

JANUARY 2026

CLALLAM COUNTY

COMMUNITY WILDFIRE PROTECTION PLAN

Working together to build
fire adapted communities,
resilient to wildfire



CLALLAM COUNTY
Washington



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ENVIRONMENTAL CONSULTANTS

We would like to formally thank the Steering Committee and all stakeholders, notably Clallam County Department of Community Development, Clallam County Division of Emergency Management, Clallam County Fire District 2, Clallam County Fire District 3, Forks Fire Department, Joyce Fire Department, Port Angeles Fire Department, Sequim Fire Department, Sequim Emergency Management, Clallam Conservation District, , City of Port Angeles, Hoh Tribe, Jamestown S’Klallam Tribe, Makah Tribe, Quileute Tribe, Washington Department of Natural Resources, Olympic National Park, Olympic National Forest, and the Clallam County Public Utility District for contributing their time and expertise throughout the planning process. Your participation in formulating this document will contribute to creating resilient landscapes, implementing public education, reducing structural ignitability, and ensuring safe and effective wildfire response.

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For additional information, questions, or concerns regarding this project, please contact Project Manager Matthew Cook at matthew.cook@swca.com

We would like to thank our partners who contributed to this project.

Jerry McAdams, MC Fire LLC, who developed the Building Code Recommendations, Appendix I.

For all your planning and implementation needs, please visit www.swca.com.



DISCLAIMER

This project was supported by Community Wildfire Defense Grant No. 23-DG-11062752-163, awarded by the U.S. Forest Service. Points of view in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Forest Service. Grant funds are administered by the Wildfire Management Division, Washington State Department of Natural Resources.

The purpose of the risk assessment process described herein is solely to provide a community and landscape-level overview of general wildfire risks within the County as of the date hereof, and to provide a potential resource for community pre-fire planning. This risk assessment process is premised on various assumptions and models which include and are based upon data, software tools, and other information provided by third parties (collectively, "Third-Party Information and Tools"). SWCA, Incorporated, doing business as SWCA Environmental Consultants ("SWCA") relied on various Third-Party Information and Tools in the preparation of this plan and SWCA shall have no liability to any party in connection with this plan including, without limitation, as a result of incomplete or inaccurate Third-Party Information and Tools used in the preparation hereof. SWCA hereby expressly disclaims any responsibility for the accuracy or reliability of the Third-Party Information and Tools relied upon by SWCA in preparing this plan. SWCA shall have no liability for any damage, loss (including loss of life), injury, property damage, or other damages whatsoever arising from or in connection with the risk assessment products contained herein, including any person's use or reliance on the information contained in those risk assessment products. Any reproduction or dissemination of the risk assessment products or any portion hereof shall include the entirety of this plan disclaimer.

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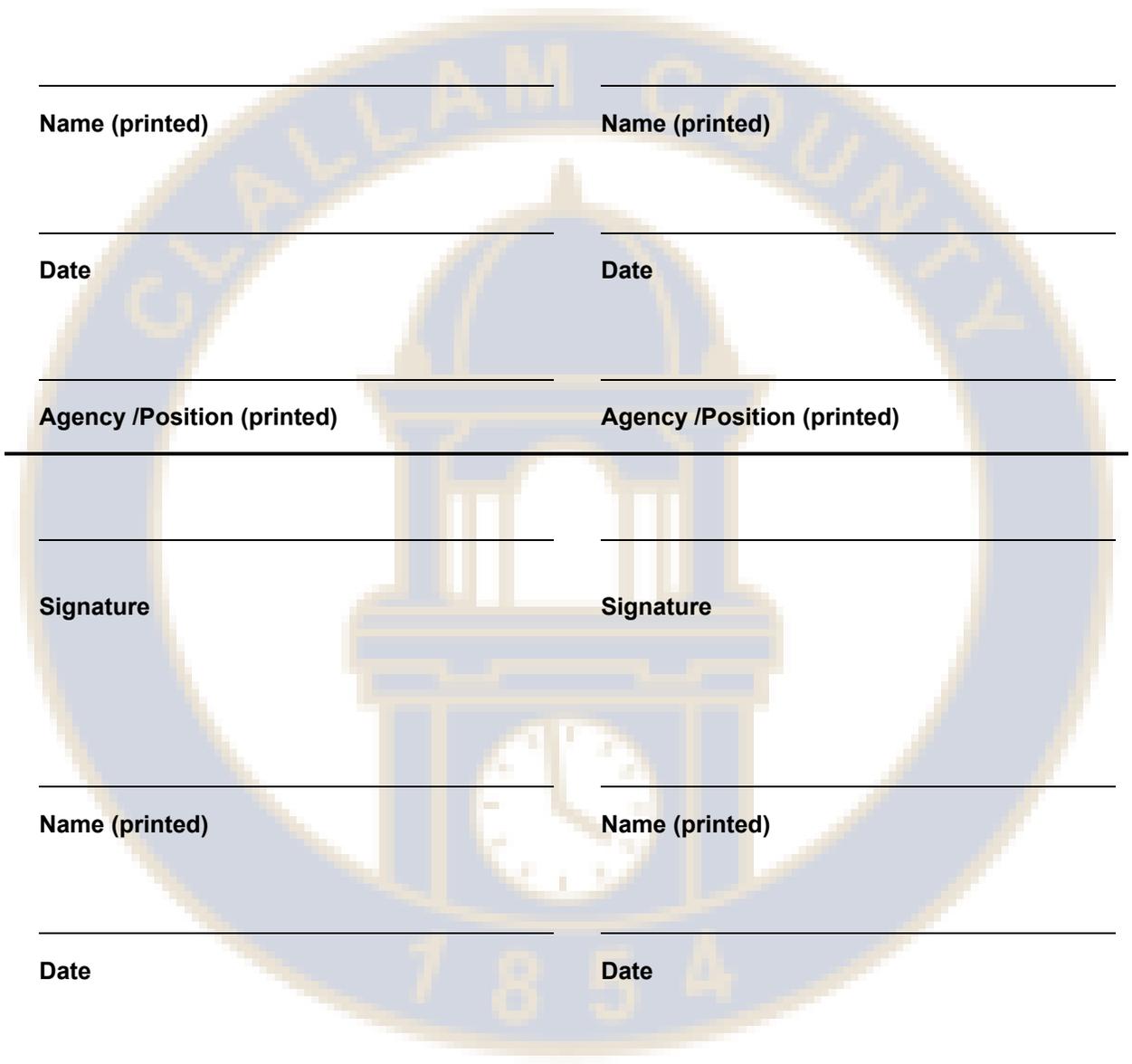
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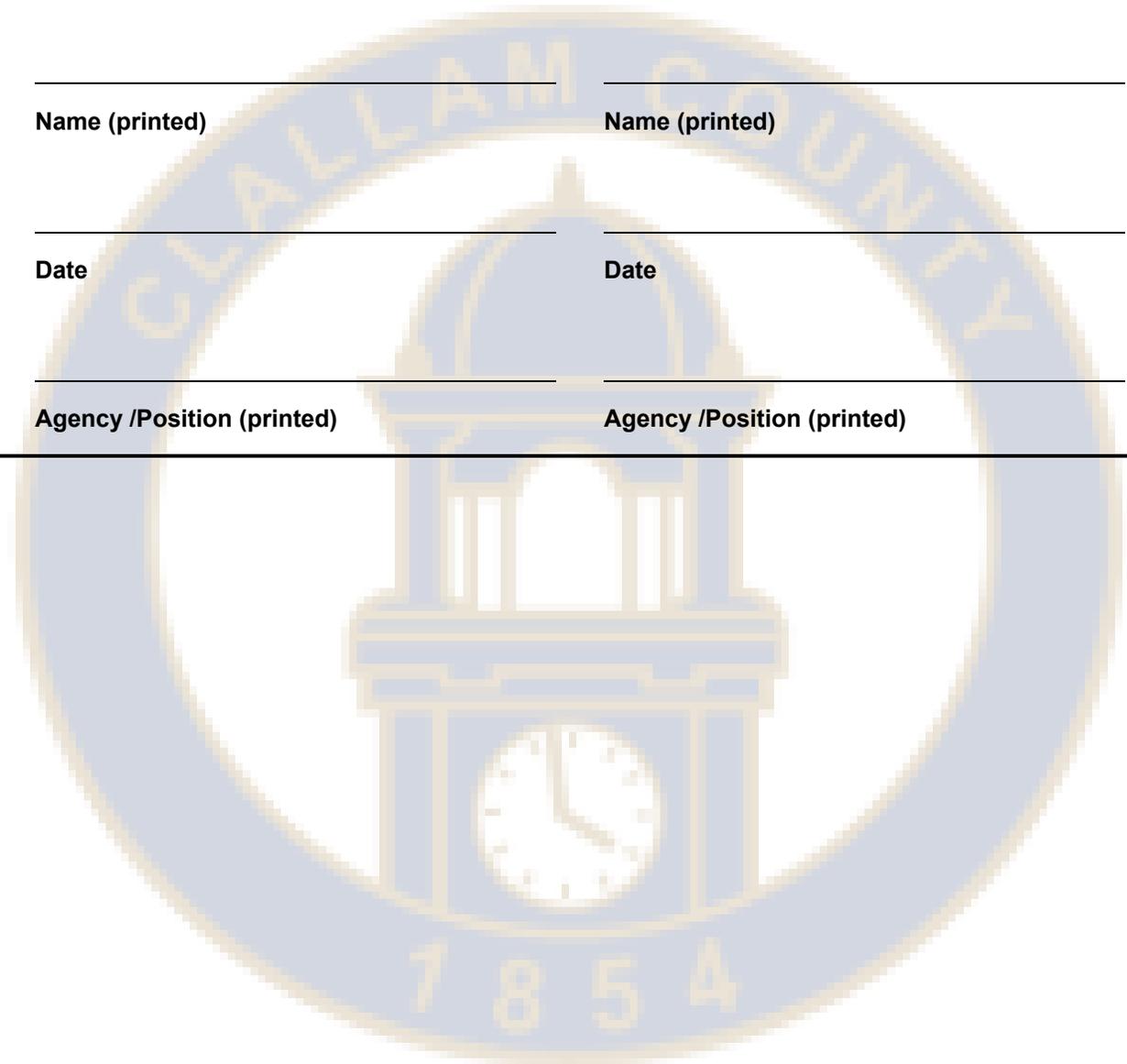
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COMMUNITY WILDFIRE PROTECTION PLAN SUMMARY

SWCA Environmental Consultants (SWCA) has added this community wildfire protection plan (CWPP) summary to provide Clallam County with an abbreviated version that can be shared with decision-makers and the public. This CWPP summary may be used as a standalone document to be shared with the community.

WHAT IS THE PURPOSE OF THE CLALLAM COUNTY COMMUNITY WILDFIRE PROTECTION PLAN?

The purpose of the 2025 Clallam County CWPP update is to

- assist in protecting human life and reducing property loss due to wildfire threats throughout the county;
- provide a comprehensive countywide assessment of wildfire risk and identify protection needs, including addressing enhanced protection in wildland-urban interface (WUI) areas;
- raise the public's awareness of wildfire risk and how to best prepare as individuals, families, and a community;
- bring together all responsible wildfire management and suppression entities in the planning area to address identified needs;
- provide a framework for future planning and implementation of necessary mitigation measures; and
- garner the public's input in addressing wildfire threats.

This 2025 plan was compiled from reports, documents, and data, as an update and replacement of Clallam County's 2009 CWPP. This CWPP has been developed in response to the federal Healthy Forests Restoration Act of 2003 (HFRA).

The CWPP meets the requirements of the HFRA by addressing the following:

- Having been developed collaboratively by multiple agencies at the state and local levels in consultation with federal agencies and other interested parties.
- Prioritizing and identifying fuel modification treatments and recommending the types and methods of treatments to protect at-risk communities and pertinent infrastructure.
- Suggesting multi-party mitigation, monitoring, and outreach.
- Recommending measures and action items that residents and communities can take to reduce the ignitability of structures.
- Soliciting input from the public on the draft CWPP.

WHAT ARE THE KEY ISSUES ADDRESSED?

Below are descriptions of the key issues addressed in this CWPP concerning fuels, fire response, and the development of fire-adapted communities.

Fuels-Related Issues:

- Develop a home ignition zone (HIZ) campaign throughout the county, focusing on wildfire resiliency and capacity building initiatives in select at-risk communities.
- Improve the resilience of critical communication infrastructure in wildfire-prone areas.
- Install and maintain roadside buffers along high-risk county roads to improve evacuation routes.
- Improve road signage and clearly mark bridge weight limits throughout the county.
- Enhance escape routes by improving road conditions.
- Increase wildfire resilience for homes through HIZ campaigns, roadside buffers, and pre-planning for properties on dead-end roads.
- Implement vegetation management and cleanup in Port Angeles greenbelts to reduce fuel continuity, remove hazards, and decrease ignition potential near urban neighborhoods.
- Promote safer slash burning practices and biomass removal on industrial timberlands through collaboration with the Washington State Department of Natural Resources (WA DNR) and local fire departments.
- Utilize targeted grazing to reduce fine dead fuels in grass-dominated areas and create safer fire response and evacuation conditions.
- Increase vegetation clearance along utility corridors to protect infrastructure and create operational holding lines for wildfire suppression.
- Identify and treat fuels along established and developing Potential Operational Delineations boundaries, focusing on roads, trails, and other strategic features, to maintain defensible and trafficable conditions for suppression operations and improve the probability of containment.
- Assess vegetation conditions around all communication towers and implement thinning to create defensible space, reduce flame contact potential, and harden exposed components vulnerable to ember ignition.

Fire Response

- Address and reduce wildfire risk from homeless encampments.
- Enhance water availability for firefighting purposes across the county.
- Enhance fire station resources and equipment.
- Update the county's emergency notification system.
- Conduct shared/mutual collaborative messaging and outreach between the local government and agencies.
- Establish a permanent location for aerial wildfire suppression resources on the west end of the county in partnership with federal agencies to address response gaps in remote and high-risk areas.

- Establish a local incident management team (IMT).
- Increase wildfire training opportunities for fire response agencies.
- Implement effective resource sharing between fire response agencies.
- Build the capacity of local contractors to conduct fuel reduction treatments.
- Increase the volunteer base for fire protection districts.
- Enhance signage for wildfire evacuation routes.

People and Fire-Adapted Communities:

- Develop a countywide education campaign.
- Create demonstration sites for healthy forests and defensible space.
- Introduce or increase use of signage about fire bans, fire danger, and evacuation.
- Develop a smoke education and preparedness campaign.
- Implement a countywide program to support property owners in defensible space and home hardening measures, green waste disposal, home assessments, and addressing and signage improvements.
- Promote pursuit of additional Firewise Communities recognition throughout the county.
- Provide information to landowners for resources related to farming and agricultural lands and wildfires.
- Educate tourists about wildfire risks and promote responsible behavior while visiting the county.

HOW IS THE PLAN ORGANIZED?

The CWPP provides a risk assessment, action items, project recommendations, and background information about Clallam County's wildland fire environment as well as land management plans and agencies. Most of the background information is housed in several appendices.

Chapter 1 provides a general overview of the CWPP; information on the Steering Committee, planning area, land ownership, and public involvement; and background information on planning area components such as transportation routes, population, and vegetation and ecology.

Chapter 2 includes an overview of the fire environment in the county and response resources. WUI conditions are discussed along with broader county fire regimes, climate patterns, and past fire events in the county.

Chapter 3 describes the field assessment, Quantitative Wildfire Risk Assessment (QWRA) methodology, and valued community resources.

Chapter 4 provides mitigation strategies in accordance with the National Cohesive Wildland Fire Management Strategy and its Phase III Western Regional Action Plan goals of restoring and maintaining landscapes, fostering fire-adapted communities, and safe and effective wildfire response. Each Cohesive Strategy goal includes recommendations for the county to improve on these goals.

Chapter 5 presents monitoring strategies to assist in tracking project progress and in evaluating work accomplished.

Appendix A discusses ordinances, legislation, and land management strategies that dictate fire mitigation and response approaches. This section is broken out into local, state, federal, and Tribal directives and includes information on previous planning efforts.

Appendix B outlines the desktop modeling process carried out for the QWRA.

Appendix C presents additional supporting maps related to fuels and the QWRA.

Appendix D includes community-specific information from the field assessments including community maps, the rating given to each community, and key observations.

Appendix E lists funding sources and programs at the federal, state, and private level. A short description of each program and a link to the program's website is also included.

Appendix F provides home hardening and fuels treatment methods for homeowners and land managers. Descriptions of multiple fuel treatment methods, landscaping, and planning considerations are included.

Appendix G discusses post-fire response and rehabilitation methods and resources. This chapter includes homeowner recovery discussions such as insurance and community safety and support resources as well as larger-scale recovery including timber salvage and erosion prevention measures.

Appendix H presents results from the community survey that was available during the planning process. The survey included questions on at-risk areas, community perception, and methods of improving preparedness.

Appendix I lists recommendations for building code and WUI Code changes that could reduce structural ignitability and urban conflagration.

Appendix J presents results of the wildfire smoke impacts assessment and future climate conditions. This section includes an historical wildfire smoke analysis, smoke mitigation recommendations, historical climate summary, future climate impacts, and mitigation recommendations.

WHAT IS THE GOAL OF A CWPP?

The goal of a CWPP is to enable local communities to improve their capacity to reduce the risk of wildfire while working with government agencies to identify high-fire-risk areas and prioritize areas for mitigation, fire suppression, and emergency preparedness, and to enhance public awareness by helping residents better understand the natural and human-caused risks of wildfires that threaten lives, safety, and the local economy. The minimum requirements for a CWPP, as stated in the HFRA, are:

Collaboration: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies or other interested parties.

Prioritized Fuel Reduction: A CWPP must identify and prioritize areas for hazardous fuel modification and recommend the types and methods of treatment that will protect one or more at-risk communities and their essential infrastructure.

Treatments of Structural Ignitability: A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

HOW WAS THE CLALLAM COUNTY CWPP DEVELOPED?

The CWPP update was developed collaboratively by a broad group of land and emergency managers and other key stakeholders in Clallam County. The planning process was initiated in 2024 and was finalized and signed in 2026. To initiate the planning process, a diverse Steering Committee was developed consisting of representatives from Clallam County, municipalities, Tribal nations, fire districts, state agencies, Olympic National Park, and Olympic National Forest. The development of the plan relied heavily on modeling and mapping wildfire hazards and, through comprehensive field assessments, identifying landscape and physical characteristics that impact the threat of wildfire to communities. This analysis aided the Steering Committee in prioritizing treatment recommendations to reduce wildfire risk. Community engagement also played a large role in plan development as county residents and community members were encouraged to provide feedback through a public survey. Additional information on the role of the key stakeholders and the public is included in Chapter 1.

WHO PARTICIPATED IN DEVELOPING THE PLAN?

The Clallam County administrators invited engagement from local and regional government agencies, as well as county residents, in the development of the Clallam County CWPP. This group, along with some additional community and organization representatives, served as the Steering Committee for this CWPP update and drove the decision-making process. Several Steering Committee members have experience working together in fire management for the county, were contributors for the 2009 Clallam CWPP, and have contributed their expertise to this CWPP update. The project was kicked off on November 4, 2024; the Steering Committee met for the first time on December 12, 2024, convened again on May 22, 2025, met for the third time on August 29, 2025, and met for the final time on December 17, 2025.

WHERE IS THE PLANNING AREA?

The planning area includes the entirety of Clallam County, Washington, as delineated by its geographic and political boundaries (Figure ES.1). The project boundary encompasses all communities in the county. Additionally, the community of Gardiner in Jefferson County, just east of Clallam County, was included in the community summaries in Appendix D.

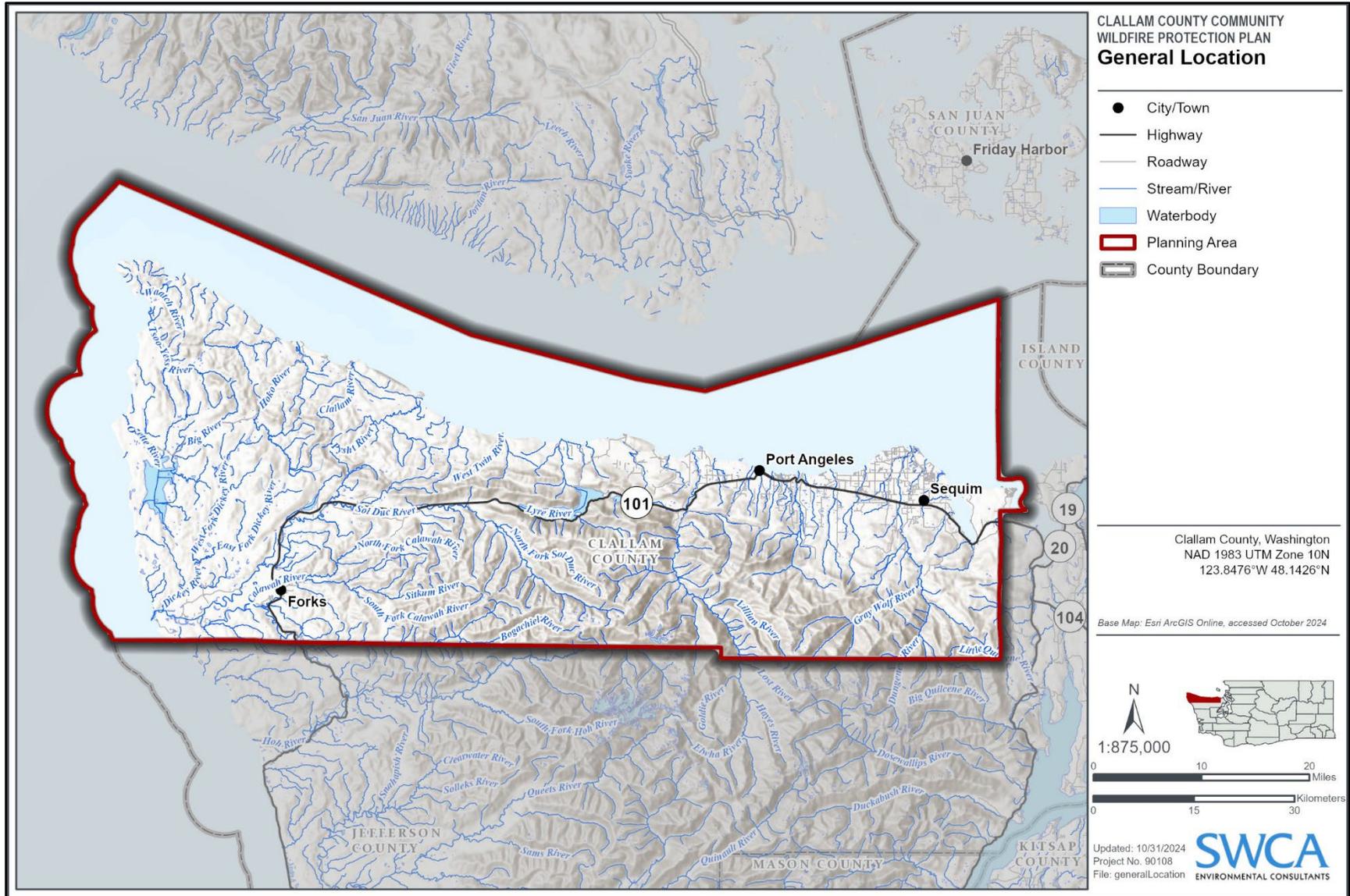


Figure ES.1. Clallam County CWPP planning area.

HOW WAS THE PUBLIC ENGAGED?

Every effort was made to include a broad cross section of residents living in the county in the outreach process. Clallam County hosted many diverse community outreach events prior to the CWPP planning process, such as a series of community wildfire presentations hosted in Forks, Sequim, Port Angeles, and Joyce in May 2024. The input received and lessons learned from these outreach events were considered throughout the CWPP planning process, and outreach strategies were developed with this feedback in mind. All county residents were provided multiple opportunities to provide input during the CWPP planning process, such as the community survey and public comment period for the draft plan review.

- SWCA conducted a community survey that received 136 responses.
 - A summary of the community responses is available in Appendix H.
- Diverse outreach efforts included:
 - Social media
 - Public press releases
 - Email distributions
 - Tribal consultation
- Public education and outreach are shared priorities among relevant agencies; recommendations for future engagement are provided in [Chapter 4](#).

WHAT IS THE CURRENT WILDFIRE SITUATION?

Clallam County's wildfire situation is shaped by strong environmental contrasts. The western and central portions of the county, dominated by temperate rainforests and moist conifer forests, experience very long fire return intervals and historically low wildfire activity (National Park Service 2005). In contrast, the northeastern portion lies within the Olympic rain shadow and is significantly drier, with fire return intervals as short as 36 to 100 years (McDougall 2020). These drier forests surround the county's most densely populated areas, including Sequim and Port Angeles, increasing overall wildfire exposure where development meets wildland fuels (Clallam County Division of Emergency Management [DEM] 2019).

Fuel conditions vary across the county, with large areas of high-load conifer litter and timber-understory fuels that can support more intense fire behavior during dry periods (Scott and Burgan 2005). Forest health issues, including Douglas-fir beetle, balsam woolly adelgid, blister rust, and drought stress, are creating localized tree mortality and adding to available fuels (WA DNR 2021). Invasive species such as Scot's broom (*Cytisus scoparius*) also elevate flammability along roadways and disturbed sites (Clallam County Road Department 2025). Climate trends documented in the Clallam County Multi-Jurisdictional Hazard Mitigation Plan show steadily rising temperatures, more frequent drought, and a lengthening fire season, all of which increase the potential for wildfire (Clallam County DEM 2024).

Human-caused ignitions account for most wildfires in Clallam County, particularly along U.S. Highway 101 and in and around Port Angeles, Sequim, and Forks (Washington Geospatial Open Data Portal 2024). Although most incidents remain small because of rapid response, the county is increasingly affected by smoke and air quality impacts from fires elsewhere on the Olympic Peninsula and beyond (Clallam County DEM 2024). To read the full wildfire smoke impacts assessment for Clallam County and future climate conditions report, see Appendix J.

Social and geographic factors further shape local vulnerability. Several census tracts rank among the state’s most socially vulnerable (Centers for Disease Control and Prevention and Agency for Toxic Substances and Disease Registry 2022), and increases in tourism, recreation, and unhoused populations elevate ignition potential and complicate emergency response (Clallam County DEM 2019). Communities on the west end of the county also face evacuation constraints due to limited road connectivity (Clallam County Sheriff’s Office 2022). Together, these patterns indicate that while many areas of Clallam County remain moist and historically fire-resistant, changing climate conditions, fuel buildup, human activity, and development patterns are contributing to increasing wildfire risk across the county (Clallam County DEM 2024).

WHAT RECENT FIRES OCCURRED HERE?

While large wildfires have been relatively rare in Clallam County, recent regional events highlight the county’s growing exposure to wildfire impacts. In July 2025, the Bear Gulch Fire, a human-caused blaze on the east side of Olympic National Park near Lake Cushman, in Mason County, burned more than 20,000 acres and prompted Level 3 evacuations near Staircase Campground (InciWeb 2025; U.S. Forest Service [USFS] 2025). The fire generated sustained smoke and reduced air quality across the Olympic Peninsula, including Port Angeles and Sequim (USFS 2025). Around the same time, the Tunnel Creek Fire, a lightning-ignited wildfire in the Buckhorn Wilderness southeast of the county, burned approximately 598 acres in steep, rugged terrain as of December 2025 (USFS 2025).

Although both incidents occurred just outside Clallam County, their visible smoke plumes and air quality effects underscore how fires elsewhere on the Olympic Peninsula can directly influence community health, emergency readiness, and perceptions of wildfire risk within the county.

WHAT IS THE PURPOSE OF THE QUANTITATIVE WILDFIRE RISK ASSESSMENT?

The purpose of the QWRA for the Clallam County CWPP update is to identify areas of high wildfire hazards and risk. This is achieved using SWCA’s QWRA process, which involves modeling and mapping fire behavior, analyzing highly valued resources and assets (HVRAs) (Chapter 3), and incorporating stakeholder and expert input. The QWRA also aids in identifying and prioritizing fuel treatments based on where wildfire risk is greatest, allowing for the implementation of fuels reduction treatments on both private and public lands in Clallam County.

Chapter 3 contains background information and results from the QWRA.

A description of the process and methodology, including the model inputs and outputs, can be found in Appendix B, Fire Behavior Modeling/GIS Background and Methodology.

WHAT IS THE PURPOSE OF THE FIELD ASSESSMENTS?

Field assessments describing risk and hazard rankings for communities located in the WUI, throughout the county, are provided in this plan and described in detail in Appendix D. A team from SWCA Environmental Consultants conducted field assessments throughout the county in May 2025, using an adapted version of the National Fire Protection Association (NFPA) 1144 standard for assessing structure

ignitability in the WUI, scaling it from parcel to community level. Using this standard provided a consistent process for assessing wildland fire hazards around existing structures to determine the potential for structure ignition from wildland fire ignitions. The assessments provide a total score of risk and hazard based on various parameters observed during the surveys, and a corresponding rating of low, moderate, or high are available in Appendix D. These field assessments are used in conjunction with the QWRA described above to inform the development of wildfire mitigation recommendations.

WHAT ARE THE STRATEGIES TO ADDRESS WILDFIRE CONCERNS?

Goal 1 of the Cohesive Strategy and the Western Regional Action Plan is **Restore and Maintain Landscapes**: Landscapes across all jurisdictions are resilient to fire and other disturbances in accordance with management objectives.

Recommendations for hazardous fuels treatments include:

- Allocate resources for fuels management on county, state, and USFS roads and rights-of-way.
- Use the risk and hazard analysis to identify specific areas in need of vegetation and brush removal.
- Address fuels treatment in moderate, high, and extreme risk areas, and promote equity in fire mitigation efforts.

Goal 2 of the Cohesive Strategy/Western Regional Action Plan is **Fire-Adapted Communities**: Human populations and infrastructure can withstand wildfire without loss of life and property.

Recommendations for public outreach and education include:

- Implement a comprehensive and standardized countywide public education program.
- Create demonstration sites for healthier forests and defensible space.
- Coordinate city and county codes.
- Ensure residents understand their role and responsibility in wildfire risk reduction.

Goal 3 of the Cohesive Strategy/Western Regional Action Plan is **Wildfire Response**: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

Some of the high-priority recommendations for wildfire response that the Steering Committee developed include:

- Prioritize a strategy to secure funding for wildland firefighting equipment, especially water tenders.
- Conduct a comprehensive review and redesign standards for new subdivisions with a focus on wildfire safety and resilience.
- Increase access for fire response.

WHAT DOES POST-FIRE RESPONSE AND RECOVERY INVOLVE?

There are many aspects to post-fire response recovery, including but not limited to:

- Returning home and checking for hazards
- Coordinating and mobilizing a group of teams in the community to respond to emergencies
- Rebuilding communities and assessing economic needs—securing the financial resources necessary for communities to rebuild resilient homes, businesses, and infrastructure
- Restoring the damaged landscape—restoration of watersheds, soil stabilization, and tree planting, as well as impacts from suppression if any
- Prioritizing the needs of vulnerable and disadvantaged communities during response and disaster recovery efforts
- Evaluating and updating disaster recovery plans every 5 years to respond to changing needs and characteristics of the community, as well as changing climate
- Coordinating with planning, housing, health, and human services, and other local, regional, or state agencies to develop contingency plans for meeting the short-term, temporary housing needs of those displaced during a catastrophic wildfire event

HOW WILL THE PLAN BE IMPLEMENTED?

This CWPP creates a navigable foundation for Clallam County to plan, develop, and execute strategies to mitigate and manage wildfire. The CWPP does not require implementation of any of the recommendations, but the message throughout this document is that the greatest fire impact mitigation could be achieved through the joint actions of individual homeowners, Tribes, and local, state, and federal governments. This CWPP encourages agencies, organizations, and the public to see wildfire-related projects to completion. It is recommended that the Steering Committee serve as a guiding entity for the agencies within the County and remain an integral part of the planning process for future development and implementation of the plan. This plan is a living document and should be regularly reviewed and updated as conditions change.

The recommendations for fuels reduction projects are general in nature; site-specific planning that addresses location, access, land ownership, topography, soils, fuels, and environmental and cultural impacts would need to be employed upon implementation, especially on state and federal lands. Also, it is important to note that most recommendations are specific to WUI areas and are expected to reduce the loss of life and property.

In addition, implementation of fuels reduction projects needs to be tailored to the specific project and will be unique to the location depending on available resources and regulations. In an effort to streamline project implementation, this CWPP has identified the pertinent land management/ownership agencies associated with each recommendation. On-the-ground implementation of the recommendations in the CWPP planning area will require development of an action plan and assessment strategy for completing each project.

WHEN DOES THE CWPP NEED TO BE UPDATED?

The CWPP should be treated as a living document, and projects should be updated annually or immediately following a significant fire event. A comprehensive CWPP update should occur every 5 years. The plan should continue to be revised to reflect changes, modifications, or new information as it becomes available. This may include new data to reflect risk, hazard, and delineation of WUI areas. These datasets evolve as new technology, scientific methods, and risk management approaches are developed across the region. Integrating these elements into mitigation planning is essential to the success of mitigating wildfire risk throughout the county and will be critical in guiding and maintaining the ideas and priorities of the plan and the communities in the future.

ACKNOWLEDGEMENTS

Thank you to the Steering Committee and all stakeholders who participated in the planning process, gave their time, and shared their expertise. These contributions lead to creating resilient landscapes, implementing public education, reducing structural ignitability, and ensuring safe and effective wildfire response.

Funding for this project was provided by the Community Wildfire Defense Grant from the U.S. Department of Agriculture.

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CHAPTER 1 – INTRODUCTION

The United States is facing urgent forest and watershed health concerns. In recent years, wildfires have shown a trend of increasing severity, with the total acres burned and the average acres burned per fire rising significantly over time. Since 2000, there has been a clear increase in the total acreage burned, with a consistent uptrend throughout the previous decades. From 2014 to 2024, an average of 7.9 million acres were impacted annually due to wildfire, more than doubling the annual average of acres burned in the 1990s (National Interagency Fire Center [NIFC] n.d.). The average acres burned per fire have also increased notably in recent years, reflecting larger and more severe fires (NIFC n.d.). These statistics demonstrate that wildfires are becoming larger and more complex to control. The 2024 U.S. fire season had above-average acreage impacted at around 9 million acres (NIFC n.d.). Of these, 1,806 fires burned over 275,593 acres in Washington, of which 1,564 reported fires were human-caused (NIFC 2024).

In addition, Washington state is experiencing an increase in drought conditions, and in 2024 the Washington State Department of Ecology (2024) declared a drought emergency for the state. These statistics demonstrate that wildfires and concerns for watershed health are becoming larger and increasingly impactful.

Washington's 2020 Forest Action Plan states that Washington's forests face urgent issues concerning frequent and severe pest and wildfire events that are unprecedented and threaten the sustainability of the state's forests (Washington State Department of Natural Resources [WA DNR] 2020a). Wildfire regimes in the state have deviated considerably from historical patterns, putting ecosystems and human communities at a higher risk of the devastating impacts of wildfire. These issues require reexamination of land and fire management policies and practices as human populations demand more from natural systems and as climate change continues (WA DNR 2020a). The 2020 Forest Action Plan highlights the need to implement robust wildfire mitigation and resilience measures and increase public awareness and involvement in wildfire prevention (WA DNR 2020a).

As wildfire severity increases, communities need a plan to help prepare for, reduce the risk of, and adapt to wildfire events. Community wildfire protection plans (CWPPs) help accomplish these goals. A CWPP provides recommendations that are intended to reduce, but not eliminate, the extreme severity or risk of wildfire impacts to communities. This CWPP document will be referred to as the plan throughout.

The development of the plan is rooted in meaningful collaboration among many stakeholders, including local, state, and federal officials. The plan ultimately identifies the current local wildfire risks and needs that occur in Clallam County, which is further supported with relevant science and literature from the western region of the United States.

The plan reviews, verifies, and/or identifies potential new priority areas where mitigation measures are needed to protect the life, property, and critical infrastructure in the county from wildfire. This plan does not attempt to mandate the type and priority for treatment projects that will be carried out by the land management agencies and private landowners. The responsibility for implementing wildfire mitigation treatments lies at the discretion of the landowner; the plan will only identify potential treatments and a suggested priority for these projects.

1.1 GOAL OF A COMMUNITY WILDFIRE PROTECTION PLAN

The goal of a CWPP is to enable local communities to improve their capacity to reduce the risk of wildfire impacts while working with government agencies to identify high-fire-risk areas and prioritize areas for mitigation, fire suppression, and emergency preparedness, and to enhance public awareness by helping residents better understand the natural and human-caused risks of wildfires that threaten lives, safety, and the local economy. The minimum requirements for a CWPP, as stated in the Healthy Forests Restoration Act of 2003 (HFRA), are:

- **Collaboration:** A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies or other interested parties.
- **Prioritized Fuel Reduction:** A CWPP must identify and prioritize areas for hazardous fuel modification treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and their essential infrastructure.
- **Treatments of Structural Ignitability:** A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

The Steering Committee established the following overarching goals for the plan:

- Improve wildfire resilience and adaptation of the county.
- Develop actions to mitigate risks to human health and safety.
- Develop a CWPP with broad public and stakeholder input and support.
- Develop a CWPP that will serve as a source and guide for accessing grant opportunities and funding.
- Foster cross-boundary and cross-agency collaborations for fuel management and mitigation strategies.
- Build community-wide resilience through education and public support.

