City of Leon Valley

Wildfire Risk Assessment

October 2023

FIREWISE USA™
Residents reducing wildfire risks

Texas A&M Forest Service

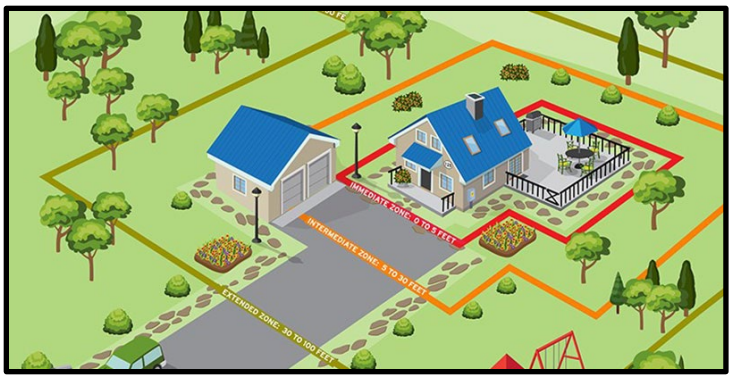
Introduction

The Firewise, USA™ Program is designed to provide an effective management approach for preserving wildland living aesthetics in areas of Wildland Urban Interface (WUI). This program can be tailored for adoption by any community and/or neighborhood association that is committed to ensuring its citizens maximum protection from wildland fire. The following community assessment is intended as a resource to be used by the Leon Valley residents for creating a wildfire safety action plan. The plan developed from the information in this assessment should be implemented in a collaborative manner, and should be updated and modified every 5 years.

This assessment was conducted by Program Specialist Carrigan Rice of the Texas A&M Forest Service on October 16, 2023.

Definition of the Home Ignition Zone

Leon Valley is located in a wildfire environment. Wildfires will happen – the only variables are when and where they will occur. This assessment addresses the wildfire-related characteristics of Leon Valley. It examines the area's exposure to wildfire as it relates to ignition potential. This assessment does not focus on specific homes, but examines the community as a whole.



A house burns because of its interrelationship with 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. The home ignition zone (HIZ) determines the potential for home ignitions during a wildland fire; it includes a house and its immediate surroundings up to 100 to 200 feet from the home's foundation. Diverting a fire's path through modification of the HIZ is a simple task that can result in avoiding home loss. To accomplish this, flammable items must be modified or removed from the area immediately around the structure to prevent flames from contacting it. Reducing the volume of live vegetation and ladder fuels will affect the intensity of the wildfire as it enters the home ignitions zone.

Included in this assessment are observations made while visiting Leon Valley. The field 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. Residents of Leon Valley can reduce their risk of destruction during a wildfire by taking actions within their home ignition zones.

The result of the assessment is that wildfire behavior will be dominated by the residential characteristics of this area- both the structures and the surrounding property. 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.

Characteristics of a Severe Case Wildland Fire that Threatens the Area

Fire intensity and spread rate depend on the fuel type (natural and manmade) and condition (live/dead), the weather conditions prior and during ignition, and the topography. Generally, the following relationships are held 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. Heavier fuels with high oil contents (i.e. Yaupon holly, Ashe juniper) are also susceptible to easier ignitions and high intensity fires.
- 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.

Ashe juniper (*Juniperus ashei*) is one of the most predominant types of vegetation observed in Leon Valley. Ashe juniper is highly flammable compared to other fuels of its size due to its high oil content. Scattered stands of Ashe juniper in the wildland areas of this community are dense and can lead to a more intense wildfire that is difficult to control.

Embers are a characteristic of a wildfire that are not often considered by homeowners. Embers are small burning pieces of vegetation or wood that are carried by the wind ahead of a wildfire. An ember shower can be carried over a mile away from a wildfire and creates spot fires, which ignite vegetation on the roof, gutters, and garden beds. Ember showers lead to structure loss even if the wildfire is not within the boundaries of the neighborhood. *Wildfire researchers know that embers are the leading cause of home loss in a wildfire due to postfire assessments.*

Site Description

Leon Valley is a city located in Bexar County on the northwest side of San Antonio. The area frequently experiences long periods of drought in the summer months. This community has mild

slopes, which can increase the rate of fire spread. Currently, the predominant vegetation in the area consists of fine grasses, stands of Ashe juniper, and oaks.

