed 10 years.

Sandoval County last updated its CWPP in 2012. However, it is suggested that the evaluation framework above be used annually to make plan updates, and a more formal revision be made on the fifth anniversary of signing and every 5 years following.

Members of the Sandoval County CWPP Core Team expressed strong interest in convening biannually to coordinate efforts and review recent actions and progress. One meeting would be scheduled for late fall or early winter, prior to the start of the legislative session, with a second meeting held in late spring or early summer.

ABBREVIATIONS AND ACRONYMS

BAER	Burned Area Emergency Response
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BRIC	Building Resilient Infrastructure and Communities
CIG	Conservation Innovation Grant
CLT	cross-laminated timber
County	Sandoval County
CUSP	Coalition for the Upper South Platte
CWDG	Community Wildfire Defense Grants
CWPP	community wildfire protection plan
DOI	U.S. Department of the Interior
EAS	Emergency Alert System
ECP	Emerging Contaminants in Small or Disadvantaged Communities Program
EFRP	Emergency Forest Restoration Program
EMD	Emergency Management Division
EPA	U.S. Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
EWP	Emergency Watershed Protection
FACLN	Fire Adapted Communities Learning Network
FEMA	Federal Emergency Management Agency
FHSP	Forest Health Strategic Plan
FMAG	Fire Management Assistance Grant
FMP	fire management plan
FP&S	Fire Prevention and Safety
GIS	geographic information system
HFRA	Healthy Forests Restoration Act of 2003
HIZ	home ignition zone
HMGP	Hazard Mitigation Grant Program
HMP	hazard mitigation plan
HVRA	highly valued resource and asset
IBHS	Insurance Institute for Business and Home Safety
I-25	Interstate 25
IFTDSS	Interagency Fuel Treatment Decision Support System

JMFA	Jemez Mountains Firewise Association
MRGCD	Middle Rio Grande Conservancy District
NFL	Hazardous Fuel Treatments on Non-Federal Lands Grant Program
NFP	National Fire Plan
NFPA	National Fire Protection Association
NIFC	National Interagency Fire Center
NM-FPTF	New Mexico Fire Planning Task Force
NMRWA	New Mexico Rural Water Association
NPS	National Park Service
NRCA	natural resource conservation area
NRCS	Natural Resources Conservation Service
NWCG	National Wildfire Coordinating Group
Plan	Sandoval County Community Wildfire Protection Plan
PUD	Public Utility District
RAW	remote automated weather
RCP	Regional Catastrophic Preparedness
RCCP	Regional Conservation Partnership Program
ROW	right-of-way
SAFER	Staffing for Adequate Fire and Emergency Response
SWCA	SWCA Environmental Consultants
SWCC	Southwest Coordination Center
SWCD	Soil and Water Conservation District
UCANR	University of California Division of Agriculture and Natural Resources
ULI	Urban Land Institute
USDA	U.S. Department of Agriculture
USFA	U.S. Fire Administration
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WRSC	Western Regional Strategy Committee
WUI	wildland-urban interface

GLOSSARY

Aspect: Cardinal direction toward which a slope faces in relation to the sun (NWCG 2021).

Active Crown Fire: A crown fire in which the entire fuel complex is involved in flame, but the crowning phase remains dependent on heat released from surface fuel for continued spread. An active crown fire presents a solid wall of flame from the surface through the canopy fuel layers. Flames appear to emanate from the canopy as a whole rather than from individual trees within the canopy. Active crown fire is one of several types of crown fire and is contrasted with passive crown fires, which are less vigorous types of crown fire that do not emit continuous, solid flames from the canopy (SWCA).

Available Canopy Fuel: The mass of canopy fuel per unit area consumed in a crown fire. There is no postfrontal combustion in canopy fuels, so only fine canopy fuels are consumed. We assume that only the foliage and a small fraction of the branchwood is available (Wooten 2021).

Available Fuel: The total mass of ground, surface and canopy fuel per unit area available fuel consumed by a fire, including fuels consumed in postfrontal combustion of duff, organic soils, and large woody fuels (Wooten 2021).

Backfiring: Intentionally setting fire to fuels inside a control line to contain a fire (Wooten 2021).

Biomass: Organic material. Also refers to the weight of organic material (e. g. biomass roots, branches, needles, and leaves) within a given ecosystem (Wooten 2021).

Burn Severity: A qualitative assessment of the heat pulse directed toward the ground during a fire. Burn severity relates to soil heating, large fuel and duff consumption, consumption of the litter and organic layer beneath trees and isolated shrubs, and mortality of buried plant parts (SWCA).

Canopy: The more or less continuous cover of branches and foliage formed collectively by adjacent trees and other woody species in a forest stand. Where significant height differences occur between trees within a stand, formation of a multiple canopy (multi-layered) condition can result (SWCA).

Chain: Unit of measure in land survey, equal to 66 feet (20 m) (80 chains equal 1 mile). Commonly used to report fire perimeters and other fireline distances. Popular in fire management because of its convenience in calculating acreage (example: 10 square chains equal one acre) (New Mexico Future Farmers of America 2010).

Climate Adaptation: Adaptation is an adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (California Governor's Office of Planning and Research [CA GOCR] 2020).

Climate Change: A change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods (CA GOCR 2020).

Community Assessment: An analysis designed to identify factors that increase the potential and/or severity of undesirable fire outcomes in WUI communities (SWCA).

Communities at Risk: Defined by the HFRA as "Wildland-Urban Interface Communities within the vicinity of federal lands that are at high risk from wildfire."

Community Wildfire Protection Plan (CWPP): A planning document that seeks to reduce the threat to life and property from wildfire by identifying and mitigating wildfire hazards to communities and infrastructure located in the WUI. Developed from the HFRA, a CWPP addresses issues such as wildfire response, hazard mitigation, community preparedness, or structure protection (SWCA).

Conditional Surface Fire: A potential type of fire in which conditions for sustained conditional surface fire active crown fire spread are met but conditions for crown fire initiation are not. If the fire begins as a surface fire, then it is expected to remain so. If it begins as an active crown fire in an adjacent stand, then it may continue to spread as an active crown fire (Wooten 2021).

Contain: A tactical point at which a fire's spread is stopped by and within specific contain features, constructed or natural; also, the result of stopping a fire's spread so that no further spread is expected under foreseeable conditions. For reporting purposes, the time and date of containment. This term no longer has a strategic meaning in federal wildland fire policy (Wooten 2021).

Control: To construct fireline or use natural features to surround a fire and any control spot fires therefrom and reduce its burning potential to a point that it no longer threatens further spread or resource damage under foreseeable conditions. For reporting purposes, the time and date of control. This term no longer has a strategic meaning in federal wildland fire policy (Wooten 2021).

Cover Type: The type of vegetation (or lack of it) growing on an area, based on cover type minimum and maximum percent cover of the dominant species, species group or non-living land cover (such as water, rock, etc.). The cover type defines both a qualitative aspect (the dominant cover type) as well as a quantitative aspect (the abundance of the predominant features of that cover type; Wooten 2021).

Creeping Fire: A low-intensity fire with a negligible rate of spread (Wooten 2021).

Crown Fire: A fire that advances at great speed from crown to crown in tree canopies, often well in advance of the fire on the ground (National Geographic 2021).

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

Duff: The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil (SWCA).

Ecosystem: An interacting natural system including all the component organisms together with the abiotic environment and processes affecting them (SWCA).

Environmental Conditions: That part of the fire environment that undergoes short-term changes: weather, which is most commonly manifest as windspeed, and dead fuel moisture content (Wooten 2021).

Escape Route: A preplanned and understood route firefighters take to move to a temporary refuge area or other low-risk area. When escape routes deviate from a defined physical path, they should be clearly marked (SWCA).

Evacuation: The temporary movement of people and their possessions from locations threatened by wildfire (SWCA).

Fire-Adapted Community: A fire-adapted community collaborates to identify its wildfire risk and works collectively on actionable steps to reduce its risk of loss. This work protects property and increases the safety of firefighters and residents (USFA 2021).

Fire Behavior: The manner in which fuel ignites, flame develops, and fire spread and exhibits other related phenomena as determined by the interaction of fuels, weather, and topography (Fire Research and Management Exchange System 2021).

Fire Break: Areas where vegetation and organic matter are removed down to mineral soil (SWCA).

Fire Environment: The characteristics of a site that influence fire behavior. In fire modeling the fire environment is described by surface and canopy fuel characteristics, windspeed and direction, relative humidity, and slope steepness (Wooten 2021).

Fire Frequency: A broad measure of the rate of fire occurrence in a particular area. For historical analyses, fire frequency is often expressed using the fire return interval calculation. For modern-era analyses, where data on timing and size of fires are recorded, fire frequency is often best expressed using fire rotation (SWCA).

Fire Hazard: Fire hazard is the potential fire behavior or fire intensity in an area, given the type(s) of fuel present – including both the natural and built environment – and their combustibility (CA GOPR 2020).

Fire History: The chronological record of the occurrence of fire in an ecosystem or at a specific site. The fire history of an area may inform planners and residents about the level of wildfire hazard in that area (SWCA).

Fire Intensity: A general term relating to the heat energy released in a fire (SWCA).

Fireline Intensity: Amount of heat release per unit time per unit length of fire front. Numerically, the product of the heat of combustion, quantity of fuel consumed per unit area in the fire front, and the rate of spread of a fire, expressed in kilowatts per minute (SWCA). This expression is commonly used to describe the power of wildland fires, but it does not necessarily follow that the severity, defined as the vegetation mortality, will be correspondingly high (Wooten 2021).

Fire Prevention: Activities such as public education, community outreach, planning, building code enforcement, engineering (construction standards), and reduction of fuel hazards that is intended to reduce the incidence of unwanted human-caused wildfires and the risks they pose to life, property or resources (CA GOPR 2020).

Fire Regime: A measure of the general pattern of fire frequency and severity typical to a particular area or type of landscape: The regime can include other metrics of the fire, including seasonality and typical fire size, as well as a measure of the pattern of variability in characteristics (SWCA).

Fire Regime Condition Class: Condition classes are a function of the degree of fire regime condition class departure from historical fire regimes resulting in alterations of key ecosystem components such as composition structural stage, stand age, and canopy closure (Wooten 2021).

Fire Return Interval: Number of years (interval) between two successive fires in a designated area (SWCA).

Fire Severity: A qualitative measure of the immediate effects of fire on the fire severity ecosystem. It relates to the extent of mortality and survival of plant and animal life both aboveground and belowground and to loss of organic matter. It is determined by heat released aboveground and belowground. Fire Severity is dependent on intensity and residence dependent of the burn. For trees,

severity is often measured as percentage of basal area removed. An intense fire may not necessarily be severe (Wooten 2021).

Fire Risk: “Risk” takes into account the intensity and likelihood of a fire event to occur as well as the chance, whether high or low, that a hazard such as a wildfire will cause harm. Fire risk can be determined by identifying the susceptibility of a value or asset to the potential direct or indirect impacts of wildfire hazard events (CA GOPR 2020).

Flammability: The relative ease with which fuels ignite and burn regardless of the quantity of the fuels (SWCA).

Flame Length: The length of flames in the propagating fire front measured along the slant of the flame from the midpoint of its base to its tip. It is mathematically related to fireline intensity and tree crown scorch height (Wooten 2021).

Foliar Moisture Content: Moisture content (dry weight basis) of live foliage, foliar moisture content expressed as a percent. Effective foliar moisture content incorporates the moisture content of other canopy fuels such as lichen, dead foliage, and live and dead branchwood (Wooten 2021).

Forest Fire: uncontrolled burning of a woodland area (National Geographic 2021).

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

Fuel Break: A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled (NWCG 2021).

Fuel Complex: The combination of ground, surface, and canopy fuel strata (Wooten 2021).

Fuel Condition: Relative flammability of fuel as determined by fuel type and environmental conditions (SWCA).

Fuel Continuity: A qualitative description of the distribution of fuel both horizontally and vertically. Continuous fuels readily support fire spread. The larger the fuel discontinuity, the greater the fire intensity required for fire spread (Wooten 2021).

Fuel Loading: The volume of fuel in a given area generally expressed in tons per acre (SWCA). Dead woody fuel loadings are commonly described for small material in diameter classes of 0 to 0.25, 0.25 to 1, and 1 to 3 inches and for large material greater than 3 inches (Wooten 2021).

Fuel Management: Manipulation or removal of fuels to reduce the likelihood of ignition and to reduce potential damage in case of a wildfire. Fuel management methods include prescribed fire, mechanical treatments (mowing, chopping), herbicides, biomass removal (thinning or harvesting of trees, harvesting of pine straw), and grazing. Fuel management techniques may sometimes be combined for greater effect (SWCA).

Fuel Model: A set of surface fuel bed characteristics (load and surface-area-to- fuel model volume-ratio by size class, heat content, and depth) organized for input to a fire model (Wooten 2021).

Fuel Modification: The manipulation or removal of fuels (i.e., combustible biomass such as wood, leaves, grass, or other vegetation) to reduce the likelihood of igniting and to reduce fire intensity. Fuel modification activities may include lopping, chipping, crushing, piling and burning, including prescribed burning. These activities may be performed using mechanical treatments or by hand crews. Herbicides

and prescribed herbivory (grazing) may also be used in some cases. Fuel modification may also sometimes be referred to as “vegetation treatment” (CA GOPR 2020).

Fuel Moisture Content: This is expressed as a percent or fraction of oven dry fuel moisture content weight of fuel. It is the most important fuel property controlling flammability. In living plants, it is physiologically bound. Its daily fluctuations vary considerably by species but are usually above 80% to 100%. As plants mature, moisture content decreases. When herbaceous plants cure, their moisture content responds as dead fuel moisture content, which fluctuates according to changes in temperature, humidity, and precipitation (Wooten 2021).

Fuel Treatment: The manipulation or removal of fuels to minimize the probability of ignition and/or to reduce potential damage and resistance to fire suppression activities (NWCG 2021). Synonymous with fuel modification.

Grazing: There are two types of grazing: 1) traditional grazing, and 2) targeted grazing. Traditional grazing refers to cattle that are managed in extensive pastures to produce meat. Targeted grazing involves having livestock graze at a specific density for a given period of time for the purpose of managing vegetation. Even though both kinds of grazing manage fuel loading in range- and forested lands, targeted grazing is different in that its sole purpose is to manage fuels. Targeted grazing is done by a variety of livestock species such as sheep, goats, or cows (University of California Division of Agriculture and Natural Resources [UCANR] 2019).

Ground Fire: Fire that burns organic matter in the soil, or humus; usually does not appear at the surface (National Geographic 2021).

Ground Fuels: Fuels that lie beneath surface fuels, such as organic soils, duff, decomposing litter, buried logs, roots, and the below-surface portion of stumps (Wooten 2021).

Hazard: A “hazard” can be defined generally as an event that could cause harm or damage to human health, safety, or property (CA GOPR 2020).

Hazardous Areas: Those wildland areas where the combination of vegetation, topography, weather, and the threat of fire to life and property create difficult and dangerous problems (SWCA).

Hazardous Fuels: A fuel complex defined by type, arrangement, volume, condition, and location that poses a threat of ignition and resistance to fire suppression (NWCG 2021).

Hazardous Fuels Reduction: Any strategy that reduces the amount of flammable material in a fire-prone ecosystem. Two common strategies are mechanical thinning and prescribed burning (Wooten 2021).

Hazard Reduction: Any treatment that reduces the threat of ignition and spread of fire (SWCA).

Highly Valued Resources and Assets (HVRAs): Landscape features that are influenced positively and/or negatively by fire. Resources are naturally occurring, while Assets are human made (IFTDSS 2021).

Ignition: The action of setting something on fire or starting to burn (SWCA).

Incident: An occurrence or event, either natural or person-caused, which requires an emergency response to prevent loss of life or damage to property or natural resources (Wooten 2021).

Influence Zone: An area that, with respect to wildland and urban fire, has a set of conditions that facilitate the opportunity for fire to burn from wildland fuels to the home and or structure ignition zone (NWCG 2021).

Initial Attack: The actions taken by the first resources to arrive at a wildfire to protect lives and property and prevent further extension of the fire (SWCA).

Invasive Species: An introduced, nonnative organism (disease, parasite, plant, or animal) that begins to spread or expand its range from the site of its original introduction and that has the potential to cause harm to the environment, the economy, or to human health (USGS 2021).

Ladder Fuels: Fuels that provide vertical continuity allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease (SWCA).

Litter: Recently fallen plant material that is only partially decomposed and is still discernible (SWCA).

Manual Treatments: Felling and piling of fuels done by hand. The volume of material generated from a manual fuel treatment is typically too small to warrant a biomass sale therefore collected material is disposed of by burning or chipping. The work can be performed by either a single individual or a large, organized crew with powered equipment (UCANR 2021a).

Mechanized Treatments: Mechanical treatments pulverize large continuous patches of fuel to reduce the volume and continuity of material. Mechanical treatments can be applied as either mastication or chipping treatments. Both treatments shred woody material, but mastication leaves residue on-site while chipping collects the particles for transportation off site. Similar to hand treatments, mechanical treatments can target specific areas and vegetation while excluding areas of concern. In addition, mechanical treatment is easily scalable to large areas (>30 acres) with little added cost. (UCANR 2021b).

Mitigation: Action that moderates the severity of a fire hazard or risk (SWCA).

Mutual Aid: Assistance in firefighting or investigation by fire agencies, irrespective of jurisdictional boundaries (NWCG 2021).

Native Revegetation: The process of replanting and rebuilding the soil of disturbed land (e.g., burned) with native plant species (USDA 2005).

Native Species: A species that evolved naturally in the habitat, ecosystem, or region as determined by climate, soil, and biotic factors (USDA 2005).

National Cohesive Strategy: The National Cohesive Wildland Fire Management Strategy is a strategic push to work collaboratively among all stakeholders and across all landscapes, using best science, to make meaningful progress toward three goals:

- Resilient Landscapes
- Fire-Adapted Communities
- Safe and Effective Wildfire Response

Vision: To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a nation, to live with wildland fire (Forests and Rangelands 2023).

Overstory: That portion of the trees in a forest which forms the upper or uppermost layer (SWCA).

Passive Crown Fire: A type of crown fire in which the crowns of individual trees or small groups of trees burn, but solid flaming in the canopy cannot be maintained except for short periods. Passive crown fire encompasses a wide range of crown fire behavior, from occasional torching of isolated trees to nearly active crown fire. Passive crown fire is also called torching or candling. A fire in the crowns of the trees in which trees or groups of trees torch, ignited by the passing front of the fire. The torching trees reinforce the spread rate, but these fires are not basically different from surface (SWCA).

Prescribed Burning: Any fire ignited by management actions under specific, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. Usually, a written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition (USFS 2023).

Rate of Spread: The relative activity of a fire in extending its horizontal dimensions. It is expressed as rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually, it is expressed in chains or acres per hour for a specific period in the fire's history (NWCG 2021).

Resilience: Resilience is the capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience (CA GOPR 2020).

Resilient Landscape: Landscapes or ecosystems that resist damage and recover quickly from disturbances (such as wildland fires) and human activities (Forests and Rangelands 2014).

Response: Movement of an individual firefighting resource from its assigned standby location to another location or to an incident in reaction to dispatch orders or to a reported alarm (SWCA).

Roadside Buffer: Intentional change or alteration in land cover and vegetation composition along roadways intended to reduce ladder fuels and canopy continuity. Buffers can reduce fire spread across roadways and improve the safety of designated evacuation routes.

Safety Element: One of the seven mandatory elements of a local general plan (a county plan that forms the foundation for future development), the safety element must identify hazards and hazard abatement provisions to guide local decisions related to zoning, subdivisions, and entitlement permits. The element should contain general hazard and risk reduction strategies and policies supporting hazard mitigation measures (CA GOPR 2020).

Shaded Fuel Break: Fuel breaks where understory vegetation is primarily cleared, leaving the forest canopy in-tact. These areas maintain higher relative humidity, lower temperatures, and sustain higher biodiversity while also reducing fuel loads.

Slash: Debris left after logging, pruning, thinning, or brush cutting. Slash includes logs, chips, bark, branches, stumps, and broken trees or brush that may be fuel for a wildfire (SWCA).

Slope Percent: The ratio between the amount of vertical rise of a slope and horizontal distance as expressed in a percent. One hundred feet of rise to 100 feet of horizontal distance equals 100% (NWCG 2021).

Suppression: The most aggressive fire protection strategy, it leads to the total extinguishment of a fire (SWCA).

Surface Fire: fire that typically burns only surface litter and undergrowth (National Geographic 2021).

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

Structural Ignitability: The ability of structures (such as homes or fences) to catch fire (SWCA).

Topography: The arrangement of the natural and artificial physical features of an area (SWCA).

Total Fuel Load: The mass of fuel per unit area that could possibly be consumed in a hypothetical fire of the highest intensity in the driest fuels (Wooten 2021).

Tree Crown: The primary and secondary branches growing out from the main stem, together with twigs and foliage (SWCA).

Understory: Low-growing vegetation (herbaceous, brush or reproduction) growing under a stand of trees. Also, that portion of trees in a forest stand below the overstory (SWCA).

Understory Fire: A fire burning in the understory, more intense than a surface fire with flame lengths of 1 to 3 m (Wooten 2021).

Values and Assets at Risk: The elements of a community or natural area considered valuable by an individual or community that could be negatively impacted by a wildfire or wildfire operations. These values can vary by community and can include public and private assets (natural and manmade) -- such as homes, specific structures, water supply, power grids, natural and cultural resources, community infrastructure-- as well as other economic, environmental, and social values (CA GOPR 2020).

Vulnerable Community: Vulnerable communities experience heightened risk and increased sensitivity to natural hazard and climate change impacts and have less capacity and fewer resources to cope with, adapt to, or recover from the impacts of natural hazards and increasingly severe hazard events because of climate change. These disproportionate effects are caused by physical (built and environmental), social, political, and/ or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality (CA GOPR 2020).

Wildfire: A “wildfire” can be generally defined as any unplanned fire in a “wildland” area or in the WUI (CA GOPR 2020).

Wildfire Exposure: During fire suppression activities, an exposure is any area/property that is threatened by the initial fire, but in National Fire Incident Reporting System a reportable exposure is any fire that is caused by another fire, i.e., a fire resulting from another fire outside that building, structure, or vehicle, or a fire that extends to an outside property from a building, structure, or vehicle (USFA 2020).

Wildfire Influence Zone: A wildland area with susceptible vegetation up to 1.5 miles from the interface or intermix WUI (CA GOPR 2020).

Wildland: Those unincorporated areas covered wholly or in part by trees, brush, grass, or other flammable vegetation (CA GOPR 2020).

Wildland Fire: Fire that occurs in the wildland as the result of an unplanned ignition (CA GOPR 2020).

Wildland Fuels (aka fuels): Fuel is the material that is burning. It can be any kind of combustible material, especially petroleum-based products, and wildland fuels. For wildland fire, it is usually live, or dead plant material, but can also include artificial materials such as houses, sheds, fences, pipelines, and trash piles. In terms of vegetation, there are six wildland fuel types (fuel type: an identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a

predictable rate of spread or resistance to control under specified weather conditions.) The six wildland fuel types are (NWCG 2021):

- Grass
- Shrub
- Grass-Shrub
- Timber Litter
- Timber-Understory
- Slash-Blowdown

Wildland-Urban Interface (WUI): The WUI is the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels (USFA 2022).

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APPENDIX A:

Existing Regulations, Ordinances, and Programs

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This appendix provides background information on legislation and existing guidance and planning across jurisdictions in the county. This information is provided as a reference to facilitate future planning alignment between entities.

LEGISLATIVE DIRECTION

MUNICIPAL DIRECTION

Sandoval County Fire Code

The Sandoval County Fire Code is found in Chapter 16, Fire Prevention, of the Sandoval County Municipal Code. The code lays out the duties of the Fire Chief of the County as well as ordinances intended to prevent fires, reduce risk, and facilitate rescue efforts and fire suppression. The Fire Chief directs the Sandoval County Fire Department making important decisions regarding the implementation and enforcement of fire codes; management and staffing of the Fire Department; development and updates of policies and procedures; along with other tasks to ensure public safety from fires.

A component of the codes is the 2003 International Fire Code that the County adopted for all the structures in unincorporated areas of the county. The Fire Department has included, as part of county ordinances, the Sandoval County Fireworks Ordinance, which prohibits the use of certain types of fireworks within the county unless prior approval has been given to a permitted operator. It also requires permits for the sale of acceptable fireworks. County ordinance also requires subdivisions to comply with standards for fire protection which includes having a fire protection plan.

STATE DIRECTION

The 2020 New Mexico State Forest Action Plan recognizes that New Mexico faces continued and urgent threats from catastrophic wildfire. The State Forest Action Plan includes a resource assessment to identify threats to resources, including wildfire, post-wildfire flooding, erosion and debris flow, disease and insects, climate changes, development and fragmentation, and forest management activities. The Plan then provides strategies to protect these resources over the next decade. There are several strategies and sub-strategies outlined in the Plan; those specific to wildfire include:

- **Restore Forests and Watersheds:** addresses the legacy of fire exclusion and excessive fuels.
- **Fire Management:** addresses wildfire response on state and private land; supports regional, state, and national wildfire response for all jurisdictions; and restores the ecological role of fire to foster resilient landscapes and watershed health.

The passing of House Bill 266, the Forest and Watershed Restoration Act (2019), provides support for landscape resilience throughout the State, by allocating state funds to the EMNRD for the purpose of forest and watershed restoration. EMNRD has been tasked with determining which proposed projects will be funded, in coordination with an Advisory Board (EMNRD Forestry Division 2022).

Like the 2014 national strategy, the NFP, the State Forest Action Plan, 10-year comprehensive strategy, and Federal Emergency Management Agency (FEMA) Disaster Mitigation Act of 2000, all mandate community-based planning efforts with full stakeholder participation, coordination, project identification, prioritization, funding review, and multiagency cooperation. In compliance with Title 1 of the Healthy Forests Restoration Act (HFRA), a CWPP must be mutually agreed upon by the local government, local

fire departments, and the state agency responsible for forest management (EMNRD Forestry Division 2024). As outlined in HFRA, this CWPP is developed in consultation with interested parties and the federal agencies managing land surrounding the at-risk communities.

Forest and Watershed Restoration Act: The Forest and Watershed Restoration Act (FAWRA) was created by house bill 266. FAWRA allocates funding annually to the EMNRD Forestry Division. The funding is to restore forests and watersheds in the state of New Mexico and establishes a Forest and Watershed Advisory Board, which evaluates proposed projects and recommends guidelines, protocols, and best management practices. When projects have been selected and approved, EMNRD Forestry Division will administer, implement, and report on the projects. Work funded by FAWRA includes on-the-ground restoration treatments; project planning; economic development programs to advance the use of small-diameter trees and woody biomass; and workforce development for wood utilization projects (EMNRD Forestry Division 2022). For more information on the FAWRA, please visit: <https://www.emnrd.nm.gov/sfd/forest-and-watershed-restoration-act-fawra/>.

FEDERAL DIRECTION

Federal wildfire planning has evolved over time, guided by the U.S. Department of the Interior and influenced by significant events. In 1998, the U.S. Department of the Interior mandated fire management plans for all public lands with burnable vegetation. The National Fire Plan, established in response to the intense 2000 fire season, promoted collaboration among governmental agencies to effectively combat severe wildfires and ensure future firefighting capacity.

In 2001, a review and update of the 1995 Federal Wildland Fire Management Policy was released. The updated document, known as the 2001 Federal Wildland Fire Management Policy, provides a broad policy foundation for fire management programs and activities at the federal level, including those conducted under the National Fire Plan. The plan focuses on broad, internal strategic direction for fire management activities.

Recognizing declining forest health, the U.S. Congress passed the Healthy Forests Restoration Act (HFRA) in 2003, and President Bush signed the act into law (Public Law 108–148, 2003). Amendments in 2009 addressed funding changes and renewed focus on wildfire mitigation (H.R. 4233 - Healthy Forest Restoration Amendments Act of 2009). The HFRA facilitated expedited development and implementation of hazardous fuels reduction projects on federal lands, emphasizing collaborative efforts between federal agencies and communities.

Community wildfire protection plans (CWPPs) were integral to the HFRA, enabling communities to collaborate with federal agencies on prioritized hazardous fuels reduction projects. CWPPs allowed communities to define the WUI and identified priority treatment areas. Priority was given to municipal watersheds, critical wildlife habitat, and areas impacted by natural factors. Communities with established CWPPs received funding priority for hazardous fuels reduction projects aligned with the HFRA. These federal policies and acts have fostered collaborative approaches, prioritized risk reduction, and enhanced wildfire management strategies, ensuring the protection of communities and the environment.

In 2023, the Wildfire Leadership Council sought to update and enhance the strategic direction of the 2014 National Cohesive Wildland Fire Management Strategy framework. This was done through the 2023 National Cohesive Wildland Fire Management Strategy Addendum Update (Forests and Rangelands 2023). The updated strategy highlights critical emphasis areas that were not identified in the previous framework.

Included among these emphasis areas are:

1. Climate change
2. Workforce capacity, health, and well-being
3. Community resilience (preparation, response, and recovery)
4. Diversity, equity, inclusion, and environmental justice

Thorough analysis of these emphasis areas is provided for within the Addendum Update report, along with new management options to address them. Also identified within the update are numerous implementation challenges faced by the 2014 Cohesive Strategy. Examination of these challenges guided the enhancements that were made to the 2023 Cohesive Strategy. The national strategy takes a holistic approach to the future of wildfire management, as outlined through the updated vision statement:

To extinguish fire safely and effectively, when needed; use fire where allowable; manage our natural resources; and collectively, learn to live with wildland fire.

In order to achieve this vision, the updated national strategy goals are:

1. **Resilient Landscapes:** Landscapes, regardless of jurisdictional boundaries are resilient to fire, insect, disease, invasive species, and climate change disturbances, in accordance with management objectives.
2. **Fire-Adapted Communities:** Human populations and infrastructure are as prepared as possible to receive, respond to, and recover from wildland fire.
3. **Safe, Effective, Risk-based Wildfire Response:** All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

PUBLIC LAND MANAGEMENT

LAND MANAGEMENT STRATEGIES

In 2019, the Forest and Watershed Restoration Act (FAWRA) was signed into law. The FAWRA distributes funding to the EMNRD Forestry Division with the objective of restoring forests and watersheds in the state of New Mexico and creates a Forest and Watershed Advisory Board to assess and recommend projects. Restoration projects under the FAWRA are planned and implemented with collaboration between the EMNRD Forestry Division and partnering organizations, including local, state, federal, tribal, nongovernmental organizations, and other partners and stakeholders. Between 2020 and 2022, a total of 6,050 acres of forest restoration were completed, including fuels treatments, thinning, invasive species removal, and prescribed fire (EMNRD Forestry Division 2022).

The Forestry Division's Forest and Watershed Health Office has been concentrating on three work areas related to forest and watershed health: 1) supporting collaborations that expand the State's capacity to get more work done on the ground; 2) implementing the National Cohesive Strategy in New Mexico; and 3) using science, policy, and legislation to facilitate the Forestry Division's mission. Forest managers in the region are addressing land management objectives through the use of prescribed fire, and mechanical and manual treatments to promote more resilient forest land. Private, state, and federal lands are interspersed, creating a matrix of land ownership, which is often a hurdle to implementation of landscape-level treatments. By working with private landowners, forest managers are enhancing landscape-scale efforts to create more resilient forest communities.

State Land

The EMNRD Forestry Division has statutory responsibilities for cooperation with federal, state, and local agencies in the development of systems and methods for the prevention, control, suppression, and use of prescribed fires on rural land and within rural communities on all non-federal and non-municipal lands in the state (New Mexico Statutes Annotated 1978, Section 68-2-8). As a result, the EMNRD Forestry Division is involved in the CWPP planning process. The New Mexico Fire Planning Task Force was created in 2003 by the New Mexico legislature to identify the WUI areas (CARs) in the state that were most vulnerable to wildland fire danger. The task force updates its CARs list annually, reviews completed CWPPs and approves CWPPs that are compliant with the HFRA.

Fire Planning Taskforce: In 2003, the New Mexico State Legislature created the fire planning taskforce. This taskforce is collaborative and is composed of stakeholders and land managers from local, state, and tribal cooperators. These cooperators assist the EMNRD Forestry Division in identifying areas of New Mexico most vulnerable to wildfire. This taskforce also guides policy and land management recommendations that are designed to reduce the threat of wildfires to communities. Responsibilities and roles of the taskforce include, but are not limited to, developing model ordinances and standards for building codes; considering the benefits of thinning and prescribed burn projects; and guiding recommendations for defensible space standards for infrastructure and property. This taskforce meets once per year to approve CWPPs. For more information on participating members please see: <https://www.emnrd.nm.gov/sfd/fire-planning-task-force/>.

PAST PLANNING EFFORTS

LOCAL

There are several existing documents and/or programs relating to fire management in the county. This plan is meant to supplement and not replace any other existing plans.

Sandoval County Natural Hazards Mitigation Plan (2019):

The 2019 Natural Hazard Mitigation Plan provided risk assessments and mitigation strategies for dam failure, drought, flooding, severe weather, severe wind, and wildfire. These hazards were evaluated for nine jurisdictions in Sandoval County along with the unincorporated areas. The objective of the plan was to provide a guide for communities to understand and mitigate these hazards. Analysis of the wildfire hazard found wildfire occurrence to have a likely to highly likely probability in the jurisdictions and unincorporated area of Sandoval County. Most of them also had a moderate to extreme vulnerability ranking, making wildfire mitigation a priority outlined in the plan.

Sandoval County All Hazard Mitigation Plan (2014):

The Sandoval County All Hazard Mitigation Plan provided a risk assessment and vulnerability analysis for damages resulting from dam failure, drought, flooding, severe weather, severe wind, and wildfire within the county. These hazards were analyzed for eight jurisdictions and the unincorporated area of Sandoval County to determine mitigation strategies in response to the risk and vulnerability present. Wildfire risk and vulnerability assessments found wildfire probability to be likely or highly likely and vulnerability to be moderate to extreme in nearly every jurisdiction. As a result, efforts to minimize the risk and damages posed by wildfires were considered a mitigation priority in all but one jurisdiction. The Sandoval County All Hazard Mitigation Plan is also currently in the process of being updated.

Sandoval County, New Mexico All-Hazards Emergency Operations Plan (2015):

The Sandoval County, New Mexico All-Hazard Emergency Operations Plan lays out strategies for the county to employ before, during, and after disasters to prevent as little loss of life, property, infrastructure, and resources as possible. The plan defines the mitigation, response, and recovery process for emergencies, the roles and responsibilities of different entities along with training, administrative, and logistics information. The Emergency Operations Plan considers wildfire a medium probability hazard that primarily poses risks to human lives, property, municipal infrastructure, water mains, and urban settings generally. Wildfire mitigation efforts listed in the plan are home protection strategies and the development of CWPPs. The plan also continues existing fire protection strategies, including tests and trainings of systems in place in case wildfires occur.

STATE

State of New Mexico Hazard Mitigation Plan: The New Mexico Hazard Mitigation Plan was developed in 2013 and updated in 2018 and 2023. It was a collaborative effort of state agencies under the coordination of the New Mexico Department of Homeland Security and Emergency Management. Within the plan is a discussion of the process used to “identify, profile, and assess natural hazards in New Mexico... [and] the actions which should be taken to mitigate those hazards.” The plan focuses on hazard identification and risk assessment; federal, state, and local capabilities and resources; New Mexico vulnerabilities; mitigation strategies, goals, and actions; and implementation strategies. The plan is renewed and enhanced as new mitigation opportunities become available (New Mexico Department of Homeland Security and Emergency Management 2023).

2020 New Mexico Forest Action Plan: As part of the federal Farm Bill, the USFS requires states to develop a Forest Action Plan on recurring 10-year cycles. Using the best science available, the EMNRD worked as part of a collaborative group to create the 2020 New Mexico Forest Action Plan (EMNRD Forestry Division 2020). The plan provides a current assessment of the state’s natural resources and, with the perspective of a changing climate, proposes strategies to address pressing issues in forest and watershed management. The plan focuses on natural resource assets and their assessments in regard to wildfire, post-wildfire conditions, disease and insects, climate change, human development, and forest management activities. The plan provides information on risk assessments, relative importance of resources, and strategies for managing natural resources, among other information. The 10 strategies set forth in this 2020 plan are restoring forests and watersheds, fire management, private land stewardship, utility rights-of-way, rare plants, reforestation, urban forests and communities, restoration economy, land conservation, and outdoor recreation (EMNRD Forestry Division 2020). The plan also identifies priority landscapes for the application of the strategies:

1. Priority landscapes for restoration across all jurisdictions with forest and woodland cover types and identifies the top 500 watersheds in the state ranked by wildfire risk and importance for water source protection and biodiversity. These priority landscapes account for approximately 20% of all watersheds at risk.
2. Shared stewardship for high priority landscapes on National Forest System lands and adjacent lands and identifies the top 250 watersheds in the state ranked by wildfire risk and importance for water source protection and biodiversity.

Federal

Bureau of Land Management

The BLM operates a national fire program, which focuses on public safety as its main priority. The BLM's fire management program is organized at three levels: national, state, and field (local) levels. The national office provides direction and oversight of the program while developing policy and budget; the state offices coordinate policy and interagency management efforts within their state; and the field offices are responsible for executing field operations such as fire management activities and providing initial attack. The BLM collaborates with federal, state, and local organizations to develop and implement wildland fire programs (BLM 2021a, 2021b).

For instance, BLM's fuels management program directs a wide range of active management vegetation treatments using mechanical, biological, and chemical tools, and prescribed fire. The program consists of creating fuel breaks, reducing fuel loads, reducing fire risk near communities, targeted grazing, and herbicide to break fire-grass cycles. Fuels treatments are planned and implemented jointly with other BLM programs, and with federal, state, local, and nongovernmental collaborators (BLM n.d.a, n.d.b). Furthermore, on BLM lands there is an active vegetation treatment program with priority to reduce wildfire risk around powerlines (BLM 2019).

The BLM manages several patches of land throughout Sandoval County which is administered by the Rio Puerco Field Office and overseen by the Albuquerque District Office (BLM 2024b).

U.S. Forest Service

[Cibola National Forest Land Management Plan](#) is the guiding policy for forest and fire management within the Cibola NF. The USFS finished its revised plan in September 2021. The new plan considers how the ecological, climatic, and fire ecology conditions have changed since the last published Forest Land Management Plan (published in 1985) and describes the desired conditions for fire and fuels, objectives for creating the desired conditions, the agreed upon standards for dealing with wildfire and fuels, and the guidelines for managing fire and fuels (USFS 2021).

[Santa Fe National Forest Land Management Plan](#) serves as the guiding policy for forest and fire management on the Santa Fe National Forest. Revised in 2022, the updated plan reflects changes in ecological conditions, climate, and fire ecology since the previous version. It outlines desired conditions for fire and fuels, sets objectives for achieving those conditions, establishes standards for wildfire and fuel management, and provides guidelines for implementation.

National Park Service

Sandoval County includes a significant portion of Bandelier National Monument. For the National Monument, a fire management plan (FMP) was completed in 2005 and is currently in the process of being updated (NPS 2005, Jol et al. 2024). The FMP describes desired conditions for the park, identifies their wildland fire management goals and strategies, and delineates the components of the Parks' Wildland Fire Management Program. Main program components include Wildland Fire Suppression, Wildland Fire Use, Prescribed Fire, and Non-fire Fuels Treatment. Additionally, an environmental assessment (EA) is being completed for the monument's FMP update. The preferred alternative in the EA is to increase the use of a variety of strategies in Bandelier's wildland fire management program beyond that laid out in the 2005 plan.

TRIBAL

Federally Recognized Tribes

The following federally recognized tribes and pueblos are located in Sandoval County:

- Santa Clara Pueblo
- Jicarilla Apache Nation
- Cochiti Pueblo
- Santo Domingo Pueblo
- San Felipe Pueblo
- Santa Ana Pueblo
- Sandia Pueblo
- Zia Pueblo
- Jemez Pueblo
- Laguna Pueblo
- Navajo Nation

Each Pueblo owns and manages land in Sandoval County where they engage in fire, land, and vegetation management strategies.

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APPENDIX B:

Supporting Maps

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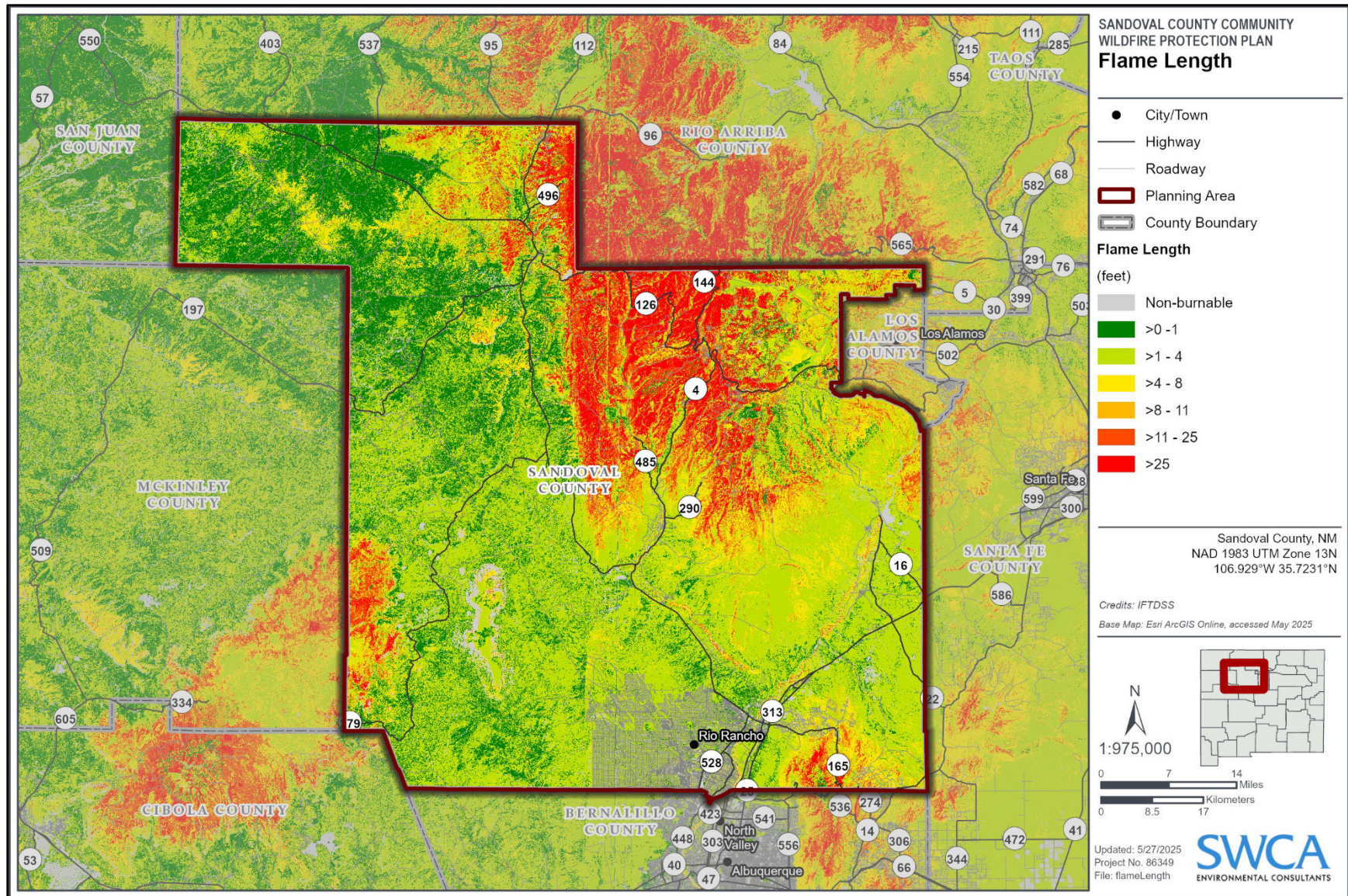


Figure B.1. Composite Risk-Hazard Model inputs: flame length, generated using IFTDSS.

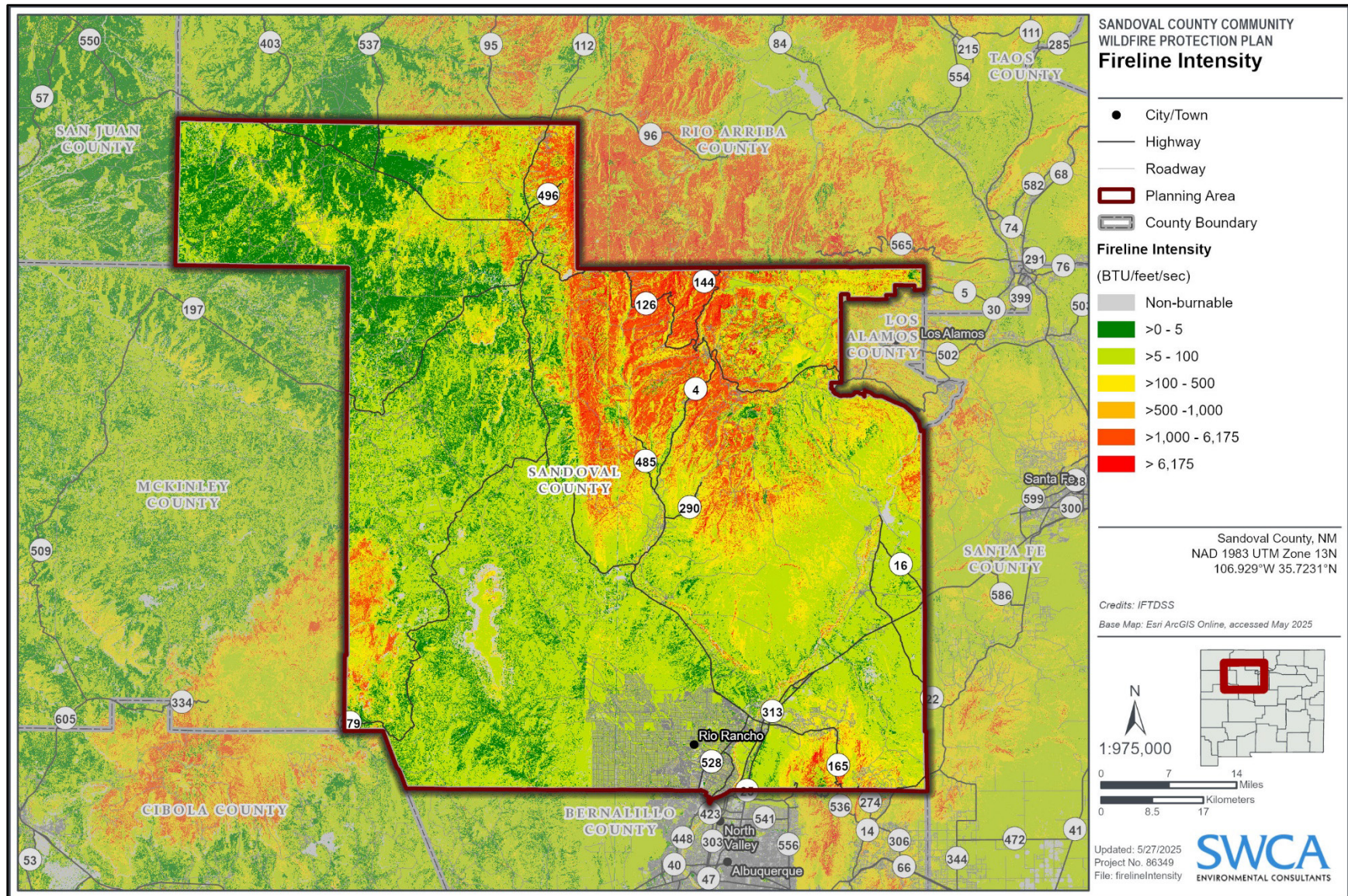


Figure B.2. Composite Risk-Hazard Model inputs: fireline intensity generated using IFTDSS.

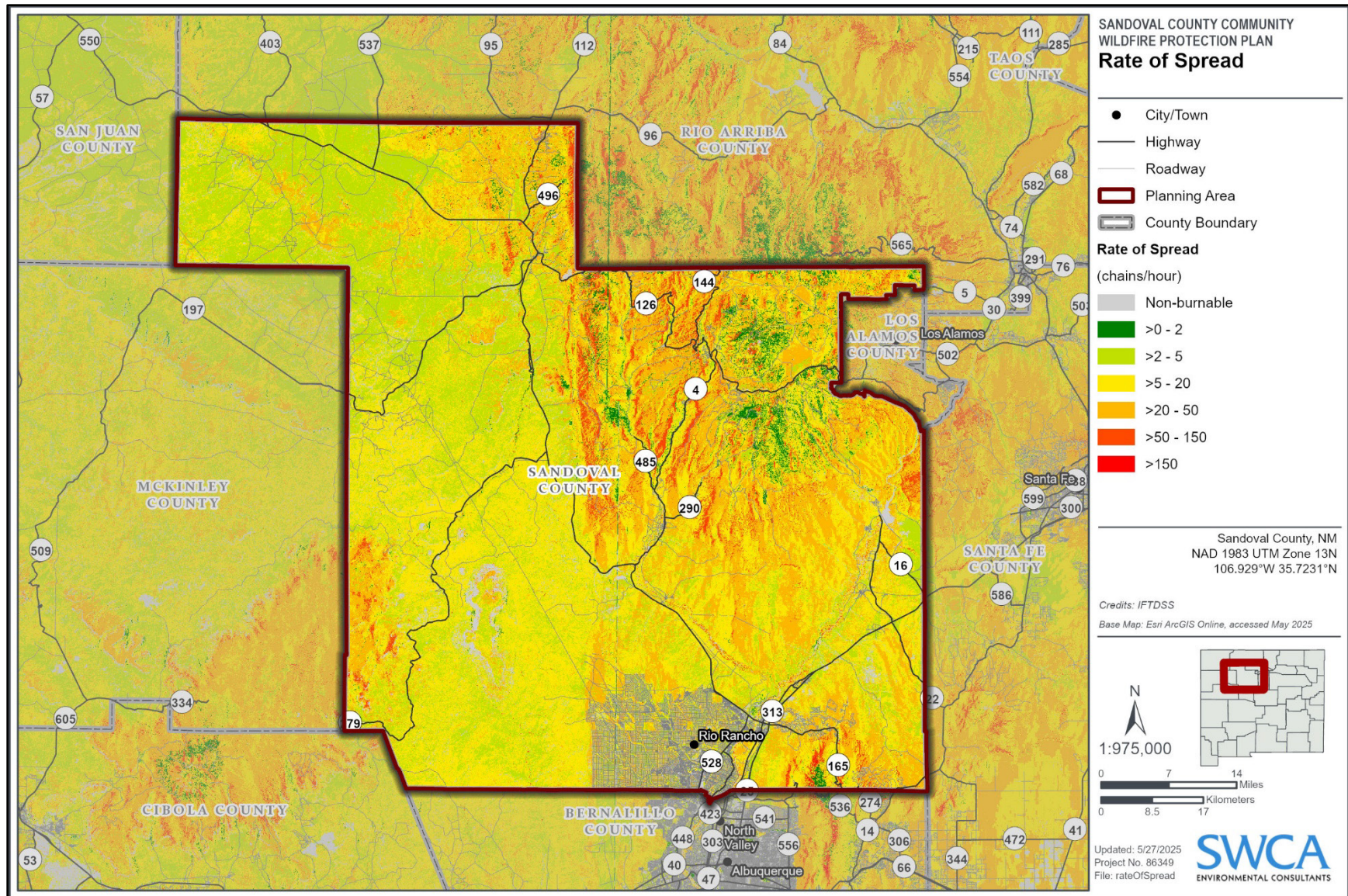


Figure B.3. Composite Risk-Hazard Model inputs: rate of spread, generated using IFTDSS.

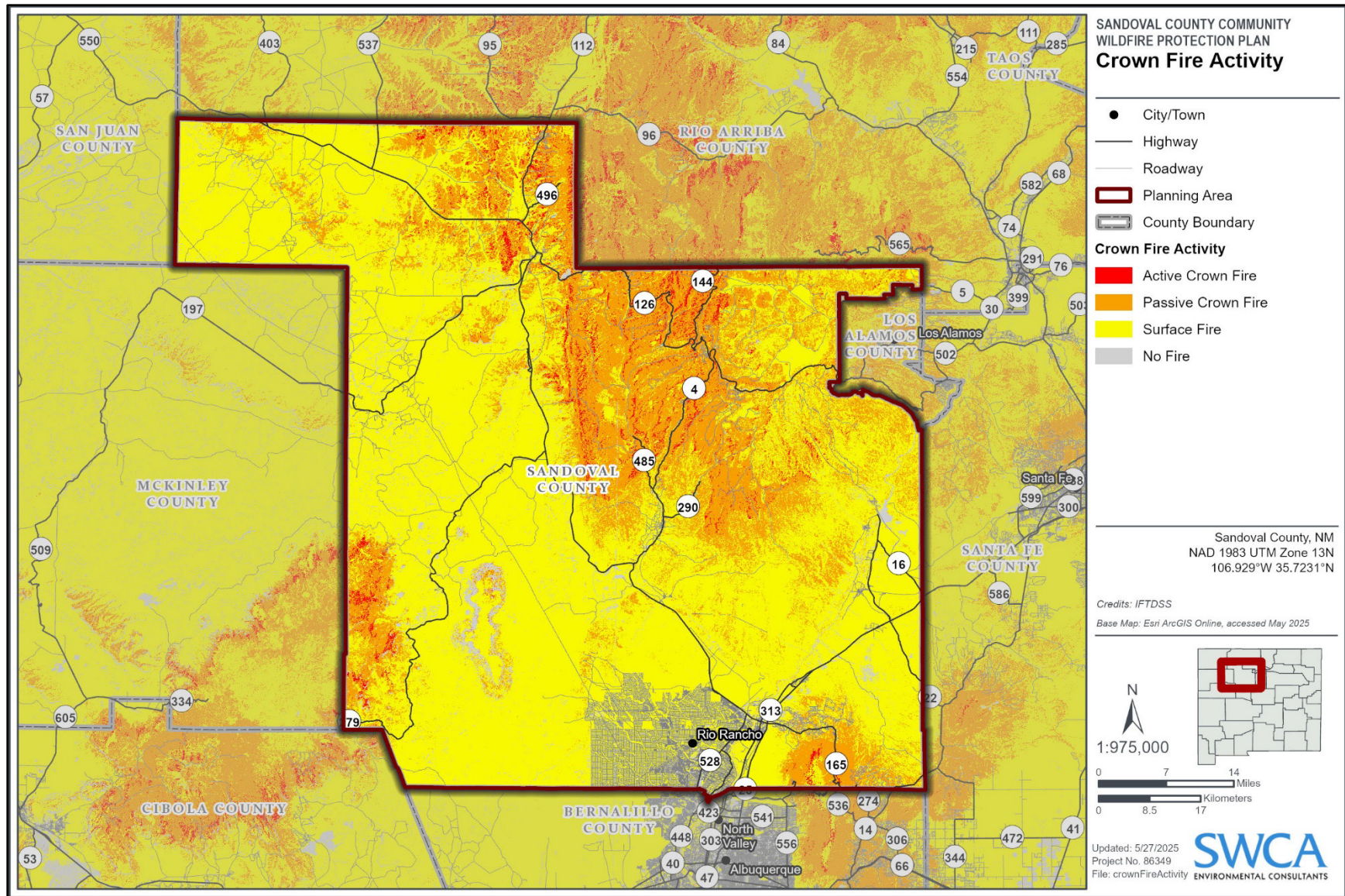


Figure B.4. Composite Risk-Hazard Model inputs: crown fire activity, generated using IFTDSS.

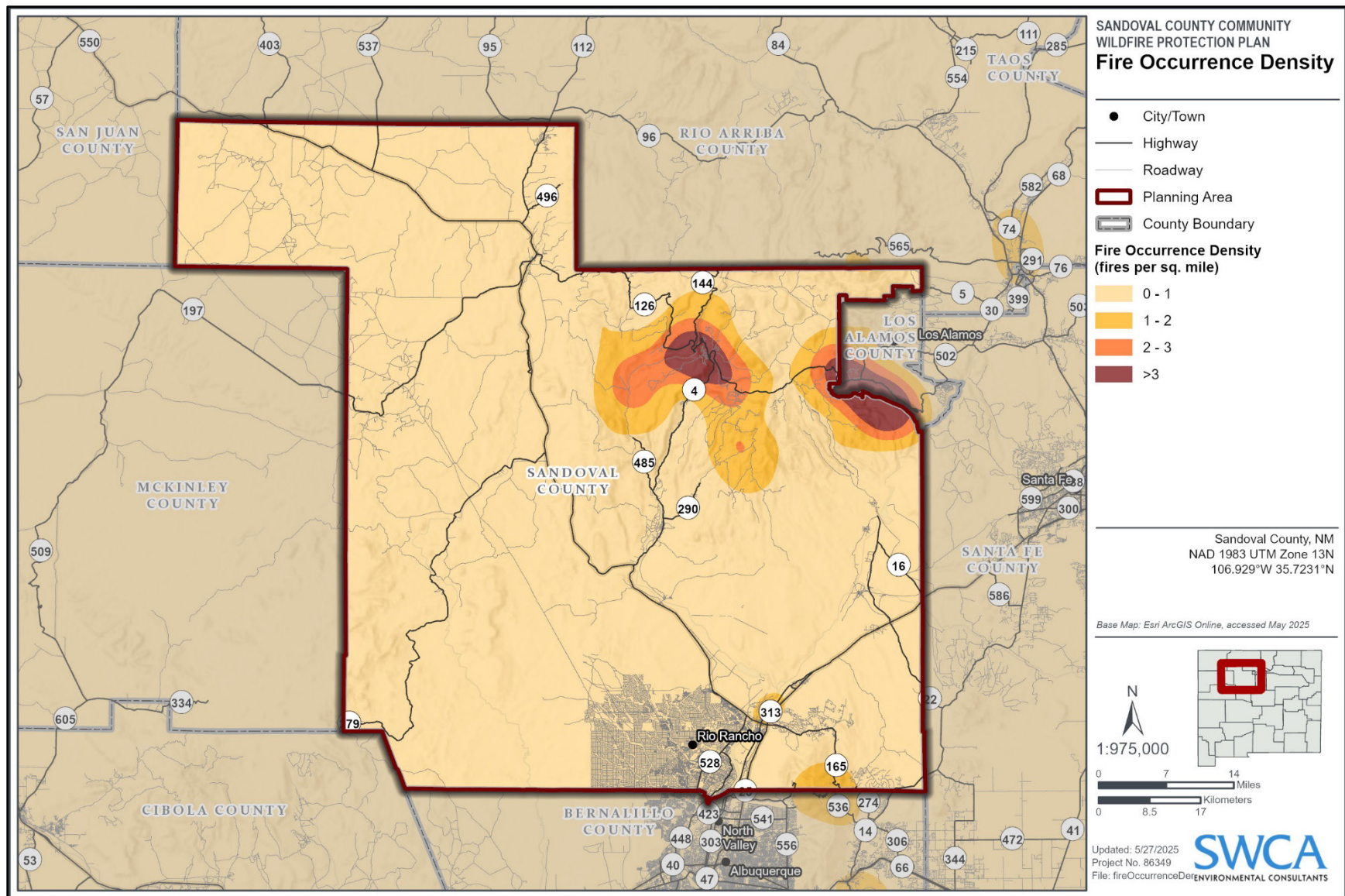


Figure B.5. Composite Risk-Hazard Model inputs: fire occurrence density (1900–2024).