1.2 PLAN ALIGNMENT WITH THE NATIONAL COHESIVE STRATEGY

The 2026 CWPP is aligned with the Cohesive Strategy and its Phase III Western Regional Action Plan by adhering to the nationwide goal “to safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and collectively, learn to live with wildland fire.”

The primary, national goals identified as necessary to achieving the vision are:

- **Resilient Landscapes** – Landscapes, regardless of jurisdictional boundaries are resilient to fire, insect, disease, invasive species and climate change disturbances, in accordance with management objectives.
- **Fire-Adapted Communities** – Human populations and infrastructure are as prepared as possible to receive, respond to, and recover from wildland fire.
- **Safe, Effective, Risk-based Wildfire Response** – All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

For more information on the Cohesive Strategy, please visit:

<https://www.forestsandrangelands.gov/strategy/index.shtml>

Alignment with these Cohesive Strategy goals is described in more detail in Chapter 4, Mitigation Strategies.

In addition to aligning with the Cohesive Strategy, the CWPP also incorporates information on post-fire recovery, the significant hazards of a post-fire environment, and the risk that post-fire effects pose to communities (Figure 1.1)



Figure 1.1. The CWPP incorporates the three primary goals of the Cohesive Strategy with post-fire recovery to serve as holistic plan for fire prevention and resilience.

1.3 STAKEHOLDER COLLABORATION

1.3.1 STEERING COMMITTEE

The development of the 2026 Clallam County CWPP was overseen by the Clallam County Division of Emergency Management (DEM). Representatives from various local, state, and federal government agencies—along with members of Tribes, fire departments, and local communities—formed a Steering Committee and participated in decision-making activities that led to the development of the 2026 Clallam County CWPP (Table 1.1). Stakeholder involvement is critical in producing a meaningful document that includes all collaborators’ diverse perspectives. The Steering Committee drives the planning process in its decision-making, data sharing, experience, and communication with community members who are not on the Steering Committee. The project was kicked off on November 4, 2024; the Steering Committee met for the first time on December 12, 2024, convened again on May 22, 2025 (Figure 1.2), again on August 19, 2025, and met for the final time on December 17, 2025.

Table 1.1. Steering Committee Members

Name	Organization
Diane Harvey	Clallam County Department of Community Development
Justine Chorley	Clallam County DEM
Kevin Denton	Clallam County Fire District 2
Jake Patterson	Clallam County Fire District 2
Justin Grider	Clallam County Fire District 3
Keith Koehler	Clallam County Fire District 3
Bill Paul	Forks Fire Department
Greg Waters	Joyce Fire Department
Jesse Waknitz	Port Angeles Fire Department
Blaine Zechenelly	Sequim Fire Department
Sheri Crain	Sequim Emergency Management
Quentin Norcutt	Clallam Conservation District
Kim Williams	Clallam Conservation District
Scott Curtin	City of Port Angeles
Georgee Bailey	Clallam County
Rod Fleck	Forks
Willie Bence	Jefferson County Department of Emergency Management
Dennis Burnett	Sequim
Lindsey Sehmel	Sequim
Julie Koelinger	Hoh Tribe
Luke Strong-Cvetich	Jamestown S'Klallam Tribe
Glen Roggenbuck	Lower Elwah Klallam Tribe
Tinker Lucas	Makah Tribe
James Roubal	Quileute Tribe
Jesse Duvall	WA DNR
Eric Flanigan	WA DNR
Guy Gifford	WA DNR
Jordan Hamrick	WA DNR
Kirk Troberg	WA DNR
Felipe Barragan	WA DNR
Cody Pagel	WA DNR
Shailesh Shere	Clallam County Public Utility District
John Tyler	Green Crow
Fred Hermann	Hermann Brothers
Steve Grawl	Interfor

Name	Organization
Tracey Dooley	Merrill Ring
Mike Auger	North Olympic Land Trust
Jeff Bortner	National Park Service (NPS)
Joseph (TY) Crowe	Olympic National Forest
Jerald Weaver	NPS – Olympic National Park
Janis Burger	Olympic Climate Action Group
Kelly Lawrence	Olympic National Forest
Jesse Waknitz	Port of Port Angeles
Carol Hasse	Port of Port Townsend
Jim Buck	Retired
John DeLuna	Retired Wildland Firefighter
Elizabeth Miller	U.S. Coast Guard
Sophia Fox	Washington Resource Conservation and Development Council
Victoria Amato	SWCA Environmental Consultants
Matthew Cook	SWCA Environmental Consultants
Alexis Roberts	SWCA Environmental Consultants
Mitch Burgard	SWCA Environmental Consultants
Liz Hitzfelder	SWCA Environmental Consultants



Figure 1.2. SWCA hosting a presentation for the Steering Committee meeting on May 22, 2025.

1.3.2 PUBLIC INVOLVEMENT

A key element in the CWPP process is the meaningful discussions it generates among community members regarding their priorities for local fire protection and forest management (Society of American Foresters 2004). SWCA Environmental Consultants (SWCA) released a community survey to the public and received 136 responses. A summary of the community responses and input is provided in Appendix H. The draft plan and project recommendations were made available for public review from January 12, 2026, to February 9, 2026.

Every effort was made to include a broad cross section of the county in the outreach process, and different communication channels, including social media postings and email distributions, were used to engage as many members of the public as possible. All county residents were provided multiple opportunities to provide input, such as the community survey and plan document and project recommendations review. Clallam County hosted many diverse community outreach events prior to the CWPP planning process, such as a series of community wildfire presentations hosted in Forks, Sequim, Port Angeles, and Joyce in May 2024. The input received and lessons learned from these outreach events were considered throughout the CWPP planning process, and outreach strategies were developed with this feedback in mind.

Recommendations for future community engagement and outreach are provided in Chapter 4.

Education and outreach programs targeting the public are a shared priority among various agencies and organizations working on wildfire-related issues.

1.4 RECENT ACCOMPLISHMENTS

Highlights of Clallam County's recent accomplishments between X and 2025 include:

- The Board of Clallam County Commissioners, after conducting a public hearing on September 23, 2025, approved a resolution authorizing Title III federal funds under the Secure Rural Schools and Community Self-Determination Act be paid to the following qualified applicants:
 - \$10,000 to Clallam County Fire District No. 5 for trail rescue kit and training materials
 - \$10,805 to Clallam County Fire District No. 6 for dry suits for swift water search and rescue
 - \$10,350 to the Clallam County Sheriff's Office for search and rescue connectivity enhancement
 - \$47,429.71 to Clallam County Fire District No. 2 for fire/rescue UTV
 - \$78,222.29 to Clallam County Fire District No. 3 for the Firewise Community Enrichment Program
- In October 2025, at the North Olympic Peninsula Energy and Environmental Resilience Conference, held in the City of Port Angeles, Clallam County Public Utility staff presented at the conference on community wildfire planning.
- Clallam County acted as lead for the multijurisdictional hazard mitigation planning for the county in 2024. In addition to Clallam County, the following were planning participants: the Cities of Port Angeles, Sequim, and Forks; Clallam County Public Utility District No. 1, Peninsula College, Port of Port Angeles, Jamestown S'Klallam Tribe, and Lower Elwha Klallam Tribe. The Federal Emergency Management Agency (FEMA) approved the plan on October 1, 2025.

1.5

1.5 PLANNING AREA GEOGRAPHY

The following sections provide context for the remainder of the plan by describing the baseline conditions throughout the county.

The planning area includes the entirety of Clallam County as delineated by its geographic and political boundaries (Figure 1.3). Additionally, a small portion of Jefferson County, the town and surrounding lands of Gardiner on the Miller Peninsula, has been included in community risk evaluations (Appendix D) due to the area's inclusion in the Clallam County Fire District 3's jurisdictional boundary.

Clallam County is located within the Olympic Peninsula of northwestern Washington state. It borders the Pacific Ocean for more than 35 miles to the west, the Strait of Juan de Fuca for nearly 100 miles to the north, and Jefferson County to the east and south. Clallam County was created out of Jefferson County in 1854 and has a total area of 2,670 miles² (1,708,800 acres). Of that area, 65% (1,739 miles²/1,112,960 acres) is land and 35% (931 miles²/595,840 acres) is water, including nearshore areas. Elevations within the county range from sea level to nearly 8,000 feet (Clallam County 2009).

1.5.1 LAND OWNERSHIP

Clallam County possesses a relatively diverse range of federal, state, local, private, and other land ownership. Most of the land, 36.17%, or 408,662 acres, is privately owned, highlighting the significant role of private stakeholders in land management and wildfire mitigation efforts. Federal lands make up a substantial portion of the area, with the National Park Service (NPS) managing 28.83% (325,716 acres) and the U.S. Forest Service (USFS) overseeing 17.57% (198,560 acres). State-owned lands account for 14.58% (164,701 acres), while lands held in trust by the Bureau of Indian Affairs (BIA) constitute 2.76% (31,174 acres), including Quileute, Makah, Lower Elwha Klallam, and the Jamestown S'Klallam Tribal lands, representing vital cultural and natural resources. Smaller contributions to land ownership include local government at 0.04% (447 acres), the U.S. Fish and Wildlife Service (USFWS) at 0.04% (432 acres), and the Bureau of Land Management (BLM) at 0.01% (118 acres) (Table 1.2, Figure 1.4).

Table 1.2. Land Ownership within Clallam County

	Acres	Percent
Private	408,662.13	36.17
National Park Service	325,716.30	28.83
U.S. Forest Service	198,559.76	17.57
State	164,701.47	14.58
U.S. Bureau of Indian Affairs	31,174.44	2.76
Local Government	447.34	0.047
U.S. Fish and Wildlife Service	432.17	0.04
U.S. Bureau of Land Management	118.04	0.01
Total	1,129,811.7	100

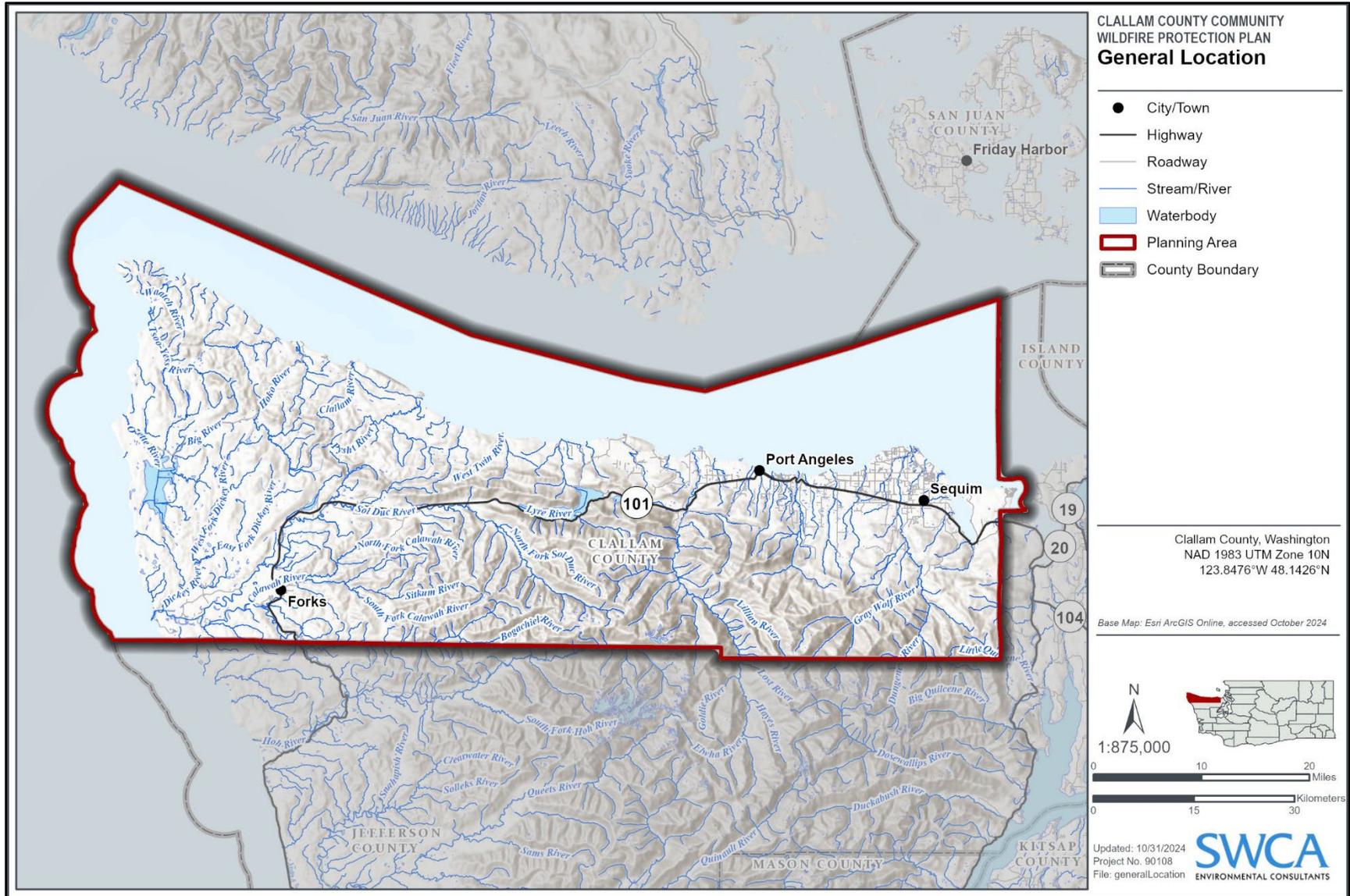


Figure 1.3. Clallam County planning area.

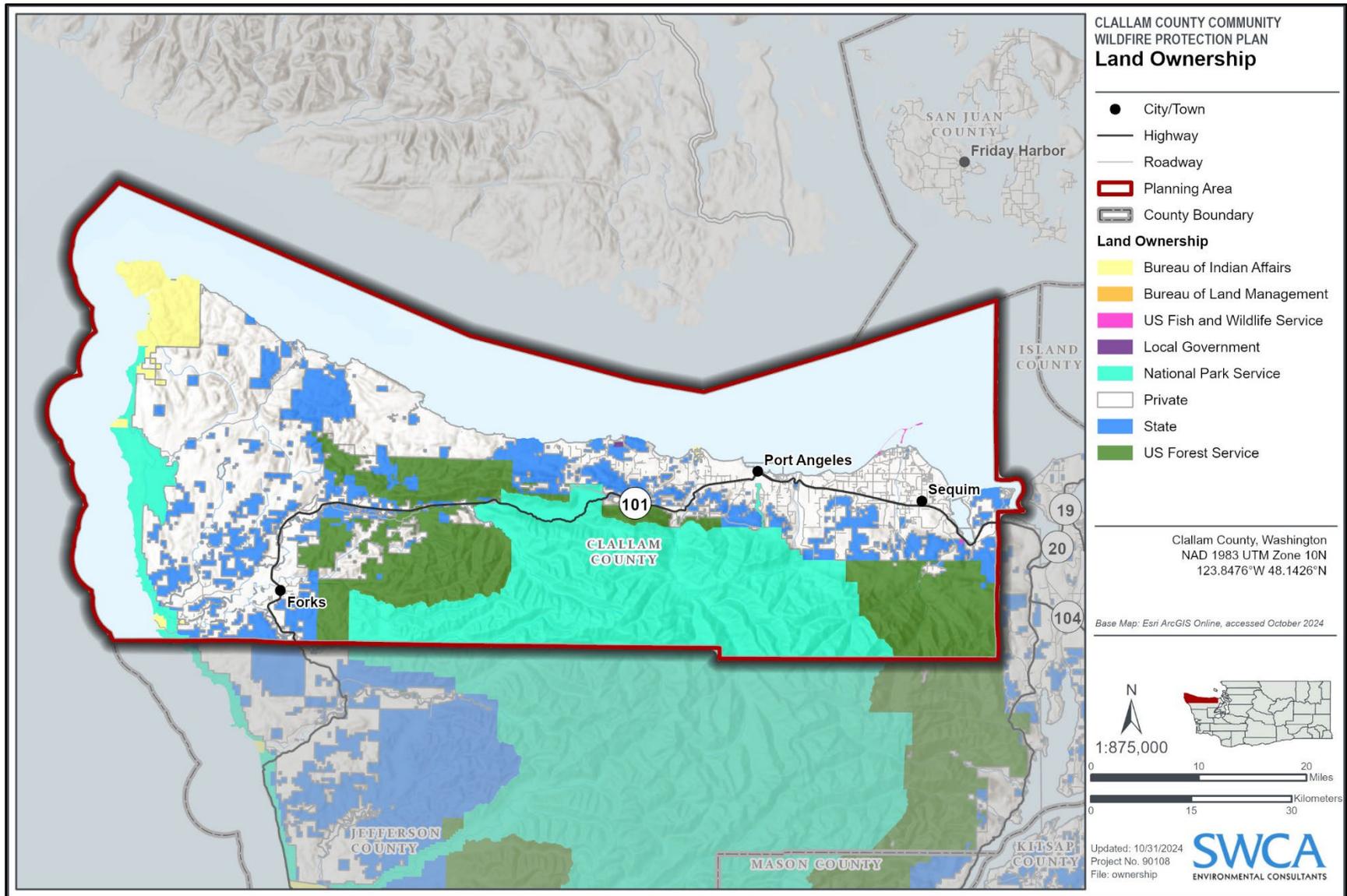


Figure 1.4. Clallam County land ownership.

1.5.2 TRIBAL HISTORY AND CULTURAL PRACTICES

The CWPP planning area is home to many Tribes, including the federally recognized Jamestown S’Klallam Tribe, the Lower Elwha Klallam Tribe, the Makah Tribe, and the Quileute Tribe. The county of Clallam is named for the S’Klallam/Klallam Tribes, which translates as “the strong people.” A brief history of these Tribes, their demographics, and the wildfire risks they face are outlined below. We have also included the Hoh Tribe, whose reservation lands are located in nearby Jefferson County.

1.5.2.1 Jamestown S’Klallam Tribe (nəxʷsłáyəm)

The Jamestown S’Klallam Tribe (nəxʷsłáyəm) was designated as a federally recognized Tribe in 1981 (Jamestown S’Klallam Tribe 2018). The original reservation of the Jamestown S’Klallam Tribe is on approximately 13 acres of land on and near Sequim Bay in Blyn, WA at the far eastern end of Clallam County. The Tribe owns land in Blyn, Miller Peninsula, Jamestown Beach, Sequim, Carlsborg, Port Angeles, along the Dungeness River and throughout Clallam and Jefferson Counties. The Tribe’s land base has grown to nearly 1,800 acres (1024 acres of Trust; 269 acres of Reservation land; and 509 acres of Fee land). It is important for the Tribe to have sufficient land base to exercise Tribal sovereignty and self-determination. For over 10,000 years before European contact, the Tribe inhabited what is now known as the Olympic Peninsula in Washington, and the Tribe remains deeply connected to these homelands.

The Jamestown S’Klallam Tribal vision statement is to “preserve and enhance the Jamestown S’Klallam Nation’s historical and cultural identity as a strong, proud and self-reliant community while protecting and sustaining our tribal sovereignty, self-governing authority, homelands and treaty rights” (Jamestown S’Klallam Tribe 2025a).

The Tribe values and practices environmental stewardship, participating in fisheries management and environmental planning that has helped manage and restore their historic lands, in addition to developing and strengthening relationships with local, state, and federal agencies, as well as the public (Jamestown S’Klallam Tribe 2024). The Tribe’s Department of Natural Resources has protected natural resource treaty rights, carried out co-management responsibilities with Washington State for harvest, and has protected and restored ecosystems that have historically supported populations of fish and wildlife (Jamestown S’Klallam Tribe 2020).

Additionally, the Tribe developed their Jamestown S’Klallam Tribal Multi-Hazard Mitigation Plan in 2011, with an emphasis on wildland fire (Jamestown S’Klallam Tribe 2011). The plan detailed the high wildfire hazard vulnerability on Tribal lands, with the highest wildland fire risk in areas of Blyn Upper, Audubon/Dungeness River, Dungeness, Casino sub-area, Carlsborg, and the Miller Peninsula sub-area (Jamestown S’Klallam Tribe 2011). The Dungeness Watershed, an area with a high percentage of Tribal lands, is considered one of the state’s driest watersheds west of the Cascades, and Sequim Bay is notable for its high wildfire risk (Jamestown S’Klallam Tribe 2011). Updates to the Jamestown S’Klallam Tribal Multi-Hazard Mitigation Plan and the Tribe’s wildfire risk can be found in the Clallam County Multi-Jurisdictional Hazard Mitigation Plan, which was developed in 2019 and will be updated in 2025 (Clallam County 2025d).

1.5.2.2 Lower Elwha Klallam Tribe

The homelands of the Lower Elwha Klallam Tribe include the Lower Elwha River Valley and the adjacent northern coast west of Port Angeles. In present day, Tribal lands include approximately 1,000 acres of

land and the Lower Elwha Reservation was established in 1968. The Lower Elwha Klallam Tribe historically connected with every part of their lands, from the seas where they traveled by cedar dugout canoes, to the mountains where they gathered medicinal plants and hunted for food. Despite treaties that have inflicted the separation of the Tribe from their lands, they continue to practice culturally and spiritually in their homelands today.

The mission of the Tribe is “to build a strong and healthy sovereign nation where Tribal members live their values and culture. This means enhancing the lives of our people both physically and spiritually through social wellbeing and economic independence while preserving and enhancing our natural resources and cultural heritage” (Lower Elwha Klallam Tribe 2025).

To fulfill the Tribe’s mission to enhance natural resources, the Tribe developed a Climate Change Vulnerability Assessment in 2022, including an evaluation of wildfire risk on Tribal lands (Lower Elwha Klallam Tribe 2022a). In this assessment, the number of days per year when fire danger is expected to reach “very high” or “extreme” is projected to increase up to 57%, or 20 days total per year, for the reservation area by 2050 (Lower Elwha Klallam Tribe 2022a).

1.5.2.3 Makah Tribe (qʷidiččaʔa·tʰ)

Before European contact, the Makah Tribe inhabited a great area of land on what is now known as the Olympic Peninsula, and the Tribe has inhabited Neah Bay for over 3,800 years (Makah Tribe 2025). Makah territory was severely diminished through treaties, and the resulting present-day treaty lands include the approximately 27,000-acre Makah Reservation along the northwesternmost edge of Clallam County.

Despite shifts in land rights since European contact, the Makah Tribe remains deeply connected to their lands, and their identity, culture, and economy are interwoven with and dependent on their environment. Both historical and present-day Tribal practices show an incredibly respectful and intimate understanding of the environment; the Makah are highly skilled mariners with a practical and spiritual connection to native plants and animals in both the land and sea, and they have painstakingly fought to retain their rights to whaling (Makah Tribe 2025). As an example of their heritage and their connections to their lands, the Tribe maintains yearly boating traditions, celebrating their heritage by taking canoes made with western redcedar along the Washington and British Columbia coast in a journey of song, dance, food, and connection (Makah Tribe 2025).

The Makah have developed assessments and plans to navigate threats to their lands, including climate adaptation and carbon mitigation plans. Additionally, recent fire history has highlighted the threats that wildfire has on isolated communities within Clallam County. In 2022, multiple fires broke out in Makah Reservation Lands, causing the evacuation of over 100 residents and visitors and the shutdown of parks and sacred sites such as Cape Flattery (KOMO News 2022).

1.5.2.4 Quileute Tribe

The traditional homelands of the Quileute Tribe are on the northwestern Olympic Peninsula, within watersheds of the Dickey, Sol Duc, Calawah, and Bogachiel Rivers where the Quileute Tribe has flourished for thousands of years. The present-day reservation lands include approximately 2,100 acres in Clallam County on the mouth of the Quillayute River.

The reservation is a sovereign nation and a federally recognized Native American Tribe. The Tribe is an active steward of the environment, accomplishing land stewardship goals by developing and

strengthening relationships with stakeholders and the community as well as by developing programs and plans like the 2017 Quileute Climate Plan (Quileute Nation 2017) and the 2015 Quileute Tribe Hazard Mitigation Plan (Quileute Nation 2015).

The history of wildfire on Quileute Tribal lands is not formally documented; however, fires have historically occurred within and adjacent to the reservation, notably the Bear Gulch 2 Fire in 2006 that burned 1,055 acres in Olympic National Park (Quileute Nation 2015). Wildfire risk within and adjacent to Quileute Tribal lands includes steep slopes and high levels of vegetation that influence greater wildfire risk in areas of the wildland-urban interface (WUI). The Quileute Hazard Mitigation Plan details fire hazards and wildfire-related recommendations for the Tribe (Quileute Nation 2015).

1.5.2.5 Hoh Indian Tribe

Located 28 miles south of Forks in Jefferson County, the Hoh Indian Reservation is situated approximately 1 mile east from the mouth of the Hoh River to Ruby Beach. The Tribe has acquired more than 700 acres of new land, east and adjacent to their original reservation along Lower Hoh Road and U.S. Highway 101. The Hoh Tribe currently consists of 30 homes, accommodating 120 residents; there are 270 Tribal members in total.

The Hoh Indian Tribe does not have a fire station, leading them to depend on neighboring communities, such as those in Clallam County, for fire response services. Unfortunately, communication with the nearest emergency response is inadequate due to their remote location. Fire incident response takes a minimum of 45 minutes to reach the Hoh Tribe's reservation, magnifying the Tribe's risk to wildfire impact under conditions conducive to rapid fire spread (e.g., high wind, drought, extreme heat). Recently, the Tribe experienced a fire incident during which a structure burned due to these communication challenges and insufficient local suppression resources to fight the fire. The severity of a wildfire for the Hoh Tribe depends on existing conditions and the availability of fire resources at the time of the incident (Hoh Indian Tribe 2022).

The community is extremely isolated with only one way in and out of the existing location; however, upon relocating to the new community site, ingress and egress should be improved. The new site also includes an existing facility for housing fire and other emergency management equipment and apparatus to improve the self-sufficiency of the Tribe and allow for more immediate fire suppression.

For further details of wildfire risk on Hoh Indian Reservation and Tribal lands, including recommendations developed to support the Tribe, please review the Jefferson County CWPP located at: <https://jefferson-county-cwpp-jeffcowa.hub.arcgis.com/>.

1.5.3 ROADS AND TRANSPORTATION

Clallam County's transportation network is shaped by its unique geography, which includes the Olympic Mountain range and Pacific coastline, restricting major routes to the coastal shelf. U.S. Highway 101 remains the primary transportation route, running east-west across the county, connecting major cities like Port Angeles, Sequim, and Forks (Figure 1.5) (Clallam County Sheriff's Office 2022). State Routes 110, 110 Spur, 112, 113, and 117, along with a network of county roads and city streets, also serve as important thoroughfares, especially in the event of a wildfire or other emergencies (Clallam County 2009). These state and county routes provide critical access to smaller communities and remote areas, although they can pose challenges for emergency responders due to limited accessibility on gravel and rural roads (Figure 1.6) (Clallam County 2009).



Figure 1.5. U.S. Highway 101 (Olympic Highway) situated along Lake Crescent in the north-central region of the county.



Figure 1.6. A roadway in the Miller Peninsula that may face unique challenges to evacuation and fire response due to its overhanging vegetation and narrow width

In the event of a wildfire, critical infrastructure identified in the Clallam County Comprehensive Emergency Management Plan includes U.S. Highway 101 and its bridges, State Routes 112 and 113, and bridges over the Dungeness, Sol Duc, and Elwha Rivers (Clallam County 2009). Local airports, such as Fairchild International Airport, Sequim Valley Airport, Forks Airport, and Quillayute Airport, may also play vital roles in transportation and evacuation efforts (Clallam County 2009).

Clallam County includes communities in the west that face unique challenges to evacuation as identified by USFS Wildfire Evacuation Risk for PNW Communities mapping. Evacuation routes in the communities of Clallam Bay and Neah Bay are constrained and are in the highest risk rank in Clallam County due to connectivity and exit capacity (USFS n.d.).

The USFS Wildfire Evacuation Risk for PNW Communities map can be found here:

<https://www.arcgis.com/apps/View/index.html?appid=8630fdb3e88f475fb5304415ce9e03c0&extent=-136.2333,39.1055,-102.4834,50.3252>.

1.5.4 TOPOGRAPHY

Clallam County's topography is characterized by three distinct regions: the western coastline along the Pacific Ocean, the central Olympic Mountains, and the eastern Puget Sound lowlands (Figure 1.7) (Clallam County Sheriff's Office 2022). The Olympic Mountains, which rise to nearly 8,000 feet at Mount Olympus, dominate the central part of the county, providing both a natural barrier and a scenic landscape (Clallam County DEM 2019). The coastal area features rugged cliffs and beaches, particularly near the western region around Forks, while the northeastern part of the county is part of the Olympic rain shadow, resulting in much drier conditions near Sequim and Port Angeles (Figure 1.8) (Clallam County 2009). Several rivers, including the Dungeness and Elwha, drain from the Olympic Mountains into the Strait of Juan de Fuca, creating valleys that play important roles in the region's hydrology and community development (Clallam County DEM 2019).

1.5.5 POPULATION

According to the 2024 U.S. Census estimate, Clallam County had a population of 77,958, representing a 9.2% increase from the 2010 population of 71,404 (U.S. Census Bureau 2025). As of 2023, there were 38,876 households in the county. With a land area of approximately 1,738.74 square miles, the population density was 44.8 people per square mile in 2024, up from 41.1 people per square mile in 2010 (U.S. Census Bureau 2025). In 2023, there were 38,876 households in the county. In 2020, the population density was 44.4 people per square mile (U.S. Census Bureau 2022).

Clallam County's population is distributed across several incorporated cities and smaller unincorporated communities. The largest is Port Angeles, which serves as the county seat and a gateway to Olympic National Park (Clallam County Sheriff's Office 2022). Other significant population centers include the city of Sequim in the east and the city of Forks on the west end. Smaller communities, such as Neah Bay, Clallam Bay, and Joyce, contribute to the county's demographic and cultural diversity. These communities are grouped into operational zones for emergency response planning, each with a designated coordination center (Clallam County Sheriff's Office 2022).



Figure 1.7. Rugged mountainous landscape in Clallam County



Figure 1.8. Upland, tree-covered landscape in Clallam County where topography may contribute to more intense wildfire behavior, and adjacent agricultural lands south of Sequim.

While census figures reflect permanent residents, Clallam County experiences a notable seasonal population increase due to tourism. Olympic National Park occupies nearly 29% of the county's land area and attracts a substantial number of visitors each year (Clallam County 2009; Clallam County Sheriff's Office 2022). This influx, primarily concentrated in Port Angeles and surrounding recreation areas, places additional demand on local infrastructure, emergency services, and wildfire preparedness systems (Clallam County 2009; Clallam County Sheriff's Office 2022).

1.5.6 SOCIAL VULNERABILITY

FEMA defines social vulnerability as the susceptibility of social groups to the negative impacts of natural hazards (e.g., wildfire), which include disproportionate death, injury, loss, or disruption of livelihood (FEMA 2023). A single hazard occurrence can bring about considerably different impacts for distinct individuals, even if the magnitude of the hazard is the same for the entire community. Social vulnerability is influenced by a range of social, economic, and demographic factors that can affect how individuals experience and recover from disasters. For example, individuals with limited mobility, such as elderly residents or persons with disabilities, may face greater challenges during evacuation or emergency response. Similarly, those living in poverty may lack access to the resources needed to prepare for or recover from fire events.

To assess these risks, the Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) Social Vulnerability Index ranks census tracts using 16 variables grouped into four key themes: socioeconomic status, household characteristics, racial and ethnic minority status, and housing type/transportation (CDC and ATSDR 2022). Factors include unemployment, poverty, education level, language barriers, and lack of vehicle access, among others. The 2022 Social Vulnerability Index assessment for Clallam County shows that certain census tracts (particularly in areas with higher poverty rates, mobile homes, and elderly populations) are among the most socially vulnerable in the state (CDC and ATSDR 2022).

These vulnerabilities are important to consider in wildfire planning and response, as they may correlate with reduced ability to evacuate, prepare homes, or access recovery services. Understanding the distribution of these populations helps guide the prioritization of resources and outreach to ensure all residents, regardless of social status, receive the support they need before, during, and after wildfire events.

1.5.6.1 Unhoused Populations

Like many regions across the United States, Clallam County is affected by rising housing insecurity and an increase in unhoused individuals, particularly near urban centers and along vegetated corridors (CDC and ATSDR 2022). In response, fire departments are managing a growing number of incidents involving open-flame use in encampments, often in areas of high wildfire risk. Many unhoused individuals rely on fire for warmth or cooking, but limited access to fire-safe tools and education increases fire hazards for both the unhoused and the broader community (CDC and ATSDR 2022). Local organizations and public agencies are working to develop outreach strategies that offer fire safety training and gear, while addressing broader systemic challenges surrounding housing, poverty, and emergency shelter access.

1.5.7 RECREATION

Clallam County offers various recreational opportunities through county, state, and national parks. Clallam County Parks and Recreation manages several parks, trails, and facilities, providing spaces for

hiking, camping, and other outdoor activities (Clallam County Sheriff's Office 2022). The county also has state parks, such as Bogachiel State Park and Miller Peninsula State Park, which are frequently used for day trips and camping (Clallam County 2009). Sequim Bay State Park is another notable area, offering access to the shoreline and wooded areas for hiking, camping and picnicking (Clallam County 2009).

Olympic National Park, located in the southern part of the county, covers over 922,651 acres and offers a range of recreational activities, including hiking, camping, and nature observation (Clallam County Sheriff's Office 2022). The park's varied ecosystems—coastal areas, forests, and mountains—draw over three million visitors annually, especially during the summer months (Clallam County DEM 2019). Clallam County is also home to the Olympic Discovery Trail, which spans over 130 miles and provides recreational use for hiking, biking, and horseback riding (Clallam County 2009).

The influx of visitors to these recreational areas, particularly during the summer, increases the risk of human-caused wildfires. As visitation rises each year, public lands and park managers should consider expanding wildfire pre-planning, including the creation of evacuation routes for recreational users given that many existing evacuation routes are one way in and one way out (Clallam County DEM 2019). In addition, increased education and outreach on wildfire prevention and safety measures should be considered to mitigate wildfire risks in high-use areas (Clallam County 2009).

1.5.8 VEGETATION AND LAND COVER

The vegetation within Clallam County, Washington, is diverse, shaped by its maritime climate, varied topography, and land use patterns. The county spans multiple ecoregions, with dense coniferous forests, including temperate rain forest, riparian corridors, oak savannah, subalpine/alpine ecosystems, and developed areas. According to data derived from LANDFIRE, forests dominate the landscape, with North Pacific Seasonal Sitka Spruce Forest (13.59%), North Pacific Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest (12.70%), and North Pacific Mesic Western Hemlock-Silver Fir Forest (11.29%) comprising the largest classifications (Figure 1.9). These forests thrive in the county's high precipitation zones, particularly in the western and central regions (Clallam County 2009).

The northeastern portion of the county, particularly in the rain shadow of the Olympic Mountains, features scattered remnant prairies and Douglas-fir forests, with an understory of salal (*Gaultheria shallon*) and dwarf Oregon-grape (*Mahonia nervosa*). Shrubland and herbaceous cover types, such as North Pacific Montane Shrubland (0.96%) and Southern Vancouverian Lowland Ruderal Grassland (1.29%), are interspersed throughout the county. Alpine and subalpine ecosystems, including North Pacific Alpine and Subalpine Bedrock and Scree (0.42%) and North Pacific Dry and Mesic Alpine Dwarf-Shrubland (0.05%), are found at higher elevations, where vegetation is sparse due to harsher climatic conditions.

Developed areas, including low- and medium-intensity urban development (1.0%) and road networks (1.62%), are primarily concentrated around Port Angeles, Sequim, and Forks. Agricultural lands (1.2%), contribute a minor but notable portion of the county's landscape. Additionally, a substantial 34.99% of the planning area is classified as Open Water, primarily consisting of the Strait of Juan de Fuca and inland water bodies.

