

COMMUNITY WILDFIRE PROTECTION PLAN

Confederated Tribes of the
Chehalis Reservation

April 9, 2025

TABLE OF CONTENTS

INTRODUCTION	2
Purpose	3
History.....	5
Scope.....	6
Limitations and Restrictions	7
GENERAL BACKGROUND	7
Identifying Wildfire Risk.....	10
Wildfire Behavior	11
Wildfire Impact.....	13
Secondary Hazards	13
HAZARD PROFILE	13
Extent and Location.....	13
Previous Occurrences	18
Severity	23
Frequency	24
LANDFIRE.....	27
VULNERABILITY ASSESSMENT.....	38
Overview.....	38
Impact on Life, Health, and Safety	39
Impact on Property	40
Impact on Critical Facilities and Infrastructure	41
Impact on Economy.....	43
Impact on Environment	43
Impact From Climate Change.....	44
MITIGATION STRATEGIES - INCREASING THE RESILIENCY OF LANDSCAPES	44
FUTURE DEVELOPMENT TRENDS	48
ISSUES	49
RESULTS	50

COMMUNITY WILDFIRE PROTECTION PLAN

1. Introduction

The Confederated Tribes of the Chehalis Reservation (CTCR) and surrounding landscape exhibits a complex wildfire environment that presents a significant risk to public and firefighter safety, and the built and natural environment.

Washington State as a whole, as well as the surrounding region, has been subject to numerous damaging wildland fires, is influenced by local extreme wind and weather conditions, has varied terrain with a mosaic of different vegetation types, and is characterized by wildland urban interface (WUI) development patterns that can exacerbate wildfire risk.

As a key component of the Healthy Forest Restoration Act of 2003, a Community Wildfire Protection Plan (CWPP) serves as a mechanism for community input and identification of areas presenting high wildfire risk, as well as identification of potential projects intended to mitigate such risk. Further, the CWPP process is intended to provide the community with a forum for identifying values at risk from wildfire, which may include people, property, natural resources, cultural values, economic interests, and infrastructure.

The identification of these values at risk by the community strongly influences the potential wildfire hazard mitigation projects identified in this CWPP. This CWPP was developed by the CTCR with input and direction from stakeholders and the community. The purpose of this collaboratively-prepared CWPP is to serve as a fire protection planning document that presents the Tribe's physical characteristics, wildfire hazard, assets at risk from wildfire, vegetation/fuel management projects and specifications, and goals and action items intended to reduce wildfire risk in the Tribe. The ultimate goal of this CWPP is to protect lives, property, and natural resources threatened by wildland fire.

DEFINITIONS

Conflagration—A fire that grows beyond its original source area to engulf adjoining regions. Wind, extremely dry or hazardous weather conditions, excessive fuel buildup and explosions are usually the elements behind a wildfire conflagration.

Firestorm—A fire that expands to cover a large area, often more than a square mile. A firestorm usually occurs when many individual fires grow together into one. The involved area becomes so hot that all combustible materials ignite, even if they are not exposed to direct flame. Temperatures may exceed 1000°C. Superheated air and hot gases of combustion rise over the fire zone, drawing surface winds in from all sides, often at velocities approaching 50 miles per hour. Within the area of the fire, lethal concentrations of carbon monoxide are present; combined with the intense heat, this poses a serious life threat to responding fire forces. In very large events, the rising column of heated air and combustion gases carries enough soot and particulate matter into the upper atmosphere to cause cloud nucleation, creating a locally intense thunderstorm and the hazard of lightning strikes.

Interface Area—An area susceptible to wildfires and where wildland vegetation and urban or suburban development occur together.

Wildfire—Fires that result in uncontrolled destruction of forests, brush, field crops, grasslands, and real and personal property in non-urban areas. Due to their distance from firefighting resources, they can be difficult to contain and can cause a great deal of destruction.

This document, as written, serves as the Wildfire Chapter of the Tribe's 2026 Hazard Mitigation Plan, under concurrent development with this CWPP.

A wildfire is defined as any uncontrolled fire occurring on undeveloped land that requires fire suppression. Wildfires can be ignited by lightning or by human activity such as smoking, campfires, equipment use, and arson. The wildfire season in Washington usually begins in April, picks up in early July, and generally ends in late September; however, wildfires have occurred every month of the year. Fires during the early and late shoulders of the fire season usually are associated with human-caused fires; fires during the peak period of July, August and September often are related to thunderstorms and lightning strikes. Drought, snowpack, and local weather conditions can expand the length of the fire season. Wildfires started by lightning burn more state-protected acreage than any other cause. In recent years, climate change and drought conditions have extended the wildfire seasons, while also exacerbating the impact by increasing not only damages, but also the severity and management of those fires.

1.1 Purpose and Need

In response to several significant fires occurring throughout the United States from 1995 to 2000, in 2009, Congress passed the Federal Land Assistance, Management, and Enhancement Act (FLAME Act), which directed the U.S. Department of Agriculture (USDA) and the Department of Interior (DOI) to develop a national cohesive wildland fire management strategy. The Cohesive Strategy is centered around three goals to achieve its vision:

- 1) Restore and maintain landscapes: Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
- 2) Fire adapted communities: Human populations and infrastructure can withstand a wildfire without loss of life and property.
- 3) Wildfire response: All jurisdictions participate in making and implementing safe, effective, efficient, risk-based wildfire management decisions.

In furtherance of that strategy, in a 2012 USFS Technical Report NRS-89, it was recommended that a Community Wildfire Protection Plan (CWPP) should fit into the larger picture of planning for natural disasters as a best practice. As such, it was recommended that a CWPP should be incorporated within the Natural Hazards Mitigation Plan. Benefits illustrated in the report include the use of "a variety of data already collected" for the HMP process, making it "easier to link the CWPP to other planning efforts."¹ As such, for ease in use and to reduce redundant

¹ USFS. (2012). Accessed 6 May 2024. Available on-line at: [Best management practices for creating a community wildfire protection plan \(usda.gov\)](https://www.usda.gov/landmanagement/technical-reports/nrs-89)

information, certain areas of this plan will reference sections of the 2026 HMP. Those areas should be considered as though they are fully incorporated within the body of this document.

In response to the FLAME Act and other similar federal initiatives, the Tribe adopted the 2020 Hazard Mitigation Plan, which identified the development of a CWPP and enhancing GIS data (to complete a more robust risk assessment) as projects to help identify areas of concern, and potential fire-related mitigation efforts.

Section 11.1.4 of the 2020 Hazard Mitigation Plan identified the initial planning efforts to begin development of a CWPP, while Section 13, Table 13-2 identified various strategies to help reduce the impact from wildfires (as well as other hazards of concern). Specifically, strategies supporting such efforts include:

- #6, which helps ensure a continued supply of water during and after an event, identifying a needs assessment to determine requirements for equipment and materials necessary to ensure water storage facilities and distribution sources remain operational.
- #19 and #23, which identify public outreach efforts and development of a FireWise program as initiatives to reduce the wildfire risk, to provide public education, and to complete exercises and drills as they relate to the hazards of concern.
- Additional initiatives identified include incorporating stronger build codes to enhance fuels reduction through, for example, landscaping regulations, and to ensure access road reinforcement (used for both evacuation and public safety vehicles).
- As indicated, the HMP also identified the acquisition of additional GIS data to enhance future risk assessments (multiple strategies). In support of that strategy, in 2024, the Tribe applied for and received grant funding for completion of a vegetation study, which was conducted on tribal lands. The development of this CWPP incorporates some of that data as applicable, while also funding the development of this CWPP, and allowing for future progress utilizing the data to enhance climate change adaptation, among other areas of integration.

The CTCR recognizes the potential for significant loss of life, property, cultural and natural resources from wildland fire. In an effort to align with the Cohesive Strategy, CTCR stakeholders expressed an interest in formalizing this CWPP to address the Strategy's and Mitigation Plan's goal at a Tribal level. This alignment reinforces the importance of collaboration among all local, state, tribal, and federal partners, and helps organize the multi-faceted nature of wildfire topics and mitigation strategies. With those goals in mind, this CWPP identifies areas at risk at the Tribal level, prioritizes fuel treatments in general as a strategy, and further recommends ways to reduce structural ignitability by developing risk-reducing strategies at the Tribal level based on capabilities. The Tribe's Public Safety Department, Office of Emergency Management has also begun the process of local-area public outreach to establish FireWise Communities throughout the Tribal Planning Area.

1.2 History

Community Wildfire Protection Plans have been in place since shortly after the Healthy Forests Restoration Act (HFRA) was signed into law in 2009. HFRA legislation included incentives for the United States Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to local community priorities when developing forest management and hazardous fuels reduction projects.

What are the benefits of developing a CWPP?

- Reducing the direct and indirect social, economic, and environmental costs of wildfire
- Coordinating wildfire risk reduction with other community values & priorities
- Bringing together diverse interests to tackle local wildfire challenges and opportunities
- Identifying potential resources and funding for mitigation activities
- Increasing community awareness and engagement in risk reduction

The National Cohesive Wildland Fire Management Strategy is a collaborative process to seek national, all-lands solutions to wildland fire management issues.² The Cohesive Strategy has a long list of goals and performance measures establishing a common understanding among all entities interacting in the wildland-urban interface. The Cohesive Strategy required that all wildland fire protection entities assist in the development and implementation of Community Wildfire Protection Plans and comparable land resource management plans to create fire-adaptive communities.

In 2023, the Wildland Fire Leadership Council presented an Addendum to the strategy to identify critical emphasis areas and challenges which were not previously identified or addressed in the 2014 National Cohesive Wildland Fire Management Strategy framework to now include:³

1. Climate change;
2. Workforce capacity, health, and well-being;
3. Community resilience (preparation, response, and recovery); and
4. Diversity, equity, inclusion, and environmental justice.

CWPPs are the primary tool that communities use to prioritize wildfire risk reduction and resilience. They can bring together multiple sources of information, activities, and interests into one document, while focusing the reduction activities at the local, community level.

There are three minimum requirements for a CWPP according to HFRA:

² U.S. Forest Service. Accessed 6 May 2024. Available online at: [The National Cohesive Wildland Fire Management Strategy and Risk Analysis – Phase III Report \(forestsandrangelands.gov\)](https://www.fs.fed.us/national-cohesive-wildland-fire-management-strategy-and-risk-analysis-phase-iii-report)

³ U.S. Forest Service. Accessed 5 January 2024. [National Cohesive Wildland Fire Management Strategy Addendum Update \(forestsandrangelands.gov\)](https://www.fs.fed.us/national-cohesive-wildland-fire-management-strategy-addendum-update) (2023 Update)

1. Show collaboration between tribal, local, and state agencies, in consultation with federal agencies and other interested parties;
2. Identify and prioritize fuel treatments to reduce hazardous fuel areas; and
3. Recommend strategies to reduce the ignitability of structures.

Those requirements have been met through the CWPP/HMP process. While CWPPs are not legally binding documents, given changing climate conditions and national budgets, they are an effective tool to help communities plan for unknowns with respect to wildfire, while increasing wildfire resilience through established mitigation strategies that provide long-term benefits.

1.3 Scope

The landscape for the planning area boundary was established to include all of the properties distributed through the wide-spread areas of the wildland-urban interface - utilizing the same defined planning area boundaries as those identified in the Hazard Mitigation Plan to which this document is a component. This includes all Tribal lands (fee or trust) within Grays Harbor, Thurston, and Lewis Counties. Such lands are not contiguous in nature but are effectively referred to as the Tribal Planning Area. Lands acquired after completion of this CWPP/HMP should also be considered as part of this document with respect to strategies identified and grant eligibility. Future land mass acquired after plan approval and adoption will be incorporated into the risk assessment during future plan updates.

This CWPP is a strategic document that assesses the Tribal landscape, identifying areas with fire risk based on available wildfire information from the various subject matter experts such as Washington State Department of Natural Resources (WDNR), and the U.S. Forest Service (USFS) and the U.S. Department of Agriculture (USDA), among others. The intent of this document is to provide generalized information and over-arching strategies with the expectation that local communities, fire service agencies, the Tribe's CWPP coordinators, and the outlying communities with which they work focus on their immediate areas of concern, identifying additional assets at risk and strategies to reduce the potential for and impact from wildfires within their specific communities as each community has its own unique qualities. It is a starting point for additional community input in the quest to establish more resilient communities. This provides all of the communities the ability to customize their approach based on the community's unique needs.

Similar to the HMP development process, a CWPP also utilizes a collaborative process involving various organizations and agencies described in Chapter 2 of the HMP. Details of the process followed, planning meetings, and plan participants is maintained in Chapter 2 to reduce redundancy of efforts.

In general, the CWPP planning process included five steps:

1. Collection of data about the extent and periodicity of hazards.
2. Observations and estimations about risks, structures and infrastructure to risk areas, access, and potential treatments.
3. Mapping or identification of data relevant to pre-disaster mitigation control and treatments, structures, resource values, infrastructure, risk assessments, and related data.
4. Facilitation of public involvement utilizing a public survey, news releases, public meetings, public review of draft documents, and acknowledgement of the final plan by the signatory representatives.
5. Final drafting of the document compiling the first four steps into one final document.

1.4 Limitations and Restrictions

Wildfire planning is a precise science. During an active fire, data changes very frequently based on weather, topography, wind, vegetation, previous wildfires occurrences, accessibility to areas, land use, and available resources utilized for firefighting, among other factors. Likewise, the landscape in the Tribal Planning Area changes regularly, making annual review of the wildfire hazard profile paramount. As such, no wildfire analysis was conducted as a result of this project. Rather, this project presents existing data developed by various federal and state subject-matter expert agencies (as referenced and cited) to identify areas where wildfires may occur based on established criteria. The websites referenced and utilized within this profile change information and data regularly and allow for the viewing of the data presented in different formats. Likewise, other hazards of concern identified within the HMP, such as Drought and Climate Change, also provide valuable information concerning wildfire impact. Those hazards and the tools and data utilized to determine their impact also change very frequently. As such, readers are encouraged to review the various sources referenced to gain greater understanding and perspective of the data presented.

2. General Background

2.1 Wildland Urban Interface Areas

In 2001, Congress mandated the establishment of a Federal Register which identifies all urban wildland interface communities within the vicinity of Federal lands, including Indian trust and restricted lands that are at high-risk from wildfire. The list assimilated information provided from States and Tribes and is intended to identify those communities considered at risk.

The wildland urban interface (WUI) is the area where development meets wildland areas. This can mean structures built in or near natural forests, or areas next to active timber and rangelands.

The federal definition of a WUI community is an area where development densities are at least three residential, business, or public building structures per acre. For less developed areas, the wildland-intermix community has development densities of at least one structure per 40 acres. Review of the Federal Registry lists several communities within all three counties in which the Tribe owns lands as having areas at high-risk within the vicinity of Federal lands.⁴

Figure 1 and Figure 2 identify the WUI boundaries throughout the Tribal Planning Area, as established by Washington State Department of Natural Resources, the source deemed the subject matter expert within Washington State.

When identifying areas of fire concern, in addition to the Federal Register, FEMA and the Washington Department of Natural Resources along with other federal partners also determine communities at risk based on fire behavior potential, fire protection capability, and risk to social, cultural, and community resources. These risk factors include areas with fire history, the type and density of vegetative fuels, extreme weather conditions, topography, number and density of structures and their distance from fuels, location of municipal watersheds, and likely loss of housing or business. The criteria for making these determinations are the same as those used in the National Fire Protection Association's *NFPA 299 Standard for Protection of Life and Property from Wildfire*. Based on these criteria, the Tribal Planning Area encompasses locations considered to be at high risk.

Wildfires can occur on any lands—private, state, tribal, and federal land. Fires can spread across these multiple land ownerships. As a result, wildland firefighting is by necessity most often a multi-agency effort. Efforts to reduce the likelihood of a fire and its intensity (related to fuels and topography) can have significant consequences on homeowner and firefighter safety, as well as on the built environment, especially homes. As with many hazards, wildfires do not respect property boundaries, burning across various types of land ownership. Efforts to mitigate the likelihood or intensity of wildfires can have significant impact on lands and properties. Fuel treatments on specific lands can help lower the intensity of a wildfire, reducing the risk to surrounding homes and property.

The biggest land ownership in the three counties encompassing the Tribal Planning Area is the federal government, which includes U.S. Forest Service (USFS) lands. Application of mitigation efforts on the USFS lands could help reduce impact to surrounding properties. At the local level, municipalities can help reduce the susceptibility of homes to wildfire through things such as land use planning or the application of building codes. Homeowners can focus on the areas

⁴ <https://www.federalregister.gov/documents/2001/01/04/01-52/urban-wildland-interface-communities-within-the-vicinity-of-federal-lands-that-are-at-high-risk-from>

immediately surrounding their homes by landscaping, or placing screens on eave vents, thereby reducing fuel sources or the spread of fire by limiting ignition by embers.

When viewing the capabilities in place, social, and economic factors must also be reviewed, as those elements can make it more difficult for some people to prepare for, respond to, and recover from wildfire. Vulnerable populations may lack access to resources, experience cultural and institutional barriers, have limited mobility, limited ability to speak or understand English, or have medical conditions which can influence their response to wildfire.

