McKinley County Community Wildfire Protection Plan

2018 UPDATE

McKinley County Community Wildfire Protection Plan: 2018 Update

Prepared for
McKinley County
207 West Hill Ave
Gallup, NM 87301

Prepared by
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STATE OF NEW MEIXCO
COUNTY OF MCKINLEY

Resolution No. JUL-18-046

A RESOLUTION TO APPROVE AND ADOPT THE "MCKINLEY COUNTY COMMUNITY WILDFIRE PROTECTION PLAN UPDATE".

WHEREAS, the Board of Commissioners did meet in regular session on July 24, 2018; and,

WHEREAS, the Board of Commissioners recognizes the fire danger in the Southwest, New Mexico, and McKinley County and has taken an active role in wildfire protection planning; and

WHEREAS, the Board of Commissioners recognizes the requirements of the Healthy Forest Restoration Act (HFRA, Public Law 108-148 2003) which upon plan approval and adoption allows communities at risk for wildfires the ability to apply for additional federal funds appropriate to reduce hazardous fuels and other actions that have been identified through the Community Wildfire Protection Planning process; and

WHEREAS, McKinley County applied for and secured funding from the New Mexico Association of Counties to update the current County Community Wildfire Protection Plan (CWPP); and,

WHEREAS, McKinley County contracted the Northwest New Mexico Council of Governments (COG) to administer this funding, and the COG subsequently contracted the technical services of Forest Guild to update the CWPP; and,

WHEREAS, the Board of Commissioners further recognizes that the McKinley County Community Wildfire Protection Plan (CWPP) was approved in 2008 and updated in 2013; and,

WHEREAS, the Board of Commissioners further certifies, in coordination with the COG and Forest Guild, this plan was updated by a Core Team that was lead by McKinley County staff and Volunteer District Chiefs in 2017-18; and,

NOW THEREFORE BE IT RESOLVED by the Board of Commissioners of McKinley County hereby approves and adopts the McKinley County Community Wildfire Protection Plan Update June 2018; and,

BE IT FURTHER RESOLVED THAT the County of McKinley will continue to work to provide its citizens with an adequate level of services, education, and outreach in wildfire prevention and protection.

PASSED, APPROVED, AND ADOPTED at McKinley County, Gallup, New Mexico, this 24th day of July, 2018.

McKINLEY COUNTY
BOARD OF COMMISSIONERS

Genevieve Jackson, *Chairperson*

ATTEST:

Harriet K. Becenti, County Clerk

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RES R $0.00 H. K. Becenti, Mckinley County

McKinley County Community Wildfire Protection Plan: 2018 Update

We, the undersigned, approve the McKinley County Community Wildfire Protection Plan: 2018 Update

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

Signature

7/27/18
Date

Name and Title: Todd Haines, Bernalillo District Forester

McKinley County Community Wildfire Protection Plan: 2018 Update

We, the undersigned, approve the McKinley County Community Wildfire Protection Plan: 2018 Update

Signature	Printed Name	Date
	Douglas W. Decker	6/18/18
Title: McKinley County Attorney	Organization: McKinley County	
	Jason M. Carlisle	06/18/2018
Title: McKinley County Fire Chief	Organization: McKinley County	
	Adam Berry	6.18.18
Title: Emergency Management Coordinator	Organization: McKinley County office of Emergency Management	
	Tim Berry	6/18/18
Title: Acting EMS Division Chief	Organization: McKinley County Fire & EMS	
	DALE GLENMORE	06.19.18
Title: Regional Fire Management officer	Organization: Navajo Region Fire Management	

Signature	Valdis Neha Printed Name	6/20/18 Date
Fire Management Officer Title	Ramah Navajo/Zuni Agency (BIA) Organization	
Signature	Alvin Whitehair Printed Name	6-20-18 Date
District Ranger Title	Mt. Taylor Ranger District Organization	
Signature	Jeff Irving Printed Name	6-21-18 Date
Road Super - McKinley Title	McKinley County Organization	
Signature	Aldred Cheama Printed Name	6/29/2018 Date
Chief Title	Zuni Fire / Ems Department Organization	
Signature	Jesus Morales Printed Name	7/10/2018 Date
Deputy Fire Chief Title	Gallup Fire Department Organization	
Signature	Curtis Hayes Printed Name	7-11-2018 Date
City Attorney Title	City of Gallup Organization	
Signature	Morgan Strick Printed Name	7-11-18 Date
City Manager Title	City of Gallup Organization	

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Executive Summary

Introduction

What is a Community Wildfire Protection Plan (CWPP)?

The federal government has recognized that many communities in the United States live in or near fire adapted ecosystems that often bring inherent risks of wildfire. The Healthy Forest Restoration Act (HFRA) (Public Law 108-148 2003) acknowledges this fact and it also acknowledges that the federal government cannot provide funds to reduce hazardous wildland fuels for all communities at risk. The HFRA therefore established a mechanism to prioritize communities at risk to ensure that federal funds to reduce hazardous fuels go to those communities at highest risk. This mechanism is the Community Wildfire Protection Plan (Public Law 108-148 2003). With a completed CWPP a community or group of communities can apply for federal funds appropriate to reduce hazardous fuels or other prioritized actions that have been identified through the CWPP process.

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

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

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

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

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

CWPP Updates

Planning efforts periodically need updating. This may be necessitated by new information, tools, ways of thinking, or rigor. Updating a plan is also an opportunity to evaluate past effectiveness. This evaluation can generate new ideas, recommendations, or changes.

In accordance with the Healthy Forests Restoration Act (HFRA) of 2003, the County completed a CWPP in 2008 and an update in 2013. The 2013 CWPP addressed the three core requirements identified in the HFRA: 1) identifying and prioritizing fuels reduction opportunities across the landscape, 2) addressing structure ignitability, and 3) collaborating with stakeholders. The New Mexico Fire Planning Task Force recommends that CWPPs be updated every five years in order to assess new hazards and monitor progress made since the last CWPP update. Building community resilience to wildfire requires an adaptive approach that uses the lessons of the past to inform future management. It is important to remember that this CWPP update is a living document. As new information becomes available and conditions on the ground change, priorities may need to be updated.

In 2015, the New Mexico Association of Counties (NMAC), in collaboration with the NMSF and FSG, developed guidelines for updating CWPPs (NMAC, 2015). The guidelines outline the process for updating existing CWPPs as follows:

1. Review existing CWPP.
2. Host collaborative meetings.
3. Update maps.
4. Reflect changes in risk ratings due to complete projects or changes in landscape.
5. Develop updated priorities.
6. Distribute CWPP update drafts to key stakeholders (including local, state, tribal, and federal partners) for review and input before the final approval.
7. Submit the final document to your local government body, local fire department(s) and State Forestry for required signatures and endorsement.
8. Once signed and endorsed by your local governing parties, submit all documentation to NM State Forestry no later than September 1st for final approval by the New Mexico Fire Planning Task Force.

The 2015 CWPP update guidelines also recommend that updates include sections on planning for wildfire preparedness (during a wildfire) and post-fire recovery. Post-fire effects, such as flooding and erosion, can often be worse than the damage sustained during the fire itself. By planning ahead of time, communities can expedite the restoration process and take an active rather than reactionary role in post-fire recovery.

In addition to the items listed above, CWPPs and updates must also include the following elements:

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

4. Signatures secured:
    a. The applicable local government (i.e., counties or cities);
    b. The local fire department(s); and
    c. The state entity responsible for forest management.

This 2018 update builds upon the 2013 CWPP and addresses the 2015 CWPP Update Guidelines.

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1| Geography

Land tenure

As in much of the western United States, land tenure in McKinley County is a mix of public, private, State, and Tribal land. The Bureau of Land Management manages the largest percentage of land in the County at 39.8%. Table 1 below and the map in appendix 1 display the surface ownership in McKinley County.

Table 1 McKinley County surface ownership

McKinley County surface ownership			
	Acres	**Square Miles**	**% of total land**
Public	626,522	979	18.0
Private	693,509	1,084	19.9
Tribal	2,163,884	3,381	62.1
Public jurisdiction surface breakdown			
USFS	187,239	293	30.6
BLM	243,213	380	39.8
National Park Service	2,861	4	0.4
NM State Trust Land	177,245	277	29.0
Other State (State Parks, NM Department of Game & Fish	721	1	0.1
Other Federal (Bureau of Reclamation, Department of Defense, etc.	15,241	24	2.5

Note: The calculations above are based on publicly available spatial data and are approximate. Calculations are not sourced from official land surveys.
Note: The Bureau of Indian Affairs (BIA) manages resources on behalf of tribes.

Vegetation

McKinley County contains a diversity of vegetation adapted to the high deserts and scattered forests of the Colorado Plateau and largely dependent on elevation and proximity to perennial sources of water. Grass, shrubs and piñon-juniper forests dominate the lowlands, while ponderosa pine and mixed-conifer systems prevail at higher elevations.

Fire behavior and severity is heavily influenced by vegetation type and the fire return interval (FRI) associated with it. Where continuous surface fuels are present, the FRI tends to be more frequent. At higher elevations, which tend to be wetter and cooler, fire is more infrequent but may burn with a greater severity due to the sustained buildup of fuels. Mitigation measures to reduce wildfire risk to nearby communities should take vegetation type into account. The map in appendices ten and eleven display the vegetation types found in McKinley County.

2| Accomplishments Since 2013 CWPP

A number of accomplishments have occurred since 2013 to make the communities of the County more fire adapted. These include many forest restoration and fuels reduction projects across jurisdictions that have reduced the risk of high-intensity crown fire to communities or other values, as well as improvements in planning and preparedness. The map in appendix 5 displays some of the fuels treatments that have occurred on various jurisdictions in the county within the past 3 years with data that has been collected by the New Mexico Opportunity Mapping Project.

Through partnerships and collaboration, many forest restoration and fuels reduction projects have been implemented and have been followed by prescribed fire to further reduce fuels, fire risk, and extend the effectiveness of mechanical treatments. These have occurred on tribal, private, state, municipal, and federal lands.

In June, 2014, the Forest Stewards Guild was awarded funding to complete a project titled *McKinley County CWPP Fuels Implementation Project.* Funding was made possible by the Wildfire Risk Reduction Grant Program, which is administered by the New Mexico Association of Counties (NMAC) and funded by the Bureau of Land Management (BLM) of New Mexico. The focal communities for treatments, the Baahaali (Breadsprings) Navajo Chapter and the Timberlake Ranch Landowners Association (TRLA), are both located in McKinley County and were identified as priority areas for treatment in the 2013 McKinley County Community Wildfire Protection Plan.

From June 2014 to August 2015, the Forest Stewards Guild coordinated the implementation of 20 defensible space treatments and 12 acres of fuels reduction in the Timberlake Ranch Landowners Association. Although fuels reduction treatments were also planned for Baahaali Navajo Chapter lands, they were unable to be accomplished due to time constraints and challenges with acquiring the necessary biological and cultural resource clearances from the Navajo Nation. The Ramah Navajo Forestry crew was contracted to complete all thinning operations. Landowners were responsible for 10% of the cost of treatments, which was calculated to be $100 per acre. Approximately 53 cords of fuelwood were generated for participating property owners.

The fuels reduction treatment prescription is included in Appendix 16. The primary goal of the project was to reduce structural ignitability of private residences by reducing fuels in Firewise Zone 1 (0-30ft from the home, Firewise Zone 2 (30-100ft from the home), or through establishment of a fuel break. The Forest Guild worked with community leaders from each

target community to encourage residents to submit applications for the cost-share program. Once an application was received, a wildfire risk assessment was scheduled for the property as well as a walk-around with members of the Ramah forestry crew. In the end, the project funded the treatment of 32 acres for 20 different landowners.

On a broader, landscape scale, the New Mexico Vegetation Treatment Map is a collaborative spatial initiative led by the New Mexico Forest and Watershed Restoration Institute (NMFWRI). Katie Withnall is the GIS Specialist currently leading this effort. The map is currently the only ongoing repository of geospatial data across jurisdictions in New Mexico; it can be accessed through the online application (https://arcg.is/141ran). In many areas of the County, this map shows the historic, completed, and planned treatments. For example, the NMFWRI map shows an IC Grant Prescribed Fire implemented by the BLM in 2014 in the San Mateo Volunteer Fire District. This map is not static, but rather is continually updated; if partners know of completed treatments that are not currently displayed, they can provide their spatial data to the GIS Specialist. Doing so will help create a complete dataset for cross-jurisdictional review and analysis.

Since 2013, there have been focused efforts in McKinley County to improve wildland vegetation conditions in relation to the risk they pose to communities and values at risk. In addition to focused efforts such as the treatments funded by NMAC at Timberlake Ranches, residents have worked to implement defensible space thinning around their homes and along their driveways. Furthermore, the residents who provided input to the CWPP update through survey submission were overall very comfortable with the idea of cutting and chipping hazardous fuels such as trees, limbs, brush and tall grasses within 100 feet of their homes. To further this progress, in addition to forest restoration and fuels reduction treatments, there have been education and outreach efforts aimed at increasing awareness and preparedness.

The McKinley County Fire Department has also been working to improve its effectiveness in wildfire suppression and mitigation. Accomplishments include improving training opportunities to offer National Wildfire Coordinating Group (NWCG) qualifications to county fire fighters, many of whom are volunteers. In the fall of 2017, the Fire Department graduated 14 students through the basic NWCG wildland firefighting classes, S-130 & S-190 classes, allowing them to be qualified as type 2 wildland firefighters. McKinley County Fire is also working with New Mexico State Forestry to provide more advanced training opportunities including squad boss, single resource boss qualifications, and higher.

The goal for 2018 is to continue offering S-130 &S-190 classes and to develop a call-as-needed 20-person Type 2 Initial Attack hand crew that would be available to respond to incidents within the county and state. This crew would greatly expand the capacity of the county to respond to wildland fire incidents and provide valuable experience for county firefighters to take back to their individual districts. Eventually this crew could evolve into a full-time staffed crew that would be available for mitigation and suppression.

The County Fire Department has also been working to obtain firefighting equipment to support its firefighters. The Department purchased a type 3 wildland engine in 2018 and maintains and adds additional equipment such as hand tools, radios, and person protective equipment whenever possible.

Specific accomplishments since 2013 on a smaller scale are listed by fire district in the section, Fire Districts Accomplishments and Priority actions.

3| Wildland Urban Interface

The U.S. Forest Service defines the Wildland Urban Interface (WUI) as the "area where structures and other human development meet or intermingle with undeveloped wildland". The WUI for McKinley County was determined collaboratively between members of the core team and stakeholder groups identified in tables 7 and 8 and through geospatial analysis of population centers and infrastructure. The map in appendix 2 displays the WUI in McKinley County.

The WUI determination was based off of the assessment made by New Mexico State Forestry during their statewide planning process in 2010. Based on recommendations of the core team this update expanded the WUI determination in specific areas throughout the county. Primary escape routes for communities were identified and given a quarter mile buffer to encourage treatment in these areas to facilitate safe escape by residents and safer access for responders. Cell towers were identified and buffered by a quarter mile to encourage treatment to protect these vital resources to maintain communication during any emergency event. In several areas the WUI area was increased to cover new communities or areas that were not identified in previous assessments. These areas include adding the McGaffey-Tampico community and their access road, State Route 400, expanding the WUI area in the community north of Ramah along route 12, expanding the WUI in the Pinehaven- Breadsprings area, and adding Navajo State Route 9 which connects many communities to two other previously identified escape routes. In some areas the WUI was reduced after the core identified the area as uninhabited and was verified by a review of satellite imagery.

Communities at Risk

Following CWPP guidelines, each community has been assigned a community hazard rating (CHR) of low, medium or high wildland fire risk. Communities that were included in the 2013 plan were reassessed in 2018 to update the original rating and several communities that were not previously assessed were added during the 2018 planning process. The rating assessment began with analysis of spatial data that included the fire risk analysis prepared by New Mexico State Forestry during their Statewide Natural Resources Assessments, the Wildfire Hazard Map produced by the U.S. Forest Service, flame length analysis, Vegetation type and cover, access to communities, and vegetation adjacent to communities. Descriptions and maps of this analysis are located in in the appendices. These initial ratings were further refined by recommendations of the Core Team based on actions that have happened in specific communities to reduce fire risk, improvements of the structural ignitability of buildings within the communities, and efforts of communities to become more fire adapted or establish themselves as a designated Firewise Community.

Community	2013 risk rating	2018 risk rating	VFD
Bluewater Acres	Medium	High	Bluewater VFD
Bluewater Lake/ Homer C. Jones Subdivision	Medium	High	Bluewater VFD
McGaffey Lake – Tampico Springs	High	High	Cibola National Forest
Ramah	Medium/High	High	Ramah VFD
Ramah – Black Rock Corridor	Medium/High	High	Ramah VFD
Timberlake	High	High	Timberlake VFD
Zuni Pueblo WUI – Black Rock	Medium/High	High	Zuni
Zuni	Not Assessed	High	Zuni
Noble Acres – Skeets Road-Big Galls Road Corridor	Low/Medium	Medium	Pinehaven VFD
Black Rock – Vanderwagon Corridor	Medium/High	Medium	Vanderwagon VFD
Chichiltah	Low/Medium	Medium	Chi Chil Tah VFD
Fort Wingate	Low/Medium	Medium	Wingate VFD
Manuelito Area	Low/Medium	Medium	McKinley West VFD
Navajo Estates (Ya Ta Hey) – Tse Bonito Corridor	Medium	Medium	Navajo Estates
Navajo	Medium/High	Medium	Navajo VFD
Pinehaven – Bread Springs	Medium	Medium	Pinehaven VFD
South Navajo – Highway 12 Corridor	Medium	Medium	Navajo VFD
Tohatchi	Low/Medium	Medium	Navajo/BIA
Tse Bonito	Not Assessed	Medium	Tse Yah Toh VFD & Navajo BIA
Vanderwagon (Sager Estates)	Medium	Medium	Vanderwagon VFD
Whispering Cedars	Medium	Medium	Whispering Cedars

Zuni Pueblo – Highway 53 SW Corridor	Medium	Medium	Zuni
Church Rock	Not Assessed	Low	Church Rock VFD
Contintental Divide – Thoreau	Low/Medium	Low	Thoreau VFD
Coyote Canyon	Not Assessed	Low	Navajo/BIA
Crownpoint	Low	Low	Crownpoint VFD
Gallup	Low	Low	Gallup
Gamerco – Twin Lakes Corridor	Low/Medium	Low	Navajo Estates
Mentmore Area	Low	Low	Mckinley West VFD
Nahodisgish	Low/Medium	Low	Crownpoint VFD
Nakaibito - Mexican Springs	Medium	Low	Navajo/BIA
Pinedale – Mariano Lake	Low/Medium	Low	Mariano Lake/ Pinedale VFD
Prewitt	Low	Low	Prewitt VFD
Pueblo Pintado Area	Low	Low	Pueblo Pintado
Rehoboth	Low	Low	White Cliffs VFD
Rock Springs	Not Assessed	Low	Navajo Estates
San Mateo	Low	Low	San Mateo VFD
Standing Rock	Not Assessed	Low	Crownpoint VFD

4| Priority actions

Fuels Treatments

According to the 2015 CWPP Update Guidelines (2015), all CWPP updates should include updated priorities for fuels treatments. Through phone outreach, surveys, and public meetings, the CWPP core team worked with CWPP stakeholders to identify priority fuels reduction projects in McKinley County.

1. Fuel reduction thinning in Timberlake community: residents of Timberlake are committed to identifying funding to continue the thinning work made possible in the past two years by support from the New Mexico Association of Counties. In addition, the Timberlake Volunteer Fire District will continue to hold January pile burns for residents to bring and dispose of yard waste.
2. Navajo Estates Volunteer Fire District: The fire district will involve community members in chipping vegetative material.
3. Zuni Pueblo: The Fire Department seeks to work with communities that lie adjacent to agricultural fields and forested land to coordinate fuels reduction efforts.

Human Sources of Ignition

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

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

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

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

Campfires

In outreach and education efforts, it is important to understand the causes and patterns of ignition. Especially in light of the 2018 Bluewater Fire, which was started by an abandoned campfire, it is especially timely to redouble efforts at campfire education. The above-cited report provides the following insights into campfire ignitions:

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

Power lines

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

In April 2013, the Forest Service held a summit with Western Utilities in Los Angeles to discuss the issue; the New Mexico representative identified 505 miles of transmission line at risk. This number likely underestimates the risk, as smaller energy cooperatives are underrepresented in this listing. Table 4 below displays the miles of transmission line at risk for each of New Mexico's national forests.

Table 4 Miles of transmission line at risk by National Forest

National Forest	Miles at risk
Carson National Forest	**84**
Kit Carson Electric Coop	35
Northern Rio Arriba Electric Coop Inc.	12
Public Service Company of New Mexico	6
Tri State Generation & Transmission Association	31
Cibola National Forest	**75**
Public Service Company of New Mexico	38
Southwestern Electric Cooperative Inc. (NM)	9
Springer Electric Cooperative Inc.	11
Tri State Generation & Transmission Association Inc.	17
Gila National Forest	**212**
El Paso Electric Company	56
Public Service Company of New Mexico	24
Tucson Electric Power Company	126
Undetermined Company	5
Lincoln National Forest	**30**
Otero County Electric Cooperative	12
Public Service Company of New Mexico	3
Tri State Generation & Transmission Association Inc.	10
Undetermined Company	5
Santa Fe National Forest	**103**
Jemez Mountains Electric Cooperative Inc.	25
Public Service Company of New Mexico	66
Tri State Generation & Transmission Association Inc.	2
United States Department of Energy	11
Total	**505**

Greater collaboration is needed between the CWPP core team and local (e.g. Continental Divide Electric, the City of Gallup Utilities, Navajo Tribal Utility Authority) and regional (e.g. Tri State Generation and Transmission Association Inc., etc.) utility companies. Specifically, to learn how these utilities are maintaining their right-of-way responsibilities regarding woody vegetation, and to discuss how these right-of-ways can be consistently maintained or expanded in width in the future. Other strategies for reducing ignition potential from power lines include encouraging off the grid solar systems and burying future or expanded power lines networks. Communities and landowners have a role to play to identify power lines, poles, and transformers that are in poor condition or have excessive brush underneath and contact utilities or other authorities.

Image 1 2013 New Mexico brochure from Western Utilities Forest Health Summit

Image 2 - Example of fuels reduction along power line corridor

Image 3 - Hillside showing power line fuels reduction treatment. Image courtesy of NM State Forestry.

Volunteer Fire District Consolidation

The McKinley County Fire Department is currently in the process of consolidating its volunteer fire districts within the county with a projected effective date in fall or winter of 2018. Currently there are 18 individual fire districts in McKinley County with defined response areas. They each maintain their own budgets and funding sources, as well as mutual aid agreements with each other and other agencies. This consolidation would allow easier response and sharing of resources as inter-district mutual aid agreements would dissolve as they are consolidated into a single district and mutual aid agreements with other agencies would be covered by county wide agreements. The consolidation would also allow for easier management of budgets and funding as they would be merged into a single system managed by the County Fire Department. This will create opportunities to reduce costs by increasing efficiencies and sharing costs across districts more easily. Current VFD boundaries would still be used as response areas for the fire stations located within them but other distinctions would be dissolved. The Zuni Volunteer Fire Department however would remain separate through this transition. This concept of fire department consolidation is a new one for New Mexico, but the goal is that in McKinley County it would facilitate more effective fire management.