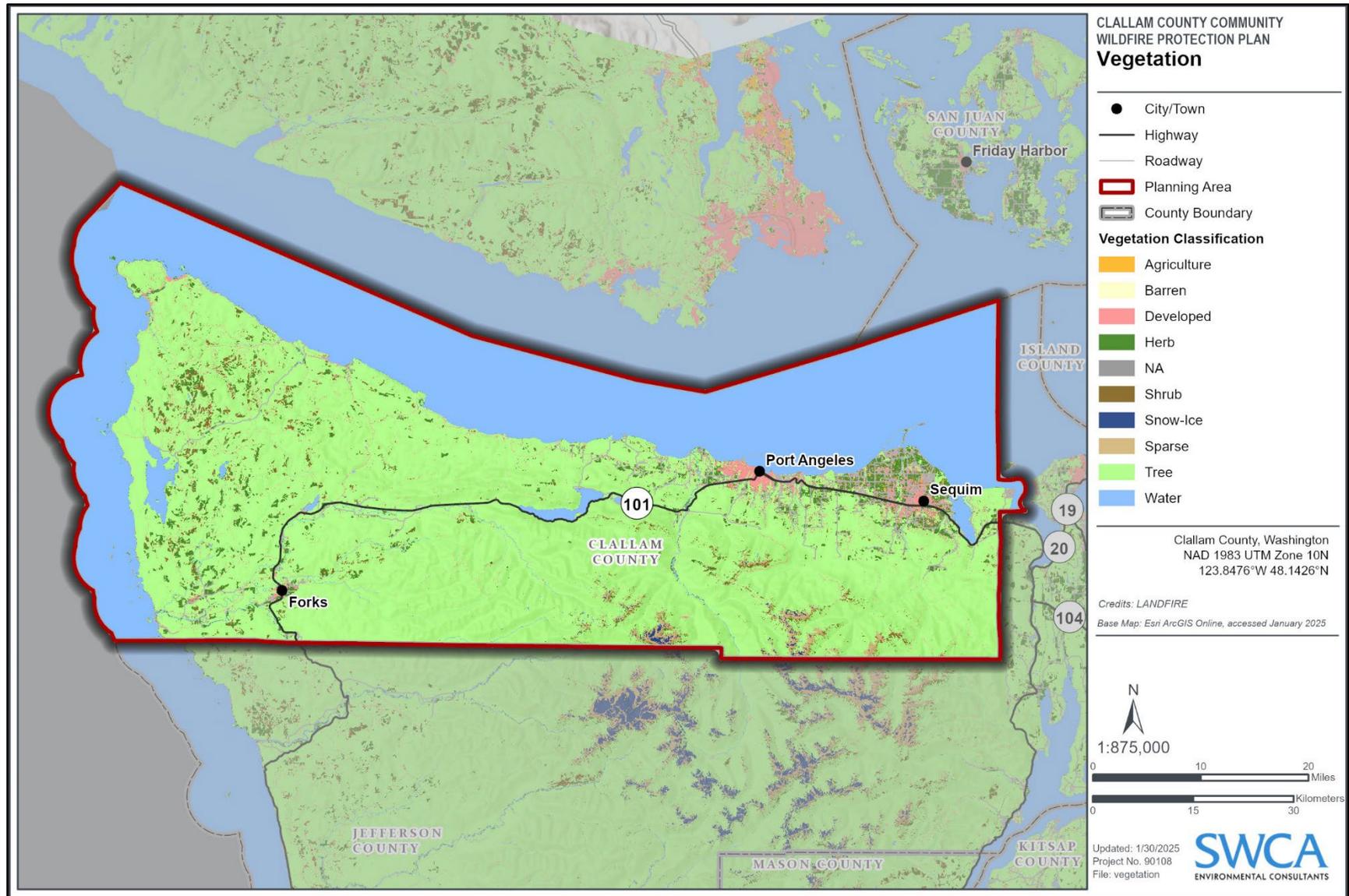


Figure 1.9. Clallam County existing vegetation cover.

1.5.9 FOREST HEALTH CONSIDERATIONS

1.5.9.1 Diseases and Insects

Pine beetle, blister rust, root disease, and other diseases and insects can cause small- and large-scale tree loss in forests across the county. As trees die or become weakened by disease and insect infestation, fuel loads within the forests increase. This creates more opportunities for fires to ignite and spread. Dead and dying trees catch fire more easily, and fallen dead trees can act as ladder fuels that carry fire into the canopy, where it can spread and intensify. Douglas-fir beetles have shown an upward trend in recent years, reaching a peak in 2019, followed by a decline in 2021. However, it is worth noting that the 2021 survey may have underestimated the beetle population due to a reduced survey area (Washington State Department of Natural Resources [WA DNR] 2021). As annual temperatures rise due to climate change, as winters become warmer and wetter, and as trees are weakened by other factors such as extended drought, there is the potential for Douglas-fir beetle populations to continue to increase and become more impactful. It is expected that the Douglas-fir beetle's range will shift to higher elevations with rising temperatures, making historically unavailable areas accessible for insects (University of Washington Climate Impact Group 2009). Other impactful insect species are the balsam woolly adelgid and the Hemlock woolly adelgid, introduced species that feed on tree sap and can cause tree stress and mortality. The balsam woody adelgid primarily feeds on subalpine fir, Pacific silver fir, and grand fir (WA DNR 2021), while the hemlock adelgid primarily feeds on hemlock species (Washington State University 2025).

Several diseases can also impact forest health, including root disease and blister rust. Root disease impacts all present species in the county and is most likely to impact trees already stressed by heat, drought, and insects (USFS 2023a). White pine blister rust poses a significant threat to white pine species. The nonnative fungus infects live needles before moving into the branches and trunk. From there, it creates cankers that will kill branches and eventually the whole tree. Mortality rates for infected trees can be as high as 90% (WA DNR 2021).

1.5.9.2 Impact of Climate Change

In recent years, there has been an increase in the number of wildfire events in Washington and the extent and severity of events. The five largest recorded wildfires in the state have occurred in the last 10 years (Washington Geospatial Open Data Portal 2024). 2015 was the warmest recorded year in the state and correlated with the second-largest wildfire year in state history (University of Washington Climate Impact Group 2023a, 2023b). Multiple projections indicate that annual area burned by wildfire is anticipated to increase 150% to 1,000% by the end of the century (Snover et al. 2013). In addition to more intense fire seasons, climate change is anticipated to result in extended fire seasons. Historically, the fire season has correlated with the summer months and generally lasts from late June through late September (University of Washington Climate Impact Group 2009). In recent years, fires have occurred further into October, which lengthens the time residents must be concerned about fire events and extends the fire season and burden for response personnel. A 2024 research article titled "Simulated Future Shifts in Wildfire Regimes in Moist Forests of Pacific Northwest" modeled potential shifts in burn probability, fire rotation, and the size and number of fires, especially large fires, under climate change conditions expected with little concerted effort toward reducing carbon emissions (Dye et al. 2024). Their models found that under "business as usual" conditions, the Olympic Peninsula will experience higher burn probability and shorter fire rotations. Additionally, they found that the Olympic region will likely experience an increase in fires greater than 40,000 hectares and an increase in the number of fires per year. A large factor contributing

to the increase in size and number of fires is an anticipated shift in fire seasonality where fire season begins earlier in the spring and may extend further into fall (Dye et al. 2024).

Annual average temperatures have continued to rise in the region and are anticipated to increase further in the coming decades. Average annual temperatures in Clallam County are increasing and have contributed to more intense droughts and degraded forest conditions. The 2024 Clallam County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) notes that the average annual temperature in Clallam County has increased steadily, with 2016 being the warmest year on record at 49.6°F (Clallam County DEM 2019, 2024). Climate models project continued warming and greater variability in precipitation across the Olympic Peninsula, especially in the northeastern portion of the county, which lies in a rain shadow and already receives less than 20 inches of annual precipitation (Clallam County DEM 2024).

As the climate changes, drought will become a more frequent and intense issue for the county. Drought stress reduces soil and vegetation moisture, which can weaken trees and increase susceptibility to disease and insect infestations (Clallam County DEM 2024). Prolonged drought also contributes to large-scale tree mortality and increased loads of standing dead fuels (Clallam County DEM 2024). While most of the Olympic Mountains are historically wetter and less fire-prone than other parts of Washington, changing climate patterns are reducing the protective effect of this moisture (Clallam County DEM 2024).

Species shifts are also anticipated as climatic conditions in the region continue to change. For instance, forests in eastern Clallam County, particularly in the rain shadow, are expected to experience shifts in vegetation community composition. Western redcedar (*Thuja plicata*), a culturally and economically important species, is declining across its current range in response to reduced snowpack and prolonged summer droughts (Northwest Climate Adaptation Science Center 2020). The 2024 Clallam County MJHMP notes that forest health is already being impacted by warmer winters and seasonal droughts, and tree species such as western redcedar are particularly vulnerable (Clallam County DEM 2024).

Finally, shifts in precipitation regimes (including a higher frequency of extreme rain events) will increase the risk of post-fire flooding and erosion, particularly in steep terrain common throughout the Olympic Peninsula (Clallam County DEM 2024; Snover et al. 2013). These changes compound the direct threats posed by wildfire and increase long-term recovery challenges for communities and ecosystems.

1.5.9.3 Tree Mortality

As discussed above, climate change is anticipated to have a variety of impacts to local weather patterns, average precipitation, snowpack, and drought extent. These combined factors can result in large-scale impacts to forest health including broad tree mortality (National Science Foundation 2022). While tree mortality is a natural process in forest ecosystems, when large regions experience a significant number of tree deaths within a short time period, it can negatively impact forest health and disrupt ecosystem functions. Large-scale tree mortality greatly increases the amount of fuel available for wildfire events and increases the likelihood of catastrophic events.

1.5.9.4 Invasive Species

Nonnative and invasive species can cause degradation and a number of ecological issues, including outcompeting native species, reducing biodiversity and ecological health, and increasing fire vulnerability. Invasive species thrive in disturbed areas and are often transported by vehicles, foot traffic, and escape from gardens. Scot's broom, Canada thistle (*Cirsium arvense*), Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*), English holly (*Ilex aquifolium*), herb Robert (*Geranium robertianum*), and Japanese knotweed (*Reynoutria japonica*) are some of the most impactful species in the region (Clallam County Road Department 2025; NPS 2015). Scot's broom in particular increases the

potential and intensity of fire. It occurs frequently along roadways and can spread quickly (Clallam County Road Department 2025). Clallam County and the Noxious Weed Control Board have a number of resources and guides to help community members identify and manage invasive species: <https://www.clallamcountywa.gov/887/Weed-Information-Weed-Lists>.

1.5.10 WILDLIFE

Wildfire management is an important component of wildlife management because of the impacts, both adverse and beneficial, that wildfire can have on wildlife habitat. The focus of most wildlife management is on the preservation of biodiversity and healthy functioning ecosystems; fire management and the application of prescribed fire can play an integral part in the preservation of biodiversity.

Most native wildlife species found in the region evolved with a frequent fire regime. However, impacts to wildlife should still be considered when planning fuel treatments. For more detailed information about fuel management practices, please see Appendix F.

Projects to reduce wildfire risk that involve physical changes to the landscape such as creating fuel breaks or modifying vegetation types can have positive or negative impacts to wildlife. These impacts should be evaluated when projects are proposed and plans to implement the projects are developed.

1.5.10.1 Threatened and Endangered Species

Several state and federally listed threatened and endangered species can be found in Clallam County, including birds, insects, fish, and plant species. The USFWS's Information for Planning and Consultation (IPaC) system was queried on December 1, 2024, for an official species list for the county (USFWS 2025) (Table 1.3). Treatments on federal land are subject to the National Environmental Policy Act (NEPA) and associated analysis of impacts to these species. Wildfire mitigation treatments in areas that may impact threatened and endangered species require applying certain mitigation measures to prevent degradation to habitat. Please note that the table below is not exhaustive and only includes a selection of species that occur within the area according to the USFWS's IPaC. For a more comprehensive list, please visit the Washington Department of Fish and Wildlife threatened and endangered species page here: <https://wdfw.wa.gov/species-habitats/at-risk/listed>.

Critical habitat exist in Clallam County for the marbled murrelet (*Brachyramphus marmoratus*), northern spotted owl (*Strix occidentalis caurina*), Taylor's checkerspot (*Euphydryas editha taylori*), and bull trout (*Salvelinus confluentus*) (USFWS 2025).

Table 1.3. Official Species List for Clallam County

Type	Scientific Name	Common Name	State Status	Federal Status
Birds	<i>Coccyzus americanus</i>	Yellow-billed cuckoo	Threatened	Threatened
Birds	<i>Brachyramphus marmoratus</i>	Marbled murrelet	Threatened	Threatened
Birds	<i>Strix occidentalis caurina</i>	Northern spotted owl	Threatened	Threatened
Birds	<i>Phoebastria (=Diomedea) albatrus</i>	Short-tailed albatross	Candidate	Endangered
Birds	<i>Pterodroma sandwichensis</i>	Hawaiian petrel	Endangered	Endangered
Fish	<i>Salvelinus confluentus</i>	Bull trout	Threatened	-

Type	Scientific Name	Common Name	State Status	Federal Status
Fish	<i>Salvelinus malma</i>	Dolly varden	Proposed Similarity of Appearance (Threatened)	-
Insects	<i>Danaus plexippus</i>	Monarch butterfly	-	Candidate
Insects	<i>Euphydryas editha taylori</i>	Taylor's (=Whulge) checkerspot	Endangered	Endangered
Reptiles	<i>Actinemys marmorata</i>	Northwestern pond turtle	Endangered	Proposed Threatened
Plants	<i>Pinus albicaulis</i>	Whitebark pine	-	Endangered

1.6 COMMUNITY VALUES

Earlier compilation of the critical infrastructure in the county, coupled with the community assessments, public outreach, and Steering Committee input, has helped in the development of a list of community values that may be exposed to wildfire. These data are also supplemented with HVRA data, which is a dataset that is being gathered nationwide and was used in the QWRA process.

In addition to critical infrastructure, other community values exposed to wildfire can include natural, social, and cultural resources. It is important to note that although an identification of values potentially exposed to fire can inform treatment recommendations, a number of factors must be considered in order to fully prioritize areas for treatment; these factors include appropriateness of treatment, land ownership constraints, locations of ongoing projects, available resources, and other physical, social, or ecological barriers to treatment.

1.6.1 NATURAL VALUES

Clallam County contains a wide variety of natural resources, including rare habitats and listed species (see Table 1.3); parks and open spaces owned by city, state, federal, and private entities; waterways; and other important natural areas and resources (Figure 1.10, Figure C.3 in Appendix C). Examples of natural values and places identified by the public, Steering Committee, and previous planning efforts include the following:

- Tribal values
 - Western redcedar used to make canoes and Tribal wares
 - Prairie habitats that include valued and sacred plants
- Local and regional parks/trails
 - Olympic Discovery Trail
 - Dungeness Recreation Area and Trails
 - Salt Creek Recreation Area
 - Carrie Blake Park
 - Robin Hill Farm County Park
 - Railroad Bridge Park
- Protected properties:
 - Dungeness River Nature Center and Conservation Area
 - Lyre Conservation Area
 - Pysht River Conservation Area
 - Elwha River restoration sites
- Outdoor recreation areas
 - Scenic viewsheds
 - Trail systems

- Scenic rural areas
- Watershed Resource Inventory Areas
 - Lyre–Hoko Watershed
 - Sol Duc – Hoh Watershed
 - Queets – Quinault Watershed
 - Elwha-Dungeness Watershed
- NPS lands
 - Olympic National Park
- USFS lands
 - Olympic National Forest
- USFWS lands
- National Wildlife Refuges
 - Washington Maritime National Wildlife Refuge Complex
- Washington State Parks Lands
 - Sequim Bay State Park
 - Bogachiel State Park
 - Miller Peninsula State Park Property
- Washington Department of Fish and Wildlife–managed lands:
 - Olympic Wildlife Area
 - Dungeness Wildlife Area Unit
 - North Olympic Wildlife Area
- Wildlife critical habitats
 - Bull trout
 - Chinook salmon
 - Steelhead
 - Bald eagle
 - Killer whale
 - Marbled murrelet
 - Northern spotted owl
 - Roosevelt elk
 - Olympic marmots



Figure 1.10. Example of a scenic viewshed present in Clallam County.

Source: Beautiful Washington (n.d.)

1.6.2 SOCIOECONOMIC VALUES

Socioeconomic values include population, recreation, infrastructure, commercial, and economic resources and the built environment (Figures C.4–C.6 in Appendix C). Large portions of communities in the county are located within the WUI. Examples include the following:

- Communications infrastructure (e.g., cell phone and radio towers)
- Tourism values (e.g., restaurants, recreational facilities) (Figure 1.11)
- Schools
- Public safety infrastructure
- Bridges
- Highways
- Municipal infrastructure
- Industrial infrastructure
- Water treatment plants
- Commercial timber lands
- Churches
- Care homes, senior housing, day care, and other group homes
- Water storage
- Recreation sites (e.g., golf courses, trails, parks)
- Agricultural land and food systems (local farms, fish and shellfish habitat)



Figure 1.11. Example of a socioeconomic value: the Lake Ozette Ranger Station and recreational facilities within Olympic National Park.

1.6.3 CULTURAL VALUES

Many historical landmarks are scattered throughout the county (Figure C.7 in Appendix C). Cultural values include buildings, sites, and districts listed in the National Register of Historic Places, Tribal lands, and other structures and places identified by the public and the Steering Committee. Additionally, cultural values include traditional activities by Tribes that are practiced today, many of which are not formally documented. Examples of cultural values that have been identified by the Steering Committee, Tribes, and the public in the planning area are listed below. It should be noted that this list is not comprehensive, as it excludes meaningful locations, activities, and structures that are considered sacred and only known to the Tribes of this region.

- Lonesome Creek and La Push
- Tribal centers and buildings
- Totems and carved panels of Tribal lands
- Tamanowas Rock Sanctuary (not in Clallam County)
- Railroad Bridge Park/Dungeness River Nature Center
- Sweat lodges
- Cemeteries
- Casinos and Tribal golf courses
- Aircraft Warning Service Observation sites
- Altair Campground Community Kitchen
- Dodger Point Fire Lookout
- Dungeness River Bridge
- Emery Farmstead
- Manis Mastodon Site
- Masonic Temple
- Morse Code Bridge
- New Dungeness Light Station (Figure 1.12)
- Clallam County Courthouse
- Ozette Native American Village Archeological Site
- Tribal canoe journeys



Figure 1.12. An example of a cultural value, the National Register of Historic Places–listed New Dungeness Light Station.

Source: National Register of Historic Places (2025)



CHAPTER 2 – FIRE ENVIRONMENT

2.1 WILDLAND-URBAN INTERFACE

The wildland-urban interface (WUI) areas in the state of Washington were originally determined using the Washington Wildland-Urban Interface (WA-WUI) map for implementing and enforcing building codes across all counties and cities under Senate Bill 6109, but state-level enforcement has since been paused and is being re-structured under newer legislation (Washington State Building Code Council 2024). Future WUI Code enforcement will be based on new hazard/risk maps, not the old WA-WUI map alone (see Appendices A and I).

Chapter 51-55 Washington Administrative Code (WAC) outlines the adoption and amendment of the 2021 edition of the Wildland-Urban Interface Code (WUI Code). The code mandates compliance in construction within the interface or intermix areas and specifies the process for updating or designating new WUI, with only the local jurisdiction's code official having the authority to modify the WA-WUI map (WA DNR 2025a).

In this plan, the WUI (Figure 2.1) is defined in accordance to Chapter 51-55 WAC as:

- The geographical area where structures and human development meet or intermingle with wildland or vegetative fuels.

Section 302.3.6 of WAC 51-55 outlines the process for WUI area designation. It involves determining structure density, vegetation density, and proximity categories for a given area, and based on these criteria, the site is designated as either intermix or interface, depending on the specified conditions. Compliance with the code, including the WUI Code, is then determined accordingly.

The WA-WUI map (Figure 2.1) was created by the WA DNR. The purpose of the WA-WUI map is to show where people and property are located relative to wildland vegetation. The WA-WUI map is sometimes inadvertently confused with a wildfire risk map. It is important to note the distinction here. This map was designed as a tool to help municipalities design or update WUI codes or building codes but does not assess wildfire risk or hazard.

Examples of the WUI intermix in Clallam County are shown in Figure 2.2. and 2.3.

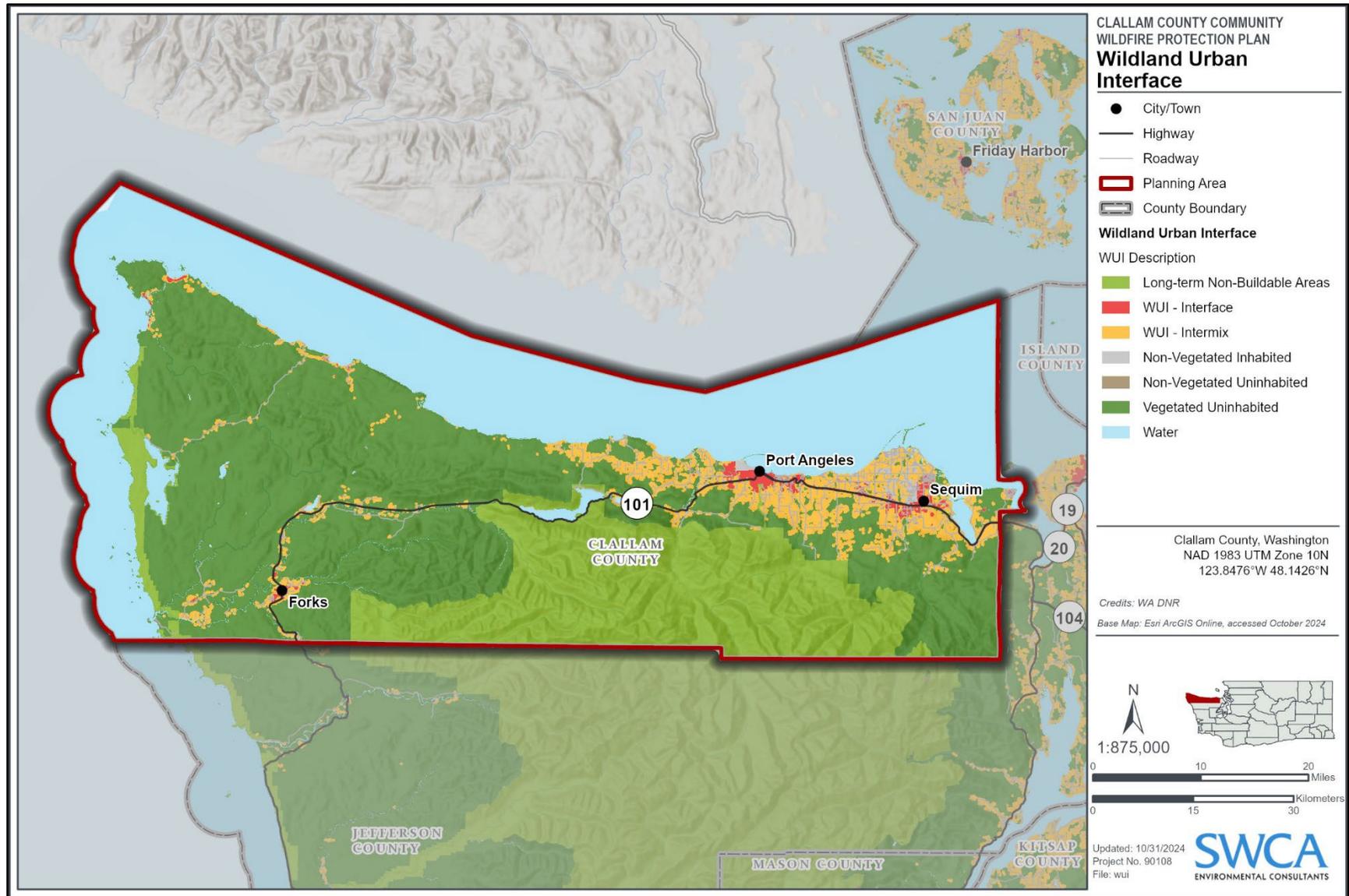


Figure 2.1. WUI in Clallam County.



Figure 2.2. Example of the WUI intermix in Clallam Bay.



Figure 2.3. Example of the WUI intermix in Forks.

2.1.1 WILDLAND-URBAN INTERFACE LAND USE

Chapter 21.01 of the Clallam County Code adopts the model building and fire codes (including the International Building Code and International Fire Code) as the regulatory basis for construction in the county. The statewide WUI Code, adopted by the Washington State Building Code Council under WAC 51-55, became effective March 15, 2024, and applies to parcels within designated WUI areas in Clallam County (Clallam County 2025a). The regulatory process for new construction and significant remodels in WUI or intermix zones involves 1) determining whether the parcel lies within a designated WUI area and assessing hazard severity; 2) evaluating and requiring defensible space; 3) applying ignition-resistant construction methods and materials in accordance with the WUI Code; and 4) verifying that site plan review addresses wildfire mitigation factors such as access, water supply, and separation (Clallam County 2025a). These provisions aim to reduce the risk of structure ignitions from wildland fire, protect homes from wildfire intrusion, and limit the spread of fire to and between structures.

Cities and counties are continuously challenged to accommodate both current and future residents in need of safe and affordable housing. As outlined by the International WUI Code, development in moderate to extreme fire hazard areas is required to be constructed in accordance with a set of guidelines and requirements that aim to prevent wildfire intrusion, protect structures from ignition, and stop structure fires from spreading to wildland fuels, even without fire department intervention. These requirements include the use of fire-resistant materials to minimize fire susceptibility in new structures and the implementation of defensible space.

Additional fire code information is described in Appendix A.

Appendix D contains the WUI delineation map for cities and unincorporated areas within Clallam County as well as a description and a hazard rating for each city and unincorporated area. The WA-WUI map depicts the entire WUI boundary for each city or unincorporated area. The WUI buffer is an area where fuel treatments should be prioritized to provide additional protection to communities from potential wildfire and/or grassland fire spread. It is of note that Appendix D will be amended when WA DNR provides its WUI delineation map.

2.2 WILDLAND FIRE BEHAVIOR

The wildland fire environment consists of three factors that influence the spread of wildfire: fuels, topography, and weather. These factors make up the fire behavior triangle. Understanding how these factors interact to produce a range of fire behavior is fundamental to determining treatment strategies and priorities in the WUI. In the wildland environment, vegetation (alive or dead) is synonymous with fuels. When sufficient fuels for continued combustion are present, the wildfire hazard, and therefore level of risk, for those residing in the WUI is heightened. It's important to note that this process primarily considers how fire behaves in a wildland environment and not in an urban environment.

Fire spreads in the wildland in three ways: 1) surface fire spread (Figure 2.4), in which the flaming front remains on the ground surface (in grasses, shrubs, small trees, etc.) and resistance to control is comparatively low; 2) crown fire (Figure 2.5), in which the surface fire “ladders” up into the upper levels of the forest canopy and spreads through the tops (or crowns) independent of or along with the surface fire, and when sustained is often beyond the capabilities of suppression resources; and 3) spotting, in which embers are lifted and carried with the wind ahead of the main fire and ignite in receptive fuels; if embers are plentiful and/or long range (>0.5 mile), resistance to control can be very high (Figure 2.6).



Figure 2.4. Surface fire spread.



Figure 2.5. Crown fire.

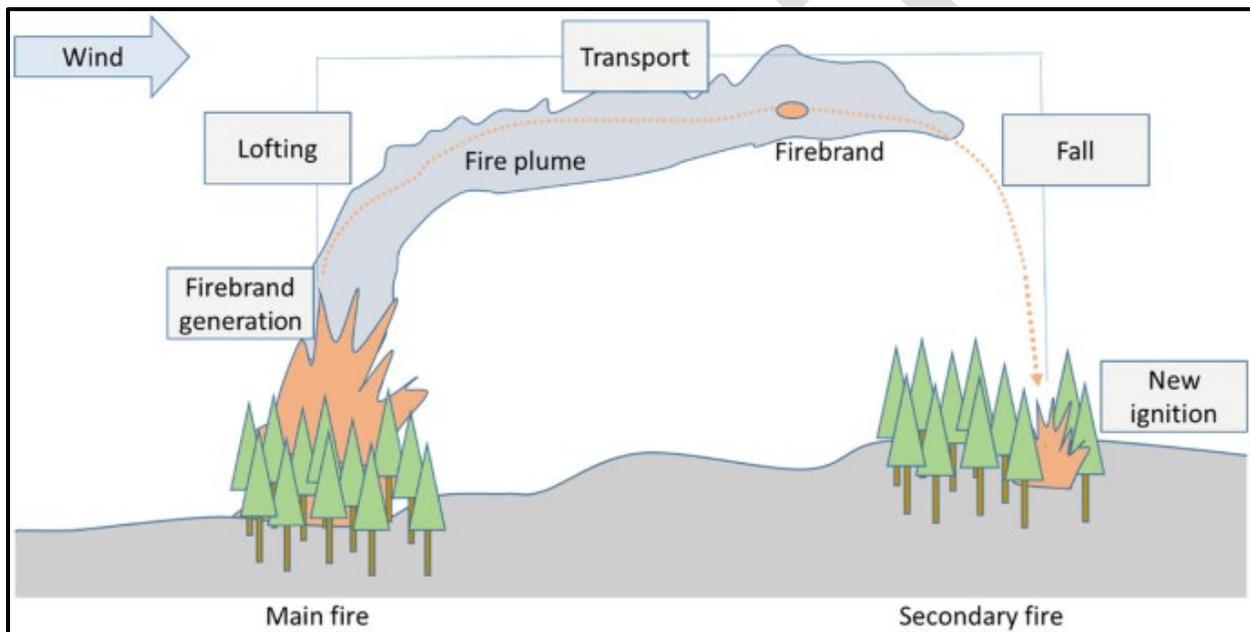


Figure 2.6. Factors associated with embers (firebrands) on the landscape. Vegetation type, wind, and topography all influence ember production and travel distances.

Source: Martin and Hillen (2016)

2.3 FIRE REGIMES

Fires are characterized by their intensity, the frequency at which they occur, the season in which they occur, their spatial pattern or extent, and their type. Combined, these attributes describe the fire regime. While fire regimes for distinct ecosystem types are detailed below, Figure 2.7 provides an overview of the mean fire return intervals across Clallam County's diverse landscape. Fire regimes in Clallam County vary significantly across the landscape, primarily due to differences in vegetation, topography, and climate. The eastern portion of the county, including the Sequim area, falls within a rain shadow and experiences shorter mean fire return intervals of approximately 36 to 100 years. Central areas such as Port Angeles have moderate fire return intervals ranging from 101 to 200 years, while the dense, moisture-rich forests of the western county, including parts of Olympic National Park, exhibit some of the longest intervals in the region (often exceeding 300 years) reflecting the infrequent fire activity typical of coastal temperate rainforests (Fryer and Luensmann 2012; LANDFIRE 2020).

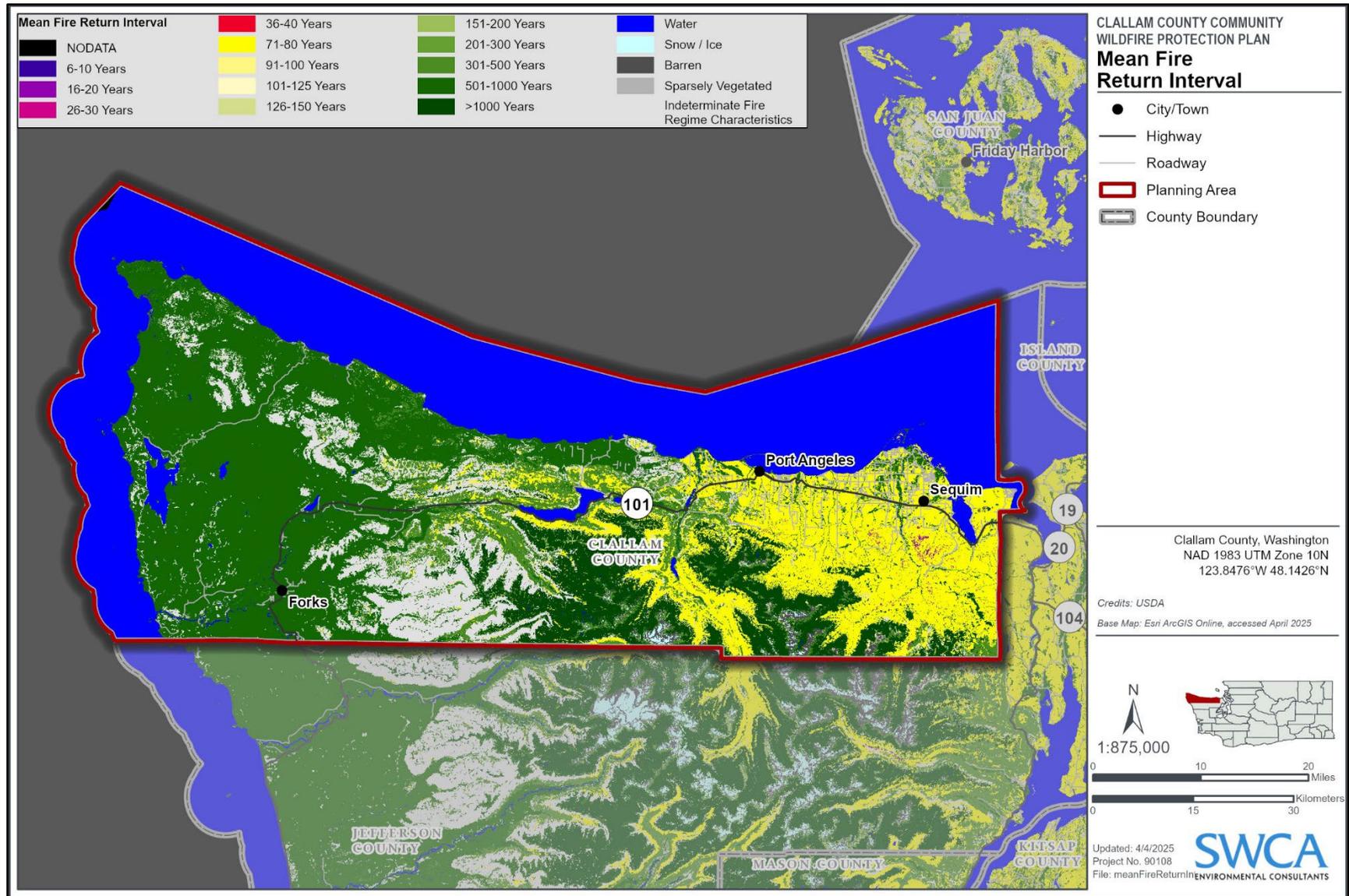


Figure 2.7. Mean fire return intervals across Clallam County.

2.3.1 SITKA SPRUCE

Sitka spruce communities are generally located in areas with relatively high annual precipitation. In the county, they are commonly found in the moist, low-elevation, western coastal region, particularly near and around Forks, in the temperate rainforest valleys, and along the Pacific coastline. Sitka spruce communities are often intermixed with western hemlock and redcedar and a forest floor consisting of mosses and ferns (Acker and Kertis 2004). Due to the high amount of precipitation, this community experiences very little fire and has a fire return interval of 150 to over 350 years (U.S. Department of Agriculture [USDA] 2012a). Most fires experienced by Sitka spruce communities spread from adjacent areas with drier conditions. Sitka spruce is not well adapted to fire and has thin bark and shallow roots. Wildfire events are generally stand-replacing (Acker and Kertis 2004). Windthrow events are more common as the portion of the county most often occupied by Sitka spruce experiences the highest occurrence of severe storms. This can result in fuel loading within Sitka communities, especially during extended drought periods. However, due to the moist climate inhabited by Sitka communities, most slash and windfall trees are not available as active fuel due to rapid decay rates on the forest floor (Griffith 1992).



Sitka spruce.

Source: Bressette (2014a)

2.3.2 DOUGLAS-FIR-WESTERN HEMLOCK



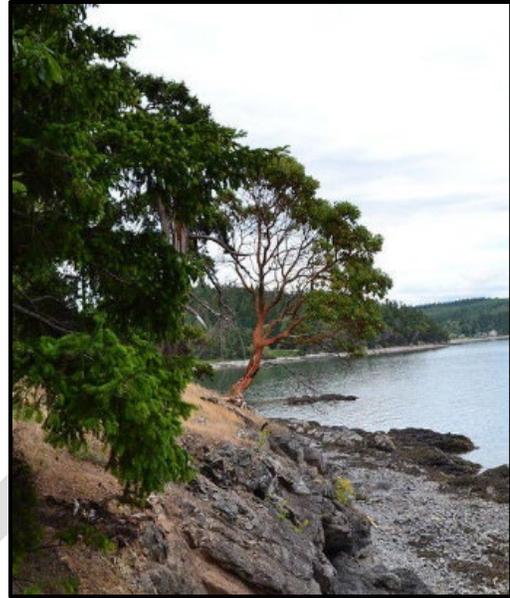
Douglas-fir (left) and western hemlock (right).

Sources: Powell (2002); Van Pelt (2007)

Douglas-fir and western hemlock are common in multiple communities across the county, including wet and dry-mesic habitats. Douglas-fir is most common in the drier eastern and central parts of Clallam County, including the Sequim and Port Angeles areas, where it dominates lower elevation forests with more frequent fire intervals (LANDFIRE 2020). Western hemlock, by contrast, is widespread in the wetter mid- to low-elevation forests of central and western Clallam County, particularly near Forks and the foothills of the Olympic Mountains (LANDFIRE 2020). It often co-occurs with Sitka spruce and western redcedar in the dense, moisture-rich coastal forests. Other species common in dry fir-hemlock communities are redcedar, western white pine, Pacific yew, and grand fir. The understory is often primarily shrubs.

Pacific madrone can also be found in dry fir communities where the soil is well drained. Madrone is an early successional species with a high light requirement that is often outcompeted by fir species on less disturbed sites. Madrone often colonizes first following disturbance such as fire (Reeves 2007). The fire return interval for the dry western hemlock community is 50 to 150 years (USDA 2012a, 2012b). This community experiences mostly mixed-severity fire events. As the fire return interval lengthens, reaching over 250 years, stand-replacing fires become more common. Douglas-fir communities are fairly fire-dependent to clear understories for shade-intolerant seedling establishment.

