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RESIDENTS REDUCING WILDFIRE RISKS

## **Firewise USA™ Recognition Program Community Wildfire Risk Assessment – Navajo Ranch Community**

### 1) INTRODUCTION

The Firewise USA™ program teaches people how to adapt to living with wildfire and encourages neighbors to work together and take action now to prevent damage and losses. Participation in the program can be attained by any community and/or neighborhood committed to reducing risks from wildland fire. The following risk assessment will help identify threats and hazards and guide the priorities and actions for the Navajo Ranch Community. The risk assessment will be the board/committee's primary tool in determining the risk reduction priorities within your site's boundaries. Assessments need to be **updated every five years**.

Data were gathered through various agencies and professionals including the Colorado State Forest Service, Huerfano County, and members of the Navajo Ranch HOA Wildfire Protection Committee.

### 2) DEFINITION OF THE HOME IGNITION ZONE

The Navajo Ranch Community is located in a wildfire environment. The variables in a fire scenario are when the fire will occur, and where. This assessment addresses the wildfire-related characteristics of the Navajo Ranch Community. It examines the area's exposure to wildfire as it relates to ignition potential. The assessment does not focus on specific homes, but examines the community as a whole.

A house burns because of its interrelationship with everything in its surrounding Home Ignition Zone (HIZ)---the house and its immediate surroundings. To avoid a home ignition, a homeowner must prepare their home to withstand ember attacks and minimize the likelihood of flames or surface fire touching the home or any attachments. This can be accomplished using hardscaping and landscaping techniques that create breaks in the vegetation in the HIZ, helping to influence and decrease fire behavior. Maintenance activities such as removing dead vegetation from the area immediately around the structure, reducing the amount of vegetation on the ground, and pruning trees are simple and easy steps that will affect the intensity of the wildfire within the HIZ.

Included in this assessment are observations made while visiting the Navajo Ranch Community. 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 of affected residents. The Navajo Ranch Community residents can reduce their risk of destruction during a wildfire by taking actions within their home ignition zones, which includes the home and everything around it, up to 200 feet from the foundation.



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

### 3) DESCRIPTION OF [SIZE AND NATURE OF] THE SEVERE CASE WILDLAND FIRE CHARACTERISTICS THAT COULD THREATEN THE AREA

Fire intensity and spread rate 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.

- Fine fuels ignite more easily and spread faster with higher intensities than coarser fuels. For a given fuel, the more there is and the more continuous it is, the faster the fire spreads and the higher the intensities. Fine fuels take a shorter time to burn out than coarser fuels.
- The 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.
- Wind speed significantly influences the rate of fire spread and fire intensity. The higher the wind speed, the greater the spread rate and intensity.
- 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 wildfire activity within Navajo Ranch and its surrounding areas has been infrequent and small in scale over the past several decades due to early detection and suppression efforts. One consequence of this lack of fire activity is the ever-increasing amounts of fuel present within the area's overstocked forests. In turn, the overstocked forests are more susceptible to disease, and indeed, spruce budworm, *Ips*, root fungi, and bark beetles have caused a significant amount of dead fuel to be added to the forests, especially within the dense mixed conifer forests common in the area. These added fuels have, in turn, increased the chances of large and severe fires similar to the 2019 Spring Creek Fire in Huerfano and Costilla counties.



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#### 4) SITE DESCRIPTION

The Navajo Ranch Community is situated north of the North Fork of Abeyta Creek, a tributary of the Cucharas River, which provides drinking water to the communities of Cuchara, La Veta and Walsenburg. The Chavez Arroyo runs through Navajo Ranch and is a tributary of the Cucharas River. The elevation within the community ranges from approximately 6800 feet in elevation in the east, and raises as it extends westward up to 7300 feet.

Navajo Ranch contains 306 main residential structures that are connected to the local water district and is separated into two subdivisions, Estates and Resorts, which covers approximately 3450 acres of land. The community is comprised of a mixture of permanent and seasonal residents. Private land borders the community around the entire perimeter, but the community is in semi-close proximity to Lathrop State Park (within 4 miles).