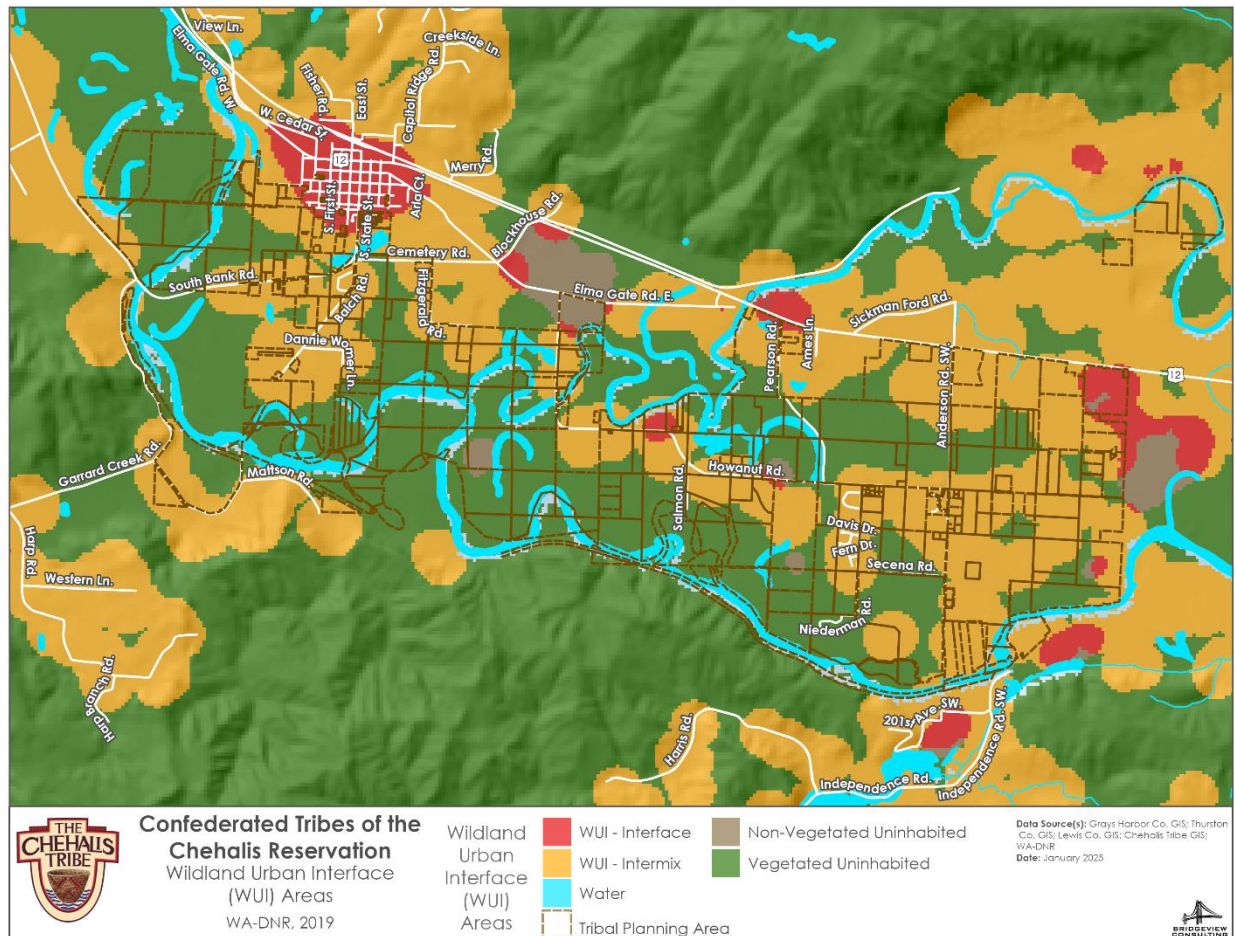


Figure 1 - CTR Reservation Boundary WUI Areas

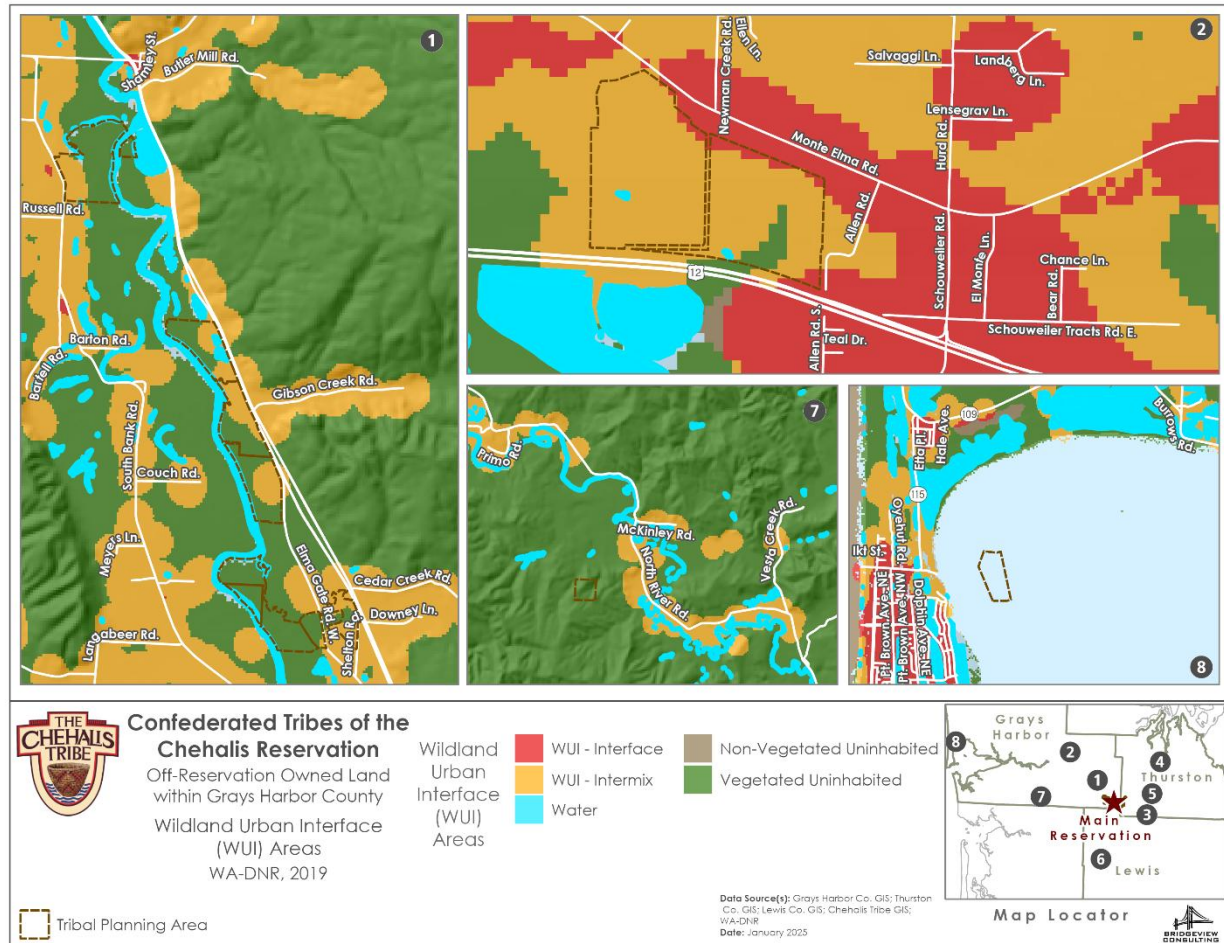


Figure 2 Off-Reservation WUI Boundaries

2.2 Identifying Wildfire Risk

Risk to communities is generally determined by the number, size, and types of wildfires that have historically affected an area; topography; fuel and weather; suppression capability of local and regional resources; where and what types of structures are in the WUI; and what types of pre-fire mitigation activities have been completed. Identifying areas most at risk to fire or predicting the course a fire will take requires precise science. The following data sets are most useful in assessing risk in the area:

- **Topography (slope and aspect) and Vegetation (fire fuels)**—These are two of the most important factors driving wildfire behavior.
- **Weather**—Regional and microclimate variations can strongly influence wildfire behavior. Because of unique geographic features, weather can vary from one neighborhood to another, leading to very different wildfire behavior.

- **Critical Facilities/Asset Location**—A spatial inventory of assets—including homes, roads, fire stations, and natural resources that need protection—in relation to wildfire hazard helps prioritize protection and mitigation efforts.

2.3 Wildfire Behavior

The wildfire triangle (see Figure 3; DeSisto et al., 2009) is a simple graphic used in wildland firefighter training courses to illustrate how the environment affects fire behavior. Each point of the triangle represents one of three main factors that drive wildfire behavior: weather, vegetation type (which firefighters refer to as “fuels”), and topography. The sides represent the interplay between the factors. For example, drier and warmer weather combined with dense fuel loads (e.g., logging slash) and steeper slopes will cause more hazardous fire behavior than light fuels (e.g., short grass fields) on flat ground.

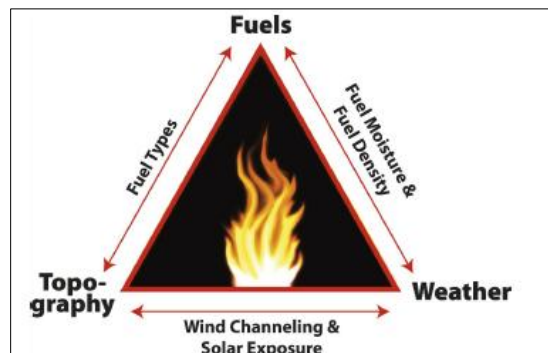


Figure 3 Wildfire Behavior Triangle

The following are key factors affecting wildfire behavior:

- **Fuel**—Lighter fuels such as grasses, leaves and needles quickly expel moisture and burn rapidly, while heavier fuels such as tree branches, logs and trunks take longer to warm and ignite. Snags and hazard trees—those that are diseased, dying, or dead—are larger but less prolific west of the Cascades than east of the Cascades.
- **Weather**— Relevant weather conditions include temperature, relative humidity, wind speed and direction, cloud cover, precipitation amount and duration, and the stability of the atmosphere. Of particular importance for wildfire activity are wind and thunderstorms:
 - Strong, dry winds produce extreme fire conditions. Such winds generally reach peak velocities during the night and early morning hours. East wind events can persist up to 48 hours, with wind speed reaching 60 miles per hour.

- The thunderstorm season typically begins in June with wet storms and turns dry with little or no precipitation reaching the ground as the season progresses into July and August.
- **Topography**—Topography includes slope, elevation, and aspect. The topography of a region influences the amount and moisture of fuel; the impact of weather conditions such as temperature and wind; potential barriers to fire spread, such as highways and lakes; and elevation and slope of landforms (fire spreads more easily uphill than downhill).
- **Time of Day**—A fire's peak burning period generally is between 1 p.m. and 6 p.m.
- **Forest Practices**—In densely forested areas, stands of mixed conifer, hardwood and softwood stands that have experienced thinning or clear-cut provide an opportunity for rapidly spreading, high-intensity fires that are sustained until a break in fuel is encountered.

Fires can be categorized by their fuel types as follows:

- **Smoldering**—Involves the slow combustion of surface fuels without generating flame, spreading slowly and steadily. Smoldering fires can linger for days or weeks after flaring has ceased, resulting in potential large quantities of fuel consumed. They heat the duff and mineral layers, affecting the roots, seeds, and plant stems in the ground. These are most common in peat bogs but are not exclusive to that vegetation.
- **Crawling**—Surface fires that consume low-lying grass, forest litter and debris.
- **Ladder**—Fires that consume material between low-level vegetation or forest floor debris and tree canopies, such as small trees, low branches, vines, and invasive plants.
- **Crown**—Fires that consume low-level surface fuels, transition to ladder fuels, and also consume suspended materials at the canopy level. These fires can spread rapidly through the top of a forest canopy, burning entire trees, and can be extremely dangerous (sometimes referred to as a "Firestorm").

Wildfires may spread by jumping or spotting, as burning materials are carried by wind or firestorm conditions. Burning materials can also jump over roadways, rivers, or even firebreaks and start distant fires. Updraft caused by large wildfire events draw air from surrounding area, and these self-generated winds can also lead to the phenomenon known as a firestorm.

Forestlands in the planning area are susceptible to disturbances such as those caused by logging slash accumulation, forest debris accumulations due to weather damage, and periods of drought

and high temperature, which creates additional fuels. Forest debris from western red cedar, western hemlock, and Sitka spruce can be especially problematic and at risk to wildfires when slash is accumulated on the forest floor, because such debris resists deterioration. When ignited, these fuels can be explosive and serve as ladder fuels carrying fire from the surface to the canopy.

2.4 Wildfire Impact

The potential for significant loss of life or injuries and damage to property exists with all wildfires. Loss caused by a wildfire can include the destruction of homes, businesses, critical facilities and infrastructure, timber, wildlife habitat, scenic vistas, and watersheds, among others.

Long-term effects include smaller timber harvests, reduced access to affected recreational areas, invasive species, and destruction of cultural and economic resources and community infrastructure, among others. Vulnerability to flooding also increases due to the destruction of watersheds, which can then change the landscape of the community.

Secondary Hazards

Wildfires can generate a range of secondary effects, which in some cases may cause more widespread and prolonged damage than the fire itself. Fires can cause direct economic losses in the reduction of harvestable timber and indirect economic losses in reduced tourism. Wildfires cause the contamination of reservoirs, destroy transmission lines, and contribute to flooding. They strip slopes of vegetation, exposing them to greater amounts of runoff. This in turn can weaken soil and cause failures on slopes. Major landslides can occur several years after a wildfire. Most wildfires burn hot and for long durations that can bake soil, especially those high in clay content, thus increasing the imperviousness of the ground. This increases the runoff generated by storm events, thus increasing the chance of flooding.

3. Hazard Profile

3.1 Extent and Location

The Washington State HMP does not identify Grays Harbor, Thurston or Lewis Counties County as being at significant or high risk (an identified “hot spot”) to wildfire danger. This is not to say that wildfires cannot occur, as they can occur in any area of the state; however, based on historic records for the last 50 years, impact has been more limited in nature (see 2023 State HMP, Figure 31, p.76).⁵

⁵ Washington State Enhanced Hazard Mitigation Plan (2023). Accessed multiple times. Available online at: [2023_WA_SEHMP_final_20231004.pdf](#)

Significant wildfire events over the course of the last several years have diminished in the actual number of fires statewide since Washington experienced one of its worst fire seasons ever in 2020; however, those fires that have occurred showed increases in acres burned, and the personnel and equipment needed to manage the events. This, in large part, is due to the availability of fuel.

Given the Tribal Planning Area's rural land use complexity, densely wooded areas in some portions of the Tribal Planning Area, agricultural lands with fast-burning grasses, and its proximity to the various large park systems (both federal and state), the planning team did feel that the entire region is susceptible to impact from wildfire, either as a direct result, or as a secondary result from health or economic impact.

The Tribal Planning Area is a more sparsely populated planning region. Much of the area also has a lower median household income, with higher rates of poverty when compared to the other areas of the state. Studies have shown a correlation between lower and higher socioeconomic status, and the impact of wildfires. Historically, rural areas where income and employment status may be lower than state average, or where land use associated with undeveloped or minimally developed areas tend to be associated with larger fires.

Figure 4 and Figure 5 identify the wildfire hazard potential (WHP) based on USFS *Wildfire Risk to Communities* data. The data illustrates the five classes of wildfire hazard as very low, low, moderate, high, and very high. Areas mapped with higher WHP values represent fuels with a higher probability of experiencing torching, crowning, and other forms of extreme fire behavior under conducive weather conditions. This data also highlights places where vegetation treatment resources may be best utilized. Review of the data identifies the Tribal Planning Area at low-to-moderate risk levels on the CTRC Reservation. Areas within Thurston and Lewis Counties in proximity to tribal lands (Figure 5) identify very low, low, and moderate risk levels. Figure 6 and Figure 7 illustrate those areas in conjunction with CTRC critical facilities. Again, while the levels may appear to be low, this does not mean that fires cannot occur, but rather based on historic events, vegetation, etc., the risk factor is lower than in other areas. This data is further defined by the USFS, available for review at [Wildfire Hazard Potential | US Forest Service Research and Development](#).

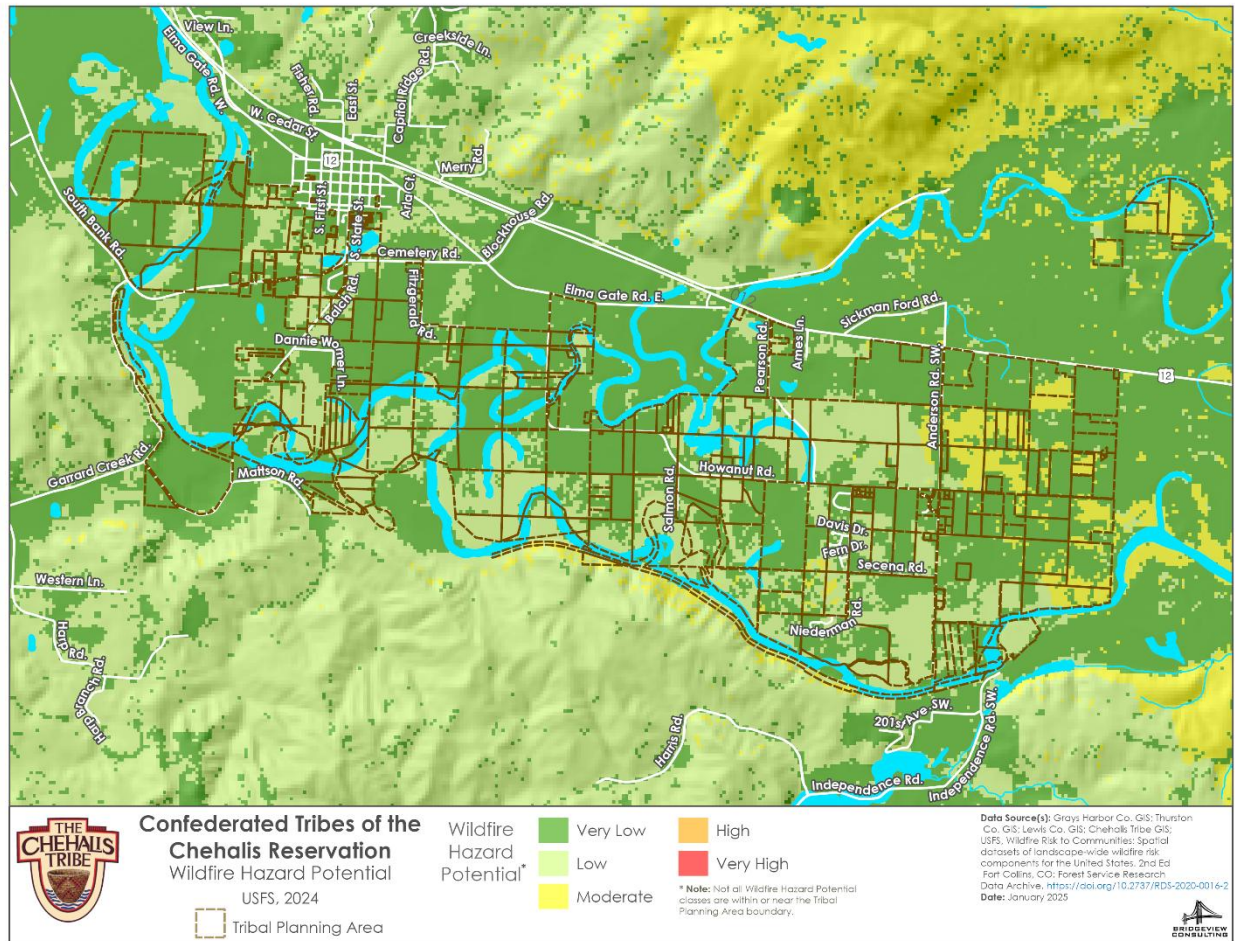


Figure 4 CTR Reservation Wildfire Hazard Potential (USFS)

