



FIREWISE USA[®]
Residents reducing wildfire risks



Pine Forest
Community Wildfire Risk Assessment
November 2023

Okanogan Conservation District
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WILDFIRE

Firewise USA[™]

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Summary

Site Description

The Pine Forest property is located in Okanogan County (T34N, R21E, S 17 & 20, Sun Mountain Pine Forest 1), approximately 6 miles southwest of Winthrop, WA, off Elbow Coulee Rd from Patterson Lake Rd.

The community property consists of approximately 100 acres of greenbelt and 90 acres of common area within the 520-acre Pine Forest development area. There are 133 lots within the community with 104 of those built out or nearing the end of construction of private, full-time, and/or recreational residences.

Risk Assessment Process

The risk assessment was completed using the National Fire Protection Association (NFPA) Residential Wildfire Hazard Assessment Form as a template. The risk assessment form and community maps are included in this report at the end of this document. Digital photographs were taken to assist in the documentation process. The risk assessment form is typically used to assess individual properties; however, an attempt has been made to extrapolate this to the community level. Scores are given for each area, with a discussion of specific details related to that scoring area. The reviewers took photos and notes of the area. Photos with captions in the report are used as visuals to help viewers see the areas of concern or good practices currently being done by the community.

The community's assessment score is 83, placing it at the high hazard category. This score results from several factors including the area's recent fire history, vegetation component, available fire protection, and other factors. Most communities assessed in Okanogan County are in the high-hazard category.

This assessment's recommendations will be the board/committee's primary tool in determining action priorities within the site's boundaries, documented in their action plan. The Firewise USA® program requires assessments to be updated at least every five years.

Higher scores equal higher risk:

Low hazard = less than 39 points

Moderate hazard = 40-69 points

High hazard = 70-113 points

Extreme hazard = greater than 113 points

Assessment Participants

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Introduction

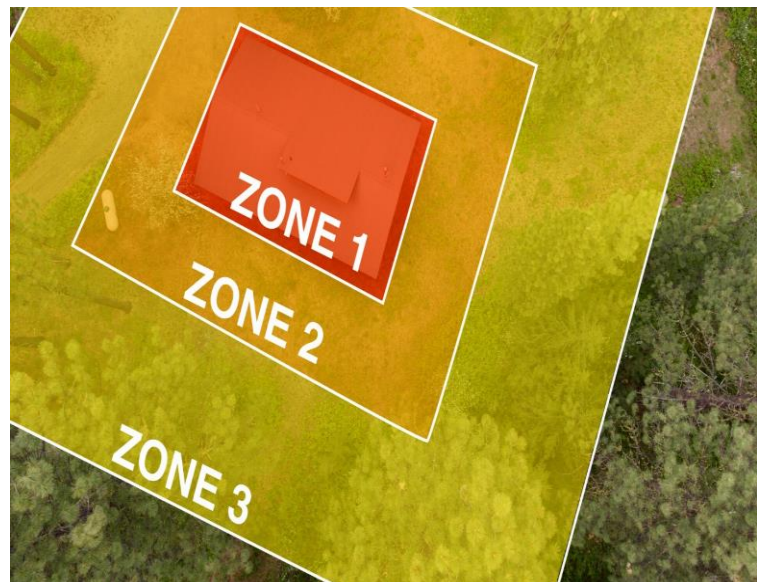
NFPA's Firewise USA® program teaches people how to live with wildfire and increase their home's chance of survival through proactive actions, while encouraging neighbors to work together to reduce losses and damage. The community wildfire risk assessment is an important step in the Firewise USA® recognition process. It's a tool to help residents and their community members understand their wildfire risk and engage them in risk reduction efforts.

Research has shown embers (burning pieces of airborne wood and/or vegetation that can be carried more than a mile through the wind) and small surface fires to be the primary source of home ignitions during wildfires.

Residents must prepare their home to withstand embers and minimize the likelihood of flames or surface fire touching the home or any attachments. This can be accomplished by limiting the amount of flammable vegetation, choosing ignition-resistant building materials and construction techniques, along with periodic exterior maintenance within the three home ignition zones (HIZ).