Much of the Navajo Ranch Community is situated at an elevation that allows pinyon and juniper to dominate the overstory composition. Deciduous trees, particularly aspen, have minimal occurrence. While aspen are generally considered a low-risk species with regard to wildfire spread and intensity, the dense arrangement of shrubs and conifers in the understory has the potential for severe fire behavior under certain conditions, especially high temperatures, low fuel moisture and strong wind.

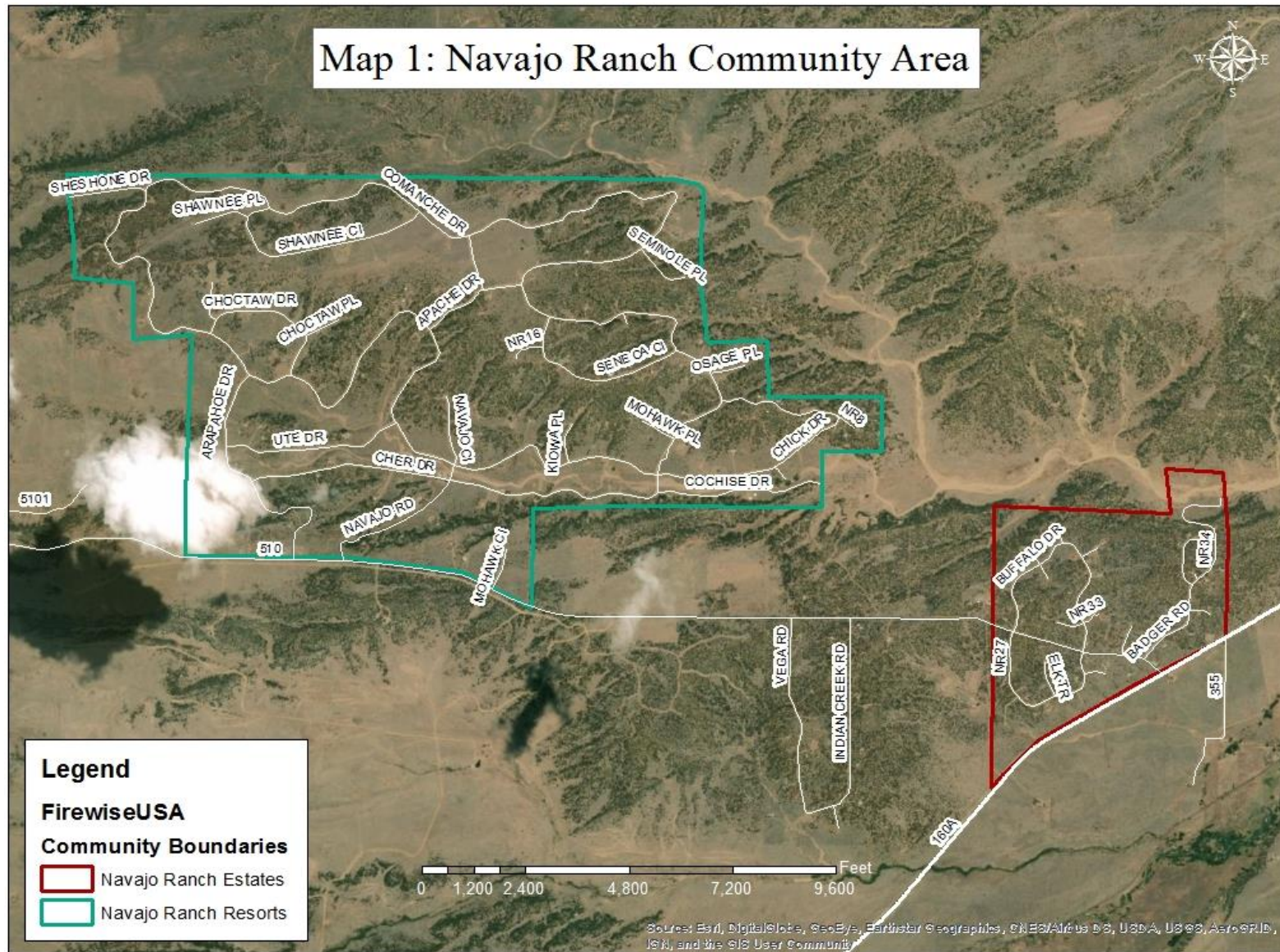
Large grassy meadows have been identified throughout the community and lend themselves to be used as safety zones for both wildland fire resources, as well as community members in emergencies. When green and receiving adequate moisture, grasses are resistant to burning. Under hot and dry conditions however, grasses cure (dry out and turn yellow or brown), and the amount of moisture contained within the plant drops drastically. Because grass has a high amount of surface area when compared to its volume, dry grass can produce a tremendous amount of energy and fire can spread rapidly when burned. Dry grass is considered a fine fuel (diameter of less than ¼ inch), which - along with pine needles and small tree branches - is the size of fuel most conducive to ignition. Continued maintenance of these grassy areas, through either mowing or grazing, is a necessity in terms of maximizing the effectiveness of these areas as safety zones. At least one of the meadow sites identified within Navajo Ranch is currently utilized as an equestrian site and likely receives indirect benefits and continued maintenance of this area.