CWPP implementation and action items

The 2013 McKinley County CWPP identified several priority actions designed to increase wildfire resilience. Many of those actions are ongoing and have been carried over to the 2018 plan. The CWPP core team and members of the public worked together to update the priority actions list and to identify new priority actions that will make McKinley County more fire

adapted. Table 5 outlines the priority actions for 2018 and beyond. Priority actions are divided into five focus areas: (1) community involvement, (2) reducing structural ignitability, (3) fire districts and equipment, and (4) evacuation planning, and (5) water resources.

Formalizing the CWPP core team or creating a new collaborative group is an important first step towards implementing the 2018 CWPP update. Without a core group of residents and stakeholders to take the lead on implementing CWPP action items, McKinley County runs the risk of priority actions not being accomplished. The CWPP core team will lead the effort to implement the 2018 CWPP update action items, in collaboration with County staff and resident partners.

Table 5 McKinley County CWPP priority actions

McKinley County CWPP priority actions		
Community involvement		
1	Formalize the CWPP group or create a new group that will focus on implementing CWPP priority actions.	
	Detail	A collaborative group that focuses on implementing CWPP priority actions is an important component to making this CWPP an actionable plan. Tasks for the CWPP group may include (1) implementing CWPP priority action items, and (2) providing education and outreach to County residents. The group should have regular meetings throughout the year and take meeting minutes to track resident concerns and ideas for implementing the CWPP. Sub-groups may include wildfire preparedness, evacuation planning, and pursuing funding for project implementation.
2	Develop a strategy for wildfire preparedness and prevention outreach and education to vulnerable populations, e.g. the elderly and low-income residents of the County.	
	Detail	The elderly and low-income individuals and families face a greater wildfire risk. Targeted outreach will help ensure these residents have the same access to education and outreach materials as well as cost-share programs to reduce wildfire risk.
3	Promote the Ready, Set, Go! program to County residents and make resources available in print and on the County website. http://www.wildlandfirersg.org/	
	Detail	Ready, Set, Go! is a national effort to educate residents how to prepare ahead of time for an evacuation order.
4	Work with New Mexico State Forestry to establish Firewise communities in McKinley County	
	Detail	Attaining Firewise status for a community is often the catalyst for further action to engage community members in fuels reduction, wildfire preparedness, and other actions related to becoming a more fire adapted community. The CWPP group can help identify potential Firewise communities and community members to lead those efforts.
5	Establish a coalition of McKinley County Firewise communities and link them to the Fire Adapted New Mexico network.	

	Detail	A coalition of as few as two Firewise communities can help share resources, successes, and lessons learned with each other. The coalition can also be a resource for other communities looking to attain Firewise status in McKinley County. Linking to the state wide network can help share resources and lessons learned across the state.
6	Host an annual wildfire preparedness day for County residents.	
	Detail	Preparedness days can be located in various parts of the county. Local volunteer fire departments would be good hosts for this outreach effort. Residents can learn about steps they can take to make their homes and properties more defensible and learn about ongoing efforts in the county to reduce wildfire risk.
7	Conduct fire prevention campaigns during times when fire danger is high. Use newspapers, radio messages and signs to alert visitors and residents alike.	
	Detail	A diverse suite of outreach methods will increase the amount of people reached. Outreach is particularly important before and during fire season to encourage prevention and preparedness.
8	Include information seasonally in utility bills about actions that residents can take to reduce wildfire risk, increase emergency preparedness, etc.	
	Detail	Utility bills are one method for conducting outreach to County residents on steps they can take to reduce their personal wildfire risk. This method of outreach should also include encouraging landowners to notify utility companies if they see unsafe conditions surrounding power lines and other electrical infrastructure.
Reducing structural ignitability		
9	Work with residents to conduct a home hazard assessment of their property.	
	Detail	Members of the CWPP group and fire fighters can help guide residents in how to conduct an assessment. The Forest Stewards Guild and the Wildfire Network have developed an assessment guidebook for use with the assessment developed by Santa Fe County. Both resources are available on the Greater Santa Fe Fireshed website, at www.santafefireshed.org
10	Consider adopting county codes and ordinances that address wildfire risk.	

	Detail	Codes and ordinances are tools available to local governments to address the shared wildfire risk within a community. Codes and ordinances may address new construction requirements, defensible space, and thinning along rights of way. Examples of WUI codes and ordinances are available from other counties and municipal areas in New Mexico.
11	Review covenants, conditions, and restrictions (CC & Rs) of communities in the county and assess their alignment with Firewise principals.	
	Details	CC & Rs that conflict with Firewise principals may discourage residents from completing important defensible space projects.
12	Pursue funding for defensible space and general thinning projects on private lands in the County	
	Detail	Cost share and grant programs exist to help offset the costs of fuel reduction projects.
13	Pursue cost share programs to upgrade residential home building materials such as roofing, siding, and deck materials.	
	Detail	Upgrades to homes that reduce structural ignitability are often prohibitively expensive. Cost share programs do exist that can help offset the costs of these upgrades to County residents.
Fire responders and equipment		
14	Develop a strategy to improve County fire departments' Insurance Services Organization (ISO) rating.	
	Detail	Strategies for improving a fire department's ISO rating include fire alarms and communication systems, staffing, training, equipment, and water delivery. https://www.isomitigation.com/. An improved ISO rating will increase annual fire department funding and reduce homeowner insurance rates.
15	Review the County burn permit process and identify limitations and solutions for addressing them.	

	Detail	Consider changes to streamline and clarify the process of obtaining burn permits, to help landowners and land managers plan better to implement broadcast and pile burns in the County. Changes to the process may include (1) Making the permits available for download online (will still need review and signature of County fire marshal) (2) Outlining requirements such as burn pile size and quantity, weather, resources, smoke etc., and (3) Potentially issuing permits for burns on weekdays.
16	Hire a full-time Wildland Urban Interface Specialist for the County	
	Detail	The WUI specialist will obtain and manage WUI and hazardous fuels reduction grants, coordinate fire prevention activities and public involvement such as the Firewise communities program, coordinate actions with partners (including state and federal land management agencies, tribes, and private landowners), and work with the CWPP group to implement CWPP priority actions.
17	Promote training for all firefighters in the County responsible for wildland fires and develop NWCG wildland qualified firefighters throughout the county.	
	Detail	Work to develop National Wildfire Coordination Group training and qualifications within the County Fire system. Continue hosting S-130 & S-190 classes to qualify fire fighters in the county at Firefighter Type 2 status. Work with NM State Forestry to provide more advanced training opportunities.
18	Develop a McKinley County Wildland Fire Crew	
	Detail	Developing a dedicated wildland crew that is available for suppression and mitigation activities will add greatly add to the capacity of the County Fire Department's ability to prepare for and respond to wildland fires. This crew should begin as a call-when-needed crew, with the eventual goal of becoming a full-time staff.
19	Expand wildland firefighting capability of all wildland fire responders in the County by adding equipment.	

	Detail	Develop a supply cache and apparatus that is capable of supporting wildland firefighting activities in the county. This includes purchasing new fire engines and water tenders, as well as maintain and expanding supplies of hand tools, PPE, radios, etc.
20	Identify community liaisons who can relay relevant information between emergency personnel and residents in the event of a wildfire or other emergency.	
	Detail	Identifying community members to work with emergency personnel and residents is part of planning for during and after wildfires and other emergencies. A community liaison will help keep residents informed, providing a trusted and familiar voice to compliment more official channels. This liaison will likely need to be trained in the incident command system and to maintain some basic NWCG qualifications.
21	Support residents interested in earning Community Emergency Response Team certification.	
	Detail	Utilizing existing training and certification programs will help make residents and the County more prepared to respond to wildfires and other emergencies. For more information, visit https://www.fema.gov/community-emergency-response-teams
22	Encourage the cross-training of area fire departments and local government officials with state and federal agencies using the Incident Command System (ICS) for managing emergency incidents.	
	Detail	Wildfire incidents and other emergencies are often cross jurisdictional. Collaborative training exercises will help make emergency personnel more effective and ensure that all involved are using ICS procedures. Training should include wildfire incidents and evacuation.
	Evacuation planning	
23	Support evacuation drills and testing of the counties reverse 911 “Code Red” system.	
	Detail	Evacuation drills can help to expose gaps in notification systems and evacuation procedures.
24	Work with communities and fire districts to develop evacuation plans.	

	Detail	Evacuation plans at the appropriate scale that designate routes (including a map), safety zones, roles and responsibilities, and procedures for residents and emergency personnel will make for safer evacuations in the event of an emergency.
25	Establish safety zones and/or evacuation staging areas for each fire district or community.	
	Detail	Having pre-determined safety zones or areas where residents can go to in the event of an evacuation for further instruction will limit confusion in the event of an evacuation.
26	Install signs identifying evacuation routes and safety zones.	
	Detail	Signs designating evacuation routes and safety zones will help residents and emergency personnel during an emergency when they may not have access to maps or when conditions limit visibility. Signage will also aid new residents, parti-time residents, and visitors who are not familiar with established routes.
27	Thin vegetation along roadways and at intersections and maintain previous treatments to create the greatest potential for visibility during a wildfire.	
	Detail	Thinning along roadways is particularly important along evacuation routes and near safety zones.
28	Utilize a suite of notification methods to communicate with residents during emergencies.	
	Detail	Notification methods may include radio, social media (Facebook, Twitter, Nextdoor etc.), the County website, email, television, newspaper, and Code Red.
29	Involve the County Sherriff's Department, State Police, and other cooperators in reviewing current Emergency Operating Plans and conducting field exercises.	
	Detail	Emergency personnel that will be directly involved in implementing an evacuation should be consulted when developing the County evacuation plan.
Water resource protection		
30	Support projects to develop new water resources/enhance existing water resources.	

	Detail	Encourage USFS and residents to do more to develop water resources. Invest in water resources such as tanks or ponds. When they are not being drawn upon for firefighting, water development projects can be recreational in the meantime (fishing, water for wildlife).
31	Stage water tenders at strategic, high-risk locations in the county	
	Detail	Continue to support efforts such as the county's approach to staging water tenders at McGaffey Lake throughout fire season to increase capacity at that high-risk area. Consider training residents on how to use them to put out small fires.
32	Consider a mapping effort to document the location of community water infrastructure including wells and water tanks.	
	Detail	Mapping community water infrastructure will help prioritize mitigation measures designed to protect them.

5| Fire Districts: Accomplishments since 2013 and Priority Actions for 2018

McKinley County is divided into 18 fire districts, with 22 fire stations across the county territory. The county fire department is comprised of career staff as well as volunteer firefighters, the latter numbering over 300. We used the Fire Districts to subdivide the County into smaller areas in which to record accomplishments and priorities because of the geography of these areas in well known and recognized. The Fire Districts themselves also include communities that are identified as Communities at Risk by this CWPP. Wherever possible recommendations are listed by these Communities. Fire districts are profiled below, along with the communities they encompass, and are displayed in the map in appendix 4.

Bluewater Acres VFD

Communities at Risk encompassed: Bluewater Acres

The wildland vegetation of the Bluewater Acres VFD is characterized by grassland, low density shrubland, piñon-juniper woodlands, and piñon-juniper ponderosa pine woodlands. The values-at-risk include homes, businesses, summer camps, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by private, state, Tribal, and USDA Forest Service lands. The CWPP update process for the County mapped this VFD at Medium Risk with 4,545 acres of WUI, 62% of which was mapped as low risk. Medium, medium/high, and high risk categories span 1,484 combined. The core of the mapped WUI occurs along the highway 612 corridor and the spur properties and subdivisions. The mapped WUI did capture where infrastructure developments intersect with medium to high fire risk off of the main roads, particularly on Cottonwood Gulch Foundation property, and at Bluewater Acres home sites. A wildfire event in this area will likely be wind driven in the crowns of the piñon-juniper woodlands and in the patches of ponderosa pine forest. This is an important area to direct fuels reduction funds towards. It is also important to note that the USDA Forest Service and the New Mexico State Land Office manages lands downwind from the two highest risk areas and need to be involved in fuels mitigation and treatment maintenance. Bluewater Acres VFD is an early adopter of the preparedness assessment recommended and can be a leader in the County to support other VFDs and Fire Districts improve their preparedness.

CHANGES SINCE 2013	
Fuels reduction treatments	NA
Wildfires	2017 – 2 acres on 10MM Highway 612 2018 – Diener/Bluewater Fires
Prescribed burns/pile burns	Rx fire Controlled burn Pile burn Pile burn
Fire district capacity	County Wildland Program with NWCG training
Community engagement	Community pre-fire plans Public education events, 1-2 per month
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Wildfire preparedness days Educate community to have water resources available and/or call

	VFD to be on standby before burning
Structural ignitability	Integrate into pre-fire plans
Fire district capacity	Weekly trainings open to the public
Human ignition sources	Outreach education at all schools in Thoreau
Wildfire preparedness	Evacuation drills
Adjacent lands	USFS
Roads and transportation	Road maintenance to improve access for fire vehicles
Other	WUI trainings Collaborate with Forest Service personnel

Bluewater Lake VFD

Communities at Risk encompassed: Bluewater Lake/ Homer C. Jones Subdivision

The wildland vegetation of the Bluewater Lake VFD is characterized by grassland, low density shrubland, and piñon-juniper woodlands. The values-at-risk include homes, businesses, recreation infrastructure, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by private, state, and Tribal lands. The CWPP update process for the County mapped this VFD at Medium Risk with 700 acres of WUI, 63% of which was mapped as medium risk. The next largest risk category is low risk mapped at 35% of the WUI. The core of the mapped WUI occurs along the highway 412 corridor and the spur properties and subdivisions. A wildfire event in this area will likely be wind driven in the crowns of the piñon-juniper woodlands and in the patches of grass and shrubland. This is an important area to conduct home site assessments to reduce the medium risk identified through FireWise zone establishments. Larger parcels would also benefit from strategically placed fuels treatments. Wildfire risk could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. This should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	Locally, sponsored by BLFD
Wildfires	None
Prescribed burns/pile burns	Locally, sponsored by BLFD 2016 Rx fire in the Zunis
Fire district capacity	County Wildland Program with NWCG training
Community engagement	Community and BLFD meet yearly to discuss wildfire
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Spring cleanup
Structural ignitability	Integrate into Pre Plans
Fire district capacity	New brush truck (expected winter 2018)
Human ignition sources	Community Outreach
Wildfire preparedness	Evacuation drills/County preparedness planning
Adjacent lands	USFS
Roads and transportation	Improved accessibility
Other	Continue to work with USFS

Chichiltah VFD
Communities at Risk encompassed: Chichiltah

The wildland vegetation of the Chichiltah VFD is characterized by grassland, low density shrubland, piñon-juniper shrubland, and piñon-juniper woodlands. The values-at-risk include homes, businesses, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by Tribal lands, Bureau of Land Management (BLM) sections, and small amounts of private and state trust lands. It should be noted that some of BLM sections are under an easement which gives the Navajo Nation vegetation management authority and responsibility. There is also significant checker-boarding in the western portion of this VFD. The CWPP update process for the County mapped 15,031 acres of WUI, 73% of which was mapped as low risk. The next largest risk category is medium spanning 3,297 acres. The mapped WUI occurs along Cousins and Jones Ranch road corridors. The most contiguous areas of medium risk are located along Smooth Mountain and Stinkwater Well roads. These WUI areas occur in the areas of dense piñon-juniper woodland and a wildfire event in this area will likely be primarily a wind driven crown fire with moderate to high intensities. Wildfire risk should be mitigated through a combination of fuels treatments and home site risk reductions. This should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments and this VFD should closely coordinate with the Navajo Nation.

CHANGES SINCE 2013	
Fuels reduction treatments	BIA Fuels Treatment of Defensible Space – 32 homes treated, 4 fuel breaks completed
Wildfires	None
Prescribed burns/pile burns	Community clean-up in Skeets Road area; Debris from 4 fuel breaks piled and burned
Community engagement	Community outreach with Chichiltah Chapter House; Chapter approved allowed fuels treatment for community members
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community outreach
Structural ignitability	Defensible Space training integrated into Pre Plans
Fire district capacity	County Wildland Program with NWCG training
Wildfire preparedness	County Preparedness Planning
Adjacent lands	BIA
Other	Improved Road Access; newly formed Fire Prevention Staff will begin Wildfire Prevention Protection strategies

Church Rock VFD
Communities at Risk encompassed: Church Rock

The wildland vegetation of the Church Rock VFD is characterized by grassland, low density shrubland, and pockets of piñon-juniper shrubland. The values-at-risk include homes, businesses, transportation, communication, and limited rangeland infrastructure. Land jurisdiction in this VFD is dominated by Navajo Nation lands and small amounts of private and state trust lands.

The CWPP update process for the County mapped 1,288 acres of WUI, 75% of which was mapped as low risk. The next largest risk category is medium spanning 306 acres. The mapped WUI occurs along the I-40 and highway 566 corridors. A wildfire event in this area will likely be ignited by the heavily used transportation corridors or associated activity and would be a flashy fire in grass or shrubland with the occasional tree or tree patch torching. Wildfire risk should be mitigated through a combination of mowing and refuse and weed management. This should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	City Firefighters responded to the following number of wildfires although some of this number was mutual aid to areas outside of the Municipal Department's response area. 2013: 40 2014: 29 2015: 23 2016: 35 2017: 58 2018 (January -June): 32
Prescribed burns/pile burns	None
Community engagement	Community outreach with schools and Church Rock Chapter House
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community Outreach
Structural ignitability	Integrate Pre Plans
Fire district capacity	County Wildland Program with NWCG Training
Wildfire preparedness	County Preparedness Plan
Adjacent lands	Navajo Nation
Other	Improved addressing and road access

Cibola National Forest

Communities at Risk encompassed: McGaffey Lake – Tampico Springs

The wildland vegetation of the Cibola National Forest fire district is characterized by grassland, piñon-juniper shrublands and woodlands, ponderosa pine forest, and small amounts of mixed conifer forest types. The values-at-risk include homes, businesses, recreation, and rangeland infrastructure. Additional values-at-risk include watershed integrity, ecosystem values, timber, and fuelwood values. Land jurisdiction in this VFD is dominated by USDA Forest Service (Cibola National Forest, Mt. Taylor Ranger District and the Department of Defense with smaller amounts of private in-holdings in the southern portion of the fire district. The CWPP update process for the County mapped this fire district at High Risk with 4,677 acres of WUI, only 24% of which was mapped as low risk. Medium, medium/high, and high-risk categories span 3,291 acres (or 70% of the WUI) combined. The core of the mapped WUI occurs along the highway 400 corridor at McGaffey Lake and Tampico Springs. There is spill-over WUI mapped from Timberlake and Whispering Cedars that would need to be managed on this fire district. The

mapped WUI did capture where infrastructure developments intersect with medium to high fire risk. This fire district along with the VFDs that span the Chuska Mountains are at high fire risk and if they burn, will burn as a catastrophic crown fire event that will have cascading ecological, watershed, social, and economic effects throughout the County. This is an important area to direct fuels reduction funds towards, particularly on the private lands. The Cibola National Forest is planning to implement a large-scale program of thinning and burning starting in 2015 as part of the Collaborative Forest Landscape Restoration Project. They have also indicated that they will maintain their prescribed burn west of Whispering Cedars, which will continue to reduce fire risk and fuel loading with each maintenance burn. It is also critical that residents in McGaffey and Tampico Springs coordinate wildfire risk reduction, preparedness, and evacuation efforts with McKinley County and the Cibola National Forest, Mt. Taylor Ranger District.

*Changes since 2013 and Priority Actions for 2018 and Beyond not provided.

Crownpoint VFD

Communities at Risk encompassed: Crownpoint, Nahodisgish, Standing Rock

The wildland vegetation of the Crownpoint VFD is characterized by grassland, low density shrubland, piñon-juniper shrubland and pockets of piñon-juniper woodlands. The values-at-risk include homes, businesses, communication towers, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by Tribal lands with small amounts of private, state trust, and BLM lands. There is also a very small patch of National Park Service land. The CWPP update process for the County mapped 22,802 acres of WUI, 85% of which was mapped as low risk. The next largest risk category is medium spanning 2,861 acres. The mapped WUI occurs along highways 371, 9, and 48. A wildfire event in this area will likely be flashy and primarily wind driven in grass and shrub fuels. There are mesas of piñon-juniper woodlands along an east-west alignment on the southern boundary of the VFD but these dense fuels are 1-2 miles away from WUI areas. Wildfire risk could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. NTUA does have a quality map of back-up water resources for suppression. A copy of this map should be available to the County and the VFD. This should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	None
Prescribed burns/pile burns	None
Community engagement	Outreach with Crownpoint Chapter House and Community
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community outreach
Structural ignitability	None
Fire district capacity	County Wildland Program with NWCG training
Human ignition sources	None
Wildfire preparedness	County Preparedness Plan

Adjacent lands	Navajo Nation

Gallup Fire Department
Communities at Risk encompassed: Gallup

The wildland vegetation of the Gallup fire district is characterized by grassland, low density shrubland, piñon-juniper shrubland and limited pockets of piñon-juniper woodlands. The values-at-risk include homes, businesses, communication towers, transportation, municipal, education, and agriculture and rangeland infrastructure. Land jurisdiction in this fire district is dominated by private and municipal lands with smaller amounts Navajo Nation, BLM, and state trust lands. The CWPP update process for the County mapped 22,698 acres of WUI, 71% of which was mapped as low risk. The next largest risk category is medium spanning 5,933 acres. The mapped WUI occurs along highways 491, 564, and 602. A wildfire event in the municipality of Gallup will likely be wind driven, consuming refuse, weeds, landscaping, and urban trees. A wildfire event in the residential WUI areas north and south of the municipality will likely be either spotty torching or given moisture and wind conditions, a crown fire in the piñon-juniper systems. Wildfire risk could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. Fuels treatments focused on protecting homes and infrastructure north and south of the municipality will be important to reduce risk. This should be paired with the Fire District preparedness assessment recommended across all FDs that includes home site assessments. The City of Gallup also maintains two Red Cross approved shelters which can shelter people and animals, over seen by the city fire department.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	The City of Gallup Fire Department responded to the following amounts of wildfires. These fires include mutual aid responses so are may include fires outside of the City's response area. 2013 – 30 2014 – 49 2015 – 23 2016 – 34 2017 – 58 2018 (January- June) - 31
Prescribed burns/pile burns	None
Fire district capacity	None
Community engagement	Routine safety messages
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Fire Prevention Week in October, Fire prevention Campaigns throughout the year with local agencies.
Structural ignitability	Fire prevention safety messages for minimizing ignition hazards around the home.
Fire district capacity	Personnel attend various training to enhance skills and knowledge

	for all aspects of firefighting, to include wild-land interface.
Human ignition sources	Routine delivery of fire prevention education and safety trainings
Wildfire preparedness	Fire Safety program includes evacuation drills (Edith) and support of Code Red program by Metro Dispatch
Adjacent lands	Adjacent lands include but not limited to McKinley County, reservation and private. Mutual aid agreement with McKinley County
Roads and transportation	City of Gallup maintains city roads within city boundaries.