These zones include:

Zone 1: The Immediate Zone. This zone is the house/structure and deck plus 5 feet. The focus here is reducing vulnerability to embers. Zone 1 should be the primary zone of concern when first considering taking action to reduce fire risk, and first priority for future maintenance. Efforts to reduce risk should start in Zone 1 and work outward. Actions taken in the other zones are of little consequence during a wildfire if Zone 1 is not managed properly.



Zone 2: The Intermediate Zone. This zone goes from 5 feet to 30 feet minimum, typically the yard and garden. The focus here is to provide an area that will not readily burn and reduces radiant heat exposure to the structure.

Zone 3: The Extended Zone. This goes from 30 to 100 or more feet. This is your unimproved property such as forest or grasslands. The goal here is to reduce the energy of the wildfire by reducing the flame length.

It is not uncommon for home ignition zones to overlap onto adjacent properties. This makes the conditions of neighboring homes and vegetation a part of the wildfire threat. To maximize benefits, it is extremely important that neighbors work collaboratively with each other, and talk with each other, to reduce their shared risk.



The community wildfire risk assessment speaks to the general conditions of the overall Firewise USA[®] site and does not provide details on each individual dwelling.

The recommendations provided by the completed assessment will be the board/committee's primary tool in determining action priorities within the site's boundaries, documented in their action plan. The Firewise USA[®] program requires assessments be **updated at a minimum of every five years.**

Observations & Recommendations

Means of Access

Ingress and Egress: Ingress and Egress is important for a community to insure there are multiple escape routes. Wildfires can often cut off one or more escape routes for a community.

Observations

While there are multiple roads in the development, ultimately they all merge together at the bottom of the hill to exit the development at Mugo Drive. Private vehicles evacuating from above would likely encounter emergency vehicles heading up. Fortunately, since the last assessment, an emergency egress route was identified at the top end of the community. The community also is planning on developing a safety zone at the top of the development in case the emergency egress route is compromised.



The orange line is the two track identified as the upper egress route. Remember that when evacuations are put in place, visibility can be reduced by smoke.

Recommendations

Residents and their visitors should be made aware of this significant safety issue, and encouraged to evacuate early if there is a wildfire in the area. Waiting until fire is visible creates stress reactions that can lead to secondary emergencies when resources are needed elsewhere. While the community has found alternative egress routes, if that information is not known to visitors they will likely revert to the path known. Those present during fire season should have information available to them to make safe and sound choices in the event an evacuation occurs.



Area identified as the upper safety zone.

Score 0 – Two or more roads in/out

Road Width:

The width of the road determines traffic flow during a wildfire. Ideally the width of the road is 24 feet so two fire trucks, which can be the size of motor homes, can pass without slowing down.

Observations-

The roads in Pine Forest have been improved in terms of width since the last assessment, but some still have narrow, often steep in places, drop-offs and/or ditches. A number of the roads also have blind curves. Some side roads can only be turned into from one direction, otherwise vehicles have to back up and re-align (for example, Sugar Pine Rd. from North Blackjack, when coming from the north). Improvements have been made over the years to keep vegetation from crowding the road edges.



When heavy smoke conditions are present, the ditch on the left and/or the drop off on the right might not be visible.

Recommendations-

Maintain and improve roads (overall width or additional turnouts) as feasible. Continue to keep vegetation near roads cut back.

Score 2 – Roads are between 20 and 24 feet in width.

All-Season Road Condition: Surfaced roads allow better access for firefighting equipment. Roads with less than a 5% grade allow large heavy fire vehicles to readily access the area.

Observations-

Roads are graveled and in varying conditions; gravel is worn or rutted in places. The development advises residents and visitors of hazardous road conditions

Recommendation-

Continue to maintain and improve roads as feasible.

Score 5

Fire Service Access: This refers to access to a residence. This can be a driveway to one or multiple residences or a spur that connects to multiple other driveways.

Observations-

Individual driveways were not assessed, but in general, the driveways in Pine Forest are highly variable; some short with turnarounds, others quite long with no turnarounds. Some homes appeared to have turnaround driveways, but many do not, or it is not clear from the roadside whether a fire truck could turn around. In some cases, the home itself is not visible from the point where the driveway meets the road. Access for full size fire trucks is difficult due to road width and sharp turns; smaller brush trucks will be able to access most if not all of the homes in the development. Many of the larger trees in the development have been limbed up.

Recommendation-

For the lots with the longest (300'+) driveways, insure there are turnarounds at each residence as needed. Prune trees along roads to 14' high for fire truck access. Fire trucks are the size of large motor homes.