Although neighboring communities are not immediately adjacent to the Navajo Ranch Community, collaborative efforts with nearby communities - as well as various governmental agencies and private contractors - are always recommended when possible.





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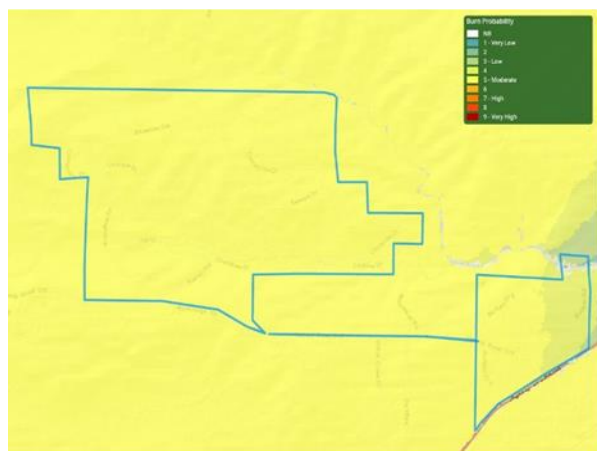




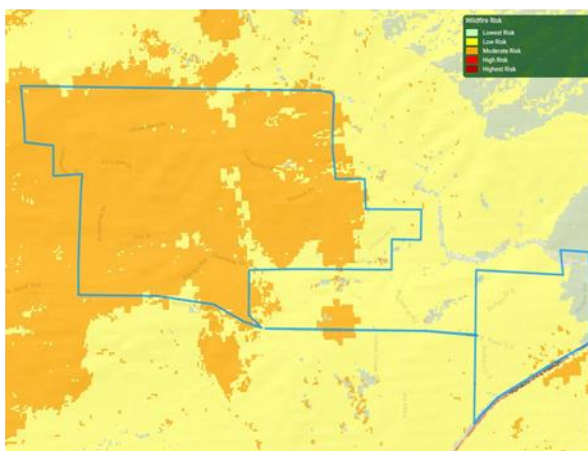


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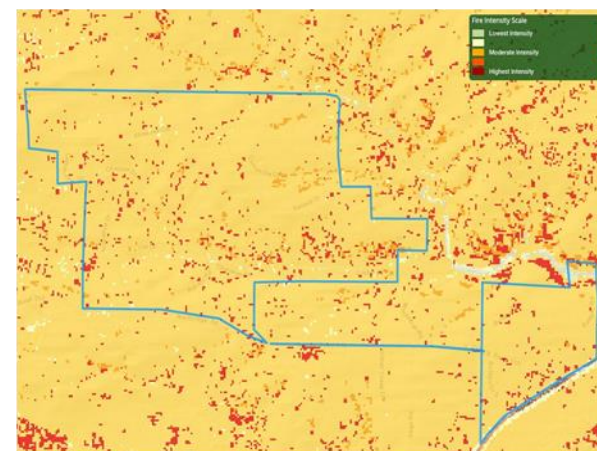
## Map 2: Fire Behavior



