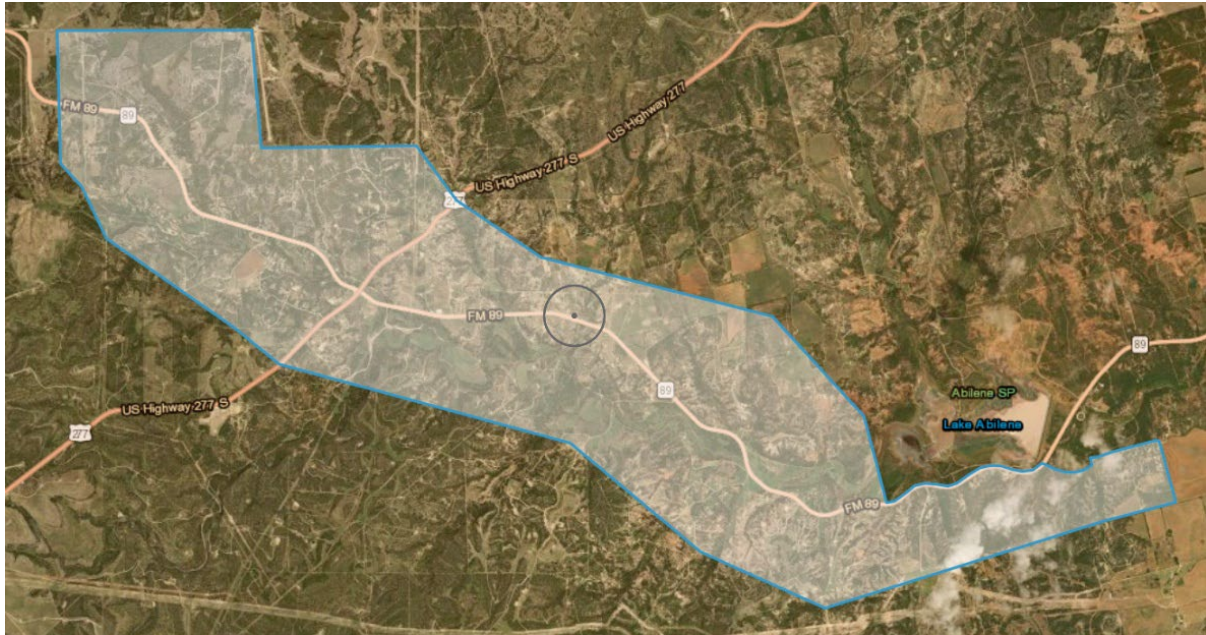




Elm Valley Risk Assessment

Taylor County, Texas

July 27, 2026



TEXAS A&M
FOREST SERVICE

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1.0 Introduction

Firewise USA® is a voluntary, community-based program designed to support living in Wildland Urban Interface (WUI) areas, while preserving the aesthetics of living in wildland areas. The program promotes greater understanding of wildfire risk and encourages proactive steps to reduce those risks through education, planning, and community engagement. For a community to achieve recognition as a Firewise USA ® site they must accomplish several steps including: a risk assessment, development of an action plan, and community investment. Going through these steps in the program encourages the entire community to think about wildfire and other emergency situations and plan for them. Wildfires are inevitable, however through thoughtful planning and regular preparation, a community can minimize loss of life and property to a wildfire.

1.1 Statement of Intent

This document fulfills the risk assessment requirement and will remain valid for five years. This assessment was conducted by Wes Schempf, Woodland Ecologist, Texas A&M Forest Service on July 23, 2026.

2.0 Site Description

Elm Valley, in Taylor County, is a rural community of more than 8,000 acres with approximately 940 individual tracts, over 400 property owners, and more than 800 structures. There are currently estimated to be 543 full-time residents within the community. The community is bisected by State Route 277, running roughly southwest to northeast, and State Route 89, running roughly northwest to southeast, and surrounded by other private property parcels of varying size. The eastern border of the community is County Road 276, off SR 89 and just southeast of Abilene State Park and the western border is County Road 618, off SR 89. The community is served by the ECCA (Elm Creek Citizens Association) and the Volunteer Fire Department, which does outreach to educate and inform residents of wildfire concerns and preparing your home and property for wildfire.

Elm Valley has more than 8 miles of unpaved roads with some residence having driveways of $\frac{1}{4}$ to $\frac{1}{2}$ mile. While paved, the county roads are narrow with varying shoulder widths. Elm Valley has a varied, and in some areas rugged topography with a mixed forest community featuring predominantly mature juniper and mesquite, as well as several oak species, hackberry, and elm.