Score 3

Street Signs: Street and address signs that are reflective with 4" lettering makes it easy for emergency responders to find individual residences. This can be a critical if emergency responders are trying to find residence in the dark for a medical emergency.



Example of the street signs in the community. The post at the entrance also has a map of the community within the orange tube.

Observations-

The community has standard reflective road signs in place for all the named roads. Street signs are uniform and well placed. Some roads are hard to see depending on the direction of travel though. Sugar Pine Rd. and Whitebark Ln. was mentioned in the previous assessment and Summer Rd. is also hard to see from the uphill side. Some residences are still in need of reflective address signs as well.



Blue address sign on a home.

Recommendations-

In areas hard to see consider an additional sign on the opposite side of the road if that would not cause confusion. i.e. at an intersection of another road. In terms of the individual homes, it makes sense to have two signs. One at the intersection with the road and driveway, and one on the home itself.

Score 0

Vegetation (Fuel Models)

Predominate Vegetation: The type of vegetation determines the intensity of the wildfire.

Observations-

Pine Forest is a primarily Ponderosa Pine/Douglas fir forest, interspersed with more moisture-loving species in riparian zones and drainages (aspen, alder, willow, dogwood). Areas at the top of the development are primarily Ponderosa with an understory of bitterbrush, grass, and forbs.

Pine Forest has a detailed forest management plan conducted in 2014 by Schellhaas Forestry LLC, East Wenatchee, WA. This plan covers the community owned “greenbelt” areas and does not address the forest conditions on private lots in detail. The following information is from the forest plan. For more detail on each of the 11 greenbelts, see http://pine-forest.org/pdfs/fire_management.pdf.

Size – ±82 forested acres

Aspect – Generally east

Elevation – 2400’ – 3055’

Slope – 10 – 50%

Plant Association – PSME/SYAL (Williams et al 1990)

Site Class – IV

Site Index – 60’ to 80’ (100 yr) (Williams et al 1990)

Tree Species – Douglas fir, ponderosa pine

Stand structure – Single and multi-layered

Age class – Generally 115 years old with a few 275 year old trees

Diseases – Douglas-fir dwarf mistletoe

Insects – Douglas-fir engraver, mountain and western bark beetles, Ips



This home needs to update their address sign to be visible in all conditions.



Riparian area stocked with aspen.

Water – A lake, a fish stream (Thompson Creek), two small forested wetland areas, seven non-fish stream segments and five unknown draws
Grazing – No

Most of the large old ponderosa pine has been removed with early logging entries in the 1920's. Following the wildfires of 1994, and continued impacts from fires of recent, Pine Forest began an active campaign to protect their properties. Since 1998 approximately 335 acres of private and community property (greenbelt and road right of ways) have been commercially and/or non-commercially thinned.



Open ponderosa stand.

Land to the west of the Pine Forest development and south of the section line is National Forest with a combination of open area and very dense timber stands that are at high risk from wildfire. Properties to the east are private land with mostly open grassy, brushy areas. There are some pasture lands and patches of timber.

Recommendations-

The forest management plan outlines specific treatment recommendations for each of the 11 greenbelt areas. Generally, the plan recommends additional thinning of overstocked trees, reduction of ladder fuels, and the limbing of branches on larger trees.



Active fuels reduction work, ongoing throughout the community.

For the private lots, the management plan recommends “[a]ll landowners should be encouraged to help reduce wildfire risks and possible loss of homes and life within the community area by reducing fuels and improving forest health. Actively managing their property by thinning overstocked trees, then pruning to keep limbs above vegetation and disposing of slash or the cut materials will significantly reduce the threat of catastrophic fire. This is particularly true for parcels adjacent to other forested land. All private lots will need continual forest and vegetation maintenance. Even the lot owners who have met good defensible space objectives will need to consider future thinning as the trees get larger and crowns (live limbs) spread and close in on each other. Keeping most tree crowns spaced at least five feet apart will help lower the risk of catastrophic crown fires. If adjacent lots are in need of thinning, this may help attract loggers to commercially thin these properties, or private landowners might tie in with commercial thinning when it occurs in the greenbelts.”