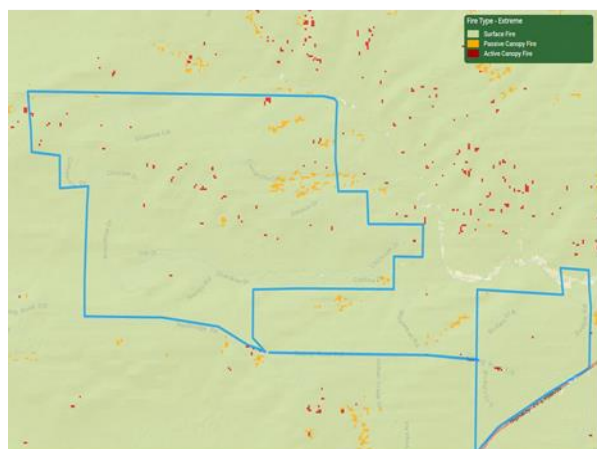
2a: Burn Probability.



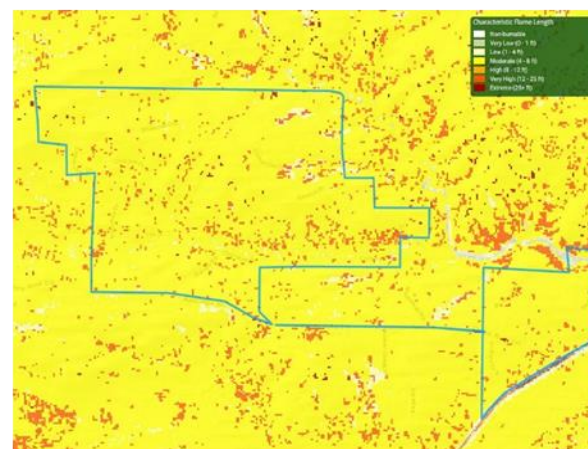
2b: Wildfire Risk.



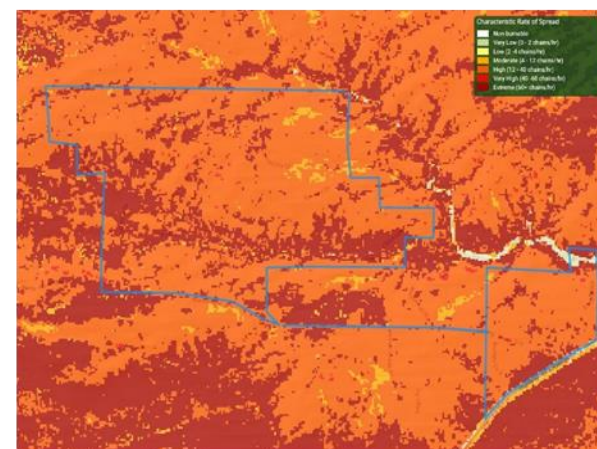
2c: Fire Intensity.



2d: Fire Type.



2e: Flame Lengths.



2f: Rate of Spread.



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### 5) ASSESSMENT PROCESS

Previous data were gathered by Don Pino, Chairperson of the Navajo Ranch HOA Wildfire Protection Committee, and Paul Branson of Huerfano County Wildfire Preparedness Program during Firewise outreach events and area wildfire pre-planning endeavors from 2018 through present. General data has also been compiled by Huerfano County and Don Pino during HIZ assessments.

For this assessment, data collection efforts were conducted by Jared Fleming, CSFS La Veta Field Office Forester, along with Don Pino and Paul Branson. Jared Fleming composed this assessment in January of 2020.