3.0 Characteristics of a Severe Case Wildland Fire

Fire intensity and spread rate depend on the fuel type and condition (live or dead), the weather conditions prior to and during ignition, and topography of the area. In general, fire behavior follows predictable patterns based on the interaction of these elements:

- Fine fuels, which are defined as fast-drying fuels generally less than ¼ inch in diameter, ignite more easily and spread faster with higher intensities than coarser fuels. In general, the more fuel there is and the more continuous it is, the faster the fire spreads and the higher the intensity. Fine fuels take a shorter time to burn out than coarser fuels.
- Weather conditions affect the moisture content of dead and live vegetative fuels. Dead fine fuel moisture content is highly dependent on the relative humidity and the degree of sun exposure. Lower relative humidity and increased sun exposure lead to reduced fuel moisture content, which in turn results in faster fire spread and greater fire intensity.
- Wind speed significantly influences the rate of spread and fire intensity. The higher the wind speeds, the greater the spread rate and intensity.
- Topography influences fire behavior primarily through slope steepness, with steeper slopes leading to faster uphill fire spread and increasing intensity. However, the features of the terrain such as narrow draws, saddles and ridges can influence fire spread and intensity. In general, the steeper the slope, the higher the uphill fire spread and intensity.

Embers are another characteristic of wildfire behavior that are often overlooked by homeowners. These small, wind-driven pieces of burning vegetation or wood can travel over a mile ahead of a wildfire, igniting spot fires on roofs, in gutters, garden beds, and through vents. 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 wildfire due to post-fire assessments.

4.0 The Structure Ignition Zone

The Structure Ignition Zone (SIZ), often referred to as the Home Ignition Zone (HIZ), extends 100 to 200 feet from the structure and determines the potential for structure ignition during a wildfire event (*Figure 1*). It reflects the range of structures, beyond just homes, that are vulnerable to wildfire damage. A structure can burn because of its interrelationship with its immediate surroundings. To reduce the chance of ignition, a resident must break the potential path a wildfire could take to reach the structure, this is accomplished by interrupting the natural path fire takes within the structure ignition zone (SIZ). Changing a fire's path by modifying the SIZ is an important task that can result in avoiding home loss. To accomplish this, flammable items such as dead vegetation should be removed in the area immediately around the structure to prevent flames from contacting it. Additionally, reducing the volume of live vegetation and ladder fuels will affect the intensity of a wildfire can be reduced as it enters the SIZ.

Beyond radiant heat and direct flame contact, ember wash is a considerable threat to the home during a wildfire event. When these embers land, on or near a structure, they can ignite vegetation on the roof, gutters, the interior of the attic, or the garden beds around the house. To reduce this risk, it is essential to remove flammable items from around the home and eliminate vegetation in direct contact with the structure. Creating defensible space by clearing vegetation in direct contact with the house will reduce the chance of flames physically connecting with the

structure. Strategically placing isolated, well maintained garden beds rather than continuous vegetation can break up fuel continuity and reduce fire intensity. Low intensity fires tend to stay to the ground, which produces less radiant heat when it burns. Additionally, removing ladder fuels, vegetation and other flammable materials that connect the tree canopies to the ground helps prevent fire from climbing vertically and becoming more dangerous.

