Doña Ana County Community Wildfire Protection Plan

May 2012

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DOÑA ANA COUNTY
COMMUNITY WILDFIRE PROTECTION PLAN

Prepared for

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Executive Summary

For millennia fire has been an integral process in the maintenance of Southwest ecosystems, but with the growth of communities into the wildland urban interface, fire is increasingly seen as a threat to life and property. In recent years a number of large fires have destroyed homes throughout the Southwest, raising public awareness for the need to mitigate fire effects and plan for improving a community's resilience to this natural phenomenon.

This document has been developed to address wildfire threat to communities in Doña Ana County, New Mexico, and it provides recommendations to abate catastrophic wildfire and minimize its impacts to communities. Doña Ana County is a moderately populated area in a region that has maintained an extensive agricultural base. Although much of Doña Ana County's population has become fully aware of the prevalence of wildland fire, the poorly perceived low risk of fire in desert grassland communities makes people ill-equipped in the event of a large-scale fire event. The importance of public education and outreach in conjunction with recommended physical actions to reduce hazardous fuels are highlighted in this plan. A group of multi-jurisdictional agencies (federal, state, and local), organizations, and residents have joined together as a Core Team to develop this plan, the Doña Ana County Community Wildfire Protection Plan (DACCWPP).

The purpose of the DACCWPP is to assist in protecting human life and reducing property loss due to wildfire throughout Doña Ana County. The plan is the result of a community-wide wildland fire protection planning process and the compilation of documents, reports, and data developed by a wide array of contributors. This plan was compiled in 2011–2012 in response to the federal Healthy Forests Restoration Act (HFRA) of 2003.

The DACCWPP meets the requirements of the HFRA by:

1) Having been developed collaboratively by multiple agencies at the state and local levels in consultation with federal agencies and other interested parties.
2) Prioritizing and identifying fuel reduction treatments and recommending the types and methods of treatments to protect at-risk communities and pertinent infrastructure.
3) Suggesting multi-party mitigation, monitoring, and outreach.
4) Recommending measures and action items that residents and communities can take to reduce the ignitability of structures.
5) Facilitating public information meetings to educate and involve the community to participate in and contribute to the development of the DACCWPP.

The planning process has served to identify many physical hazards throughout Doña Ana County that could increase the threat of wildfire to communities. The public also has helped to identify community values that it would most like to see protected. By incorporating public and Core Team input into the recommendations, treatments are tailored specifically for Doña Ana County to be sensitive to local agricultural practices. The DACCWPP emphasizes the importance of collaboration among multi-jurisdictional agencies in order to develop fuels mitigation treatment programs to address wildfire hazards. Doña Ana County has a committed team of career and

volunteer firefighters, who work arduously to protect the life and property of Doña Ana County citizens, but without homeowners taking on some of the responsibility of reducing fire hazards in and around their own homes, these resources are severely stretched. A combination of homeowner and community awareness, public education, and agency collaboration and treatments are necessary to fully reduce wildfire risk. It is important to stress that this document is an initial step in educating the public and treating areas of concern, and should serve as a tool in doing so. The DACCWPP should be treated as a *live document* to be updated approximately every two years. The plan should be revised to reflect changes, modifications, or new information that may contribute to an updated DACCWPP. These elements are essential to the success of mitigating wildfire risk throughout Doña Ana County and will be important in maintaining the ideas and priorities of the plan and the communities in the future.

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1.0 INTRODUCTION

With increasing frequency, the national news media report tragic stories of communities impacted in the latest wave of severe wildfire. These fires are affecting not only forested landscapes but are becoming common events in grass and shrubland ecosystems across the Southwest. In order to mitigate fire impacts, communities in fire-prone environments need to have a plan to prepare for, reduce the risk of, and adapt to wildland fire events. Community Wildfire Protection Plans (CWPPs) help accomplish these goals. A CWPP provides recommendations that are intended to reduce, but not eliminate, the extreme severity or risk of wildland fire.

This CWPP, entitled the Doña Ana County CWPP (DACCWPP), is a countywide plan that evaluates wildfire threat to communities and infrastructure and identifies measures that homeowners, land managers, and fire districts can take to reduce the impact of wildfire to life, property, and other Community Values at Risk (CVARs). The plan provides background information, a risk assessment, and recommendations. Section 1 provides an overview of CWPPs and describes Doña Ana County's (hereafter referred to as the County) need for a plan, Section 2 provides demographic and background information about the County, Section 3 gives an overview of the fire environment, Section 4 describes the methodology for the risk assessment and the results in detail, and Section 5 provides recommendations that incorporate action plans for reducing fuels, initiating public education and outreach, reducing structural ignitability, and improving fire response capabilities. The DACCWPP does not require implementation of any of the recommendations; however, these recommendations may be used as guidelines for the implementation process if funding opportunities become available. The recommendations for fuels reduction projects are general in nature, meaning site-specific planning that addresses location, access, land ownership, topography, soils, and fuels would need to be employed upon implementation. Also, it is important to note that the recommendations are specific to wildland urban interface (WUI) areas and are expected to reduce the loss of life and property. Recommendations for the restoration of ecosystems and the role that fire plays in ecosystems are distinct from recommendations for WUI areas and are not addressed in detail in this plan.

1.1 OVERVIEW OF COMMUNITY WILDFIRE PROTECTION PLANS

In response to a landmark fire season in 2000, the National Fire Plan (NFP) was established to develop a collaborative approach among various governmental agencies to actively respond to severe wildland fires and ensure sufficient firefighting capacity for the future. The NFP was followed by a report in 2001, entitled *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-year Comprehensive Strategy*, which was updated in 2002 to include an implementation plan. This plan was updated once more in 2006, with a similar focus on using a collaborative framework for restoring fire-adapted ecosystems, reducing hazardous fuels, mitigating risks to communities, providing economic benefits, and improving fire prevention and suppression strategies. The 2006 implementation plan also emphasizes information sharing and monitoring of accomplishments and forest conditions, a long-term commitment to maintaining the essential resources for implementation, a landscape-level vision for restoration of fire-adapted ecosystems, the importance of using fire as a management tool, and continued improvements to collaboration efforts (Western Governors'

Association 2006). Progress reports and lessons learned reports for community fire prevention are provided annually (Western Governors' Association 2010).

In 2003 the U.S. Congress recognized widespread declining forest health by passing the Healthy Forests Restoration Act (HFRA), and President Bush signed the act into law (Public Law 108–148, 2003). The act was revised in 2009 to address changes to funding and provide a renewed focus on wildfire mitigation (H.R.4233- Healthy Forest Restoration Amendments Act of 2009). The HFRA expedites the development and implementation of hazardous fuels reduction projects on federal land and emphasizes the need for federal agencies to work collaboratively with communities. A key component of the HFRA is the development of CWPPs, which facilitates the collaboration between federal agencies and communities in order to develop hazardous fuels reduction projects and place priority on treatment areas identified by communities in a CWPP. A CWPP also allows communities to establish their own definition of the WUI. In addition, communities with an established CWPP are given priority for funding of hazardous fuels reduction projects carried out in accordance with the HFRA.

Although the HFRA and the specific guidelines are new, the principles behind the CWPP program are not. The National and State Fire Plans, the Western Governors' 10-Year Comprehensive Strategy, and the Federal Emergency Management Agency (FEMA) Disaster Mitigation Act of 2000 all mandate community-based planning efforts with full stakeholder participation, coordination, project identification, prioritization, funding review, and multi-agency cooperation.

The New Mexico State Forestry Division (NMSFD) has statutory responsibilities for cooperation with federal, state, and local agencies in the development of systems and methods for the prevention, control, suppression, and use of prescribed fires on rural lands and within rural communities on all non-federal and non-municipal lands in the state (New Mexico Statutes Annotated 1978, Section 68-2-8). As a result, the NMSFD is involved in the CWPP planning process. The New Mexico Fire Planning Task Force (NM-FPTF) was created in 2003 by New Mexico legislature to identify the state's WUI areas, or Communities at Risk (CARs), that are most vulnerable to wildland fire danger. The NM-FPTF updates its CARs list annually, reviews completed CWPPs, and approves those that are compliant with the HFRA. The 2007 Communities at Risk Plan identifies 300 CARs, an increase from the previous year's estimate of 234 CARs (NMSFD 2007). Additionally, CARs identified in the annual plan are updated federally from the January 2001 *Federal Register* listing for CARs (NMSFD 2007).

New Mexico CWPPs are a mix of county- and city-level plans, and some CARs are represented in more than one plan. The NM-FPTF has adopted the International Code Council (ICC) WUI Code (NMSFD 2007) for identifying CARs and WUI areas.

1.2 NEED FOR A CWPP

The County is an intermix of urban developed areas, juxtaposed with agriculture and sparsely vegetated wildlands. The majority of the population lives in the municipal areas of Las Cruces, Mesilla, Hatch, Anthony, and Sunland Park, and in the townships of Rincon, Radium Springs, Dona Ana, Mesquite, and Chaparral. There are also scattered ranches and homes along the Rio Grande valley and against the Organ Mountains. Many of these communities are served solely

by volunteer fire districts (VFDs) and emergency response staff. While the County does not exhibit the typical characteristics of communities that are highly prone to fire, such as steep slopes or dense timber, these grass and shrubland areas experience strong winds and are currently undergoing prolonged drought, making them extremely prone to high-severity wildland fire. Although fire services are well developed in the County, particularly when compared to surrounding counties, some communities are still poorly prepared for potentially large-scale fires. Sadly, catastrophic losses have occurred recently throughout southwestern grassland areas because communities have been ill-equipped to mitigate or respond effectively to fires. In December 2005, a devastating wildfire ripped through the town of Cross Plains, Texas, destroying 85 single-family homes and 25 mobile homes, while killing two firefighters and 17 citizens. This town is not the mountain community packed in against dense forest stands and steep inaccessible terrain that people typically expect fires to overtake; Cross Plains is a community in the northern plains of Texas. This area is characterized predominantly by flat grassland and agricultural land use very similar to that found in the County. Furthermore, structures were consumed not by the flaming front of the fire but by embers that burned after the main fire had passed, which ignited subsequent fires. The embers had passed through open vents, collected in unscreened foundations, or smoldered beneath wooden decks. This community, like several other communities scattered throughout the County, is as much at risk of wildland fire as its forested counterparts.

The County is located in southern New Mexico, where desert scrub and grasses are the predominant fuel type, and flat and rolling topography juxtaposed with steep mountain terrain facilitates high-speed wind events. Monsoon rainfall in the summer often leads to increased fuels, and drought experienced in the fall or winter leaves these fuels dry and prone to ignition. With continuous fuels and high winds, fire can spread rapidly.

1.3 GOAL OF A CWPP

A CWPP enables local communities to improve their wildfire mitigation capacity and work with government agencies to identify high fire risk areas and prioritize areas for mitigation, fire suppression, and emergency preparedness. The minimum requirements for a CWPP, as stated in the HFRA, are as follows:

1. **Collaboration:** Local and state government representatives, in consultation with federal agencies or other interested groups, must collaboratively develop a CWPP (Society of American Foresters [SAF] 2004).
2. **Prioritized Fuel Reduction:** A CWPP must identify and prioritize areas for hazardous fuels reduction and treatments; furthermore, the plan must recommend the types and methods of treatment that will protect at-risk communities and their essential infrastructures (SAF 2004).
3. **Treatments of Structural Ignitability:** A CWPP must recommend measures that communities and homeowners can take to reduce the ignitability of structures throughout the area addressed by the plan (SAF 2004).

The DACCWPP addresses all the requirements for completion of a CWPP outlined in the HFRA, paying special attention to the desires and needs of the communities and multiple jurisdictions throughout the planning area. Goals specific to this CWPP are listed below:

- Provide for public and firefighter safety at all times;
- Reduce the threat of wildland fire to communities in the WUI;
- Protect all CVARs of wildfire; and
- Move plant communities towards a more natural fire regime wherever possible and reduce the invasion of exotic species.

1.4 PLANNING PROCESS

The SAF, in collaboration with the National Association of Counties, the National Association of State Foresters, the Western Governors' Association, and the Communities Committee, developed a guide entitled *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* (SAF 2004) to provide communities with a clear process to use in developing a CWPP. The guide outlines eight steps for developing a CWPP and has followed in preparing the DACCWPP:

Step One: Convene Decision-makers. Form a Core Team made up of representatives from the appropriate local governments, local fire authorities, and state agencies responsible for forest management.

Step Two: Involve Federal Agencies. Identify and engage local representatives of the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM). Contact and involve other land management agencies as appropriate.

Step Three: Engage Interested Parties. Contact and encourage active involvement in plan development from a broad range of interested organizations and stakeholders.

Step Four: Establish a Community Base Map. Work with partners to establish a base map(s) defining the community's WUI and showing inhabited areas at risk, wildland areas that contain critical human infrastructure, and wildland areas at risk for large-scale fire disturbance. (Please see Appendix A for a series of base maps that informed the final risk assessment.)

Step Five: Develop a Community Risk Assessment. Work with partners to develop a community risk assessment that considers fuel hazards; risk of wildfire occurrence; homes, businesses, and essential infrastructure at risk; other CVARs; and local preparedness capability. Rate the level of risk for each factor and incorporate this information into the base map as appropriate.

Step Six: Establish Community Priorities and Recommendations. Use the base map and community risk assessment to facilitate a collaborative community discussion that leads to the identification of local priorities for treating fuels, reducing structural ignitability, and other issues of interest, such as improving fire response capability. Clearly indicate whether priority projects are directly related to protecting communities and essential infrastructure or to reducing wildfire risks to other community values.

Step Seven: Develop an Action Plan and Assessment Strategy. Consider developing a detailed implementation strategy to accompany the CWPP, as well as a monitoring plan that will ensure its long-term success.

Step Eight: Finalize Community Wildfire Protection Plan. Finalize the CWPP and communicate the results to community and key partners.

1.5 CORE TEAM

The first step in the CWPP process was to bring together a broad group of stakeholders representing both agency and private interests to form a Core Team. An extensive distribution list (Appendix B) was developed to invite as many stakeholders to join the Core Team as possible. An initial kick-off meeting was held on November 4, 2011, with the County and key stakeholders. The first Core Team meeting was held on December 7, 2011, a second meeting was held on February 17, 2012, and the final meeting was held April 20, 2012. Average attendance at Core Team meetings was approximately 12 people.

1.6 PROJECT AREA

This CWPP is a countywide plan, so the planning area boundary coincides with the County boundary (Figure 1.1).

1.7 PUBLIC INVOLVEMENT

Engaging interested parties is critical in the CWPP process; substantive input from the public will ensure that the final document reflects the highest priorities of the local community. A key element in the CWPP process is the meaningful discussions it generates among community members regarding their priorities for local fire protection and forest management (SAF 2004).

Public involvement in the CWPP planning process was encouraged through a range of media. For example, a Facebook page was developed for the County (entitled Doña Ana County Community Wildfire Protection Plan). The page included a description of the planning process and included links to an online community survey and other relevant pages for the County. The page was also used to announce public outreach efforts to gather input on the plan. The online survey was also distributed to all Core Team members and made available on the County website. Paper copies were distributed at public outreach efforts and at fire district events. Flyers advertising the meetings were produced and distributed by the Core Team. Informational flyers were also distributed at the public meetings, providing information on the planning process and outreach efforts.

The public involvement process was launched through a press release by the County and reports on local radio stations. News Channel 4 also ran a story on February 18, 2012, about the CWPP planning process and fire risk in the County, in which reporters interviewed the County Fire Marshal, the CWPP planning lead, and a volunteer firefighter from the Los Alturas Fire District. Public outreach efforts involved informational booths and presentation of the CWPP risk assessment at two heavily attended public events. The first event was a high school basketball game in Chaparral on February 17, 2012. At the event SWCA Environmental Consultants

(SWCA) and a member of the Doña Ana County Fire District spoke with the public regarding the planning process and recorded information on areas of concern. Informational flyers were distributed to attendees. A second informational booth was manned at a New Mexico State University (NMSU) basketball game in Las Cruces on February 18. At the event the community risk assessment was displayed, and community comments and concerns regarding wildfire were recorded. Informational flyers and Firewise Communities materials were distributed. A final public outreach effort was carried out at the Las Cruces Farmers Market on April 20th 2012. An informational booth was used to inform the public about the Draft CWPP review period, as well as providing copies of the Draft plan and a poster presentation of the CWPP Risk Assessment for review and comment. Over 100 community surveys were completed by attendees at the events. Core Team members also distributed flyers and surveys throughout their jurisdictions. The public was encouraged to provide a list of critical infrastructure for protection from wildfire (compiled into Map 1a and Map 1b, Appendix A), as well as comments on the Draft CWPP, which was posted on the County website, BLM and USFWS websites (public comments on the Draft CWPP will be provided in the Final CWPP in Appendix C).

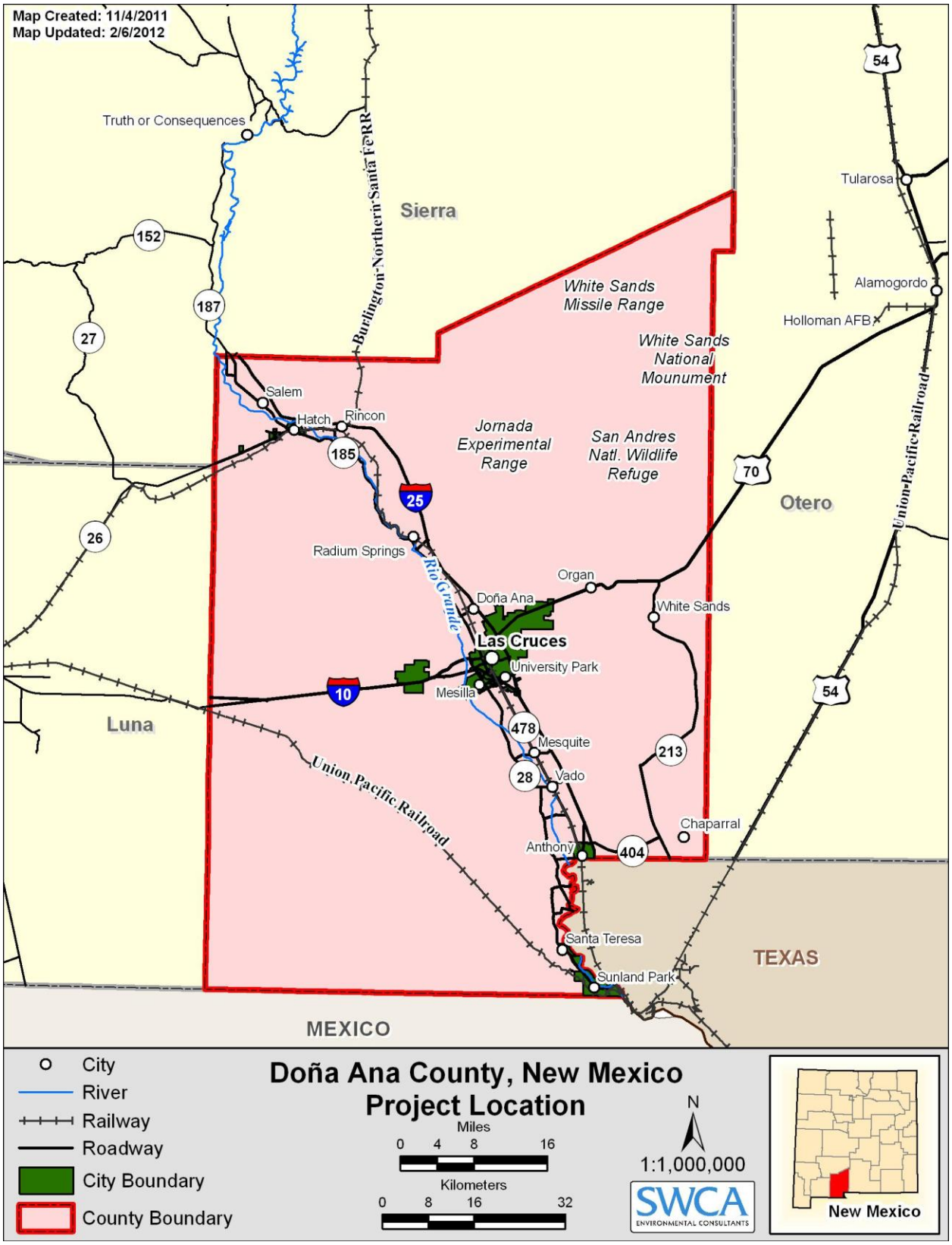


Figure 1.1. Project location map.

2.0 DOÑA ANA COUNTY BACKGROUND

2.1 LOCATION AND GEOGRAPHY

The County is located in south-central New Mexico and was established as a series of small Mexican settlements, railroad stops, and military outposts in the nineteenth century. The County comprises an area of 3,807.51 square miles and borders Luna County to the west, Sierra County the north, and Otero County to the east. It also borders El Paso County, Texas, and the state of Chihuahua, Mexico, to the south. The County Seat is Las Cruces, situated in the center of the County. The prominent geographical features of the County include Mesilla Valley (floodplain of the Rio Grande), the Organ Mountains, the Robledo Mountains, the Doña Mountains, Sierra de las Uvas, the southern edge of the San Andres Mountains, the Potrillo Mountains, and two small isolated mountains, the Tortugas and Picacho Peak. The County also includes the Aden Malpais lava field and one of the world's largest maar volcanoes, Kilbourne Hole.

In the early 1900s the County hosted an agriculturally based society after the completion of the Elephant Butte Dam and canal project in 1906 that provided agricultural viability to an area prone to drought and seasonal flooding. By 1990, the County was urbanized with a service and retail based economy. Since the 1900s the County has seen rapid population growth, particularly in and around the city of Las Cruces, now the second largest city in New Mexico. The County has a mosaic of land ownership (Figure 2.1) with the majority being lands under the jurisdiction of the BLM and Department of Defense, with the remainder including private land, State Land Trust land, and lands managed by the U.S. Department of Agriculture (USDA), U.S. Fish and Wildlife Service (USFWS), and National Park Service.

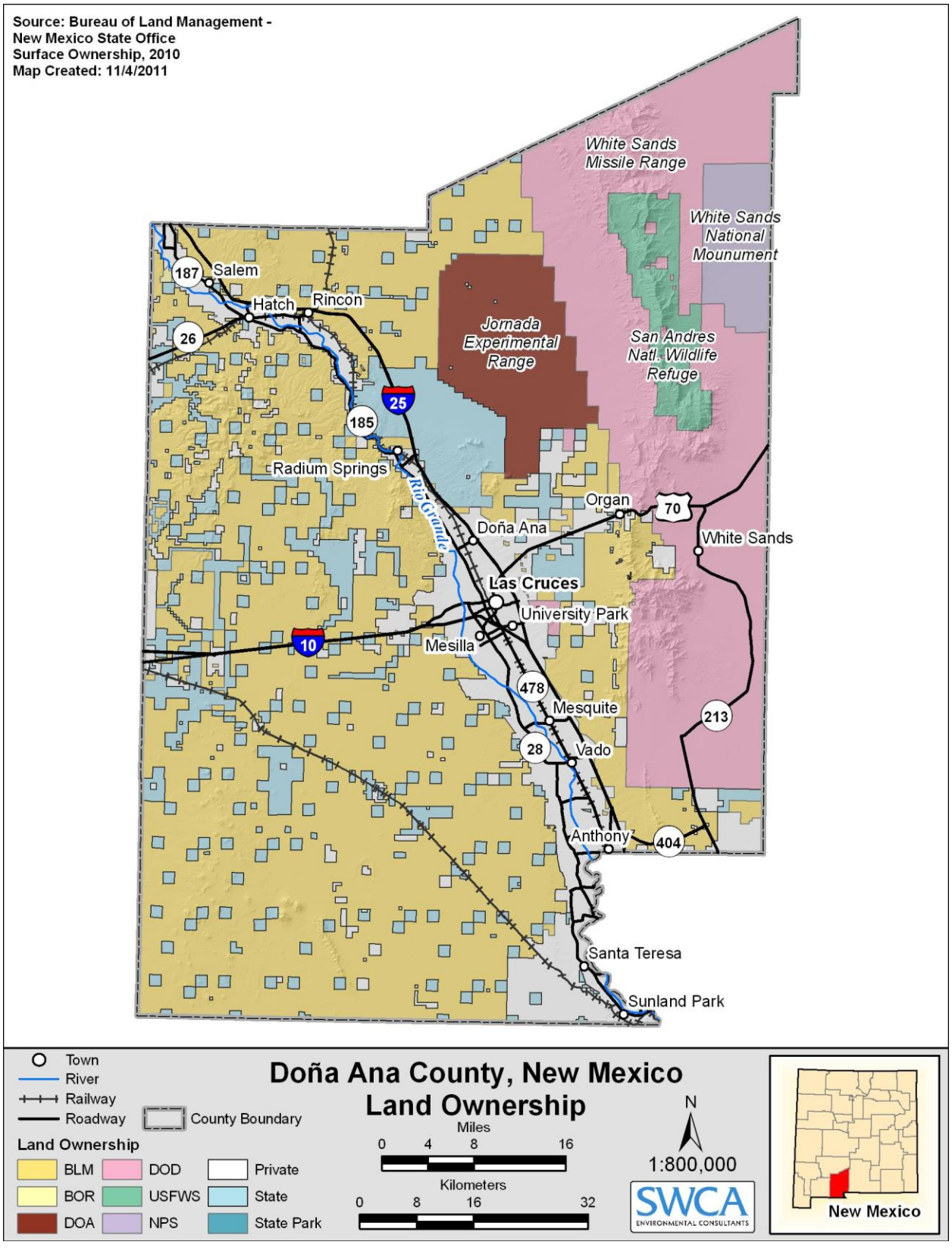


Figure 2.1. Doña Ana County land ownership.

2.2 POPULATION

The following population information is drawn primarily from 2010 U.S Census data (U.S. Census Bureau 2010). The 2010 Census lists the County's population as 209,233 people, 69,544 households, and 51,863 families. The population density is listed as 55 people per square mile. In 2010 the County had a median income of $ 35,541 and 46.7% of the County's population live within the County Seat of Las Cruces, which has a population of 97,618, and a population density of 1,276.2 individuals per square mile. Las Cruces is the economic and geographic center of the Mesilla Valley and is one of the fastest growing metro areas in New Mexico and among the top 10 in the United States; it is also the home of New Mexico State University (NMSU), the first Land Grant University. The major employer in Las Cruces is the White Sands Test Facility and White Sands Missile Range (WSMR). The major industries that fuel the local economy include agriculture, commerce, education, defense, aerospace, and the public/private sectors.

There are approximately 37,830 housing units in the County, with 34,647 occupied and 3,183 vacant (U.S Census Bureau 2010). Of these, 19,758 housing units are owned and 14,889 housing unit are rented. The majority of homes in the County are single-family detached dwelling units, accounting for 54.9% of all housing in the County. Approximately 11.6% of homes are manufactured mobile homes.

The main local transportation corridors include Interstate 25 (I-25), which starts in Las Cruces and runs north; Interstate 10 (I-10) intersects I-25 and runs from southeast to southwest; and U.S. Highway 70 (U.S. 70) runs from the east to the northeast corner of the County. Large adjacent communities are Deming in neighboring Luna County, Elephant Butte and Truth or Consequences in Sierra County, Alamogordo in Otero County, and El Paso, Horizon City, and Socorro in El Paso County, Texas.

The Burlington Northern Santa Fe (BNSF) Railway passes through Las Cruces and the other incorporated communities to the east and west. The Santa Teresa Airport is located in the County and supports small jets, cargo aircraft, and private planes.

2.3 NEW MEXICO CLIMATE

New Mexico has a mild, arid to semiarid, continental climate characterized by abundant sunshine, light total precipitation, low relative humidity, and relatively large annual and diurnal temperature ranges (New Mexico Climate Center 2006). The average hours of annual sunshine range from nearly 3,700 hours in the southwestern portions of the state to 2,800 hours in the north-central portions. The frost-free season ranges from more than 200 days in the southern valleys to fewer than 80 days in the northern mountains, where some high mountain valleys have freezes in the summer months.

In New Mexico, July is generally the warmest month of the year, with average monthly maximum temperatures ranging from 90 degrees Fahrenheit (°F) at lower elevations to 75°F to 80°F at higher elevations. A preponderance of clear skies and generally low relative humidity permit rapid cooling after sundown, resulting in comfortable summer nights. Generally, January is the coldest month, with average daytime temperatures ranging from the mid-50s °F to the mid-

30s ºF. Minimum temperatures below freezing are common throughout the state, but subzero temperatures are rare outside high mountain habitats.

A wide variation in annual precipitation totals is characteristic of arid and semiarid climates. The climate of the Southwest shows strongly seasonal patterns both within and between years. Drought cycles are common and most annual precipitation comes in the course of a summer rainy season. Generally, July and August are the rainiest months of the year, contributing 30% to 40% of the state's annual precipitation. These rainfall events are often associated with brief but intense thunderstorms driven from unstable southeasterly air flows out of the Gulf of Mexico, as well as thunderstorms that develop from the west. Lightning fires are common during this period but are typically small due to the generous precipitation (Pyne 1982). Winter is the driest season in New Mexico; precipitation primarily results from frontal activity associated with Pacific Ocean storms that move across the country from west to east. Much of this precipitation falls as snow in mountain areas.

Wind speeds across New Mexico are usually moderate. However, relatively strong and sometimes unpredictable winds can accompany frontal activity during the late winter and spring. Wind direction is typically from the southwest.

2.4 DOÑA ANA COUNTY CLIMATE

According to climate records from the Jornada Experimental Range that span from 1981 to 2010, the County experiences a mild, semiarid climate with an maximum annual monthly average of 76.5°F and an annual monthly minimum temperature of 40°F (Western Regional Climate Center 2012). The highest temperatures are experienced from June through August and lowest temperatures from November through February (Figure 2.2). The average total annual precipitation is 9.81 inches, with an average annual snowfall of 2 inches. The majority of precipitation is received from July through September (Figure 2.3).

Like much of New Mexico, the County has been in a period of prolonged drought for the last few years (New Mexico Drought Task Force 2008). During such periods, wildfire disasters are more likely, and firefighting resources are placed under considerable strain.

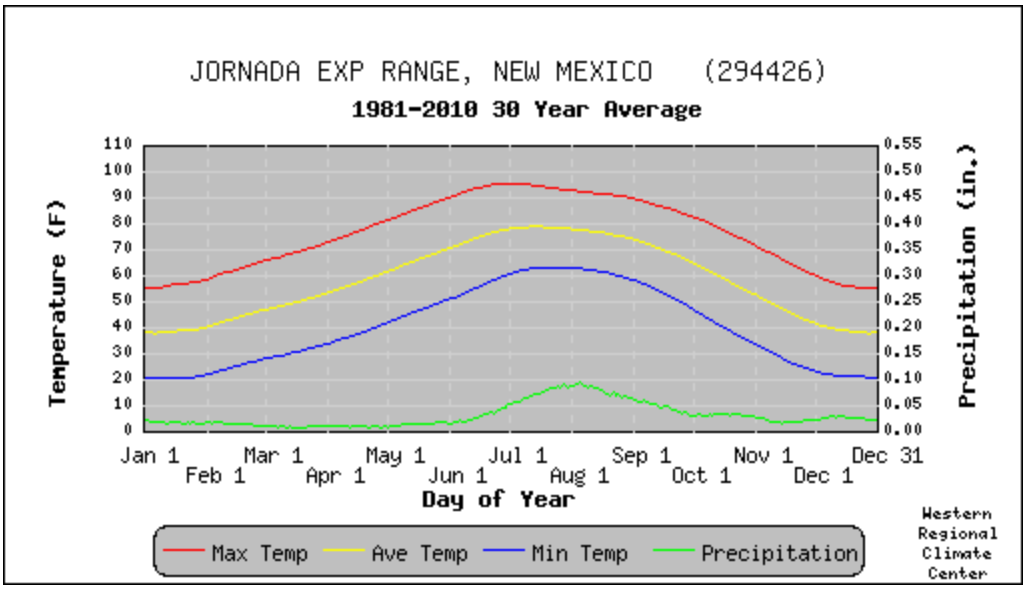


Figure 2.2. Daily temperature averages and extremes for Jornada Experimental Range (Western Regional Climate Center Data, retrieved March 2012).

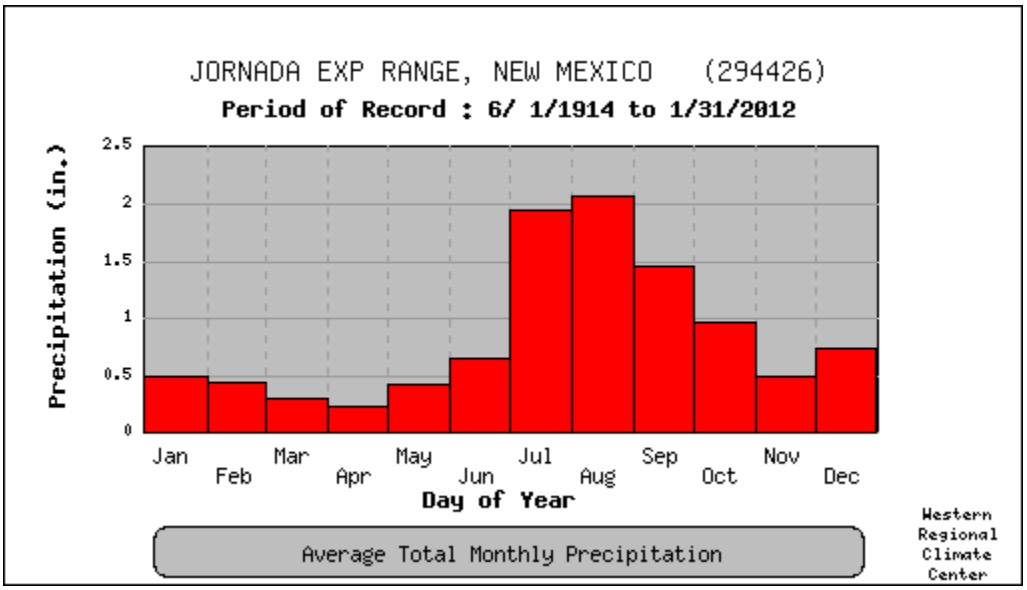


Figure 2.3. Monthly average total precipitation for Jornada Experimental Range (Western Regional Climate Center Data, retrieved March 2012).

2.5 VEGETATION

2.5.1 CHIHUAHUAN DESERT

The U.S. Environmental Protection Agency (EPA) classifies the majority of the County as Chihuahuan Desert (Griffith et al. 2006)—which is further broken down into Desert Grasslands, comprising black grama (*Bouteloua eriopoda*) at lower elevations, blue grama (*B. gracilis*) at higher elevations, and dropseeds (*Sporobolus* spp.) and threeawn (*Aristida* spp.) grasses across elevational ranges—and Chihuahuan Desert Scrub, which consists of creosotebush (*Larrea tridentata*), deciduous honey mesquite (*Prosopis glandulosa*), broom snakeweed (*Gutierrezia sarothrae*), fourwing saltbush (*Atriplex canescens*), soaptree yucca (*Yucca elata*), and widely scattered threeawn, dropseed, and prickly pear cacti (*Opuntia* spp.). Some basin floor areas are dominated by tarbush (*Flourensia cernua*), burrograss (*Scleropogon brevifolius*), tabosagrass (*Pleuraphis mutica*), and alkali sacaton (*Sporobolus airoides*) (Dick Peddie 1993).

In these Chihuahuan Desert regions, the basic fine fuel is grass. During drought years, grass fuels are reduced and give way to desert species that limit the transmission of fire. When rainfall replenishes the grassland, however, the fine fuel mass becomes more continuous across the landscape and risk of fire increases.

2.5.2 BOSQUE RIPARIAN AND WETLAND HABITATS

The Bosque Riparian habitat type stretches throughout the County along the Rio Grande corridor. The bosque and lowland regions are also where most of the developed and agricultural land occurs, with the highest densities of human population occurring within and around the city of Las Cruces.

Dominant native woody vegetation includes Rio Grande cottonwood (*Populus fremontii* var. *wislizeni*), coyote willow (*Salix exigua*), and Goodding's willow (*Salix gooddingii*) (Figure 2.4). Invasive species such as saltcedar (*Tamarix* spp.), Russian olive (*Elaeagnus angustifolia*), and Siberian elm (*Ulmus pumila*) also exist within large stands along the bosque ecosystem. Herbaceous plant species commonly associated with the bosque understory include a variety of wheatgrass (*Pascopyrum* spp.), ryegrass (*Elymus* spp.), dropseed and sacaton, and inland saltgrass (*Distichlis stricta*). Near the river or floodplain, the dominant native shrub species are coyote willow, arrowweed (*Pluchea sericea*), willow baccharis (*Baccharis salicina*), three-leaf sumac (*Rhus trilobata*), Torrey's wolfberry (*Lycium torreyi*), and screwbean mesquite (*Prosopis pubescens*) (Sivinski 2005).

Figure 2.4. Rio Grande bosque vegetation.

Emergent marshlands are also present within the planning area, primarily along the river corridor. These areas are typically inundated with water depths up to approximately 6 feet, which may be stable or fluctuate throughout the course of the growing season. Vegetation within this habitat type is likely to include rushes (*Juncus* spp.), scouring rush (*Equisetum hyemale*), sedges (*Carex* spp.), reed grasses (*Phalaris* spp.), and other wetland obligate plants.

2.5.3 Agriculture—Cultivated Crops and Irrigated Agriculture

Chiles, onions, fruits/nuts, dairy, and beef are the predominant agricultural crops produced in the County. In 2010, 25,750 tons of chile (Figure 2.5), 105,867 pounds of fruits/nuts (pecans, watermelon, pumpkins), and 1,009,671 milk and other dairy products were produced, and the total number of livestock accounted for was 1,525,976.

Figure 2.5. Chile harvest in Doña Ana County.
Photo credit: Thomas McConnell

2.6 HISTORIC CONDITIONS AND PRESENT CHANGES IN FIRE-ADAPTED ECOSYSTEMS

During the past few centuries, humans have altered the fire-adapted ecosystem in the Southwest. Prior to 1900, periodic, low-intensity surface fires burned through much of the landscape. This process reduced fuel loads by removing dense brush cover and encroachments of small trees. Thus, in the past, these fire-adapted ecosystems were routinely renewed, which supported healthy ecosystems.