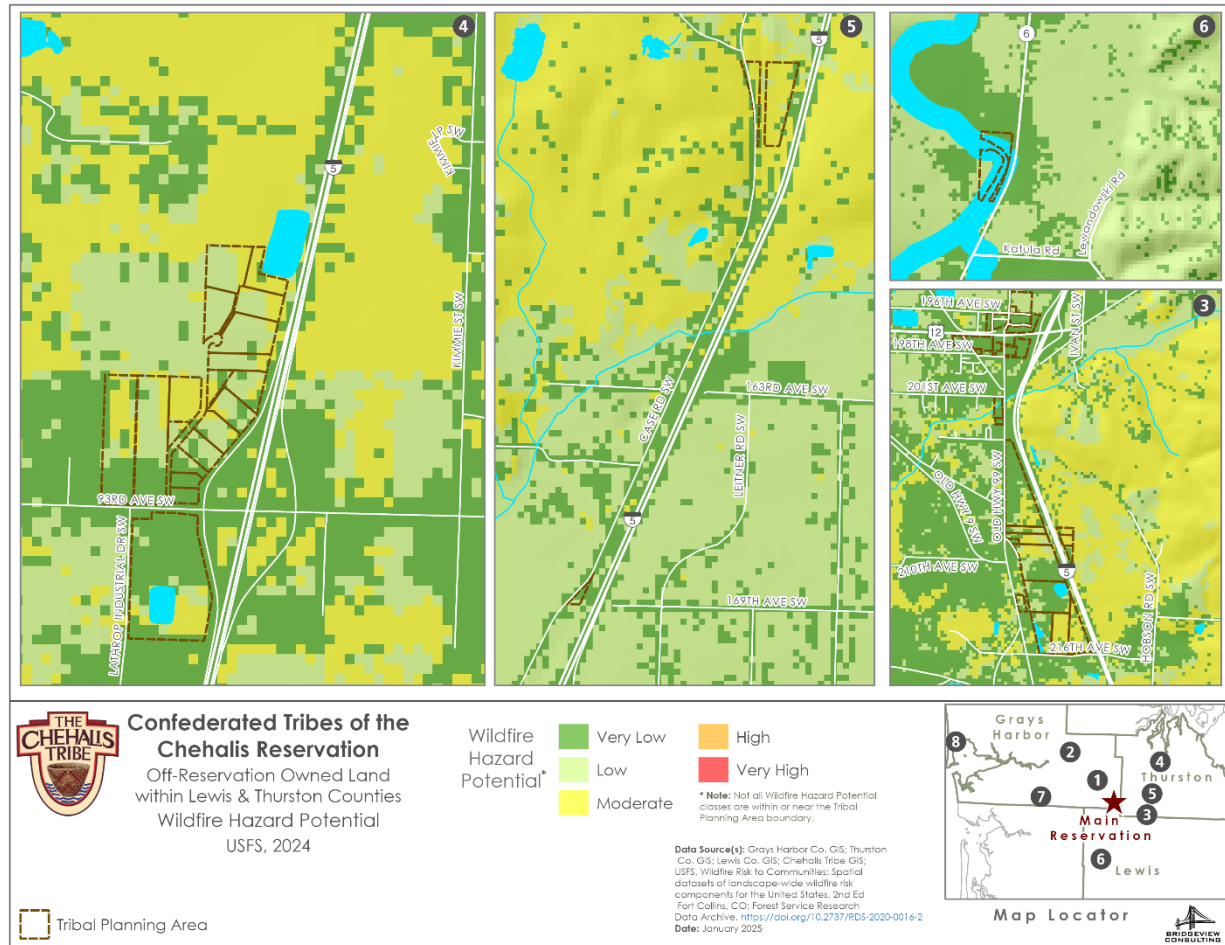


Figure 5 CTCR Off-Reservation Wildfire Hazard Potential (USFS)

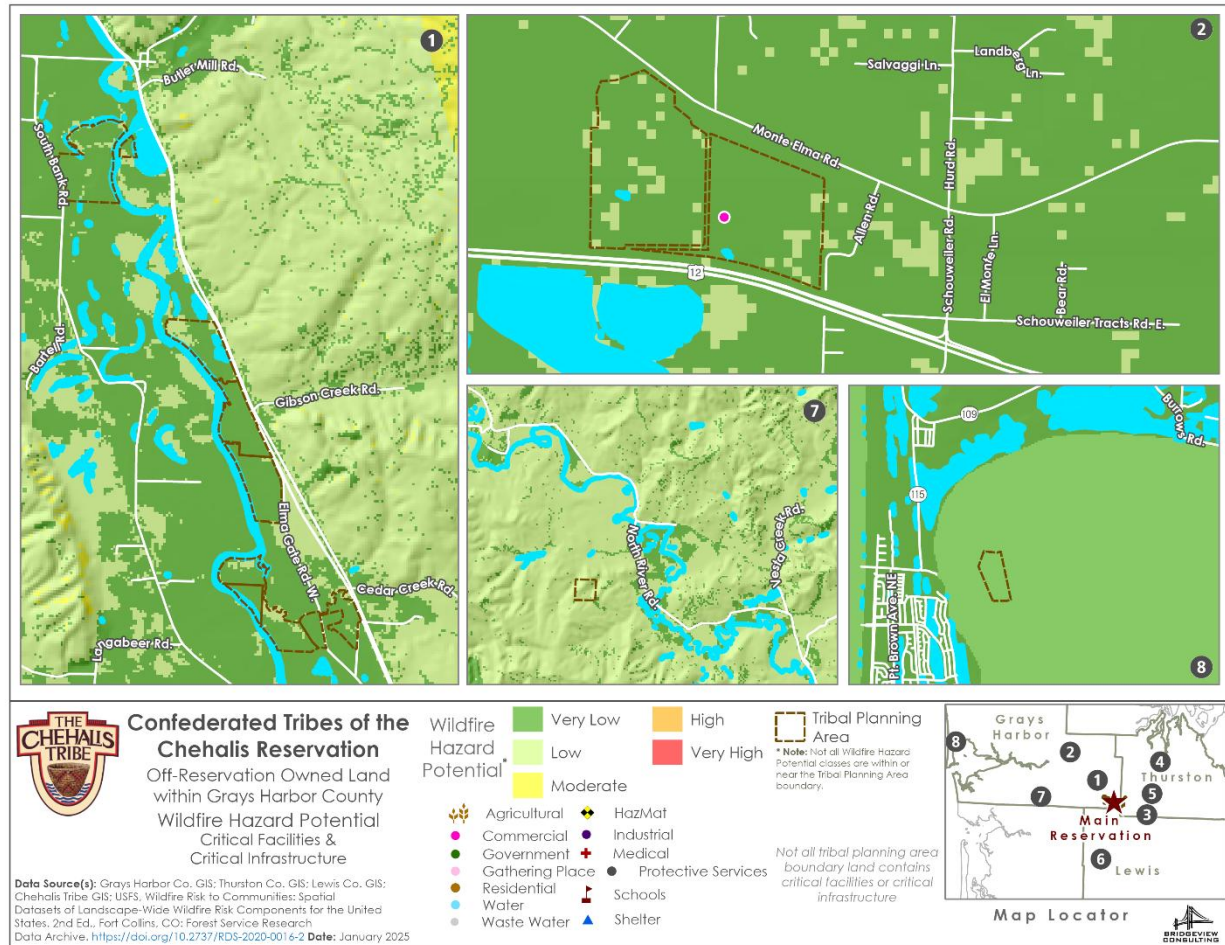


Figure 6 CTCT Critical Facilities at Risk within Wildfire Hazard Potential (Reservation Boundary)

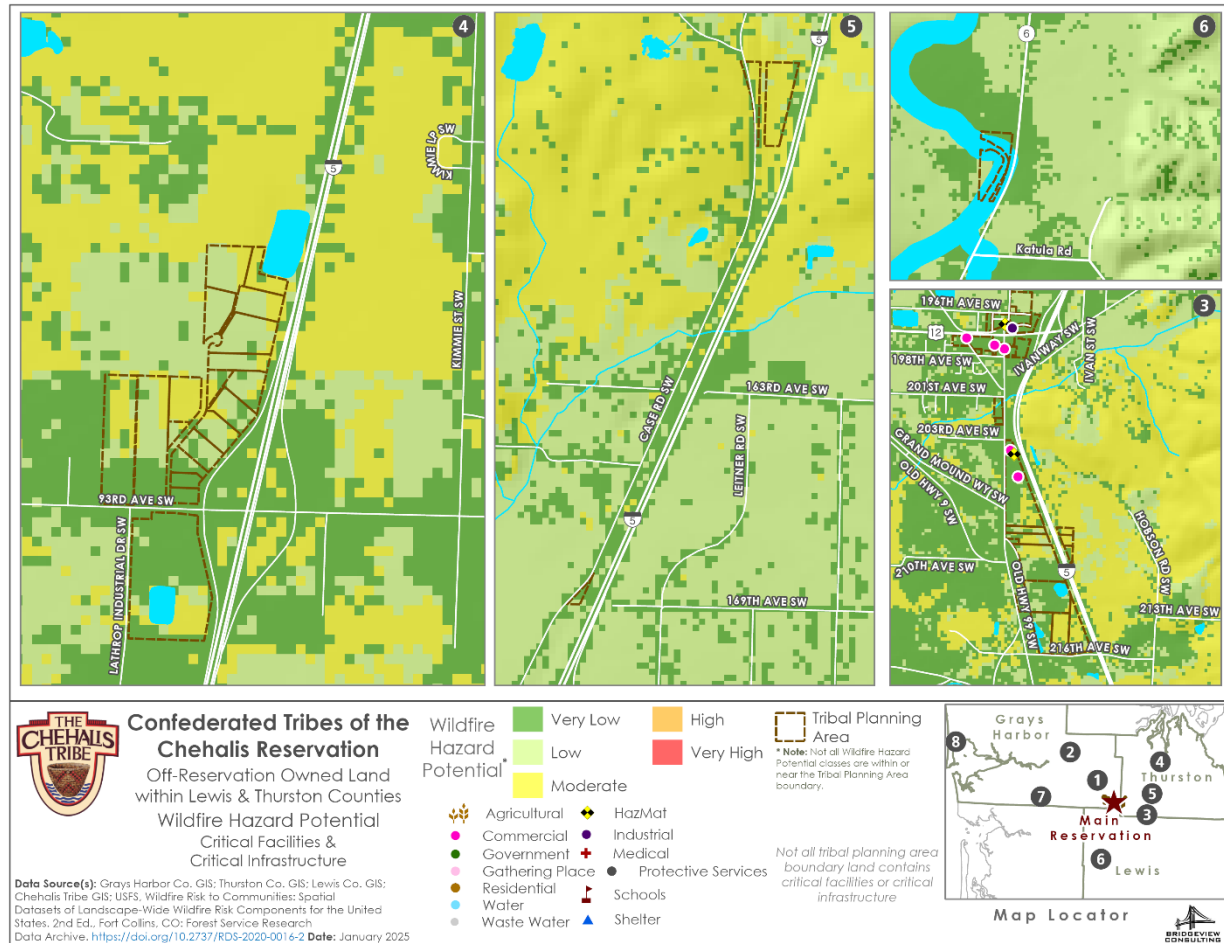


Figure 7 CTR Critical Facilities at Risk within Wildfire Hazard Potential (Off-Reservation)

3.2 Previous Occurrences

Wildfires have been a common occurrence throughout Washington for thousands of years. Evidence from tree rings or fire-scarred trees indicates cycles of prehistoric fires burned in many locations in both Eastern and Western Washington. Natural fire occurrences are directly related, but not proportional, to lightning incidence levels. It is rare for a summer to pass without at least one period of lightning activity. Lightning incidence is greatest during July and August, though storms capable of igniting fires have occurred from early spring to mid-October. Lightning storms generally track in a southwest to northeast direction.

Within Washington, lightning storms are typically followed by light to moderate amounts of precipitation. The rainfall may extinguish the fires, while high fuel moisture inhibits spread. However, prolonged periods of warm, dry weather, especially in combination with east winds, often reveal numerous latent “sleepers.” While most lightning fires are less than a quarter acre in size, occasional large fires during dry periods account for most of the burned acreage. Wildfires

can also occur at all times of the year, sparked by lightning. As of this update, Grays Harbor County experienced lightning (and water-spout) events occurring in late-November.

The CTCR have never received a disaster declaration for a wildfire incident. Planning Team Members do not remember there ever being an incident which required evacuation orders to be issued as a result of a wildfire occurring in the Tribal Planning Area. All three surrounding counties have previously issued burn bans, which the Tribe has also issued. The Tribe does have regulatory authority in place to issue and enforce burn bans.

The following information gathered from local hazard mitigation plans (as well as other data cited) helps identify previous incidents occurring within the Tribal Planning Area, which helps to identify the potential risk associated therewith.

Since 2020, Thurston County has received one Fire Mobilization Declaration due to the Bordeaux Road Fire, which destroyed two homes and two out buildings, and burned 268 acres in the Littlerock area before it was extinguished. While the fire did not directly impact the Reservation via acres burned, it did have significant impact on them with respect to smoke, and at times, ingress and egress to areas of the Reservation due to road closures. Tribal members were also concerned that the fire could move south and cross over the Black River, causing damage and potential environmental impact. Review of Thurston County's HMP (2024) identifies one additional fire of significance occurring in 2017. It further indicates the majority of the Reservation (or tribal lands falling within Thurston County) fall within the Wildland Urban Intermix Zone, with limited areas falling within the Interface Zone. The majority of the County wherein the Tribal Planning Area is situated falls within the very-low or low wildfire hazard classifications (Thurston County HMP, 2024, Map 4.9.4, p. 4.9-20).

There have been no declared fire events in Lewis or Grays Harbor Counties. Review of Lewis County's 2024 HMP (approval pending), does indicate two large fires occurring in recent years – the Goat Rocks Fire, which burned 6,196 acres in 2022, and the Cowlitz Complex fire, which burned 721 acres in 2023. Further review indicates that large portions of the eastern section of the county are at higher risk, going from low/medium threat levels in the western portions of the county, to high/very high threat levels in the eastern portions of Lewis County. Lands currently owned by the CTCR within Lewis County are in the western portions of the County, and presumably at a lower risk.

Review of Grays Harbor County's 2024 HMP indicates an increase in wildfire occurrences during the period 2018-2023, with 300 wildfire events of various types and severity occurring. When averaged, this equates to ~60 fires per year occurring. The majority of the county (60 percent) falls within the Wildland Urban Intermix Zone, with some areas in closer proximity to the municipal hubs falling within the Interface Zone (38 percent). The interface zones are at higher

risk to direct ignition from fires occurring as a result of proximity and density customarily found within the interface areas (Grays Harbor HMP, Figure 13-7, p. 13-16). Grays Harbor County also has a large land mass associated with federal parks and ocean beaches, with both drawing a significantly higher rate of tourists (millions) than the other counties in which the CTCR own land/structures, further increasing the wildfire danger. While FEMA's National Risk Index identifies Grays Harbor County's Wildfire risk as very low, review of the County HMP indicates that its planning team did not agree with that finding, and feels it is at a higher risk level, particularly depending on the location of the fire given that portions of the county are much wetter than the inland areas, which have experienced drought-like conditions. The inland areas are those associated with the CTCR.

Review of Lewis County's HMP, which incorporates the Wildfirerisk.org national dataset found that almost the entire population (94.8%) reside in areas with a very low fire likelihood (0% to 0.01% annual chance).

On a state and national scale, review of various national and state level datasets indicates no large fires occurring in the Tribal Planning Area; however, large fires in these instances are identified as burning 1,000 acres or more.

According to the National Interagency Coordination Center (NICC) (2024), during 2023, nationally there were 56,580 wildfires that burned 2,693,9100 acres. The total number of fires and acres burned were both below the five- and ten-year averages (see Figure 8).⁶ The number of acres burned were also well above both the five- and ten-year national averages.

Review of the NICC data for the geographic area of the Northwestern states, which includes Washington and Oregon, wildfires in 2023 represented seven percent of the national total (see Figure 9).⁷

Review of data at a national level also provides us with a snapshot of potential resource needs. As wildfires know no boundary, resource requests are frequently made nationally for local assets and response teams. A few examples follow.

- In 2023, Canada experienced an unprecedented wildfire season which burned over 45 million acres. The United States was one of 12 countries that mobilized wildland fire personnel to Canada to provide assistance.

⁶ [annual_report_2023_0.pdf \(nifc.gov\)](#)

⁷ https://www.nifc.gov/fireInfo/fireInfo_stats_lightng.html

- In August of 2023, the Town of Lahaina and Upcountry Fires on Maui, Hawaii also experienced a wind-drive fire which killed at least 100 people and burned more than 2,000 structures. This fire represents the nation's deadliest wildfire in over 100 years.
- As of this 2025 update, wind-driven wildfires raging throughout California caused the death of several people, while also destroying entire communities. Firefighting response not only included Washington resources, but resources from other countries as well.

While it is necessary to provide resources to other entities being impacted, in sending those resources, it depletes assets and resources within the local communities. While the State of Washington does have compacts in place for local agencies to assist one-another, response times could be increased – in some cases significantly, if resources are depleted.