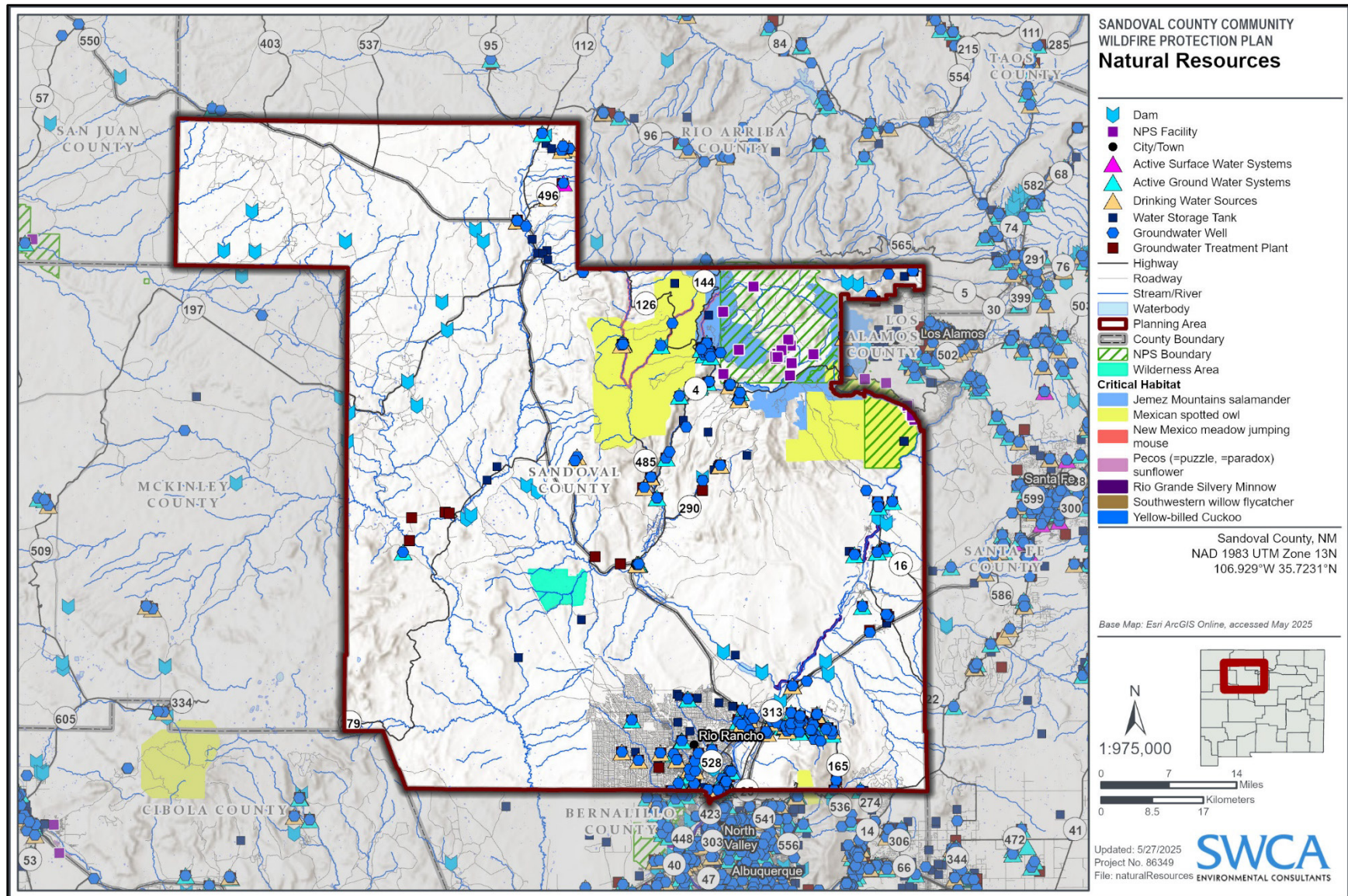


Figure B.6. Composite Risk-Hazard Model inputs: natural resources.

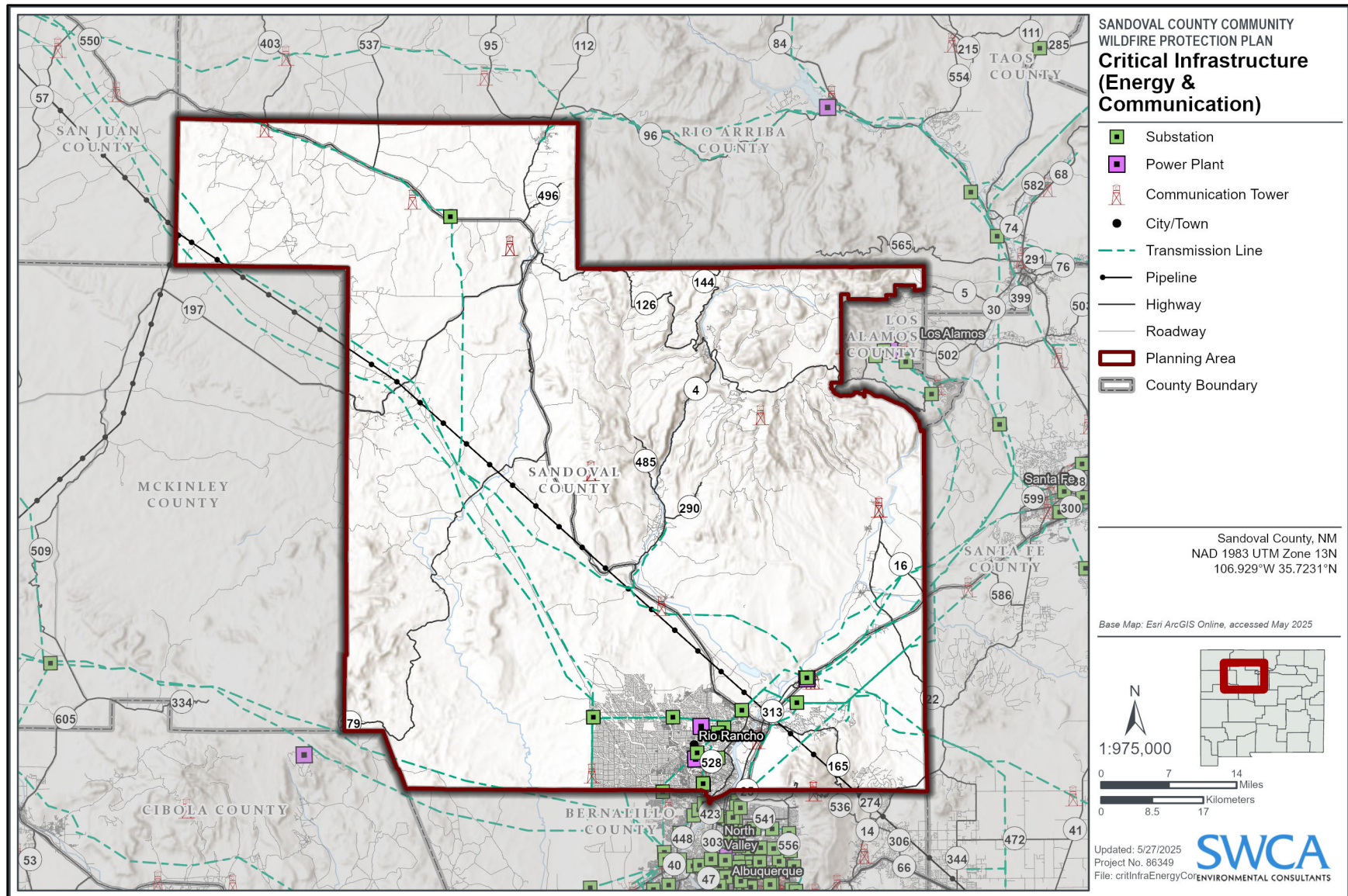


Figure B.7. Composite Risk-Hazard Model inputs: critical energy and communication infrastructure.

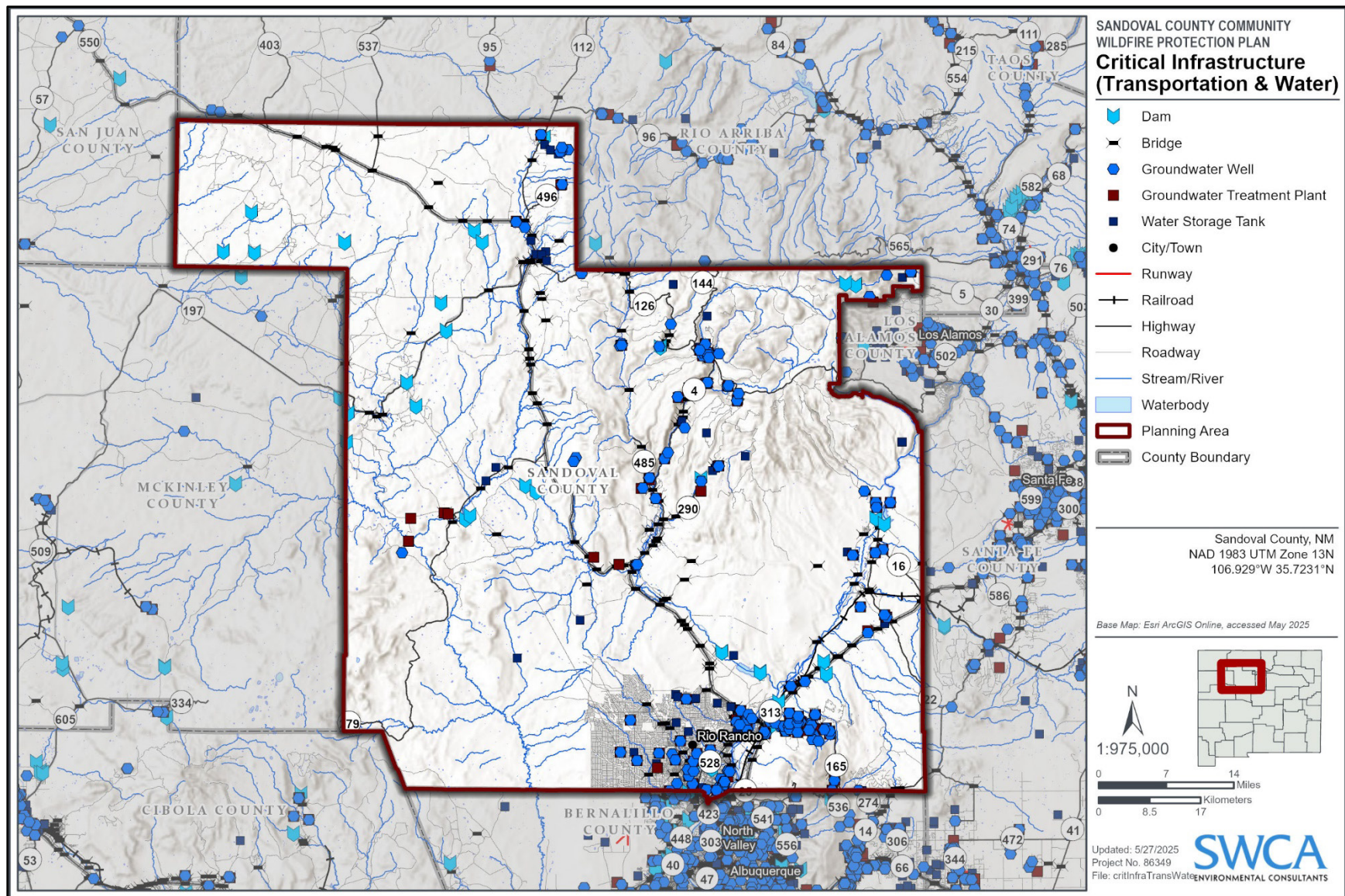


Figure B.8. Composite Risk-Hazard Model inputs: critical transportation and water infrastructure.

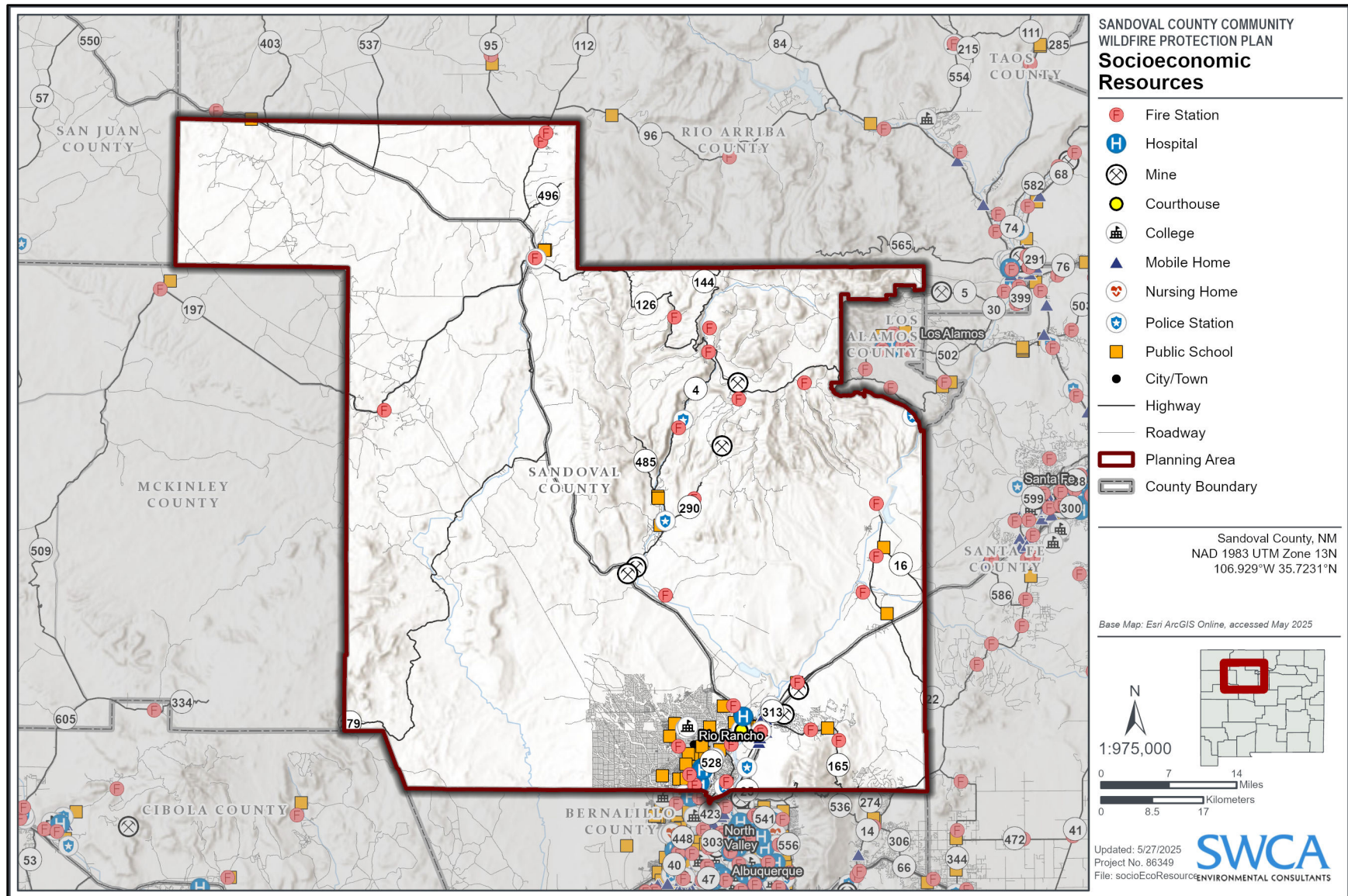


Figure B.9. Composite Risk-Hazard Model inputs: socioeconomic resources.

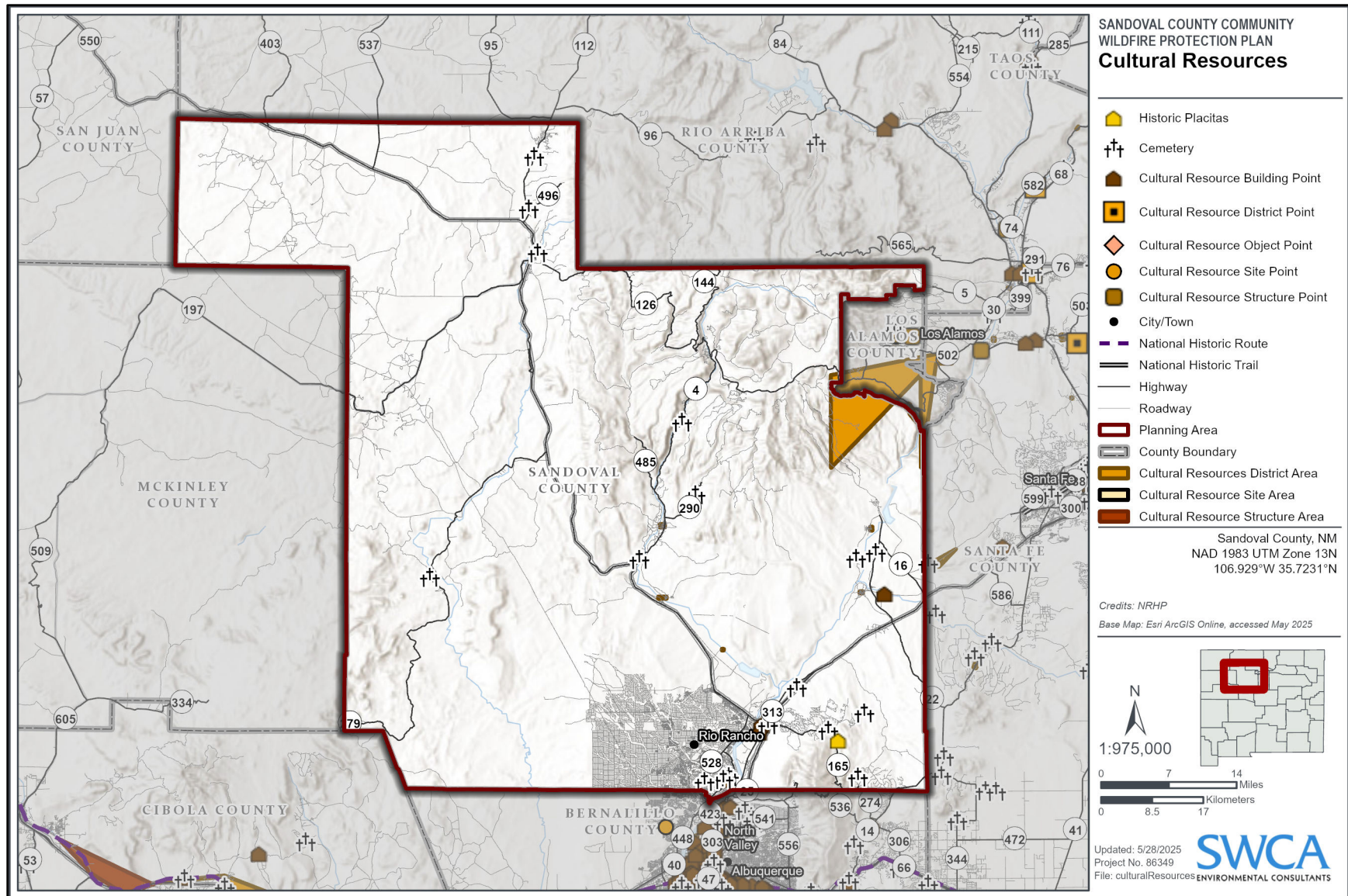


Figure B.10. Composite Risk-Hazard Model inputs: cultural resources.



APPENDIX C:

CWPP Field Assessments for Wildland-Urban Interface Communities

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SANDOVAL COUNTY

CWPP FIELD ASSESSMENTS

The CWPP field assessments were completed during February 2025 by trained SWCA staff with support from Sandoval County personnel. The assessments were completed by driving and walking through the communities and completing the NFPA 1144 assessment form below while assessing multiple properties that are representative of the community structure (Table C.1). Figure C.1 shows the communities surveyed during the field assessments.

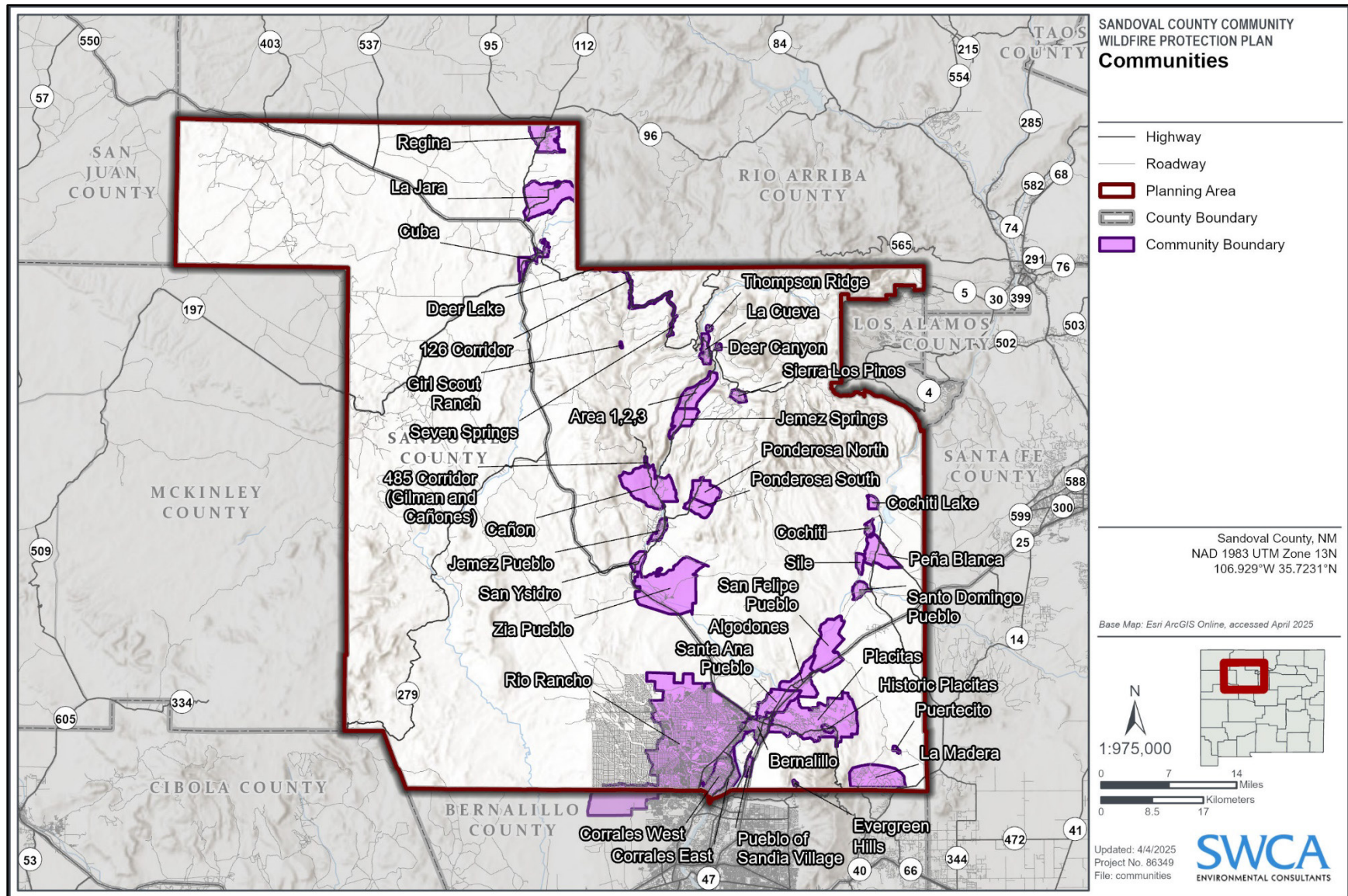


Figure C.1. Sandoval County community boundaries.

Note: an online web map can be accessed at: [Sandoval County CWPP Wildfire Risk | Sandoval County CWPP Hub Site](#)

Understanding Appendix C

Composite Risk-Hazard Model vs. Field Assessment

The key differences between the Composite Risk-Hazard Model discussed in Chapter 3 and the on-site field assessments presented below, lie in their approaches and focus areas.

Composite Risk-Hazard Models analyze potential wildfire behavior through a GIS-based desktop analysis by considering the interplay of fuels, topography, and weather using established fire behavior models like FARSITE, FSim, FlamMap, BehavePlus, and FireFamily Plus, along with ArcGIS Desktop Spatial Analyst tools. These models rely heavily on spatial data obtained from national sources like LANDFIRE to evaluate fire behavior and determine treatment strategies and priorities in the WUI, and are focused at a countywide scale. These are the best available data sources for modeling fire behavior but use coarse scale inputs (30-meter resolution) and therefore may not identify nuances on the ground. As these data sets and model platforms are revised, the CWPP Core Team will be able to revise the CWPP Composite Risk-Hazard Model to align with changing conditions.

Field assessments, conducted using the NFPA Structure Ignition Form 1144, concentrate on structure hazards observed across communities. These assessments, conducted in-person by trained personnel with support from local authorities, involve direct observation of community conditions, including access, vegetation, defensible space, topography, building characteristics, fire protection availability, and utility placement, resulting in ratings of low, moderate, high, or extreme risk.

The Composite Risk-Hazard Model map described in Chapter 3 does not integrate findings from the field assessments since each assessment is focused on very different parameters (field observations vs. quantitative modeling) and completed at a different scale (countywide versus community). Due to the differing focus and resolutions associated with these two assessment methodologies, there may be deviations between the resulting risk rating outputs. Though important to note, this is expected when analyzing wildfire risk and hazard across scales.

For more information on both the Composite Risk-Hazard Model and field assessments, please see Chapter 3.

1144 National Fire Protection Association Assessment Form

This appendix provides a template form for conducting structural hazard assessments.

Table C.1. National Fire Protection Association Assessment Form

SWCA – 1144 Assessment		
Community		Notes:
Surveyor		
Survey Date/Time		
Means of Access		
Ingress and Egress		
2 or more roads in and out score 0		
1 road in and out 7		
Road Width		
>24 ft 0		
>20 ft <24 ft 2		
<20 ft 4		
Road Conditions		
Surfaced road, grade <5% 0		
Surfaced road, grade >5% 2		
Non-surfaced road, grade <5% 2		
Non-surfaced road, grade >5% 5		
Other than all season 7		
Fire Access		
<300 ft with turnaround 0		
>300 ft with turnaround 2		
<300 ft with no turnaround 4		
>300 ft with no turnaround 5		
Street Signs		
Present – reflective 0		
Present – non-reflective 2		
Not present 5		
Notes:		

Vegetation (Fuel Models)	
<i>Predominant Vegetation</i>	
<i>Primary Predominant Vegetation</i>	
Non-Burnable (NB) Score 2	
Grass (GR) Score 5	
Grass-Shrub (GS) Score 10	
Shrub (SH) Score 15	
Timber-Understory (TU) Score 20	
Timber-Litter (TL) Score 25	
Slash-Blow (TU) Score 30	
Notes:	
<i>Defensible Space</i>	
>100 ft around structure 1	
>70 ft <100 ft around structure 3	
>30 ft <70 ft around structure 10	
<30 ft around structure 25	
Topography Within 300 ft of Structures	
<i>Slope</i>	
<9% 1	
10% to 20% 4	
21% to 30% 7	
31% to 40% 8	
>41% 10	
<i>Additional Rating Factors (rate all that apply)</i>	
Topographic features 1-5	
History of high fire occurrence 1-5	
Severe fire weather potential 1-5	
Separation of adjacent structures 1-5	
Notes:	
Roofing Assembly	
<i>Roofing</i>	
Class A - metal roof, clay/concrete tiles, slate, asphalt shingles 0	
Class B - pressure treated composite shakes and shingles 3	
Class C - untreated wood shingle, plywood, particle board 15	
Unrated - Extremely poor roofing conditions 25	

Notes:	
Building Construction	
Siding Materials (predominant)	
Non-combustible (brick/concrete) 5	
Fire Resistive (stucco/adobe) 10	
Combustible (wood or vinyl) 12	
Deck and fencing (predominant)	
No deck or fence/noncombustible 0	
Combustible deck and fence 5	
Building Set-Back	
>30 ft to slope 1	
<30 ft to slope 5	
Notes:	
Available Fire Protection	
Water Sources	
Water Source? yes/no	
Water Source Type hydrant, water tank, other	
Other Water Source	
Water Source Score Hydrant = 1 Water Tank = 3	
Organized Response	
Station <5 mi from community 1	
Station >5 mi from community 3	
Notes:	
Placement of Gas and Electric Utilities	
Both underground 0	
One above, one below 3	
Both aboveground 5	
Highly Valued Resources and Assets Observations	
Forest Health Observations	



Land Use Observations				
Misc Observations				
Total				
Hazard Rating Scale	<40 Low	>40 Moderate	>70 High	>112 Extreme

Community Field Assessments

1. Cuba Field

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 71 (high)

Risk Score (2025): 66 (Moderate)

Resiliency Factors (Low Scores)

- Ingress and egress: main highway paved, at least two roads in and out of community
- Road Conditions: low-grade, paved roads
- Organized response: fire department in community
- Topography: low gradient through most of town. Most structures far from slopes
- Severe fire weather potential: low
- Separation of adjacent structures: high
- Deck and fencing: limited presence around homes

Vulnerability Factors (High Scores)

- Fire Access: long access to some homes, limited turnaround points
- Vegetation: timber with grass and shrub understory. Mostly juniper and sagebrush, shrub/ slash filled gully through town.
- Defensible space: limited space around structures
- Building construction: combustible siding
- Utility placement: aboveground

Concerns/Recommendations

Areas of Concern:

Cuba Areas of Concern:

- Gully through town poses a fuels hazard. Many cottonwoods and shrubs in and adjacent to gully with high slash buildup. Area should be cleared where possible, education for residents where privately owned.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements where possible.

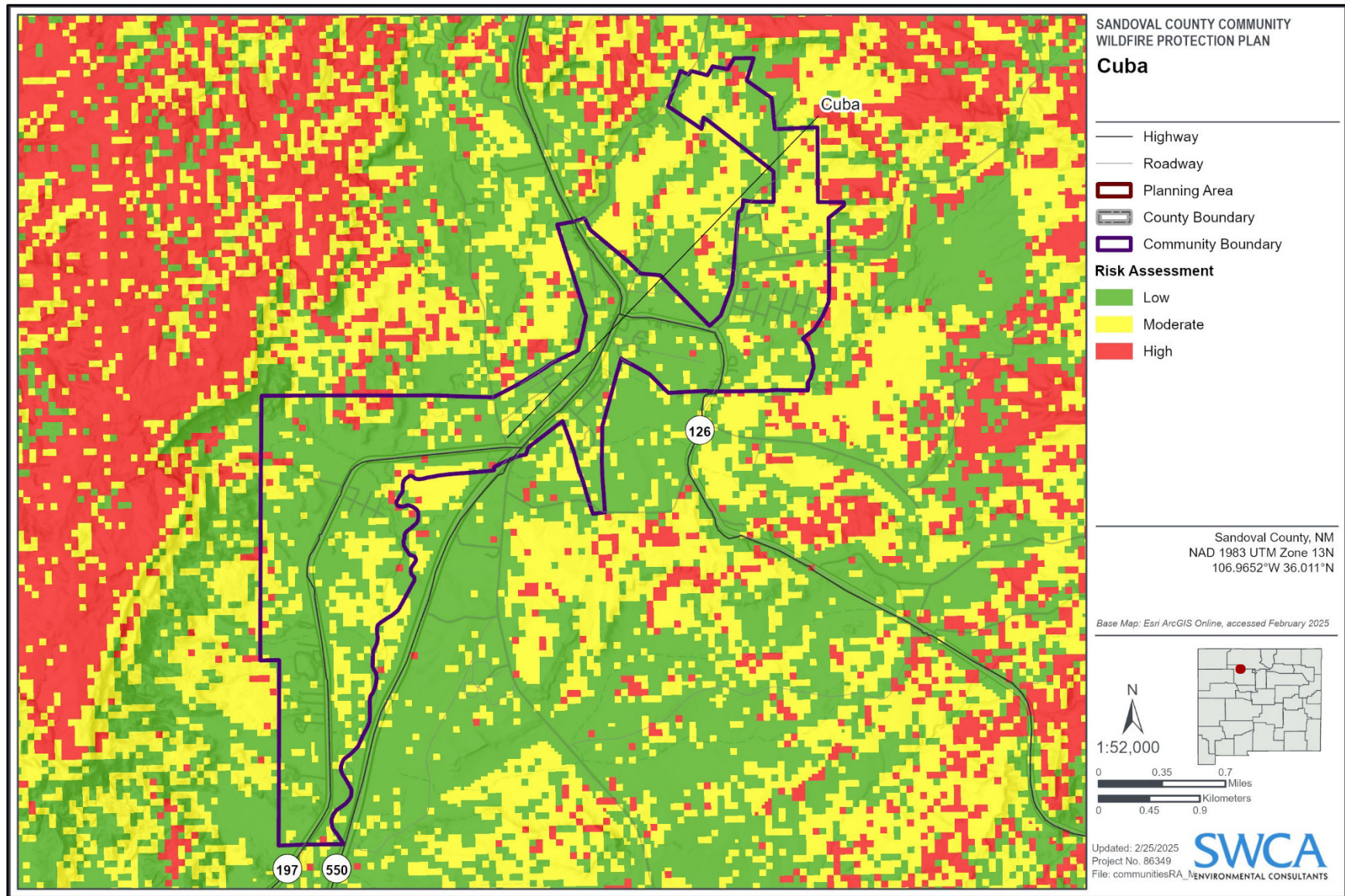


Figure C.2. Cuba risk assessment.

2. Regina Field

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 72 (high)

Risk Score (2025): 98 (high)

Resiliency Factors (Low Scores)

- Ingress/ Egress: 2 or more ways in and out of community
- Topography: most of community is in relatively flat valley
- Organized response: fire department within 5 miles of community
- Water source: water availability through hydrants
- Roof construction: mostly noncombustible metal roofing

Vulnerability Factors (High Scores)

- Street signs: sun faded or not present
- Means of Access: neighborhood roads are narrow and unsurfaced
- Fire access: generally, >300 feet with no turnarounds
- Vegetation type: timber-litter, highly flammable
- Defensible space: vegetation encroaching on most homes. Many homes with debris in HIZ
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible

Concerns/Recommendations

Areas of Concern:

Regina Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Improve signage- need for new and reflective road markers.

Roadside Buffer:

- Side roads should be buffered and cleared of overhanging vegetation to improve emergency access/ egress
- Maintain Highway 96 and county road access

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements where possible.

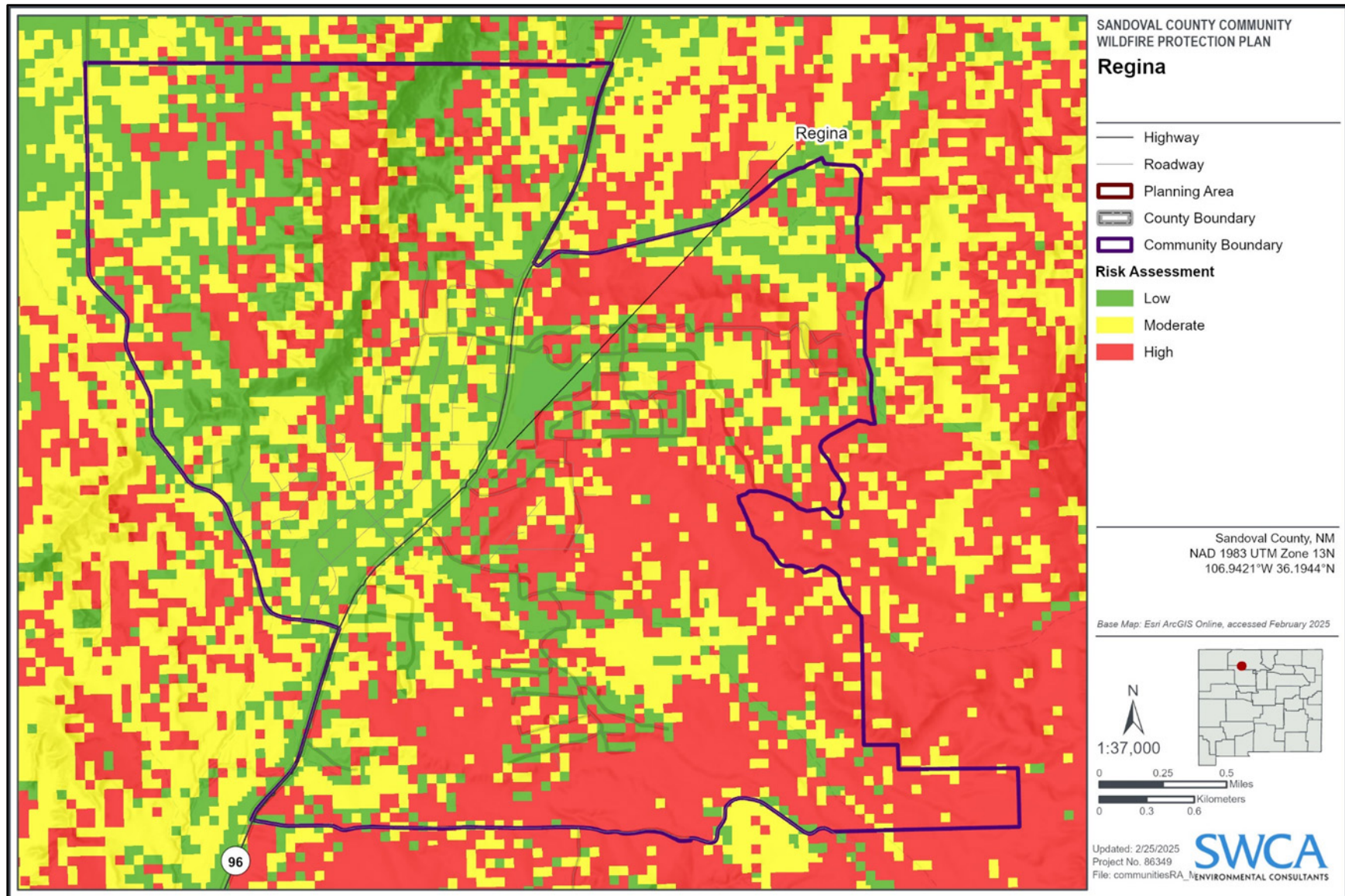


Figure C.3. Regina risk assessment.

3. La Jara

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 83 (high)

Risk Score (2025): 98 (high)

Resiliency Factors (Low Scores)

- Topography: community primarily in valley with homes far from slopes
- Separation of adjacent structures: homes well spaced
- Roofing Material: mostly metal roofing
- Deck and Fencing: very few fences, limited decking
- Organized response: fire department within 5 miles of community
- Water source: water availability through hydrants

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in and out of community
- Means of Access: narrow, unpaved roads
- Signage: decayed and unreadable in many locations
- Vegetation type: predominantly timber-litter and highly flammable
- Defensible space: vegetation and debris close to structures
- Building construction: combustible siding
- Decking and fencing: combustible

Concerns/Recommendations

Areas of Concern:

La Jara Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Improve signage- need for new and reflective road markers.

Roadside Buffer:

- Side roads should be buffered and cleared of overhanging vegetation to improve emergency access/ egress
- Maintain Highway 96 and county road access

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements where possible.

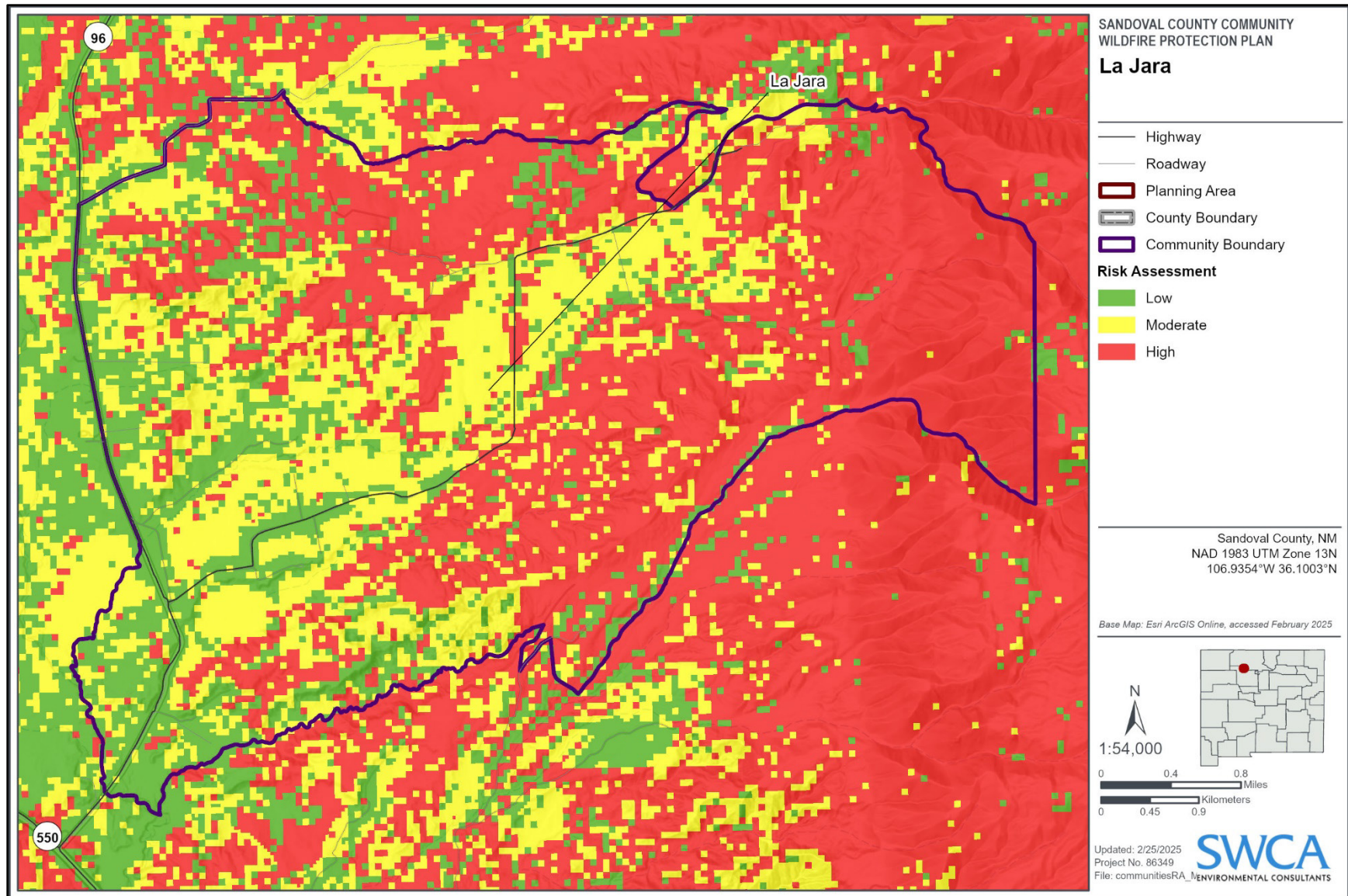


Figure C.4. La Jara risk assessment.

4. Zia Pueblo

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 46 (moderate)

Risk Score (2025): 50 (Moderate)

Resiliency Factors (Low Scores)

- Ingress and egress: 2 or more roads in and out of community
- Fire access: >300 feet with turnarounds
- Street signs: visible and reflective
- Defensible space: >70 feet around most homes
- Decking and fencing: mostly not present
- Organized response: <5 miles from community

Vulnerability Factors (High Scores)

- Building construction: combustible siding
- Utility placement: aboveground
- Building construction: close proximity to slopes
- Water source: water tanks

Concerns/Recommendations

Areas of Concern:

Zia Pueblo:

- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Provide educational materials and guidance on home hardening and hazard ignition zone.
- Agricultural land burning carries the potential of escape. Ensure alignment with burn requirements, properly plan burn events, and carefully consider weather conditions.

Shaded Fuel Break:

- Explore opportunities for shaded fuel breaks between Jemez River and community. Most fuel loading likely in riparian area. Actions to create discontinuity will improve community and agricultural land resilience.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

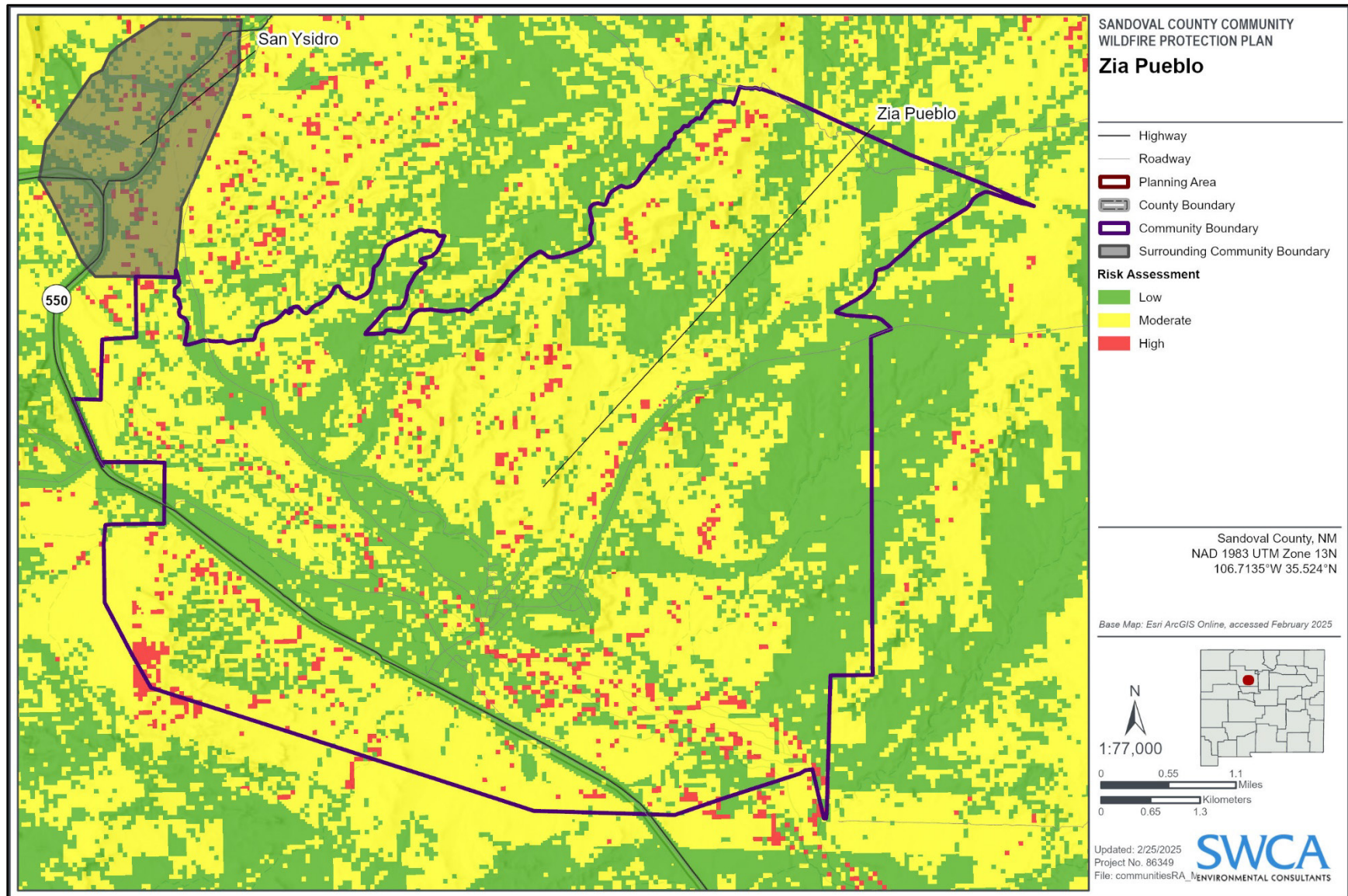


Figure C.5. Zia Pueblo risk assessment.

5. Jemez Pueblo

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 75 (high)

Risk Score (2025): 85 (high)

Resiliency Factors (Low Scores)

- Ingress and egress: main highway paved, at least two roads in and out
- Predominant vegetation: well-spaced shrub, some denser vegetation near river and agricultural lands
- Topography: low slopes. Most of community in flat valley
- Organized response: fire department within 5 miles
- History of fire occurrence: low
- Severe fire weather potential: low

Vulnerability Factors (High Scores)

- Road Conditions: narrow, unpaved roads off main highway
- Defensible space: <25 feet around most homes. Debris directly adjacent to many homes
- Building construction: combustible siding
- Utility placement: aboveground
- Spacing of structures: low

Concerns/Recommendations

Areas of Concern:

Jemez Pueblo Area of Concern:

- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Provide educational materials and guidance on home hardening and hazard ignition zone.
- Agricultural land burning carries the potential of escape. Ensure alignment with burn requirements, properly plan burn events, and carefully consider weather conditions.

Shaded Fuel Break:

- Explore opportunities for shaded fuel breaks between Jemez River and community. Most fuel loading likely in riparian area. Actions to create discontinuity will improve community and agricultural land resilience.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

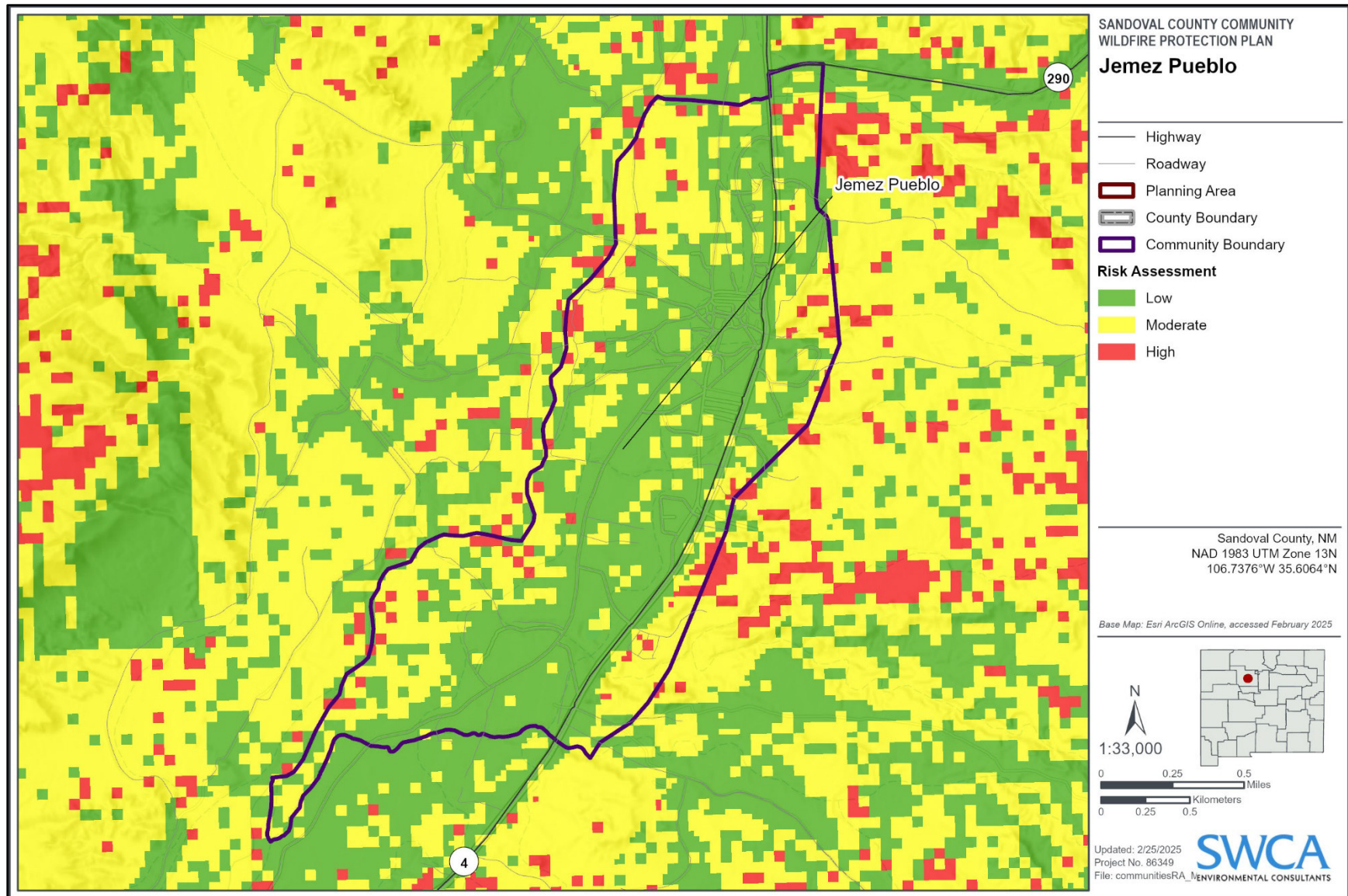


Figure C.6. Jemez Pueblo risk assessment.

6. Ponderosa North

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 103 (high)

Risk Score (2025): 72 (high)

Resiliency Factors (Low Scores)

- Defensible space: over 70 feet around most properties
- History of high fire occurrence: low
- Separation of adjacent structures: high
- Water source: water availability through hydrants
- Organized response: fire department less than 5 miles from community

Vulnerability Factors (High Scores)

- Ingress and egress: 1 road in and out
- Road Conditions: narrow, unsurfaced roads
- Topography: rolling hills and channelized canyon above community
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible

Concerns/Recommendations

Areas of Concern:

Ponderosa, North Area of Concern:

- Implement pre- and post- fire mitigation strategies at the Ponderosa Infiltration Gallery
- Implement fuel modification strategies aimed at reducing hazardous fuel load and enhancing fuel discontinuity, with actions guided by existing land management plans and compliance standards.
- Foster cross-boundary collaboration, particularly at interfaces between federal lands and adjacent jurisdictions, to address fuel mitigation needs effectively.
- Prioritize fuel treatment actions aimed at reducing burn severity/ impacts to water infrastructure.
- Develop educational programs to address defensible space and home hardening. Provide cost estimates to support residents in taking various cost level actions.

Roadside Buffer and Shaded Fuel Break:

- Maintaining clear access to highway 290 is a priority for ingress/ egress. Efforts should be made to ensure the road remains clear from overgrowth. Similar efforts should be made on side roads wherever feasible. The narrow roadways in the community must be a priority treatment for resident safety.

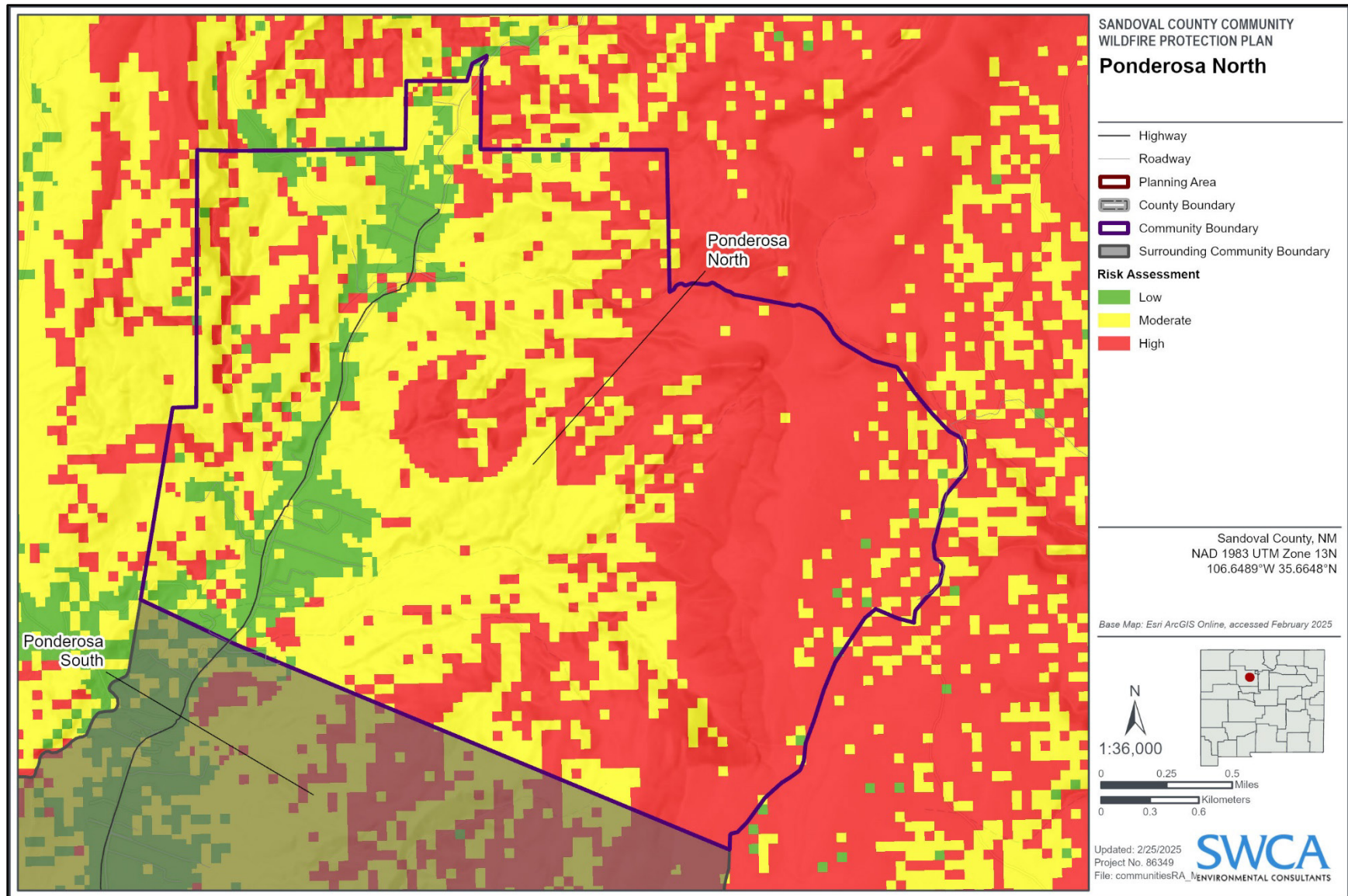


Figure C.7. Ponderosa North risk assessment.

7. Ponderosa South

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 61 (moderate)

Risk Score (2025): 76 (high)

Resiliency Factors (Low Scores)

- Defensible space: over 70 feet around most properties
- History of high fire occurrence: low
- Predominant vegetation: mostly shrub with rocky floor
- Separation of adjacent structures: high
- Water source: water availability through hydrants
- Organized response: fire department less than 5 miles from community

Vulnerability Factors (High Scores)

- Ingress and egress: 1 road in and out
- Road Conditions: narrow, windy roads
- Topography: rolling hills and channelized canyon above community
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible

Concerns/Recommendations

Areas of Concern:

Ponderosa, South Area of Concern:

- Implement pre- and post- fire mitigation strategies at the Ponderosa Infiltration Gallery
- Implement fuel modification strategies aimed at reducing hazardous fuel load and enhancing fuel discontinuity, with actions guided by existing land management plans and compliance standards.
- Foster cross-boundary collaboration, particularly at interfaces between federal lands and adjacent jurisdictions, to address fuel mitigation needs effectively.
- Develop educational programs to address defensible space and home hardening. Provide cost estimates to support residents in taking various cost level actions.

Roadside Buffer and Shaded Fuel Break:

Rhody Road, Highway 20:

- Maintaining clear access to highway 290 is a priority for ingress/ egress. Efforts should be made to ensure the road remains clear from overgrowth. Similar efforts should be made on side roads wherever feasible. The narrow roadways in the community must be a priority treatment for resident safety.

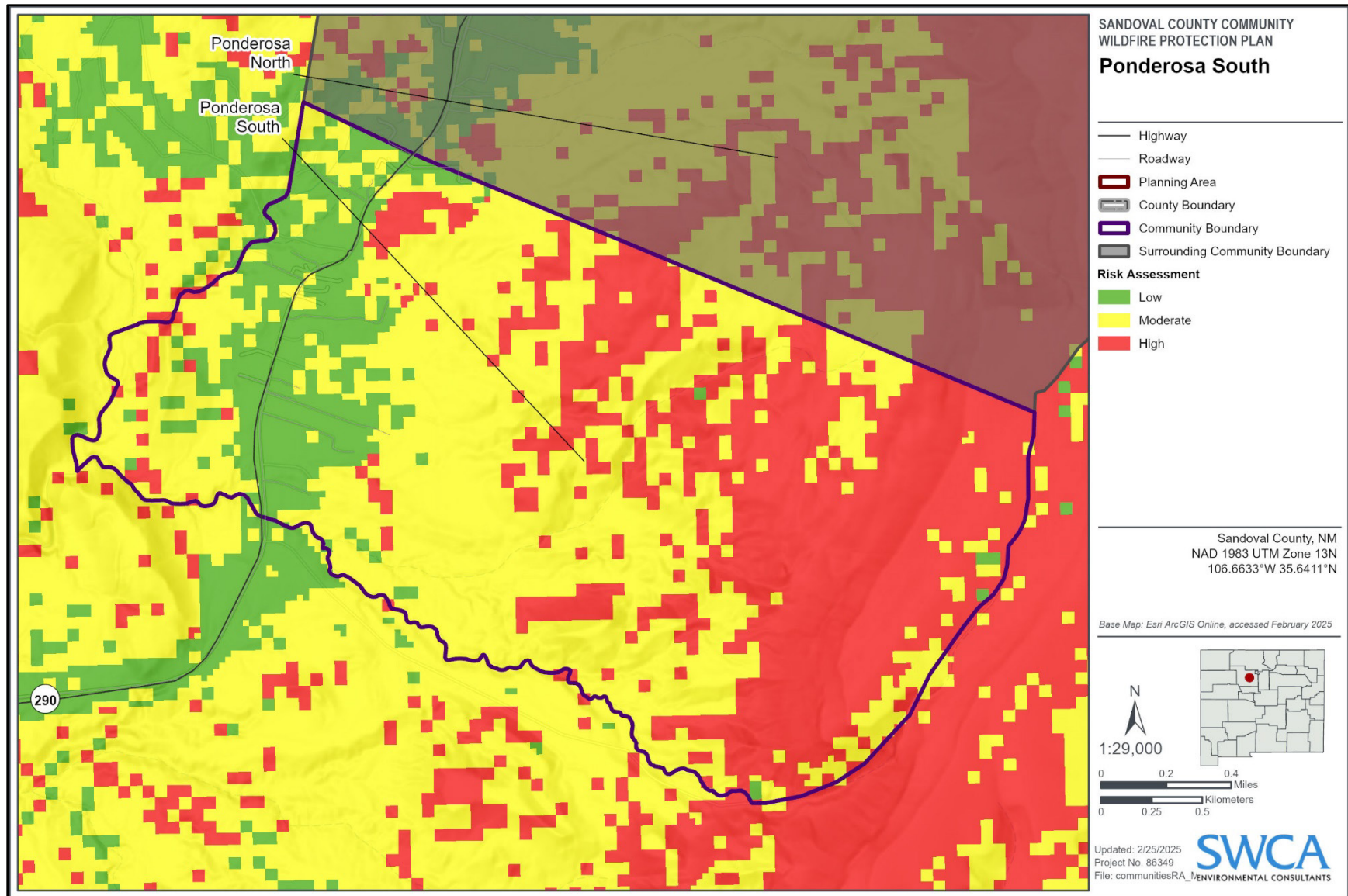


Figure C.8. Ponderosa South risk assessment.