Many different vegetation communities have been converted from their historic conditions, and native grasslands and scrub cover the majority of the County. These ecosystems contain native bunch grasses, such as various grama (*Bouteloua* spp.) species. Current conditions have been altered by past and continuous intensive grazing, which has denuded native grasslands. In some areas native grasses exist in sparse, patchy stands and are encroached upon by mesquite trees. Prior to European settlement, fire ignited by various Native American groups and lightning-caused fires were common and removed encroaching shrubs, forbs, and trees and promoted vigorous grassland vegetation (Pyne 1982). Juniper (*Juniperus* spp.) savannas and piñon-juniper woodlands have also changed over time and have expanded above their historic range and densities as a result of livestock grazing, fire suppression, and climatic variation (Allen and Breshears 1998; Swetnam et al. 1999).

2.6.1 NON-NATIVE AND INVASIVE SPECIES

Fire-tolerant, flammable, non-native species now exist within cottonwood (*Populus* spp.) and willow (*Salix* spp.) stands along the Rio Grande corridor. One species that deserves special mention with regard to wildfire is the non-native phreatophyte saltcedar. This species, also referred to as tamarisk, is common along the Rio Grande and occurs within the DACCWPP planning area. Programs to reduce saltcedar are already active in the County, including the Lower Rio Grande Salt Cedar Control Project, which began in 2002, and in which the Doña Ana Soil and Water Conservation District (SWCD), Caballo SWCD, Doña Ana County Commissioners, and the cities of Las Cruces and Hatch are partners. These efforts included aerial spraying or ground application of 7,648 acres of saltcedar along the Rio Grande in Socorro, Sierra, and Doña Ana counties. These efforts should continue in the future to ensure the control of this highly flammable invasive species (Figure 2.6).

Figure 2.6. Fire burning in salt cedar along the Rio Grande Corridor, Radium Springs.

Native cottonwood trees and willows are not fire adapted and thus are less capable of recovering from the effects of fire than non-native saltcedar and Russian olive (Stromberg et al. 2002). Extensive bosque fires could result in further shifts away from diverse mesic native plant communities to more xeric non-native woodlands and shrublands.

Once established, saltcedar can obtain water at deeper groundwater levels and has higher water-use efficiency than native riparian trees in both mature and post-fire communities (Busch and Smith 1993; Busch 1995). One of the major competitive advantages of saltcedar is its ability to sprout from the root crown following fire or other disturbances (e.g., flood, herbicides) that kill or severely injure aboveground portions of the plant (Brotherson and Winkel 1986; Brotherson and Field 1987; Smith et al. 1998). Saltcedar flammability increases with the buildup of dead and senescent woody material within the dense bases of the plant (Busch 1995). Saltcedar can also contribute to increased canopy density, which creates volatile fuel ladders and increases the likelihood of wildfire (Steuver et al. 1995). Other non-native species, such as Russian olive and Siberian elm (*Ulmus pumila*), also exist along the Rio Grande and have created similar problems, although not as extensive, to those created by saltcedar.

Saltcedar and Russian olive are on the state list of noxious weeds for New Mexico (USDA 2010). For more information on noxious weeds, refer to USDA noxious species lists by state, which can be found at http://plants.usda.gov.

2.7 HISTORY AND LAND USE

Doña Ana County was created in 1852 and comprises 3,807 square miles. It is the second most populated county in New Mexico. The majority of the population resides in the County Seat of Las Cruces, which is one of the fastest growing communities in the United States (Doña Ana County 2012). The County contains a number of prominent geographical features, most notably the Mesilla Valley, which is the floodplain of the Rio Grande. This area has been important to

people in the area for centuries. In the sixteenth century nomadic Indians, such as the Mansos, occupied the Mesilla Valley. Indian pueblos were located throughout the area, as well. Apaches and other tribes regularly passed through the area and camped in the Mesilla Valley. In 1540, Coronado traveled through New Mexico, but since he did not find the cities of gold and jewels he had expected, little interest was shown in the state for the next 40 years. Juan de Oñate and others came to New Mexico in 1598. From El Paso, they followed the Rio Grande north to conquer the pueblos and explore for gold and silver. Oñate's route became a link between the Spanish settlements of El Paso and Santa Fe and became known as El Camino Real, or the Chihuahua-Santa Fe Trail. Diego de Vargas traveled north on El Camino Real after the pueblo Indians revolted in 1692 in order to stage a reconquest of the area. New Mexico remained under Spanish rule until 1821. Trading along the Chihuahua-Santa Fe Trail flourished and the Rio Grande valley became both a politically and commercially valuable territory (Viva Mesilla 2012).

In 1843, the County's first permanent settlement was established at Doña Ana Bend Colony. In 1846 New Mexico became part of the United States as a result of the U.S.-Mexican War. By 1855 the County included the entire southern portion of the territory extending from Texas on the east and south, to the Colorado River on the west, and from the Mexican border on the south to Socorro County on the north. As New Mexico grew in population, Arizona and new counties were carved from the original boundaries until the County became its present size (Doña Ana County Historical Society 2012).

As of 1900, the County hosted an agriculturally based society with a population of 10,187. The market centers were Las Cruces, El Paso, and Ciudad Juarez. By 1990, the County was urbanized with a population of 135,510 and boasted an economy based on service and retail. Rapid population growth has occurred in and around the city of Las Cruces, as well as in the southern part of the County. The part of the County north of Hill remains primarily rural in nature. Las Cruces is home to NMSU, as well as Doña Ana Branch Community College (Doña Ana County 2012).

The population has risen dramatically since 1900 and is expected to continue to grow at a rapid pace (4%–6%) during the next 20 years. The primary areas of growth will be in the Las Cruces metropolitan area and in the southern sector of the County (Doña Ana County 2012).

Agriculture remains important to the economy of the County today. As of the 2007 Census of Agriculture, there were 1,762 farms operating in the County, totaling 589,373 acres. The average farm size is 334 acres; however, the majority of the farms are under 9 acres. Nearly 92% of the farms are owned by an individual or family (Census of Agriculture 2009).

The County currently operates under the Doña Ana County Comprehensive Plan, which was put in place in 1995, and remains in effect until 2015. The seven primary goals of the plan are to provide basic infrastructure, maintain and protect the County's resources, provide community facilities and services, promote economic development and employment opportunities, adopt and implement a land use plan, encourage affordable housing and a variety of housing types, and improve inter-governmental relations (Doña Ana County 2012).

3.0 FIRE ENVIRONMENT

3.1 WILDLAND URBAN INTERFACE

The WUI is composed of both interface and intermix communities and is defined as areas where human habitation and development meet or intermix with wildland fuels (U.S. Department of the Interior [DOI] and USDA 2001:752–753). Interface areas include housing developments that meet or are in the vicinity of continuous vegetation and consist of less than 50% vegetation. Intermix areas are those areas where structures are scattered throughout a wildland area of greater than 50% continuous vegetation and fuels and meet or exceed a minimum of one house per 40 acres. Depending on the surrounding fuel conditions, topography, and present structures, wildland areas of up to 1.5 miles from structures may be included in the WUI (Stewart et al. 2007).

The WUI creates an environment in which fire can move readily between structural and vegetative fuels, increasing the potential for wildland fire ignitions and the corresponding potential loss of life and property. Human encroachment upon wildland ecosystems within recent decades is increasing the extent of the WUI and is therefore having a significant influence on wildland fire management practices (Figure 3.1). Combined with the collective effects of past fire management policies, resource management practices, land use patterns, climate change, and insect and disease infestations, the expansion of the WUI into areas with high fire risk has created an urgent need to modify fire management practices and policies and to understand and manage fire risk effectively in the WUI (Pyne 2001; Stephens and Ruth 2005). Mitigation techniques for fuels and fire management have been strategically planned and implemented in WUI areas and have proven effective; however, it is important to note that all WUI mitigation focus areas will be different and should be planned for accordingly.

A CWPP offers the opportunity for collaboration of land managers to establish a definition and a boundary for the local WUI; to better understand the unique resources, fuels, topography, and climatic and structural characteristics of the area; and to prioritize and plan fuels treatments to mitigate for fire risks. At least 50% of all funds appropriated for projects under the HFRA must be used within the WUI area.

The Core Team has decided to delineate the WUI as an area 1 mile from the edge of an at-risk community. Because of the rural nature of the County, at-risk communities are in turn defined as all communities on the edge of urban areas. Much of this land encompasses agricultural lands with scattered homes. The WUI boundary has been therefore delineated as a 1-mile buffer extending from either the edge of urban-classified lands and/or 1 mile extending from the edge of agricultural lands. A 1-mile buffer is also delineated either side of all major roads. This would act as a fuel break from ignitions on the highways, as well as protection so that roads may serve as escape routes in the event of a wildfire (Figure 3.2).

Figure 3.1. Example WUI in Doña Ana County.

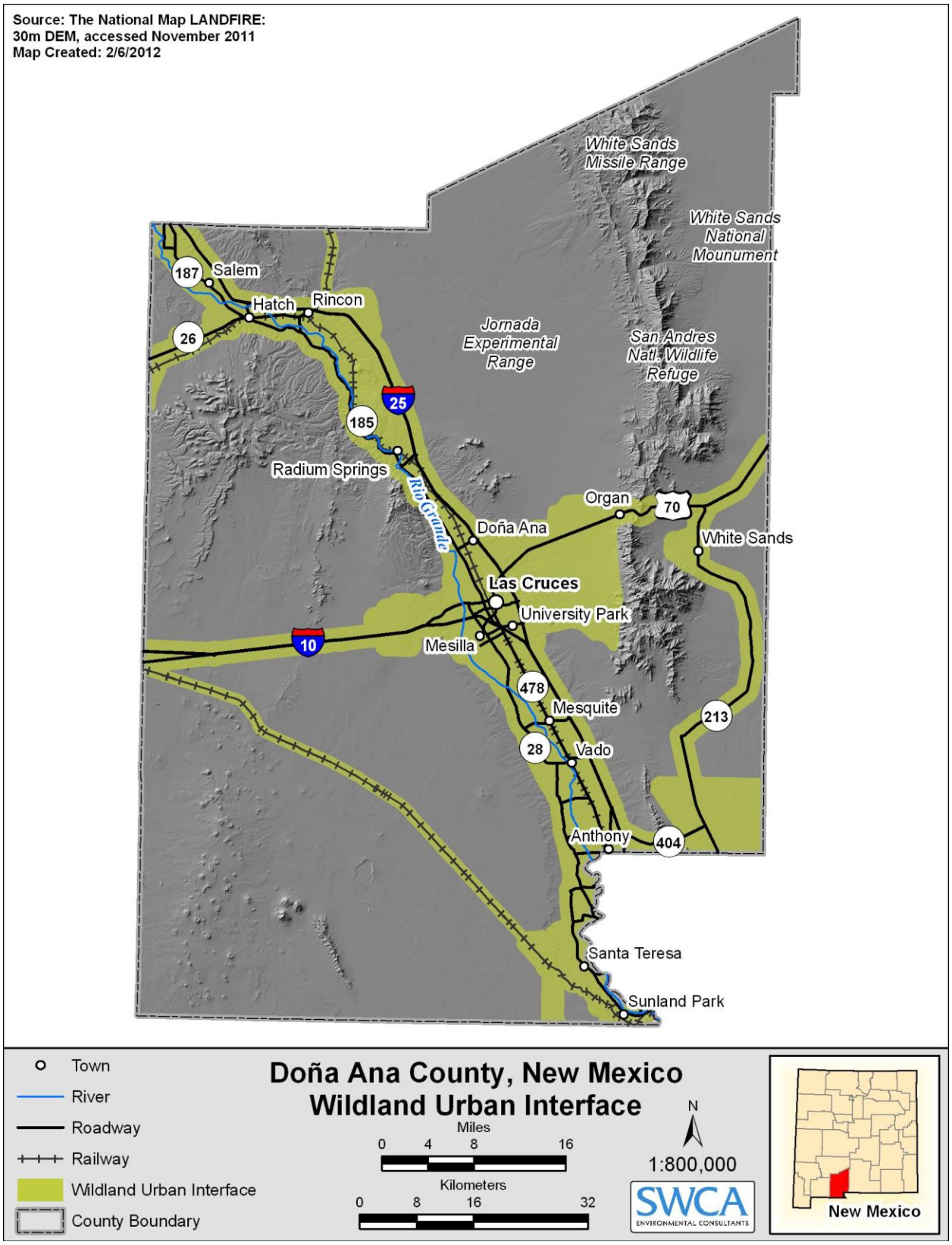


Figure 3.2. Doña Ana County WUI.

3.2 FIRE HISTORY

Most fire suppression experts believe that the threat of massive damage to human lives, private property, and natural resources is increasing throughout North America (National Fire Protection Association 1987; Arno et al. 2000). Wildland fires have become a major concern throughout New Mexico in recent decades for a number of reasons: 1) human activity patterns have changed the landscapes over the past three decades, 2) natural resources are now highly valued and protected against widespread wildfire, 3) national wildland firefighting budgets are shrinking, 4) more people are escaping the cities into the wildlands, 5) many rural areas are dependent on VFDs that have insufficient funds and resources to fight large conflagrations, and 6) climatic conditions such as drought can be like a match to volatile fuels.

3.2.1 PAST FIRE MANAGEMENT POLICIES AND LAND MANAGEMENT ACTIONS

Prior to European settlement throughout the West in the 1800s, lightning- and human-ignited fires burned more frequently and less intensely. After that time, a dramatic increase in livestock grazing, fire suppression, and other human-related activities tended to alter the landscape and the associated fire regimes. Some species of non-native vegetation were also introduced during that time period and eventually invaded many native landscapes across the West, altering natural fire-disturbance processes.

Beginning in the early 1900s, the policy for handling wildland fire, initiated by the USFS, leaned heavily toward suppression. Over the years, other agencies, such as the BLM, the Bureau of Indian Affairs, and the National Park Service, followed the lead of the USFS and adopted fire suppression as the accepted means for protecting the nation from wildfire. As a result, many areas now have excessive fuel buildups, dense and continuous vegetative cover, and tree and shrub encroachment upon open grasslands.

3.2.2 HISTORICAL FIRE REGIMES AND PRESENT CHANGES

According to Humphrey (1963), fire has never been an important factor in the Chihuahuan Desert. Historically, the area would burn under a low-intensity surface fires regime where fire frequency is highly correlated to climate (Baisan and Swetnam 1990). There is a strong association between precipitation and the level of plant productivity (Baisan and Swetnam 1990); fine fuel loading of grasses are needed to transmit fire in these ecosystems so the frequency of fire is determined largely by precipitation totals throughout the year and particularly during summer months (McClaran 1995).

Grasslands

Historic fire regimes in grasslands are not well understood, and obtaining historic fire samples within these habitat types is difficult. Historical evidence does however suggest that Native American groups increased fire frequency throughout the Southwest, and according to a study conducted in Fillmore Canyon in the east-central portion of the County the Apache promoted a high fire frequency, "patchy fire" fire regime (Morino 1996) with fires occurring about every two years from 1650 to 1720, with a dramatic decrease in frequency which occurred in the early 1800s. The fires were small, with moderately frequent, more widespread fires (USFWS 2008).

Many authors have suggested that the mean fire-return intervals (FRI) (the arithmetic average of all fire frequencies for a specific study site) for grasslands throughout the seventeenth to early nineteenth centuries are thought to have been every five to 10 years (Leopold 1924; Swetnam et al. 1992; McPherson 1995). Fire suppression policies may have contributed to declining fire frequency in this cover type, but other interacting factors also contribute. It is thought that about the time of the Civil War, intensive livestock grazing was responsible for a decline in grassland fires (West 1984). Heavy grazing reduced the fuel available to propagate fire spread and also reduced competition with herbaceous plants, tipping the balance in favor of the woody species. Woodland encroachment, increased tree density, and altered fire behavior characterize many former grasslands of the Southwest. Frequent fire plays a significant role in grassland nutrient cycling and successional processes, and long-term exclusion may produce irreversible changes in ecosystem structure and function (McPherson 1995).

Only with the onset of National Aeronautics and Space Administration (NASA) and military operations in recent years, has the fire incidence increased in the San Andres range. However, most of these fires were extinguished in a relatively short time and were contained to small acreages (USFWS 2008).

Desert Scrubland

Many authors suggest that altered fire regimes in the Chihuahuan desert scrub habitat, resulting from both fire suppression and the removal of fine fuels by domestic grazers and wildlife, have promoted the establishment of both woody vegetation and introduced non-native species (Buffington and Herbel 1965; Ahlstrand 1981; Dick-Peddie 1993). Historic fire regimes in southwestern grass and scrubland varied geographically and are related to climatic variables such as seasonal and annual rainfall and physiographic variables such as elevation, slope, and aspect (Archer 1994). Historically, fire may have been rare in desert grasslands and limited in extent due to low biomass and a lack of continuity in fine fuels (Dick-Peddie 1993). According to core team members, this observation is true of current drought conditions.

Piñon-juniper savannas are found in some portions of the planning area and are associated with deep soils. Most of the precipitation occurs during the summer monsoon season. Juniper savanna, the most common savanna in New Mexico, consists of widely scattered trees in a grass matrix (Dick-Peddie 1993). Similar to grasslands, the range of savannas has decreased as tree density has increased, but the mechanisms for the tree expansion are complex and the subject of current research. There is significant scientific debate currently over the natural FRI for savannas, but most experts agree that fire was more frequent in savannas than in modern times.

Riparian Areas

Although most of the County exhibits decreased occurrence of wildland fires compared to historical conditions, some areas within the County are actually experiencing an increase in fire occurrence and severity. Riparian ecosystems along the Rio Grande were historically shaped by natural hydrologic regimes. Native riparian vegetation is not adapted to fire, and fires did not typically occur within this ecological zone. As a result, fire can actually influence the composition and structure of riparian ecosystems (Ellis 2001). The ecology of this habitat type has changed significantly over time, as fire-adapted invasive species such as saltcedar and Russian olive have invaded many areas. Once saltcedar has been established at a location, it

increases the likelihood that the riparian area will burn and, as a result, alter the natural disturbance regime. Saltcedar and Russian olive both sprout readily after fire, and although cottonwood will also regenerate after fire, it typically has limited survival of resprouting individuals. Studies have found that the density of saltcedar foliage is higher at burned sites than unburned sites within riparian areas (Smith et al. 2006).

3.2.3 Recent Fire Occurrence in the Doña Ana CWPP Planning Area

Ignition Sources in Doña Ana County

The majority of fires in the County are less than 1 acre in size and many are caused by human ignitions, with some ignitions as a result of lightning. Human starts are often associated with roadside equipment or agricultural ditch or field burning. Lightning is common throughout monsoon season, which typically takes place from April through August. Most of these fires are detected early and suppressed before they gain acreage; however, given the right conditions, these fires may grow large and become difficult to suppress. Human ignitions are starting to increase, particularly in the WUI, with the development and improvement of roads, railroads, residences, and recreational opportunities into wildland areas.

Recent Fire History

Wildfires can occur throughout the year and are typically suppressed before they gain any acreage. NMSFD and County records document 817 fires in the County from 1981 to 2011 (Figure 3.3). Most of these fires are quickly contained and are less than 100 acres in size (See Appendix A, Map 2).

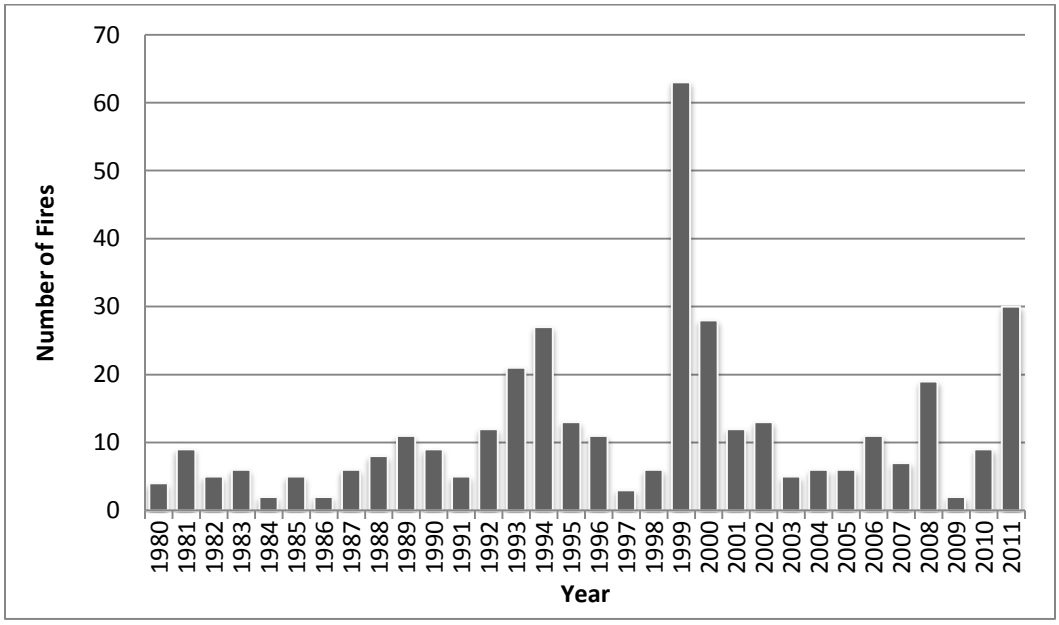


Figure 3.3. Annual fire occurrence numbers, 1980–2011.

Note: Only fires recorded by the BLM and NMSFD are presented here due to lack of data for County response fires by year.

From the period of record available (1980–2011), it is clear that peak fire years occurred in 1994, 1999, 2000, and 2011 (see Figure 3.3). According to climate summaries (Western Regional Climate Center 2012), these years experienced lower than average precipitation and higher than average temperatures. Wildfires are now possible in any season; however, June has the highest occurrence (Figure 3.4) (NMSFD 2012). The onset of the summer monsoons limits fire numbers in August and September.

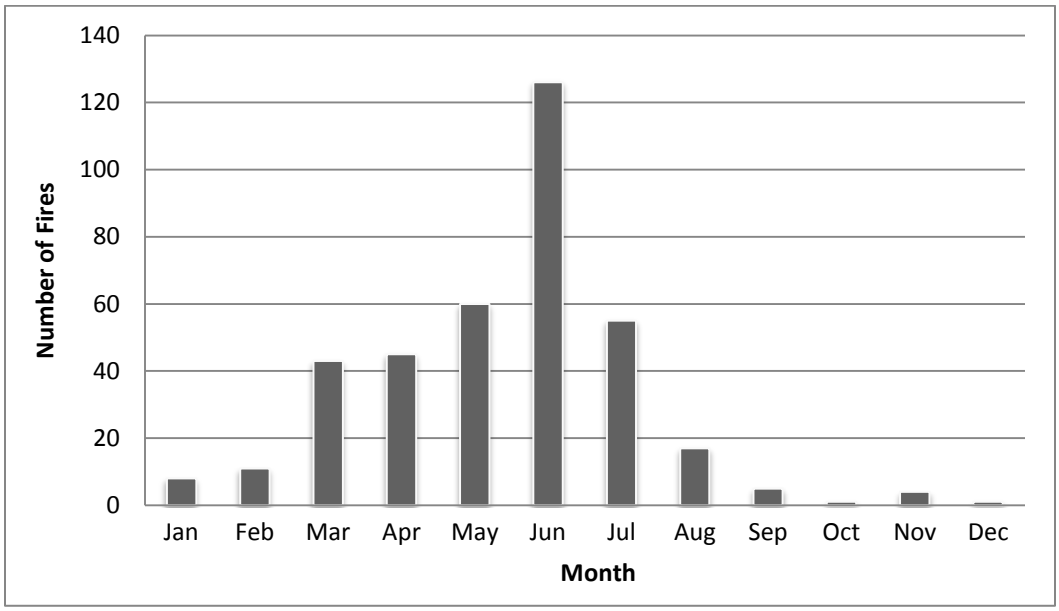


Figure 3.4. Average monthly fire occurrence, 1980–2011.
Note: Only fires recorded by the BLM and NMSFD are presented here due to lack of data for County response fires by month.

Between 1980 and 2011 there were five fires recorded that grew to over 100 acres (Table 3.1). These were split between human and lightning caused. It should be noted that acreage was not available from fires recorded in the County fire record, so it is possible that more fires reached over 100 acres in the County.

Table 3.1. Large Fires (>100 acres) Reported to the NMSFD within Doña Ana County, 1980–2011

Fire Name	Fire District	Cause	Total Acres	Cover type	Date Discovered
Fort Bliss 2	Las Cruces District	Equipment	4,979	Brush	6/15/2010
Augustine	Organ/East Mesa	Equipment	1,472	Brush	6/10/2011
River	Radium Springs	Debris burn	350	Bosque	3/18/2008
Holman	Las Cruces District	Lightning	113	Brush	7/19/2009
Dairy	Garfield-Salem	Debris burn	100	Bosque	3/3/2009

3.3 CHALLENGES FOR FUTURE RESTORATION EFFORTS

In the past few years, fires have grown to record sizes and are burning earlier, longer, hotter, and more intensely than they have in the past (Westerling et al. 2006). According to the National Interagency Fire Center (NIFC), occurrence of catastrophic wildfires has greatly increased over the last 20 years. Westerling et al. (2006) claim that a study of large (>1,000 acres) wildfires throughout the western United States for the period 1970 to 2003 saw a pronounced increase in frequency of fire since the mid-1980s (1987–2003 fires were four times more frequent than the 1970–1986 average). The length of the fire season was also observed to increase by 78 days, comparing 1970–1986 to 1987–2003. Within just the last 10 years, a record number of acreages have burned, and numbers are continually getting larger (NIFC 2010).

Changes in relative humidity are blamed for many of these conditions, as increased drying over much of the Southwest has led to an increase in days with high fire danger (Brown et al. 2004). Advanced computer models are now making national-scale simulations of ecosystems, providing predictions of how fire regimes will change in the twenty-first century (Gavin 2007; Hessl 2011). Western grasslands are predicted to undergo increased woody expansion of piñon-juniper associated with increased precipitation during typical wet seasons. Summer months are predicted to be hotter and longer contributing to increased fire risk (Brown et al. 2004). Under greater climatic extremes widely predicted throughout the United States, fire behavior is expected to become more erratic, with larger flame lengths, increased torching and crowning, and more rapid runs and blowups associated with extremely dry conditions (Brown et al. 2004).

Although fire suppression is still aggressively practiced, fire management techniques are continually adapting and improving. Due to scattered human developments (homes, ranches, and farms) and values (residential and commercial structures, historic and natural values) throughout the WUI, suppression will always have to be a priority. However, combining prescribed fire and managing wildland fire for resource benefit with effective fuels management and restoration techniques have been proven to help re-establish natural fire regimes and reduce the potential for catastrophic wildfires on public lands. The use of prescribed fire on private land is a decision to be made by the rancher, and it is acknowledged that given the prevailing drought such a management technique may not be feasible in the County.

3.4 FIRE REGIMES AND FIRE REGIME CONDITION CLASSES

Methods to assess the condition of wildland areas have been developed to help classify, prioritize, and plan for fuels treatments across a fire management region.

3.4.1 FIRE REGIMES

A natural fire regime, or historic fire regime, is a general classification of the role fire would play throughout a landscape in the absence of modern human intervention, including the influence of aboriginal burning (Agee 1993; Brown 1995). Natural fire regime reference conditions have been developed for vegetation fuel class composition, fire frequency, and fire severity for the biophysical settings at a landscape level for the Southwest and most other parts of the United States (Hann et al. 2003).

The following five fire regime classifications are based on average number of years between fires (fire frequency or mean fire interval [MFI]), combined with the severity (amount of vegetation replacement) of the fire and its effect on the dominant overstory vegetation (Hann et al. 2003):

I 0–35 year frequency and low (mostly surface fires) to mixed severity (less than 75% of the dominant overstory vegetation is replaced).

II 0–35 year frequency and high severity (more than 75% of the dominant overstory vegetation is replaced).

III 35–200 or more year fire frequency and mixed severity (less than 75% of the dominant overstory vegetation is replaced).

IV 35–200 or more year fire frequency and high severity (more than 75% of the dominant overstory vegetation is replaced).

V 200 or more per year frequency and high severity (more than 75% of the dominant overstory vegetation is replaced).

3.4.2 Fire Regime Condition Class

The Fire Regime Condition Class (FRCC) is a measure of the degree of departure from reference conditions, possibly resulting in changes to key ecosystem components such as vegetation characteristics (species composition, structural stage, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances, such as insect and disease mortality, grazing, and drought (Hann et al. 2003).

The three FRCC rankings are as follows:

FRCC 1 No or low departure from the central tendency of the reference conditions.

FRCC 2 Moderate departure from the central tendency of the reference conditions.

FRCC 3 High departure from the central tendency of the reference conditions.

3.4.3 Fire Regime and Condition Classifications in Doña Ana County

Grasslands and desert scrublands make up the majority of the planning area and typically have an FRCC of 2 (see Appendix A, Map 3, for an FRCC classification map of the County). The historical fire regime in much of the County (prior to 1860) was of frequent moderate-intensity grass fires, with fire return intervals of 0 to 35 years (BLM 2010). Fire suppression and grazing has resulted in the deviation from this natural regime. The conifer habitats at higher elevations have a FRCC of 3 in the County, suggesting they are highly departed from historical reference conditions.

3.5 Fire Management Policy

The primary responsibility for WUI fire prevention and protection lies with property owners and state and local governments. Property owners must comply with existing state statutes and local regulations. These primary responsibilities should be carried out in partnership with the federal government and private sector areas. The current Federal Fire Policy states that protection

priorities are 1) life, 2) property, and 3) natural resources. These priorities often limit flexibility in the decision-making process, especially when a wildland fire occurs within the WUI. Wildland fire suppression resources must be diverted to protect property, often of less value, when adjacent to intermixed natural resources.

There are many existing Joint Power Agreements (JPAs) and Memorandums of Understanding (MOUs) between the federal, state, and county agencies with jurisdictions within the County. The "Joint Powers Agreement between the Energy, Minerals and Natural Resources Department, Forestry Division and the United States Departments of Agriculture, Energy and Interior for Interagency Wildland Fire Protection" is an agreement between the federal wildland fire management agencies and the NMSFD to coordinate wildland fire management activities (State of New Mexico 2003). Under this JPA, New Mexico is divided into initial response areas in which one agency assumes responsibility for initiating response efforts regardless of ownership. This provides equitable exchange of workload and employs the "closest forces" concept for fire suppression (BLM 2010).

The Doña Ana County Fire Marshal's office maintains jurisdiction within unincorporated areas of the County. Management of wildfires within incorporated municipalities reverts back to the fire chief and/or fire marshal of the incorporated municipality. In areas of the County that are composed of federally owned land and facilities, wildfires may be managed by the BLM and the USFS (Doña Ana County 2011). For details regarding fire response on BLM lands please refer to the BLM Las Cruces District Office Fire Management Plan (FMP) (BLM 2010).

Each agency has its own fire management policies and protocols. The reader should refer to the individual agency FMPs and Fire Prevention Plans or equivalent documents for specific details regarding agency fire management.

3.5.1 Fire Planning Documents

Doña Ana County All Hazard Mitigation Plan (2004)

The Doña Ana County Hazard Mitigation Plan (HMP) includes the city of Las Cruces, city of Sunland Park, town of Mesilla, and village of Hatch, as well as a section regarding wildfire hazard in the County (Section 2.5, page 33.). The Doña Ana County Mitigation Planning Committee classified wildfire hazard in the County as "substantial" in severity, and "highly likely" in frequency, placing wildfire at the highest hazard level for the County (Doña Ana County 2004). In the HMP, the BLM are stated as identifying the WUI area as the Organ Mountains, the Las Alturas Area, the White Sands Test Facility, the WSMR, and the Talavera Area. The HMP reports wildfires occur on average six to 12 times a year in the County, and 80% of fires are lightning strikes, 20% are arson. The HMP is currently undergoing revision. The updated plan will be available in the Fall 2012.

Doña Ana County/City of Las Cruces All Hazard Emergency Operations Plan (2011)

The Doña Ana County/Las Cruces All Hazard Emergency Operations Plan (AHEOP) has a Wildfire Annex (Annex G) to supplement the AHEOP and provide coordination of emergency service efforts to respond to wildfires. The annex provides a situational overview with relation to risk of wildfire, but focuses primarily on organizational fire response in the event of a fire start.

Sections of the annex include Concept of Operations, Organizational Responsibilities, Command and Control Structure, Communications Overview, Administration and Logistics and Authorities and References.

3.5.2 Bureau of Land Management, Las Cruces District Office Fire Management Plan (2010)

The BLM Las Cruces District FMP is a strategic plan implementing decisions approved in approved Resource Management Plans. The FMP provides details on the BLM fire program, including organization, facilities, equipment, activities, timing, locations, and related costs.

Fire Management Units on BLM Lands

The Las Cruces District Office of the BLM breaks BLM lands into a series of Fire Management Units (FMUs). The priorities for fire management within each unit found within Doña Ana County are summarized in Table 3.2. Descriptions of each category, following the table, are adapted from the 2010 FMP (pages 9 and 10).

Table 3.2. Priorities for Fire Management in BLM FMUs throughout Doña Ana County

FMU	Category	Suppression	Wild Fire Use	Fuels Treatment	Community Assistance/Protection
Aguirre Springs Recreation Site	A	High	Low	Medium	Low
Dripping Springs Recreation Site	A	High	Low	Medium	Low
Talavera Subdivision	A	High	Low	Low	High
Rio Grande Corridor	B	Medium	Low	Low	Medium
Chaparral Community	B	Medium	Low	Medium	High
Franklin Mountains	C	Medium	Medium	Low	Low
Rio Grande Valley Uplands	C	Low	Medium	Medium	Medium
Organ Mountain WSA/ACEC	D	Low	High	Low	Low
Robledo Mountains WSA/ACEC	D	Low	High	Low	Low
West Potrillo WSA/ACEC	D	Low	High	Medium	Low

ACEC = Area of Environmental Concern; WSA = Wilderness Study Area.
Source: Adapted from the BLM Las Cruces District Office, Fire Management Plan (BLM 2010) (page 11-12)

Category A FMUs – Areas where wildfire is not desired at all:

- These areas require suppression of all fires to prevent direct threats to life and property.
- Fire mitigation: implement actions that will reduce unwanted ignitions and reduce losses from unwanted wildfires.
- Emphasis is on prevention, detection, and rapid suppression of wildfires.
- Non-fire fuel treatments should be employed; pile burning or broadcast burning over small, well protected areas may be considered on a case-by-case basis.

Category B FMUs – Areas where wildfire is not desired because of current conditions:

- These are ecosystems where an unplanned ignition could have negative effects unless/until some form of mitigation occurs.
- Fire mitigation: emphasize prevention/mitigation programs that reduce unwanted fire ignitions and resource threats.
- Suppression of all unplanned fires is recommended.
- Fire and non-fire fuels treatments are used to reduce the hazardous effects of unplanned wildfire.

Category C FMUs – Areas where wildland fire is desired but there are significant constraints that must be considered for its use:

- Areas where significant ecological, social or political constraints must be considered, including air quality, threatened and endangered species, or wildlife habitat considerations.
- Fire mitigation: emphasize prevention/mitigation programs that reduce unwanted fire ignitions and resource threats.
- There should be a maximum burn acreage based on resource considerations. Some areas would receive low suppression priority in multiple wildfire situations.
- Fire and non-fire fuels treatments are used to reduce the hazardous effects of unplanned wildfire.

Category D FMUs – Areas where wildland fire is desired and there are few or no constraints for its use:

- These are areas where unplanned and planned wildfire may be used to achieve desired objectives, such as to improve vegetation, wildlife habitat, or watershed conditions.
- Fire mitigation: implement programs that reduce unwanted human-caused ignitions.
- A full range of options for wildfire management should be available under appropriate management response.
- This category has generally less need for fuels treatment, but if treatment is necessary both fire and non-fire treatments may be used.

3.5.3 BLM Las Cruces District Office Wildfire Prevention Plan (2010)

The 2010 BLM Wildfire Prevention Plan is an appendix to the 2010 FMP that provides an analysis of the district's risks, hazards, and values, and serves as an operational plan that outlines protection of the district's resources from wildfire impacts.

The plan identifies the following risks:

- Lightning
- Military ordinances
- Highway/Railroads

- Human activities in remote area/recreation areas
- WUI
- Illegal immigrants in U.S./Mexico border areas

The plan identifies the following values:

- High Value
  - Recreation areas (Dripping Springs, Soledad, Aguirre Springs Campground)
  - WUI areas (Talavera subdivision)
  - Communication sites
- Medium Value
  - Areas of Critical Environmental Concern (ACECs)
  - Military use/interface areas
- Low Value
  - Wilderness Study Areas and designated wilderness areas
  - BLM grazing allotments

The objectives of the plan are to protect all high value resources by focusing fire prevention activities in these areas. Proposed prevention activities include:

- Developing risk assessments and mitigation strategies to accomplish the fire prevention and fire management program.
- Placing emphasis on preventing fire in areas susceptible to high-intensity fires.
- Conducting aggressive investigations of all human-caused fires.
- Continuing to work with all agencies and interested members of the public in a team effort to accomplish CWPPs in areas of mutual concern.
- Encouraging public awareness through informal and formal public contacts.
- Contacting local schools and civic groups to schedule fire prevention/education programs and activities.
- Using Cooperative Forest Fire Prevention materials.
- Encouraging public participation in Firewise Communities workshops in fire-prone communities.
- Developing a fire prevention message to send to grazing permittees, residents, and cooperators.
- Developing a fire prevention exhibit for local fairs and exhibitions.
- Building strong partnerships with private landowners, conservation groups, fire districts, and other agencies through participation in groups that focus on wildfire issues.

3.5.4 San Andres National Wildlife Refuge Fire Management Plan (2008)

The San Andres National Wildlife Refuge (SANWR) FMP is in the process of update. The 2008 plan is summarized here. The 2012 plan will be completed following completion of the DACCWPP.

