Baca Property Owners Association Firewise Community Assessment and Community Wildfire Protection Plan



FIRE/EMS

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Baca Property Owners Association

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I) Introduction

The following assessment is intended as a combined Firewise USA and Community Wildfire Protection Plan as a resource to be used by the residents of Baca POA for creating a wildfire safety action plan. The plan developed from the information in this assessment should be implemented in a collaborative manner and updated and modified as needed.

Wildfire has been a continuing challenge throughout Colorado's history. The safety of the citizens of any community is a shared responsibility between the citizens; the owner, developer or association; and the local, county, state and federal governments. The primary responsibility, however, remains at the citizen/owner and community level.

Colorado State Forest Service, Alamosa Field Office was the lead preparer of the plan. Tad Crawford with Baca Emergency Services provided historical context, survey distribution, organized public input meetings and final review.

Baca POA History – Mary Abdoo

Arizona-Colorado Land and Cattle Company formed the Baca Grande Corporation, in 1971 and real estate sales began. A choice portion of the ranch was to become The Baca Grande, a recreation and leisure living community. It was set aside and master planned by another subsidiary, Coe & Van Loo Consulting Engineers, Inc. In their master plan, 28% of the land was reserved for green belts and common areas so that property owners and guests could enjoy the beauty and tranquility of the San Luis Valley without destroying the environment. Land was sold in phases with areas designated as Mobile Home Estates, Chalet Units II, II the Grants, I and later, Ranchettes. Along the main county road T was developed a commercial strip with the Inn, a lake (Lago del Oro), a 9-hole golf course, administration/maintenance building, library and camper village. Other amenities were added. On May 12, 1971 the Baca Grande in Saguache County. The Baca Grande Property Owners Association Articles of Incorporation were dated December 18, 1972. Marketing areas included sales offices in Colorado, New Mexico, Texas, Oklahoma and in Korea, Hawaii and Guam. The Baca Corporation changed to the Baca Grande Property Owners Association.

II) Plan Background

Baca is located in the Wildland Urban Interface (WUI). The WUI is any area where structures and other human developments meet or intermingle with wildland vegetative fuels. Wildfires will happen—exclusion is not a choice. The variables in a fire scenario are when the fire will occur, and where. This assessment addresses the wildfire-related characteristics of Baca. It examines the area's exposure to wildfire as it relates to ignition potential.

The Firewise USA communities program is designed to provide an effective management approach for preserving wildland living aesthetics. The Firewise USA communities program seeks to create a sustainable balance that will allow communities to live safely while maintaining environmental harmony in a Wildland Urban Interface setting. Homeowners already balance their decisions about fire protection measures against their desire for certain flammable components on their properties. It is important for them to understand the implications of the choices they are making. These choices directly relate to the ignitability of their home ignition zones during a wildfire.

A Community Wildfire Protection Plan is a blueprint and an action strategy for prioritizing the protection of life, property and critical infrastructure in your community. A CWPP allows a community to evaluate its current situation concerning wildfire risk and plan ways to reduce risk for protection of human welfare and other important economic, social or ecological values. CWPPs help protect and prepare communities in the event of a wildfire.

The purpose of community fire planning is to:

- Empower communities to organize, plan and take action on issues impacting community safety
- Enhance levels of fire resistance and protection to the community
- Identify the risks of wildland/urban interface fires in the area
- Identify strategies to reduce the risks to homes and businesses in the community during a wildfire.
- Identify fuels reduction projects.

How to use this plan

Successful wildfire risk mitigation begins around individual structures, community organizations and entities also have a role to play. Individuals must work to reduce home ignitability and create defensible space. Community-wide collaborative efforts are required to improve ingress and egress, provide signage, develop water resources, and create evacuation plans. This assessment identifies efforts required of everyone with an interest in the protection of our communities.

Firefighters/USFS/CSFS/BLM/FWS	Public
Identify fuels reduction project	Identify wildfire hazards in your community
Prioritize fuel reduction treatments	Prioritize resident mitigation projects
Educate the public	Motivate residents to perform mitigation
	Pursue grant opportunities
	Utilize wildfire tax deduction

III) Goals & Objectives Baca CWPP Goals:

Baca CWPP Goals:

The goals of the CWPP include mitigation practices for hazardous fuel reduction, permanent firebreaks and structure ignitability reduction practices. They may also include public information and education. The specific goals of the Baca CWPP implementation plan are:

- Fuel treatments are intended to support both firefighter and public safety during wildfire suppression emergencies.
- Guide actions to develop enhanced fire suppression capabilities and infrastructure.
- Fuel treatments will help to protect lives and property from wildland fires
- Fuel treatments will help to greatly reduce the potential of a high intensity crown fire from entering communities and destroying property.
- Fuel treatments will help to provide areas where fire suppression efforts can be effective and destructive wildfires are contained at a minimal size.
- Fuel treatments will provide areas where conditions exist that allow for prescribed fire and wildland fire use with decreased threat to communities.
- Fuel treatments will be based upon the best available science and multi-party monitoring that leads to adaptive management and flexibility in future fuels treatment planning and implementation.
- Fuel treatments will contribute toward restoration of healthy sustainable ecosystems that are resistant to natural disturbances such as drought, insects and wildfire.
- Increase public understanding of living in a fire-adapted ecosystem.
- Create and maintain fire-adapted human communities.
- Increase the community's ability to prepare for, respond to and recover from wildland fires.
- Recommend measures to reduce the ignitability of structures throughout the CWPP area.
- Improve community's preparedness for emergencies and evacuation.
- Raise community awareness of the issues and solutions of living in the wildland-urban interface.
- Assist residents in locating and securing resources for reducing risk.
- Instill a sense of personal responsibility for taking preventative actions regarding wildland fire.

Baca CWPP Objectives:

The objectives of this CWPP are to set clear priorities for the implementation of wildfire mitigation in the Baca. This also includes prioritized recommendations as to the appropriate types and methods of fuel

reduction and structure ignitability reduction that will protect this community, individual structures and its essential infrastructure. The objectives should be as specific and measurable as possible.

- Increase number of Baca residents with defensible space.
- Provide detailed maps that facilitate communications with residents and other fire departments responding to requests for mutual aid and emergency planning.
- Develop a system to keep structure rating up to date.
- High and Extreme ranked areas will work to decrease fuels to reduce wildfire intensity and impact in and around the community.
- Baca Emergency Services will work to evaluate, upgrade and maintain community wildfire preparation and response facilities and equipment.
- Baca Emergency Services will help educate community members to prepare for and respond to wildfire.
- Baca Firewise USA Board will regularly evaluate, update and maintain planning commitments.
- Determine if any infrastructure changes will decrease wildfire dangers NFPA 1141.
- Baca will develop and implement a comprehensive emergency response plan.

IV) Community Background and Existing Site Characteristics

This provides an overview of the area covered by the Baca CWPP. It provides a description of the area including its location, development history, weather, historic fire conditions and land ownership.

Fire intensity and rate of spread depend on the fuel type and condition (live/dead), the weather conditions prior and during ignition, and the topography. Generally the following relationships hold between the fire behavior and the fuel, weather and topography.

- Area History Crestone started as a small mining town in the 1880's. The area subsequently was mined, logged and grazed. In 1971 the Baca Grande, was established to the south and west of Crestone and where hundreds homes have been built. Since the 1980's, many spiritual Centers have been built on the eastern edge of the Baca Grande subdivision and adjacent to Rio Grande National Forest. Several world religions are represented, including: a Hindu temple, a Zen Center, a Spiritual Life Institute/Carmelite monastery, several Tibetan Buddhist Centers, as well as other religious Centers. *-PM*
- **Community Size** The focus area is the Baca POA. Between the sections of Baca there are approximately 4,500 lots with 1,200 developed. The Baca population seasonally varies between approximately 800 and 1,500 people.
- **Historic Fires** *PM* (*Note: Fire scars on trees exist throughout the area, confirming the occurrence of wildfire in this area for at least the past 200 to 300 years.*) According to fire ecologist Kathryn Alington, who studied the fire history of 14 creeks of the Northern Sangre de Cristo Mountains for her doctoral dissertation, each of the upper watersheds burns every 184 years on average, in a stand replacement fire. About 20% of the watershed burns during these stand replacing fires.
 - o 1751 Rito Alto Creek burned in a stand replacing fire.
 - Pre-1840's A sea of prairie grass stretched from the Sangre de Cristo Mountains to the San Juan Mountains. The native grasses grew higher than a horse's belly.
 - \circ 1850's Big fire year for the entire area.
 - o 1860's to 1900's Logging occurred for settlement and mining.
 - 1882 Wildfire threatened Crestone for two weeks, stopped at South Crestone Creek. Scars are still visible on ponderosas east of the Baca Grande firehouse.
 - 1982 Upper Spanish Creek burned on Baca Corporation land. USFS came in to suppress wildfire as it began to spread.

- 1994 2002 Numerous grass fires <1 acre to ~ 5 acres. Lightning and human caused. Some forest fires, lightning and human caused, <1 acre. Homes and/or other improvements were threatened on most of these fires.
- 1999 Lightning strike on Willow Creek in greenbelt in dense P/J-Ponderosa east of Badger Road. Smoke column identified ~ 17:00. Lack of detection could have led to a high probability of a large wildfire up Willow Creek.
- 2000 April Sand Fire Wildfire at Great Sand Dunes National Monument. Started from an ember that was at least two weeks old, out of Zapata Subdivision's burn pile. Winds that day were 50 mph sustained with gusts to 70 mph. The fire burned about 3120 acres, most of it on the first day. Zapata Subdivision was billed around \$800,000 for the suppression of the fire.
- 2001 Lightning strikes, west of Baca Grande Firehouse, on the Ranch of Gary Boyce.
 BGVFD responded to Carmelite-Ranch border. Fire put out by heavy rains accompanying thunderstorm.
- 2001 Lightning strike, near Upper Willow Park, on Manitou Land, at Yeshe's cabin. Contained and controlled by BGVFD.
- 2016 Wildfire from lightning strike in Upper Spanish Creek watershed. Put out by subsequent rainfall. Fires from lightning also occurred in previous years in this watershed.
- Other fires in similar fuel types in the SLV include: 2002 Million Fire by South Fork, 9,300 acres, 14 structures lost; 2006 Mato Vega Fire by La Veta pass, 14,000 acres; 2012 Boyce Ranch fire near Crestone, ~80 acres; 2013 Oxcart fire east of Villa Grove, 1,200 acres; 2013 West Fork Complex fire 110,000 acres; 2018 Spring Creek Fire, 108,000 acres, 200 structures lost.
- For detailed records of other fires, especially between 2001 and 2016 check Baca Grand VFD for detailed fire records for other fires since most of them were in their response area(s). There have been numerous smaller fires, < 10 acres, mainly in grass/brush, and single and multiple tree lightning strikes from 2008 to present.
- **Fine Fuels** are combustible materials less than ¹/₄ inch in diameter and have a relatively high surface area to volume ratio. These characteristics allow the fuels to dry quickly and ignite more easily, resulting in rapid rates of fire spread with higher intensities than coarser fuels when they are abundant and continuous over an area. For a given fuel, the more there is and the more continuous it is, the faster the fire spreads and the higher the intensities. Common examples of fine fuels are grass, needles, leaves and small twigs.
- Weather conditions affect the moisture content of the dead and live vegetative fuels. Dead fine fuel moisture content is highly dependent on the relative humidity and the degree of sun exposure. The lower the relative humidity and the greater the sun exposure, the lower will be the fuel moisture content. Lower fuel moistures produce higher spread rates and fire intensities. The climate and precipitation varies by elevation, with higher elevations being slightly cooler with more moisture. Winter highs average in the mid-20s and mid-30s. The summer highs are generally in the mid- 80s; rarely above 90. Precipitation averages around 13.5 inches.
- Wind speed significantly influences the rate of fire spread and fire intensity. The higher the wind speed, the greater the spread rate and intensity. The wind is generally out of the southwest during the summer months and north during the winter months. The winds can vary from near calm to winter and spring gales averaging 35-45 miles per hour with gust as high as 70 mph.
- **Topography** influences fire behavior principally by the steepness of the slope. However, the configuration of the terrain such as narrow draws, saddles and so forth can influence fire spread and intensity. In general, the steeper the slope, the higher the uphill fire spread and intensity.

The general topography of the area is that the land further west is flat to gently sloping. As you move east the slope gently then substantially gets steeper. Elevation ranges from approximately 7,800 to approximately 8,800 feet. The area is located at the foot of the western slope of the Sangre de Cristo Range, in the northern part of the San Luis Valley.

- Adjacent Landowners- All major types of adjacent landowners are represented. Adjacent federal agencies include the US Fish & Wildlife Service's Baca Refuge, Bureau of Land Management, Rio Grande National Forest and Great Sand Dunes National Park & Preserve. Adjacent private land includes the Town of Crestone, unincorporated lots owned by various non-profits or religious institutes, Colorado College and many individual lots. The Overview and Ownership map shows adjacent landowners. Federal agencies have reviewed the CWPP. Private landowners have been offered the CWPP survey and been invited to provide input. If residents or values at risk are within 300' of Baca boundaries, then there should be a conversation with the adjacent landowner for treatment on their land as well.
- Wildfire Ignition Potential: One of the most likely ignition sources within the area is outside fires not properly put out, burning trash and downed power lines. Other potential sources are escaped camfires from nearby camping and errant cigarettes.
- Other Pertinent Information-

V) Community Base Maps

Ownership:

The Baca CWPP incorporates land with various management objectives as summarized below:

Area	Total	Developed	Acreage ²	Wildfire Risk Rating
	LUIS	Lots		
Casita Park	272	61	645	High
Historic Casita Park		0	783	
Chalet I	1,411	443	3,783	Extreme
Chalet II	814	163	1,805	Extreme
Chalet III	128	34	230	Extreme
Grants	1,152	189	6,211	Moderate
Camper Village			18	High
Unincorporated			2,959	
$Baca - POA^1$			3,053	
Total	3,777	890		

1- Baca POA includes: greenbelts, golf course, water & sanitation district and land trust.

- 2- Acreage is total area and includes all ownerships.
- 3- Residential lots.

Communities:

Each community write-up includes a community wildfire risk assessment. This assessment assigns a hazard rating ranging from low to extreme based on a composite score that incorporates considerations for factors that affect the potential for hazardous fire behavior in the WUI. The factors considered include: community design, existing building materials, defensible space, availability of fire suppression resources and physical conditions such as fuels and topography. See Appendix E for description of factors.

Each community evaluation that follows can be regarded as an individual document. As a result, you will see recommendations such as creating defensible space that apply to all communities.

Structure Rating:

Individual structure assessments were performed the summer of 2019. The purpose of the risk evaluation was to identify the potential wildfire risk areas within Baca based on topography, vegetation, and building materials. In addition, other factors that impact fire response and evacuation are evaluated. This evaluation will provide an initial snapshot of a homeowner's wildfire risk compared to their neighbors within Baca. Developed lots were given an adjective rating based on the points assigned to the evaluation items and the community will be given an average rating. The ratings are low, moderate, high, very high, and extreme. The adjective rating is intended to provide the community and homeowners with an awareness of the potential wildfire risk within the community.

These assessments were based off the CSFS Wildfire Wildfire Risk Rating Key. This key was jointly developed by CSFS and local fire departments. The Key is included as Appendix H. Appendix I shows what the corresponding rating may mean to firefighters.

Baca CWPP - Ownership



Baca CWPP - Ownership



2,050 4,100 8,200 12,3

Λ

12,300

VI) Community Hazard & Fuel Maps

Introduction:

The Community Hazards Maps are the same as the Community Base Map but with wildfire hazards from the CO-WRAP analysis. High numbers from any of these maps around your community means that substantial suppression difficulties may exist. These maps identify fuel and topography conditions that increase the communities' risk.