Mariano Lake VFD
Communities at Risk encompassed: Pinedale – Mariano Lake

The wildland vegetation of the Mariano Lake/PindaleVFD is characterized by grassland, low density shrubland, piñon-juniper shrubland, and dense piñon-juniper woodlands. The values-at-risk include homes, businesses, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by Tribal lands with smaller amounts of private and state trust lands. The CWPP update process for the County mapped 15,419 acres of WUI, 75% of which was mapped as low risk. The next largest risk category is medium spanning 3,349 acres. The mapped WUI occurs along road 11-49 in north of the 2nd Canyon Road dogleg. The highest risk areas are along the 2nd Canyon Road corridor. A wildfire event in this area will likely be a high intensity, stand replacing crown fire. The remaining low and medium risk areas will likely be grass and shrub fires. Wildfire risk could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. This should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	BIA fuels treatment/defensible space created for 46 homes
Wildfires	None
Prescribed burns/pile burns	Pile burning of debris from 14 homes
Fire district capacity	County Wildland Program with NWCG training
Community engagement	Outreach with Chapter Houses. Mariano Lake Chapter signed resolution for treatment.
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	None
Structural ignitability	None
Fire district capacity	County Wildland Program with NWCG training
Wildfire preparedness	County Preparedness Planning
Adjacent lands	Navajo Nation
Other	Newly established Fire Prevention Staff will begin Wildfire Prevention Plan Strategies

McKinley West VFD
Communities at Risk encompassed: Mentmore Area, Manuelito Area

The wildland vegetation of the McKinley West VFD is characterized by grassland, low density shrubland, piñon-juniper shrubland, and patches of dense piñon-juniper woodlands. The values-at-risk include homes, businesses, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by Tribal lands with smaller amounts of private, BLM, and state trust lands. BLM lands in this area are generally under an easement conveying vegetation management rights to the Navajo Nation. The CWPP update process for the County mapped 32,131 acres of WUI, 72% of which was mapped as low risk. The next largest risk category is medium spanning 7,402 acres. The mapped WUI occurs along I-40, road 4, 20, and 32. These road corridors match the mapped medium risk WUI areas. A wildfire event in the southern portion of the VFD will likely be a stand replacing crown fire. The remaining low and medium risk areas will likely be grass and shrub fires. Wildfire risk could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. This should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	2018 – Manulito Canyon
Prescribed burns/pile burns	Crestview Estates clean-up project
Fire district capacity	County wildland firefighting program with NWCG training
Community engagement	Community outreach/trainings: Fire prevention Community outreach/trainings: Defensible space awareness
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Annual Community Public Safety Preparedness day
Structural ignitability	Defensible space trainings
Fire district capacity	Improve County Wildland/WUI Training
Wildfire preparedness	Implementing County-wide preparedness plan
Adjacent lands	Navajo Nation, Zuni, BIA, USFS
Other	Water supply, improved water system, community training

Navajo Estates VFD

Communities at Risk encompassed: Navajo Estates (Ya Ta Hey) – Tse Bonito Corridor, Rock Springs, Gamerico – Twin Lakes Corridor

The wildland vegetation of the Navajo Estates VFD is characterized by grassland, low density shrubland, piñon-juniper shrubland and pockets of piñon-juniper woodlands. The values-at-risk include homes, businesses, communication towers, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by Tribal lands with small amounts of private and state trust lands. The CWPP update process for the County mapped 15,580 acres of WUI, 67% of which was mapped as low risk. The next largest risk category is medium spanning 4,586 acres. The mapped WUI occurs along road 481 north of Gallup and road 264 and along spur roads. The mapped WUI did capture infrastructure developments off of the main roads. The highest risk areas are north along the road 264 corridor. The next high-risk areas in this VFD response area are along Rock Springs and Francisco Pond roads. A wildfire event in this area will likely be

flashy and primarily wind driven. Wildfire risk could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. This should be paired with the VFD preparedness assessment recommended across all VFDs that include home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	None
Prescribed burns/pile burns	None
Fire district capacity	Improve County Wildland/WUI Training
Community engagement	None
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community education Chippers Wildfire preparedness days
Structural ignitability	Cleaning fields around homes (both occupied and abandoned)
Fire district capacity	Training opportunities, equipment
Wildfire preparedness	County-wide preparedness planning
Adjacent lands	Navajo Nation, BIA
Other	Community training, water supply

Navajo Nation

Communities at Risk encompassed: Nakaibito - Mexican Springs, Tohatchi, Coyote Canyon

The wildland vegetation of the Navajo Nation fire district in McKinley County varies widely and is characterized by grassland, shrubland, piñon-juniper shrubland, piñon-juniper woodlands, ponderosa pine forest, mountain meadows, and areas of mixed conifer forest. The values-at-risk include homes, businesses, communication towers, transportation, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by Tribal lands with small amounts of private, state trust, and Bureau of Land Management lands. The CWPP update process for the County mapped 51,053 acres of WUI, 79% of which was mapped as low risk. The next largest risk category is medium spanning 7,583 acres. The fire district spans the north-central portion of the county from the Chuska Mountains in the west to the western edge of the Mount Taylor uplift in the east. The highest risk areas are north of Tse Bonito along the road 50 corridor. The next highest risk areas in this response area are east of Mexican Springs and west of Borrego Pass. Wildfire risk in the grasslands, shrublands, and low-density woodlands could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. Fuels treatments around homes, businesses, and other critical infrastructure should be prioritized in the high risk areas listed above. This should be paired with the fire district preparedness assessments recommended across all VFDs and fire districts that include home site assessments.

CHANGES SINCE 2013

Fuels reduction treatments	50 acres treated for defensible space for Gibson Peak Communications Site and infrastructure
Prescribed burns/pile burns	50 acres pile-burned at Gibson Peak Communications Site, with defensible space created for infrastructure
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Other	Newly established Fire Prevention Staff will begin Wildfire Prevention Plan Strategies

Navajo VFD and East of Navajo VFD, Nakaibito-Mexican Springs Area
Communities encompassed: Navajo, South Navajo – Highway 12 Corridor

The Navajo VFD covers the town of Navajo and is bounded on the east by an area that is not mapped by McKinley County as having a fire response district or VFD. It covers western Mexican Springs and isolated areas in the southern Chuska Mountains. The wildland vegetation of this combined area characterized by grassland, shrubland, piñon-juniper shrubland and woodland, ponderosa pine forest, mountain meadows, and isolated areas of mixed conifer forest. The values-at-risk include homes, businesses, communication towers, transportation, and agriculture and rangeland infrastructure. Land jurisdiction in this area is dominated by Navajo Nation lands. The fire-risk modeling combined the Navajo VFD with the area to its east that is not mapped to have a VFD or fire district. The CWPP update process for the County mapped 4,903 acres of WUI, 46% of which was mapped as low risk. The next largest risk category is medium spanning 1,413 acres. The highest risk areas are in the town of Navajo and south of Navajo along the road 12 corridor. The next highest risk areas are isolated patches along roads 126, 131, and N30 in the Chuska Mountains both in the Navajo VFD and in the undesignated response area. Wildfire risk in the grasslands, shrublands, and low-density woodlands could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. Fuels treatments around homes, businesses, and other critical infrastructure in and around Navajo are a County priority. This should be paired with the fire district preparedness assessments recommended across all VFDs and fire districts that include home site assessments (see appendix IX). Finally, McKinley County and the Navajo Nation should meet to discuss how best to either incorporate the undesignated area into an existing fire response area (Navajo VFD or Navajo Nation), or create a new fire response area, especially given the overstocked ponderosa pine fuels throughout the area.

*Changes since 2013 and Priority Actions for 2018 and Beyond not provided.

Pinehaven VFD
Communities at Risk encompassed: Noble Acres – Skeets Road-Big Galls Road Corridor, Pinehaven – Breadsprings

The wildland vegetation of the Pinehaven VFD is characterized by grassland, piñon-juniper shrubland and expanses of piñon-juniper woodlands with remnant ponderosa pine. The values-at-risk include homes, businesses, communication towers, transportation, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by Tribal lands with lesser amounts of private, state trust, and BLM lands. The CWPP update process for the County

mapped 25,438 acres of WUI, 56% of which was mapped as low risk. The next largest risk category is medium spanning 9,505 acres (37% of the WUI). The mapped WUI occurs along highway 602 and Skeets, Breadsprings, and Blue Medicine Well road corridors. There are 1,509 acres of medium/high and high risk that are dispersed in the Noble Acres, Breadsprings, and Pinehaven communities. A wildfire event in this area will likely be a high intensity crown event. Fuels treatments are critical in this VFD along with slash mitigation or removal. Treatments should begin south and west of critical infrastructure and at the same time be paired with home site risk reductions. This should be occurring concurrently with the VFD preparedness assessment recommended across all VFDs that includes home site assessments (see appendix IX). It would also benefit this VFD if NTUA could generate a map of hydrants for emergency suppression use.

CHANGES SINCE 2013	
Fuels reduction treatments	County clean-up projects
Wildfires	None
Prescribed burns/pile burns	Skeets Road County clean-up
Community engagement	Community outreach
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community outreach with Pinehaven Chapter House
Structural ignitability	Training and awareness
Fire district capacity	County Wildland Program with NWCG Training
Wildfire preparedness	County Preparedness Plans
Adjacent lands	BIA

Prewitt VFD

Communities at Risk encompassed: Prewitt

The wildland vegetation of the Prewitt VFD is characterized by grassland, shrubland, piñon-juniper shrubland, and pockets of piñon-juniper woodlands in canyons and along mesas. The values-at-risk include homes, businesses, communication towers, transportation, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by private, Tribal, and small amounts of state trust, and Bureau of Land Management lands. The CWPP update process for the County mapped 14,977 acres of WUI, 81% of which was mapped as low risk. The next largest risk category is medium spanning 2,345 acres. The highest risk areas are south of interstate 40 along spur roads and along highway 412 to Bluewater Lake. The next highest risk areas is along road 41 east of interstate 40. Wildfire risk in the grasslands, shrublands, and low-density woodlands could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. Fuels treatments around homes, businesses, and other critical infrastructure should be prioritized in the higher risk areas listed above. This should be paired with the fire district preparedness assessments recommended across all VFDs and fire districts that include home site assessments (see appendix IX).

CHANGES SINCE 2013

Fuels reduction treatments	Yes, minimal
Wildfires	None
Prescribed burns/pile burns	Conducted annually
Community engagement	Community outreach
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community outreach/training
Structural ignitability	Awareness training
Fire district capacity	County Wildland Program with NWCG Training
Wildfire preparedness	County preparedness plan
Adjacent lands	USFS

Pueblo Pintado VFD

Communities at Risk encompassed: Pueblo Pintado Area

The wildland vegetation of the Pueblo Pintado Independent Fire District is dominated by sparse grasslands and shrublands, piñon-juniper shrublands on mesas and in arroyo bottoms. There are pockets of piñon-juniper woodland on north slopes and protected terrain. The values-at-risk in the Pueblo Pintado VFD include homes, businesses, agricultural lands and infrastructure, and rangelands and infrastructure. Land jurisdictions in this area are dominated by Tribal lands with a checkerboard of Bureau of Land Management, state trust, and private lands. The CWPP update process mapped 26,030 acres of WUI, over 80% of which is at low wildfire risk. The next highest risk category is medium risk across 3,760 acres. The medium risk WUI areas are centered along the Pueblo Pintado and Ojo Encino corridor. The Pueblo Pintado area is one of the largest fire districts in the county and it is remote. As such, wildfire response lag time from neighboring suppression resources is high. A wildfire event in this area will likely be flashy and primarily wind driven. Wildfire risk could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. This should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments (see appendix IX).

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	None
Prescribed burns/pile burns	None
Community engagement	Community Outreach with schools
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Outreach training
Structural ignitability	None
Fire district capacity	County Wildland Program with NWCG Training
Wildfire preparedness	County Preparedness Plan
Adjacent lands	Navajo Nation, Sandoval County

Ramah VFD

Communities at Risk encompassed: Ramah, Ramah – Black Rock Corridor, Timberlake

The Ramah VFD includes the town of Ramah and the Ramah-Zuni Pueblo corridor in the southwestern portion of the Zuni Mountains and the Zuni Mesas in the western and southern portion of the fire district. The wildland vegetation of this area characterized by grassland, shrubland, piñon-juniper shrubland and woodland, with isolated patches and remnant ponderosa pine forests. The values-at-risk include homes, businesses, communication towers, transportation, and agriculture and rangeland infrastructure. Land jurisdiction in this area is dominated by private, Zuni Pueblo, Ramah Navajo Chapter, state trust, and USDA Forest Service lands. The CWPP update process for the County mapped 7,133 acres of WUI, 40% of which was mapped as low risk. The next largest risk categories are medium spanning 2,133 acres (30%) and medium/high at 1,440 acres. The highest risk areas are in the town of Ramah and west of Ramah along the highway 53 corridor. The next highest risk areas are isolated patches and areas that spread into Cibola County, the Timberlake VFD, and the Cibola National Forest fire district. Wildfire risk in the grasslands, shrublands, and low-density woodlands could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. Fuels treatments around homes, businesses, and other critical infrastructure in and around Ramah are a County priority. This should be paired with the fire district preparedness assessments recommended across all VFDs and fire districts that include home site assessments. Finally, McKinley County, Zuni Pueblo, the towns of Ramah and Timberlake, the Cibola National Forest, and the Ramah Navajo Chapter should meet to discuss how to best strategically increase wildfire preparedness and implement and maintain fuels treatments.

Ramah and Timberlake share jurisdiction so for 2013 changes and 2018 priorities refer to the table listed under Timberlake VFD.

*Changes since 2013 and Priority Actions for 2018 and Beyond not provided.

San Mateo VFD
Communities at Risk encompassed: San Mateo

The wildland vegetation of the San Mateo VFD is dominated by sparse grasslands and shrublands, piñon-juniper shrublands and woodlands, and some ponderosa pine forests on the western slopes of the Mt. Taylor volcanic area. The values-at-risk in the San Mateo VFD include homes, businesses, agricultural lands and infrastructure, and rangelands and infrastructure. Land jurisdictions in this area are dominated by USDA Forest Service lands with a checkerboard of Bureau of Land Management, state trust, Tribal, and private lands. The CWPP update process mapped 830 acres of WUI, 56% of which is at low wildfire risk. The next highest risk category is medium risk across 176 acres. The entire WUI is centrally located around the town of San Mateo with risk increasing towards the east and south as woody vegetation increases with elevation. Interestingly, much of the WUI (as is the town) in Cibola County. Fuels reduction treatments in the WUI, beginning in the denser, higher risk areas are needed to protect San Mateo. This should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	2018 – La Mosca Tank Fire
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community Outreach
Structural ignitability	None
Fire district capacity	County Wildland Program with NWCG Training
Wildfire preparedness	County Preparedness Plan
Adjacent lands	USFS

Thoreau VFD

Communities at Risk encompassed: Continental Divide – Thoreau

The wildland vegetation of the Thoreau VFD is characterized by grassland, low density shrubland, piñon-juniper woodlands, and piñon-juniper ponderosa pine woodlands. The values-at-risk include homes, businesses, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by private, state, and Tribal lands with USDA Forest Service lands south of the County line. The CWPP update process for the County mapped this VFD at Low/Medium Risk with 31,522 acres of WUI, 70% of which was mapped as low risk. Medium, medium/high, and high-risk categories span 9,340 acres combined. This is the third largest WUI in the County. The WUI is dispersed along the I-40 corridor, the highway 612 corridor, and the highway 371 corridor to Crownpoint. The mapped WUI did capture where infrastructure developments intersect with medium to high fire risk (dense woody vegetation) off of the main roads, particularly off of highway 612, along Mt. Powell Road, and along Big Point Road in the northwest of the fire district. A wildfire event in this area will likely be wind driven in the crowns of the piñon-juniper woodlands and in the patches of ponderosa pine forest. It is important to direct fuels reduction funds towards these areas. These fuels reduction efforts should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.Thoreau VFD's proximity to Bluewater Acres VFD, an early adopter of this preparedness effort, could easily allow sharing of information and guidance between the VFDs.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	None
Prescribed burns/pile burns	None
Community engagement	Community Outreach
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community Outreach with schools and Chapter Houses
Structural ignitability	Awareness training
Fire district capacity	County Wildland Program
Wildfire preparedness	County Preparedness Plan
Adjacent lands	Navajo Nation

Timberlake VFD
Communities at Risk encompassed: Timberlake

The wildland vegetation of the Timberlake VFD is characterized by piñon-juniper woodlands, piñon-juniper ponderosa pine woodlands, ponderosa pine forest, and mountain meadow openings. The values-at-risk include homes and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by private lands surrounded by USDA Forest Service lands to the south and north of the development. The CWPP update process identified the community of Timberlake as one of only two High risk communities in McKinley County. The process mapped this VFD with 4,192 acres of WUI, 29% of which was mapped as medium risk. Medium, medium/high, and high-risk categories span 2,708 acres combined. The WUI is centered on the Timberlake subdivision north of Ramah with some isolated occupied ranches north of Timberlake. The mapped WUI did capture where infrastructure developments intersect with medium to high fire risk (dense woody vegetation). A wildfire event in this area will likely be a catastrophic crown fire with significant structure losses. More importantly, egress is limited only south to Ramah due to locked gates from the ranches to the north, the rough terrain, road conditions, and the design of the housing development. While wildfires can always threaten lives, this egress issue is particularly concerning.

An aggressive fuels reduction effort in the community of Timberlake is needed, paired with forest restoration thinning and prescribed burning on USDA Forest Service lands to the south and north of the community. This needs to be accompanied with opening a second egress route from the community, even if a professional mediator is needed to facilitate this. These fuels reduction efforts should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	Aspen Fire at Aspen Loop in Timberlake Subdivision burned 3.6 acres, June 2015
Prescribed burns/pile burns	Timberlake station allows residents to bring vegetative matter to north end of Ramah Lake where it is pile-burned every January
Fire district capacity	45,000-gallon tank for water supply
Community engagement	Public evacuation alert system
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Continue allowing residents to bring vegetative matter to north end of Ramah Lake for January pile burns Work with landowners' association to set up a fire break halfway down subdivision on Elk Drive
Structural ignitability	Continue reducing structural ignitability by allowing residents to bring in vegetative matter
Fire district capacity	Inside space to house another tanker at Timberlake Station
Roads and transportation	Maintain 1 main route out and 2 emergency exits in case the main exit is blocked

Tse Yah Toh VFD
Communities at Risk encompassed: Tse Bonito

The wildland vegetation of the Tse Yah Toh VFD is dominated by sparse grasslands and shrublands, piñon-juniper shrublands on mesas and in arroyo bottoms. There are pockets of piñon-juniper woodland on north slopes and protected terrain. The values-at-risk in the Tse Yah Toh VFD include homes, businesses, agricultural lands and infrastructure, and rangelands and infrastructure. Land jurisdictions in this area are dominated by checker-boarded Tribal, private, Bureau of Land Management, and state trust lands. The CWPP update process mapped 13,043 acres of WUI, 68% of which is at low wildfire risk. The next highest risk category is medium risk across 3,660 acres. Medium/high and high risk was only minimally mapped for this VFD covering less than 150 acres. The medium risk WUI areas are centered along the west Gallup development north along Mentmore and Defiance Draw roads to the highway 264 corridor. A wildfire event in this area will likely be flashy and primarily wind driven. Wildfire risk could be increased after a high moisture season that allows a meaningful understory response in either native or non-native plants that add to fuel load and continuity. Mowing along road corridors will be critical for emergency response and evacuation. This should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	None
Prescribed burns/pile burns	None
Community engagement	Community outreach
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community outreach training
Structural ignitability	Awareness and Defensible Space training
Fire district capacity	County Wildland Program with NWCG Training
Wildfire preparedness	County Preparedness Plan
Adjacent lands	Navajo Nation
Other	Improved addressing and road access

Vanderwagen VFD
Communities at Risk encompassed: Vanderwagon (Sager Estates), Black Rock – Vanderwagon Corridor

The wildland fuels of the Vanderwagon VFD were mapped in a highly ecologically departed condition where many areas of dense piñon-juniper woodlands have encroached formerly open ponderosa pine areas. Remnant ponderosa pines remain on the landscape and overtop the often-continuous canopy of piñon-juniper woodland. Rangeland improvement actions have reduced fuel loads and continuity but are not strategically place around WUI areas for maximum benefit. Similarly, naturally sparse areas largely remain distant and outside of WUI areas. The CWPP update modeling has mapped 6,840 acres of WUI areas, 50% of which is in low risk. However, 37% or 2,500 acres of the Vanderwagon WUI are in medium to high risk. These are centered on Sagar Estates, the Cousins Road corridor, and the highway 602 corridor. A wildfire event in this

fuel type will be a wind driven crown fire. As such, an array of fuels treatments placed to protect homes and infrastructure is critical. This needs to be paired with home site fuels reduction efforts that apply Firewise home protection principles and recommendations. Implementation of the VFD preparedness assessments, recommended across all VFDs, that includes home site assessments (see appendix IX), is especially important in this high fuel loading area. The Vanderwagon VFD would be a good candidate for county supported chipping and slash removal days that encourage and assist homeowners. The Vanderwagon VFD is dominated by Tribal land with some areas of private and state trust lands. Due to this, all fuels efforts should be closely coordinated with Zuni Pueblo and the Bureau of Indian Affairs Zuni Agency.