The SANWR is located approximately 30 miles northwest of Las Cruces and encompasses 57,215 acres of the San Andres Mountains. The area is closed to the public due to overlap with WSMR. The refuge was established by Executive Order 8646 dated January 22, 1941, "for the conservation and development of natural wildlife resources" (USFWS 2008).

The SANWR FMP provides details of the Wildland Fire Policy for the SANWR, emphasizing the primary goals of the *10-Year Comprehensive Strategy and Cohesive Strategy for Protecting People and Sustaining Natural Resources* (USDA and USDI 2006):

- Improving fire prevention and suppression;
- Reducing hazardous fuels;
- Restoring fire-adapted ecosystems; and
- Promoting community assistance.

Below are the fire management objectives for the SANWR taken from the 2008 FMP (USFWS 2008:13–14):

- Manage fire suppression to minimize risks to firefighter and public safety.
- Where appropriate allow fire to provide a natural process in wilderness areas and in fire-adapted ecosystems.
- Reduce and maintain hazardous fuels in WUI areas at levels to provide for public and firefighter health and safety.
- Reduce and maintain hazardous fuels in non-WUI areas at levels to provide for firefighter health and safety and to protect habitats for threatened and endangered species and migratory birds, and to maintain ecosystem function and natural processes.
- Where appropriate use fire management activities to restore pre-settlement fire regimes and ecosystem conditions across landscapes to enhance threatened and endangered species, Migratory waterfowl, and other wildlife habitats.
- Use other treatments to reduce hazardous fuels where prescribed fire is not appropriate.
- Aerial retardants and foams will not be used within 300 feet of any waterway.
- Ground disturbed by suppression activities will be rehabilitated.
- Heavy equipment use will be closely monitored in designated areas to minimize impacts to cultural resources, wetlands, and other resources at risk.
- Prevent the further spread of invasive plants.

The SANWR provides appropriate management response to fire in order to protect life, property, and the environment (USFWS 2008). SANWR staff members work with other agencies and communities to prevent unauthorized ignition of wildland fires and provide wildland firefighting,

hazardous fuels reduction, cooperative prevention and education, and technical assistance to the other partners in WUI areas (USFWS 2008).

As well as documenting fire management goals of the SANWR, the FMP also outlines cooperative agreements pertaining to wildfire suppression between the SANWR, the WSMR, the BLM, the USFS and the NMSFD.

3.5.5 White Sands Missile Range Intergrated Wildland Fire Management Plan

The 2004 WSMR FMP is currently being revised and will be not be available until after completion of this CWPP. The 2004 IWFMP (WSMR 2004) describes how fire may be used at WSMR to reduce fire hazards, sustain the military mission, and help achieve resource management objectives set forth in the Integrated Cultural Resource Management Plan (WSMR 2001a) and Integrated Natural Resource Management Plan and the (WSMR 2001b). The plan compiles information, develops broad strategies for implementing a fire program at WSMR, and provides an understanding of the benefits of fire as a conservation and land management tool. The IWFMP is based on ecological science and contemporary fire management practice, but it also takes into account the paramount importance of the military mission to the Range (WSMR 2004).

WSMR have a number of existing MOU's in place with the following jurisdictions: BLM, US Fish and Wildlife, USFS, City of Las Cruces, Otero County, McKinley County, Socorro County; and a pending MOU with Dona Ana County.

3.6 Fire Response Capabilities

In areas of dense rural residential settlement, residential structures can add to the grassland fuel load available to a wildfire, increasing its size and magnitude. Many rural residents are ill-equipped to mitigate the effects of a wildland fire and instead rely on fire organizations such as VFDs for fire protection. The County has 29 fire stations split among 21 fire districts (Figure 3.5). Table 3.3 below includes International Standards Organization (ISO) ratings. The ISO collects information on municipal fire protection efforts in communities throughout the United States. In each of those communities, the ISO analyzes the relevant data using a fire suppression rating schedule. Communities are then assigned public protection classifications from 1 to 10. Class 1 represents exemplary public protection, and Class 10 indicates that the area's fire suppression program does not meet the ISO's minimum criteria (ISO 2010). Many of the districts in the County have been successful in lowering their ISO ratings through investing in new equipment, training, or resources like water storage.

The County is also served by a variety of federal firefighting agencies, including the BLM, the USFWS, and the USFS. Appendix D provides a list of firefighting resources for the County fire districts.

Table 3.3. Doña Ana County Fire Districts and ISO Ratings

Fire District	Name	ISO Rating	Fire District	Name	ISO Rating
1	Doña Ana	6	13	South Valley	6
2	Anthony	5	14	Santa Teresa	6
3	NMSU	5	14	Santa Teresa Sub. Station	6
4	La Mesa	6	15	Las Alturas	5
5	Organ	5	15	Talavera	5
6	Rincon	6	16	Chamberino	7
7	La Union	4	Municipal	Village of Hatch	
8	Radium Springs	5	Municipal	Mesilla	
9	Chapparal	5	Municipal	Sunderland Park	
10	Mesquite	7	Municipal	City of Anthony	
11	Garfield	6	Federal	BLM	
12	Fairacres	6			

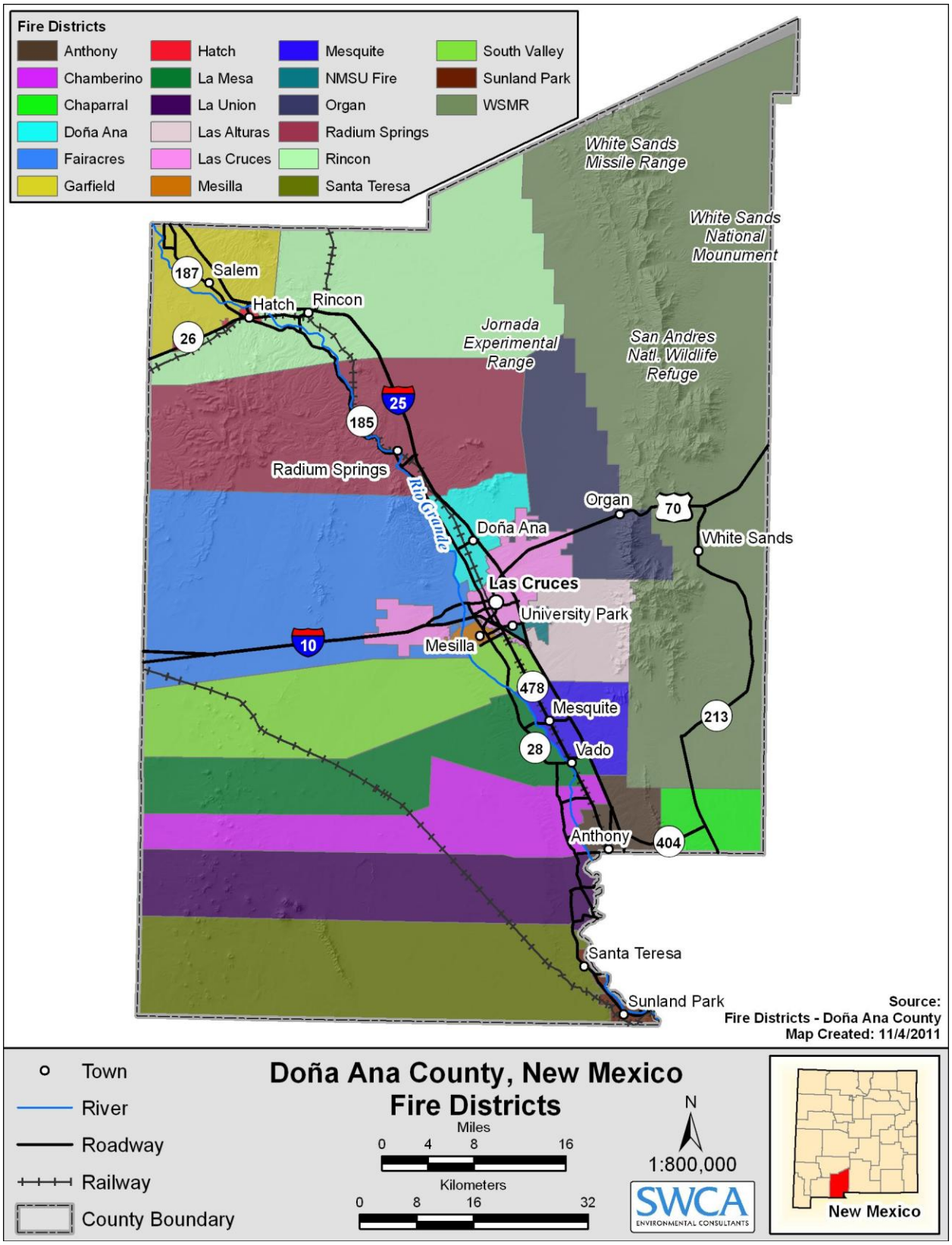


Figure 3.5. Doña Ana County fire district map.

3.7 INTERNATIONAL URBAN-WILDLAND INTERFACE CODE OF THE INTERNATIONAL CODE COUNCIL

The County has the ability to adopt the International Urban-Wildland Interface Code to carry out enforcement of building regulations that would better meet structural ignitability standards and fire safety standards in the WUI. It is recommended that the County government learn more about the code and its potential application for planning in the WUI. A copy of the code may be obtained from http://www.iccsafe.org.

3.8 FEDERAL TREATMENTS

Table 3.4 lists federal treatments recently completed and/or planned on BLM lands within the County, and Table 3.5 lists the prescribed burn program rotations for the SANWR, details of which can be found in the 2008 FMP (USFWS 2008). This table is taken from the 2008 FMP and may be subject to revision in the 2012 FMP (USFWS 2012).

All fuel treatments on federal lands will undergo a National Environmental Policy Act (NEPA) assessment to determine the impacts of actions on threatened and endangered species. Table 3.6 lists the threatened and endangered species that could occur in the County.

Table 3.4. Recently Completed and Projected BLM Fuel Treatments in Doña Ana County, 2006-2013

Project	Location	Size (acres)	Target Species/ Treatment	Year (completed/ projected)
Chemical				
Aden Hills GRT	T24S, R2W, Sec 19–20, 29–30	640	Creosotebush	2006
Suman Ridge GRT	T22S, R5W, Sec 24–26, 33–35 T22S, R4W, Sec 19, 30,	1,650	Creosotebush	2006
Lazy E Mesquite	T22S, R5W, Sec 22–28; 33,34	1,250	Mesquite	2007
Mimms Well	T23s, R4W, Sec 10–15	2,187	Creosotebush	2008
Upham GRT	T19S, R2W, Sec 1,2; 11–13 T19S, R1W, Sec 4–10,15–22, 29	7,753	Mesquite	2009
Rincon	T18S, R2W, Sec 22–17, 34, 36 T19S, R2W, Sec 1–4, 10–12	3,200	Mesquite	2009
Coyote Canyon GRT	Allotment 03015, T21S, R2W	849	Creosotebush	2011
Sierra Alta GRT	T20S, R3/4W	751	Creosotebush	2011
Mimms Well South	T23S, R4W, Sec 22–27	2,670	Creosotebush	2011
West Potrillos GRT	T25S, R4W/ T26S, R3W T26S, R2W/ T27S, R2W	26,300	Creosotebush	2011
Prescribed Burn (RX)				
Dripping Springs	T23S, R3E	37	Point protection	2011
Dripping Springs-RX	T23S, R3E	37	Maintenance	2012

Project	Location	Size (acres)	Target Species/ Treatment	Year (completed/ projected)
Projected				
Agurrie Springs-Mechanical	T22S R4E	200	Point protection	2013
Pine Tree Trail-RX	T22S R4E		Maintenance	2013
Long Canyon-RX	T23S, R4E T24S, R4E	20,000	Fuel break	2012

Note: A treatments map, delineating fuels treatment areas listed in Table 3.4, is located in Chapter 5, page 85.

Table 3.5. Rotational Prescribed Burn Program for the SANWR

Burn Unit/No.	Location (by drainage)	Burn Rotation Frequency Year	Acres (target)	Habitat Type
Black	Salt Canyon	25 year 1999	231	Juniper Woodland
N. Bennett	Little San Nicholas	25 year 2000	295	Juniper Woodland
Little San Nicholas	Little San Nicholas	50 year 2000	601	Juniper Woodland
Coyote	Ash Canyon	25 year 2001	385	Juniper Woodland
W. Goat Mtn	Little San Nicholas	25 year 2002	134	Juniper Woodland
Lead Camp	Lead Camp Canyon	25 year 2003	720	Juniper Woodland
Brushy	Salt Canyon	15 year 2004	365	Interior chaparral
Ropes Spring	Ropes Draw	25 year 2005	185	Semi-desert scrub
Dugout	San Andres Canyon	2006	286	Interior chaparral
White Rock	White Rock Springs	2007	720	Interior chaparral
Bighorn	Little San Nicholas	2008	566	Interior chaparral

Source: USFWS (2008).

Table 3.6. Threatened and Endangered Species List for Doña Ana County

Status		Common Name	Scientific Name
Federal	State		
–	T	Common black-hawk	*Buteogallus anthracinus anthracinus*
–	T	Varied bunting	*Passerina versicolor versicolor*
E	E	Aplomado falcon	*Falco femoralis septentrionalis*
T	–	Mexican spotted owl	*Strix occidentalis lucida*
–	T	Spotted bat	*Euderma maculatum*
–	T	Desert bighorn sheep	*Ovis canadensis mexicana*
–	T	Doña Ana talussnail	*Sonorella todseni*
–	E	Brown pelican	*Pelicanus occidentalis*
–	T	Neotropic cormorant	*Phalacrocorax olivaceus*
–	T	Peregrine falcon	*Falco peregrinus anatum*
–	T	Arctic peregrine falcon	*Falco peregrinus tundrius*
–	T	Bald eagle	*Haliaeetus leucocephalus*
–	T	Baird's sparrow	*Ammodramus bairdii*
E	E	Interior least tern	*Sterna antillarum athalassos*
E	E	Southwestern willow flycatcher	*Empidonax traillii*
–	E	Common ground-dove	*Columbina passerina pallescens*
–	T	Broad-billed hummingbird	*Cynanthus latirostris magicus*
–	T	Costa's hummingbird	*Calypte costae*

Status		Common Name	Scientific Name
Federal	State		
–	T	Violet crowned hummingbird	*Amazilia violiceps ellioti*
–	E	Buff-collared nutjar	*Caprimulgus ridgwayi ridgwayi*
–	T	Boreal owl	*Aegolius funereus*
–	T	Bell's vireo	*Vireo bellii arizonae*
–	T	Gray vireo	*Vireo vicinior*

E = endangered; T = threatened.

4.0 RISK ASSESSMENT

4.1 PURPOSE

The purpose of developing the risk assessment model described here is to create a unique tool for evaluating the risk of wildland fires to communities within the WUI areas of the County. Although many definitions exist for hazard and risk, for the purpose of this document these definitions follow those used by the firefighting community. *Hazard* is a fuel complex defined by kind, arrangement, volume, condition, and location that forms a special threat of ignition and resistance to control. *Risk* is defined as the chance of a fire starting as determined by the presence and activity of causative agents (National Wildfire Coordinating Group 1998). The risk assessment is twofold and combines a geographic information system (GIS) model of hazard based on fire behavior and fuels modeling technology (Composite Risk/Hazard Assessment) and a field assessment of community hazards and values at risk (Community Risk/Hazard Assessment).

From these assessments, land use managers, fire officials, planners, and others can begin to prepare strategies and methods for reducing the threat of wildfire, as well as work with community members to educate them about methods for reducing the damaging consequences of fire. The fuels reduction treatments can be implemented on both private and public land, so community members have the opportunity to actively apply the treatments on their properties, as well as recommend treatments on public land that they use or care about.

4.2 FIRE BEHAVIOR MODEL

4.2.1 OVERVIEW

The wildland fire environment consists of three factors that influence the spread of wildfire: fuels, topography, and weather. Understanding how these factors interact to produce a range of fire behavior is fundamental to determining treatment strategies and priorities in the WUI. In the wildland environment, vegetation is synonymous with fuels. When sufficient fuels for continued combustion are present, the level of risk for those residing in the WUI is heightened. Fire spreads in three ways: 1) surface fire spread—the flaming front remains on the ground surface (in grasses, shrubs, small trees, etc.) and resistance to control is comparatively low; 2) crown fire—the surface fire "ladders" up into the upper levels of the forest canopy and spreads through the tops (or crowns) independent of or along with the surface fire, and when sustained is often beyond the capabilities of suppression resources; and 3) spotting—embers are lifted and carried with the wind ahead of the main fire and ignite in receptive fuels; if embers are plentiful and/or long range (>0.5 mile), resistance to control can be very high. Spotting is often the greatest concern to communities in the path of a wildland fire. In areas where homes are situated close to bosque fuels and/or denser shrubs and trees, potential spotting from woody fuels to grassland fuels should be acknowledged.

Treating fuels in the WUI can lessen the risk of intense or extreme fire behavior. Studies and observations of fires burning in appropriately treated areas have shown that the fire either remains on or drops to the surface, thus avoiding destructive crown fire. Also, treating fuels decreases spotting potential and increases the ability to detect and suppress any spot fires that do

occur. Fuels mitigation efforts therefore should be focused specifically where these critical conditions could develop in or near CARs.

4.2.2 Fire Behavior Model Components

For this plan, an assessment of fire behavior has been carried out using well-established fire behavior models: FARSITE, FlamMap, BehavePlus, and FireFamily Plus, as well as ArcGIS Desktop Spatial Analyst tools. Data used in the Composite Risk/Hazard Assessment is largely obtained from LANDFIRE.

LANDFIRE

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

FARSITE

FARSITE is a computer model based on Rothermel's spread equations (Rothermel 1983); the model also incorporates crown fire models. FARSITE uses spatial data on fuels, canopy cover, crown bulk density, canopy base height, canopy height, aspect, slope, elevation, wind, and weather to model fire behavior across a landscape. In essence, FARSITE is a spatial and temporal fire behavior model. FARSITE is used to generate fuel moisture and landscape files as inputs for FlamMap. Information on fire behavior models can be obtained from http://www.fire.org.

FlamMap

Like FARSITE, FlamMap uses a spatial component for its inputs but only provides fire behavior predictions for a single set of weather inputs. In essence, FlamMap gives fire behavior predictions across a landscape for a snapshot of time; however, FlamMap does not predict fire spread across the landscape. FlamMap has been used for the DACCWPP to predict fire behavior across the landscape under extreme (worst case) weather scenarios.

BehavePlus

Also using Rothermel's (1983) equations, BehavePlus is a multifaceted fire behavior model and has been used to determine fuel moisture in this process.

4.2.3 Fire Behavior Model Inputs

Fuels

The fuels in the planning area are classified using Scott and Burgan's (2005) Standard Fire Behavior Fuel Model classification system. This classification system is based on the Rothermel surface fire spread equations, and each vegetation and litter type is broken down into 40 fuel models. This classification has been selected because of the amount of herbaceous fuel in the planning area. These herbaceous fuels have a dynamic fuel moisture component that affects the intensity at which they would burn based on the degree of pre-fire curing. The Scott and Burgan (2005) system acknowledges this feature of herbaceous fuels and classifies them accordingly.

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

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

A more detailed breakdown of the fuel types present in the planning area is presented in Table 4.1.

Table 4.1. Fuel Model Classification for DACCWPP Planning Area

1.	**Nearly pure grass and/or forb type (Grass)**
i.	**GR1:** Grass is short, patchy, and possibly heavily grazed. Spread rate is moderate (5–20 chains/hour [ch/h]); flame length low (1–4 feet); fine fuel load 0.40 (ton/acre).
ii.	**GR2:** Moderately coarse continuous grass, average depth about 1 foot. Spread rate high (20–50 ch/h); flame length moderate (4–8 feet); fine fuel load 1.10 (tons/acre).
2.	**Mixture of grass and shrub, up to about 50% shrub cover (Grass-Shrub)**
i.	**GS1:** Shrubs are about 1 foot high, low grass load. Spread rate moderate (5–20 ch/h); flame length low (1–4 feet); fine fuel load 1.35 (tons/acre).
ii.	**GS2:** Shrubs are 1–3 feet high, moderate grass load. Spread rate high (20–50 ch/h); flame length moderate (4–8 feet); fine fuel load 2.1 (tons/acre).
3.	**Shrubs cover at least 50% of the site; grass sparse to nonexistent (Shrub)**
i.	**SH1:** Low shrub fuel load, fuelbed depth about 1 foot; some grass may be present. Spread rate very low (0–2 ch/h); flame length very low (0–1 foot); fine fuel load 1.7 (tons/acre).
ii.	**SH2:** Moderate fuel load (higher than SH1), depth about 1 foot, no grass fuels present. Spread rate low (2–5 ch/h); flame length low (1–4 feet); fine fuel load 5.2 (tons/acre).
iii.	**SH5:** Heavy shrub load, depth 4–6 feet. Spread rate very high (50–150 ch/h); flame length very high (12–25 feet); fine fuel load 6.5 (tons/acre).
iv.	**SH7:** Very heavy shrub load, depth 4–6 feet. Spread rate lower than SH5, but flame length similar. Spread rate high (20–50 ch/h); flame length very high (12–25 feet); fine fuel load 6.9 (tons/acre).
4.	**Grass or shrubs mixed with litter from forest canopy (Timber-Understory)**
i.	**TU1:** Fuelbed is low load of grass and/or shrub with litter. Spread rate low (2–5 ch/h); flame length low (1–4 feet); fine fuel load 1.3 (tons/acre).
ii.	**TU5:** Fuelbed is high load conifer litter with shrub understory. Spread rate moderate (5–20 ch/h); flame length moderate (4–8 feet).
5.	**Dead and down woody fuel (litter) beneath a forest canopy (Limber Litter)**
i.	**TL1:** Light to moderate load, fuels 1–2 inches deep. Spread rate very low (0–2 ch/h); flame length very low (0–1 feet).
ii.	**TL3:** Moderate load. Spread rate very slow (0–2 ch/h); flame length low (1–4 feet); fine fuel load 0.5 (ton/acre).
iii.	**TL4:** Small downed logs**,** Moderate load fine litter. Spread rate is low, flame length is low (2-5 ch/h); flame length low (1–4 feet).
iv.	**TL6:** Moderate load broad leave litter. Spread rate moderate (5–20 ch/h); flame length low (1–4 feet).
v.	**TL8:** Moderate load and compactness may include small amounts of herbaceous load. Spread rate moderate (5–20 ch/h); flame length low (1–4 feet).
6.	**Slash-Blowdown**
i.	**SB2:** Moderate load activity fuel or low load blow down. Spread rate is moderate (5–20 ch/h); flame length moderate (4–8 feet).
7.	**Insufficient wildland fuel to carry wildland fire under any condition (Nonburnable)**
i.	**NB1:** Urban or suburban development; insufficient wildland fuel to carry wildland fire.
ii.	**NB3:** Agricultural field, maintained in nonburnable condition.
iii.	**NB8:** Open water.
iv.	**NB9:** Bare ground.

Notes: Based on Scott and Burgan's (2005) 40 Fuel Model System.
Climate is arid to semiarid for all fuel types.
Only categories present on the DACCWPP fuel maps are presented above. For more information refer to Scott and Burgan (2005).

Map 4 in Appendix A illustrates the fuels classification throughout the planning area. The dominant fuel types in the area are classified by Scott and Burgan (2005) as GR1, GR2, and GS1. GR1 is a fine fuel load, short patchy grass type with moderate spread rate (5–20 chains/hour [ch/h]) and low flame lengths (1–4 feet). GR2 is a moderately coarse continuous grass fuel with a depth of approximately 1 foot. Spread rate in these fuels is high (20–50 ch/h) and flame lengths are low to moderate (2–8 feet). This fuel type is scattered throughout the County where the vegetation consists of grassland steppe with interspersed scrub and shrub. GS1 and GS2 fuels are also found throughout the County. GS1 fuels are dry climate grass-shrub fuels with shrub heights about 1 foot, with a moderate spread rate (5–20 ch/h) and low flame lengths (1–4 feet). GS2 fuels are made up of shrubs that are 1 to 3 feet high with a moderate grass understory. Spread rates and flame length are higher than the GS1 fuels. The bosque fuels are classified as moderate-load litter fuels (TL3) and low-load, dry-climate, timber-grass-shrub fuels (TU1); both these fuel types exhibit low spread rates (2–5 ch/h) and low flame lengths (1–4 feet).

Non-combustible components are also present throughout the planning area, with urban fuels (NB1) dominant throughout communities. Most of the communities are surrounded by agricultural lands classified as NB3. These fuel types are considered non-combustible when input into the fire behavior model. This is important to note when determining risk in more rural areas, as fire risk associated with crop lands will vary seasonally. It is important to recognize that fuels are dynamic in nature and therefore the fire risk is not static and should be reassessed on a regular basis.

Topography

Topography is important in determining fire behavior. Steepness of slope, aspect (direction the slope faces), elevation, and landscape features can all affect fuels, local weather (by channeling winds and affecting local temperatures), and rate of spread of wildfire. The topography in the planning area is relatively uniform, with the greatest variation occurring around the Organ Mountains. Aspect and slope can assert significant influence on fire behavior, so where topography does fluctuate, flame lengths and rate of spread could vary considerably. Other topographic features that could be significant are arroyos and tributaries that may funnel fire and intensify fire behavior. Narrow river channel width and presence of vegetated islands are also topographic features that could influence fire spread in bosque areas.

Weather

Of the three fire behavior components, weather is the most likely to fluctuate. Accurately predicting fire weather remains a challenge for forecasters, particularly during drought conditions. As spring and summer winds and rising temperatures dry fuels, particularly on south-facing slopes, conditions can deteriorate rapidly, creating an environment that is susceptible to wildland fire. Fine fuels (grass and leaf litter) can cure rapidly, making them highly flammable in as little as one hour following light precipitation. Low live fuel moistures (typical in drought conditions throughout New Mexico) of shrubs and trees can significantly contribute to fire behavior in the form of crowning and torching. With a high wind, grass fires can spread rapidly, engulfing communities, often with limited warning for evacuation. The creation of defensible space is of vital importance in protecting communities from this type of fire. For instance, a carefully constructed fuel break placed in an appropriate location could protect homes or possibly

an entire community from fire. This type of defensible space can also provide safer conditions for firefighters, improving their ability to suppress fire and protect life and property.

One of the critical inputs for FlamMap is fuel moisture files. For this purpose weather data have been obtained from FAMWEB (National Wildfire Coordinating Group 2012), a fire weather database maintained by the National Wildfire Coordinating Group. A remote automated weather (RAW) station was selected (at Dripping Springs, Doña Ana County; elevation: 6,172 feet; Latitude: 23.19.24; Longitude: 106.35.12), and data were downloaded from the website in the extreme 95 percentile range. The RAW station was selected based on the period of record (1984–2010), the reliability of the data, and the likelihood that data represented weather in the planning area.

Using an additional fire program (FireFamily Plus) with the RAW station data, weather files that included prevailing wind direction and 20-foot wind speed were created. Fuel moisture files were then developed for downed (1-, 10-, and 100-hour) and live herbaceous and live woody fuels. These files represent weather inputs in FlamMap.

4.2.4 Fire Behavior Model Outputs

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

Flame Length

Map 5 in Appendix A illustrates the flame length classifications for the County. Flame lengths are determined by fuels, weather, and topography. Flame length is a particularly important component of the risk assessment because it relates to potential crown fire (particularly important in riparian areas) and suppression tactics. Direct attack by hand lines is usually limited to flame lengths less than 4 feet. In excess of 4 feet, indirect suppression is the dominant tactic. Suppression using engines and heavy equipment will move from direct to indirect with flame lengths in excess of 8 feet.

Patches of predicted extreme flame lengths (>11 feet) are found along the Rio Grande in the bosque fuels, which are classified as timber overstory-litter understory (TL3) and timber overstory/shrub and grass understory (TU1) fuels. Moderate flame lengths (4–8 feet) are predicted in the grass and shrub fuels (GS2) that are found along the foothills of the Organ Mountains and in areas dominated by evergreen creosotebush (*Larrea tridentata*), honey mesquite, and snakeweed. Low flame lengths (0–4 feet) are predicted among the GR1 and GR2 fuels, which are characteristic of the desert grassland and scrub communities.

Fireline Intensity

Map 6 in Appendix A illustrates the predicted fireline intensity throughout the planning area. Fireline intensity describes the rate of energy released by the flaming front and is measured in British Thermal Units per foot, per second (BTU/ft/sec). This is a good measure of intensity, and suppression activities are planned according to it. The expected fireline intensity throughout the County is similar in pattern to the predicted flame length, as fireline intensity is a function of flame length. High fireline intensity is predicted to occur in the shrubland communities (GS2) Fireline intensities would be low in the grass-dominated fuels.

Rate of Spread

Map 7 in Appendix A illustrates the rate of spread classifications for the planning area. The most extreme rates of spread (>40 feet/minute) are expected to occur in the grass-shrub (GS2) and shrub fuels (SH5) at the highest elevations. High rates of spread (15–40 feet/minute) are also predicted throughout the grassland shrub areas (GS1 and GS2). These spread rates could impact communities on the west side of the Organ Mountains and the communities of Radium Springs and Mesilla. A large portion of the County is expected to exhibit moderate rates of spread (5–15 feet/minute) with patches of high and extreme as fuels transition from short grass scrub mixes to heavier shrub mixes. Portions of the County with short, sparse, dry climate grasses are predicted to burn with low rates of spread (0–5 feet/minute), associated with the GR1 fuel type. It should be noted that spread rates are contingent on the density of fine fuels; during wet years when grass fuel loads are higher, spread rates are likely to be elevated above those modeled here. Agricultural and urban areas are clearly delineated in this model by their low rate of spread and are evident in the valley communities.

Crown Fire Potential

Map 8 in Appendix A illustrates the predicted crown fire potential throughout the planning area. Crown fire activity in the County is confined to areas of timber-litter fuel (TL1, TL3, and TL8). These areas are primarily in the bosque, in arroyos, and at the highest elevations. The remainder of the planning area is likely to witness surface fire.

Fire Occurrence/Density of Starts

Map 2 in Appendix A illustrates the fire occurrence density for the planning area. Fire occurrence density has been determined by performing a density analysis on fire start locations with ArcGIS Desktop Spatial Analyst. These locations have been provided by the NMSFD, the USFS, the BLM, and LANDFIRE Rapid Refresh as GIS points, and combined the points showed the location of fire starts within the project area over the last 31 years (1980–2011). The density analysis has been performed over a 5-mile search radius. The density of previous fire starts is used to determine the risk of ignition of a fire. Map 2 in Appendix A reveals a definite pattern of fires close to populated areas and along major highways. High fire density is observed throughout the central core of the County, with the greatest density (>1 fire/square mile) around Las Cruces and Mesilla. High density (0.2–1.0 fire/square mile) extends along I-25, U.S. 70, New Mexico Highway 404, New Mexico Highway 26, and around the communities of Hatch and Salem.

It may be argued that areas that have burned previously are less likely to burn in the immediate future due to lowered fuel loads, but post-burn regrowth in grassland and shrubland fuels is often rapid, and dead and downed fuels in bosque and shrubland settings can contribute to increased fire risk in these previously burned areas. The fuels assessment used to determine the fuel models takes into account the fuel loading of recently burned areas, as it is developed from 2011 imagery. Furthermore, the fire occurrence maps are used to provide information on areas where human- and lightning-ignited fires are prevalent and hence could be more prone to fire in the future.

4.2.5 GIS OVERLAY PROCESS

All data used in the risk assessment have been processed using ESRI ArcGIS Desktop and the ESRI Spatial Analyst Extension (Barz et al. 2004; Timmons and Fluder 2008). Information on these programs can be found at http://www.esri.com. Data have been gathered from all relevant agencies, and the most current data have been used.

All fire parameter datasets have been converted raster format (a common GIS data format comprising a grid of cells or pixels, with each pixel containing a single value). The cell size for the data is 30 × 30 m (98 × 98 feet). Each of the original cell values have been reclassified with a new value between 1 and 4, based on the significance of the data (1 = lowest, 4 = highest). Prior to running the models on the reclassified datasets, each of the input parameters have been weighted; that is, they are assigned a percentage value reflecting that parameter's importance in the model. The parameters are then placed into a Weighted Overlay Model, which "stacks" each geographically aligned dataset and evaluates an output value derived from each cell value of the overlaid dataset in combination with the weighted assessment. The resulting dataset contains only values 1 through 4 (1 = low, 2 = medium, 3 = high, 4 = extreme) to denote fire risk. This ranking shows the relative fire risk of each cell based on the input parameters (Timmons and Fluder 2008). Figure 4.1 illustrates the individual datasets and the relative weights assigned within the modeling framework.

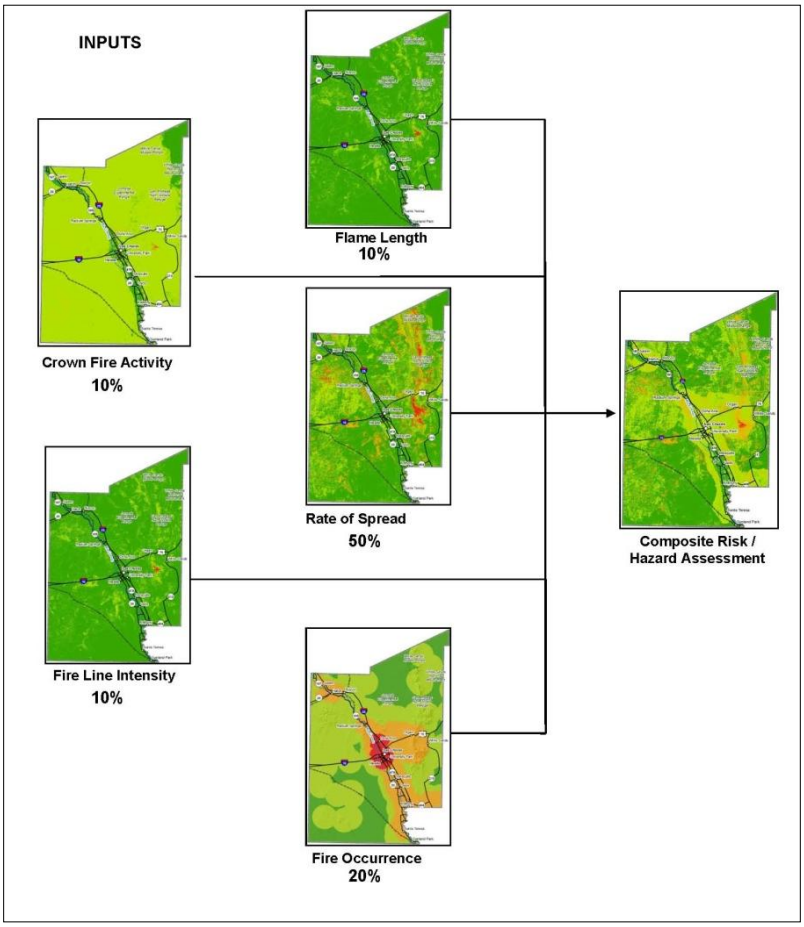


Figure 4.1. Composite Risk/Hazard Assessment overlay.

4.3 COMPOSITE RISK/HAZARD ASSESSMENT

Figure 4.2 is the risk assessment for the planning area; it combines all the fire behavior parameters described above. The risk assessment classifies the planning area into low, moderate, high, and extreme risk categories.

The risk assessment depicts risk in the County as highly varied from low risk in the more remote areas of the County dominated by desert scrubland, to moderate and high risk around communities along the Rio Grande valley and foothill areas, to extreme risk in the higher elevations of the Organ Mountains. There are also small patches of high and extreme risk associated with areas closest to the active channel of the river due to the presence of continuous thickets of saltcedar. The highest risk close to communities is found around Radium Springs, Mesilla, Organ, Chaparral, White Sands, and the Talavera area of the Organ Mountains. Some agricultural areas, such as Rincon, Hatch, and Salem, are classified as moderate risk but these areas would undergo seasonal fluctuations in terms of their fire risk because of changes in irrigation, curing, and harvesting. The high risk areas are associated with grass-shrub fuel loads as classified using the Scott and Burgan (2005) system as GS2. These fuels generate high rates of spread and moderate flame lengths. High risk is also associated with the timber bosque fuels, which generate slower rates of spread but intense fire activity and flame lengths. These areas are and should continue to be the focus of fuel treatments. The lower risk areas are a consequence of the lower rates of spread and flame lengths predicted to occur in light and patchy scrub fuels. Because of the rapid response of grasses to increased precipitation in these scrub-dominated landscapes, these areas should still be closely observed for fuel loading following productive years.

The reader should also refer to the *New Mexico Statewide Natural Resources Assessment and Strategy and Response Plan* for a statewide assessment of fire risk (NMSFD 2010). Map 9 in Appendix A is a copy of the Fire Risk Map from the response plan. It also highlights the high risk in the area of Las Cruces and moderate to high risk extending along the center of the County from north to south along I-25.