CO-WRAP Maps & Analysis:

The Colorado Wildfire Risk Assessment Portal (CO-WRAP) was used to generate reports on a variety of wildfire-oriented themes. CO-WRAP was developed by the Colorado State Forest Service, it is a tool designed to provide wildfire risk information to both resource managers and any interested citizens. Because CO-WRAP utilizes digital data at a resolution of 30 meter by 30 meter units (approximately 100 ft by 100 ft), smaller-scale differences are sometimes unable to be detected.

Maps generated by CO-WRAP showing vegetative cover and fuel type are shown on the following pages. These are useful illustrations of how the forests within the CWPP transition across a large area, and the amounts of each type found within the district. On any given parcel of land, there may be several different forest and fuel types present, which will not be reflected on these maps as per the reasons above. Nor do these maps provide any information as to important forest attributes such as tree density, size, age or overall health. These maps do provide information for landscape-scale project planning, but only on-the-ground examination can provide planners the necessary information for detailed project layout.

Fire Behavior Analysis – from CO-WRAP Analysis

Vegetation

Depicts general vegetation landcover and fuel type. These are useful illustrations of how the forests within the CWPP transition across a large area and the amounts of each type found within the CWPP. On any given parcel of land, there may be several different forest and fuel types present. Nor do these maps provide any information as to important forest attributes such as tree density, size, age or overall health. These maps do provide information for landscape-scale project planning, but only on-the-ground examination can provide planners the necessary information for detailed project layout.

Wildland Urban Interface (WUI)

Reflects housing density depicting where humans and their structures meet or intermix with wildland fuels. The WUI is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases the risk from wildfire.

Housing density in Baca varies. In some locations the structures are close enough together that their defensible zones may overlap. In this case treatment should overlap as well and "visual screening" should not influence mitigation efforts. Denser clusters of structures should receive preference for fuels mitigation since more residents will be protected.

The Wildland-Urban Interface (WUI) Risk Index

Depicts a rating of the potential impact of a wildfire on people and their homes. The range of values is from -1 to -9, with -1 representing the least negative impact and -9 representing the most negative impact. For example, areas with high housing density and high flame lengths are rated -9, while areas with low housing density and low flame lengths are rated -1.

A compounding factor at Baca is that where the WUI is denser is also where the slope is greater and natural fuels are heavier. Areas with the most negative impact should receive preference for fuels mitigation since more residents will be protected.

Suppression Difficulty

This rating reflects the difficulty or relative cost to suppress a fire given the terrain and vegetation conditions that may impact machine operability. This layer is an overall index that combines the slope

steepness and the fuel type characterization to identify areas where it would be difficult or costly to suppress a fire due to the underlying terrain and vegetation conditions that would impact machine operability. The amount of effort, risks present, the tactics and resources employed in suppression of wildland fires is dictated to a large extent by the current and predicted fire behavior.

Other important factors may include resource availability, access, ownership and regulations. During the initial attack phase of a fire, the amount of difficulty suppression forces encounter in traveling to and attacking the fire is an important determinant of whether the fire will be quickly brought under control or rage out of control causing great expense and loss.

This is very location dependent on the development area. Due to this, residents should take a variety of actions-

- Start reducing fuel through creating defensible space.
- Increase safe access by thinning vegetation along access roads.
- Decrease fuels beyond 100' defensible space.

Rate of Spread

Represents a measure of the expected rate of spread of a potential fire front over time. Rate of spread is influenced by fuels, weather and topography. This measurement represents the maximum rate of spread of the fire front.

A fire's rate of spread also factors into the tactics and resources employed to fight it. Very low rates of spread mean that firefighters may be able to safely attack the fire from all directions or spend time mitigating fuels around structures. A fire moving very quickly may only be safely attacked from the rear and sides (known as a "flanking attack") while the fire front is allowed to burn to a road or some other obstacle and firefighters may not have time to mitigate fuels around a structure.

Predictions about rates and direction of a fire's spread also influence emergency managers' decisions regarding public safety. Determining areas for immediate evacuation versus those which may only be on alert are one such example.

The knowledge of how fuel types affect both fire intensity of rate of spread is important to landowners, foresters and fire managers as they seek to reduce risks to lives and property from wildfires. Not only do these measures dictate actions during a wildfire, they also must be considered when planning preventative measures, such as hazard reduction thinning or fuel break construction.

Baca residents should anticipate very limited mitigation time and reduce fuels prior to any fire threats.

Flame Length

Represents the measure of the expected flame length of a potential fire. Flame length is influenced by fuels, weather and topography. It is an indicator of fire intensity and is often used to estimate how much heat the fire is generating. Since flame length describes the intensity of a fire, it follows that when lengths are low, firefighters and machinery can get close to flame front, and when lengths are high, these resources must be positioned further away. Flame lengths that exceed 4 feet mean hand crews cannot safely control the fire.

Due to the anticipated flame lengths firefighters may not attempt to protect structures. Baca residents can reduce this risk by performing mitigation activities where the fuel load is reduced and fuel type is modified prior to a wildfire event.

Fire Intensity Scale

Specifically identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist. Similar to the Richter scale for earthquakes, FIS provides a standard scale to measure potential wildfire intensity. FIS consist of five (5) classes where the order of magnitude between classes is ten-fold. The minimum class, Class 1, represents very low wildfire intensities and the maximum class, Class 5, represents very high wildfire intensities. It only evaluates the potential fire behavior for an area.

- 1. **Class 1, Lowest Intensity:** Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.
- 2. **Class2, Low:** Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.
- 3. **Class 3, Moderate:** Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.
- 4. **Class 4, High:** Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
- 5. Class 5, Highest Intensity: Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

The fire intensity scale indicates Baca has the potential for moderately dangerous fire conditions. Residents should anticipate this and start reducing fuel through creating defensible space.

Fire Type – Extreme Weather

Represents the potential fire type under the most extreme fire weather conditions. The type of fire determines how firefighters may be able to suppress the fire. Surface fires means that firefighters may actively engage the fire and may be able to be in the area to protect structures. Canopy fires mean that aerial resources are the main form of suppression and firefighters may not be able to safely engage the fire on the ground.

A *Surface Fire* spreads through surface fuel without consuming any overlying canopy fuel. Surface fuels include grass, timber litter, shrub/brush, slash and other dead or live vegetation within about 6 feet of the ground. Surface fires allow firefighters to actively engage the fire and work in the area to protect structures.

Canopy fires are very dangerous, destructive and difficult to control due to their increased fire intensity. From a planning perspective, it is important to identify where these conditions are likely to occur on the landscape so that special preparedness measure can be taken if necessary. Typically canopy fires occur in extreme weather conditions. A *Passive Canopy Fires* burns the crowns of individual trees or small groups of trees. Whereas an *Active Canopy Fire* burns the entire fuel complex (canopy) is involved in flame. Canopy fires often require aerial resources to be used as the main form of suppression since firefighters may not be able to safely engage the fire on the ground.

Due to the anticipated fire type firefighters may not attempt to protect all structures. Residents may protect their homes in advance by creating defensible space in advance.

Baca CWPP - Vegetation



0 2,050 4,100 8,200 12,300 Feet

Baca CWPP - Wildland Urban Interface



Baca CWPP - Wildland Urban Interface Risk



0 2,050 4,100 8,200 12,300 Feet

Baca CWPP - Suppression Difficulty Rating



0 2,050 4,100 8,200 12,300 Feet

Baca CWPP - Wildfire Rate of Spread



Baca CWPP - Wildfire Flame Length



Baca CWPP - Wildfire Intensity



0 2,050 4,100 8,200 12,300 Feet

Baca CWPP - Wildfire Type - Extreme



0 2,050 4,100 8,200 12,300 Feet

VII) Individual Areas Assessments

Included in this assessment are observations made while visiting Baca. The assessment addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the home ignition zones. Baca residents can reduce their risk of impact during a wildfire by taking actions within their home ignition zones. This zone principally determines the potential for home ignitions during a wildland fire; it includes a house and its immediate surroundings within 100 feet.

The home ignition zone is defined by NFPA's 1144 document (Sec: 3.3.25) as the area around a specific structure and associated accessory structures, including all vegetation that contains potential ignition sources and fuels that can affect ignition potential during an intense or extreme wildland fire.

The result of the assessment is that wildfire behavior and home survivability will be dominated by the residential and fuel characteristics of this area. The good news is that by addressing community vulnerabilities, residents will be able to substantially reduce their exposure to structure loss. Relatively small investments of time and effort will reap great rewards in wildfire safety.

To avoid a home ignition, an owner must eliminate the wildfire's potential relationship with the structure. This can be accomplished by interrupting the natural path a fire takes. Changing a fire's path by creating defensible space is an easy-to-accomplish task that can result in avoiding home loss. To accomplish this, flammable items such as dead vegetation must be removed from the area immediately around the structure to prevent flames from contacting it.

Also, reducing the volume of live vegetation will affect the intensity of the wildfire as it enters the home ignition zone.

Each community write-up that follows can be regarded as an individual document. As a result, you will see recommendations such as creating defensible space that apply to all communities.

Observations for Improvement – Trends seen at multiple residents.







Dense vegetation obscures this house.



Accumulation of flammable material adjacent to structures.

Observations (*Solutions*)

The community recommendations address the goals of the plan, identifies specific actions needed to complete the goals of the wildfire plan and identifies responsible parties, resources and priorities.

General Observations	Observed
Use of flammable roofing materials – wood shake shingles. -Replace with Class A rated roofing material – asphalt shingles or metal.	
Overlapping home ignition zones (less than 200 feet between houses). -Ensure adjacent neighbor is creating a defensible zone.	X
Dense/unhealthy vegetation. -Remove dense/unhealthy vegetation.	X
Flammable vegetation in direct contact with houses. -Prune or remove vegetation from within 10 feet of house.	X
Leaf/needle build-up on roofs/gutters. -Remove all leaf/needle build-up from roof /gutters.	X
Flammable furniture/cushions on decks or porches. -Remove from deck if when not at residence.	X
Attached wooden fences/decks. -Replace wooden fence adjacent to house with metal. -Keep deck free of leaf/needle litter, vegetation adjacent/under.	X
Vinyl soffits. -Replace with metal or wood.	
Chimney is not screened or has a spark arrestor. -Screen chimney.	X
The deck is being used for a storage area, especially with firewood or other combustible material. - <i>Remove all combustible material</i> .	X
Trees in home ignition zone not pruned up. -Prune trees 10 feet tall or 1/3 height of tree.	X
Trees in home ignition zone with touching crowns. -Thin trees to 10-foot spacing between tree crowns.	X
Grasses and weeds taller than 6 inches. -Mow to height of 6 inches or less.	X
Branches over hanging house. -Trim branches or remove tree.	X
Address and street sign is not clearly visible reflective material. -Label with 4 inch reflective lettering.	X

Recommendations- Primary concerns and addressed in the Community Action Plan include:

• **Structures**: within Baca, vary widely in design and construction materials. The newest structures have been constructed using modern construction materials including composite decking, metal or composite roofing material, double-pane windows and screened air vents. In older structures where these construction techniques and materials are not present, homeowners should be made aware of the risks inherent in their structures, and plans should be made to replace materials and / or to correct deficiencies.

- **Defensible space**: is one of the actions a homeowner can do to protect their home from wildfire. While some structures in the community have good defensible space and others are making progress, some structures do not. <u>Creating and maintaining defensible space around all of the</u> <u>structures in the community is a top priority</u>. This includes treatment of fine fuels as well as the thinning of dense tree stands to introduce more canopy spacing between individual trees and surrounding homes.
- **Debris**: For structures surrounded by forests, debris accumulation on roofs and in gutters is an issue that will require constant vigilance. Also, it is important to remove debris accumulations next to foundations and underneath decks. Every structure must have someone be vigilant to areas where such accumulations may exist and make sure they are removed promptly, as these fine fuels have proven exceedingly receptive to ignition from embers. Additional actions, such as placing firewood and combustible outdoor furniture an appropriate distance from structures are some of the simplest, cheapest and most effective actions that owners may take to protect their homes from wildfire.
- Grass: In areas where only grass surrounds a structure, it is important that landowners mow regularly to reduce the height and amount of grass and other easily ignited forms of vegetation. Where and when possible, grass should receive irrigation as green grass does not ignite and spread fire as readily as dry grass. Owners must exercise care when mowing rocky areas, as blades hitting rocks can create sparks which may ignite fires, especially in dry grass. To avoid starting fires, it is recommended that mowing occur during cooler times of the day and when humidity is high or following recent moisture.
- **Roads**: within Baca are of good quality gravel and are well-maintained. In the west and at lower elevations, surrounding fuels are commonly grass with occasional rubber rabbitbrush or cottonwood. At the upper elevations, heavier forest fuels predominate. It is strongly recommended that vegetation be thinned alongside of all roads to the maximum extent possible, especially in forested areas. Turnarounds were observed to vary in the ability for firefighting apparatus to turn around effectively and efficiently. Turnarounds should also be thinned of surrounding vegetation as much as possible. Where turnarounds do not exist they should be created.
- **Roads**: In several instances, sharp curves and intersections were surrounded by moderately tall vegetation. These particular areas present increased hazards for both residents and emergency personnel, especially in the event of a wildfire. Limited visibility on curves increases the chance of vehicle collisions, and in the event such accidents block traffic, steep slopes on either side do not allow traffic to pass. It is recommended that vegetation be thinned as far away from the roadway as possible to maximize visibility. Warning signs and shoulder reflective posts may also be of benefit.
- **Propane Tanks**: Where present, propane tanks should be either on same slope and more than **30 feet** away from structures or buried if the site allows. In a wildfire situation, an uphill propane tank that vents gas could allow the gas to pool and ignite down slope of the tank in the vicinity of the house. Propane tanks should also not be placed uphill because propane is heavier than air and a leak may cause the propane to build up in the house. It is also recommended that all flammable vegetation growing within **10 feet** of propane tanks be removed and replaced with nonflammable ground cover, such as gravel or rocks.
- **Electric Utilities**: While most residents of Baca are served by underground electric lines, some overhead electric lines are present. At lower elevations where most vegetation is fairly low, the hazards posed by trees falling onto lines and igniting fires is low. Where the lines extend into taller timber, this hazard must be recognized. Vehicle collisions with utility poles are another

potential source of ignition source. Any fuels along electric line rights-of-way could ignite and cause poles to be burned and lines to fall, posing a significant hazard to both residents and emergency responders. **Residents should be vigilant to any hazards posed by electric lines and notify SLV REC to remedy these hazards.**

• Water Sources: There are several water sources available to suppression forces. There are multiple hydrants. Some hydrants are in places located some distance from structures. Having nearby hydrants available allows suppression forces to access water more quickly and reduces pumping set-up and travel time. Multiple hydrants are hidden by vegetation. Vegetation around all hydrants should be removed so they can be easily located. Mark hydrants using NFPA 291 color coding. Marking them with reflective material would also be useful.

Dry hydrants provide a preplanned location and facility that allows fire trucks to draw water out of streams, ponds or lakes. They are relatively simple to install and are inexpensive. Road crossings on Willow, Spanish and Cottonwood Creeks are good places for dry hydrants. These three creeks have enough flow, even in drought years, to supply a large fire fighting effort. Baca 2005

- It is recommended that each Chalets / Area construct evacuation plans for their particular location, mapping suitable safety zones based on the potential fire approach directions.
- **Road Signs**: While local first responders may know where individual locations are, it is certain that mutual aid forces coming in from another community will struggle to find a direct route to an incident. Many roads are a one way in/one way out scenario and this ingress/egress is not always clear. Further signage analysis is given NFPA 1141 Recommendations.
- **Mapping**: Further mapping of individual developed lots and structures should occur. WUI treatment areas for each community should be mapped. These may be able to be enhanced with some thinning to create a fuelbreak. Knowing where they are also allows firefighters to know how to access areas.
- **Summary**: Baca residents are reminded to be conscious of keeping high intensity fire more than 100 feet from their homes. It is important for them to avoid fire contact with their structures. This includes firebrands. The assessment team recommends the establishment of a 'fire free zone', allowing no fire to burn within **ten feet** of a house by removing fuels located there. It is a bad idea for fire to touch a house during a wildfire. Remember that, while wildfire cannot be eliminated from a property, it can be reduced in intensity. Residents are reminded that street signs, addresses, road widths and fire hydrants do not keep a house from igniting. Proper attention to their home ignition zones does. They should identify the things that will ignite their homes and address those. Weather is, of course, of great concern during wildfire season. When fire weather is severe, residents should remember not to leave flammable items outside. This includes rattan doormats, flammable patio furniture, firewood stacked next to the house, or other flammables.