Substantial work has been done throughout the community since last assessed. While there are a few areas left that have yet to be treated, segments of the community are at or nearing the first maintenance cycle. As these properties may have changed hands over the years or owners have gone years without work being done, reengagement and/or reminders of contractual obligations will be needed to ensure the previous work is not allowed to go to waste.

Score 10

Defensible Space: The term defensible space refers to that area between a house and an oncoming wildfire where the vegetation has been heavily modified to reduce the wildfire threat and allow fire fighters to safely operate. This area typically has a low chance of burning and includes your yard, garden, driveway and may include pasture.

Observations-

Individual homes were not assessed in this evaluation. A general overview is that some homes still have zero to over 30 feet of defensible space around their homes. Defensible space is diminished when fuel sources such as firewood piles and pine needle accumulations are found within the 30' minimum defensible space zone.

Recommendations-

Increasing defensible space will lead to the most significant reduction in wildfire risk. Homes that increase their defensible space from less than 30 feet to more than 100 feet will reduce their risk to wildfire. To increase defensible space, residents need to reduce the overall amount of fuel around the home including wood piles, slash piles, pine needle piles, non-fire resistant trees, shrubs and landscape materials. Block and rock landscape materials are preferred. Residents need to keep remaining vegetation lean, clean and green with regular maintenance. Residents should also be aware that loss of irrigation water can quickly turn moist, green plantings into dry, combustible fuel. Water is limited in the area and xeriscape landscape techniques are recommended.



Example of a home that addressed defensible space in the past, but is needing to maintain that work.



This unique design has allowed for needle cast to accumulate.

Especially as most homeowners are part-time residents and may not be immediately aware of loss of irrigation water for their plantings. Future plant material used in landscaping should be fire resistant.

Residents who would like more information on defensible space around their home/property are encouraged to work with Okanogan Conservation District and the Washington State Department of Natural Resources to have their individual property evaluated for risk.

Score 10

Topography

Topography can affect the spread of wildfire. Steep slopes, chimneys can affect the rate a wildfire spread.

Slope

Observations-

Nestled at the foot of the North Cascades, the entire valley has a diverse topography. As noted in the forest management plan, slopes in the community range from 10%-50%.

Recommendations-

None

Score 7

Additional Rating Factors

Topography That Adversely Affects Wildland Fire Behavior

Observations-

The steep slopes within the community will likely increase the speed and intensity of wildland fire moving through the area.

Recommendations –

Topography is difficult to change. Homes that are currently in a poor topographic location should mitigate the wildfire risk by increasing defensible space distance.

Score 5



View from the upper end of the community, looking North, with the Cascades in the background.

Area With History of High Fire Occurrence

Observations –

In Okanogan County humans are the leading cause of wildfire. Lightning represents about 30% of fire starts. With human caused wildfires, debris burning is the leading cause of wildfire.

As noted previously, large fires in the area is what spurred the community to action. Since the last assessment, two large fires have nearly entered the community's boundaries. As fires continue to become larger and more intense, one can only assume that it is a matter of time until Pine Forest will be directly impacted.

Recommendations -

Residents within can help prevent fire starts by being extra careful during fire season. Community members should follow forest protection rules and burn regulations. Residents should be ready throughout the summer to leave at a moment's notice, with their basic necessities packed, and a plan in place to rendezvous in a safer location.

Score 5

Area of Unusually Severe Fire Weather and Wind

Observations –

Residents report that moderate to strong winds (15-30mph) are fairly frequent in Pine Forest. Properties at the top of the development and on more exposed sites typically experience stronger winds than those in the lower section of the development. This can differ though in the event of significant frontal passage. Fires, in very recent history and close proximity, burning during these events have exhibited record growth and intensity.



The red line shows on close the Cedar Creek fire came to impacting the upper end of the community.

Recommendation -

The weather cannot be controlled. Unfortunately, major catastrophic fires quickly overwhelm local fire resources. By increasing home survivability, property owners within the community won't have to depend upon these resources.

Score 5

Separation of Adjacent Structures

How close structures are can increase structure loss as one structure burns and ignites the structure next to it.

Observations –

Individual homes and structures were not assessed for separation from adjacent structures. The overall impression is that lots are large enough so that residences are fairly well separated from others. If and when the density of structures increases, residents should be aware that a lack of separation increases risk because homes provide additional sources of fuel. If one structure ignites, the radiant heat and embers from the home will threaten several adjacent structures and property. These structures, should they ignite, will threaten additional homes and forested areas. Each homeowner needs to be aware of their garages, shops and other buildings on their property and maintain defensible space around each.