### 6) IMPORTANT CONSIDERATIONS

The Firewise USA™ program acknowledges that there are many reasons and values that lead a person to live in the WUI and that there may be a desire for certain flammable components to exist on their property. It is important for residents 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.

Some common issues that reflect these choices are outdated building materials, isolated instances of limited maintenance such as untreated and undertreated siding, as well as proximity to complex forest structures and compositions.

### 7) OBSERVATIONS AND RECOMMENDATIONS –

- Defensible space improvements, along with hardening of the Home Ignition Zone, are some of the most important actions a homeowner can do to protect their home from wildfire. While some homes in the community have good defensible space (*Picture 1, below*), and others are making progress, many homes do not (*Picture 2, below*).



*Picture 1: Improved defensible space.*



*Picture 2: Defensible space improvements needed.*





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Completing defensible space and **maintaining** this defensible space around **all** of the structures in the community is a top priority. 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.

Fine fuels are combustible materials less than ¼ inch in diameter and have a relatively high surface area to volume ratio. These characteristics allow the fuels to dry quickly and ignite readily, resulting in rapid rates of fire spread when fine fuels are abundant and continuous over an area. Common examples of fine fuels are grass, needles, leaves and small twigs.

Structures within Navajo Ranch are commonly found on smaller parcels that may not have adequate room to implement all three defensible space zones. Cooperation among neighboring parcels, common spaces, rights of way, and public land should be encouraged and promoted when necessary to develop adequate defensible space among parcels. Homeowners should also be educated on proper implementation and potential risks from neglecting active management.

Absentee landowners, abandoned properties, and a largely retirement aged populace create unique challenges in this community in terms of comprehensive management. Although some landowners may be impossible to contact and educate on needed mitigation or HIZ/defensible space improvements, landowners adjacent to neglected properties can still effectively mitigate their own properties, but may require higher intensities of treatment than landowners that work in cooperation with each other.

An important consideration for landowners to keep in mind is that improved defensible space does not necessarily translate to poor aesthetics or reduced privacy. When implemented properly and with strategy, defensible space improvements can maintain aesthetics and privacy concerns, especially when used in conjunction with existing advantages like road based fire-lines (*Picture 3, right*).



*Picture 3: Improved defensible space with protection of aesthetics and privacy.*



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- Low decks and ornamental vegetation alongside structures were observed throughout the Navajo Ranch Community (*Picture 4, right*) and present home ignition concerns by contributing to the potential for extreme or increased fire behavior. Low growing vegetation that acts as a surface fuel should be removed and discouraged as a suitable ornamental species for the community. Suitable species of ornamental vegetation should be treated as a component of defensible space, and should be discouraged from being planted adjacent to low decks or under wood siding that lacks a concrete foundation buffer. Low decks should further be monitored for the accumulation of ignitable debris, and metal mesh screens should be utilized in problematic areas to limit such accumulations and reduce the number of areas where embers may become trapped.



*Picture 4: Low decks near exposed vegetation.*

- In areas where only grass surrounds a structure, it is important that landowners mow regularly to reduce the height and amount of grass. As much as possible, grass should receive irrigation as green grass does not ignite and spread fire as readily as dry grass. Residents 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.
- Dense forest arrangement on slopes near arroyos and existing between structures contribute to concerns of high rates of spread of potential wildfire, as well as concerns of pre-heating fuels that can reduce fuel moisture to problematic levels. Thinning work to increase discontinuity between fuels has begun along the Comanche/Seneca loop - and should continue in this and other areas - to mitigate this concern.





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- Several instances of pine needle accumulation on roofs, under decks, and near propane tanks were observed (*Picture 5, right top*), as were wood piles in close proximities to homes (*Picture 6, right bottom*). Fine fuels have proven exceedingly receptive to ignition from embers. Removing needle accumulations, as well as placing firewood and combustible outdoor furniture an appropriate distance from structures are some of the simplest, cheapest, and most effective actions that homeowners may take to protect their homes from wildfire. Because trees shed their needles throughout the year, homeowners must always remain vigilant to the accumulation of these fine fuels on top of, underneath, and surrounding structures. Creating separation (30+ feet) of propane tanks and wood piles from structures, as well as keeping them clear of encroaching vegetation, is also recommended.