	Chalets (1, 11, 111)	
WUI Size	Number of Developed Lots	Overall Fire Hazard
5,818 (3,783), (1,805), (230)	640 of 2,353 (443 of 1,411),	Extreme
	(163 of 814), (34 of 128)	

Community Description: The Chalets consists smaller lots ranging from .5 - 1.5 acres. There are many looped roads with cul-de-sacs branching off. Home construction varies from log cabin to stucco to timber framed.

Interface Conditions and Fuel Hazards: The Chalets are all in forested terrain and on steeper slopes. Most of the forested land is pinion & juniper with some pockets of aspen and mixed conifer and cottonwood bosques near the riparian areas and greenbelts. Besides a few defensible spaces the trees do not have good crown separation. If a wildfire torches a tree there is a good chance it will become a crown fire. Numerous steeper draws make fire behavior varied and unpredictable. Many roads have dense vegetation up to the edge.

Fire Response Information: Primary response should be with engine types 3-6. Some roads become narrow and steep. Driveway widths will limit engines to one way traffic.

Prioritized Mitigation Recommendations: The following tables of recommendations were created using information collected during the community assessments. Together, these recommendations are suggested to minimize the overall wildfire

Priority	Task	
1	Create defensible space	
2	2 Firewood or other combustible material	
	on/under deck or near house	
3	Thin land beyond defensible space	
	between homes	



Nice rock to keep flames away from the building. To maintain its effectiveness it needs to be weeded.



Green grass and driveway design help break up flammable vegetation.



Narrow road with dense vegetation on both sides. Trees should be thinned and pullouts established for passing.



Trees are nicely pruned up to remove ladder fuels. A few more trees should be removed.

NEIGHBORHOOD RISK/HAZARD ASSESSMENT RATING SCORE SYSTEM

SIZE (acres): 5,818	# LOTS or HO	ME	s: 2,35	3 / 640	RATING: Extreme
Some road	ds are	Э	nar	rower	& steep.
			_		
COMMUNITY DESIGN	16	3		2 Evicting Building	Construction Material
1. Ingress/Egress				Noncomb	ustible siding/decks
Two or more primary roads		1			ustible siding with combus
One Road		3		🔳 Combustik	le siding and decks
\Box One-way road in, one-way out		5			0
2. Width of Primary Road				3. Unenclosed Fe	atures (decks, eaves, v
□ >24 ft.		1		Less than 2	25%
■ >20 ft. and <24 ft.		3		□ 25-50% 	
□ <20 ft.		5		■ >50%	
3. Accessibility				UTILITIES*	
Road grade 5% or less		1		🗌 All undergi	round utilities
Road grade more than 5%		3			ground one above groun
4. Secondary road terminus:					round
Loop roads, cul-de-sacs with outside tur	ning radius				
of 45 ft. or greater		1		DEFENSIBLE SE	ACE
Cul-de-sac turn-around radius less than	45 ft.	3		1. Fuel Load betwe	en Home Sites:
\Box Dead-end roads 200 ft. or less in length		5		🗆 Light	
\Box Dead-end roads greater than 300 ft. in le	ength	10		🗆 Medium	
5. Street Signs				Heavy	
Present 90-100%		1		2. Defensible Space	e for Individual Homes:
Present 75-89%		3		□ 70% or mo	ore of sites
Present <75%		5		🗆 30 % or me	ore of sites
6. Address Signage				🔳 Less than 3	0% of sites
□ Present 90-100%		1		HOMF IGNITIO	N ZONF
Present 75-89%		3		noblendiantio	
■ Present <75%		5		Thorough Litter and	Debris Clean Up:
EXISTING BUILDING MATERIALS*	16	ĥ		\square 70% or mo	pre of sites % of sites
1 Doofing Motorials			-	$\square 30\% 1009$	% of sites
Non combustible covering 00 100%		4		$\square 0\% to 9\% c$	nfsites
		T			
□ Non-combustible covering 70 90%		2		FIRE PROTECT	ION
\square Non-combustible covering 70-80%		10		1 Water Source	
		10			

2. Existing Building Construction Material Noncombustible siding /decks Noncombustible siding with combustible decks Combustible siding and decks 3. Unenclosed Features (decks, eaves, vents) Less than 25% 25-50% 25-50% UTILITTIES* 3 All underground utilities 0ne underground, one above ground All above ground 21 DEFENSIBLE SPACE 22 1. Fuel Load between Home Sites: 1 Light Medium Heavy 2 2. Defensible Space for Individual Homes: 7 70% or more of sites 30% or of sites BOW of sites 7 Thorough Litter and Debris Clean Up: 70% or more of sites 30% to 69% of sites 30% to 69% of sites I 10% to 29% of sites 10% to 29% of sites FIRE PROTECTION 5 1. Water Source 500 gpm hydrants within 500 ft. of structures S00 gpm hydrants or draft source within 1000 ft. of structures 500 gpm hydrants or draft source within 1000 ft. of structures Wafer source 20 minutes away roundtrip Water source >45 minutes away roundtrip		
3. Unenclosed Features (decks, eaves, vents) Less than 25% 25-50% >50% 3 In Less than 25% 3 In All above ground utilities 2 DEFENSIBLE SPACE 2 1. Fuel Load between Home Sites: 2 In Light Medium Im Heavy 2 2. Defensible Space for Individual Homes: 70% or more of sites Im Jow or more of sites 30% or more of sites Im Less than 30% of sites 7 HOME IGNITION ZONE 7 Thorough Litter and Debris Clean Up: 7 Im Jow or more of sites 30% to 69% of sites Im Jow or more of sites 30% to 69% of sites Im Jow or power of sites 10% to 29% of sites Im Jow or power of sites 500 gpm hydrants within 500 ft. of structures Im Jow or power of sites sites 500 gpm hydrants or draft source within	 2. Existing Building Construction Material Noncombustible siding/decks Noncombustible siding with combustible decks Combustible siding and decks 	1 5 10
UTILITIES* 3 All underground utilities One underground, one above ground All above ground 24 DEFENSIBLE SPACE 24 1. Fuel Load between Home Sites: 24 Light Medium Heavy 2 2. Defensible Space for Individual Homes: 70% or more of sites 30 % or more of sites 30 % or more of sites B Less than 30 % of sites 7 HOME IGNITION ZONE 7 Thorough Litter and Debris Clean Up: 70% or more of sites 30% to 69% of sites 30% to 29% of sites I 10% to 29% of sites 0% to 9% of sites 500 gpm hydrants within 500 ft. of structures 5 S00 gpm hydrants or draft source within 1000 ft. of structures 500 gpm hydrants or draft source within 1000 ft. of structures Wafer source 20 minutes away roundtrip Water source > 45 minutes away roundtrip	3. Unenclosed Features (decks, eaves, vents) □ Less than 25% □ 25-50% ■ >50%	1
All underground utilities One underground, one above ground 24 All above ground 25 DEFENSIBLE SPACE 25 1. Fuel Load between Home Sites: 25 Light Medium Heavy 2 2. Defensible Space for Individual Homes: 70% or more of sites 30 % or more of sites 30 % or more of sites HOME IGNITION ZONE 7 Thorough Litter and Debris Clean Up: 70% or more of sites 30% to 69% of sites 10% to 29% of sites 10% to 29% of sites 0% to 9% of sites 500 gpm hydrants within 500 ft. of structures 500 gpm hydrants or draft source within 1000 ft. of structures S00 gpm hydrants or draft source within 1000 ft. of structures Wafer source 20 minutes away roundtrip Wafer source > 45 minutes away roundtrip Water source > 45 minutes away roundtrip	UTILITIES*	3
DEFENSIBLE SPACE 23 1. Fuel Load between Home Sites: 24 1. Fuel Light Medium Image: Medium 10 Image: Heavy 10 2. Defensible Space for Individual Homes: 10% or more of sites 1. 70% or more of sites 10% or more of sites Image: Less than 30% of sites 10% or more of sites HOME IGNITION ZONE 7 Thorough Litter and Debris Clean Up: 70% or more of sites 1. 70% or more of sites 10% to 29% of sites 1. 0% to 29% of sites 5 1. Water Source 5 1. Water Source 500 gpm hydrants within 500 ft. of structures Image: Source Site Site Site Site Site Site Site Sit	 All underground utilities One underground, one above ground All above ground 	1
1. Fuel Load between Home Sites:	DEFENSIBLE SPACE	25
2. Defensible Space for Individual Homes: 70% or more of sites 8 30% or more of sites 30% or more of sites 7 HOME IGNITION ZONE 7 Thorough Litter and Debris Clean Up: 70% or more of sites 30% to 69% of sites 30% to 69% of sites 10% to 29% of sites 0% to 9% of sites 5 1. Water Source 5 500 gpm hydrants within 500 ft. of structures 500 gpm hydrants or draft source within 1000 ft. of structures Wafer source 20 minutes away roundtrip Water source > 45 minutes away roundtrip	 1. Fuel Load between Home Sites: Light Medium Heavy 	1 5 10
HOME IGNITION ZONE 7 Thorough Litter and Debris Clean Up: 70% or more of sites 30% to 69% of sites 30% to 69% of sites 10% to 29% of sites 0% to 9% of sites 0% to 9% of sites 5 1. Water Source 500 gpm hydrants within 500 ft. of structures 500 gpm hydrants or draft source within 1000 ft. of structures 5 wafer source 20 minutes away roundtrip Water source > 45 minutes away roundtrip 10% to 20% of sites away roundtrip	 2. Defensible Space for Individual Homes: 70% or more of sites 30% or more of sites Less than 30% of sites 	1 7 15
Thorough Litter and Debris Clean Up: 70% or more of sites 30% to 69% of sites 30% to 29% of sites 10% to 29% of sites 0% to 9% of sites 0% to 9% of sites 5 1. Water Source 500 gpm hydrants within 500 ft. of structures 500 gpm hydrants or draft source within 1000 ft. of structures Wafer source 20 minutes away roundtrip Water source > 45 minutes away roundtrip 100 ft.	HOME IGNITION ZONE	7
FIRE PROTECTION 5 1. Water Source 500 gpm hydrants within 500 ft. of structures 500 gpm hydrants or draft source within 1000 ft. of structures Wafer source 20 minutes away roundtrip Water source >45 minutes away roundtrip 	Thorough Litter and Debris Clean Up: 70% or more of sites 30% to 69% of sites 10% to 29% of sites 0% to 9% of sites	1 4 7 10
Water Source Sou gpm hydrants within 500 ft. of structures 500 gpm hydrants or draft source within 1000 ft. of structures Wafer source 20 minutes away roundtrip Water source >45 minutes away roundtrip	FIRE PROTECTION	5
	 1. Water Source 500 gpm hydrants within 500 ft. of structures 500 gpm hydrants or draft source within 1000 ft. of structures Wafer source 20 minutes away roundtrip Water source > 45 minutes away roundtrip 	1 2 5 10

DATE: 9/4/2018

RATING: Extreme - 101

2. Fire Department	Protection within 5 Mile	es	
🗌 Career Dep	partment		1
🔳 Combinatio	on Career I Volunteer		3
□ Volunteer \	with Seasonal Staffing		5
🗆 All Volunte	er Department		7
🗌 No Organiz	ed Department		10
FIRE BEHAVIO	R		29
1. Slope			
□ 8% or les	S		1
□ 8%-20%			4
20%-30%	6		10
□ >30%			10
2. Aspect			
□ North or <8	3% slope		1
🗆 East			3
🔳 West			7
□ South			10
3. Fuels			
🗆 Light densi	ty		1
🗆 Medium de	ensity		3
🔳 High densit	Ŋ		5
Situation #3 -			
Fine or sparse fuels s	surround structures; infre	equent wind	
exposure; flat terrair	with little slope or north	n aspect; no	ĽĽ
large wildland fire hi	story or moderate fire or	ccurrence	
Situation #2 -			
Moderate slopes; br	oken moderate fuels; so	me ladder fuels;	
composition of fuels	is conducive to torching	and spotting;	7
conditions may lead	to moderate suppressio	on success; some	
tire history or mode	rate fire occurrence.		
Situation #1 -			
Continuous fuels in a	close proximity to structu	ures;	
composition of fuels	is conducive to crown fi	res or high	
intensity surface fire	s; steep slopes; predom	inately south	√ 10
aspects; dense fuels	; neavy duπ; prevailing w	/ind exposure or	
history of large fires	or moderate fire occurre	ence.	
, - 0			
Rating Scale:	39 or less points	Low hazard	
	40-60 points	Moderate Haza	rd
	61-75 points	High Hazard	
	76 or more points	Extreme Hazan	d
TOTAL FOR ARE	A: 101		
1			

NAME: Baca - Chalets

Baca Grande - Chalet I - Wildifre Risk Assessment



Baca Grande - Chalet II - Wildifre Risk Assessment



Baca Grande - Chalet III - Wildifre Risk Assessment



	Casita Park	
WUI Size	Number of Developed Lots	Overall Fire Hazard
644	64 of 272	High

Community Description: Casita Park is located on the north side of County Rd. T west of the Baca POA hall. It is a mixture of mobile homes, modular homes and wood framed construction. Lot sizes range from .15 - .25 acre. There is a park near the entrance that has green grass and could act as a safe evacuation point. The entrance road and main loop is paved. All other roads are dirt. Numerous roads and cul-de-sacs have one or no structures on them. Consider proactively mowing sections of the Baca greenbelts break up the lots.

Interface Conditions and Fuel Hazards: The fuel in and around Casita Park is 75% shrubs and 25% grass. There is a park near the entrance that has green grass and could act as a safety zone. The terrain is flat. Some homes have taller trees or shrubs for windbreak within the 100' defensible space zone. Numerous structures have overlapping defensible space zones.

Fire Response Information: The roads and terrain allow engine types 1-6 to respond. Unfortunately, not all cul-de-sacs allow adequate turn opportunities for type 1&2 engines. Fire hydrants are regularly located along the roads.

Prioritized Mitigation Recommendations: The following tables of recommendations were created using information collected during the community assessments. Together, these recommendations are suggested to minimize the overall wildfire.

Priority	Task
1	Create defensible space
2	Firewood or other combustible material
	on/under deck or near house
3	Brush hog the perimeter to create a
	fuel break.
4	Clear brush from around fire hydrants
5	Label emergency exit to hotel and
	camper village



Flammable vegetation right up to the house.



Good example. Green lawn does not burn. Rock border does not burn. Address is reflective.



Flammable debris within 30 feet of house.