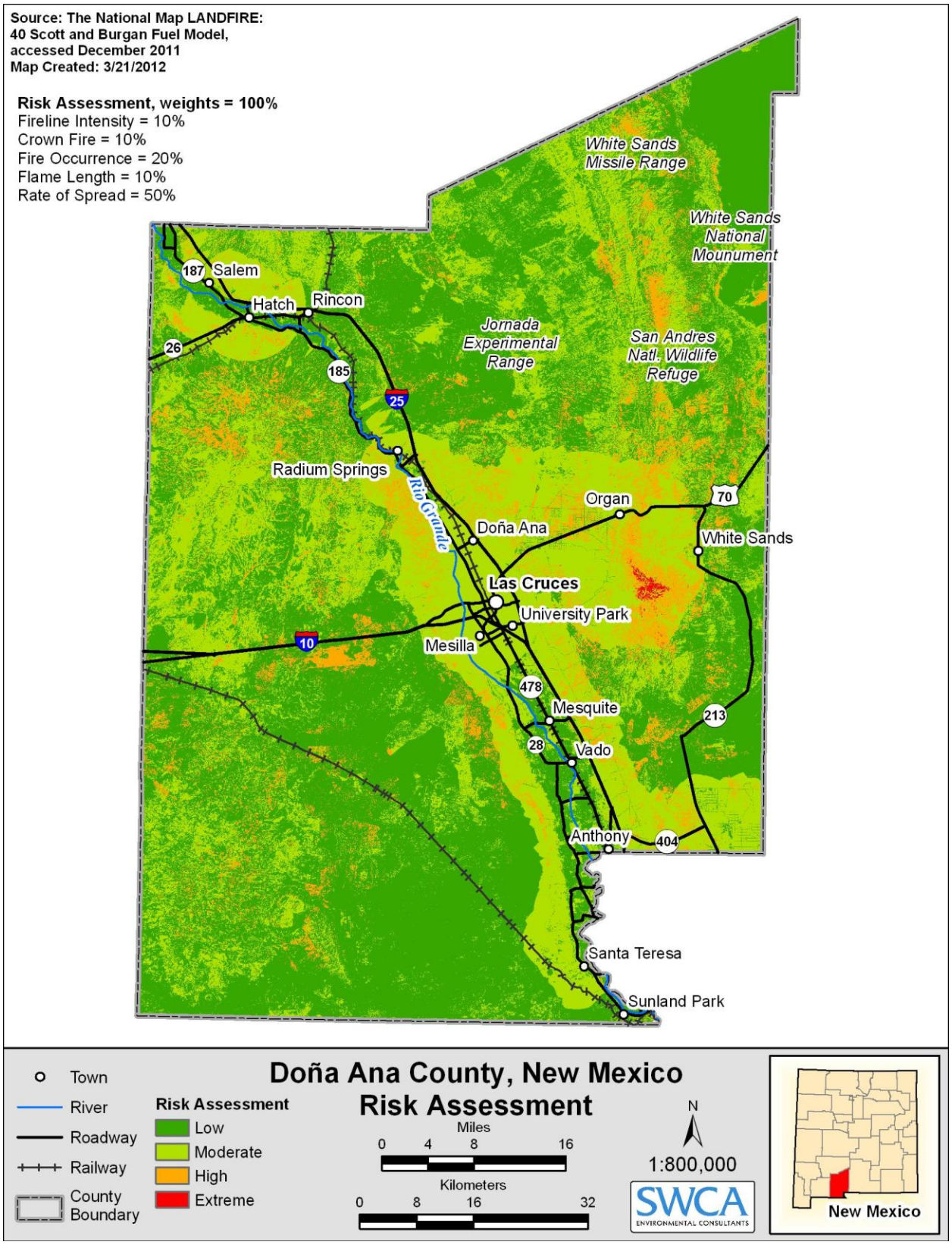


Figure 4.2. Composite Risk/Hazard Assessment map.

4.4 COMMUNITY RISK/HAZARD ASSESSMENTS

As part of the planning process, the Core Team compiled a list of communities within the planning area that fall within the WUI for the County. In order to properly assess the hazards in and around these communities, a series of field days were implemented to carry out community assessments.

The assessments were conducted in February 2012 with assistance from each fire district. The community assessment was carried out using the National Fire Protection Association (NFPA) Wildland Fire Risk and Hazard Severity Form 1144 (Appendix E). This form is based on the NFPA Standard for Reducing Structure Ignition Hazards from Wildland Fire 2008 Edition, which was in turn developed by the Technical Committee on Forest and Rural Fire Protection and issued by the Standards Council on June 4, 2007. The NFPA standard focuses on individual structure hazards and requires a spatial approach to assessing and mitigating wildfire hazards around existing structures. It also includes ignition-resistant requirements for new construction and is used by planners and developers in areas that are threatened by wildfire and is commonly applied in the development of Firewise Communities (for more information, see www.firewise.org).

Each community was rated based on conditions within the community and immediately surrounding structures, including access, adjacent vegetation (fuels), defensible space, adjacent topography, roof and building characteristics, available fire protection, and placement of utilities. Where a range of conditions was less easily parsed out, a range of values was assigned on a single assessment form. Each score was given a corresponding adjective rating of low, moderate, high, or extreme. An example of the assessment form used in this plan can be found in Appendix E. The purpose of the community WUI assessment and subsequent hazard ratings is to identify fire hazard and risks and prioritize areas requiring mitigation and more detailed planning. These assessments should not be seen as tactical pre-suppression or triage plans. The community assessment helps to drive the recommendations for mitigation of structural ignitability, community preparedness, and public education. The assessment also helps to prioritize areas for fuels treatment based on the hazard rating.

The hazard ratings from the community assessment and the GIS hazard/risk assessment are provided in Table 4.2. This table also includes a summary of the positive and negative attributes of a community as they relate to wildfire risk.

Table 4.2. Community Hazard Ratings

Community/ Fire District	NFPA Score	GIS risk/hazard rating	Overall Community Hazard Rating
Highway 185 (Radium Springs Fire District)	102 (High)	High-Extreme	High
Organ	101 (High)	Mod-High	High
Fairacres	95 (High)	Mod-High	High
Rincon	82 (High)	Low-High	High
Radium Springs	76 (High)	Mod-High	High
Las Alturas (Talavera)	74 (High)	High-Extreme	High
Mesilla	71 (High)	Mod-High	High
Dripping Springs	71 (High)	Mod-High	High
Garfield	68 (Mod)	Low-High	High
Chaparral	66 (Mod)	Mod-High	Moderate
Vado and La Mesa	65 (Mod)	Low-Mod	Moderate
Hatch	60 (Mod)	Low-Mod	Moderate
Doña Ana	54 (Mod)	Mod-High	Moderate

Risk Rating Classification:
<40 = Low
40–69 = Moderate (mod)
70–111 = High
>112 = Extreme

4.4.1 MESILLA

The Mesilla Fire District is a combination district with with one full-time fire chief and 25 volunteers on the roster. Many volunteers are recruited from the Fire Fighter 1 Training Class, run by Doña Ana Community College, which is hosted at the fire district. The district serves the community of Mesilla.

The town of Mesilla was rated as high risk using this risk assessment protocol. The greatest risk is associated with a lack of defensible space around homes. Homes at the greatest risk are located along drainage ditches (Figure 4.3) or along the river corridor where dense saltcedar thickets would generate rapid fire spread and high fire intensity. Many homes are built from combustible materials, particularly siding and decks.

The Mesilla community is an open space community with a large proportion made up of agricultural land with irrigated crops that buffer the wildland fuels. Pile burning and ditch burning are one of the greatest ignition sources for wildfires and a concern for the fire district. Many ditch areas are choked with thick vegetation but no one entity has taken on the responsibility of maintaining the ditches. The levee areas throughout Mesilla have been recently cleared, but long-term maintenance will be required to ensure fuels are controlled. Access problems are another concern of the fire district because some homes are accessed via the ditch bank and levee roads, which are difficult for emergency vehicles to navigate. Most areas in the district have good access to water via hydrants and are close to the fire district; response times, however, are contingent on the availability of volunteer crews.

The Mesilla Bosque State Park is situated in the district and is at high risk from fire because of fuels around the bosque and ingress/egress issues. There is also no water available within the

park, but hydrants are located close by where a tanker could be staged. Saltcedar has been treated around structures, but continued maintenance will be required to control fuel loads.

The Mesilla municipal water supply is located at the edge of the district and is critical infrastructure prioritized for protection from wildfire.

NFPA Rating: 71/112 (High) *GIS Risk Assessment Rating: Moderate–High*

Figure 4.3. Home located next to drainage ditch

Recommendations Specific to Mesilla

- Homeowners to review address/driveway markers to ensure they are visible to emergency responders.
- Clear ditch areas, particularly areas adjacent to homes (Figure 4.4).
- Enforce upkeep of derelict lots and homes.
- Keep Mesilla Municipal Water supply wells clear of vegetation.
- Implement Mesilla Bosque State Park saltcedar removal and maintenance.
- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.
- Conduct regular public outreach events to disseminate information regarding fire risk and hazards; the weekend Mercado in Mesilla could be a potential forum.
- Purchase a WUI Type I or Type II engine to provide better service in areas with egress/access issues.
- Purchase a water tender to facilitate water shuttling to areas at some distance from hydrants, including Mesilla Bosque State Park.
- Schedule replacement of dated apparatuses, including replacement of a 1994 Type I engine and a 1986 Type V engine.

Figure 4.4. Homes in Mesilla adjacent to ditch area with thick saltcedar (delineated with red line).

4.4.2 FAIRACRES

The Fairacres Fire District is a VFD with a roster of 21 members, 10 of which are active response members. Most members have only limited wildland fire training. The district includes all of the open country west of Las Cruces to the County line and north to the Radium Springs Fire District. These areas encompass a large area of wildland fuels, including mesquite brush and grasslands. The response area includes I-10 and the railroad, which are potential ignition sources.

The Fairacres Fire District has been rated as high risk using this risk assessment protocol. Areas of particular concern to the fire district are the levee areas, particularly where homes are located adjacent to thickets of saltcedar and Russian olive and homes located uphill of heavy fuel loads. The Rock Acres area is a priority area due to previous high fire occurrence and heavy recreational usage. Structures are located immediately adjacent to a bosque of thick saltcedar. Picacho Hills, Shalem Colony, and Dusty Pines are also subdivisions where structures built upslope of wildland fuels are at risk from wildfire spread. Access is a concern throughout the district, particularly for homes with steep driveways (both upslope and downslope), lack of maintained private roads, insufficient turn around space, and insufficient capacity for passage of large emergency vehicles or multiple apparatuses. This is particularly evident for homes along Mesilla Hills Drive (Figure 4.5) and Picacho Hills.

Throughout the district many homes have insufficient defensible space and are built with minimal setback to the slope. Although fuels are often light during a productive year, grass fuels could be sufficient to generate rapid fire spread uphill towards structures. Because of the large size of the district, many homes are located at considerable distance to the nearest fire station and lack of water supplies in some more remote areas would mean that tanker shuttle operations would need to be implemented, which slows response capabilities.

NFPA Rating: 95/112 (High) *GIS Risk Assessment Rating: Moderate–High*

Figure 4.5. Inaccessible driveway.

Recommendations Specific to Fairacres

- Purchase a water tender to facilitate water shuttling to areas that are currently devoid of sufficient water supply.
- Increase personnel and training in wildland firefighting.
- Ensure that sufficient personal protective equipment (PPE) is available for all firefighters.
- Increase storage capacity and alleviate current storage problems by purchase of a three- to four-bay metal building.
- Carry out preplanning with homeowners particularly relating to structure access and evacuation, particularly in WUI areas (Figure 4.6).
- Clear ditch areas, particularly areas adjacent to homes.
- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.

Figure 4.6. Homes with steep access in Picacho Hills area of Fairacres.

4.4.3 VADO AND LA MESA

The communities of Vado and La Mesa are served by the Doña Ana County Fire and Emergency Services La Mesa Fire District #4, which serves a response area from I-10 west to the County line.

Both Vado and La Mesa are largely urban and agricultural intermix communities with minimal WUI areas. Because they have similar features and hazards they are assessed collectively here. Both communities are rated as moderate risk using this risk assessment protocol. The greatest risk is associated with homes located along ditch roads where fuels have collected in the drainages and could channel the spread of fire. Most homes have insufficient defensible space and combustible construction, which is particularly concerning for homes adjoining these heavy drainage fuels. There are a number of manufactured homes in the area that are particularly at risk in the event of a fire because of combustibility. Access is generally good, though some side streets are unpaved. Water is available to most homes from a hydrant system. Fuels are generally light and or are made up of agricultural crops that are irrigated during much of the year (Figure 4.7).

NFPA Rating: 65/112 (Moderate) *GIS Risk Assessment Rating: Low–Moderate*

Photo credit- Jorge Achata

Figure 4.7. Agricultural land in La Mesa.

Recommendations Specific to Vado and La Mesa

- Clear ditch areas, particularly areas adjacent to homes.
- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.
- Enforce upkeep of derelict lots and clear-up of yards and homes.
- Purchase a new brush truck to enhance wildland firefighting capabilities.
- Replace aging water tender to facilitate water shuttle operations in more remote areas.
- Ensure all firefighters receive wildland fire training and annual refresher classes.
- Purchase wildland PPE for all firefighters.

4.4.4 Las Alturas (Talavera)

The Las Alturas Fire District is a VFD serving the southeast edge of Las Cruces extending to the Organ Mountains to the east. There are two fire stations in the district and 14 volunteers. Some volunteers hold "red cards" for wildland qualifications, but many are just Emergency Medical Technician (EMT) volunteers with minimal wildland training.

The Las Alturas Fire District is rated as high risk using this risk assessment protocol. The greatest risk is associated with homes in the Talavera subdivision, Soledad Canyon Road, and the Dripping Springs areas. Many homes have poor access and are at considerable distance to the main fire station. Evacuation routes are a concern because some homes are accessed by a dead end road and alternative evacuation routes require travel along the unpaved Baylor Canyon Road towards Organ. The BLM manages surrounding lands as wilderness as part of the Organ Mountains WSA/ACEC FMU. The Talavera subdivision is also listed as a BLM FMU in which all wildfires are immediately suppressed to protect human, cultural, and natural resources.

The homes in this district are located close to the Organ Mountains and wildland fuels (Figure 4.8) where there is a history of high fire occurrence, particularly in wet years when grass fuel loads are elevated. There have been a number of large fires in the area that have gained considerable size (Figure 4.9). Public concern, particularly for communities adjacent to the

Organ Mountains, is centered on fires that spread from White Sands and Fort Bliss as a result of military operations. The Dripping Springs area and Soledad Canyon are popular BLM recreation areas, where increased foot traffic increases the potential for human ignitions, which is a concern for residents.

Homes along the Ladera Canyon Road are a priority area for the fire district because of the ingress/egress concerns and the distance from the fire station. These homes are also closest to the wildland fuels at elevations where fuel loading tends to increase. Ladera Canyon also has no water supply and so tanker shuttle operations would be needed in the event of a fire. Most homes have good construction, with stucco and new roofing materials; however, many homes have wooden decks and fencing. Many homes have insufficient defensible space, though some have stucco walls that could slow fire spread in the case of a low-intensity surface fire. Topographic influences in the area are also likely to intensify fire behavior given a fire start.

NFPA Rating: 74/112 (High) *GIS Risk Assessment Rating: High–Extreme*

Figure 4.8. Homes in the Talavera area.

Figure 4.9. Organ Mountain fire.

Recommendations Specific to the Las Alturas

- Carry out recruitment drive and provide training in wildland firefighting.
- Ensure that sufficient PPE is available for all firefighters.
- Install a permanent water cistern in Ladera Canyon to alleviate lack of water supply for firefighting.
- Regular public outreach events are needed for disseminating information regarding fire risk and hazards.
- Carry out preplanning with homeowners particularly relating to evacuation.
- Improve communication between County and federal responders. Consider purchase of VHF radios tuned to federal frequencies for cross-jurisdictional incidents.
- Work with the BLM to implement fuel treatments around the community of Talavera and Ladera Canyon (Figure 4.10).
- Increase fire danger signage around communities and public recreation areas.
- Install evacuation maps and directional signage throughout communities to facilitate evacuation.
- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.

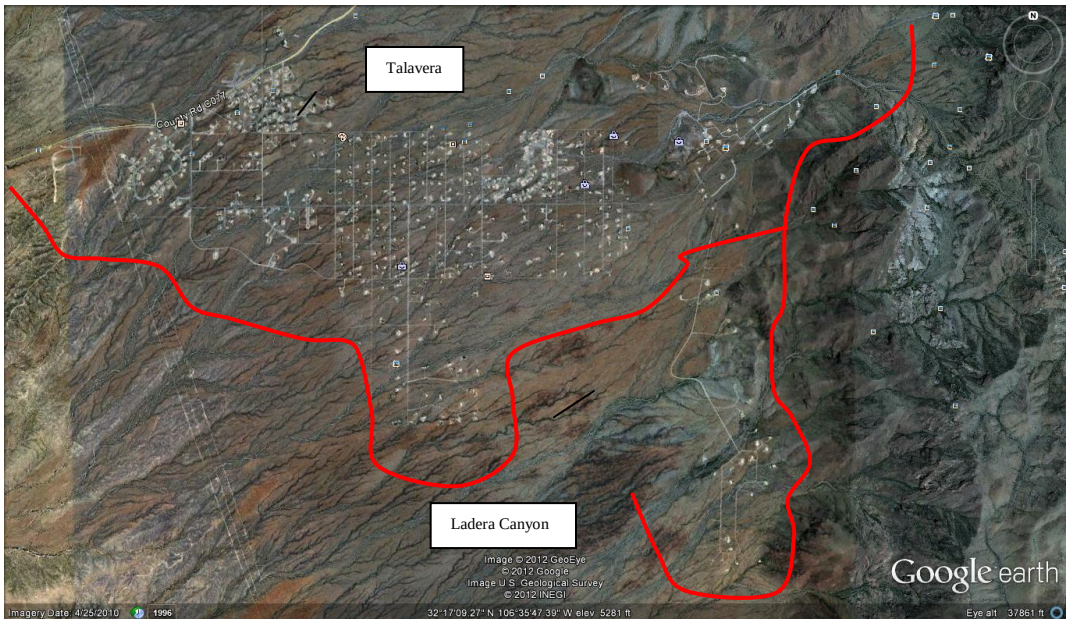


Figure 4.10. Potential fuel breaks surrounding Talavera and Ladera Canyon homes in the Las Alturas Fire District.

4.4.5 ORGAN

The community of Organ is served by the Doña Ana County Fire and Emergency Services Organ Fire District #5, which is manned by full-time career firefighters during the day and volunteer firefighters on evenings and weekends.

Organ is rated as high risk using this risk assessment protocol. The greatest risk is associated with homes that interface with wildland areas as grass fuel loads are high and the community is in a transition zone between grass and shrub fuels (Figure 4.11). Many homes have insufficient defensible space and a lot of homes have unmaintained yards. Building construction tends to be highly combustible with many manufactured homes in the community. There is only minimal separation between structures, which would intensify fire spread rates. Some homes have limited set back from the slope and would be impacted by fire spread from the foothills. Most homes have access to a hydrant system, but water pressure is variable. Driveways are often narrow and have insufficient turnaround space for emergency vehicles. Access to the main road for evacuation into Las Cruces is generally good and most homes are within 1 mile of the fire station. Because of the location close to the Organ Mountains, fires in this community would be intensified by topographic effects on fire behavior.

NFPA Rating: 101/112 (High) *GIS Risk Assessment Rating: Moderate–High*

Figure 4.11. Community of Organ.

Recommendations Specific to Organ

- Conduct regular public outreach events to disseminate information regarding fire risk and hazards.
- Improve communication between County and federal responders. Consider purchase of field programmable radios for cross jurisdictional incidents.
- Work with the BLM to implement fuel treatments around the community of Organ.
- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.
- Enforce upkeep of derelict lots and clear-up of yards and homes.
- Purchase brush truck to enhance wildland fire capabilities.
- Pursue wildland fire training opportunities for all firefighters, including red card certifications.

4.4.6 RADIUM SPRINGS FIRE DISTRICT

The community of Radium Springs is served by the Radium Springs VFD. The district currently has six volunteers; however, many volunteers work and/or live in Las Cruces, which hinders response times. Retaining volunteers has been a concern for the fire district chief. The Radium Springs Fire District extends from the Organ Fire District to the east all the way west to the County line and from the Fairacres Fire District to the south, north to the Rincon Fire District. Because of the variation in fuels and the size of the district, community assessments were carried out separately for the community of Radium Springs and WUI areas extending north along Highway 185.

Radium Springs

Radium Springs is a largely agricultural community located along the Rio Grande. Agricultural land extends from the community south towards Doña Ana. The community is rated as high risk using this risk assessment protocol. The dominant agricultural products are pecans and alfalfa, and due to extensive irrigation, agricultural lands tend to have low risk from fire. The greatest risk is associated with homes along drainages due to the presence of dense saltcedar thickets with minimal separation between the drainage and homes. Levee areas have been recently maintained and are regularly mowed by the Elephant Butte Irrigation District; however, if maintenance is not continued, fuel loading could increase risk rating.

Most homes have a lack of defensible space and there are a number of derelict lots throughout the community (Figure 4.12) where fuel loadings have increased through lack of maintenance and fire in these areas would threaten neighboring structures. Many homes associated with farmland do have extensive irrigated buffers between the home and the wildland fuels. Most homes have access to hydrant systems but water pressure is variable. Access is a concern for the fire district, particularly for homes that are accessed via the levee roads, which are difficult to navigate with large emergency apparatuses.

Some homes are located on the west side of the river, both along the river edge and upslope of the riparian area where saltcedar and Russian olive is a fire hazard and access for emergency vehicles is hampered by road width and lack of turnaround space. Because of the access issues, these homes require implementation of intensive defensible space and preplanning for evacuation. Some homes are located upslope of the river in desert scrub fuels; fuel loading in these scrub communities tends to be low, with the exception of wet years when grass fuel loading would create increased hazard. Access is also a concern for these homes due to steep driveways and distance from the fire station.

Rating: 76/112 (High) *GIS Risk Assessment Rating: Moderate–High*

Figure 4.12. Derelict lot in Radium Springs.

Highway 185: Radium Springs to Rincon

There are a number of homes located along Highway 185 between Radium Springs and Rincon. This area is rated as high risk using this risk assessment protocol. The greatest risk is associated with dense saltcedar thickets that extend along Highway 185 between the highway and the Rio Grande. Many homes are located immediately adjacent to these thick riparian fuels (Figure 4.13).

Highway 185 crosses over the Rio Grande north of Radium Springs; the fire district is concerned that in the event a fire "takes out" the bridge, access to homes north of Radium Springs would be prevented and emergency vehicles would have to access via I-25 and Rincon, slowing response times considerably. Similarly, intense fire behavior generated from saltcedar burning along the highway may result in road closures. Protection of the bridge and highway are therefore essential to ensure access for emergency vehicles from Radium Springs.

There are a number of homes in the North Valley Estates area that are located upslope of Radium Springs and Highway 185. These homes have good defensible space and light fuels; however, access to homes is slowed by steep roads and driveways and poor ingress and egress. These homeowners need to develop preplanning with the fire district relating to access.

On the north end of Radium Springs is Faulkner Canyon Road with a number of homes located along a drainage that runs south of Highway 185. These homes are accessed via unpaved roads and have steep driveways hindering access by large emergency vehicles. The fire district needs a smaller, "quick attack" brush truck to access these homes. This area is also prone to flooding, which would be intensified following a large wildfire.

The Highway 185 corridor from Radium Springs to Rincon has low population density, but the existing homes are located within thick saltcedar and accumulations of tumbleweed (see Figure 4.13). Some areas have been thinned to increase defensible space, but the majority have insufficient space surrounding structures (less than 30 feet), especially considering the intense

fire behavior in this fuel type. Saltcedar often skirts driveways to homes, which would prevent access and evacuation if ignited. The railroad runs close to the river and adjacent to saltcedar along much of the extent, which poses an ignition hazard.

There is no available water along the Highway 185 corridor from Radium Springs to Rincon. Tanker shuttle operations would be needed in the event of a fire. Fire response is also hindered by a lack of radio communication along the highway due to topographic influences. This would be alleviated by installation of new radio repeaters.

NFPA Rating: 102/112 *GIS Risk Assessment Rating: Moderate–High*

Figure 4.13. Saltcedar with tumbleweed accumulation along Highway 185.

Recommendations Specific to the Radium Springs Fire District

- Enforce upkeep of derelict lots and clear-up of yards and homes.
- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.
- Conduct regular public outreach events to disseminate information regarding fire risk and hazards.
- Homeowners to review address/driveway markers to ensure they are visible to emergency responders.
- Clear ditch and riparian areas, particularly areas adjacent to homes.
- Conduct fuel reduction treatments along Highway 185, particularly in areas of thick continuous saltcedar (Figure 4.14).
- Purchase a WUI "quick attack" engine to provide better service in areas with egress/access issues.

- Install a permanent cistern in Broad Canyon Area to facilitate tanker shuttle operations and alleviate water supply concerns for Highway 185 area.
- Install repeaters along Highway 185 to improve radio communication north of Radium Springs.
- Build and man a new substation in or near Broad Canyon to serve communities in the northern portion of the district. Purchase necessary apparatuses and equipment.
- Carry out preplanning with residents of homes with poor ingress/egress.
- Maintain the railroad right-of-way through mechanical and chemical treatment.
- Carry out a recruitment drive, particularly focused on Radium Springs and Broad Canyon residents, and provide regular in-house wildland fire training for all recruits and existing volunteers.

Figure 4.14. Example fuel treatment area around a home situated in thick saltcedar vegetation along Highway 185.

4.4.7 DOÑA ANA FIRE DISTRICT

The Doña Ana Fire District is manned by full time career firefighters during the weekdays and volunteer firefighters in the evenings and on weekends. The district extends from the northern edge of the Las Cruces Fire District (city limits) north to the southern edge of the Radium Springs Fire District and serves the community of Doña Ana. The district is largely urban and developed, with some agricultural land between urban areas and wildland fuels.

The community of Doña Ana was rated as moderate risk using this risk assessment protocol. The greatest risk is associated with homes along drainages due to the presence of dense saltcedar thickets with minimal separation between the drainage and homes. Levee areas have been recently maintained and are regularly mowed by the Elephant Butte Irrigation District; however, if maintenance is not continued, fuel loading could increase the risk rating. There are some derelict lots where higher fuel loading exists between structures, but the majority of homes have irrigated yards or an agricultural buffer to wildland fuels (Figure 4.15). One unique subdivision is the Westwinds Pines Estates where homes are situated in a thick ponderosa pine (*Pinus ponderosa*) plantation with extremely minimal defensible space and presence of thick pine litter on the ground and on roofs and guttering (Figure 4.16). Although these homes have good access and are on a hydrant system, the density of the standing pine fuels poses a hazard to residents of the subdivision in the event of a wildfire.

Many homes in the district have insufficient defensible space, which is particularly hazardous for homes adjacent to ditch areas and or derelict lots. Most homes have low combustibility but some have wooden decks and fences that could pose a hazard if close to heavy fuels. Water is available throughout the community from a hydrant system, and most homes are close to the Doña Ana Fire Station. Access is good throughout the community, though some homeowners should assess driveway widths and turnaround space to allow sufficient room for emergency vehicles.

Rating: 54/112 (Moderate) *GIS Risk Rating: Moderate–High*

Figure 4.15. Agricultural area as buffer around homes in Doña Ana.

Figure 4.16. Westwinds Pines Estate showing accumulated pine litter.

Recommendations Specific to Doña Ana

- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.
- Conduct regular public outreach events to disseminate information regarding fire risk and hazards.
- Homeowners to review address/driveway markers to ensure they are visible to emergency responders.

- Clear ditch areas, particularly areas adjacent to homes.
- Westwinds Pines Estate residents should carry out regular thinning and pruning of pine trees, as well as creating greater defensible space around homes to mitigate potential fire behavior in this fuel type.
- Ensure all firefighters have appropriate wildland fire PPE.
- Provide in-house wildfire training to all firefighters.

4.4.8 RINCON

The Rincon Fire District is manned entirely by volunteers with a current membership of six individuals. The district has difficulty recruiting volunteers because of the stringent criteria established by the County for volunteer firefighters. Furthermore the district is largely rural and agricultural with a low population density, particularly in younger age groups; most volunteers are farmers who have minimum time for fire response due to heavy workloads and farm responsibilities.

The district is rated as high risk using this risk assessment protocol. The greatest risk is associated with thick saltcedar along drainages and ditches, as well as fires ignited from the highway (particularly along New Mexico Highway 26) that spread rapidly through grassland fuels. The district has also experienced large hay barn fires associated with dairy operations.

Defensible space in the district is moderate with many homes buffered by irrigated agricultural fuels (Figure 4.17). Wildland fuels are relatively light scrub fuels; however, during a productive year, grass fuel loadings may increase the risk for rapid fire spread. There are a number of homes in the community of Rincon with minimal defensible space and potential for high combustibility due to their construction, unmaintained yards, and the minimal separation between structures. This risk is mitigated somewhat by the sparse fuel loading, availability of water from a hydrant system throughout the community, and close proximity to the fire station. Accessibility in Rincon is good; however, in the more rural areas of the district there are a number of homes built on slopes with steep driveways and insufficient turnaround space for emergency apparatuses.

Rating: 82/112 (High) *GIS Risk Assessment Rating: Low–High*

Figure 4.17. Rincon, showing sparse fuels.

Recommendations Specific to Rincon

- Enforce upkeep of derelict lots and clear-up of yards and homes.
- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.
- Conduct regular public outreach events to disseminate information regarding fire risk and hazards.
- Homeowners to review address/driveway markers to ensure they are visible to emergency responders.
- Clear ditch areas, particularly areas adjacent to homes.
- Carry out a recruitment drive, particularly focused on Rincon residents.
- Purchase wildland PPE for all new recruits and current firefighters.
- Provide training stipend for volunteers or provide free in-house wildland fire training.
- Improve education regarding ditch burning, possibly through a new County burn permitting system.
- Purchase a new mini pumper that can be used to access wildland areas and steep and narrow driveways.
- Replace dated apparatuses, including the current 1976 tanker.

4.4.9 HATCH

The Hatch Fire District is a VFD serving the community of Hatch.

The community of Hatch is rated as moderate risk using this risk assessment protocol. The majority of the town is made up of urban developed land with agricultural land buffering wildland fuels (Figure 4.18) and considerable separation between structures. Some homes in the WUI have insufficient defensible space; however, wildland fuels are sparse scrub fuels with low risk of fire spread and the majority of homes in the WUI are located within irrigated agricultural land. During productive years, increased grass fuel loading in wildland areas could increase the fire risk to homes at the periphery of the community. Homes that are adjacent to ditch areas are at risk from more intense fire behavior associated with saltcedar accumulations in those areas. Some homes have narrow driveways and insufficient turnaround space for emergency vehicles; however, most homes have good access to a hydrant system and are close to the fire station.

Rating: 60/112 (Moderate) *GIS Risk Rating: Low–Moderate*

Figure 4.18. Hatch agricultural land buffering wildland fuels.

Recommendations Specific to Hatch

- Enforce upkeep of derelict lots and clear-up of yards and homes.
- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.
- Conducted regular public outreach events to disseminate information regarding fire risk and hazards.
- Clear ditch areas, particularly areas adjacent to homes.

4.4.10 GARFIELD VOLUNTEER FIRE DISTRICT

The Garfield VFD serves a large sector of northern Doña Ana County, from New Mexico Highway 26 north to the Sierra County line and from west of the village of Hatch to the Luna County line, including the communities of Garfield and Salem.

The Garfield Fire District is rated as moderate risk using this risk assessment protocol. The communities of Salem and Garfield are made up of an urban-agricultural intermix with most homes buffered from the wildland by irrigated agricultural land. Some homes in Garfield are located in wildland areas between the urban areas and I-25; however, fuel loading is light, except in productive years where grass fuel loading may increase fire spread potential. Some homes have potential structural ignitability, due to building materials and/or wooden decks and fencing, and would benefit from increased defensible space. Some homes located adjacent to ditch banks where vegetation has accumulated are at risk of fire spread from ditch burning. Although the district incorporates wildland areas beyond communities and agricultural land, there are few homes in these areas (Figure 4.19).

Rating: 68/112 (Moderate) *GIS Risk Rating: Low–High*

Figure 4.19. Wildland area in the Garfield Fire District

Recommendations Specific to the Garfield Fire District

- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.
- Conduct regular public outreach events to disseminate information regarding fire risk and hazards, particularly associated with ditch burning.
- Purchase a brush truck to enhance wildfire firefighting capabilities.
- Purchase wildland PPE to ensure the safety of all firefighters when responding to wildland fire.
- Ensure all firefighters receive wildland fire training and red card certification.

4.4.11 CHAPARRAL

The community of Chaparral is served by the Doña Ana County Fire and Emergency Services Chaparral Volunteer Fire District, which has approximately 20 volunteers.

The community of Chaparral is rated as moderate risk using this risk assessment protocol. The majority of the population resides in the urban developed area of the town; the greatest risk is associated with homes in the WUI, particularly manufactured and mobile homes that have elevated potential for structural ignitability (Figure 4.20). Many yards are poorly maintained with considerable accumulation of trash and refuse; when questioned, many community members were concerned about fire spread from neighboring properties because of these hazards. Fuels in the area are predominantly creosotebush and desert scrub with low fuel loading and low potential to transmit fire spread during most years. During wet years, grass productivity would increase fuel loading of fine fuels increasing the risk of rapid fire spread. Water is available throughout the community from a hydrant system and most homes are located within 5 miles of the fire station.

Rating: 66/112 (Moderate) *GIS risk rating: Moderate–High*

Figure 4.20. Remains of refuse piles in a yard burned by grass fire in Chaparral

Recommendations Specific to Chaparral

- Enforce upkeep of derelict lots and clear-up of yards and homes.
- Implement defensible space, coupled with Firewise Communities practices, to reduce structural ignitability.
- Conduct regular public outreach events to disseminate information regarding fire risk and hazards.
- Purchase a brush truck to enhance wildfire firefighting capabilities.

- Replace aging water tender to alleviate water supply concerns in more remote areas of the district.
- Purchase wildland PPE to ensure the safety of all firefighters when responding to wildland fire.
- Ensure all firefighters receive wildland fire training and red card certification.

4.4.12 BLM UNINCORPORATED AREAS

The Organ Mountains WSA/ACEC

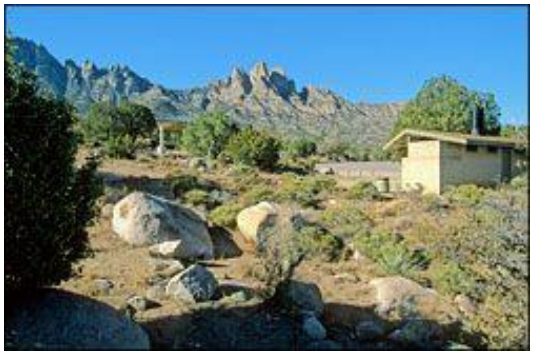
The Organ Mountains WSA/ACEC is located 15 miles east of Las Cruces, accessible off U.S. 70. The BLM has managed the area as the Organ Mountains FMU, which incorporates 40,672 acres of BLM land, 37 acres of Department of Defense land, 79 acres of state land, and 585 acres of private land. Topography in the area is steep and rocky, and vegetation includes creosotebush stands and desert grasses and shrubs. The area is a popular recreation site with numerous hiking, mountaineering, camping, and picnicking opportunities. There are also numerous historical and cultural sites. There have been a number of fires in the area, both natural and human caused. The Organ Mountains have been identified as a CVAR by the public due to the natural and recreational resources for the Las Cruces population. BLM land abuts dozens of newly constructed homes in the Talavera subdivision, which has been identified as a high risk area. The BLM proposes small prescribed fires and non-fire fuel treatments in the area. Preplanning for the area by the BLM suggests fires will be suppressed before they reach 5 acres in size 95% of the time.

GIS Risk Assessment Rating: Moderate–Extreme

Aguirre Spring Recreation Site

This site is located 14 miles northeast of Las Cruces on the east side of the Organ Mountains. The recreation site comprises 37 acres of BLM land and is a popular camping and recreation area (Figure 4.21). Vegetation is primarily juniper and oak (*Quercus* spp.) brush with some riparian vegetation associated with intermittent streams. There is a history of fire occurrence in the area, and cultural and recreational resources dictate BLM immediate suppression. The BLM is responsible for initial attack. There are no communities threatened in the area. The community and Core Team have identified the area as a CVAR. The BLM proposes non-fire treatment of fuel loading to mitigate fire hazard.

GIS Risk Assessment Rating: Moderate–High



Source: BLM

Figure 4.21. Aguirre Spring campground.

Dripping Springs Recreation Area

This site is located 12 miles east of Las Cruces in the foothills of the Organ Mountains. The site consists of approximately 120 acres of BLM land. There are abundant cultural resources in the area, including historic buildings (Figure 4.22) and a prehistoric cave dwelling, as well as many miles of recreational trails. Vegetation consists of creosotebush and mixed desert grasses and shrubs. There is moderate fire history at the site but no CARs. The community and Core Team have identified the area as a CVAR. Prescribed fire has been used in the past to reduce fuel loading, and the BLM proposes mechanical brush removal around structures. The BLM is responsible for initial attack and immediate suppression is planned in the event of a fire.

GIS Risk Assessment Rating: High–Extreme

Source: BLM

Figure 4.22. Dripping Springs recreation area.

Franklin Mountains ACEC

This area is located in southern Doña Ana County and is designated as an ACEC by the Mimbres Resource Management Plan because of the diverse limestone and unique desert cactus communities found there. There are numerous sensitive plant and wildlife of concern. There are also recreational uses and cultural resources in the area. There are no CARs in the area; however, the public identifies the protection of natural areas and plant and wildlife species as CVAR.

GIS Risk Assessment Rating: Moderate

Robledo Mountains WSA/ACEC

This area is located in central Doña Ana County, approximately 8 miles northwest of Las Cruces and bounded on the east and north by the Rio Grande and on the south and west by private lands. Lookout Peak and Robledo Mountains are prominent features. Vegetation consists of desert grasses and mixed desert shrubs. There are no CARs; however, communication sites on top of Lookout Peak are identified as CVARs to be protected. The BLM proposes to allow fire to regain its natural ecosystem role in the area, including managing wildfire for resource benefit.

GIS Risk Assessment Rating: Moderate–High

West Potrillo WSA/ACEC

This area is located in southwestern Doña Ana County, approximately 30 miles southwest of Las Cruces. The site is characterized by presence of 48 volcanic cones. There are numerous recreation opportunities in the area, including hiking, horseback riding and hunting. The area is home to numerous wildlife species and plant species of concern. The dominant vegetation in the area is creosotebush, cholla (*Cylindropuntia* spp.), and mesquite. The area has a history of high fire occurrence and fires gaining size rapidly due to winds and abundant fine fuels. There are no CARs. The BLM proposes to allow fire to regain its natural ecosystem role in the area, including managing wildfire for resource benefit.