Recommendation –

Each resident should be evaluated on the separation of structures. All structures on a parcel should have defensible space around them to prevent them from catching on fire and threatening homes. This includes garages, wood sheds and shops. This can be done by scheduling an individual assessment through the Okanogan Conservation District or the Washington DNR.

Score 2

Roofing Material

Homes are often lost when their roof is ignited. Metal and composite roofing materials are both good choices for roofs.

Construction Material: Class A, B, or C

Observations –

Roofing materials observed were metal or composition shingle (Class A) within this community. Fortunately, there were no wooden shake shingle roofs (Class C) observed, which increase the risk of home ignition.

Recommendations –

Continue to use non-combustible roofing material. Residents need to keep roofs and gutters clear of combustible materials such as pine needles.

Score 0



Existing Building Construction

The material the home is constructed with can affect the structure igniting from the fire.

Materials

Observations –

Homes and outbuildings within Pine Forest appeared to have mainly wood siding materials and wood decks.

Recommendations –

Avoid use of cedar siding materials. Encourage use of non-combustible siding in new construction or for re-siding projects. Enclosing openings under homes and decks will reduce the potential for firebrand ignitions. Screening off vents and other openings will prevent firebrands from entering the home.

Score 10

Setbacks from Slopes

Homes on slopes of 30% and greater are at increased risk of being lost in a wildfire unless they are set back from the slope.

Observations –

Many of the building sites in the development are on a steep slope. In some cases, homes appear to be less than 30' from the edge of the slopes, while others are set back further. Some homes also have decks overhanging the slope.

Recommendations –

Positioning a home close to the edge of a slope increases the home's risk of ignition. For homes less than 30' from the edge, additional effort is needed to increase defensible space on the downhill side by removing/reducing vegetation. Overhanging decks should be protected as much as possible by clearing fuels underneath, and cladding deck posts in non-flammable material. New construction should take into account the recommended 30' setback from slopes.

Score 3

Available Fire Protection

Water Source Availability (On Site)

Observations –

The community has 18 water risers spread throughout the development, which appear to take 2" hose line. According to Okanogan Fire District 6, these will not be accessible to their fire equipment. Water is stored in cisterns at the top of the development for gravity-feed supply to the homes in Pine Forest. The large pond near the lower egress route could be utilized as a water source if needed.



One of the 18 water risers located throughout the community.

Recommendation –

Unless significant investment is put into retrofitting the current water system to allow fire resources to utilize what water is on hand there are few options. The community is encouraged to consult with the local fire department to assess the practicality of drafting out of the pond. If this proves to be of use, then work could be done to clear and improve areas to make deploying pumps less of a burden and hazardous.

Score 5

Organized Response Resources

Observations-

The closest Okanogan District 6 fire station is more than five miles away. Additionally, it is a volunteer department that is not always staffed.

Recommendation –

Volunteering with the local fire district is encouraged. In addition, a reminder to the community could be of good use as to the distance to help. In any emergency, not just a wildfire, resources will take time to arrive and may be diverted to a more pressing need.

Score 3

Fixed Fire Protection

Observations –

Fixed fire protection that meets NFPA 13, 13R and 13D refers to interior fire sprinklers systems for structural protection from wildfire. Individual homes were not checked to see if they have interior sprinkler systems. In general, most homes do not have interior sprinkler systems.

Recommendation –

No recommendations are given.

Score 5

Utilities (Gas and Electric)

Observations-

Electrical lines in Pine Forest are underground. Some individual homes have LPG tanks.

Recommendations

LPG tanks should be located at least 30 feet from structures and have fuel breaks around the tanks to prevent direct flame contact during a wildfire.