NEIGHBORHOOD RISK/HAZARD ASSESSMENT RATING SCORE SYSTEM

NAME: Baca - Casita Park			DATE: 9/4/2018	2. Fire Departm
SIZE (acres): ₆₄₅	# LOTS or HOMES:	272 / 64	RATING: High - 68	□ Caree ■ Comb
COMMENTS:	I			 🗆 Volun
				 FIRE BEHAV
COMMUNITY DESIGN	16	2. Existing Bui	ding Construction Material	1. Slope
1 hamman /Famana				■ 8% c

1. Ingress/Egress	
Two or more primary roads	1
One Road	3
One-way road in, one-way out	5
2. Width of Primary Road	
□ >24 ft.	1
■ >20 ft. and <24 ft.	3
□ <20 ft.	5
3. Accessibility	
Road grade 5% or less	1
Road grade more than 5%	3
4. Secondary road terminus:	
\Box Loop roads, cul-de-sacs with outside turning radius	
of 45 ft. or greater	1
Cul-de-sac turn-around radius less than 45 ft.	3
\Box Dead-end roads 200 ft. or less in length	5
Dead-end roads greater than 300 ft. in length	10
5. Street Signs	
Present 90-100%	1
Present 75-89%	3
□ Present <75%	5
6. Address Signage	
Present 90-100%	1
Present 75-89%	3
Present <75%	5
EXISTING BUILDING MATERIALS*	16
1. Roofing Materials	
Non-combustible covering 90-100%	1
\Box Non-combustible covering 80-90%	5
\Box Non-combustible covering 70-80%	8
□ Non-combustible <70%	10

 2. Existing Building Construction Material Noncombustible siding/decks Noncombustible siding with combustible decks Combustible siding and decks 	1 5 10
 3. Unenclosed Features (decks, eaves, vents) □ Less than 25% □ 25-50% ■ >50% 	1 3 5
UTILITIES*	1
 All underground utilities One underground, one above ground All above ground 	1 3 5
DEFENSIBLE SPACE	16
1. Fuel Load between Home Sites: ■ Light □ Medium □ Heavy	1 5 10
 2. Defensible Space for Individual Homes: 70% or more of sites 30% or more of sites Less than 30% of sites 	1 7 15
HOME IGNITION ZONE	7
Thorough Litter and Debris Clean Up: 70% or more of sites 30% to 69% of sites 10% to 29% of sites 0% to 9% of sites	1 4 7 10
FIRE PROTECTION	4
 1. Water Source ■ 500 gpm hydrants within 500 ft. of structures □ 500 gpm hydrants or draft source within 1000 ft. of structures □ Wafer source 20 minutes away roundtrip □ Water source > 45 minutes away roundtrip 	1 2 5 10

2. Fire Department Protection within 5 Miles			
Career Department		1	
Combination Career I Volunteer		3	
Volunteer with Seasonal Staffing	5	5	
🗆 All Volunteer Department		7	
No Organized Department			
FIRE BEHAVIOR		8	
1. Slope			
8% or less			
□ 8%-20%		4	
□ 20%-30%		/	
□ >30%		10	
2. Aspect			
\Box North or <8% slope		1	
🔳 East		3	
□ West		7	
□ South		10	
3. Fuels			
Light density		1	
Medium density			
High density		5	
Situation #3 - Fine or sparse fuels surround structures; infrequent wind exposure; flat terrain with little slope or north aspect; no large wildland fire history or moderate fire occurrence			
Situation #2 - Moderate slopes; broken moderate fuels; some ladder fuels; composition of fuels is conducive to torching and spotting; conditions may lead to moderate suppression success; some fire history or moderate fire occurrence.			
Situation #1 - Continuous fuels in close proximity to structures; composition of fuels is conducive to crown fires or high intensity surface fires; steep slopes; predominately south aspects; dense fuels; heavy duff; prevailing wind exposure or ladder fuels that may reduce suppression effectiveness; history of large fires or moderate fire occurrence.			
Rating Scale: 39 or less points 40-60 points	Low hazard Moderate Haza	rd	
61-75 points High Hazard			
76 or more points Extreme Hazard			
TOTAL FOR AREA: 68			

Γ

Baca Grande - Casita Park - Wildfire Risk Assessment



Grants			
WUI Size	Number of Developed Lots	Overall Fire Hazard	
6,211	189 of 1,152	Moderate	

Community Description: The Grants is the western portion of Baca. It is adjacent to the Baca National Wildlife Refuge and Great Sand Dunes Park & Preserve. Lot sizes are the largest and vary from 1.5 - 30 acres. There are many looped roads with cul-de-sacs branching off. Home construction varies from log cabin to stucco to timber framed and the occasional straw bale or rammed earth home.

Interface Conditions and Fuel Hazards: 90% of the Grants are shrub and grass. Most of the the remaining 10% is a mixture of cottonwood bosques and Pinyon & Juniper stands that are found in the greenbelts.

Fire Response Information: The roads and terrain allow engine types 1-6 to respond. Unfortunately, not all cul-de-sacs allow adequate turn opportunities for type 1&2 engines. Fire hydrants are regularly located along the roads. Address signage is not metal and inconsistent in its location.

Prioritized Mitigation Recommendations: The following tables of recommendations were created using information collected during the community assessments. Together, these recommendations are suggested to minimize the overall wildfire.

Priority	Task	
1	Firewood or other combustible material	
	on/under deck or near house	
2	Thin roadsides for safer ingress/egress	
3	Create defensible space	
4	Work with NPS & FWS to reduce	
	fuels on border	



Shrubs are nearly as high as the truck. Tall areas of shrubs should be mowed regularly to reduce flame lengths if they burn.



All signs should have reflective lettering and be on a metal post.



NEIGHBORHOOD RISK/HAZARD ASSESSMENT RATING SCORE SYSTEM

NAME: Baca - Grants				DATE: 9/4/2018
SIZE (acres): 6,211 # LO	TS or HOMES	[:] 1,15	2 / 189	RATING: Moderate - 58
Some home	s are	of	f grid.	
	40			
COMMUNITY DESIGN	12		2. Existing Building	Construction Material
1. Ingress/Egress				ustible siding/decks
Two or more primary roads	1			ustible siding with combustible decks
🗆 One Road	3		Combustik	le siding and decks
\Box One-way road in, one-way out	5			<u> </u>
2. Width of Primary Road			3. Unenclosed Fe	atures (decks, eaves, vents)
■ >24 ft.	1		Less than 2	25%
□ >20 ft. and <24 ft.	3		□ 25-50%	
□ <20 ft.	5		■ >50%	
3. Accessibility			UTILITIES*	
Road grade 5% or less	1		🔳 All undergr	round utilities
\Box Road grade more than 5%	3			ground one above ground
4. Secondary road terminus:				round
Loop roads, cul-de-sacs with outside turning radius	dius			
of 45 ft. or greater	1		DEFENSIBLE SE	PACE
Cul-de-sac turn-around radius less than 45 ft.	3		1. Fuel Load betwe	en Home Sites:
Dead-end roads 200 ft. or less in length	5		🔳 Light	
\Box Dead-end roads greater than 300 ft. in length	10		🗆 Medium	
5. Street Signs			🗆 Heavy	
Present 90-100%	1		2. Defensible Space	e for Individual Homes:
Present 75-89%	3		2 70% or mo	ore of sites
□ Present <75%	5		■ 30% or me	ore of sites
6. Address Signage			□ Less than 3	80% of sites
□ Present 90-100%	1		HOMEIGNITIO	N ZONE
Present 75-89%	3			
$\Box \text{ Present } < 75\%$	5		Thorough Litter and	l Debris Clean Up:
	40		🗌 70% or ma	ore of sites
EXISTING BUILDING MATERIALS*	16		30% to 699	% of sites

 2. Fire Department Protection within 5 Miles Career Department Combination Career I Volunteer Volunteer with Seasonal Staffing All Volunteer Department No Organized Department 			1 3 5 7 10
FIRE BEHAVIOR			12
1. Slope ■ 8% or less □ 8%-20% □ 20%-30% □ >30%			1 4 7 10
2. Aspect	<8% slope		1 3 7 10
3. Fuels Light density Medium density High density			1 3 5
Situation #3 - Fine or sparse fuels surround structures; infrequent wind exposure; flat terrain with little slope or north aspect; no large wildland fire history or moderate fire occurrence			√ 3
Situation #2 - Moderate slopes; broken moderate fuels; some ladder fuels; composition of fuels is conducive to torching and spotting; conditions may lead to moderate suppression success; some fire history or moderate fire occurrence.			7
Situation #1 - Continuous fuels in close proximity to structures; composition of fuels is conducive to crown fires or high intensity surface fires; steep slopes; predominately south aspects; dense fuels; heavy duff; prevailing wind exposure or ladder fuels that may reduce suppression effectiveness; history of large fires or moderate fire occurrence.			10
Rating Scale:	39 or less points 40-60 points 61-75 points 76 or more points	Low hazard Moderate Haza High Hazard Extreme Hazard	rd
TOTAL FOR AREA: 58			

□ 10% to 29% of sites

 \Box 500 gpm hydrants within 500 ft. of structures

□ Wafer source 20 minutes away roundtrip

□ Water source > 45 minutes away roundtrip

■ 500 gpm hydrants or draft source within 1000 ft.

 \Box 0% to 9% of sites

FIRE PROTECTION

of structures

1. Water Source

□ Non-combustible <70%

Non-combustible covering 90-100%

 \Box Non-combustible covering 80-90%

 \Box Non-combustible covering 70-80%

1. Roofing Materials

Baca Grande - Grants- Wildfire Risk Assessment


Camper Village

WUI Size		Number of Lots	Overall Fire Hazard				
	18		High				

Community Description: Camper Village is located on the north side of County Rd. T east of the Baca POA hall. The largest use of the Village is in the warmer months by recreational vehicles. There is also a bath house and fenced in storage area for vehicles. Campers and vehicles in the storage area are often staying for long periods of time and have accumulated piles of debris near their recreational vehicles. Interface Conditions and Fuel Hazards: The fuel in and around Camper Village is 75% shrubs and 25% grass. Roads are well maintained gravel.

Fire Response Information: Adequate parking and turn opportunities exist for engine types 1-6. Each campsite has a household sized water spigot. The main fire hydrant is located on County Road T at the entrances.

Prioritized Mitigation Recommendations: The following tables of recommendations were created using information collected during the community assessments. Together, these recommendations are suggested to minimize the overall wildfire

Priority	Task
1	Firewood or other combustible material
	on/under deck or near house
2	Create defensible space
3	Mow perimeter
4 Educate campers so they are ready	
	evacuate



Flammable material next to RV.



NEIGHBORHOOD RISK/HAZARD ASSESSMENT RATING SCORE SYSTEM

NAME: Baca - Camper \	/illage	DATE: 9/4/2018
SIZE (acres): ₁₈	# LOTS or HOMES:	RATING: High - 64
COMMENTS:	· · ·	· · ·
COMMUNITY DESIGN	20	

	20				
1. Ingress/Egress					
Two or more primary roads	1				
One Road	3				
One-way road in, one-way out	5				
2. Width of Primary Road					
□ >24 ft.	1				
\Box >20 ft. and <24 ft.	3				
■ <20 ft.					
3. Accessibility					
Road grade 5% or less	1				
\Box Road grade more than 5%	3				
4. Secondary road terminus:					
Loop roads, cul-de-sacs with outside turning radius					
of 45 ft. or greater	1				
Cul-de-sac turn-around radius less than 45 ft.					
Dead-end roads 200 ft. or less in length					
\Box Dead-end roads greater than 300 ft. in length	10				
5. Street Signs					
Present 90-100%	1				
Present 75-89%	3				
Present <75%	5				
6. Address Signage					
□ Present 90-100%	1				
Present 75-89%	3				
■ Present <75%	5				
EXISTING BUILDING MATERIALS*					
1. Roofing Materials					
Non-combustible covering 90-100%	1				
□ Non-combustible covering 80-90%	5				
□ Non-combustible covering 70-80%	8				
□ Non-combustible <70%	10				

2. Existing Building Construction Material	
Noncombustible siding/decks	1
Noncombustible siding with combustible decks	5
□ Combustible siding and decks	10
3. Unenclosed Features (decks, eaves, vents)	
\Box Less than 25%	1
	3
■ >50%	5
UTILITIES*	1
All underground utilities	1
One underground, one above ground	3
□ All above ground	5
DEFENSIBLE SPACE	16
1. Fuel Load between Home Sites:	
🖬 Light	1
	5
Heavy	10
2. Defensible Space for Individual Homes:	
\Box 70% or more of sites	1
□ 30 % or more of sites	7
Less than 30 % of sites	15
HOME IGNITION ZONE	7
Thorough Litter and Debris Clean Up:	
\Box 70% or more of sites	1
□ 30% to 69% of sites	4
10% to 29% of sites	7
\Box 0% to 9% of sites	10
FIRE PROTECTION	5
1. Water Source	
500 gpm hydrants within 500 ft. of structures	1
■ 500 gpm hydrants or draft source within 1000 ft.	2
of structures	
UWafer source 20 minutes away roundtrip	5
□ Water source > 45 minutes away roundtrip	10

2. Fire Departmen	t Protection within 5 Mile	25				
🗌 Career De	epartment		1			
Combination	tion Career I Volunteer		3			
	r with Seasonal Staffing		5			
🗌 All Volunt	eer Department		7			
🗌 No Organ	ized Department		10			
FIRE BEHAVIO	R		8			
1. Slope						
🔳 8% or le	ess		1			
□ 8%-20%			4			
□ 20%-30	%		7			
□ >30%						
2. Aspect						
□ North or •	<8% slope		1			
🔳 East			3			
□ West			7			
□ South						
3. Fuels						
🔳 Light dens	sity		1			
\Box Medium density						
High density						
Situation #3 - Fine or sparse fuels surround structures; infrequent wind exposure; flat terrain with little slope or north aspect; no large wildland fire history or moderate fire occurrence						
Situation #2 - Moderate slopes; broken moderate fuels; some ladder fuels; composition of fuels is conducive to torching and spotting; conditions may lead to moderate suppression success; some fire history or moderate fire occurrence.						
Situation #1 - Continuous fuels in close proximity to structures; composition of fuels is conducive to crown fires or high intensity surface fires; steep slopes; predominately south aspects; dense fuels; heavy duff; prevailing wind exposure or ladder fuels that may reduce suppression effectiveness; history of large fires or moderate fire occurrence.						
Rating Scale:	39 or less points 40-60 points	Low hazard Moderate Haza	rd			

Successful Wildfire Risk Reduction Modifications

When adequately prepared, a house can likely withstand a wildfire without the intervention of the fire service. Further, a house and its surrounding community can have both fire-resistant landscaping and compatible with the area's ecosystem. The Firewise USA program is designed to recognize and enable communities to achieve a high level of protection against structure loss from wildfire even as a sustainable ecosystem balance is maintained.

A homeowner/community must focus attention on the home ignition zone and eliminate the fire's potential relationship with the house. This can be accomplished by disconnecting the house from high and/or low-intensity fire that could occur around it. The following photographs were taken of Baca residents and are examples of good wildfire risk reduction practices.

Observed Good Modifications – Examples that can be incorporated at other residents.



Firewood stored more than 30' from the house.



Address labeled with a reflective sign.



Landscaping gravel keeps flames from reaching the structure. Rock exterior is not flammable.



Minimal vegetation within first 30'.

NFPA 1141 Recommendations

NFPA 1141 – *Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural and Suburban Areas 2012* edition was analyzed to provide recommendations for improvements related to wildfire. The focus of NFPA 1141 is to provide guidance on the development of community infrastructure necessary to eliminate fire protection problems that result from rapid growth and change in suburban and rural development including special consideration for wildland interface areas. The recommendations in NFPA 1141 are considered the leading industry standards.

- Observation
- Recommendations

Means of Access – Chapter 5

5.1 – General

- 5.1.2 Means of access shall be provided to all buildings more than 400 ft² in ground area.
 - All development in Baca has some type of driveway access.
 - *Type 4 & Type 6 engines should both respond to fires due to the varying quality of access.*

5.1.3 – Baca Emergency Services should have authority to require a means of unlocking any security feature that is installed.

5.1.3.1 – Any gates shall not be located closer than 30 ft from an intersection and shall open in the direction of emergency vehicle travel unless other provisions are made for safe personnel operations.

- Not currently being observed.
- Consider making this a building requirement.

5.1.3.2 – The clear opening through gates shall have a usable width at least 2 ft wider than the means of access it controls.

- Not currently being observed. Most gate posts are at the edge of the driveway.
- Consider making this a building requirement.

5.1.4.1 – Baca should have at least 3 access routes since there are greater than 600 households.