*Picture 5: Low growing canopy over propane tank which can generate needle accumulation.*



*Picture 6: Woodpiles next to structures, better placement recommended.*

- Structures within the Navajo Ranch Community vary widely in age and construction materials (*Pictures 7 and 8, next page*). The newest structures have been constructed using modern construction materials including composite decking, metal or composite roofing material, double-paned windows and screened air vents. In older structures where these modern 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. Several structures were observed having rough wood siding, which over time becomes dry and shrinks, creating small gaps where fine material can accumulate and embers could potentially find an ignition point. **Maintenance – in terms of hardening the home (treating wood on structures, proper sealing, screening, etc) as well as clearing fine fuel debris from around structures – should be a primary focus, regardless of structure age.**



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*Picture 7: New materials more resistant to wildfire behavior.*



*Picture 8: Older materials more susceptible to wildfire behavior.*

- Navajo Ranch residents have the obstacle of one direct evacuation route, CR 510, but can go either east or west on that route as necessary. Highway 160 allows further distance to be gained in multiple directions from an approaching fire once reached. Although signage has been installed indicating roads lacking an outlet, the community could stand to benefit from high-visibility evacuation route signage to aid both the community as well as wildfire resources in the event of a fire. It is also strongly recommended that vegetation continue to be removed alongside of all roads to the maximum extent possible - especially in forested areas - and turn around areas be widened to accommodate the vehicles of emergency responders.
- Continuing maintenance of the defensible space is critical to keeping each landowner's property Firewise. This program is progressive with the creation, expansion, and maintenance of defensible space within the community occurring **annually**. While much emphasis is placed upon the action each landowner can take upon their property, it is also important to recognize the importance of communication and cooperation with individuals and organizations outside of the Navajo Ranch Community. Such entities include:

**A.** The Colorado Department of Transportation (CDOT) has responsibility for maintenance along Highway 160 and Huerfano County has responsibility for County Road 510. Because these roadways are critical evacuation routes for Navajo Ranch residents, and run adjacent to many structures, it is recommended that residents remain alert to wildfire hazards along the



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roadways and notify CDOT or Huerfano County so that the appropriate mitigation work can be performed.

**B.** San Isabel Electric Association is the electric utility in the area. Because of the ignition potential posed by trees contacting overhead electric wires, Navajo Ranch residents should be continually vigilant for hazardous trees, and contact San Isabel Electric Association immediately to eliminate hazards.

#### 8) SUCCESSFUL FIREWISE 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 be both ignition resistant and compatible with the area's ecosystem. The Firewise USA™ program is designed to enable communities to achieve a high level of protection against WUI fire loss 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 in the Navajo Ranch Community and are examples of good wildfire risk reduction practices.

- Work has already been initialized in several areas throughout the community and further problematic areas identified, including: improved visibility and equipment clearance with reductions in dense vegetation around blind corners and intersections (*Picture 9, right*), improved discontinuity among fuel types (ground, ladder, canopy), reductions in fuel loads, and improved spacing between fuels adjacent to evacuation routes.



*Picture 9: Piles generated by work to improve visibility at blind corners/intersections.*

- Working with the Huerfano County Wildfire Preparedness Program, grant funded improvements in defensible space and roadside treatments are planned or ongoing, as are individual structure assessments to educate homeowners on methods of hardening the HIZ and improving their defensible space.
- Fire safety features already in place or planned - including communications, a hydrant system, emergency generator for pumping water, identification of meadows for use by fire resources (*Picture 10, next page*), and seasonal water





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sources - have been identified and mapped for use by emergency resources. Improvements may still be necessary in terms of water supply in times of drought as many local water resources, such as the lakes at Lathrop State Park, contain invasive species and are not likely to be used in suppression efforts.