The fire return interval for this community is between 300 and 1,000 years (USDA 2012c). Severity of fire in wet hemlock communities generally ranges from mixed to stand replacement, with stand replacement being more common in wet communities compared with dry communities (Kertis et al. 2004). This is primarily due to the longer fire return interval for wet hemlock. Hemlock and Douglas-fir dominate this community with some redcedar intermixed and a forest floor consisting of a variety of shrub species such as Devil's club, huckleberry, rhododendron, and sword fern (Kertis et al. 2004).



Pacific madrone.

Source: Washington State University (2023)

2.3.3 WESTERN REDCEDAR

Western redcedar is a common species within the county but is most frequently found on the west side of Mount Olympus in old-growth coastal rainforests. Redcedars are one of the largest and oldest growing species of tree in the region, growing to ages of over 1,000 years old, reaching heights of over 200 feet with trunk diameters of over 8 feet (Tesky 1992). The species is often found in forest communities containing Sitka spruce, western hemlock, Douglas-fir, and silver fir. Redcedar often forms codominant relationships with firs and hemlocks (USDA 2012b, 2012c). The species has been heavily harvested and is a valuable resource for roofing, siding, poles and posts, and other varying products (Tesky 1992). The county contains some of the largest living redcedars, including the Duncan Cedar, which is the second-largest known redcedar in the world. Redcedars have a low to moderate fire resistance due to their thin bark, shallow roots, and tendency to be accompanied by dense understories with flammable foliage. Large specimens, however, can be expected to survive fire events as long as they are not fully girdled by a burn (Tesky 1992). The fire return interval for western redcedar varies based



Western redcedar.

Source: Bressette (2014b)

on its associated species, topography, and water proximity. Generally, fire return intervals range from 50 to 350 years; in riparian areas, the mean return interval increases to 200 years. Fires in redcedar communities are most often moderate to severe burns due to the large amount of understory fuel (Tesky 1992). The species regenerates naturally effectively but can be limited if soil is severely burned and if ungulate herbivory is high.

2.3.4 SILVER FIR-MOUNTAIN HEMLOCK

Silver fir is a common tree species and is often found in association with mountain hemlock throughout Clallam County. Fir-hemlock communities are common; they are found extensively in the montane portions of the county at elevations above 1,500 feet (Cope 1992). Both species are also occasionally found in pure stands. Mountain hemlock tends to occupy higher elevations, while the two begin to intermix at lower altitudes with less freezing and more consistent water (Cope 1992). Silver fir and mountain hemlock are also associated with Douglas-fir-hemlock communities, and the two are often found intermixed or bordering one another. This vegetation community can be found at both mid- and high elevations and can grow in almost all soil types in the area (Acker and Kertis 2004). Communities are reliant on cool, moist conditions and are most often found where high snowpack occurs. Fir-hemlock communities have a low fire return interval that averages between 200 and 600 years, with intervals over 1,000 years also possible (USDA 2012d). Silver fir is fire-avoidant and sensitive to the impacts of wildfire. The species has thin bark and shallow roots that are often killed by fire. Fire events in fir-hemlock communities are most often stand-replacing crown fires (Acker and Kertis 2004; USDA 2012d).

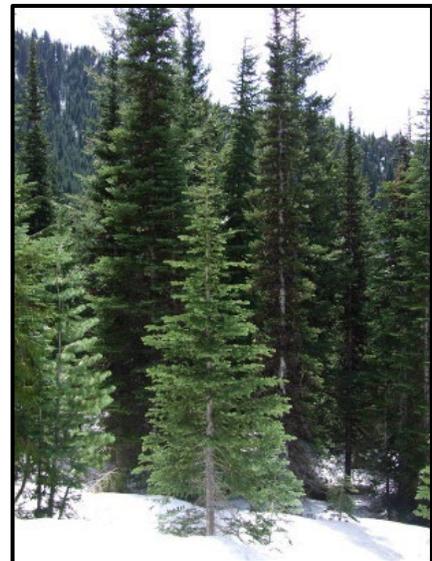


Silver fir (left) and western hemlock (right).

Sources: Bressette (2014c); McDougal (1991)

2.3.5 SUBALPINE FIR

Subalpine fir is found at high elevations in Clallam County, particularly within and near the Olympic National Park. This treeline species is adapted to very cold winters and warm, dry summers, but can also occur along streams and in other areas with higher available moisture (Kopper and Acker 2004). In the Olympic Mountains, subalpine fir tends to grow in open stands with associated species including mountain hemlock, lodgepole pine in limited areas of the rain shadow, and Douglas-fir (Uchytel 1991). The forest floor of this community generally consists of shrubs, grasses, and sedges. The median fire return interval for subalpine fir communities is 150 years (Kopper and Acker 2004). Fire events are often stand-replacing as fuel accumulation is generally high. Additionally, the species is poorly adapted to high-intensity fires.



Subalpine fir.

Source: Bressette (2014d)

2.3.6 PLANTS OF TRIBAL SIGNIFICANCE

The Tribes within Clallam County have long recognized the profound connection between the land and their well-being, with a deep knowledge of the plants and trees that flourish in their region. This knowledge, passed down through generations, highlights the use of hundreds of plants for traditional medicinal and cultural purposes. Clallam County is renowned for its medicinal plants, many of which continue to play a vital role in the Tribes' health. Additionally, plants have provided these Tribes with fuel and food, and the raw material for making houses, boats, baskets, and clothing. The following are some of these significant plants, named by their colloquial common name in English, with further details on relevant species to this CWPP plan described below (Yəhúməct Traditional Foods and Culture Program 2025):

- Alaskan blueberry
- Bigleaf maple
- Bracken fern
- Cottonwood
- Devil's club
- Douglas-fir
- Fireweed
- Indian tea
- Kinnikinnic
- Madrone
- Nodding onion
- Red alder
- Salal
- Western hemlock
- Western redcedar
- Willow
- Yarrow

2.3.6.1 Douglas-Fir

Every part of the Douglas-fir tree was historically used and is currently utilized by Tribes within Clallam County, for everything from housing materials, baskets, and clothing (Yəhúməct Traditional Foods and Culture Program 2025). The Douglas-fir was also used medicinally by the S'Klallam Tribes to treat burns and wounds. The pitch was used to seal cracks and joints in canoes, and bark can be used as a dye (Yəhúməct Traditional Foods and Culture Program 2025).

2.3.6.2 Madrone

Pacific madrone can also be found in dry fir communities where soil is well drained, and often colonizes first following disturbance such as fire (Reeves 2007). Traditionally, S'Klallam Tribes harvested bark year-round, leaves in the spring, and berries in the fall. The berries are also used by S'Klallam Tribes to make necklaces, and leaves are used to make medicinal teas (Yəhúməct Traditional Foods and Culture Program 2025).

2.3.6.3 Red Alder

The red alder (*Alnus rubra*) is an early seral species, quickly invading forest openings from logging and wildfire and dominating the first post-fire communities within Clallam County and the Pacific Northwest (<https://www.fs.usda.gov/database/feis/plants/tree/alnrub/all.html>). The Quileute have long used red alder to smoke meat and fish (Willamette Cultural Resources Associates 2016). S'Klallam Tribes use alder

wood for woodworking and as a source for fuel to smoke native species used for food. The bark can be used to create a red dye for textiles, and tinctures are used for medicinal purposes. S'Klallam Tribes also use their bark for medicinal teas (Yəhúmæct Traditional Foods and Culture Program 2025).

2.3.6.4 Western Hemlock

Every part of the western hemlock (*Tsuga heterophylla*) was historically used and is currently utilized by Tribes within Clallam County, for everything from housing materials, baskets, and clothing. The S'Klallam Tribes use Western hemlock medicinally, creating medical salves from the pitch of the tree. S'Klallam Tribes use the wood for spoons, bowls, spear shafts, tools, and fishhooks, among other crafts. Bark is used as a dye for weaving and nets, ingeniously making fishing materials harder to see by fish (Yəhúmæct Traditional Foods and Culture Program 2025).

2.3.6.5 Western Redcedar

Western redcedar (*Thuja plicata*) is one the largest and oldest growing species of tree in the region, growing up to ages of over 1,000 years old, reaching heights of over 200 feet with trunk diameters of over 8 feet (Tesky 1992). The species is often found in forest communities containing Sitka spruce, western hemlock, Douglas-fir, and silver fir.

The Quileute have traditionally used western redcedar as the raw material for canoes, baskets for storage of materials like native berries (Quileute Nation 2025). The Lower Elwha Klallam Tribe currently uses western redcedar bark strips to construct canoes in their annual canoe journey (Lower Elwha Klallam Tribe 2022a). The Tribe also used cedar as a primary building material for homes. Western redcedar holds deep roots in the natural and cultural landscapes, offering both practical uses and spiritual significance for Native American communities. However, the species has been heavily logged from river floodplains in Western Washington and has been replaced by red alder, and members of the Jamestown S'Klallam Tribe have noticed a shift in springtime harvest of cedar bark to earlier in the year (Lower Elwha Klallam Tribe 2022a). Additionally, logging of and destruction of western redcedar due to drought, beetle infestation, wildfire, or logging, puts Tribal practices at risk, such as traditional canoe journeys that Tribes in Clallam County practice to this day (Lower Elwha Klallam Tribe 2022a).

2.4 CLIMATE AND WEATHER PATTERNS

For a more detailed evaluation of historical climate for Clallam County as it relates to wildland fire, in addition to current climate threats and mitigation measures, see Appendix J.

Clallam County's climate is shaped by its unique geography and proximity to both the Pacific Ocean and the Olympic Mountains (Clallam County DEM 2019). The climate trends described here are based on the National Oceanic Atmospheric Administration's (NOAA's) comprehensive analysis of average conditions observed over a 30-year period, reflecting the U.S. Climate Normals from 1991 to 2020 (Figures 2.8 and 2.9) (NOAA 2021). The western portion of the county, characterized by temperate rainforests, receives the highest precipitation on the peninsula (Clallam County DEM 2019). Conversely, the northeastern region, located in the Olympic Rain Shadow, experiences significantly lower precipitation, illustrating the diversity in weather conditions across the county (Clallam County DEM 2019).

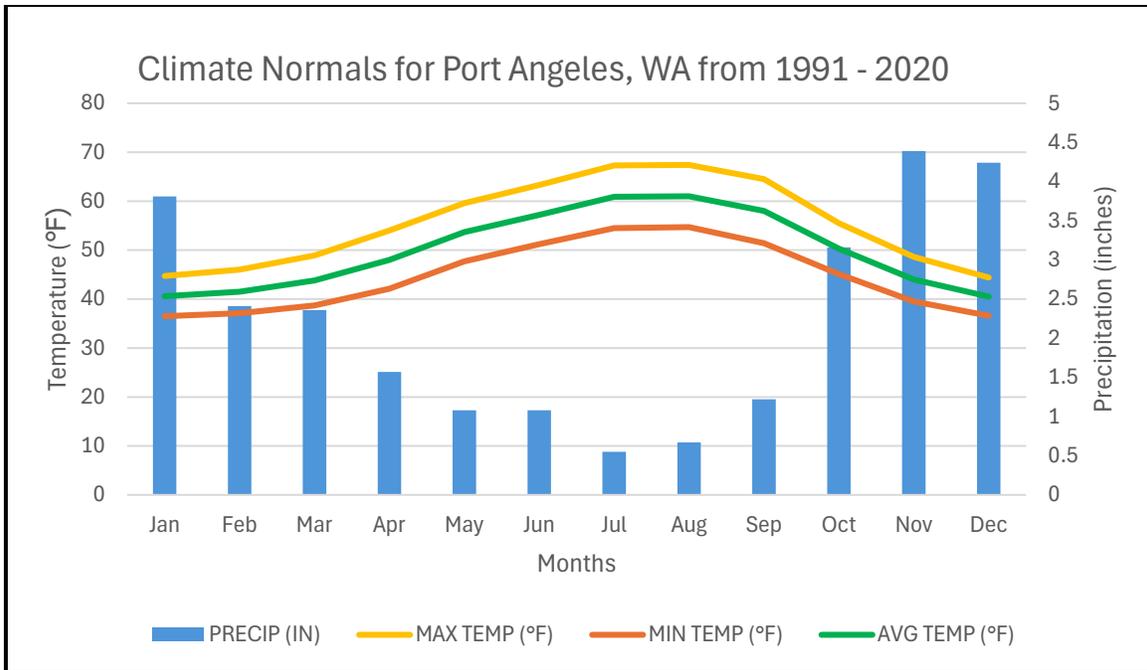


Figure 2.8. Climate normals for Port Angeles, Washington (1991–2020).

Source: NOAA (2021)

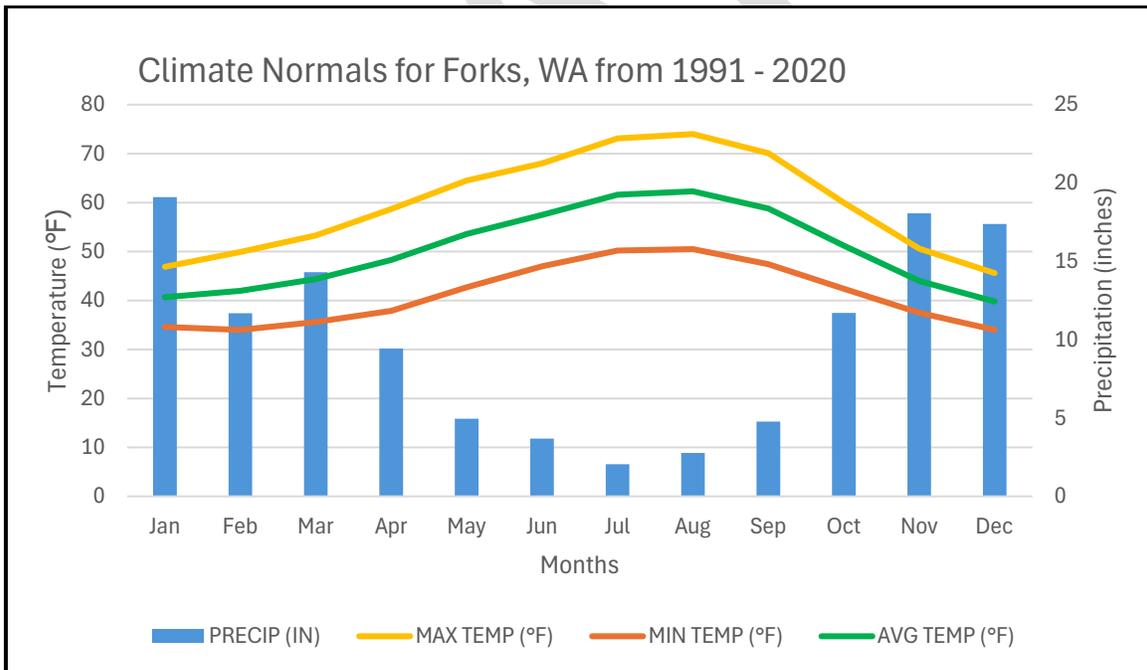


Figure 2.9. Climate normals for Forks, Washington (1991–2020).

Source: NOAA (2021)

Due to the rain shadow effect caused by the Olympic Mountains, annual precipitation varies significantly throughout the county. The western rainforests average over 140 inches of precipitation annually, with winter months (November–March) accounting for the majority of this total (NOAA 2021). In comparison, Port Angeles, situated in the rain shadow, receives approximately 26.5 inches annually, making it one of

the driest areas in western Washington (Clallam County DEM 2019). Precipitation during the summer months is markedly lower, with July and August experiencing the driest conditions across the county (NOAA 2021). For instance, summer precipitation in Forks averages 8.5 inches, while Port Angeles averages only 2.3 inches for the same period (NOAA 2021).

Temperature ranges across Clallam County are also derived from U.S. Climate Normals (1991–2020), reflecting the influence of coastal proximity and elevation. In Port Angeles, temperatures are moderate with maximums of 55.3°F, minimums of 44.6°F, and an overall average of 50°F (NOAA 2021). Summers in Port Angeles are mild, with highs around 66°F, while winters average lows of 36.7°F (NOAA 2021). Farther west, Forks experiences slightly more pronounced temperature variations, with annual averages showing maximums of 59.6°F and summer average highs reaching 71.7°F (NOAA 2021). Winter lows in Forks average 34.2°F, reflecting the moderating influence of its proximity to the Pacific Ocean (NOAA 2021).

NOAA's 30-year Climate Normals show that snowfall is minimal in the county's lower elevations, with Port Angeles averaging less than 1 inch annually and Forks receiving approximately 7.9 inches (NOAA 2021). By contrast, higher elevations, such as Hurricane Ridge, experience heavy snowfall, with annual totals ranging from 30 to 35 feet, which are critical for local water resources and ecological systems (Clallam County 2009; Clallam County DEM 2019). Storm systems typically move from southwest to northeast, with winter months bringing the most severe weather conditions, including high winds and heavy precipitation (Clallam County 2009; Clallam County DEM 2022). Historical storms, like the "Great Olympic Blowdown" of 1921, recorded winds over 100 mph on the southwestern slopes of the Olympic Mountains, demonstrating the potential for extreme weather events (Clallam County 2009; Clallam County DEM 2022).

2.5 FIRE HISTORY

Although Clallam County is widely known for its temperate rainforests and wet climate, wildfire has played a recurring role in shaping its ecosystems, particularly in the drier inland valleys and rain shadow areas near Sequim and Port Angeles (NPS 2005). Prior to European settlement, Indigenous communities (including the Lower Elwha Klallam Tribe and other Coast Salish peoples) actively used fire to enhance food sources, maintain open prairies, and support cultural lifeways (Wray and Anderson 2003). These traditional practices were integral to land stewardship and contributed to a variable but ecologically significant fire regime.

In the early twentieth century, wildfires were often associated with land clearing, homesteading, and logging activity. However, suppression policies became dominant after the establishment of the USFS in 1905 and expanded throughout the century, especially after the 1910 fires in northern Idaho and western Montana (Forests and Rangelands 2014). These policies emphasized rapid containment and led to widespread fire exclusion (including cultural burning) across western Washington forests (Forests and Rangelands 2014).

Historic wildfire perimeters from 1900 to 2024 compiled from the WA DNR and NIFC highlight that fires within Clallam County have predominantly occurred near populated areas and along key transportation corridors such as U.S. Highway 101 (Figure 2.10). These ignitions typically correlate with human activity, reflecting logging operations, land clearing practices, and settlement patterns of the early and mid-twentieth century.

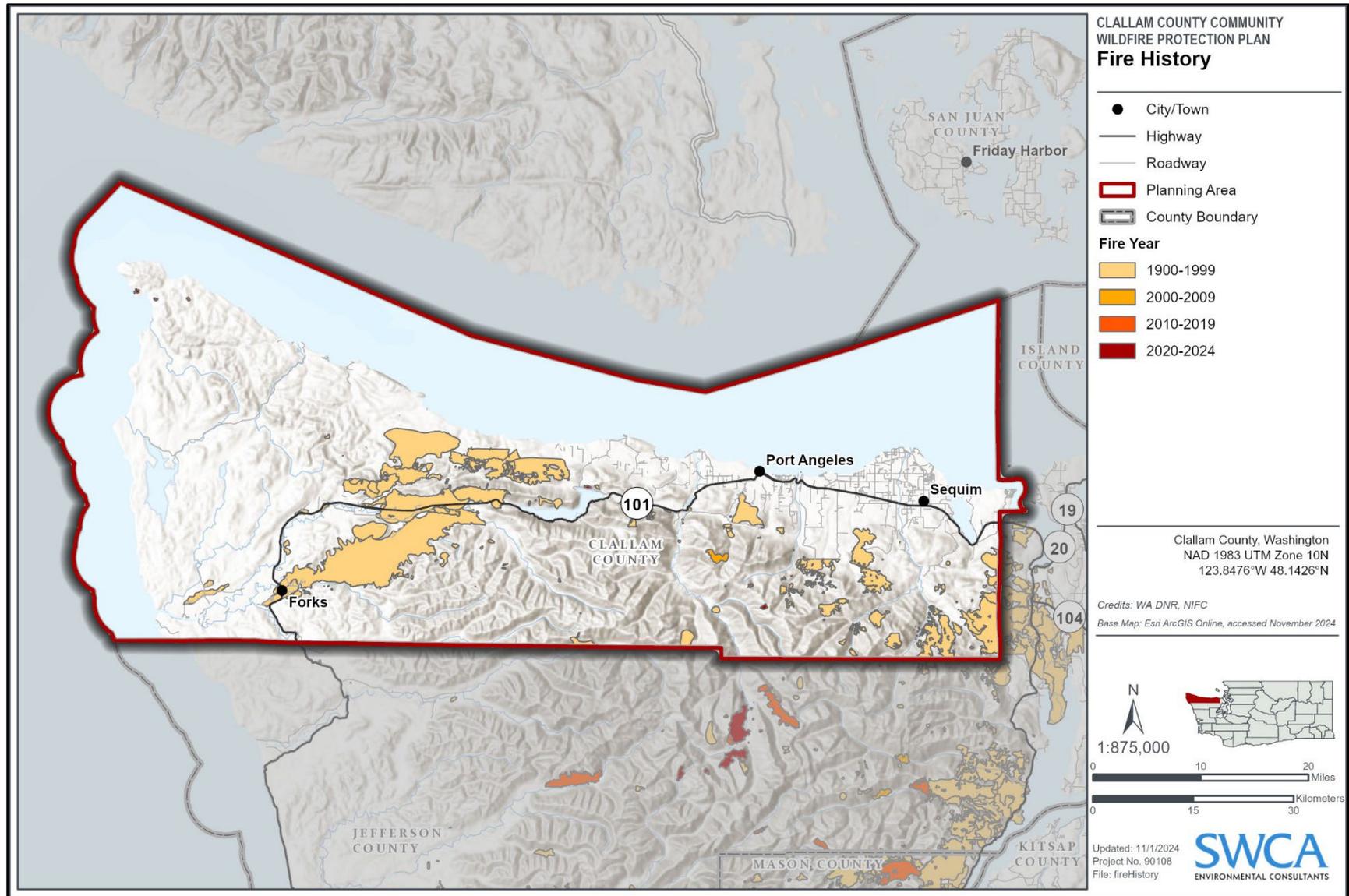


Figure 2.10. Historic fire perimeters for Clallam County from 1900 through 2024.

In Clallam County, post European colonization, the number of wildfire ignitions per decade remained relatively low; during the first half of the twentieth century through 1960, fewer than 40 fires per decade were recorded (Figure 2.11). A marked increase in wildfire frequency was recorded starting in the 1970s, with ignitions dramatically rising to over 320 fires in that decade. Higher ignition counts continued through the 1980s and 1990s, with each decade seeing over 160 recorded fires. Despite a modest decline after 2000, recent decades still demonstrate elevated wildfire activity compared to historic norms (University of Washington Climate Impacts Group 2023a, 2023b; Washington Geospatial Open Data Portal 2024).

Total acres burned by decade illustrate a notable contrast to ignition frequency. Early decades experienced fewer ignitions, but significantly higher acreage burned, with peaks in the 1920s and 1950s at nearly 60,000 and 36,000 acres, respectively (Figure 2.12). Conversely, following the sharp increase in wildfire ignitions after 1970, total acreage burned per decade sharply decreased, never surpassing 1,100 acres in subsequent decades. This inverse trend likely resulted from enhanced wildfire suppression capabilities, quicker detection, improved coordination among response agencies, and changes in landscape management practices over time (Clallam County DEM 2024).

Analysis of fire size classes confirms the prevalence of smaller fires in recent decades. Since the 1970s, the majority of fires recorded in Clallam County have been classified as Class A (under 0.25 acre) or Class B (0.26–9.9 acres), indicating rapid suppression efforts (Figure 2.13). The reduction in frequency of larger wildfires (Classes C through E) underscores the effectiveness of suppression strategies and early response coordination (Clallam County DEM 2019).

Seasonal fire occurrence shows clear patterns, with most wildfires historically concentrated during the summer months of July and August, when climatic conditions are driest. June and September also exhibit notable wildfire frequencies, with winter months showing significantly fewer incidents (Figure 2.14).

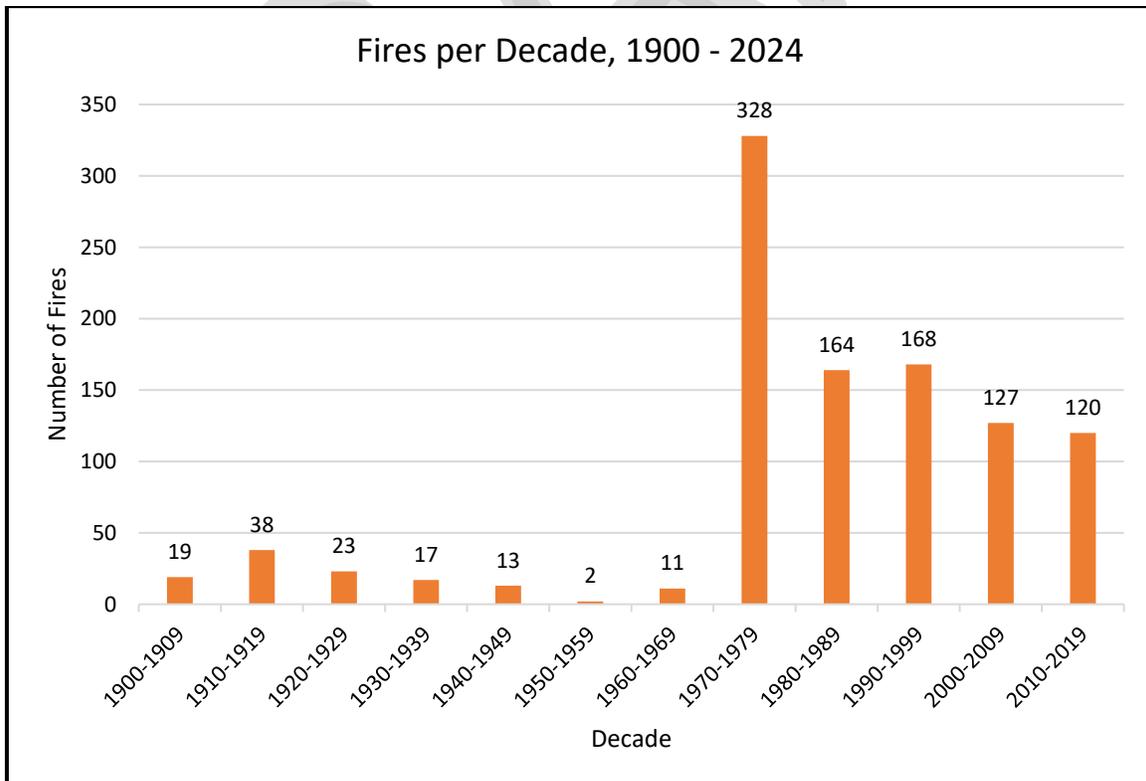


Figure 2.11. Decadal wildfire frequency for Clallam County based on available data from 1900 through 2024.

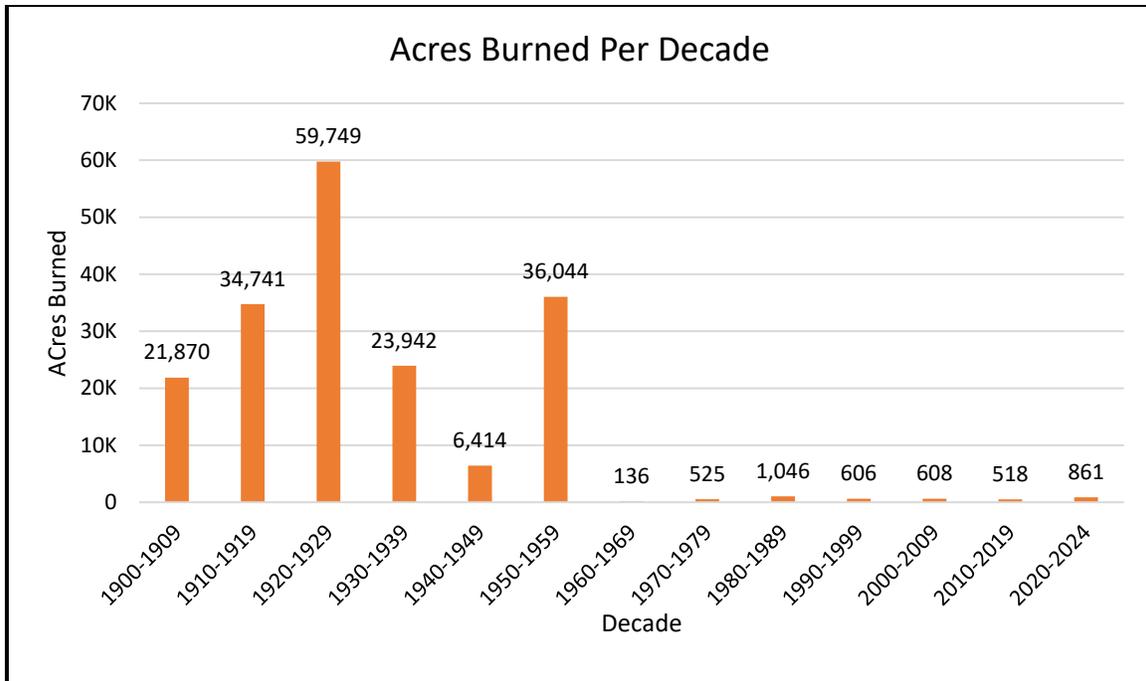


Figure 2.12. Acres burned per decade for Clallam County based on fire history data from 1900 through 2024.

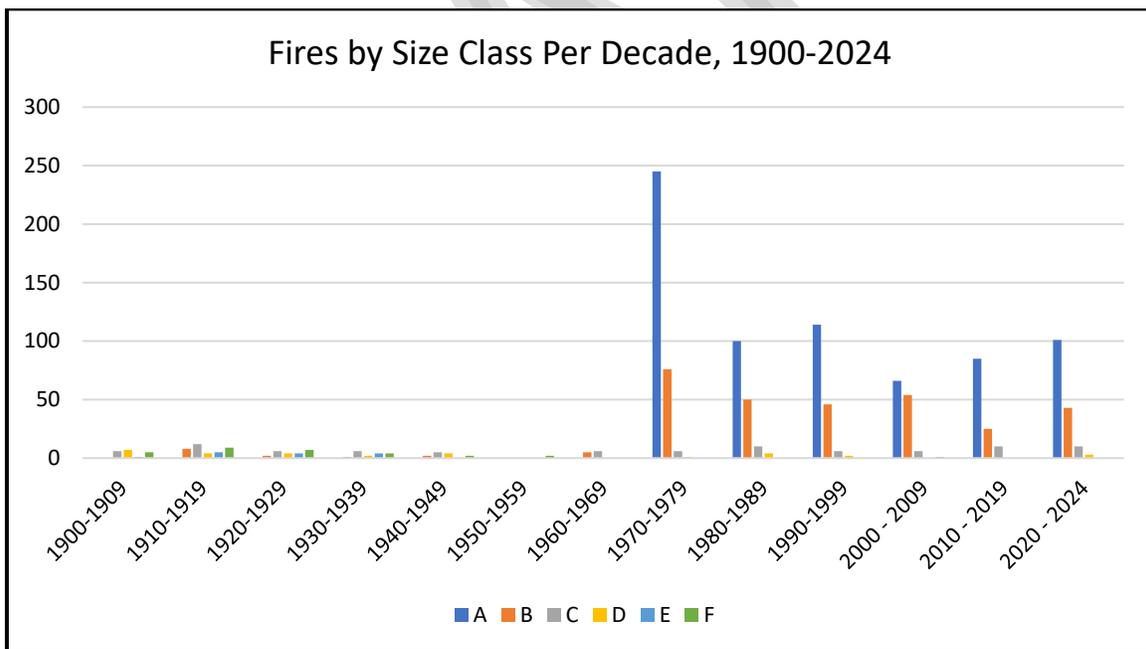


Figure 2.13. Fire size statistics for Clallam County based on fire history data by decade from 1900 through 2024

Size classifications are as follows: A = 0–0.25 acre, B = 0.25–10 acres, C = 10–100 acres, D = 100–300 acres, E = 300–1,000 acres, F = >1,000 acres.

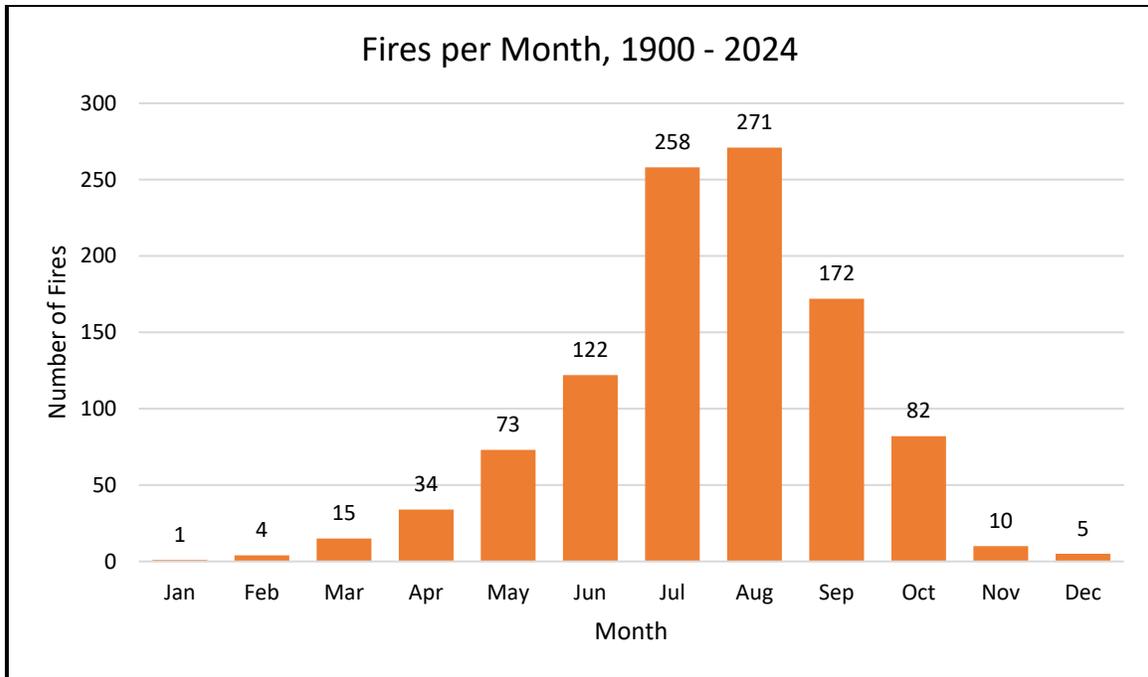


Figure 2.14. Number of recorded fires per month in Clallam County from 1900 through 2024.

2.5.1 RECENT FIRE OCCURRENCE

Recent wildfire activity (2000–2024) in Clallam County continues to underscore the role of human activities as the primary source of ignitions. Human-caused fires significantly outnumbered natural ignitions across these recent decades, reflecting the persistent relationship between human presence, land use, and fire occurrence (Figures 2.15 and 2.16).

Detailed fire ignition data (2020–2024) highlights a continuation of this trend, particularly emphasizing human activity (including debris burning, recreational fires, and equipment-related incidents) as the dominant ignition source (Figure 2.17). The year 2021 notably recorded nearly all ignitions as human-caused, further emphasizing the importance of targeted education and outreach strategies to mitigate human-related wildfire risks.

Spatial analysis of ignition occurrences provides clarity regarding their distribution, clearly demonstrating higher densities near urban and recreational hubs, notably Port Angeles, Sequim, and Forks. Ignitions cluster along transportation corridors, particularly U.S. Highway 101, highlighting a direct correlation between ignition density and human accessibility (Figure 2.18).

Additionally, ignition density mapping by specific causes reveals that human-caused ignitions form dense clusters near urban interfaces, major roads, and popular recreation sites, whereas natural and undetermined causes exhibit more diffuse patterns across the landscape (Figure 2.19). These spatial trends provide essential insights for strategic fire prevention, fuels management, and community-level wildfire preparedness efforts.



Figure 2.15. Bear Gulch Fire of 2025 burning on the Olympic Peninsula.

Source: King5 News (2025)



Figure 2.16. Fire burning on the Makah Indian Reservation in 2022.