When viewed nationally, human-caused fires within the Northwestern region accounted for only seven percent of the national total for 2023, but those human-caused fires accounted for 15 percent of the national total of acres burned. Table 1 illustrates the numbers of human- and lightning-caused fires, as well as the acres burned for 2023 (most recent full-year reporting).

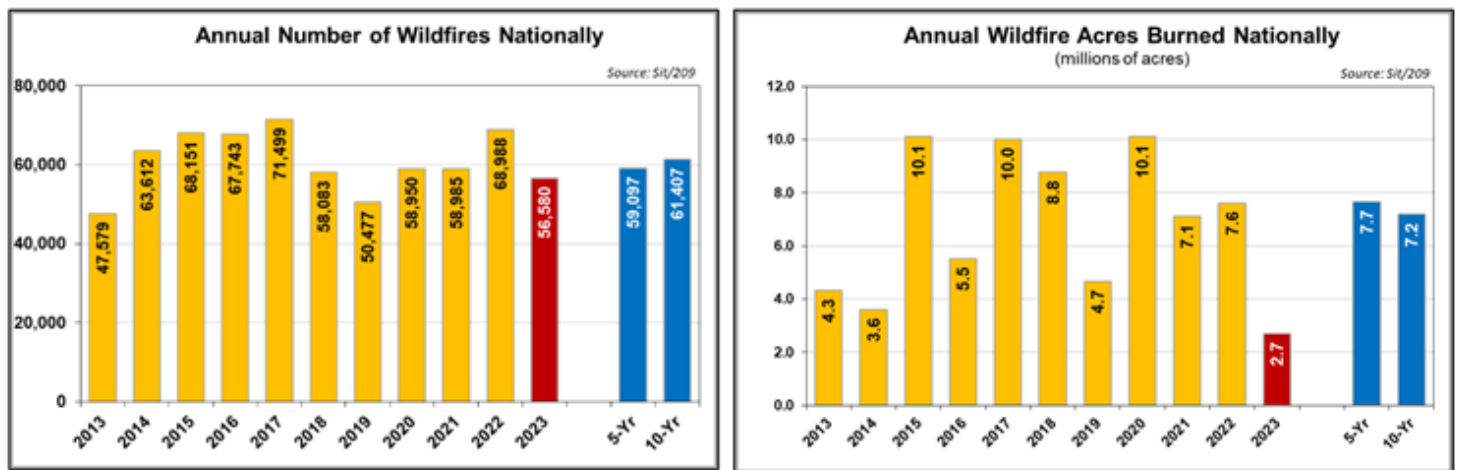


Figure 8 Annual Number of Wildfires and Acres Burned Nationally (2023)

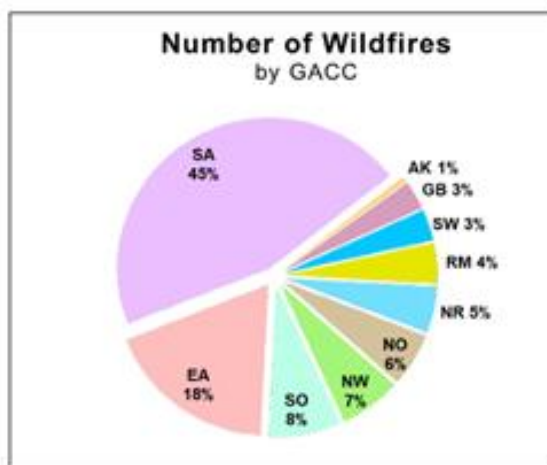


Figure 9 Percent of National Wildfires by Geographic Area - 2023

Agency	Fires – Human	Acres – Human	Fires – Lightning	Acres- Lightning	Fires – Total	Acres - Total
BIA	189	2,198	25	824	214	3,022
BLM	51	20,563	8	471	59	21,034
C&L	9	1,060	1	0	10	1,060
DNR	983	90,374	123	1,505	1,106	91,878
FS	147	704	116	15,738	263	16,442
FWS	24	5,246	1	14	25	5,260
NPS	5	1	21	7,467	26	7,468
ST	3	4,626	1	526	4	5,152
TOTALS	1,411	124,772	286	26,545	1,707	151,316

NOAA data illustrates the months of July, August, and September as the months most often impacted by wildfire within the Tribal Planning Area, although they can occur at any time if the conditions are right.⁸ With the increased temperatures associated with climate change, which also increases the drought potential, it is anticipated that the wildfire season will expand.

⁸ NOAA National Centers for Environmental Information. Storm Events Database. Accessed 20 Feb. 2025. Available at: [Storm Events Database - Search Page | National Centers for Environmental Information](#)

3.3 Severity

Potential losses from wildfire include human life, structures and other improvements, economic losses, and impact or loss to natural and cultural resources. The severity of the fire is dependent on many factors, including fuels, moisture content, previous treatments or other mitigation efforts which have occurred, topography of the environment, and resources available to fight the fires, among other factors.

Smoke and air pollution from wildfires can be a severe health hazard, especially for sensitive populations such as children, the elderly and those with respiratory and cardiovascular diseases, particularly if fine particulate matter, or particles smaller than 2.5 micrometers, are inhaled deeply into the lungs, which increases the severity of certain types of health concerns.

Between 2012 and 2022, there were four years when most of Washington’s population lived in areas where there was “unhealthy” or worse air quality for at least one day according to the Washington State Department of Ecology’s Air Quality Index.⁹ Often when a larger population is exposed, it is due to smoke from distant wildfires that covers Washington (and beyond) for multiple days. Depending on the meteorological conditions, smoke from more local wildfires can also impact large population centers. The particulate matter in the atmosphere (smoke, dust, or pollution) can also block sunlight by absorbing or by scattering light. During the 2023 wildfires occurring in Canada, much of the United States was impacted by the wildfire smoke, with temperatures falling below projections as the smoke blocked the sunlight. Approximately 80 million people nationwide (as far down as the Carolinas) were impacted by the smoke.

Wildfire may also threaten the health and safety of those fighting the fires. Wildfire can also lead to ancillary impacts such as landslides in steep ravine areas and flooding due to the impacts of silt in local watersheds. A large-scale wildfire would destroy the natural habitat for generations.

Extreme fires, when they occur, are characterized by more intense heat and preheating of surrounding fuels, stronger flame runs, potential tree crowning, increased likelihood of significant spot fires, and fire-induced weather (e.g., strong winds, lightning cells). Extreme fire behavior is significantly more difficult to combat and suppress and can drastically increase the threat to homes and communities.

Due to many years of fire suppression, logging, and other human activities, the forests and rangelands of the planning area have changed. Areas that historically experienced frequent, low-severity wildfires now burn with much greater intensity due to the build-up of understory brush and trees. At times, this equates to fires which are larger and more severe, killing the trees and

⁹ Washington State Department of Ecology – Air Quality Program Interactive Map. [Smoke Forecast \(wa.gov\)](https://www.wa.gov/air-quality/forecast)

vegetation at all levels. The combination of steep slopes, canyons, open rangeland, and fuel type have a history and potential for fast moving and fast spreading wildfires.

The planning area is also vulnerable to wind-driven fires, whose embers could easily ignite grasses, and fields, and cause spot fires in more populated areas, increasing the severity of the fire. While the Tribe has never issued evacuation orders as a result of a wildfire, with the continued impact of climate change and increased summertime temperatures, wildfire risk and the intensity of wildfires will continue to grow.

While large wildfires regularly occur within Eastern Washington, large fires within Western Washington have historically occurred less frequently, although that is seen to be changing as larger fires have occurred within Western Washington since completion of the 2020 plan. Due to firefighting efforts, many wildfires have been contained with limited impact on acreage burned or structure loss. According to Washington State Department of Natural Resources, the 2022 wildfire season was the “least destructive in a decade with just over 140,300 acres burned” (WA DNR, 2022).¹⁰

3.4 Frequency

The State’s HMP indicates a 70 percent annual probability for a wildfire declaration each year within Washington (WA HMP, p. 75). The demonstrated frequency of wildfires and their severity has increased significantly over the last 50 years, with large fires becoming more likely in both eastern Washington and western Washington.

As previously indicated, the CTCR has never been directly impacted by a wildfire; however, the surrounding communities have, with Grays Harbor County seeing a significant increase over the course of the last 10 years.

Fires historically burn on a regular cycle, recycling carbon and nutrients stored in the ecosystem, and strongly affecting species within the ecosystem.¹¹ As human development expands further into fire-prone landscapes, the influence of human activities will impact when and where

¹⁰ Washington State Department of Natural Resources. Available online at: [Late wildfire season underscores importance of forest management – Washington Forest Protection Association \(wfpa.org\)](https://www.wdfpa.org/late-wildfire-season-underscores-importance-of-forest-management-washington-forest-protection-association-wfpa-org/)

¹¹ The Wildfire Risk to Communities data integrates wildfire likelihood and wildfire intensity from simulation modeling. Together, wildfire likelihood and intensity represent hazard. To translate this into terms specific to the effect of fire on homes, Wildfire Risk to Communities uses a generalized concept of susceptibility for all homes. In other words, Wildfire Risk to Communities assumes all homes that encounter wildfire will be damaged, and the degree of damage is directly related to wildfire intensity. Wildfire Risk to Communities does not account for homes that may have been mitigated. For more information, see: [Wildfire Risk to Communities](#)

wildfires occur, increasing both risk and vulnerability to people, property, the economy, and the environment, including both natural and cultural resources.

The US Forest Service (USFS) and the US Department of Agriculture's (USDA) Wildfire Risk to Communities data illustrates the overall likelihood of the CTRC experiencing a wildfire is 19 percent greater when compared to all other reservations and their identified off reservation trust lands nationwide (see Figure 10), including those in the more populated areas.

When compared statewide, homes on the CTRC or reservation trust lands have, on average, greater risk than 31 percent of other tribal areas and counties in the state to experience a wildfire.¹² (NOTE: In calculating the Risk to Homes, USDA and USFS includes a 2.4 km or ~1.5-mile buffer around populated areas to incorporate the risk of embers.)

Review of the data also indicates that the CTRC is more likely to experience wildfire from a direct source (81 percent of buildings) versus an indirect source (19 percent of buildings). This means that homes may be ignited by adjacent flammable vegetation, as well as indirect sources, such as embers (see Figure 11 and Figure 12).¹³ These direct- and indirect-exposure zones are also areas where mitigation activities will be most effective at protecting homes and other buildings from wildfires.

Frequency can also be associated with drought patterns related to large-scale climate patterns in the Pacific and Atlantic oceans. The El Niño–Southern Oscillation varies on a 5- to 7-year cycle, the Pacific Decadal Oscillation varies on a 20- to 30-year cycle, and the Atlantic Multidecadal Oscillation varies on a 65- to 80-year cycle. As these large-scale ocean climate patterns vary in relation to each other, drought conditions in the U.S. shift from region to region. El Niño years bring drier conditions to the Pacific Northwest and, often, more fires. We have also seen that as human development has expanded into the more fire-prone landscapes, the influence of human activities has begun to shadow climate change in effecting when and where wildfires occur, demonstrating the need to address the issue at policy or programmatic levels to address the socioeconomic influences associated with human ignitions.

¹² USDA, USFS – Wildfire Risk to Communities. Accessed 15 Feb 2025. Available online at: [Wildfire likelihood in Chehalis Reservation and Off-Reservation Trust Land - Wildfire Risk to Communities](#)

¹³ [Wildfire Hazard Potential | US Forest Service Research and Development](#)

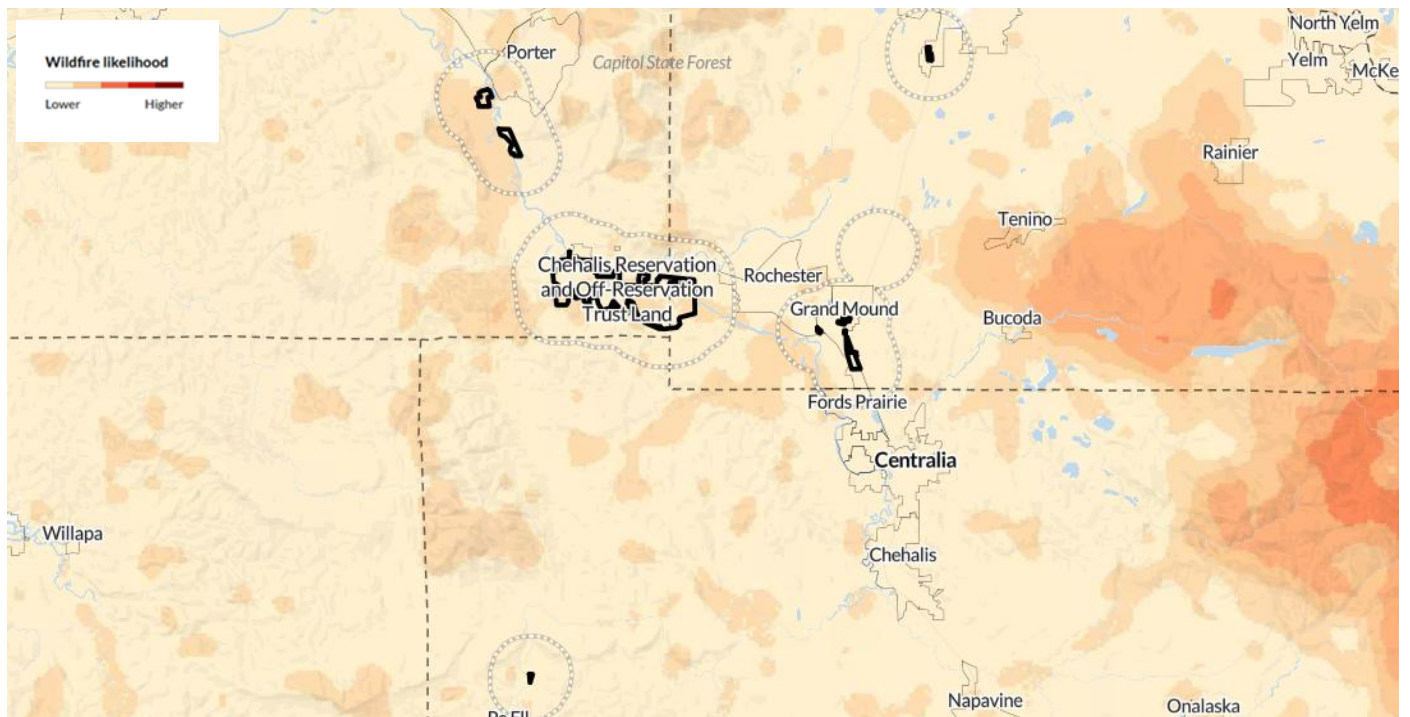


Figure 10 FEMA Wildfire Risk to Communities - Likelihood of Occurrence – All Lands

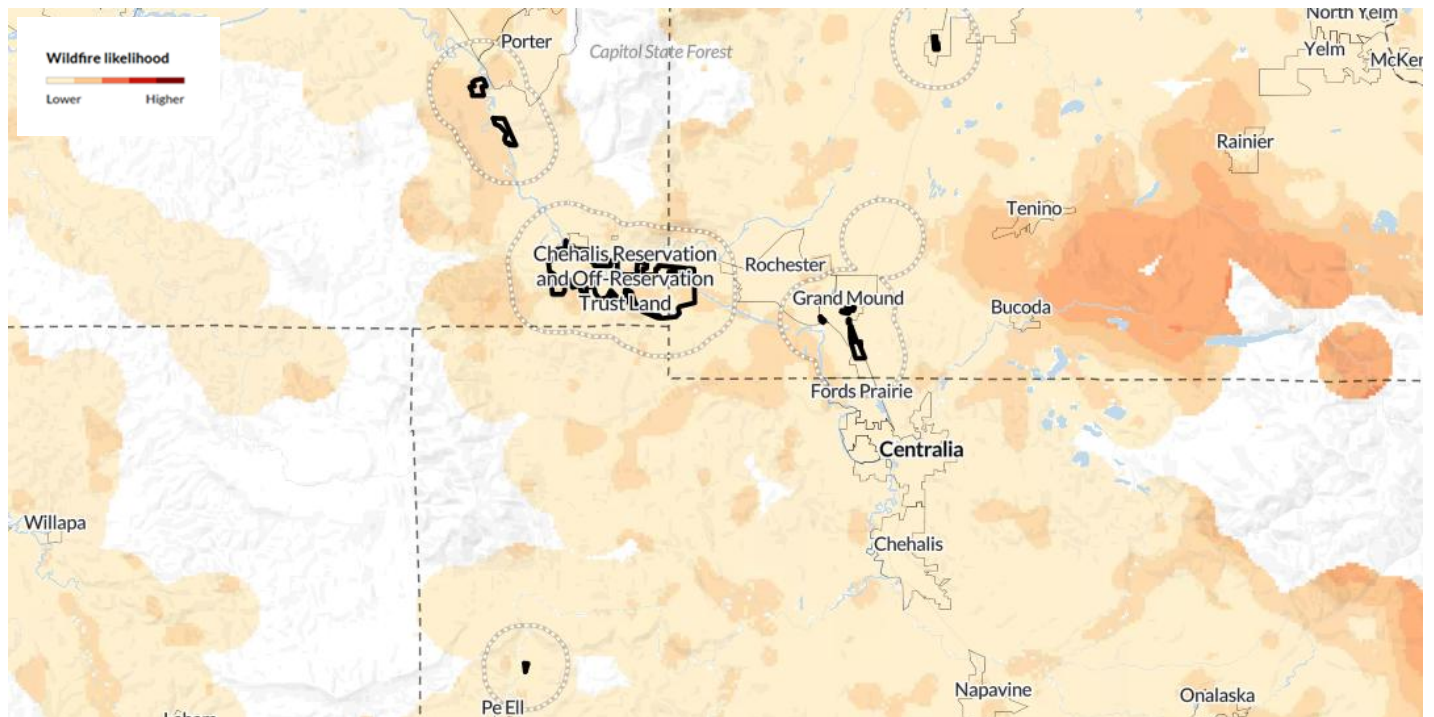


Figure 11 FEMA Wildfire at Risk Communities Likelihood of Occurrence - Populated Areas (2024)