8. San Ysidro Field

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 71 (high)

Risk Score (2025): 65 (Moderate)

Resiliency Factors (Low Scores)

- Entrance/exit: 2 or more roads in and out
- Defensible space: >30 feet around most homes
- Topography: <9% slope
- History of fire occurrence: low
- Water source: water availability through hydrants

Vulnerability Factors (High Scores)

- Fire access: >300 feet with few turnarounds to most homes
- Roads: unsurfaced roads off main highway
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible
- Organized response: >5 miles from community

Concerns/Recommendations

Areas of Concern:

San Ysidro Area of Concern:

- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Provide educational materials and guidance on home hardening and hazard ignition zone.
- Agricultural land burning carries the potential of escape. Ensure alignment with burn requirements, properly plan burn events, and carefully consider weather conditions.

Shaded Fuel Break:

- Explore opportunities for shaded fuel breaks between Jemez River and community. Most fuel loading likely in riparian area. Actions to create discontinuity will improve community and agricultural land resilience.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

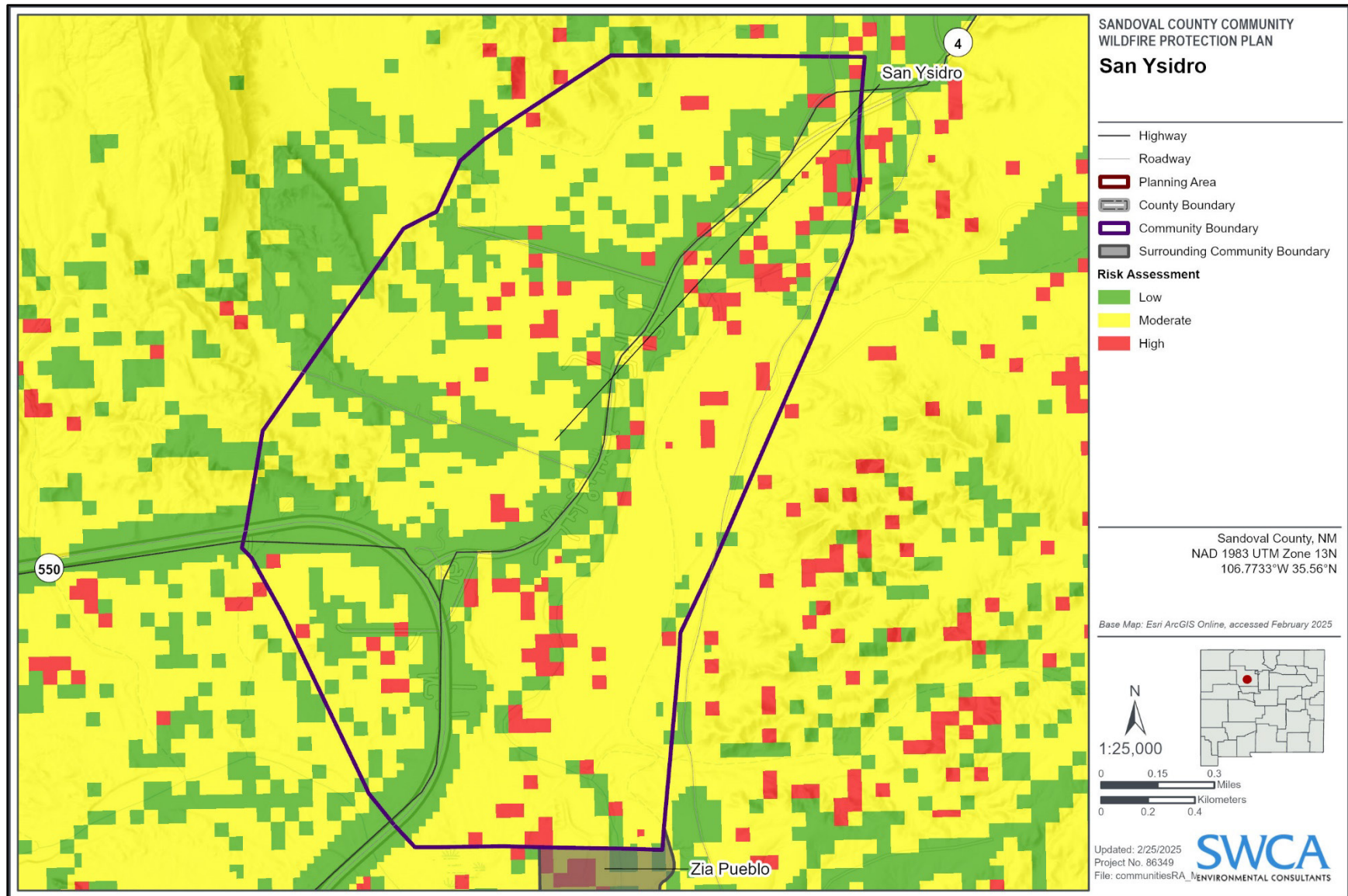


Figure C.9. San Ysidro risk assessment.

9. Cañon Field

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 73 (high)

Risk Score (2025): 60 (Moderate)

Resiliency Factors (Low Scores)

- Ingress and egress: surfaced roadways, two or more roads in and out
- Defensible space: >70ft around most structures
- Separation of adjacent structures: high
- History of fire occurrence: low
- Decks and fencing: not many present in community, often made of noncombustible materials if present

Vulnerability Factors (High Scores)

- Road conditions: unpaved, <24ft wide
- Fire access: >300ft with few turnarounds
- Topography: 21%-30% slope
- Building construction: <30 feet to slopes
- Organized response: >5mi to nearest station
- Utility placement: aboveground

Concerns/Recommendations

Areas of Concern:

Cañon Areas of Concern:

- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Provide educational materials and guidance on home hardening and hazard ignition zone.
- Agricultural land burning carries the potential of escape. Ensure alignment with burn requirements, properly plan burn events, and carefully consider weather conditions.

Shaded Fuel Break:

- Explore opportunities for shaded fuel breaks between Jemez River and community. Most fuel loading likely in riparian area. Actions to create discontinuity will improve community and agricultural land resilience.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

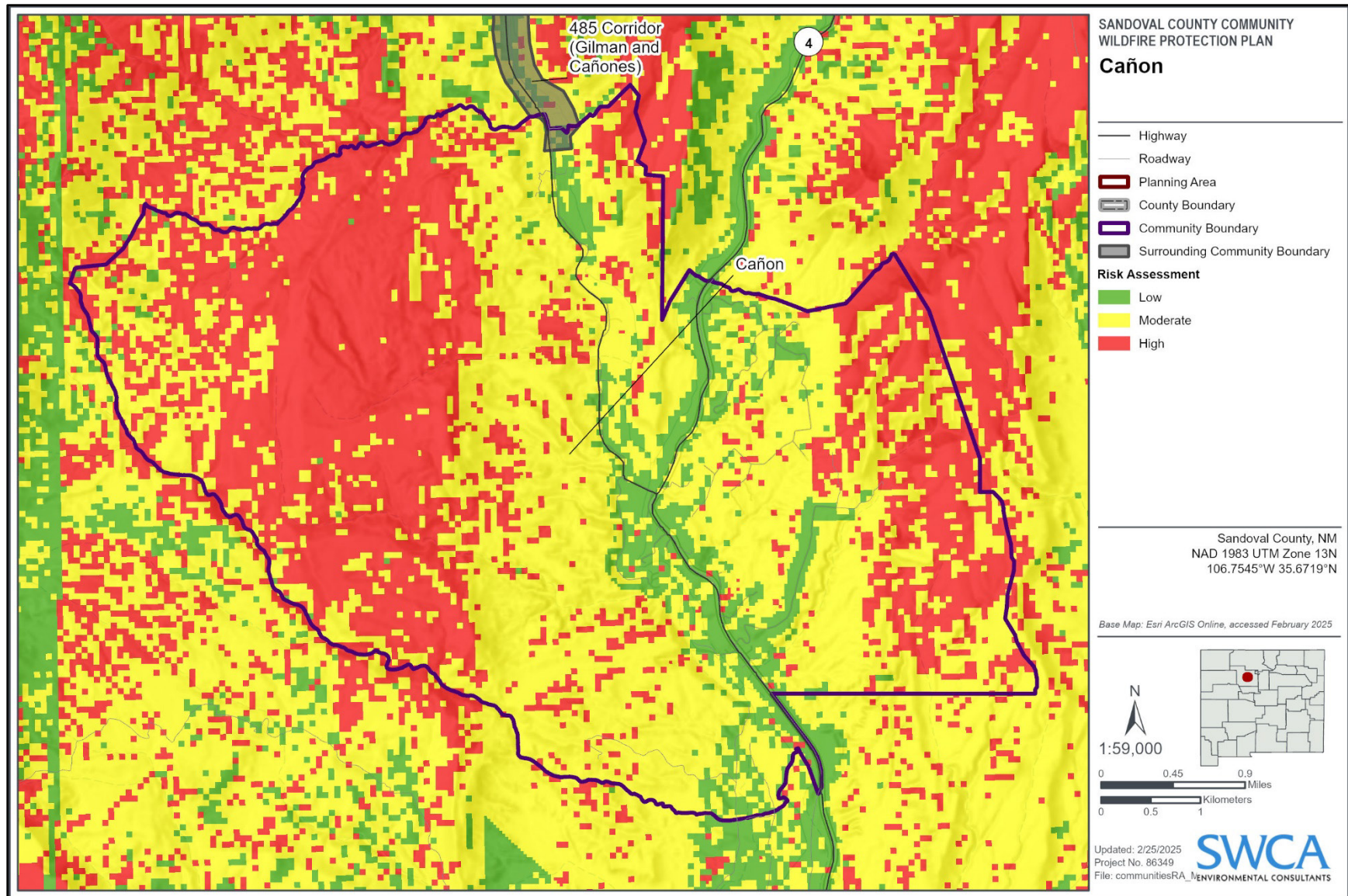


Figure C.10. Cañon risk assessment.

10. 485 Corridor (Gilman and Cañones)

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 73 (high)

Risk Score (2025): 86 (high)

Resiliency Factors (Low Scores)

- Defensible space: >70ft around most structures
- Separation of adjacent structures: high
- History of fire occurrence: low
- Severe weather potential: low
- Decks and fencing: not many present in community, often made of noncombustible materials if present

Vulnerability Factors (High Scores)

- Entrance and exit: 1 road in and out
- Road conditions: unpaved, <24ft wide
- Defensible space: <30ft around structures
- Fire access: >300ft with few turnarounds
- Organized response: >5mi to nearest station
- Utility placement: aboveground

Concerns/Recommendations

Areas of Concern:

485 Corridor (Gilman and Cañones) Area of Concern:

- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Provide educational materials and guidance on home hardening and hazard ignition zone.
- Agricultural land burning carries the potential of escape. Ensure alignment with burn requirements, properly plan burn events, and carefully consider weather conditions.

Shaded Fuel Break:

- Explore opportunities for shaded fuel breaks between Jemez River and community. Most fuel loading likely in riparian area. Actions to create discontinuity will improve community and agricultural land resilience.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

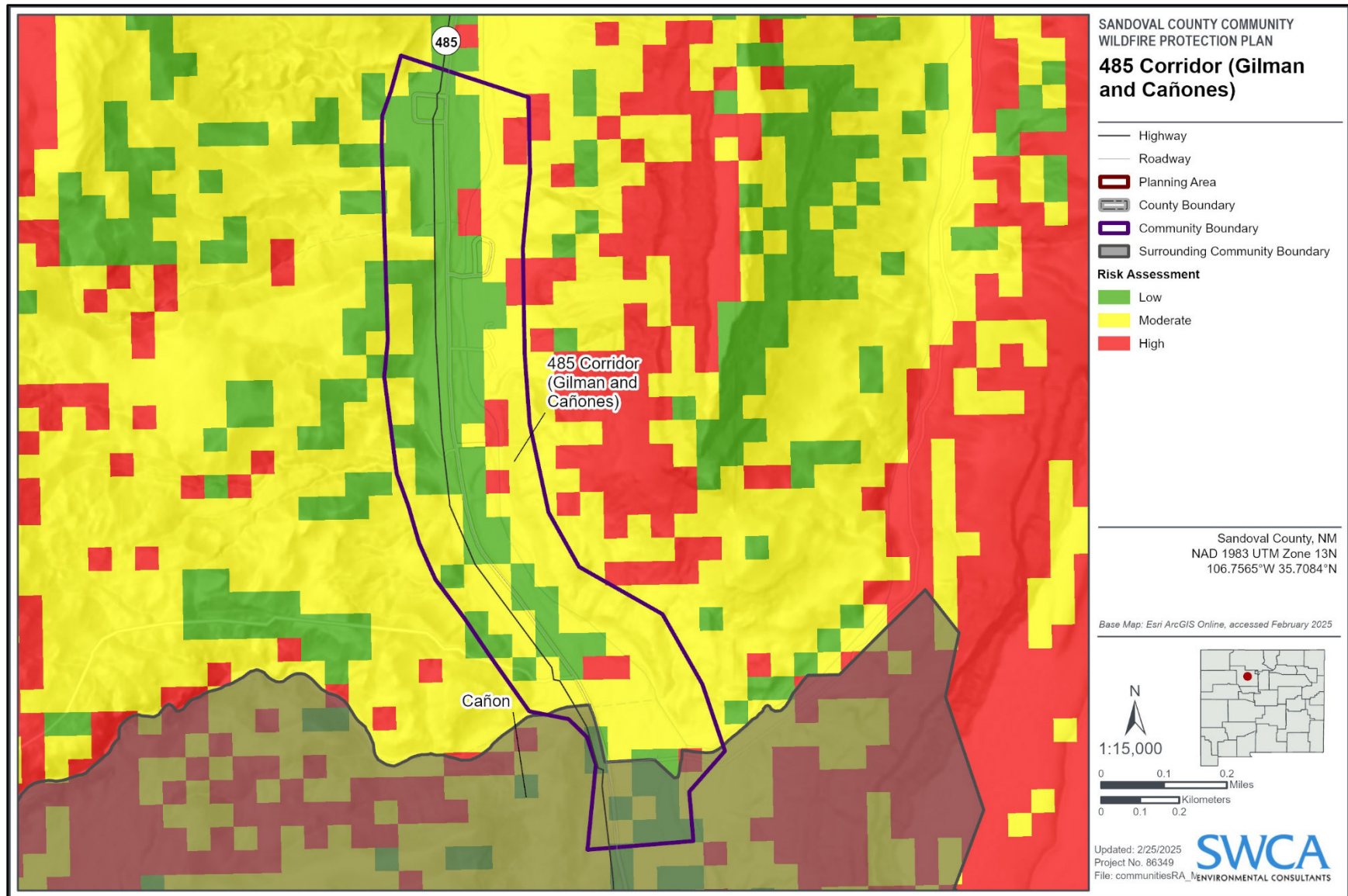


Figure C.11. 485 Corridor (Gilman and Cañones) risk assessment.

11. Jemez Springs

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 91 (high)

Risk Score (2025): 90 (high)

Resiliency Factors (Low Scores)

- Predominant vegetation: dry shrub with mostly rocky floor
- Water source: water availability through hydrants
- Building setback: >30 feet to slopes
- Organized response: fire department in community
- History of fire occurrence: low
- Severe fire weather potential: low; disjointed, slow burning fuels

Vulnerability Factors (High Scores)

- Ingress/ Egress: 1 road in and out of community
- Road Conditions: unpaved and narrow
- Structure density: homes very close together and connected by wooden fencing
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible
- Defensible space: minimal, with some homes with poor maintenance and refuse in yard.

Concerns/Recommendations

Areas of Concern:

Jemez Springs Areas of Concern:

- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Prioritize fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Homes in and near floodplain will likely have highest fuel loads
- Vegetation treatments in conjunction with educational outreach are required to increase landscape resilience.
- Plans for pre-fire mitigation and post-fire recovery efforts are needed.
- Improvements to roads, including vegetation thinning, are needed to enhance safety and fire response.
- Road signage should be improved to aid timely response and safe evacuation
- Home hardening and defensible space education with an emphasis on HIZ. High occurrence of connected fences and vegetation in tightly constructed homes near slope.

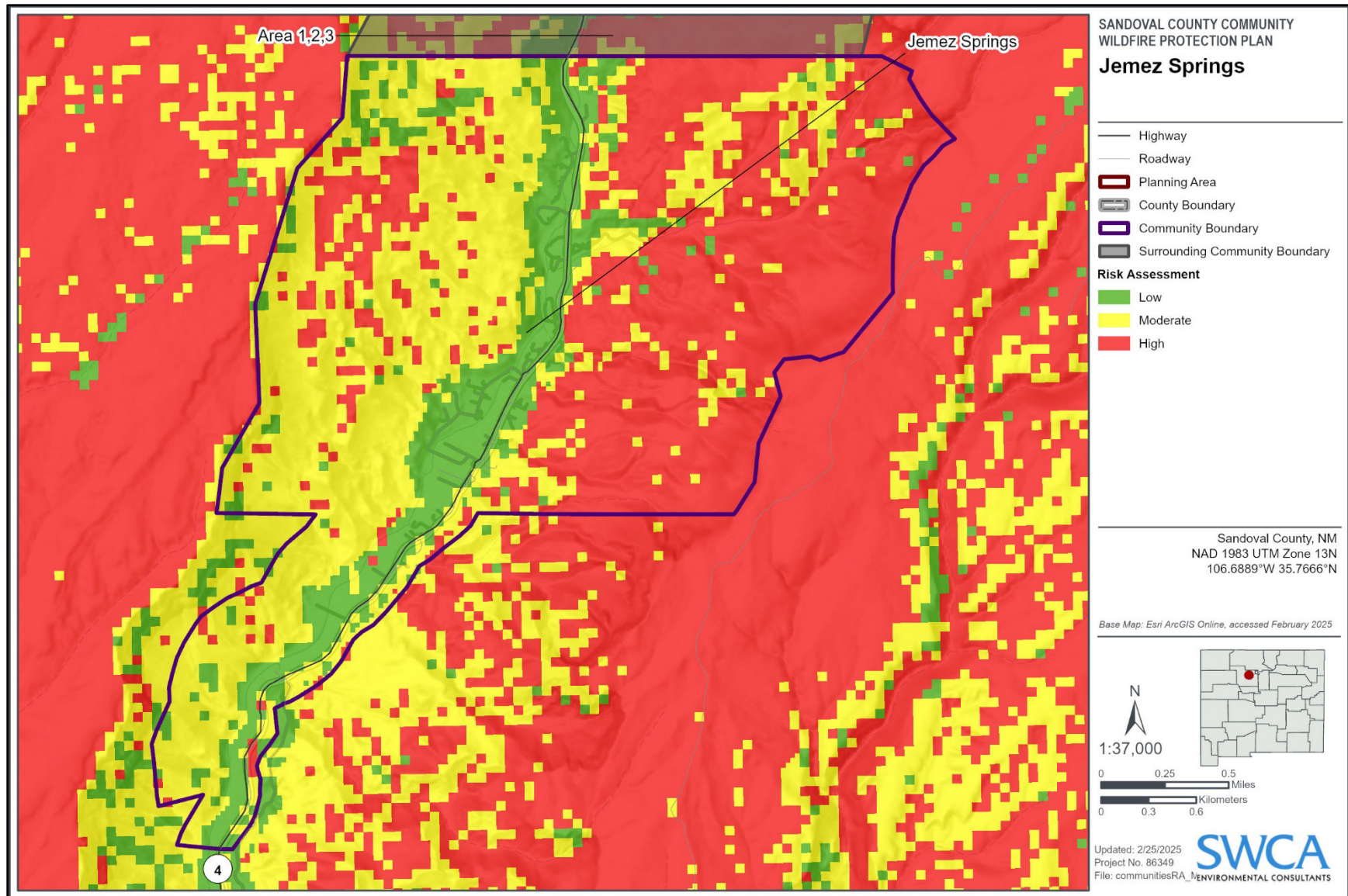


Figure C.12. Jemez Springs risk assessment.

12. Areas 1, 2, and 3

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): Area 1 (130, extreme), Area 2 (125, extreme), Area 3 (126, extreme)

Risk Score (2025): 114 (Extreme)

Resiliency Factors (Low Scores)

- Organized response: fire department in community
- History of fire occurrence: low
- Roofing material: metal roofing

Vulnerability Factors (High Scores)

- Ingress and egress: 1 road in and out of community
- Road conditions: narrow roads, often unpaved and steep in neighborhoods
- Street signs: often non-reflective and/or hidden by vegetation
- Fire access: >300ft with no turnarounds. Some bridges aging/ unknown capacity
- Dominant vegetation: timber-litter, highly flammable
- Defensible space: most homes with dense vegetation up to siding
- Water source: water trucked in

Concerns/Recommendations

Areas of Concern:

Areas 1, 2, and 3 Area of Concern:

- Pile and broadcast burns are required in parts of Areas 1, 2, and 3 with vegetation buildup.
- A replacement is needed for the wooden bridge in Area 2.
- Implement fuel modification efforts aimed at reducing hazardous fuel load and enhancing fuel discontinuity, prioritizing actions based on existing land management plans and regulatory compliance standards.
- Explore opportunities for multiple resource benefits while undertaking fuel modification activities.
- Encourage treatment of home ignition zones to mitigate potential fire hazards.
- Develop educational programs to address defensible space and home hardening.

Areas 1, 2, and 3 Area of Concern:

- Reduce fuel loading and create maintenance plan for protection of infrastructure.

Defensible Space/ Home Ignition Zone:

- Educate community on defensible space and home hardening practices. Explore opportunities to improve defensible space and create fuel discontinuity. Significant action around homes is needed to improve fuel conditions and response environment
- Many homes have locked gates that will prevent response action

Roadside Buffer:

- Significant action is needed in neighborhoods to reduce overhanging vegetation and sign/ home visibility.

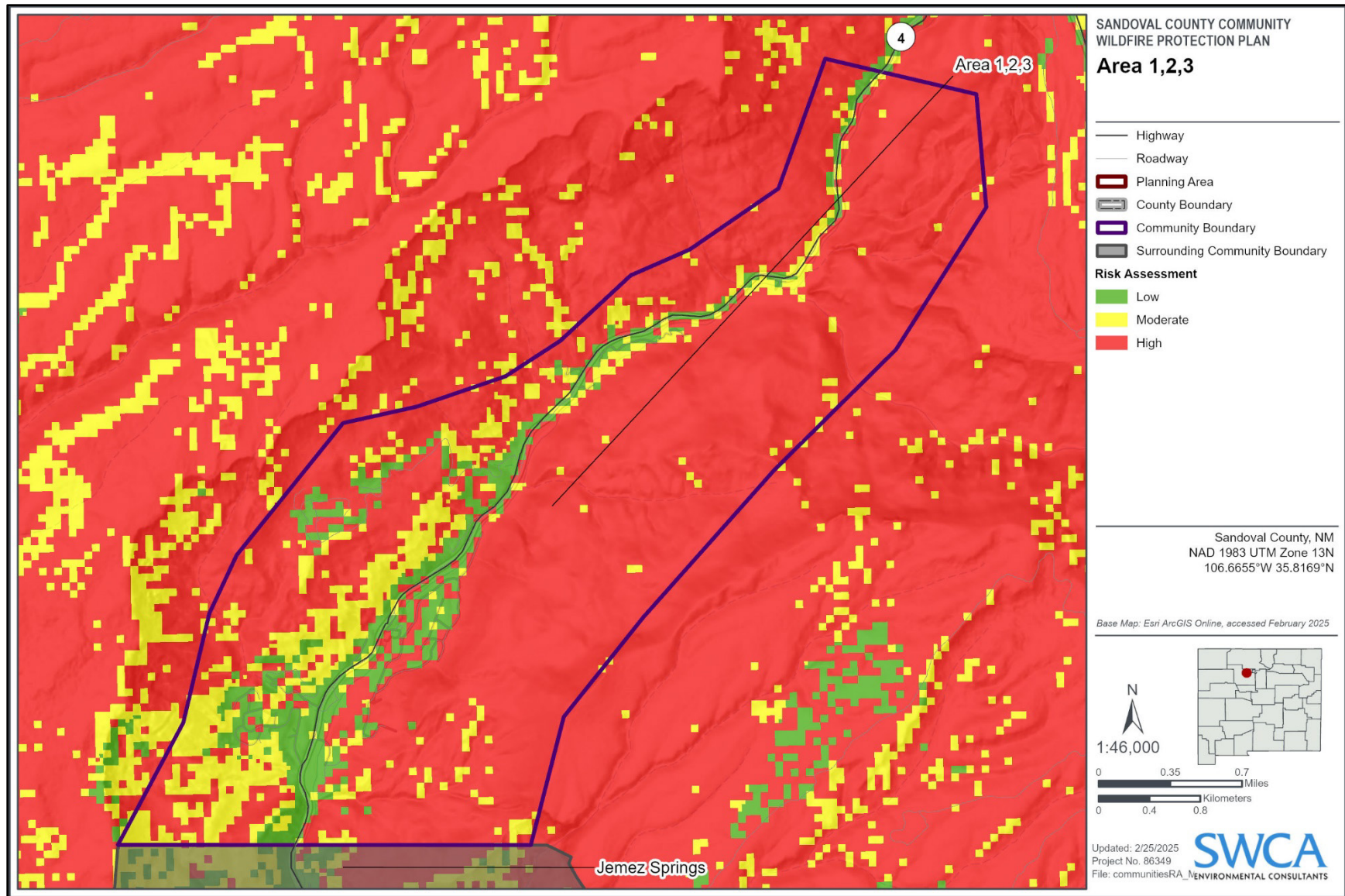


Figure C.13. Areas 1, 2, and 3 risk assessment.

13. La Cueva

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 83 (high)

Risk Score (2025): 78 (high)

Resiliency Factors (Low Scores)

- Topography: low-grade roads and limited slope through community
- Separation of structures: homes are well spaced
- Deck and fencing: limited presence of structures and facets near homes
- Water sources: hydrants available
- Organized response: fire station in community
- Street signs: visible and reflective

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in/out
- Vegetation: predominantly timber with grass understory
- Fire Access: long roads with limited turnarounds for responding vehicles
- Defensible space: less than <30 feet around structures
- Utilities: all aboveground

Concerns/Recommendations

Areas of Concern:

La Cueva Area of Concern:

- Limited access in and out of community will limit availability of outside resources to respond. Local fire station is very active in community.
- Area is in close proximity to recent burn scars. Community was impacted by flooding and sedimentation in recent years which impacted some roadways and bridges.
- Fuels adjacent to and in community are very dense. Improving fuel breaks and maintaining floor to canopy discontinuity is needed to reduce severity.

Refuge Zones:

- Identification of refuge zones could aid emergency planning and influence future fuel treatment actions. Limited community access may impact evacuations

Roadside Buffer and Shaded Fuel Break:

- Neighborhood roads should be treated to maintain accessibility and reduce risk of entrapment.

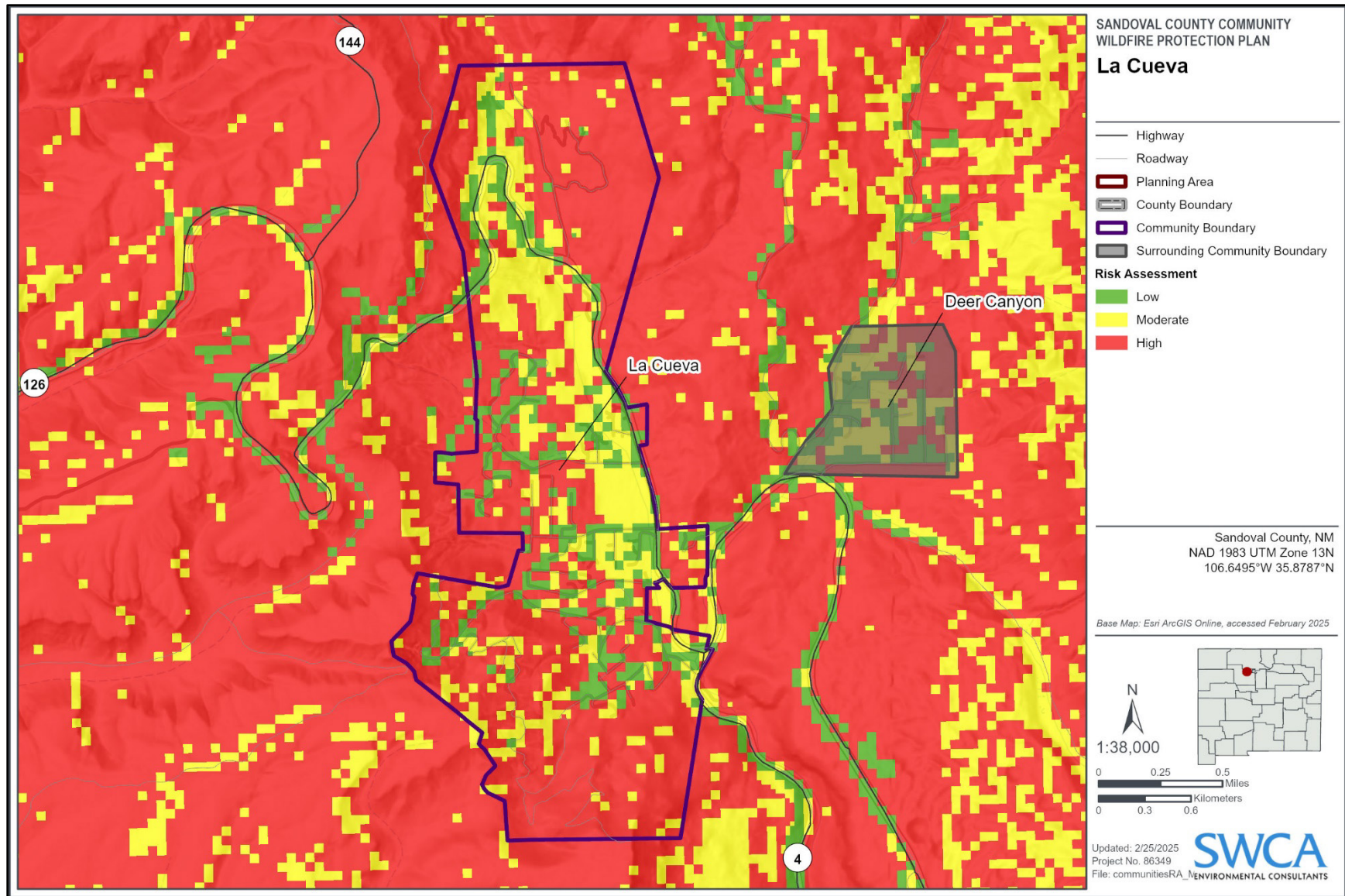


Figure C.14. La Cueva risk assessment.

14. Thompson Ridge

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 98 (high)

Risk Score (2025): 103 (high)

Resiliency Factors (Low Scores)

- Road conditions: unpaved, >5% grade
- Building construction: metal roofs and fire-resistant siding
- Water source: no water availability through hydrants but large pond central in community
- Building setback: >30 feet to slope

Vulnerability Factors (High Scores)

- Entrance/exit: One road in and out of community
- Road width: generally less than 24 feet wide
- Predominant vegetation: timber-litter, combustible
- Utility placement: aboveground
- Decking and fencing: combustible
- Defensible space: <30 feet
- Organize response: station >5 miles from community

Concerns/Recommendations

Areas of Concern:

Thompson Ridge Area of Concern:

- Road system improvements are required to increase safety and facilitate evacuations.
- Community pond could be impacted by post-fire sedimentation. Pre-planning should involve protections and mitigation options.
- Potential for winds channelizing through canyon increasing potential fire spread rate.

Defensible Space/ Home Ignition Zone:

- Continue to educate community on defensible space and home hardening practices. Explore opportunities to improve defensible space and create fuel discontinuity through valley floor.

Roadside Buffer:

- Roadways should be maintained to limited vegetation encroachment and ensure visibility.

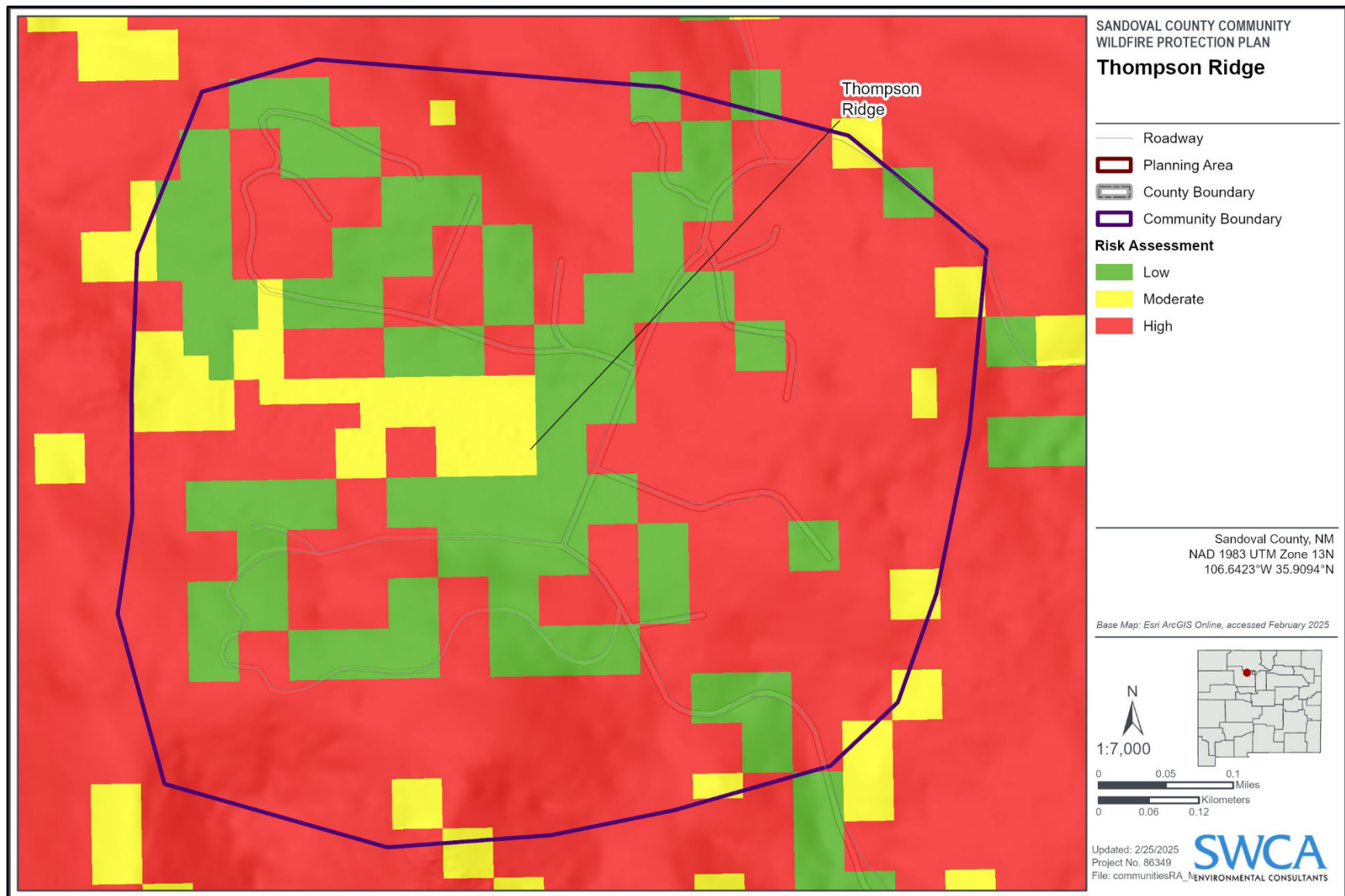


Figure C.15. Thompson Ridge risk assessment.

15. 126 Corridor

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 72 (high)

Risk Score (2025): 95 (high)

Resiliency Factors (Low Scores)

- Street signs: present and reflective
- Fire truck access: <300 feet with turnaround
- Organized response: fire department within 5 miles of community
- Road width: >24 feet
- Separation of adjacent structures: high

Vulnerability Factors (High Scores)

- Entrance/exit: one road in and out of community
- Building setback: <30 feet to slope
- Predominant Vegetation: timber-litter, highly flammable
- Defensible space: <30 feet around structures
- Building construction: combustible siding and decks
- Water source: no water availability through hydrants

Concerns/Recommendations

Areas of Concern:

126 Corridor Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Foster cross-boundary collaboration for fuel mitigation in areas where federal lands interface with other jurisdictions.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

Refuge Zones:

- Identification of refuge zones could aid emergency planning and influence future fuel treatment actions. Limited community access may impact evacuations

Roadside Buffer and Shaded Fuel Break:

- Maintain clear access to State Highway 126 to aid in response and evacuation. This highway is the only way in and out of the community. Keeping the road properly maintained and buffering the road of vegetation is essential to keeping community members and responders safe during emergencies.

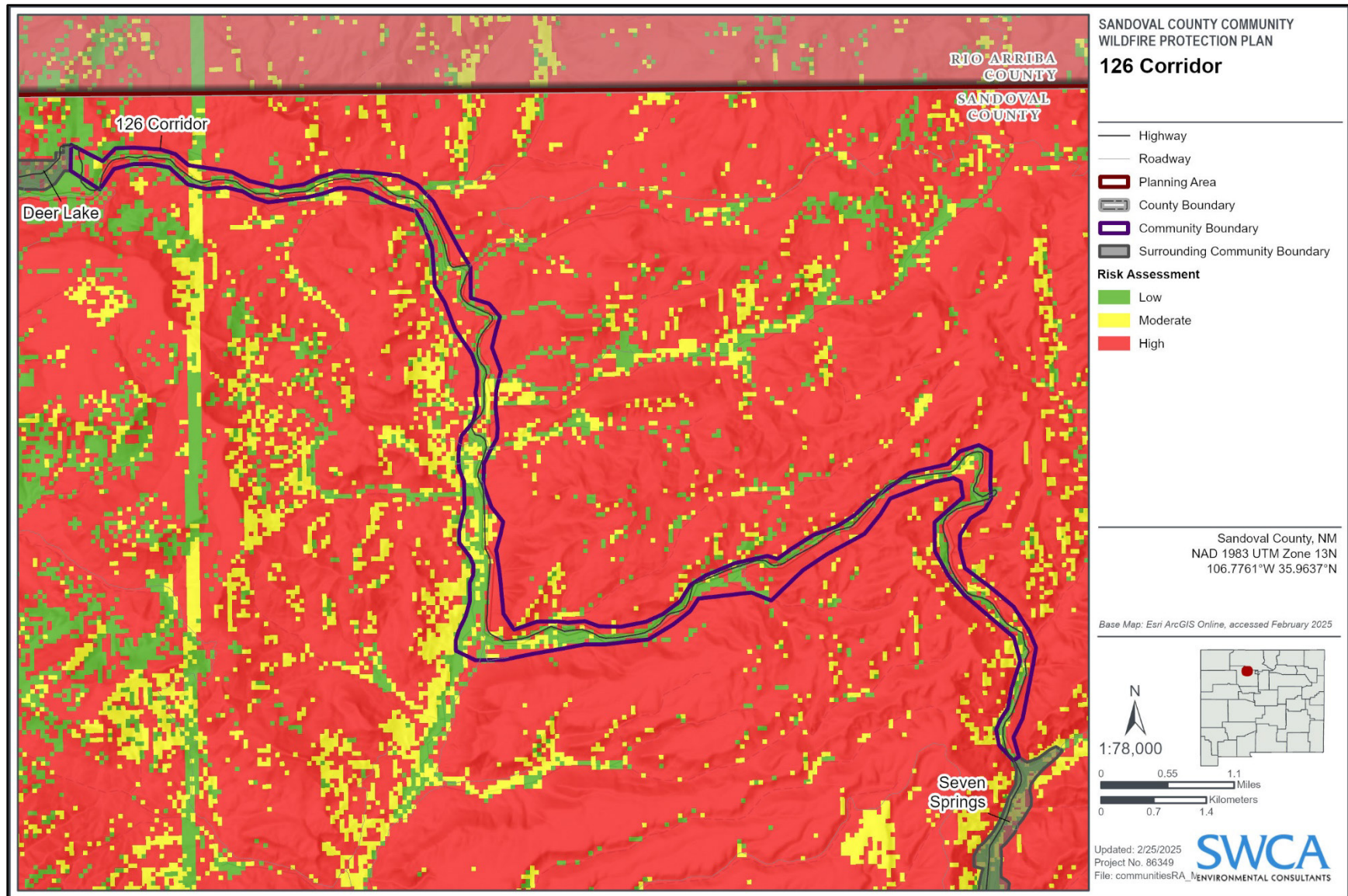


Figure C.16. 126 Corridor risk assessment.

16. Girl Scout

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): N/A (not surveyed)

Risk Score (2025): 113 (Extreme)

Resiliency Factors (Low Scores)

- Roof construction: metal roofing
- Building setback: >30 feet to slope
- Separation of adjacent structures: high

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in and out of community
- Predominant vegetation: timber-litter, highly combustible
- Water source: no water availability through hydrants
- Defensible space: <30 feet around structures
- Organized response: fire department over 5 miles from community

Concerns/Recommendations

Areas of Concern:

Girl Scout Ranch Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Foster cross-boundary collaboration for fuel mitigation in areas where federal lands interface with other jurisdictions.

Refuge Zones:

- Identification of refuge zones could aid emergency planning and influence future fuel treatment actions. Limited community access may impact evacuations

Roadside Buffer and Shaded Fuel Break:

- Maintain clear access to Las Bacas Rd to aid in response and evacuation. This road is the only way in and out of the community. Keeping the road properly maintained and buffering the road of vegetation is essential to keeping community members and responders safe during emergencies. This will require coordination with USFS.

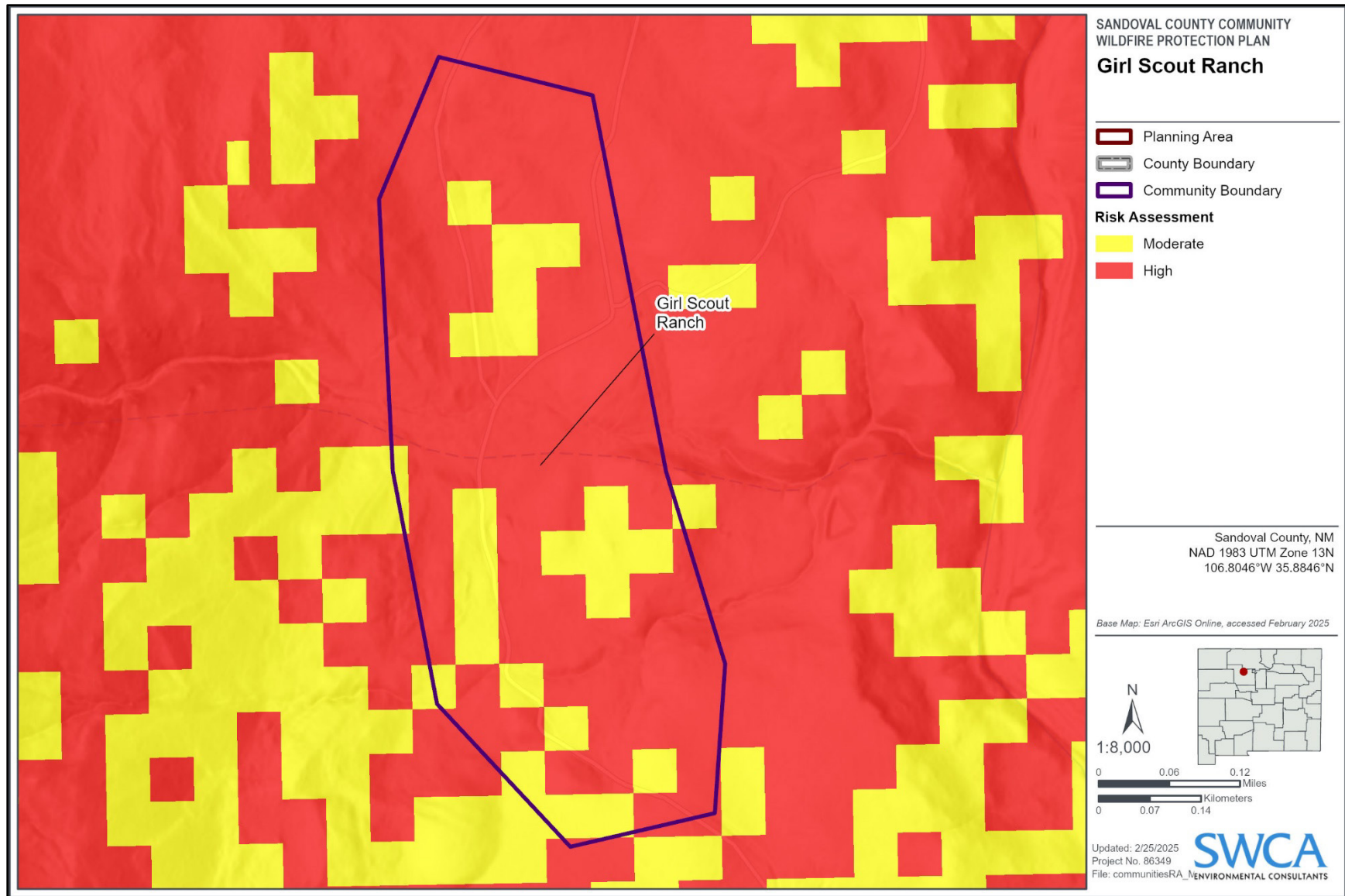


Figure C.17. Girl Scout Ranch risk assessment.

17. Seven Springs

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 90 (high)

Risk Score (2025): 95 (high)

Resiliency Factors (Low Scores)

- Street signs: present and reflective
- Fire truck access: <300 feet with turnaround
- Organized response: fire department within 5 miles of community
- Road width: >24 feet
- Separation of adjacent structures: high

Vulnerability Factors (High Scores)

- Entrance/exit: one road in and out of community
- Building setback: <30 feet to slope
- Predominant Vegetation: Timber-litter, highly flammable
- Defensible space: <30 feet around structures
- Building construction: combustible siding and decks
- Water source: no water availability through hydrants

Concerns/Recommendations

Areas of Concern:

Seven Springs Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Foster cross-boundary collaboration for fuel mitigation in areas where federal lands interface with other jurisdictions.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

Refuge Zones:

- Identification of refuge zones could aid emergency planning and influence future fuel treatment actions. Limited community access may impact evacuations

Roadside Buffer and Shaded Fuel Break:

- Maintain clear access to State Highway 126 to aid in response and evacuation. This highway is the only way in and out of the community. Keeping the road properly maintained and buffering the road of vegetation is essential to keeping community members and responders safe during emergencies.

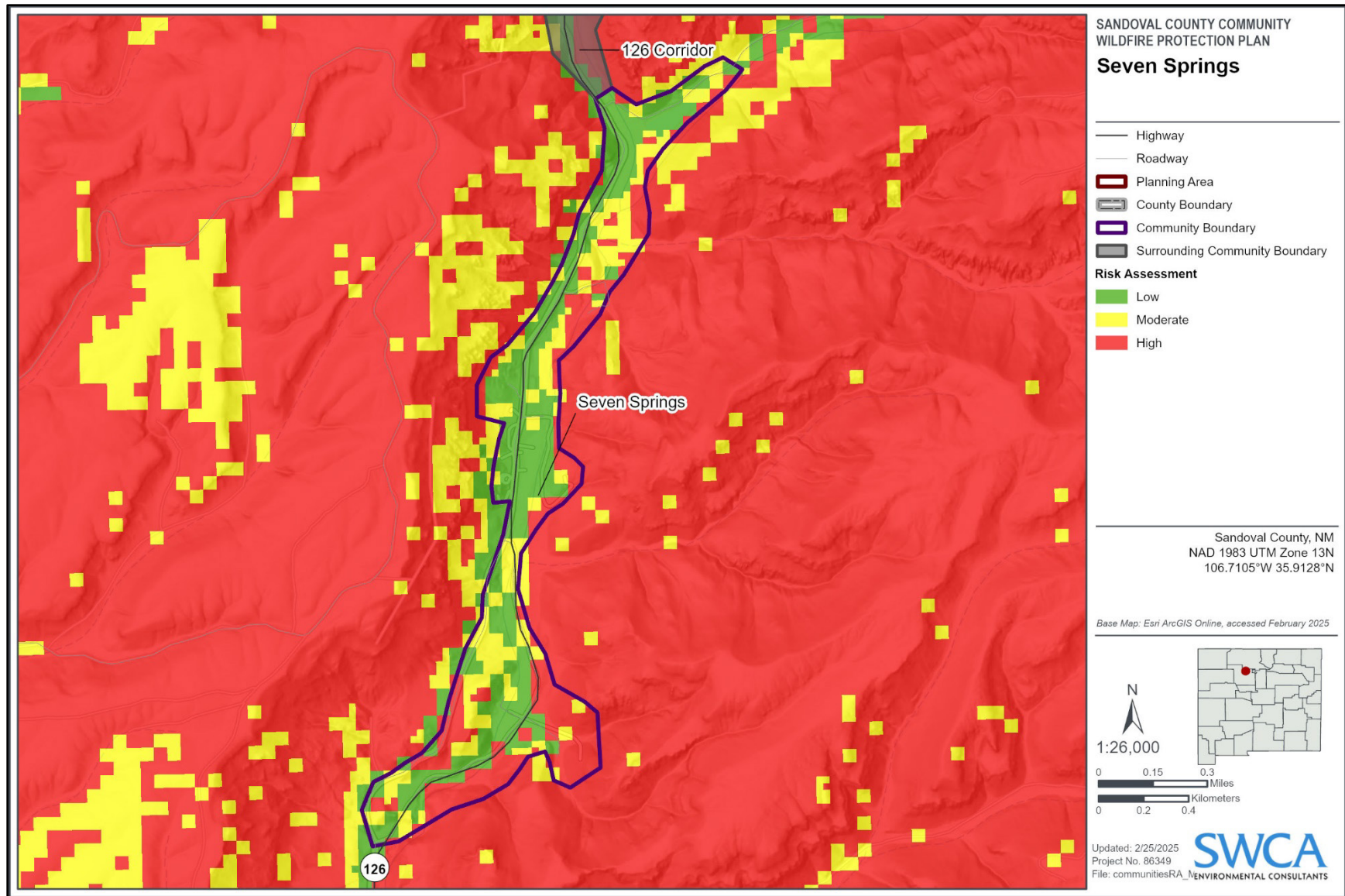


Figure C.18. Seven Springs risk assessment.

18. Deer Lake

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 129 (extreme)

Risk Score (2025): 112 (Extreme)

Resiliency Factors (Low Scores)

- Street signs: present and reflective
- Fire truck access: <300 feet with turnaround
- Organized response: fire department within 5 miles of community
- Separation of adjacent structures: high

Vulnerability Factors (High Scores)

- Entrance/exit: one road in and out of community
- Building setback: <30 feet to slope
- Predominant Vegetation: Timber-litter, highly flammable
- Defensible space: <30 feet around structures
- Building construction: combustible siding and decks
- Water source: no water availability through hydrants

Concerns/Recommendations

Areas of Concern:

Deer Lake Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Foster cross-boundary collaboration for fuel mitigation in areas where federal lands interface with other jurisdictions.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

Roadside Buffer and Shaded Fuel Break:

- Maintain clear access to State Highway 126 to aid in response and evacuation. This highway is the only way in and out of the community. Keeping the road properly maintained and buffering the road of vegetation is essential to keeping community members and responders safe during emergencies.

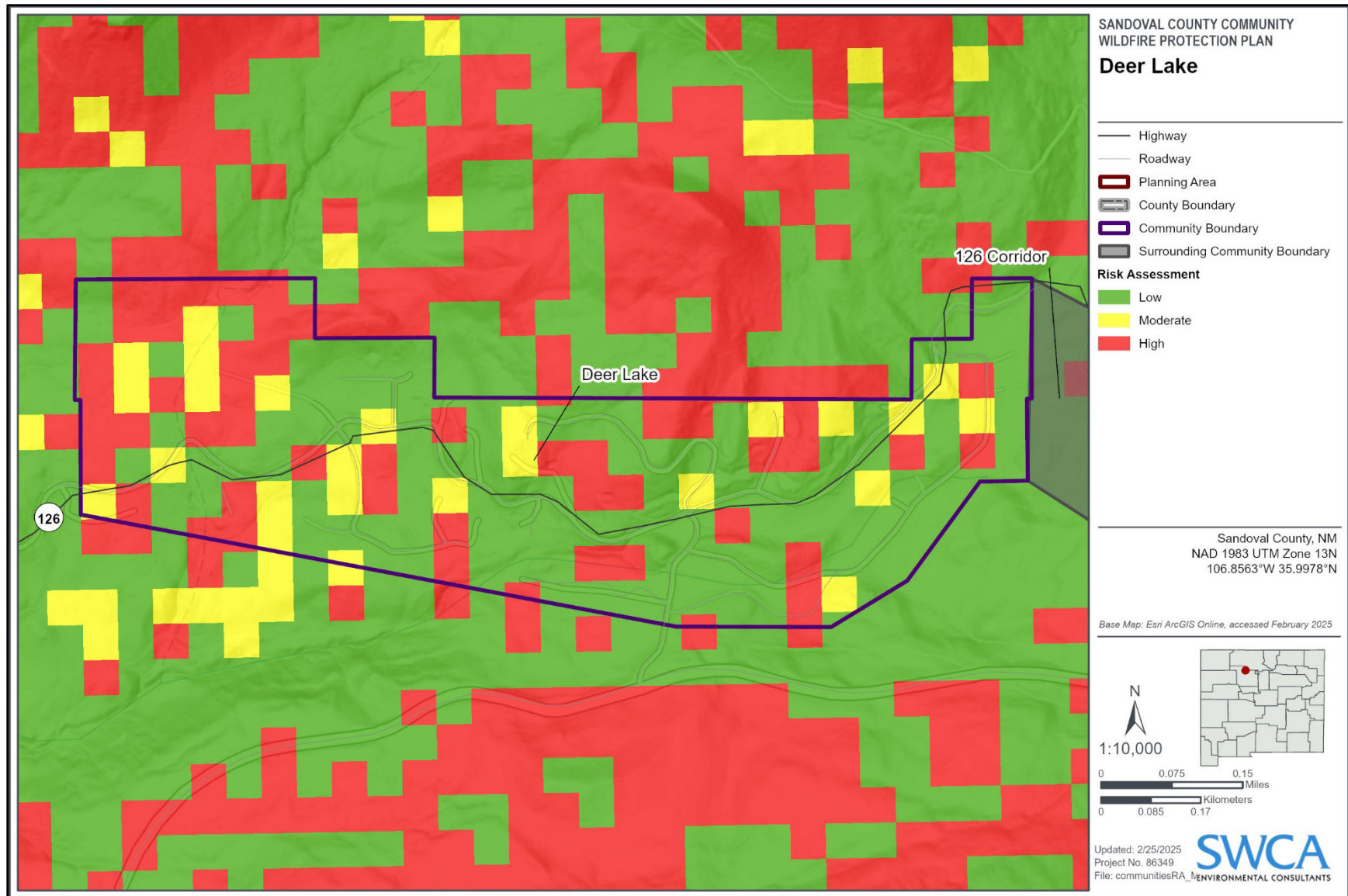


Figure C.19. Deer Lake risk assessment.

19. Sierra Los Pinos

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 134 (extreme)

Risk Score (2025): 95 (high)

Resiliency Factors (Low Scores)

- Street signs: present and reflective
- Water sources: available hydrants and spigots
- Fire response: fire station in community
- Roof construction: metal roofing
- Access: Two or more roads in and out of the community

Vulnerability Factors (High Scores)

- Means of Access: narrow, unsurfaced roads
- Predominant vegetation: timber with grass and shrub understory, highly combustible
- Defensible space: <30 feet around structures
- Topography: steep hills, consistent rolling hills.
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Building setback: <30 feet to slope
- Utilities: aboveground

Concerns/Recommendations

Areas of Concern:

Sierra Los Pinos Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Coordinate road improvement/ maintenance with USFS. Most roads in community are not privately owned.
- Foster cross-boundary collaboration for fuel mitigation in areas where federal lands interface with other jurisdictions.
- The area is heavily forested with an on-going, critical need to maintain thinned buffers on Forest Service lands and individual property owner's lots.
- Roads in the area require thinning and widening to improve egress and safer passage of firefighting equipment. These roads are on private land and require landowner engagement for improvements.
- Fire damage or cascading events such as post-fire flooding have been issues within Sierra Los Pinos and will likely pose a problem after any future fire.
- The current electric transmission line easements (10 feet on each side) are inadequate to prevent tree damage and subsequent fires.
- Water storage must be ensured to allow sufficient water supplies for domestic uses and firefighting, especially when the electric grid is de-energized due to fire damage or safety concerns.

Shaded Fuel Break:

USFS Boundary Fuel Break:

- Identify and implement fuel break treatments to reduce ladder fuels and raise canopy base height. Focus on areas with the greatest exposure to severe wildfire hazard.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

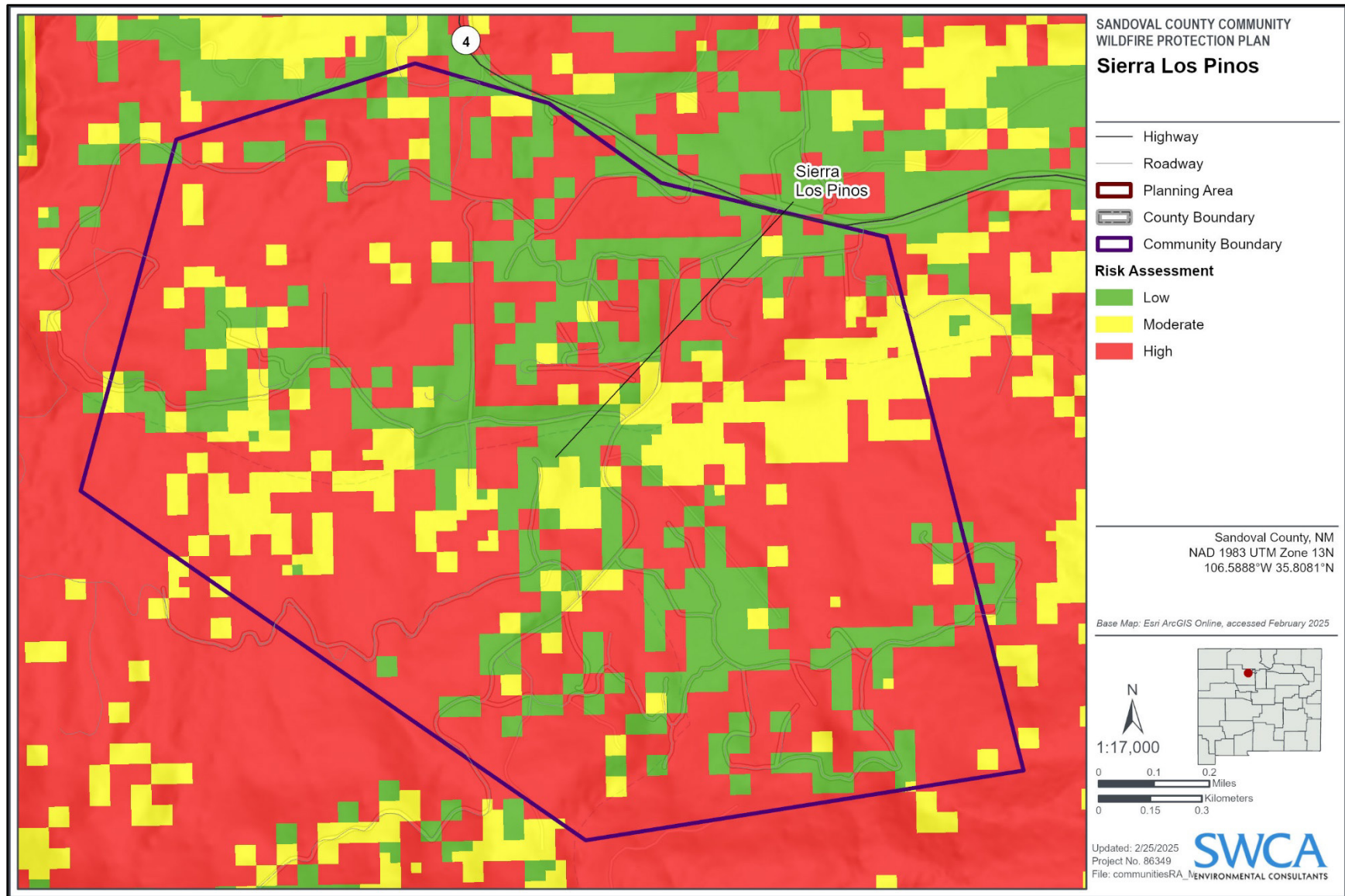


Figure C.20. Sierra Los Pinos risk assessment.