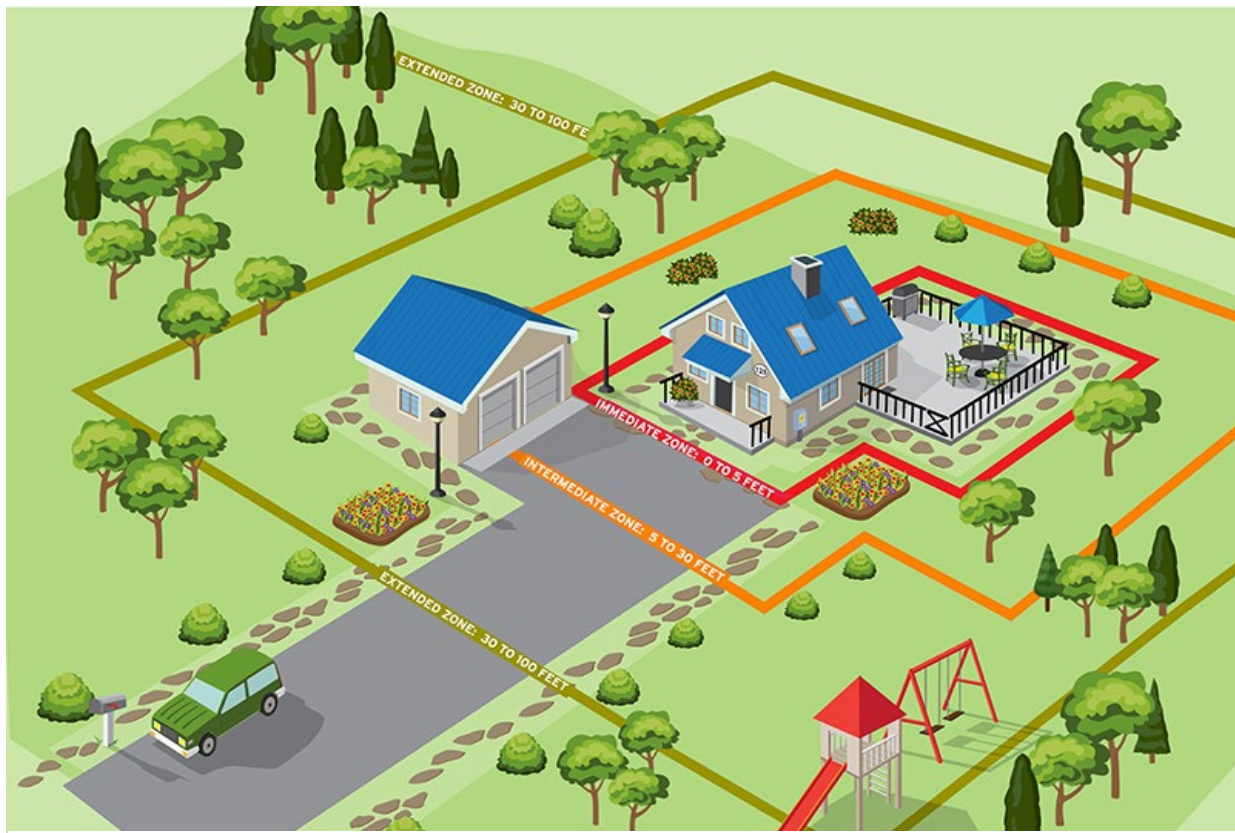


Figure 1: Diagram of the Structure Ignition Zone

5.0 Wildfire Risk Map

Understanding wildfire risk in your community can help prioritize risk reduction strategies. This knowledge helps guide decisions such as where to create defensible space, how to design evacuation routes, which structures need hardening, and where fuel treatments or vegetation management will be most effective. In addition, a clear picture of wildfire risk supports stronger community planning, encourages collaboration, and allows for resources to be directed towards high priority needs. Figure 2 shows Elm Valley wildfire risk according to the most current data from the Texas Wildfire Risk Assessment Portal (TXWRAP) website.