GIS Risk Assessment Rating: Moderate–High

4.4.13 White Sands Missile Range (WSMR)

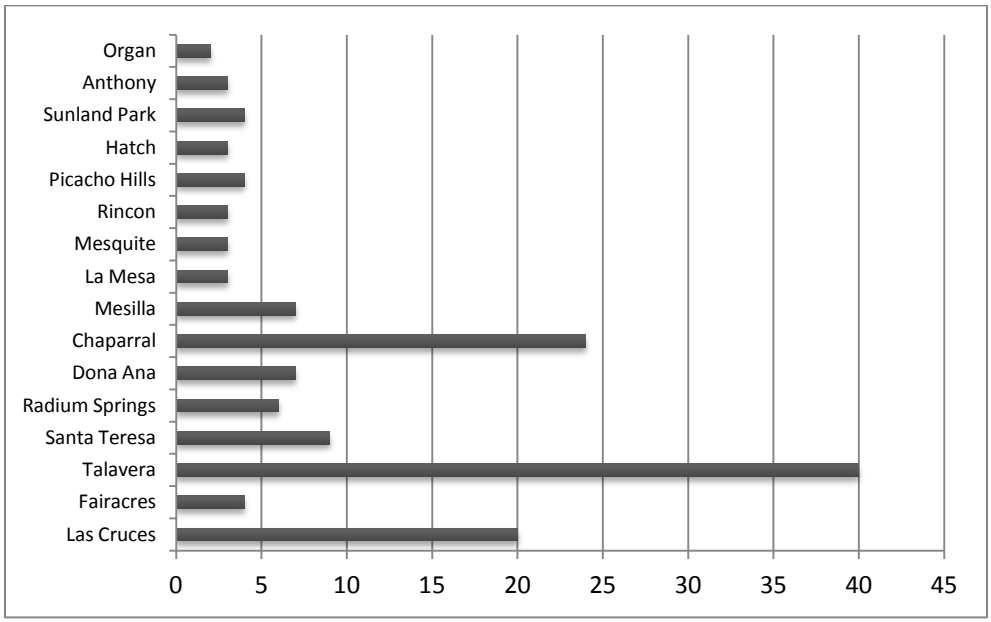
The WSMR is located in the eastern portion of the County encompassing lowland areas and high elevation mountains. The WSMR is closed to the public and is managed by the Department of Defense. The dominant vegetation is piñon-juniper woodland and short grass prairie. The area experiences approximately 5-20 wildland fires each year ranging in size from one to many thousands of acres. The greatest risk is associated with military operations and maneuvers however the Base has an active fire district with 55 firefighters trained in wildland fire suppression.

GIS Risk Assessment Rating: Moderate- Extreme

4.5 PUBLIC OUTREACH

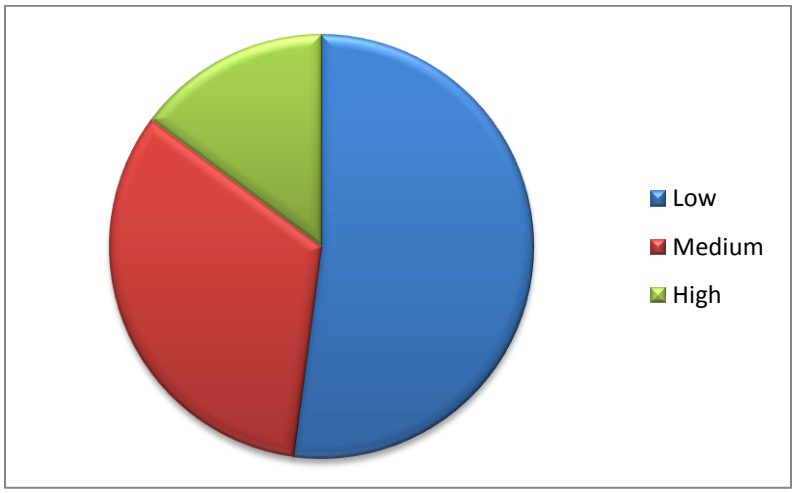
The following is a summary of the results of the community survey. In total, 142 residents have responded to the survey, providing the following information.

Respondents represented the following communities:

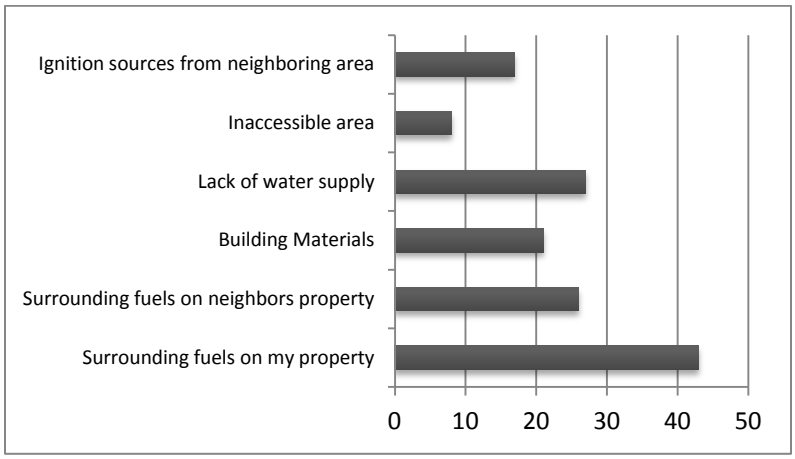


The survey asked the following questions; charts display the percentage of the total responses.

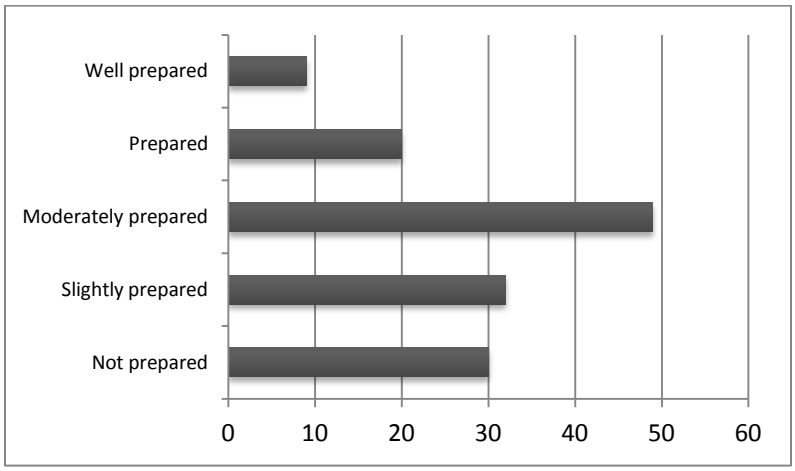
1) How would you rate your house in terms of risk from wildfire?



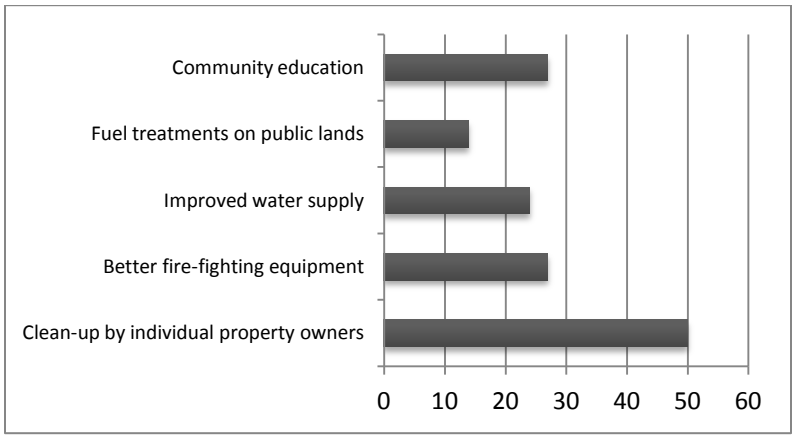
2) My home is vulnerable to wildfire because of…?



3) How prepared is your community for a large wildfire?

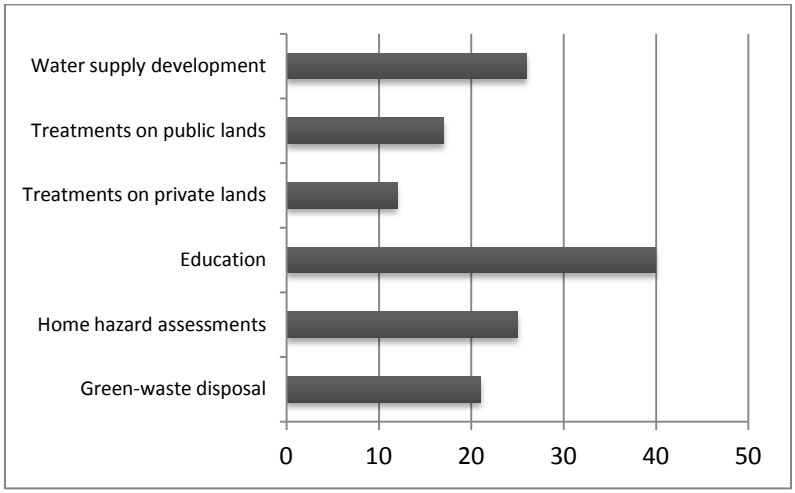


4) The action most important to making my community prepared for wildfire is…?



5) My biggest challenge to making my home fire safe is…?

6) I would be most interested in funding to help me and my community with…?



These results (from 142 respondents) suggest that although people only perceive their homes to be at low to moderate risk from wildfire, they are still interested in mitigating fire hazards to their communities through a variety of means. Most people felt that lack of reliable water supply and excess fuels on their properties and neighboring properties were putting their homes at risk. Few people felt that their community was well prepared for wildfire, and to be better prepared they suggest clean-up by individual property owners is most important. Treatments on public land were rated as lowest importance by those surveyed. Many people think their homes are safe, and many of those who wanted to improve their home safety did not know what they should do to mitigate fire risk. Most people would be interested in funding to provide more education regarding fire prevention, as well as better water supplies and home hazard assessments. The general findings from these surveys are that community education is needed in the County so that homeowners are better informed with regards to protecting life and property. The results of the public outreach help to drive the priorities for treatment and are used to formulate recommendations and action items.

Below is a subset of comments from the public outreach process. A complete compilation of public comments are included in Appendix G.

- *"Our volunteer depts need to have updated equipment and training as all the outlying areas depend on them... Is it possible for the county and city to join forces on training and such to ease the cost burdens on both entities???"*
- *"Continue to educate the public on the importance of reducing vegetation and other fuels."*
- *"Biggest wildfire risk seems to originate from Ft. Bliss."*
- *"Lack of alternate access and evacuation routes is a large concern for this community area" (from a resident of Talavera).*
- *"My home and many others in my area are on well water. Having sufficient water to fight a major wildfire concerns me. My second concern: the amount of grass & shrubs close to neighboring homes, which could further fuel a wildfire. I believe this could be addressed with homeowner education. Thanks for this survey."*
- *"I think that we need forums to educate people on what they can do to make their properties safer in case of wild fires. There is not enough water available in the tanks in this area to put out major wild fires, we need alternative plans before a fire breaks out and gets completely out of control."*
- *"Having a system for yard waste disposal (~monthly pickup), even if voluntary and at additional expense would be extremely valuable. People would not be inclined to burn it in that case."*

4.6 COMMUNITY VALUES AT RISK

Earlier compilation of the critical infrastructure in the planning area (Map 1 and Map 1b Appendix A), coupled with the community assessments, public outreach, and Core Team input, has helped in the development of a list of community values that are at risk from wildland fire (CVARs). The WUI boundary has been developed and expanded to encompass the majority of these CVARs. CVARs are split into natural, social, and cultural classes. It is important to note that although an identification of CVARs can inform treatment recommendations, a number of factors must be considered in order to fully prioritize areas for treatment; these factors include appropriateness of treatment, land ownership constraints, locations of ongoing projects, available resources, and other physical, social, or ecological barriers to treatment.

The scope of this CWPP does not allow determination of the absolute natural, socioeconomic, and cultural values that could be impacted by wildfire in the planning area. In terms of socioeconomic values, the impact due to wildfire would cross many scales and sectors of the economy and call upon resources locally, regionally, and nationally. To understand the breadth of such an impact, land agencies and local communities may guide efforts towards completing a comprehensive economic and demographic analysis in relation to wildfire impacts. This CWPP may be used to identify priority areas and communities that could experience the greatest economic strain. It is suggested that communities included in the DACCWPP achieve a finer-grained analysis of the smaller jurisdictional and community wildfire concerns by pursuing further funding to complete a community-level CWPP.

4.6.1 NATURAL CVARS

The public outreach has emphasized the importance of natural/ecological values to the general public. Examples of natural values identified by the public and the Core Team include:

- State parks and wildlife areas
- Threatened and endangered species
- BLM undeveloped lands
- Natural areas
- Organ Mountains (Figure 4.23)
- Hiking areas (Figure 4.24)
- Desert ecosystem
- Dripping Springs recreation area
- Aguirre Spring recreation area
- Prehistoric pathways
- Baylor Canyon pass
- Bosque habitat and river hiking trails

Figure 4.23. Organ Mountains.

Figure 4.24. BLM trailhead that had recently experienced a wildfire.

4.6.2 SOCIOECONOMIC CVARS

Social values include population, recreation, infrastructure, agriculture, and the built environment. Much of the built environment in the planning area falls within the WUI zones. Examples include the following:

- Homes
- Schools
- Hospitals and clinics
- Agricultural lands in the Mesilla Valley
- Churches
- Orchards
- Dairies
- Utility lines, infrastructure, etc.
- Fire districts
- Railroads and railroad bridges
- Highways and other transportation routes
- Evacuation routes
- Pipelines and infrastructure (oil and gas)
- Water storage
- Water sources and supply infrastructure
- Communication sites
- Pump stations
- Storage tanks

4.6.3 CULTURAL CVARS

Many historical landmarks are scattered throughout the County. Particular CVARs that have been identified by the Core Team and the public are:

- All existing archaeological sites
- Uncataloged artifacts
- Old homesteads
- Cox Ranch
- Bataan Trail
- Old schoolhouses
- Historic buildings

5.0 RECOMMENDATIONS AND ACTION ITEMS

This chapter addresses four different types of recommendations: 1) fuels reduction projects, 2) public education and outreach, 3) actions homeowners and communities can take to reduce structural ignitability, and 4) actions to improve firefighting capability. These recommendations are based on Core Team input, public outreach, the Composite Risk/Hazard Assessment, and the Community Risk/Hazard Assessment. The recommendations are general in nature to provide maximum flexibility in implementation. Potential funding opportunities that may be used for implementation of the recommendations are found in Appendix G.

5.1 RECOMMENDATIONS FOR FUELS REDUCTION PROJECTS

The purpose of any fuels reduction treatment is to protect life and property by reducing the potential for catastrophic wildfire, as well as to restore landscapes to a sustainable and healthy condition. Moderating extreme fire behavior, reducing structural ignitability, creating defensible space, providing safe evacuation routes, and maintaining all roads for firefighting access are methods of fuels reduction likely to be used around communities located in a WUI zone. Use of multiple treatment methods often magnifies the benefits.

As discussed in Chapter 4, the fuels within the County are predominantly composed of desert scrub with some piñon-juniper and mixed shrubs at higher elevations. Fire behavior in these fuel models is contingent upon the presence of light grass fuels to transmit fire spread, which will vary based on weather conditions, the vegetative life stage, and the density and structure of the existing vegetation. Spotting is not generally a problem in this fuel type since the fire activity remains mainly on the ground surface. The main objective of fuels treatment in this fuel type is to reduce fuels in areas where they have built up in order for engines and firefighters to be able to safely suppress the fire.

Table 5.1 summarizes the types of treatments recommended throughout the planning area. The majority of the treatments are focused on moderate, high and extreme risk areas, as defined by the Composite Risk/Hazard Assessment, Core Team collaboration, and public input. Many of these treatment recommendations are general across the communities because similar conditions and concerns were raised for all communities that border wildland areas. BLM treatments (from the last five years, as well as projected projects) are illustrated in Figure 5.1. Table 5.1 addresses the requirement for an action plan and assessment strategy by providing monitoring guidelines and a timeline for implementation. This timeline is obviously dependent on available funding and resources, as well as NEPA protocols.

The treatment list is by no means exhaustive and should be considered purely a sample of required projects for the future management of the County. Fire management cannot be a one-size-fits-all endeavor; this plan is designed to be flexible. Treatment approaches and methods will be site-specific and should be adapted to best meet the needs of the landowner and the resources available. Moreover each treatment recommendation should address public and firefighter safety, as well as protection of CVARs. It is the intent of this plan to be an evolving document that will incorporate additional areas of the County as they change in risk category over time.

Table 5.1. Fuels Reduction Treatment Recommendations

Project	Location	Land Ownership/ Management	Method	Serves To	Timelines for Implementation	Priority (H,M,L)	Monitoring	Contact
Defensible space cost-sharing programs	All private land within DACCWPP planning area would be eligible,	Private	Selective thinning; pruning (to about 25% of tree/shrub height); chip and/or remove debris; provide adequate defensible space.	Protect life and property by reducing spread of fire from wildland fuels to urban structures. Also improve vehicle access, increase tree health/vigor, and give firefighters a margin of safety.	Spring 2013	H	Conduct on-site inspections with owners; consider photo documentation of pre- and post-treatment; apply adaptive management from best available information; determine if Firewise Communities techniques are being applied.	Some SWCDs already offer these programs; extra funding would help in their efforts
Defensible space assessments	All private land within DACCWPP planning area would be eligible	Private	Firewise-based assessments of individual homes. The professional assessment would help identify the most critical actions that an individual could take. Assessments could also include marking trees and shrubs suggested for removal.	Reduce risk of home ignitions. Empower homeowners to take the most effective actions. Allow funding to address a larger number of homes.	Fall 2013	H	Conduct on-site inspections with owners; identify and mark trees or shrubs for removal within the 100-foot safety zone.	NMSFD, New Mexico Association of Counties (NMAC), rural schools - Title III funding opportunities for Firewise Communities programs
Create fuel breaks on the south/ southwest edge of communities	All private land within DACCWPP planning area would be eligible; priority areas: Talavera, Ladera Canyon, Mesilla, Chaparral	Private/Public lands where appropriate	Strategic placement of treatments on private land will improve effectiveness. Fuel break prescriptions should be site-specific, depending on fuel type, topography, soils, and adjacent land management practices. Examples include mowing and blading strips along fence lines.	Help mitigate extreme fire behavior and provide an area from which firefighters can safely suppress a fire.	Spring 2013	H	Regular maintenance needed to ensure access is clear of vegetation or obstructions. Monitoring should occur prior to fire season (February) and in the fall (October).	NMSFD, BLM, State Land Office, SWCDs

Table 5.1. Fuels Reduction Treatment Recommendations, continued

Project	Location	Land Ownership/ Management	Method	Serves To	Timelines for Implementation	Priority (H,M,L)	Monitoring	Contact
Remove abandoned structures and clean up yard debris	Chaparral, Rincon, Vado, Mesquite, Mesilla, Radium Springs	Private	Conduct mechanical thinning and manual clearing. Develop program of enforcement for the County. Begin plans to implement ICC code in part or full to enforce building regulations in the WUI zone.	Protect life and property by preventing spread of fire from wildland to structural fuels. Improve firefighter safety by providing clear access to structures in the WUI.	By Fall 2013	H	Develop a community taskforce to carry out assessments.	County to enforce
Mow and remove invasive species along railroad	Railroad throughout extent of County. Priority areas: Highway 185	Private, state, BLM, BNSF	Mow a 70-foot buffer along edge of railroad. Regularly remove invasive species and shrub encroachment.	Protect communities from potential ignition from railroad.	Spring 2013	H	Regular maintenance needed to ensure clearance of vegetation and reduced fuels density. Monitoring should occur prior to fire season (February) and in the fall (October).	BNSF, BLM, State Land Office
Mow along major highway rights-of-way	State and federal highways	Public	Extend mowing width. Mow to fence line.	Protect life and property from fire spread from potential ignition source; protect evacuation routes in event of wildfire.	Spring 2013	H	Regular maintenance needed to ensure clearance of vegetation and reduced fuels density Monitoring should occur prior to fire season (February) and in the fall (October).	New Mexico Department of Transportation
Create local fuels reduction task force/WUI working group	Landscape scale	Private and public	Formulate a task force of local practitioners who could develop best management practices for fuels treatment in desert grass and shrublands, particularly in the WUI. Create demonstration sites and workshops to inform local ranchers.	Protect community and infrastructure by empowering local landowners to create mechanism to protect their own properties.	Ongoing	M	Monitor effects of treatments on species dynamics and species composition, particularly invasion of exotic species. Monitor regrowth and erosion, and maintain clearance. Refer to Chapter 6, Levels 1–4. Monitoring and maintenance should occur prior to fire season (February) and in the fall (October).	Collaboration of land managers in County to improve fire planning

Table 5.1. Fuels Reduction Treatment Recommendations, continued

Project	Location	Land Ownership/ Management	Method	Serves To	Timelines for Implementation	Priority (H,M,L)	Monitoring	Contact
Weed and seed program (community beautification)	Entire DACCWPP planning area	Private and public	Encourage community beautification program incorporating Firewise Communities landscaping to reduce combustibility of landscape plants in yards and public open space.	Provide community participation in clean-up of public and private open space.	Spring 2013	M	Monitor community participation in program. Explore potential incentive opportunities of community awards for Firewise Communities landscaping.	NMSFD Urban Forestry program. Doña Ana County Works, NMSU Extension.
Protect power lines and communication lines	All private land within DACCWPP planning area	Utilities company/ private	Maintain clearance under power lines and around posts.	Prevent destruction of energy or communications infrastructure in event of fire.	Fall 2012	H	Regular maintenance needed to ensure lines are clear of vegetation.	Utility companies
Fire effects monitoring	Entire DACCWPP planning area	Private and public	Carry out fuels monitoring and fire effects monitoring following wildfire and/or prescribed fire in grassland, shrubland, and riparian areas.	Improve understanding of the effectiveness of fuels treatments on fire behavior and provide an inventory of fuels loading to direct treatment.	Ongoing	H	Monitoring should be carried out for multiple (>3) years post-burn (both prescribed fire and wildfire) to assess vegetation response, wildlife response, soils, and hydrology. Refer to Chapter 6, Levels 1–4.	BLM, SWCD, NMAC, local high schools, NMSFD
Preplanned fire breaks	Areas of stable soils	Public and private	Identify areas on public and private lands that would be appropriate for fire breaks. Select areas where soils are less erodible since all vegetation will be removed. On implementation, landowner or agency should chisel the land to retain root structure and prevent soil erosion.	Protect life and property in the event of a wildfire by having a preplanned area that could withstand fire break construction.	Ongoing	M	Would be a one-time-only treatment in response to wildfire.	Collaboration of land managers in County to improve fire planning. Could be an activity of the WUI Working Group.

Table 5.1. Fuels Reduction Treatment Recommendations, continued

Project	Location	Land Ownership/ Management	Method	Serves To	Timelines for Implementation	Priority (H,M,L)	Monitoring	Contact
Strategic fuel break	Strategic fuel break between Talavera and WSMR	Private/ Department of Defense	Identify location for fuel break – fuel removal and maintenance- between the Talavera subdivision and Fort Bliss. Should be located in an area of stable soils and easy access for fire suppression resources.	Provide a barrier to fire spread from fires on WSMR threatening communities in the Las Alturas Fire District.	Spring 2013	H	Regular maintenance required to ensure the fuels break remains clear of vegetation. Monitor for erosion and invasive species.	BLM, WSMR, Talavera Homeowners Association
Bosque thinning, saltcedar reduction	All riparian areas throughout the County where saltcedar has reached high densities; priority areas: Highway 185 corridor, Radium Springs, Doña Ana, Rincon, Mesilla, Fairacres	Private and public	Remove saltcedar by cut and stump treatment or entire root extraction. Thin-from-below treatments in cottonwood to raise crown base height to >8 feet. This helps to reduce potential crown fire in cottonwood. Slash removal and disposal. Selective removal of other non-natives from bosque ecosystem.	Help mitigate extreme fire behavior in timber fuels and reduce potential spread to communities adjoining the bosque.	Spring 2013	H	Monitor effects on wildlife populations, soils, understory vegetation, invasive species, and water yield. Potential for community monitoring programs that include schools and youth groups. Refer to Chapter 6, Levels 1–4.	USFWS, Natural Resources Conservation Service, SWCDs, NMSFD, International Boundary and Water Commission, New Mexico Interstate Stream Commission.
Landscape-level fuel treatments on BLM lands	See Figure 5.1	BLM	Chemical, prescribed fire, point protection, mechanical	Help reduce fuel loads and mitigate intense fire behavior and potential spread to communities from public lands.	2013	H	Follow BLM guidelines.	BLM
Cool season prescribed burns and fuel breaks along boundary roads.	WSMR	DOD	Prescribed burns to reduce fuel loading of grasses and shrublands. Maintenance of roads to act as fuel breaks.	Help reduce fuel loads and mitigate intense fire behavior and potential spread to communities from DOD lands.	On-going	H	Follow DOD guidelines	DOD

Project	Location	Land Ownership/ Management	Method	Serves To	Timelines for Implementation	Priority (H,M,L)	Monitoring	Contact
Fish and Wildlife Service fire and fuels management	Broad Canyon, San Andres NWR	State Parks, IBWC, BLM	Continue fire and fuels management projects to mitigate hazardous fuels acrossjurisdictional boundaries.	Help reduce fuel loads and mitigate intense fire behavior and potential spread to communities from public lands.	On-going	H	Follow USFWS guidelines	USFWS Kevin Cobble (Refuge Manager)
Partners Program (USFWS)	Private lands	Private	Fuels projects on private lands in partnership with the USFWS. Small acreage fuel treatments and pile burning.	Provide fuel reduction capabilities to private land owners to mitigate hazardous fuel loading.	On-going	H	Follow USFWS guidelines	USFWS Angel Montoya

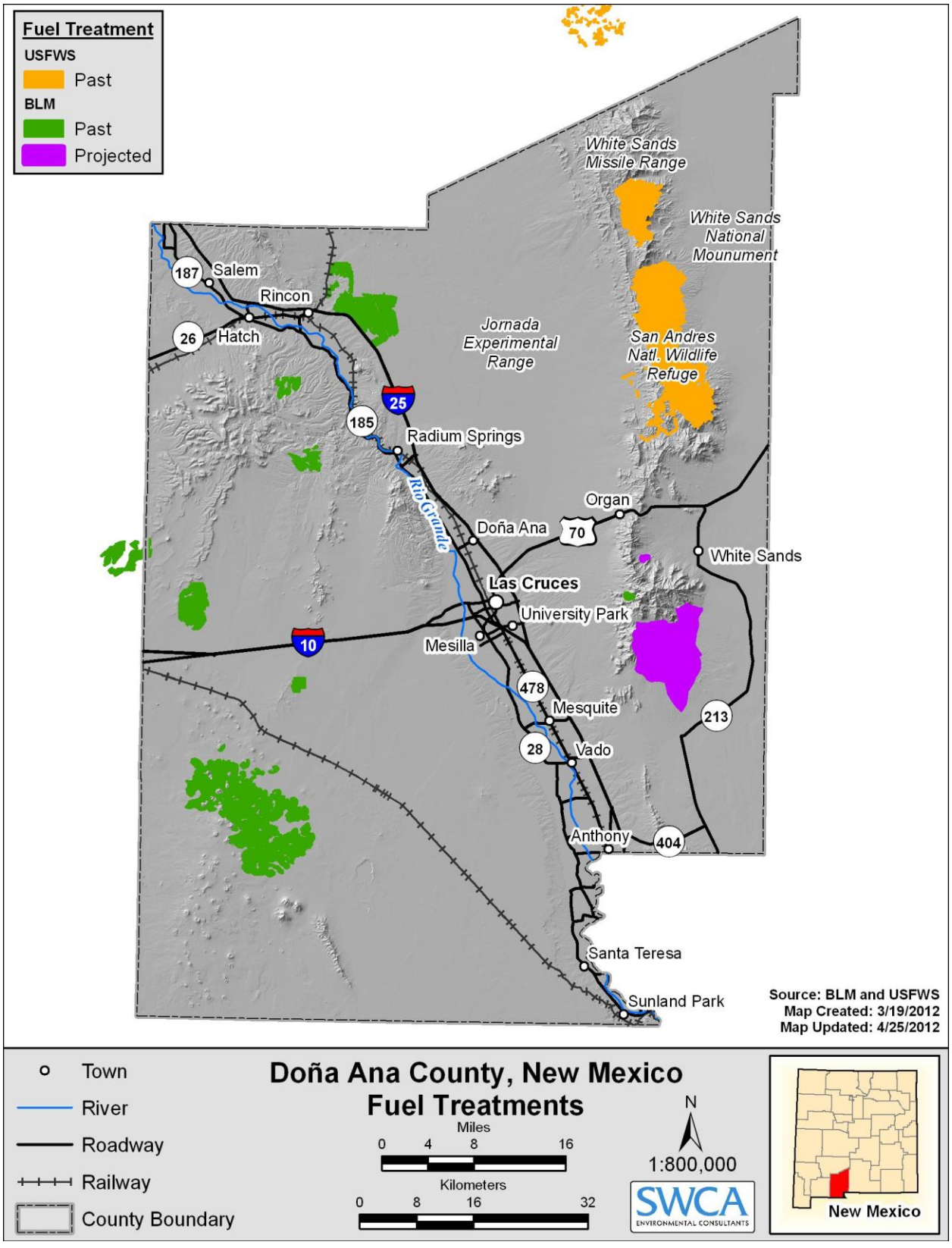


Figure 5.1. Past and projected fuel treatments (mechanical/chemical/prescribed fire) on BLM lands

5.2 FUEL TREATMENT METHODS

Since specifics of the treatments are not provided in detail in Table 5.1, different fuels reduction methods are outlined in the following narrative.

Strategic timing and placement of fuel treatments is critical for effective fuels management practices and should be prescribed based on the conditions of each particular treatment area. Some examples of this would be to place fuel breaks in areas where the fuels are heavier and in the path of prevailing winds and to mow grasses just before they cure and become flammable. Also, burning during the hotter end of the prescription is important since hotter fires are typically more effective at reducing heavy fuels and shrub growth. In areas where the vegetation is sparse and not continuous, fuels treatments may not be necessary to create a defensible area where firefighters can work. In this situation, where the amount of fuel to carry a fire is minimal, it is best to leave the site in its current condition to avoid the introduction of more flammable, exotic species such as cheatgrass (*Bromus tectorum*).

5.2.1 MOWING

Mowing of fuel breaks and around perimeters should take place at least once every growing season depending on the regrowth of vegetation over the course of the fire season. It is acknowledged that this may not be viable for all producers, in which case focus should be placed on areas that would pose greatest risk to life and property (e.g., the southwest edges of communities).

In areas of encroaching shrubs or trees, more intensive fuels treatments may be necessary to keep the fire on the ground surface and reduce flame lengths. Within the fuel break, shrubs should be removed, and trees should be pruned to a height of 4 to 8 feet, depending on the height of the fuel below the canopy, and thinned with a spacing of at least two to three times the height of the trees to avoid movement of an active fire into the canopy.

5.2.2 PRESCRIBED BURNING

Prescribed burning is also a useful tool to reduce the threat of extreme fire behavior by removing excessive standing plant material, litter, and woody debris while limiting the encroachment of shrubby vegetation such as broom snakeweed, piñon pine (*Pinus edulis*), juniper, and other woody species into the grasslands. Similar to mowing, prescribed fires should be conducted along roads surrounding the WUI and around the particular areas at risk. On private lands the use of prescribed fire is likely to be limited due to concerns of escape. Where possible, prescribed fire could occur on public lands since fire is ecologically beneficial to the desert scrub and grassland community and wildlife habitat (see Figure 5.2). Some areas, particularly along roadsides, may be susceptible to the invasion of exotic species, so this practice should be carried out with management of invasive species in mind.

Figure 5.2. Prescribed burn in grassland for wildlife habitat benefit.

Using prescribed burns can initiate regeneration of grasslands and rangelands, as fire facilitates natural ecosystem dynamics, such as nutrient and water cycling, which increase variability in vegetation composition and density. Desert grasslands across the Southwest are threatened by woody encroachment, which shades out desirable plant species and uses large amounts of water.

Following any type of fuels reduction treatment, post-treatment monitoring should continue to ensure that management actions continue to be effective throughout the fire season. Vegetation can change rapidly in response to drought or moisture from year to year and during the course of the season, so fuels treatments should be adjusted accordingly.

5.2.3 Management of Non-native Plants

Like many ecosystems throughout New Mexico, the County landscape is undergoing gradual degradation as a result of infestation by non-native species (Parker et al. 2005). These species have contributed to changing fire regimes in the County, heightening the risk of fire. A number of methods have been developed for removal of non-natives; the appropriate technique will depend on the infestation density, management objectives, environmental concerns, costs, and social considerations (Parker et al. 2005). The USDA maintains a list of noxious weeds rated from A to C based on the current degree of infestation of the species and the potential for eradication (USDA 2010).

Treatments for Saltcedar Infestation

Riparian areas throughout the County have in recent years become overrun by saltcedar. A vigorous program of removal is ongoing and showing success in many areas. Despite this, the eradication and control of saltcedar and long-term commitment are challenging, and multiple techniques are required to reduce its extent and minimize its spread. Techniques used for the

management of saltcedar include mechanical, chemical, and biological methods. The current saltcedar removal programs should be used as a model for future treatments.

Mechanical treatments, such as hand-pulling and cutting, can be used for smaller stands of young saltcedar saplings, but these treatments become expensive and ineffective within large stands of shrub-sized individuals (Parker et al. 2005). Root cutting and bulldozing can be effective, but the benefits may not outweigh the problems resulting from soil damage and the expense of this method. Fire has been used with some success, but because saltcedar is fire adapted, the species readily resprouts. Flooding can also be used to control saltcedar if root crowns remain submerged for at least three months. Resprouting is likely to occur after using any of these methods, so it is highly recommended to combine methods and follow-up treatments to continue control of this species.

Chemical control is typically the most effective method used for saltcedar; however, application of herbicides should be site-specific. Aerial applications of imazapyr or an imazapyr and glyphosphate mixture should occur from late August through September. This method is slow-acting, and treated trees should not be removed for up to three years after the treatment to ensure root kill. It is important to only use herbicides that are approved for application near water.

Biological control methods have also shown some success. One such method is the use of saltcedar leaf beetle (*Diorhabda elongata*), which asserts physiological stress on the tree through defoliation. This treatment, coupled with burning in the summer months under intense prescribed fire prescription, has been successful in some saltcedar stands. Significant damage to the root crown is required for high mortality; this may require supplementing fuel loading, particularly around the root crown. The combination of cutting and/or chemical application to cut stumps or small-diameter whips is one of the most common management techniques used for saltcedar. The methods used will depend on the size of the saltcedar stand, the characteristics of the riparian area, and the distance to a community. Saltcedar eradication has been ongoing in the County, but collaborative efforts are lacking. Sharing experiences and working across agency boundaries could aid in enhancing this ongoing effort.

5.2.4 Fuel Breaks

The topography across the region is largely flat or slightly rolling. Fuels treatment will vary depending on each specific targeted area, but mowing and prescribed burning are generally the most common methods for creating fuel breaks. Fire behavior in the County has been modeled using FlamMap. This assessment provides estimates of flame length and rate of spread; the information should be used by land managers when prescribing treatments. Based on this assessment, in areas exhibiting extreme fire behavior (e.g., riparian areas north of Radium Springs), more intensive fuels treatments such as fire breaks (cut fuels to mineral soil) may be required. However, given the high erodibility of soils in the County, it is recommended that, where possible, fuels breaks (reduce fuel loading by cutting or mowing) are employed instead of fire breaks to maintain some vegetation cover. Land managers are cautioned, however, that neither fire breaks nor fuel breaks will stop a fire under extreme fire behavior or strong winds; these should only be seen as a mitigating measure and not a fail-safe method for fire containment. Furthermore, fuel break utility is contingent upon regular maintenance, as regrowth in a fuel break can quickly reduce its effectiveness.

Within a fuel break, shrubs should be removed where they would generate high-severity fire behavior. In bosque areas, trees should be pruned to a height of 8 to 16 feet (depending on the height of the fuel below the canopy) to address FlamMap outputs that show high flame lengths along the Rio Grande corridor. It is not possible to provide a standard treatment prescription for the entire landscape because fuel break dimensions should be based on the local fuel conditions and prevailing weather patterns. For example, in some areas, clearing an area too wide could open the landscape to strong winds that could generate more intense fire behavior and/or create wind throw.

Strategic placement of fuel breaks is critical to prevent fire from moving from wildland fuels into adjacent neighborhoods. A fuel break of 100 to 300 feet in shrubland should modify fire behavior significantly enough to allow suppression by firefighters. It is important to note, however, that shrub fuels are often replaced by grassland fuels in shrubland fuel breaks; flame lengths and rates of spread could be faster in these grassland fuels, but fireline intensity (heat produced per unit area) will be reduced, allowing more effective suppression. For effective management of most fuels, fuel breaks should be prescribed based on the conditions in each particular treatment area. Some examples of this would be to place fuel breaks in areas where fuels are heavier or in areas with easy access for fire crews. Because of the dominant wind patterns in New Mexico (i.e., out of the southwest), fuel breaks are recommended on the south and west sides of communities. In areas where the vegetation is discontinuous, fuel treatments may not be necessary. In this situation it is best to leave the site in its current condition to avoid the introduction of more flammable, exotic species like Russian thistle (*Salsola tragus*) and cheatgrass, which respond readily following disturbance.

It is the responsibility of local governments to gather input from affected stakeholders, then determine which method(s) will safely accomplish the fuels management objectives for a given area. Well-managed fuels reduction projects often result in ecological benefits to wildlife and watershed health. Simultaneously, planning and resource management efforts should occur when possible while reducing fuels to ensure that the land remains viable for multiple uses in the long term. The effectiveness of any fuels reduction treatment will increase over time with a maintenance and monitoring plan. Monitoring will also ensure that objectives are being met in a cost-effective manner.

5.3 RECOMMENDATIONS FOR PUBLIC EDUCATION AND OUTREACH

Needs for public education and outreach have been emphasized throughout the DACCWPP process by all participating parties. The Core Team has consistently commented on the need for better education of the public for fire preparedness, and discussions with community members during public outreach have indicated that most people are unaware of the danger of wildland fire in their communities and could be better informed of effective mitigation options. Over 40% of people surveyed have stated that they would like more information and education regarding how they can reduce the risk of fire to their families and property, and again 40% of people do not know what they needed to do in order to reduce fire risk. Table 5.2 lists recommendations for improving public education and outreach.