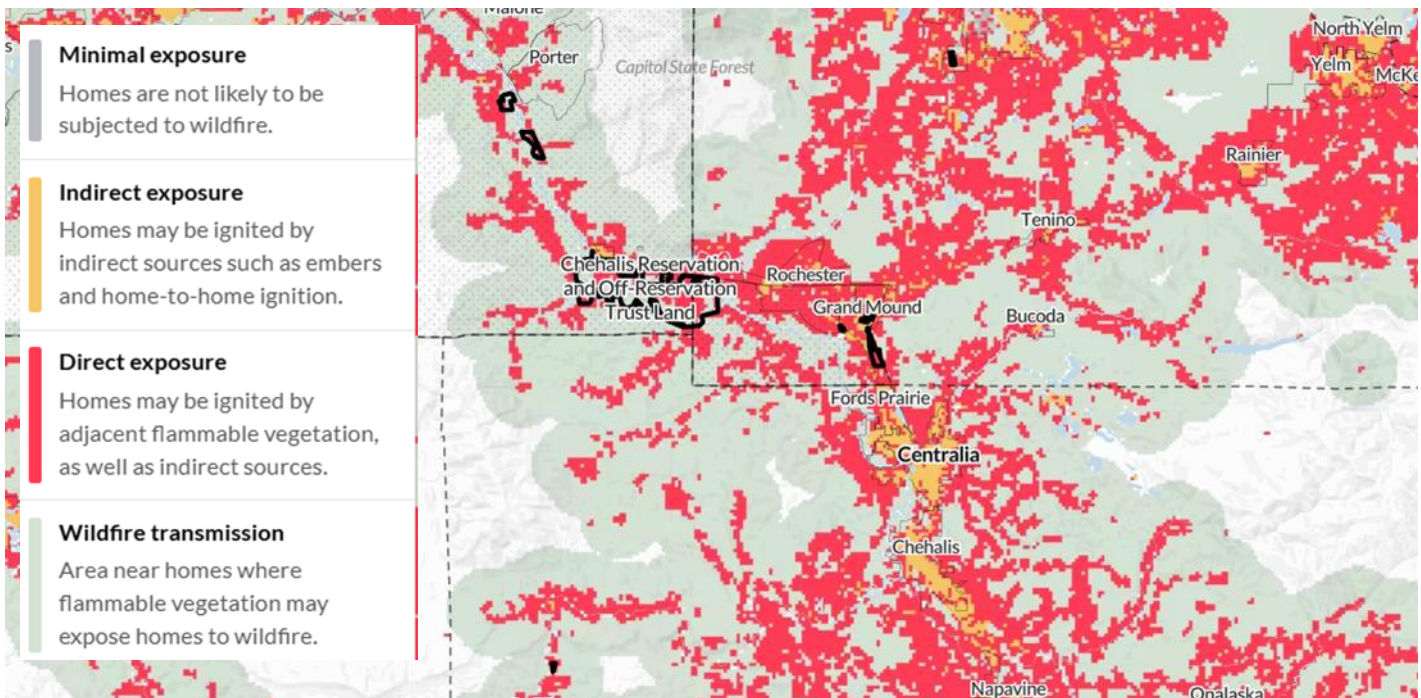


Figure 12 Wildfire Exposure Zones

LANDFIRE

Landscape Fire and Resource Management Planning Tools, (LANDFIRE) is a shared program between the wildland fire management programs of the U.S. Department of Agriculture Forest Service and U.S. Department of the Interior, providing geo-spatial data and information utilized to support wildfire planning, management, and operations. The LANDFIRE Project produces maps of simulated historical fire regimes and vegetation conditions (among others) using the LANDSUM landscape succession and disturbance dynamics model (see LANDFIRE at [Homepage](#) | [LandFire](#) for additional information).

Historic Fire Regimes

Many ecosystems are adapted to historical patterns of fire. These patterns, called “fire regimes,” include temporal attributes (e.g., frequency and seasonality), spatial attributes (e.g., size and spatial complexity), and magnitude attributes (e.g., intensity and severity), each of which have ranges of natural variability. A fire regime refers to the frequency and intensity of natural fires occurring in various ecosystem types. Alterations of historical fire regimes and vegetation dynamics have occurred in many landscapes in the U.S. through the combined influence of land management practices, fire exclusion, insect and disease outbreaks, climate change, and the invasion of non-native plant species. Anthropogenic influences on wildfire occurrence have been

witnessed through arson, incidental ignition from industry (e.g., logging, railroad, sporting activities), and other factors. Likewise, wildfire abatement practices have reduced the spread of wildfires after ignition, in theory reducing the risk to both the ecosystem and the urban populations living in or near forestlands.

LANDFIRE's Fire Regime Groups identified in Table 2 provides information on the Vegetation Condition Class, the Fire Return Interval Years – Historic Fire Regimes, and impact for those associated regimes.

Table 2 LandFIRE Historic Fire Regimes Data (2024)				
Class	Vegetation Condition Class*	Historic Fire Regimes** (Fire Return Interval Years***)	Impact	Vegetation Departure (Percent)
1	1-A	0-5	Very Low	0-16
2	1-B	6-15	Low	17-33
	1-C	16-35		
3	2-A	0-5	Moderate to Low	34-50
4	2-B	6-15	Moderate to High	51-66
	2-C	16-35		
5	3-A	36-100	High	67-83
6	3-B	101-200	Very High	84-100
	4-A	36-100		
	4-B	101-200		
	V-A	201-500		
	V-B	501 or more		
* Vegetation Condition Class (VCC) represents a categorization of the associated Vegetation Departure. It indicates the general level to which current vegetation is different from the estimated modeled vegetation based on past reference conditions. **Fire Regime Groups (FRG) characterize the presumed historical fire regimes within landscapes based on interactions between vegetation dynamics, fire spread, fire effects, and spatial context. ***Fire Return Interval (FRI) quantifies the average period between fires under the presumed historical fire regime.				

Figure 13, Figure 14, and Figure 15 identify those various Fire Regime Groups that exist in the Tribal Planning Area (not all regimes are applicable). Table 3 illustrates the number of acres falling

into the existing Fire Regime Groups. Review of the data indicates that the majority of the area falls into Regime Groups V-A (5-A) and V-B (5-B).

Table 3 CTCR Acres in Fire Regime Groups						
	Regime 1-B	Regime 3-A	Regime 5-A	Regime 5-B	Water	Total
Tribal Planning Area	26.89	143.57	1847.22	3496.53	384.98	5899.18

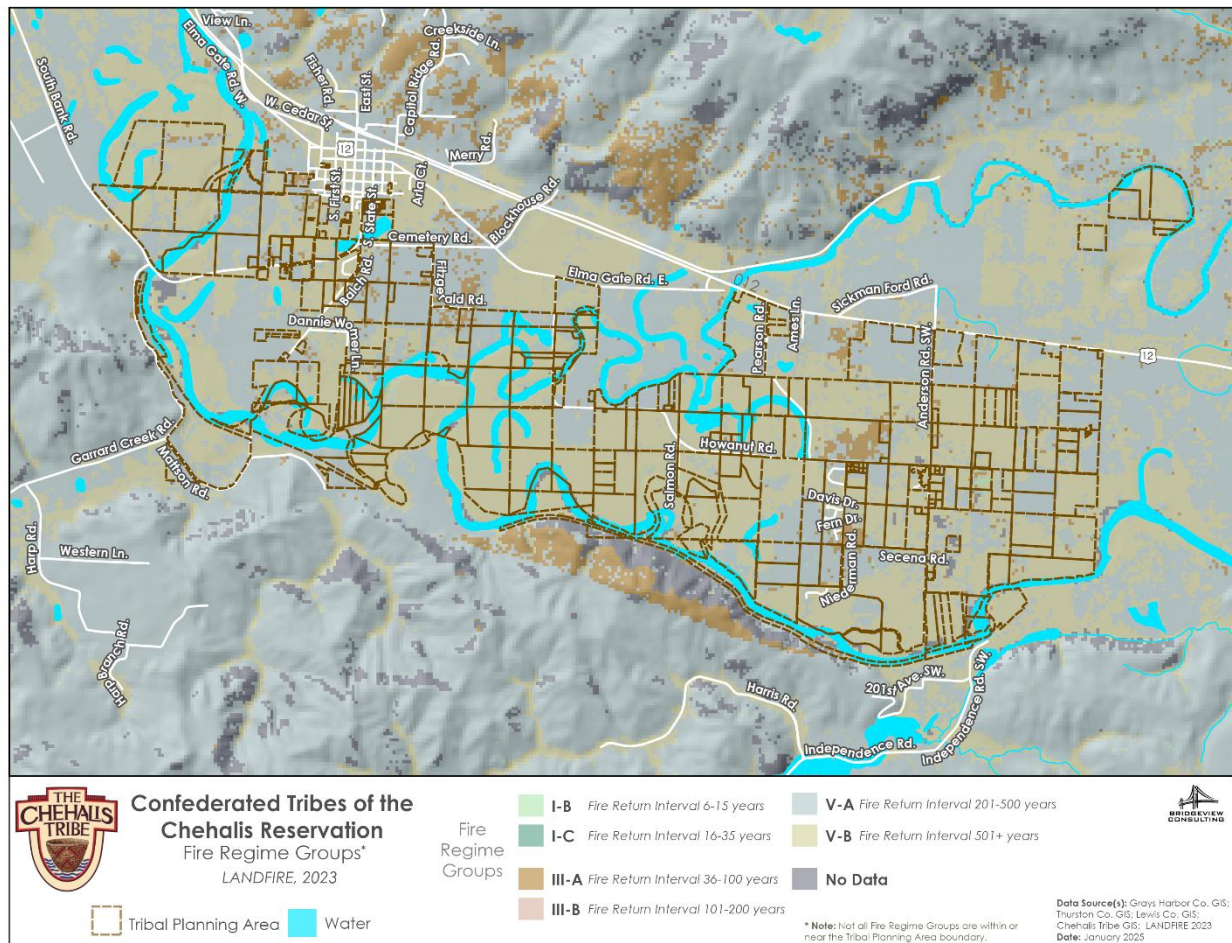


Figure 13 Fire Regime Groups - Chehalis Reservation

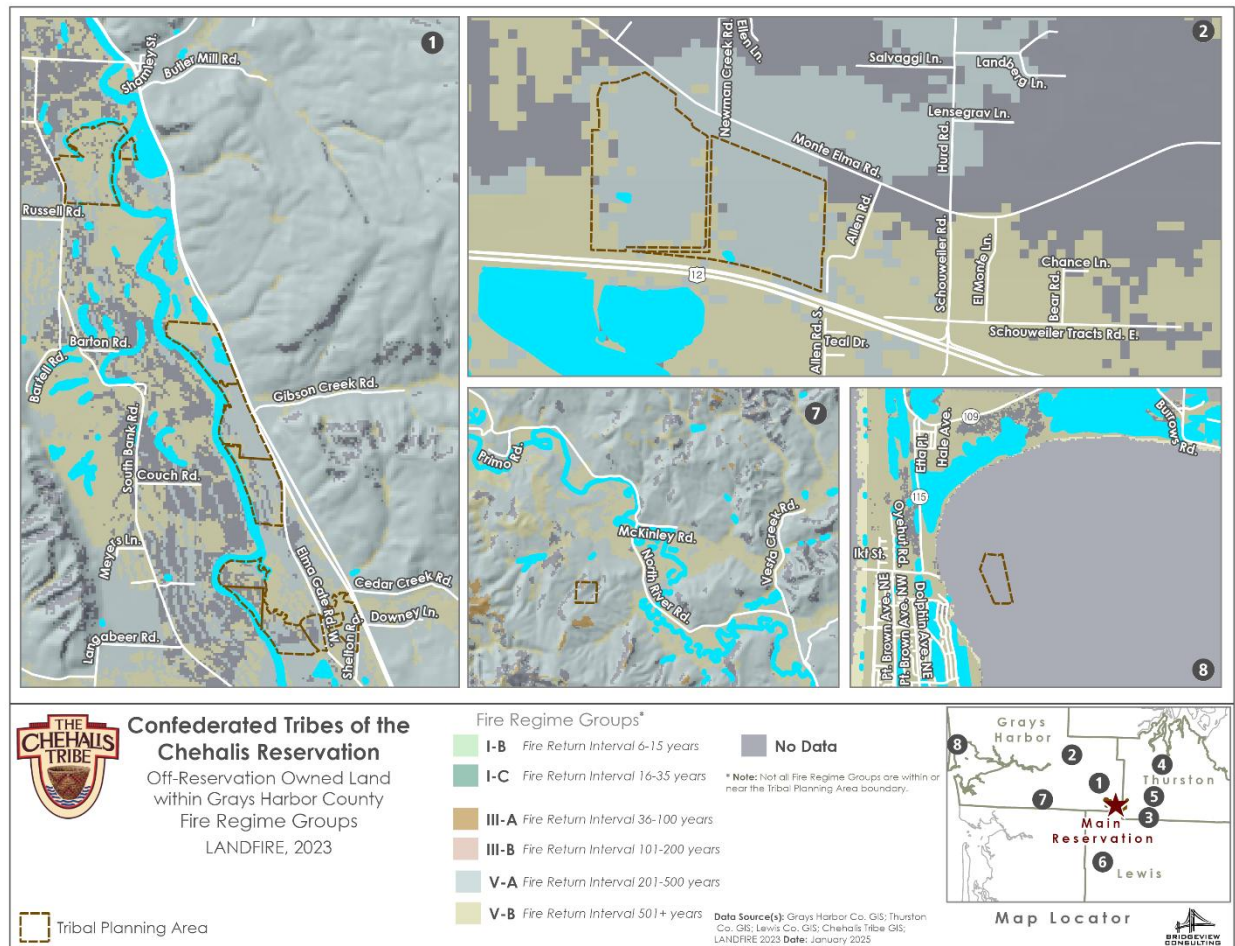


Figure 14 Fire Regime Groups Off-Reservation Lands Within Grays Harbor County

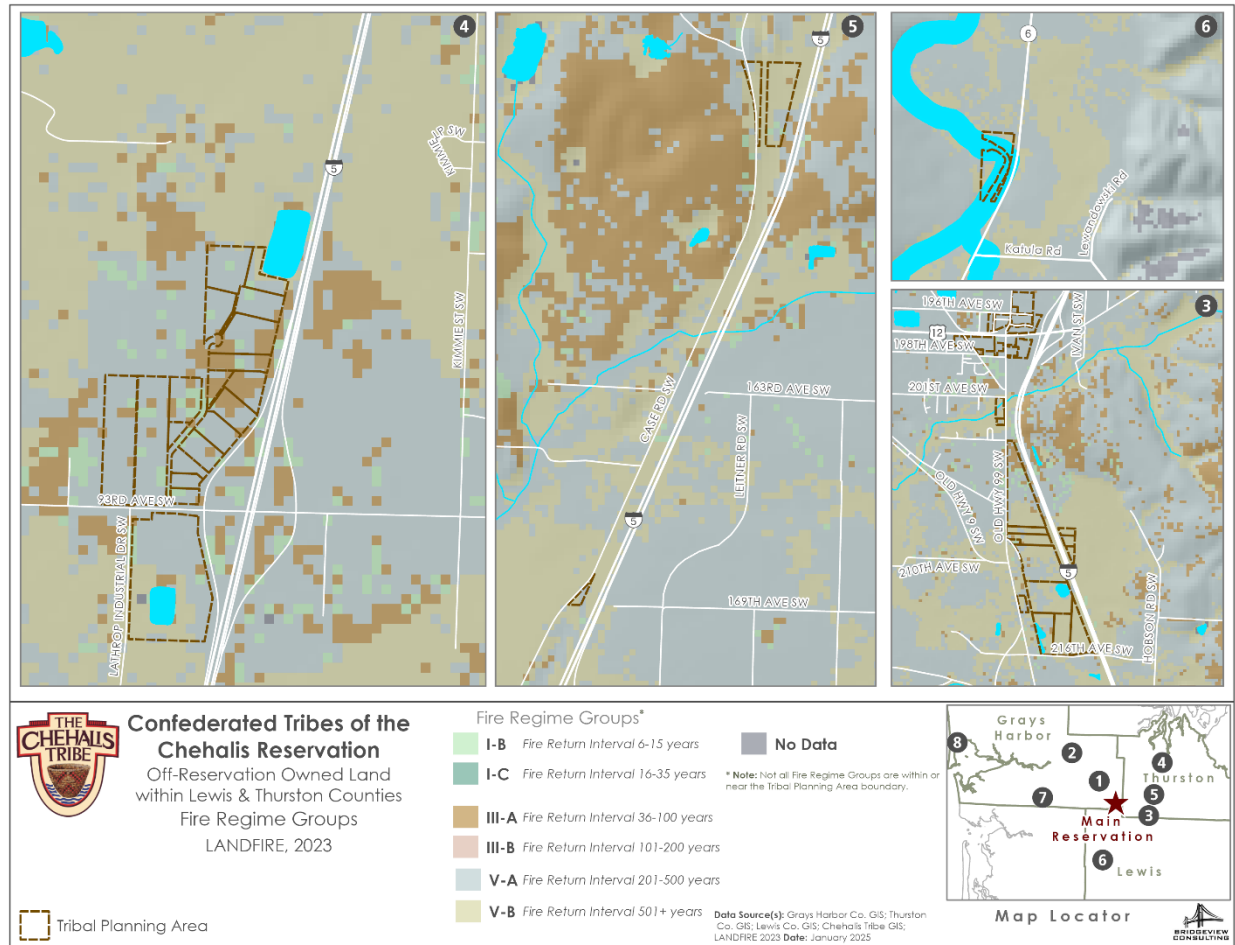


Figure 15 Fire Regime Groups Off-Reservation Lands Within Lewis and Thurston Counties

Mean Fire Return Interval

The simulated historical Mean Fire Return Interval (MFRI) data layer quantifies the average number of years between fires under the presumed historical fire regime. MFRI is intended to describe one component of historical fire regime characteristics. It is not a predictive model, and information presented should be used for reference only as the variables existing with respect to predictive wildfire planning continually change. Figure 16, Figure 17, and Figure 18 illustrate the projected MFRI for the Tribal Planning Area as illustrated by LANDFIRE.