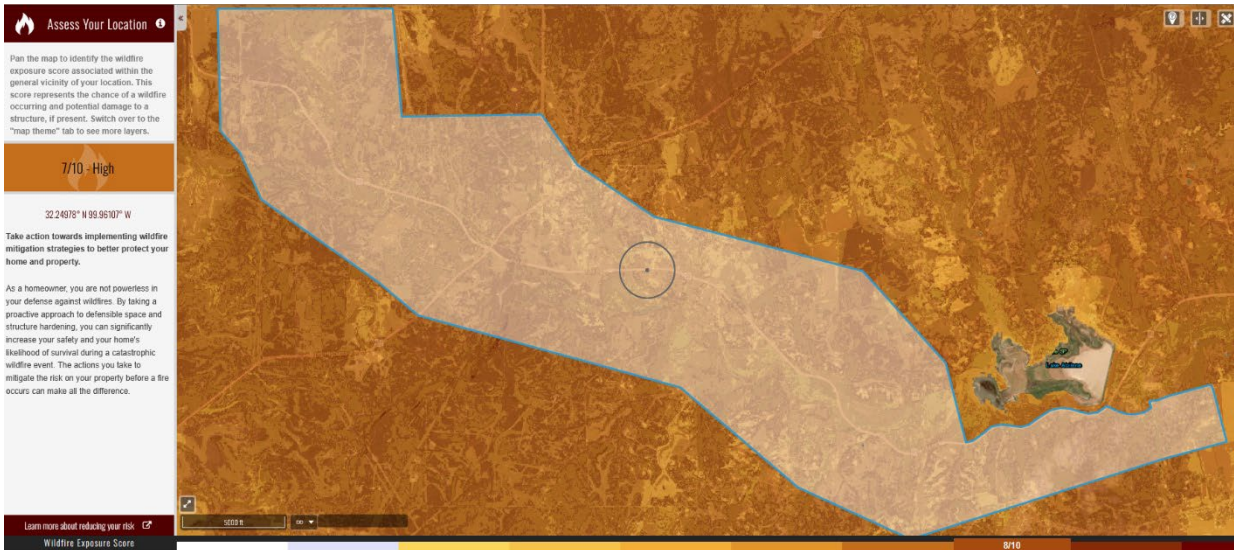
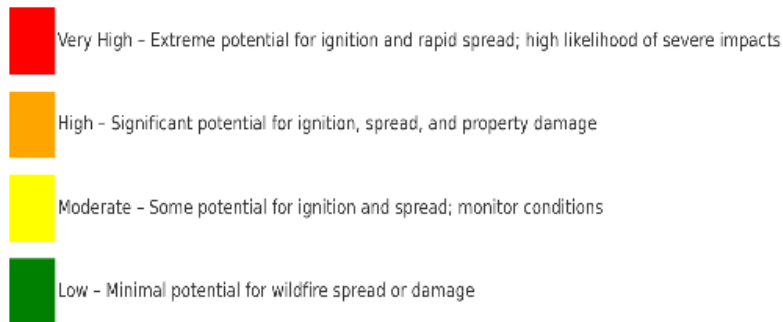


Figure 2: Wildfire Risk Map of Elm Valley Community

Wildfire Risk Legend



6.0 Ecosystem Health

In Texas, fires are a natural part of the ecosystem. Elm Valley lies at the edge of the Red Prairie and Semi-Arid Edwards Plateau ecoregions, an area historically seeing fire return intervals of 5-8 years.

Disturbance drove the prairies, with large American bison herds grazing across a massive range eating grass, knocking trees over, and helping fertilize the nutrient rich soil underneath their feet. Fires were common in the area, burning with varying intensity across large swaths of the prairies removing encroaching trees, dead grass, and returning nutrients to the soil.

When European settlers arrived, they suppressed both Indigenous burning practices and natural wildfires, drove local American bison herds to extinction, introduced cattle, and initiated widespread overgrazing. This has led to a vast encroachment of woody vegetation in the prairies and an overall decrease in ecosystem health. This woody vegetation encroachment has been

mostly characterized by an increase in junipers leading to a longer duration between fires and significant increase in fire intensity.

Many of the characteristics of an unhealthy ecosystem are the primary drivers of wildfire behavior. Dead fuels ignite easily and quickly and often burn with higher intensity while densely packed and continuous fuels will lead to faster spread and higher fire intensity. Reduced groundwater availability contributes to higher amounts of dead vegetation and fuel loading. Additionally, larger dead fuels, like trees and large wood piles, will create embers that are a leading cause of home ignition during wildfires.

Historically, fire played a vital role in maintaining healthy ecosystems by clearing dead vegetation and preventing overgrowth, which can disrupt the balance of natural resources. Trees that are not stressed and well-spaced will more easily survive fires and are less prone to creating embers. By promoting healthy ecosystems and making it a community priority, the risk of losing both human structures and environmental services can be significantly decreased.

7.0 Observations and Recommendations

This assessment is based on observations during a site visit to Elm Valley, focusing on the overall neighborhood and surrounding areas rather than individual homes. These observations are generalizations that can apply to most of the structures in the community. By addressing these generalized vulnerabilities, residents should be able to reduce their individual exposure to loss with additional small investments of time and effort.

7.1 Openings

All buildings have open vents to the interior of the structure such as vents to an attic, dryer chutes, or vent access under the structure to allow for air flow. These vents should be covered with 1/8 inch metal screen. A 1/8 inch screen provides a reasonable amount of protection while not restricting air flow or requiring much upkeep to clean screens. A 1/16 inch screen provides better protection but at the drawback of more frequent maintenance requirements. The smaller screen size can lead to more common clogs and require cleaning more often to allow air flow. In general, ventilation openings on most homes are usually covered with at least 1/4 inch mesh meant to keep out animals and debris. 1/4 inch mesh is inadequate for preventing ember intrusion. To prepare structures for fire resistance, any openings with this larger size mesh should be covered with 1/8 inch or smaller mesh. Screen is a cheap resource, and installation can be accomplished in a matter of hours on a weekend. This step is inexpensive, quick to install, and can significantly improve a structure's chances of survival.