• A third evacuation route should be established.

5.1.4.4 – Where multiple means of access are required, they shall be located as remotely from each other as practical.

• The third evacuation route should exit to another road other than County Rd. T.

5.2 – Roadways

- 5.2.2 Roadways shall be constructed of a hard, all-weather surface designed to support all legal loads.
 - Roads made well and are constructed of native material.
 - Some roads need "daylighting" so they get more sunlight and dry out quicker. This will also reduce fuel loads adjacent to roads for safer ingress & egress.

5.2.3 – Roadways shall have a minimum clear width of 12 ft for each lane of travel, excluding shoulders and parking.

- It is unclear which roads are meant as one way or two-way travel. Not all two-lane roads are 24' wide.
- Efforts should be made to widen as many roads as possible.

5.3.3.1 - Curves shall not reduce the width of the road.

• No observed curves reduced the width of roads.

5.2.6 - At least 13.5 ft nominal vertical clearance shall be provided and maintained over the full width of the roadway.

- Roads in Pinion/Juniper or mixed conifer stands did not always have vertical clearance.
- At a minimum clearance needs to be provided for the largest responding piece of fire equipment.

5.2.7 – Turns in the roadway shall be constructed with a minimum radius of 60 ft to the outside of the turn.

- Cul-de-sac turn arounds had an average radius of 30 ft.
- Ensure any cul-de-sac turn arounds are free of debris, vegetation and graded to ensure quicker vehicle turnaround time.

5.2.11 – Vehicle load limits shall be posted at both entrances to bridges.

5.2.12 – Easements shall be obtained to permit vegetation clearance alongside roads to minimize the likelihood of evacuation routes being blocked during wildfire or other natural disasters.

5.2.16 - Grades

5.2.1.6.1 - Grades shall not be more than 10%.

- The further east in Baca the steeper roads become.
- Label roads that will exceed 10%.

5.2.17 – Dead Ends

5.2.17.1 - Every dead-end roadway more than 300 ft in length shall be provided at the closed end with a turnaround having no less than a 120 ft outside diameter of the traveled way.

- This recommendation was not observed.
- At a minimum, dead-end roads should be labeled.

5.2.17.2 – The length of any cul-de-sac shall not exceed the fire-fighting capability of the fire department.

5.2.17.3 - A cul-de-sac exceeding 1,200 ft in length shall be provided with approved intermediate turnarounds at a maximum of 1,200 ft intervals.

- This recommendation was not observed.
- At a minimum, dead-end roads should be labeled.

5.2.18 – Signage

5.2.18.1 – Addresses shall be assigned in a logical, consistent, manner based on the local addressing system. Street names shall be phonetically unique.

- A majority of residences had addresses numbered, however location and style was inconsistent.
- Develop address standards for newly developed lots and encourage previously developed lots to follow the standards. Standards should reflect NFPA 1141 recommendations.

5.2.18.2 - At each intersection, noncombustible signs shall be installed with name of each road.

- Street signs were observed at all intersections.
- Street signs should be replaced with ones made of noncombustible material.

5.2.18.3 – These signs shall be installed a minimum of 7 ft above the traveled way.

• Street signs should be put on metal posts at the recommended minimum 7' height.

5.2.18.4 - The letters on the signs shall be no less than 4 in. in height, with at least a .5 in. stroke, reflective and of contrasting color to the background of the sign.

- Not always observed.
- Incorporate this in sign replacement and address standards.

5.2.18.7 – Where the location of the nearest water supply is not obvious, signs or other directional symbols shall be erected indicating directions and distance to the nearest water supply.

5.2.18.8 – The beginning of every dead-end roadway and developments with only single access shall have signage indicating that there is not a second outlet.

• Signage should be installed to meet this requirement.

Building Access and Separation – Chapter 6

6.1 – General – At least one approved means of fire apparatus access shall be provided to each building.

6.1.1 – Approved fire apparatus access shall be provided to within 150 ft on any point of the exterior wall of each building.

- All development in Baca had some type of driveway access.
- *Type 4 & Type 6 engines should both respond to fires due to the varying quality of access.*

6.2 – Building Separation

6.2.1 - Any building shall be separated from another building by at least 30 ft and shall be set back at least 30 ft from a property line.

- Not knowing where each property line was located made this hard to determine compliance.
- This should be a development standard.

6.2.1.2 – If an accessory building is 400 ft² or less in ground floor area, the separation from the principal structure shall be permitted to be reduced to 15 ft where both buildings have a separation from a property line of at least 30 ft.

• This should be a development standard.

6.2.1.3 – If an accessory building is 400 ft² or less in ground floor area, the separation from the property line shall be permitted to be reduced to 15 ft where the accessory building has a separation from the principal structure of at least 30 ft.

• This should be a development standard.

Water Supply – Chapter 8

8.1 – General – Where water mains or fire hydrants are provided for fire protection purposes, they shall be installed and maintained in accordance with NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*.

8.1.3 – The number and type of fire hydrant and connections to approved water supplies shall be capable of delivering the required fire flow to one or more buildings of a development.

8.1.4 – Fire Hydrants

8.1.4.1 – Fire hydrants shall be marked in accordance with NFPA 291, *Recommended Practice for Fire Flow Testing and Marking of Hydrants*, and shall be made visible from the road by reflective marking or signage.

8.1.4.4 – Fire hydrants shall be located within 6 ft of the edge of the road. Consideration shall be given to locating fire hydrants such that fire apparatus can be connected to the fire hydrant without impeding the flow of traffic.

• Consider widening the roads near fire hydrants.

8.1.4.6 – The area around fire hydrants shall remain clear of obstructions, including vegetation, signs, fences, light posts and so forth.

- Vegetation obscured some fire hydrants.
- Vegetation around fire hydrants should be removed so that visibility is increased. Consider an adopt a fire hydrant to get citizens involved in this effort.

8.2 – Water Supply Distribution – Water sources shall be located such that the required fire flow for any building in the development can be established and maintained within 5 minutes of arrival with the fire department resources available.

Fire Protection During Construction – Chapter 9

9.1.4 – Fire department vehicular access to all buildings under construction shall be provided at all times.

9.1.4.1 – In areas where ground surfaces are soft or likely to become soft, hard all-weather surfaces access roads shall be provided.

- Roads made well and are constructed of native material.
- Some roads need "daylighting" so they get more sunlight and dry out quicker. This will also reduce fuel loads adjacent to roads for safer ingress & egress.

Values At Risk

Values At Risk are features other than houses that may be negatively affected by a wildfire. The identification of them prior to a wildfire can help managers develop strategic suppression strategies, determine when it may be appropriate to use less aggressive suppression efforts, and prioritize suppression resources between multiple simultaneous fires.

Infrastructure -

Roads - are susceptible to post wildfire erosion. Wildfires should be suppressed if they are going to result in more than a low intensity effect on the soil or roads will face getting washed out by post fire rain events. Fuel loads should be reduced to the point that the area will only receive a low intensity fire under normal weather conditions.

Bridges/Culverts/Creek Crossings – May become bottlenecks or roadblocks during a wildfire. Defensible space should be created around them to ensure they do not negatively affect traffic flow during a wildfire.

Water facilities – One water treatment facilities and three water tanks exist. Defensible space should be created around them for protection.

Electrical/Communication – Numerous electric control buildings exist. Defensible space should be created around them for infrastructure protection.

Stables – A recreational amenity to the residents and a location where horses are kept that could be affected by a wildfire. Defensible space should be created around the stables. The cottonwood bosque nearby should be thinned.

Natural Environment –

Post Wildfire Erosion – Baca has a rating of very high for post-fire erosion risk.

Wildfires should be suppressed if they are going to result in more than a low intensity effect on the soil. A moderate or high severity fire will result in the potential for large amounts of post-fire erosion. Fuel loads should be reduced to the point that the area will only receive a low intensity fire under normal weather conditions.

Drinking Water Importance - is the measure of quality and quantity of public surface drinking water categorized by watershed. This is ranked as an index of surface drinking water importance, reflecting a measure of water quality and quantity.

Water is critical to sustain life. Human water usage has further complicated nature's already complex aquatic system. Plants, including trees, are essential to the proper functioning of water movement within the environment. Forests receive precipitation, utilize it for their sustenance and growth, and influence its storage and/or passage to other parts of the environment.

Areas of Baca have low to moderate importance as a source of drinking water. Post wildfire affects may negatively influence the supply of drinking water. Wildfires should be suppressed if they are going to result in more than a low intensity effect on the soil and subsequently the drinking water. Fuel loads should be reduced to the point that the area will only receive a low intensity fire under normal weather conditions.

Drinking Water Risk - is a measure of the risk to Drinking Water Importance Areas based on the potential negative impacts from wildfire.

In areas that experience low-severity burns, fire events can serve to eliminate competition, rejuvenate growth and improve watershed conditions. But in landscapes subjected to high, or even moderate-burn severity, the post-fire threats to public safety and natural resources can be extreme.

High-severity wildfires remove virtually all forest vegetation - from trees, shrubs and grasses down to

discarded needles, decomposed roots and other elements of ground cover or duff that protect forest soils. A severe wildfire also can cause certain types of soil to become hydrophobic by forming a waxy, waterrepellent layer that keeps water from penetrating the soil, dramatically amplifying the rate of runoff. The loss of critical surface vegetation leaves forested slopes extremely vulnerable to large-scale soil erosion and flooding during subsequent storm events. In turn, these threats can impact the health, safety and integrity of communities and natural resources downstream.

The potential for severe soil erosion is a consequence of wildfire because as a fire burns, it destroys plant material and the litter layer. Shrubs, forbs, grasses, trees and the litter layer disperse water during severe rainstorms. Plant roots stabilize the soil, and stems and leaves slow the water to give it time to percolate into the soil profile. Fire can destroy this soil protection.

Wildfires should be suppressed if they are going to result in more than a low intensity effect on the soil and subsequently the drinking water. Fuel loads should be reduced to the point that the area will only receive a low intensity fire under normal weather conditions.

Riparian Assets - are forested riparian areas characterized by functions of water quantity and quality, and ecology. This map identifies riparian areas that are important as a suite of ecosystem services, including both terrestrial and aquatic habitat, water quality, water quantity, and other ecological functions. The Riparian Assets data is an index of class values that range from 1 to 3 representing increasing importance of the riparian area as well as sensitivity to fire-related impacts on the suite of ecosystem services.

Baca's riparian assets vary from a mixture of least to most sensitive. Least sensitive are in the Grants on gentler slopes. Most sensitive are up in the Chalets on steeper slopes, with moderate in the middle. Four creeks with riparian areas pass through Baca which could be affected by a wildfire. Baca Greenbelts surround these creeks and contain the riparian areas. The riparian areas/greenbelts are buffers from sedimentation as a result of a wildfire. Wildfires should be suppressed if they are going to result in more than a low intensity fire in the greenbelts. Fuel loads should be reduced to the point that the riparian area will only receive a low intensity fire under normal weather conditions.

Riparian Assets Risk - is a measure of the risk to riparian areas based on the potential negative impacts from wildfire. This layer identifies those riparian areas with the greatest potential for adverse effects from wildfire.

The range of values is from -1 to -9, with -1 representing the least negative impact and -9 representing the most negative impact.

Wildfires should be suppressed if they are going to result in more than a low intensity fire in the greenbelts. Fuel loads should be reduced to the point that the riparian area will only receive a low intensity fire under normal weather conditions.

Baca CWPP - Drinking Water Importance



Baca CWPP - Drinking Water Risk



Baca CWPP - Riparian Assets



Baca CWPP - Riparian Assets at Risk



12,300 2,050 4,100 8,200 Ω

VIII) Community Action Plan

The community plan is generally a simple action plan, comprised of at least three agreed-upon, doable action items that will improve the site's wildfire readiness. It is created from information contained in the community assessment. Some communities create extremely elaborate plans and some good plans are very unsophisticated. All are acceptable. What is necessary within the plan is the identification of doable action items by the Firewise USA Board. The action plan can be modified with the passage of time.

The success of the plan depends upon strong leadership at the community, district and county level. Educating citizens and about the risk of wildfires and mitigation to reduce that risk is paramount. The plan also relies on the efforts of individuals, Baca POA, Baca Emergency Services, Crestone Resiliency Group and Saguache County to reduce the risks of wildland fires.

No matter how good a plan is, it holds little value if it is not implemented. Creating defensible space is an important action an individual can take to protect their home. It is imperative that individual homeowners respond and begin efforts to mitigate the fire risk around their homes. It is also critical that communities organize to accomplish subdivision or community-wide mitigation and fuels reduction.

Tables are included in each area write-up that prioritize mitigation recommendations. The priority level should be used to assist in determining which fuels projects should be focused on and in what order they should be implemented. CWPP activities may be eligible for funding through state and federal grant programs.

Stakeholders, including representatives of Baca POA must support recommendations in this plan. A concerted effort to identify Wildfire Mitigation Advocates within each community may be one of the most important recommendations of this CWPP. A Wildfire Mitigation Advocate can assist local communities in strengthening public understanding, acceptance and participation in the plan.

The projects detailed in the CWPP are not the only projects that are required within the planning area; they are the most achievable for the communities at this point in time.

Landscape scale projects are excellent options as well, but often require the collaboration of multiple communities working with federal, state and county government. As support and community involvement grow through the completion of recommended smaller projects, the larger treatments become more obtainable. The core stakeholder group should consider additional projects at all scales, especially as communities begin to complete the initial projects identified in the CWPP.

Community Action Plan:

- 1. Increase number of Baca residents with defensible space.
 - a. Priority High
 - b. Action Increase educational efforts on the shoulder of fire season.
 - c. Timeframe Ongoing
 - d. Responsible Party CSFS, Baca POA, Crestone Resiliency, Firewise Committee
- 2. Provide detailed maps that facilitate communications with residents and other fire departments responding to requests for mutual aid and emergency planning.
 - a. Priority Medium
 - b. Action Basic maps provided as part of CWPP. Individual residences should be mapped and given a wildfire rating.
 - c. Timeframe 2019
 - d. Responsible Party Baca Emergency Services, Crestone Resiliency, CSFS
- 3. Develop a system to keep structure rating up to date.
 - a. Priority Medium
 - b. Action Work with CSFS, Baca Emergency Services and Baca POA to map new construction permits and finished construction. Work with CSFS to update rating maps.

- c. Timeframe Ongoing
- d. Responsible Party Baca Emergency Services
- 4. High and Extreme ranked areas will work to decrease fuels to reduce wildfire intensity and impact in and around the community.
 - a. Priority High
 - b. Action Conduct defensible space workshops specifically in those areas.
 - c. Timeframe Ongoing
 - d. Responsible Party Baca Emergency Services, CSFS, Firewise Committee
- 5. Baca Emergency Services will work to evaluate, upgrade and maintain community wildfire preparation and response facilities and equipment.
 - a. Priority Medium
 - b. Action Replace and obtain wildland fire equipment.
 - c. Timeframe Annual
 - d. Responsible Party Baca ES Chief and community leaders, DFPC
- 6. Baca Emergency Services will help educate community members to prepare for and respond to wildfire.
 - a. Priority High
 - b. Action Increase frequency of meetings, instill sense of personal responsibility. Obtain funding for Baca ES to offer free/cheap defensible space consultations.
 - c. Timeframe Ongoing
 - d. Responsible Party Baca ES, concerned citizens, CSFS, Firewise Committee
- 7. Baca Firewise USA Board will regularly evaluate, update and maintain planning commitments.
 - a. Priority Medium
 - b. Action Actively evaluate, update and maintain plan
 - c. Timeframe annually
 - d. Responsible Party Baca Firewise USA Board
- 8. Determine if any infrastructure changes will decrease wildfire dangers. Follow NFPA 1141 Standards.
 - a. Priority Medium/High (depending on standard)
 - b. Action Work towards compliance with NFPA 1141
 - c. Timeframe Start 2019. Finish by 2025
 - d. Responsible Party Baca Emergency Services
- 9. Baca will develop and implement a comprehensive emergency response plan.
 - a. Priority High
 - b. Action Seek professional assistance to develop and implement emergency response plan
 - c. Timeframe ASAP
 - d. Responsible Party Community leaders, concerned citizens, Saguache County Emergency Manager

Fuel Treatment Standards

Defensible spaces should follow CSFS- Fire 2012-1 Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones.