CHANGES SINCE 2013	
Fuels reduction treatments	2018 – County clean-up projects
Wildfires	None
Prescribed burns/pile burns	2018 – County clean-up projects
Community engagement	Community Outreach
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community Outreach Program
Structural ignitability	Awareness Training, evacuation drills
Fire district capacity	County Wildland Program with NWCG Training
Human ignition sources	Awareness training
Wildfire preparedness	County Preparedness Plan
Adjacent lands	BIA

Whispering Cedars VFD

Communities at Risk encompassed: Whispering Cedars

The wildland fuels of the Whispering Cedars VFD are divided by Interstate 40. South of the interstate, shrubland transitions quickly to piñon-juniper and ponderosa pine woodlands as elevation increases. North of the interstate, grasslands, exposed soils and rock outcrops dominate until piñon-juniper woodlands occur on mesa tops. Remnant ponderosa pines remain in protected areas, steep slopes, canyon bottoms, and north slopes. The WUI is dominated private and USDA Forest Service land with smaller amounts of state trust and tribal lands. The CWPP update modeling has mapped 6,839 acres of WUI areas, 79% of which is in low risk. However, 16% of the WUI is in medium to high risk. These are centered on the Whispering Cedar subdivision south of Refinery. A wildfire event in this dense piñon-juniper woodland fuel type will be a wind driven high intensity crown fire. As such, an array of fuels treatments placed to protect homes and infrastructure is critical. This needs to be paired with home site fuels reduction efforts that apply Firewise home protection principles and recommendations. Implementation of the VFD preparedness assessments, recommended across all VFDs, that includes home site assessments (see appendix IX), is especially important in this high fuel loading area. The Forest Service has conducted prescribed fire fuels treatments west of the Whispering Cedars subdivision which is an important area of high fuels. The Forest Service needs to maintain this fuels reduction effort. Additionally, the Forest Service is planning piñon-juniper treatments to the south and east of the subdivision. It will also be important to include state trust lands in these efforts as the State Land Office manages a section within the WUI.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	None
Prescribed burns/pile burns	None
Community engagement	Community Outreach
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Community Outreach Program
Structural ignitability	Awareness and Defensible Space training
Fire district capacity	County Wildland Program with NWCG Training
Human ignition sources	Awareness training
Wildfire preparedness	County Preparedness Plan
Adjacent lands	USFS

White Cliffs VFD

Communities at Risk encompassed: Rehoboth

The wildland vegetation of the White Cliffs VFD is characterized by grassland, low density shrubland, piñon-juniper woodlands, and smaller amounts of piñon-juniper ponderosa pine woodlands. The values-at-risk include homes, businesses, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by Tribal lands with lesser amounts of private, and state lands. The CWPP update process for the County mapped this VFD with 19,907 acres of WUI, 73% of which was mapped as low risk. Medium, medium/high, and high risk categories span 5,373 acres combined. The communities of this WUI are dispersed along the I-40 corridor, the Rocky Flats road corridor, and the highway 566 corridor. The highest contiguous risk WUI portion is at the development end of Sundance Coal Mine road. The mapped WUI did capture where infrastructure developments intersect with medium to high fire risk (dense woody vegetation) off of the main roads. A wildfire event in the woodlands of this VFD will likely be wind driven in the crowns of the piñon-juniper woodlands and in the patches of ponderosa pine forest. Fuels reduction treatments in and around Sundance Coal Mine road are needed along with home owner mitigations throughout the VFD and roadside mowing. These fuels reduction efforts should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	None
Prescribed burns/pile burns	None
Fire district capacity	County Wildland Program with NWCG Training
Community engagement	None
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Unknown
Structural ignitability	Yes
Fire district capacity	Yes
Human ignition sources	Yes
Wildfire preparedness	Yes

Adjacent lands	Navajo Nation
Roads and transportation	Yes

Wingate VFD
Communities at Risk encompassed: Ft. Wingate

The wildland vegetation of the Wingate VFD is characterized by grassland, low density shrubland, and piñon-juniper woodlands. The values-at-risk include homes, businesses, and agriculture and rangeland infrastructure. Land jurisdiction in this VFD is dominated by Tribal lands with lesser amounts of private, Forest Service, and state lands. The CWPP update process for the County mapped this VFD with 7,470 acres of WUI, 79% of which was mapped as low risk. Medium, medium/high, and high risk categories total 1,597 acres combined. The communities of this WUI are dispersed along the I-40 corridor, the highway 400 road corridor, and with an isolated patch southwest of 2nd Canyon Road west of Mariano Lake. The mapped WUI did capture where infrastructure developments intersect with medium to high fire risk (dense woody vegetation) off of the main roads. A wildfire event in the woodlands of this VFD will likely be wind driven in the crowns of the piñon-juniper woodlands and in the patches of ponderosa pine forest. Fuels reduction treatments in and around the town of Fort Wingate and the 2nd Canyon Road area are needed along with home owner mitigations throughout the VFD and roadside mowing along the I-40 corridor and Iyanbito. This VFD is at watershed risk due to the upper portions of the watershed south of Fort Wingate. These are heavily wooded and very fire prone. A wildfire on the adjacent National Forest would have significant undesirable consequences such as erosion, sedimentation, and flooding. The fuels reduction efforts should be paired with the VFD preparedness assessment recommended across all VFDs that includes home site assessments.

CHANGES SINCE 2013	
Fuels reduction treatments	None
Wildfires	10 acres at McGaffey in 2016
Prescribed burns/pile burns	Yes (USFS)
Community engagement	None
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	None
Structural ignitability	Awareness training, Defensible space
Fire district capacity	County Wildland Program with NWCG Training
Human ignition sources	Awareness training
Wildfire preparedness	County Preparedness Plan
Adjacent lands	USFS
Roads and transportation	None

Zuni Pueblo
In Partnership with Zuni BIA Fire Management
Communities at Risk encompassed: Zuni Pueblo WUI – Black Rock, Zuni, Zuni Pueblo – Highway 53 SW Corridor

The wildland fuels in the Zuni Pueblo fire response area are dominated by bare ground, sparse grassland and shrubland, piñon-juniper shrubland, and piñon-juniper woodlands with a ponderosa pine component. Zuni Pueblo also has significant riparian vegetation in the Zuni River corridor. Zuni Pueblo has largely removed highly flammable non-native invasive riparian species to significantly reduce wildfire risk; however, maintenance of the native broadleaf vegetation is critical. Rangeland improvement actions have reduced fuel loads and continuity but are not strategically place around WUI areas for maximum benefit. Similarly, naturally sparse areas largely remain outside of WUI areas. The CWPP update model has mapped 10,273 acres of WUI which is centered on Zuni Pueblo and Black Rock with corridor WUI areas along highways 53 and 602. Medium-high risk dominates the Zuni Pueblo fire response area representing over 70% (over 7,500 acres) of the WUI. It is important to note that this is the largest block of medium-high or high risk WUI in McKinley County. The development of the McKinley County wildfire risk model also revealed that Zuni Pueblo and Black Rock have a high amount of wildfire ignitions reported. In addition to fuels treatments, fuels treatment maintenance, and a preparedness plan by the Pueblo and BIA fire departments that uses home site assessments, an overall community-based strategy for fire risk reduction, preparedness, and response is needed. It is also important to note that Zuni Pueblo has a 2010 CWPP covering all of their Tribal lands and that this McKinley County plan compliments their CWPP.

CHANGES SINCE 2013	
Fuels reduction treatments	Black Rock Bosque (3 treatments) treated over 250 acres of tribal lands with BIA funds
Wildfires	2013 – 30 fires burned 29.8 acres district-wide 2014 – 14 fires burned 16.5 acres district-wide 2015 – 13 fires burned 22 acres district-wide 2016 – 23 fires burned 231 acres district-wide 2017 – 9 fires burned 143 acres district-wide
Prescribed burns/pile burns	2014 – Zuni Riverbed Rx burned 60 acres of piles 2015 – Black Rock Bosque Rx burned 50 acres of piles 2017 – Blackrock Airstrip North/South Rx burned 90 acres
Community engagement	Changes in enforcement/restrictions on camp fires, open flame grilling, and area cleaning for agriculture In addition, Zuni BIA Agency has: Fire Prevention Technician Wildland Fire Prevention Plan CWPP
PRIORITY ACTIONS FOR 2018 AND BEYOND	
Community involvement	Prevention week Preparedness week Fire department will work with communities adjacent to forest/agriculture to coordinate good days to conduct fuel reduction efforts
Structural ignitability	Firewise Workshops Home Assessments Remove weathered lumber, dry weeds from around properties Dispose of excess household trash
Fire district capacity	Training needed in Wildland Firefighting and Fire Prevention

	For example, have all local departments complete S-130/190
Human ignition sources	Prevention Outreach Community Education
Wildfire preparedness	Readiness reviews and drills Establish an effective emergency operation plan in the community
Adjacent lands	Reserve Treaty Rights Land projects, USFS, BIA, State Strong fire protection plan developed by communities
Roads and transportation	Road mapping Road maintenance Maintain access roads in case of emergency evacuation or rapid deployment of fire equipment (Quick response will reduce cost and effort)
Other	On tribal lands, surrounding sacred areas need immediate attention to improve access roads and reduce fuel loads

6| Companion plan crosswalk

The companion plan crosswalk component of the 2018 CWPP update, below, is a result of stakeholder input provided at the November 20th, 2017 Core Team meeting. The concept of cross-jurisdictional connectivity was also a theme at the May 7th Core Team and Community meetings and was expressed on three fronts: 1) data sharing, 2) cooperative agreements, and 3) continuity across county lines.

During the Core Team meeting, emphasis was given to the priority need of cross-jurisdictional data sharing. Data sharing, facilitated in some instances by inter-governmental agreements (IGAs), works well at the grassroots level—between local fire and police departments, etc. Between tribal entities, multiple federal agencies (BLM, USFS, NPS), County government, and private landowners present on county landscapes, getting to a point where these many actors work together would be a worthy accomplishment. Federal approval for IGAs could facilitate maintenance of roads, facilitating NEPA processes and right-of-way, and optimizing funding.

Information-sharing is also key in the context of keeping individuals and communities abreast of emergency information as well as fire bans. It was expressed in the May 7th Community Meeting that the County should develop a way to disseminate info about fire bans. This information is routinely posted to the county website, but the county should find a way to make sure that the information reaches residents. Timberlake residents spoke of their work to post fire hazard info along roadways and in community areas, as well as conducting community education initiatives on fire responsibility and on building fire adapted communities. Resident survey responses also emphasized the importance of having more media make repeated announcements on the dangers of wildfire. Specific suggestions included outreach to communities through meetings, mailings, and public service announcements about the need to manage and restore forests to healthier states.

To aid in cross-jurisdictional cohesion, there are a few cooperative agreements in play or taking shape, including a Four Corners Agreement, Resource Mobilization Plan, and a nascent cooperative agreement with the BIA Southwest Regional Office in Albuquerque. Another

example of multi-agency coordination is the hybrid model of the Zuni Fire District. While the County owns the building, allowing the district to tap into state and/or county tax fire funding, operations are tribal. Zuni district firefighters are paid and work full-time. The state provides equipment, while the BIA supports and funds fire prevention training and operations. The Zuni Fire District has a prevention plan, employs a fire prevention technician, and includes a tribal thinning crew.

Specific challenges in wildfire prevention and response arise with county lines. In the case of Timberlake, such challenges are visible along the line with Cibola county. While Timberlake received timber thinning assistance from NMAC and other grant funding, the land adjacent did not. As a result, vegetation at the county line is relatively thick. While the Timberlake escape route remains in decent shape, future initiatives should work to ensure that landscape improvements do not halt beyond county boundaries when conditions present heavy fuel loads and heightened risk to residents and properties.

County divisions again come in to play in emergency response communications. The county line and relative location of cell towers can make it difficult for dispatchers to identify the location of cell phone 911 callers. County residents knowing to inform dispatchers of their location can help insure that resources are sent to the correct location. Information on exact location is particularly where roads of the same name exist across or beyond the county. Mapping and communication therefore remains key in the rural communities throughout the county; updating road maps will assist in effectively dispatching support to communities.

Statewide Natural Resources Assessment

The *New Mexico Statewide Natural Resources Assessment & Strategy and Response Plans* sets an overarching vision for prioritizing and conducting natural resource management activities across the state (ENMRD Forestry Division. 2010). One of the key areas of focus of the *Assessment* is protecting watersheds from harm, particularly high severity wildfire. For McKinley County, the *Assessment* is most useful as a way to place the County's wildfire protection efforts within a state-wide context.
http://www.emnrd.state.nm.us/SFD/documents/New_Mexico_Natural_Resource_Assesment_DataAtlases.pdf

New Mexico State Hazard Mitigation Plan

The New Mexico Department of Homeland Security and Emergency Management's *Hazard Mitigation Plan* takes a state-wide view of both hazards and capabilities (NMDHSEM 2013):
http://www.nmdhsem.org/uploads/files/NM HMP Final 9-30-13.pdf

McKinley County Multi-Jurisdicational Hazard Mitigation Plan

http://mcoem.com/wp-content/uploads/2013/02/McKinley-County-HMP-Final-10142014.pdf

McKinley County Comprehensive Plan – Vision 2020

The McKinley County Comprehensive Plan is underway, with completion anticipated for late 2018. The 2018 CWPP update will be included as an element in the comprehensive plan.

There are several existing communities in McKinley County, such as Timberlake Ranch, that have only one main route of ingress/egress. This is a significant risk in the event of an evacuation and inhibits the capacity for emergency personnel and vehicles to access these communities. It is therefore of utmost importance that new housing developments be constructed with the threat of wildfire in mind. Guidelines and regulations outlined in the Comprehensive Plan should specify the need for multiple, well-maintained routes into and out of communities.

The consideration of regulations around ingress/egress is timely considering the progression of Mesa Ridge Ranch. This housing development project received preliminary approval in June 2017 for first development phase along an existing road running north-south. Final approval for phase 1was recorded on January 23rd 2018. Phase 1 will include 52 lots along Maverick Road, at slightly over one acre each. Further ahead, phase 2 lots are slated to be immediately adjacent to Whispering Cedars. As new housing brings higher population density, it will only become more important that residents and responders have adequate routes of exit and entry in the case of an emergency.

7| Fire adapted communities and Firewise communities

Wildfire risk is inherently shared between neighbors and across jurisdictions. Reducing that risk requires both a top-down and grassroots approach. Strategies such as regulations, zoning, and ordinances may provide an incentive for residents to accept responsibility for their own safety and that of their neighbors. However, some rural communities in New Mexico have experienced opposition from residents when ordinances related to wildfire mitigation have been proposed (Weinstein, 2014). Fire Adapted Communities (FAC) concepts focus on outreach and education for residents living in the WUI. By promoting FAC, land managers and local governments may find an alternative to ordinances and regulations or find a more receptive, educated public when proposing such measures as requiring defensible space thinning.

The National Cohesive Wildland Fire Management Strategy, a "strategic push to work collaboratively among all stakeholders and across all landscapes" developed in 2014, lists creating fire adapted communities as one of three primary goals along with resilient landscapes, and safe and effective wildfire response. FAC is a conceptual framework for engaging land management agencies and community stakeholders at various scales from the individual homeowner to businesses to federal agencies in order to help reduce wildfire risk. FAC concepts are useful for helping communities reframe how they think about wildfire. In the western United States, the presence and reoccurrence of wildfire is a natural component of fire adapted ecosystems. The map in appendix 9 highlights this fact by displaying wildfire occurrences in the county between 2006 and 2016. Acknowledging this fact is an important step towards becoming a more fire adapted community and a good starting point for education and outreach to community members. Figures 1 and 2 outline the various elements that define the FAC concept.

Figure 1 Elements of a fire adapted community

Firewise Communities is a recognition program administered by the National Fire Protection Association that began in 2002. Firewise emphasizes fuels reduction and recommends steps homeowners can take to reduce their individual wildfire risk. For example, landscaping practices to reduce flammable materials close to the home and standards for pruning trees and bushes. www.firewise.org contains several resources for homeowners, such as an online toolkit and checklist for steps to reduce wildfire risk. Firewise recognition is achieved after a community completes a 5-step process:

1. Obtain a wildfire risk assessment as a written document from your state forestry agency or fire department.
2. Form a board or committee and create an action plan based on the assessment.
3. Conduct a "Firewise Day" event.
4. Invest a minimum of $2 per capita in local Firewise actions for that year.
5. Submit an application to your Firewise liaison.

Firewise recognition is an important tool in the ongoing process to be fire adapted. Many communities working to be fire adapted begin by becoming recognized as a Firewise community. In summary, "Firewise is a designation, fire adapted is a lifestyle" (Nystrom, 2016).

Part of being fire adapted recognizes that not all members of the community can prepare for, respond to, and recover from a wildfire the same. Research (Lynn and Gerlitz, 2005) and practice have shown that socially vulnerable populations may not be able mitigate and recover from wildfire to the same extent as the community at large. In recognition of this and its relevance in McKinley County, the Households Below Poverty Level and the Senior Citizen maps (appendix

10 and 11) illustrate these related metrics to help guide partners engaged in fire adaptation tailor their practices. Older residents may not be able to move their wood pile, clean gutters and eaves, or rake needles and debris. Households below the poverty level may not have the funds on hand to reduce structural ignitability by installing a new roof, or they may not be able to pay for fuels reduction treatments.

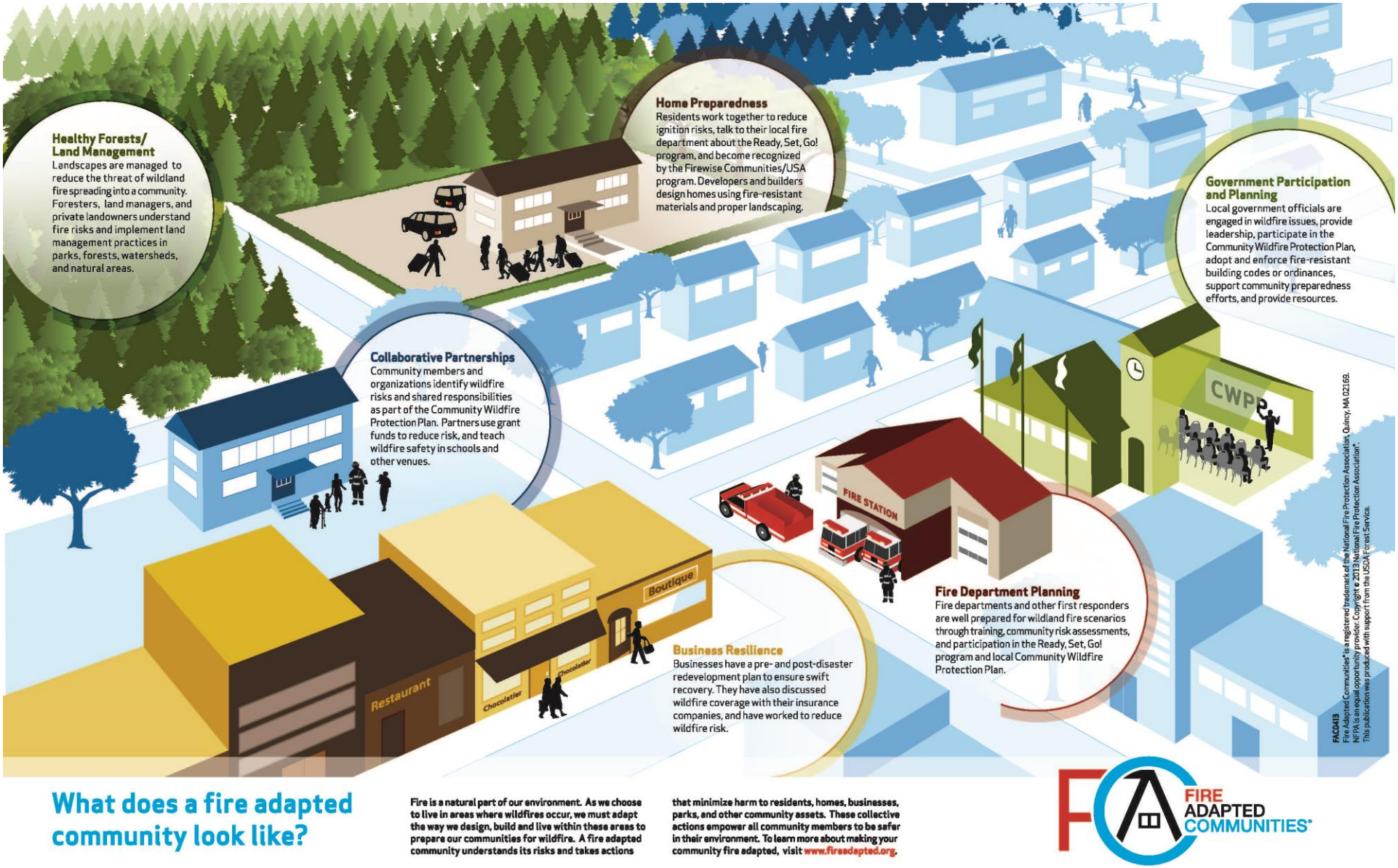

Figure 2 Fire adapted communities infographic

8| Wildfire preparedness

Ingress and egress

Ingress (access for wildfire suppression equipment and personnel) and egress (ways for residents and visitors to escape the wildfire) are crucial to wildfire preparedness. Communities with only one way in and out, such as Timberlake Ranch, face a greater risk during wildfires. Planning evacuation routes at the community or fire district level is one way to identify hazards ahead of time. Actions to improve ingress and egress during a wildfire may include thinning along roadways, road condition improvements, and signage directing residents where to go during an emergency.

Roads

The McKinley County Roads Department is working to create, maintain, and improve roads with the objective of improving access and safety in communities across the county in the event of wildfire. Having adequate, well-maintained roads in and out of communities is one of the most important aspects of wildfire preparedness.

One of the points highlighted in community meetings was the need for the county to keep accurate, updated information on all roads maintained by the county, BIA, and Navajo Nation. This measure will greatly aid personnel dispatched in emergency situations. Accurately identifying the location of an emergency call, and effectively dispatching a response to that location, is made more difficult in some cases where more than one road shares the same name—or similar names—across the county. This is something for roads and county officials to look into.

In the Bread Springs/Bááháálí area, the Department is currently working to gain right-of-way to improve specific roads that it currently is limited to maintaining. These roads include Rodeo Road, Pinehaven Road, and Blue Medicine Well Road. Once right-of-way is secured, plans for improvement include implementing an all-weather Chip Seal surface on Pinehaven Road (currently gravel), and resurfacing Rodeo and Blue Medicine Well roads.

In the Vanderwagen area, Cousins Road is slated to be improved in the next couple of years. In addition, the county is working on building a new road to improve wildfire and emergency access and egress. This road will be a connector between Ralph Chavez and Jackwoods roads.

In the Timberlake subdivision, near the southern end of Forest Road 157, the Roads Department is looking to improve surface and access of Timberlake Road (gravel surface), which currently experiences seasonal issues with mud. According to Timberlake residents at the community meeting, approximately $60,000 is spent each year to grade and maintain roads in the community.

A McKinley County resident offered the recommendation that all Forest and state roads have ample shoulders, with vegetation cut back 20 feet on each side.

Evacuation

Residents should be ready to leave as soon as evacuation is recommended by officials, in order to avoid being caught in fire, smoke, or road congestion. Evacuating early helps firefighters keep

roads clear of congestion and lets them move more freely to do their job. Resources are available to help residents prepare ahead of time for evacuation. Early preparation can help residents with everything from packing lists—essentials can include taking a supply of critical medications—to how to address pets and livestock.

For advice and insight into preparing for evacuation, see the Fire Adapted Community's March 2018 article, Firsthand Accounts: How to Prepare Your Community for a Wildfire Evacuation.

At the community level, the 2018 CWPP update includes a priority action item to establish safety zones and/or evacuation staging areas. A safety zone is an area without burnable fuel that is large enough so that the distance between the firefighters and flames is at least four times the maximum flame height (NWCG, 2014).

Smoke impacts

Smoke generally consists of carbon monoxide, carbon dioxide, water vapor, hydrocarbons, other organic chemicals, nitrogen oxides, trace minerals and particulate matter.

- Particulate matter consists of solid particles and liquid droplets suspended in the air. Particles with diameters less than 10 microns are upper respiratory tract and eye irritants.
- Smaller particles (2.5 microns) are the greatest health concern – they can be inhaled deep into the lungs, and can affect respiratory and heart health. *(HEPA filters remove particles down to .3 PM)*
- Carbon monoxide, a colorless, odorless gas produced by incomplete combustion, is a particular health concern and levels are highest during the smoldering stages of a fire.

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

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

- Check local air quality reports. Helpful websites include:
    - New Mexico Fire Info, Smoke Management - New Mexico Fire Information - an interagency effort by federal and state agencies in New Mexico
    - Air Now, Interactive Map of Smoke Monitors & Fire Current Conditions - Environmental Protection Agency
    - Protect Your Health on Smoky Days - from New Mexico Environmental Public Health
    - Wildfire Smoke Frequently Asked Questions - Environmental Protection Agency

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

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

- "Safe spaces" should be designated and prepared where community members can have a respite from smoky air. Communities should explore installing HEPA filters at key locations such as public libraries, hospitals, nursing homes, and schools.
- Organizers should consider suspending certain outdoor activities and events if air quality is poor. Outdoor sports events and school recesses are examples of activities that can be cancelled, postponed, or moved indoors to minimize exposure.
- Create a system to supply sensitive individuals with portable HEPA filters during times of smoke impacts.