The people of the County have grown up with wildfire; however, it is important to continually raise awareness of fire risk and improve fire education (Winter and Fried 2000; McCaffrey

2004). Local fire districts, community groups, churches, and schools may be possible targets to help reach out to community members. The recruitment of volunteer neighborhood leaders to participate in planning efforts or attend workshops on fire behavior and defensible space may provide another option to disseminate available information.

Although many residents are familiar with Firewise Communities, many others could benefit from greater exposure to this program. Workshops demonstrating and explaining Firewise Communities principles have been suggested to increase homeowner understanding of home protection from wildfire. The NMSFD administers a program to recognize Firewise Communities within the state. Information about the program is available at http://www.firewise.org. Greater participation in the Firewise Communities program could improve local understanding of wildfire and, in turn, improve protection and preparedness.

Other methods to improve public education could include providing signs indicating fire danger level (low, moderate, high, extreme) to be displayed in highly visible areas where they do not already exist; increasing awareness about fire district response and fire district resource needs; developing fire evacuation plans; providing workshops at demonstration sites showing Firewise Communities landscaping techniques or fuels treatment projects; organizing community cleanups; publicizing availability of government funds for thinning; and, most importantly, improving communication between homeowners and local land management agencies to improve and build trust.

Table 5.2. Recommendations for Public Outreach and Education

Project	Description	Presented By	Target Date	Resources Needed	Serves To
Targeted wildfire info sessions across the County	Fund development of materials and presentations to highlight how a fire might affect particular groups within the community, such as farmers, acequia communities, and real estate developers.	Community fire representative or agency outreach personnel	Spring 2013	Funding for research, writing, and presentation of detailed information on how large-scale wildfire would affect the target audience and the measures that could be taken to reduce the threat. Flyers could be sent out with utility bills or other community mailings.	Deliver a clear and consistent message that impacts of wildfire are far-reaching and that it is in the best interest of a diverse set of stakeholders to become involved in planning and preparing for fire.
VFD open invitation days; priority areas: Radium Springs, Rincon, Las Alturas, Fairacres, Mesilla	Raise awareness of the fire districts through open house and tours of equipment.	VFDs	Annually	Advertising, refreshments, handouts.	Protect communities and infrastructure by potentially increasing recruitment and financial support for the fire service.
Neighbors for defensible space; priority areas: Organ, Las Alturas, Radium Springs, Mesilla	Organize a community group made up of residents and agency personnel to develop materials and communicate relevant defensible space messages.	SWCDs, BLM, NMSFD, local residents	Fall 2013	Funding to help cover costs of materials and participation.	Engage diverse stakeholders in reaching out to community members and encourage defensible space practices. Over 20% of people surveyed in the County requested education and public outreach as a means for them to reduce their wildfire risk.
Media involvement	Develop a local newspaper column that provides fire safety information, promotional information for VFDs, fire announcements, and emergency planning.	*Las Cruces Sun-News*	Weekly column year-round	Columns, information, and articles to be provided by VFDs, NMSFD, BLM, State Land Office, Farm Service Agency, Natural Resources Conservation Service (NRCS), County.	Protect communities and infrastructure through increasing public awareness and providing a channel for information regarding emergency fire response.
Involvement of railroad in fire and emergency planning	Increase coordination with railroad representatives to increase awareness of the ignition potential of the railroad and improving fire mitigation in the railroad corridor.	BNSF, County, state and federal agencies	Summer 2013	Meeting venues, coordination, and facilitation.	Protect communities and infrastructure through uniting land managers in a plan to limit ignition potential and risks posed by the BNSF Railway.
WSMR public outreach meetings and permanent fire danger displays/signage.	Specific outreach targeted to military audience, military troops and testers.	WSMR	Annually	Meeting setting or poster board displays illustrating fire behavior and fire prevention in grassland and PJ fuel types. Signage along WSMR roadways displaying fire danger ratings.	Protect WSMR residents and structures from wildfire.

Table 5.2. Recommendations for Public Outreach and Education, continued

Project	Description	Presented By	Target Date	Resources Needed	Serves To
Increase signage	Increase fire prevention signage along highways to reduce human ignitions.	New Mexico Department of Transportation	Summer 2013	Signs, posts, people to post signs.	Protect communities and infrastructure by raising awareness of local citizens and those traveling in the County about actions that can prevent fire.
Improve enforcement of burn bans	Implement burn ban enforcement and raise public awareness of the ban.	County	Summer 2013	Funding for increased numbers of enforcement officers.	Raise awareness of the dangers of burning on private property and emphasize that burning is illegal and will be punished.
Strengthen ordinances to allow enforcement of trash and debris clean-up on private property	Implement enforcement of clean-up and raise public awareness of the County code.	County	Summer 2013	Funding for increased numbers of enforcement officers. Incentives to encourage property owners to clean-up their properties.	Raise awareness of the dangers of trash and debris build-up on properties and the risk that yard waste and debris fuels can pose for fire danger. Many people surveyed commented that their properties were threatened by fire because of debris, weeds, and trash in their neighbors' yards.
Increase the use of prescribed burning as a fuels reduction method	Gain support for using prescribed burns to reduce fuel loads and to improve ecosystem health, where grazing needs allow.	BLM, other applicable agencies, private landowners	Summer 2013	Prescribed burn prescription, type-6 engines, hand crews, equipment.	Protect communities and infrastructure by reducing fuel loads.
Homeowner's guide	Develop a handbook that gives locally relevant and detailed information to help residents be more prepared for wildfire, including a defensible space checklist specific to local structural and wildland fuel considerations. Refer to Appendix H.	SWCDs, local fire districts, State Cooperative Extension agents	2013	Funding to develop and print copies of the handbook. Volunteers to help distribute and explain the document.	Give residents detailed and locally specific tools that they can use to improve preparedness.
Emergency preparedness meetings	Use American Red Cross volunteers and other preparedness experts. Attend community functions and hold special meetings to provide guidance for creating household emergency plans.	American Red Cross, County personnel	Ongoing	Written materials.	Improve preparedness by facilitating the communication between family members and neighbors about what procedures to follow in the event of a wildfire.
Defensible space workshops	Attend all possible community meetings and hold additional workshops to educate homeowners about why and how to create effective defensible space.	Community fire representative or agency outreach personnel	Summer 2013, ongoing	Written materials, trained personnel. Consider applying for Title III Secure Rural Schools funding for Firewise Communities work.	Empower homeowners to make affordable and effective changes to reduce the vulnerability of individual homes.

Table 5.2. Recommendations for Public Outreach and Education, continued

Project	Description	Presented By	Target Date	Resources Needed	Serves To
Improved understanding of grass fire risk	Provide education and information about the risks associated with grass fires. Dispel misunderstanding that wildland fires affect only communities surrounded by timber.	VFDs, fire specialists, NRCS, BLM, private landowners.	Summer 2013	Information about the risks associated with grassland fires and examples of communities affected by grassland fires.	Protect communities and infrastructure through increased awareness.
Plan evacuation routes and inform communities; priority areas: Las Alturas, Dripping Springs	Work with emergency management officials to plan evacuation routes and then inform the public about the routes.	Emergency management officials, Local Emergency Planning Committee.	Fall 2013	GIS software or maps.	Educate public on proper education for wildfires.
Animal/Pet evacuation	Preplanning for pet and livestock evacuation in the event of a wildfire.	Animal Control, Livestock Board, Animal Services.	Summer 2013	Program development.	Educate public on evacuation of livestock and pets in the event of a wildfire.
Implement Firewise Communities programs; priority areas: Las Alturas, Radium Springs	Work with communities to participate in Firewise Communities and prepare for fire events. Hold Firewise booths at local events, e.g., the County Fair, Hatch Chile Festival, rodeos.	NMSFD, BLM, USFWS.	Fall 2013	Firewise Communities educational materials.	Protect communities and infrastructure through increased awareness and defensible space.
Neighbors helping neighbors	Follow the Mesilla template of neighborhood assistance to members of the public who cannot maintain their yards and dispose of yard waste. Utilize community service youth to carry out yard maintenance and defensible space practices to reduce fire hazards in the community.	Neighborhood associations, municipal leaders, Doña Ana County.	Spring 2013	Website, community meeting forum.	Assist elderly or disabled residents who are unable to clean up yard waste or create defensible space. Reduces fire hazard and fire spread potential between structures.
Spring Awareness Expo (specific County focus)	Fire awareness expo to increase understanding of fire risk in the County and provide literature and information regarding fire prevention.	Public Information Officer (PIO), County Fire Officer Association. Federal and State partners.	Spring 2013 and annually thereafter	Venue, marketing, personnel, volunteers.	Keep fire awareness in people's minds prior to the fire season.
Media blitz for spring burning	Targeted media blitz regarding safe burning practices. Utilize radio and TV media as well as mailings through utility bills. Consider adopting Mesilla burn permitting process countywide in order to provide educational tool for permittees through brief safety tips printed on the permit.	Municipalities, Doña Ana County Fire, PIOs, Community Awareness Program.	Spring 2013	Media contacts, printed materials.	Reduce brush fires sparked from ditch burning by informing the public on safe ditch burning practices.

Table 5.2. Recommendations for Public Outreach and Education, continued

Project	Description	Presented By	Target Date	Resources Needed	Serves To
Agency Promotion of Red Flag Days	Hold press conference with agency representatives and fire chiefs on Red Flag Days warning the public of the risks of burning and carelessness relating to fire.	PIOs; federal, state, and County fire prevention officials.	Spring 2013	Media contacts.	Emphasize risk associated with Red Flag Days to reduce human-ignited wildfire.
Promotion of Fire Behavior Week	Better promotion of October event particularly in schools. Distribute literature through school children and consider fire district open house events for families.	School district; federal, state, and County fire prevention officials, fire district chiefs.	October Annually	Media contacts, Firewise Communities materials.	Increase youth awareness of fire risk and prevention and provide information to families through school events.
Form a public outreach working group.	Agency representatives and County and City representatives on the Core Team should continue regular Core Team meetings to collaborate on public outreach and education.	Agency PIO's, Core Team members	Fall 2012	Meeting venue	Build on momentum for needed public education and outreach identified as necessary by the public and Core Team.

5.4 RECOMMENDATIONS FOR REDUCING STRUCTURAL IGNITABILITY

Table 5.3 provides a list of community-based recommendations to reduce structural ignitability that should be implemented throughout the DACCWPP planning area. Reduction of structural ignitability depends largely on public education that provides homeowners the information they need to take responsibility for protecting their own properties. Below is a list of action items that individual homeowners can follow (Section 5.4.1). Carrying out fuels reduction treatments on public lands may only be effective in reducing fire risk to some communities; however, if homeowners have failed to provide mitigation efforts on their own land, the risk of home ignition remains high and firefighter lives are put at risk when they carry out structural defense. Many committed members of the County serve their neighbors as volunteer firefighters, but these firefighting resources are continually stretched, particularly during a widespread wildfire. Preparing for wildland fire by creating defensible space around the home is an effective strategy for reducing structural ignitability. Studies have shown that burning vegetation beyond 120 feet of a structure is unlikely to ignite that property through radiant heat (Cohen and Butler 1996), but fire brands that travel independently of the flaming front have been known to destroy houses that had not been impacted by direct flame impingement. Education about managing the landscape around a structure, such as removing weeds and debris within a 30-foot radius and keeping the roof and gutters of a home clean, are two methods for creating defensible space. Educating people about the benefits of cutting trees and using Firewise Communities landscaping methods on their property is also essential for successful household protection.

It is important to note that no two properties are the same. Homeowners and communities are encouraged to research which treatments would have the most effect for their properties. Owners of properties on steep slopes, for example, should be aware that when constructing defensible space they have to factor in slope and topography, which would require extensions to the conventional 30-foot recommendations. A number of educational programs are now available to homeowners through local fire districts or the NMSFD; Firewise Communities is one example of such a scheme (www.firewise.org). More detailed information on structural ignitability can also be found in Appendix H (Homeowner's Guide).

Some structural ignitability hazards are related to homes being in disrepair, vacant or abandoned lots, and minimal yard maintenance. In order to influence change in homeowner behavior, County ordinances may be needed.

Weed and junk accumulation is a problem in the County that is recognized in the CWPP community assessments. Enforcement is difficult for the County, due to its size and the lack of enforcement officers, and many homeowners do not agree on what is junk and whether it is a bad thing. Often homeowners feel that the County is infringing on property rights if they enforce clean-up, plus most people do not have the equipment or the money to clean up their properties.

Abandoned buildings are recognized as a hazard to health, safety, and the welfare of a community. There are many abandoned properties throughout the County. Some owners do not have the resources to keep their properties clean and in good repair either because they are elderly, in ill health, or do not have the funds.

Table 5.3. Recommendations for Reducing Structural Ignitability

Project	Private Lands/ Homeowner	Public Lands	Programs Available	Description	Possible Contacts for More Information	Priority
Offer fire protection workshops	County - All residents would be encouraged to participate	None	Community fire liaison, agency outreach personnel	Offer hands-on workshops to highlight individual home vulnerabilities and teach how-to techniques to reduce ignitability of common structural elements. Examples include installing metal flashing between houses and fences or decks, and installing wire mesh over eaves, vents, and under decks.	State Firewise Communities personnel, Natural Resources Conservation Service, fire chiefs	High
Strengthen building codes for new development	County	None	International Wildland-Urban Interface Code	ICC enforces building codes and ordinances for new development in the WUI.	State fire marshal, NMSFD	Moderate
Construct defensible space	All residents would be encouraged to participate	None	Firewise Communities, NMSFD, local fire district liaison	Educate homeowners about defensible space practices. Remove all but scattered trees within 30 feet of structures. Keep grass mown and green within 100 feet of structures. Keep flammable materials at least 30 feet from structures. Surround foundations with rocks or gravel to a width of 1 foot.	www.firewise.org or local NMSFD Firewise Communities-trained personnel; possible land ownership assistance program through NMSFD-sponsored program; requires preparation of a Wildfire Mitigation Cost Share Assistance Application	High
Participate in defensible space cost-sharing programs	All private land within the DACCWPP area would be eligible	None	SWCD in other counties are already offering these programs and could be used as a model	This project would provide additional funding to SWCDs to expand existing program and target new participants.	SWCD managers	High
Implement community chipper days	All residents would be encouraged to participate	None	NMSFD	A chipper and operator would be provided free of charge in a central location for residents to bring small trees and brush. Chips could remain at chipper location or be utilized by participants.	NMSFD, County	High
Assess and improve accessibility to property	All residents would be encouraged to participate	None	Fire districts, code enforcement officers	Inform homeowners about the importance of keeping driveways accessible to fire trucks and emergency responders.	Local fire districts	Moderate
Provide a list of mitigation measures to homeowners with different scales of actions	All residents would be encouraged to participate	None	Fire districts, Firewise Communities, NMSFD literature, BLM literature, academic and peer-reviewed literature	See list of action items below (see Section 5.4.1).	SWCDs, NMSFD, fire districts	High

5.4.1 Action Items for Homeowners to Reduce Structural Ignitability

Low or No Cost Investment (<$50)

- Regularly check fire extinguishers and have a 100-foot hose available to wet perimeter.
- Maintain defensible space for 30 feet around home (see Table 5.3). Work with neighbors to provide adequate fuels mitigation in the event of overlapping property boundaries.
- Make every effort to keep lawn mowed and green during fire season.
- Screen vents with non-combustible meshing with mesh opening not to exceed nominal ¼-inch size.
- Ensure that house numbers are easily viewed from the street.
- Keep wooden fence perimeters free of dry leaves and combustible materials. If possible, non-combustible material should link the house and the fence.
- Keep gutters free of vegetative litter. Gutters can act as collecting points for fire brands and ashes.
- Store combustible materials (firewood, propane tanks, BBQs) away from the house; in shed, if available.
- Clear out materials from under decks and/or stacked against the structure. Stack firewood at least 30 feet from the home, if possible.
- Reduce your workload by considering local weather patterns. Since the prevailing winds in the area are often from the southwest, consider mitigating hazards on the southwest corner of your property first, then work around to cover the entire area.
- Seal up any gaps in roofing material and enclose gaps that could allow fire brands to enter under the roof tiles or shingles.
- Remove flammable materials from around propane tanks.

Minimal Investment (<$250)

- When landscaping in the Home Ignition Zone (HIZ) (approximately 30 feet around the property), select non-combustible plants, lawn furniture, and landscaping material. Combustible plant material like junipers and ornamental conifers should be pruned and kept away from siding. If possible, trees should be planted in islands and no closer than 10 feet to the house. Tree crowns should have a spacing of at least 18 feet when within the HIZ. Vegetation at the greatest distance from the structure and closest to wildland fuels should be carefully trimmed and pruned to reduce ladder fuels, and density should be reduced with approximately 6-foot spacing between trees crowns (Figure 5.3).
- Box in eaves, attic ventilation, and crawl spaces with non-combustible material.
- Work on mitigating hazards on adjoining structures. Sheds, garages, barns, etc., can act as ignition points to your home.
- Enclose open space underneath permanently located manufactured homes using non-combustible skirting.
- Clear and thin vegetation along driveways and access roads so they can act as a safe evacuation route and allow emergency responders to access the home.

- Purchase or use a National Oceanic and Atmospheric Administration weather alert radio to hear fire weather announcements.

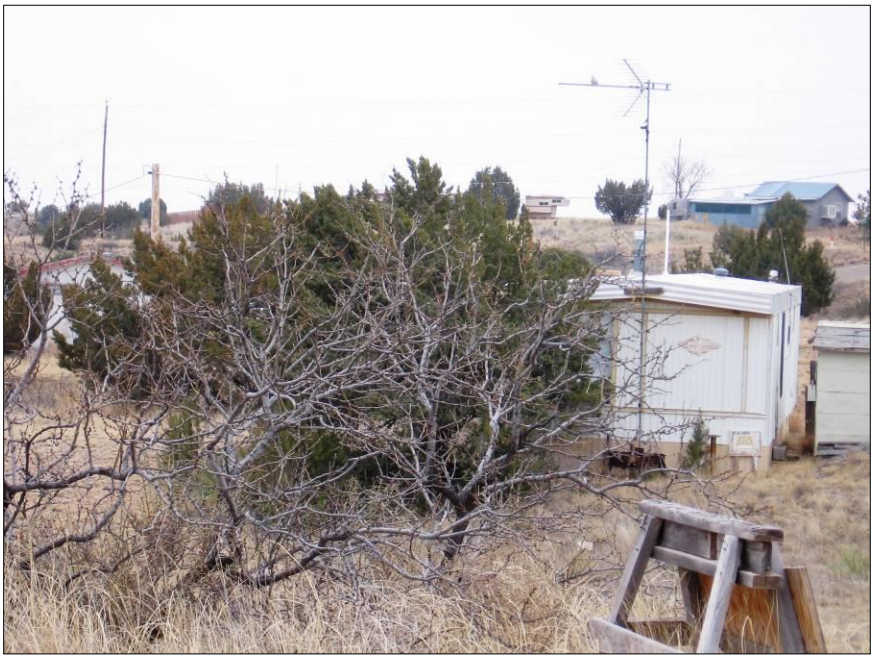


Figure 5.3. Structure requiring defensible space and fuels mitigation.

Moderate to High Investment (>$250)

- Construct a non-combustible wall or barrier between your property and wildland fuels. This could be particularly effective at mitigating the effect of radiant heat and fire spread where 30 feet of defensible space is not available around the structure.
- Construct or retrofit overhanging projections with heavy timber that is less combustible.
- Replace exterior windows and skylights with tempered glass or multilayered glazed panels.
- Invest in updating your roof to non-combustible construction. Look for materials that have been treated and given a fire-resistant roof classification of Class A. Wood materials are highly combustible unless they have gone through a pressure-impregnation fire-retardant process.
- Construct a gravel turnaround in your driveway to improve access and mobilization of fire responders.
- Treat construction materials with fire-retardant chemicals.
- Install a roof irrigation system.
- Replace wood or vinyl siding with nonflammable materials.

5.5 RECOMMENDATIONS FOR IMPROVING FIREFIGHTING CAPABILITIES

The County is served by 16 County fire districts and four municipal fire districts. Despite the fact that the majority of these stations are served by volunteers, each of these districts have been proactive in seeking funds to support their services. Educating the public so they can reduce its dependence on fire districts is essential because these resources are often stretched thin during fire season. Greater emergency planning for communities is necessary, particularly those communities in areas where response times for emergency services may be greater than in municipal zones. Table 5.4 provides recommendations for improving firefighting capabilities.

Table 5.4. Recommendations to Improve Firefighting Capability

Project	Fire District	Possible Solution	Timeline	Contact
Increase fire district recruitment (diversify age classes)	All fire districts	Target fire education in schools to encourage younger generations to become interested in firefighting. Carry out recruitment drives through open house and mailings.	Annually	Fire district chiefs, school districts
Increase funds for fire districts	All fire districts	1) Maintain contact with state fire marshals and regularly seek grant money. 2) Implement regular evaluations of resource needs for each VFD and make available to public to raise awareness of shortages. 3) Use local media to inform public of fire resources situation. Work with local newspaper editor to have a year-round column that documents fire district activities. 4) Apply for Rural Fire Assistance Program grants through DOI. 5) Apply to State Capital Improvement Grants. 6) Improve ISO ratings. 7) Hire a grant writer to serve numerous VFDs.	Monthly review of grant opportunities	Fire district chiefs, County emergency managers, Fire Services staff, and County Managers to approach County Commissioners to raise the issue in commissioner meetings.
Improve fire reporting	All fire districts	Maintain updated list of fires in the County on the National Fire Information Reporting System and provide to the NMSFD. Will increase funding opportunities and facilitates update of fire risk and hazard assessments. Most grant programs will require proof of the numbers of wildfire calls per district applying for wildfire funds. Purchase system like "Emergency Reporting" an online subscription. Unify reporting syetems between State, Federal and County and City districts.	After each fire event.	NMSFD, fire district chiefs.
Train all firefighters	All fire districts	1) Hire NMSFD contract trainers and provide National Wildfire Coordinating Group – S-130/S-190 wildland classes free to VFDs. 2) Research online training classes for volunteer firefighters. Would require an in-house mentor. 3) Train the Trainer programs 4) Coordinate training schedules and classes for city and County fire districts to reduce costs.	Spring 2013	Fire Services staff, fire district chiefs, NMSFD
Provide wildland PPE gear to all firefighters	All fire districts	Grant application to the New Mexico Volunteer Fire Assistance Grant Program through the NMSFD, to meet NFPA 1977 standards for wildland firefighting protective clothing.	Determined by grant deadline.	NMSFD
Create a County Wildfire Coordinator position	County	Employ a full-time administrative staff position whose role will be to coordinate wildfire training and equipment and apparatus support for wildfire response in the County.	Spring 2013	Doña Ana County Fire District
Update dated apparatuses	All fire districts	Regular communication with the BLM and other federal agencies who may be decommissioning old trucks/tankers that could be acquired by VFDs.	Ongoing- quarterly	Fire Services Administrator
Provide adequate water supplies at fire stations	All fire districts	Obtain funding to improve water supply systems at fire stations.	Summer 2013 (this is an ongoing process)	Fire district chiefs, County Commissioners

Table 5.4. Recommendations to Improve Firefighting Capability, continued

Project	Fire District	Possible Solution	Timeline	Contact
Increase water sources and water delivery systems, particularly in areas adjacent to WUI	All fire districts	1) Obtain funding to purchase equipment and to implement rainwater harvesting or similar systems on all VFD stations. 2) Obtain portable dip tanks for fire districts. 3) Strategically locate water storage/cisterns on private lands with prior agreement from landowner to maintain water supply. Fire districts would have permission to access tanks in the event of wildfire.	Summer 2013 (this is an ongoing process)	Fire district chiefs
Regularly seek funding to purchase improved equipment	All fire districts	Obtain funding to purchase equipment or continue to make trade agreement with other fire stations.	Fall 2013 (this is an ongoing process)	Funding agencies
Map water supplies	All fire districts	Use global positioning system (GPS) units to map all available water supplies.	Spring 2013	Fire district chiefs, Fire Services staff, County emergency managers, and County Managers to approach County Commissioners about potential funding
Improve water shuttling operations on WSMR.	WSMR	Purchase 4x4 water tenders with 1200 gallon capacity.	Spring 2013	WSMR
Develop a Regional Fire Response Network	All Districts and Agencies as well as El Paso FD.	Would be a response network for wildland and structure fire response as well as hazmat. The network would be boundary less and would therefore facilitate cross jurisdictional response. The network would take into consideration command structure and should include all Federal and State partners.	Spring 2013	County Fire, State, Federal and Municipal Fire agencies.

6.0 MONITORING AND IMPLEMENTATION

Developing an action plan and an assessment strategy that identifies roles and responsibilities, funding needs, and timetables for completing highest-priority projects is an important step in organizing the implementation of the DACCWPP. Table 5.1 in the previous section identifies tentative timelines and monitoring protocols for fuels reduction treatments, the details of which are outlined below.

An often overlooked but critical component of fuels treatment is monitoring. It is important to evaluate whether fuels treatments have accomplished their defined objectives and whether any unexpected outcomes have occurred. In addition to monitoring mechanical treatments, it is important to carry out comprehensive monitoring of burned areas to establish the success of fuels reduction treatments on fire behavior, as well as monitoring for ecological impacts, repercussions of burning on wildlife, and effects on soil chemistry and physics. Adaptive management is a term that refers to adjusting future management based on the effects of past management. Monitoring is required to gather the information necessary to inform future management decisions. Economic and legal questions may also be addressed through monitoring. In addition, monitoring activities can provide valuable educational opportunities for students.

The monitoring of each fuels reduction project would be site-specific, and decisions regarding the timeline for monitoring and the type of monitoring to be used would be determined by project. Monitoring and reporting contribute to the long-term evaluation of changes in ecosystems, as well as the knowledge base about how natural resource management decisions affect both the environment and the people who live in it.

The most important part of choosing a monitoring program is selecting a method appropriate to the people, place, and available time. Several levels of monitoring activities meet different objectives, have different levels of time intensity, and are appropriate for different groups of people. They include the following:

Minimum—Level 1: Pre- and Post-project Photos

Appropriate for many individual homeowners who conduct fuels reduction projects on their properties.

Moderate—Level 2: Multiple Permanent Photo Points

Permanent photo locations are established using rebar or wood posts, and photos are taken on a regular basis. Ideally, this process would continue over several years. This approach might be appropriate for more enthusiastic homeowners or for agencies conducting small-scale, general treatments.

High—Level 3: Basic Vegetation Plots

A series of plots can allow monitors to evaluate vegetation characteristics such as species composition, percentage of cover, and frequency. Monitors then can record site characteristics such as slope, aspect, and elevation. Parameters would be assessed pre- and post-treatment. The monitoring agency should establish plot protocols based on the types of vegetation present and the level of detail needed to analyze the management objectives.

Intense—Level 4: Basic Vegetation Plus Dead-and-downed Fuels Inventory

The protocol for this level would include the vegetation plots described above but would add more details regarding fuel loading. Crown height or canopy closure might be included for live fuels. Dead-and-downed fuels could be assessed using other methods, such as Brown's transects (Brown 1974), an appropriate photo series (Ottmar et al. 2000), or fire monitoring (Fire Effects Monitoring and Inventory System [FIREMON]) plots.

6.1 IDENTIFY TIMELINE FOR UPDATING THE DACCWPP

While a specific timeline for updating the DACCWPP has not been determined as part of this document, the Core Team should continue to communicate after the plan is completed to discuss the best method for making revisions to reflect changing conditions. The HFRA allows for maximum flexibility in the CWPP-planning process, permitting the Core Team to determine the timeframe for updating the CWPP. It is suggested that the plan be revised at least every two years.

6.2 IMPLEMENTATION

The DACCWPP makes recommendations for prioritized fuels reduction projects as well as measures to reduce structural ignitability and carry out public education and outreach. Implementation of fuels reduction projects need to be tailored to the specific project and will be unique to the location depending on available resources and regulations. On-the-ground implementation of the recommendations in the DACCWPP planning area will require development of an action plan and assessment strategy for completing each project. This step will identify the roles and responsibilities of the people and agencies involved, as well as funding needs and timetables for completing the highest-priority projects (SAF 2004). Information pertaining to funding can be found in Appendix G.

6.3 CONCLUSION

The DACCWPP has been developed to meet the requirements of a CWPP as specified in the HFRA (as amended). The plan addresses how to prepare for wildland fire throughout the County and assesses the risk of this type of fire event creating damage to communities in WUI areas. Although there is growing acknowledgement of the risk of fire among residents, many still perceive grass and shrubland areas to be at a lesser risk of fire than their forest neighbors. This plan highlights that although grassland fuels are often not rated as severely in fire behavior models, additional parameters contribute to the risk associated with fire in grassland WUIs. The CWPP risk assessment illustrates the patchy high fire risk that can be attributed to the rapid rates of spread observed by emergency responders and residents in the County. Often the greatest risk is associated with riparian fuels, particularly thick stands of saltcedar that are dominating the Rio Grande bosque. Many homes are at threat from fire spread in this fuel type.

The planning process emphasizes public participation and collaborative planning among federal, state, County, and local governments and other contributing agencies. The document makes recommendations for fuels reduction treatments, educational outreach activities, firefighting capabilities, and reduction of structural ignitability. The recommendations are based on a Composite Risk/Hazard Assessment, individual Community Risk/Hazard Assessments,

identification of CVARs, and comments from the Core Team and community members. The recommendations are general in nature to provide high levels of flexibility in the implementation phase. The public has provided input that is used to develop the recommendations through filling out surveys and talking with members of the Core Team. The public is aware of the need to implement mitigation measures around each individual's homes, but many are often not sure what they could do for lasting fire protection in a dynamic ecosystem of light grass and shrub fuels.

The goal of the DACCWPP is to reduce the risk for catastrophic wildfire throughout the County by providing specific information regarding what is most at risk and how to protect these places and community values from future fires. Because fuels reduction is difficult in these light fuel landscapes, most emphasis is placed on the reduction of structural ignitability and action items that homeowners can take to reduce the risk of fire to their property. Most communities throughout the County are dependent on volunteer firefighting; with limited resources and funds, personnel become stretched particularly during fire season. The County is made up of a mosaic of private lands and federally managed lands; much of the implementation recommended in this plan falls to both private landowners, federal agencies, and the County. It will be important for land management agencies to provide knowledge, skills, and funding assistance to these private landowners so that sufficient fire mitigation measures can be made. Moreover, collaboration between public and private entities is important in order to provide continuous landscape treatments to protect WUI communities. Lastly, the DACCWPP is a living document and should be revised as environmental conditions change or social issues arise.

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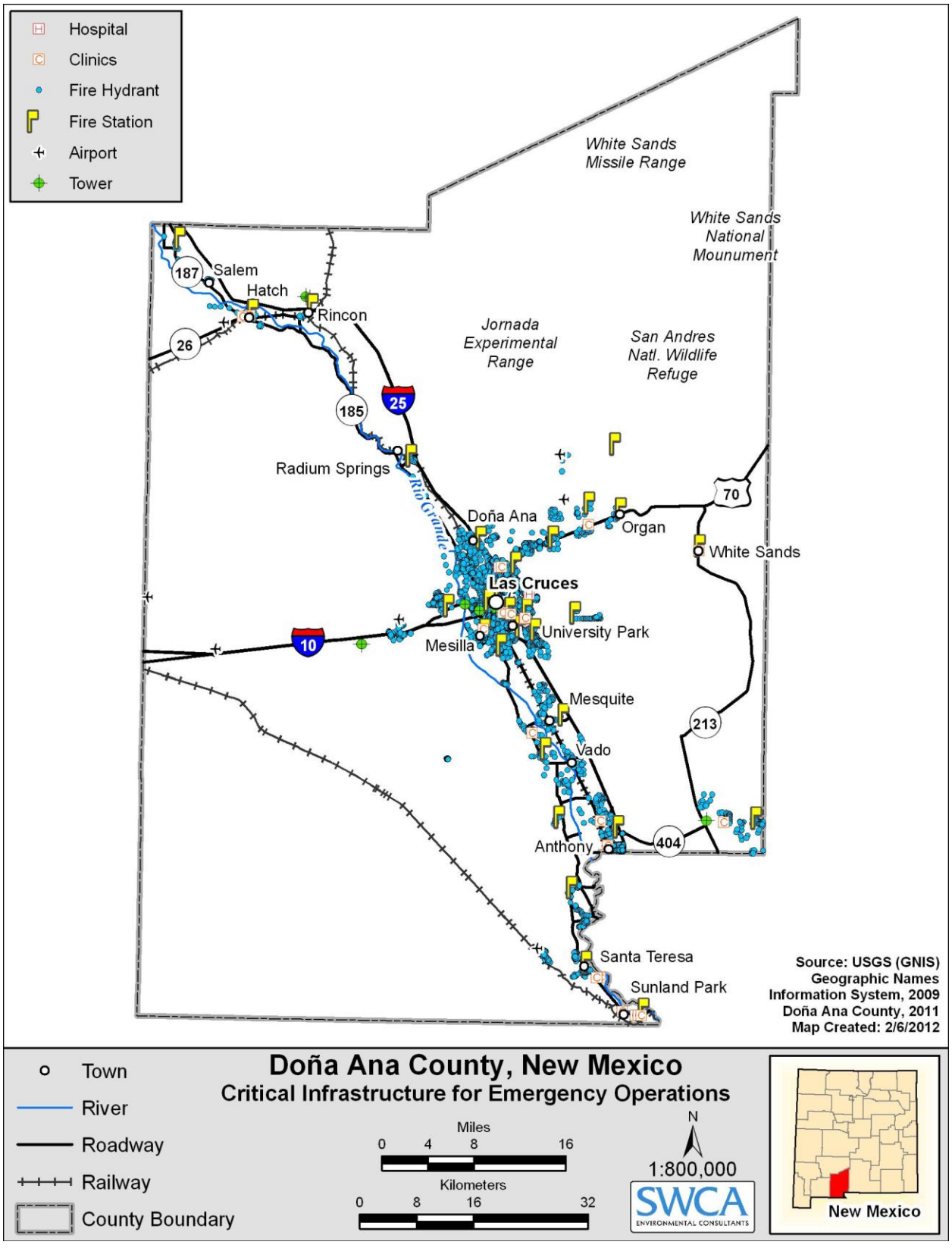
8.0 LIST OF ACRONYMS

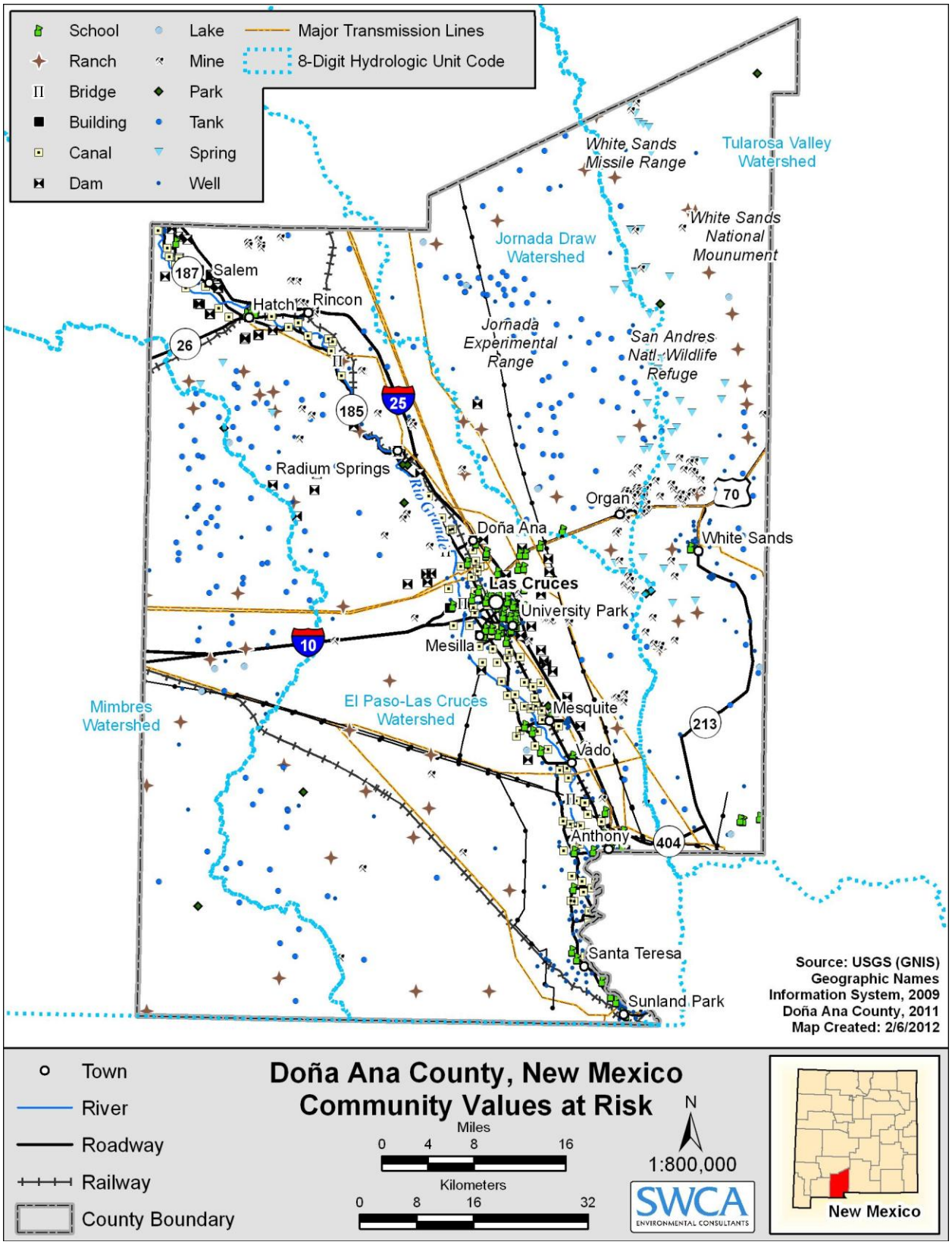
°F	degrees Fahrenheit
ACEC	Area of Critical Environmental Concern
AFGP	Assistance to Firefighters Grant Program
AHEOP	All Hazard Emergency Operations Plan
BAER	Burned Area Emergency Rehabilitation
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe
BTU/ft/sec	British Thermal Units per feet, per second
CAR	Community at Risk
CFRP	Collaborative Forest Restoration Program
ch/h	chains per hour
CIG	Conservation Innovation Grants
County	Doña Ana County
CVAR	Community Value at Risk
CWPP	Community Wildfire Protection Plan
DACCWPP	Doña Ana County Community Wildfire Protection Plan
DHS	Department of Homeland Security
EAS	Emergency Alert System
EMT	emergency medical technician
EPA	U.S. Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
ESRI	Environmental Systems Research Institute
FEMA	Federal Emergency Management Agency
FIREMON	Fire Effects Monitoring and Inventory System
FMP	Fire Management Plan
FMU	Fire Management Unit
FP&S	Fire Prevention and Safety Grants
FRCC	Fire Regime Condition Class
FRI	fire-return intervals
GIS	geographic information system
gpm	gallons per minute
GPS	global positioning system
HFRA	Healthy Forests Restoration Act
HIZ	Home Ignition Zone
HMP	Hazard Mitigation Plan
I-10	Interstate 10
I-25	Interstate 25
ICC	International Code Council
ISO	International Standards Organization
JPA	Joint Powers Agreement
MFI	mean fire interval
MOU	Memorandum of Agreement
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act