Leon Valley has some homes and structures in the wildland urban interface, specifically, occluded WUI, where development has surrounded parks, greenbelts and other natural areas that are scattered throughout neighborhoods. Many homes are custom, with siding primarily of stone/masonry on concrete foundations. Most homes are located in subdivisions in which homes are close to one another. While closely spaced homes can pose a threat in the event of a wildfire, many homeowners have maintained a 5-15ft defensible space area around their homes.

Leon Valley has good accessibility for emergency responders and potential evacuations. The wide roadways and concrete areas present within the city serve as functional fuel breaks. Bridges are concrete and rated for heavy loads. Roadways are clearly marked and signs are visible. Fire breaks have been constructed and maintained in wildland areas. Wildland areas within the City of Leon Valley are limited, and many of them are planned to be developed within the next few years. Leon Valley Fire Department is located within the city, allowing for a quick response time in the event of a wildfire, if responders are available.

Figure A. Well-maintained fire breaks in wildland areas reduce wildfire risk.

Figure B. Wide roadways and large concrete areas serve as firebreaks in the event of a wildfire.

Assessment Process

During the field assessment, observations where made about the general fire-resistant characteristics of home ignition zones in the neighborhood. Common landscaping practices, plants species, construction materials, road widths and topography where all taken into consideration. Photos were taken to provide examples of certain characteristics.

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.

Observations & Recommendations

Initial observations when assessing the home ignition risk in Leon Valley were focused on areas with dense, continuous flammable fuels such as Ashe juniper. Transitions from natural areas to development are at risk during ember showers, and can lead to a broader urban fire if more than a few buildings along the edge ignite and then spread to other structures. While some properties had visible defensible space 5-15ft around their homes, others had heavier vegetation close to their structures and near their driveways, which could limit access to the property if a wildfire did occur on the property. Some wildland areas were heavily vegetated and should be regularly maintained with fuels reduction projects to limit wildfire risks.

During a wildfire, burning vegetation or embers can potentially ignite homes and structures. Plants should be pruned so that there is separation between a home and vegetated areas in the community. This vegetation should either be removed from growing directly or be "limbed up". "Limbing up" involves pruning branches close to the ground. This will help prevent a fire occurring on the ground surface from igniting the shrub.

Some homes had plants at or near the foundation, placing them directly under the eaves, and often in front of windows. These plants provide fuel for wildfire that can result in flames directly touching a structure. These plants should be removed or trimmed both off the structure and up from the ground to lessen the intensity of fire near a structure. Any dead vegetation under the plants should be removed as well, as this acts as path for fire. Regular watering of foundation plants in landscaping beds will make them more resistant to ignition from an ember shower. The utilization of barriers (pavers, landscape rocks, etc.) will also reduce risk from potential surface flames entering landscaped areas.

Figure C. Home with dead vegetation in the 5-15' HIZ and next to wooden columns, increasing fire risk.

Some homes within Leon Valley did have wooden structures which, when flammable material gathers underneath, may provide a heat source which would threaten the home. Replacing/modifying these with fire- resistant materials or providing a barrier between the home and these attachments (such as metal flashing) is recommended. Vents, undersides of decks, and other openings should be screened with 1/8" metal screens to prevent embers from entering homes.

Successful Firewise Modifications

When adequately prepared, a house can likely withstand a wildfire without the intervention of fire fighters. 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 HIZ 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. Combining fire-resistant construction with fire-resistant landscaping will increase a home/ community's probability of surviving a wildfire. Solutions to "harden a home" from a wildfire include:

- Using noncombustible roofing, siding, fencing, and decking materials.
- Installing metal screens over vents and underneath decks.
- Boxing in eaves with non-combustible material.
- Installing metal gutters and gutter guards.

The following photographs were taken in Leon Valley and are examples of good wildfire risk reduction practices.

Figure D. Well-maintained fuel break in a wildland area that backs up to residential properties.

Figure E. Fuels reduction around power lines and residential properties significantly reduces wildfire risk.

Next Steps

After reviewing the contents of this assessment and its recommendations, the Leon Valley Firewise board in cooperation with Leon Valley Fire Department will create agreed-upon, area-specific solutions to the recommendations and update their action plan.

To maintain national Firewise USA™ recognition status, it will integrate the following standards into its plan of action:

1. Maintain a board/committee 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.

    a. 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.

2. At a minimum, each site is required to invest the equivalent of $27.20 per dwelling unit (or 1 volunteer hour) in wildfire risk reduction actions annually (the rate is based on the 2021 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.

3. Each participating site is required to have a minimum of one wildfire risk reduction educational outreach event**,** or related activity annually.

4. 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/).