Communication

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

Community Emergency Response Team

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

More information on the CERT Program can be found on the following web pages:
https://www.ready.gov/community-emergency-response-team

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

Defensible space

Residents can significantly reduce their wildfire risk by creating defensible space around their homes. Keeping gutters and roofs clear of flammable debris, moving woodpiles and propone tanks away from the house, and keeping the grass mowed are some simple steps that homeowners can take to make their homes more resistant to wildfire.

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

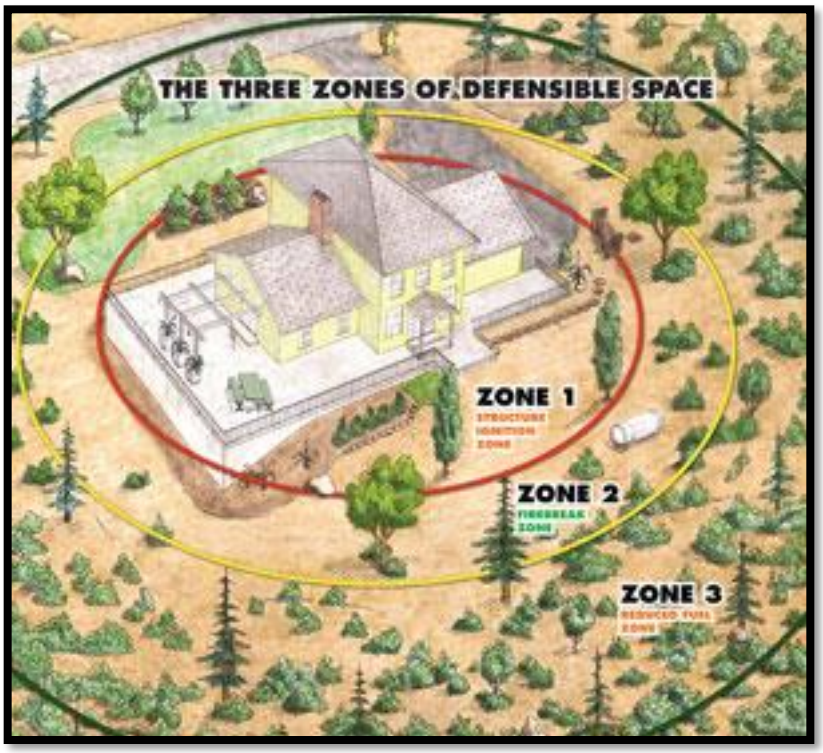

Figure 3 Three zones of defensible space

Zone 1: Encircles the structure and all its attachments (wooden decks, fences, and boardwalks) for at least 30 feet on all sides. *Note:* the 30-foot number comes from the very minimum distance, on flat ground, that a wooden wall can be separated from the radiant heat of large flames without igniting.

In Zone 1:

- Space plants carefully, selecting those that are low-growing and free of resins, oils and waxes that burn easily.
- Mow the lawn regularly.
- Prune trees six to ten feet up from the ground.

- Space coniferous trees to allow 30 feet between crowns. Trim back trees that overhang the house.
- Create ‘fire-free’ area within five feet of the home, using non-flammable landscaping materials and/or high-moisture-content annuals and perennials.
- Remove dead vegetation from under decks and within 10 feet of the house.
- Consider fire-resistant materials for patio furniture, swing sets, etc.
- Remove firewood stacks and propane tanks; they should not be located in this zone.
- Water plants, trees and mulch regularly.
- Consider xeriscaping if you are affected by water-use restrictions.

Zone 2: 30 to 100 feet from the home.

In Zone 2:

- Select plants that are low-growing, well irrigated and minimally flammable.
- Leave 30 feet between clusters of two to three trees, or 20 feet between individual trees.
- Encourage a mixture of deciduous and coniferous trees.
- Create ‘fuel breaks’ such as driveways, gravel walkways, and lawns.
- Prune trees six to ten feet up from the ground.

Zone 3: 100 to 200 feet from the home. NOTE: Because of other factors such as topography, the recommended distances to mitigate for radiant heat exposure actually extend between 100 to 200 feet from the home – on a site-specific basis. In this area:

- Conduct thinning of trees, although less space is required than in Zone 2.
- Remove smaller conifers that are growing between taller trees (these can serve as “ladder fuels” and give ground-level fires a path into the crowns of larger, mature trees).
- Remove heavy accumulation of woody debris.
- Reduce the density of tall trees so that their canopies do not touch.

9| Planning for post-fire recovery

Because of the significant probability of a wildfire eventually occurring in or around McKinley County, it is important to plan for how the county and individual communities will recover after a wildfire. New Mexico State Forestry provides an excellent resource for thinking about post-fire recovery called *After Wildfire* (www.afterwildfirenm.org). In addition, many elements of post-wildfire recovery are similar to recovery from other disasters and are covered in the McKinley County Multi-Jurisdictional Natural Hazard Mitigation Plan.

Safety

The foremost post-fire recovery concern is safety. After a wildfire, it is important that residents stay away from their homes or businesses until officials determine it is safe to return. Because utility services can be disrupted by wildfire:

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

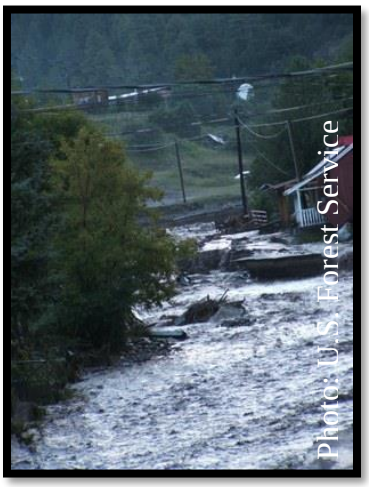

Image 4 Post-fire flooding in Arizona

In addition:

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

Flooding and Erosion

Post-fire flooding is a major concern. The map in appendix 11 displays post-fire debris flow hazards and illustrates which population centers are most at risk from flooding. In these maps, post-fire debris flow was modeled using a standard methodology (Cannon et. al., 2010). Debris flow hazard is a combination of probability of a debris flow and potential volume of debris flow. An important caveat is that this dataset shows where debris flows will originate and not necessarily where they will end up.

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

Although McKinley County does not allow construction within its FEMA-designated floodplains without a Floodplain Use Permit, FEMA flood risk maps can still help guide post-fire preparation for flooding. Some homes and businesses may want to reevaluate their flood insurance coverage in light of the fact that post-wildfire floods are often more extensive than the flood risk might indicate before a wildfire.

NM After Wildfire Guide

The New Mexico *After Wildfire* guide (http://afterwildfirenm.org/) is a comprehensive resource for communities seeking to develop emergency plans ahead of potential wildfires. Besides

offering guidelines on immediate safety and flood information, the guide also includes the following sections:

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

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

It may be appropriate to implement post-wildfire treatments in the forest such as erosion control or planting. First, however, communities should be sure to identify values-at-risk post-wildfire and focus on treatments that reduce the threats to those values. The *After Wildfire* guide has a catalogue of potential treatments that include:

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

Image 5 Spreading mulch to reduce post-fire erosion

Image 3 a check dam stabilizes soil behind it

10| Collaboration

The 2018 CWPP update was a collaborative effort between the CWPP core team and CWPP stakeholders. Table 7 below lists CWPP stakeholders who were invited to participate in the 2017 CWPP update process. In addition to these individual invitations, the CWPP update was also publicized through the Navajo Times, Gallup Independent, Cibola Beacon, local radio stations, as well as on the Forest Stewards Guild's website. Several articles appeared in the Gallup independent to promote the community meetings and promote participation in the resident surveys. The CWPP update team also solicited input from area residents during community

meetings a and via an in-depth survey. Also surveys were sent to all the district fire chiefs and other fire management professionals in the county to gather their input.

Table 7 2018 CWPP update stakeholders

2018 CWPP update stakeholders		
Name	**Position**	**Affiliation**
Gloria M. Skeetdecruz		Baahli "Breadsprings" Chapter
Vance Yazzie		BIA Ramah Agency
Todd Richards	FMO	BLM Rio Puerco Field Office
Zach Saavedra	Fire	BLM Rio Puerco Field Office
Brett Ringgold		Bluewater Acres VFD
Jake Campos		Bluewater Acres VFD
Monte Sandoval		Bluewater Acres VFD
Nicholas Cloud		Bluewater Acres VFD
Philip Mirabal		Bluewater Acres VFD
Tom Saucedo		Bluewater Acres VFD
Vandee Silva		Bluewater Acres VFD
Bill Chandler	Asst. Chief	Bluewater Lake Fire Dept
Gary Jewell	Fire Chief	Bluewater Lake VFD
Dominick Chicharello	Regional Prescribed Fire and Fuels Specialist	DOI BIA Navajo Region
Kenny Carbajal	Chief	Chichiltah Vol. Fire Dept
Tim Duboise	Asst Chief	Chichiltah Vol. Fire Dept.
Mark Brahl		Continental Divide Electric Coop.
Doug Decker		County Attorney, McKinley County
Richard Kontz		County Manager
Bernice Martinez		County Support Services
Jimmie Toledo	Fire Chief	Crownpoint Fire Dept
Michael Morris	Asst. Chief	Crownpoint Fire Dept
Rich Austin		Deputy County Fire Chief
Glenn Yallup		DOI BIA Zuni Agency
Valdis Neha	Fire Management Officer	DOI BIA Zuni Agency
Robert Brown	District FMO	EMNRD - Forestry Division
Todd Haines	District Forester	EMNRD - Forestry Division
Matt Piccarello	Southwest Assistant Director	Forest Stewards Guild
Eytan Krasilovsky	Southwest Director	Forest Stewards Guild
Troy Essery		Fort Wingate VFD
Charlie Garcia		Fort Wingate VFD

Elizabeth Kianut		Ft. Wingate FD
Eric Babcock	Fire Chief	Gallup Municipal Fire District
Jesus Morales	Deputy Fire Chief	Gallup Municipal Fire District
Curtis Hays	City Attorney	City of Gallup
Maryann Ustick	City Manager	City of Gallup
Richard Matzke	Gallup Joint Utilities	
Tom Nelson		Lake Mutual Domestic Group
Henry King	Fire Chief	Mariano Lake/ Pinedale Fire Dept
Larry Winn		McKinley County SWCD
Doug Decker	McKinley County Attorney	McKinley County
Susan Mahooty		McKinley Co. Emergency Manager
Jason Carlisle	McKinley County Fire Chief	McKinley County Fire Department
Adam Berry		McKinley Co. Office of Emergency Management
Dudley Byerley	McKinley County Soil & Water Conservation District	
Rudy Nez	Fire Chief	McKinley West Fire Dept
Doug Scott	Asst. Chief	McKinley West Fire Dept
Alvin Whitehair		Mt. Taylor Ranger District
Anthony Pacheco	Mt. Taylor Ranger District	
Rosilyn Smith	Navajo Department of Transportation	
Neil Pablo		Navajo Estates
Herman Yazzie	Fire Chief	Navajo Estates Fire Dept
Carlos Long		Navajo Estates Fire Dept
Alexious C. Becenti, Sr.	Forest Manager	Navajo Forestry Department
Harland Cleveland	Coordinator/Delegated – Emergency Manager	Navajo Nation Department of Emergency Management
Doug Watchman	Liaison	Navajo Office of Emergency Management
Edmund Tso	Liaison	Navajo Office of Emergency Management
Jonny Johnson	Navajo Nation Natural Resources	
Larry Chee		Navajo Nation Fire/Rescue
Sammie Legah III	Fire Chief	Navajo Pine Fire Dept
Conrad Begay		Navajo Pines VFD
Dannaford Deschine	Navajo Pines VFD	
Steven Yazzie	Navajo Pines VFD	

Paula Holyan	Crownpoint District Manager Delegated	Navajo Tribal Utilities Authority
Rubianne Dugi	Chinle District Manager	Navajo Tribal Utility Authority
Rex Koontz	Deputy General Manager	Navajo Tribal Utility Authority
Dale Glenmore	Regional Fire Management Officer	DOI Navajo Region
Johnson Benallie	Regional Assistant Fire Management Officer	DOI Navajo Region
Wendell Damon	Navajo Tribal Utility Authority	
Bob Kuipers		Northwest New Mexico Council of Governments
Evan Williams	Deputy Director	Northwest New Mexico Council of Governments (NWNMCOG)
Prestene Garnenez	Regional Planner	NWNMCOG
Bob Merrill		Pinehaven VFD
Darryl Wilson	Regional Fire Prevention Specialist	DOI BIA Navajo Region
Abel Forkner	District Chief	Prewitt Fire Department
Andy Wilson	Fire Chief	Ramah Fire Dept
Dane Lambson	Assistant Chief	Ramah Fire Dept
Carol and Paul Enz	Ramah VFD	
Carrie Watts	Ramah Water and Sanitation District	
Jeff Irving		Roads superintendent, McKinley County
Ramiro Salcido	Fire Chief	San Mateo Fire Dept
Robert Brown		State Forestry
Todd Haines		State Forestry
Andrew Begaye	Fire Chief	Thoreau Fire Dept
Jonathan Slim		Thoreau Fire Dept
Denise Thomas		Thoreau VFD
Sherry Botkin	Thoreau Water and Sanitation District	
Linda Pedersen		Timber Lake Landowner Association
Danny Montoya		Timber Lake VFD
Andy Wilson	Fire Chief	Timberlake Fire Dept
Steven Wills		Timberlake Homeowners Association

William Wolford	Timberlake VFD	
Herman Yazzie	Fire Chief	Tsa-Ya-Tah Fire Dept
Herbert Yazzie	Fire Chief	Tsa-Ya-Tah Fire Dept
Herbert Yazzie		Tsa-Ya-Toh Fire Department
Anthony Pacheco	Fire Management Officer	USDA Forest Service, Mt. Taylor RD
Alvin Whitehair	District Ranger	USDA Forest Service, Mt. Taylor RD
Jonathan Dayton	Fire Chief	Vanderwagen Fire Dept
John Cote	Asst. Chief	Vanderwagen Fire Dept
John Cote		Vanderwagen VFD
Bill Jordan	Fire Chief	Whispering Cedars Fire Dept
Joy Woolman	Whispering Cedars Fire Dept	
Russell Schumacher	Whispering Cedars Municipal Domestic Water	
Bill Jordan		Whispering Cedars VFD
Michael Henry		Whispering Cedars VFD
Julio Sanchez	Fire Chief	White Cliffs Fire Dept
DJ Platero	Assistant Chief	White Cliffs Fire Dept
Chris Billie		Whitecliffs VFD
David Hubbard		Whitecliffs VFD
Edward Sanchez	Fire Chief	Zuni Fire Department
Aldred Cheama	District Chief	Zuni Fire District
Ron Choner		Tampico Springs Developer

Core team

The CWPP core team consisted of the Forest Stewards Guild, County officials, Northwest New Mexico Council of Governments staff, and NM State Forestry staff who developed and authored the CWPP update. The CWPP core team took the lead on developing the document, convened public meetings, updated maps, and coordinated with CWPP stakeholders. Table 8 below lists the members of the CWPP core team.

Table 8 2017 CWPP update core team

2018 CWPP update core team		
Name	**Position**	**Affiliation**
Abel Forkner	District Chief	Prewitt Fire Department
Aldred Cheama	District Chief	Zuni Fire District
Alvin Whitehair	Mt. Taylor District Ranger	Mt. Taylor Ranger District
Anthony Pacheco	Mt. Taylor Fire Management Officer	Mt. Taylor Ranger District
Bob Kuipers	RTPO Program Manager	Northwest New Mexico Council of Governments (NWNMCOG)
Darryl Wilson	Regional Fire Prevention	DOI BIA Navajo Region

	specialist	
Dominick Chicharello	Regional Prescribed Fire and Fuels Specialist	DOI BIA Navajo Region
Doug Decker	County Attorney	McKinley County
Dudley Byerley		McKinley County Soil & Water Conservation District
Eric Babcock	Fire Chief	Gallup Fire District
Evan Williams	Deputy Director	Northwest New Mexico Council of Governments
Eytan Krasilovsky	Southwest Director	Forest Stewards Guild
Jason Carlisle	County Fire Chief	McKinley County Fire Department
Jeff Irving	Roads Superintendent	McKinley County
Larry Chee	Fire Chief	Navajo Nation Fire/Rescue
Mark Bahl	Operations Superintendent	Continental Divide Electric Cooperative
Matt Piccarello	Southwest Assistant Director	Forest Stewards Guild
Paula Holyan	Ft. Defiance District Manager	Navajo Tribal Utility Authority
Richard Matzke	Electric Director	Gallup Joint Utilities
Robert Brown	District FMO	EMNRD - Forestry Division
Ron Shultz	District Chief	
Margie Begay	Senior Planner, Ft. Defiance Agency	Navajo DOT
Susan Mahooty	Emergency Manager	McKinley County OEM
Todd Haines	District Forester	EMNRD - Forestry Division
Valdis Neha	Fire Management Officer	Zuni Bureau of Indian Affairs
Vandee Silva	Fire Chief	Bluewater Acres Volunteer Fire Department
Wendell Damon	Field Superintendent	Navajo Tribal Utility Authority

Community meetings

The working team convened several meetings for County residents and stakeholders to discuss progress made since the 2013 CWPP; to determine updates to the communities at risk ratings and priority rankings; and to identify priority action items for the 2018 CWPP update. The community meetings conducted by the core team engaged members of various communities within the County to discuss issues of wildfire protection and preparedness. Some questions posed at these meeting engaged homeowners in assessing their own prevention practices, such as defensible space zone treatments, fuel breaks, and open space thinning. Table 9 below provides an overview of all core team meetings, core team meetings, and public meetings convened for the 2018 CWPP update.

Table 9 2018 CWPP update meetings

2018 CWPP update meetings			
Date	**Meeting (core team, community etc.)**	**# of participants**	**Representation (organizations, e.g. forest service, state forestry etc.)**
November 20, 2017	Core Team meeting	19	EMNRD Forestry; Northwest New Mexico Council of Governments (NWNMCOG); McKinley County; McKinley County Soil & Water Conservation District; McKinley County Office of Emergency Management; McKinley County Fire Dept.; BIA; Navajo Tribal Utility Authority; McKinley County Roads; Gallup Joint Utilities; Forest Stewards Guild
February 8, 2018	Community Meeting *At the McKinley County Fire Office in Gallup, NM*	14	Forest Stewards Guild, New Mexico State Forestry, Gallup Fire, BIA Fire Management, Gallup Independent, Zuni Fire Department, McKinley Co Fire, North West NM Council of Governments, US Forest Service, McKinley Co., Gallup Independent
May 7, 2018	Core Team Meeting *At the Ramah Fire Station*	9	EMNRD State Forestry, McKinley County Fire, Northwest New Mexico Council of Governments (NWNMCOG), McKinley County, BIA – Ramah Navajo, Zuni Fire Management, BIA – Navajo Region, McKinley West Fire District
May 7, 2018	Community Meeting *At the Ramah Fire Station*	10	Members of the Community, Forest Stewards Guild, McKinley County Fire, Ramah Fire District, EMNRD Forestry
June 18th, 2018	Core Team Meeting *At the McKinley County Fire Office in Gallup, NM*	10	McKinley County Fire, Northwest New Mexico Council of Governments (NWNMCOG), BIA – Ramah Navajo, Zuni Fire Management, McKinley County, McKinley County Emergency Management, McKinley West Fire District

Community surveys

In addition to meetings, stakeholders and members of the public were invited to complete a survey that helped inform priorities and action items for the 2018 update. Working team members also coordinated with regional community leaders to define communities at risk and their hazard levels. Survey questions and results are included in appendix 15; a narrative summary follows here:

As part of the 2018 CWPP update, the Core Team solicited input from area residents on their actions, priorities, and concerns with regard to wildfire risk mitigation. Of the 13 residents to respond, 7 are full-time residents, 4 are seasonal residents, 3 are homeowners, 2 own undeveloped lots, and 1 rents his residence. Together these residents represent the communities of Gallup, Mentmore, Tampico Springs, Timberlake/Timberlake Ranch, Vanderwagen, and Crownpoint.

Most residents (nine) reported implementing defensible space thinning treatments around their home since 2013, while four reported making driveway improvements. Three have also made structural improvements to their properties such as removing wooden decks or installing fire-resistant building materials, screens, and vents, etc.

In the surveys, residents were asked to rank their level of concern regarding aspects of life, property, or community that could be vulnerable to wildfire. The results are as follows, ranked from highest concern to lowest:

1. Damage to Home
2. Smoke impacts | Property value loss
3. Damage to watershed or water supply | Personal safety and safety of family members
4. Loss of insurability
5. Loss of life | Economic disruption | Post-fire erosion or landslides
6. Loss of recreational opportunities | Livestock/agriculture disruption

In the event that her/his house is immediately threatened by wildfire, 5 residents would certainly leave, 7 would likely leave, and 1 would be more likely to stay. 12 out of 13 residents know what route they would take in an evacuation. In an evacuation, 7 residents reported having a designated meeting place prearranged with family members; the remaining 6 do not. 9 out of 13 residents are signed up for McKinley County's "Code Red" Reverse-911 notification system.

Asked to rate their level of comfort with various methods of reducing vegetative fuel loads, residents were most receptive of the idea of ***cutting and chipping hazardous fuels (trees, limbs, brush and tall grasses) within 100 feet of their homes*** (rated at an average 4.4 out of 5, with 5 being highest score for comfort level). Next was ***working collaboratively with other homeowners and large landowners to create shaded fuel breaks to stop or slow large wildfires before they reach homes***, rated at 3.8 out of 5. Residents were least receptive of using prescribed burns to reduce fuels and improve ecological conditions, rated at 3 out of 5. More than half of the residents who responded said they would do mitigation work on their property regardless of anyone else was doing. Four people said they would do mitigation work only if they could be convinced that it would increase the chances of their home surviving a wildfire. One resident said they would do mitigation work only if other landowners and managers, such as open space or local government agencies, did work on their land as well. Lastly, one resident would implement mitigation measures only through a cost share program with government or private agencies.

Most residents reported cutting grass and weeds around their houses every spring (11 people), moving firewood stores away from the house and preferably upslope and downwind (7 people),

and removing or raking pine needles from the ground, roof, and gutters (8 people). Five residents remove flammable vegetative material from beneath their decks each spring, and two residents make sure that all screens are in good repair to prevent sparks from entering through vents or other openings.

More than half (7) of the residents would like to have a home hazard assessment conducted on their property. Over half (8) are interested in volunteer opportunities, such as chipper days and evacuation drills, to help other McKinley County residents reduce their wildfire risk. Eight residents also expressed interest in receiving community wildfire risk mitigation trainings, ranked in order of number of people interested:

1. Community Emergency Response Team (5 people)
2. Firewise (5 people)
3. Ready! Set! Go! (3 people)
4. Prescribed fire implementation (3 people)
5. Fire Adapted Communities (2 people)
6. Wildland Firefighting (2 people)
7. Forest Worker Safety (2 people)

In addition, one resident expressed interest in receiving training on how to use firefighting equipment such as portable water tanks, in order to be able to take quick action when a fire breaks out or assist firefighters once they arrive on scene.