NFP	National Fire Plan
NFPA	National Fire Protection Association
NIFC	National Interagency Fire Center
NMAC	New Mexico Association of Counties
NM-FPTF	New Mexico Fire Planning Task Force
NMSFD	New Mexico State Forestry Division
NMSU	New Mexico State University
NRCS	Natural Resources Conservation Service
PERI	Public Entity Risk Institute
PIO	Public Information Officer
PNM	Public Service Company of New Mexico
PPE	personal protective equipment
RAW	remote automated weather
RFA	Rural Fire Assistance
SAF	Society of American Foresters
SAFER	Staffing for Adequate Fire and Emergency Response
SANWR	San Andres National Wildlife Refuge (SANWR) FMP
Spp	Species
SWCA	SWCA Environmental Consultants
SWCD	Soil and Water Conservation District
U.S. 70	U.S. Highway 70
ULI	Urban Land Institute
USDA	U.S. Department of Agriculture
USDI	U.S. Department of Interior
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VFD	volunteer fire district
WSA	Wilderness Study Area
WSMR	White Sands Missile Range
WUI	Wildland Urban Interface
WUIWT	Wildland/Urban Interface Working Team

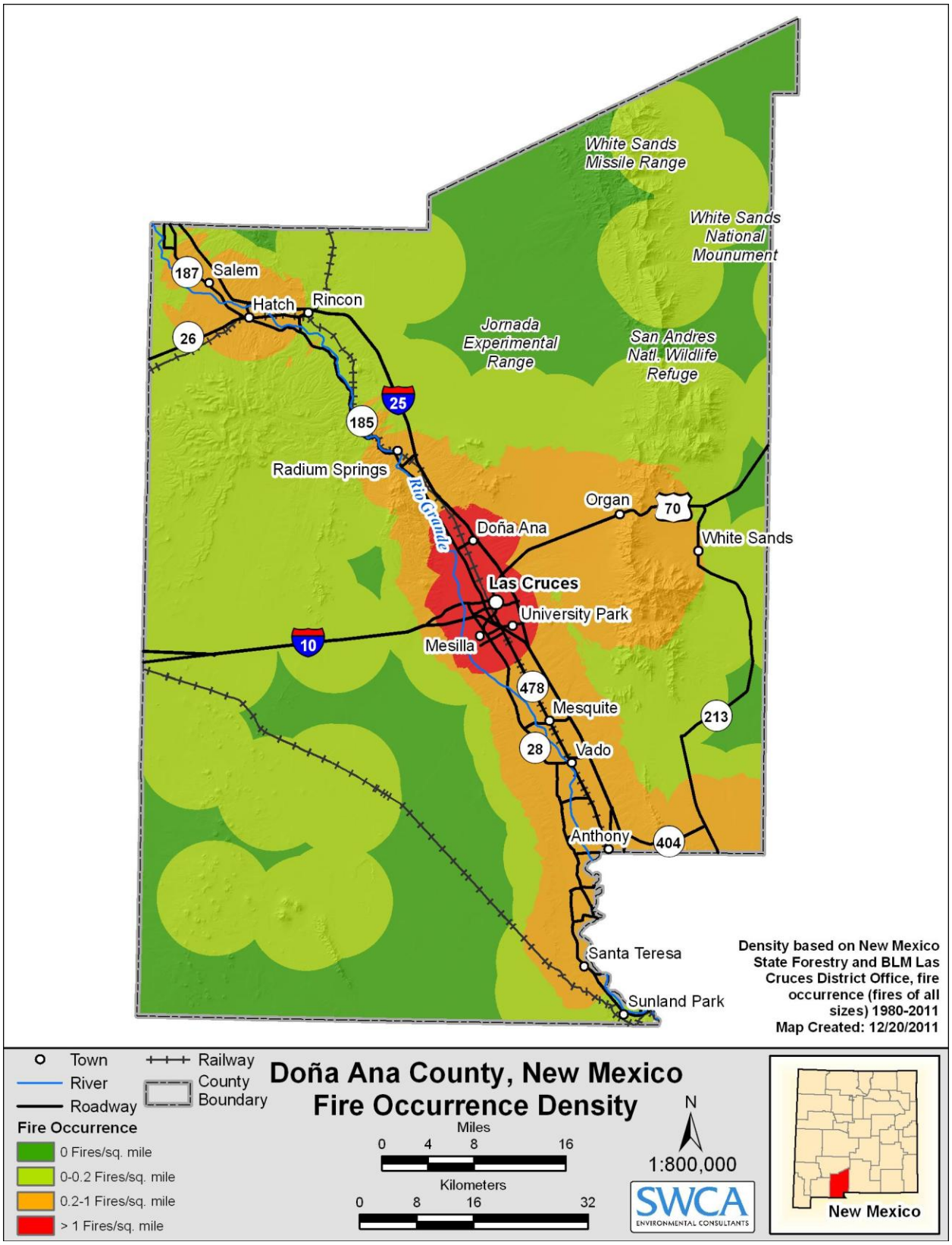
APPENDIX A
MAPS



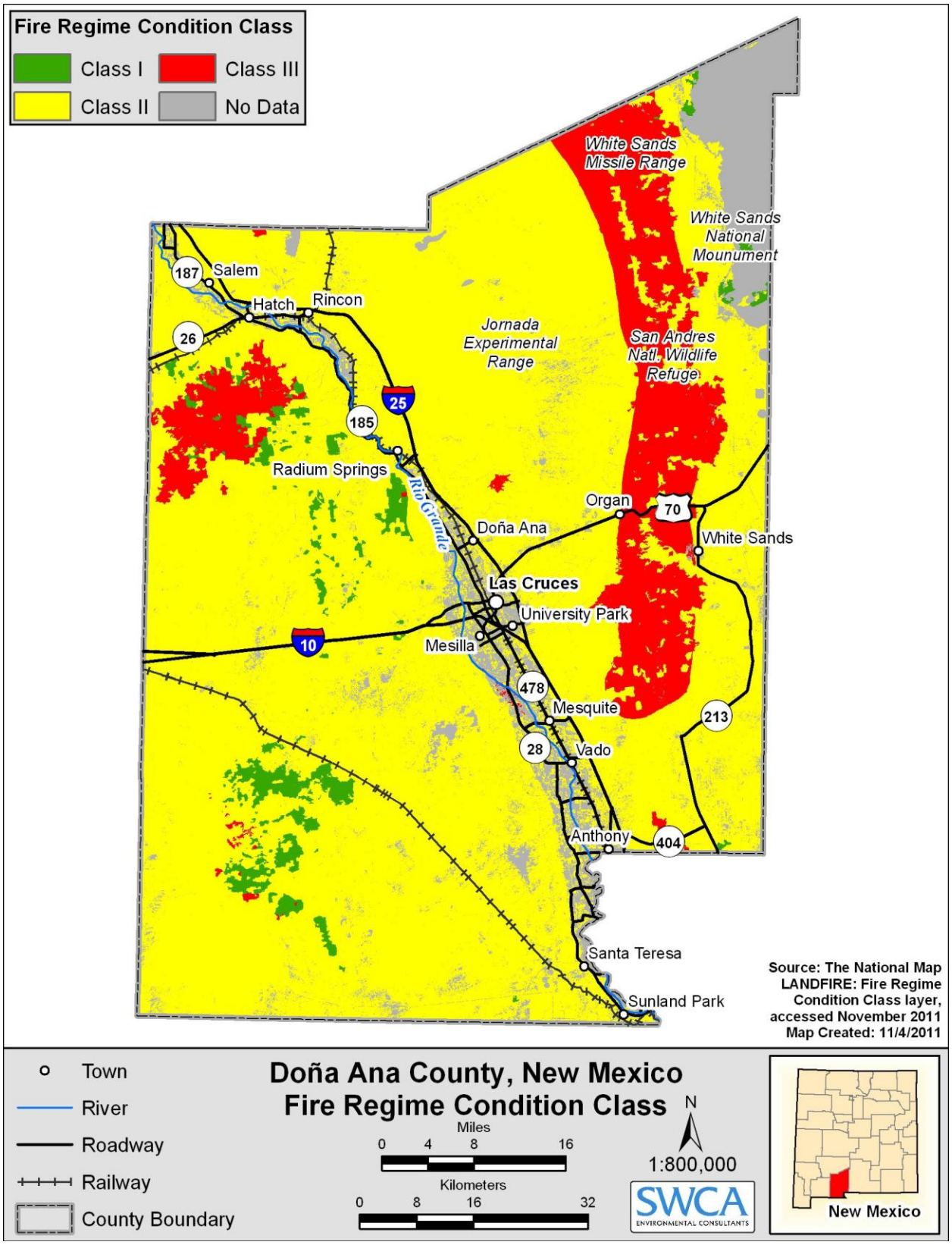
Map 1a. Critical infrastructure for emergency operations.



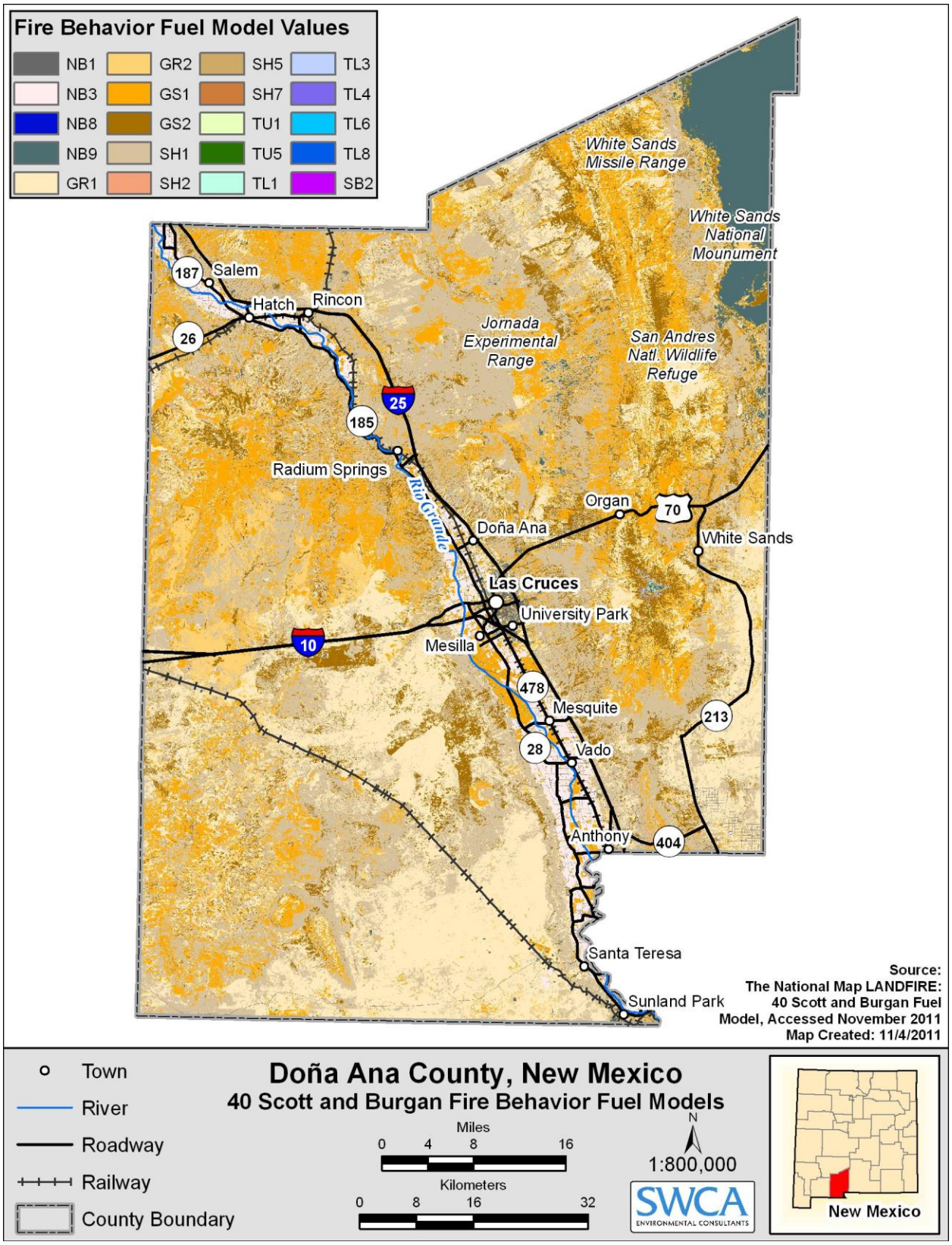
Map 1b. Doña Ana Community Values at Risk.



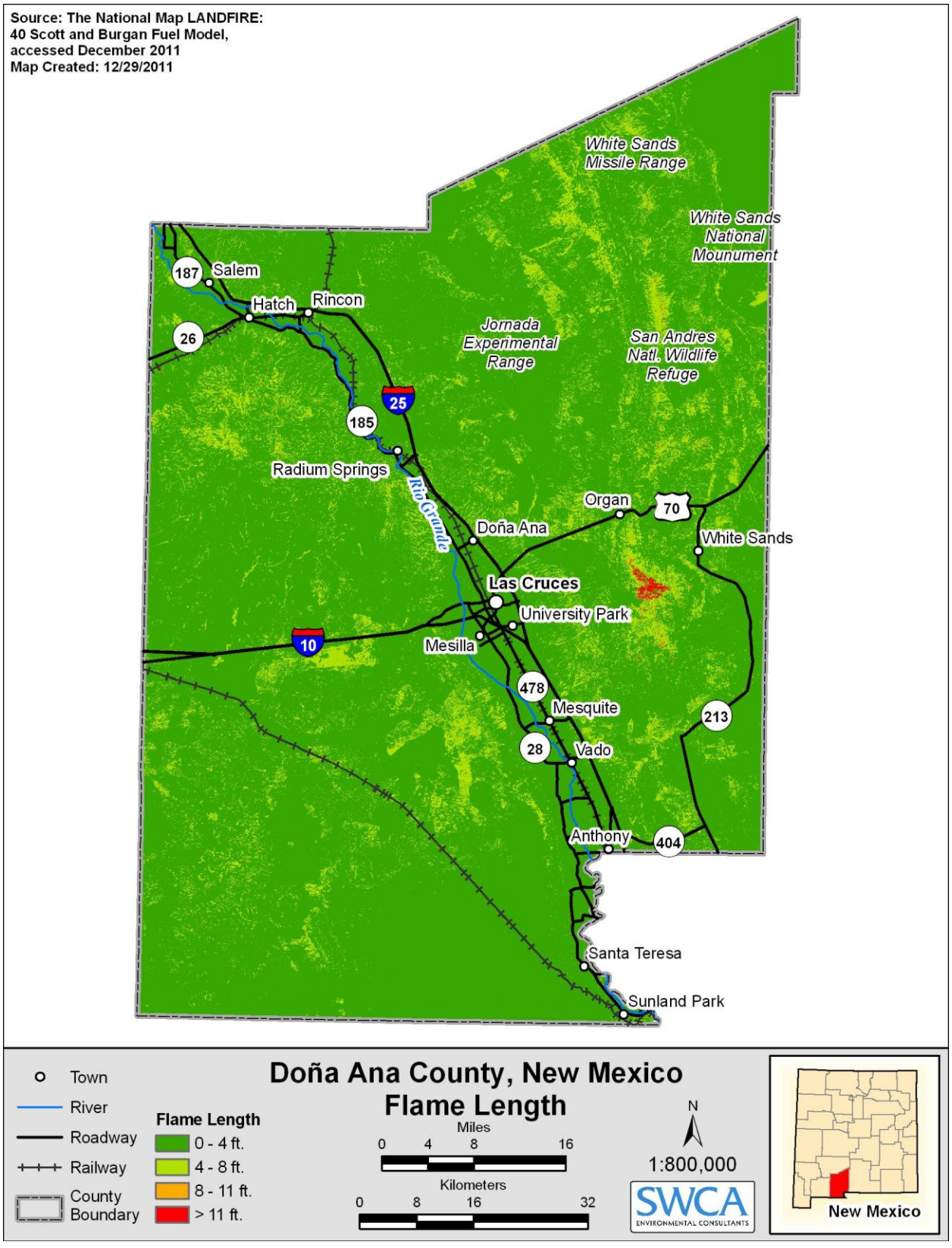
Map 2. Fire occurrence density.



Map 3. Fire Regime Condition Class (FRCC).

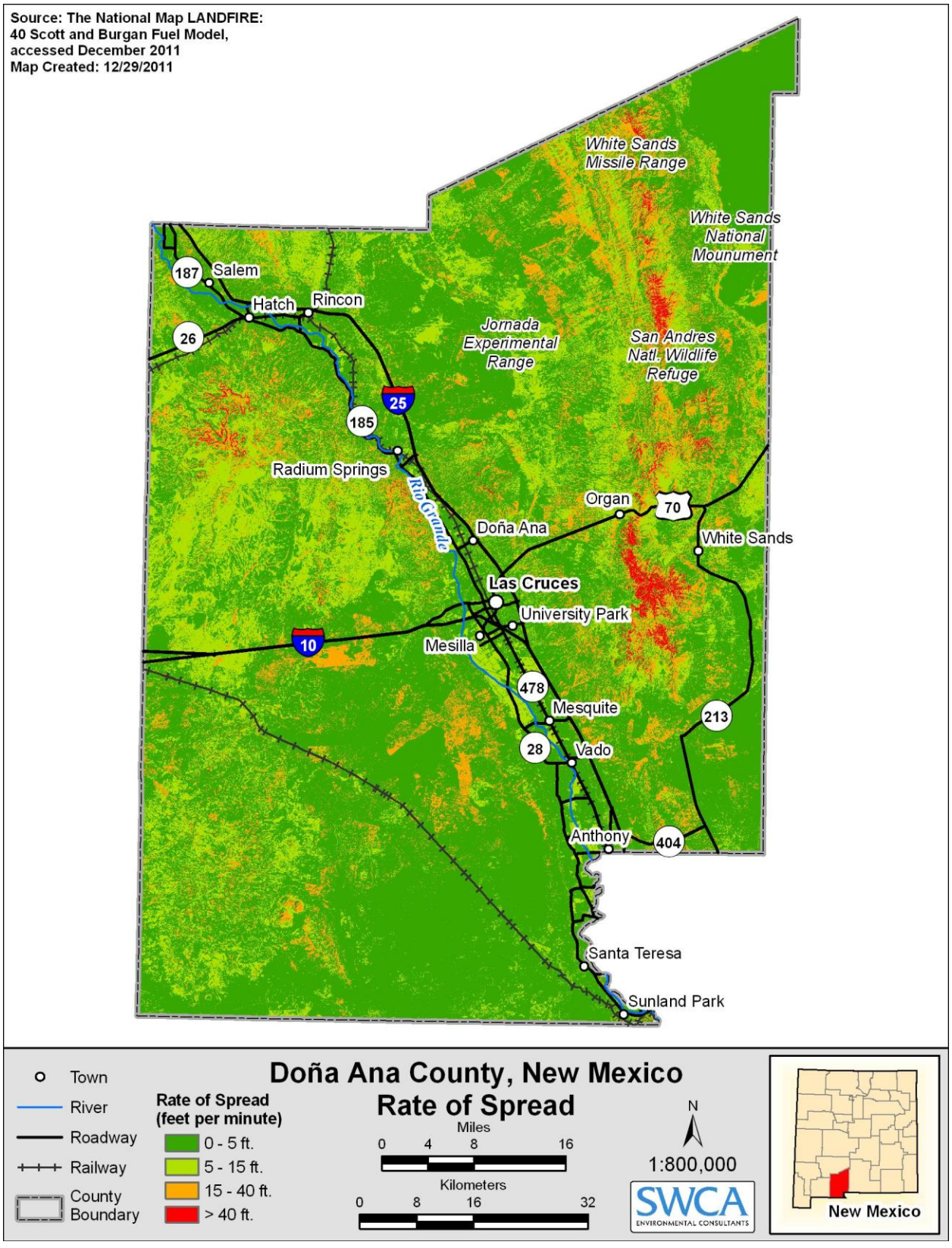


Map 4. Fuels classification.



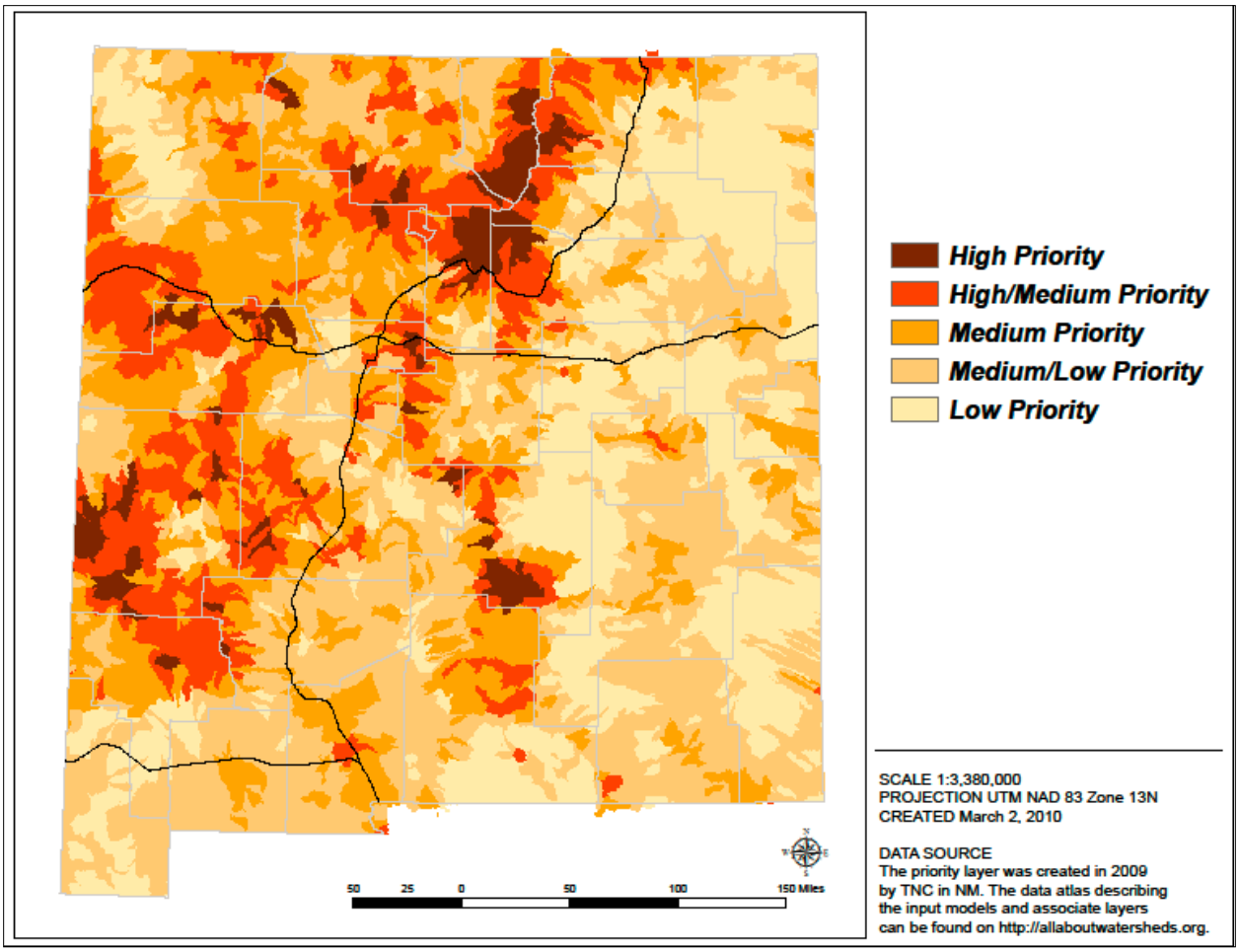
Map 5. Flame length.

Map 6. Fireline intensity.



Map 7. Rate of spread

Map 8. Crown fire activity.



Map 9. New Mexico Natural Resources Assessment and Strategy and Response Plan, Fire Risk (NMSFD 2010)

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APPENDIX B
CORE TEAM LIST

Doña Ana County CWPP
Core Team List

Name	Agency or Organization	Position
Andrew Bencomo	Las Cruces Fire District	Deputy Chief
Arnold Diaz	Las Alturas Fire District	Chief
Arturo Herrera	Doña Ana County Fire District	Captain
Charlie Benavidez	WSMR	Fire
David Almaguer	County Office of Emergency Management	Supervisor
Delia Cervantes	County Office of Emergency Management	EM Specialist
Eric Crespin	Doña Ana County Fire District	Assistant Fire Marshal
Jack Dickey	NMSFD	Fire Management Officer
Jacob McDonald	WSMR	EM Specialist
Jake Nuttall	USFWS	Fire Management Officer
Joseph Fluder	SWCA	Regional Manager
Kellen Tarkington	Doña Ana County Fire District	Captain
Kevin Hoban	Town of Mesilla Fire District	Chief
Lorenzo Espinoza	New Mexico Department of Homeland Security and Emergency Management	Local Preparedness Coordinator
Loretta Benavidez	BLM	Fire Mitigation Specialist
Louis Bencomo	Radium Springs Fire District	Chief
Michael Villa	County Office of Emergency Management	OEM Coordinator
Petti Erstrad	Organ VFD	Chief
Ricky Cox	BLM	Fuels Specialist
Robert Monsivaiz	Doña Ana County Fire District	Fire Marshal
Steve Mims	Las Cruces Fire District	Deputy Chief
Terrell Treat	NMSFD	WUI Specialist
Thomas Jones	NASA Fire Department	Fire Chief

APPENDIX C
COMMUNITY COMMENTS ON DRAFT

APPENDIX D
FIREFIGHTING RESOURCES

CWPP Firefighting Resources By Municipality												
Dona Ana County Fire & Emergency Services	**Engine Type 1**	**Engine Type 2**	**Engine Type 3**	**Engine Type 4**	**Engine (Partial)**	**Tanker Type 1**	**Tanker Type 2**	**Tanker (Partial)**	**Brush Type 6**	**Fire Truck Aerial Type 1**	**Fire Truck Aerial (Partial)**	**Foam Tender (Partial)**
	23	**3**	**3**	**1**	**1**	**9**	**1**	**1**	**5**	**0**	**0**	**0**
Las Cruces Fire Department	**Engine Type 1**	**Engine Type 2**	**Engine Type 3**	**Engine Type 4**	**Engine (Partial)**	**Tanker Type 1**	**Tanker Type 2**	**Tanker (Partial)**	**Brush Type 6**	**Fire Truck Aerial Type 1**	**Fire Truck Aerial (Partial)**	**Foam Tender (Partial)**
	7	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**2**	**1**	**1**
Sunland Park Fire Department	**Engine Type 1**	**Engine Type 2**	**Engine Type 3**	**Engine Type 4**	**Engine (Partial)**	**Tanker Type 1**	**Tanker Type 2**	**Tanker (Partial)**	**Brush Type 6**	**Fire Truck Aerial Type 1**	**Fire Truck Aerial (Partial)**	**Foam Tender (Partial)**
	0	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mesilla Fire Department	**Engine Type 1**	**Engine Type 2**	**Engine Type 3**	**Engine Type 4**	**Engine (Partial)**	**Tanker Type 1**	**Tanker Type 2**	**Tanker (Partial)**	**Brush Type 6**	**Fire Truck Aerial Type 1**	**Fire Truck Aerial (Partial)**	**Foam Tender (Partial)**
	1	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
New Mexico State University Dept. of Fire & Emergency Services	**Engine Type 1**	**Engine Type 2**	**Engine Type 3**	**Engine Type 4**	**Engine (Partial)**	**Tanker Type 1**	**Tanker Type 2**	**Tanker (Partial)**	**Brush Type 6**	**Fire Truck Aerial Type 1**	**Fire Truck Aerial (Partial)**	**Foam Tender (Partial)**
	2	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
Countywide Firefighting Resources Total	**Engine Type 1**	**Engine Type 2**	**Engine Type 3**	**Engine Type 4**	**Engine (Partial)**	**Tanker Type 1**	**Tanker Type 2**	**Tanker (Partial)**	**Brush Type 6**	**Fire Truck Aerial Type 1**	**Fire Truck Aerial (Partial)**	**Foam Tender (Partial)**
	33	**4**	**3**	**1**	**6**	**11**	**1**	**1**	**6**	**3**	**1**	**1**
NOTE: Resources are typed based on FEMA/National Incident Management System (NIMS) standards and NOT National Wildfire Coordinating Group (NWCG) standards (Partial) = The resource does not fully meet the FEMA typing criteria for any of the given "Type" or "Other" columns												

RESOURCE:	Engine, Fire (Pumper)					
CATEGORY:	Firefighting (ESF #4)			KIND:	Equipment	
MINIMUM CAPABILITIES:		TYPE I	TYPE II	TYPE III	TYPE IV	OTHER
COMPONENT	METRIC					
Equipment	Pump Capacity	1,000 GPM	500 GPM	120 GPM	70 GPM	50 GPM
Equipment	Tank Capacity	400 Gal.	400 Gal.	500 Gal.	750 Gal.	500 Gal.
Equipment	Hose, 2.5 inch	1,200 ft.	1,000 ft.			
Equipment	Hose, 1.5 inch	400 ft.	500 ft.	1,000 ft.	300 ft.	300 ft.
Equipment	Hose, 1 inch	200 ft.	300 ft.	800 ft.	300 ft.	300 ft.
Personnel	Personnel	4	3	3	2	2
COMMENTS:	The engine typing needs to be taken out to Type VII. Compromise between FIRESCOPE and NWCG is to use NWCG Standards for Engines and Crews. NWCG has seven engine types.					

RESOURCE:	Water Tender, Firefighting (Tanker)					
CATEGORY:	Firefighting (ESF #4)			KIND:	Equipment	
MINIMUM CAPABILITIES:		TYPE I	TYPE II	TYPE III	TYPE IV	OTHER
COMPONENT	METRIC					
Equipment	2,000 gallon	2,000 gallon	1,000 gallon	1,000 gallon	2,000 gallon	
Equipment	300 GPM	300 GPM	120 GPM	50 GPM	300 GPM	
COMMENTS:						

RESOURCE:	Brush Patrol, Firefighting (Type VI Engine)					
CATEGORY:	Firefighting (ESF #4)			KIND:	Equipment	
MINIMUM CAPABILITIES:		TYPE I	TYPE II	TYPE III	TYPE IV	OTHER
COMPONENT	METRIC					
Equipment	Pump					15 GPM
Equipment	Hose					1 inch; 150 feet
Equipment	Tank					75 Gallons
Personnel	Number					1
COMMENTS:	Brush Patrols apply to all vehicles equipped as described.					

RESOURCE:	Fire Truck - Aerial (Ladder or Platform)					
CATEGORY:	Firefighting, Hazardous Materials Response			KIND:	Equipment	
MINIMUM CAPABILITIES:		TYPE I	TYPE II	TYPE III	TYPE IV	OTHER
COMPONENT	METRIC					
Personnel	Number	4	Same as Type I			
Equipment	Aerial	75 ft	50 ft			
	Elevated Stream	500 GPM	Same as Type I			
	Ground Ladders	115 ft	Same as Type I			
COMMENTS	Note: Designate "L" for Ladder, or "P" for Platform.					

RESOURCE:	Foam Tender, Firefighting					
CATEGORY:	Firefighting (ESF #4); Hazardous Materials Response (ESF #10)			KIND:	Equipment	
MINIMUM CAPABILITIES:		TYPE I	TYPE II	TYPE III	TYPE IV	OTHER
COMPONENT	METRIC					
Equipment	Class B Foam	500 gallons	250 gallons			
COMMENTS:	Specify percent of concentrate (1%, 3%, etc.).					

APPENDIX E
WILDFIRE FIRE RISK AND HAZARD SEVERITY FORM
NFPA 1144

Wildfire Fire Risk and Hazard Severity Form NFPA 1144

Means of Access						
Ingress and Egress	**Points**					
Two or more roads in and out	0					
One road in and out	7					
Road Width						
>24 feet	0					
>20 feet, <24 feet	2					
<20 feet	4					
Road Conditions						
Surfaced road, grade <5%	0					
Surfaced road, grade >5%	2					
Nonsurfaced road, grade <5%	2					
Nonsurfaced road, grade >5%	5					
Other than all season	7					
Fire Access						
<300 feet with turnaround	0					
>300 feet with turnaround	2					
<300 feet with no turnaround	4					
>300 feet with no turnaround	5					
Street Signs						
Present–reflective	0					
Present–nonreflective	2					
Not present	5					
Vegetation (fuel models)						
Predominant veg						
Light–1,2,3	5					
Medium–5,6,7,8,9	10					
Heavy–4,10	20					
Slash–11,12,13	25					
Defensible Space						
>100 feet around structure	1					
>70 feet, <100 feet around structure	3					
>30 feet, <70 feet around structure	10					
<30 feet around structure	25					
Topography within 300 Feet of Structures						
Slope						
<9%	1					
10% to 20%	4					
21% to 30%	7					
31% to 40%	8					
>41%	10					
Additional Rating Factors (rate all that apply)						
Additional Factors						
Topographic features	0–5					
History of high fire occurrence	0–5					
Severe fire weather potential	0–5					
Separation of adjacent structures	0–5					

Roofing Assembly						
Roofing						
Class A	0					
Class B	3					
Class C	15					
Unrated	25					
Building Construction						
Materials (predominant)						
Non-combustible siding, eaves, deck	0					
Non-combustible siding/combustible desk	5					
Combustible siding and deck	10					
Building Set-back						
>30 feet to slope	1					
<30 feet to slope	5					
Available Fire Protection						
Water Sources						
Hydrants 500 gpm, <1000 feet apart	0					
Hydrants 250 gpm, <1000 feet apart	1					
Nonpressurized, >250 gpm/2 hrs	3					
Nonpressurized, <250 gpm/2hrs	5					
Water unavailable	10					
Organized Response						
Station <5 miles from structure	1					
Station >5 miles from structure	3					
Fixed Fire Protection						
NFPA sprinkler system	0					
None	5					
Placement of Gas and Electric Utilities						
Utilities						
Both underground	0					
One above, one below	3					
Both above ground	5					

Totals for Home or Subdivision					

Hazard Rating Scale
<40 Low
>40 Moderate
>70 High
>112 Extreme

APPENDIX F
COMMUNITY AT RISK LIST

DOÑA ANA COUNTY CWPP
COMMUNITY AT RISK LIST

This Community at Risk (CAR) list is developed for the New Mexico Fire Planning Task Force. The communities listed are based upon Core Team input and the risk assessment carried out as part of this CWPP.

The communities are rated as high, moderate, low, or no risk. Because this is plan covers multiple communities and jurisdictions, it is recommended that more detailed analysis be carried out to a subdivision level in the future.

Community/ Fire District	NFPA Score	GIS risk/hazard rating	Overall Community Hazard Rating
Highway 185 (Radium Springs Fire District)	102 (High)	High-Extreme	High
Organ	101 (High)	Mod-High	High
Fairacres	95 (High)	Mod-High	High
Rincon	82 (High)	Low-High	High
Radium Springs	76 (High)	Mod-High	High
Las Alturas (Talavera)	74 (High)	High-Extreme	High
Mesilla	71 (High)	Mod-High	High
Dripping Springs	71 (High)	Mod-High	High
Garfield	68 (Mod)	Low-High	High
Chaparral	66 (Mod)	Mod-High	Mod
Vado and La Mesa	65 (Mod)	Low-Mod	Mod
Hatch	60 (Mod)	Low-Mod	Mod
Doña Ana	54 (Mod)	Mod-High	Mod

Risk Rating Classification:
<40 = Low
40–69 = Moderate
70–111 = High
>112 = Extreme

APPENDIX G
PUBLIC COMMENTS

DOÑA ANA COUNTY CWPP
COMMENTS FROM CWPP SURVEY

In the CWPP community survey, respondents were asked to name any community resources they would most like to see prioritized for protection from wildfire (e.g. natural areas, cultural sites, municipal infrastructure etc.). Reponses are listed below:

Agricultural lands in the Mesilla Valley

State parks and wildlife areas, agricultural areas, outlying schools and community centers

Natural Areas

Natural areas/blm undeveloped

Natural area: grasslands, forests, hiking areas, mountains, state parks.

BLM lands

homes, cultural sites,

Natural Areas and Infrastructure

Municipal Infrastructure

I live on the slopes of the Organ Mtns. and we get several fires/summer due to ordnance being fired from White Sands/Ft.Bliss firing ranges. They need to stop shooting over the mtns and aim their ordinance shots to the east.

Organ Mountains

Homes

Better water sources and cleaning unoccupied lots.

Natural areas

Mountain vistas

Near the River (Rio Grande)

Cultural sites and natural areas

Talavera MDWCA water wells.

Municipal infrastructure

Recreational areas (Broad Canyon) Electric transmission lines

Organ Mtn recreation area,

Natural areas, particularly in the Organs.

Water supply infrastructure (storage tanks, pumping, etc...)