20. Deer Canyon

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): N/A (not surveyed)

Risk Score (2025): 63 (Moderate)

Resiliency Factors (Low Scores)

- Topography: low slope, homes far from slopes
- Street signs: present and reflective
- Defensible space: >70ft <100ft around structures
- Organized response: Nearby fire station
- Roof materials/Deck and Fencing: noncombustible, few decks and little fencing.

Vulnerability Factors (High Scores)

- Entrance and exit: 1 road in and out of community
- Means of access: narrow unpaved roads
- Available water resource: no hydrants present
- Utilities: placed aboveground
- Siding materials: combustible wood/ vinyl

Concerns/Recommendations

Areas of Concern:

Deer Canyon Area of Concern:

- Floodplain runs through community posing a potential post-fire flooding and sediment transport hazard. Explore opportunities to improve infrastructure protections (i.e. riparian buffers, setbacks, bridge and culvert improvements.)
- Potential for winds channelizing through canyon increasing potential fire spread rate.

Defensible Space/ Home Ignition Zone:

- Continue to educate community on defensible space and home hardening practices. Explore opportunities to improve defensible space and create fuel discontinuity through valley floor.

Roadside Buffer:

- Roadways should be maintained to limited vegetation encroachment and ensure visibility.

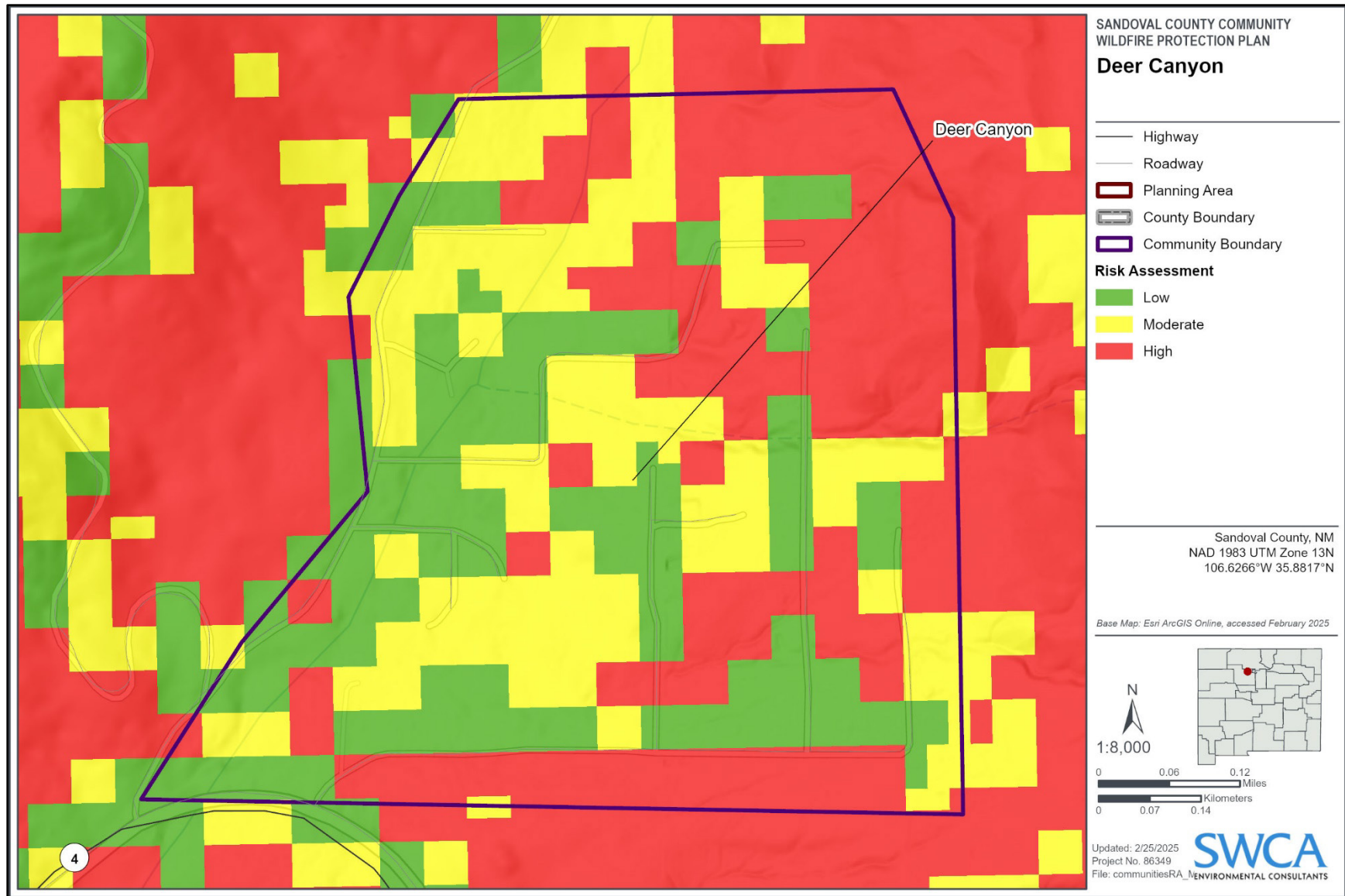


Figure C.21. Deer Canyon risk assessment.

21. Algodones

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 56 (moderate)

Risk Score (2025): 74 (high)

Resiliency Factors (Low Scores)

- Road conditions: surfaced roads
- Means of Access: 2 or more roads in and out
- Topography: <9% slope
- History of fire occurrence: low
- Severe fire weather potential: low
- Building setback: >30 feet to slope
- Organized response: fire station <5 miles from the community

Vulnerability Factors (High Scores)

- Road Width: Narrow roads throughout community
- Predominant vegetation: timber with grass or shrub understory
- Defensible space: <30 feet around structures
- Separation of adjacent structures: low
- Water Source: No hydrants. Water trucked in for response

Concerns/Recommendations

Areas of Concern:

Algodones Area of Concern:

- Bosque adjacent structures and properties
- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Explore opportunities to improve water availability

Roadside Buffer and Railroad ROW:

- Railroad right-of-way poses hazard to community due to fuel buildup and sparks from trains.
- Coordinate with rail company to remove vegetation buildup
- Modify roadside fuels to improve response access and ingress/ egress. Many main roads have cottonwoods and other vegetation overhanging and intruding on roadway.

Bosque Vegetation Management

- Reduce fuels and create discontinuity in bosque to reduce ignition and high severity fire potential.
- Limit potential ignition sources and additional fuels in bosque (i.e. agricultural burning, dumping, equipment operation)

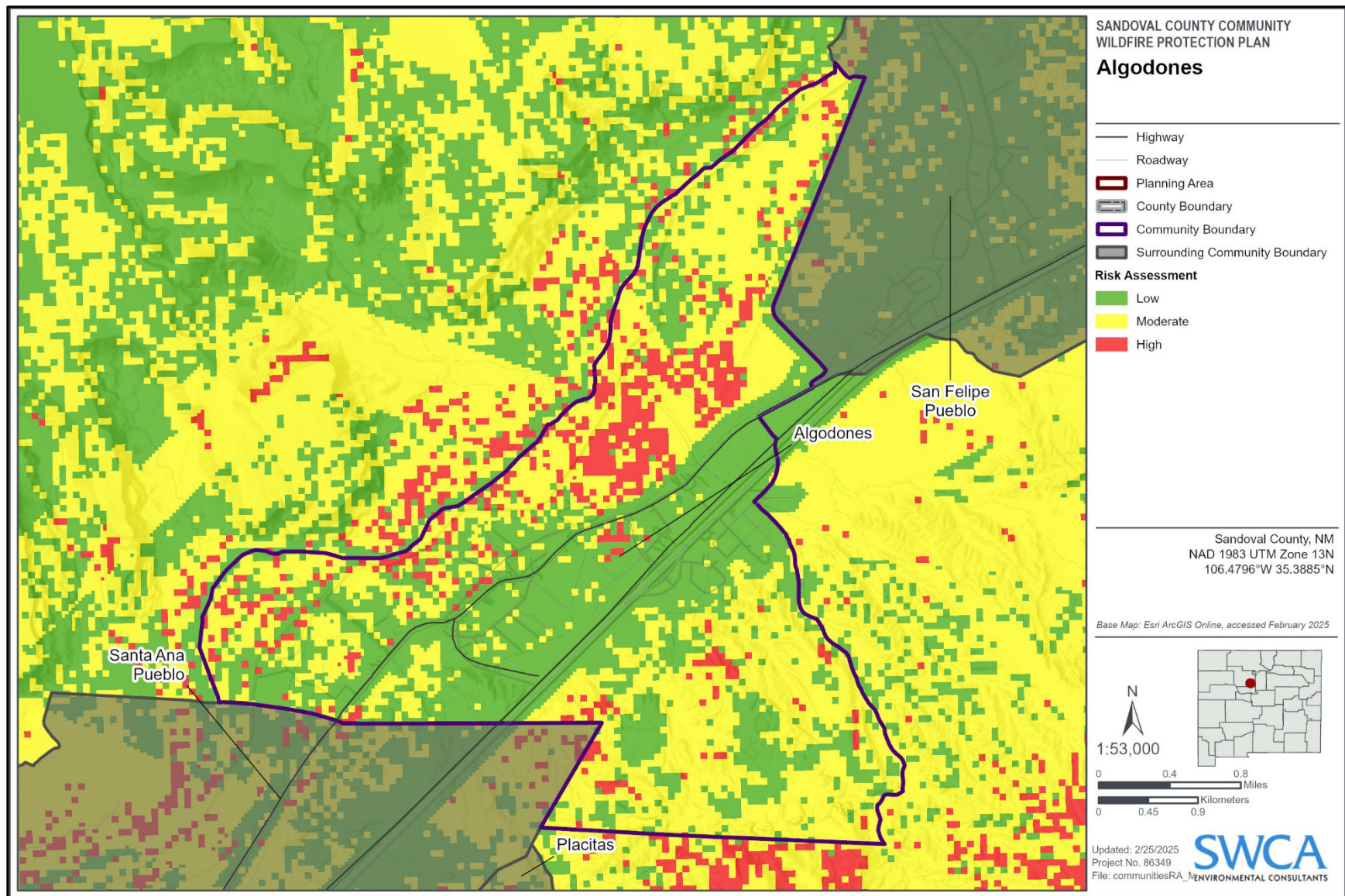


Figure C.22. Algodones risk assessment.

22. Santa Domingo

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 60 (moderate)

Risk Score (2025): 69 (Moderate)

Resiliency Factors (Low Scores)

- Entrance/exit: 2 or more roads in and out
- Fire access: structures generally close to road and turnaround opportunities
- Street signs: present and reflective
- Topography: <9% slope
- History of fire occurrence: low
- Severe fire weather potential: low
- Water sources: available hydrants
- Organized response: fire station <5 miles from the community

Vulnerability Factors (High Scores)

- Road width: <24 feet
- Defensible space: <30 feet around structures
- Separation of adjacent structures: low
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Concerns/Recommendations

Areas of Concern:

Santa Domingo Pueblo Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Bosque has highest potential for fuel accumulation. Fuel treatments should mimic historic disturbance patterns.
- Agricultural land burning carries the potential of escape. Ensure alignment with burn requirements, properly plan burn events, and carefully consider weather conditions.

Bosque Vegetation Management

- Reduce fuels and create discontinuity in bosque to reduce ignition and high severity fire potential.
- Limit potential ignition sources and additional fuels in bosque (i.e. agricultural burning, dumping, equipment operation)

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

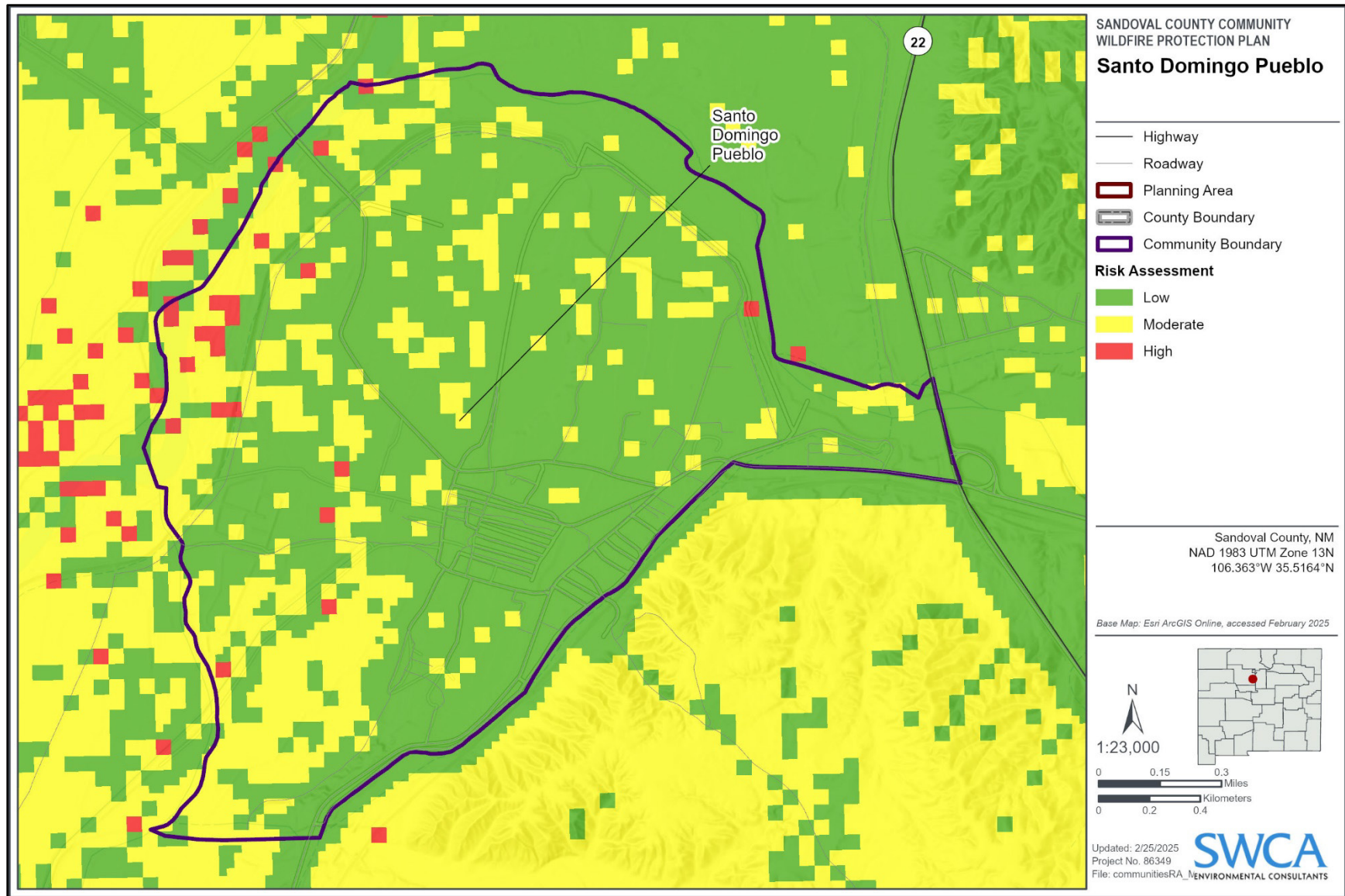


Figure C.23. Santo Domingo Pueblo risk assessment.

23. San Felipe

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 69 (moderate)

Risk Score (2025): 83 (high)

Resiliency Factors (Low Scores)

- Road conditions: wide, low-grade roads
- Means of Access: 2 or more roads in and out
- Topography: <9% slope
- Building setback: >30 feet to slope
- Roof and building construction: primarily metal roof and stucco siding
- Signage: present and reflective

Vulnerability Factors (High Scores)

- Predominant vegetation: timber with slash understory
- Defensible space: <30 feet around structures
- Separation of adjacent structures: low
- Water Source: limited hydrants, mostly in new construction. Water can sometimes be pulled from river, but limited by flow and access
- Organized response: fire station >5 miles from the community

Concerns/Recommendations

Areas of Concern:

San Felipe Pueblo Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Improve GIS coordination with county to improve response time and accuracy.
- Non-BIA response currently has to be escorted by BIA
- Improve water availability and options

Bosque Vegetation Management

- Reduce fuels and create discontinuity in bosque to reduce ignition and high severity fire potential.
- Limit potential ignition sources and additional fuels in bosque (i.e. agricultural burning, dumping, equipment operation)

Roadside Buffer and Railroad ROW:

- Railroad right-of-way poses hazard to community due to fuel buildup and sparks from trains.
- Coordinate with rail company to remove vegetation buildup
- Modify roadside fuels to improve response access and ingress/ egress. Many main roads have cottonwoods and other vegetation overhanging and intruding on roadway.

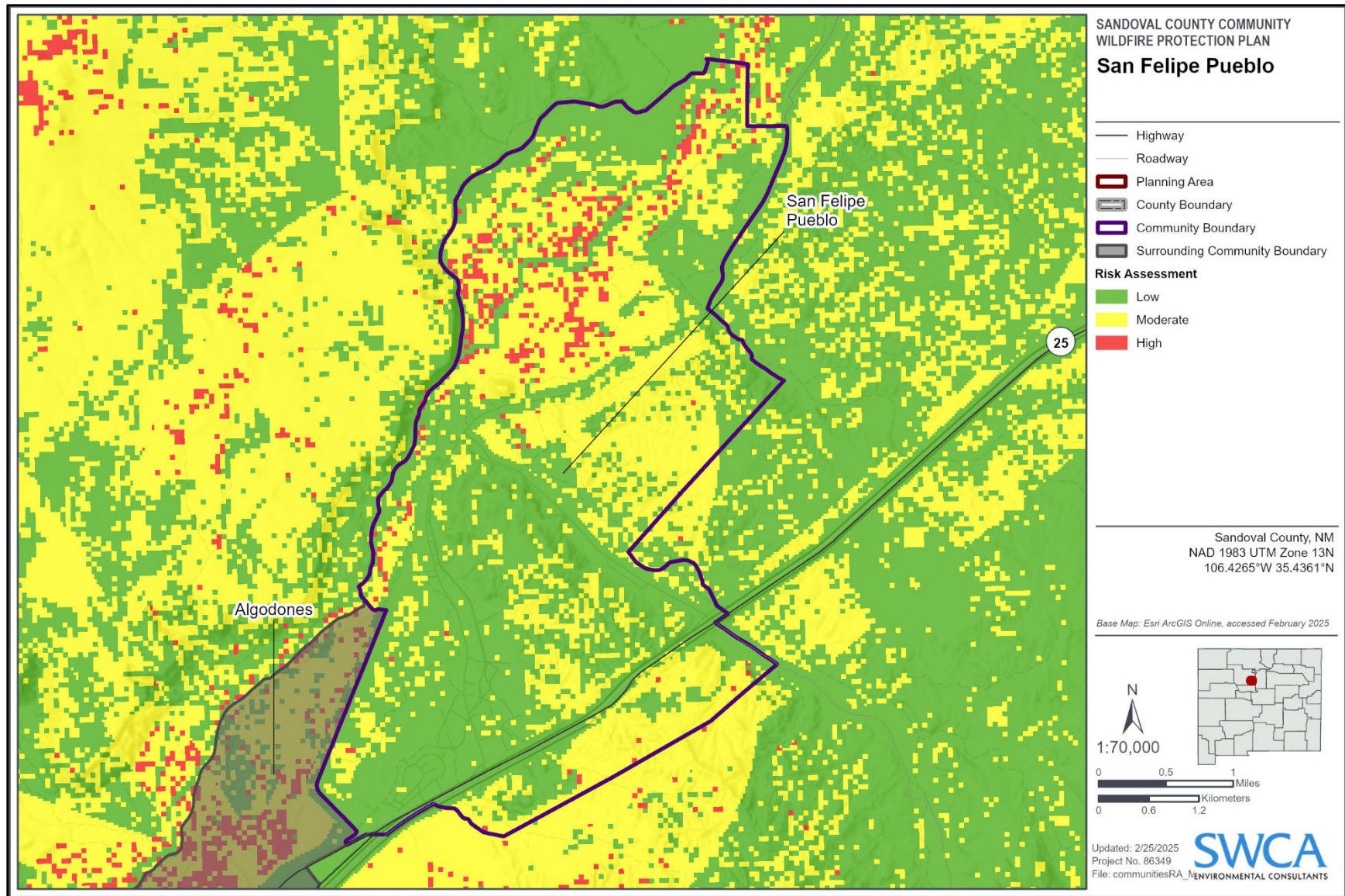


Figure C.24. San Felipe Pueblo risk assessment.

24. Santa Ana Pueblo

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): N/A (not assessed)

Risk Score (2025): 57 (Moderate)

Resiliency Factors (Low Scores)

- Topography: <9% slope
- Predominant vegetation: grass and shrub, low spread rate
- History of fire occurrence: low
- Separation of adjacent structures: high
- Building setback: >30 feet to slope
- Water sources: available hydrants
- Organized response: fire station <5 miles from the community

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in/out
- Road conditions: unsurfaced roads
- Defensible space: >30 <70 feet around structures
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Concerns/Recommendations

Areas of Concern:

Santa Ana Pueblo Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Improve GIS coordination with county to improve response time and accuracy.
- Non-BIA response currently has to be escorted by BIA
- Improve water availability and options

Bosque Vegetation Management

- Reduce fuels and create discontinuity in bosque to reduce ignition and high severity fire potential.
- Limit potential ignition sources and additional fuels in bosque (i.e. agricultural burning, dumping, equipment operation)

Roadside Buffer and Railroad ROW:

- Railroad right-of-way poses hazard to community due to fuel buildup and sparks from trains.
- Coordinate with rail company to remove vegetation buildup
- Modify roadside fuels to improve response access and ingress/ egress. Many main roads have cottonwoods and other vegetation overhanging and intruding on roadway.

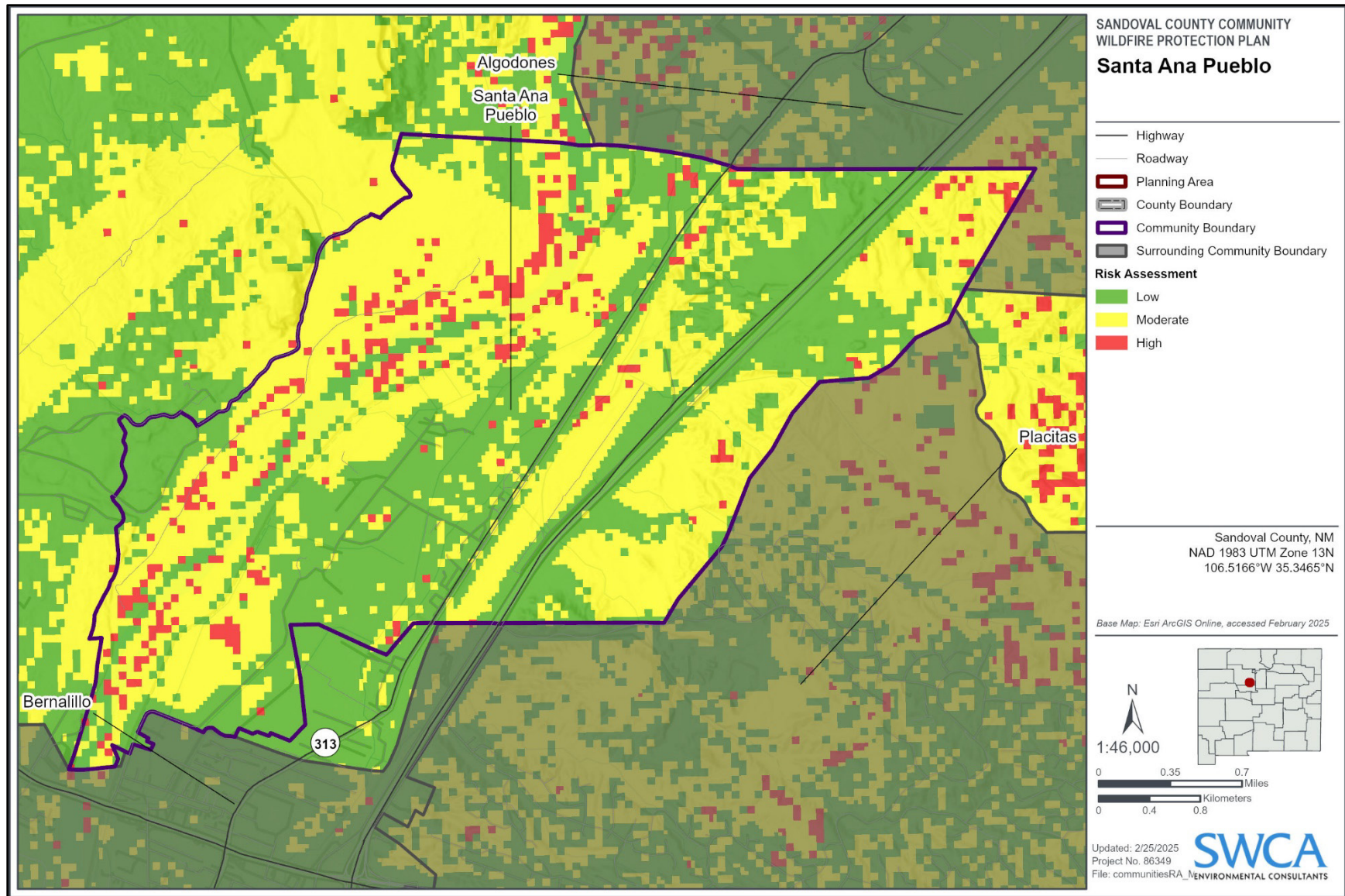


Figure C.25. Santa Ana Pueblo risk assessment.

25. Sandia Pueblo

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): N/A (not assessed)

Risk Score (2025): 51 (moderate)

Resiliency Factors (Low Scores)

- Road conditions: surfaced roads
- Topography: <9% slope
- History of fire occurrence: low
- Defensible space: >100 feet around most structures
- Separation of adjacent structures: high
- Severe fire weather potential: low
- Building setback: >30 feet to slope

Vulnerability Factors (High Scores)

- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Concerns/Recommendations

Areas of Concern:

Sandia Pueblo Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Coordinate with rail company to ensure maintenance of rail ROW
- Agricultural land burning carries the potential of escape. Ensure alignment with burn requirements, properly plan burn events, and carefully consider weather conditions.

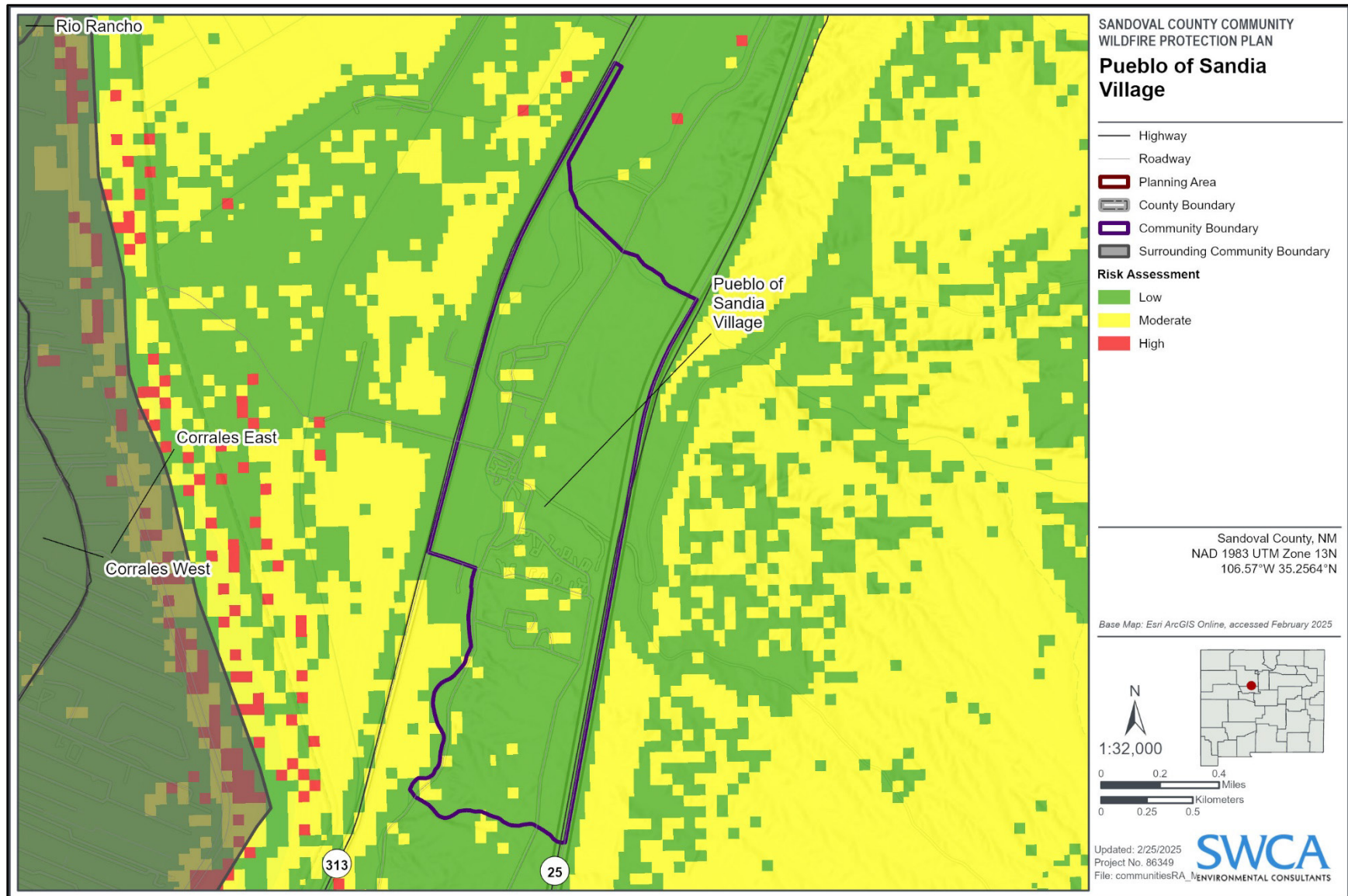


Figure C.26. Pueblo of Sandia Village risk assessment.

26. Peña Blanca

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 64 (moderate)

Risk Score (2025): 92 (high)

Resiliency Factors (Low Scores)

- Topography: <9% slope
- History of fire occurrence: low
- Building setback: >30 feet to slope
- Water sources: available hydrants
- Organized response: fire station <5 miles from the community

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in/out
- Road conditions: <20ft wide, mostly unpaved
- Defensible space: <30 feet around structures
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Concerns/Recommendations

Areas of Concern:

Peña Blanca Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Shaded Fuel Break:

- Bosque along the western edge of the community has highest fuels accumulation. Actions should target restoring historic disturbance regime in riparian area to reduce surface-canopy connection and fuel loads.

Roadside Buffer and Shaded Fuel Break:

- Maintenance of highway 22 is critical to emergency response and resident evacuation. Highway has encroaching vegetation and often overhanging branches that could impact ingress/egress.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

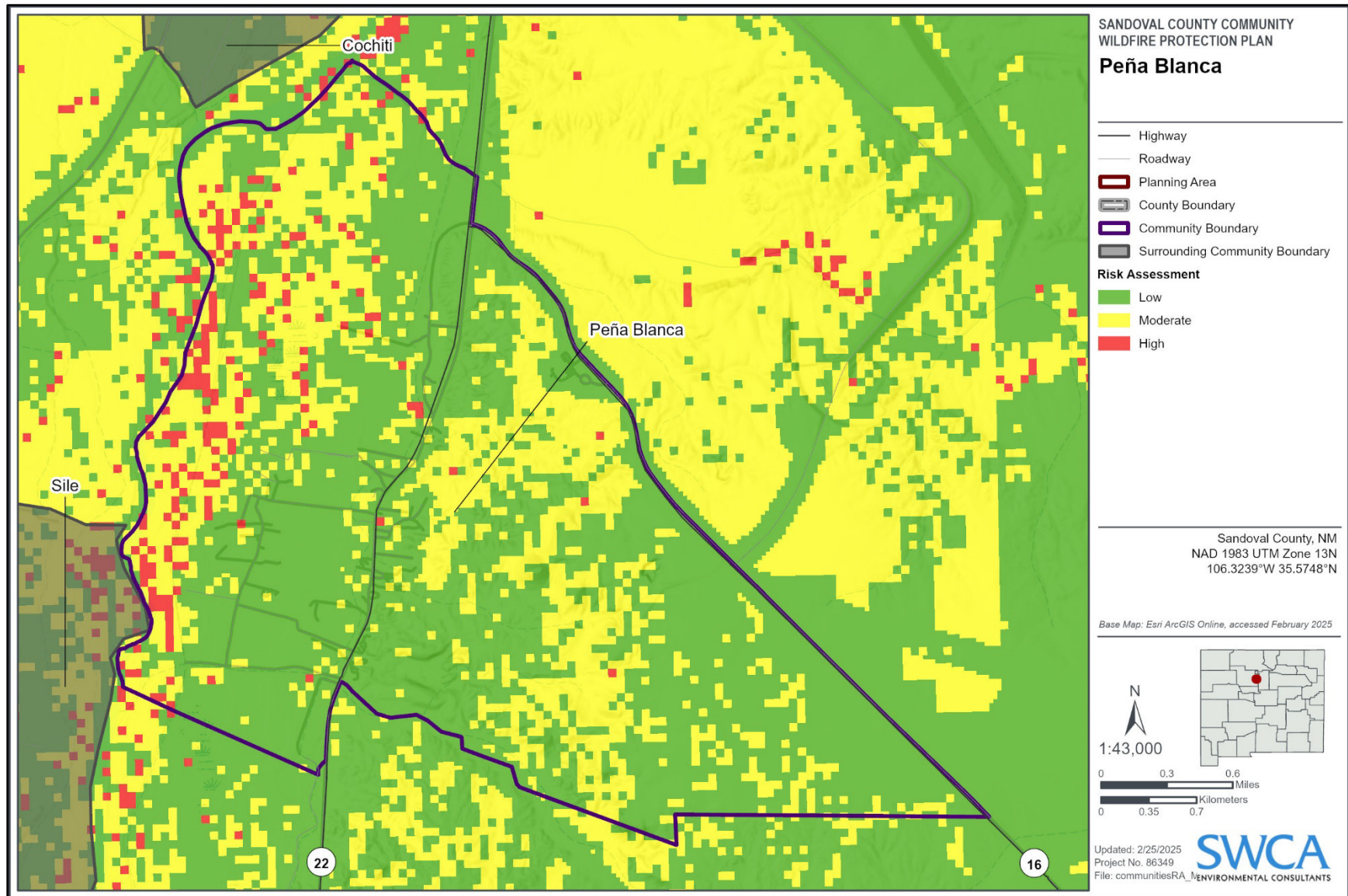


Figure C.27. Peña Blanca risk assessment.

27. Cochiti Lake

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 71 (high)

Risk Score (2025): 65 (Moderate)

Resiliency Factors (Low Scores)

- Entrance/exit: 2 or more roads in and out
- Road conditions: surfaced roads
- Fire access: <300 feet with turnarounds
- Street signs: present and reflective
- History of fire occurrence: low
- Building setback: >30 feet to slope
- Water sources: available hydrants

Vulnerability Factors (High Scores)

- Defensible space: <30 feet around structures; encroaching vegetation
- Utilities: aboveground
- Severe fire weather potential: high
- Building construction: <30ft from slope
- Topography: 10-20% slopes with rolling hills

Concerns/Recommendations

Areas of Concern:

Cochiti Lake Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

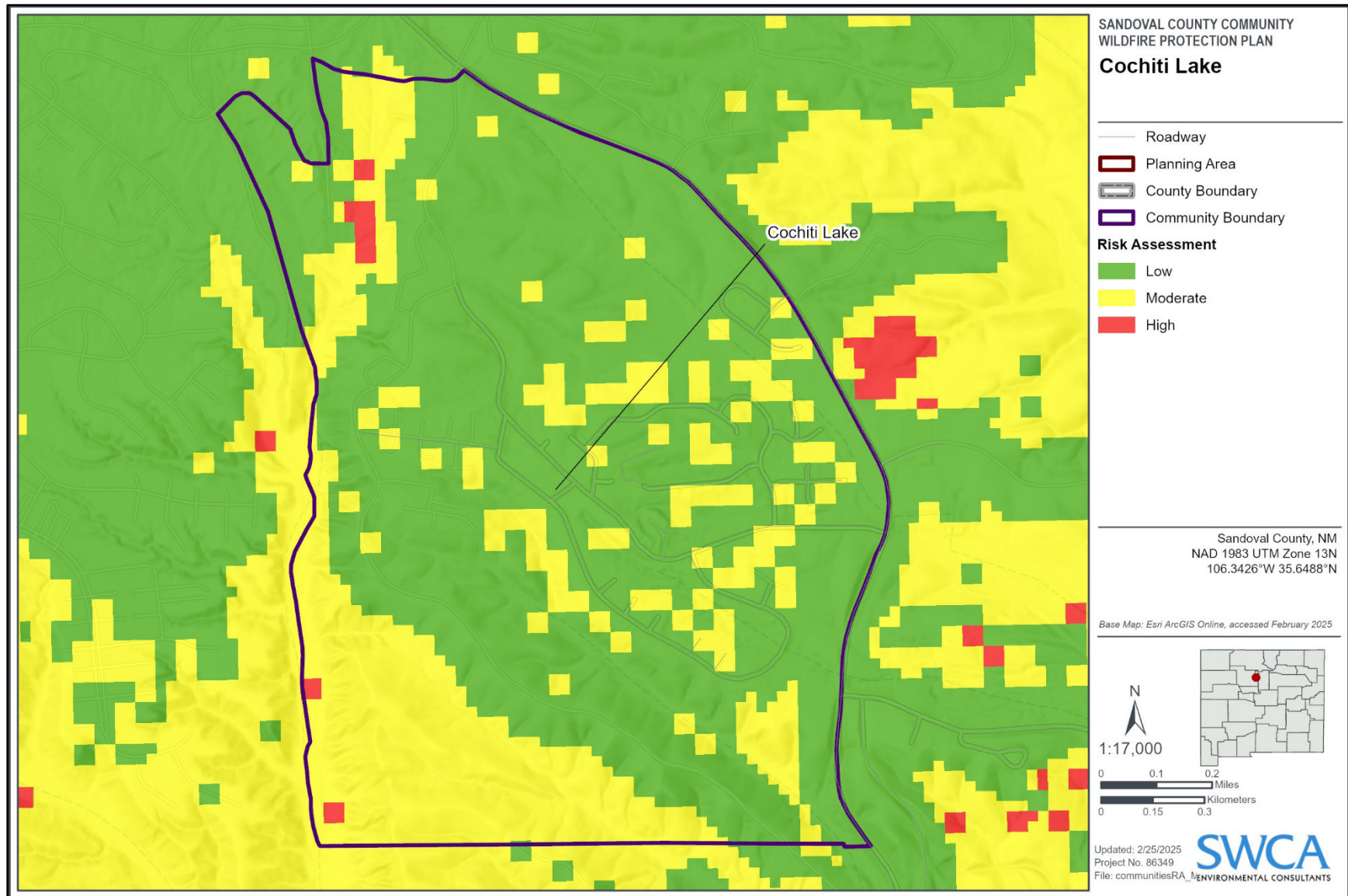


Figure C.28. Cochiti Lake risk assessment.

28. Sile

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 62 (moderate)

Risk Score (2025): 90 (high)

Resiliency Factors (Low Scores)

- Topography: <9% slope
- Predominant vegetation: Shrub, mostly well-spaced with limited understory
- History of fire occurrence: low
- Severe fire weather potential: low
- Separation of adjacent structures: high
- Building setback: >30 feet to slope
- Water sources: available hydrants

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in/out
- Road conditions: <20ft wide, mostly unpaved
- Defensible space: <30 feet around structures
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Concerns/Recommendations

Areas of Concern:

Sile Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Agricultural land burning carries the potential of escape. Ensure alignment with burn requirements, properly plan burn events, and carefully consider weather conditions.

Shaded Fuel Break:

- Bosque along the western edge of the community has highest fuels accumulation. Actions should target restoring historic disturbance regime in riparian area to reduce surface-canopy connection and fuel loads.

Roadside Buffer and Shaded Fuel Break:

- Maintenance of highway 22 is critical to emergency response and resident evacuation. Highway has encroaching vegetation and often overhanging branches that could impact ingress/egress.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

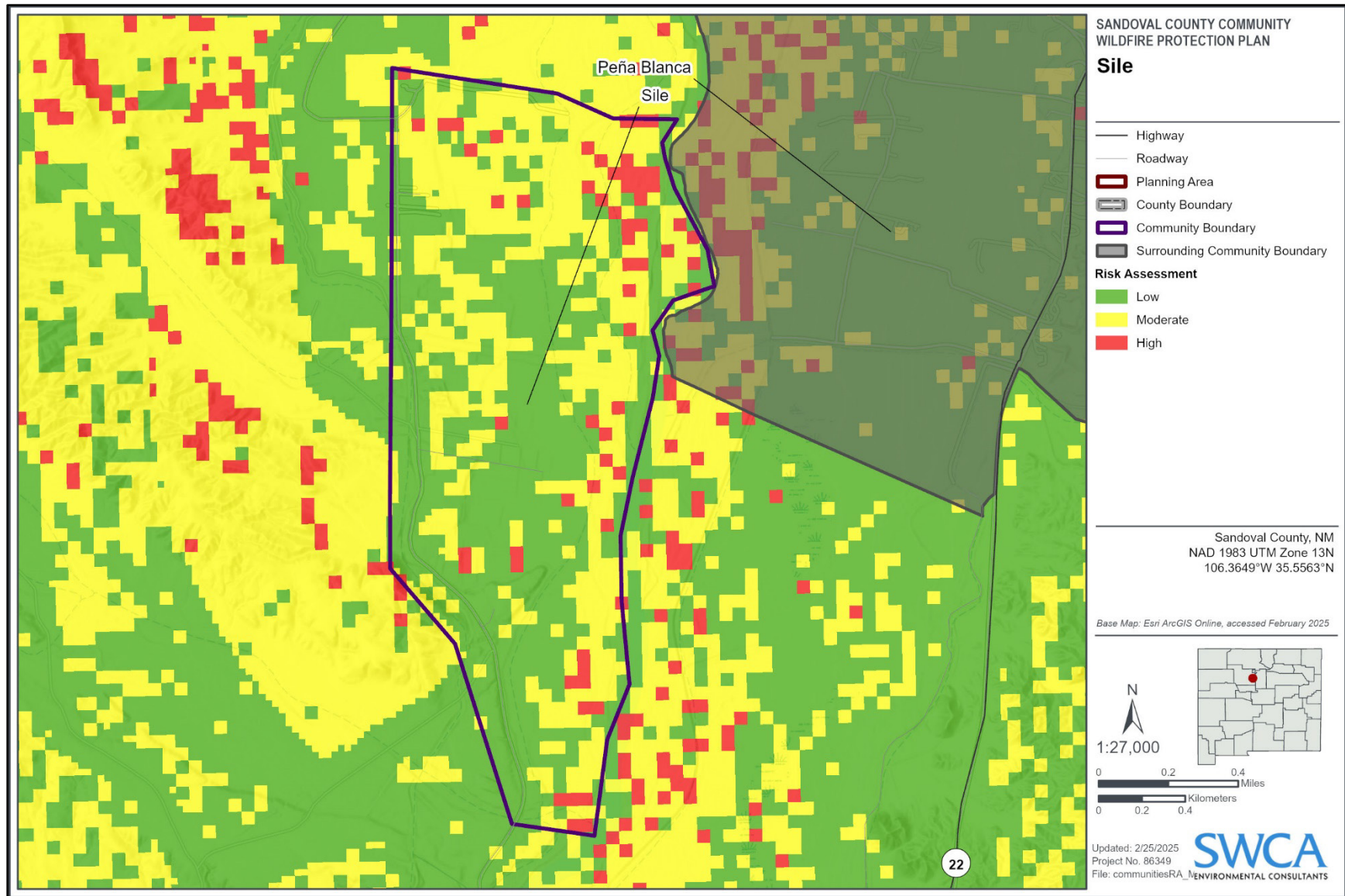


Figure C.29. Sile risk assessment.

29. Bernalillo

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 48 (moderate)

Risk Score (2025): 52 (Moderate)

Resiliency Factors (Low Scores)

- Entrance and exit: 2 or more roads in and out
- Road conditions: surfaced roads, >24ft
- Topography: <9% slope
- Street signs: present and reflective
- History of fire occurrence: low
- Building setback: >30 feet to slope
- Water sources: available hydrants
- Organized response: fire station <5 miles from the community

Vulnerability Factors (Low Scores)

- Defensible space: 30-70 feet around structures
- Building construction/ deck and fencing: combustible
- Utilities: above ground

Concerns/Recommendations

Areas of Concern:

Bernalillo Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Coordinate with rail company to ensure maintenance of rail ROW

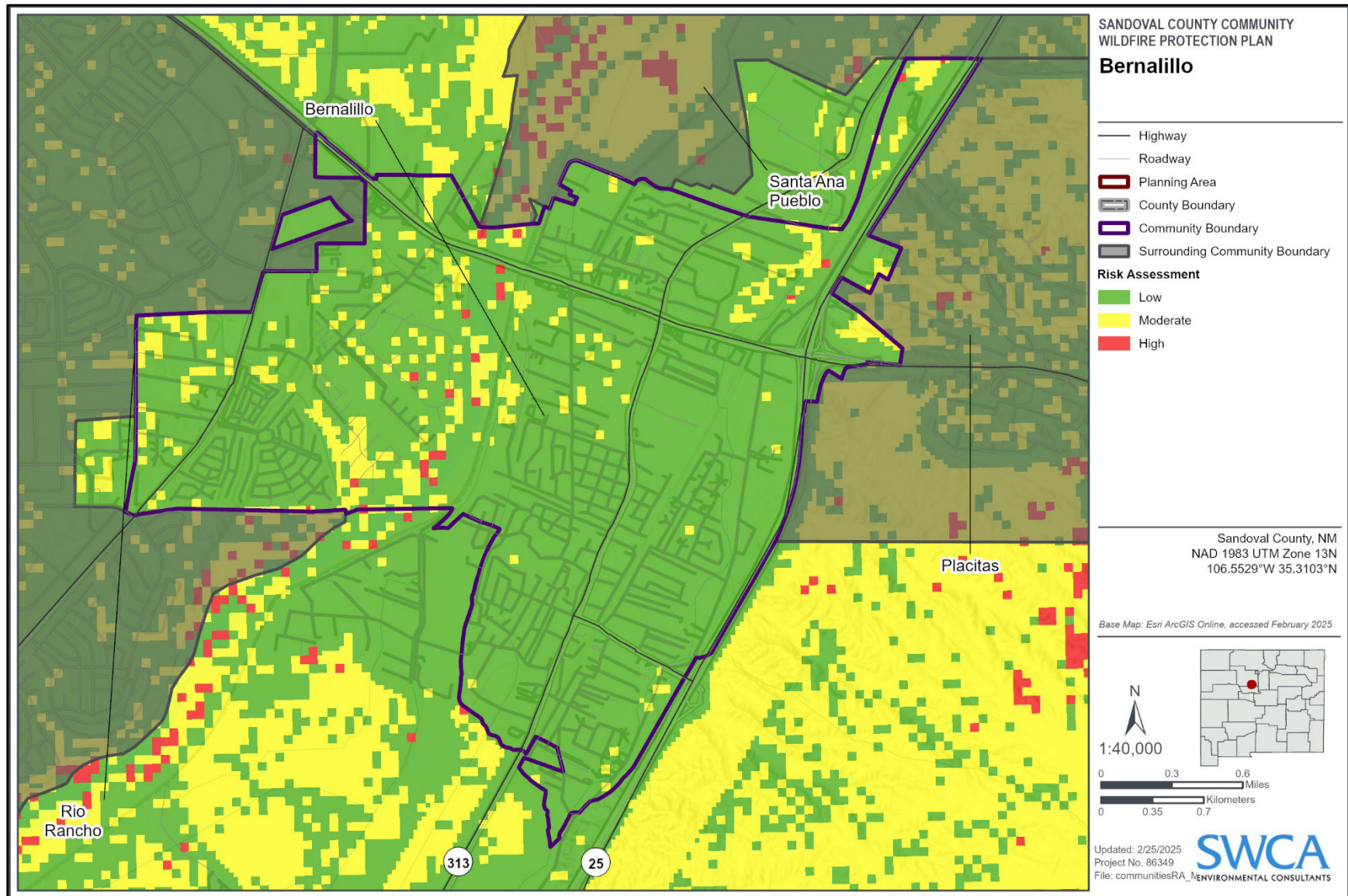


Figure C.30. Bernalillo risk assessment.

30. Corrales East

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 94 (high)

Risk Score (2025): 85 (high)

Resiliency Factors (Low Scores)

- Topography: <9% slope
- History of fire occurrence: low
- Street signs: present and reflective
- Building setback: >30 feet to slope
- Water sources: available hydrants
- Organized response: fire station <5 miles from the community

Vulnerability Factors (High Scores)

- Entrance/exit: only one highway in/out
- Road conditions: narrow and unpaved off main highway
- Predominant vegetation: timber-litter and highly combustible
- Defensible space: <30 feet around structures
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Concerns/Recommendations

Areas of Concern:

Corrales East Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts. Bosque is a high value resource for the community. Fuel treatments should aim to replicate historic disturbance pattern in system.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Coordination with PNM for maintaining powerline ROW

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes. Many homes currently have high fuel buildup, connection of surface and canopy fuels, and continuity between homes that will increase spread rate.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

Shaded Fuel Break:

- Continued maintenance of bosque fuel break is needed. Fire department exploring bosque treatment and response options to reduce risk to adjacent properties

Roadside Buffer and Shaded Fuel Break:

- Side roads are in need of vegetation treatment to improve response access and egress safety. Currently vegetation encroaches on and overhangs many sideroads leading to access and entrapment hazards.

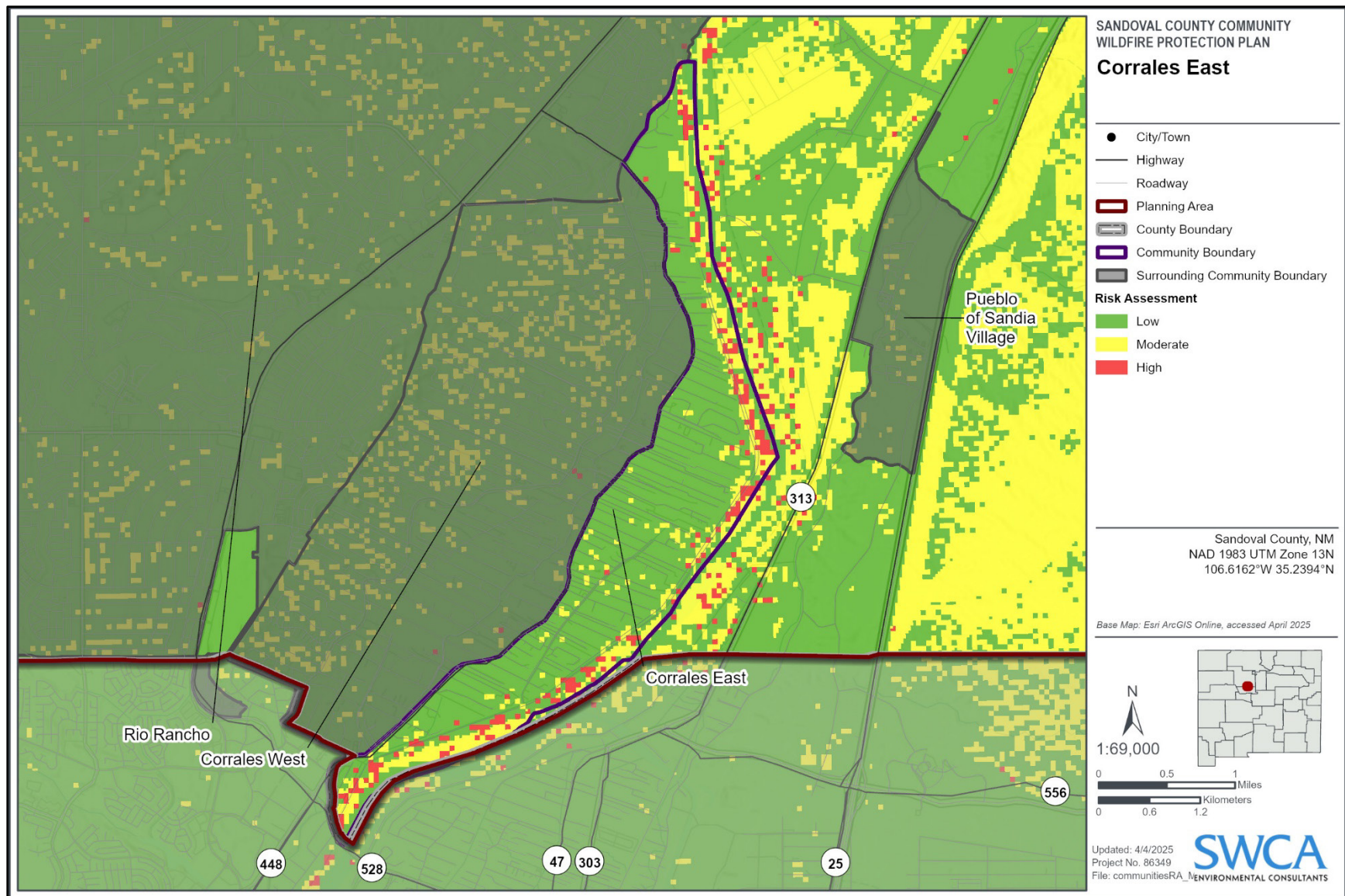


Figure C.31. Corrales East risk assessment.

31. Corrales West

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 50 (moderate)

Risk Score (2025): 61 (Moderate)

Resiliency Factors (Low Scores)

- Road conditions: surfaced, low-grade roads
- Fire access: homes easily accessed by response vehicles
- Street signs: present and reflective
- Predominant vegetation: shrub with rocky/ sandy floor
- History of fire occurrence: low
- Severe fire weather potential: low
- Water sources: available hydrants
- Organized response: fire station <5 miles from the community

Vulnerability Factors (High Scores)

- Entrance/exit: only one highway in/out
- Defensible space: <30 feet around structures
- Siding, deck, and fencing materials: combustible (wood or vinyl)

Concerns/Recommendations

Areas of Concern:

Corrales West Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Coordinate powerline ROW treatment with PNM to reduce power outages and downed line ignitions

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes. Many homes currently have high fuel buildup that will increase spread rate.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

Roadside Buffer and Shaded Fuel Break:

- Maintaining clear access to Loma Larga road is essential to effective response and community evacuation. May require coordination with ditch company, PNM and other private owners.

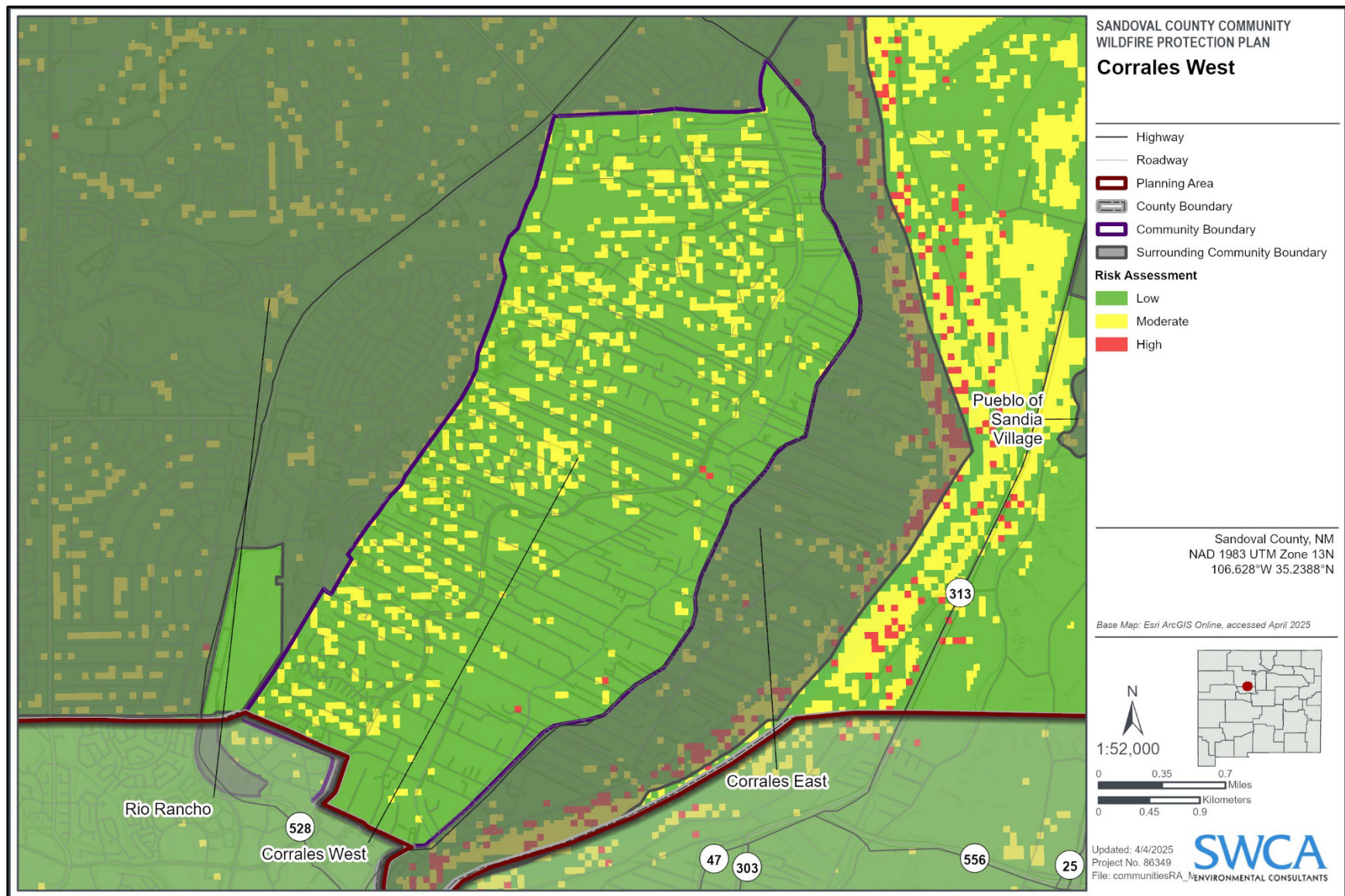


Figure C.32. Corrales West risk assessment.

32. Cochiti Pueblo

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): N/A (not assessed)

Risk Score (2025): 67 (Moderate)

Resiliency Factors (Low Scores)

- Road conditions: surfaced roads
- Fire access: <300 feet with turnarounds
- Topography: <9% slope
- History of fire occurrence: low
- Severe fire weather potential: low
- Building setback: >30 feet to slope
- Water sources: available hydrants

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in/out
- Defensible space: <30 feet around structures
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Concerns/Recommendations

Areas of Concern:

Cochiti Lake Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Encourage removal of debris from around homes.
- Provide educational materials on HIZ improvement options with cost ranges to facilitate home improvements and reduction of materials in HIZ where possible.

Roadside Buffer and Shaded Fuel Break:

- Indian Service Route 85 should be maintained and kept clear of encroaching vegetation. This action will aid in emergency response and community evacuations.