7.2 Windows

Windows are another opening that can cause home loss if left open or broken. Glass panes can break when exposed to direct flame contact or intense heat, leaving an opening into the house. It was difficult to determine what sort of windows comprised the residences viewed in the

assessment; however, a conservative estimate is that half of the structures had single pane windows.

In the event of wildfire, ensure that windows are closed to ensure no ember wash enters the home. Reducing the height and density of combustible materials directly in front of windows decreases the chances of the window breaking due to being exposed to radiant heat. This work includes bushes, firewood piles, and wooden attachments such as decks. If a structure has single paned windows, they should be replaced with multipaned windows as funds allow. Multi-paned windows provide more protection than single panes. If one pane were to break due to heat or direct flame contact, there is still a second pane that will prevent ember intrusion. Additionally, multi-pane windows will help to maintain temperatures inside the structure, saving on AC and heating costs. Any windows that already have cracks through the glass should be replaced, as already cracked glass will have a higher likelihood of failing from heat.

7.3 Home Construction

In Elm Valley, most of the structures are constructed of wood, stone, brick, or stucco. For the most fire resilience, homes with exterior wood components may be replaced with a non-combustible option. However, the most economical option would be to ensure that all wood is either treated or painted, and in good condition. If the siding is rotten or warped it should be replaced, as this is an opening for embers to enter the structure. Most roofs in the area are metal or asphalt shingles which all provide some level of fire resistance.

7.4 Attachments

Throughout the community, most residential structures have wooden attachments (i.e., decks, stairs, ramps, fences). The most important aspect of fire resistance of these wooden structures is to keep all debris clear from under and around them. Metal screening or skirting should be placed over all openings and under decks to keep leaves and debris from building up, which can be ignited by embers. Sealing these structures includes the added benefit of excluding wildlife from the area. A wooden privacy fence that is connected to the house could expose the eaves to direct heat and embers if it were to catch on fire. A non-combustible material should be used in lieu of connecting a wood fence directly to the house (ex. stone, metal).

Examples of differing fence construction materials



Left: Wooden fence attached directly to structure



Right: Non-combustible fence attached directly to

8.0 Reducing Risk in the Structure Ignition Zone

When working on reducing risk in the Structure Ignition Zone residents should keep the 3-zone system in mind. Both firsthand accounts from first responders and research consistently show that the most effective efforts to reduce home loss during a wildfire focus on the structure itself and the first five feet surrounding it, known as the Immediate Zone. Work in the second zone should concentrate on reduction of ladder fuels, such as limbing up trees and working to create horizontal and vertical separation of fuels, preventing fire from moving from the ground to the canopy. The final zone extends from 30 feet to as far as a resident can work, or about 100-150 feet away from the structure. This zone is based on limbing up trees and working to remove jack pots, which are large accumulation of fuels. Fires respond naturally to terrain changes and burn more intensely uphill. Homes sitting on the peaks of hills will need to expand the spacing they have around them. With much of the surrounding area dominated by juniper and mesquite, maintaining defensible space is critical. This vegetation type tends to burn at a high intensity and can generate significant embers, increasing the risk of fire spread to nearby structures.

Immediate Zone | 0-5ft

○ Observation:

- Landscaping is comprised of various shrubs, succulents, and other vegetation. Much of it seems healthy and established. Care should be taken to remove dead material from this zone.
- Most windows, roofs, gutters, decks, and structural openings are in good condition. Structural openings should be checked and screened when possible.
- Presence of shrubs, propane tanks, firewood piles, flower beds, and other vegetation near the home.

- Recommendation: Ideally this area would be free of flammable materials, especially shrubs that may expose windows and eaves to flames. Small, low flammability plants, such as annuals and succulents are acceptable in the immediate zone. If shrubs are present in the immediate zone, they should be healthy, pruned and all debris cleared from the underside. Wood mulch should be avoided due to its tendency to catch embers and smolder for long periods of time. River rock, lava rock, or decomposed granite is a good alternative to organic mulch.