Fuel breaks should follow – Fuel Break Guidelines for Forested Subdivisions & Communities. Previous fuel local treatment standards from the 2005 CWPP are still relevant and should be followed-

- Thin crown covers to 40% or less, clumps of trees are ok within the 40%.
- Remove dead trees if there are many together, or if they pose a hazard of falling across a road.
- Remove most dead wood on the ground greater than 3" in diameter.

Existing Control Features – 2005 CWPP

Control features are areas devoid of burnable vegetation. They include; roads, trails, creeks, rockslides, and cliffs. Control features effectiveness depends upon their location, width, cleanliness and accessibility. Control features that are perpendicular to the wind provide a good chance of stopping a fire's forward spread. Any fireline can be breached by aerial spotting.

The Baca has some roads which offer limited defense once a fire has built up enough momentum. The effectiveness of a road as a fireline is compromised by large amounts of flammable material immediately adjacent to the road. Rabbit brush is prevalent along the roadways in the flatter, grassland locations. Roads located on a slope are also not as effective as roads on level ground. Using mid slope roads, such as Dream Way, for control of aggressive fires is often a losing proposition.

Individual Group Responsibility – 2005 CWPP

Individual structure fire survivability starts at the roof and moves towards the foundation, then radiates out from the structure. Effective defensible space is the single most important factor in determining the outcome when a wildfire burns through inhabited areas. There is no replacement for landowners redeeming their responsibilities to themselves and the community. It may become critical to connect with other member groups for more effective fire management opportunities

Mitigation actions will improve the ability of member groups to limit the size of wildfires threatening values at risk. This reduction in size potential will have a subsequent influence on numbers of structures endangered during any single wildfire event.

Safety During An Incident – 2005 CWPP

Getting people out of Baca in the event of a wildfire will be problematic. Notifying people in this large area will also be a challenge. When winds are high and conditions dry, there is very little time to implement an evacuation. Baca is strongly encouraged to consider "shelter in place" strategies for use when evacuation compromises safety. But "shelter in place" strategies may only work after they have been implemented, meaning that fuels have been decreased substantially, structures have been made fire resistant, and survivable space has been created. Further discussion and training of this issue with Baca residents is warranted.

It is important for the Saguache County Sheriff's Department to be included in all wildfire response and evacuation planning.

Road Signage – 2005 CWPP

Road signs are a little recognized piece of rapid emergency response. The Baca area has relatively small, low contrast, sporadically occurring signage. It is time to start an initiative to install signs at critical places in the Baca. New signs should be more readable and reflective. Consider signing fire evacuation routes.

Fuelbreaks – 2005 CWPP

A planned system of fuelbreaks would take advantage of preexisting, less dense, forested areas. Fuelbreaks provide firefighters a safer place to make a stand during high burning conditions. They are characterized by lower tree densities and less ground fuels. Tree crown cover of less than forty percent is required to bring crown fires to the ground. Ideally fuelbreaks are also aligned perpendicular to prevailing winds. This orientation allows them to be most effective in stopping a fire's forward spread. Access for fire equipment along fuelbreaks is handy, but not critical. There are limited natural breaks in the pinyon forests in the Baca. There may be a couple roads that can be improved to enhance their function as fuelbreaks.

BGES has been doing some thinning along Willow Creek to eventually make it a fuelbreak. This and other greenbelts have been considered the best chance to develop fuelbreaks without impacting numerous landowners.

Adjacent Landowners Fuel Treatments

If resident structures are within 300' of private or federal land then there should be a conversation with the adjacent resident for treatment on their land as well.

Rio Grande NF – Baca POA is not adjacent most of RGNF. Unincorporated religious institutes are adjacent to most of RGNF. These Centers are to the east and furthest up slope are adjacent to the RGNF, however the NF land is far enough from any structures that NF fuels treatment is not needed. South Crestone Creek greenbelt is adjacent to RGNF. RGNF is looking at thinning the fuels south of the road to Willow Creek trailhead, FDR 949. Baca should apply for CAFA grants to create a complimentary fuels reduction work at the same time. If the Rio Grande is doing any additional fuel treatments Baca should take advantage of the opportunity to do a cross border project.

Baca Wildlife Refuge – Unincorporated areas are adjacent to the Baca Refuge. Efforts should be made to work with the Baca Refuge to mow this border similar to how it is mowed along the Spanish Creek Trail Road. Colorado College's structures are far enough from the Baca Refuge that no treatment is recommended at this time. If the College expands then this should be reconsidered.

Great Sand Dunes Park & Preserve - Baca has lots close to the border. Great Sand Dunes should be engaged to see if fuels treatment may occur on their land.

Greenbelts

Management goals and objectives for the Baca Grande green belts are currently under discussion. There is some controversy about the role of, and desired future conditions in the greenbelts.

The riparian green belts have an abundance of dead and down woody fuel that will support an intense fire. The vegetative mixture in the riparian areas has migrated away from its natural state. Trees and brush are much denser than pre European conditions. Rocky Mountain juniper is more abundant while Narrowleaf cottonwood and Ponderosa pine are fading from the scene. Closer to the creeks are Narrowleaf cottonwood and Quaking aspen with other riparian species such as willow and dogwood. Further away from the creek is pinyon & juniper. Higher in elevation there starts to occur mixed conifer stands with Douglas-fir and White fir.

Other greenbelts exist that are composed of shrubs or wetlands. If the greenbelts with shrubs are located close to homes then consider mowing them to convert to grass cover type. The wetland greenbelts are close to the Baca NWR. If Baca NWR is burning their wetlands for habitat then consider working with them to burn the wetlands in Baca POA.

Fire has been excluded from the vegetative development equation for the last one hundred years. Without the periodic cleansing, from relatively low intensity fire, these riparian areas have become artificially overgrown. Fires will burn hotter and have more dramatic impacts. Without some thinning and fuel cleanup the green belts are extremely vulnerable to moderate or extreme post fire erosion.

Greenbelts should be treated to follow fuel treatment standards.

- Thin crown covers to 40% or less, clumps of trees are ok within the 40%.
- Remove dead trees if there are many together, or if they pose a hazard of falling across a road.
- Remove most dead wood on the ground greater than 3" in diameter.

- The thinning of junipers in areas where dense juniper stands have taken over the narrowleaf cottonwood will help maintain the cottonwoods. The thinning of shrub cover and young juniper, where dense stands of shrubs and junipers exist in the understory of the riparian woodland will help to reduce fuel loads and remove ladder fuels that could result in the loss of larger cottonwoods and junipers. This would also open areas where young cottonwoods could regenerate if soil moisture is adequate. Baca Grande Biological Assessment 2005
- According to the 2005 Baca Grande Biological Assessment the "Cottonwood-Juniper dominated riparian areas traditionally have low total and canopy biomass." The area is also "characterized by an open canopy of narrowleaf cottonwood and Rocky Mountain Juniper, often with graminoids growing in the understory." Current conditions contain high amounts of biomass with limited graminoids in the understory due to the limited sunlight reaching the forest floor from the stands being too dense. Reducing fuel loads will help restore this habitat and encourage narrowleaf cottonwood regeneration.
- Remove dead cottonwoods under 10" diameter. Reduce dense stands of young juniper. Reduce pinyon & juniper to 10' crown spacing or less than 30% canopy cover. Small openings exist that will reduce wildfire movement. Accent the benefit of these openings by thinning trees around them. Remove dead and down debris smaller than 4" that is not decomposing. Consider chipping material on site to add organic material to the soil.
- Additional guidance for managing cottonwood bosques can be found in the Colorado State Forest Service Quick Guide Series, Cottonwood Management: Ecology, Rehabilitation, Wildfire and Other Considerations.

Baca CWPP - Greenbelts & POA Ownership



Equestrian Easements

When Baca POA was established over 100 miles of equestrian easements were laid out on maps. These have never been developed or utilized. A few options should be considered for how to incorporate the equestrian easements as fire control features.

- 1- Strategically brush hog easements that have a higher density of residents nearby to act as a fuelbreak and access path.
- 2- Strategically brush hog the easements that tie together roads to roads to act as a fuelbreak and access path. This will also create defined control features to fight a fire.
- 3- Plan for starting to brush hog all easements to act as a fuelbreak and access path.
- 4- Plan for brush hogging all easements in the greenbelts to act as a fuelbreak and access path.
- 5- Plan for the development of trails in equestrian easements. This will provide an access path and fire break as a defined control feature to fight fires.
 - a. Trails may be combined with brush hogging to act as a combined access path, fire break and fuel break.

Baca Equestrian Easements



IX) Wildfire Response

Wildland Fire Management and Suppression Tactics: Suppression priorities for firefighters will vary based upon capabilities and overall strategy, but since firefighter safety is a top priority, disengagement may result from conditions becoming too hazardous. These priorities make it imperative that individual homeowners effectively treat the home ignition zone around their structures to increase the likelihood of their structures surviving a wildfire without aid from firefighters.

Resources to Respond to a Wildfire

Wildland Fire Management and Suppression Tactics: Suppression priorities for firefighters will vary based upon capabilities, overall strategy and fire behavior. Firefighter safety is always a top priority. These priorities make it imperative that individual homeowners effectively treat the home ignition zone around their structures to increase the likelihood of their structures surviving a wildfire without aid from firefighters.

Fire Response

In the event of a fire, provide safety for your family and yourself. The primary fire response should be to call 911 immediately. The 911 call will also inform Northern Saguache Fire Protection District, so they can staff accordingly in case they are needed for standby for mutual aid or for back filling positions. Water Delivery

Only a portion of this area has hydrants or cisterns. Consider budgeting for dry hydrants or fire wells or cisterns over the next few years to develop alternate water sources.

BGES	Northern Saguache Fire Protection Distric		
Tender 2000 gallons	(total equipment, not broken down by station)		
Attack 1 Type 6x mini pumper	2 Type 1 engines		
CAFs truck – Type 3x	2 Type 2 engines		
Chase Vehicle	5 Type 6 engines		
Equipment truck	6 Tenders		
Type 6 engine	2 Rescue trucks		
Type 1 pumper truck	1 Ladder truck		

X) Next Steps – Firewise USA requirements

The Baca must complete the following requirements to become a Firewise USA community:

- Form a Firewise USA board
- Invested at least \$25.96 per resident in reducing wildfire risks
- Create an action plan
- Complete a community assessment
- Hold a Firewise USA Day

To maintain the Firewise USA community status the follow requirements must be met annually:

- Invested at least \$25.96 per resident in reducing wildfire risks
- Work on accomplishing items in the action plan
- Hold a Firewise USA Day
- Update action plan every three years
- Review and update as needed the community assessment every five years

XI) Assessment / Monitoring

Introduction:

A CWPP is a planning tool. As such, it will help to identify and guide mitigation efforts within the community. Its overall value, however, is directly related to the ongoing evaluation and improvement of the plan in the future. Future plans will reevaluate risks as conditions change and as mitigation efforts are

completed. As a living document, the plan relies on the input of all stakeholders. The plan should be revisited at least on an annual basis and should be formally updated every five years. We invite you to be involved in that process.

Assessment Plan

Work and wildfire hazards do not stop once the CWPP is complete or even once all action items are completed. Resources and landscapes change over time and CWPPs must be revisited and refreshed regularly. Changes in risk ratings should be reflected upon completion of priority projects and new initiatives developed for the CWPP to remain viable. In addition, effective new strategies and wildland programs should be incorporated into CWPP planning efforts.

These guidelines are designed to enhance a CWPP's effectiveness and were generated from actual experiences with mitigation and large wildfires, as well as community planning processes. Potential process to update your CWPP:

- 1. Review existing CWPP.
- 2. Describe progress made and list accomplishments since the CWPP was adopted.
- 3. Host collaborative meetings.
 - a. Identify any new risks that have developed.
 - b. List any changes in a community's hazard risk rating.
- 4. Update maps.
- 5. Reflect changes in risk ratings due to completed projects or changes in landscape.
- 6. Develop updated priorities.
- 7. Distribute CWPP update drafts to key stakeholders (including local, state, tribal and federal partners) for review and input before the final approval.
- 8. Submit the final document to your local government body, local fire department(s) and State Forestry for required signatures and endorsement.
- 9. Once signed and endorsed by your local governing parties, submit all documentation to CSFS.

The community intends to assess the progress annually and invite Agencies and members to submit projects that provide community protection. Additional projects will be displayed in an updated appendix to this plan.

The 2005 CWPP Annual Effectiveness Checklist: is still relevant and should be followed.

- 1. Are we mitigating annually to keep designated fuel breaks, roadway creek crossings and evacuation routes clear of debris and fuel hazards?
- 2. Have wildfire impacts changed this year for our watersheds, open spaces and wildlife habitat?
- 3. Are there any new structural mitigation priorities?
- 4. Are we continuing public fire safety education efforts such as meetings with discussions on healthy forests and defensible space?
- 5. Did we update our emergency maps this year?
- 6. Can we make any improvements to water delivery systems?

XII) Community Collaboration

Introduction:

Stakeholder input is the best method to achieve the best product using local knowledge and community input. Stakeholder input will identify and address specific needs presented by the communities. Stakeholder input at Baca was provided via a CWPP survey. This was provided to Baca residents at meetings, events and email. The survey was available for approximately nine months from February 2018 – October 2018. Thirty eight surveys were received and analyzed. Appendix B has a copy of the survey.

Survey Results:



Implications: Good representation from different areas of Baca.



Implications: Variety of types of residents represented. This means that education methods should be year round and varied to reach the different needs of the residents.



Implications: Most residents are aware that wildfire is a concern. Base knowledge of wildfire as a hazard is established by most residents. Small portion of residents are unaware of wildfire hazards, which means that basic message should occasionally be repeated.



Implications: Residents may have a false sense of security about the ability of their homes to survive a wildfire. Firefighter quick assessments of the properties indicate a majority of structures will not survive a wildfire. Residents need education on type of wildfires, defensible space, firefighter response and ignition potential of structures.



Implications: Most residents are aware that wildfire is a safety concern. Base knowledge of wildfire as a safety concern is established by most residents. Small portion of residents are unaware of wildfire as a safety concern, which means that basic message should occasionally be repeated.



Implications: Concerns from how a wildfire can threaten Baca are fairly evenly distributed. Education messages should rotate through the different concerns to take advantage of residents' different fears.



Implications: Most residents are aware of the term defensible space. Small portion of residents are unaware of defensible space. Amount and depth of knowledge of defensible space is not known. The message about defensible space should be repeated. Workshops on defensible space should be conducted to ensure residents fully understand the concept.



Implications: Most residents have completed some defensible space work on their property. We do not have information on the thoroughness of the defensible space work. The message about what makes a good defensible space should be repeated. Workshops on defensible space should be conducted to ensure residents fully understand the concept.



Implications: Messages directly to the residents about performing wildfire mitigation work will be most effective.



Implications: Residents are aware of and performing a variety of wildfire mitigation work. Education messages on types of mitigation work appear to be working. Continue these education messages.



Implications: Residents are supportive of community wide mitigation efforts to reduce wildfire dangers.



Implications: Most residents want to learn more about preparing for a wildfire.



Implications: Residents are fairly evenly split on the format on how they would like to learn about preparing for a wildfire. Continue to offer wildfire education in a variety of formats.

This CWPP:

1. Was collaboratively developed. Interested parties in the region of this CWPP have been consulted.

2. Identifies and prioritizes areas for hazardous fuels reduction treatments and recommends the types and methods of treatment to reduce the wildfire threat to values at risk in the area.