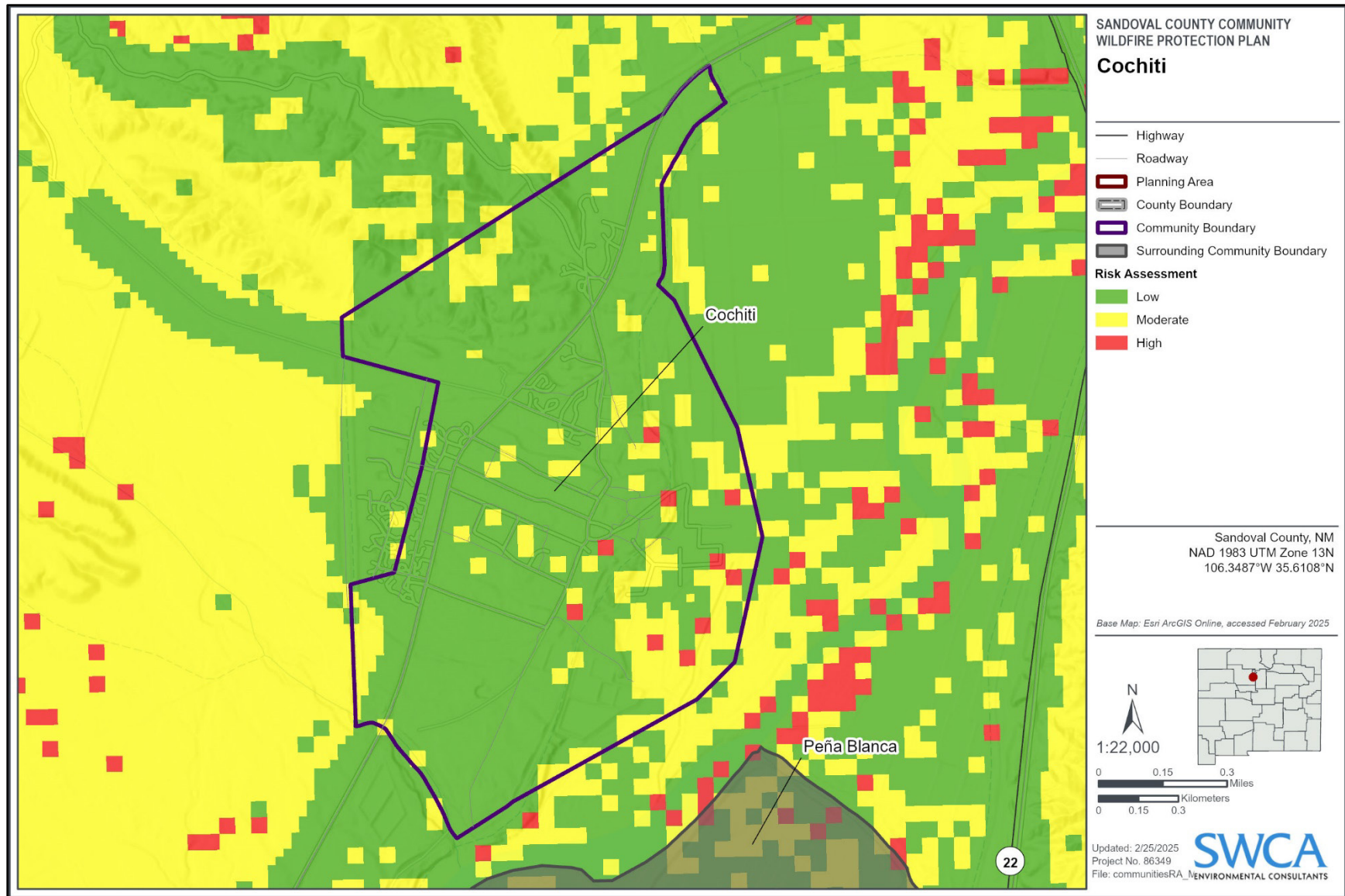


Figure C.33. Cochiti Pueblo risk assessment.

33. Rio Rancho

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): N/A (not assessed)

Risk Score (2025): 67 (Moderate)

Resiliency Factors (Low Scores)

- Entrance/exit: 2 or more roads in and out
- Road conditions: surfaced roads, >24 feet
- Topography: <9% slope
- Street signs: present and reflective
- History of fire occurrence: low
- Severe fire weather potential: low
- Building setback: >30 feet to slope
- Water sources: available hydrants
- Organized response: fire station <5 miles from the community

Vulnerability Factors (High Scores)

- Defensible space: <30 feet around structures
- Separation of adjacent structures: low
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Concerns/Recommendations

Areas of Concern:

Rio Rancho Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Develop community specific vegetation management plan
- As community continues to grow, maintain road access and signage to ensure safe and effective ingress and egress.
- Explore opportunities for community specific evacuation planning

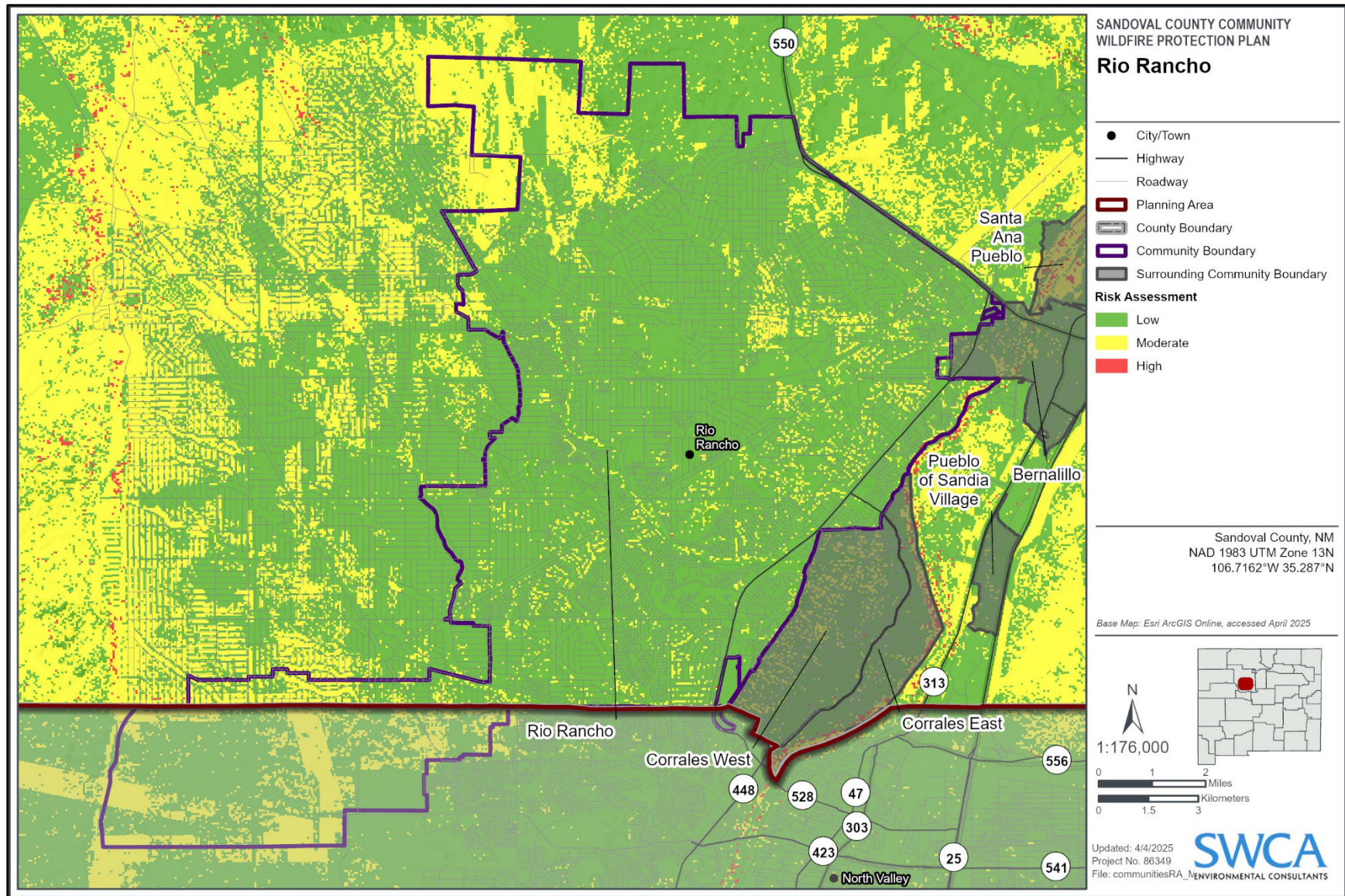


Figure C.34. Rio Rancho risk assessment.

34. Placitas Corridor

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 55 (moderate)

Risk Score (2025): 83 (high)

Resiliency Factors (Low Scores) *

- Road conditions: surfaced roads (in some areas)
- Fire Access: >300 feet with no turn around
- History of fire occurrence: low
- Water sources: available hydrants and tanks (in some areas)
- Organized response: fire station <5 miles from the community
- Roof and home construction: metal and stucco roofs; adobe and stucco construction

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in/out
- Topography: Road grade >5%; 10-20% slope near structures
- Defensible space: <30 feet around structures
- Separation of adjacent structures: low
- Building Construction: decks and fencing on most homes, <30 feet to slope

*There is great variability between the eastern and western portions of the Placitas area. Treatments should be planned according to site-specific conditions.

Concerns/Recommendations

Areas of Concern:

Placitas Corridor Area of Concern:

- Adjacent federal land.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires. Fuels in the community are not conducive to high severity burns, but limited defensible space creates ignition opportunities.

Roadside Buffer:

- Maintaining Camino Manzano access is critical for response/ ingress and egress. Keeping vegetation away from the road and maintaining road conditions can help with response and escape during an emergency

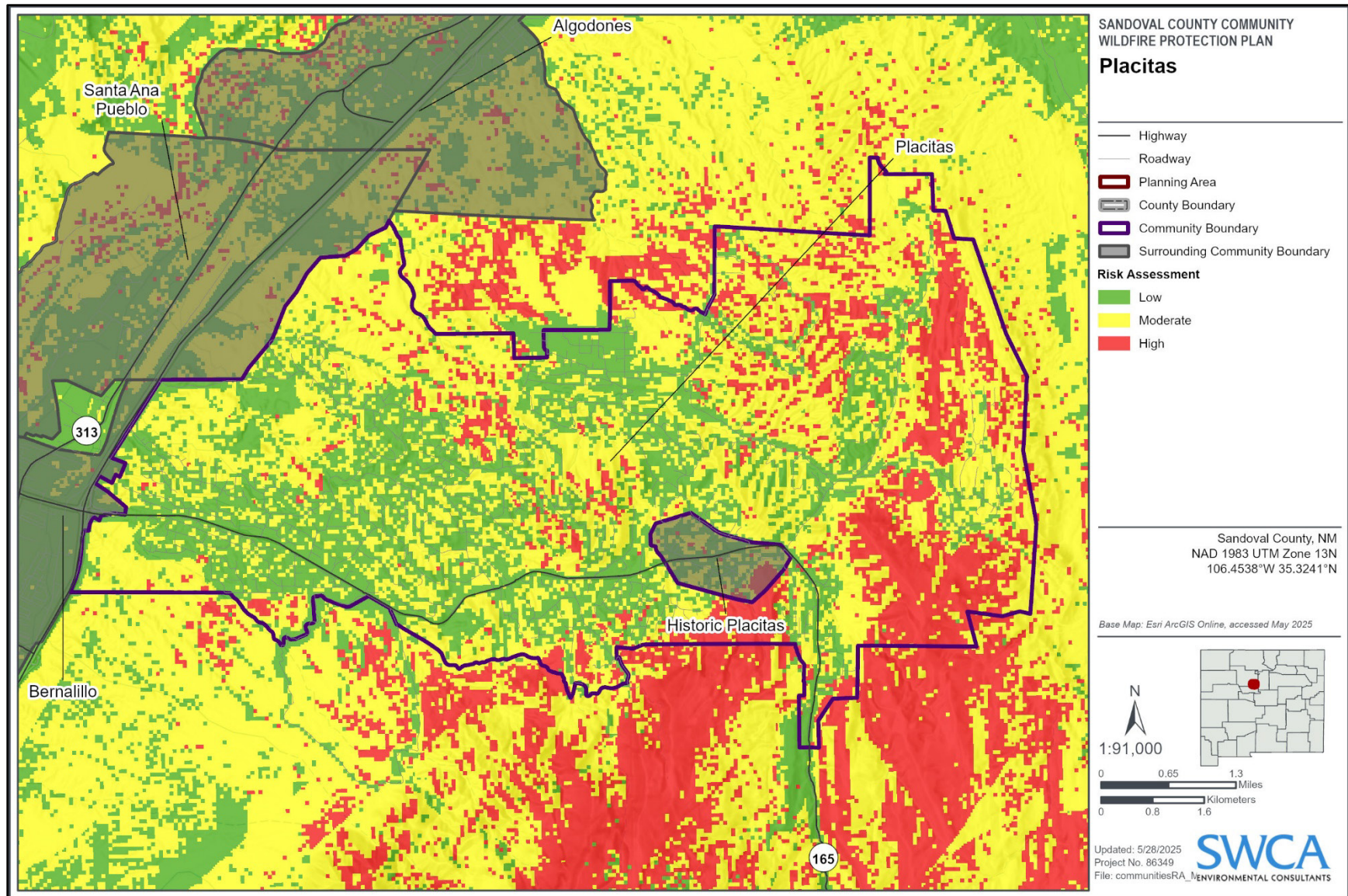


Figure C.35. Placitas risk assessment.

35. Historic Placitas

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 96 (high)

Risk Score (2025): 109 (high)

Resiliency Factors (Low Scores)

- History of fire occurrence: low
- Organized response: fire station <5 miles from the community

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in/out
- Road Width: Narrow windy roads with vegetation encroachment
- Predominant vegetation: timber-litter and highly combustible
- Defensible space: <30 feet around structures
- Separation of adjacent structures: low
- Siding, deck, and fencing materials: combustible (wood or vinyl)

Concerns/Recommendations

Areas of Concern:

Historic Placitas Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires. Fuels in community currently limit defensible space creating ignition and spread opportunities. High connectivity observed between vegetation, fences, and homes. Roads are often overhung with branches creating entrapment hazards.

Roadside Buffer:

- Maintaining Camino Manzano access is critical for response/ ingress and egress. Keeping vegetation away from the road and maintaining road conditions can help responders access properties and residents exit the area during and emergency.
- Fuels overhanging residential roads should be eliminated and create a buffer around roadways.

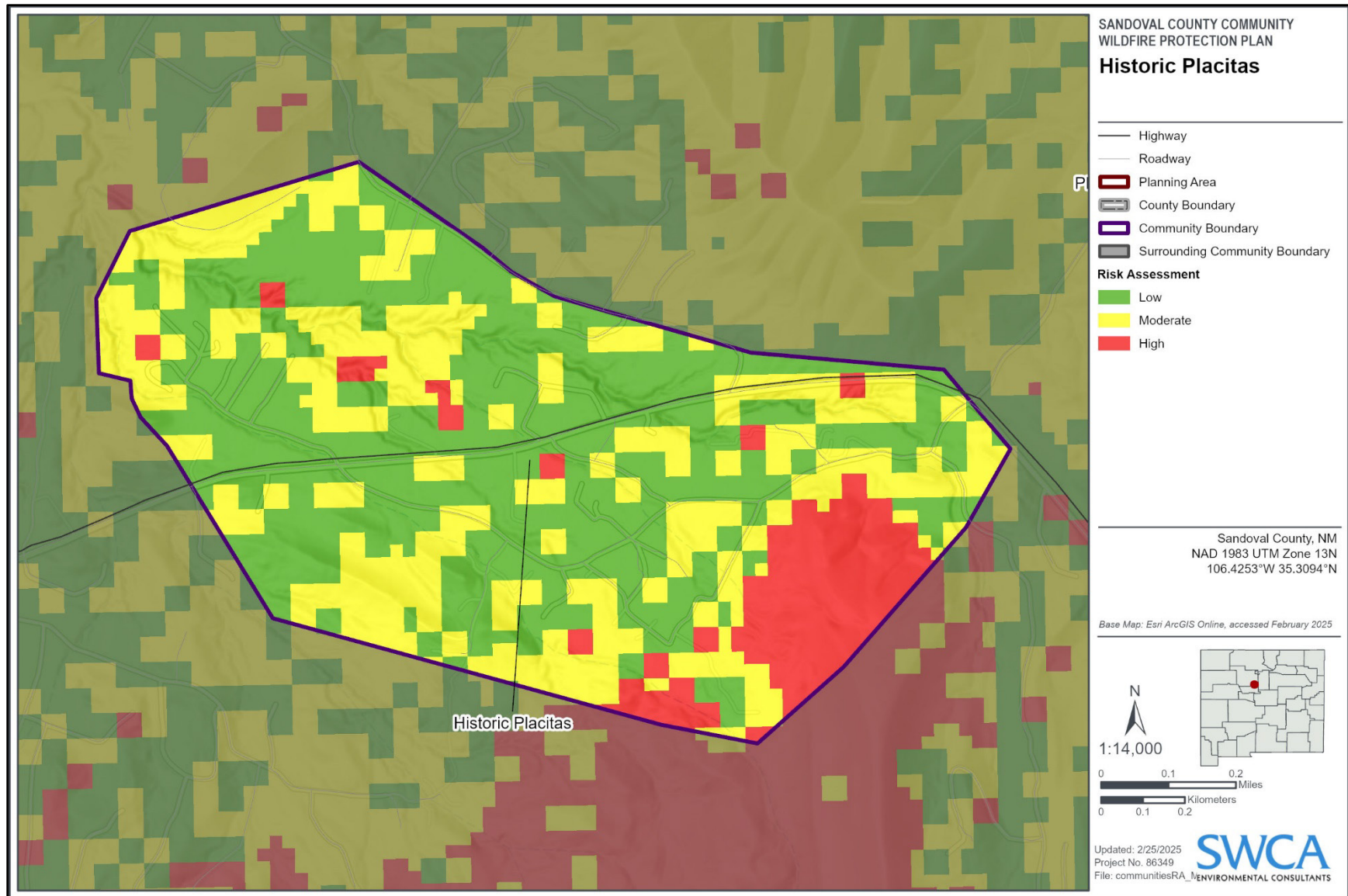


Figure C.36. Historic Placitas risk assessment.

36. La Madera

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): 87 (high)

Risk Score (2025) 100 (high)

Resiliency Factors (Low Scores)

- Organized response: fire station <5 miles from the community
- Present and reflective road signs
- Community is active in defensible space/vegetation management

Vulnerability Factors (High Scores)

- Predominant vegetation: timber-litter and highly combustible
- Defensible space: <30 feet around structures
- No hydrants or other water bodies
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground
- Topography: Road grade >5%; 10-20% slope near structures
- Road Width: Narrow windy roads with vegetation encroachment
- Many locked gates

Concerns/Recommendations

Areas of Concern:

La Madera Area of Concern:

- A formalized evacuation plan is needed that defines road access and pinch points along with modeling evacuation routes.
- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.

Personal Responsibility/ Home Ignition Zone

Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires. Fuels in community currently limit defensible space creating ignition and spread opportunities. High connectivity observed between vegetation, fences, and homes. Roads are often overhung with branches creating entrapment hazards

Roadside Buffer and Shaded Fuel Break:

La Madera Road:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

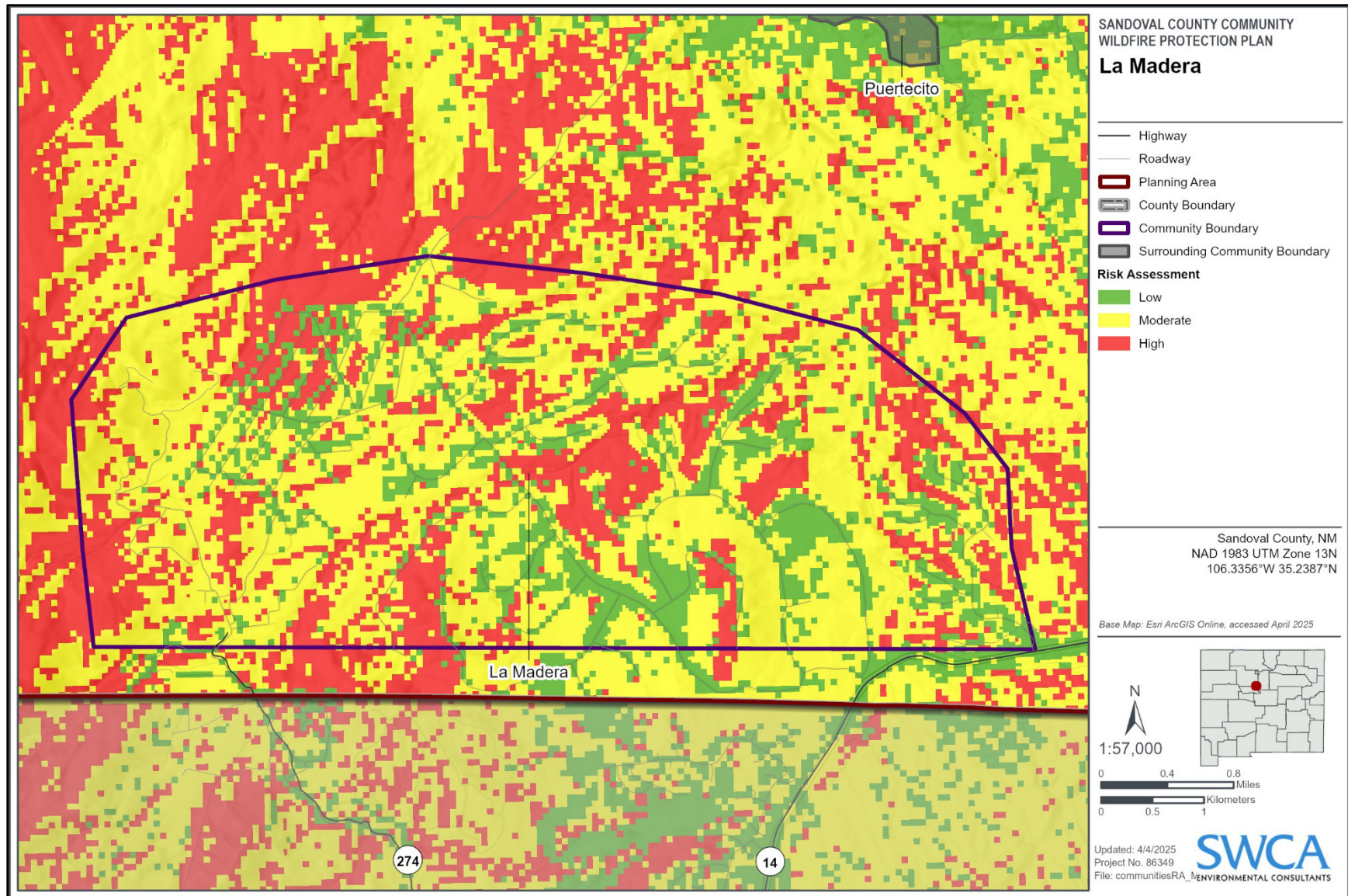


Figure C.37. La Madera risk assessment.

37. Evergreen Hills

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): N/A (not assessed)

Risk Score (2025): 97 (high)

Resiliency Factors (Low Scores)

- Present and reflective signs
- Roof and building construction: primarily metal roof and stucco siding

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in/out
- Predominant vegetation: timber-litter and highly combustible
- Defensible space: <30 feet around structures
- Road Width: Narrow windy roads with vegetation encroachment
- Topography: Road grade >5%; 10-20% slope near structures

Concerns/Recommendations

Areas of Concern:

Evergreen Hills Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires. Fuels in community currently limit defensible space creating ignition and spread opportunities. High connectivity observed between vegetation, fences, and homes. Roads are often overhung with branches creating entrapment hazards.

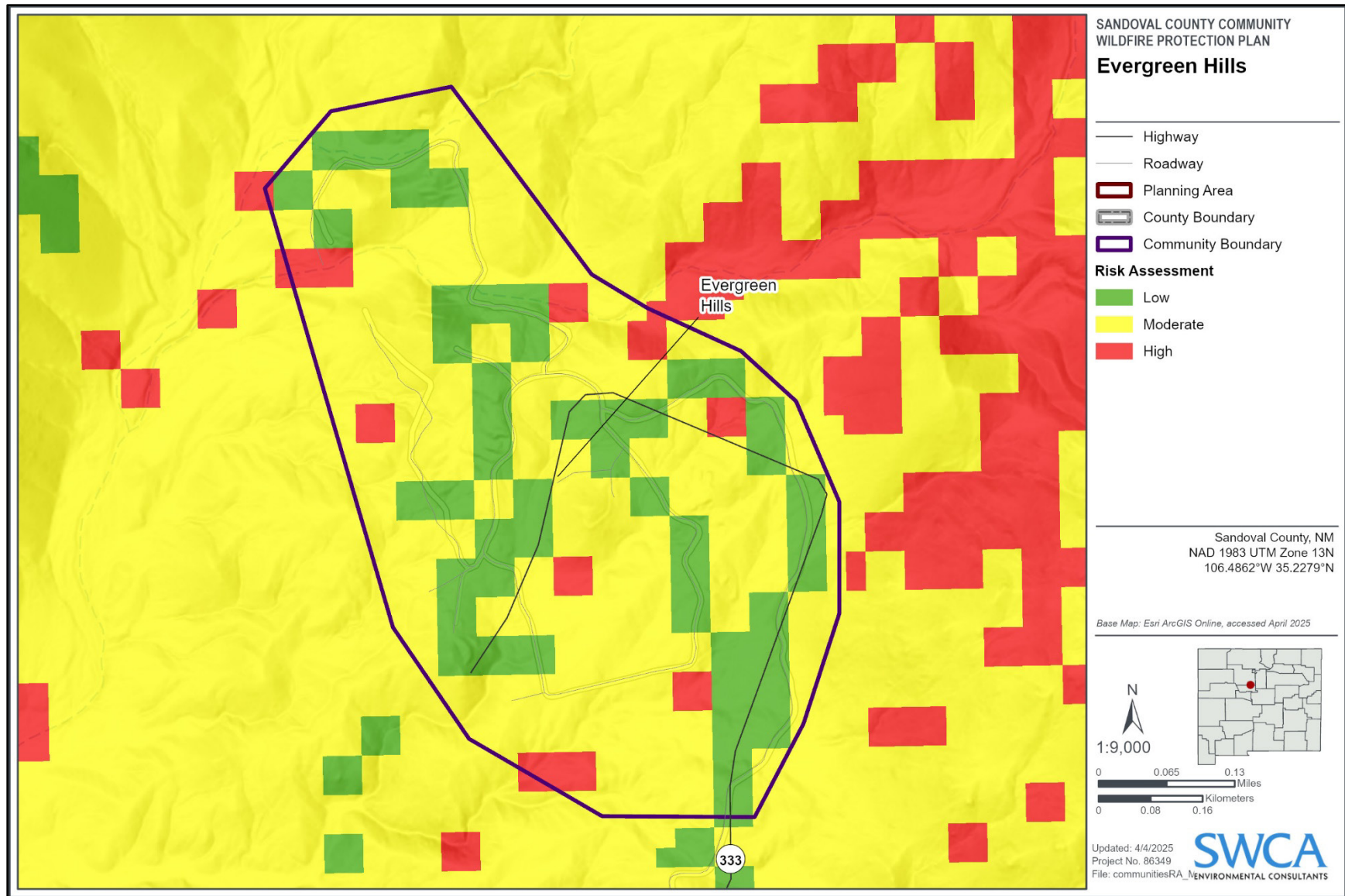


Figure C.38. Evergreen Hills risk assessment.

38. Puertocito

Key Observations

Field Assessment NFPA 1144 Survey Summary

Risk Score (2012): N/A (not assessed)

Risk Score (2025): 68 (moderate)

Resiliency Factors (Low Scores)

- Topography: <9% slope
- History of fire occurrence: low
- Severe fire weather potential: low

Vulnerability Factors (High Scores)

- Entrance/exit: only one road in/out
- Defensible space: <30 feet around structures
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground
- Limited water supply
- Isolated community

Concerns/Recommendations

Areas of Concern:

Puertocito Area of Concern:

- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.

Personal Responsibility/ Home Ignition Zone

- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires. Fuels in community currently limit defensible space creating ignition and spread opportunities. High connectivity observed between vegetation, fences, and homes. Roads are often overhung with branches creating entrapment hazards.

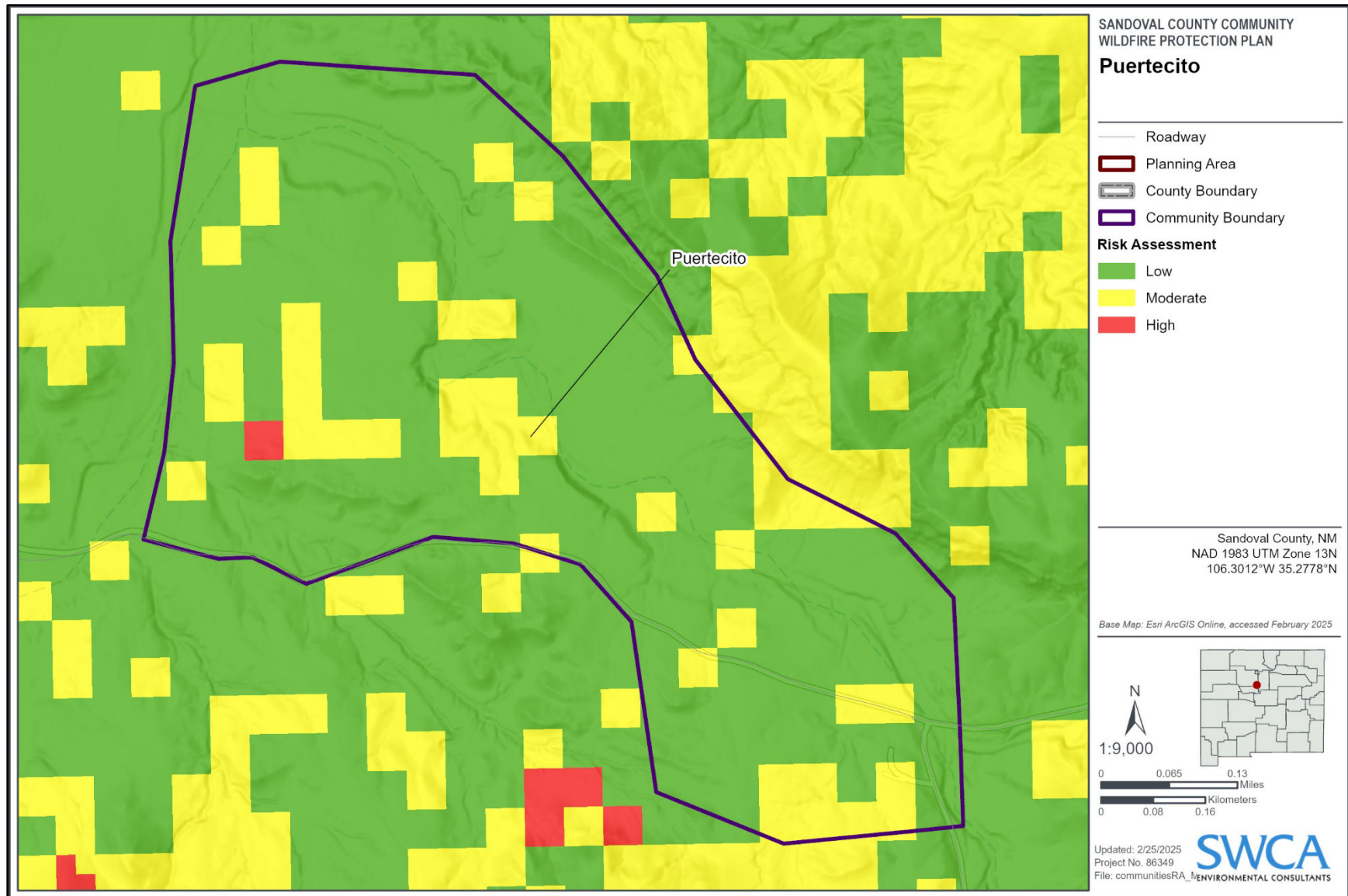


Figure C.39. Puertocito risk assessment.

FIRE STATION RESOURCES

Table C.2. Fire Station Resources (compiled with available data)

Fire Department Name	Town of Bernalillo Fire Rescue	Cochiti Fire Department
Station Number	141, 142	81, 82, 83
Fulltime firefighters	16	9
On-call firefighters	0	9
Volunteer firefighters	0	23
Water Tenders		
Type 1	0	0
Type 2	0	3
Type 3	0	0
Wildland Engines		
Type 1	0	2
Type 2	0	1
Type 3	0	1
Type 4	0	0
Type 5	0	0
Type 6	3	2
Type 7	1	0
Structure Engines		
Type 1	3	2
Type 2	0	2
Port-a-tanks	0	6
Portable pumps	3	5

Fire Department Name	Town of Bernalillo Fire Rescue	Cochiti Fire Department
Agreements with other fire response agencies	Automatic aid with Sandoval County Fire Rescue, mutual aid as needed/requested with several area departments and cooperator with the State Resources Management Plan.	Automatic aid with Sandoval County Fire Rescue, Joint Powers Authority with New Mexico State Forestry.
Suggested Needs	Current staffing is severely low and needs to be increased substantially.	
High-Risk Areas	The Bosque Area.	All communities are at risk due to ongoing drought conditions. WUI communities are also high-risk due to their rural location.

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APPENDIX D:

Funding Sources and Programs

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CONTENTS

Federal Funding Information D-1

State Funding Information D-8

Private Funding Information D-10

Other Funding Information..... D-12

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Note: In some cases, the following information is pulled verbatim from agency sources, and access to the original source is provided for each grant type.

FEDERAL FUNDING INFORMATION

Source: 2022 Infrastructure Investments and Jobs Act

Agency: Multiple

Website: <https://www.congress.gov/bill/117th-congress/house-bill/3684>

Eligible Applicants: Jurisdictions

Description: The Infrastructure Investments and Jobs act allocated funding through various departments for infrastructure projects including, but not limited to roads, bridges, and major projects; passenger and freight rail; highway and pedestrian safety; public transit; broadband; ports and waterways; airports; water infrastructure; power and grid reliability and resiliency; resiliency, including funding for coastal resiliency, ecosystem restoration, and weatherization; clean school buses and ferries; electric vehicle charging; addressing legacy pollution by cleaning up Brownfield and Superfund sites and reclaiming abandoned mines; and Western Water Infrastructure.

Specifically, the Community Wildfire Defense Grant Program (<https://www.fs.usda.gov/managing-land/fire/grants/cwdg>) is a \$1 billion program where the U.S. Department of Agriculture (USDA) will provide grants to communities at risk from wildfire to develop or revise their community wildfire protection plans and carry out projects described within those plans. It will include a mix of formula and competitive funds. This grant program will be available through 2027 (plus or minus) with applications periods opening each year typically in the summer and closing in the fall.

Section 40803 addresses wildfire risk reduction, Section 40804 deals with ecosystem restoration, Section 40806 handles the establishment of fuel breaks in forests and other wildland vegetation, and Section 70302 addresses reforestation. To learn more about the Act, please see the guidebook located here: <https://www.whitehouse.gov/build/guidebook/>.

Source: Building Resilient Infrastructure and Communities (BRIC) Grant Program

Agency: FEMA

Website: <https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>

Eligible Applicants: Local communities, tribes, and territories

Description: BRIC will support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. The BRIC program guiding principles are supporting communities through capability and capacity building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency. You can find more information on the BRIC program here:

<https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>

Source: Hazard Mitigation Grant Program (HMGP)

Agency: FEMA

Website: <https://www.fema.gov/grants/mitigation/hazard-mitigation>

Eligible Applicants: Local communities, tribes and territories

Description: The HMGP provides funding to state, local, tribal, or territorial governments (and individuals or businesses if the community applies on their behalf) to rebuild with the intentions to mitigate future losses due to potential disasters. This grant program is available after a presidentially declared disaster.

Source: Hazard Mitigation Grant Program (HMGP) – Post Fire

Agency: FEMA

Website: <https://www.fema.gov/grants/mitigation/post-fire>

Eligible Applicants: States, federally recognized tribes, and territories

Description: The HMGP Post Fire grant program provides assistance to communities for the purpose of implementing hazard mitigation measures following a wildfire or other major disaster. The program is intended to substantially improve communities' resilience to future disaster events, specifically wildfire. A cost-benefit analysis must be completed for all projects to ensure funding is cost-effective. Pre-calculated benefits are available for the following mitigation measures:

- Soil stabilization
- Flood diversion
- Reforestation

Source: Flood Mitigation Assistance Grant Program

Agency: FEMA

Website: <https://www.fema.gov/grants/mitigation/floods>

Eligible Applicants: States, territories, federally recognized tribes, local governments.

Description: The Flood Mitigation Assistance Grant Program is a competitive grant program that provides funding to states, local communities, federally recognized tribes, and territories. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program. FEMA chooses recipients based on the applicant's ranking of the project and the eligibility and cost-effectiveness of the project. The program will fund capacity building, planning, technical assistance, project scoping, and project implementation.

Source: Emergency Management Performance Grant

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/emergency-management-performance>

Eligible Applicants: State, local, tribal, and territorial emergency management agencies

Description: The Emergency Management Performance Grant program provides funding to state, local, tribal, and territorial emergency management agencies with aligning to the goals of FEMA's strategic plan. The three goals of the plan are to instill equity as a foundation of emergency management, lead whole of community in climate resilience, and promote and sustain a ready FEMA and prepared nation. The main objectives of the program are 1) closing capability gaps that are identified in the state or territory's most recent Stakeholder Preparedness Review; and 2) building or sustaining those capabilities that are identified as high priority through the Threat and Hazard Identification and Risk Assessment/Stakeholder Preparedness Review process and other relevant information sources. The grant recipient and Regional Administrator must come to an agreement on program priorities, which are crafted based on national, state, and regional priorities.

Source: Fire Management Assistance Grant

Agency: FEMA

Website: <https://www.fema.gov/assistance/public/fire-management-assistance>

Eligible Applicants: States, local and tribal governments

Description: The Fire Management Assistance Grant is available to state, local, and tribal governments for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster. The Fire Management Assistance declaration process is initiated when a state submits a request for assistance to the FEMA Regional Director at the time a "threat of major disaster" exists. The entire process is accomplished on an expedited basis and a FEMA decision is rendered in a matter of hours. Before a grant can be awarded, a state must demonstrate that total eligible costs for the declared fire meet or exceed either the individual fire cost threshold, which applies to single fires, or the cumulative fire cost threshold, which recognizes numerous smaller fires burning throughout a state. The program will fund field camps, tools and equipment, mobilization activities, and other materials, supplies, and other activities required as a result of a declared fire.

Source: Regional Catastrophic Preparedness Grants

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/regional-catastrophic>

Eligible Applicants: States, local and tribal governments

Description: The Regional Catastrophic Preparedness Grant program provides funding to increase collaboration and capacity in regard to catastrophic incident response and preparation. The program is focused on community-level resilience with an emphasis on disadvantaged communities. The program is intended to address planning gaps especially as they relate to housing, community resilience, readiness, and equity. Proposed projects must span an entire metropolitan area and should plan for and address long-term readiness through collaborations, workgroups, and community focused efforts.

Source: Emergency Forest Restoration Program (EFRP)

Agency: USDA Farm Service Agency

Website: <https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/emergency-forest-restoration/index>

Eligible Applicants: Owners of private forests (non-industrial)

Description: The Emergency Forest Restoration Program (EFRP) helps the owners of non-industrial private forests restore forest health damaged by natural disasters. The EFRP does this by authorizing payments to owners of private forests to restore disaster damaged forests. The local Farm Service Agency County Committee implements the EFRP for all disasters with the exceptions of drought and insect infestations. Eligible practices may include debris removal, such as down or damaged trees; site preparation, planting materials, and labor to replant forest stand; restoration of forestland roads, fire lanes, fuel breaks, or erosion control structures; fencing, tree shelters; wildlife enhancement.

To be eligible for EFRP, the land must have existing tree cover; and be owned by any non-industrial private individual, group, association, corporation, or other private legal entity. Landowners must check with their state's farm service agency for details on signing up for the program.

Source: Emergency Conservation Program

Agency: USDA Farm Service Agency

Website: <https://www.fsa.usda.gov/programs-and-services/conservation-programs/emergency-conservation/index>

Eligible Applicants: Farmers and ranchers

Description: The Emergency Conservation Program helps farmers and ranchers to repair damage to farmlands caused by natural disasters and to help put in place methods for water conservation during severe drought. The Emergency Conservation Program does this by giving ranchers and farmers funding and assistance to repair the damaged farmland or to install methods for water conservation. The grant could be used for restoring conservation structures (waterways, diversion ditches, buried irrigation mainlines, and permanently installed ditching system). Landowners must check with their states farm service agency for details on signing up for the program.

Source: Environmental Quality Incentives Program (EQIP)

Agency: Natural Resources Conservation Service (NRCS)

Website: <https://www.nrcs.usda.gov/programs-initiatives/eqip-environmental-quality-incentives>

Eligible Applicants: Farmers, ranchers, and forest landowners

Description: EQIP is a voluntary program authorized under the Agricultural Act of 2014 (2014 Farm Bill) that helps farmers, ranchers, and forest landowners who own or rent agricultural land to implement practices and/or install measures to protect soil, water, plant, wildlife, and other natural resources while ensuring sustainable production on their farms, ranches, and working forest lands.

Source: Emergency Watershed Protection (EWP) Program

Agency: NRCS

Website: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/>

Eligible Applicants: States, local and tribal governments

Description: The program offers technical and financial assistance to help local communities relieve imminent threats to life and property caused by floods, fires, windstorms, and other natural disasters that impair a watershed. No state or federal disaster designation is required, rather the NRCS can declare a local watershed emergency and sign a cooperative agreement with an eligible sponsor.

Eligible sponsors include cities, counties, towns, conservation districts, or any federally recognized Native American tribe or tribal organization. Interested public and private landowners can apply for EWP Program recovery assistance through one of those sponsors.

EWP Program covers the following activities.

- Debris removal from stream channels, road culverts, and bridges
- Reshape and protect eroded streambanks
- Correct damaged drainage facilities
- Establish vegetative cover on critically eroded lands
- Repair levees and structures
- Repair conservation practices

Source: Assistance to Firefighters Grants Program

Agency: U.S. Fire Administration (USFA)

Website: <https://www.usfa.fema.gov/a-z/grants/>

Eligible Applicants: Fire response agencies

Description: Includes grants and general information on financial assistance for fire departments and first responders. USFA administers three funding programs which include the Assistance to Firefighters Grant Program, Staffing for Adequate Fire and Emergency Response Grants, and Fire Prevention and Safety Grants.

Source: Tribal Environmental General Assistance Program

Agency: U.S. Environmental Protection Agency (EPA)

Website: <https://www.epa.gov/tribal/region-6-tribal-program>

Eligible Applicants: Tribal governments and intertribal consortia

Description: Funding under this program is used to assist tribes in planning, developing, establishing, and maintaining the capacity to implement federal environmental programs administered by the EPA and to assist in implementation of tribal solid and hazardous waste programs. Funding is primarily expected to assist tribes in developing core program capacity.

Source: Specific EPA Grant Programs

Agency: EPA

Website: <https://www.epa.gov/grants/specific-epa-grant-programs>

Eligible Applicants: State, local, and tribal governments, businesses, students, and more

Description: Various grant programs are listed under this site. Listed below are examples of grants offered:

- Multipurpose Grants to States and Tribes: <https://www.epa.gov/grants/multipurpose-grants-states-and-tribes>
- Environmental Education Grants: <https://www.epa.gov/education/grants>
- Environmental Justice Grants: <https://www.epa.gov/environmentaljustice/environmental-justice-grants-funding-and-technical-assistance>

Source: Conservation Innovation Grant (CIG)

Agency: NRCS

Website: <https://www.nrcs.usda.gov/programs-initiatives/cig-conservation-innovation-grants>

Eligible Applicants: Private landowners

Description: Within the overarching CIG program, the NRCS manages three separate funding opportunities; the national, state, and on-farm innovation programs. CIG is a competitive funding program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging federal investment in environmental enhancement and protection, in conjunction with agricultural production. CIG enables the NRCS to work with other public and private entities to accelerate technology transfer and adoption of promising technologies and approaches to

address some of the nation's most pressing natural resource concerns. CIG will benefit agricultural producers by providing more options for environmental enhancement and compliance with federal, state, and local regulations. The NRCS administers the CIG program. The CIG requires a 50/50 match between the agency and the applicant. The program will not fund activities or technology that are already commonly used in a region, including activities fundable through the EQIP program.

Source: Urban and Community Forestry Program

Agency: USFS

Website: <https://www.fs.usda.gov/managing-land/urban-forests/ucf>

Eligible Applicants: State agency, local government, Indian tribes, nonprofit organizations.

Description: USFS funding through the Urban and Community Forestry Program works with local communities to establish climate-resilient tree species to promote long-term urban forest health. The program will fund activities related to public education and engagement, protection and expansion of urban canopy, planning and assessment, capacity building and training, and cooperative partnership planning and coordination.

Source: Catalog of Federal Funding Sources; Land Resources

Agency: Multiple

Website: <https://ordspub.epa.gov/ords/wfc/f?p=165:512:10535656593775:::512::>

Eligible Applicants: Suitable applicants vary

Description: The Land Finance Clearing House is a catalog of federal funding sources for all things land related.

Examples of the types of grants found at this site are:

- Forest and Woodlands Resource Management Grant: https://sam.gov/fal/a798ad78cac749639b48270db3e86fdc/view?index=cfd&page=2&organization_id=100011100
- Environmental Education Grant: <https://www.epa.gov/education/grants>
- Public Assistance Grant Program: <https://www.fema.gov/assistance/public>

Source: Catalog of Federal Funding Sources; Water Resources

Agency: Multiple

Website: <https://ofmpub.epa.gov/apex/wfc/f?p=165:12:6483383318137:::12::>

Eligible Applicants: Suitable applicants vary

Description: The Water Finance Clearing House is a catalog of federal funding sources for all things water related.

An example of the type of grant found at this site is:

- Water Conservation Field Services Program: <https://www.usbr.gov/waterconservation/>

Source: NFPA Firewise USA™ Program

Agency: Multiple

Website: <http://www.firewise.org>

Description: Many different activities encouraged through the NFPA Firewise USA™ Program can help homes and whole neighborhoods become safer from wildfire without significant expense. Community cleanup days, awareness events, and other cooperative activities can often be successfully accomplished through partnerships among neighbors, local businesses, wildfire agencies, conservation districts, and local fire departments at little or no cost.

The kind of assistance needed will depend on specifics related to each individual community or neighborhood. Among the different activities that individuals and neighborhoods can undertake, the following often benefit from seed funding or additional assistance from an outside source:

- Thinning/pruning/tree removal/clearing on private property—particularly on very large, densely wooded properties
- Retrofit of home roofing or siding to noncombustible materials
- Managing private forest
- Community slash pickup or chipping
- Creation or improvement of access/egress roads
- Improvement of water supply for firefighting
- Public education activities throughout the community or region

Source: Staffing for Adequate Fire and Emergency Response (SAFER)

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/firefighters/safer>

Eligible Applicants: Fire departments and volunteer firefighter interest organizations

Description: The purpose of SAFER grants is to help fire departments increase the number of frontline firefighters. The goal is for fire departments to increase their staffing and deployment capabilities and ultimately attain 24-hour staffing, thus ensuring that their communities have adequate protection from fire and fire-related hazards. The SAFER grants support two specific activities: 1) hiring of firefighters and 2) recruitment and retention of volunteer firefighters. The hiring of firefighters activity provides grants to pay for part of the salaries of newly hired firefighters over the 5-year program.

Source: Fire Prevention and Safety (FP&S) Grants

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/firefighters/safety-awards>

Eligible Applicants: Firefighting agencies and fire safety project coordinators

Description: FP&S offers support to projects that enhance the safety of the public and firefighters who may be exposed to fire and related hazards. The primary goal is to target high-risk populations and mitigate high incidences of death and injury. Examples of the types of projects supported by FP&S include fire-prevention and public-safety education campaigns, juvenile fire-setter interventions, media campaigns, and arson prevention and awareness programs. In fiscal year 2005, Congress reauthorized

funding for FP&S and expanded the eligible uses of funds to include firefighter safety research and development.

Source: Federal Excess Personal Property

Agency: USFS

Website: <https://www.fs.usda.gov/managing-land/fire/fepp>

Eligible Applicants: State Forester and cooperators

Description: The Federal Excess Personal Property program refers to USFS-owned property that is on loan to State Foresters for the purpose of wildland and rural firefighting. Most of the property originally belonged to the Department of Defense. Once acquired by the USFS, it is loaned to State Cooperators for firefighting purposes. The property is then loaned to the State Forester, who may then place it with local departments to improve local fire programs. State Foresters and the USFS have mutually participated in the Federal Excess Personal Property program since 1956.

Source: Assistance to Firefighters Grants

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/firefighters>

Eligible Applicants: Fire departments and firefighting agencies

Description: The Assistance to Firefighters Grants program funds critically needed resources to equip and train emergency personnel, enhance efficiencies and support community resilience. Three FEMA lead programs fall under this grant series: the Assistance to Firefighters Grants, Staffing for Adequate Fire and Emergency Response, and Fire Prevention and Safety Grants.

Source: Community Wildfire Defense Grant

Agency: USFS

Website: <https://www.fs.usda.gov/managing-land/fire/grants>

Eligible Applicants: Units of local government, Indian tribes, nonprofit organizations, state forestry organizations.

Description: The Community Wildfire Defense Grant is a program aimed at assisting local communities and Tribes within the WUI in their planning efforts to reduce wildfire risk. The USFS intends to do this through the implementation of three goals from the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy). Included in these three goals is restoring and maintaining landscapes, creating fire-adapted communities, and improving wildfire response within the specific at-risk community. Grant funding of no more than \$250,000 will be awarded for the development and revision of CWPPs and no more than \$10 million will be awarded for the implementation of projects outline in CWPPs that are less than 10 years old.

STATE FUNDING INFORMATION

Source: New Mexico Fire Protection Grant

Agency: New Mexico Department of Homeland Security and Emergency Management

Website: <https://www.nmdhsem.org/state-firemarshal/fire-grant-council/#grant>

Description: The New Mexico Fire Protection Grant focuses on funding fire departments for various needs such as equipment, facilities/facility improvement, PPE, firefighting gear, apparatuses, and more. Two different grant programs are offered:

1. Fire departments currently certified and funded by the New Mexico State Fire Marshal's Office are eligible to apply for an **Individual Department Grant**.
2. County Administrative Offices having administrative responsibility for more than one district/department may apply for a **County-wide Project Grant** as long as each district within the County is compliant with the requirements of the grant application (i.e., Pump Tests, etc.). The countywide project must benefit all the departments within the County.
 - a. Note: A County Administrative Office applying for a grant does not prevent departments within the County from applying for an Individual Department Grant.

To learn more about the 2022–2023 program, see the informational fact sheet:

<https://www.nmdhsem.org/wp-content/uploads/2021/11/Eligibility-Requirements-and-Selection-Criteria-fy23-rel.pdf>

Source: New Mexico Association of Counties: Wildfire Risk Reduction Program

Agency: New Mexico Association of Counties

Website: <https://www.nmcounties.org/services/programs/>

Description: This program targets communities, tribes, counties, and non-profits who may be impacted by wildland fire initiating from, spreading from, or spreading to BLM lands. The Wildfire Risk Reduction Grant Program funds three categories of projects: development or updates of CWPPs, outreach and education, and hazardous fuels reduction. You can learn more about the 2022–2023 program here: <https://www.nmcounties.org/wp-content/uploads/2022/01/Wildfire-Risk-Reduction-Program-Information-Packet-2022-2023.pdf>

Source: House Bill 266: Forest and Watershed Restoration Act (FAWRA)

Agency: EMNRD Forestry Division

Website: <http://www.emnrd.state.nm.us/SFD/FAWRA.html>

Description: The Forest and Watershed Restoration Act (FAWRA) was created by House Bill 266 and signed into law by Governor Michelle Lujan Grisham on March 15, 2019. FAWRA allocates funding annually to EMNRD Forestry Division for the purpose of restoring forests and watersheds in the state of New Mexico. A Forest and Watershed Advisory Board has been established to evaluate and recommend projects, and EMNRD Forestry Division will administer, implement, and report on the projects. FAWRA funds can be used on public lands for on-the-ground restoration treatments; project planning; economic development programs to advance small-diameter trees and woody biomass; and workforce development for wood utilization projects. Applicants should contact their local District Forester (Sandoval County falls in the Bernalillo District). More information on funding is available here:

<http://www.emnrd.state.nm.us/SFD/documents/HB0266.pdf> and <https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/FAWRA-Guidelines-FY22-FINAL.pdf>.

PRIVATE FUNDING INFORMATION

Source: State Farm Good Neighbor Citizenship Grants

Agency: State Farm

Website: <https://www.statefarm.com/about-us/corporate-responsibility/community-grants/good-neighbor-citizenship-grants>

Description: State Farm funding is directed at:

- Auto and roadway safety
- Teen driver education
- Home safety and fire prevention
- Disaster preparedness
- Disaster recovery

Source: The Urban Land Institute (ULI)

Website: <http://www.uli.org>

Eligible Applicants: Municipal, county, state or federal government entities, nonprofit organizations, educational institutions

Description: ULI is a 501(c)(3) nonprofit research and education organization supported by its members. The institute has more than 22,000 members worldwide, representing the entire spectrum of land use and real estate development disciplines, working in private enterprise and public service. The mission of the ULI is to provide responsible leadership in the use of land to enhance the total environment. ULI and the ULI Foundation have instituted Community Action Grants that could be used for Firewise Communities activities. Applicants must be ULI members or part of a ULI District Council. Contact actiongrants@uli.org or review the web page to find your District Council and the application information.

Source: Environmental Systems Research Institute (Esri)

Website: <https://www.esri.com/en-us/grant-programs>

Eligible Applicants: Suitable applicants vary

Description: Esri is a privately held firm and the world's largest research and development organization dedicated to geographic information systems. Esri provides free software, hardware, and training bundles under Esri-sponsored grants that include such activities as conservation, education, and sustainable development, and posts related non-Esri grant opportunities under such categories as agriculture, education, environment, fire, public safety, and more. You can register on the website to receive updates on grant opportunities.

Source: National Forest Foundation; Innovative Finance for National Forests Grant Program

Website: <https://www.nationalforests.org/grant-programs/innovative-finance-for-national-forests-grant-program>

Eligible Applicants: Suitable applicants vary

Description: The Innovative Finance for National Forests Grant Program aims to bring in non-USFS funds to increase forest resilience. There are three main topics for funding: Wildfire Resilience and Recovery, Sustainable Recreation Access and Infrastructure, and Watershed Health. In addition, three types of projects are funded: pilot programs with on-the-ground implementation, scaling projects to deliver backlogs of unfunded work, and research and development to provide to new forest information.

Source: Matching Awards Program

Agency: National Forest Foundation

Website: <https://www.nationalforests.org/grant-programs/map>

Eligible Applicants: Nonprofit organizations, tribal governments and organizations, and universities

Description: The National Forest Foundation is soliciting proposals for its Matching Awards Program to provide funds for direct on-the-ground projects benefitting America's National Forests and Grasslands. By pairing federal funds provided through a cooperative agreement with the USFS with non-federal dollars raised by award recipients, the Matching Awards Program measurably multiplies the resources available to implement stewardship projects that benefit the National Forest System.

Source: Patagonia Environmental Grants and Support

Agency: Patagonia

Website: <https://www.patagonia.com/how-we-fund/>

Eligible Applicants: Suitable applicants vary

Description: Patagonia supports innovative work that addresses the root causes of the environmental crisis and seeks to protect both the environment and affected communities. Patagonia focuses on places where they have built connections through outdoor recreation and through their network of retail stores, nationally and internationally.

Source: Leonardo DiCaprio Foundation Grants

Agency: Leonardo DiCaprio Foundation

Website: <https://www.rewild.org/>

Eligible Applicants: Indigenous peoples, local communities, influential leaders, nongovernmental organizations, governments, companies

Description: The foundation supports projects around the world that build climate resiliency, protect vulnerable wildlife, and restore balance to threatened ecosystems and communities.

Source: U.S. Endowment for Forestry and Communities

Agency: EPA, NRCS, USFS, Department of Defense, U.S. Economic Development Agency

Website: <https://www.usendowment.org/>

Eligible Applicants: Suitable applicants vary based on program

Description: As the nation's largest public charity dedicated to keeping our working forests working and ensuring their bounty for current and future generations, the Endowment deploys the creativity and power of markets to advance their mission: The Endowment works collaboratively with partners in the public and private sectors to advance systemic, transformative and sustainable change for the health and vitality of the nation's working forests and forest-reliant communities. The endowment manages a variety of funding

programs with request for proposals released as funds are available. Programs include technical and financial assistance for forest health, restoration, and carbon crediting.

Source: Moore Foundation Wildfire Resilience Initiative

Agency: Gordan and Betty Moore Foundation

Website: <https://www.moore.org/article-detail?newsUrlName=moore-foundation-launches-new-wildfire-resilience-initiative>

Eligible Applicants: Suitable applicants vary

Description: The western United States has experienced a shift in wildfire a shift in wildfire behavior over the past century, with large, catastrophic fires raising in frequency. This is partially due to the historic mismanagement of wildfire, leading to fuel accumulation and disruptions in historic fire regimes. To combat this, the Moore Foundation plans on investing in new systems that will increase wildfire resiliency for fire-prone communities while promoting ecosystems health fire-adapted vegetation among other ecological co-benefits.

OTHER FUNDING INFORMATION

The following resources may also provide helpful information for funding opportunities:

- Western Forestry Leadership Coalition: <https://www.thewflc.org/>
- USDA Information Center: <https://www.nal.usda.gov/main/information-centers>
- USFS Fire Management website: <https://www.fs.usda.gov/managing-land/fire>
- Insurance Services Office Mitigation Online (town fire ratings): <http://www.isomitigation.com/>
- NFPA: <http://www.nfpa.org>
- National Interagency Fire Center (NIFC), Wildland Fire Prevention/Education: <https://www.nifc.gov/fire-information/fire-prevention-education-mitigation>
- USFA: <https://www.usfa.fema.gov/index.html>



APPENDIX E:

Home Hardening and Fuel Treatment Methods

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This appendix is included as a compilation of resources to provide guidance for the implementation of fuel treatments and home hardening.

“What most people think they know about fire is wrong. Typically, people consider wildfire as a thing rather than a process. A few years ago, a fire in Colorado was described as a “300-foot-high tsunami of flame.” **Fire doesn’t spread that way. It spreads only if specific ignition and combustion requirements are met, and unfortunately most homes meet those requirements. We pay more attention to visible flames — that tsunami — than we do to the principal structure ignition mechanism: burning embers.**”

- Jack Cohen (*Los Angeles Times* 2025)

HOME HARDENING

In 2025, New Mexico passed and signed Senate Bill 33 (SB 33), the “Wildfire Prepared Act.” The primary purpose of SB 33 is to enhance wildfire preparedness and reduce the risk of wildfires through the establishment of the [Wildfire Prepared Program](#) and the Wildfire Prepared Fund. Homes and properties that receive certification for meeting wildfire preparedness standards may benefit from reduced home insurance premiums. In essence, this bill aims to incentivize homeowners to take proactive measures in wildfire preparedness, potentially leading to financial benefits through home insurance savings. Homeowners are therefore encouraged to follow guidance and standards set forth in the Wildfire Prepared Program.

The primary focus for creating a defensible space should be your home. To safeguard your home from embers during wildfires, it is crucial to recognize that exterior vegetation is not the sole source of fuel for these embers. All homeowners, regardless of their abilities, have the capacity to access resources to harden their homes. Wildfires can spread between structures and wildland vegetation or from structure to structure. Houses that are close together may find that hardening their home is the most effective option if there aren’t options to manage exterior vegetation. Fortifying or retrofitting your home serves as a strong defense against ember intrusion. Starting protection measures from the house outward, using appropriate materials, regular maintenance, and attention to small details that may expose the home to embers are emphasized for effective wildfire preparedness (Sustainable Defensible Space 2024; UCANR 2024).

For more information and additional components surrounding home hardening activities for increasing wildfire resilience, reducing structural ignitability, and preparing for wildfires, please visit: <https://wildfireprepared.org/> or any of the resources described below.

Ready.gov: This webpage provides comprehensive information and resources on preparing for, staying safe during, and recovering from wildfires. It covers various aspects such as recognizing warnings and alerts, making emergency plans, strengthening homes, knowing evacuation zones, gathering supplies, and staying safe during wildfire events. Additionally, it offers guidance on returning home after a wildfire and provides additional resources such as videos, social media toolkits, and links to related organizations.

Link: <https://www.ready.gov/wildfires>

NM EMNRD Fire Prevention Programs: This webpage outlines the efforts of EMNRD to enhance community wildfire resilience and preparedness. It emphasizes the importance of adapting to and preparing for wildfires. The pages provide key resources for homeowners and landowners to mitigate

wildfire risks, including access to educational materials. Contact information for EMNRD representatives involved in wildfire prevention can also be accessed from the webpage.