Asked to rate the importance of elements of community wildfire preparedness, residents gave the following ranking order, from most important to least:

1. Emergency notification during a wildfire
2. Defensible space around homes
3. Hazardous fuels reduction in open space and adjacent lands
4. Evacuation
5. Homeowner education and outreach
6. Post-fire recovery

The survey also asked residents whether they thought that the County and/or their community should adopt zoning ordinances and/or building codes to reduce wildfire risk. Most respondents (9) supported requiring fire-resistant materials on any new construction, as well as codes that would require residents to reduce fuel loads adjacent to roadways and rights of way. Seven people were in favor of ordinances to require defensible space for existing buildings including homes, businesses, and infrastructure. Four residents did not support the idea of ordinances or codes around wildfire risk. One resident offered the additional suggestion that in residential areas, property lots of 5 acres or less undergo removal of hazardous fuels by chipping.

Themes from the Community

The community meetings hosted throughout the County helped shed light on serious issues that community members face and deem important. One of the themes voiced in multiple meetings and surveys was the need for investment in water resources. Residents wanted the Forest Service or County to install more water holding points that could be readily accessed in the event of a wildfire. One resident pointed out that the county's recreation and tourism industries could make good use of water resources outside of wildfires, through fishing or other recreation.

Another recurring theme was the question of access—for firefighters and emergency responders to gain easy entry, and for residents to make a quick exit if necessary. Good access will help ensure safety even in potentially less-than-optimal conditions such as thick smoke, high stress, and immediate action. One resident pointed out the high number of seasonal residents who may not be fully aware of the risks associated with wildfire and may not be on the lookout for warning signs that full-time or long-time residents are well aware of. Good access and communication is key for helping to make sure that everyone present is able to get to safety in good time.

11| Geospatial Analysis and Map Descriptions

Appendix 1: Surface ownership

The surface ownership map displays the ownership of land by the various public land managers and private entities within the County.

Appendix 2: Wildland Urban Interface

The WUI map indicates human- made values at risk on the landscape that could be impacted by wildfire. It mapped as a polygon that includes communities and escape routes and a buffer around them. The WUI polygon should be used to help locate and prioritize treatments to minimize the impact of wildland fire to the area.

The input data included:

- WUI polygons – The Silvis Lab at University of Wisconsin built this map based on U.S. Census TIGER block polygons to identify housing density as of 2010. The previous version of this map was used by the New Mexico Statewide Natural Resources Assessment & Strategy and Response Plan (NM Assessment).
- Roads – The McKinley County GIS department provided map of all inventoried roads, and primary escape routes were identified.
- Cell towers - The County GIS department also provided a map of cell tower locations.
- Non-potable water tanks – McKinley County has invested in several 45,000 gallon water
- tanks for fire suppression.
- Recommendations of the Core Team - This data was further amended based on new construction identified from satellite imagery and recommendations and knowledge of the Core Team.

Appendix 3: Communities at risk

This Communities at Risk Map displays communities that are at risk of wildfire within McKinley County. Most of these communities were identified in the 2013 CWPP update, however in this update several communities were added at the guidance of the Core Team.

Appendix 4: Fire districts

The fire district map displays the geographic response areas of the fire protection agencies within the County.

Appendix 5: Fuel treatments

Fuel treatments were identified from input from community members and the core team as well as from the New Mexico Opportunity Map. This map is a collaborative effort to record and make available key data about projects that are occurring across all jurisdictions in New Mexico to facilitate well informed decision making for future planning. It is hosted by the New Mexico Forest and Watershed Restoration Institute (FWRI) and managed by the New Mexico State Forestry Division's Forest and Watershed Health Office.

Appendix 6: Wildfire Hazard Potential

The wildfire hazard potential map is generated by the USDA Forest Service in 2014. It's intent is to shows potential for fires that would be difficult for suppression resources to contain. Higher values represent fuels with a higher probability of experiencing extreme fire behavior under conducive weather conditions. The full description of the data from the US Forest Service is below:

The wildfire hazard potential (WHP) map is a raster geospatial product produced by the USDA Forest Service (USFS), Fire Modeling Institute that can help to inform evaluations of wildfire risk or prioritization of fuels management needs across very large landscapes (millions of acres). Our specific objective with the WHP map is to depict the relative potential for wildfire that would be difficult for suppression resources to contain. To create the 2014 version the USFS built upon spatial estimates of wildfire likelihood and intensity generated in 2014 with the Large Fire Simulator (FSim) for the Fire Program Analysis system (FPA), as well as spatial fuels and vegetation data from LANDFIRE 2010 and point locations of fire occurrence from FPA (ca. 1992 - 2012). With these datasets as inputs, USFS produced an index of WHP for all of the conterminous United States at a 270-meter resolution. The map is presented in two forms: 1) continuous integer values, and 2) five WHP classes of very low, low, moderate, high, and very high. Areas mapped with higher WHP values represent fuels with a higher probability of experiencing torching, crowning, and other forms of extreme fire behavior under conducive weather conditions, based primarily on 2010 landscape conditions.

On its own, WHP is not an explicit map of wildfire threat or risk, but when paired with spatial data depicting highly valued resources and assets such as communities, structures, or powerlines, it can approximate relative wildfire risk to those resources and assets. WHP is also not a forecast or wildfire outlook for any particular season, as it does not include any information on current or forecasted weather or fuel moisture conditions. It is instead intended for long-term strategic planning and fuels management.

Appendix 7: Wildfire Risk

This data layer identifies areas with a relatively high risk of destructive wildfire. The intent of this layer is to identify areas where forest management is most likely to reduce the risk of wildfire damage (or reduce the impact of wildfire on natural resources, and human infrastructure and development). This layer was developed for the New Mexico State Strategy and Response Plan to help prioritize areas which will minimize potential and reduce impact of wildfire. The scale of the data is meant for broad scale planning and prioritizing. The model combines inputs of rate of spread, flame length, crown fire potential, wildland urban interface, fire occurrence, fire regime condition class in an additive equal weight overlay.

Appendix 8: Wildfire History

The Wildfire History map shows wildfires that have occurred in the county since the year 2000. This map shows point data for smaller fires and polygons for larger fires. This map also might not show the full extent of small wildfires that were contained quickly because of the difficulty in recording and accessing this data from the multitude of firefighting services across the County. Data was collected from these sources:

- US Geological Service reports on fires across jurisdictions that reach a management and complexity level that requires an Incident Status Summary Form (ICS-209). For this reason this data captures large fires very well but excludes small fires that are contained quickly.
- US Forest Service reports on fire occurrence of small fires as point data and fire history from larger fires as polygon data. This data is only recorded from National Forest Lands.
- State Forestry records point data for fire that occur on their jurisdiction and on private land.

Appendix 9: Flame Length

The Flame Length map models estimated flame lengths at the flaming front of a fire burning in surface fuels. In general, flame lengths estimate the ability of suppression forces to be successful with direct attack on a fire. As a general rule, flame lengths less than four feet can be managed by ground crews, between four and eleven feet requires aerial equipment, greater than eleven feet are unmanageable even with aerial equipment. This data was generated by New Mexico State Forestry as part of the Statewide Natural Resources Assessment. It combines input data that represents biophysical conditions and weather parameters including elevation, slope, aspect, canopy closure, fuel model 40, canopy base height, and canopy bulk density, and weather based on average conditions in spring through out the fire weather zones in New Mexico.

Appendix 10: Vegetation Cover

The Vegetation Cover map shows the percent of cover broken into vegetation type. This data was derived from the Existing Vegetation Cover data from LANDFIRE tool set and the data was developed in 2014. It represents the vertically projected percent cover of the live canopy layer and is generated separately for tree, shrub and herbaceous cover lifeforms using training data and other layers. Percentage tree, shrub, and herbaceous canopy cover training data are generated using plot-level ground-based visual assessments.

Appendix 11: Vegetation Type

The Vegetation Type map shows the vegetation type across the landscape. This data was derived from the Existing Vegetation type data from LANDFIRE tool set and the data was developed in 2014. The Existing Vegetation Type (EVT) layer is mapped using decision tree models, field data, Landsat imagery, elevation, and biophysical gradient data. Decision tree models are developed separately for each of the three lifeforms -tree, shrub, and herbaceous and are then used to generate lifeform specific EVT layers.

Appendix 12: Post-wildfire debris flow hazard

This map displays post-fire debris flow hazard and which population centers are most at risk from flooding. Post-fire debris flow was modeled using a standard methodology (Cannon et. al., 2010). Debris flow hazard is a combination of probability of a debris flow and potential volume of debris flow. An important caveat is that this dataset shows where debris flows will originate and not necessarily where they will end up.

Appendix 13: Population Density

This map shows the population density per square mile. The data shown is from the U.S. Census data sets for 2010.

Appendix 14: Poverty Level

This map shows the percentage of Households below the poverty level. The data is from the American Community Survey (ACS) of the US Census collected between 2011 and 2015. The ACS offers comprehensive information on social, economic, and housing characteristics and because of its large sample size, about 2.9 million addresses per year, the ACS is exceptionally useful for subnational analyses, serving as the best source for survey-based state level income and poverty estimates. The ACS provides single-year estimates of income and poverty for all places, counties, and metropolitan areas with a population of at least 65,000 as well as the nation and the states, and provides estimates for all geographies, including census tracts and block groups using data pooled over a five-year period.

Appendix 15: Senior Citizens

This map shows the percentage of the population that is age 65 years and over in the U.S., by state, county, tract and block group. The data shown is from the U.S. Census Bureau's SF1 and TIGER data sets for 2010.

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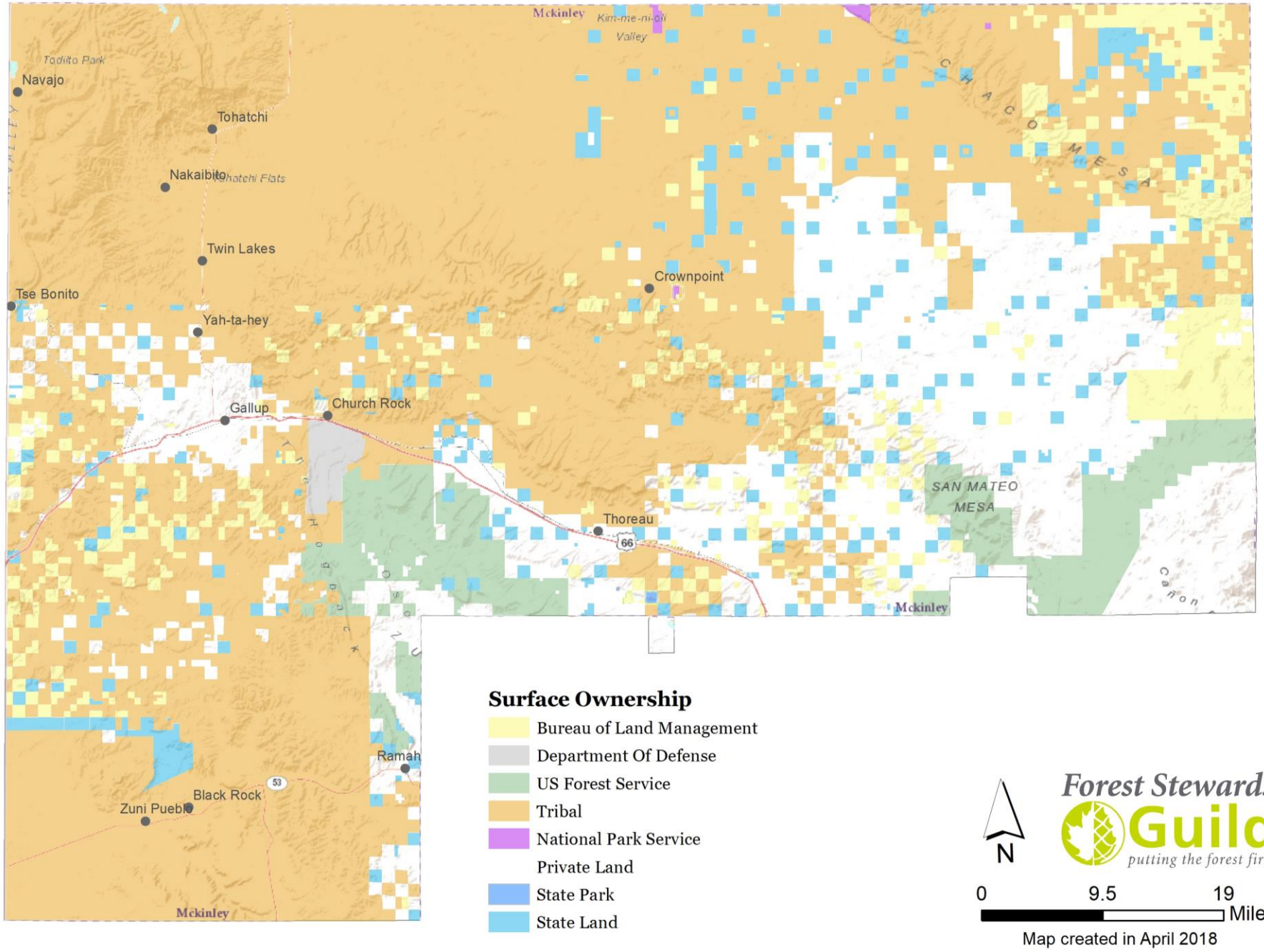
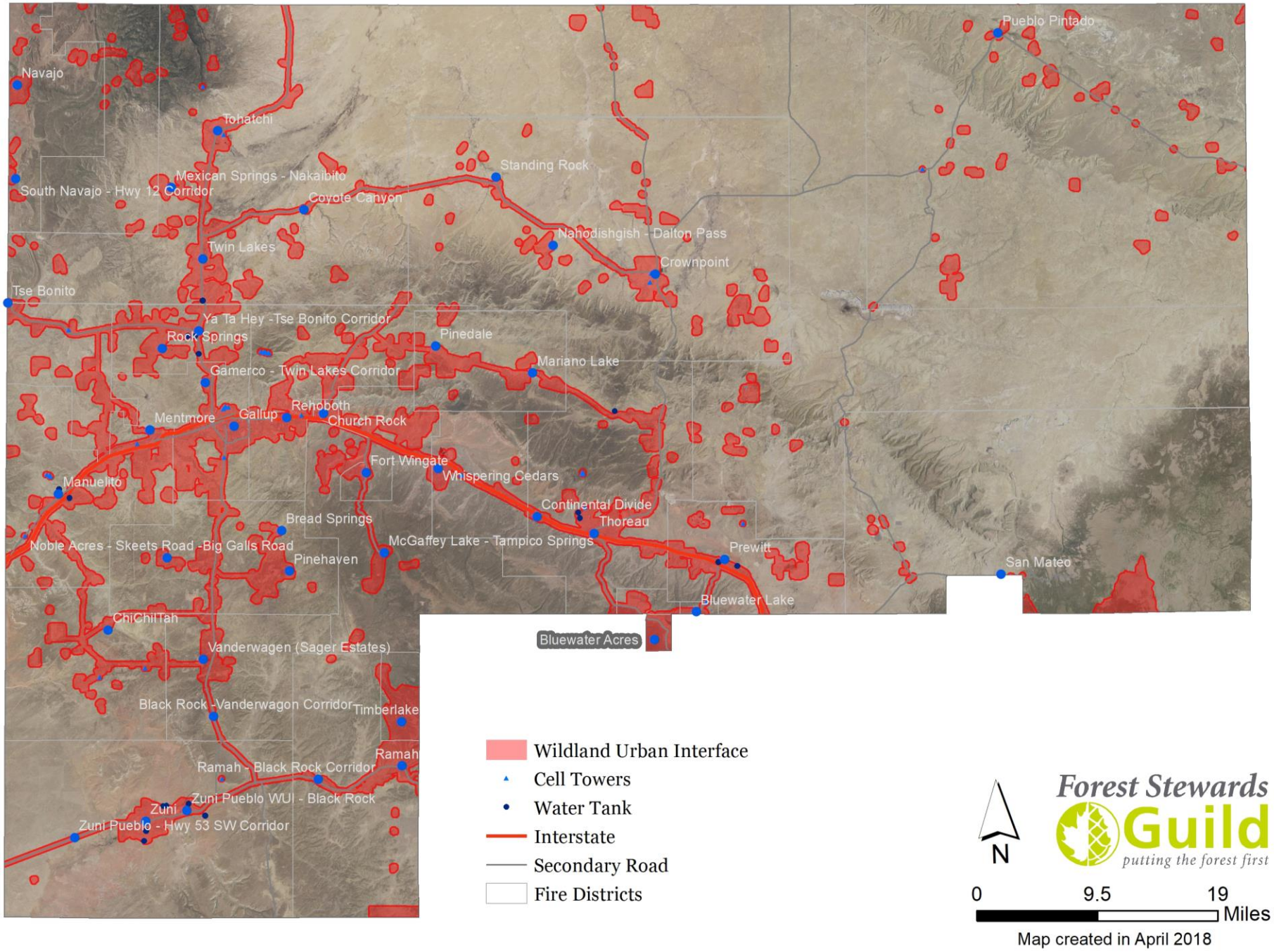
Appendix 1: Surface Ownership



Appendix 2: Wildland Urban Interface



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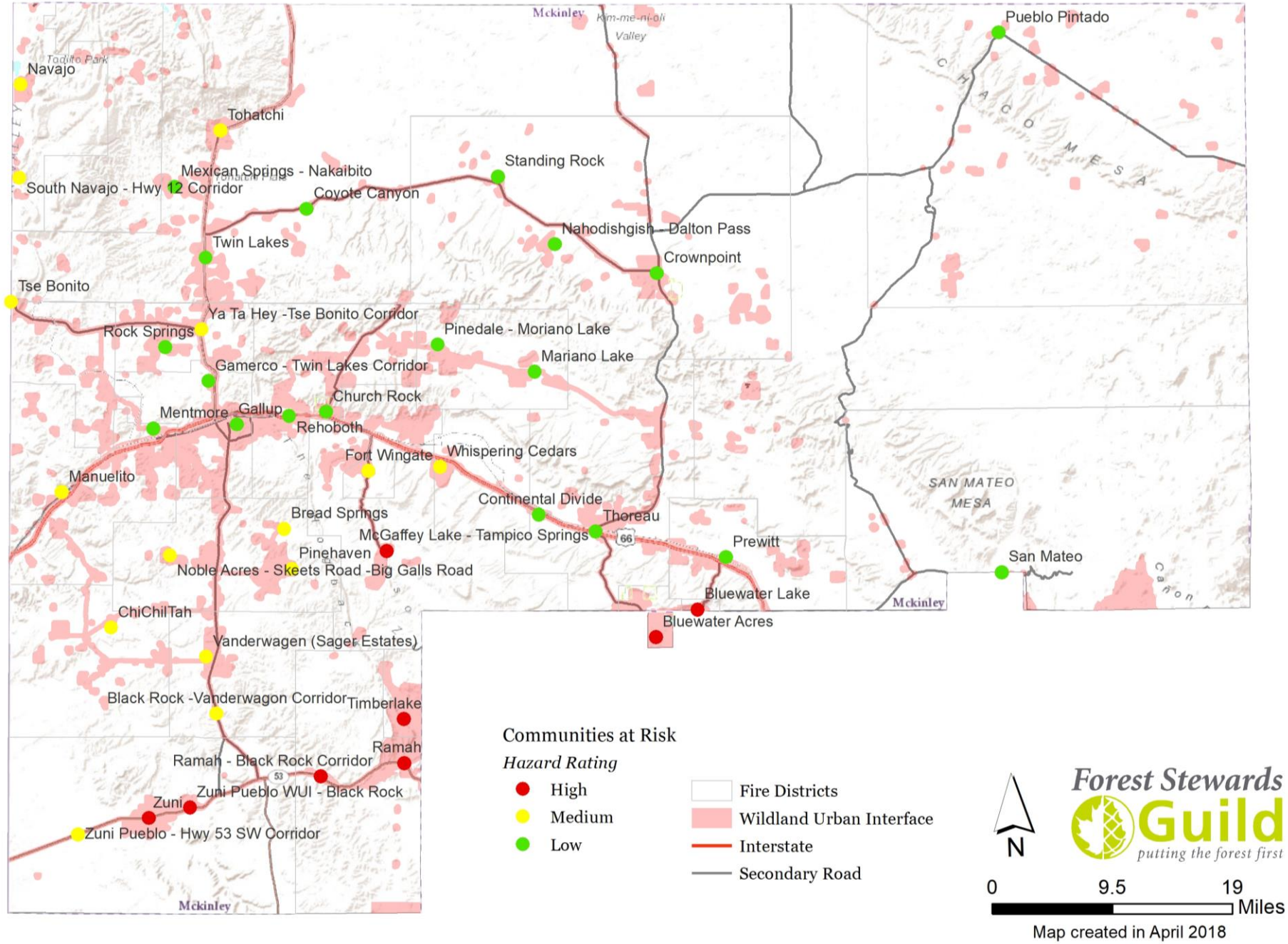
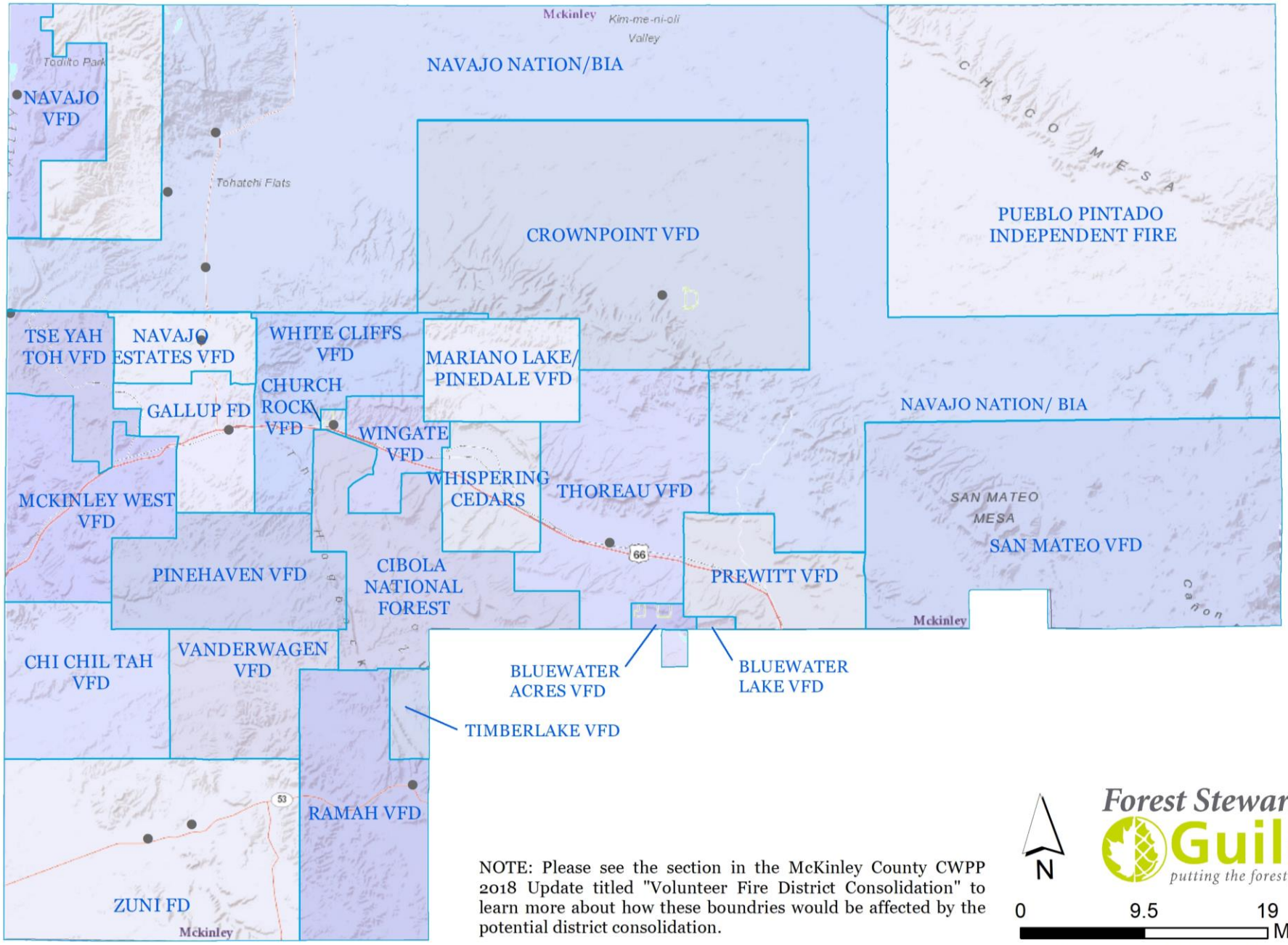
Appendix 3: Communities at Risk



Appendix 4: Fire Districts



NOTE: Please see the section in the McKinley County CWPP 2018 Update titled "Volunteer Fire District Consolidation" to learn more about how these boundries would be affected by the potential district consolidation.