Source: KOMO News (2022)

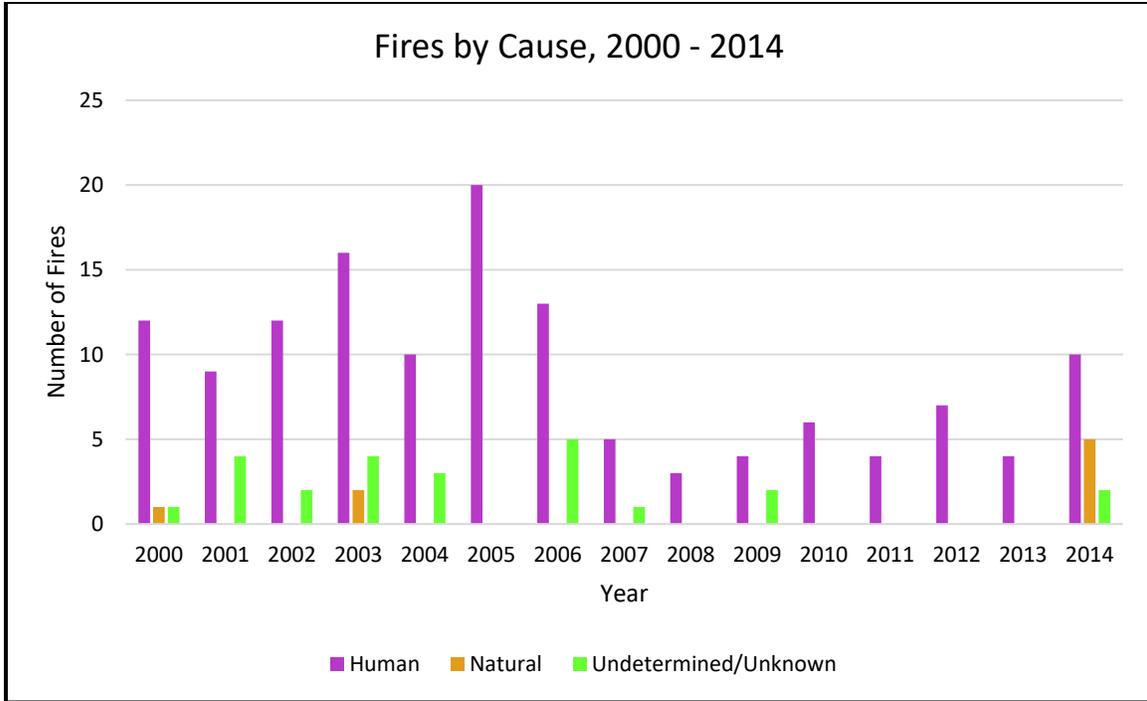


Figure 2.17. Cause of wildfire ignitions in Clallam County from 2000 through 2014.

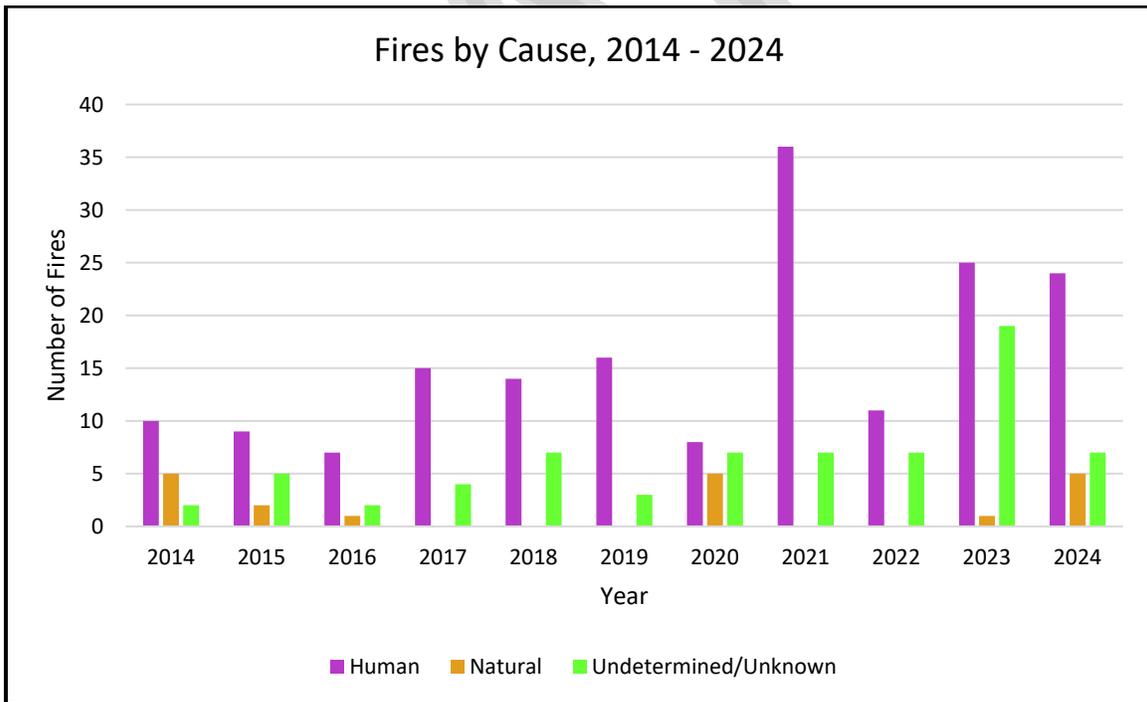


Figure 2.18. Cause of wildfire ignitions in Clallam County from 2014 through 2024.

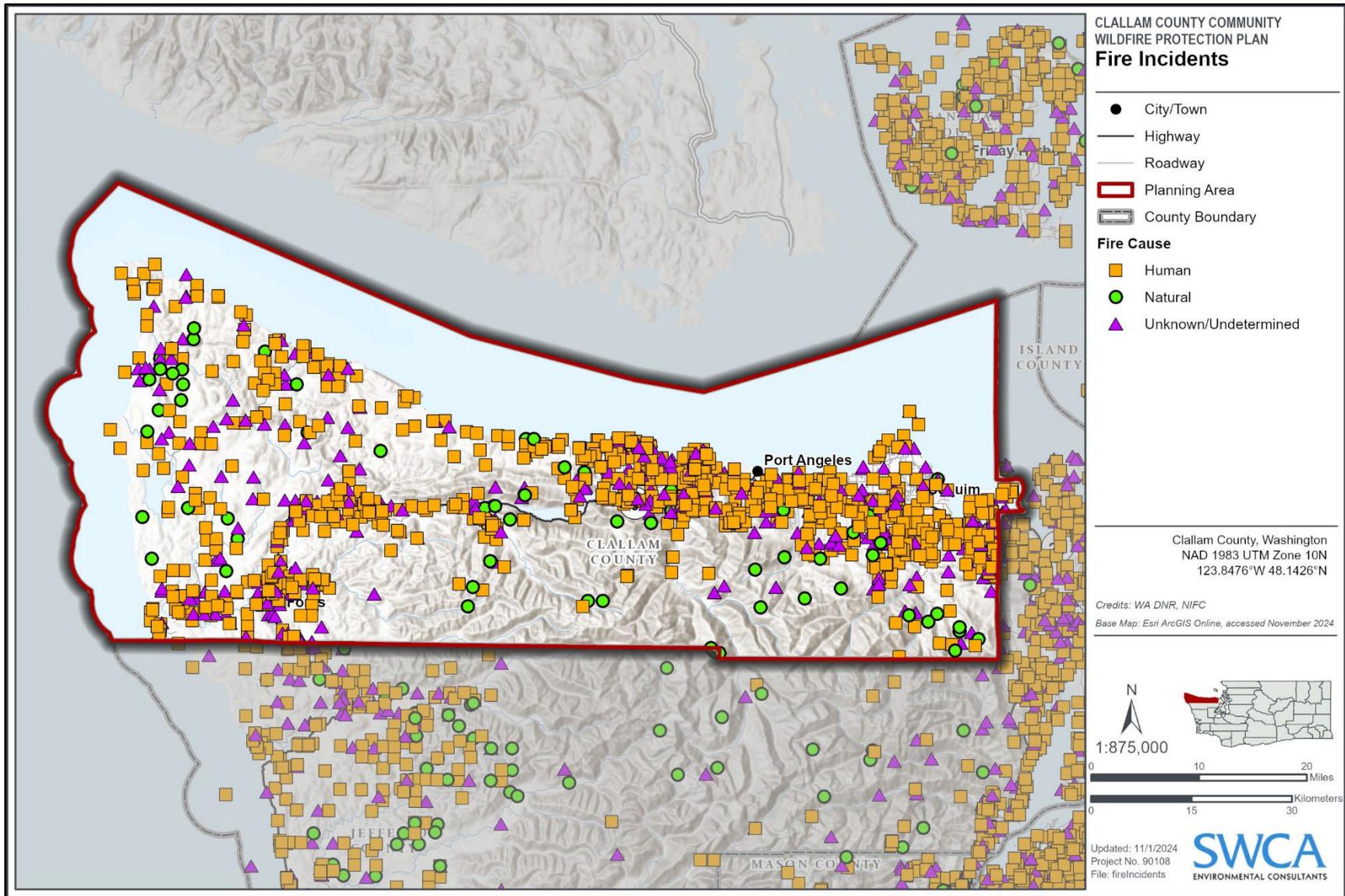


Figure 2.19. Fire incidents for Clallam County from 1970 through 2024.

2.5.1.1 Notable Fires

Although large fires have been relatively infrequent in Clallam County over the past decade, several recent incidents underscore the region's ongoing vulnerability to both human-caused and natural ignitions. The Bear Gulch Fire, ignited by human activity on July 6, 2025, near Lake Cushman on the east side of Olympic National Forest, burned approximately 20,232 acres after burning for 4 months from July 6, 2025, to November 12, 2025 (Figure 2.20) (InciWeb 2025; USFS 2025). The fire produced sustained smoke and degraded air quality across the Olympic Peninsula, including visible plumes over Port Angeles and Sequim (USFS 2025). Fire behavior has followed a pattern of intensifying under dry, easterly winds and moderating with intermittent rainfall, and the incident triggered Level 3 "Go" evacuations near the Dry Creek Trail and Staircase Campground (USFS 2025).

Nearby, the Tunnel Creek Fire, a lightning-caused wildfire, burned in the Buckhorn Wilderness within the northeast Olympic Mountains from September to November 2025, covered 290 acres with steep terrain limiting suppression efforts (USFS 2025). Although smaller in scale, the fire reflects the increasing variability of ignition sources and the influence of prolonged dry periods on local wildfire potential.

Additionally, the Makah Fires of 2022 burned over 100 acres on the Makah Indian Reservation (KOMO News 2022). This fire caused the evacuation of over 100 residents and visitors, and nearby natural values such as Cape Flattery were shut down during the fire and during resulting fire suppression efforts.

Together, these fires demonstrate that even in western Washington's typically moist climate, seasonal drought, strong easterly winds, and expanding WUI development can quickly elevate fire danger, affecting air quality and emergency response across Clallam County.

2.6 FIRE RESPONSE

The Northwest Interagency Coordination Center in Portland, Oregon, serves as the central hub for coordinating resources, logistics, aviation support, and predictive services related to wildland fire management and suppression across the Northwest Region, including Oregon and Washington. The Northwest Interagency Coordination Center collaborates with federal and state agencies such as the BLM, USFS, USFWS, BIA, WA DNR, NPS, and other local organizations to ensure effective wildfire response and management (Northwest Interagency Coordination Center 2023). Clallam County is included under the overall fire defense plan for the Olympic Region Fire Defense Board (Olympic Region Fire Defense Board 2021), which outlines a structured process for state mobilization of resources during wildfire incidents. This approach ensures that Clallam County can access state and regional resources promptly, enhancing local fire response capacity. Details of the mobilization process can be summarized in Figure 2.21.

2.6.1 LOCAL RESPONSE

2.6.1.1 Clallam County Fire Response

Clallam County fire response is coordinated with the WA DNR, USFS, and NPS. Clallam County consists of six local fire protection districts composed of 20 fire stations (Figure 2.22). Approximate fire station response times for these service areas are detailed in Figure C.2 in Appendix C.

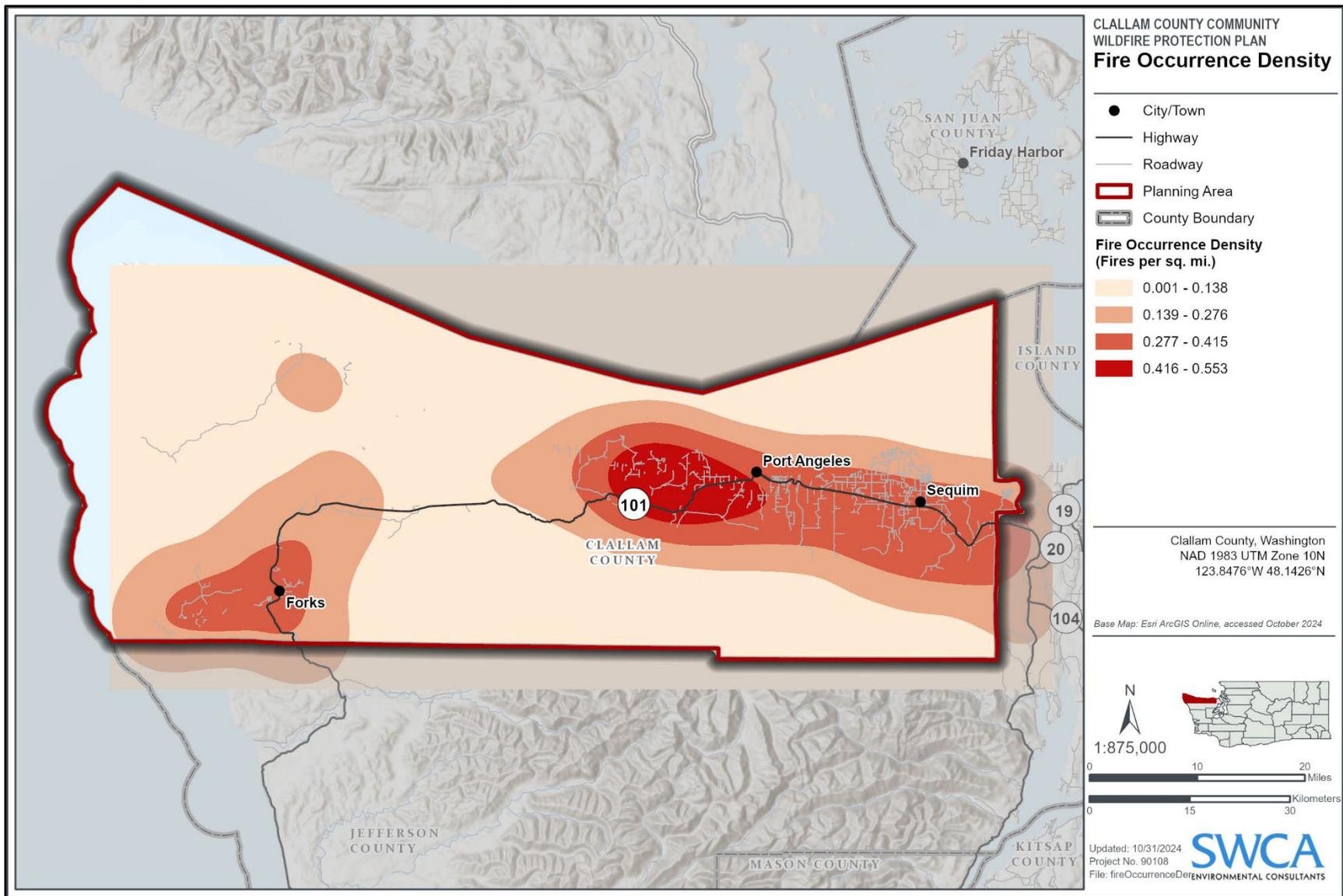


Figure 2.20. Fire occurrence density map illustrating fires per square mile.

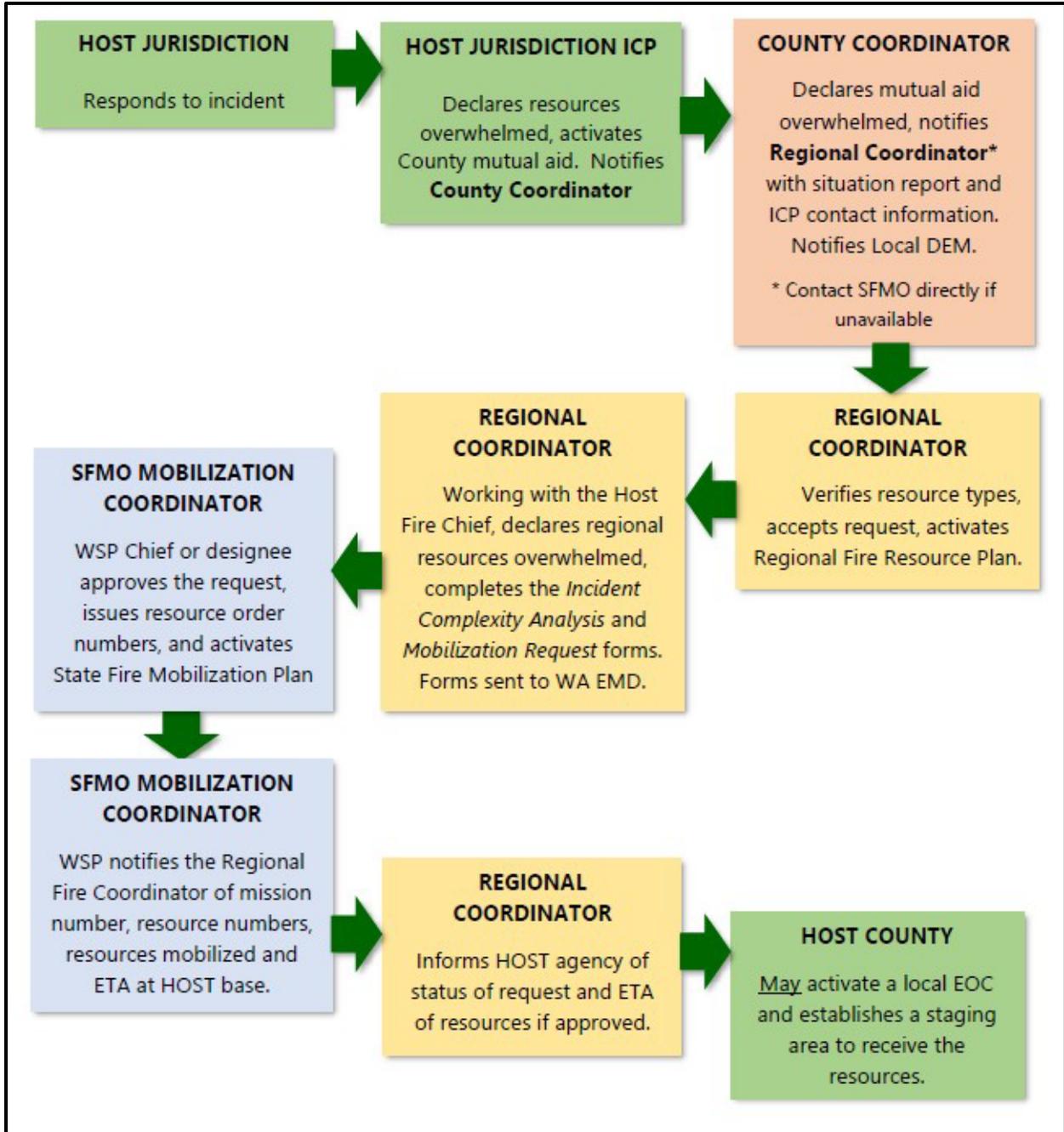


Figure 2.21. Mobilization flowchart for the region.

Source: Olympic Region Fire Defense Board (2021).

Acronym definitions: ICP- Incident Command Post, SFMO - State Fire Marshal's Office, WA EMD - Washington State Emergency Management Division, WSP - Washington State Police, ETA - Estimate Time of Arrival, EOC - Emergency Operations Center.

Local agencies use this state mobilization process to summon additional resources in cases where circumstances require it. For example, this process was employed during the Beaver Valley and Lake Sutherland fires.

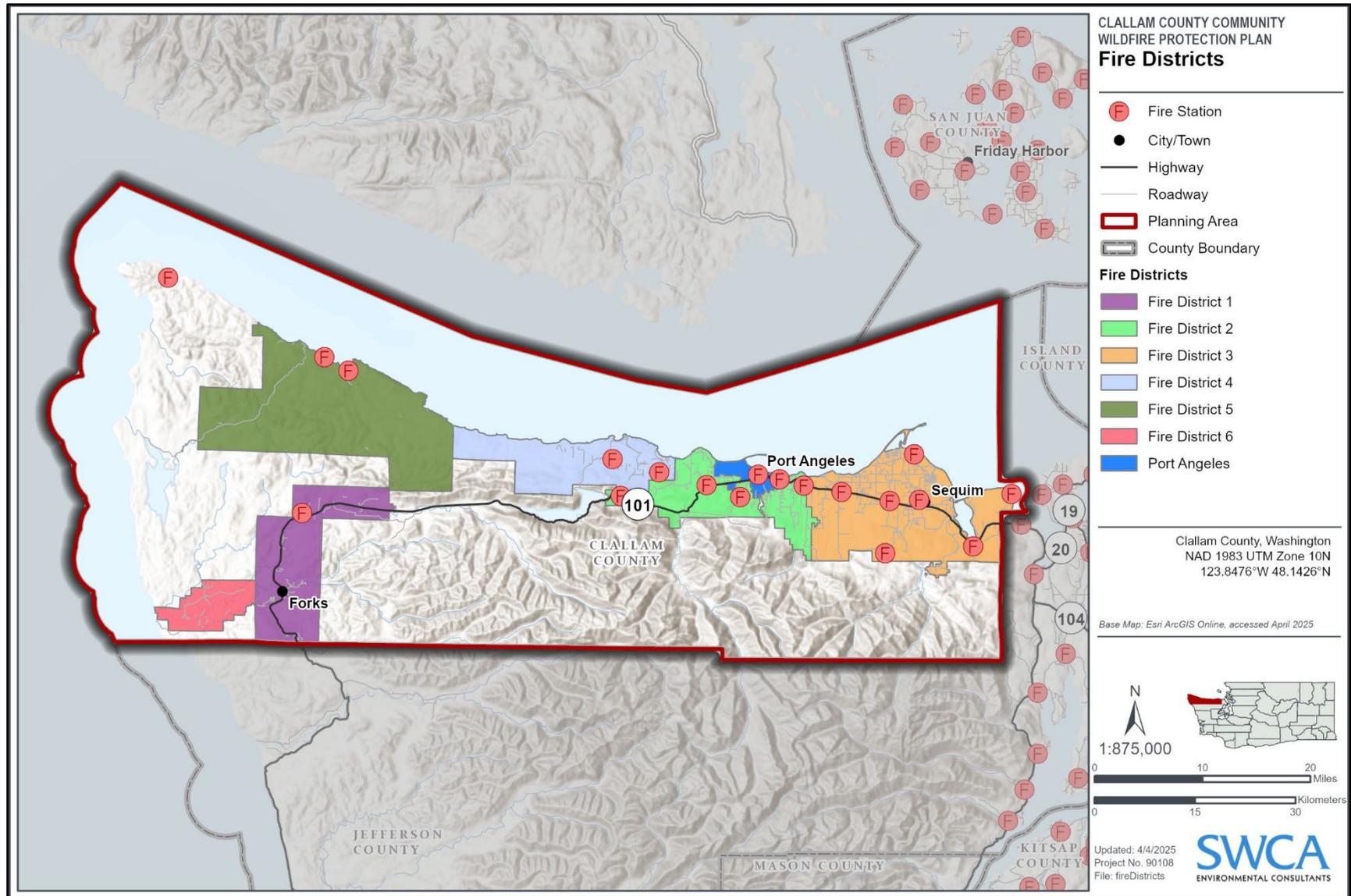


Figure 2.22. Fire response zones and fire station locations.

Note: some stations are not staffed 24 hours per day.

Each fire protection district (FPD) focuses its risk reduction efforts based on the challenges faced individually. Fire chiefs from surrounding rural FPDs were asked to complete a survey summarizing their fire departments' capabilities and provide feedback on department needs and community wildfire concerns. Table 2.1 outlines the survey responses SWCA received from the FPDs. Please note that efforts were made to communicate with all fire departments and districts, but information about resources was not always available.

Common issues reported by most rural FPDs are the limited evacuation and fire response options and availability due to singular routes in and out of large communities. Many fire stations have a lack of staffing and personnel to support wildfire response capabilities in the county, using part-time and volunteer staff without capacity for full-time positions. This staffing issue has made it difficult for fire stations to respond to a high volume of calls during fire seasons. Additionally, not all part-time and volunteer staff live close to stations, delaying response time in the community. Financial support is another consistent theme among the identified needs, ranging from funding for training and personnel to acquiring essential equipment like water tenders, and engines.

2.6.1.2 Fire Departments and Fire Protection Districts

Note: Efforts were made to communicate with all fire departments and districts, but information about resources was not always available.

Clallam County Fire District No. 1

Clallam County Fire District No. 1 is headquartered in Forks, Washington, and serves the city of Forks and the unincorporated communities surrounding the town (Clallam County Fire District No. 1 2024). A portion of the district is in the western part of Jefferson County, surrounding the northernmost portion of U.S. Highway 101. The fire district is an all-hazards fire department that responds to wildfire, structure fires, hazardous materials incidents, motor vehicle collisions, and freshwater emergencies (via a swift water rescue team). The fire district also has formal mutual aid agreements with neighboring districts and responds to 200 to 1,500 calls each year (Clallam County Fire District No. 1 2024). The department has one fire station in Forks and a second station in Beaver, Washington. Staff include 18 volunteer firefighters, 13 volunteer swift water rescue technicians, and eight recruits serving 6,453 residents (Clallam County Fire District No. 1 2024).

Clallam County Fire District No. 2 (Clallam 2 Fire-Rescue)

Clallam County Fire District No. 2 provides fire protection and emergency medical services to approximately 9,800 residents across an 85-square-mile area, including communities like Deer Park, Black Diamond, and Dry Creek (Clallam 2 Fire-Rescue 2024) (Figure 2.23). The district operates multiple stations, with its primary station in Gales Addition, staffed 24/7. Clallam County Fire District No. 2 responded to nearly 2,000 emergency calls in 2023, the majority of which were EMS-related. The district is funded through local property taxes and ambulance transport billing and is supported by both career firefighters and a dedicated team of volunteers. The district is governed by a three-member Board of Fire Commissioners, who ensure that they deliver essential emergency services with professionalism and efficiency (Clallam 2 Fire-Rescue 2024).



Table 2.1. Fire Station Resources

Fire Department Name	Clallam 2 Fire-Rescue	Clallam 2 Fire-Rescue	Clallam 2 Fire-Rescue	Clallam 2 Fire-Rescue	Clallam County Fire District No. 3	Clallam County Fire District No. 3	Clallam County Fire District No. 4	Clallam County Fire District No. 5	Port Angeles Fire Department
Station number	21	22	23	25	37	35	41	2	11
Full-time firefighters	6	2	0	0	2	0	1	1	30
On-call firefighters	2	0	0	0	0	0	0	0	0
Volunteer firefighters	18	18	0	0	0	5	12	20	15
Water Tenders									
Type 1	0	1	0	1	1	0	3	1	0
Type 2	0	0	0	0	0	0	0	0	0
Type 3	0	0	0	0	0	0	0	0	0
Wildland Engines									
Type 1	0	0	0	0	1	0	0	0	0
Type 2	0	0	0	0	0	0	0	0	0
Type 3	0	0	0	0	0	0	0	1	1
Type 4	0	0	0	0	0	0	0	0	0
Type 5	0	1	1	1	0	0	0	0	0
Type 6	0	0	0	0	0	0	0	1	0
Type 7	0	0	0	0	0	0	0	0	0
Structure Engines									
Type 1	2	1	0	0	1	1	2	2	2
Type 2	0	0	1	1	0	0	0	0	1
Port-a-tanks	0	1	0	1	1	0	1	2	0
Portable pumps	0	1	1	1	2	1	0	1	0



Fire Department Name	Clallam 2 Fire-Rescue	Clallam 2 Fire-Rescue	Clallam 2 Fire-Rescue	Clallam 2 Fire-Rescue	Clallam County Fire District No. 3	Clallam County Fire District No. 3	Clallam County Fire District No. 4	Clallam County Fire District No. 5	Port Angeles Fire Department
Agreements with other fire response agencies	Mutual/automatic aid with all other fire agencies in Clallam/Jefferson County. Mutual aid with WA DNR and Olympic National Park	Mutual/automatic aid with all other fire agencies in Clallam/Jefferson County. Mutual aid with WA DNR and Olympic National Park	Mutual/automatic aid with all other fire agencies in Clallam/Jefferson County. Mutual aid with WA DNR and Olympic National Park	Mutual/automatic aid with all other fire agencies in Clallam/Jefferson County. Mutual aid with WA DNR and Olympic National Park	Mutual aid with East Jefferson and WA DNR	Mutual aid with East Jefferson and WA DNR	All neighboring Clallam County Fire Districts, Port Angeles Fire Department	Mutual aid agreements with County and regional fire departments, WA DNR, and federal agencies	Reciprocal response and or automatic mutual aid agreements with Olympic National Park, Olympic Region DNR, Clallam County Fire District No. 2, Clallam County Fire District No. 3, and Kitsap County fire agencies.

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Fire Department Name	Clallam 2 Fire-Rescue	Clallam 2 Fire-Rescue	Clallam 2 Fire-Rescue	Clallam 2 Fire-Rescue	Clallam County Fire District No. 3	Clallam County Fire District No. 3	Clallam County Fire District No. 4	Clallam County Fire District No. 5	Port Angeles Fire Department
Suggested Needs	Staffing (including staff for large incidents and apparatus use)	N/A	N/A	N/A	N/A	N/A	Brush Truck	Additional Type I-III wildland engine; additional wildland hose, fittings, portable pumps and related equipment; two new radio repeater sites	PPE, Kestrels, handheld GPS units. Additional equipment and supplies needed to fully outfit the newly acquired surplus type 3 engine include: Mark 3 portable pump, 5 hp volume pump, hard suction lines, 1½-inch trunk line suppression hose, 1-inch suppression hose, 2½-inch water supply hose and chain saws. Additional needs include an additional surplus type 6 engine and funding to support seasonal or volunteer firefighter staffing.



Figure 2.23. Clallam County Fire District No. 2 Station.

Clallam County Fire District No. 3

Clallam County Fire District No. 3 is “dedicated to excellence in serving, educating, and protecting our community through emergency medical services, fire suppression, and public education” (Clallam County Fire District No. 3 2024). The district serves 142 square miles along a 24-mile stretch of U.S. Highway 101, just east of the Clallam County line into what was formerly a portion of Jefferson County Fire District 5. The district serves a wide variety of lands, including USFS and NPS lands in the area, farms, residential communities and housing developments, and industrial/commercial districts. The fire district also has mutual aid agreements with nearby districts, including the Clallam County Fire District No. 2.

Clallam County Fire District No. 4 (Joyce Fire and Rescue)

Clallam County Fire District No. 4 serves the community of Joyce and its surrounding areas, providing fire protection, emergency medical response, and disaster preparedness. Headquartered in Joyce, Washington, the district is guided by an elected Board of Commissioners (Clallam County Fire District No. 4 2024). The district’s service area spans approximately 87 square miles along Highway 112, stretching from Ram Hill Road to Milepost 33 near Deep Creek, including both residential communities and significant tourist destinations such as Olympic National Park and nearby state parks (Clallam County Fire District No. 4 2024). During the warmer months, the district serves around 3,500 permanent residents, with this number nearly doubling due to increased tourism traffic along Highway 112 toward Neah Bay and the Pacific Coast (Clallam County Fire District No. 4 2024). The district emphasizes public safety through a combination of fire prevention programs, education, and timely emergency services.

Clallam County Fire District No. 5

Clallam County Fire District No. 5 serves the communities of Clallam Bay and Sekiu, Washington, providing fire protection, emergency medical services, and disaster preparedness. Headquartered in Clallam Bay, the district operates with a dedicated team of volunteers committed to safeguarding the local population and surrounding areas (Clallam County Fire District No. 5 2025). The district's service area

encompasses residential neighborhoods, commercial establishments, and natural landscapes, including portions of the Olympic Peninsula. The district maintains mutual aid agreements with neighboring fire districts and agencies, ensuring a coordinated response to emergencies across the region. The district is governed by an elected Board of Commissioners, who oversee operations and strategic planning to meet the evolving needs of the community (Clallam County Fire District No. 5 2025).

Clallam County Fire District No. 6

Clallam County Fire District No. 6 provides fire protection and emergency services to the Quillayute Prairie community near Forks, Washington (County Maps of Washington 2024). The district serves approximately 400 residents across a rural area and responds to a variety of emergencies, including fire suppression, medical incidents, hazardous materials situations, motor vehicle accidents, and natural disasters (County Maps of Washington 2024). Clallam County Fire District No. 6 is part of a network of fire departments in Clallam County and collaborates with neighboring districts to ensure comprehensive emergency response capabilities. In addition to emergency response, the district engages in community outreach by providing fire safety education and first aid training (County Maps of Washington 2024).

Port Angeles Fire Department

The Port Angeles Fire Department provides fire prevention and education services to the City of Port Angeles. The Fire Department is dedicated to “improving the quality of life for the citizens and visitors of the city while providing a broad range of services designed to save lives and property.” Education and outreach hosted by the fire department include lectures, fire station tours, demonstrations, and fire safety videos for the public. Additionally, the Port Angeles Fire Department has reciprocal response and or automatic mutual aid agreements with Olympic National Park, the Olympic Region DNR, Clallam County Fire District No. 2, and Clallam County Fire District No. 3.

Clallam County Disaster Airlift Response Team

The Clallam County Disaster Airlift Response Team (DART) is a volunteer-based organization that provides critical logistical and transportation support during disasters, including wildfires. Operating under the coordination of Clallam County DEM, DART can mobilize small aircraft to transport emergency supplies, equipment, and personnel or conduct reconnaissance when ground routes are compromised, offering essential backup capabilities for local fire districts in remote or isolated communities (Clallam County DART 2017). Primary operations are based at William R. Fairchild International Airport in Port Angeles, with additional capacity at Sequim Valley, Forks, Diamond Point, and Sekiu airports. This capability offers essential backup support for local fire districts and emergency responders, particularly in remote or isolated communities where wildfire or other hazards could disrupt road access (Clallam County DART 2017).

Private Landowner Response

A large portion of the county is privately owned and managed, including land held by timber companies. Many of these companies maintain their own initial attack and suppression resources to address fires on active operations. Rayonier, Green Crow, and other major landowners in the county operate water tenders, equipment, and trained personnel that can be deployed on harvested tracts or during elevated fire danger periods. These companies have indicated a willingness to coordinate with the Washington Department of Natural Resources (DNR) and local fire districts to support wildfire suppression and containment efforts when needed.

2.6.2 STATE RESPONSE

2.6.2.1 Washington State Department of Natural Resources

Wildfire management in the state of Washington falls under the responsibility of the WA DNR. The WA DNR wildfire fighting force has access to over 1,300 trained employees ready to combat fires when necessary. This workforce comprises over 800 permanent employees and 550 seasonal employees. WA DNR's firefighting resources include approximately 120 wildland fire engines, nine helicopters, and six single-engine air tankers, all of which are contracted and available for WA DNR's firefighting efforts (WA DNR 2025b). They combat fires across more than 13 million acres of private and state-owned forest lands. WA DNR sets fire protection and safety equipment standards to support local fire districts in responding to wildfires. Additionally, they collaborate with local fire departments as well as the National Weather Service to provide fire weather forecasts and precaution levels. WA DNR employs various resources, including hand crews, engines, dozers, water tenders, helicopters, and planes, to extinguish wildfires and also engages with external entities to provide equipment and services for fire suppression (WA DNR 2025c).

Management responsibilities for the state of Washington are divided among six upland regional offices; Clallam County falls within the Olympic Region. The Olympic Region comprises diverse landscapes, including Pacific Ocean beaches and rainforest valleys. The district encompasses 371,000 acres of state forest, agriculture, urban, and conservation lands. In these lands, WA DNR focuses on sustainable timber harvesting practices that consider the needs of wildlife. The Region's staff also manage forest practices, oversee wildfire prevention, and lead firefighting efforts on both state and private forest lands in the region (WA DNR 2025d).

The primary office for WA DNR is located in Forks, which provides foundational resources for wildland fire response in the western portion of the county. In addition, WA DNR has smaller offices in Chimacum and Port Angeles. The Chimacum station is seasonally staffed from May to September and includes one engine, and the Port Angeles station has a limited full-time staff that is supplemented during fire season. The Port Angeles station has two engines at its disposal. The Olympic Region Office in Forks handles local WA DNR dispatching. In the event of a large fire incident, resources can be brought from adjacent jurisdictions and out-of-area resources can be mobilized through coordination with the DNR Coordination Center in Olympia (personal communications, WA DNR Olympic Region Office, March 2024).

The WA DNR provides live updates on wildfires for the Olympic region and other areas throughout the State on their website: <https://www.dnr.wa.gov/Wildfires>

2.6.3 FEDERAL RESPONSE

2.6.3.1 Bureau of Indian Affairs

The BIA plays a critical role in providing wildland fire response on Tribal lands through supporting local agency development, supplying equipment, and providing interagency coordination. The Division of Wildland Fire Management remains and sponsors personnel to meet interagency standards and qualifications. Additionally, the agency has seven interagency hotshot crews for firefighting. The BIA maintains a fleet of over 240 wildland fire engines and 12 aircraft to effectively respond to wildland fire and various all-risk situations across Native American communities nationally (BIA 2024a). Descriptions

of these Tribal reservations are found in Section 1.5.2; their fire/emergency response capabilities are described below.