Intermediate Zone | 5-30ft

- Observation:
 - Condition of lawns, trees, shrubs, and garden beds is generally good. Most lawns are well kept and cut short.
 - Most of the properties have done well to reduce ladder fuels (shrubs or grasses under trees) and have limbed up junipers and mesquites to 6' or higher.
 - Many residences have structures or combustible items close (within 50') to the home.
- Recommendation: Trees should have space between the crowns and national recommendations are for them not to overhang the roof. If trees are present close to the home, gutters and roof tops should be cleaned regularly to prevent the buildup of flammable leaf litter. Trees should be limbed up to approximately 6 feet, or no more than 1/3 of the tree's total height. This can help reduce the chance of ladder fuels from carrying fire into the canopy. Landscaping beds in this zone should be kept free of overgrowth and debris and contain a fire-resistant mulch material. Store firewood at a minimum of 30 feet away from any structure.

Extended Zone | 30-100ft

- Observation:
 - Many of the residences in Elm Valley have a high density of trees and understory vegetation in this zone. This provides an opportunity for improvement by targeting and reducing the continuous/ladder fuels in this zone around structures.
 - Young trees or shrubs that may act as continuous fuels/ladder fuels.
- Recommendation: This area could be difficult to manage based on ownership. If possible, an effort should be made to thin dense stands of trees and brush to break the continuity of fuels. This can be accomplished by removing small junipers (<4-6" diameter) and brushy understory. Hardwoods, mesquite, and larger junipers (>6" diameter) should be limbed up to approximately 6 feet. Canopy spacing between trees should be 6-12ft but may be greater on steep slopes.

Common areas may be thinned and maintained in a similar manner to the extended zone. Construction of a firebreak may be possible in the heavily wooded areas adjacent to homes with

landowners and HOA cooperation. A fire break is a physical line constructed by machinery to remove all vegetation. The line should be cut down to bare mineral soil and maintained to prevent regrowth. The width of the fire break is dependent on adjacent vegetation but generally ranges from 10-30 feet. A fire break alone is not enough to stop some fires. Work should also be focused on areas of high fuel loading directly adjacent to the break. This would be in the form of creating vertical and horizontal separation of vegetation. This allows the fire to lower in intensity as it approaches, as well as reduces the fuel for a fire if it were to cross the fire break.

9.0 Evacuation Routes and Considerations

Community leaders/residents should plan and prepare for evacuations. To reduce risk, site residents should work with the local office of emergency management to develop an evacuation plan ahead of time, communicate it with residents, and encourage practicing for evacuations. This preparation will make residents feel more confident and aware when evacuations are needed. Evacuations are inherently chaotic, and congestion is likely. If exits are blocked, temporary refuge areas should be identified and plans to use them shared with the residents. Good options for refuge areas include open spaces, where there are no tall trees or heavy vegetation, and residents can wait safely until roads reopen or help comes.

Some helpful resources for this process are [Ready, Set, Go! - Wildfire Risk to Communities](#) and the Texas A&M Forest Service Evacuation Resources webpage [Evacuation - Texas A&M Forest Service](#). Another potential resource would be the Texas A&M Forest Service social media page [Wildfire Education & Prevention](#). All these resources have videos and topics showing what needs to be in your evacuation kit and how to be aware of what evacuations may entail.

10.0 Next Steps for Continuing Participation

After reviewing the contents of this assessment and its recommendations the Elm Valley Committee will determine whether to seek Firewise, USA™ recognition. If the site assessment and recommendations are accepted and recognition is sought, the committee will create an area-specific solution to the Firewise, USA™ recommendations and create an action plan in cooperation with the Texas A&M Forest Service.

Assuming the assessment area seeks to achieve national Firewise, USA™ recognitions status, it will integrate the following standards into its plan of action (Step 2 is already completed with the creation of this document):

1. Sponsor a local Firewise board, task force, committee, commission, or department that maintains the Firewise Community program and status.
2. Enlist a WUI Coordinator to complete an assessment and create a plan from which it identifies agreed-upon, achievable local solutions.
3. Invest a minimum of 1 volunteer hour per dwelling unit in its Firewise, USA® program (the rate is based on the 2024 annual National Hourly Volunteer Rate; which is updated every year in April when the new amount is published).

4. Qualifying contributions include: contractor costs, rental equipment, grant-funded projects, community volunteer hours, and individual resident work (e.g., home hardening, vegetation management in the home ignition zone).
5. Provide educational opportunities to engage visitors and nearby neighbors. For example, provide training for guests on evacuation procedures for the neighborhood and share information with visitors and neighbors on the importance of proper vegetation management for wildfire safety.
6. Submit an annual report to Firewise, USA®. This report documents continuing participation in the program.

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