Municipal infrastructure

Natural, open areas. In most cases in the small Wildland Urban Interface that exists in Doña Ana County, there is a "buffer" of open space (State of BLM lands). I think private property owners need to ensure they are doing their part to keep wildfires from starting.

Quit artillery shelling on Ft Bliss when fire danger is high.

Natural areas (Organ Mountains)

Paved roads!!!!

Obviously the volunteer fire district itself (the only public building in our vicinity), and also the natural areas in the Organ Mountains.

Museums, schools, state parks, NATl parks

Schools

Community Awareness, Natural Areas

Natural areas

Fires ignited by Fort Bliss

Peoples homes natural areas

Recreational Areas

Hiking Trials and Picnic Grounds

Hiking Trails, Doña Ana Mountains

Trails by the river, no water for fire fighting.

Hiking trails, historical neighborhoods

Protect the last of the desert ecosystem

Hiking trails

Homes and Public Lands

Dripping Springs

Hiking trails

Respondents were asked to add additional comments. Below are all responses received:

Continue to educate the public on the importance of reducing vegetation and other fuels.

Having a system for yard waste disposal (~monthly pickup), even if voluntary and at additional expense would be extremely valuable. People would not be inclined to burn it in that case.

Our volunteer depts need to have updated equipment and training as all the outlying areas depend on them... Is it possible for the county and city to join forces on training and such to ease the cost burdens on both entities???

This is not a scientific study, and results should ONLY be used for direction - NOT statistically valid.

The Talavera area doesn't have a telephone chain so people in different areas in Talavera can call neighbors to alert them to fires when they occur. 3 yrs. ago we had a very big fire in Soledad Canyon and some homes had to be evacuated...it was very scary. And last summer we had several fires on the west side of the Organs. Even the smallest fire can travel far if the winds pick-up ...which they do routinely on the western slopes. BLM has to stop doing their "burns" during the summer ...do not understand why they can't do them during the winter months. Also people who burn privately w/o a permit shd be fined big time...the wind can pick up and spread that fire in minutes.

I do not know how prepared this area is if wildfire occurs.

I feel relatively safe in my area and make an effort to clear brush near our house and remove trash that blows in, but I expect we could still be vulnerable to a serious wildfire.

Biggest wildfire risk seems to originate from Ft. Bliss.

Lack of alternate access and evacuation routes is a large concern for this community area.

If the garbage trucks would pickup yard waste, people would not have to burn their brush. Right now, I have a pile three foot high by 10 ft. wide waiting to burn but I would prefer to have it hauled away.

We need a more strict law to prevent people from starting bon fires in the desert and causing damage.

With help from LAFD we have a program in conjunction with a bi-annual road clean-up to clear brush away from our homes. One roll-off dumpster for road waste and brush may not be enough. Funding for two once a year might be nice...or a dedicated brush removal program would be nice.

Need more firefighters and training

Why doesn't #3 above have any answers that I can use to indicate that I do not feel threatened by wildfires where I live??

Biggest current fire risk appears to be Fort Bliss setting the Organ mountains on fire.

The only danger we have had is when fires were started on the east side of the Organs and they moved over the mountain down toward our home.

My home and many others in my area are on well water. Having sufficient water to fight a major wildfire concerns me. My second concern: the amount of grass & shrubs close to neighboring homes, which could further fuel a wildfire. I believe this could be addressed with homeowner education. Thanks for this survey.

The reason I placed water supply so low on my list is because I would guesstimate that more than 90% of

fire hydrants inside the city limits are 1500gpm or greater. Water supply should not be an issue for EPFD. Where the city as a whole has its downfalls is its lack of brush equipment and training. To be better suited for this brush fire season El Paso needs to educate the residence about the dangers of having fires outside, and their needs to be harder consequences for those who disregard them.

Save the Organ Mt area from Ft. Bliss carelessness

I think that we need forums to educate people on what they can do to make their properties safer in case of wild fires. There is not enough water available in the tanks in this area to put out major wild fires, we need alternative plans before a fire breaks out and gets completely out of control.

Keep up the educational resources

Feel sorry for farmers who are suffering from arson fires.

APPENDIX H
FUNDING OPPORTUNITIES

DOÑA ANA COUNTY CWPP FUNDING OPPORTUNITIES

The following section provides information on federal, state, and private funding opportunities for conducting wildfire mitigation projects.

I. Federal Funding Information

Source: Predisaster Mitigation Grant Program
Agency: Department of Homeland Security Federal Emergency Management Agency (DHS FEMA)
Website: http://www.fema.gov/government/grant/pdm/index.shtm
Description: The DHS includes FEMA and the U.S. Fire Administration. FEMA's Federal Mitigation and Insurance Administration is responsible for promoting predisaster activities that can reduce the likelihood or magnitude of loss of life and property from multiple hazards, including wildfire. The Disaster Mitigation Act of 2000 created a requirement for states and communities to develop predisaster mitigation plans and established funding to support the development of the plans and to implement actions identified in the plans. This competitive grant program, known as PDM, has funds available to state entities, tribes, and local governments to help develop multihazard mitigation plans and to implement projects identified in those plans.

Source: Section 319 Base Grant to State Entities and Indian Tribes
Agency: Environmental Protection Agency (EPA)
New Mexico State 319 Coordinator
David Hogge
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502
Phone: (505) 827-2981
Fax: (505) 827-0160
david_hogge@nmenv.state.nm.us
Website: http://www.epa.gov
Description: Funding under this program is often used for reduction of nonpoint-source pollution; however, one community successfully used the grant to obtain funding to reduce hazardous fuels to protect the municipal watershed. For additional information on this success story, visit http://www.santafewatershed.com. To learn about obtaining this type of funding for your community, contact New Mexico's 319 Grant Coordinator, Dave Hogge, New Mexico Environmental Department at (505) 827-2981.

This funding opportunity is a Request for Proposals from state entities and Indian tribes for competitive grants under section 319 of the Clean Water Act (CWA). The purpose of this grant program is to provide funding to implement nonpoint-source management programs developed pursuant to CWA section 319(b). The primary goal of this management program is to control nonpoint-source pollution. This is done through implementation of management measures and practices to reduce pollutant loadings resulting from each category or subcategory of nonpoint-source identified in the grant recipient's nonpoint-source assessment report, which should be

developed pursuant to CWA section 319(a). The EPA has set aside a portion of section 319 funds appropriated by Congress for competitive grant awards to tribes for the purpose of funding the development and implementation of watershed-based plans and other on-the-ground watershed projects that result in a significant step toward solving nonpoint-source impairments on a watershed-wide basis. Please note that the funding opportunity described here is found in Section B of the full announcement. (Section A includes the EPA's national guidelines, which govern the process for awarding noncompetitive base grants to all eligible tribes.)

Source: Funding for Fire Departments and First Responders
Agency: DHS, U.S. Fire Administration
Website: http://www.usfa.dhs.gov/fireservice/grants/
Description: Includes grants and general information on financial assistance for fire departments and first responders. Programs include the Assistance to Firefighters Grant Program (AFGP), Reimbursement for Firefighting on Federal Property, State Fire Training Systems Grants, and National Fire Academy Training Assistance.

Source: Conservation Innovation Grants (CIG)
Agency: National Resource Conservation Service
Website: http://www.nm.nrcs.usda.gov/programs/cig/cig.html
Description: CIG State Component. CIG is a voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging federal investment in environmental enhancement and protection, in conjunction with agricultural production. Under CIG, Environmental Quality Incentives Program (EQIP) funds are used to award competitive grants to non-federal governmental or nongovernmental organizations, tribes, or individuals. CIG enables the Natural Resources Conservation Service (NRCS) to work with other public and private entities to accelerate technology transfer and adoption of promising technologies and approaches to address some of the nation's most pressing natural resource concerns. CIG will benefit agricultural producers by providing more options for environmental enhancement and compliance with federal, state, and local regulations. The NRCS administers the CIG program. The CIG requires a 50/50 match between the agency and the applicant. The CIG has two funding components: national and state. Funding sources are available for water resources, soil resources, atmospheric resources, and grazing land and forest health.

Source: Volunteer Fire Assistance
Agency: U.S. Forest Service
Website: http://www.fs.fed.us/fire/partners/vfa/
Description: U.S. Forest Service funding will provide assistance, through the states, to volunteer fire departments to improve communication capabilities, increase wildland fire management training, and purchase protective fire clothing and firefighting equipment. For more information, contact your state representative; contact information can be found on the National Association of State Foresters website.

Source: Economic Action Programs
Agency: U.S. Forest Service
Website: http://www.fs.fed.us/spf/coop/programs/eap/index.shtml
Description: U.S. Forest Service funding will provide for Economic Action Programs that work with local communities to identify, develop, and expand economic opportunities related to traditionally under-utilized wood products and to expand the utilization of wood removed through hazardous fuel reduction treatments. Information, demonstrations, application development, and training will be made available to participating communities. For more information, contact a Forest Service Regional Representative.

Source: Collaborative Forest Restoration Program (CFRP)
Agency: U.S. Forest Service
Website: http://www.fs.fed.us/r3/spf/cfrp/index.shtml
Description: The Community Forest Restoration Act of 2000 (Title VI, Public Law 106–393) established a cooperative forest restoration program in New Mexico to provide cost-share grants to stakeholders for forest restoration projects on public land to be designed through a collaborative process (the CFRP). Projects must include a diversity of stakeholders in their design and implementation, and should address specified objectives including: wildfire threat reduction; ecosystem restoration, including non-native tree species reduction; reestablishment of historic fire regimes; reforestation; preservation of old and large trees; increased utilization of small-diameter trees; and the creation of forest-related local employment. The act limits projects to four years and sets forth cost limits and provisions respecting collaborative project review and selection, joint monitoring and evaluation, and reporting. The act authorizes appropriations of up to $5 million annually and directs the Secretary to convene a technical advisory panel to evaluate proposals that may receive funding through the CFRP.

Source: Catalog of Federal Funding Sources for Watershed Protection
Agency: N/A
Website: http://cfpub.epa.gov/fedfund/
Examples of the types of grants found at this site are:

- Native Plant Conservation Initiative: http://www.nfwf.org/AM/Template.cfm?Section=Browse_All_Programs&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTID=3966
- Targeted Watershed Grants Program, http://www.epa.gov/owow/watershed/initiative/
- Predisaster Mitigation Program, http://www.fema.gov/government/grant/pdm/index.shtm
- Environmental Education Grants, http://www.epa.gov/enviroed/grants_contacts.html

Source: Firewise Communities
Agency: Multiple
Website: http://www.firewise.org
Description: The Wildland/Urban Interface Working Team (WUIWT) of the National Wildfire Coordinating Group is a consortium of wildland fire organizations and federal agencies responsible for wildland fire management in the United States. The WUIWT includes the U.S. Forest Service, Bureau of Indian Affairs, BLM, U.S. Fish and Wildlife Service, National Park Service, FEMA, U.S. Fire Administration, International Association of Fire Chiefs, National Association of State Fire Marshals, National Association of State Foresters, National Emergency Management Association, and National Fire Protection Association. Many different Firewise

Communities activities are available help homes and whole neighborhoods become safer from wildfire without significant expense. Community cleanup days, awareness events, and other cooperative activities can often be successfully accomplished through partnerships among neighbors, local businesses, and local fire departments at little or no cost. The Firewise Communities recognition program page (http://www.firewise.org/usa) provides a number of excellent examples of these kinds of projects and programs.

The kind of help you need will depend on who you are, where you are, and what you want to do. Among the different activities individuals and neighborhoods can undertake, the following actions often benefit from some kind of seed funding or additional assistance from an outside source:

- Thinning/pruning/tree removal/clearing on private property—particularly on very large, densely wooded properties
- Retrofit of home roofing or siding to non-combustible materials
- Managing private forest
- Community slash pickup or chipping
- Creation or improvement of access/egress roads
- Improvement of water supply for firefighting
- Public education activities throughout the community or region

Some additional examples of what communities, counties, and states have done can be found in the National Database of State and Local Wildfire Hazard Mitigation Programs at http://www.wildfireprograms.usda.gov. You can search this database by keyword, state, jurisdiction, or program type to find information about wildfire mitigation education programs, grant programs, ordinances, and more. The database includes links to local websites and e-mail contacts.

Source: The National Fire Plan (NFP)
Website: http://www.forestsandrangelands.gov/
Description: Many states are using funds from the NFP to provide funds through a cost-share with residents to help them reduce the wildfire risk to their private property. These actions are usually in the form of thinning or pruning trees, shrubs, and other vegetation and/or clearing the slash and debris from this kind of work. Opportunities are available for rural, state, and volunteer fire assistance.

Source: Staffing for Adequate Fire and Emergency Response (SAFER)
Agency: DHS
Website: http://www.firegrantsupport.com/safer/
Description: The purpose of SAFER grants is to help fire departments increase the number of frontline firefighters. The goal is for fire departments to increase their staffing and deployment capabilities and ultimately attain 24-hour staffing, thus ensuring that their communities have adequate protection from fire and fire-related hazards. The SAFER grants support two specific activities: (1) hiring of firefighters and (2) recruitment and retention of volunteer firefighters. The hiring of firefighters activity provides grants to pay for part of the salaries of newly hired firefighters over the five-year program. SAFER is part of the Assistance to Firefighters Grants and is under the purview of the Office of Grants and Training of the DHS.

Source: The Fire Prevention and Safety Grants (FP&S)
Agency: DHS
Website: http://www.firegrantsupport.com/fps/
Description: The FP&S are part of the Assistance to Firefighters Grants and are under the purview of the Office of Grants and Training in the DHS. FP&S offers support to projects that enhance the safety of the public and firefighters who may be exposed to fire and related hazards. The primary goal is to target high risk populations and mitigate high incidences of death and injury. Examples of the types of projects supported by FP&S include fire-prevention and public-safety education campaigns, juvenile fire-setter interventions, media campaigns, and arson prevention and awareness programs. In fiscal year 2005, Congress reauthorized funding for FP&S and expanded the eligible uses of funds to include firefighter safety research and development.

Source: Rural Fire Assistance (RFA)
Agency: DOI- USFWS
Website: http://www.nifc.gov/rfa.
Description: The RFA program provides funds for RFDs that Protect rural, wildland-urban interface communities; play a substantial cooperative role in the protection of federal lands; are cooperators with the Department of the Interior (DOI) managed lands through cooperative agreements with the DOI, or their respective state, tribe or equivalent; are less than 10,000 in population. The required cost share amount for the recipient RFD will not exceed 10 percent of the amount awarded. The RFD must demonstrate the capability to meet cost share requirements Cooperator contribution may be contributed as in-kind services. Cooperator contribution may exceed, but not amount to less than 10 percent. Examples of in-kind services may include but are not limited to: facility use incurred by and RFD for hosting training courses, travel and per diem costs incurred by an RFD when personnel attend training courses, and administration costs related to purchasing RFA equipment and supplies. Finding or in-kind resources may not be derived from other federal finding programs.

II. State Funding Information

Source: State and Private Forestry Programs
Agency: National Association of State Foresters
Website: http://www.stateforesters.org/S&PF/coop_fire.html
Description: The National Association of State Foresters recommends that funds become available through a competitive grant process on Wildland Urban Interface hazard mitigation projects. State fire managers see opportunities to use both the State Fire Assistance Program and the Volunteer Fire Assistance Program to improve the safety and effectiveness of firefighters in the interface, as well as in other wildland fire situations. To ensure firefighter safety, minimize property and resource loss, and reduce suppression costs, land management agencies, property owners, local leaders, and fire protection agencies must work cooperatively to mitigate interface fire risks, as well as to ensure that wildland firefighters receive the training, information, and equipment necessary to safely carry out their responsibilities.

Source: New Mexico Association of Counties: Wildfire Risk Reduction Program
Agency: New Mexico Association of Counties

Website: http://www.nmcounties.org/wildfire.html

Description: This program targets at-risk communities by offering seed money to help defray the costs of community wildfire protection projects. During the past two years, the Wildfire Risk Reduction Grant Program has primarily funded projects for the development of Community Wildfire Protection Plans (CWPPs), a prerequisite to all other activities. In 2007, priority was given to projects that requested funding for hazardous fuel reduction, wildfire prevention, and community outreach activities that were identified in completed CWPPs.

III. Private Funding Information

Source: The Urban Land Institute (ULI)
Website: http://www.uli.org
Description: ULI is a 501(c)(3) nonprofit research and education organization supported by its members. The institute has more than 22,000 members worldwide, representing the entire spectrum of land use and real estate development disciplines, working in private enterprise and public service. The mission of the ULI is to provide responsible leadership in the use of land to enhance the total environment. ULI and the ULI Foundation have instituted Community Action Grants (http://www.uli.org/Content/NavigationMenu/MyCommunity/CommunityActionGrants/Community_Action_Gr.htm) that could be used for Firewise Communities activities. Applicants must be ULI members or part of a ULI District Council. Contact actiongrants@uli.org or review the web page to find your District Council and the application information.

Source: Environmental Systems Research Institute (ESRI)
Website: http://www.esri.com/grants
Description: ESRI is a privately held firm and the world's largest research and development organization dedicated to geographic information systems. ESRI provides free software, hardware, and training bundles under ESRI-sponsored Grants that include such activities as conservation, education, and sustainable development, and posts related non-ESRI grant opportunities under such categories as agriculture, education, environment, fire, public safety, and more. You can register on the website to receive updates on grant opportunities.

Source: StEPP Foundation
Website: http://www.steppfoundation.org/default.htm
Description: StEPP is a 501(c)(3) organization dedicated to helping organizations realize their vision of a clean and safe environment by matching projects with funders nationwide. The StEPP Foundation provides project oversight to enhance the success of projects, increasing the number of energy efficiency, clean energy, and pollution prevention projects implemented at the local, state, and national levels for the benefit of the public. The website includes an online project submittal system and a Request for Proposals page.

Source: The Public Entity Risk Institute (PERI)
Website: http://www.riskinstitute.org
Description: PERI is a not for profit, tax-exempt organization. Its mission is to serve public, private, and nonprofit organizations as a dynamic, forward-thinking resource for the practical enhancement of risk management. With its growing array of programs and projects, along with its grant funding, PERI's focus includes supporting the development and delivery of education and training on all aspects of risk management for public, nonprofit, and small business entities, and serving as a resource center and clearinghouse for all areas of risk management.

IV. Other Funding information

The following resources may also provide helpful information for funding opportunities:

- National Agricultural Library Rural Information Center: http://www.nal.usda.gov/ric/ricpubs/fire_department_resources.htm
- Forest Service Fire Management website: http://www.fs.fed.us/fire/
- Insurance Services Office Mitigation Online (town fire ratings): http://www.isomitigation.com/
- National Fire Protection Association: http://www.nfpa.org
- National Interagency Fire Center, Wildland Fire Prevention/Education: http://www.nifc.gov/preved/rams.htm
- Department of Homeland Security U.S. Fire Administration: http://www.usfa.dhs.gov/fireservice/grants/rfff/

APPENDIX H
HOMEOWNERS GUIDE

DOÑA ANA COUNTY CWPP HOMEOWNERS GUIDE

This guide has been developed to address site-specific information on wildfire for Doña Ana County. In public meetings and written comments, residents expressed a need for better information on reducing wildfire risk and what to do in the event of a wildfire. This document was developed to meet these expressed community needs, as well as to fulfill requirements for the Community Wildfire Protection Plan. This guide 1) suggests specific measures that can be taken by homeowners to reduce structure ignitability and 2) enhances overall preparedness in the planning area by consolidating preparedness information from several local agencies and departments.

BEFORE THE FIRE—PROTECTION AND PREVENTION

REDUCING STRUCTURE IGNITABILITY

Structural Materials

Roofing—The more fire-resistant the roofing material, the better. The roof is the portion of the house that is most vulnerable to ignition by falling embers, known as firebrands. Metal roofs afford the best protection against ignition from falling embers. Slate or tile roofs are also non-combustible, and Class-A asphalt shingles are recommended as well. The most dangerous type of roofing material is wood shingles. Removing debris from roof gutters and downspouts at least twice a year will help to prevent fire, along with keeping them functioning properly.

Siding—Non-combustible materials are ideal for the home exterior. Preferred materials include stucco, cement, block, brick, and masonry.

Windows—Double-pane windows are most resistant to heat and flames. Smaller windows tend to hold up better within their frames than larger windows. Tempered glass is best, particularly for skylights, because it will not melt as plastic will.

Fencing and trellises—Any structure attached to the house should be considered part of the house. A wood fence or trellis can carry fire to your home siding or roof. Consider using nonflammable materials or use a protective barrier such as metal or masonry between the fence and the house.

If you are designing a new home or remodeling your existing one, do it with fire safety as a primary concern. Use nonflammable or fire resistant materials and have the exterior wood treated with UL-approved fire-retardant chemicals. More information on fire-resistant construction can be found at http://www.firewise.org.

SCREEN OFF THE AREA BENEATH DECKS AND PORCHES

The area below an aboveground deck or porch can become a trap for burning embers or debris, increasing the chances of the fire transferring to your home. Screen off the area using screening with openings no larger than one-half inch. Keep the area behind the screen free of all leaves and debris.

FIREWOOD, KINDLING, AND OTHER FLAMMABLES

Although convenient, stacked firewood on or below a wooden deck adds fuel that can feed a fire close to your home. Be sure to move all wood away from the home during fire season. Stack all firewood uphill, at least 30 feet and preferably 100 feet from your home.

When storing flammable materials such as paint, solvents, or gasoline, always store them in approved safety containers away from any sources of ignition such as hot water tanks or furnaces. The fumes from highly volatile liquids can travel a great distance after they turn into a gas. If possible, store the containers in a safe, separate location away from the main house.

The Public Service Company of New Mexico (PNM) does not have sufficient crews for frequent inspection of all its high-voltage power lines. If you have high-voltage lines running near your property, take a moment to walk underneath them and ensure that no tree branches are close to the towers or lines. If there is any situation that could be a fire hazard, contact a customer service representative from PNM.

CHIMNEYS AND FIREPLACE FLUES

Inspect your chimney and damper at least twice a year and have the chimney cleaned every year before first use. Have the spark arrestor inspected and confirm that it meets the latest safety code. Your local fire department will have the latest edition of National Fire Prevention Code 211 covering spark arrestors. Make sure to clear away dead limbs from within 15 feet of chimneys and stovepipes

FIREPLACE AND WOODSTOVE ASHES

Never take ashes from the fireplace and put them into the garbage or dump them on the ground. Even in winter, one hot ember can quickly start a grass fire. Instead, place ashes in a metal container, and as an extra precaution, soak them with water. Cover the container with its metal cover and place it in a safe location for a couple of days. Then either dispose of the cold ash with other garbage or bury the ash residue in the earth and cover it with at least 6 inches of mineral soil.

PROPANE TANKS

Your propane tank has many hundreds of gallons of highly flammable liquid that could become an explosive incendiary source in the event of a fire. The propane tank should be located at least 30 feet from any structure. Keep all flammables at least 10 feet from your tank. Learn how to turn the tank off and on. In the event of a fire, you should turn the gas off at the tank before evacuating, if safety and time allow.

SMOKE ALARMS

A functioning smoke alarm can help warn you of a fire in or around your home. Install smoke alarms on every level of your residence. Test and clean smoke alarms once a month and replace batteries at least once a year. Replace smoke alarms once every 10 years.

FIRE-SAFE BEHAVIOR

- If you smoke, always use an ashtray in your car and at home.
- Store and use flammable liquids properly.
- Keep doors and windows clear as escape routes in each room.

DEFENSIBLE SPACE

The removal of dense, flammable foliage from the area immediately surrounding the house reduces the risk of structure ignition and allows firefighters access to protect the home. A 100-foot safety zone, free of all trees and shrubs, is recommended by the fire department; the minimum distance is 30 feet. Steep slopes require increased defensible space because fire can travel quickly uphill.

Within the minimum 30-foot safety zone, plants should be limited to fire-resistant trees and shrubs. Focus on fuel breaks such as concrete patios, walkways, rock gardens, and irrigated garden or grass areas within this zone. Use mulch sparingly within the safety zone, and focus use in areas that will be watered regularly. In areas such as turnarounds and driveways, nonflammable materials such as gravel are much better than wood chips or pine needles.

Vegetative debris such as dead grasses or leaves provide important erosion protection for soil but also may carry a surface fire. It is simply not feasible to remove all the vegetative debris from around your property. However, it is a good idea to remove any accumulations within the safety zone and extending out as far as possible. This is particularly important if leaves tend to build up alongside your house or outbuildings. Removing dead vegetation and leaves and exposing bare mineral soil are recommended in a 2-foot-wide perimeter along the foundation of the house. Also, be sure to regularly remove all dead vegetative matter including grasses, flowers, and leaf litter surrounding your home and any debris from gutters, especially during summer months. Mow the lawn regularly and promptly dispose of the cuttings properly. If possible, maintain a green lawn for 30 feet around your home.

All trees within the safety zone should have lower limbs removed to a height of 6–10 feet. Remove any branches within 15 feet of your chimney or overhanging any part of your roof. Ladder fuels are short shrubs or trees growing under the eaves of the house or under larger trees. Ladder fuels carry fire from the ground level onto the house or into the tree canopy. Be sure to remove all ladder fuels within the safety zone first. The removal of ladder fuels within about 100 feet of the house will help to limit the risk of crown fire around your home. More information about defensible space is provided at http://www.firewise.org.

FIRE RETARDANTS

For homeowners who would like home protection beyond defensible space and fire-resistant structural materials, fire-retardant gels and foams are available. These materials are sold with

various types of equipment for applying the material to the home. They are similar to the substances applied by firefighters in advance of wildfire to prevent ignition of homes. Different products have different timelines for application and effectiveness. The amount of product needed is based on the size of the home, and prices may vary based on the application tools. Prices range from a few hundred to a few thousand dollars. An online search for "fire blocking gel" or "home firefighting" will provide a list of product vendors.

ADDRESS POSTING

Locating individual homes is one of the most difficult tasks facing emergency responders. Every home should have the address clearly posted with numbers at least three inches high. The colors of the address posting should be contrasting or reflective. The address should be posted so that it is visible to cars approaching from either direction.

ACCESS

Unfortunately, limited access may prevent firefighters from reaching many homes in Doña Ana County. Many of the access problems occur at the property line and can be improved by homeowners. First, make sure that emergency responders can get in your gate. This may be important not only during a fire but also to allow access during any other type of emergency response. If you will be gone for long periods during fire season, make sure a neighbor has access, and ask them to leave your gate open in the event of a wildfire in the area.

Ideally, gates should swing inward. A chain or padlock can be easily cut with large bolt cutters, but large automatic gates can prevent entry. Special emergency access red boxes with keys are sold by many gate companies but are actually not recommended by emergency services. The keys are difficult to keep track of and may not be available to the specific personnel that arrive at your home. An alternative offered by some manufacturers is a device that opens the gate in response to sirens. This option is preferred by firefighters but may be difficult or expensive to obtain.

Beyond your gate, make sure your driveway is uncluttered and at least 12 feet wide. The slope should be less than 10%. Trim any overhanging branches to allow at least 13.5 feet of overhead clearance. Also make sure that any overhead lines are at least 14 feet above the ground. If any lines are hanging too low, contact the appropriate phone, cable, or power company to find out how to address the situation.

If possible, consider a turnaround within your property at least 45 feet wide. This is especially important if your driveway is more than 300 feet in length. Even small fire engines have a hard time turning around and cannot safely enter areas where the only means of escape is by backing out. Any bridges must be designed with the capacity to hold the weight of a fire engine.

NEIGHBORHOOD COMMUNICATION

It is important to talk to your neighbors about the possibility of wildfire in your community. Assume that you will not be able to return home when a fire breaks out and may have to rely on your neighbors for information and assistance. Unfortunately, it sometimes takes tragedy to get

people talking to each other. Don't wait for disaster to strike. Strong communication can improve the response and safety of every member of the community.

PHONE TREES

Many neighborhoods use phone trees to keep each other informed of emergencies within and around the community. The primary criticism is that the failure to reach one person high on the tree can cause a breakdown of the system. However, if you have willing and able neighbors, particularly those that are at home during the day, the creation of a well-planned phone tree can often alert residents to the occurrence of a wildfire more quickly than media channels. Talk to your neighborhood association about the possibility of designing an effective phone tree.

NEIGHBORS IN NEED OF ASSISTANCE

Ask mobility-impaired neighbors if they have notified emergency responders of their specific needs. It is also a good idea for willing neighbors to commit to evacuating a mobility-impaired resident in the event of an emergency. Make sure that a line of communication is in place to verify the evacuation.

ABSENTEE OWNERS

Absentee owners are often not in communication with their neighbors. If a home near you is unoccupied for large portions of the year, try to get contact information for the owners from other neighbors or your neighborhood association. Your neighbors would probably appreciate notification in the event of an emergency. Also, you may want to contact them to suggest that they move their woodpile or make sure that the propane line to the house is turned off.

HOUSEHOLD EMERGENCY PLAN

A household emergency plan does not take much time to develop and will be invaluable in helping your family deal with an emergency safely and calmly. One of the fundamental issues in the event of any type of emergency is communication. Be sure to keep the phone numbers of neighbors with you rather than at home.

It is a good idea to have an out of state contact, such as a family member. When disaster strikes locally, it is often easier to make outgoing calls to a different area code than local calls. Make sure everyone in the family has the contact phone number and understands why they need to check in with that person in the event of an emergency. Also, designate a meeting place for your family. Having an established meeting site helps to ensure that family members know where to go, even if they can't communicate by phone.

CHILDREN

Local schools have policies for evacuation of students during school hours. Contact the school to get information on how the process would take place and where the children would likely go.

The time between when the children arrive home from school and when you return home from work is the most important timeframe that you must address. Fire officials must clear residential areas of occupants to protect lives and to allow access for fire engines and water drops from

airplanes or helicopters. If your area is evacuated, blockades may prevent you from returning home to collect your children. It is crucial to have a plan with a neighbor for them to pick up your children if evacuation is necessary.

PETS AND LIVESTOCK

Some basic questions about pets and livestock involve whether you have the ability to evacuate the animals yourself and where you would take them. Planning for the worst-case scenario may save your animals. An estimated 90% of pets left behind in an emergency do not survive. Don't expect emergency service personnel to prioritize your pets in an emergency. Put plans in place to protect your furry family members.

PETS

Assemble a pet disaster supply kit and keep it handy. The kit should contain a three-day supply of food and water, bowls, a litter box for cats, and a manual can opener if necessary. It is also important to have extra medication and medical records for each pet. The kit should contain a leash for each dog and a carrier for each cat. Carriers of some kind should be ready for birds and exotic pets. In case your pet must be left at a kennel or with a friend, also include an information packet that describes medical conditions, feeding instructions, and behavioral problems. A photo of each pet will help to put the right instructions with the right pet.

In the event of a wildfire you may be prevented from returning home for your animals. Talk to your neighbors and develop a buddy system in case you or your neighbors are not home when fire threatens. Make sure your neighbor has a key and understands what to do with your pets should they need to be evacuated.

If you and your pets were evacuated, where would you go? Contact friends and family in advance to ask whether they would be willing to care for your pets. Contact hotels and motels in the area to find out which ones accept pets. Boarding kennels may also be an option. Make sure your pets' vaccinations are up-to-date if you plan to board them.

Once you have evacuated your pets, continue to provide for their safety by keeping them cool and hydrated. Try to get your pets to an indoor location rather than leaving them in the car. Do not leave your pets in your vehicle without providing shade and water. It is not necessary to give your pets water while you are driving, but be sure to offer water as soon as you reach your destination.

LIVESTOCK

Getting livestock out of harm's way during a wildfire is not easy. You may not be able or allowed to return home to rescue your stock during a wildfire evacuation. Talk to your neighbors about how you intend to deal with an evacuation. If livestock are encountered by emergency responders, they will be released and allowed to escape the fire on their own. Make sure your livestock have some sort of identification. Ideally, your contact information should be included on a halter tag or ear tag so that you could be reached if your animal is encountered.

If you plan to evacuate your livestock, have a plan in place for a destination. Talk to other livestock owners in the area to find out whether they would be willing to board your stock in the event of an emergency. Often in large-scale emergencies, special accommodations can be made at fair and rodeo grounds, but personal arrangements may allow you to respond more quickly and efficiently.

If you do not own a trailer for your horses or other livestock, talk to a neighbor who does. Find out whether they would be willing to assist in the evacuation of your animals. If you do own a trailer, make sure it is in working condition with good, inflated tires and functioning signal lights. Keep in mind that even horses that are accustomed to a trailer may be difficult to load during an emergency. Practicing may be a good idea to make sure your animals are as comfortable as possible when being loaded into the trailer.

HOUSE AND PROPERTY

Insurance companies suggest that you make a video that scans each room of your house to help document and recall all items within your home. This video can make replacement of your property much easier in the unfortunate event of a large insurance claim. See more information on insurance claims in the "After the Fire" section below.

PERSONAL ITEMS

During fire season, items you would want to take with you during an evacuation should be kept in one readily accessible location. As an extra precaution, it may be a good idea to store irreplaceable mementos or heirlooms away from your home during fire season.

It is important to make copies of all important paperwork, such as birth certificates, titles, and so forth, and store them somewhere away from your home, such as in a safe deposit box. Important documents can also be protected in a designated firesafe storage box within your home.

IN THE EVENT OF A FIRE

NOTIFICATION

In the event of a wildfire, announcements from the Dona Ana County/City of Las Cruces Office of Emergency Management will be broadcast over local radio and television stations. Media notification may be in the form of news reports or the Emergency Alert System (EAS). On television, the emergency management message will scroll across the top of the screen on local channels. The notice is not broadcast on non-local satellite and cable channels.

One good way to stay informed about wildfire is to use a National Oceanic and Atmospheric Administration weather alert radio. The radios can be purchased at most stores that carry small appliances, such as Target, Sears, or Radio Shack. The radio comes with instructions for the required programming to tune the radio to your local frequency. The programming also determines the types of events for which you want to be alerted. The weather alert radio can be used for any type of large incident (weather, wildfire, hazardous materials, etc.), depending on how it is programmed.

WHEN FIRE THREATENS

Before an evacuation order is given for your community, there are several steps you can take to make your escape easier and to provide for protection of your home. When evaluating what to do as fire threatens, the most important guideline is: DO NOT JEOPARDIZE YOUR LIFE.

Back your car into the garage or park it in an open space facing the direction of escape. Shut the car doors and roll up the windows. Place all valuables that you want to take with you in the vehicle. Leave the keys in the ignition or in another easily accessible location. Open your gate.

Close all windows, doors, and vents, including your garage door. Disconnect automatic garage openers and leave exterior doors unlocked. Close all interior doors as well.

Move furniture away from windows and sliding glass doors. If you have lightweight curtains, remove them. Heavy curtains, drapes, and blinds should be closed. Leave a light on in each room.

Turn off the propane tank or shut off gas at the meter. Turn off pilot lights on appliances and furnaces.

Move firewood and flammable patio furniture away from the house or into the garage.

Connect garden hoses to all available outdoor faucets and make sure they are in a conspicuous place. Turn the water on to "charge," or fill your hoses and then shut off the water. Place a ladder up against the side of the home, opposite the direction of the approaching fire, to allow firefighters easy access to your roof.

EVACUATION

When evacuation is ordered, you need to go ***immediately***. Evacuation not only protects lives, it also helps to protect property. Some roads in Doña Ana County are too narrow for two-way traffic, especially with fire engines. Fire trucks often can't get into an area until the residents are out. Also, arguably the most important tool in the wildland urban interface (WUI) toolbox is aerial attack. Airplanes and helicopters can be used to drop water or retardant to help limit the spread of the fire, but these resources cannot be used until the area has been cleared of civilians.

Expect emergency managers to designate a check-out location for evacuees. This process helps to ensure that everyone is accounted for and informs emergency personnel as to who may be remaining in the community. Every resident should check out at the designated location before proceeding to any established family meeting spot.

A light-colored sheet closed in the front door serves as a signal to emergency responders that your family has safely left. This signal saves firefighters precious time, as it takes 12–15 minutes per house to knock on each door and inform residents of the evacuation.

AFTER THE FIRE

RETURNING HOME

First and foremost, follow the advice and recommendations of emergency management agencies, fire districts, utility companies, and local aid organizations regarding activities following the wildfire. Do not attempt to return to your home until fire personnel have deemed it safe to do so.

Even if the fire did not damage your house, do not expect to return to business as usual immediately. Expect that utility infrastructure may have been damaged and repairs may be necessary. When you return to your home, check for hazards, such as gas or water leaks and electrical shorts. Turn off damaged utilities if you did not do so previously. Have the fire district or utility companies turn the utilities back on once the area is secured.

INSURANCE CLAIMS

Your insurance agent is your best source of information as to the actions you must take in order to submit a claim. Here are some things to keep in mind. Your insurance claim process will be much easier if you photographed your home and valuable possessions before the fire and kept the photographs in a safe place away from your home. Most if not all of the expenses incurred during the time you are forced to live outside your home could be reimbursable. These could include, for instance, mileage driven, lodging, and meals. Keep all records and receipts. Don't start any repairs or rebuilding without the approval of your claims adjuster. Beware of predatory contractors looking to take advantage of anxious homeowners wanting to rebuild as quickly as possible. Consider all contracts very carefully, take your time to decide, and contact your insurance agent with any questions.

POST-FIRE REHABILITATION

Homes that may have been saved in the fire may still be at risk from flooding and debris flows. Burned Area Emergency Rehabilitation (BAER) teams are inter-disciplinary teams of professionals who work to mitigate the effects of post-fire flooding and erosion. These teams often work with limited budgets and manpower. Homeowners can assist the process by implementing treatments on their own properties as well as volunteering on burned public lands to help reduce the threat to valuable resources. Volunteers were instrumental in implementing many of the BAER treatments following the Cerro Grande fire. Volunteers can assist BAER team members by planting seeds or trees, hand mulching, or helping to construct straw-bale check dams in small drainages.

Volunteers can help protect roads and culverts by conducting storm patrols during storm events. These efforts dramatically reduce the costs of such work as installing trash racks, removing culverts, and re-routing roads.

Community volunteers can also help scientists to better understand the dynamics of the burned area by monitoring rain gauges and monitoring the efficacy of the installed BAER treatments.