Link: <https://www.emnrd.nm.gov/sfd/fire-prevention-programs/>

Fire-Resistant Plants for Home Landscapes: These two guides offer valuable information on selecting fire-resistant plants for landscaping in New Mexico. They emphasize the importance of maintaining defensible space around homes. The guides provide practical advice on factors to consider when choosing plants, such as elevation, climate, sunlight and water requirements, plant height, and time of blooms. The purpose of the publication is to educate homeowners, businesses, and landscapers about landscaping techniques to reduce the risk of wildfire damage and provide examples of fire-resistant plant species suitable for the region.

Link: <https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/FireWisePlantMaterialsNMSU.pdf>

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

Ready, Set, Go! The Ready, Set, Go! Program aims to empower fire departments to engage with residents in wildfire community risk reduction. It provides free tools and resources for fire departments to help residents understand their wildfire risk and take actions to mitigate it. By collaborating with Firewise USA and other wildfire education efforts, the program amplifies preparedness messages to create fire-adapted communities. Managed by the International Association of Fire Chiefs, the program offers free membership with benefits such as printed action guides, Go Bags, grant funding eligibility, and training.

Link: https://www.wildlandfirersg.org/s/?language=en_US

Fire Adapted NM Resident and Community Resources: This website outlines how to prepare for, respond to, and recover from a wildfire. It covers various aspects, including wildfire basics, evacuation procedures, defensible space and fire-resistant materials, emergency notifications, personal and property protection, and post-wildfire safety measures. It emphasizes the importance of proactive planning, such as creating defensible space around properties, knowing evacuation routes, staying informed about weather conditions, and having emergency supplies ready. Additionally, it provides resources for further information and assistance, ensuring individuals and communities are well-equipped to mitigate wildfire risks and manage wildfire incidents effectively.

Link: <https://facnm.org/residentresources>

Disaster Safety: Prepare for Wildfire: The page provides information about various projects aimed at helping home and business owners protect their properties from damage caused by natural disasters, including wildfires. These projects cover topics such as maintaining defensible space, inspecting, and maintaining roofs, fire-resistant landscaping, and guidance for farms and ranches.

Link: <https://disastersafety.org/wildfire/>

National Significant Wildland Fire Potential Outlook: The National Significant Wildland Fire Potential Outlook provides a comprehensive forecast of fire potential across different geographic areas in the United States. It amalgamates predictions from various predictive services units to offer insights into the likelihood of significant wildfire activity. The outlook considers factors such as recent fire activity, precipitation patterns, temperature trends, and drought conditions to assess the potential fire risk. By analyzing these factors, the outlook aims to assist fire management agencies and policymakers in planning and allocating resources for wildfire prevention and suppression efforts.

Link: <https://www.nifc.gov/nicc/predictive-services/outlooks>

COMPONENTS FOR REDUCING IGNITABILITY

Roof

The roof is identified as the most vulnerable component during wildfires, requiring resistance to windblown embers and other exposures. Complex roofs present additional vulnerabilities. Evaluating the vulnerability of the roof is emphasized for new homes or remodeling projects, with proper maintenance being critical to reduce the ignition risk. It is important to install a Class A roof covering and address gaps between covering and sheathing, chimney protection, and proper installation instructions (Sustainable Defensible Space 2024).

Upgrading an existing structure's roof with Class A rated material is recommended. Blocking spaces between roof decking and covering chimneys with noncombustible screens are essential measures. Regular maintenance and professional inspections play key roles in ensuring a home's resilience to ember intrusion and wildfire exposures (Sustainable Defensible Space 2024).

Gutters

Dry debris, when ignited by embers, can lead to flames reaching the roof edge and adjacent siding, even with Class A fire-rated roof coverings. Installing noncombustible leaf guards over gutters, using noncombustible materials for gutters and downspouts (such as galvanized steel, copper, and aluminum), and incorporating a drip edge are all recommended actions to minimize ignitability. The drip edge serves the dual purpose of protecting the roof edge from flaming exposures and minimizing ember entry into roof undersides by blocking gaps between the roof sheathing and the top of the fascia. In upgrading construction, the same measures are recommended (Sustainable Defensible Space 2024).

Vents

Roof vents, vital for attic air circulation and moisture control, are highly vulnerable to flames and embers. While shutters and metal screens help prevent ember entry, they don't fully protect against wildfire-generated hot gases. Additional protection involves considering fire dampers in HVAC ducts, which automatically close in high heat. Addressing vent vulnerabilities is crucial for fire resistance in new construction. For existing construction, reducing vulnerability to wildfires and embers requires retrofitting the structure to reflect the above measure (Sustainable Defensible Space 2024).

Walls, Sidings, Coatings

Exterior walls are vulnerable to direct flames, conductive heat, and radiant heat. Solid wood and wood composite wall coverings can ignite leading to fire potentially spreading to other components and causing substantial damage. Windborne embers and firebrands are common ignition sources trapped in wall cracks. Recommended materials include concrete, fiber-cement panels, pressure-impregnated fire-retardant treated wood, traditional stucco, masonry, and metals. Materials to avoid are non-treated wood siding, vinyl siding, metal siding susceptible to warping. Creating a 6-inch noncombustible area at the siding base minimizes ignition risk. For upgraded construction, using nonflammable materials to replace current coverings, and removing combustible debris in proximity to exterior walls on a regular basis are both recommended (Sustainable Defensible Space 2024).

Windows

Windows, sliding glass doors, and skylights play a crucial role in preventing the ignition of a home's interior due to windborne embers, hot gases, and radiant heat. The recommendations for new constructions include using tempered glass with low-e coatings or proprietary reflective coatings, insulated glazing units (IGU), and solid metal frames. Exterior window shutters are advised for added protection, particularly solid metal shutters. Dome skylights are preferred for low-slope roofs, while flat skylights on steep-slope roofs should feature dual-pane systems. When upgrading existing construction, it is essential to replace susceptible windows, door vision panels sliding glass doors, and skylight with fire-resistant materials in accordance with the previously mentioned recommendations (Sustainable Defensible Space 2024).

Doors

Safeguarding exterior doors, including garage doors, against ember intrusion or radiant heat is crucial in wildfire zones. Fire-rated doors with a solid, noncombustible mineral core are recommended. Installing adjustable weatherstripping and an automatic door bottom or threshold weatherstripping enhances protection. Insulated, metal garage doors with tested weatherstripping and noncombustible exterior trim further fortify the structure (Sustainable Defensible Space 2024).

When upgrading existing construction, reinforcing existing doors, adding weatherstripping, replacing vision panels, upgrading sliding glass doors and replacing wooden garage doors, is recommended to increase the resilience of the home's openings and reduce heat transmission (Sustainable Defensible Space 2024).

Fences and Decks

Fences and decks pose varying fire risks and play a crucial role due to their proximity to house siding, windows and sliding doors. Combustible materials can fuel wildfires, while plastic and metal offer better resistance and help to better minimize risks. A metal plate at the fence-wall connection is suggested, but long-term moisture-related issues may arise. Considerations for increased fire safety include keeping combustible components at a distance and avoiding fences with gaps careful vegetation selection and regular maintenance are emphasized. It's also crucial to avoid storing combustible materials beneath the deck. For upgrading construction, ensure that the precautions are made to following the above recommendations and ensure that materials used follow up to date building codes (Sustainable Defensible Space 2024).

Landscaping

Landscaping is an important consideration for homeowners, especially those located in the WUI. In addition to preparing your home in accordance with the hazard ignition zone recommendations, when possible, homeowners should design and maintain landscaping that can bolster defensible space. This includes utilizing vegetation that is fire resistant and planning landscaping with mature sizing and appropriate spacing in mind. No vegetation is 100% fire resistant, but considering desired climate and soil conditions, plant height and spread, and other growth requirements can help in developing a fire-resilient landscape around your home.

The NM EMNRD, in coordination with New Mexico State University and the USDA, have developed a guide for choosing plants with the intention of creating fire-resistant landscaping. The guide is specific to

New Mexico landscapes and provides a valuable perspective and methodology for choosing landscaping through a fire resilience lens.

Fire Wise Plant Materials is available at the following link: <https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/FireWisePlantMaterialsNMSU.pdf>

FUELS TREATMENT SCALES AND METHODS

Defensible Space

Defensible space is perhaps the fastest, most cost-effective, and most efficacious means of reducing the risk of loss of life and property. Although fire agencies can be valuable in providing guidance and assistance, creating defensible space is the responsibility of the individual homeowner (Figure E.1). The Casualty Actuarial Society compared the impact of individual and community-level mitigation on individual homeowner risks. They found that “the model indicates that all mitigation measures reduce the individual risk, but individual home mitigation – which individual homeowners’ control – can have a bigger impact than any community mitigation alone” (Casualty Actuarial Society 2023).

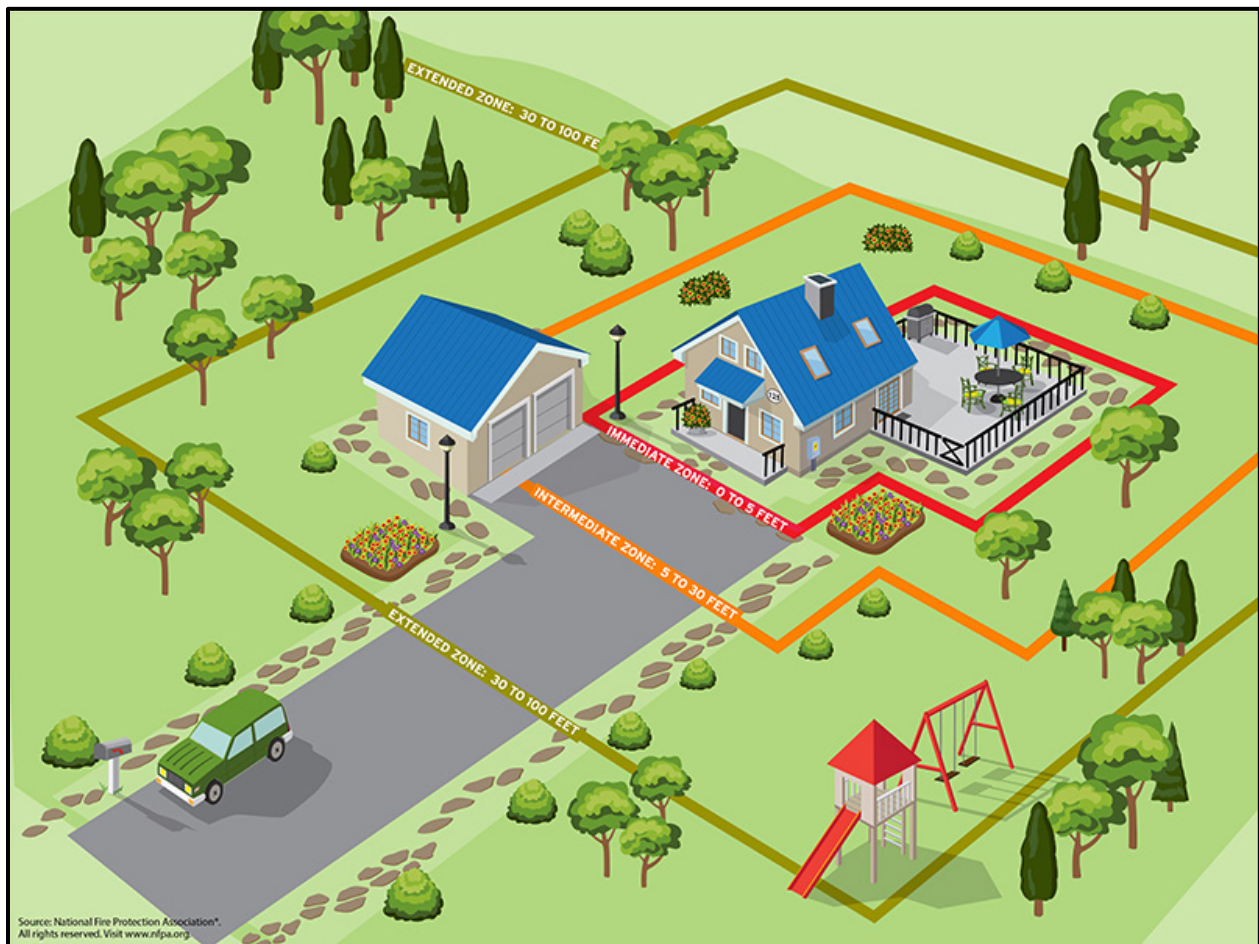


Figure E.1. Defensible space zones providing clearance between a structure and adjacent woodland or forest fuels.

Source: NFPA (2022)

Effective defensible space consists of creating an essentially fire-free zone adjacent to the home, a treated secondary zone that is thinned and cleaned of surface fuels, and (if the parcel is large enough) a transitional third zone that is basically a managed forest area (see Figure E.1). These components work together in a proven and predictable manner. Zone 1 keeps fire from burning directly to the home; Zone 2 reduces the adjacent fire intensity and the likelihood of torching, crown fire, and ember production; and Zone 3 does the same at a broader scale, keeping the fire intensity lower by maintaining a more natural, historic condition (see Figure E.1). Three zones for defensible space actions are described as general recommendations for homeowners. However, it is encouraged to seek out site-specific recommendations from local wildfire experts. Experts can assess homes on an individual basis to maximize the quantity of native vegetation maintained and preserved in an area while still creating an area of defensible space for fire mitigation.

The three general zones include:

Zone 1: Immediate Zone This zone, which consists of an area of 0 to 5 feet around the structure, is designed to prevent flames from coming in direct contact with the structure. Use nonflammable, hard surface materials in this zone, such as rock, gravel, sand, cement, bare earth or stone/concrete pavers.

Recommendations for treating Zone 1 include (NFPA 2022):

- Remove all flammable vegetation, including shrubs, slash, mulch and other woody debris.
- Do not store firewood or other combustible materials inside this zone.
- Prune tree branches hanging over the roof or decks and remove all fuels within 10 feet of the chimney.
- Regularly remove all pine needles and other debris from the roof, deck, and gutters.
- Rake and dispose of pine needles, dead leaves, mulch, and other organic debris within 5 feet of all decks and structures. Farther than 5 feet from structures, raking material will not significantly reduce the likelihood of ignition and can negatively affect other trees.
- Do not use space under decks for storage.

Zone 2: Intermediate Zone This zone, which consists of an area of 5 to 30 feet around the structure, is designed to give an approaching fire less fuel, which will help reduce its intensity as it gets nearer to your home or any structures.

Recommendations for treating Zone 2 include (NFPA 2022):

- Mow grasses to 4 inches tall or less.
- Avoid large accumulations of surface fuels such as logs, branches, slash, and mulch.
- Remove enough trees to create at least 10 feet* of space between crowns. Measure from the outermost branch of one tree to the nearest branch on the next tree.
- Small groups of two or three trees may be left in some areas of Zone 2. Spacing of 30 feet* should be maintained between remaining tree groups to ensure fire doesn't jump from one group to another.
- Remove ladder fuels under remaining trees. This is any vegetation that can bring fire from the ground up into taller fuels.

- Prune tree branches to a height of 6 to 10 feet from the ground or a third of the total height of the tree, whichever is less.
- Remove stressed, diseased, dead, or dying trees and shrubs. This reduces the amount of vegetation available to burn and improves forest health.
- Common ground junipers should be removed whenever possible because they are highly flammable and tend to hold a layer of flammable material beneath them.
- You can keep isolated shrubs in Zone 2, as long as they are not growing under trees. Keep shrubs at least 10 feet* away from the edge of tree branches.
- Periodically prune and maintain shrubs to prevent excessive growth. Remove dead stems annually.
- Spacing between clumps of shrubs should be at least 2 1/2 times* their mature height. Each clump should have a diameter no more than twice the mature height of the vegetation.
Example: For shrubs that grow 6 feet tall, space clumps 15 feet apart or more (measured from the edge of the crowns of vegetation clumps). Each clump of these shrubs should not exceed 12 feet in diameter.

* Horizontal spacing recommendations are minimums and can be increased to reduce potential fire behavior, particularly on slopes. Consult a forestry, fire, or natural resource professional for guidance with spacing on slopes.

Zone 3: Extended Zone This zone, which consists of an area of 30 to 100 feet around the structure, focuses on mitigation that keeps fire on the ground, but it is also a space to make choices that can improve forest health. Healthy forests include trees of multiple ages, sizes, and species, where adequate growing room is maintained over time. If the distance of 100 feet to the edge of Zone 3 stretches beyond your property lines, it is encouraged to work with adjoining property owners to complete an appropriate defensible space. If your house is on steep slopes or has certain topographic considerations, this zone may be larger.

Recommendations for treating Zone 3 include (NFPA 2022):

- Mowing grasses is not necessary in Zone 3.
- Watch for hazards associated with ladder fuels. The chance of a surface fire climbing into the trees is reduced in a forest where surface fuels are widely separated, and low tree branches are removed.
- Tree crown spacing of 6 to 10 feet is suggested. Consider creating openings or meadows between small clumps of trees so fire must transition to the ground to keep moving.
- Where practical, prune tree branches to a height of 6 to 10 feet from the ground or a third of the total height of the tree, whichever is less.
- Any approved method of slash treatment is acceptable in this zone, including removal, piling and burning, lop and scatter, or mulching. Lop-and-scatter or mulching treatments should be minimized in favor of treatments that reduce the amount of woody material in the zone. The farther this material is from the home, the better.

Please see the figures below for a visual representation of minimum horizontal (Figure E.2) and vertical spacing (Figure E.3), as well as spacing on slopes (Figure E.4).

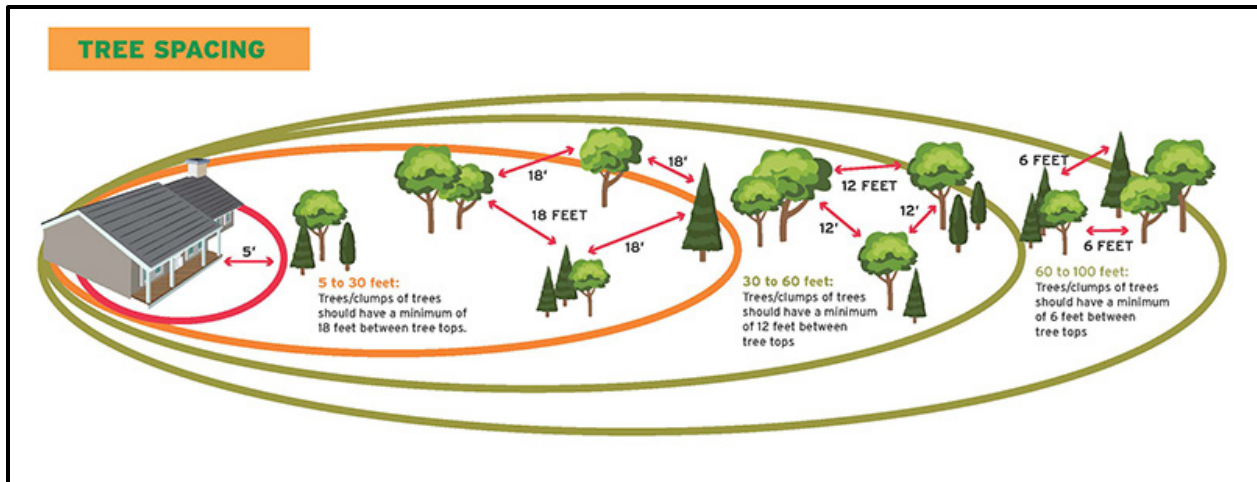


Figure E.2. Recommended tree spacing.

Source: NFPA (2022)



Figure E.3. Recommended minimal vertical clearance.

Source: CAL FIRE (2022)

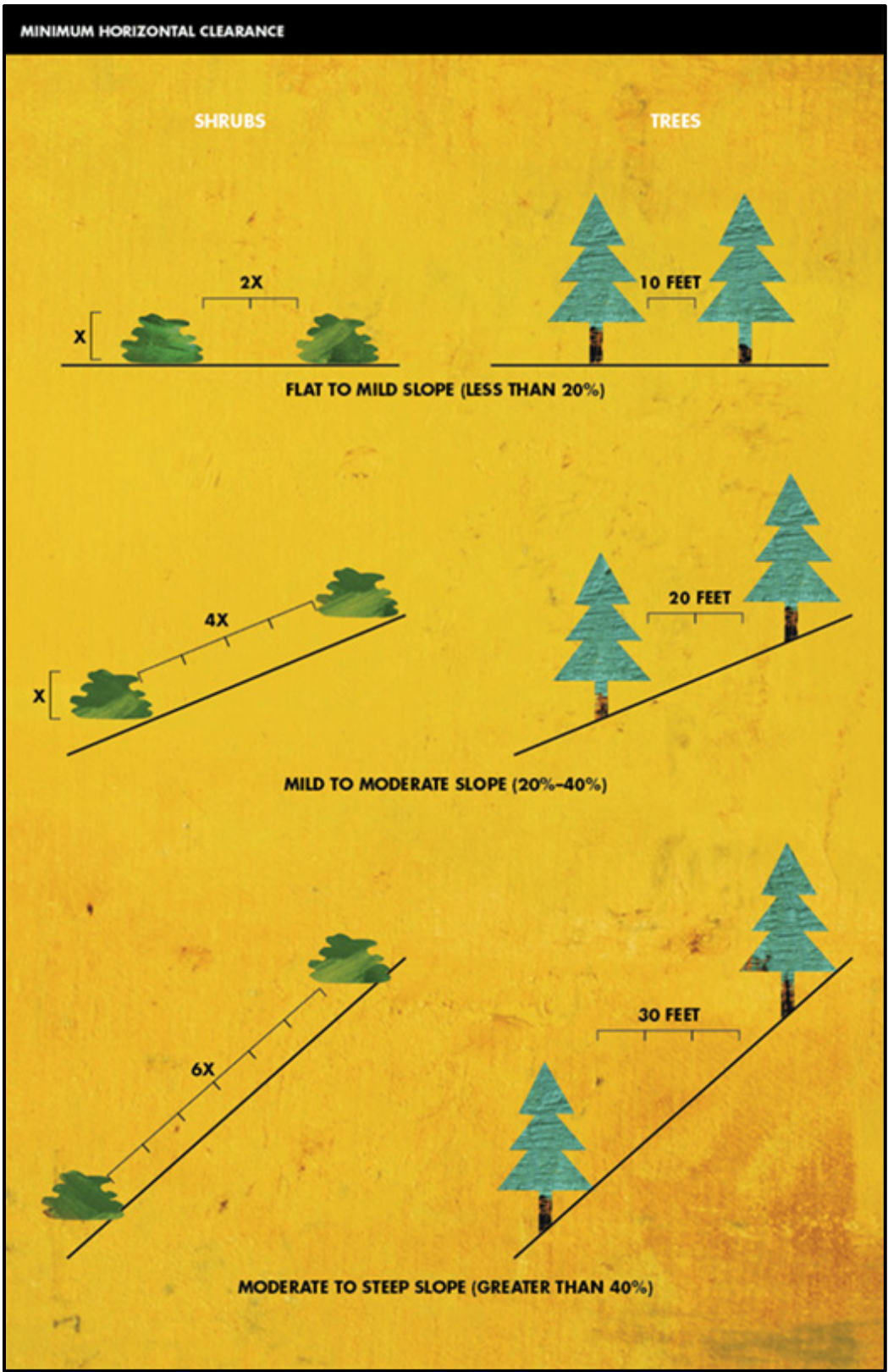


Figure E.4. Minimum horizontal clearance.

Source: CAL FIRE (2022)

It is crucial to underscore the significance of tailoring wildfire mitigation strategies to specific sites. While general recommendations provide valuable guidance, this plan emphasizes the importance of seeking insights from local wildfire experts to identify site-specific measures. This approach ensures a more targeted and effective mitigation strategy, accounting for the unique characteristics and risks of each location. By engaging with local experts, the community can enhance its resilience to wildfires and create a safer environment for residents.

Specific recommendations should be based on the hazards adjacent to a structure such as slope steepness and fuel type. Firewise guidelines are excellent resources but creating defensible space does not have to be an overwhelming process. The NFPA offers a free [Community Wildfire Risk Assessment Tutorial](#) and an online learning module: [Understanding the Wildfire Threat to Homes](#). Both tools are great resources for learning about, and implementing, defensible space.

Home Hardening and the Home Ignition Zone

This topic is best addressed via the Jack Cohen video “Your Home Can Survive a Wildfire” found here: https://www.youtube.com/watch?v=vL_syp1ZScM

Homeowners should consider ways to assist neighbors that may not be physically able to do the work themselves, have the tools to do the work, the funds to do the work, or are not physically present to do the work. Homeowner actions have been found to also motivate neighbors to act, increasing the scope of wildfire mitigation across a community (Evans et al. 2015). Adopting a phased approach can make the process more manageable and encourage maintenance (Table E.1). The more neighbors can work together to be better prepared for wildfire, the more resilient the neighborhood will be as a whole.

Table E.1. Example of a Phased Approach to Mitigating Home Ignitability

Year	Project	Actions
1	Basic yard cleanup (annual)	Dispose of clutter in the yard and under porches. Remove dead branches from yard. Mow and rake. Clean off roofs and gutters. Remove combustible vegetation near structures. Coordinate disposal as a neighborhood or community. Post 6-inch reflective address numbers visible from road.
2	Understory thinning near structures	Repeat basic yard cleanup. Limb trees up to 6–10 feet. Trim branches back 15 feet from chimneys. Trim or cut down brush. Remove ladder fuels that can carry fire into forest canopy. Coordinate disposal as a neighborhood or community.
3	Understory thinning on private property along roads and drainages	Limb trees up to 6–10 feet. Trim or cut down brush. Remove ladder fuels that can carry fire into forest canopy. Coordinate disposal as a neighborhood or community.
4	Overstory treatments on private property to improve forest health and wildfire resilience	Evaluate the need to thin mature or diseased trees. Prioritize and coordinate tree removal within neighborhoods to increase cost-effectiveness.

Year	Project	Actions
5	Restart defensible space treatment cycle	Continue the annual basic yard cleanup. Evaluate need to revisit past efforts or catch those that were bypassed.

Fuel Breaks and Open Space Cleanup

The next location priority for fuels treatments should be where the community meets wildland. This may be the outer margins of a town or an area adjacent to occluded open spaces such as a park. Fuel breaks (also known as shaded fuel breaks) are strips of land where fuel (for example, living trees and brush, dead branches, leaves or downed logs) has been modified or reduced to limit the fire's ability to spread rapidly. Fuel breaks should not be confused with firebreaks, which are areas where vegetation and organic matter are removed down to mineral soil. Shaded fuel breaks may be created to provide options for suppression resources or to provide opportunities to introduce prescribed fire. In many cases, shaded fuel breaks may be created by thinning along roads. This provides access for mitigation resources and firefighters, as well as enhancing the safety of evacuation routes.

Larger-Scale Treatments

Farther away from WUI communities, the emphasis of treatments often becomes broader. While reducing the buildup of hazardous fuels remains important, other objectives are often included, such as forest health and resiliency to catastrophic wildfire and climate change considerations. Wildfires frequently burn across jurisdictional boundaries, sometimes on landscape scales. As such, these larger treatments need to be coordinated on a strategic level. This requires coordination between projects and jurisdiction, as is currently occurring.

FUEL TREATMENT METHODS

Since specifics of the treatments are not provided in detail in Table E.1, different fuels reduction methods are outlined in the following narrative.

Several treatment methods are commonly used for hazardous fuels reduction, including manual treatments, mechanized treatments, prescribed fire, and grazing (Table E.2). This brief synopsis of treatment options is provided for general knowledge; specific projects will require further planning. The appropriate treatment method and cost will vary depending on factors such as the following:

- Diameter of materials
- Proximity to structures
- Acreage of project
- Fuel costs
- Steepness of slope
- Area accessibility
- Density of fuels
- Project objectives

It is imperative that long-term monitoring and maintenance of all treatments is implemented. Post-treatment rehabilitation such as seeding with native plants and erosion control may be necessary. In addition, post-treatment fuel cleanup is a must as neglected piles of vegetation may result in increased fire risk.

Table E.2. Summary of Fuels Treatment Methods

Treatment	Comments
Machine mowing	Appropriate for large, flat, grassy areas on relatively flat terrain.
Manual treatment with chipping or pile burning	Requires chipping, hauling, and pile burning of slash in cases where lop and scatter is inappropriate. Pile burning must comply with smoke management policy.
Brush mastication	Brush species tend to re-sprout vigorously after mechanical treatment. Frequent maintenance of treatments is typically necessary. Mastication tends to be less expensive than manual (chainsaw) treatment and eliminates disposal issues.
Timber mastication	Materials up to 10 inches in diameter and slopes up to 30% can be treated. Eliminates disposal issues. Environmental impact of residue being left on-site is still being studied.
Prescribed fire	Can be very cost-effective for public land but not close to the city. Ecologically beneficial. Can be used as training opportunities for firefighters. May require manual or mechanical pretreatment. Carries risk of escape. Unreliable scheduling due to weather and smoke management constraints.
Feller buncher	Mechanical treatment on slopes more than 30% or of materials more than 10 inches in diameter may require a feller buncher rather than a masticator. Costs tend to be considerably higher than masticator.
Targeted grazing (e.g., goats)	Can be cost-effective. Ecologically beneficial. Can be applied on steep slopes and shrubby and flashy fuels. Requires close management.

MANUAL TREATMENT

Manual treatment refers to crew-implemented cutting with chainsaws. Although it can be more expensive than mechanized treatment, crews can access many areas that are too steep or otherwise inaccessible with machines. Treatments can often be implemented with more precision than prescribed fire or mechanized methods allow. Merchantable materials and firewood can be removed while non-merchantable materials are often lopped and scattered, chipped, or piled and burned on-site. Care should be exercised to not increase the fire hazard by failing to remove or treat discarded material in a site-appropriate manner.

Strategic timing and placement of fuels treatments is critical for effective fuels management practices and should be prescribed based on the conditions of each treatment area. Some examples of this would be to place fuel breaks in areas where the fuels are heavier and in the path of prevailing winds and to mow grasses just before they cure and become flammable. Also, fuel reductions on slopes/ridgelines

extending from the WUI enhance community protection. In areas where the vegetation is sparse and not continuous, fuels treatments may not be necessary to create a defensible area where firefighters can work. In this situation, where the amount of fuel to carry a fire is minimal, it is best to leave the site in its current condition to avoid the introduction of exotic species.

MECHANIZED TREATMENTS

Mechanized treatments include mowing, mastication (ground-up timber), and whole tree felling. These treatments allow for more precision than prescribed fire and are often more cost-effective than manual treatment.

Mowing, including ATV and tractor-pulled mower decks, can effectively reduce grass fuels adjacent to structures and along highway rights-of-way and fence lines. For heavier fuels, several different masticating machines can be used, including drum- or blade-type masticating heads mounted on machines and ranging in size from a small skid-steer to large front-end loaders. Some masticators can grind standing timber up to 10 inches in diameter. Other masticators are more effective for use in brushes or surface fuels. Mowing and mastication do not actually reduce the amount of on-site biomass but alter the fuel arrangement to a less combustible profile.

In existing fuel break areas maintenance is crucial especially in areas of encroaching shrubs or trees. In extreme risk areas more intensive fuels treatments may be necessary to keep the fire on the ground surface and reduce flame lengths. Within the fuel break, shrubs should be removed, and the branches of trees should be pruned from the ground surface to a height of 4 to 8 feet, depending on the height of the fuel below the canopy, and thinned with a spacing of at least two to three times the height of the trees to avoid movement of an active fire into the canopy.

Mechanical shears mounted on feller bunchers are used for whole tree removal. The stems are typically hauled off-site for utilization while the limbs are discarded. The discarded material may be masticated, chipped, or burned in order to reduce the wildfire hazard and to speed the recycling of nutrients.

GRAZING

Fuel modifications targeted toward decreasing both vertical and horizontal continuity in fuels is critical as a prevention method against fire proliferation. The primary objectives for these modifications are treating surface fuels and producing low-density and vertically disconnected stands. Goat grazing is an effective, nontoxic, nonpolluting, and practically carbon-neutral vegetation treatment method. A goat grazing system typically consists of a high density of goats enclosed by a metallic or electrified fence guided by herders. Goats feed on a variety of foliage and twigs from herbaceous vegetation and woody plants (Lovreglio et al. 2014).

PRESCRIBED BURNING

Prescribed burning is also a useful tool to reduce the threat of extreme fire behavior by removing excessive standing plant material, litter, and wood debris while limiting the encroachment of shrubby vegetation. Where possible, prescribed fire could occur on public land since fire is ecologically beneficial to this fire-adapted vegetation community and wildlife habitat.

All prescribed fire operations will be conducted in accordance with federal and state laws and regulations. Public safety would be the primary consideration in the design of any prescribed burn plan to not

negatively impact the WUI. Agency use of prescribed fire on public land would be carried out within the confines of the agency's fire management planning documents and would require individual prescribed burn plans that are developed for specific burn units and consider smoke management concerns and sensitive receptors within the WUI. Smoke monitors could be placed in areas where smoke concerns have been raised in the past.

Following any type of fuels reduction treatment, post-treatment monitoring should continue to ensure that management actions continue to be effective throughout the fire season. The vegetation within this ecosystem can change rapidly in response to drought or moisture from year to year and during the course of the season, so fuels treatments should be adjusted accordingly. To learn more about firing techniques, visit the EFIRE Fire Techniques webpage: <https://efire.cnr.ncsu.edu/efire/fire-techniques/>.

A maintenance plan outlining a burn schedule may be needed to meet full resource management objectives.

Cultural Burning

Within the Southwest, fire has historically been a means forest management and restoration by Indigenous communities for thousands of years (Raish et al. 2005). Although cultural burning is included under the umbrella of prescribed burns, it holds a different meaning and has more purposes than a typical prescribed burn (Fire Adapted Communities New Mexico [FACNM] 2021). Cultural burns are “pertinent and substantial to the cultural livelihood” with over 70 identified purposes (FACNM 2021).

Cultural burning has been defined as the “purposeful use of fire by a cultural group (e.g., family unit, tribe, clan/moiety, society) for a variety of purposes and outcomes,” and is included under the terms Indigenous fire management, Indigenous burning, and Indigenous stewardship (Long et al. 2021). Indigenous communities in northern New Mexico are reintegrating this practice into the landscape (Fire Networks 2024).

Rather than focusing solely on fuel reduction, or as a means of wildfire mitigation, cultural burning is done with a more holistic view where burns are conducted as a means of restoring the ecosystem inclusive of the cultural benefits a healthy ecosystem provides. Cultural burning is typically performed with a variety of objectives, such as landscape resilience, ecosystem and species biodiversity and health, transmission of environmental and cultural knowledge, ceremonies and spiritual well-being, and increasing the ability of the ecosystem to offer materials (i.e., food, medicine, basketry, etc.) (Schelenz 2022). Extensive site preparation is typically done before a burn, and post-burn monitoring and additional cultural practices are a common factor of the land stewardship tradition (Long et al. 2021).

Impacts of Prescribed Fire on Communities

Managing smoke from prescribed fires is an important part of planning for prescribed burning. Smoke from burning vegetation produces air pollutants that are regulated by both the U.S. Environmental Protection Agency (EPA) and the State of New Mexico. Therefore, effective smoke management is a vital component of planning and conducting prescribed fires. The New Mexico Environment Department, Air Quality Bureau has outlined smoke management guidelines within the New Mexico Smoke Management Program Guidance Document to protect the health and welfare of New Mexicans from the impacts of smoke (New Mexico Environment Department, Air Quality Bureau 2005). In addition, the New Mexico Environment Department offers a webpage specifically for wildfire and prescribed fire smoke resources: <https://www.env.nm.gov/air-quality/fire-smoke-links/>.

In addition, the NWCG released the NWCG Smoke Management Guide for Prescribed Fire in 2020 (NWCG 2020). This plan is designed to act as a guide to all those who use prescribed fire. Smoke management techniques, air quality regulations, public perception of prescribed fire, foundational science behind prescribed fire, modeling, smoke tools, air quality impacts, and more are all discussed in this plan. The document is meant to pair with NWCG's Interagency Prescribed Fire Planning and Implementation Procedures Guide for planning and addressing smoke when prescribed fire is used (NWCG 2020).

To view the plan, please visit:

<https://nrfirescience.org/sites/default/files/InteragencyPrescribedFirePlanningProceduresGuide.pdf>.

Fire managers must obtain a permit from the Air Quality Bureau to start a prescribed burn and can only do so during optimal conditions for smoke management. During a burn, lighting patterns can be altered to change how smoke is generated. Generally, the impacts of smoke from prescribed burning are far less than those from wildfire events. Prescribed burns aid in reducing the potential smoke impacts of high-intensity, extensive wildfires (Greater Santa Fe Fireshed Coalition 2022).

Thinning and Prescribed Fire Combined

Combining thinning and prescribed fire can be the most effective treatment (Graham et al. 2004).

In forests where fire exclusion or disease has created a buildup of hazardous fuels, prescribed fire cannot be safely applied, and pre-burn thinning is required. The subsequent use of fire can further reduce residual fuels and reintroduce this ecologically imperative process.

MANAGEMENT OF NONNATIVE PLANTS

The State of New Mexico maintains a list of noxious weeds, which can be accessed at:

<https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/Weed-List-memo-and-weed-list-2020.pdf>

Fuel treatment approaches should always consider the potential for introduction or proliferation of invasive nonnative species as a result of management actions. Fuel treatments typically include monitoring and treatment of noxious weeds, especially those that can increase fire risk shortly after a treatment (e.g., burningbush [*Kochia scoparia*] and cheatgrass [*Bromus tectorum*]). Other fuel treatments, such as mowing and fuel reduction projects, could create areas of disturbance that may provide suitable conditions for invasive establishment and propagation. Land managers should monitor for invasives before and after all fuel treatments and employ appropriate treatment and management strategies to mitigate potential risks from invasive/noxious species. However, areas of the county, especially within the WUI, with considerable noxious weed infestation can create areas of high fire risk. Land managers should target these areas for invasive treatments/removal and native plant restoration. Finally, certain species, particularly cheatgrass, have significantly altered the fire regime for much of the vegetation ecology in the region. Land managers should carefully consider the ecological impacts of treatments in areas which already have established invasive populations and consider how fuel treatments may impact (i.e., increase or decrease) these populations.

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APPENDIX F:

Post-Fire Response and Restoration

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POST-FIRE RESPONSE AND REHABILITATION

This appendix is included to provide resources to residents and agencies in navigating the post-fire environment and could be provided as a standalone reference for county residents and post-fire responders. Following a fire, heavy rains may result in widespread floods and debris flows carrying trees, boulders, and soil through canyons, ultimately damaging communities, water supply and systems, and critical infrastructure. The New Mexico Forest Action Plan has identified Sandoval County as one of many locations susceptible to erosion (EMNRD Forestry Division 2020).

There is also a significant area susceptible to landslides within Sandoval County. The New Mexico Bureau of Geology and Mineral Resources lists four susceptibility classes for landslides: likely susceptible, moderately likely susceptible, potentially susceptible, or unlikely susceptible. The majority of Sandoval County falls in the three highest designations, with only a small portion of land designated “unlikely susceptible” (Cikoski and Koning 2017). The high susceptibility levels in the county could be particularly dangerous if heavy rains occur following a fire.

The Cerro Pelado Fire, which was one of the county’s largest fires in recent times, occurred in April 2022 and scorched 45,605 acres (New Mexico Fire Information 2022). Soil burn severity mapping showed approximately 67% of land affected was designated unburned/very low or low burn severity, 32% was designated moderate severity, and 1% was designated high severity. Of the land burned in the fire, 2,709 acres were on private land, 1,781 acres were in Valles Caldera National Preserve, 4,132 acres were on Jemez Pueblo land, and 36,981 acres were in the Santa Fe National Forest (USFS 2022b).

The damage caused by fires such as Cerro Pelado can be compounded by the water repellency of burned soils. Soil cover is dramatically reduced in areas with moderate soil burn severity, leading to increased water repellency and runoff. By contrast, soil cover is nearly non-existent in areas experiencing high soil burn severity and the surface mineral soil has been burned to fine powder. Exposed, granular mineral soil is readily transported during rain events resulting in elevated soil erosion and sediment loading in streams, creeks, and rivers (USFS 2010).

There are many facets to post-fire recovery, including but not limited to:

- Ensuring public health and safety—prompt removal of downed and hazard trees, addressing watershed damage, and mitigating potential flooding.
- Rebuilding communities and assessing economic needs—securing the financial resources necessary for communities to rebuild homes, business, and infrastructure.
- Restoring the damaged landscape—restoration of watersheds, soil stabilization, and tree planting.
- Reducing fire risk in the future—identifying hazard areas and implementing mitigation.
- Prioritizing the needs of vulnerable and disadvantaged communities during response and disaster recovery efforts.
- Reducing post-fire recovery time by replanting native species.
- Ensuring fire protection measures enhance sustainability of restoration projects e.g., introducing prescribed fire to a fire-dependent ecosystem where fire had previously been excluded.
- Retaining downed logs for erosion control and habitat maintenance.

- Evaluating and updating disaster recovery plans every 5 years to respond to changing needs and characteristics of the community.
- Coordinating with planning, housing, health and human services, and other local, regional or state agencies to develop contingency plans for meeting short-term, temporary housing needs of those displaced during a catastrophic wildfire event.
- Incorporating forecasted impacts from climate change trends and projections of future risk and consideration of policies to address identified risk.
- Updating codes and ordinances to specify procedures and standards for planning and permitting the reconstruction of buildings destroyed by wildfire.

COMMUNITY RESPONSE AND RECOVERY

Recovery of the vegetated landscape is often more straightforward than recovery of the human environment. Assessments of the burned landscape are often well-coordinated through the use of interagency crews who are mobilized immediately after a fire to assess the post-fire environment and make recommendations for rehabilitation efforts.

For the community impacted by fire, however, there is often very little planning at the local level to guide their return after the fire. Residents impacted by the fire need assistance making insurance claims; finding temporary accommodation for themselves, pets, and livestock; rebuilding or repairing damaged property; removing debris and burned trees; stabilizing the land for construction; mitigating potential flood damage; repairing infrastructure; reconnecting to utilities; and mitigating impacts to health. Oftentimes, physical impacts can be mitigated over time, but emotional impacts of the loss and change to surroundings are long-lasting and require support and compassion from the community.

Emergency Assistance: Before, During, and After a Fire

Team Rubicon

Team Rubicon is a veteran-led humanitarian organization that serves communities around the world before, during, and after disasters such as earthquakes, floods, hurricanes, tornadoes, and wildfire. Team Rubicon focuses on serving vulnerable and at-risk populations affected by disasters, and all services are provided free of charge. Services include incident management, debris management, hazard mitigation, volunteer management, home repair, and emergency medicine. With respect to fire-related assistance, Team Rubicon assists with any action that would limit the impact of a wildfire, such as helping homeowners make their home fire safe, providing staff to assist with mitigation projects (e.g., fuels reduction), and removing debris and hazardous trees (Team Rubicon 2022).

To find out more about Team Rubicon, please visit <https://teamrubiconusa.org/capabilities-services/>.

AFTER THE FIRE

Rebuilding and recovery from wildfire can vary greatly across income levels and demographics. Rural areas, low-income neighborhoods, and immigrant communities generally do not have the necessary resources to cover insurance and rebuilding expenses that occur after a fire. Due to this, many of these areas take more time to recover than those with greater access to resources. In addition, the occurrence

of wildfire can worsen existing mental health conditions and lead to post-traumatic stress (PTS), low self-esteem, and depression for at-risk populations.

RETURNING HOME

First and foremost, follow the advice and recommendations of emergency management agencies, fire departments, utility companies, and local aid organizations regarding activities following the wildfire. Do not attempt to return to your home until fire personnel have deemed it safe to do so.

Watch for trees, brush, and rock which may have been weakened or loosened by the fire, including while driving. Be aware that roads may be unstable. Extreme caution should be taken around trees, power poles, and any other tall objects that may have been weakened by the fire (EMNRD Forestry Division and USFS 2022).

Avoid storm channels and arroyos as flash floods can be a potentially deadly hazard after a wildfire. Use extreme caution around trees, power poles, and any other tall objects that may have been weakened by the fire as they are at risk for falling. Keep a battery-powered radio on hand for emergency updates, reports of weather, and news updates (EMNRD Forestry Division and USFS 2022).

Even if the fire did not damage your house, do not expect to return to normal routines immediately. Expect that utility infrastructure may have been damaged and repairs may be necessary. When you return home, check for hazards, such as gas or water leaks and electrical shorts. Turn off damaged utilities if you did not do so previously. Request that the fire department or utility companies turn the utilities back on once the area is secured. Similarly, water supply systems may have been damaged; do not drink from the tap until you have been advised that it is safe to do so. Finally, keep a “fire watch”; look for smoke or sparks in houses and other buildings (EMNRD Forestry Division and USFS 2022). Once at home, check for the following:

- ✓ Check the roof and exterior areas for sparks or embers.
- ✓ Check grounds for hot spots, smoldering stumps, and vegetation.
- ✓ Check for fire damage to your home, turn off all appliances and make sure the meter is not damaged before turning on the main circuit breaker.
- ✓ Check the attic and throughout your house for any hidden burning sparks or embers.
- ✓ Do not drink water from the faucet until emergency officials say it is okay, water supply systems can be damaged and become polluted during wildfires.
- ✓ Discard any food that has been exposed to heat, smoke, flood water, or soot.
- ✓ If you have a propane tank or natural gas, leave valves closed until the supplier or utilities can inspect your system.
- ✓ If you have a solar electrical system, this system should be inspected by a licensed technician to verify that the solar panels and electrical wiring are safe for continued operation.
- ✓ Consult local experts on the best way to restore and plant your land with fire-safe landscaping.
- ✓ Contact 911 if any danger is perceived.

- ✓ Ash contains toxic substances and may be irritating to the eyes, nose, throat, and skin. Ash is harmful to breathe and may trigger asthma attacks. Follow these tips to reduce your exposure to ash:
 - Do not allow children to play in the ash and wash off children's toys before children play with them.
 - Immediately wash any part of your body that touches ash to avoid irritation.
 - Wash fruits and vegetables from your garden thoroughly before eating them.
 - Keep pets out of ash areas.
 - Frequently clean indoor surfaces by wet mopping.
 - Wear protective clothing and a respirator when working outside.

Note any changes of address with the U.S. Postal Service, banks, utilities, credit card companies, and newspapers. If you do stay elsewhere, try to locate any legal documents, medications, valuables, etc. before relocating (EMNRD Forestry Division and USFS 2022).

INSURANCE CLAIMS

Your insurance agent is the best source of information for submitting a claim. It is recommended you take photographs of your home, of both the inside and outside, in preparation of an emergency. Keep the photographs in a safe place as this will make the insurance claim process easier when you need to show damage. Expenses incurred during the time you are forced to live elsewhere may be reimbursed, so be sure to keep all receipts. Do not start any repairs without the approval of your claims adjuster (EMNRD Forestry Division and USFS 2022).

Natural disasters aren't always predictable, but there are steps homeowners can make to better prepare for an emergency.

- Review your insurance policy annually to see if your home is adequately insured
- Know your "loss of use" section—this section covers living expenses should your home become unlivable due to fire, smoke, or otherwise

You can view a guide on creating a home inventory here: <https://www.iii.org/article/how-create-home-inventory>

COMMUNITY SAFETY: POST-FIRE FLOODS AND DEBRIS FLOWS

There are numerous natural hazards after a wildfire. Perhaps most dangerous are potential flash floods and landslides following rainfall in a burned area upstream from a community. Wildfires increase risk of flooding because burned soil is unable to absorb rainfall, and it becomes hydrophobic. Even small rainfall can cause a flash flood, transporting debris and damaging homes and other structures. Listen and look for emergency updates, weather reports, and flash flood warnings. Develop an evacuation plan with your family and stay away from waterways, storm channels, and arroyos (EMNRD Forestry Division and USFS 2022).

Checklists to prepare for flooding are available at: <https://www.afterwildfirenm.org/flood-information/before-the-flood-checklists>.

RESOURCES FOR MOBILIZING YOUR COMMUNITY

When your community is safe and capable of monitoring potential storms, coordination for recovery efforts can begin. Depending on community size, one person or a team of post-fire coordinators can be appointed to work directly with agencies or teams helping with wildfire response. It is important that this person have demonstrated management and computer skills, community knowledge, and experience with federal and state agencies. The post-fire coordinator(s) can delegate any identified recovery tasks or needs to volunteers; however, it may be helpful to specifically appoint a volunteer coordinator. Responsibilities of a volunteer coordinator include creating a volunteer database, recruitment, management, and coordination of community volunteers (EMNRD Forestry Division and USFS 2022). The recovery coordinator should become familiar with representatives from local, state, and federal government agencies that will be helping with coordination or funding of post-fire recovery.

The following are resources that may be helpful for the post-fire and volunteer coordinators (Coalition for the Upper South Platte [CUSP] 2016):

- New Mexico Department of Homeland Security and Management
- Federal Emergency Management Agency (FEMA)
- American Red Cross
- EMNRD Forestry Division
- Continuing Authorities Program & Emergency Flood Protection: U.S. Army Corps of Engineers
- Emergency Watershed Protection (EWP): Natural Resources Conservation Service (NRCS)
- Food Assistance and Farm Service Agency: USDA
- Forest Restoration Assistance: EMNRD Forestry Division
- Conservation Districts
- USFS
- NRCS, including Earth Team
- Disaster Distress Helpline

Any large wildfire will also involve an Incident Command System (ICS), an appropriately sized team assigned to aid in post-fire recovery. Learn more at <https://www.nps.gov/articles/wildland-fire-incident-command-system-levels.htm>.

The following should be considered when assessing community needs (EMNRD Forestry Division and USFS 2022):

- Are there paid staff that will be dedicated to helping with recovery?
- Who is familiar with the ICS? Who has technical skills to help with post-fire treatments? Which community members will be able to write grants and apply for assistance? Who has accounting skills? Management skills?
- How much money will the community need? How can it be acquired?
- How will the community address immediate needs such as shelter, food, and health care? Counseling and mental health?

COMMUNICATION

After a team is assembled and immediate tasks are identified, find the best way to spread information in your community. You may distribute flyers, set up a voicemail box, work to find pets or livestock that have been displaced, develop a mailing list for property owners, hold regular public meetings, etc. It is important that a long-term communications plan is developed (CUSP 2016). Communication ideas include the following (EMNRD Forestry Division and USFS 2022):

- Newspaper communications with emergency information (and phone numbers for emergency services) for flooding, landslides, and debris flows.
- Published information about ongoing flood and landslide mitigation projects.
- Information about safe flooding responses: stay out of cars and off roads, escape to dry land as soon as possible, do not attempt to cross flowing water.
- Remind residents to listen to weather reports and remain aware of rainfall. Be alert for changes in water flow and stay away from areas prone to landslides and flooding.
- Information regarding volunteer needs and planned repair projects.

POST-FIRE REHABILITATION AND RESOURCES

Wildfires that cause extensive damage necessitate dedicated efforts to avert issues afterwards. As aforementioned, loss of vegetation increases soil susceptibility to erosion; water runoff may increase and lead to flooding; sediments and debris may be transported downstream and damage properties or saturate reservoirs putting endangered species and water reserves at risk (EMNRD Forestry Division 2020). Following a fire, the primary priority is emergency stabilization to prevent additional damage to life, property, or natural resources. The soil stabilization work starts immediately and may proceed for up to a year. The rehabilitation effort to restore damage caused by the fire starts after the fire is out and may persist for various years. For the most part, rehabilitation efforts focus on the lands not likely to recover naturally from wildfire damage.

The USFS's post-fire emergency stabilization program is called the Burned Area Emergency Response (BAER) program. The goal of the BAER program is to discover post-wildfire threats to human life and safety, property, and critical natural or cultural resources on USFS lands and take appropriate actions to mitigate unacceptable risks (NIFC 2022b). BAER teams are composed of trained professionals from different fields, including soil scientists, engineers, hydrologists, biologists, botanists, archaeologists, and others who quickly assess the burned area and advise emergency stabilization treatments (NIFC 2022b).

The NRCS Emergency Watershed Protection (EWP) program provides technical and financial services for watershed repair on **public (state and local) and private land**. The goal is reduced flood risk via funding and expert advice for land treatments. The EWP program can provide up to 75% funding for qualifying projects; remaining funds may be paid with in-kind volunteer labor (Coalition for the Upper South Platte [CUSP] 2016). This funding is used by the State Emergency Rehabilitation Team (a multiagency group assembled by the NRCS) to develop specific recovery and treatment plans.

Examples of potential treatments include:

- Hillside stabilization (for example: placing bundles of straw parallel to the slope to slow erosion)
- Hazard tree cutting

- Felling trees perpendicular to the slope contour to reduce runoff
- Mulching areas seeded with native vegetation
- Stream enhancements and construction of catchments to control erosion, runoff, and debris flows
- Planting or seeding native species to limit spread of invasive species

New Mexico State Forestry in conjunction with the USFS, U.S. Army Corps of Engineers, and Silver Jackets have created a post-fire resource guide. The guide is intended to help community stay safe and recover following a wildfire (EMNRD Forestry Division and USFS 2022) and is available at: <https://www.emnrd.nm.gov/sfd/after-wildfire-guide/>.

A comparison of potential hillside, channel, and road treatments is available at: <https://www.afterwildfirenm.org/post-fire-treatments/which-treatment-do-i-use>

SPECIFIC TREATMENT DETAILS

Hillslope Treatments

Cover Applications:

Dry mulch: provides immediate ground cover with mulch to reduce erosion and downstream flow.

Wet mulch (hydromulch): provides immediate cover to hold moisture and seeds on slopes using a combination of organic fibers, glue, suspension agents, and seeds (most effective on inaccessible slopes).

Slash spreading: provides ground cover to reduce erosion by felling trees in burned areas.

Seeding: reduces soil erosion over time with an application of native seed mixtures (most successful in combination with mulching). Breaking up and loosening topsoil to break down the hydrophobic layer on top of the soil is also effective.

Erosion Barrier Applications:

Erosion control mat: organic mats staked on the soil surface to provide stability for vegetation establishment.

Log erosion barrier: trees felled perpendicular to the hillslope to slow runoff.

Fiber rolls (wattles): rolls placed perpendicular to the hillslope to reduce surface flows and reduce erosion.

Silt fencing: permeable fabric fencing installed parallel to the slope contour to trap sediment as water flows down the hillslope.

Channel Treatments

Check dam: small dams built to trap and store sediment in stream channels.

In-channel tree felling: felling trees in a staggered pattern in a channel to trap debris and sediment.

Grade stabilizer: structures made of natural materials placed in ephemeral channels for stabilization.

Stream bank armoring: reinforcing streambanks with natural materials to reduce bank cutting during stream flow.

Channel deflector: an engineered structure to direct flow away from unstable banks or nearby roads.

Debris basin: constructed to store large amounts of sediment moving in a stream channel.

Road and Trail Treatments

Outsloping and rolling dips (water bars): alter the road shape or template to disperse water and reduce erosion.

Overflow structures: protect the road by controlling runoff and diverting stream flow to constructed channels.

Low water stream crossing: culverts replaced by natural fords to prevent stream diversion and keep water in the natural channel.

Culvert modification: upgrading culvert size to prevent road damage.

Debris rack and deflectors: structure placed in a stream channel to collect debris before reaching a culvert.

Riser pipes: filter out debris and allow the passage of water in stream channels.

Catchment-basin cleanout: using machinery to clean debris and sediment out of stream channels and catchment basins.

Trail stabilization: constructing water bars and spillways to provide drainage away from the trail surface.

These treatments and descriptions are further detailed at: <https://afterwildfirenm.org/post-fire-treatments/treatment-descriptions>

For more information about how to install and build treatments, see the Wildfire Restoration Handbook at: https://www.flyingwrenchfoundation.org/library/Fire_Restoration_Handbook_1.pdf

TIMBER SALVAGE

Many private landowners may decide to harvest trees killed in the fire, a decision that can be highly controversial. Trees remaining post-fire can be instrumental for soil and wildlife habitat recovery, but dead standing trees may also pose safety concerns and fuel loadings may still be conducive to future high-intensity wildfires. Burned soil is especially susceptible to soil compaction and erosion so it is recommended to have professionals perform the timber salvage. Several programs assist landowners with timber salvage, including the NRCS Environmental Quality Incentives Program (EQIP) (CUSP 2016).

INVASIVE SPECIES MANAGEMENT AND NATIVE REVEGETATION

Wildfire provides an opportunity for many invasive species to dominate the landscape because many of these species thrive on recently burned landscapes. It is imperative that landowners prevent invasive establishment by eradicating weeds early, planting native species, and limiting invasive seed dispersal (CUSP 2016).

Planting native seeds is an economical way to restore a disturbed landscape. Vegetation provides protection against erosion and stabilizes exposed soils. To be successful, seeds must be planted during the proper time of year and using correct techniques. Use a native seed mixture with a diversity of species and consider the species' ability to compete with invasive species. Before planting, the seedbed must be prepared with topsoil and by raking to break up the hydrophobic soil layer. If you choose to transplant or plant native species, consider whether the landscape has made a sufficient recovery to ensure the safety of the individuals (CUSP 2016).

LONG-TERM COMMUNITY RECOVERY

On non-federal land, recovery efforts are the responsibility of local governments and private landowners. Challenges associated with long-term recovery include homes that were severely damaged or were saved but are in high-severity burn areas. Furthermore, homes saved but located on unstable slopes or in areas in danger of flooding or landslides present a more complicated challenge. Economically, essential businesses that were burned or were otherwise forced to close pose a challenge to communities of all sizes. Given these complications, rebuilding and recovery efforts can last for years, with invasive species control and ecosystem restoration lasting even longer (CUSP 2016). It is critical that a long-term plan is in place and there is sufficient funding and support for all necessary ecosystem and community recovery. To learn about more post-fire recovery resources, visit the After the Flames website here:

<https://aftertheflames.com/resources/>.

Additional information relating to actions before, during, and after a wildfire can be found here:

<https://www.cabq.gov/fire/safety-information/wildfire-safety/before-during-and-after-a-wildfire>

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WASH STATE

APPENDIX G:

Project Outreach

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COMMUNITY OUTREACH

This section details the community engagement process and activities that SWCA, Sandoval County, and the Core Team implemented as part of the planning process.

Community events were held by Sandoval County and SWCA. Table G.1 lists examples of public outreach events, materials, and releases that were used to provide information to the public and solicit community input. Correspondingly, Figures G.1 through G.8 illustrate the news outlets, social media platforms, and other local online sources used to encourage community participation in the community events and public survey along with an image of one of the events. Flyers, social media posts, press releases, and emails were sent via various channels, including local fire districts, local news outlets (e.g., Middle Rio Grande Conservancy District, *Sandoval Signpost*, and *Rio Rancho Observer*), and county agencies.

SWCA and Sandoval County hosted in-person public meetings at the Community Center at the Sandoval County Fair Grounds on November 19, 2024; at Jemez Mountain Baptist Church on November 20, 2024; and at the Village Council Chambers on February 12, 2025, to inform the public about the CWPP and gather community input. These local events drew substantial crowds, providing the opportunity to engage a broad cross section of the county. The events involved a presentation led by SWCA, followed by a discussion of community-specific concerns and priorities as well as potential solutions.

Feedback, comments, and suggestions received from community members during community events, the community survey, and CWPP review were synthesized and used to craft project recommendations for the Sandoval County CWPP update. Therefore, the project recommendations (see Chapter 4) are specifically tailored to address the concerns and priorities of the community.

Table G.1. Public Outreach Resources

Resource Description	Location/Description	Figure Number	Date
<i>Sandoval Signpost</i> article announcing the CWPP update	<i>Sandoval Signpost</i>	Figure G.1	February 4, 2025
Middle Rio Grande Conservancy District article about the CWPP update	The Middle Rio Grande Conservancy District	Figure G.2	November 13, 2024
<i>Rio Rancho Observer</i> article announcing the CWPP update	<i>Rio Rancho Observer</i>	Figure G.3	September 6, 2024
Sandoval County Government Facebook Post announcing the community event	Sandoval County	Figure G.4	February 11, 2025
CWPP community survey	SWCA	Figure G.5	October 2025
Public event and CWPP info flyer	SWCA	Figure G.6	November 2024
The Sandoval County CWPP hub site with link to the CWPP community survey	Sandoval County/SWCA	Figure G.7	September 2025
Photograph of February public meeting	Sandoval County	Figures G.8 and G.9	February 2025
CWPP Public Review Period Announcements	Several outlets	Figures G.10–G.14	May 2025



Figure G.1. Article from the Sandoval Signpost announcing the CWPP update.



Figure G.2. Article from the Middle Rio Grande Conservancy District about the CWPP update.