Makah Tribe

The Makah Tribe in Neah Bay operates its own fire department and EMS, staffed by a fire chief, an assistant fire chief, and trained volunteers (Bureau of Justice Assistance 2018). Their public safety system integrates fire, EMS, and police dispatch through a Specialty Officer role, and they maintain specialized equipment such as rescue boats, jet skis, drones, oil spill trailers, and all-terrain vehicles for maritime and land emergencies. The Tribe continues to strengthen emergency operations through tsunami response planning, relocation of critical infrastructure, and improvements in communication technology, including expanded use of FirstNet for first responders (Washington State Military Department 2024).

Jamestown S’Klallam Tribe

Fire and emergency response services for the Jamestown S’Klallam Tribe are provided through Clallam County Fire Protection District No. 3, which operates six stations, including one built and leased by the Tribe to ensure adequate coverage of Tribal lands (Clallam County Fire District No. 3 2024). Three of these stations are staffed full-time, while the others rely on volunteer response. In addition to this partnership, the Tribe’s Public Safety and Natural Resources Enforcement Department collaborates with fire and rescue personnel. At the same time, Tribal code provisions set a legal framework for emergency preparedness, hazardous materials management, and public safety response (Jamestown S’Klallam Tribe 2025b).

Quileute Tribe

The Quileute Tribe’s emergency response capacity is guided by their Hazard Mitigation Plan, which addresses risks from tsunamis, coastal storms, flooding, and wildfires (Quileute Nation 2015). While wildfire risk is relatively low compared to many regions, the Tribe emphasizes planning for evacuation, disaster communication, and utility resilience (Quileute Nation 2015). Their fire response appears to be supported by a combination of Tribal capacity and mutual aid agreements with county and state agencies, ensuring coverage in the event of emergencies.

Lower Elwha Klallam Tribe

The Lower Elwha Klallam Tribe is served by Clallam 2 Fire-Rescue, which provides fire suppression, EMS, and public education programs for the area (Clallam 2 Fire-Rescue 2025). The Tribe also maintains key emergency infrastructure through its Utilities and Public Works Department, which manages water storage, pump stations, and fire hydrants, as well as providing 24-hour emergency water and wastewater repair services (Lower Elwha Klallam Tribe 2022c). Together, these resources ensure the Tribe has a reliable foundation for fire response and emergency preparedness.

2.6.3.2 U.S. Forest Service

Olympic National Forest

The Olympic National Forest is located in the northwestern part of Washington State on the Olympic Peninsula, a distinct geographic region surrounded by saltwater on three sides. U.S. Highway 101 runs

along the west coast, the Strait of Juan de Fuca to the north, and Hood Canal and Puget Sound to the east. This 6,500-square-mile area features complex terrain with winding ridges, steep mountains, canyons, and dense forests (USFS 2024).

The wildfire response strategy in the Olympic National Forest emphasizes cost-effectiveness and alignment with land and resource management goals. The USFS firefighters work to protect lives, property, and natural and cultural resources when responding to wildfires. With each new fire start, USFS fire managers assess risk to identify safe and appropriate management actions. An "Escaped Fire Situation Analysis" is conducted for wildfires that exceed established limits, weighing suppression costs against potential resource impacts. Priorities for protection include life and property, soil productivity, endangered species habitat, fish and wildlife habitat, timber investments, and air quality. Fuels management and prescribed fire are employed to meet management objectives and reduce fire hazards, with a focus on air quality maintenance. Resource Advisors provide guidance on reducing equipment-related impacts and rehabilitating affected areas (USFS 2024).

2.6.3.3 National Park Service

Olympic National Park

Located in the center of the Washington State's Olympic Peninsula, Olympic National Park is characterized by its exceptional natural diversity, covering 922,651 acres of three distinct ecosystems: glacier-capped mountains, extensive Pacific coastline, and diverse forests, including ancient temperate rainforests (NPS 2008). The park's extensive river systems are home to numerous native freshwater fish species and Pacific salmon, including the federally threatened bull trout. The park also provides habitat for over 1,100 native plant species, 300 bird species, 70 mammal species, and 24 endemic species found only within the park. Numerous federally listed species can also be found within the park. With boundaries spanning rugged, mountainous terrain into the Pacific Ocean, Olympic National Park is home to coastal environments, intertidal areas, valleys, and mountain peaks (NPS 2008).

The management goals and strategies for the park have been defined in the Olympic National Park General Management Plan. The plan outlines a 15- to 20-year vision focused on preserving natural and cultural resources and enhancing visitor experiences. Among the numerous key elements touched on within the plan is fire management (NPS 2008). The park's fire management approach aims to restore and maintain natural fire patterns while making necessary modifications for compliance with regulations, protection of wildlife and cultural resources, and human safety. Land managers within the park aim to use advanced technology and ongoing monitoring to enhance their fire management program, with a focus on reducing hazardous fuels near structures and cultural sites (NPS 2008).

2.6.3.4 U.S. Fish and Wildlife Service

The USFWS has three primary areas of focus regarding fire management strategies: fuels management, wildfire management, and wildfire prevention. The USFWS aims to carry out fire management and land improvements in a safe and cost-effective manner to benefit both people and the landscapes. This will be achieved through the prioritization of fuel management programs such as fuel treatment projects, maintaining previous projects, leveraging funding, and promoting safety and security (USFWS 2023a).

Washington Maritime National Wildlife Refuge Complex

Washington Maritime National Wildlife Refuge Complex is an administrative grouping of multiple National Wildlife Refuges in the State of Washington. Two refuges, the Quillayute Needles Wildlife Refuge and the Dungeness National Wildlife Refuge, are located in Clallam County. Quillayute Needles Wildlife Refuge is a remote and rugged area that is home to a diverse range of seabirds, including tufted puffins, common murrelets, and black oystercatchers. In addition to its bird populations, the refuge provides critical habitat for marine mammals like sea otters, harbor seals, and California sea lions (USFWS 2023c). Dungeness National Wildlife Refuge provides critical habitat for over 250 bird species and marine mammals, including wintering black brant, bald eagles, and harbor seals that haul out along the Spit. Its mudflats, eelgrass beds, and estuaries make it an important stop on the Pacific Flyway, supporting both migratory and resident wildlife (NPS 2014).

Wildfire response for these coastal refuges is tailored to the unique challenges of their island settings (USFWS 2007). Given the remoteness and inaccessibility of the islands, initial attack actions may be limited. As a result, strategies such as monitoring from a distance or on-site, as well as confinement, may be employed. Suppression tactics and the use of certain equipment are carefully approved to minimize damage to the natural habitats and resources of the refuges, with consultation involving Resource Advisors and Agency Administrators. All fire response actions within the refuges consider factors like firefighter and public safety, resource management objectives, weather, fuel conditions, and the potential cost of these actions.

2.6.4 MUTUAL AID

The wildland fire community is well known for its development of mutual aid agreements at the federal, state, and local levels. Such automatic aid agreements allow for the closest resources to respond to an incident as quickly as possible regardless of jurisdiction. Such agreements may also describe how reimbursement will be conducted; state resources responding to wildfires on federal land may have their associated costs reimbursed by the responsible federal agency, and the reverse is true for federal resources suppressing a wildfire on state land.

In Washington state, mutual aid agreements are highly encouraged by the legislature to ensure public safety, health, and the protection of people's lives and property. There are two types of mutual aid agreements: Emergency Proclamation Mutual Aid, activated during a state of emergency declared by the governor, and Local Agency Mutual Aid, used in the absence of such a proclamation. Both agreements involve Tribes and have cost recovery provisions (Washington State Department of Transportation [WSDOT] 2023).

Mutual aid facilitates the mobilization of various resources, including fire services, transportation, and emergency management, across the state. The Washington state fire services mobilization plan outlines the framework for large-scale resource mobilization and grants the chief of the Washington state patrol the authority to implement this plan. The chief can activate fire resources under specific conditions, such as when the local mutual aid network is exhausted; there's a threat to life, property, or natural resources; local resources are insufficient; and the fire has significant statewide or even international implications (Washington State Fire Marshal's Office 2023).

Additionally, WA DNR maintains a regional dispatch for the Olympic Peninsula based out of Forks. WA DNR is responsible for wildfire mitigation efforts and incident response on state- and privately owned lands. Many timber companies additionally maintain some degree of response resources for addressing

incidents on their land. Generally, these companies are willing to provide these resources to neighboring lands if it will aid in a strategic response, especially if the fire has spread from their privately owned lands.

2.6.5 EMERGENCY NOTIFICATIONS AND EVACUATION

Evacuating safely during a wildfire requires timely alerts, community awareness, and coordinated emergency systems. Clallam County DEM manages a comprehensive public warning system to communicate life-saving information quickly and effectively (Clallam County DEM 2022).

Public Alert and Warning Systems

Clallam County uses several integrated tools to notify residents of imminent wildfire threats (Clallam County DEM 2022; Clallam County Sheriff's Office 2022).

- **Everbridge:** A countywide system that delivers alerts via phone calls, text messages, and emails. Authorized personnel can send notifications from Clallam County DEM's office or remotely using secure access.
- **Emergency Alert System (EAS) and Wireless Emergency Alerts (WEA):** Used to broadcast alerts via radio, TV, and mobile devices through FEMA's Integrated Public Alert and Warning System (IPAWS).
- **Local Radio Stations:** KONP, KSQM, and KBDB monitor and rebroadcast emergency alerts through the Local Relay Network.

All-Hazard Alert Broadcast: A siren system installed in coastal and high-risk areas to deliver audible warnings for urgent hazards. These are tested regularly and can also be activated during wildfire emergencies. This alert system signals that individuals should run to higher ground, which is suitable only in circumstances where evacuation is possible at elevations above the existing fire.

Community Preparedness and Awareness

Clallam County DEM promotes community readiness through education and engagement (Clallam County DEM 2019, 2022; Clallam County Sheriff's Office 2022).

- **Preparedness Programs:** Initiatives like Clallam Ready and Community Emergency Response Teams (CERT) train residents to respond to emergencies at the neighborhood level.
- **Public Guidance:** Residents are encouraged to:
 - Register for Everbridge alerts.
 - Maintain a NOAA Weather Radio.
 - Learn their local evacuation zones and routes.
 - Develop and practice a personal or family evacuation plan.
- **Training and Testing:** Emergency personnel conduct regular system testing and drills to ensure readiness and the integrity of public alert systems.

2.6.5.2 Evacuation Resources

The Clallam County Comprehensive Emergency Management Plan (CEMP) highlights the importance of evaluating existing subdivisions for evacuation routes, especially in areas prone to wildfire, and stresses collaboration with the Clallam County DEM to prioritize roadway improvements for emergency response. The plan also emphasizes the need to assess how new developments may impact emergency management and evacuation planning in the future (Clallam County Sheriff's Office 2022).

The Clallam County CEMP contains evacuation procedures, outlining the scope and responsibilities of the evacuation process. This plan defines evacuation authorities and specifies that an evacuation order is an official notice for public protection. Law enforcement, along with incident command, is responsible for implementing and coordinating evacuations, with a focus on reducing risk and ensuring the safety of residents and emergency responders. The plan details the different levels of evacuation, the methods of warning the public, transportation logistics, and re-entry planning (Clallam County DEM 2019). Special attention is given to assisting vulnerable populations during evacuation and maintaining communication with the public to ensure a safe and orderly process (Clallam County Sheriff's Office 2022).

The CWPP update includes community field assessments and evacuation route maps in Appendix D that outline major access routes, potential impediments, and road conditions across the county.

The Clallam County DEM website provides resources and information related to evacuation and emergency response. It outlines the department's objectives, which include public education, coordination of emergency operations, and the activation of the Emergency Operations Center (EOC) during disaster events. The website also includes guidelines for homeowners on wildfire preparedness, evacuation protocols, and mitigative actions they can take to protect their property and themselves (Clallam County DEM 2024).

The Clallam County DEM website can be accessed here:

<https://www.clallamcountywa.gov/226/Emergency-Management>

For this CWPP, residents are encouraged to familiarize themselves with local evacuation protocols and practice personal preparedness. Although the fire department plays a critical role in responding to fires, it is not the responsibility of fire department personnel, such as the fire chief, to oversee neighborhood evacuations. Individual preparedness is key to ensuring community safety in the event of an evacuation (Clallam County DEM 2024).

2.6.5.3 Emergency Notification

The Clallam County DEM webpage provides a dedicated section for emergency alerts and notifications, where residents can find resources and information related to disaster preparedness. Clallam County uses the Everbridge notification system, which allows residents to sign up to receive emergency alerts via phone calls, text messages, and emails. This system is supplemented by the Emergency Alert System (EAS) and Integrated Public Alert and Warning System (IPAWS), which broadcast emergency alerts across multiple channels, including radio and television (Clallam County Sheriff's Office 2022).

Local radio stations, such as KONP and KSQM, are key communication tools for disseminating emergency information during disasters. Residents are encouraged to stay informed through these outlets and by signing up for notifications from Clallam County DEM. In addition, the county advises residents to monitor WSDOT traffic alerts, which provide real-time updates on road conditions, closures, and construction during emergencies (Clallam County Sheriff's Office 2022).

Please visit the following webpage to sign up for Clallam County Emergency Alerts and learn more about alerts within the county: <https://www.clallamcountywa.gov/260/Wireless-Emergency-Alert-Information>

2.6.5.4 Animals and Livestock

In the event of a wildfire or other emergency, the Clallam County's Sheriff's office emphasizes the importance of planning for the evacuation of both pets and livestock (Clallam County Sheriff's Office 2022). Residents should factor in the time needed to secure and transport animals, particularly large livestock, during an evacuation. Clallam County DEM encourages residents to have an evacuation plans that account for the transportation of their animals (Clallam County DEM 2024). The county works with various animal welfare groups to provide guidance and assistance for the safe evacuation of animals, ensuring proper handling and sheltering options for livestock and small animals (Clallam County Sheriff's Office 2022).

Clallam County's emergency plans emphasize identifying shelters and locations where pets and livestock can be safely housed during emergencies. Owners are encouraged to ensure their animals have identification and to be aware of designated evacuation points. Collaboration with local veterinarians and animal care organizations is crucial to facilitating animal safety during evacuations. Service animals will be permitted to accompany their owners to designated shelters (Clallam County Sheriff's Office 2022).

Washington State Department of Natural Resources Emergency Preparedness: Pets

The WA DNR's guidance for pet owners in disaster preparedness is designed to protect the lives of pets and enhance the safety of disaster response efforts. Before a disaster has taken place, WA DNR recommends that homeowners carry out the following actions (WA DNR 2025e):

- Ensure your pets have proper identification (microchip if possible).
- Identify safe places to take your pets, such as pet-friendly hotels or the homes of friends or relatives outside the area.
- Create a pet emergency kit with food, water, medications, and veterinary records.
- Make plans with a trusted person to evacuate your pets or set them up with necessary supplies if you are not home during a disaster.
- Identify safe locations within your house for your pets in case of an emergency is advised.

During disasters pet owners are advised to evacuate with their animals whenever possible to ensure their well-being. It is crucial to check for wild animals around your property as disasters can disorient them, potentially causing them to seek refuge nearby. Additionally, the WA DNR recommends separating animals as one distraught pet's behavior during disasters can cause usually relaxed pets to become agitated (WA DNR 2025e).

After a disaster, the WA DNR recommends keeping pets close and secured when evacuating, as they may become anxious. Upon returning home, it is recommended that pet owners help their pets adjust to a normal routine, preparing for potential behavioral issues stemming from the stress of the disaster and consulting a veterinarian if the issue persists (WA DNR 2025e).

2.6.6 WATER AVAILABILITY AND SUPPLY

In Clallam County, water availability and supply for wildfire management are supported by a combination of public and private water systems, supplemented by natural water sources (Clallam County CWPP 2009). These systems are integrated into local and regional emergency response plans to ensure adequate resources are available during wildfire incidents (Clallam County DEM 2022). The Clallam County Comprehensive Plan emphasizes sustainable water management policies to safeguard water quantity and quality, which are critical for firefighting efforts (Clallam County DEM 2022).

Fire districts across the county collaborate to ensure strategic placement and maintenance of water access points, including fire hydrants and alternative water sources, to meet firefighting standards (Clallam County CWPP 2009). In rural areas without hydrant networks, water is often drawn from rivers, reservoirs, and portable water tanks staged during active wildfire operations (Clallam County 2019) (Figure 2.24). These efforts are coordinated with mutual aid agreements to enhance access to shared water resources (Clallam County CWPP 2009).



Figure 2.24. WA DNR–operated helicopter pumping water from Lake Sutherland during the Sutherland Fire (summer 2023).

Source: Peninsula Daily News (2023).

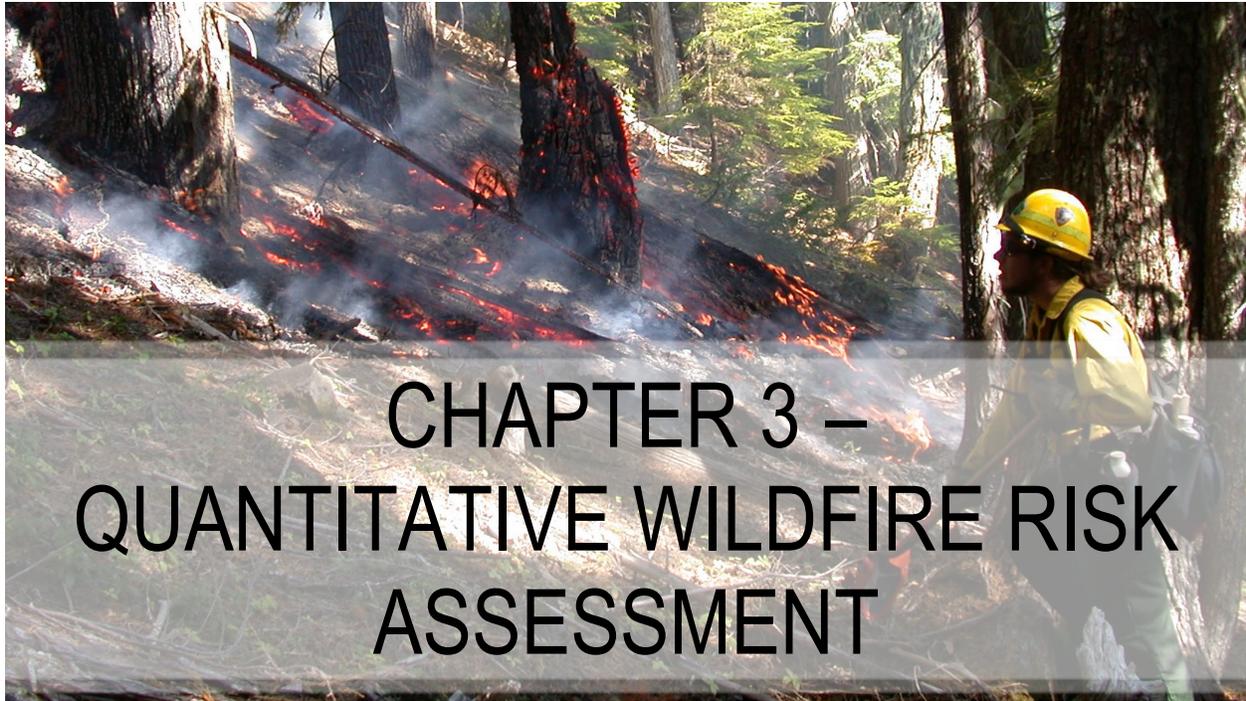
Clallam County also faces challenges from increasing water demands and periodic drought conditions, which can impact water availability for firefighting and vegetation health (Clallam County 2019). Under extreme drought conditions, desiccated soils may become flammable, adding to the complexity of fire suppression efforts (Clallam County 2019). Water availability for wildfire suppression was identified by the Steering Committee as a key priority in the Chapter 4 recommendations (FR2, Table 4.4 in Section 4.3.1).

These recommendations call for improving water supply, including completing a countywide water resources inventory and coordinating with local water districts to extend or upsize water mains in high-risk corridors. Additionally, fire personnel completed a fire station survey during the CWPP planning process (see Section 2.6.1), highlighting the poor water systems and uncertain hydrant access in areas like Diamond Point (served by Clallam County Fire District No. 3) and within the Clallam 2 Fire-Rescue jurisdiction, among other regions of the County. Efforts to restore natural water systems, such as stream channel restoration and reintroducing beavers to support groundwater recharge, are being explored to enhance water availability in critical areas (Clallam County 2009).

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CHAPTER 3 – QUANTITATIVE WILDFIRE RISK ASSESSMENT

3.1 BACKGROUND

For this CWPP update, areas of high wildfire hazard and risk are identified using SWCA's Quantitative Wildfire Risk Assessment (QWRA) process through the modeling and mapping of fire behavior, analysis of highly valued resources and assets (HVRAs), and incorporation of stakeholder and expert input.

The QWRA for the planning area can be used by land use managers, fire officials, planners, and others to prepare strategies and methods for reducing the threat of wildfire, as well as to work with community members through outreach and education regarding methods for reducing the damaging consequences of fire. A QWRA can also aid in the identification and prioritization of fuel treatments and other mitigation initiatives based on where wildfire risk is greatest. Fuel reduction treatments can be implemented on both private and public land, so community members can actively apply the treatments on their properties, as well as support treatments on the public land that they care about. **For more information about fuels treatments, see Chapter 4, Mitigation Strategies.**

3.2 QUANTITATIVE WILDFIRE RISK ASSESSMENT

3.2.1 FRAMEWORK

The QWRA is a specialized tool for evaluating the risk that wildland fires pose to communities within the county. In this context, risk is defined as a combination of hazard and vulnerability (Figure 3.1). For the purposes of this document, risk is conceptualized using four key factors within the QWRA Framework (Scott et al. 2013):

Burn probability is the likelihood of a 30-square-meter pixel burning.

Intensity is a combination of wildfire behavior metrics such as flame length and rate of spread.

Exposure is the proximity of an HVRA to hazards on a landscape.

Susceptibility is a measure of how easily an HVRA is damaged by wildfire.



Figure 3.1. Pyrologix's Quantitative Wildfire Risk framework for the PNW QWRA, graphic derived from Scott et al. (2013).

3.2.2 PROCESS OVERVIEW

Flame length (intensity) and burn probability were assessed using established models integrated within the Interagency Fuel Treatment Decision Support System (IFTDSS) and processed through ArcGIS Pro Spatial Analyst tools. The QWRA data were sourced primarily from LANDFIRE and supplemented by additional local datasets as available (LANDFIRE 2023).

SWCA generated a landscape file for the county in IFTDSS, with Steering Committee input guiding the refinement of fuel models, response functions, and relative importance values, resulting in tailored fire behavior outputs and risk scoring (see Appendix B for the full IFTDSS report). The datasets, including flame lengths, building footprints (on-the-ground perimeter occupied by a building's exterior walls), HVRAs, and burn probability, were processed and reclassified in ArcGIS Pro. The raster calculator in ArcGIS Pro then produced the Conditional Net Value Change (cNVC) and Expected Net Value Change (eNVC) risk outputs, with the eNVC serving as the final risk layer in the QWRA. The cNVC evaluates wildfire impacts to values under the assumption that a fire occurred (i.e., it assumes 100% probability), whereas the eNVC evaluates the likelihood of impacts to values based on fire probability (IFTDSS n.d.), making it a more valuable tool for prioritizing mitigation measures in areas with the highest potential for wildfire-related losses.

3.2.3 DATA COLLECTION

The spatial data required for this QWRA are summarized in Table 3.1. It's important to note that burn probability considers factors such as landscape characteristics (e.g., topography and fuels), weather conditions (e.g., humidity and wind), and historical ignition patterns. Similarly, flame length calculations incorporate fuel types, topography, and weather conditions.

Table 3.1. Spatial Data Inputs for the QWRA

Components	Source	Type/Subtype
Fuel Model	<ul style="list-style-type: none"> LANDFIRE (Scott and Burgan) 	Hazard/Probability
Burn Probability	<ul style="list-style-type: none"> IFTDSS, LANDFIRE 	Hazard/Probability
Flame Length	<ul style="list-style-type: none"> IFTDSS, LANDFIRE 	Hazard/Intensity
Critical Infrastructure HVRAs	<ul style="list-style-type: none"> Communication Towers: (IFTDSS) Power Plants: (WFDSS) Substations: (WFDSS) Transmission Lines: (WFDSS) Pipelines: (WFDSS) 	Vulnerability/Exposure
Recreation Infrastructure HVRAs	<ul style="list-style-type: none"> Campgrounds (IFTDSS) NPS Facility Buildings (IFTDSS) USFS Facility Buildings (IFTDSS) Trailheads (IFTDSS) 	Vulnerability/Exposure
Building Footprint HVRAs	<ul style="list-style-type: none"> Microsoft Building Footprints 	Vulnerability/Exposure

3.2.3.1 Identification of Hazards and Vulnerability

Hazard

Fuels

Accurate prediction of wildfire behavior depends fundamentally on the characterization of surface fuels, which serve as the primary input for mathematical fire spread models. The USFS's Rocky Mountain Research Station has developed a comprehensive set of standard fire behavior fuel models. These models provide a consistent framework for describing the properties of wildland fuels, including load, size, arrangement, and moisture content, across a wide array of vegetation types and environmental conditions (Scott and Burgan 2005).

The fuel models are broadly described under the following acronyms, which have specified fuel codes to represent more specific fuel types:

- **NB – Nonburnable:** Areas with insufficient wildland fuel to carry fire (e.g., urban, water, bare ground).
- **GR – Grass:** Areas where grass is the primary carrier of fire.
- **GS – Grass-Shrub:** Areas with a mix of grass and shrubs, both contributing to fire spread.

- **SH – Shrub:** Areas dominated by shrub vegetation as the main fuel.
- **TU – Timber-Understory:** Forested areas where surface fuels include a mix of litter, grass, and/or shrubs beneath trees.
- **TL – Timber Litter:** Forested areas where dead and down woody material (litter) is the primary surface fuel.
- **SB – Slash-Blowdown:** Areas with heavy dead and down woody debris, often from logging (slash) or wind events (blowdown).

Within the Clallam County CWPP planning area, the most extensive fuel model is TL5 (25.5%), covering areas with high-load conifer litter, where dead and down woody material serves as the primary carrier of fire; these forests can produce low spread rates and flame lengths under most conditions but intensify during dry periods. TU1 (16.5%) is found in mixed forest stands with low loads of grass, shrub, and litter, producing low spread rates and flame lengths, and is sensitive to changes in live herbaceous moisture content. TL4 (5.7%) occurs in forests with moderate loads of fine litter and small diameter downed logs, supporting low spread rates and flame lengths. TU5 (3.9%) represents heavy forest litter with a shrub or small tree understory, typically found in timber-dominated areas, and can produce moderate spread rates and flame lengths. The remaining 65.0% of the planning area is comprised of other fuel models, including additional timber litter types, timber-understory models, grass and grass-shrub models, shrub models, slash-blowdown, and several nonburnable categories.

Table 3.2 and Figure 3.2 present tabular and geographically referenced data for the modeled fuel types within the Clallam County CWPP planning area.

Table 3.2. Fuel Model Types, Acreages, and Percentages of Planning Area

Fuel Model	Acres within Planning Area	Percent of Planning Area
TL5 (High load conifer litter; forests with abundant dead and down woody material)	436,099	25.5
TU1 (Low load timber-understory; mixed forest stands with grass, shrub, and litter)	281,376	16.5
TL4 (Moderate load timber litter; forests with fine litter and small downed logs)	97,634	5.7
TU5 (Very high load timber-understory; heavy forest litter with shrub or small tree layer)	66,696	3.9
Other (Remaining fuel models combined, each comprising <3% of planning area)	246,699	65.0
Total	1,128,504	100.0

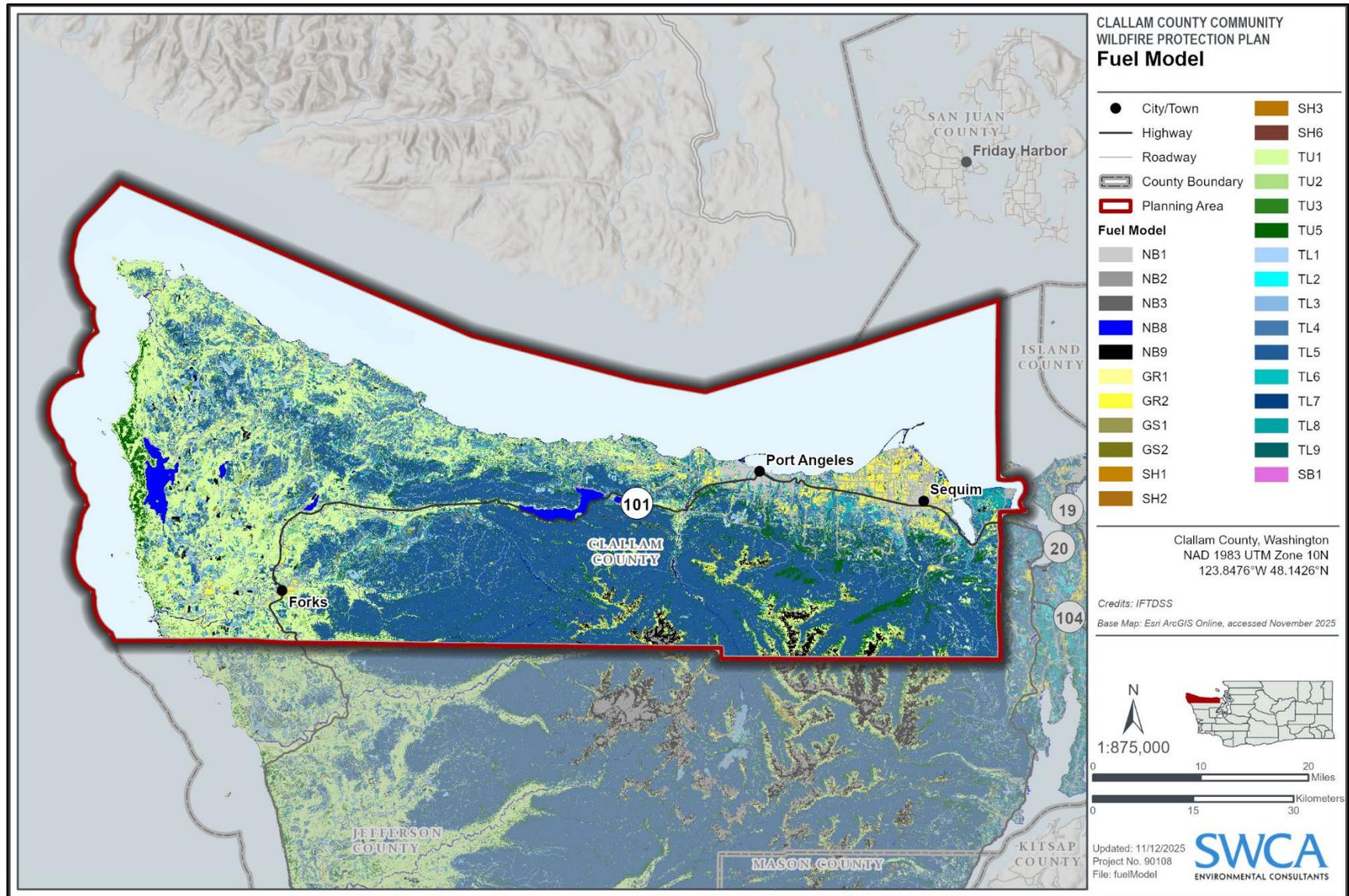


Figure 3.2. Fuels across Clallam County (Scott and Burgan 2005).

Burn Probability

Burn probability considers several factors, including fire size, frequency, rate of spread, and weather conditions (IFTDSS n.d.). Figure 3.3 illustrates the likelihood of a specific location on the landscape burning, which is represented as burn probability. For example, a 20% burn probability means that one in five ignitions under the modeled fire danger conditions would reach and burn that location.

In Clallam County, burn probability mapping shows that urban centers such as Port Angeles, Sequim, and Forks are classified as nonburnable due to dense development and limited wildland vegetation (Figure 3.3). Most of the landscape falls within the lowest burn probability zone (0%–20%), especially in developed and agricultural areas. The lower (20%–40%) and middle (40%–60%) probability zones are more common in forested foothills and shrublands, while higher (60%–80%) and highest (80%–100%) probability areas are found in the county's remote southern and western boundaries, where fuels are more continuous. These higher probability zones, though generally outside main population centers, are important to consider as they can facilitate fire movement toward communities. Natural barriers such as agricultural lands, sparse vegetation, and water bodies further influence the spatial pattern of burn probabilities.

Fire Behavior Characteristics

Key fire behavior metrics offer valuable insight into how destructive and challenging to control a wildfire may become across different landscapes. Each of the following fire behavior metrics serves as crucial components and were utilized in understanding the severity of the wildfire hazard in Clallam County:

Crown fire activity describes fire behavior in the forest or shrub canopy, and is categorized as surface fire, passive crown fire (torching), active crown fire, or nonburnable (Figure C.1 in Appendix C). Surface fires burn loose debris and low vegetation on the ground, while passive crown fires involve isolated torching of trees or groups of trees ignited by the advancing fire front. Active crown fires are more intense, with solid flames developing in the tree crowns and the surface and crown phases advancing together. Nonburnable areas, such as water bodies or unvegetated zones, do not support combustion and typically act as barriers to fire spread (IFTDSS n.d.).

Rate of spread measures how quickly a fire front moves horizontally, with slope, wind, and fuel type all playing significant roles (Figure C.11 in Appendix C). Fires move more rapidly uphill due to preheating of fuels and increased airflow, and burning embers can further accelerate spread by igniting fuels downslope or ahead of the main fire. Rate of spread is mapped and reported in chains per hour (1 chain = 66 feet) (IFTDSS n.d.).

Flame length refers to the measurement from the midpoint of the active flaming combustion zone to the average tip of the flames, often measured in feet (Figure C.10 in Appendix C). It serves as a direct indicator of fireline intensity and the potential for severe fire behavior. Longer flame lengths are associated with more intense fires, greater difficulty in suppression, and increased potential for crown fire development (IFTDSS n.d.).

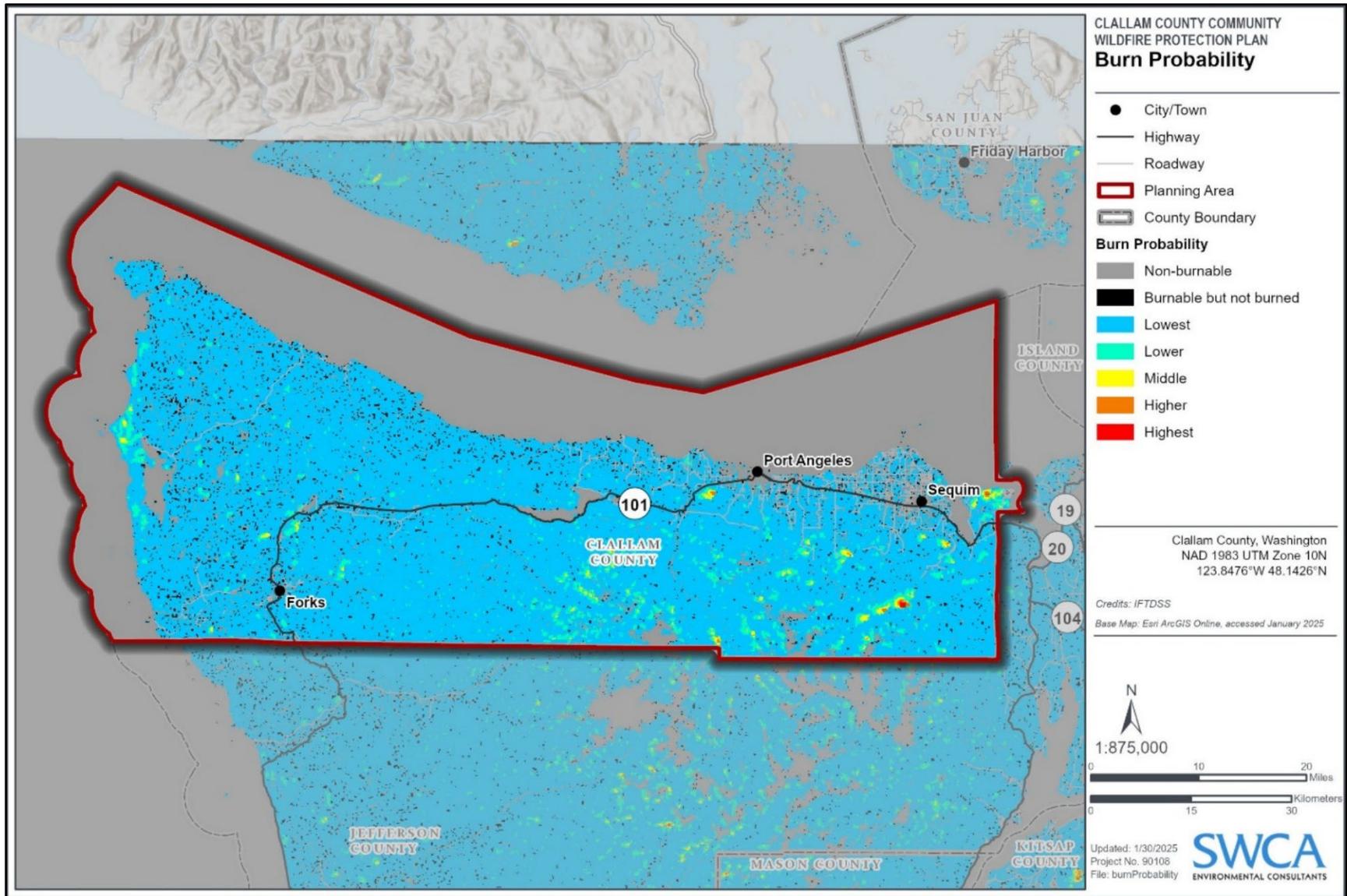


Figure 3.3. Modeled burn probability throughout Clallam County.