Score 3

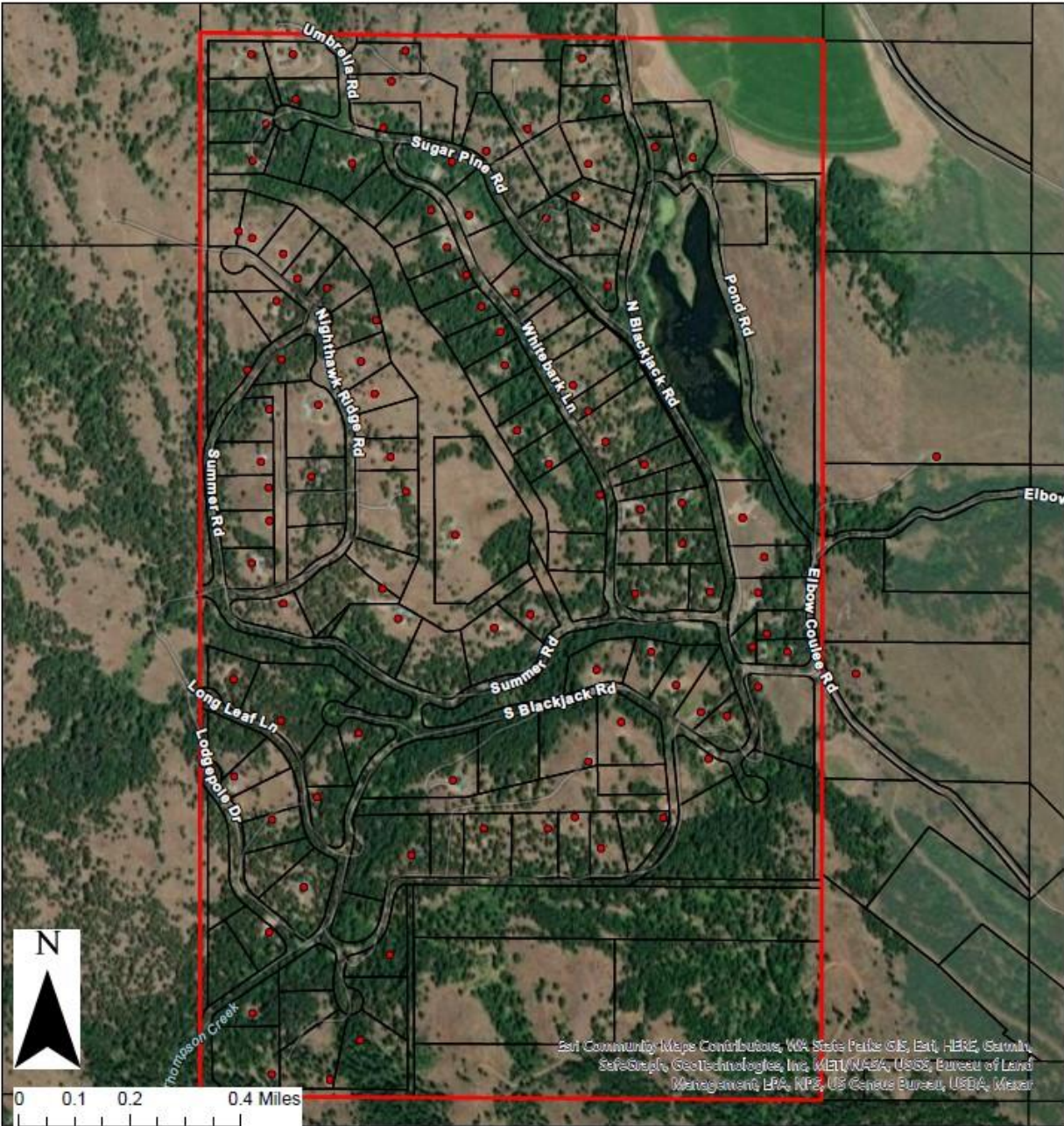
Overall Score

Totaled score for the community is an 83, which puts the community at a high risk of loss in a wildfire. This however, should be considered an accomplishment for the community as the previous score was 108.

Overall recommendations:

- 1) Encourage homeowners to have individual home risk assessments conducted. These are done by the Okanogan County Conservation District and Washington State Department of Natural Resources at no cost. Residents can signup either at <https://app.smartsheet.com/b/form/973810c9477644bfa33c7f3e4b902a31> or <https://wildfireready.dnr.wa.gov/>
- 2) Encourage homeowners to create or expand defensible space around their property.
- 3) Update address signs that have not yet been to a 4" size and reflective material.
- 4) Continue to educate the community on emergency evacuation plans and identify safety zones in case evacuation is not possible.
- 5) Ensure that all residents and visitors to Pine Forest are aware of the wildfire risk and that they need to pay careful attention to fire hazards within the community and in the surrounding area.