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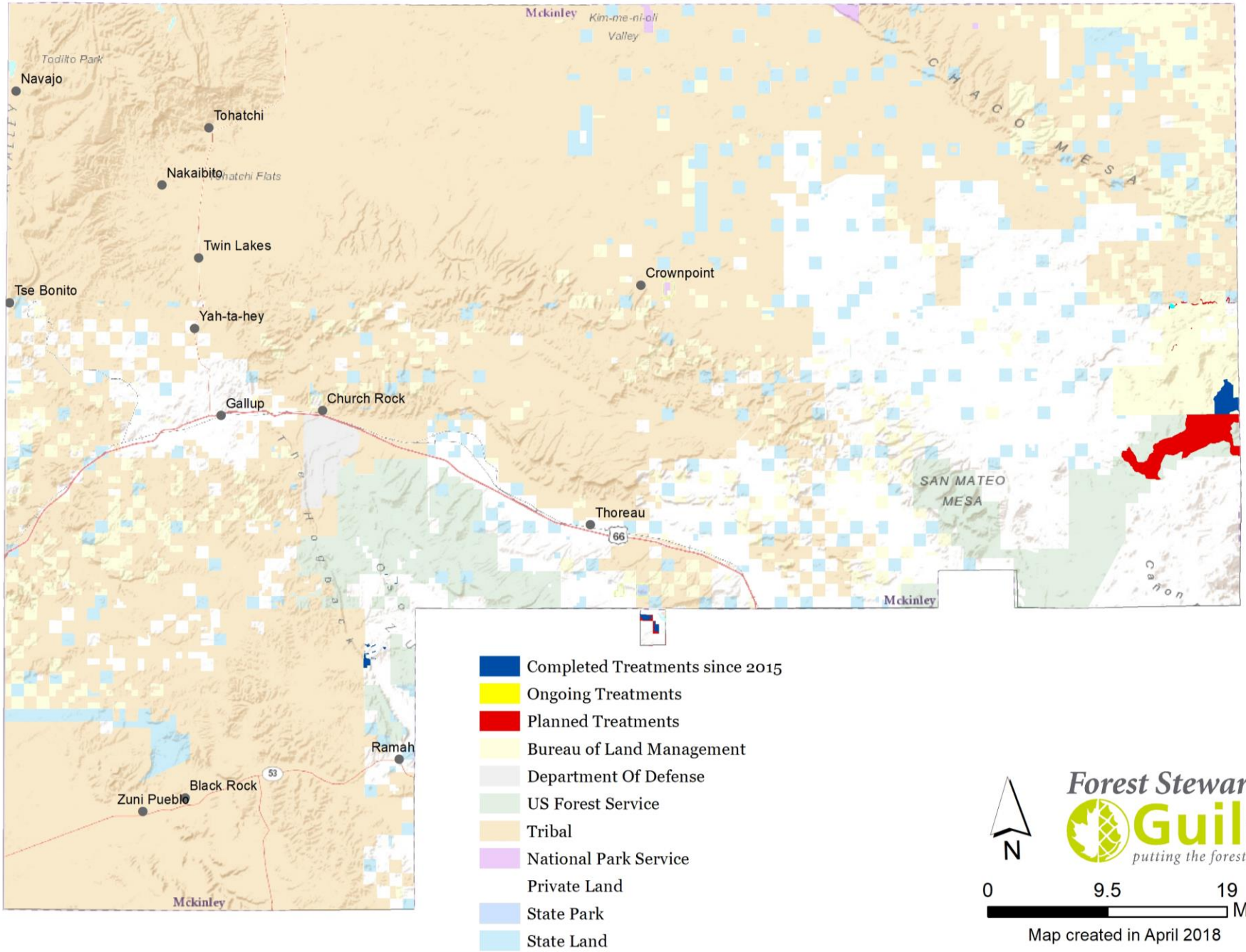
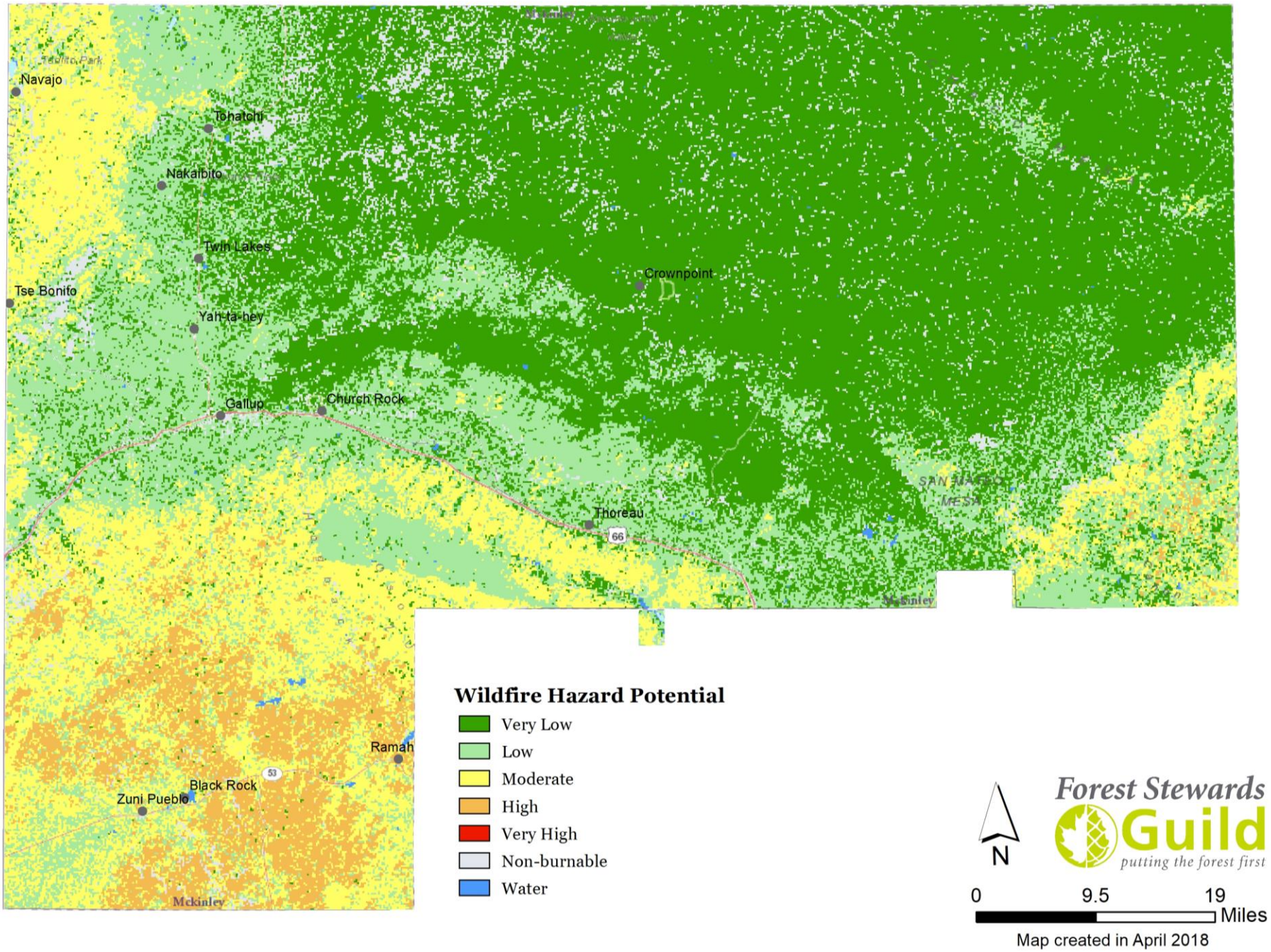
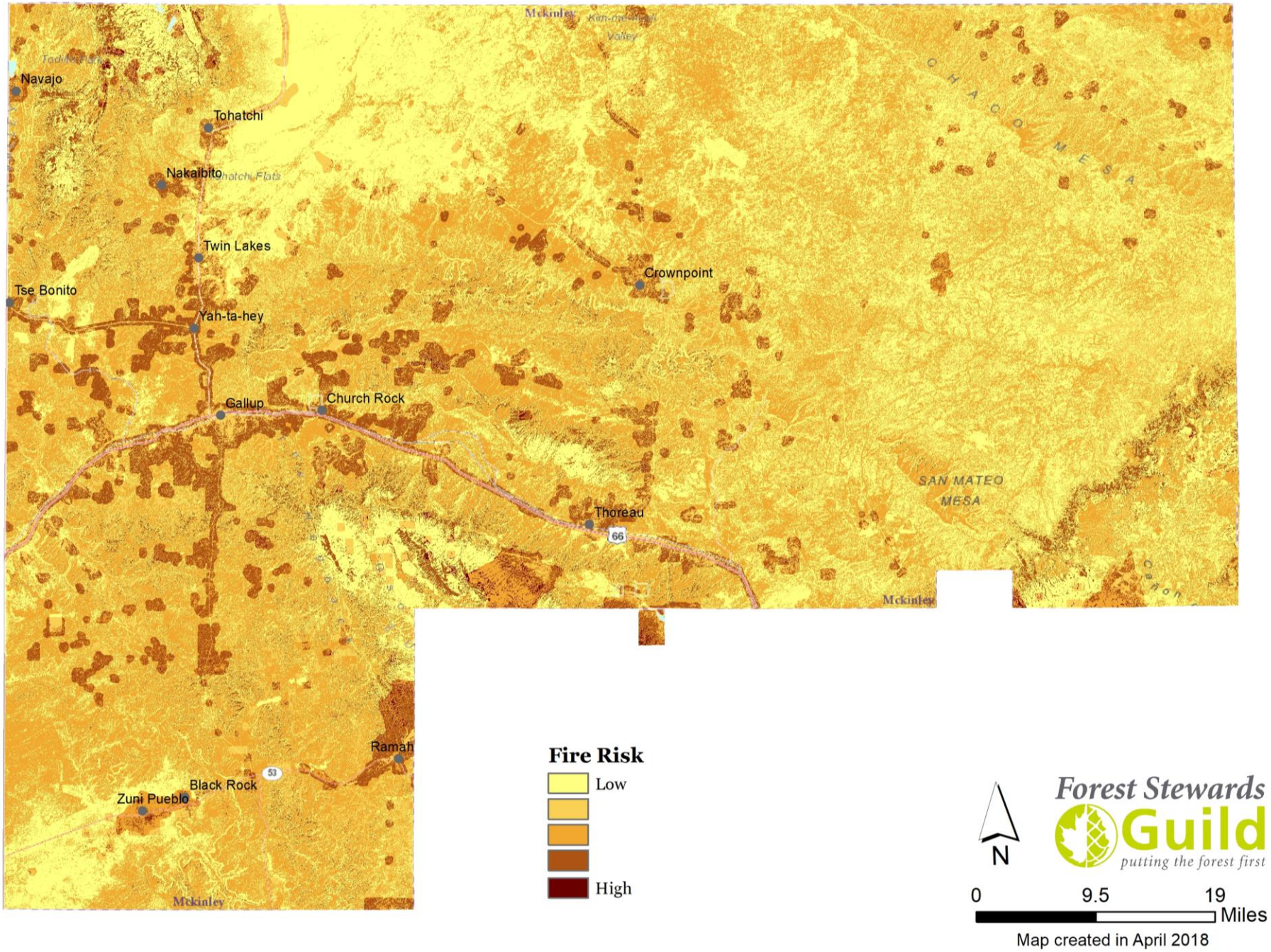
Appendix 5: Fuel Treatments