*Picture 10: Meadow near equestrian site to be used by fire resources or in community emergencies.*

- Outreach from the county in this community has focused heavily on HIZ Assessments and continued maintenance of mitigation improvements, like recurring treatments of pervasive vegetation that has been masticated. The county has also emphasized specific areas of treatments by targeting roadways for improvements to act as a fuel-break or fire-line. The community website also serves as a valuable resource for potential outreach and should continue to be utilized to distribute information in regards to wildfire mitigation, and behavior modification efforts.
- Several structures currently feature rocks or gravel surrounding their perimeters. Although typically installed for benefits in terms of water control/erosion mitigation, these features also provide a buffer to the structures from approaching surface fires, especially when found adjacent to grasses or other fine fuels. When used in combination with elevated siding along a concrete foundation, this modification to a home reduces the potential fire effects to structures.
- The Navajo Ranch Community has been working with Huerfano County to reduce fuel loads and improve roadway conditions around blind corners and intersections through general saw work and mulching. Mulching can be an effective method to reduce potential surface flame lengths while not removing nutrients from the landscape that could otherwise be cycled back into the soil. Efforts from the community can also help to raise awareness of potential fire effects while demonstrating the value of mitigation efforts. The greatest risk reduction tool currently in place is the enthusiasm, commitment, and cohesiveness of the community.
- Many homeowners are well underway in creating defensible space and other mitigation work around their residences. This leadership through example helps to show that Firewise modifications can be aesthetically pleasing as well as



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effective, and also provide residents planning similar projects with valuable how-to information.

#### 9) NEXT STEPS –

After reviewing the contents of this assessment and its recommendations, the board/committee for the Navajo Ranch Community, in cooperation with Huerfano County, will determine whether or not it wishes to continue seeking Firewise USA™ recognition.

If the site assessment and recommendations are accepted and recognition will be sought, the Navajo Ranch Community board will create agreed-upon, area-specific solutions to the wildfire risk reduction recommendations and create an action plan in cooperation with Huerfano County and the Wildfire Preparedness Program.

Assuming the assessment area seeks to achieve national Firewise USA™ recognition status, it will integrate the following standards into its plan of action:

- Form a board/committee that's comprised of residents and other applicable wildfire stakeholders. This group will collaborate on developing the site's risk reduction priorities, develop a multi-year action plan based on the risk assessment and oversee the completion of the annual renewal requirements needed to retain an "in good standing" status.
  - Action plans are a prioritized list of risk reduction projects/investments for the participating site, along with suggested homeowner actions and education activities that participants will strive to complete annually, or over a period of multiple years. Action plans are developed by the board/committee and need updating at least every three years.
- At a minimum, each site is required to invest the equivalent of **\$25.43 per dwelling unit\*** in wildfire risk reduction actions annually (the rate is based on the 2019 annual National Hourly Volunteer Rate; which is updated every year in April when the new amount is published). Qualifying expenditures include contractor costs, rental equipment, volunteer activities, grants, etc. Residents completing select home modifications, along with any qualifying work performed at their home and in the adjacent home ignition zones can contribute related hours and/or costs towards meeting the sites collective investment amount.
- Each participating site is required to have a **minimum of one wildfire risk reduction educational outreach event**, or related activity annually.
- Every year participating sites must **submit an annual renewal** to maintain their "In Good Standing" status. The annual renewal application can be accessed through the Firewise USA™ online management portal (<http://portal.firewise.org/>).

The Navajo Ranch Community 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



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contact with their structures, including firebrands or embers. Science tells us that the home itself and 0-5 feet from the furthest attached exterior point of the home are most vulnerable to ember attacks. Residents should focus on making this a non-combustible area by removing any flammable vegetation or materials from wall exteriors; cleaning debris from roofs and gutters; and addressing home construction issues. Remember that, while wildfire cannot be eliminated from a property, it can be reduced in intensity.

Homeowners 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. At such time as fire weather is severe, homeowners should remember not to leave flammable items outside. This includes rattan doormats, flammable patio furniture, firewood stacked next to the house, or other flammables.