Pine Forest Community Map



- Houses
- ▭ Community Boundary
- ▭ Property Parcels

Pine Forest
FireWise Community
1375 Acres
102 Houses



Created by Dylan Streeeter,
 Okanogan CD, November 2023

Residential Wildfire Hazard Assessment Form

Residential Wildfire Hazard Assessment Form

Landowner / Community Name: Pine Forest	Qtr-Qtr / Sec / Town / Range	Prevention Officer Loffis-Knowlton
Is this a reassessment? (circle) YES NO	Lat. / Long.	Date 11-14-2023
Address	Waypoint ID	Resident Contact Made (circle) Yes No
Rams Compartment (circle)		
<input checked="" type="checkbox"/> Cheney <input type="checkbox"/> Chewelah <input type="checkbox"/> Colville BIA <input type="checkbox"/> Curlew LK <input type="checkbox"/> Cusick <input type="checkbox"/> Huckleberry <input type="checkbox"/> Kettle <input type="checkbox"/> Lincoln <input checked="" type="checkbox"/> Methow <input type="checkbox"/> Mica <input type="checkbox"/> Mt. Spokane <input type="checkbox"/> Ninemile <input type="checkbox"/> Northport <input type="checkbox"/> Orville <input type="checkbox"/> Springdale <input type="checkbox"/> Spokane BIA <input type="checkbox"/> Tonasket <input type="checkbox"/> Other:		

A. Means of Access		2. Defensible space		2. Setback from slopes >30%	
1. Ingress and egress		More than 100 ft.	1	More than 30 ft. to slope	1
Two or more roads in/out	0	More than 71 – 100 ft.	3	Less than 30 ft. to slope	5
One road in/out	7	30 – 70 ft.	10	Not applicable	0
	0	Less than 30 ft.	25		3
2. Road width		C. Topography		G. Available Fire Protection	
Greater than 24 feet	0	1. Slope		1. Water source availability (on site)	
Between 20 and 24 feet	2	Less than 9%	1	500 gpm pressurized hydrants < 1000 ft. apart.	0
Less than 20 feet	4	Between 10 – 20%	4	250 gpm pressurized hydrants < 1000 ft. apart.	1
	2	Between 21 – 30%	7	More than 250 gpm non-pressurized, 2 hrs	3
3. All-season road condition		Between 31 – 40%	8	Less than 250 gpm non-pressurized, 2 hrs	5
Surfaced, grade <5%	0	Greater than 41%	10	No hydrants available	10
Surfaced, grade >5%	2			2. Organized response resources	
Non-surfaced, grade < 5%	2	D. Additional Rating Factors		Station within 5 miles of structure	1
Non-surfaced, grade > 5%	5	1. Topography that adversely affects wildland fire behavior	0-5	Station greater than 5 miles	3
Other than all-season	7	2. Area with history of higher fire occurrence	0-5	3. Fixed fire protection	
	5	3. Areas of unusually severe fire weather and wind	0-5	Sprinkler system (NFPA 13, 13R, 13D)	0
4. Fire service access		4. Separation of adjacent structures	0-5	None	5
<= 300 ft, with turnaround	0	E. Roofing Material		H. Utilities (Gas and Electric)	
>= 300 ft, with turnaround	2	1. Construction material		All underground utilities	0
<= 300 ft, no turnaround	4	Class A roof	0	One underground, one aboveground	3
>= 300 ft, no turnaround	5	Class B roof	3	All aboveground	5
	3	Class C roof	15		3
5. Street signs		Non-rated	25	Column 3 Total:	19
Present (4 in. in size and reflective)	0	F. Existing Building Construction		Total Score	83
Not present	5	1. Materials		Risk Rating	High
	0	Noncombustible siding/deck	0		
B. Vegetation (Fuel Models)		Noncombustible siding/wood deck	5		
1. Predominant vegetation		Combustible siding and deck	10		
Light	5				
Medium	10	Column 1 Total:	26	Column 2 Total:	44
Heavy	20				
Slash	25				
	10				

Low Hazard: <39 Points; Moderate Hazard: 40 – 69 Points; High Hazard: 70 – 112 Points; Extreme Hazard ≥113 Points

NOTES:

Column 1	20
Column 2	44
Column 3	19
Total	83