As illustrated, the Mean Fire Return Interval for the area varies greatly, with much of the area in order of acres per yearly groupings in the 10-15, 80-90, 401-500 and 650-900 year ranges, respectively.

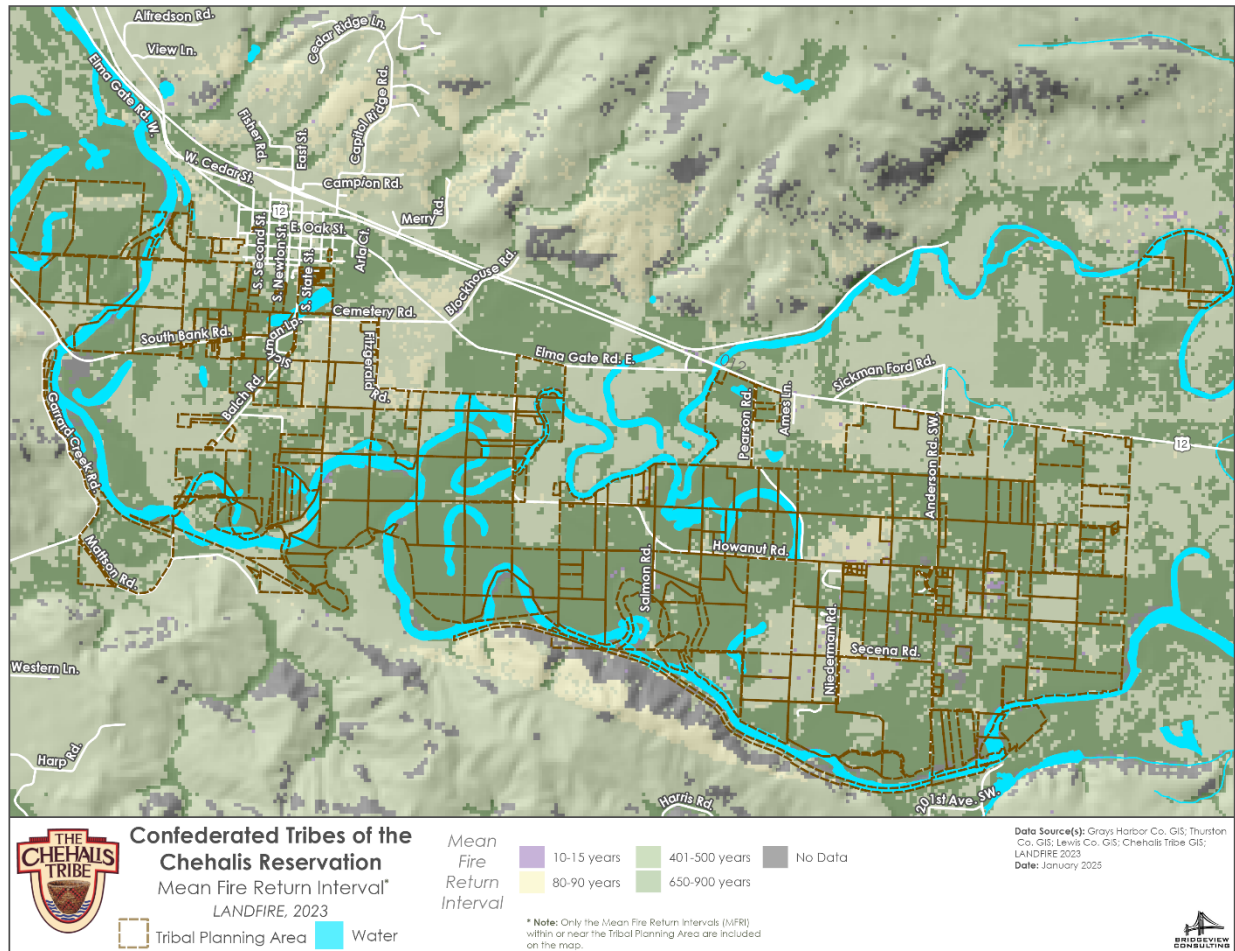


Figure 16 Mean Fire Return Interval - Chehalis Reservation

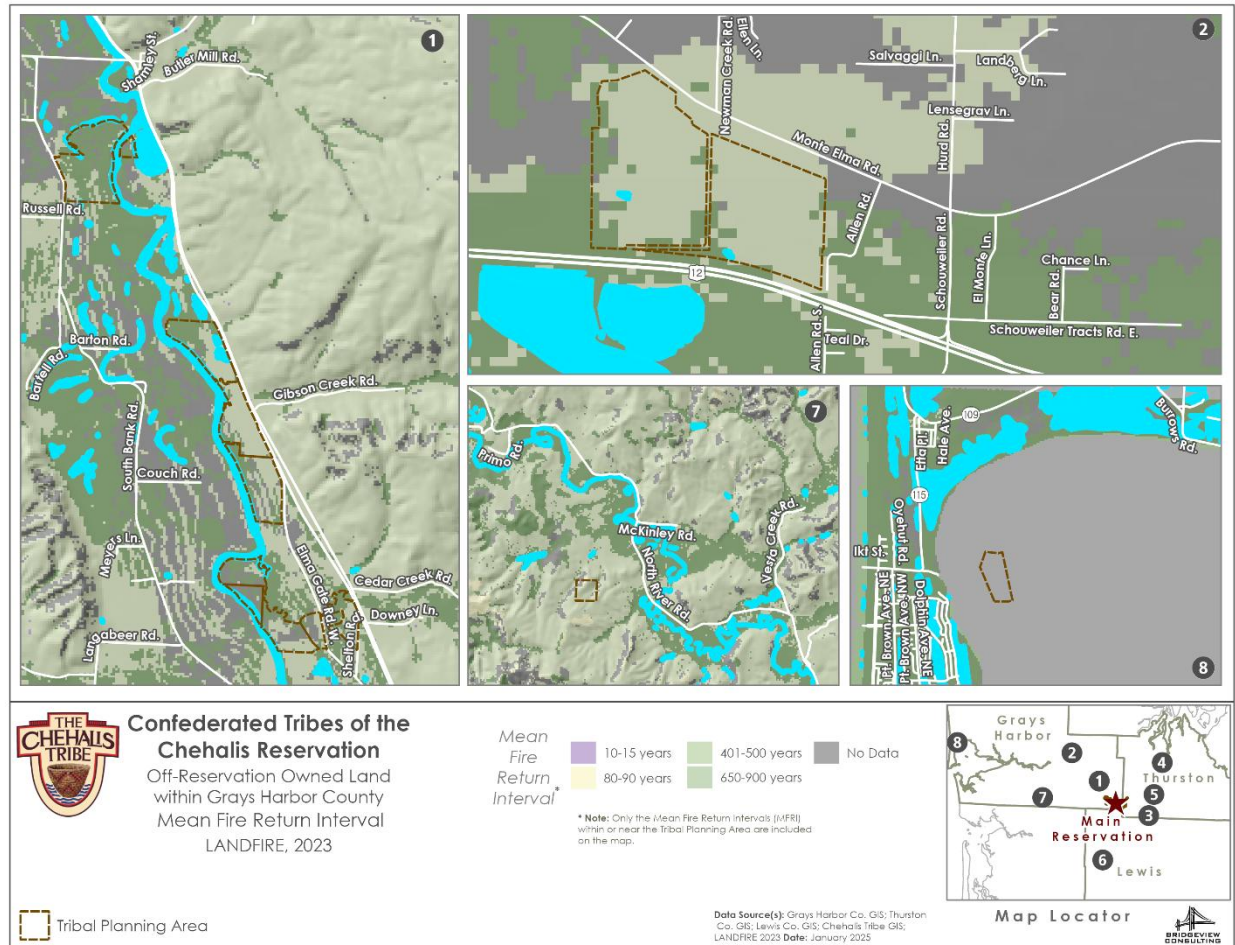


Figure 17 Mean Fire Return Intervals Off-Reservation Lands Within Grays Harbor County

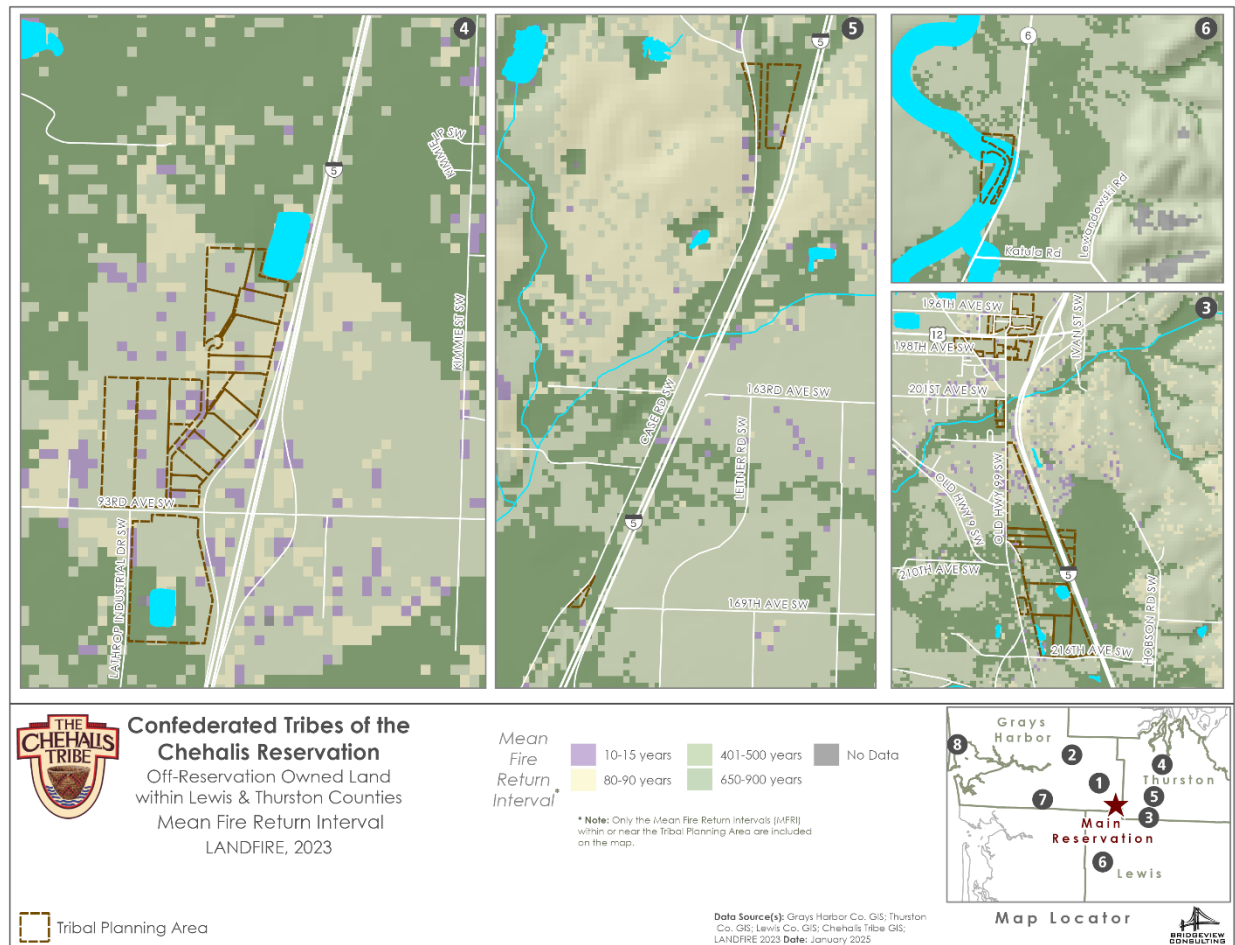


Figure 18 Mean Fire Return Interval Off-Reservation Lands Within Lewis and Thurston Counties

Vegetation Departure or Fuel Disturbance

The LANDFIRE Project also produces maps of vegetation and measurements of vegetation departure from simulated historical reference conditions, although in some instances, the data may be somewhat outdated in nature due to the continuing wildfires and resulting changes to the landscape. LANDFIRE also relies on the impacted tribal and municipal agencies to provide data to them as an update practice. The vegetation disturbance identifies changes in the vegetation based on previous wildfires or on various mitigation efforts applied to help reduce wildfire impact. As a result of a 2024 grant received by the CTCR, the Tribe commissioned a vegetation study to be used in future wildfire planning efforts.

The existing vegetation data currently in LANDFIRE represents a categorization of the associated vegetation departure data layer and indicates the general level to which current vegetation is different from the simulated historical vegetation. The variation of vegetation class directly

influences fire, as vegetation itself influences the rate of burn, intensity of the burn, and the frequency of burns. Some vegetation is much more vulnerable to ignition (shiny-leave vegetation customarily contains more oils, making them more vulnerable to ignition), while others are more difficult to contain once fire ignition occurs. Such factors contribute to the vulnerability of an area to wildfires. Figure 19, Figure 20, and Figure 21 illustrate the fuel disturbance within Tribal Planning Area.

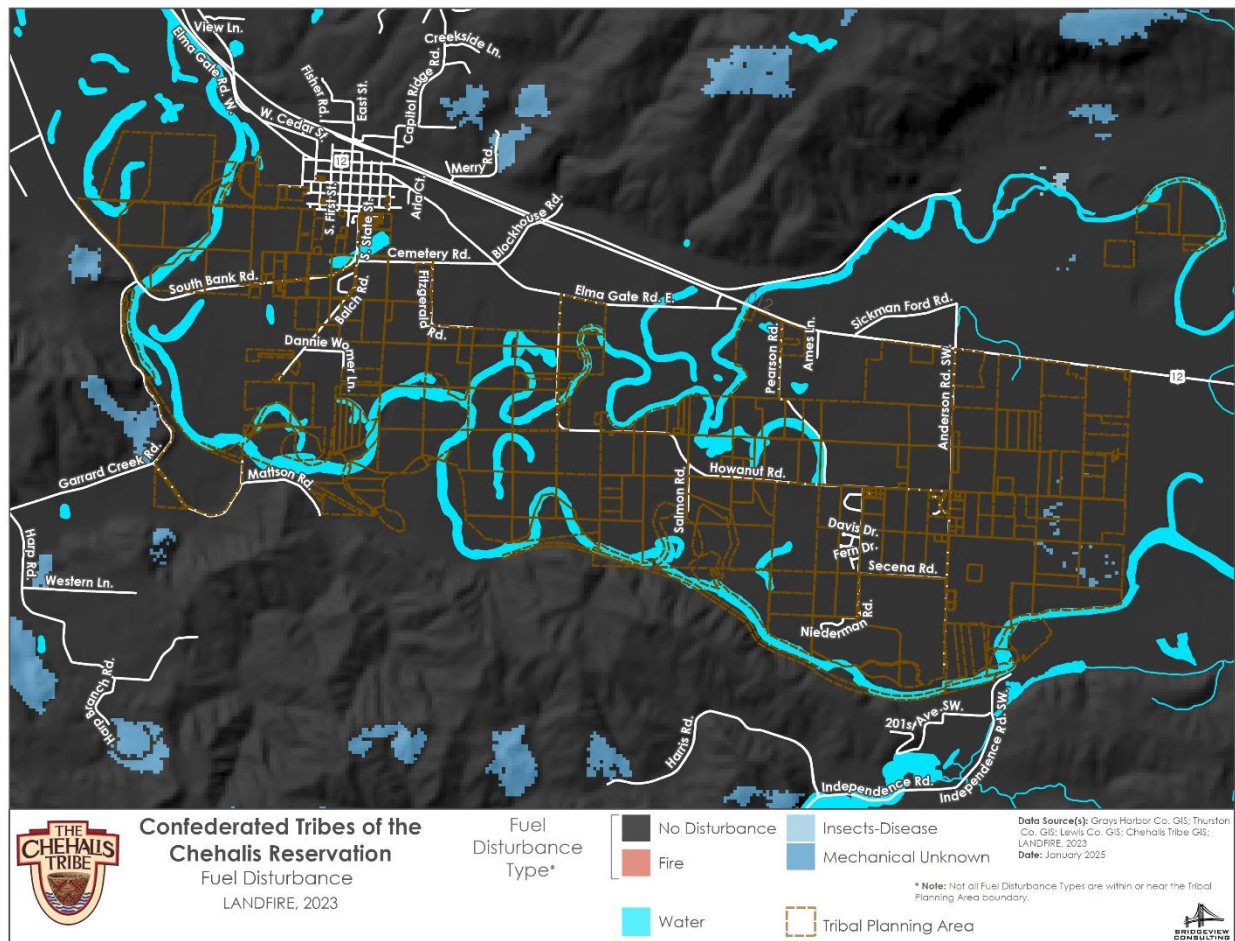


Figure 19 LANDFIRE Fuel Disturbance - Chehalis Reservation

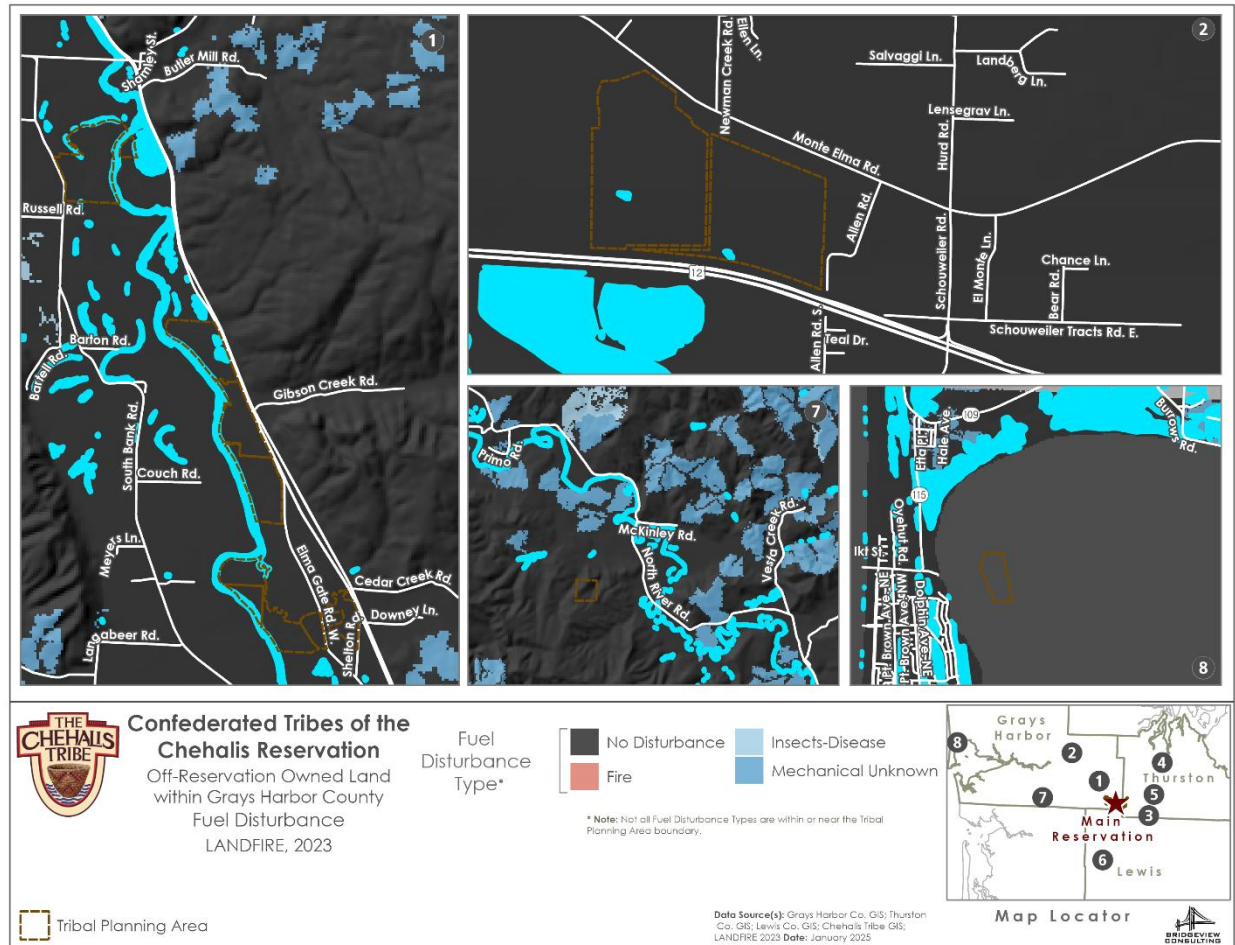


Figure 20 LANDFIRE Fuel Disturbance Off-Reservation Lands within Grays Harbor County