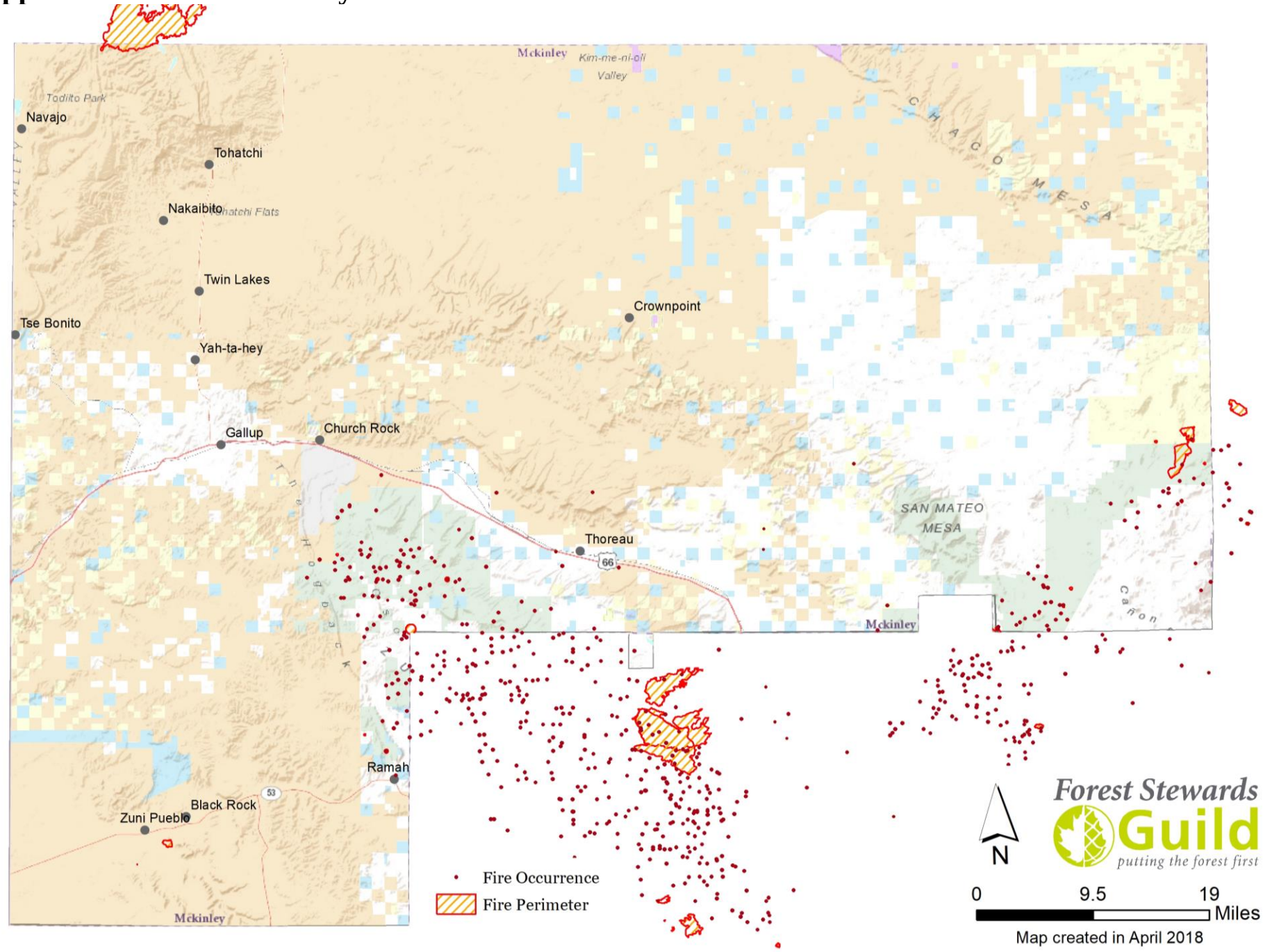
Appendix 6: Wildfire Hazard Potential



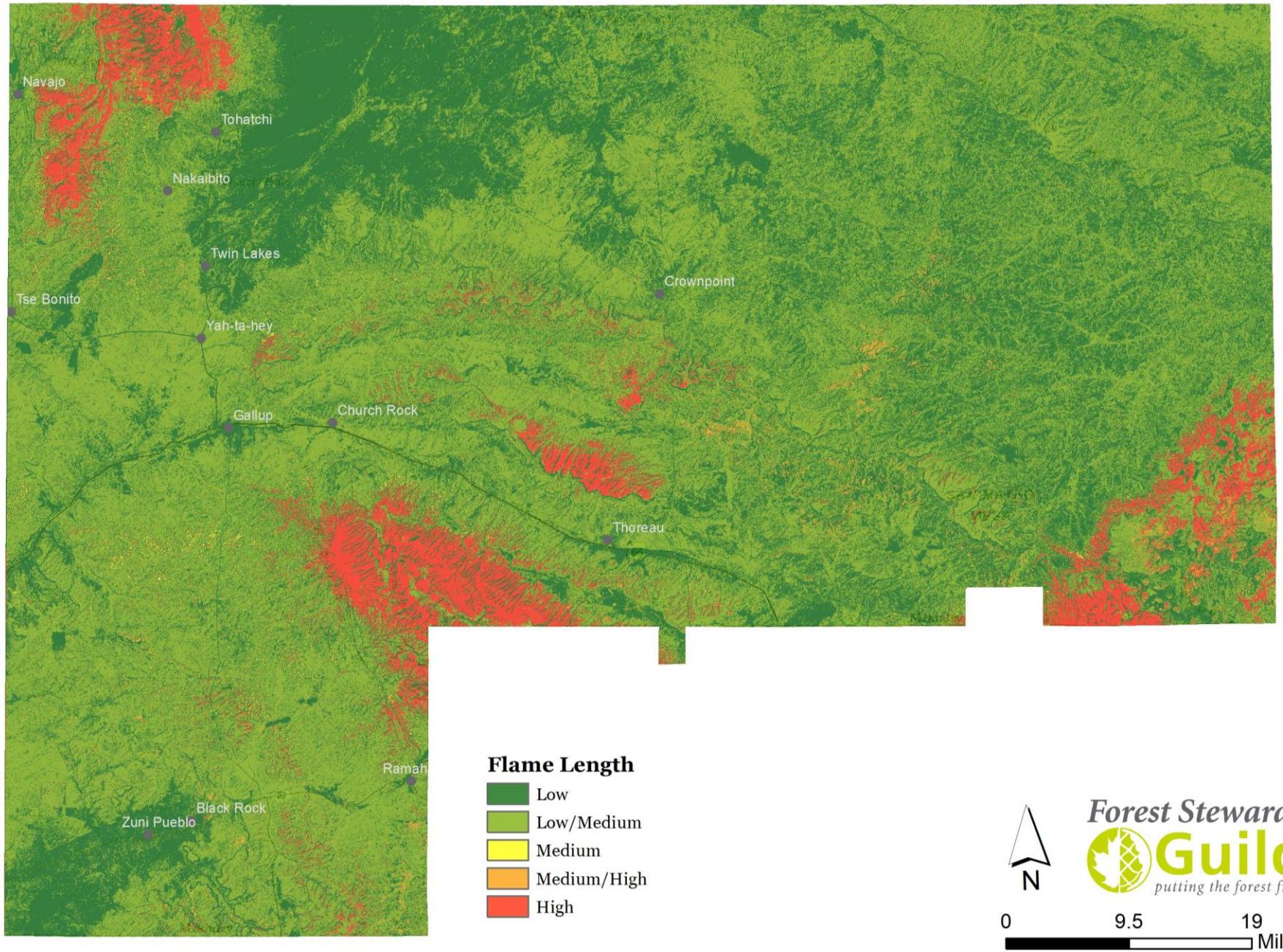
Appendix 7: Wildfire Risk



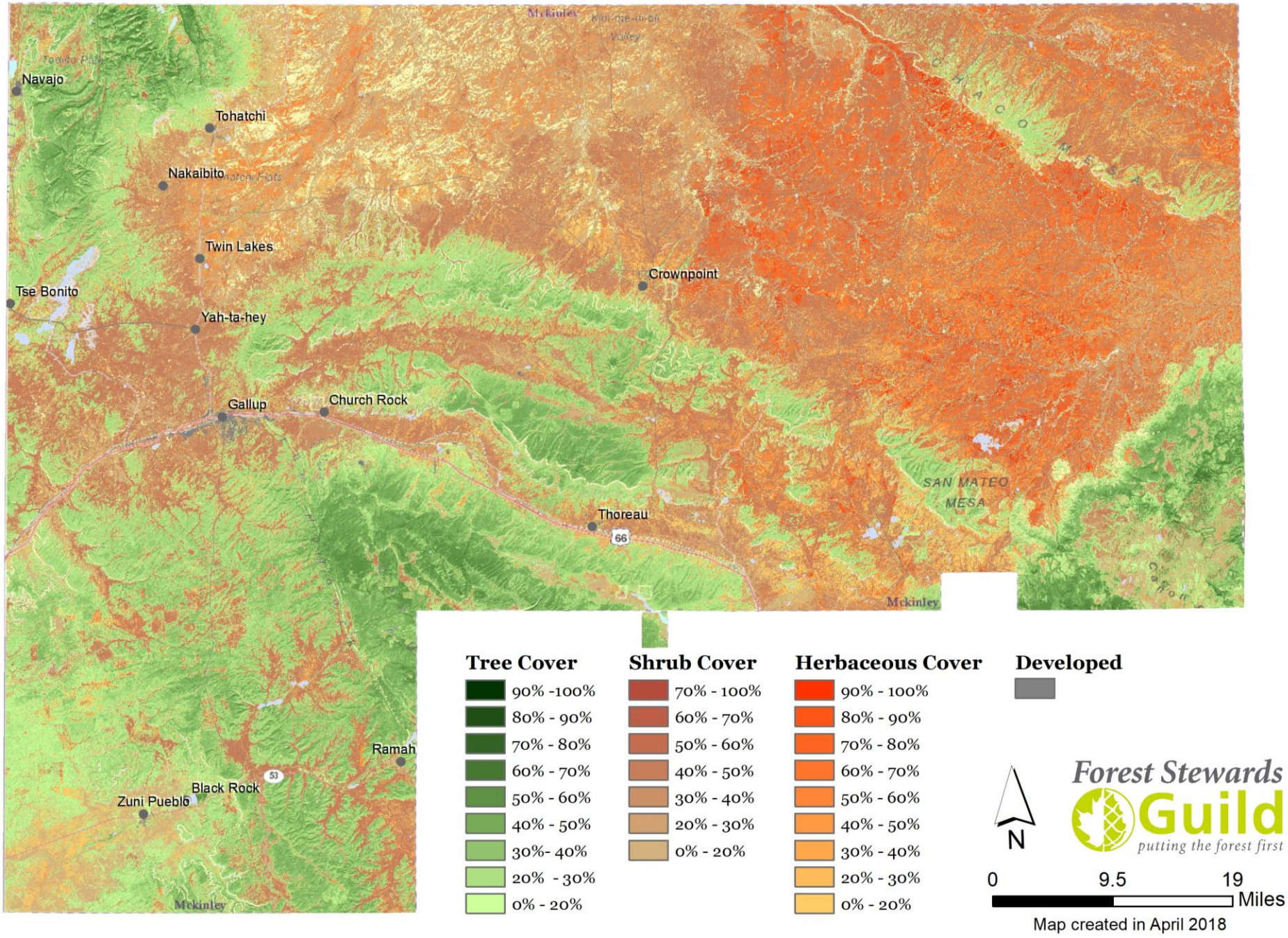
Appendix 8: Wildfire History since 2000



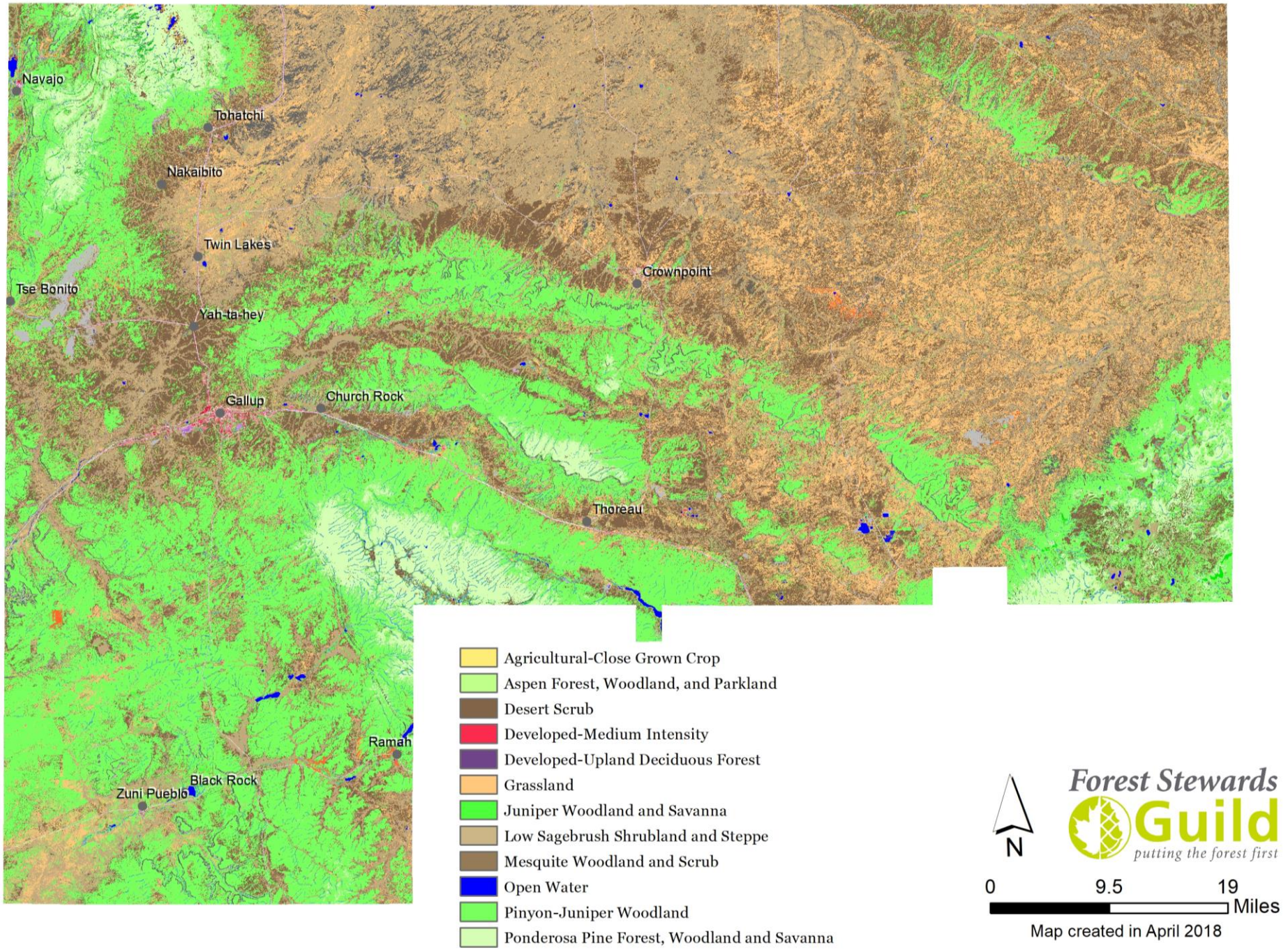
Appendix 9: Flame Length



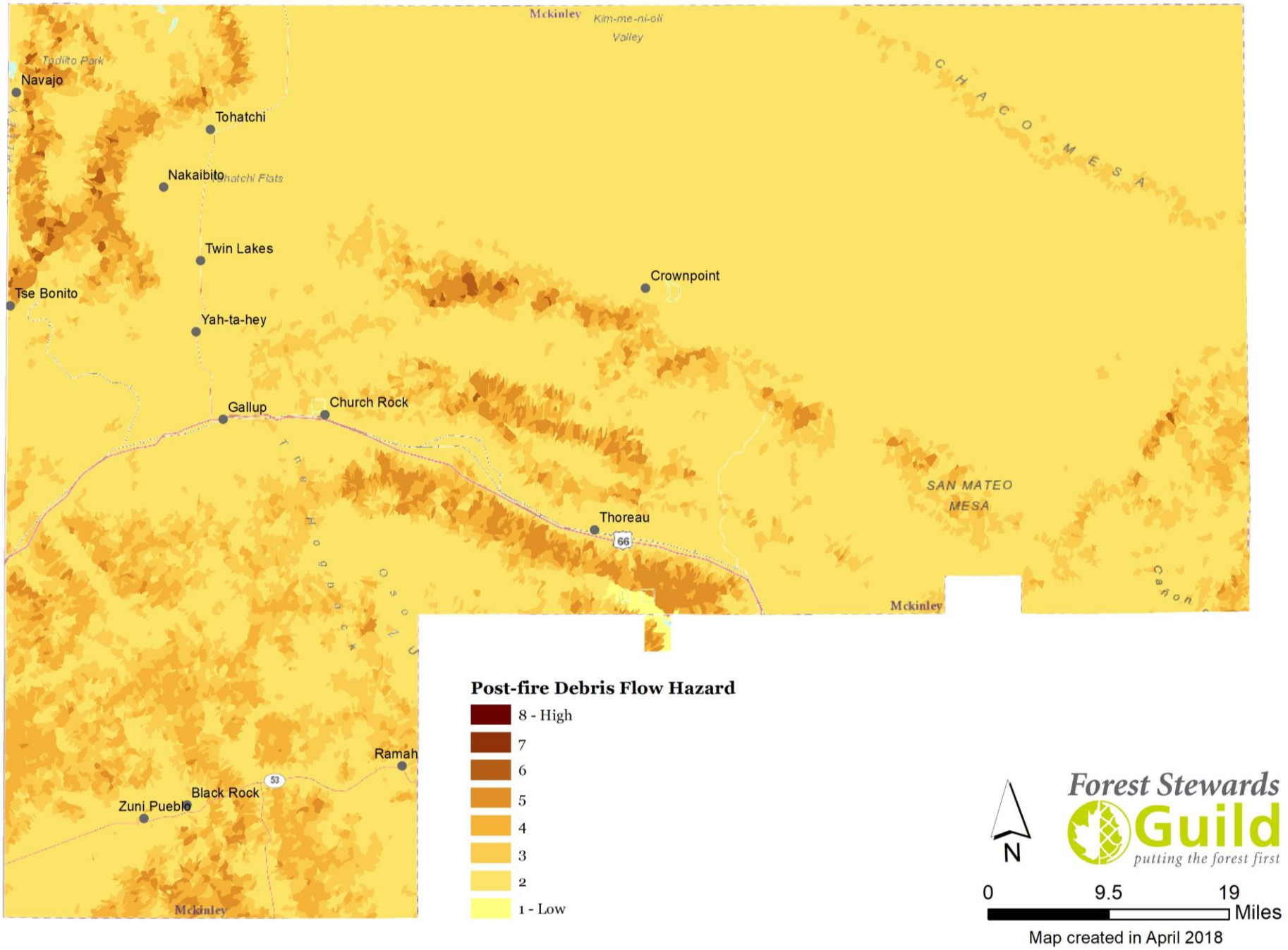
Appendix 10: Vegetation Cover



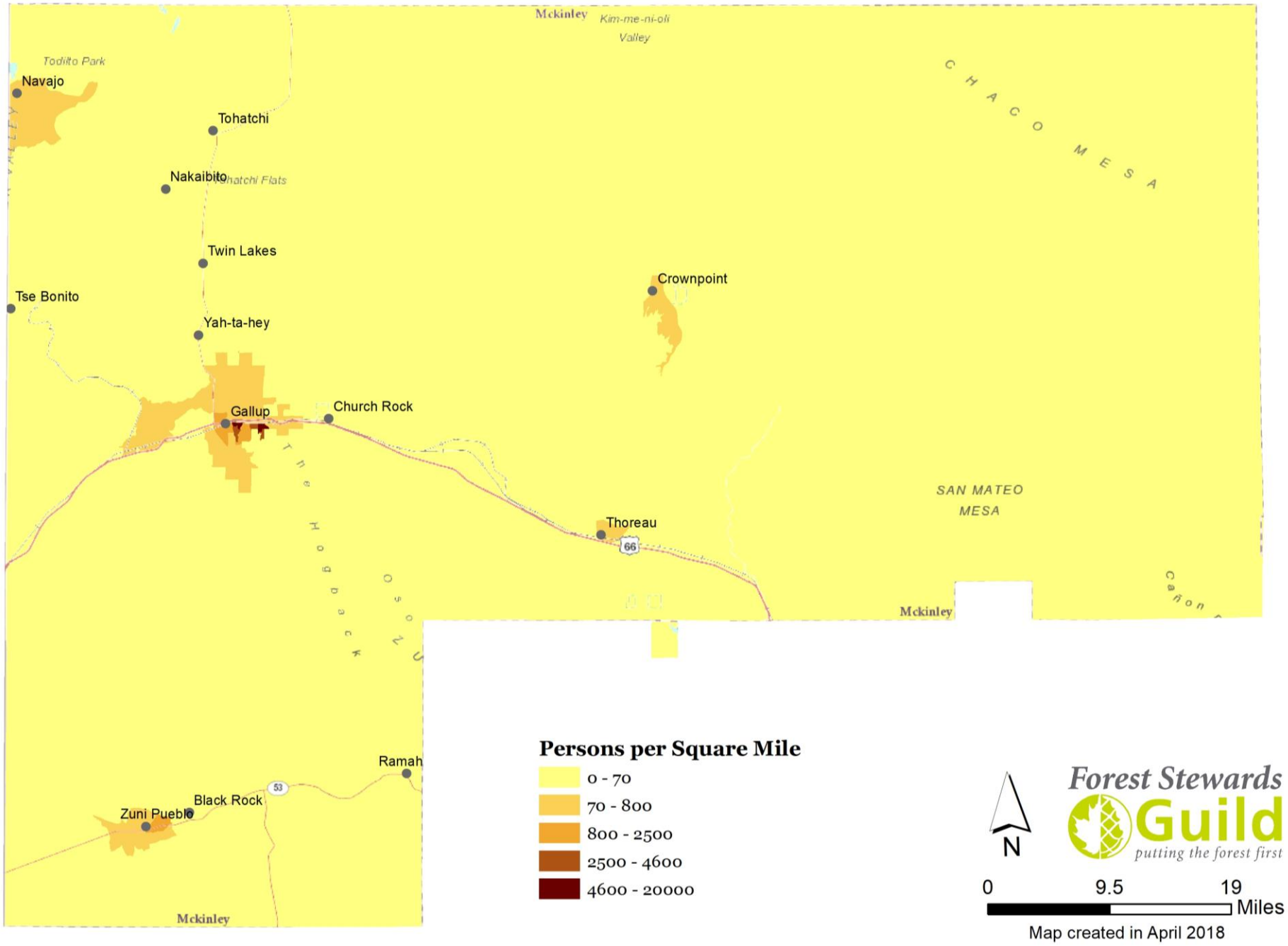
Appendix 11: Vegetation Type



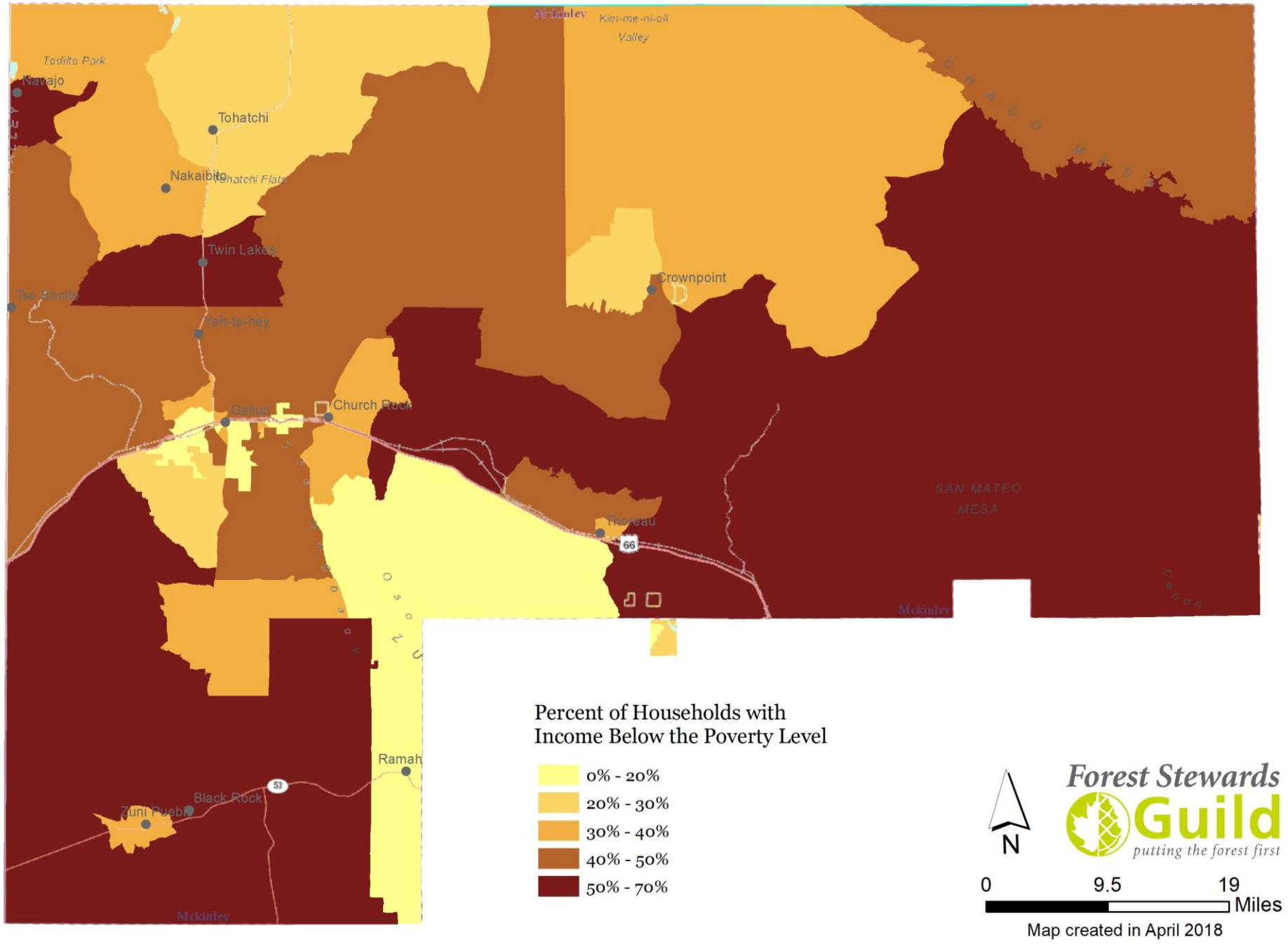
Appendix 12: Post-Wildfire Debris Flow Hazard



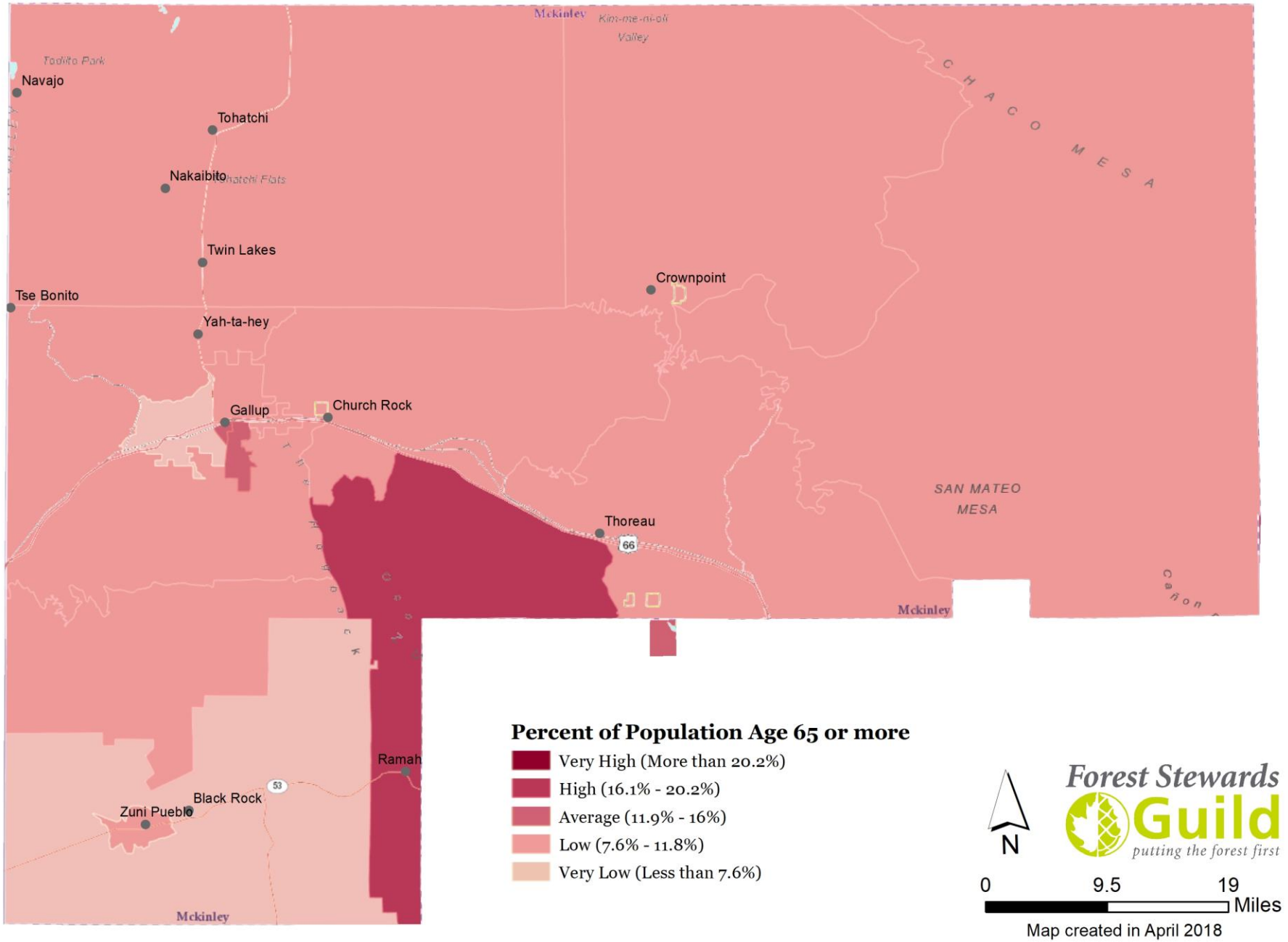
Appendix 13: Population Density



Appendix 14: Poverty Level



Appendix 15: Senior Citizens



Appendix 16: Fuels Reduction Prescription – Timberlake Ranch Landowners Association

Firewise Zone 1: 0’ – 30’ from the home

- Limb trees.
- Clear brush away from structures.
- Move woodpiles out of Zone 1.
- Remove trees as needed and chip or remove slash.
- Rake combustible debris (leaves and pine needles) away from structure.

Firewise Zone 2: 30’ – 100’ from the home

- Trees thinned will be no larger than 12" dbh for ponderosa pine and 12" at the base for pinon pine or juniper species.
- Slash will be chipped or removed with fuelwood available for landowners depending on landowner agreement specifications.
- For ponderosa pine, thin to where crowns have at least 10’ of space. Allow for clumps to remain, especially if there are visual concerns but clear out all slash within the clump except for one or two large logs to remain for wildlife.
- For piñon/juniper thin to 10-15 feet away from the building.
- Thin all bushes and trees to 15 ft. spacing and some of the piñon can be pruned up to 4' of the ground.
- Keep all snags greater than 12” dbh/drc and greater than 12’ in height as long as they do not pose a hazard to operations, roadways, or landowners.
- Cut all stumps to a height no higher than 6" of the ground.

Fuel break

Species: Retain tree species according to the following list. Douglas-fir should be left whenever possible and one seed juniper should be left only if there is nothing else to leave. No live trees greater than 12” dbh/drc will be cut.

- Douglas fir
- Ponderosa pine
- Pinion pine
- Rocky mountain juniper
- One seed juniper
- Oaks should be left uncut unless they are a ladder fuel underneath the drip line of a retained and preferred tree.

Spacing: Maintain 10’ to 40’ spacing between tree crowns. Where clumps of trees remain for wildlife purposes, maintain spacing between clumps. Limit clumps to 3-9 trees.

Form: Select trees for cutting based on these criteria:

- Forked crown

- Poor crown form
- Crooked bole
- Animal damage
- Lighting damage that is threatening the success of the individual

Insects and disease: Select trees for cutting if they have the following signs of insect or disease:

- Bark beetles
- Tip moth
- Cankers
- Defoliators

Snags: Only keep snags greater than 12" dbh/drc and greater than 12' in height as long as they do not pose a hazard to operations, roadways, or landowners.

Slash: Slash that is less than 3" in diameter will be scattered in the interspaces between leave trees to a depth of no greater than 1'. Material larger than 3" will be removed or chipped with the exception of downed logs that are embedded into the soil and which cannot be removed without disturbing the soil