Wildfire Severity Potential

Wildfire severity potential is an important hazard metric within the QWRA process, representing the likelihood and magnitude of possible damage from wildfire across Clallam County. Wildfire severity potential is distributed unevenly across the landscape, with low severity potential dominating urban centers and much of the agricultural and developed areas. Moderate severity zones are more common in forested foothills and mixed vegetation areas, while high and very high severity potential is concentrated in the southern and western portions of the county where dense forests and continuous fuels are present.

Figure 3.4 shows the distribution of wildfire severity potential throughout the planning area, illustrating where the greatest risks and impacts are likely to occur.

Vulnerability

Highly Valued Resources and Assets (HVRAs)

Critical Infrastructure

The infrastructure dataset was developed through a comprehensive approach that integrated data from critical infrastructure inventories, community assessments, and valuable Steering Committee input. This dataset was further enhanced with HVRA information sourced from the Homeland Infrastructure Foundation-Level Data (HIFLD). The infrastructure HVRAs were organized into two primary categories: Energy and Communication, and Water and Transportation. The Energy and Communication category encompasses essential assets such as power plants, substations, communication sites, and major utility lines within the Clallam County planning area, each mapped in relation to city boundaries and primary transportation corridors. To address areas classified as 'unburnable' around these assets, a 60-meter buffer was applied to all critical infrastructure features.

Critical infrastructure was buffered by 60 meters.

Recreational Infrastructure

Recreational infrastructure was also a key asset included within the assessment, reflecting the importance of public spaces and facilities in the Clallam area. This category included campgrounds, trailheads, and buildings managed by the USFS and NPS.

Recreational infrastructure was buffered by 60 meters.

Buildings

The Buildings layer provided another critical dimension to the analysis, leveraging data from FEMA. This feature layer displays the footprints of all structures larger than 450 square feet across the United States and its territories. The dataset, developed through collaboration between FEMA's Response Geospatial Office, Oak Ridge National Laboratory, and the U.S. Geological Survey, represents the nation's first comprehensive inventory of such structures for use in flood insurance mitigation, emergency preparedness, and response.

Building footprints were buffered by 0.25 mile.

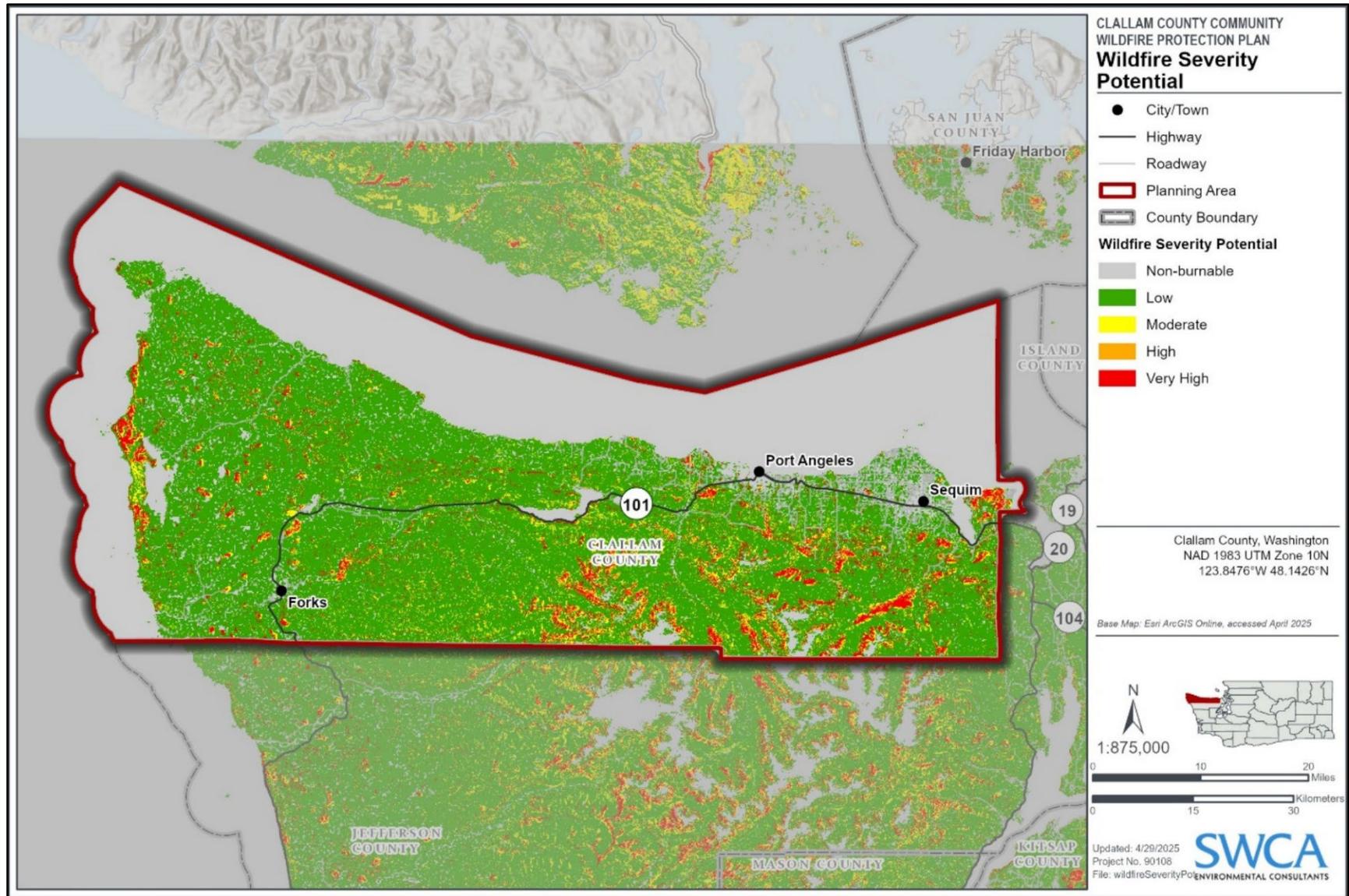


Figure 3.4. Modeled wildfire severity potential throughout Clallam County.

Buffers

To better account for the potential transmission of damage to assets from nearby burning fuels, a buffer was applied around HVRAs. This approach recognizes that even when a nonburnable area separates an asset from adjacent fuels, the asset may still be at risk due to its proximity to areas where fire can occur. By classifying HVRAs adjacent to fuels as “burnable” features, the analysis extends the assessment of risk to developments and assets located near the WUI, ensuring that the most vulnerable areas are adequately represented in the risk evaluation.

Response Functions

Response functions (RFs) measure the susceptibility of HVRAs to wildfire, indicating how fire affects these resources based on fire intensity (IFTDSS n.d.). Defined by experts, RFs assign a relative value change score ranging from -100 to +100, where -100 represents significant loss and +100 denotes substantial benefit. The RFs assigned to each HVRA are based on flame length classes, which represent different levels of fire intensity. Generally, the longer the flame length, the higher the intensity and the flame’s impact to structures and HVRAs.

3.2.4 RISK MODELING AND SCORING

3.2.4.1 Landscape Fire Behavior Model

Landscape fire behavior modeling was executed in IFTDSS (FlamMap) using the Automatic 97th Percentile Landscape Fire Behavior (Auto 97th) parameters (IFTDSS n.d.). The Auto 97th setting models fire behavior under very high fire weather conditions. Auto 97th uses data from nearby remote automated weather stations (RAWS) to determine conditions for fuel moisture and wind speed and direction.

Weighting and Relative Importance

To develop a quantitative risk product (Wildfire Risk to Structures and Infrastructure), the HVRAs must be weighted with a relative importance value (Scott et al. 2013). The HVRAs were broken into three categories and weighted as shown in Figure 3.5, with Recreation receiving 10% weight, Critical Infrastructure receiving 65%, and Buildings receiving 25% weight. These weights were collaboratively developed between SWCA fire behavior analysts and local expert input.

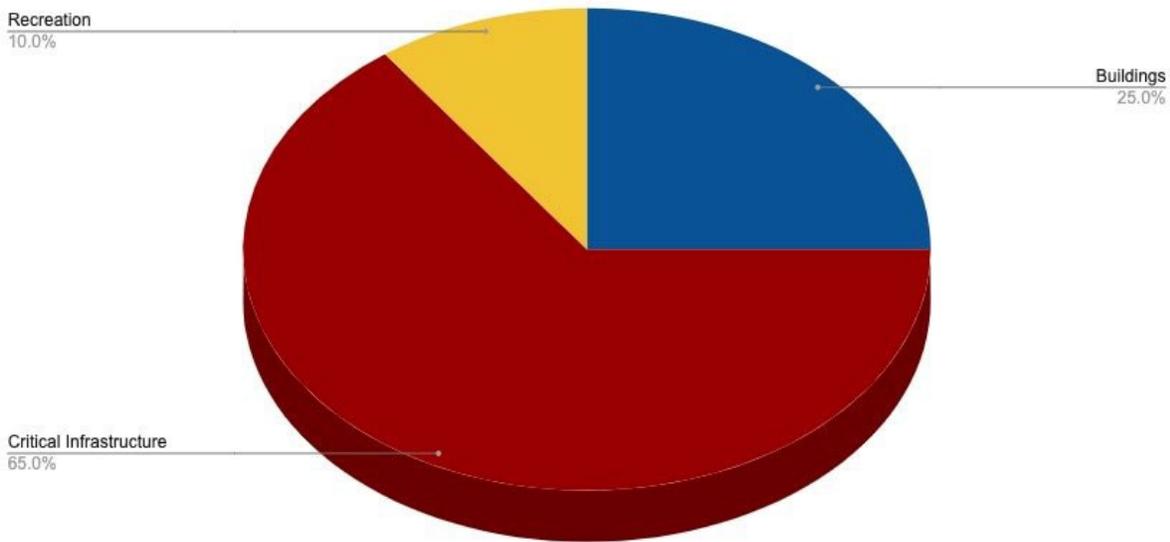


Figure 3.5. Overall RI weighting (ranking) of collaboratively determined HVRAs for the QWRA.

3.2.4.2 Validation and Calibration

LANDFIRE is a national vegetation and fuels remote sensing project that provides land managers with a data source for all inputs needed for fire behavior models (fuels, topography, and canopy characteristics). The database is managed by the USFS and the U.S. Department of the Interior and is widely used throughout the United States for land management planning. More information available at: <http://www.landfire.gov>.

The fire modeling for the Wildfire Risk to Structures and Infrastructure products utilized the LANDFIRE 2023 data layers. As a result, any wildfire activity occurring after the most recent LANDFIRE update (2023) is not reflected in this fire behavior modeling. For the purposes of this plan, this limitation is not considered significant as there have been no recent major wildfires since the last update that would be expected to significantly influence wildfire behavior across the surrounding landscape. However, future iterations of this risk analysis should carefully evaluate the accuracy and relevance of the current LANDFIRE dataset, or any alternative data sources, especially in the context of recent significant wildfire events. Integrating updated information that captures changes in vegetation and landscape conditions due to these wildfires will help ensure that analysis inputs more accurately reflect current and anticipated fire behavior. In turn, this will result in risk outputs that more reliably represent the true potential for wildfire impacts within the planning area.

3.2.5 QUANTITATIVE WILDFIRE RISK ASSESSMENT RESULTS

The QWRA map (Figure 3.6) illustrates wildfire risk to structures and infrastructure across Clallam County, with color-coded areas indicating varying levels of risk. Green areas represent low risk, yellow indicates moderate risk, orange signifies high risk, and red highlights very high risk. The highest concentrations of high and very high wildfire risk are found near the eastern and central portions of the county, particularly around Sequim and Port Angeles, where wildland fuels intersect with developed

infrastructure and buildings. Much of the urban corridor along Highway 101, as well as the densely built portions of these communities, are classified as low to moderate risk or are unclassified, meaning they are considered nonburnable within the model. In contrast, high and very high-risk zones are generally located along the county's eastern boundary and in areas where the WUI and undeveloped open spaces and wildlands are more prevalent. This product is most useful in identifying areas of the county in which assets are at greatest risk, allowing land managers to identify and prioritize fuel mitigation and implement other preparedness measures in order to directly protect these assets.

It is important to note that this analysis focuses on wildfire behavior across burnable landscapes and does not simulate how fire interacts with the built environment. The primary concern of the assessment is the risk posed by wildland fire to WUI communities and critical infrastructure. While certain fuel types, classified as "nonburnable," may under specific circumstances ignite and support combustion, this phenomenon is not incorporated into the QWRA modeling process. The model's classification approach ensures that the risks to structures and infrastructure adjacent to wildland fuels are adequately captured but does not extend to the complexities of fire behavior within urban areas.

When wildfires reach developed urban areas, the scenario shifts to what is known as "urban conflagration," which involves distinct dynamics and variables that require separate analysis. The QWRA for Clallam County is therefore designed to assess and project wildfire risk in areas where wildland fuels and human development converge, providing valuable insight for mitigation planning and community protection along the most vulnerable edges of the WUI.

3.3 FIELD ASSESSMENTS

Field assessments were conducted in May 2025 using an adapted version of the NFPA Wildland Fire Risk and Hazard Severity Form 1144 (see Appendix D). While the original NFPA standard is designed for assessing individual structure hazards, our approach modified the format to evaluate wildfire risk and hazard at the community scale. This method allowed for a spatially informed assessment of conditions both within and immediately surrounding each community, including factors such as access, vegetation (fuels), defensible space, topography, roof and building characteristics, available fire protection, and utility placement. It is important to note that the WA-WUI map was developed independently at a state scale using different assessment parameters and does not influence the field assessment process or community ratings. Further, these results were not incorporated into the QWRA but rather serve as a separate exercise involving ground-data.

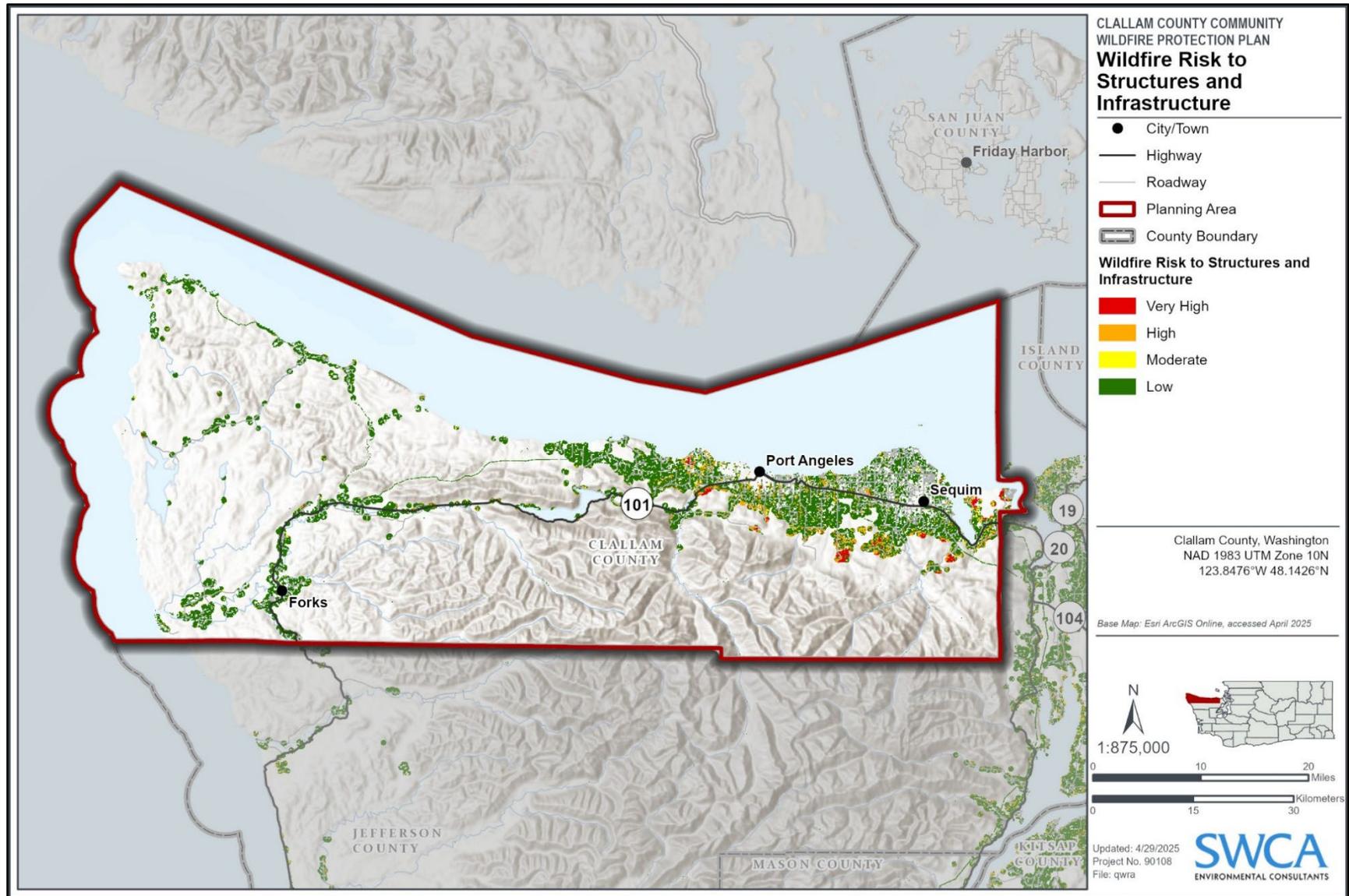


Figure 3.6. Clallam County QWRA (Wildfire Risk to Structures and Infrastructure).

Each community received a total risk score, categorized as low, moderate, high, or extreme, based on the assessment criteria. Table 3.3 displays these total risk scores for all assessed communities, supporting the prioritization of areas for mitigation and further planning.

Table 3.3. Clallam County Community Field Assessment Risk Scores

Community Name	Total Score	Risk Level
Port Angeles East 2	100	High
Clallam Bay	99	High
Port Angeles East 1	95	High
Miller Peninsula/Blyn/Lookout Hill	93	High
Shuwah	91	High
Disque/Ramapo	86	High
Ovington/Piedmont/Lake Sutherland/Elwha	86	High
Beaver/Sappho/Snider Peak/Sol Duc Valley	85	High
Pysht/Burnt Mountain	85	High
Makah	83	High
Coville/Lower Elwha	82	High
La Push/Mora	82	High
Old Royal	82	High
The Foothills	82	High
Ozette	79	High
Tsoo-Yess	78	High
R Corner/Little Oklahoma/Agnew	76	High
Sequim/Dungeness Valley South	76	High
Forks	75	High
Quillayute Prairie	69	Moderate
Port Angeles FPD	58	Moderate
Gardiner	50	Moderate
Sequim/Dungeness Valley North	42	Moderate

Note: <40 = Low, 40–69 = Moderate, 70–112 = High, >112 = Extreme



CHAPTER 4 – MITIGATION STRATEGIES

The plan recommendations have been structured around the three main goals of the Cohesive Strategy: restoring and maintaining landscapes, fire-adapted communities, and wildfire response. Many of the recommendations listed can be implemented at the homeowner or community level. Projects requiring large-scale support can be further prioritized based on the QWRA.

Recommendations in this chapter have also been aligned with the strategies in the 2024 Clallam County MJHMP wherever possible.

4.1 GOAL 1: RESTORE AND MAINTAIN LANDSCAPES

Efforts to restore and maintain landscapes should focus on vegetation management and hazardous fuel reduction.



Developing recommendations to support wildfire resilient Clallam County was a primary focus throughout the development of this CWPP update. The Steering Committee met to assess vegetation and fuels management challenges, identify priority areas of concern, and develop recommendations to guide future actions. The following points reflect the Committee’s shared vision of what a resilient Clallam County looks like:

- Preserving the county’s rural character while improving the resilience of individual properties
- Striking a balance between allowing fire to play its natural role on the landscape and protecting communities
- Prioritizing treatments and outreach on private lands, which comprise roughly 35% of the county
- Adapting to changing conditions through realistic and scalable treatment approaches
- Recognizing that vegetation regrowth is rapid, while fuel treatments are often slow, costly, and limited in scope

- Building community-wide resilience through education, collaboration, and shifts in mindset
- Encouraging defensible space, home hardening, and individual preparedness (e.g., ingress/egress planning)
- Considering differences in treatment feasibility between wetter and drier areas
- Understanding that so-called “unprecedented” fires are part of a historical cycle intensified by expansion into the WUI
- Raising public awareness of limited fire response capacity and coverage across the county
- Acknowledging that drought and natural climate oscillations (such as those seen in the 1940s–1950s) contribute to increasing fire intensity and frequency
- Using local events such as the 1951 Forks Fire as reminders of the potential for large, impactful wildfires

Building on this shared vision, the following section highlights how landscape-scale fuel reduction and vegetation management efforts support Clallam County’s path toward greater wildfire resilience. Much of the county’s land base is managed by federal and state agencies such as Olympic National Park, Olympic National Forest, and the WA DNR, along with local governments, Tribes, and private landowners. Coordination among these groups is essential to implement effective treatments, protect high-value resources, and strengthen the connection between forest health and community safety. Additionally, emphasis on voluntary, incentive-based, and partnership-driven actions will support successful implementation in incorporated municipalities of Clallam County.

4.1.1 RECOMMENDATIONS FOR HAZARDOUS FUEL MODIFICATION

As described in Section 2.2., fire patterns across Clallam County vary widely because of the county’s diverse vegetation, terrain, and climate. In the east, areas like Sequim lie in a rain shadow and tend to experience fires more frequently, with average return intervals of 36 to 100 years (McDougall 2020). Central portions of the county, including Port Angeles, have moderate intervals between 101 and 200 years. Meanwhile, the wet, coastal forests of the western county and Olympic National Park see the least fire activity, with intervals often exceeding 300 years (Fryer and Luensmann 2012; LANDFIRE 2020). Many of these forest types have long fire return intervals, leading to infrequent but often high-intensity wildfire events. Over time, the absence of fire allows fuels to build up, increasing the potential for wildfires to burn entire forest stands when they occur. While these fires are a natural part of the region’s ecological processes, growing development within the WUI has elevated the risk to homes and other community values from this intense fire behavior (see Section 1.6 for a detailed list of additional community values in Clallam County).

Research demonstrates that fuel treatments within the WUI can effectively alter fire behavior, improving conditions for suppression efforts and reducing risk to homes (Evans et al. 2015). Strategic fuel modification can lessen the threat that high-intensity wildfires pose to life, property, and other critical resources. Near structures, treatments typically focus on reducing fire intensity and rate of spread in accordance with Firewise and International Fire Code standards. In more remote or open-space areas, treatments emphasize improving forest health and enhancing ecosystem resilience to severe wildfire and other disturbances. Empirical evidence shows that relatively modest defensible-space buffers, approximately 5–20 meters around structures and removing vegetation that touches or overhangs

buildings, significantly improve structure survival during wildfires, with little additional benefit beyond ~30 meters (Syphard et al. 2014). While defensible space improves survival odds, it isn't a guarantee as other factors such as ignition sources, weather, ember storms, construction materials, and firefighter access still influence whether a home burns. Furthermore, broader landscape factors such as housing arrangement and neighborhood context also strongly influence risk.

The hazardous fuel modification treatments recommended in this CWPP take a comprehensive approach to reducing wildfire risk. Priority treatment strategies emphasize creating and maintaining fuel breaks along key landscape features such as roads, ridges, rivers, and established Potential Operational Delineations (PODs), which are spatial units or containers defined by potential control features, such as roads and ridge tops, within which relevant information on forest conditions, ecology, and fire potential can be summarized (Table 4.1) (Fire Adapted Communities Learning Network 2025). Right-of-way corridors should be enhanced and strengthened to serve as both fuel breaks and suppression corridors. Treatments should be strategically targeted around values at risk and designed to achieve multiple ecological and community benefits. Fire history and natural return intervals can guide treatment selection, while cultural burning practices should be incorporated where appropriate. Thinning along existing features is also encouraged to support defensible space and access for suppression efforts.

Community education remains a critical component of hazardous fuel and wildfire risk reduction. Outreach should focus on pre-planning, yard maintenance, and addressing any widespread illegal dumping issues. Green waste reduction initiatives, such as community slash drop-off days or the purchase of a shared chipper, can further support fuel mitigation goals.

In addition, strengthening and expanding the USFS's POD network is recommended (Table 4.1). Efforts should include refining existing POD boundaries, leveraging NEPA-cleared projects (such as the Jimmy Come Lately project), and encouraging the WA DNR to expand POD development on State-managed lands. Developing a comprehensive, countywide POD layer should be a near-term priority, and grant funding is available to help support these efforts.

The Steering Committee identified several areas of concern across Clallam County where vegetation conditions, landscape features, and human development converge to create elevated wildfire risk (Figures 4.1 through 4.3). Many of these zones are characterized by dense or overgrown vegetation, steep terrain, and limited access for suppression resources, making them priorities for future fuels management to facilitate safer ingress and egress. By targeting treatments in these locations, Clallam County can improve the effectiveness of wildfire response efforts and reduce the likelihood of high-intensity fire events impacting nearby communities. These areas were designated collaboratively by the CWPP Steering Committee based on spatial data, local fire knowledge, and values at risk, and will serve as a foundation for prioritizing future wildfire mitigation projects, funding efforts, and coordinated fuel treatment planning across jurisdictional boundaries.

The recommendation list is by no means exhaustive and serves to provide a baseline of recommended projects for the future management of Clallam County. Many projects may be eligible for grant funds available from federal and/or state sources. For a list of funding sources, please refer to Appendix E.

4.1.1.1 Ongoing, Planned, and Proposed Fuels Treatments

State, federal, and private landowners have been active in managing forested lands and attention to the need and benefit of these actions has been steadily increasing across the county.

Table 4.1. Areas of Concern Recommendations

Polygon ID	Ownership	Recommendation	Notes
A-1	Private	Home Ignition Zone (HIZ) Wildfire Resilience & Capacity Building Initiative – Diamond Point	Empower private residents of the Diamond Point community and local agencies/organizations in implementing mitigation within the HIZ.
A-2	Private	Home Ignition Zone (HIZ) Wildfire Resilience & Capacity Building Initiative – Miller Peninsula	Empower private residents of the Miller Peninsula community and local agencies/organizations in implementing mitigation within the HIZ.
B-1	Private/State/ Federal	HIZ Campaign & Understory Thinning for Wildfire Resilience	Conduct targeted HIZ campaign and understory thinning to reduce wildfire spread near communities and structures. Brigadoon Heights, Sunland, Madrona Terrace, Dungeness Recreation Area, conifer belts extending toward Sequim.
C-1	Private/State/ Federal/Tribal	Communication Infrastructure Hardening/Thinning	Improve the resilience of critical communication infrastructure in wildfire-prone areas by reducing vegetation hazards, securing backup power, and coordinating long-term maintenance across tower sites.
D-1	Private/State	Roadside Buffer Installation for Evacuation Hardening	Establish and maintain a roadside buffer along Blue Mountain Road to improve evacuation routes and reduce wildfire risk at the foothill-community interface.
E-1	Private/State	Roadside Buffer Installation for Evacuation Hardening	Establish and maintain a roadside buffer along Deer Park Road to improve evacuation routes and reduce wildfire risk at the foothill-community interface.
F-1	County/Tribal	Roadside Buffers for Evacuation Safety	Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.
G-1	State/Private	Evacuation Route Hardening for Clallam Bay Correction Center	Enhance the evacuation route from the Clallam Bay Correction Center to Highway 112 by improving road conditions and increasing accessibility through roadside thinning and coordinated pre-fire planning.
H-1	Tribal	Tribal Evacuation Hardening for Makah Reservation	Improve evacuation safety on the Makah Reservation by resurfacing roads, creating roadside fuel buffers, and increasing resident awareness through targeted outreach.
I-1	Tribal/State	Fuel modification with a focus to reducing hazardous fuel load and fuel continuity	Reduce hazardous fuel loads and continuity near Jamestown S'Klallam Reservation (7 Cedars Resort and Jimmycomelately Creek) within State DNR trust lands and Tribal lands.
I-2	Tribal/State	Fuel modification with a focus to reducing hazardous fuel load and fuel continuity	Reduce hazardous fuel loads and continuity near Jamestown S'Klallam Reservation (south of Chicken Coop Road and west of Woods Road) within State DNR trust lands and Tribal Lands.

Polygon ID	Ownership	Recommendation	Notes
I-3	State/Federal	Conduct fuel reduction treatments on dense, high-risk stands east of Woods Road	Reduce hazardous fuel loads and continuity within dense stands east of Woods Road . Pursue cross-boundary coordination near federal land interfaces to support multiple resource objectives.
I-4	Private	Establish roadside buffer and conduct fuel reduction treatments along Woods Road	Reduce fuels along Woods Road to lower fire intensity and improve safety during evacuations. Adjust buffer width as appropriate for land ownership and local site conditions.
J-1	Private/Federal	Resident HIZ Projects – East Beach Road	Increase wildfire resilience for homes along East Beach Road and in the Lake Crescent Area through HIZ campaigns, roadside buffers, and pre-planning for properties on dead-end roads.
K-1	State/Private	Resident HIZ Projects – Lake Sutherland	Increase wildfire resilience for homes in the Lake Crescent Area through HIZ campaigns, roadside buffers, and pre-planning for properties on dead-end roads.
L-1	Private	Resident HIZ Projects – Lake Crescent Area – Highway 101 Fuel Reduction	Reduce fuels along Highway 101 and Highway 112 intersection to lower fire intensity and improve safety during evacuations. Adjust buffer width as appropriate for land ownership and local site conditions.
M-1	Private/State	Lake Pleasant Firewise	Promote pursuit of additional Firewise Communities recognition in community of Lake Pleasant .
N-1	Private/State/Federal	Lake Dawn Firewise	Promote pursuit of additional Firewise Communities recognition in community of Lake Dawn .
O-1	Federal/Tribal/Private	Establish fuel break along public-private land interface	Target private-public and Tribal-public interface lands along the coastal portion of Olympic National Park from Second Beach to Shi Shi Beach and the southern and eastern boundaries of the Makah Reservation .
O-2	Federal/State/Private	Establish fuel break along public-private land interface	Target private-public interface lands along Olympic National Forest and Highway 113 near Ellis Mountain.

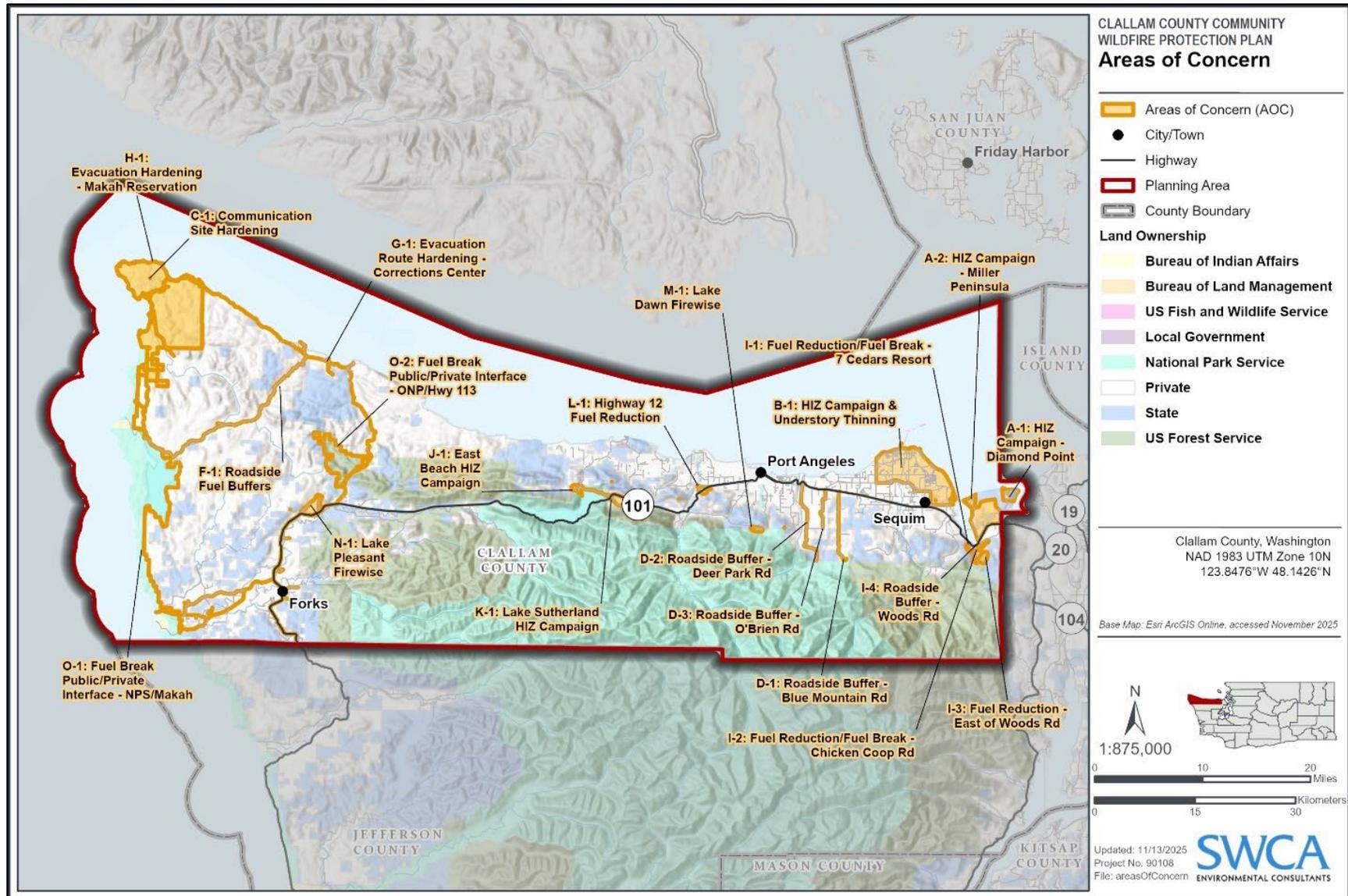


Figure 4.1. Areas of concern developed during the CWPP planning process within Clallam County.

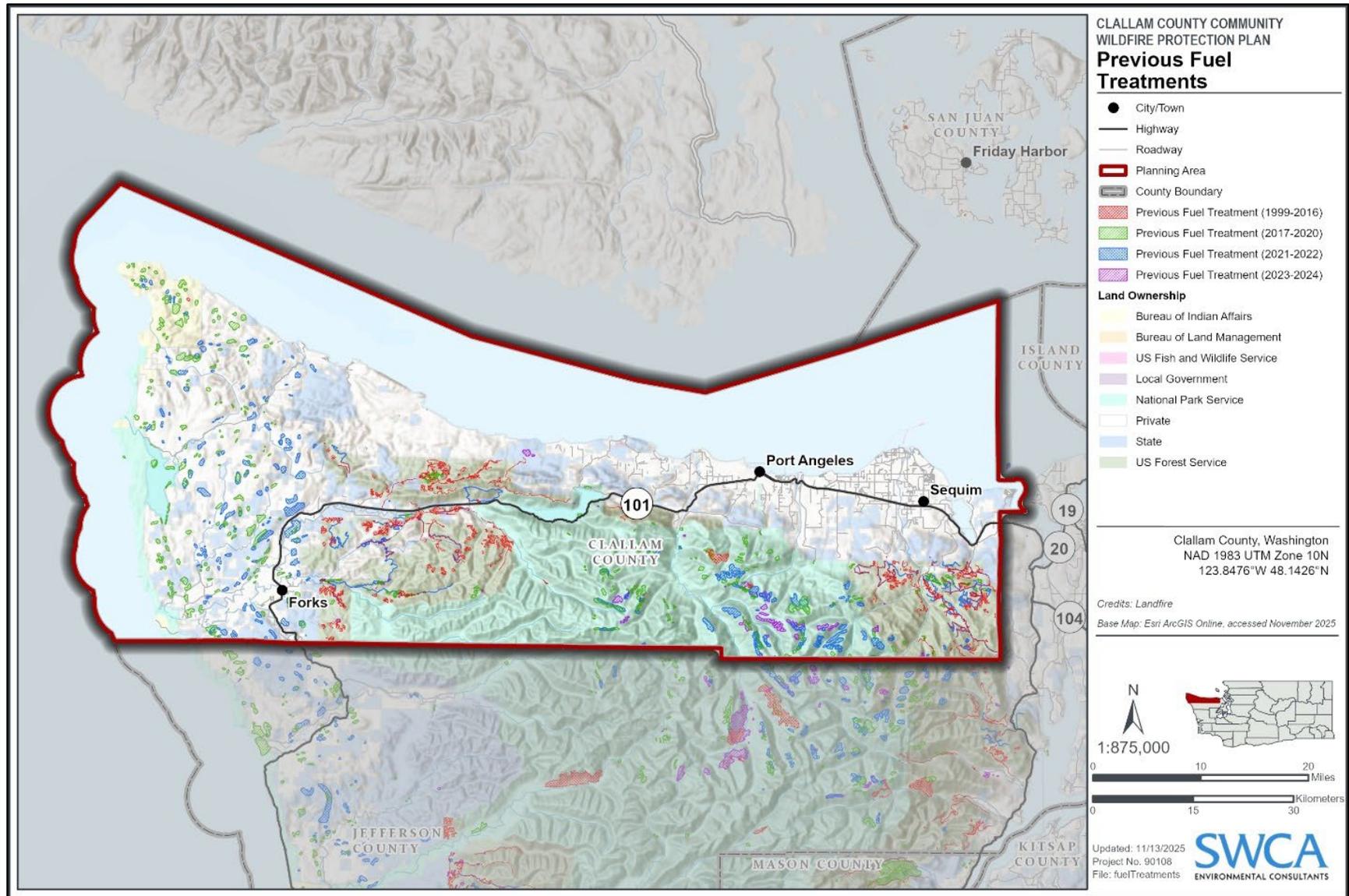


Figure 4.2. Existing fuel treatments (1999–2024) across Clallam County and portions of neighboring jurisdictions.