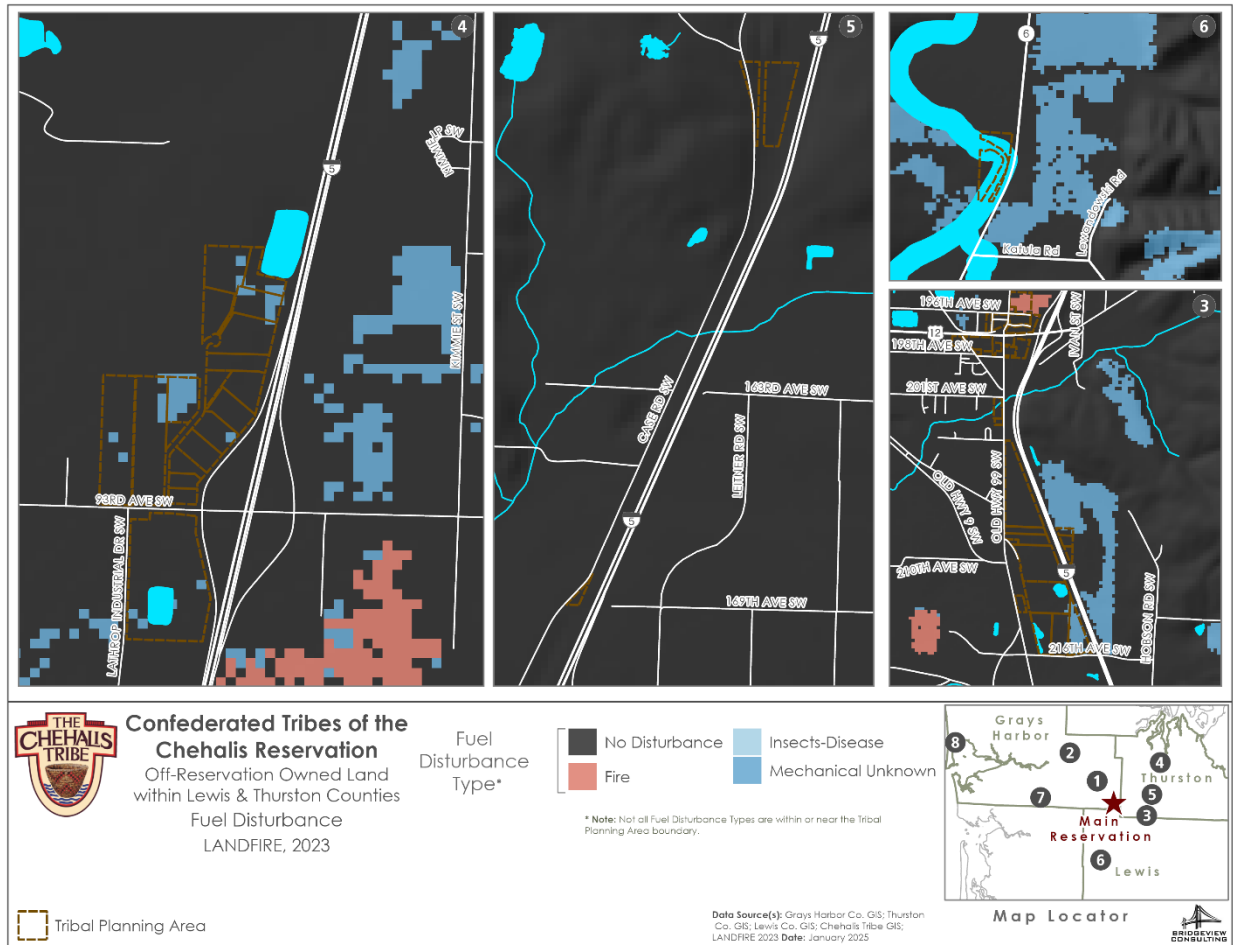


Figure 21 LANDFIRE Fuel Disturbance Off-Reservation Lands Within Lewis and Thurston Counties

4. Vulnerability Assessment

4.1 Overview

Structures, above-ground infrastructure, critical facilities, and natural environments are all vulnerable to the wildfire hazard (see Figure 22).

Understanding the relationship between weather, potential fire activity, and geographical features enhances the ability to prepare for the potential of wildfire events. This knowledge, when paired with emergency planning and appropriate mitigation measures, creates a safer environment.

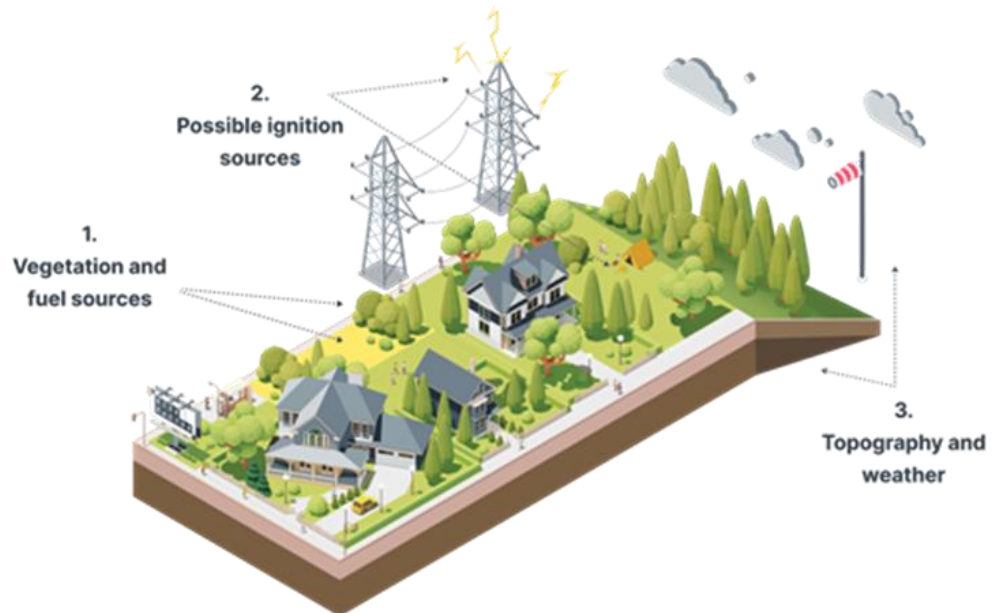


Figure 22 Potential Wildfire Factors

Wildfire studies can analyze weather data to assist firefighters in understanding the relationship between weather patterns and potential fire behavior. Fire forecasting examines similarities between historical fire weather and existing weather and climate values. These studies have determined that for areas such as the Tribal Planning Area, any combination of two of the following factors can create more intense and potentially destructive fire behavior, known as extreme fire behavior:

- Sustained winds
- Relative humidity less than 40 percent
- Temperature greater than 72° Fahrenheit
- Periods without precipitation greater than 14 days in duration
- 1,000-hour fuel moisture less than 17 percent.

If a fire breaks out and spreads rapidly, residents may need to evacuate within a short timeframe. The three counties and the Tribe do have an evacuation notification system in place to provide early notice to its residents. That evacuation notice follows the “Ready, Set, GO!” evacuation campaign, and consists of Level 1, Level 2, and Level 3 evacuation orders, with Level 3 being the most significant.

Customarily, a fire's peak burning period generally is between 1 p.m. and 6 p.m. In normal situations, fire alerting would commence quickly, helping to reduce the risk. However, in more remote locations of the area, or in areas where cell phone services are sporadic at times, warning time and calls for assistance may be reduced.

Methodology

There is currently no validated damage function available on which to base wildfire analysis in the same manner as other hazards as no such damage functions have been generated. Instead, estimates to identify potential loss utilized the Wildfire Risk to Communities, WHP, and the LandFIRE Fire Regime datasets as cited.

Warning Time

Wildfires are often caused by humans, intentionally or accidentally. There is no way to predict when one might break out, but there are factors which can be considered as increasing potential risk. For example, since fireworks can often cause brush fires, extra diligence is warranted around the Fourth of July when the use of fireworks is highest.

Dry seasons and droughts are factors that greatly increase fire likelihood. Dry lightning may trigger wildfires. Severe weather can be predicted, so special attention can be paid during weather events that may include lightning. Reliable National Weather Service lightning warnings are available on average 24 to 48 hours prior to a significant electrical storm. As indicated, there are evacuation notification systems in place to provide early notice to its residents.

4.2 Impact on Life, Health, and Safety

The maps used in the analysis show areas of relative importance in determining fire risk, though they do not provide sufficient data for a statistical estimation of exposed population. Exposure to wildfire is dependent upon many factors. While there are no recorded fatalities from wildfire in the planning area, a statistical number of the population vulnerable is also impossible to determine with any accuracy due to the high number of variables that impact fire scenarios.

The population at risk must also take into consideration tourists given the Tribe's proximity to the campsites, parklands, and other high-tourist destinations. With high tourism rates more than doubling the population during the summertime months in some areas (such as Grays Harbor County), there is an increase in the population vulnerable to fire. This would also be true of Tribal owned enterprises, such as Great Wolf Lodge, Tribal hotels, and the Casino.

For planning purposes, on average, the Tribe estimates ~1,000+ people to be on/in Tribal owned structures and enterprises, although that number would fluctuate greatly given the time of year, as well as holidays.

Given the increase in tourism during the summer months, when fire danger is at its greatest, increased consideration must be taken into account for fire response. Fire districts in those areas do increase first responders, particularly for those incidents which historically have shown an increase in population, such as festivals and other community events.

Smoke and air pollution from wildfires can be a severe health hazard, especially for sensitive populations, including children, the elderly and those with respiratory and cardiovascular diseases. The Tribal Planning Area has a high population of retirees and individuals over 65, further increasing the potential impact on the fire hazard. Smoke generated by wildfire consists of visible and invisible emissions that contain particulate matter (soot, tar, water vapor, and minerals), gases (carbon monoxide, carbon dioxide, nitrogen oxides), and toxics (formaldehyde, benzene). Emissions from wildfires depend on the type of fuel, the moisture content of the fuel, the efficiency (or temperature) of combustion, and the weather. Public health impacts associated with wildfire include difficulty in breathing, odor, and reduction in visibility. Wildfire also threatens the health and safety of those fighting fires. First responders are exposed to the dangers from the initial incident and after-effects from smoke inhalation and heat stroke.

4.3 Impact on Property

Property damage from wildfires can be severe and can alter entire communities. The potential exposure of the structures in the Tribal Planning Area should a fire occur is high, particularly when looking at more remote areas. The unincorporated portions of the counties in which the Tribe owns properties and the Reservation itself all have some degree of exposure to wildfire hazards, with the potential for embers sparking fires carried by winds at great distances from the original fire. This means that all structures are vulnerable to wildfires to some degree – even areas with the lowest risk are vulnerable because any structure in the path of a wildfire, regardless of its severity, can be impacted. Table 3 (above) identifies the number of acres within each Fire Regime.

Density in certain areas of the three counties in which the Tribe owns land and the age of building stock are contributing factors in assessing property vulnerability to wildfire. Many of the buildings throughout the planning area are of significant age, with many being constructed with wood frames and shingle roofs. There are also structures in remote areas, making access difficult. This increases the risk to the Tribal owned structures, many of which are also dated, with wood frames and shingle roofs.

The Tribe has identified incorporating non- or less-combustible building materials as potential mitigation measures which can be taken to reduce the impact of wildfires on the communities. When granting opportunities become available, with the completion of this CWPP, the Tribe will seek funding opportunities to assist this effort.

Review of Wildfire Risk to Communities data (illustrated in Figure 12 above) identifies that approximately 96 structures (19 percent) are exposed to indirect exposure; 410 structures (81 percent) were exposed to direct exposure.^{14, 15}

4.4 Impact on Critical Facilities and Infrastructure

Critical facilities of wood frame construction are especially vulnerable during wildfire events. In the event of wildfire, there would likely be more limited damage to most infrastructure. Most roads and railroads would be without significant damage except in the worst scenarios. Fueling stations could be significantly impacted. Power lines are also significantly at risk from wildfire because most poles are made of wood and susceptible to burning. Fires can create conditions that block or prevent access and can isolate residents and emergency service providers. Table 3 (above) identifies critical facilities exposed to the wildfire hazard throughout the planning area based on Fire Regime. Table 4 identifies the critical facilities within the Wildfire Hazard Potential Zone. Table 5 further identifies the critical facilities within each of the applicable Fire Regime Groups.

Table 4 Critical Facilities/Critical Infrastructure within Wildfire Hazard Potential Zones							
Critical Facilities/Critical Infrastructure	Very Low	Low	Moderate	High	Very High	N/A	Total
Agricultural	0	0	0	0	0	1	1
Casino	0	0	0	0	0	1	1
Commercial	4	1	0	0	0	12	17
Gathering Place	0	0	0	0	0	1	1
Government	3	1	0	0	0	28	32
Medical	1	0	0	0	0	1	2
Protective (Police/Fire)			0	0	0	1	1
TOTAL	8	2	0	0	0	45	55

¹⁴ For additional information, see FEMA Wildfire Risk to Communities data [Wildfire Risk reduction zones in Chehalis Reservation and Off-Reservation Trust Land - Wildfire Risk to Communities](#)

¹⁵ Review of the data is unclear with respect to whether these are only Tribal-owned structures, or structures in proximity to Tribal lands.

During a wildfire event, hazardous material storage containers could rupture due to excessive heat and act as fuel for the fire, causing rapid spreading and escalating the fire to unmanageable levels. The materials could leak into surrounding areas, saturating soil, and seeping into surface waters, having a disastrous effect on the environment. Given the transportation corridors through the counties, non-fixed assets used to transport chemicals could also be at risk, particularly if transportation corridors are impacted or congested due to evacuation. All three counties also have rail systems which carry hazardous materials. Grays Harbor County has previously experienced rail car spills and semi-truck accidents which have involved hazardous materials, including multiple fuel tanker fires. While these have not occurred on tribal lands, the tribe could sustain impact if chemicals were spilled into waterways, or through dispersion via air.

Table 4 Critical Facilities and Infrastructure Exposed to Fire Regime Areas*			
	Regime 3-A	Regime 5-A	Regime 5-B
Agricultural		1	
Casino	1		
Commercial	1	7	7
Cultural / Gathering Place / Shelter			4
Government		6	4
Hazmat	1	2	
Industrial		1	
Medical		3	1
Natural Resources			2
Power			
Protective Services			1
Residences (Tiny Homes)			1
Schools			2
Transportation		1	4
Wastewater		1	2
Water			2
Total	3	22	30
*Only fire regimes impacting the CTCR are identified in this table.			

4.5 Impact on Economy

The tribal economy is largely dependent on the service industries and entertainment. A large-scale wildfire could damage or destroy structures, inventory, and equipment. The economy would suffer from loss not only from the revenue generated by the commercial structures, but tribal members working at the various enterprises owned by the Tribe would also suffer loss of income. Tourism to the area generated by the Casino, the hotels and the Great Wolf Lodge would also impact the local economy of the three counties in which tribal lands and enterprises are situated. For non-trust lands, the loss of structures would also influence the tax base from lost revenue in the counties. The Tribe also collects taxes on some of its enterprises, including tobacco, alcohol and fuel.

Secondary impacts include erosion on burned slopes leading to runoff and contributing to flooding, landslides, and impacts to salmon-bearing streams. Wildfires could destroy homes, hotels, restaurants, and other tourist facilities while wildfires in farmlands could destroy crops, pasture lands used for grazing, farms, equipment, herds, and structures, all of which operate within the CTCR.