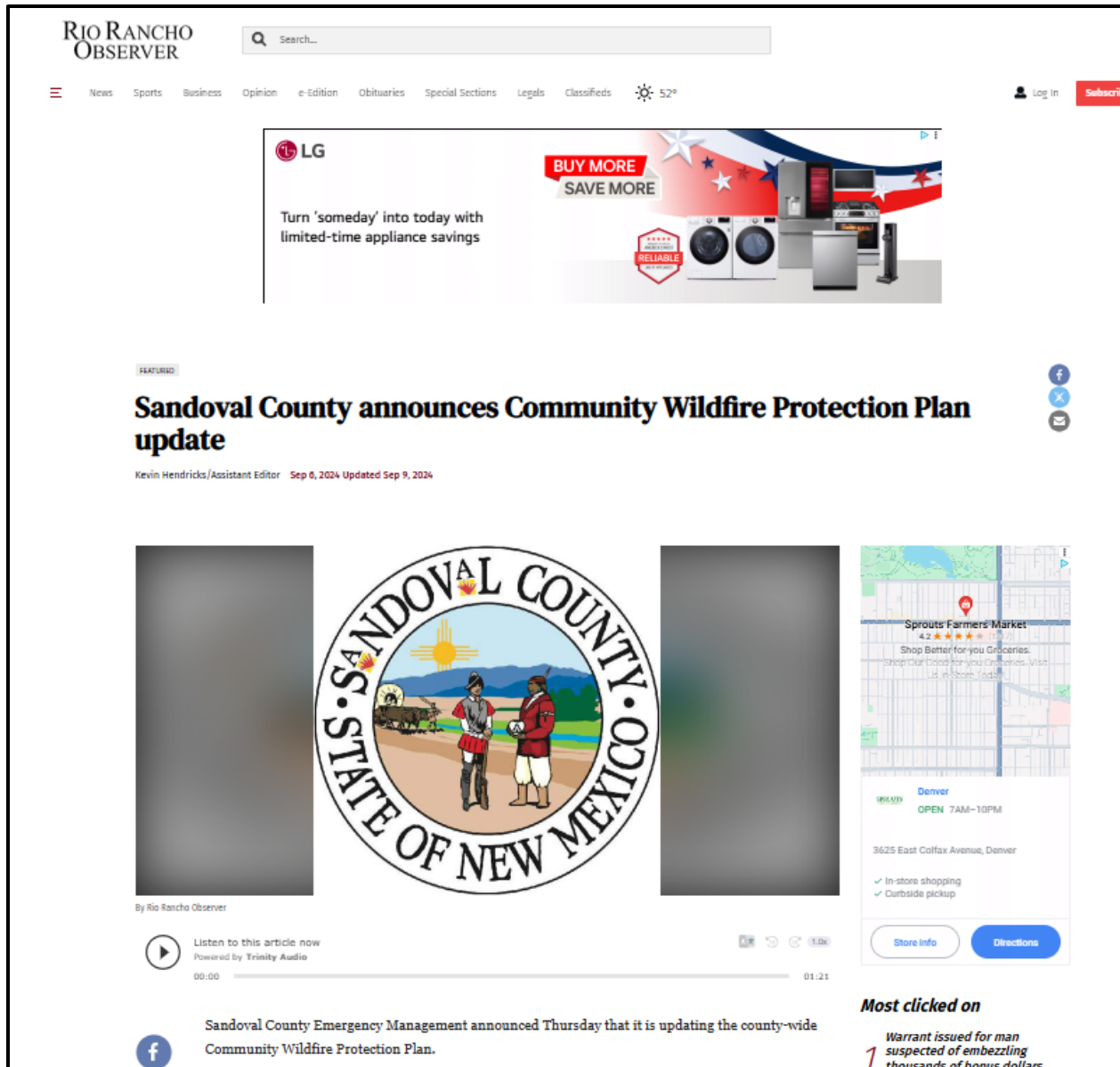


Figure G.3. Article from the Rio Rancho Observer announcing the CWPP update.

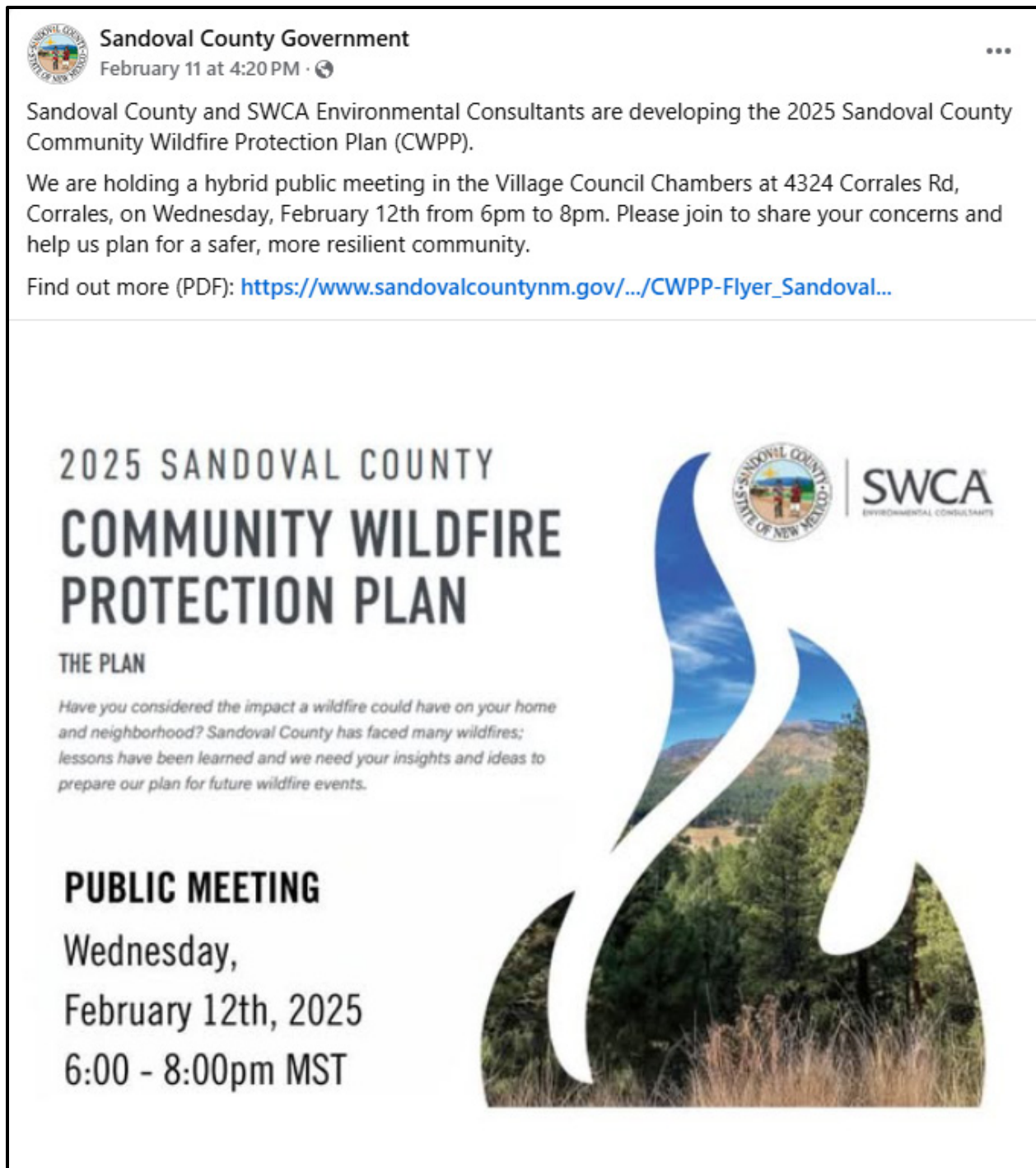


Figure G.4. Sandoval County Government Facebook post announcing the community event.

Sandoval County Community Wildfire Protection Plan

Sandoval County and other stakeholders are currently developing a Countywide Community Wildfire Protection Plan (CWPP). A large part of this planning effort is the identification of communities within Sandoval County that are at risk from wildfire. We want to hear from you in order to understand how Sandoval County can better plan and prepare for potential wildfires in your community.

Estimated time to complete: 10 minutes.

Please enter information about your home location. (If you wish to remain anonymous, please provide general location information.) This information is used only to connect community responses with geographical areas (for example, individuals in X region of Sandoval County feel more at risk to wildland fire). Location information will not be made public.

1. General Location

2. Zip Code

3. Street Address

4. How prepared is your community for large wildfire?

Poorly prepared

Moderately prepared

Well prepared

Figure G.5. Sandoval County CWPP community survey.

2025 SANDOVAL COUNTY COMMUNITY WILDFIRE PROTECTION PLAN

THE PLAN

Have you considered the impact a wildfire could have on your home and neighborhood? Sandoval County has faced many wildfires; lessons have been learned and we need your insights and ideas to prepare our plan for future wildfire events.

Sandoval County has contracted SWCA Environmental Consultants (SWCA) to work in collaboration with municipal, state, tribal, and federal land management agencies to develop the 2025 Sandoval County Community Wildfire Protection Plan (CWPP), which is an update to the 2012 CWPP. The draft CWPP is expected to be ready for public review in late winter 2024, with the final CWPP anticipated by late spring 2025. A CWPP is designed to assist the County and landowners in ensuring that a future catastrophic wildfire is avoided or mitigated by assessing areas at risk and recommending measures to decrease those risks.

WHAT DOES A COMMUNITY WILDFIRE PROTECTION PLAN DO?

- Identify areas at risk for wildland fire
- Make recommendations for hazardous fuels treatments (vegetation thinning)
- Prioritize areas for wildfire mitigation funding
- Make recommendations to homeowners to reduce fire risk
- Ask the public to share ideas about wildfire prevention and identify community values at risk

WHY YOU SHOULD BE INVOLVED

As a part of the CWPP community engagement process, SWCA will host an in-person public meeting at the **Community Center at the Sandoval County Fair Grounds on Tuesday, November 19th from 6pm to 9pm** located at 37 Rodeo Dr., Cuba, New Mexico 87013. In addition, SWCA will host another in-person public meeting on **Wednesday, November 20th from 6pm to 9pm** at **Jemez Mountain Baptist Church** located at 6 Riverview Ct., Jemez Springs, New Mexico 87025. Please join us to share your concerns and help us plan for a safer, more resilient community.

TAKE THE ANONYMOUS SURVEY

In addition to the public events, we encourage you to **take our brief, 5-minute survey** to let your local land managers know about your concerns and ideas related to wildfire in your community. **Please visit the CWPP hubsite by scanning the QR code or going to <https://sandoval-county.cwpp-hub-site.sandovalga.hub.arcgis.com>** to take the brief survey and learn more.

PROJECT CONTACTS: CSTROPKI@SWCA.COM • DHEERDING@SANDOVALCOUNTYNM.GOV

ORIGIN OF COMMUNITY WILDFIRE PROTECTION PLANS

CWPPs came out of the Healthy Forests Restoration Act of 2003. This Act provided communities with the opportunity to influence how and where federal agencies implement fuel reduction projects on federal lands and how additional funds may be distributed for projects on non-federal lands. A CWPP is the means through which the public can provide their voices in fuels management and fire protection planning for their communities. This 2025 CWPP will identify fire hazards and community values at risk in Sandoval County and provide recommendations to reduce the risk of wildfire to life and property.

The Primary Objectives of the 2025 Sandoval County CWPP Are:

- Collaboration:** The CWPP must be developed by state and local government, in consultation with federal agencies.
- Prioritized vegetation reduction:** The CWPP must identify areas of risk to treat vegetation that poses a risk and recommend actions to protect communities and infrastructure.
- Treatment of structural flammability:** The CWPP must recommend measures that property owners and communities can take to reduce the flammability of structures throughout the designated area in the plan.
- Definition of WUI:** gives each Core Team (agency representatives) the ability to define their wildland urban interface (WUI) area, where homes and structures come into contact with wildland fuels.
- Community risk analysis:** Using a geographic or field-based information system methodology, the Core Team assesses all hazards and risks associated with the spread of wildfires throughout the planning area.
- Fire preparedness discussion:** to identify ways to improve response to fire.
- Community involvement:** to ensure that the planning effort incorporates public input and community-level plans.

PROJECT CONTACTS: CSTROPKI@SWCA.COM • DHEERDING@SANDOVALCOUNTYNM.GOV

Figure G.6. Flyer with introductory CWPP information and opportunities for community engagement in the planning process.

Community Wildfire Protection Plan
Sandoval County, New Mexico

Welcome! This site serves as a central landing page for the 2024 Sandoval County Community Wildfire Protection Plan (CWPP) Update.

Click the button below to fill out the Sandoval County CWPP Public Survey.

Sandoval County CWPP Public Survey

CWPP Flyer_Sandoval County_2025

View Flyer

Figure G.7. The Sandoval County CWPP hub site, which included a link to the CWPP community survey.



Figure G.8. A public meeting held about the Sandoval County CWPP on February 12, 2025, at the Village Council Chambers.



Figure G.9. Participants at the February 12, 2025, public meeting held for the Sandoval County CWPP.



Figure G.10. Sandoval County Facebook Announcement.

Sandoval County Community Wildfire Protection Plan | SWCA

Project	Date	Entity	Serves to
Improve enforcement of burn bans and illegal fireworks	2012 - present	Corrales Fire	Increase firefighter presence around and on July 4th for patrol. We send out messaging about the dangers of fireworks and what is legal and illegal
Fuel Treatments			
Fuels projects are being developed for the pueblos under the Southern Pueblo Agency. A 4-year Program of Work has been developed and documented in the Interior Fuels & Post-Fire Reporting System (a module of iInform)	Present	BIA Southern Pueblo Agency	Increase community safety and wildfire resiliency throughout the pueblos
The BIA Southern Pueblo Agency has, and will, continue to develop fire and fuels plans, including spatial information, for all the tribes serviced by the agency.	2014 - Present	BIA Southern Pueblo Agency	Increase community safety and wildfire resiliency throughout the pueblos
Fuel projects are being extended or developed on USFS and private lands to protect some public drinking water sources in the Jemez Mountains.	2024-ongoing	Private landowners, Cuba Soil & Water Conservancy District, NM State Forestry Bernalillo District, USFS Jemez Ranger District	Protect drinking water sources for communities in the Jemez Mountains.
Develop a regional biochar production facility to reconstitute slash.	2024 - Present	JMFA & BIRE (Building Rural Economies)	Create a commercial operation for fuel reduction.
Strategically targeted funding to treat fuels around water sources.	2020 - Present	JMFA, JSDWA, CFWCD, NMSF	Mitigate threats to domestic water from wildfires.

66

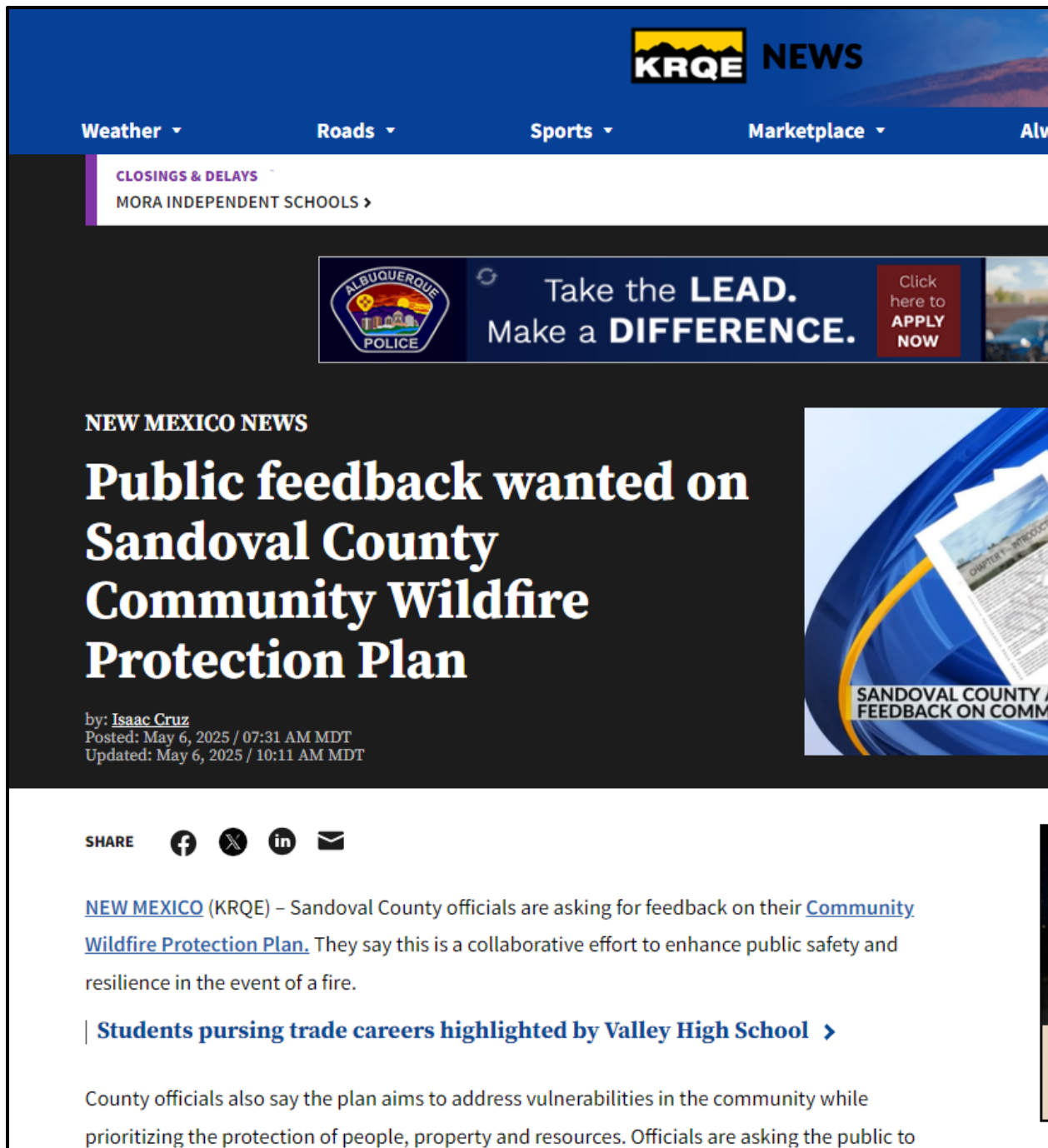
SANDOVAL COUNTY ASKING FOR PUBLIC FEEDBACK ON COMMUNITY WILDFIRE PLAN

Public feedback wanted on Sandoval County Community Wildfire Protection Plan

KRQE 13 357K subscribers

0 0 Share Save

Figure G.11. KRQE video announcement.



The image is a screenshot of a news article on the KRQE News website. The header features the KRQE NEWS logo and navigation links for Weather, Roads, Sports, Marketplace, and Albu. Below the header, there is a section for 'CLOSINGS & DELAYS' with a link to 'MORA INDEPENDENT SCHOOLS'. A banner for the Albuquerque Police Department is visible, with the text 'Take the LEAD. Make a DIFFERENCE.' and a button to 'Click here to APPLY NOW'. The main headline of the article is 'Public feedback wanted on Sandoval County Community Wildfire Protection Plan', with a sub-headline 'NEW MEXICO NEWS'. The article is by Isaac Cruz, posted on May 6, 2025, at 07:31 AM MDT, and updated at 10:11 AM MDT. The article text states that Sandoval County officials are asking for feedback on their Community Wildfire Protection Plan, aiming to enhance public safety and resilience. A link to 'Students pursuing trade careers highlighted by Valley High School' is also present. The article concludes by stating that the plan aims to address vulnerabilities in the community while prioritizing the protection of people, property, and resources.

KRQE NEWS

Weather ▾ Roads ▾ Sports ▾ Marketplace ▾ Albu ▾

CLOSINGS & DELAYS
MORA INDEPENDENT SCHOOLS >





ALBUQUERQUE POLICE
Take the **LEAD.**
Make a **DIFFERENCE.**
Click here to **APPLY NOW**

NEW MEXICO NEWS

Public feedback wanted on Sandoval County Community Wildfire Protection Plan

by: [Isaac Cruz](#)
Posted: May 6, 2025 / 07:31 AM MDT
Updated: May 6, 2025 / 10:11 AM MDT

SANDOVAL COUNTY / FEEDBACK ON COMM

SHARE    

[NEW MEXICO](#) (KRQE) – Sandoval County officials are asking for feedback on their [Community Wildfire Protection Plan](#). They say this is a collaborative effort to enhance public safety and resilience in the event of a fire.

| [Students pursuing trade careers highlighted by Valley High School](#) >

County officials also say the plan aims to address vulnerabilities in the community while prioritizing the protection of people, property and resources. Officials are asking the public to

Figure G.12. KRQE online posting.

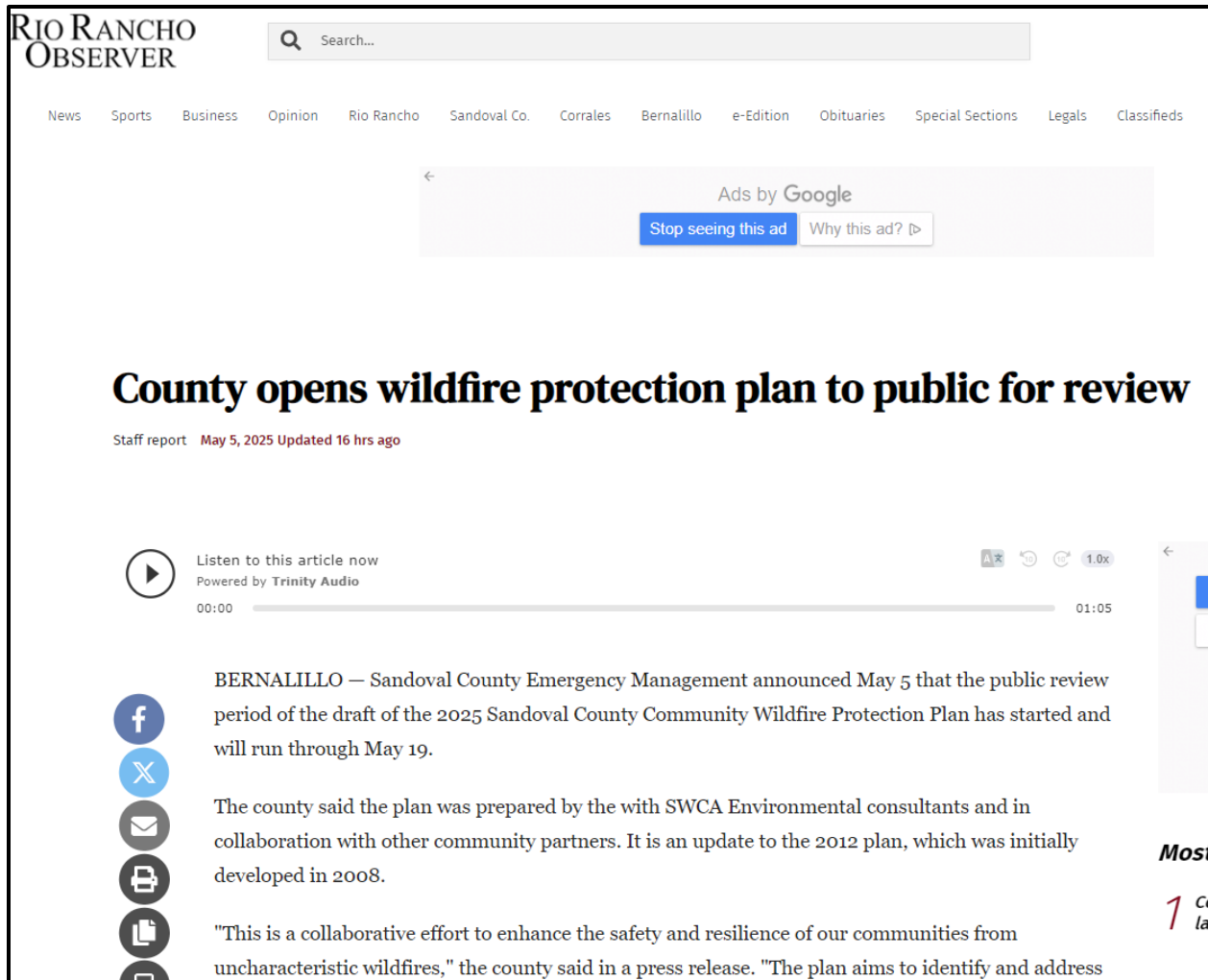


Figure G.13. Rio Rancho Observer online announcement.



Figure G.14. New Mexico News online announcement.

COMMUNITY SURVEY RESULTS

In total, 27 submissions were tallied for the community survey over several months. The results are listed below (Figures G.15–G.30). It should be noted that some questions were omitted due to privacy concerns or insufficient responses and/or information.

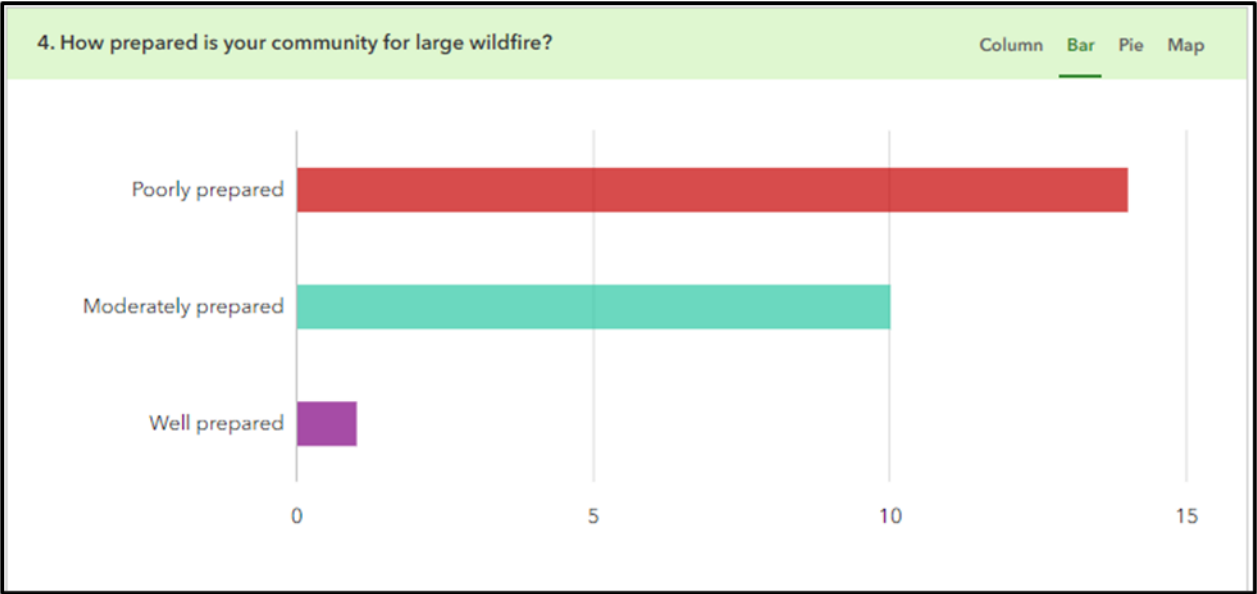


Figure G.15. Survey question no. 4.

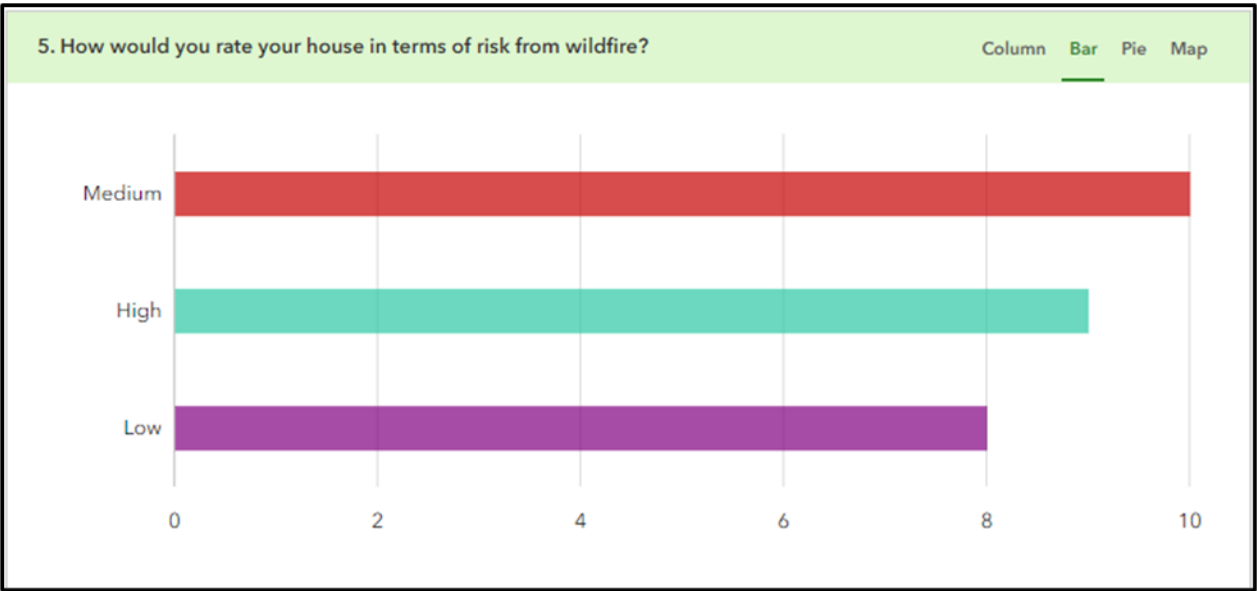


Figure G.16. Survey question no. 5.



Figure G.17. Survey question no. 6.

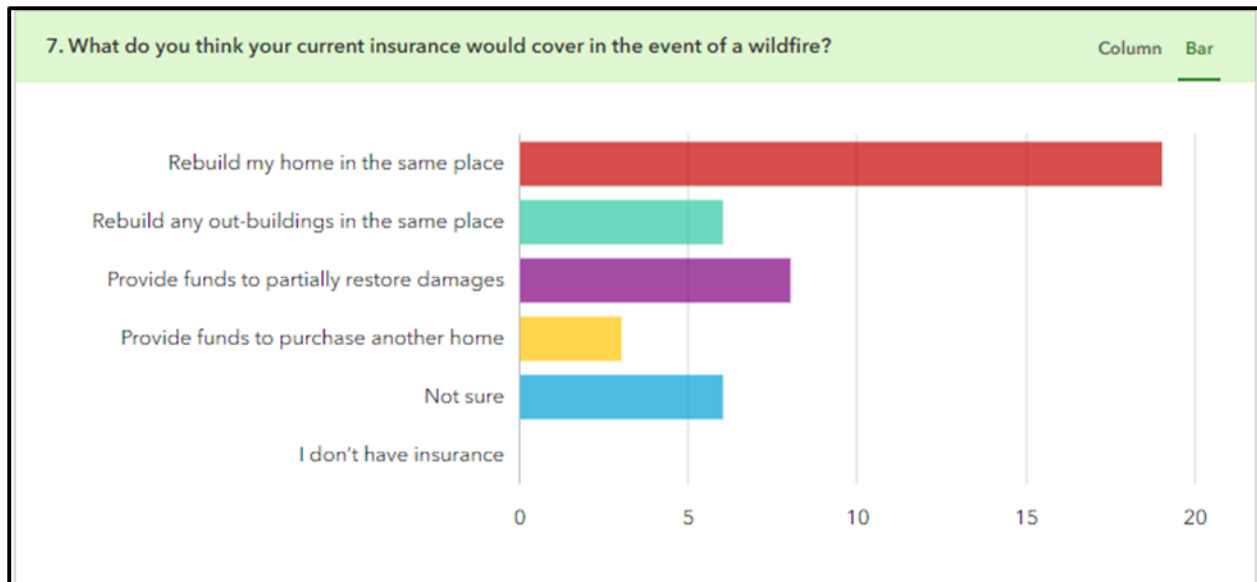


Figure G.18. Survey question no. 7.

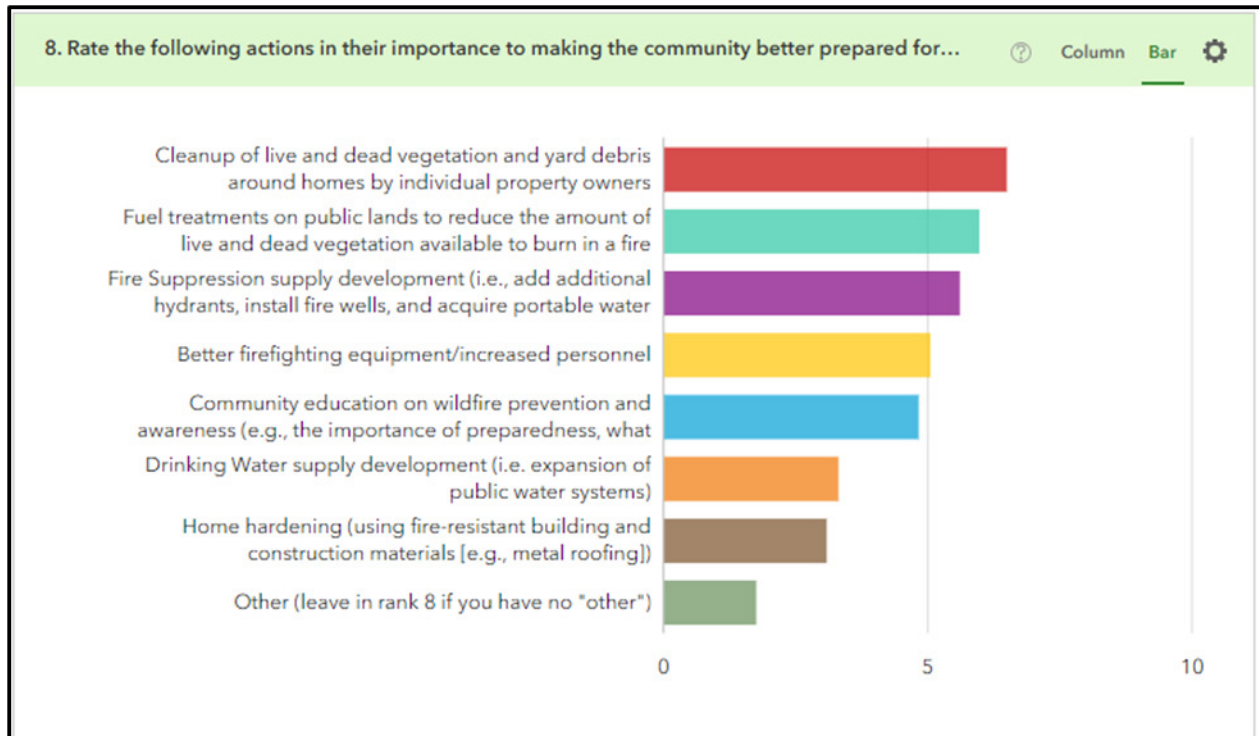


Figure G.19. Survey question no. 8.

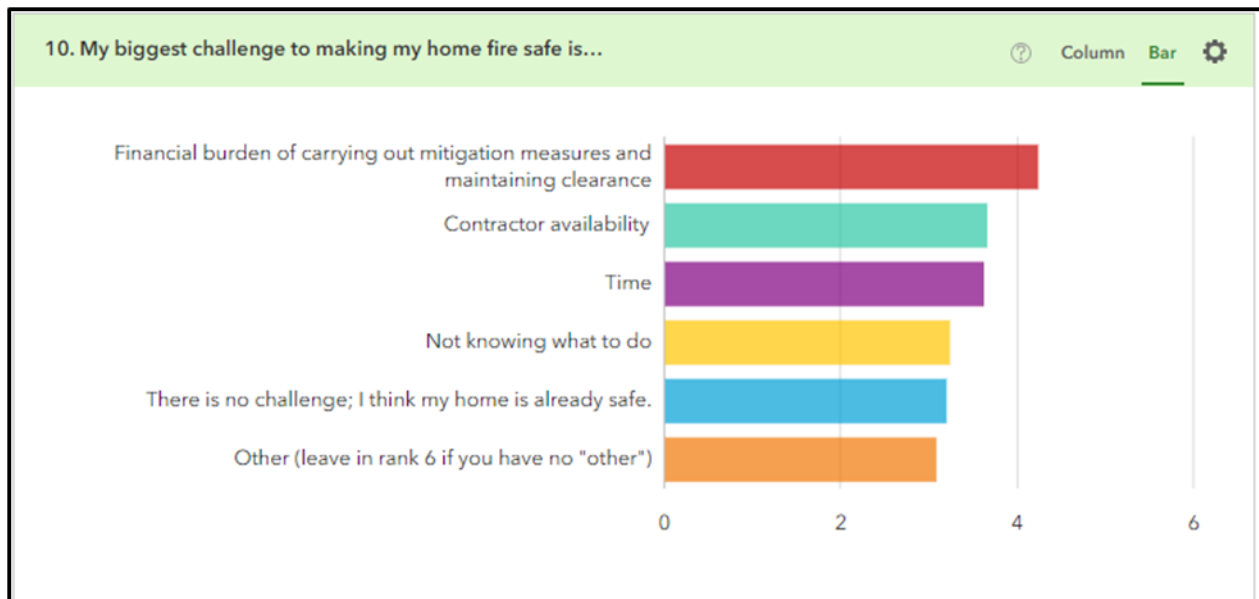


Figure G.20. Survey question no. 10.

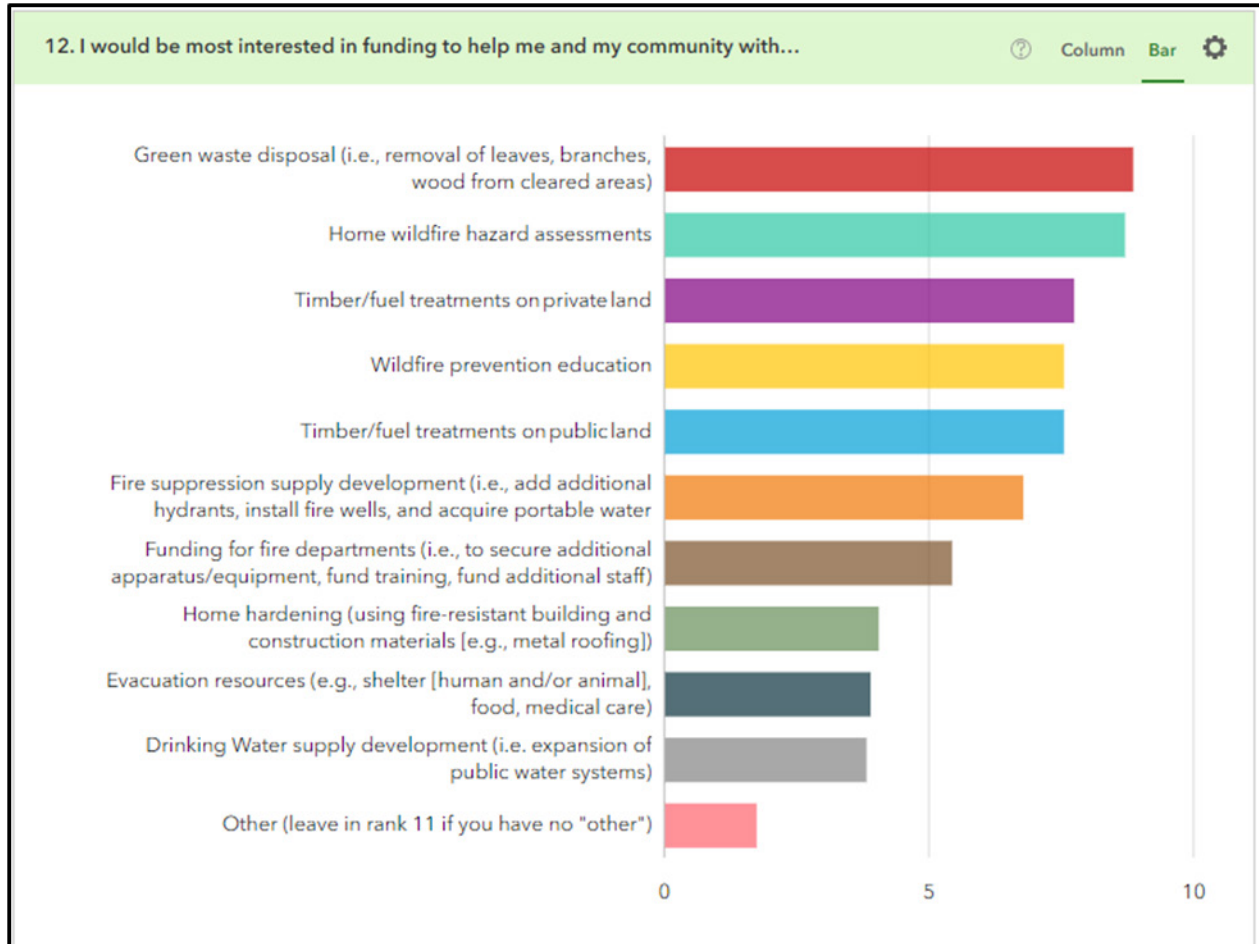


Figure G.21. Survey question no. 12.

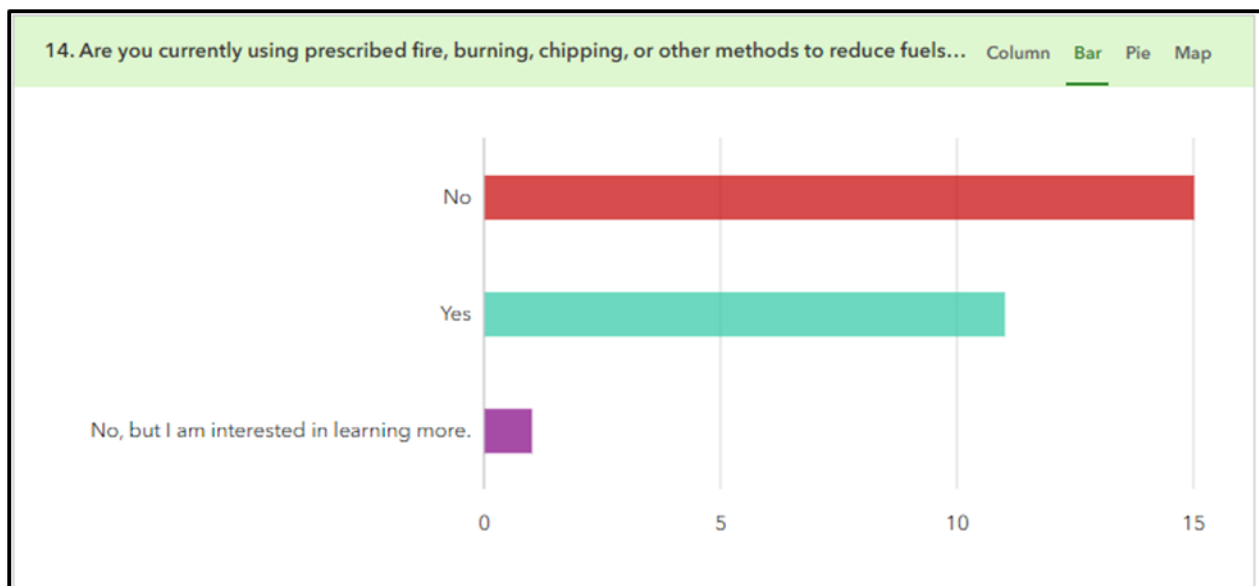


Figure G.22. Survey question no. 14.

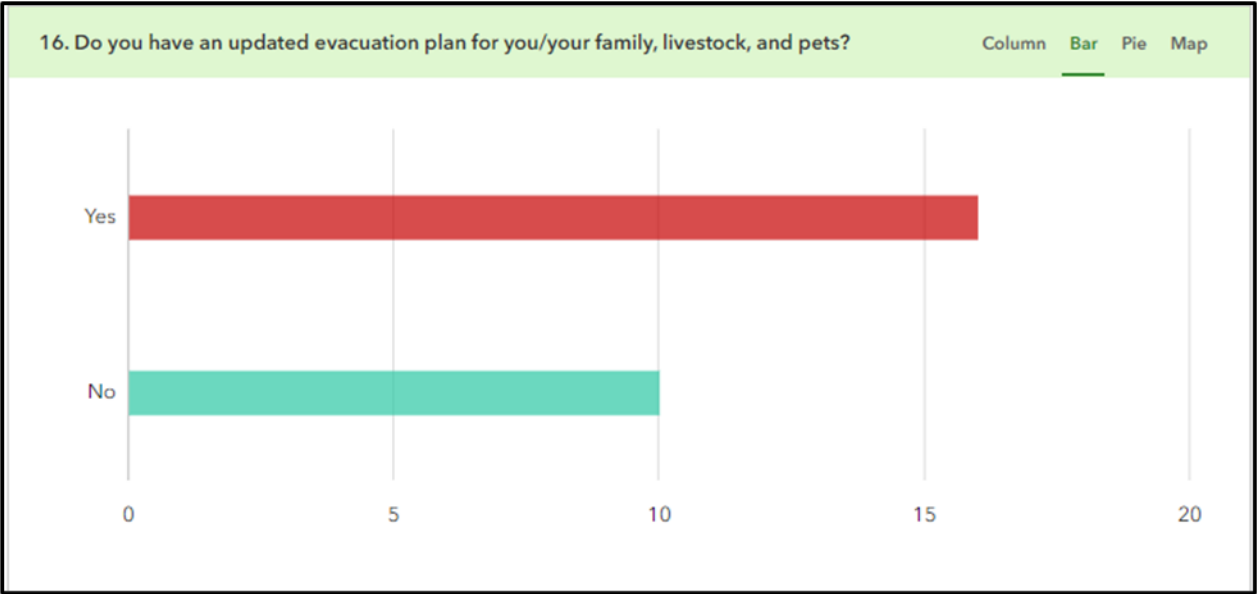


Figure G.23. Survey question no. 16.

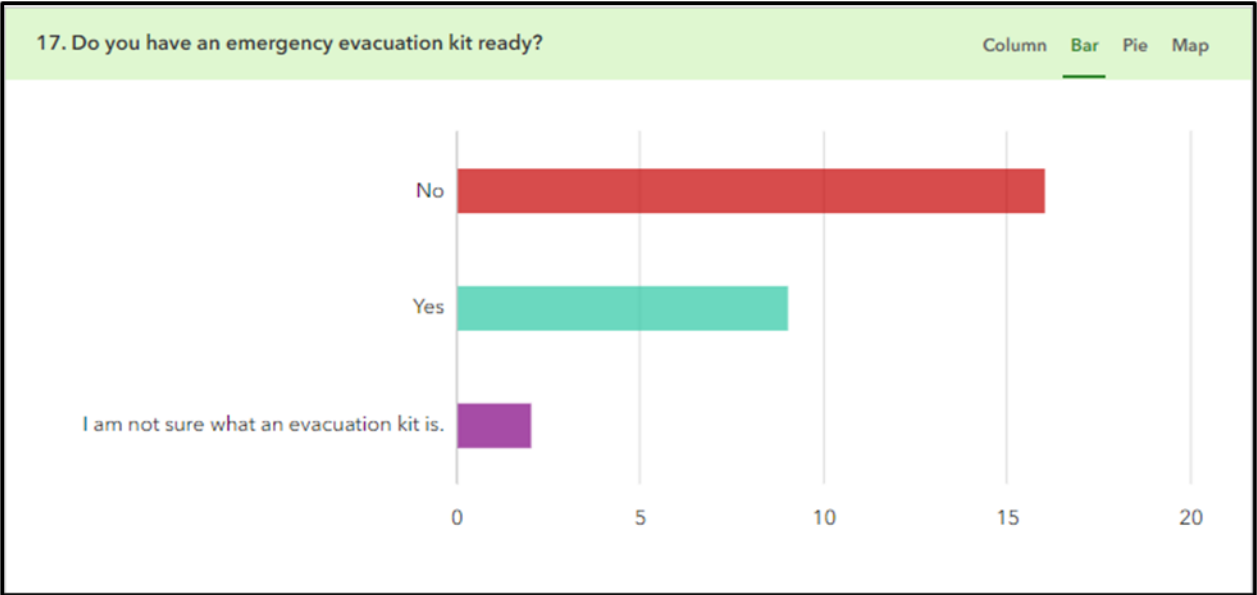


Figure G.24. Survey question no. 17.

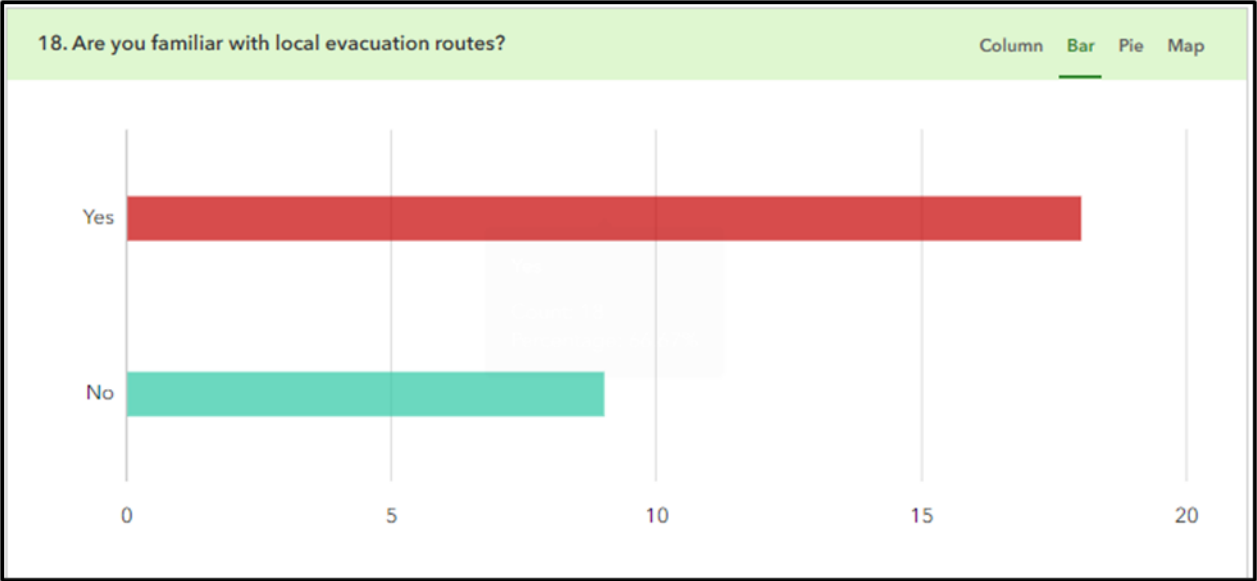


Figure G.25. Survey question no. 18.

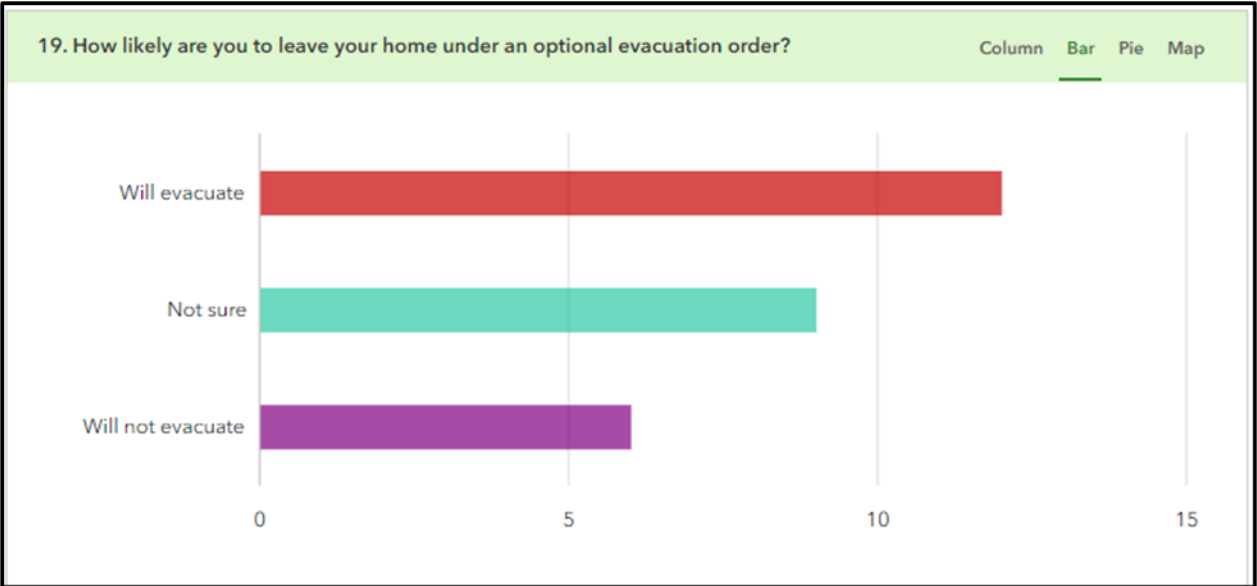


Figure G.26. Survey question no. 19.

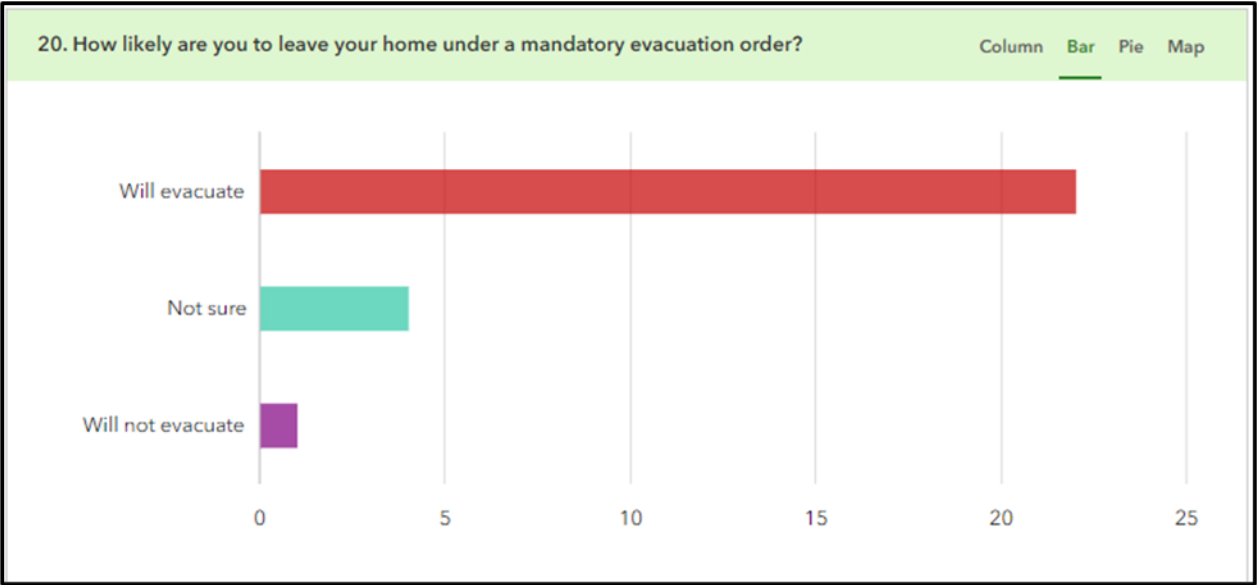


Figure G.27. Survey question no. 20.

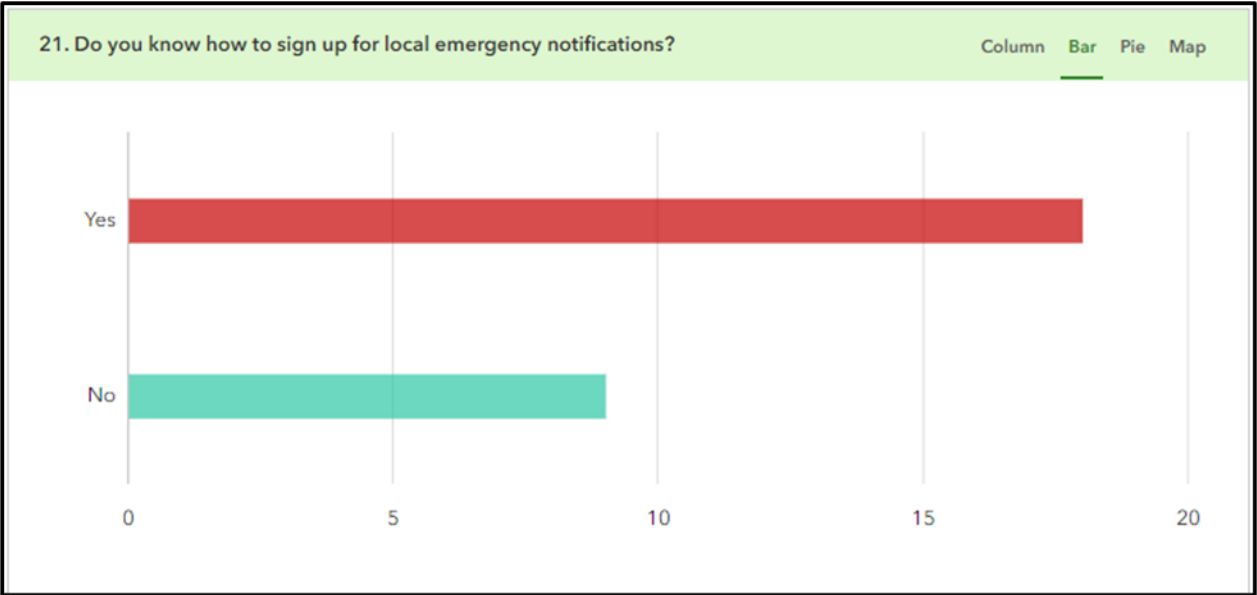


Figure G.28. Survey question no. 21.

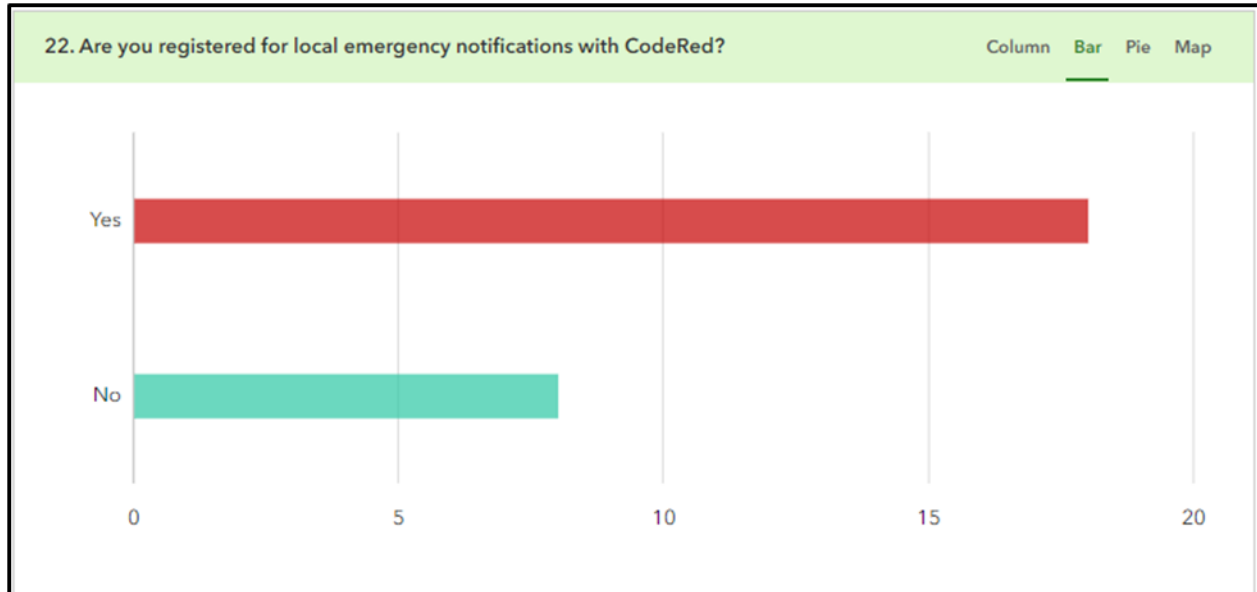


Figure G.29. Survey question no. 22.