3. Recommends measures to reduce the ignitability of structures throughout the area.

The following representatives of the entities required for CWPP approval mutually agree with and approve the contents of this Community Wildfire Protection Plan:

Prepared by: Colorado State Forest Service - Alamosa Field Office

PO Box 1137 (129a Santa Fe Ave.) Alamosa, CO 81101

This report is a collaborative effort between various entities. The representatives listed below comprise the core decision-making team responsible for this report and mutually agree on the plan's contents:

LOCAL FIRE DEPARTMENT REPRESENTATIVE AND OFFICE

Tad Crawford, Baca Grande Emergency Services

STATE AGENCY REPRESENTATIVE

Adam Moore, Alamosa Supervisory Forester, Colorado State Forest Service ________

COMMUNITY REPRESENTATIVE Baca Grande POA President

The list below is comprised of additional representatives from adjacent land management agencies or other government officials. They have reviewed and commented on the document.

LOCAL GOVERNMENT REPRESENTATIVE

Dan Warwick, Saguache County Sheriff

Bobby Walz, Saguache County Emergency Manager

Jason Anderson, Saguache County Commissioner

MUTUAL RESPONSE FIRE DEPARTMENT REPRESENTATIVE AND OFFICE

Wes Moores, Northern Saguache Fire Protection District

Peter May, Kundalini Fire Management

STATE AGENCY REPRESENTATIVE

Devin Haynie, Battalion Chief - San Luis Valley, CO Division Fire Prevention and Control

FEDERAL LAND MANAGEMENT AGENCIES

Chad Lewis, Fire Management Officer, Rio Grande National Forest

Pam Rice, Superintendent, Great Sand Dunes NP & Preserve

Ron Garcia, Refuge Manager, Baca National Wildlife Refuge

Ed Skerjanec, BLM, Fire Mitigation Specialist

Signatory Page

The previous people have reviewed and approved the Baca POA Community Wildfire Protection Plan.

Additional Comments

Consider planning for events during and after wildfire

Traditionally, CWPPs have focused on wildfire prevention and response. Recent wildfires have shown the importance of planning ahead for community action during the fire event, as well as for the post-wildfire effects and recovery, which can be as devastating as the fire itself.

Post-fire landscapes present significant community challenges. Key considerations for Baca include identifying both the desired future condition for the affected community and defining the community actions to get there. Immediate post-fire stabilization activities, such as erosion control, generally has broad levels of support. Removal of hazard trees, particularly along roads, is highly supported. Broader management decisions, such as salvage logging, tend to elicit a greater range of opinions.

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

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

Long Term Safety Considerations- Post fire flooding is a major concern. The heavy monsoon season rains common in Colorado in the late summer and early fall can often bring flooding and debris flows after wildfire. These storms are typically very local, very intense, and of short duration, delivering a lot of rain in a short amount of time. When such storms develop over burned areas, the ground cannot absorb the rain, so it runs off the burned area, accumulates in streams and produces flash floods. Even areas that are not traditionally flood prone are at risk due to changes to the landscape caused by a wildfire. As a result, much less rainfall is needed to produce a flash flood. A good rule of thumb is, if you can look uphill from where you are and see an area burned by a wildfire, you are at risk.

Post-wildfire flooding preparation should also be included in the Saguache County Multi-Hazard Mitigation Plan. Some homes and businesses may want to re-evaluate their flood insurance coverage in light of the fact that post-wildfire floods are often more extensive than the flood risk before a wildfire might indicate.

In addition, many elements of post-wildfire recovery are similar to recovery from other disasters and are covered in the Saguache County Multi-Hazard Mitigation Plan.

- Develop a plan to monitor air quality during wildfires and provide citizens with a location free of smoke. The wildfire response and recovery team in collaboration with the Saguache County Emergency Manager should identify evacuation locations and shelters for those displaced by wildfire. Identify a community liaison for each community to interface with incident command and/or Burned Area Emergency Response (BAER) teams during and after wildfires.
- Review "After Wildfire: A Guide for New Mexico Communities" (<u>https://www.afterwildfirenm.org//</u>) with your Core Team. Consider integrating applicable elements into a post-fire section of your CWPP.
- 3. Identify and establish a wildfire response and recovery team (which may be different from your CWPP Core Team) along with a strategy (see the "Mobilize Your Community: Assess Your Needs" section of the After Wildfire Guide) and an annual action plan with activities to keep the team together.
- 4. Identify values at risk from post-fire impacts and use those to develop desired post-fire conditions for your landscape. Consider which techniques you might utilize to help protect areas from post-

fire flooding or to rehabilitate burned areas (see the "Post Fire Treatments" section of the After Wildfire Guide).

Forest Restoration- Catastrophic wildfires have resulted in significant losses to critical wildlife habitat, imperiled fisheries, watersheds, and municipal water sources. These events also threaten the long-term productivity of forest soils, through erosion and changes in soil properties, as well as many other resources. It may be appropriate to implement post-wildfire treatments in the forest such as erosion control or planting, but first communities should be sure to identify values at risk post-wildfire and focus on treatment that reduce the threat to those values.

Restoring forested ecosystems following a large-scale wildfire typically involves a series of steps:

- Emergency stabilization to prevent threat to life, property, and further damage to watersheds.
- Rehabilitation of resources affected by the disturbance that are unlikely to recover without human intervention.
- Longer term restoration treatments, including reforestation, that span many years and are needed to restore functioning ecosystems.

On some occasions, natural regeneration can serve to meet forest management objectives. In other instances, active reforestation actions such as planting seedlings may be necessary.

Appendixes

Introduction:

Appendixes detail general information, the scientific and/or technical information used to generate the CWPP and provide homeowners and community leaders' extensive information on creating defensible space and improving home ignitability risks. Additional resources are also identified.

- A. CWPP Background
- B. CWPP Survey
- C. Prioritized Mitigation Recommendations Explanations
- D. General Recommendations
- E. Community Risk Assessment Factors
- F. Wildfire Pre-Suppression Plan
- G. Glossary

Appendix A – CWPP Background

Why have a CWPP?

CWPPs are essential to collaborative efforts that reduce fire risks in your communities, the surrounding WUI and other nearby landscapes. CWPPs:

- Provide for community-based decision-making
- Communities benefit from a CWPP by being more prepared for a wildfire
- Encourage communities and their local governments to determine boundaries of the WUI that surrounds their communities
- Identify ways to reduce wildfire risk to communities, municipal water supplies, critical infrastructure and at-risk federal lands
- Provide a mechanism to seek grants for further implementation of the plan
- Promote systematic information gathering to address goals of the plan
- May serve as a pathway to federal and state grants and other assistance
- Prerequisite for federal & state assistance programs that address wildfire response, hazard mitigation, community preparedness and structure protection and other critical tasks
- Communities can work cooperatively with technical and public safety experts to reduce vulnerability to wildfire hazards in their communities
- Communities can take ownership of efforts to reduce wildfire hazards in their communities

Appendix B – CWPP Survey



CWPP Survey

Community Wildfire Protection Plan Resident Survey



Colorado State Forest Service, Alamosa District is in the process of updating and creating new CWPP and is seeking input from residents about your concerns and ideas for how we can improve the plan and make your community more resilient to wildfire.

1. What community do you live in?_

2. What type of resident are you?

Full-time resident	Seasonal resident	Owner of undeveloped lot	Business owner	

3. Do you live in, or own property in an area vulnerable to wildfire? _____ Yes _____ No

4. If you have structures on your property, do you think they will survive a wildfire? _____Yes _____No

5. How safe do you feel from a wildfire?

No Opinion	Not Safe	Concerned	Reasonable Safe	Very Safe	

6. What are your concerns about fire threatening your community?

Damage to your home	Personal & family safety	Loss of life	Damage to water supply	Post fire erosion	Smoke impacts	Property value loss
					1	

6. Are you familiar with the term Defensible Space? _____Yes _____No

7. Have you completed and Defensible Space work on your property? _____Yes _____No

8. Under which of the following conditions would you be willing to do mitigation work on your property?

l would do mitigation work regardless of what anyone else does	Only if other landowners and managers are doing work on their land	Only if the work would be cost shared	Only if I can be convinced the work will improve the survivability of my home	Under no circumstances	Other:
		(1) · · · ·			

9. Which of the following mitigation actions do you currently perform?

Move firewood	Keep grass less	Remove pine needles	Remove flammable material	Remove small	Prune up trees
30 feet from	than 6" in	from deck, gutters and	(firewood, brush, debris)	trees that act as	
house	height	close to house	from under deck	ladder fuels	

10. What suggestions do you have to reduce your community's vulnerability to wildfire?

Creating safety zones	Thin more trees	Remove brush	Education	Thin along roads	Fuelbreak adjacent to your community
		12			· · · · · · · · · · · · · · · · · · ·

11. Would you like more information on preparing for a wildfire? _____Yes ____No. What is your preferred format?

Brochure	Workshop	Site visit	Other:
	-		1

Please return to Colorado State Forest Service, PO Box 1137, Alamosa, CO 81101; or Baca POA

Appendix C - Prioritized Mitigation Recommendations Explanations

Task				
Create defensible space				
Maintain defensible space				
Extend defensible space				
Remove Firewood or other combustible material on/under deck or near house				
Home construction retrofit				
Thin roadsides for safer ingress/egress				
Thin land beyond defensible space between homes				
Create fuel-break along USFS/BLM boundary				
Create fuel-break within community				
Education / Advocacy ¹				
Community design / Infrastructure ²				
Other:				

Create defensible space – Structures need defensible space created within 100'. *Method* – Hand fell to remove and prune branches near homes to reduce ladder fuels and thin; mow; landscape appropriately; remove flammables. *Reference* – Protecting Your Home from Wildfire: Creating Wildfire Defensible Zones.

Maintain defensible space – Defensible space needs some general maintenance to maintain its effectiveness. *Method* – Trees & shrub regeneration needs removing; grass mowed; debris moved. *Reference* – See Annual Requirements checklist on page 11 in Protecting Your Home from Wildfire: Creating Wildfire Defensible Zones.

Extend defensible space – Defensible space created may not be wide enough for the given terrain, amount of fuel or time it may take firefighters to access the area. *Method* – Follow same methods as creating defensible space but go beyond 100'. *Reference* – Protecting Your Home from Wildfire: Creating Wildfire Defensible Zones.

Remove Firewood or other combustible material on/under deck or near house – Excess material creates spots for embers to land and catch structures on fire. *Method* – Keep firewood at least 30 feet away from structures, and uphill if possible. Remove construction material. Do not store anything under the deck. *Reference* – Protecting Your Home from Wildfire: Creating Wildfire Defensible Zones. **Home construction retrofit** – Change the construction of home to incorporate additional fire-resistant construction techniques. *Method* – Depends on structure, but commonly includes; closing off deck, using non-combustible materials for decks, changing roof material. *Reference* – <u>FireWise Construction:</u> <u>Site Design & Building Materials</u>.

Thin roadsides for safer ingress/egress – Thinning along both sides of roads in areas of heavy flammable fuel loadings will aid in the egress of residents and ingress of firefighters by reducing the intensity of fire and smoke. *Method* – Thinning, pruning and mowing. *Reference* – Fuel-break Guidelines for Forested Subdivisions & Communities.

Thin land beyond defensible space between homes – Heavy fuel loads, topography or distance between houses means that additional fuels reductions beyond defensible spaces and between homes would benefit the community. *Method* – Thin trees and prune branches. *Reference* – Fuel-break

Guidelines for Forested Subdivisions & Communities, Protecting Your Home from Wildfire: Creating Wildfire Defensible Zones, page 8, Zone 3.

Create fuel-break within community – A fuel-break is a strip of land in which fuel density is reduced to keep a fire on the ground and create an anchor point. *Method* – The stand is thinned and remaining trees are pruned to remove ladder fuels. Brush, heavy ground fuels, snags and dead trees are disposed of and an open park-like appearance is established. *Reference* – Fuel-break Guidelines for Forested Subdivisions & Communities.

Create fuel-break along USFS/BLM boundary – Structures are close enough to USFS/BLM boundary that adequate fuels reduction may not be provided on private land only. *Method* - Thin trees and prune branches. *Method* – Thin trees and prune branches. *Reference* – Fuel-break Guidelines for Forested Subdivisions & Communities, Protecting Your Home from Wildfire: Creating Wildfire Defensible Zones, page 8, Zone 3.

Education / Advocacy - A local Wildfire Mitigation Advocate should been identified for the community that will assist with implementing recommended activities in coordination with adjacent landowners and promoting Firewise USA. *Method* – Work with CSFS Alamosa and local fire department.

Community design / Infrastructure – Items to consider include: Provide adequate turnarounds for fire apparatus throughout the community. Identify all water sources within the community, including hydrants, cisterns and ponds, and make sure they are visible, maintained and operable. Develop additional water sources and storage as required. Label roads and houses with 4" reflective letters on metal signs. Where dead end and private road markers occur, the addresses of homes beyond the marker should be clearly posted. This can be done with a group address marker.
Appendix D - General Recommendations

Home Mitigation

In the end, every homeowner and every community must assume responsibility for protection from wildfire. Although VFDs are dedicated to protect and defend, in the event of a catastrophic fire, or even a much smaller fire under the right conditions, the VFDs may or may not be able to intervene. The more steps each homeowner and each community takes to mitigate wildfire risk, the more likely it is a home will survive without intervention and the more likely it is that lives will be protected.

All of the communities in the CWPP, especially those with extreme, very high and high hazard ratings, should consider implementing a parcel-level analysis. Even homes that are outside of a defined CWPP community will most likely have hazard levels similar to homes within near-by evaluated communities. Communities may undertake large-scale projects that may benefit multiple homes, but the most effective steps landowners can take to protect their property from wildfire is to mitigate around homes.

Home Construction

All new construction within the CWPP area should consider incorporating wildfire construction principles. Recommended alterations to a home may include simple tasks such as cleaning gutters, moving firewood from around buildings, raking pine needles and flammable ground cover away from the home. Other recommendations might include replacing flammable roofing materials and siding, screening beneath decks and vents, double pane windows, and more. Please see <u>CSFS publication</u> Firewise Construction: Site Design & Building Materials.

Road Signs and Home Addresses

The majority of the streets within the CWPP are not adequately labeled, signs are not always reflective and are frequently combustible. There are still many places where signs are missing or it is unclear which road is which. Proper reflective signage is a critical operational need. Knowing at a glance the difference between a road and a driveway (and which houses are on the driveway) cuts down response time by reducing navigation errors. This is especially true for out-of area responders who are not familiar with our area. The value of the time saved, especially at night and in difficult conditions, cannot be overstated: it can make the difference between lives saved and lost.

Recommendations:

- Ensure that every intersection and street name change has adequate, reflective signage.
- Develop a program of replacing worn or difficult to read street signs. Include specifications and input from developers, HOAs, and the fire protection districts.
- Lot markers should be replaced with address markers as soon as a home has a certificate of occupancy.
- Where dead end and private road markers occur, the addresses of homes beyond the marker should be clearly posted. This can be done with a group address marker.

Preparedness Planning

Many communities in the CWPP have only one way in and out of the community. In order to reduce potential conflicts between evacuating citizens and incoming responders, it is desirable to have evacuation plans in place that have been trained and exercised.

Recommendations:

• Identify and pre-plan primary escape routes for all CWPP communities. Emergency management personnel should be included in the development of pre-plans for consequence management that includes evacuation. Re-evaluate and update these plans as necessary.

- Educate citizens on the proper escape routes and evacuation centers to use in the event of an evacuation. This also applies to animal rescue.
- Ensure the existing reverse 911 system includes already developed wildfire notifications.
- Perform response drills to determine the timing and effectiveness of escape routes and fire resource staging/check-in areas.

Public Education

There is likely to be a varied understanding among property owners of the hazards associated with the threat of a wildfire. An approach to wildfire education that emphasizes safety and hazard mitigation on an individual property level should be undertaken.