4.6 Impact on Environment

Fire is a natural and critical ecosystem process in most terrestrial ecosystems, dictating in part the types, structure, and spatial extent of native vegetation. However, wildfires can cause severe environmental impacts:

- Destroyed Endangered (and other) Species Habitat—Catastrophic fires can have devastating consequences for endangered species.
- Damaged Fisheries—Critical fisheries can suffer from increased water temperatures, sedimentation, and changes in water quality. The Tribe does have a hatchery within its boundaries.
- Soil Erosion—The protective covering provided by foliage and dead organic matter is removed, leaving the soil fully exposed to wind and water erosion. Accelerated soil erosion occurs, causing landslides and threatening aquatic habitats.
- Spread of Invasive Plant Species—Non-native woody plant species frequently invade burned areas. When weeds become established, they can dominate the plant cover over broad landscapes, and become difficult and costly to control.
- Disease and Insect Infestations—Unless diseased or insect-infested trees are swiftly removed, infestations and disease can spread to healthy forests and private lands. Timely active management actions are needed to remove diseased or infested trees.

- **Soil Sterilization**—Topsoil exposed to extreme heat can become water repellant, and soil nutrients may be lost. It can take decades or even centuries for ecosystems to recover from a fire. Some fires burn so hot that they can sterilize the soil.

4.7 Impact From Climate Change

Climate change has the potential to affect multiple elements of the wildfire system: fire behavior, ignitions, fire management, and vegetation fuels. Hot dry spells create the highest fire risk. Increased temperatures may intensify wildfire danger by warming and drying out vegetation. Climate change also may increase winds that spread fires. Forest response to increased atmospheric carbon dioxide could contribute to more tree growth and thus more fuel for fires, although the effects of carbon dioxide on mature forests are still largely unknown. In turn, increased high-elevation wildfires could release stores of carbon and further contribute to the buildup of greenhouse gases.

Hot dry spells as we have experienced during the summer months over the last several years create the highest fire risk. Increased temperatures may intensify wildfire danger by warming and drying out vegetation and soil moisture. When climate alters fuel loads and fuel moisture, forest susceptibility to wildfires changes. Climate change also may increase winds that spread fires. Faster fires are harder to contain, and thus are more likely to expand into residential neighborhoods.

4.8 Mitigation Strategies - Increasing the Resiliency of Landscapes

As with all mitigation strategies, the intent is to take action in advance of a disaster or event to help reduce the impact when an event occurs, thereby increasing the resilience of the community in the aftermath of a fire. Increasing the resilience of the landscapes involves and requires an integrated approach, involving all stakeholders.

We know factually that by applying various mitigation actions in advance of a fire, it reduces the potential vulnerability when a fire occurs. In some instances, this may mean allowing the fire to run its natural course, allowing resources to be redirected. By applying mitigation efforts in advance, in most instances, the risk or impact level is reduced. In so doing, it allows decision makers the opportunity to prioritize other areas and actions during times of fire.

Specific CWPP actions to increase the resilience of the Tribal landscape are:

- To review and identify priority landscapes and potential treatments options before fires begin.
- Implement post-fire recovery activities that provide opportunities to leverage long-term, post-fire planning that can support future wildfire reduction and prescribed fire activity.

The Tribe has identified the following general mitigation strategies. The list is not all-inclusive but serves as a starting point for the various communities comprising the CTCR of available options as funding allows.

4.8.1 Fuels Reduction

- Design and prioritize fuel treatments to reduce fire intensity, structure ignition, and negative wildfire impacts to values. Examples include:
 - Slashing and under burning or pile burning (including controlled burns)
 - Commercial harvesting
 - Chipping
 - Thinning
- Where feasible, implement strategically placed fuel treatments to interrupt fire spread across landscapes.
- Use and expand fuel treatments involving mechanical, biological, or chemical methods where economically feasible and sustainable, and where they align with landowner objectives.
- Reduce the risk of wildfire by removing fuels, especially small-diameter trees, while maintaining forest structure to protect ecosystem components.

4.8.2 Municipal and Fire Service Agency Efforts (Capacity Building)

- Establish and maintain defensible spaces around critical facilities and infrastructure.
- Implement water source improvements for firefighting efforts.
- Install surveillance cameras in high-risk areas for early detection.
- Support the acquisition of firefighting equipment and resources.
- Develop and enforce fire codes and standards to which new development occurs.
- Seek out and secure financial assistance to support projects that enhance wildfire resilience and safety communitywide (e.g., fire-resistant home upgrades).

4.8.3 Prescribed Fire

Recognize prescribed fires as an important fuel treatment and ecological restoration tool, where appropriate.

- Continue and expand the use of prescribed fire to meet landscape objectives, improve ecological conditions, and mitigate negative wildfire impacts on human development.
- Ensure that prescribed fire planning includes the management of smoke in accordance with the Clean Air Act and the regulations and policies of the Environmental Protection Agency (EPA).
- Ensure that prescribed fire planning follows tribal, federal, and local (where applicable) regulations.

4.8.4 Community Involvement, Education, and Outreach

- Encourage community members to participate in wildfire prevention efforts around their homes and throughout their neighborhood.
- Upgrade or install fire-resistant roofing, siding, and windows - research suggests that “the only effective home protection treatment is treatment in, on, and around the house (see Figure 23).
- Develop and implement a comprehensive wildfire education program, such as Firewise USA, Wildfire Ready Neighbors, and Ready, Set, Go!
- Establish community emergency response teams and associated training programs.
- Organize community events, workshops, seminars or other training sessions on wildfire preparedness, evacuation plans, and wildfire prevention activities.
- Develop emergency preparedness kits to include vital or critical documentation scanned to a thumb drive

The CTCR’s CWPP actively works to support individual homeowners’ efforts with respect to removing or reducing ignition sources, as well as actively training to ensure wildfire fighting capabilities by both volunteers and fire service providers. There are many programs which promote local community mitigation efforts. One of those is to become a Firewise Community.

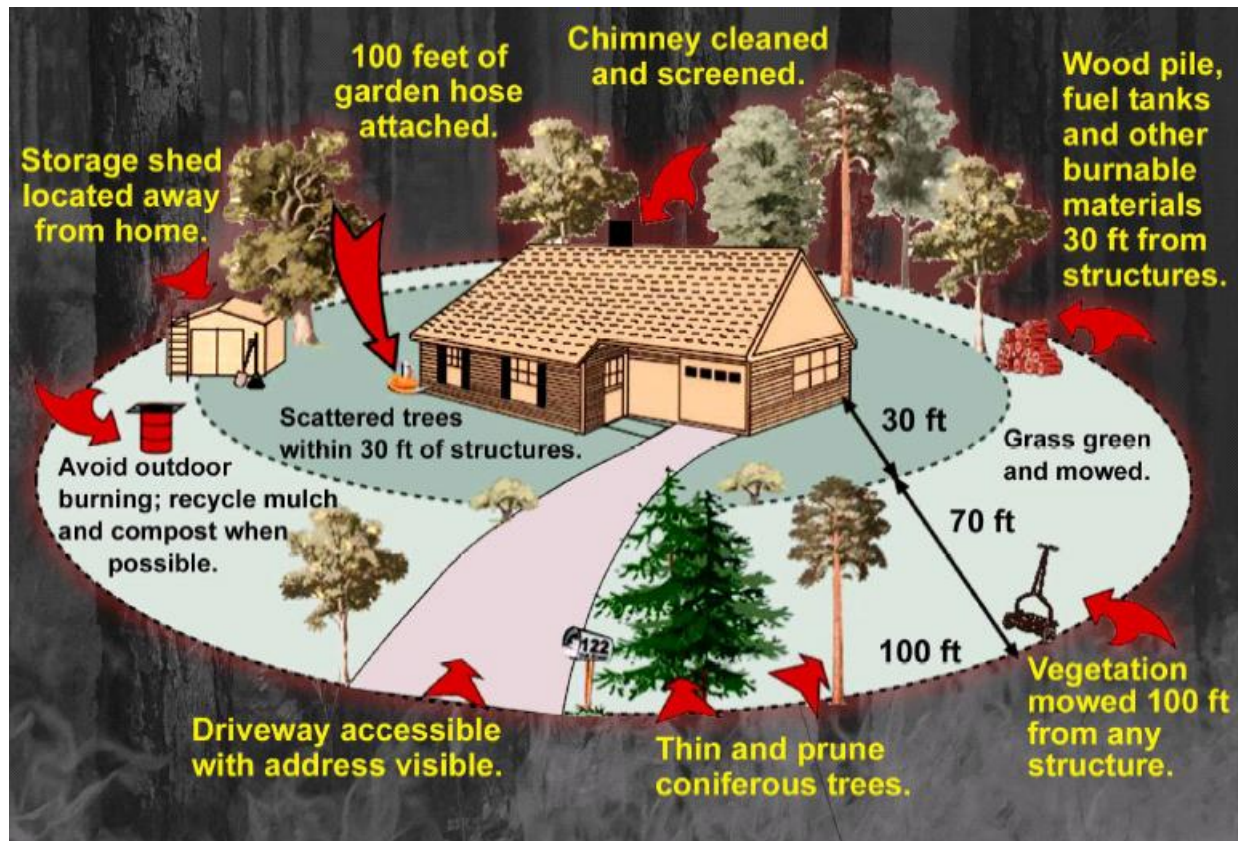


Figure 23 Measures to Protect Homes from Wildfire

Firewise Communities USA™

The NFPA's [Firewise USA program](https://www.firewise.org/usa-recognition-program/state-listing-of-participants.aspx) encourages local solutions for safety by involving homeowners in taking individual responsibility for preparing their homes from the risk of wildfire. Firewise is a key component of [Fire Adapted Communities](https://www.firewise.org/usa-recognition-program/state-listing-of-participants.aspx) – a collaborative approach that connects all those who play a role in wildfire education, planning, and action with comprehensive resources to help reduce risk. The CTCR encourages the Firewise Program throughout the Tribal Planning Area.¹⁶

Additional support for strategy development comes from the Wildfire Risk to Communities, which identifies Risk Reduction Zones, or areas where mitigation activities will be most effective at protecting homes and other buildings from wildfires. Figure 12 (above) identifies those zones. Each zone applies various types of potential mitigation efforts as follows:

¹⁶ [http://www.firewise.org/usa-recognition-program/state-listing-of-participants.aspx](https://www.firewise.org/usa-recognition-program/state-listing-of-participants.aspx)

- Indirect Exposure Zones - Provides an opportunity to reduce places for embers to land and ignite. Mitigation activities include making homes more ignition resistant by, for example, establishing a 5-foot noncombustible zone around homes, or by applying land use planning strategies which disrupt the potential for a wildfire to spread and intensify, reducing risks to people and homes, while also making wildfire response safer and more effective.
- Direct Exposure Zones - Also includes reduction of vegetation to carry fire to homes, and reducing places for embers to land and ignite, but also includes reducing hazardous fuels to modify fire behavior or creating defensible spaces to help anchor wildfire response activities.
- Wildfire Transmission Zones – These areas reduce continuity of vegetative fuels to slow fire spread, and include reducing hazardous fuels through burning, thinning, pruning, chipping, and mechanically removing fuels to reduce the amount and continuity of burnable vegetation.

Wildfire mitigation is most effective when multiple strategies are combined which, when applied, reduce ignition sources, disrupt the potential for wildfire spread, and reduce wildfire intensity. Through the CWPP process, each community should annually identify priority areas within these zones to help reduce the impact of wildfire.

4.9 Future Development Trends

The increase in residential development in interface areas has resulted in greater wildfire risk. Fire has historically been a natural wildland element and can sweep through vegetation that is adjacent to a combustible home. New residents in more rural locations are often surprised to learn that in moving away from urban areas, they have left behind readily available fire services providing structural protection. Rural locations may be more difficult to access and simply take more time for fire protection services to get there.

These are also areas of high tourism, which would increase the potential for evacuees during fires, as well as potentially increasing the population which could ultimately cause wildfires and be at risk, increasing both risk and vulnerability.

The largest variable is not necessarily only with respect to development trends. It may also include the rate at which the various vegetation has been changed from vegetation classes due to development and, where they have occurred, previous fires. With the integration of the Tribe's 2024 Vegetation Study data into the LandFIRE data. This will provide updated information on which the Tribe will be able to more accurately determine wildfire risk, as well as focus areas for mitigation. As population and structure count increases, this will also potentially increase fires.

The Tribe is optimistic that increased population growth will occur. As areas of the Reservation and the three counties become more urbanized, the potential exists that the fire risk will increase as urbanization tends to alter the natural fire regime, and the growth will expand the urbanized areas into undeveloped wildland areas, increasing the number of vulnerable structures and people living in higher risk areas. The CTCR feels that with respect to the Reservation, expansion of the wildland-urban interface can be managed with strong land use and building codes. With continued expansion of the Community Wildfire Protection Plan strategies and continued community involvement, the number of wildfires and impact therefrom will be reduced.

4.10 Issues

The major issues for wildfire are the following:

- Public education and outreach to people living in or near the fire hazard zones should include information about and assistance with mitigation activities such as defensible space, and advance identification of evacuation routes and safe zones. Emergency Management personnel and the local fire agencies work with community organizations to help ensure adequate and accurate information is disseminated. This will hopefully lead to Emergency Management and the local fire agencies seeking out and applying for grants to assist in mitigation activities.
- Vegetation management activities should include enhancement through expansion of target areas as well as additional resources.
- Wildfires could cause land or mud slides as a secondary natural hazard, even on relatively flat grounds.
- Climate change will negatively impact the wildfire hazard.
- Future growth into the interface areas should continue to be managed.
- Building code standards should continue to be reviewed and enhanced where practical, potentially including items such as residential sprinklers and prohibitive combustible roof standards.
- Increased fire department water supply is needed in high-risk wildfire areas. This may require the acquisition of water buffalos or development of other means to ensure adequate water supplies at all times.
- Working with local fire service agencies supporting the CTCR, certifications and qualifications for fire department personnel and volunteers should remain a primary focus for the protection and safety of first responders. In some instances, the lack of funding limits equipment, personnel, and the ability to attend relevant training.

- Working with the local service agencies supporting the CTCR, ensure that firefighters and volunteers are trained in basic wildfire behavior, basic fire weather, and that company officers and chief level officers are trained in the wildland command and strike team leader level.

A worst-case scenario would include an active fire season throughout the American west, spreading resources thin. Firefighting teams would be exhausted or unavailable. Many federal assets would be responding to other fires that started earlier in the season. While local fire districts outside of the planning area would be extremely useful in the urban interface areas, many districts have limited wildfire capabilities or experience, and they would have a difficult time responding to the ignition zones. Even though the existence and spread of the fire is known, it may not be possible to respond to it adequately, so an initially manageable fire can become out of control before resources are dispatched.

To further complicate the problem, heavy rains could follow, causing flooding and landslides and releasing tons of sediment into rivers, permanently changing floodplains, and damaging sensitive habitat and riparian areas. Such a fire followed by rain could release millions of cubic yards of sediment into streams for years, creating new floodplains and changing existing ones. With the forests removed from the watershed, stream flows could easily double. Flood that could be expected every 50 years may occur every couple of years. With the streambeds unable to carry the increased discharge because of increased sediment, the floodplains and the flood elevations would increase.

5. Results

Based on review and analysis of the data, the Planning Team has determined that the probability of impact from Wildfire throughout the area is highly likely, with the impact becoming more widely dispersed. While the Tribe itself has had limited fires on the Reservation, the areas in which the Tribe maintains properties experiences some level of wildfire annually, with the number of acres burnt and the severity of the fires increasing. Each year, the wildfire season also becomes longer, particularly with dryer and hotter conditions as experienced over the last several years, and with the heat domes that have also been experienced since the last plan's completion. With densely wooded areas throughout the tri-counties, the impact of climate changes and drought also continues to increase fire danger, with the wooded areas becoming more susceptible as a result of lack of soil moisture, infestation of unhealthy forests resulting from drought and the degradation of the health of the vegetation. Annually in recent years, the State of Washington has issued Drought Emergency Declarations due to the reduced precipitation falling statewide. Grays Harbor, Lewis and Thurston Counties have been identified as counties under those various declarations, which in many instances have resulted in the Small Business Administration making loans available in those impacted areas.

Deviation from normal vegetation classes resulting from previous fires also increases the fire danger and risk. With the impact of climate change also modifying weather patterns, the potential exists for increased lightning strikes, which can cause fires to ignite and burn for days before detection in remote locations. Construction into the wildfire hazard areas undoubtedly will continue to expand, thereby continuing to increase the risk of fires.

Implementation of mitigation strategies which help reduce wildfire risk, such as landscape regulations, chipping programs, maintaining defensible space, and mandatory sprinkler systems could potentially help reduce the number of structures at risk. Likewise, continued partnerships such as those between the Conservation Districts, DNR, USFS, BLM, and local communities continue to be an asset in the region, but resources to fight fires continue to be limited due to funding. As was the case over the course of the last several years, resources nationwide were significantly depleted during the wildfire season due to the number of fires burning in all areas to which resources at all levels of government were deployed. Such active seasons reduce response personnel and equipment availability to the area. Based on the potential impact, the Planning Team determined the CPRI score to be 3.15 with overall vulnerability determined to be a high level.

Approval of the Confederated Tribes of the Chehalis Reservation

2025 Community Wildfire Protection Plan

The applicable local government, local fire departments or their representatives, and the state entity responsible for forest management approve the Confederated Tribes of the Chehalis Reservation Community Wildfire Protection Plan (CWPP). This plan represents the Tribe's initial CWPP.

This plan is intended to serve as a planning tool for fire and land managers and residents to assess risks associated with wild land fire and identify strategies and make recommendations for reducing those risks.

The entities listed below participated in the development of, and/or reviewed and are in support of the 2025 Confederated Tribes of the Chehalis Reservation CWPP, and agree that the CWPP is viable, complete, and realistic in terms of risk reduction and implementation.

Confederated Tribes of the Chehalis Reservation

Chair, Business Committee
Confederated Tribes of the Chehalis Reservation

Date

Chief Kelly Edwards
Public Safety Director / Police Chief

Date

Confederated Tribes of the Chehalis Reservation

Public Safety Department, Emergency Manager

Date

Washington State Forester
Washington State Department of Natural Resources

Date

Western WA Region Fire District Manager
Washington State Department of Natural Resources

Date

Fire Chief
Fire District # _____

Date

Fire Chief
Fire District # _____

Date

Fire Chief
Fire District # _____

Date