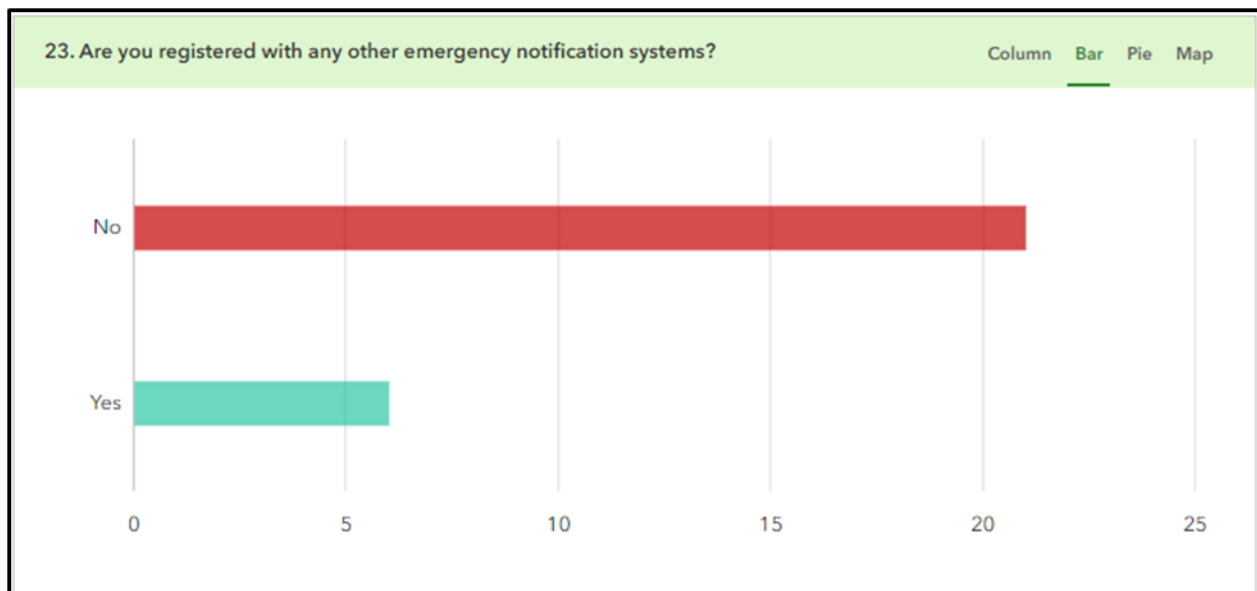


Figure G.30. Survey question no. 23.

STAKEHOLDER OUTREACH

To convene an all-inclusive Core Team, SWCA and Sandoval County conducted extensive stakeholder outreach that consisted of emails, calls, video conferencing, and in-person meetings with personnel from the local government, local tribes, private entities, fire organizations, and federal and state land managers (Figure G.31).



Figure G.31. Sandoval County Core Team meeting (February 2025).



APPENDIX H: Recommendations

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Table H.1. Recommendations for Creating Resilient Landscapes (Hazardous Fuels Modification)

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
RL #1		High	Fall 2027	Fuel reduction Strategically install fuel breaks throughout the county in accordance with risk assessment findings and existing knowledge of fuel loading and high-risk areas.	Private and public lands throughout Sandoval County	Sandoval County, Pueblo partners, USFS, BLM, State, New Mexico State Land Office (NMSLO), homeowners' associations (HOAs), private landowners, MRGCD, and Village of Corrales	<ul style="list-style-type: none">• Work with community stakeholders to identify and implement treatments in high-risk areas.• Coordinate adjacent treatments with Pueblos and the USFS.• Conduct the thinning of buffer zones between USFS and private properties.• Mow around fence lines on ranchlands.• Reduce shrubs and remove invasives.• Plan prescribed burns on USFS lands.• Plan prescribed burns on state/private lands.• Purchase equipment for use in fuel reduction work, including heavy equipment.• Install fuel breaks in high-risk areas and prioritize underserved, remote, and isolated areas. Potential fuel break locations include the following:<ul style="list-style-type: none">◦ Along community perimeters◦ Perpendicular to average wind direction in vulnerable areas◦ Along rights-of-way (ROWs), including evacuation corridors◦ Along riparian corridors that lead into communities, strategically reducing ladder fuels and breaking up fuel continuity◦ Areas that support protection of the WUI◦ Areas that increase fire responder safety◦ Communities surrounded by steep topography and heavy fuels◦ Around critical infrastructure and facilities◦ Along strategic ridge tops◦ Near existing fuel breaks for improved effectiveness <p>Focus areas include the following:</p> <ul style="list-style-type: none">• Vegetation treatments coupled with educational outreach in and around Jemez Springs• Fuel reduction around King Ranch in Santa Ana Pueblo• Pile and broadcast burns in Areas 1, 2, and 3• Hazard reduction at the top of Fenton Hill• The USFS project to alleviate concerns around Hummingbird Music Camp and YCC Camp• Tree thinning around Fenton Lake• Sierra Los Pinos• Perimeter buffer zone between USFS lands and Jemez Mountains Firewise Association (JMFA) communities• Naturally occurring fuel breaks on Santa Fe National Forest land• Hazardous fuels in JMFA communities with Non-Federal Lands (NFL) treatments• Corrales Bosque, adjacent ROWs, and WUI areas• Re-treatment of 80 acres Peña Blanca Bosque at Leyba Arroyo	Provide access to fire personnel. Establish fuel breaks and fire containment lines. Create resilient landscapes and address potential for extreme wildfire behavior in and around the WUI. Protect communities and critical infrastructure and facilities.	Regular maintenance needed to keep effective fuels treatments.	<ul style="list-style-type: none">• New Mexico Fire Protection Grant• New Mexico Water Trust Board Grants• New Mexico Association of Counties: Wildfire Risk Reduction Program• National Forest Foundation (NFF); Innovative Finance for National Forests Grant Program• Building Resilient Infrastructure and Communities (BRIC) Grant Program• Firewise Grants• Natural Resources Conservation Service Regional Conservation Partnership Program (NRCS RCPP)• NMSF WUI/ Hazardous Fuel Treatments on NFL grant programs• New Mexico Water Trust Board• New Mexico House Bill 175 (HB 175)

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">100 acres in the Corrales Bosque (MRGCD and Village of Corrales)Re-treatment of USACE restoration sites and shaded fuel breaks in Corrales Bosque (400 acres)Fuels treatments (50 acres) on Corrales Riverside drain and Sandoval LateralPlacitas Corridor and Historic Placitas areasConsider revisiting the Coronado SWCD 2013 pilot study of seven properties to gather lessons learned on fuels reductions on residential propertiesContinue and support the Coronado SWCD's periodic Chipper Days			
RL #2		High	Fall 2027	Utility protection and improvements Protect power, transmission, and communication lines by reducing or removing fuels around infrastructure (e.g., power poles, substations, etc.). Assess existing infrastructure to determine needed improvements.	Utility ROWs, private and public lands in Sandoval County	Sandoval County, Pueblo partners, USFS, EMNRD Forestry Division, NMSLO, HOAs, private landowners, Village of Corrales, and Jemez Electric Cooperative	<ul style="list-style-type: none">Ensure adequate clearance between power lines and trees for enhanced safety and wildfire prevention.<ul style="list-style-type: none">Work with relevant utility companies to determine best practices.Work with utilities on vegetation management plans.Work with relevant agencies on requiring underground utilities and very limited variances.Identify funding to place existing electrical utilities underground.Assess existing infrastructure for age-related wear and implement necessary repairs and upgrades to reduce wildfire risk. <p>Focus areas include the following:</p> <ul style="list-style-type: none">Standard Form 299 management plan for ROW clearing along utility linesInadequate electrical transmission line easements (10 feet on each side) for preventing tree damage and subsequent fires in Sierra Los Pinos	Protect life and property by preventing the destruction of energy or communications infrastructures in the event of a fire.	Regular maintenance needed to ensure lines are clear of vegetation. Monitoring should occur prior to fire season (February) and in the fall (October).	<ul style="list-style-type: none">FEMA BRIC Grant ProgramFirewise GrantsNew Mexico Fire Protection GrantEmergency Forest Restoration Program (EFRP)
RL #3		High	Fall 2027	Roadside fuels reduction Implement roadside fuels treatments along critical ROWs, including potential evacuation corridors.	Sandoval County	Sandoval County, Pueblo partners, USFS, BLM, State, NMSLO, HOAs, private landowners, MRGCD, and Village of Corrales	<ul style="list-style-type: none">Apply thinning along roadways to allow for firefighting apparatuses and evacuations.Mow a 70-foot buffer along edge of roadway and remove invasive species along roadside.Remove piñon juniper and other shrubs encroaching on highway ROW. <p>Focus areas include the following:</p> <ul style="list-style-type: none">Vegetation thinning around Jemez communities to enhance safety and fire responseWith landowner approval, roads in Sierra Los Pinos require thinning to improve egress and safer passage of firefighting equipmentThinning of doghair thickets immediately adjacent to community roadway entrances using NFL funds on private property and government crews on Forest Service landRiverside drains, irrigation canals, and levee ROWs along the Middle Rio Grande adjacent to communities, Pueblos, and developments.	Reduce risk of roadside ignitions and protect functionality of evacuation routes.	Regular maintenance needed to ensure roadsides and railroads are clear of vegetation.	<ul style="list-style-type: none">FEMA BRIC Grant ProgramEFRPNew Mexico Fire Protection GrantFirewise grantsNMSF WUI/NFLNRCS RCPPNew Mexico Water Trust Board GrantsHB 175

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
RL #4		Medium	Fall 2026	Prescribed herbivory Identify continued prescribed herbivory in open spaces, targeting grasses, light fuels, and invasive and noxious weeds throughout the county.	Sandoval County	Sandoval County, Pueblo partners, Fire Protection Districts (FPDs), NMSF, USFS, BLM, MRGCD, and Village of Corrales	<ul style="list-style-type: none">• Use prescribed herbivory as fuel reduction and maintenance technique, especially adjacent to WUI areas.• Work with local ranchers to develop a regional prescribed herbivory plan.• Implement prescribed herbivory plans to eliminate dry grass and remove weeds and/or establish irrigation to regreen the parcel.• Employ prescribed herbivory as a solution for treating areas of high concern and challenging topography that would be unsafe for hand treatment.• Work with local personnel to investigate locations where prescribed herbivory would be most effective.	Reduce fuel loading of fine fuels that could increase wildfire spread to WUI areas.	Regular monitoring needed to ensure against environmental damage and invasive species. Update the CWPP project tracking tool with progress and relevant statistics.	<ul style="list-style-type: none">• Firewise Grants• New Mexico Fire Protection Grant• New Mexico Association of Counties: Wildfire Risk Reduction Program• EFRP• HB 175
RL #5		High	Fall 2026	Fuels break maintenance Sustain maintenance of existing fuel breaks and progress with execution of planned fuel breaks.	Sandoval County	Sandoval County, Pueblo partners NMSF, USFS, BLM, NMSLO, private landowners, MRGCD, and Village of Corrales	<ul style="list-style-type: none">• Implement a routine maintenance and inspection schedule for existing fuel breaks to ensure their effectiveness.• Maintain existing fuel breaks according to vegetation conditions.• Execute planned fuel break projects according to established timelines and priorities.• Collaborate with relevant agencies, organizations, and communities to ensure project success.• Integrate the mitigation of hazards, such as dead or diseased trees, into fuel break maintenance plans.• Assess if existing fuel breaks are sufficiently wide to be effective; expand fuel breaks where needed.• Implement fuel break around high-capacity sprinkler systems.• Work with volunteers for dead and down removal.• Work with volunteers for invasive species removal.• Acquire heavy equipment.	Maintain effectiveness of previously installed fuel breaks.	Regular evaluations and maintenance needed to keep fuel breaks effective.	<ul style="list-style-type: none">• New Mexico Association of Counties: Wildfire Risk Reduction Program• National Forest Foundation (NFF); Innovative Finance for National Forests Grant Program• BRIC Grant Program• Firewise Grants• NFP• NRCS RCPP• USFS CWDG• HB 175
RL #6		High	Spring 2028	Watershed protection Continue to identify and execute watershed-scale ecosystem projects across jurisdictions (i.e., private, federal, Tribal, state) to enhance wildfire resilience, wildlife habitat, and water quality.	Public and private lands within Sandoval County	Sandoval County, Pueblo partners NMSF, USFS, BLM, NMSLO, MRGCD, Village of Corrales, and New Mexico Rural Water Association	<ul style="list-style-type: none">• Collaborate with agencies, environmental organizations, and community stakeholders to design and implement integrated watershed fuel reduction projects.• Develop comprehensive project plans that outline specific mitigation strategies and ecological restoration goals.• Use a combination of fuel reduction methods tailored to watersheds, including prescribed burns, mechanical thinning, debris removal, chipping, hand thinning, targeted herbicide treatments, mastication, and targeted vegetation management.<ul style="list-style-type: none">◦ Ensure that mitigation efforts comply with environmental regulations and best practices to minimize ecological impacts.• Build on the riparian maintenance documentation to streamline environmental review and permitting.• Integrate restoration practices that promote water quality, soil health, and native vegetation recovery.• Assess and prioritize watersheds based on<ul style="list-style-type: none">◦ wildfire risk,	Reduce hazardous fuels throughout the county. Create resilient landscapes and address potential for extreme wildfire behavior in and around the WUI. Ensure the protection of vulnerable ecosystems and values at risk.	Maintenance and updates as needed.	<ul style="list-style-type: none">• New Mexico Fire Protection Grant• USFS CWDG Grants• FEMA BRIC• FEMA Hazard Mitigation Grant Program• General Services Administration Federal Excess Personal Property• Firewise Grants• NRCS RCPP• Emerging Contaminants in Small or Disadvantaged Communities Program• NRCS RCPP• NMSF WUI/NFL

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">○ presence of sensitive species, and○ watershed health.• Develop and implement a monitoring program to track the effectiveness of fuel reduction and restoration projects.• Strategically targeted funding to treat fuels around water sources, with a focus on comprehensive community-wide treatments. Focus areas include the following: <ul style="list-style-type: none">• Comprehensive community-wide treatments.• Implement a legal code or ordinance for watershed protection during land development. The code/ordinance should align with the Santa Fe National Forest Land Management Plan's Objectives for Water Resources.• Develop and train crews to engage in watershed restoration work following a wildfire using USACE "Engineering with Nature" principles.			<ul style="list-style-type: none">• New Mexico Water Trust Board• HB 175
RL #7		Medium	Winter 2026	Green waste disposal and recycling Promote green waste disposal resources and establish designated collection days to encourage community participation and proper disposal of green waste.	Sandoval County	Sandoval County, NMSF, and Village of Corrales	<ul style="list-style-type: none">• Seek funding to acquire an industrial-sized chipper for the county.• Conduct public outreach to ensure that residents are aware of all the resources for green waste disposal (e.g., slash disposal locations, etc.).• Conduct regular green waste disposal days and ensure communities are informed about these events.• Explore options for expanding waste disposal sites, ensuring accessibility where it is most needed.• Engage the community in discussions about green waste disposal, gathering input on preferences and addressing concerns.• Establish partnerships with adjacent counties for enhanced resource sharing and allocation.• Village of Corrales to host biannual Corrales cleanup days.• Research biomass boiler units for municipal facilities following U.S. Environmental Protection Agency (EPA) guidelines for emissions.• Develop partnerships with NMSF, county, municipalities, public, and Pueblo land managers for disposal and re-use or value-added products from woody by-products of fuels management and restoration such as mulch and slash. Focus areas include the following: <ul style="list-style-type: none">• Bosque biomass disposal is an issue.• Develop a proposal for a regional biochar production facility to reconstitute slash.• Consider transporting the materials to local businesses, agencies, or organizations that could make use of the biomass.	Reduce fuel loading and continuity within and around communities. Enhance regional landscape resiliency.	Revise and review strategy on an annual basis. Track yearly progress.	<ul style="list-style-type: none">• CWDG• BRIC• New Mexico Association of Counties: Wildfire Risk Reduction Program

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
RL #8		High	Fall 2026	Water Resources Continue to protect critical water resources throughout the county.	Sandoval County	Sandoval County, Pueblo partners, local governments, HOAs, Firewise groups, private landowners, USFS, BLM, and Village of Corrales	<ul style="list-style-type: none">Assess wildfire risk posed to community water supply systems including drinking water sources outside the community or the water system service areas.Conduct baseline studies to assess the post-fire impacts (i.e., debris flow, flooding, and erosion) likely to affect drinking water sources in high-risk areas.Prioritize fuel reduction treatments along with other relevant pre-fire mitigation actions around community drinking water sources. Coordinate with private landowners as needed when water sources are on private lands.Harden critical infrastructure for community drinking water systems, particularly wellheads, springs, intakes, infiltration galleries, treatment plants, and storage tanks.<ul style="list-style-type: none">Identify and pursue opportunities for funding and education associated with this effort.Support infrastructure hardening efforts on land not owned by the water system.Collect baseline data on drinking water source quality and quantity.Pre-fire mitigation measures for post-fire recovery. Focus areas include the following: <ul style="list-style-type: none">Assessing wildfire risk posed to municipal water supplies on federal lands including but not limited to Jemez Springs DWA, Ponderosa Mutual Domestic Water Consumers Association (MDWCA), La Jara Water Utility Authority (WUA), Los Pinos HOA, and Regina MDWCA.	Increase the resilience of community drinking water systems.	Regular updates to data collection and conducted studies. Regular maintenance to ensure infrastructure remains clear of excess vegetation and up to date with other pre-fire mitigation actions.	<ul style="list-style-type: none">Fire Council GrantCapital outlayCongressional-directed spending

Table H.2. Recommendations for Creating Fire-Adapted Communities (Public Education and Structural Ignitability)

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
FAC #1		Medium	Spring 2027	Firewise Communities Promote and support the formation of local Firewise communities for enhanced community wildfire preparedness. Note: for homeowner insurance purposes, the standards set forth in the Wildfire Prepared Program by the Insurance Institute for Business and Home Safety should be followed due to the passing of Senate Bill 33).	Sandoval County	Fire departments, County staff, HOAs, Village of Corrales, and Jemez Mountains Firewise Association (JMFA)	<ul style="list-style-type: none">Conduct a comprehensive needs assessment to identify areas within the county that would benefit from the establishment of local Firewise communities.Engage with communities to raise awareness of the benefits of Firewise communities.Collaborate with existing Firewise communities and organizations to provide training and guidance on establishing and managing Firewise communities.Define leadership roles and governance structures for Firewise communities, including selection of leaders and/or coordinators.Allocate resources, which may include grants and funding, to support the establishment and initial activities of Firewise communities.Use the risk assessment (Chapter 3) and the community summaries (Appendix C) to identify vulnerable areas and develop localized action plans for each Firewise community.Set up a meeting schedule for regular Firewise community meetings and reporting to track progress and outcomes.Encourage community participation in Firewise community activities, including community education, fuel reduction projects, home hardening, and evacuation planning.	Protect communities and infrastructure through increased awareness and defensible space.	Assess participation regularly.	<ul style="list-style-type: none">Firewise grantsUSFS CWDG Grants
FAC #2		High	Fall 2026	Increase community capacity Increase local capacity to address wildfire threats.	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">Foster collaborative relationships with the USFS, private landowners, and the community as a whole.Leverage community partnerships to increase public awareness and readiness to respond to wildfires as well as capacity to complete mitigation projects.Identify and apply for state and federal grants with community and stakeholder buy-in.Continue to apply for non-federal land vegetation thinning grants from NMSF.Build local capacity to pursue funding sources and implement funded mitigation projects. <p>Focus areas include the following:</p> <ul style="list-style-type: none">Collaborate with Office of Superintendent of Insurance on ideas to reduce wildfire risks.	Protect communities and infrastructure through increased awareness and capacity to complete mitigation work.	Assess capacity annually. Maintain strong community partnerships.	<ul style="list-style-type: none">Building Resilient Infrastructure and Communities (BRIC)USFS CWDG GrantsFirewise grants
FAC #3		Medium	Spring 2027	Wildfire danger signage Increase signage regarding fire danger. Consider installing electronic sign in high-risk areas that can have updated messages.	Sandoval County	Sandoval County, Pueblo partners, local governments, HOAs, Firewise groups, USFS, MRGCD, and Village of Corrales	<ul style="list-style-type: none">Add fire signage throughout the community to spread message of fire danger and reduce human ignitions.Inspect and maintain existing signage.	Protect communities and infrastructure by raising awareness of local citizens and tourists about wildfire threats.	Maintain signage regularly.	<ul style="list-style-type: none">Firewise grantsUSFS CWDG Grants



Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
FAC #4		High	Spring 2027	Livestock evacuation Plan livestock evacuation routes and inform communities.	Sandoval County	Emergency management officials, livestock agencies, and Village of Corrales	<ul style="list-style-type: none">Work with emergency management officials to plan evacuation of livestock and pets and develop an informational brochure that could be appended to the CWPP and posted on County Emergency Management websites.Continue education outreach.Work with local animal organizations and animal services to update current plans.Streamline delivery methods for getting information to the public.	Protect communities, livestock, and infrastructure through increased awareness. Expedite evacuation of residents in event of mandatory evacuation.	Update evacuation routes regularly.	<ul style="list-style-type: none">Firewise grantsUSFS CWDG Grants
FAC #5		Medium	Winter 2028	Building fire codes Strengthen building codes.	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">Review existing building codes and update them to align with the newest International Fire Code, which enforces building codes and ordinances for new development in the WUI.	Enhance community resiliency.	Not applicable (N/A)	<ul style="list-style-type: none">FEMA BRICFirewise grantsUSFS CWDG Grants
FAC #6		High	Winter 2027	Public Education Continue to develop a comprehensive public education and community engagement program.	Sandoval County	Sandoval County, Pueblo partners, local governments, HOAs, Firewise groups, MRGCD, and Village of Corrales	<ul style="list-style-type: none">Increase awareness about the standards set forth in the Wildfire Prepared Program by the Insurance Institute for Business & Home Safety.Inform and educate residents on public power safety shut-offs, including proper preparation such as having backup power for critical devices or equipment (e.g., medical devices and wells).Develop model homes and community showcases to promote and convey fire safety practices, such as creating household evacuation plans and defensible spaces.Develop a comprehensive outreach strategy that considers challenges in reaching rural residents.Host field trips/picnics for the public to visit post-fire sites.Identify communities for participation in evacuation drills and conduct drills.Develop a SimTable of Horseshoe Springs to show the difference between 80% treatment and without treatment using local examples of pre/post treatment and patchwork versus full neighborhoods.Increase awareness about common human ignition sources and associated dangers (e.g., dragging chains, equipment use, railroads, welding, debris burning, and unattended campfires).Solicit community feedback on locations of high hazard areas/properties as well as mitigation strategies.Increase awareness of the wildfire-related issues of invasive plants.Ensure inclusivity and support for vulnerable populations (e.g., disabled residents, low-income individuals, land grant members, non-English-speakers, etc.) in wildfire planning, preparedness, and response efforts.Partner with federal agencies, special districts, community associations, schools, and nonprofits to facilitate outreach efforts.	Reduce risk of human-caused wildfire ignitions. Educate citizens about wildfire hazards.	Conduct regular review of outreach materials as needed. Track local engagement.	<ul style="list-style-type: none">New Mexico Association of Counties: Wildfire Risk Reduction ProgramBRICFirewise grantsFire Prevention and Safety grants (FP&S)USFS CWDG Grants

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">Identify and empower “community navigators” or “champions” who can advocate for wildfire preparedness and education within their communities.Develop a system for periodic updates and feedback collection from the community to ensure that outreach efforts remain effective and responsive to community needs.Tailor outreach materials and messages to address the specific concerns of each community, including issues related to fire protection, water resources, road access, and evacuation planning.Maintain a dedicated user-friendly website that centralizes wildfire safety information and resources.<ul style="list-style-type: none">Consider developing an ArcGIS fire hub site, using templates from New Mexico Highlands University (NMHU) and SWCA, for communities within the JMFA service area.Establish programs in schools to distribute wildfire safety information to students.Continue quarterly public meetings focusing on evacuation for family and animals, wildfire preparedness, and emergency plans. <p>Focus areas include the following:</p> <ul style="list-style-type: none">Increasing awareness of the Sandoval County Sierra Los Pinos clearing (USDA program to facilitate residents taking advantage of the project)Increase engagement in the annual Fire Preparedness Workshop at Jemez Mountain Baptist Church.			
FAC #7		High	Winter 2028	Defensible space and home hardening assistance programs Implement a countywide program to support property owners in defensible space and home hardening measures, green waste disposal, home assessments, and addressing and signage improvements.	Sandoval County	Sandoval County, Corrales, NM State Forestry, Cuba Soil & Water Conservation District, and JMFA	<ul style="list-style-type: none">Encourage homeowners to follow the standards set forth in the Wildfire Prepared Program by the Insurance Institute for Business and Home Safety.Develop a handbook that gives locally relevant and detailed information to help residents be more prepared for wildfire, including a defensible space checklist specific to local structural and wildland fuel consideration.Conduct an initial assessment to identify service gaps and deficiencies.Integrate this program with educational programs and proposed ordinances.Establish a defensible space and home hardening assistance program that covers funding and education.Offer wildfire mitigation assistance for disabled, elderly, and low-income residents.Promote and expand (if necessary) existing green waste disposal program to support residents in defensible space efforts.Offer regular community chipper days.Prioritize efforts in areas that are high-risk, remote, and lack adequate water supply.	Support community defensible space and home hardening efforts.	Evaluate program annually and update as necessary. Complete regular assessments in heavily vegetated areas.	<ul style="list-style-type: none">New Mexico Association of Counties: Wildfire Risk Reduction ProgramFirewise grantsU.S Environmental Protection Agency (EPA) Environmental Education GrantsFP&S



Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">Consider the following:<ul style="list-style-type: none">Financial incentives such as tax credits for structure improvementsSubsidies to offset mitigation costs (e.g., retrofits and new builds) for economically disadvantaged residents; for example, grants and cost-sharing opportunitiesExpanding technical assistance programs for communities at greatest risk with limited capacityIncreasing financial support and technical resources to jurisdictions to hire staff and enhance capacity to adopt, enforce, and maintain building codes and standards that govern construction, design, and development in wildfire-prone areasDefensible space cost-sharing programs			
FAC #8		High	Summer 2026	Evacuation planning Explore and implement options to resolve limited access issues (e.g., potential bottlenecks, locked gates, heavy roadside fuels, etc.).	Sandoval County	Sandoval County in collaboration with Pueblo partners, Fire Protection Districts (FPDs), SWC, USFS, NMSLO, Private landowners, Village of Corrales, and HOAs	<ul style="list-style-type: none">Conduct an initial assessment of ingress and egress issues to identify high-risk roads such as roads with potential bottlenecks, locked gates, or heavy roadside fuels.Prioritize road maintenance and clearance efforts to ensure safe passage for emergency vehicles and residents.<ul style="list-style-type: none">Maintain fire access roads.Promote resident involvement in right-of-way (ROW) vegetation clearance efforts.Establish regular maintenance schedules to address encroaching vegetation, debris, and road surface conditions.Maintain turn-around locations, where appropriate, for first responders, and determine the need for improving or construction of new ones.Consider using back roads on public and private lands as alternative ingress and egress points (for instance, between Areas 1 & 3).<ul style="list-style-type: none">Work with relevant entities (e.g., the USFS) to assess feasibility.Develop and communicate plans for communities with limited access. Ensure that residents are aware of all potential evacuation routes.Inform homeowners about the importance of keeping driveways accessible to fire trucks and emergency responders.Establish vegetation management programs and/or centralize existing plans from agencies that are responsible for ROW management.Develop a community handbook for evacuation and emergency planning.Conduct assessments of bridges with potential safety concerns.<ul style="list-style-type: none">Upgrade or replace wooden bridges and bridges that do not meet safety standards.	Provide safe and effective means of evacuation in case of emergencies.	Monitor and maintain regularly to ensure roads are drivable for emergency response vehicles	<ul style="list-style-type: none">BRICFirewise grantsNational Urban and Community Forestry Challenge Cost Share Grant ProgramPrivate non-profits

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">○ Identify where unknown and document load-bearing capabilities of bridges, and ensure proper signage is posted at key bridges, to promote safety of first responders.• Collaborate with transportation authorities and agencies to address road safety concerns and explore funding opportunities for road improvements.• Install clear and informative directional signage in communities with dead ends, cul-de-sacs, and complex layouts to aid navigation for emergency responders.• Collaborate with county and municipal planners and community stakeholders to ensure that future development accounts for improved access and safety considerations.• Create and maintain a map with emergency access roads.• Conduct assessments of public and private roadways to ensure roads are safe for emergency vehicles and drivable.• Conduct vegetation management on public roadways and send notices to private road owners ensuring minimum standards <p>Focus areas include the following:</p> <ul style="list-style-type: none">• Improve smaller public roads such as Andrews Lane in Corrales to ensure feasible egress during evacuations.• Install emergency egress bridges and roadways.• The community/area of Applewood.• Purchase land to allow for ingress and egress on narrow public and private roads.• Purchase land for emergency evacuations on roadways that are narrow.• Plan for safety zones for the public if egress is blocked, working with both public and private lands.• Create an ordinance and review process for gates being installed on private roads.<ul style="list-style-type: none">○ Create an ordinance to require Knox box system on all new gates.• Improve access routes, including alternate access routes, to enhance safety and fire response in Jemez communities.• Open and improve the decommissioned logging road between Areas 1 & 3 with USFS approval and direction to establish an alternate ingress/egress route.• Cerro del Pino and Thompson Ridge road systems require improvements to enhance safety and evacuation routes.• With landowner approval, roads in Sierra Los Pinos require widening to improve egress and safer passage of firefighting equipment.• Conduct improvements to roads and bridges so the infrastructure aligns with the Cooperative Forest Road Agreement with Sandoval County and Santa Fe National Forest in Thompson Ridge.			

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves to:	Monitoring/Maintenance Requirements	Funding Sources
FAC #9		Medium	Spring 2027	Private-public collaboration Develop an accessible and informative toolkit for private property owners to navigate the process of collaborating with land managers.	Sandoval County	Sandoval County, NMSF, NMSLO, and Village of Corrales	<ul style="list-style-type: none">Develop a comprehensive toolkit for private property owners, outlining the process and requirements for collaborating with land managers (e.g. USFS, NMSF, etc.) on fire mitigation projects.Ensure that the toolkit is easily accessible and transparent, with clear instructions and contact information for relevant land management agencies.Include a detailed map that clearly shows jurisdictional boundaries.Provide information on the legal and regulatory consideration for conducting fire mitigation work on land managed by governmental agencies (e.g., creeks and streams, areas with sensitive species, etc.).Include guidance on the permitting process, documentation requirements, and any associated fees or costs.Offer resources and contact details for agency representatives who can assist private property owners in project planning and implementation.Conduct outreach to inform homeowners about the toolkit's availability and importance.Establish a feedback mechanism to gather input and suggestions from property owners for toolkit improvement.	Increase collaboration. Enhance community resilience.	Update materials as needed.	<ul style="list-style-type: none">New Mexico Association of Counties: Wildfire Risk Reduction ProgramBRICFirewise grantsFP&SEPA Environmental Education Grants
FAC #10		Medium	Spring 2026	Collaboration with Rio Arriba County Establish a collaborative relationship with Rio Arriba County for wildfire planning, prevention, and preparation.	Sandoval and Rio Arriba Counties	Rio Arriba County	<ul style="list-style-type: none">Foster an environment that encourages and supports coordination and collaboration with Rio Arriba County.Identify joint objectives, shared goals, synergies, and opportunities for increased efficiencies and leveraging of resources.	Increase regional resiliency.	Meet regularly to ensure consistent communication.	<ul style="list-style-type: none">N/A

Table H.3. Recommendations for Safe, Effective, Risk-based Wildfire Response

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
FR #1		High	Summer 2027	Improve firefighter navigation Update maps used by fire responders across county jurisdictions.	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">Acquire funding for and conduct an update of fire behavior and fuel models using LiDAR and GIS layers.Update evacuation plans to account for updates to fuel modeling and high-risk areas.Assess and map the availability of alternative access routes for all communities considering the potential for road wash outs.Ensure all mapped resources are available to first responders.Acquire updated 911 GIS and mapping.Work with mapping and response application companies to use updated GIS. Focus areas include the following: <ul style="list-style-type: none">Assess on-the-ground risk by compiling LiDAR and GIS data where available to determine vegetation density near structures.	Increase fire responder and public safety.	Regular updates to maps.	<ul style="list-style-type: none">Firewise grantsUSFS Community Wildfire Defense Grants (CWDG)
FR #2		High	Fall 2028	Evacuation planning and preparation Assess evacuation strategies across the county, including identifying all potential egress routes, establishing potential temporary refuge areas, and implementing tailored evacuation plans and drills. It should be noted that actual incidents (evacuation orders) will determine appropriate procedures (e.g., which road to take, where to shelter, etc).	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">Collaborate with land management agencies and fire protection agencies to assess and update evacuation procedures.Develop detailed maps that show all roads with potential ingress and egress points into and out of each community along with potential pinch points and temporary refuge areas. Ensure residents have access to maps for their respective community.Engage community members in the planning process to incorporate their local knowledge and preferences.Identify high-risk communities with limited access and conduct evacuation drills in these communities, involving residents in practicing evacuation procedures under different scenarios.Allocate resources, including signage, emergency equipment, and personnel, to support implementation of evacuation plans.Assess and test emergency evacuations procedures to identify opportunities to improve communication systems, road systems, and community awareness and readiness.Periodically review and update community evacuation plans to ensure they remain relevant and effective. Focus areas include the following: <ul style="list-style-type: none">Develop formalized evacuation plans for Jemez Valley and La Madera that focus on defining road access and pinch points as well as modeling evacuation routes.Update Los Alamos evacuation plans with customized fuel models and prioritization of high-risk areas.Develop a tailored evacuation plan for Jemez corridor, including<ul style="list-style-type: none">identifying primary and alternate evacuation routes, pinch points, and potential funding;	Protect public and first responder life and safety.	Regular updates to evacuation plans and strategies.	<ul style="list-style-type: none">Building Resilient Infrastructure and Communities (BRIC)NRCS RCPPFirewise grantsUSFS CWDG Grants

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">○ developing education and outreach for evacuation routes;○ assessing deficiencies in the communication/notification system and identifying resolutions (e.g., air raid warnings); and○ implementing a test of the evacuation plan with interested communities.• Conduct a multi-agency evacuation training exercise at Fenton Lake State Park.• Develop and formalize evacuation routes<ul style="list-style-type: none">○ on the east side of Corrales Road,○ between Corrales Road and Loma Larga, and○ on the west side of Loma Larga.			
FR #3		Medium	Winter 2027	Suppression planning Preplan strategic staging areas.	Sandoval County	Sandoval County, Pueblo partners and Village of Corrales	<ul style="list-style-type: none">• Work with local schools, community groups, and neighboring counties to establish a preplanned staging area for suppression sources and crews.• Plan for fire stations in high-risk areas for pre-staging of fire suppression equipment. Priority areas would be Corrales Bosque and Loma Larga.	Protect life and property through improved firefighting response.	Not applicable.	<ul style="list-style-type: none">• BRIC• Firewise• NRCS RCPP• USFS CWDG Grants• Bonds• New Mexico Fire Grant Council
FR #4		High	Spring 2026	Water resources mapping Identify, assess, and map existing water resources for fire suppression, ensuring comprehensive coverage.	Sandoval County	Sandoval County, Pueblo partners, Fire Protection Districts (FPDs), and Village of Corrales	<ul style="list-style-type: none">• Assess existing water resources throughout the county and create a map and/or web map showing all water sources (e.g., tanks, hydrants, ponds, ditches, etc.).<ul style="list-style-type: none">○ Record flow rates, pressure, and overall condition for fire hydrants.○ Record water availability, proper fittings, and landowner willingness to collaborate for maintaining water tanks.○ For ditches, identify areas where drafting water is accessible (e.g., where there is little to no vegetation).○ Record areas where drafting water is feasible (e.g., ditches and ponds).○ Where applicable, identify alternative means of access to water sources.• Work with fire personnel to explore the best method to host, use, and maintain the information.• Identify stock tanks, water storage tanks, and hydrants, as well as funding to provide upkeep for these suppression sources and to provide retrofitting to allow utilization by fire departments. Add water resources to the GIS maps and differentiate between ephemeral and perennial water sources so dispatchers can direct fire crews to available supplies.• When public water system (PWS) sources are tapped,<ul style="list-style-type: none">○ coordinate between PWS and fire departments (FDs) to identify when water can be tapped before it is treated to drinking water standards, and	Improve efficiency and speed of wildfire response and suppression Reduce wildfire threats to life and property	Annual assessment/review of water resources.	<ul style="list-style-type: none">• Emergency Management Performance Grant (EMPG) (FEMA)• New Mexico Fire Protection Grant• Firewise grants• BRIC• NRCS RCPP• Emerging Contaminants in Small or Disadvantaged Communities Program (ECP)• USFS CWDG Grants



Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">○ coordinate on metering usage, and communicate regarding system requirements such as pumping and storage capacities.			
FR #5		High	Spring 2027	Improve water resources for firefighting Investigate and explore approaches to enhancing water sources for firefighting purposes.	Sandoval County	Sandoval County, Pueblo partners, FPDs, and Village of Corrales	<ul style="list-style-type: none">• Assess and identify the effect of the loss of power (e.g., a power safety public shut-off) on local water supplies (resources and recharge times).• Establish relationships with private property owners and assess their interest in collaborating with FDs (i.e., making their tanks, ponds, wells, or ditches accessible to firefighters during emergencies).• Conduct community outreach to residents to increase awareness of firefighting water supply issues and provide a list of actions they can take to support firefighting efforts (e.g., collaborating to map water resources in the neighborhood; installing universal fittings to water tanks; and keeping water tanks full).• Maintain accessibility of water resources (e.g., reduce heavy vegetation near tanks, hydrants, and ditches).• Conduct outreach to agricultural or industrial operators with ample water sources (e.g., large water tanks) to assess interest in collaborating with FDs.• Consider painting fire hydrants according to their flow rates (NFPA standards).• Implement a regular testing and maintenance program for fire hydrants to ensure they are in good working condition.• Seek funding to implement rainwater harvesting on all volunteer FD buildings and other county properties. Need to ensure that water supply for volunteer FD does not impinge on municipal supply.• Increase number of water tanks and wells.• Increase fire suppression lines and hydrants.• Obtain water rights to support community.• Fund and install generators at wells and pump systems.• Develop and implement a plan to increase compatibility of firefighting resources across the county.<ul style="list-style-type: none">○ Improve water availability in small and rural communities including installing tanks and bladder bags, identifying strategic drop sites, and alleviating challenges associated with older systems.○ Increase homeowner access to water storage solutions like bladders to aid firefighting efforts.○ Work with willing private owners to install universal fittings to water tanks.○ Coordinate between FDs and PWSs to make the drinking water systems' hydrants more efficient for FD use.	Protect life and property through improved firefighting response.	Assess capacity annually.	<ul style="list-style-type: none">• FEMA Assistance to Firefighters Grants• FEMA Staffing for Adequate Fire and Emergency Response• BRIC• NRCS RCPP• ECP• Capital outlay

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">○ Develop agreements between the PWS and FDs that consider equipment concerns, water usage, and notification when FDs are accessing hydrants and water.• Purchase and install generators to ensure water systems remain accessible during power outages.○ Establish procedures to allow operators to run these systems during evacuation periods. Focus areas include the following: <ul style="list-style-type: none">• Ensure sufficient water storage to meet domestic and firefighting needs in Sierra Los Pinos, including during power outages/electric grid de-energization, by installing a 30,000-gallon NFPA-approved water storage tank. A portion of the funding for the tank has already been acquired.• Increase water availability for fire suppression in Jemez Mountains Firewise Association (JMFA) communities, potentially by redirecting a portion of federal Payment in Lieu of Taxes funds.			
FR #6		Medium	Spring 2026	Evaluate current notification systems Assess effectiveness of communication and alert systems and conduct necessary upgrades.	Sandoval County	Sandoval County and Village of Corrales	<ul style="list-style-type: none">• Identify deficiencies of communication and alert systems, particularly focusing on accessibility issues in rural areas.• Develop and implement a strategy to ensure communication systems remain functional with cell service outages.• Conduct outreach to help people sign up for emergency notifications at community events.• Educate the public on the use of the <i>What 3 Words</i> application to get share location information.	Protect public and first responder life and safety.	Annual test and assessment of effectiveness.	<ul style="list-style-type: none">• BRIC• NRCS RCPP• FEMA Fire Prevention and Safety Grant• USFS CWDG
FR #7		Medium	Summer 2028	Pre-fire mitigation and post-fire rehabilitation Develop and implement plans for pre-fire mitigation and post-fire recovery.	Sandoval County	Sandoval County; local, state, and federal land managing agencies; and Village of Corrales	<ul style="list-style-type: none">• Integrate post-fire impacts, including post-fire floods and debris flows, into the county's hazard mitigation planning efforts.• Identify and implement strategies for post-fire response that can be put in place before fires occur.• Implement a county-wide ordinance requiring actions for post fire debris flow management. Focus areas include the following: <ul style="list-style-type: none">• Identify and implement pre- and post- fire mitigation strategies at the Ponderosa Infiltration Gallery.• Conduct mitigation activities in Las Jara, including at the infiltration gallery, as any fire in the community would be devastating for post-fire flooding.• Plan for pre-fire mitigation and post-fire recovery measures in Jemez Springs, Church Canyon, and surrounding areas.• Mitigate Cerro Pelado runoff.• Replace the wooden bridge in Area 2.• Integrate Horseshoe Springs CWPP into county planning efforts.	Enhance community protection	Annual assessment	<ul style="list-style-type: none">• BRIC• USFS CWDG

Project ID	Status	Priority	Target Date	Project Description	Location	Land Ownership/ Lead Agency/ Partners	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
							<ul style="list-style-type: none">• Pre-fire mitigation of the potential for cascading post-fire impacts in Sierra Los Pinos.• Ensure communities' HVRAs are recorded, frequently updated, and mapped.• Develop baseline measurement standards for watershed planning before a wildfire to allow for effective restoration post-fire. This planning effort would use topographic GIS data and be adapted from Colorado's Wildfire Ready Watersheds Program.• Village of Corrales.			
FR #8		High	Spring 2027	Increase firefighting capacity Explore opportunities to strengthen countywide fire department capacity building as well as equipment upgrades.	Sandoval County	Sandoval County, Pueblo partners, and Village of Corrales	<ul style="list-style-type: none">• Assist fire departments with grant applications and to find new sources of funding.• Establish and/or expand relationships with high schools, colleges, and nonprofits to encourage volunteer recruitment.• Educate communities about the challenges faced by FDs to emphasize the significance of supporting these organizations through volunteering, fundraising, and personal actions.• Provide personal protective equipment for all firefighters.• Maintain contact with state fire marshals and regularly seek grant money. Conduct regular evaluations of resource needs for each volunteer FD and make available to the public to raise awareness of shortages. Use local media to inform the the public of fire resources situation.	Protect life and property through improved firefighting response.	Assess capacity annually.	<ul style="list-style-type: none">• FEMA Assistance to Firefighters Grants (AFG)• FEMA Staffing for Adequate Fire and Emergency Response• Firewise grants• National Urban and Community Forest Program• General Services Administration Federal Excess Personal Property• Capital outlay
FR #9		Medium	Spring 2028	Assess feasibility of using fire detection cameras or similar equipment Install a Countywide fire detection camera system.	Sandoval County	Sandoval County, FPDs, and Village of Corrales	<ul style="list-style-type: none">• Determine costs, upkeep, and operational capacity of a fire detection camera system, and determine key locations for camera placement.• Add strategically placed live-stream cameras within Corrales to cover high fire danger areas.	Improve early detection of new wildfire ignitions in Sandoval County.	Yearly testing and maintenance before peak wildfire season.	<ul style="list-style-type: none">• AFG• Hazard Mitigation Grant Program• Emergency Management Performance Grant• RCP• Staffing for Adequate Fire and Emergency Response
FR #10		Medium	Spring 2026	Proactive Planning for Renewable Energy Facilities Work with energy developers to proactively manage wildfire risk.	Sandoval County	Sandoval County, pertinent energy developers, and Village of Corrales	<ul style="list-style-type: none">• The county and municipalities should collaborate with energy developers to ensure new utility infrastructure is designed with wildfire risk and management in mind. It is recommended that all new utility developments be required to prepare a utility wildfire mitigation plan.	Proactively manage new wildfire risks.	As needed.	<ul style="list-style-type: none">• General fund



APPENDIX I:

Community Highly Valued Resources and Assets

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COMMUNITY HIGHLY VALUED RESOURCES AND ASSETS

In addition to the community values and critical infrastructure identified in Chapter 3, Core Team members provided highly valued resources and assets (HVRAs) data for several communities in Sandoval County. These are listed in the following sections and are illustrated in Figure I.1.

A dynamic web map with these HVRAs can be accessed at: <https://sandoval-county-cwpp-hub-site-sandovalgis.hub.arcgis.com/>

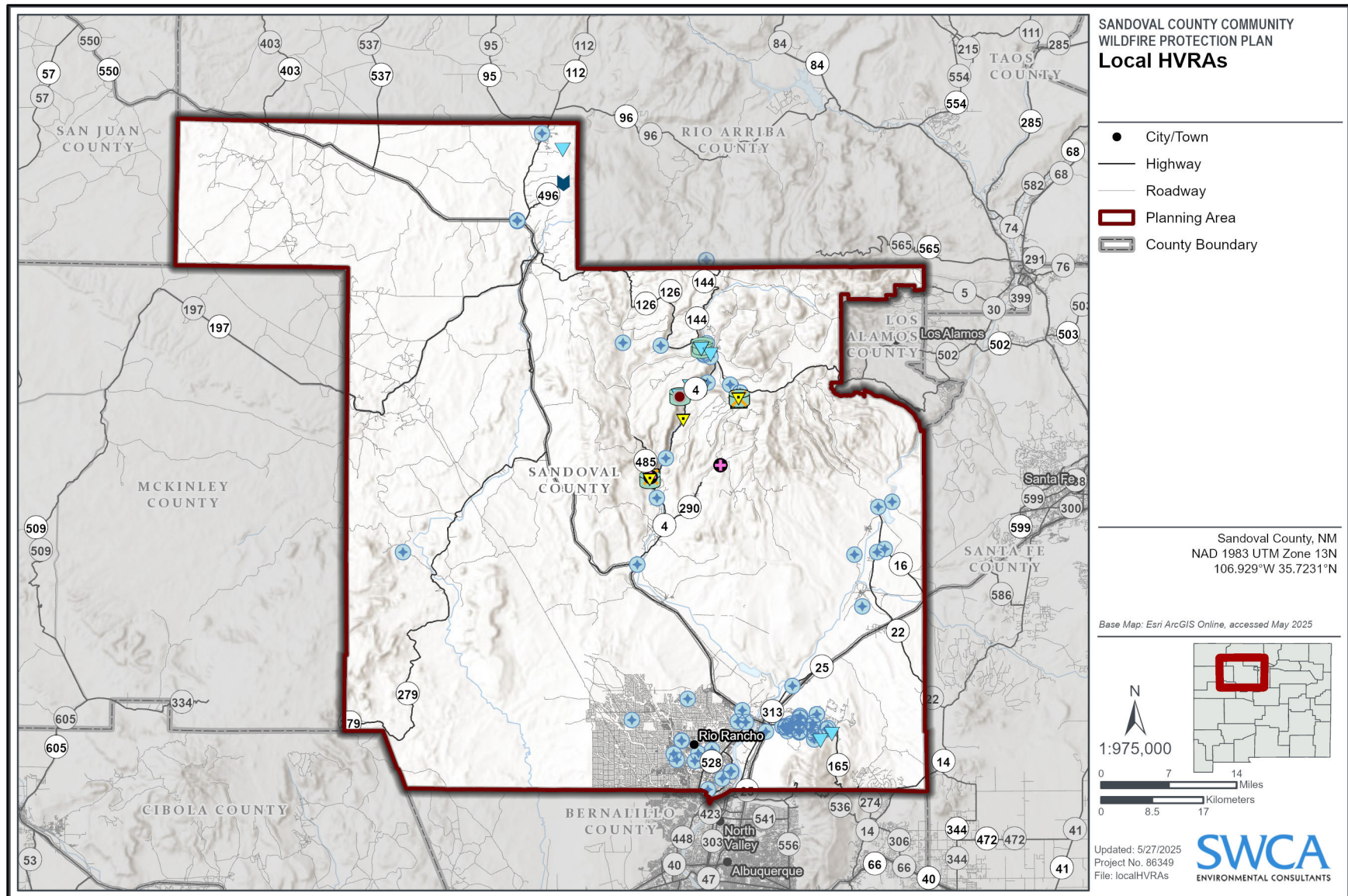


Figure I.1. Sandoval County highly valued resources and assets (HVRs). Note: access an interactive map at <https://sandoval-county-cwpp-hub-site-sandovalgis.hub.arcgis.com/>

THOMPSON RIDGE

Table I.1 shows the identified HVRAs for Thompson Ridge. The HVRAs are also depicted in Figures I.2 and I.3 with the exception of the slash pit.

Table I.1. HVRAs in Thompson Ridge

Facility Name	Description
Sandoval County Fire Station 53	--
Thompson Ridge Property Owners Association (TRPOA) community center	--
Drainage pond	Approximately 1-million-gallon drainage pond with pond pump and hydrant
Water system	Small Thompson Ridge Water Cooperative water system, including a well, supply line, and storage tank
Private wells	Numerous throughout the community
TRPOA roads	--
Slash pit	Slash pit located on USFS land

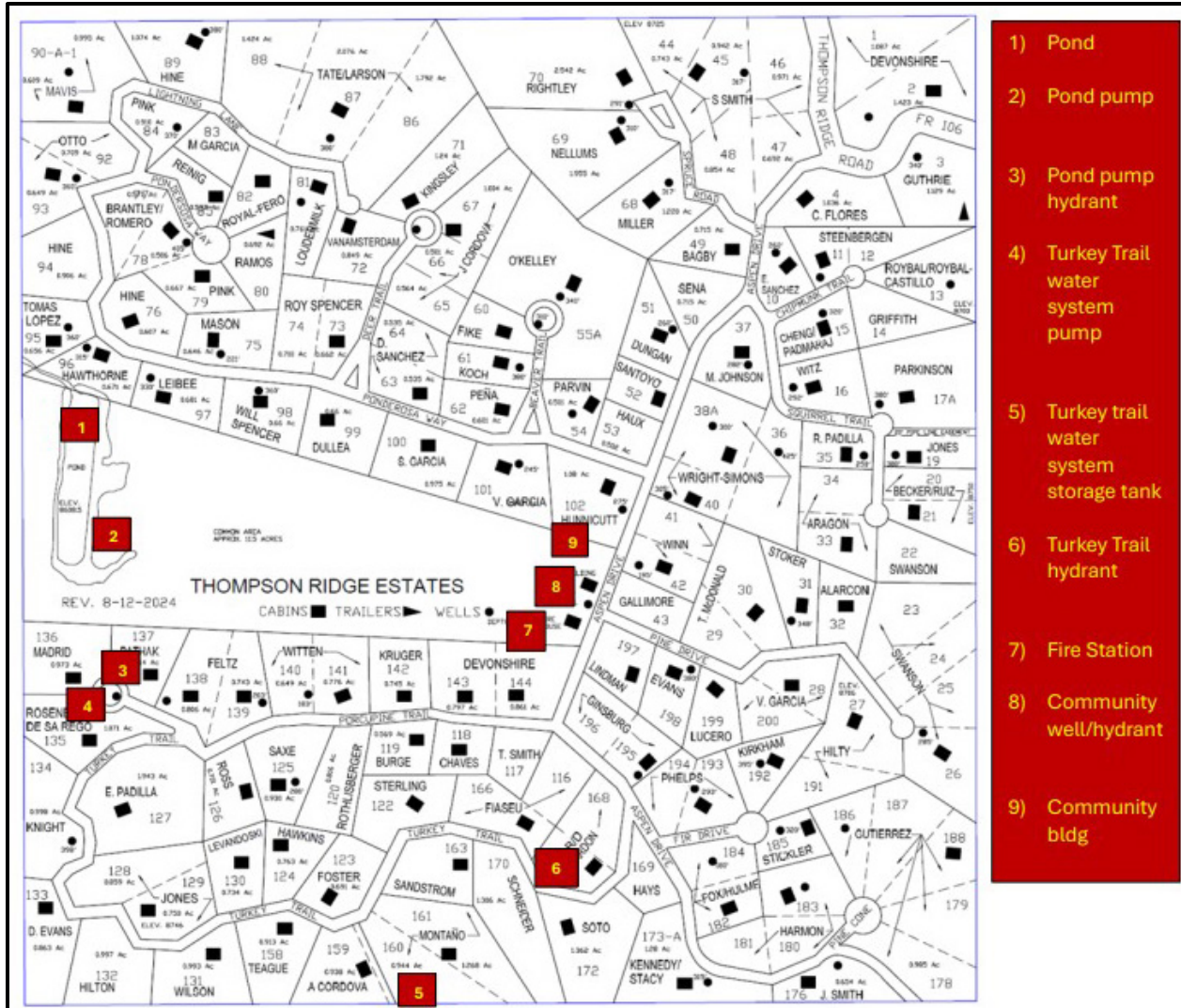


Figure I.2. Thompson Ridge HVRAs (tract map).

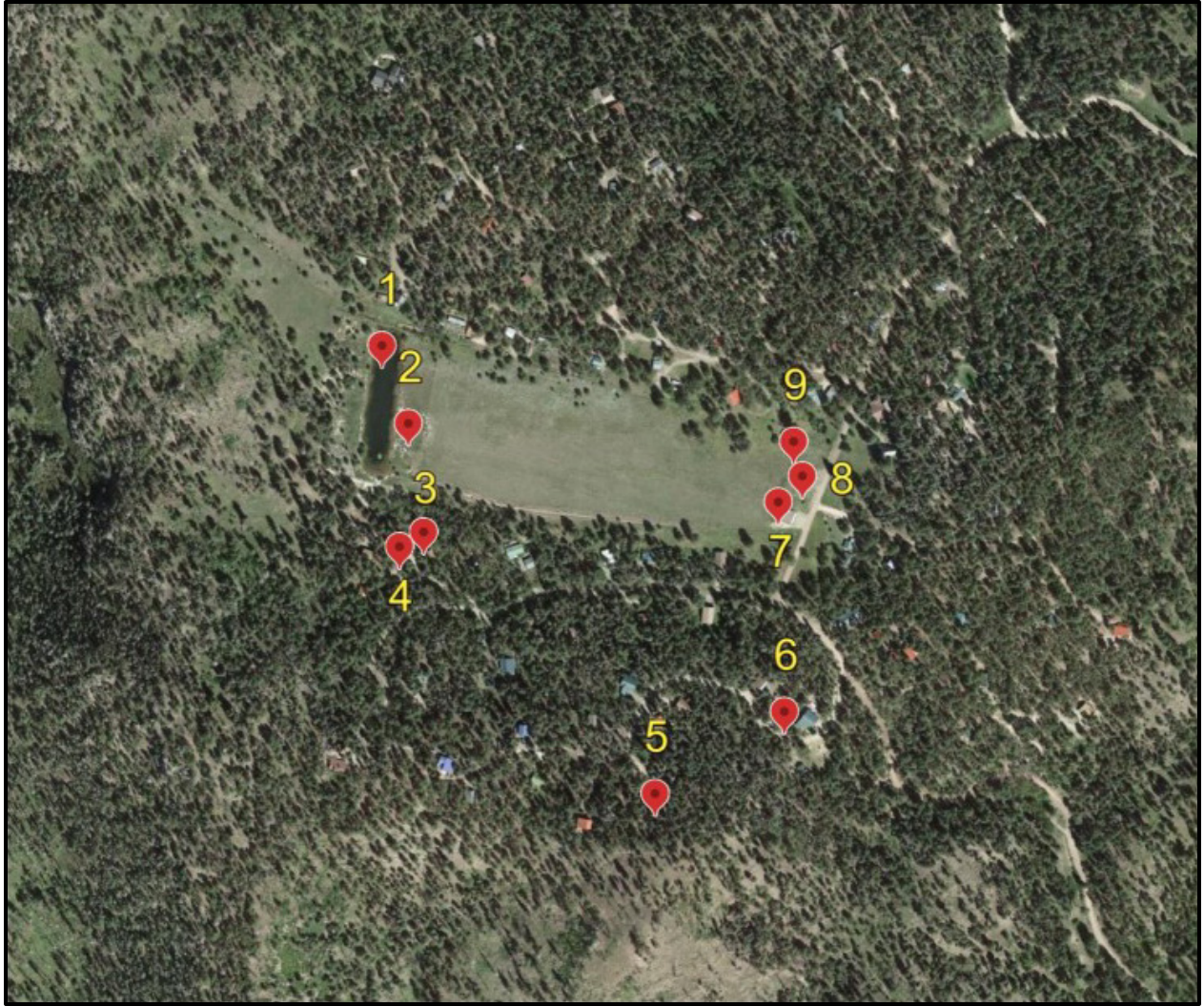


Figure I.3. Thompson Ridge HVRAs (aerial map).

CAÑON

Table I.2 shows the HVRAs identified for Cañon.

Table I.2. Cañon HVRAs

Facility Name	Description
Distribution	--
Main tank	A 125,000-gallon tank on USFS land accessible via an ungated private driveway at 1220 Highway 485. Permit was last updated in 2018.
Pump house and 20-foot metal storage container	Structure is a cinder block wall and shingled wooden roof building.
Storage tank #1	--
Treatment plant #1	--

Facility Name	Description
Well #1	--
Well	Structure consists of a concrete surround and steel cylinder well head cover 40 feet east of the pump house.

HORSESHOE SPRINGS

Table I.3 shows the HVRAs identified for Horseshoe Springs.

Table I.3. HVRAs in Horseshoe Springs

Facility Name
Spring and spring house
Southside tanks
Northside tanks

JEMEZ SPRINGS

Table I.4 shows the HVRAs identified for Jemez Springs.

Table I.4. HVRAs in Jemez Springs

Facility Name
Distribution
Agua Durme Springs
Sino Spring
Gallagher Spring
Agua Durrme Chlorinator
Sino Spring Chlorinator
Area 1 West Tank (Agua)
Area 1 East Tank (Agua)
Area 3 East Tank (Sino)
Area 3 West Tank (Sino)
Gallagher Tank
Church Canyon South Tank
Church Canyon West Tank
Church Canyon East Tank
Arsenic Treatment Plant (Gallagher)
Gallagher Spring Chlorinator

SIERRA LOS PINOS

Table I.5 shows the HVRAs identified for Sierra Los Pinos.

Table I.5. Sierra Los Pinos HVRAs

Facility Name	Description
Sandoval County Fire Station 52	Located at 950 Forest Road 10, Jemez Springs, NM 87025
155 lots	Lots contain approximately 120 houses
Electric utility lines	Transmission and distribution lines are located within forested areas around the Jemez. De-energizing the lines, due to damage or for safety concerns, also shuts down water production from wells for domestic uses and firefighting, both within Sierra Los Pinos and surrounding areas.
Gravel/dirt roads	Approximately 5 miles of gravel/dirt roads within Sierra Los Pinos are maintained to provide access to members' homes.
Vallecitos de los Indios historic structures	Several historic structures are located in Vallecitos de los Indios, which is within the perimeter of Sierra Los Pinos. These structures were built during timbering operations in the early 1900s.
Clusters of homes	There are several small clusters of homes around Sierra Los Pinos that are not part of the subdivision or Sierra Los Pinos Property Owners Association with private wells.
Water Infrastructure Assets	
Privately owned public water system	System currently provides water to 155 lots within Sierra Los Pinos.
Source water	Groundwater source with high water quality from sources east of Sierra Los Pinos to the Valles Caldera.
Wells	These wells are Hovensweep Well, Aspen Well, Forest Well, System 2 Well #1, and Well #2.
Treatment units	The treatment units are the Hovensweep Treatment Unit, the Aspen Treatment Unit, and the Forest Treatment Unit.
Pump houses	Two pump houses and one booster station. The pump houses contain chlorination systems, and the booster station has a 1,000-gallon tank.
Storage tanks	Two sets of storage tanks are in Sierra Los Pinos immediately next to USFS lands. System 1 has 30,000 gallons of storage in three tanks, and System 2 has 22,000 gallons of storage in two tanks
Distribution lines	26,000 feet of distribution line service individual lots, and each lot includes isolation valves and radio-read household meters.

SEVEN SPRINGS

Table I.6 shows the HVRAs identified for Seven Springs.

Table I.6 Seven Springs HVRAs

Name	Background/Description
Jemez Mountains	The area is a national recreational area.
Fenton Lake State Park	The area was heavily damaged by the Lakes Fire. It is a prime example of post-fire impacts. The lower part of what is now Fenton Lake used to have a rail spur.
Seven Springs Fish Hatchery	The only hatchery in the state devoted to rearing native Rio Grande cutthroat trout and one of the few in the nation. Trees in the area have been studied to learn about fire history and connected to the presence of Indigenous peoples. The hatchery also used to be a major ranger station and part of a large telephone system.
Red Top	A historically important fire lookout that used to be maintained by residents of the Village of Seven Springs during fire season.
Chaparral Girl Scout Camp	A major summer camp for Girl Scout troops and other groups.
Albuquerque Public Schools Camp Site	A site with a large concrete slab to accommodate a 20-person tent. The New Mexico Department of Game and Fish use the site, but it is rarely used by Albuquerque Public Schools today.
Lutheran Church Building	The Lutheran Church owns a building at the top of the hill on Lake Fork Road that is used for group camp-outs and other public functions. The building was destroyed during the Lakes Fire and rebuilt.