Recommendations:

- Provide communities and homeowners fire prevention educational materials through personal contact.
- Fire prevention and wildfire hazard mitigation education should be an ongoing effort.
- Implement fire prevention, fire preparedness, defensible space, and hazard reduction recommendations for each community.
- Create an evacuation plan that is presented and distributed to residents.
- Hold multiple meetings per year to educate residents on wildfire risk, defensible space, and evacuation.
- Provide citizens with the findings of this study including:
 - Levels of risk and hazard.
 - o Values of fuels reduction programs.
 - Consequences of inaction for the entire community.
- Create a community level Mitigation Advocates or Firewise Ambassador or similar WUI citizen advisory committee to promote the message of shared responsibility. The Mitigation Advocates or Firewise Ambassadors should consist of local citizens and its primary goals should be:
 - Bringing the concerns of the residents to the prioritization of mitigation actions.
 - Selecting demonstration sites.
 - Assisting with grant applications and awards.
 - Make use of regional and local media to promote wildfire public education messages including www.SLVEMERGENCY.org.
 - Maintain a current wildfire educational presentation explaining the concepts of defensible space and wildfire hazard mitigation. The information in this CWPP should be incorporated into that presentation for the education of homeowners. This could be promoted through informational gatherings sponsored by the fire department, homeowners associations or neighborhood gatherings such as local festivals, and school events. It should also be presented during times of extreme fire danger and other times of heightened awareness concerning wildfire.

Water Supply

Water is a critical fire suppression issue in the community. Very little of the area is served with water hydrants. All new developments within the CWPP should consider developing year-round water sources.

Recommendations:

• Areas with no water or inadequate water supply should be evaluated to establish a stored water supply, or use preplanned firefighting resources.

- Map existing water sources and their volume. Make this information available for emergency personnel in and out of the district.
- Make sure cisterns are well marked with their capacity and are kept clear of vegetation.

Appendix E – Community Risk Assessment Factors

Each community write-up also included a community wildfire risk assessment. This assessment assigned a hazard rating ranging from low to extreme based on a composite score that incorporates considerations for factors that affect the potential for hazardous fire behavior in the WUI. The factors considered include: community design, existing building materials, utilities defensible space, availability of fire suppression resources and physical conditions such as fuels and topography. This is adapted from University of Nevada Cooperative Extension's Nevada Community Wildfire Risk and Hazard Assessment Methodology.

Community Design:

Design aspects of roadways influence the hazard rating assigned to a neighborhood. A road gradient of greater than five percent can increase response times for heavy vehicles carrying water. Roads less than twenty feet in width often impede two-way movement of vehicles for resident evacuation and access for fire suppression equipment. Hairpin turns and cul-de-sacs with radii of less than 45 feet can cause problems for equipment mobility. Adequately designed secondary access routes and loop roads in a neighborhood can lower a hazard rating. Visible, fire resistant, street and address identification and adequate driveway widths also reduce the overall neighborhood hazard rating.

Existing Building Materials:

Appropriate home construction and maintenance resists ignition. While it is not feasible to expect all structures in the wildland-urban interface area to be rebuilt with fire-resistant materials, there are steps that can be taken to address specific elements that strongly affect structure ignition potential in the interface area. Factors considered in the assessment include:

A. Building Materials. The composition of building materials determines the length of time a structure could withstand high temperatures before ignition occurs. Houses composed of wood siding and wood shake roofing are usually the most susceptible to ignitions. Houses built with stucco exteriors and tile, metal, or composition roofing are able to withstand higher temperatures and heat durations when defensible space conditions are adequate.

B. Architectural Features. Unenclosed or unscreened balconies, decks, porches, eaves, or attic vents provide areas where sparks and embers can be trapped, smolder, ignite, and rapidly spread fire to the house. A high number of houses within a wildland-urban interface with these features implies a greater hazard to the neighborhood.

Utilities:

Poorly maintained overhead power lines can be a potential ignition source for wildfires. It is important to keep power line corridors clear of flammable vegetation, especially around power poles and beneath transformers, as fires have been known to start from arcing power lines during windy conditions. Keeping flammable vegetation cleared from beneath power lines and around power poles also reduces potential hazards from damaged power lines. Energized power lines may fall and create additional hazards for citizens and firefighters, including blocked road access. Power failures are especially dangerous to a neighborhood without a backup energy source. Many communities rely on electric pumps to provide water to residents and firefighters for structure protection and fire suppression.

Defensible Space:

Density and type of fuel around a home determines the potential for fire exposure and damage to the home. The type and condition of vegetation near the home, woodpiles, and other combustible materials influences the ease of ignition, intensity of the fire, and duration of the fire. Defensible space is one of the factors that homeowners can manipulate in order to improve the chances that a home or other property avoids damage from a wildfire.

Fire Suppression Resources:

Knowledge of the capabilities or limitations of the fire suppression resources in a neighborhood can help local officials and residents take action to maximize the resources available. Factors considered in the assessment include:

- A. Availability, Number, and Training Level of Firefighting Personnel. When a fire begins in or near a neighborhood, having the appropriate firefighting personnel available to respond quickly is critical to saving structures and lives. Whether there is a local paid fire department, volunteer department, or no local fire department affects how long it takes for firefighters to respond to a reported wildland fire or to a threatened neighborhood.
- B. Quantity and Type of Fire Suppression Equipment. The quantity and type of available fire suppression equipment has an important role in minimizing the effect of a wildfire on a neighborhood. Wildland firefighting requires specialized equipment.
- C. Water Resources. The availability of water resources is critical to fighting a wildland fire. Whether there is a community water system with adequate fire flow capabilities, or whether firefighters must rely on local ponds or other drafting sites affects how difficult it will be for firefighters to protect the neighborhood.

Physical Conditions such as Fuels and Topography:

Physical conditions include slope, aspect, topography, typical local weather patterns and drought, fuel type, and fuels density. With the exception of changes to the fuel composition, the physical conditions in and around a neighborhood cannot be altered to make the neighborhood more fire safe. Therefore, an understanding of how these physical conditions influence fire behavior is essential to planning effective preparedness activities such as fuel reduction treatments. Physical conditions considered in the assessment include:

A. Slope, Aspect, and Topography. In addition to local weather conditions, slope, aspect, and topographic features are also used to predict fire behavior. Steep slopes greatly influence fire behavior. Fire usually burns upslope with greater speed and longer flame lengths than on flat areas. Fire will burn downslope; however, it usually burns downhill at a slower rate and with shorter flame lengths than in upslope burns. East aspect slopes may experience afternoon downslope winds that may rapidly increase downhill burn rates. West and south facing aspects are subject to more intense solar exposure, which preheats vegetation and lowers the moisture content of fuels. Canyons, ravines, and saddles are topographic features that are prone to higher wind speeds than adjacent areas. Fires pushed by winds grow at an accelerated rate compared to fires burning in non-windy conditions. Homes built midslope, at the crest of slopes, or in saddles are most at risk due to wind-prone topography in the event of a wildfire.

Fuel Type and Density. Vegetation type, fuel moisture values, and fuel density around a neighborhood affect the potential fire behavior. Areas with thick, continuous, vegetative fuels carry a higher hazard rating than communities situated in areas of irrigated, sparse, or non-continuous fuels. Dry weather conditions, particularly successive years of drought, in combination with steep slopes or high winds can create situations in which the worst-case fire severity scenario can occur.

Appendix F - Wildfire Pre-Suppression Plan

Completion of the information in this section will help to ensure the communities have gathered all pertinent information for use in case of a widespread or catastrophic wildfire. Assistance for gathering this information may be provided by the local fire departments, CSFS, county Emergency Management Officer, the local District of the Rio Grande National Forest. The items listed in this section should be identified as completely as possible in order to be prepared for a wildfire.

A Pre-Attack Plan should be in place, with a detailed description attached. It should address the following:

- Emergency early warning and notification procedures
- Fire protection responsibilities among agencies (private, state, federal lands; response times)
- Command responsibilities
- Traffic Control
- Briefing of personnel on safety and hazards
- Determining Operational Mode
- Determining resource needs (aircraft, mechanized, hand crews, water, chemical delivery systems)
- Determining assignments (reconnaissance, medical suppression, rehab)
- Pre-determined locations for (Command Post, Staging Areas, Safety Zones, Helibase / Helispots)

<u>Goal(s)</u> (briefly identify)	<u>Timeframe</u>	Person in Charge

Appendix G – Glossary

The following definitions apply to terms used in the Community Wildfire Protection Plan or referenced in supporting documents.

Active Crown Fire: This is a crown fire in which the entire fuel complex – all fuel strata

- become involved, but the crowning phase remains dependent on heat released from the surface fuel strata for continued spread (also called a Running Crown Fire or Continuous Crown Fire).

Chimney: A steep and narrow drainage that has the potential to funnel winds and greatly increase fire behavior. Due to this increase, the tops of chimneys are especially hazardous areas.

Community Wildfire Risk Assessment: The wildfire risk analysis is the foundation for the CWPP. It is based on research of the Home Ignition Zone concept developed by Jack Cohen at the *Fire Science Lab* in Missoula, Montana and the latest research and findings from the *Institute for Business and Home Safety* (IBHA) on factors that play into a home's survivability during a wildfire.

Crown Fire (Crowning): The movement of fire through the crowns of trees or shrubs; may or may not be independent of the surface fire.

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

	Engine Type			
Requirements	3	4	5	6
Tank minimum capacity (gal)	500	750	400	150
Pump minimum flow (gpm)	150	50	50	50
@ rated pressure (psi)	250	100	100	100
Hose – 1.5″	1,000	300	300	300
Hose – 1″	500	300	300	300
Pump & Roll	Yes	Yes	Yes	Yes
Maximum GVWR (lbs.)	-	-	26,000	19,500
Personnel (min)	3	2	2	2

Engine ICS Typing – Wildland

Fine Fuels: Fuels that are less than 1/4-inch in diameter, such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash which, when dry, ignite readily and are consumed rapidly.

Fire Adapted Community: A Fire Adapted Community takes responsibility for its wildfire risk. Actions address resident safety, homes, neighborhoods, businesses and infrastructure, forests, parks, open spaces, and other community assets. The more actions a community takes, the more fire adapted it becomes. See: <u>http://www.fireadapted.org/resources/what-is-a-fire-adapted-community.aspx</u>

Fire Behavior Potential: The expected severity of a wildland fire expressed as the rate of spread, the level of crown fire activity, and flame length. This is derived from fire behavior modeling programs using the following inputs: fuels, canopy cover, historical weather averages, elevation, slope, and aspect.

Fire Hazard: Given an ignition, the likelihood and severity of Fire Outcomes (Fire Effects) that result in damage to people, property, and/or the environment. The hazard rating is derived from the Community Assessment and the Fire Behavior Potential.

Fire Mitigation: Any action designed to decrease the likelihood of an ignition, reduce Fire Behavior Potential, or to protect property from the impact of undesirable Fire Outcomes.

Fire Outcomes, Fire Effects: This is a description of the expected effects of a wildfire on people, property and/or the environment, based on the Fire Behavior Potential and physical presence of Values at Risk. Outcomes can be desirable as well as undesirable.

Fire Risk: The probability that an ignition will occur in an area with potential for damaging effects to people, property, and/or the environment. Risk is based primarily on historical ignitions data.

Firewise USA: National Fire Protection Association's <u>Firewise Communities Program</u> encourages local solutions for safety by involving homeowners in taking individual responsibility for preparing their homes from the risk of wildfire. Firewise is a key component of <u>Fire Adapted Communities</u> – a collaborative approach that connects all those who play a role in wildfire education, planning and action with comprehensive resources to help reduce risk.

Flame Length: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface)—an indicator of fire intensity.

Fuelbreak: A natural or constructed discontinuity in a fuel profile that is used to isolate, stop, or reduce the spread of fire. Fuel-breaks in the WUI are designed to limit the spread and intensity of crown fire activity.

ICS - **Incident Command System:** ICS is a standardized all-hazards management approach that establishes common procedures for responding to and managing emergency incidents; establishes a common communications protocol; and enables a coordinated response among multiple agencies and/or jurisdictions.

Roadside thinning: The primary purposes of roadside thinnings are to increase the ability of firefighters to successfully use the existing road as a control line in the event of a fire, to improve evacuation of civilian and fire traffic, and to reduce the fire impacts along the road.

Dry Hydrant: A fixed pipe attached to a water source located at an easily accessible point that allows firefighters to draft from the water source more efficiently.

Safety Zone: An area cleared of flammable materials used for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. Safety zones may also be constructed as integral parts of fuel breaks; they are greatly enlarged areas which can be used with relative safety by firefighters and their equipment in the event of a blowup in the vicinity.

Surface Fire: A fire that burns in the surface litter, debris, and small vegetation on the ground.

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

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

Appendix H – CSFS Wildfire Risk Rating Key

Date			Category	Observed Condition	Points
Collector		1	Roofing Material	Class A: non-combustible	0
	and the second second			Class B or C: Combustible (wood)	200
Category	Observed Condition	Points		The second second	
Address Visible				Non-combustibles	0
	Posted and reflective	0	Building Exterior	Log, heavy timbers	20
	Posted, NOT reflective	5		Weathered wood, vinyl	60
	Not visible from road	15			
				None, greater than 30' from structure	0
Access	Two or more roads in/out	0	Other Combustables	Between 10'-30' from structure	10
	One road in/out	10		Less than 10' from structure	30
		1 • 1		Le.	1
Slope	Less than 20%	0	Decking and Fencing	None	0
	Between 20%-45%	20		Non-combustilbe deck/fence attached	20
	Greater than 45%	40		Combustible deck/fence attached	50
Back Ground Fuels Modera	Light	25	Water Source	Yes	0
	Moderate	50		No	20
	Неаvy	- 75			
				None	0
	Greater than 100'	0	Other	Low	10
Defensible Space Be Be Le	Between 30'-100'	50		Medium	20
	Between 10' -30'	75		High	30
	Less than 10'	100			1.00
			Total Rating		
Structure Triage					
Overall Total Rating	Action	1	Overall Total Rating	Min	Max
Low	Standalone		Low	25	150
Moderate	Prep and Hold		Moderate	151	225
High	Prep and Leave		High	226	250
Very High	Prep and Leave		Very High	251	349
Extreme	Rescue Drive By		Externe	350	630

CSFS Wildfire Risk Rating Key

Appendix I - IRPG Structure Triage

The final CSFS Wildfire Risk Rating Key corresponds with the Structure Triage section of the firefighters Incident Response Pock Guide. This shows what the corresponding rating may mean to firefighters.

- Defensible- Prep and Hold / Moderate
 - o Determining Factor: Safety zone present.
 - Size-up: Structure has some tactical challenges.
 - Tactics: Firefighters needed onsite to implement structure protection tactics during fire front contact.

• Defensible – Standalone / Low

- o Determining Factor: Safety zone present.
- Size-up: Structure has very few tactical challenges.
- Tactics: Firefighters may not need to be directly assigned to protect structures as it is not likely to ignite during initial fire front contact. However, no structure in the path of a wildfire is completely without need of protection. Patrol following the passage of the fire front will be needed to protect the structure.

• Non-Defensible – Prep and Leave / High & Very High

- Determining Factor: NO safety zone present.
- Size-up: Structure has some tactical challenges.
- Tactics: Firefighters not able to commit to stay and protect structure. If time allows, rapid mitigation measures may be performed. Set trigger point for safe retreat. *Remember preincident preparation is the responsibility of the homeowner*. Patrol following the passage of the fire front will be needed to protect the structure.

• Non-Defensible – Rescue Drive-By / Extreme

- o Determining Factor: NO safety zone present.
- Size-up: Structure has significant few tactical challenges.
- Tactics: Firefighters not able to commit to stay and protect structure. If time allows check to ensure that people are not present in the threatened structure (especially children, elderly and invalid). Set trigger point for safe retreat. Patrol following the passage of the fire front will be needed to protect the structure.