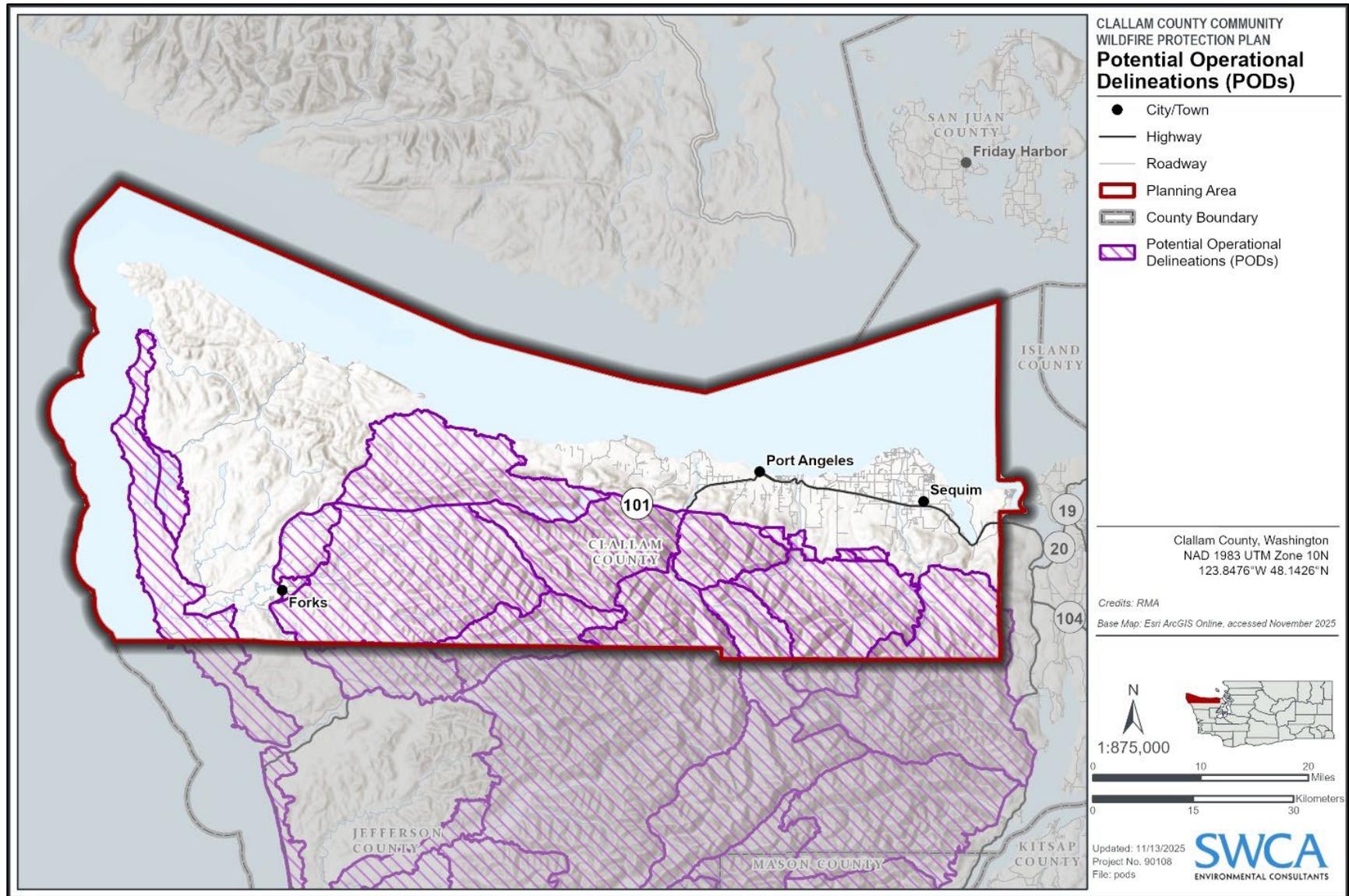


Figure 4.3. PODs boundary across Clallam County and portions of neighboring jurisdictions.

Table 4.2. Recommendations for Creating Resilient Landscapes (Hazardous Fuels Reduction)

Note: In the Project ID column, RL stands for Resilient Landscapes

Project ID	Area of Concern ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/Lead Agency	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
RL1	A-1, A-2		H	Short-term (1–3 years)	Home Ignition Zone (HIZ) Wildfire Resilience and Capacity Building Initiative Empower private residents and local agencies/organizations in implementing mitigation within the HIZ.	Countywide	State Parks, Fire District 3, County	<ul style="list-style-type: none"> Conduct outreach and education for residents on defensible space and home hardening. Facilitate planning between State Parks and Fire District 3 to identify priority mitigation areas. Allocate State Park resources to support mitigation, considering rare habitats and threatened and endangered species. Maintain clear communication channels among agencies and residents. Engage local organizations in community-wide mitigation. 	<ul style="list-style-type: none"> Strengthen wildfire resilience, protect sensitive habitats, and foster cooperation among agencies and residents for effective mitigation. 	<ul style="list-style-type: none"> Conduct quarterly stakeholder meetings to evaluate progress and update plans. Conduct routine habitat monitoring to assess impacts. Regularly review maintenance schedules and adaptive strategies. 	<ul style="list-style-type: none"> Community Wildfire Defense Grant (USFS) NFPA Firewise USA™ Program WA DNR Firewise USA™ Microgrants Financial Assistance for Wildfire Resilience and Forest Health (WA DNR) Urban and Community Forestry Program (USFS) Moore Foundation Wildfire Resilience Initiative
RL2	B-1		H	Short-term (1–3 years)	HIZ Campaign and Understory Thinning for Wildfire Resilience Conduct targeted HIZ campaign and understory thinning to reduce wildfire spread near communities and structures.	Brigadoon Heights, Sunland, Madrona Terrace, Dungeness Recreation Area, conifer belts extending toward Sequim	WA DNR, Fire District 3, Conservation District.	<ul style="list-style-type: none"> Launch HIZ campaign with outreach and education for residents. Explore joint Firewise Community designation for Brigadoon Heights, Sunland, and Madrona Terrace. Ensure native Sequim Oak, Sequim Prairie habitats and other culturally and ecologically significant trees remain unaffected. Conduct understory thinning in conifer belts, prioritizing areas closest to structures. Remove heavy fuel loading and limb trees to reduce crown fire risk and ember production. 	<ul style="list-style-type: none"> Reduce wildfire risk to homes and community, limit potential for crown fire and ember spread, and preserve native habitats. 	<ul style="list-style-type: none"> Conduct regular inspections to assess thinning effectiveness and fuel load reduction. Monitor impacts on native habitats to avoid disturbance. Maintain communication with residents and agencies. 	<ul style="list-style-type: none"> Community Wildfire Defense Grant (USFS) NFPA Firewise USA™ Program Financial Assistance for Wildfire Resilience and Forest Health (WA DNR) Moore Foundation Wildfire Resilience Initiative Conservation Innovation Grant (NRCS) Local HOAs
RL3	C-1		M	Short-term (1–3 years)	Communication Infrastructure Hardening Improve the resilience of critical communication infrastructure in wildfire-prone areas by reducing vegetation hazards, securing backup power, and coordinating long-term maintenance across tower sites.	All communication tower sites throughout the county	Clallam County DEM, WA DNR	<ul style="list-style-type: none"> Identify and map all communication towers within the planning area, prioritizing those in high wildfire risk zones. Establish and maintain a 100-foot shaded fuel break or buffer at each site. Install solar generators for backup power. Conduct fuel treatments and establish a long-term maintenance schedule to reduce wildfire hazards near each structure. Coordinate ongoing maintenance and monitoring with responsible agencies. Develop a system-wide framework for communication site hardening, including fuel treatment standards, fire-resistant construction elements, and redundant power systems. Identify and secure funding sources to implement fuel reduction and sustain vegetation maintenance at priority sites. 	<ul style="list-style-type: none"> Enhance protection of critical communication infrastructure from wildfire and ensure operational continuity during emergencies. 	<ul style="list-style-type: none"> Maintain fuel breaks and buffers with frequent inspections and vegetation management. Monitor and service solar generators regularly. Schedule periodic reviews to assess effectiveness and make necessary adjustments. 	<ul style="list-style-type: none"> Infrastructure Investments and Jobs Act (Section 40803/40804/40806) Emergency Management Performance Grant (FEMA) Fire Management Assistance Grant (FEMA)

Project ID	Area of Concern ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/Lead Agency	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
RL4	D-1, D-2, D-3		M	Short-term (1–3 years)	Roadside Buffer Installation for Evacuation Hardening Establish and maintain a roadside buffer along Blue Mountain Road and Deer Park Road to improve evacuation routes and reduce wildfire risk at the foothill-community interface.	Blue Mountain Road, Deer Park Road, O'Brien Road	County, USFS, WA DNR	<ul style="list-style-type: none"> Treat fuels at the interface between foothills and communities. Prioritize treatments along the community boundary. Implement 60-foot mastication on each side of the road. Create and maintain a roadside buffer to support safe evacuation. Target treatments to prevent fire spread from NPS lands to nearby communities. Coordinate efforts between the County and NPS for effective buffer management. Implement aggressive suppression actions for any ignitions in the area. 	<ul style="list-style-type: none"> Enhance evacuation safety, reduce wildfire risk to residents and visitors, and limit fire spread from NPS lands to local communities. 	<ul style="list-style-type: none"> Conduct regular road and buffer inspections. Schedule fuel break maintenance every 5 years. Monitor vegetation regrowth and adjust treatments as needed. Maintain clear communication among agencies for coordinated management. 	<ul style="list-style-type: none"> Infrastructure Investments and Jobs Act (Roads/Resiliency) Hazard Mitigation Grant Program (FEMA) Emergency Watershed Protection Program (NRCS) Community Wildfire Defense Grant (USFS)
RL5	F-1		H	Short-term (1–3 years)	Roadside Buffers for Evacuation Safety Install and maintain roadside buffers along high-risk county roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.	County roads, prioritizing the highest risk segments identified by QWRA	County Roads Department, in coordination with private landowners and the timber industry	<ul style="list-style-type: none"> Use the QWRA to identify priority segments. Implement fuel treatments along county roads. Recommend mowing along pasture lines on private lands. Advise cutting timber buffers along roads for safe ingress and egress. Pay close attention to treatment impacts on listed salmon and sedimentation near Ozette Lake. Collaborate with the timber industry to remove logging slash from critical routes. 	<ul style="list-style-type: none"> Improve evacuation safety, reduce wildfire risk, and protect sensitive habitats. 	<ul style="list-style-type: none"> Conduct regular inspections of treated buffers. Monitor for sedimentation and salmon habitat impacts. Adjust treatment strategies as needed. Coordinate ongoing management with stakeholders. 	<ul style="list-style-type: none"> Infrastructure Investment and Jobs Act (IIJA) Hazard Mitigation Grant Program (FEMA) Emergency Watershed Protection Program (NRCS) Community Wildfire Defense Grant (USFS)
RL6	G-1		M	Short-term (1–3 years)	Evacuation Route Hardening for Correction Center Enhance the ingress/egress route from the Correction Center to Highway 112 by improving road conditions and increasing accessibility through roadside thinning and coordinated pre-fire planning.	Correction Center-Eagle Crest Way to Highway 112.	County Corrections, Clallam County DEM, WSDOT	<ul style="list-style-type: none"> Conduct roadside thinning to facilitate safe ingress and egress. Improve road surface and infrastructure to support emergency evacuation needs. Coordinate with Correction Center staff on pre-fire planning and evacuation, with special attention to locked gate access. 	<ul style="list-style-type: none"> Ensure safe and efficient evacuation for Correction Center staff and residents, reduce wildfire risk, and improve emergency response capabilities along the escape route. 	<ul style="list-style-type: none"> Perform regular inspections and maintenance of roadside buffers and road conditions. Review and update evacuation procedures with Correction Center staff. Ensure gates are accessible and operational for emergency scenarios. 	<ul style="list-style-type: none"> Hazard Mitigation Grant Program (FEMA) Emergency Watershed Protection Program (NRCS) Infrastructure Investment and Jobs Act (IIJA)
RL7	H-1		H	Mid-term (3–5 years)	Tribal Evacuation Hardening for Makah Reservation Improve evacuation safety on the Makah Reservation by resurfacing roads, creating roadside fuel buffers, and increasing resident awareness through targeted outreach.	Makah Reservation	Tribal government, in coordination with local agencies such as WSDOT	<ul style="list-style-type: none"> Resurface evacuation routes to ensure reliable access. Establish roadside fuel buffers to support safe ingress and egress. Provide outreach to homeowners about evacuation procedures and property maintenance. Develop and disseminate evacuation materials and guidance to residents. 	<ul style="list-style-type: none"> Support safe evacuation for residents, reduce wildfire risk, and increase community preparedness through improved infrastructure and awareness. 	<ul style="list-style-type: none"> Regularly inspect and maintain road surfaces and fuel buffers. Update and distribute evacuation materials as needed. Monitor resident engagement and feedback to refine outreach and evacuation strategies. 	<ul style="list-style-type: none"> Indian Community Development Block Grant (HUD) Tribal Environmental General Assistance Program (EPA) Community Wildfire Defense Grant (USFS) Hazard Mitigation Grant Program (FEMA)

Project ID	Area of Concern ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/Lead Agency	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
RL8	I-1, I-2, I-3, I-4		H	Short-term (1–3 years)	<p>Hazardous Fuel Reduction and Roadside Buffer near Jamestown S’Klallam Reservation</p> <p>Protect HVRAs and reduce risk of a high-severity wildfire near the Jamestown S’Klallam Reservation via thinning dense stands, removing surface fuels, and maintaining fuel-reduction buffers.</p>	Jamestown S’Klallam Reservation, 7 Cedars Resort, Jimmycomelately Creek, Woods Road, and Chicken Coop Road	Tribal, WA DNR Trust, NPS, private	<ul style="list-style-type: none"> Work in close collaboration with the Jamestown S’Klallam Tribe, along with State and federal partners, to align treatment priorities, maintain consistent fuel-management standards, and support shared resource goals such as forest health, habitat enhancement, and cultural resource protection. Conduct thinning and surface fuel removal in dense and high-risk stands, particularly east of Woods Road and within areas of concern, to reduce ladder fuels and crown fire potential. Establish and maintain fuel reduction buffers along Woods Road and other key access routes to reduce potential fire intensity and improve evacuation safety. Buffer widths should be adapted based on land ownership, terrain, and local site conditions. Monitor treatment effectiveness and re-enter treated areas on a rotational schedule to maintain reduced fuel loads and sustain long-term landscape resilience. 	<ul style="list-style-type: none"> Protect nearby communities and critical infrastructure (7 Cedars Resort, Tribal Community Center, and Resort Operation) by moderating potential fire behavior. Reduce wildfire risk through decreased fuel loads and disrupted fuel continuity in high-priority treatment areas. Improve evacuation safety by lowering fire intensity along Woods Road and other key access routes. 	<ul style="list-style-type: none"> Inspect treated areas regularly (every 3–5 years) to assess fuel regrowth, treatment effectiveness, and new hazard conditions. Re-enter treatment areas as needed to maintain target fuel loading and continuity objectives, using thinning, pruning, or prescribed pile burning. Document treatment outcomes through photos, GIS updates, and field notes to track progress and inform adaptive management. Coordinate with partners (Jamestown S’Klallam Tribe, WA DNR, and local fire districts) to align maintenance schedules and share monitoring data. 	<ul style="list-style-type: none"> Community Wildfire Defense Grant (USFS) Infrastructure Investment and Jobs Act (IIJA) Indian Community Development Block Grant (HUD)
RL9	J-1, K-1, L-1		H	Short-term (1–3 years) for campaign launch and thinning; repeat HIZ assessments every 2 years	<p>Resident HIZ Projects for East Beach Road and Lake Crescent Area</p> <p>Increase wildfire resilience for homes along East Beach Road and in the Lake Crescent area through HIZ campaigns, roadside buffers, and pre-planning for properties on dead-end roads.</p>	Private “inholdings” on NPS lands on the north shore of Crescent Lake.	NPS, local agencies in coordination with homeowners, WA DNR, and fire districts	<ul style="list-style-type: none"> Identify treatments, particularly along existing roads and trails, to slow/hold fire spread. Implement HIZ campaign to educate and assist residents in defensible space and home hardening. Map and develop pre-evacuation plans for homes on dead-end roads to ensure safe egress. Establish roadside buffers to reduce wildfire risk near homes. Create an education campaign that focuses on firework safety. Identify potential ignition risks from off-road vehicles and create literature and signage to address ignition risk. Focus HIZ projects in areas identified by the Steering Committee, including East Beach Road and in the Lake Crescent area, Highway 112 intersections, and Lake Sutherland. 	<ul style="list-style-type: none"> Enhance wildfire preparedness and evacuation safety for residents, reduce risk to homes, and improve coordination for emergency response. Strengthen partnerships between residents, fire districts, and state agencies to support ongoing mitigation efforts. 	<ul style="list-style-type: none"> Conduct regular inspections of HIZ improvements and roadside buffers. Review and update pre-evacuation plans annually. Maintain communication with residents for ongoing education and preparedness. Review and refresh signage annually before fire season and adjust outreach materials based on ignition data and resident feedback. 	<ul style="list-style-type: none"> Community Wildfire Defense Grant (USFS) NFPA Firewise USA™ Program WA DNR Firewise USA™ Microgrants Financial Assistance for Wildfire Resilience and Forest Health (WA DNR) Urban and Community Forestry Program (USFS) Moore Foundation Wildfire Resilience Initiative
RL10	-		M	Short-term (1–3 years) for initial treatments; re-inspection and retreatment every 3–5 years	<p>Promote Green Belt Wildfire Resilience in Port Angeles</p> <p>Implement vegetation management and cleanup in Port Angeles greenbelts to reduce fuel continuity, remove hazards, and decrease ignition potential near urban neighborhoods.</p>	Port Angeles	City	<ul style="list-style-type: none"> Identify green belt areas at highest risk from ignitions and wildfire spread. Design and implement vegetation management within green belt areas. Identify methods to address biohazards. Promote greenbelt cleanup. Enforce dumping fines. Install signage to address wildfire risk and reduce illegal dumping. 	<ul style="list-style-type: none"> Decrease ignition potential and wildfire spread in urban green spaces, protecting adjacent neighborhoods and infrastructure. Improve public safety and habitat quality by removing debris and ladder fuels. 	<ul style="list-style-type: none"> Inspect treated areas annually and retreat on a 3–5-year cycle. Track illegal dumping incidents and adjust outreach and enforcement strategies as needed. 	<ul style="list-style-type: none"> Urban and Community Forestry Program (USFS) WA DNR Forest Health & Resilience Program EPA Environmental Education Grant Program

Project ID	Area of Concern ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/ Lead Agency	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
RL11	-		H	Short-term (1–3 years) to implement improved biomass removal practices; annual review of outcomes	Promote Safer Biomass Removal on Industrial Timber Lands To ensure compliance and risk reduction, promote safer slash burning practices and biomass removal on industrial timberlands through collaboration with WA DNR and local fire districts.		Timber companies, WA DNR	<ul style="list-style-type: none"> Promote safer slash burning by industrial timber entities. Work with WA DNR to ensure permitting compliance. Promote collaboration between the timber industry and fire departments. 	<ul style="list-style-type: none"> Reduce the likelihood of escaped slash burns, lower fuel accumulation, and improve forest health while maintaining timber productivity. Strengthen communication between industry and local fire agencies. 	<ul style="list-style-type: none"> Review burn permitting and compliance records annually. Track outcomes of collaborative efforts and update best practices based on monitoring data. 	<ul style="list-style-type: none"> WA DNR Forest Health and Resilience Program National Fire Plan (NFP) Fuels Reduction Grants FEMA Fire Management Assistance Grant (FMAG) Program NRCS Environmental Quality Incentives Program (EQIP)
RL12	-		M	Short-term (1–3 years) to establish grazing agreements; annual grazing treatments thereafter	Targeted Grazing on Grass Fuels Area Utilize targeted grazing to reduce fine dead fuels in grass-dominated areas and create safer fire response and evacuation conditions.	Countywide	WA DNR	<ul style="list-style-type: none"> Identify areas where grazing, primarily with horses, can be incorporated to reduce fine dead fuel load. These areas could be used for large animal/horse evacuation in the event of a large wildfire. Use grazed 'common' pastures as 'safety zones' for animals to be staged when owners must evacuate their homes. 	<ul style="list-style-type: none"> Reduce potential for fast-moving grassfires and provide pre-identified safe zones for livestock during wildfire events. 	<ul style="list-style-type: none"> Monitor grazed areas annually to ensure fuel loads remain within target thresholds. Adjust grazing intensity and timing based on fuel conditions and seasonal growth patterns. 	<ul style="list-style-type: none"> NRCS Environmental Quality Incentives Program (EQIP) NRCS Conservation Innovation Grant (CIG) WA State Livestock and Rangeland Program Community Wildfire Defense Grant (USFS)
RL13	-		H	Short-term (1–3 years) to address priority spans; ongoing 1–3-year maintenance cycle	Utility Line Thinning Increase vegetation clearance along utility corridors to protect infrastructure and create operational holding lines for wildfire suppression. Treatments will prioritize high-risk spans and follow utility vegetation management standards.	Countywide	Various plus utility companies	<ul style="list-style-type: none"> Strengthen utility line thinning for infrastructure protection, with a focus on reducing fire activity and holding future fires directly or indirectly from utility corridors. Identify priority areas, thin, and provide a map of potential holding lines to fire management. 	<ul style="list-style-type: none"> Lower the probability of conductor–vegetation contacts and fault ignitions, reduce ladder and surface fuel continuity beneath utility corridors, and create pre-identified linear features that can be used for anchor and holding operations during suppression. 	<ul style="list-style-type: none"> Conduct annual vegetation patrols and follow-up inspections after wind, snow, or fire events to confirm clearance compliance. Re-treat on a 1- to 3-year cycle depending on growth rates Track work in the utility's vegetation management database for reporting and operational planning. 	<ul style="list-style-type: none"> Community Wildfire Defense Grant (USFS) WA DNR Forest Health and Resilience Program National Fire Plan (NFP) Mitigation Grants FEMA Hazard Mitigation Grant Program (HMGP) Infrastructure Investment and Jobs Act (IIJA) Section 40803 Utility Vegetation Management Budgets
RL14	-		H	Short-term (1–3 years) for initial thinning along priority POD lines; maintenance every 3–5 years	Potential Operational Delineation (POD) Line Thinning Identify and treat fuels along established and developing POD boundaries, focusing on roads, trails, and other strategic features, to maintain defensible and trafficable conditions for suppression operations and improve the probability of containment.	Countywide	USFS, WA DNR, others	<ul style="list-style-type: none"> New PODs are currently in development. PODs do not have to be only on federal lands. City, county, Tribal reps, landowners, and others can work together to develop countywide PODs that cover all lands. Promote expansion of PODs with WA DNR for State lands. Once developed, identify those along roads, trails, and other improvements for fuel thinning, pile burning, and other actions that will strengthen the ability to hold an incoming wildfire with direct or indirect suppression actions. 	<ul style="list-style-type: none"> Increase the likelihood of successful containment by improving line construction efficiency, reducing expected flame lengths along POD boundaries, and ensuring strategic barriers remain trafficable and defensible under wildfire conditions. 	<ul style="list-style-type: none"> Inspect POD boundaries on a 3- to 5-year cycle and after major disturbance events to assess surface and ladder fuel regrowth. Re-treat to maintain target flame length thresholds and canopy base height objectives. Update POD status in county GIS datasets and brief cooperating agencies before fire season to ensure alignment with operational plans. 	<ul style="list-style-type: none"> Collaborative Forest Landscape Restoration Program (CFLRP) WA DNR Forest Health & Resilience Program, Community Wildfire Defense Grant (USFS) National Fire Plan (NFP) Mitigation Grants FEMA Fire Management Assistance Grant (FMAG) Program Infrastructure Investment and Jobs Act (IIJA) Hazardous Fuels Reduction Authorities

Project ID	Area of Concern ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/Lead Agency	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
RL15	-		M	Mid-term (3–5 years) for initial implementation following planning and consultation; long-term recurring burns or treatments guided by monitoring results	Cultural Burning and Native Plant Restoration Collaborate with Tribes to identify priority landscapes where cultural burning can be applied to restore camas, beargrass, and other culturally significant species while maintaining target fuel loads and protecting fire-sensitive oak and prairie habitats through non-burn mitigation strategies.	Countywide	Tribal Nations, fire districts	<ul style="list-style-type: none"> Collaborate with Tribes to identify areas where fire can be used to encourage camas, beargrass, and other native species that have cultural importance and/or have dwindled due to fire exclusion. Work jointly with Tribal partners to guide management prescriptions and stewardship for the restoration and protection of culturally significant species and landscapes. Coordinate combined effort between Jamestown S’Klallam Tribe Natural Resource Department and Cultural Department. 	<ul style="list-style-type: none"> Reintroduce low-intensity fire to maintain desired fuel loading, enhance regeneration of culturally significant species, and shift fire behavior toward lower-severity outcomes in treated areas. 	<ul style="list-style-type: none"> Use pre- and post-burn vegetation plots and photo points to track species response, fuel consumption, and fire severity. Adjust burn interval, patch size, and ignition timing to meet cultural and ecological objectives. Collaborate with Tribal partners and resource managers throughout planning, implementation, and monitoring to inform future prescriptions and ensure continued access for stewardship. 	<ul style="list-style-type: none"> BIA Tribal Resilience & Fuels Programs USFS Tribal Forest Protection Program WA State Cultural Burning Grants NRCS Environmental Quality Incentives Program (EQIP) National Fire Plan (NFP) Prescribed Fire Planning Funds
RL16	O-1, O-2		M	Mid-term (3–5 years)	Establish Fuel Break along Private-Federal-Tribal Lands Interface Establish a strategic fuel-break buffer along NPS, USFS, and Tribal boundaries in the western portion of County where it borders private lands to reduce wildfire spread potential between jurisdictions.	Olympic National Park, Olympic National Forest and Makah Reservation	NPS, USFS, Makah Reservation	<ul style="list-style-type: none"> Collaborate closely with the Makah Tribe, federal partners, and nearby private landowners to align treatment priorities, ensure consistent fuel-management practices, and advance shared goals for forest health, habitat quality, and cultural resource protection. Target private-public interface lands along: <ul style="list-style-type: none"> Coastal portion of Olympic National Park from Second Beach to Shi Shi Beach Southern and eastern boundaries of the Makah Reservation Olympic National Forest and Highway 113 near Ellis Mountain. Treatments should focus on thinning overly dense stands, removing ladder and surface fuels, and maintaining a low-fuel corridor that slows fire movement while improving access and suppression effectiveness. Target treatments to prevent fire spread from NPS lands to nearby communities. 	<ul style="list-style-type: none"> Reduce wildfire spread potential between the Makah Reservation, federal lands, and adjacent private properties. Strengthen collaboration among Tribal, federal, and private partners for long-term landscape resilience. 	<ul style="list-style-type: none"> Conduct periodic monitoring to track fuel regrowth, treatment effectiveness, and any emerging hazards along treated areas. Re-enter treatment units on a scheduled cycle to maintain reduced fuel loads and prevent ladder and surface fuels from re-establishing. Document treatment outcomes and share results among Tribal, federal, and private partners to guide adaptive management. 	<ul style="list-style-type: none"> Community Wildfire Defense Grant (USFS) BIA Tribal Resilience & Fuels Programs Infrastructure Investment and Jobs Act (IIJA)

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4.2 GOAL 2: FIRE-ADAPTED COMMUNITIES

Efforts to create fire-adapted communities include public education and outreach actions and actions to reduce structural ignitability.



4.2.1 RECOMMENDATIONS FOR PUBLIC EDUCATION AND OUTREACH

Just as environmental hazards must be mitigated to reduce the risk of fire loss, so must human hazards. Lack of knowledge, lack of positive actions (e.g., failing to create adequate defensible space), and negative actions (e.g., keeping large amounts of flammable debris and rubbish on the property) all contribute to increased risk of loss in the WUI.

Clallam County residents who responded to the public survey during the CWPP planning process expressed having little to no experience with wildfire (50% of participants), while 41.9% of responders felt poorly prepared for wildfire. Responders also shared that the biggest challenges to making their homes fire-safe is defensible space cleanup, fuels cleanup, and community education on fire prevention and awareness, with 62.5% of participants not knowing what defensible space is. Additional results of the community survey are provided in Appendix H.

Methods to improve public education and support concerned residents ill-prepared for wildfire could include increasing awareness about fire danger in the community through an education campaign and increased public signage; providing workshops at demonstration sites showing Firewise landscaping techniques or fuels treatment projects; developing a smoke education and preparedness campaign; providing information to landowners for resources related to farming and agricultural lands and wildfires; providing specific outreach targeted toward seasonal and recreational visitors to the Olympic Peninsula; developing resources to support vulnerable populations, such as elderly residents; and, most importantly, improving communication between homeowners and local land management agencies to improve and build trust, particularly since the implementation of fuel treatments and better maintenance of existing treatments needs to occur across property boundaries and in the interface between public and private land. The Steering Committee emphasizes that wildfire resilience requires residents to not be complacent in their role and responsibility for mitigating wildfire risk.

The Clallam County DEM provides the community with a webpage containing resources for various disaster and emergency scenarios including wildfires. Included on the county website are general recommendations for implementing defensible space on one's property. In addition, county fire departments and districts are active in addressing the necessity of community engagement with the implementation of various education programs, tools, and safety guidelines.

4.2.2 RECOMMENDATIONS FOR REDUCING STRUCTURAL IGNITABILITY

Reducing structural ignitability is a core focus that should be implemented throughout the county. Reduction of structural ignitability depends largely on public education, which provides homeowners the information they need to take responsibility for protecting their own properties. Carrying out fuels

reduction treatments on public land may only be effective in reducing fire risk to some communities. If homeowners have failed to provide mitigation efforts on their own land, the risk of home ignition remains high, and firefighter lives are put at risk when they carry out structural defense.

Preparing for wildfire by creating defensible space around the home is an effective strategy for reducing structural ignitability as discussed under Cohesive Strategy Goal 1: Resilient Landscapes. Studies have shown that burning vegetation beyond 120 feet of a structure is unlikely to ignite that property through radiant heat (Butler and Cohen 1996), but firebrands that travel independently of the flaming front have been known to destroy houses that had not been impacted by direct flame impingement. Hardening the home to ignition from embers, through a series of actionable steps including maintaining vent coverings and other openings, is also strongly advised and imperative to protect a home from structural ignitability. It is highly encouraged that homeowners prioritize this step to reduce the structural ignitability of their homes in the event of wildfire. Managing the landscape around a structure by removing weeds and debris within a 30-foot radius and keeping the roof and gutters clean are two maintenance measures proven to limit combustible materials that could provide an ember bed and ignite the structure.

Additionally, a review of wildfire-related codes and standards was conducted for Clallam County during the CWPP planning process that can be found in Appendix I. Recommendations for WUI codes to support structural ignitability were developed, including zoning standards for vegetation installation, developing codes for more fire-resistant roofing and deck materials, increasing setbacks between structures in new developments, increasing buffers for tree spacing, and integrating code improvements into the Clallam County MJHMP to provide additional opportunities for future grant funding to implement recommendations identified through this CWPP process.

Detailed information regarding defensible space practices, as well as a list of actions for reducing structural ignitability, can be found in Appendix F. Building code recommendations can be found in Appendix I.

Table 4.3. Recommendations for Creating Fire-Adapted Communities (Public Education and Structural Ignitability)

Note: In the Project ID column, FAC stands for Fire-Adapted Communities

Project ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/Lead Agency	Methodology/Approach	Serves To	Monitoring/Maintenance Requirements	Funding Sources
FAC1		H	0–2 years	Develop a countywide education campaign.	Countywide	All, including WA DNR, county fire protection districts, conservation districts, Olympic Climate Action	<ul style="list-style-type: none"> Convene a committee of public information officers and relevant agency staff to develop a comprehensive, multijurisdictional approach. <ul style="list-style-type: none"> Facilitate multiagency meetings once or twice per year to share approaches and coordinate efforts. Develop wildfire mitigation materials tailored specifically to Clallam County communities and forest types, emphasizing the significance of fuels reduction practices. Disseminate materials through varied channels to increase exposure, considering diverse communication preferences. Partner with local hardware stores to have displays, brochures, or supply sections available for home hardening. Partner with HOAs to share wildfire readiness information with residents. Allocate resources within the county to build staff capacity dedicated to Firewise education initiatives, ensuring sustainable programs. Bolster Ready, Set, Go! programs to support evacuation education and build on existing partnerships for evacuation outreach initiatives. Use existing community events as platforms for disseminating wildfire mitigation/safety messaging, such as farmers markets, master gardener plant sales, fire safety fairs, and county fairs. Establish regular media and social media posts to maintain wildfire mitigation awareness among residents. Emphasize that complacency limits resilience. Collaborate with all participating agencies and entities to ensure a unified and consistent message. Create messaging targeted to vulnerable populations about fire safety, emphasizing self-sufficiency and personal preparedness. Address all wildfire risks facing communities through various communication channels, including community meetings, social media, brochures, and other educational materials. Promote safe fuel storage practices as part of wildfire mitigation efforts. Incorporate wildfire education messaging into existing programs such as Clallam Ready. 	<ul style="list-style-type: none"> Protect communities and infrastructure by raising awareness of local citizens and those traveling in the area about actions that can prevent fires. Reduce wildfire risk through greater adoption of Firewise and structure hardening measures. Educate public on the importance of adapting to future changes in climate and fuel conditions. 	<ul style="list-style-type: none"> Conduct yearly updates to marketing materials, ensuring alignment with best science. Conduct an annual review of number and turnout of events implemented. Establish a feedback mechanism to continuously assess the program's impact and gather insights from residents. Set goals for the following year. 	<ul style="list-style-type: none"> Regional Catastrophic Preparedness (RCP) Grants Community Wildfire Defense Grants (CWDG) Firewise grants National Urban and Community Forest Program FEMA Fire Prevention and Safety (FP&S) Grants EPA Environmental Protection Grants

Project ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/ Lead Agency	Methodology/Approach	Serves To	Monitoring/Maintenance Requirements	Funding Sources
FAC2		H	0–2 years	Expand homeowner assessments and provide follow-up fuels treatments and mitigation support for evaluated properties.	Countywide	WA DNR, conservation districts, fire protection districts and departments	<ul style="list-style-type: none"> Train and deploy local wildfire assessors using Firewise or NFPA standards. Consider train-the-trainer programs. Coordinate with existing home assessment programs led by agencies and organizations such as WA DNR and Red Cross, to develop a unified system for evaluating properties and tracking assessments. Develop an online tracking tool and dashboard for agencies and organizations to display assessment progress and accomplishments. Identify funding opportunities to support staffing and equipment. Provide guidance and instructions on best practices. Offer cost share or incentive programs. Incorporate assessments into Firewise and public outreach. Create a public-facing sign-up form on the county website or partner platforms. Use Firewise communities or homeowners association groups as platforms to offer block-wide assessments. Focus on providing assessments and mitigation efforts to vulnerable communities within the county, including elderly populations and those in impoverished areas of the WUI. 	<ul style="list-style-type: none"> Build community resilience and enhance wildfire preparedness countywide. 	<ul style="list-style-type: none"> Regularly evaluate the effectiveness of financial incentives/negatives. Monitor the use of grant funds and support provided to homeowners. Assess the reach and effectiveness of public education. Solicit feedback from homeowners. 	<ul style="list-style-type: none"> Firewise Grants FEMA Fire Prevention and Safety (FP&S) Grants Community Wildfire Defense Grants (CWDG) WA DNR Financial Assistance for Wildfire Resilience and Forest Health
FAC3		M	1–2 years	Create demonstration sites for healthy forests and defensible space.	Countywide	Clallam County, WA DNR, USFS, fire departments	<ul style="list-style-type: none"> Develop tours, both in person and virtually, through an app that can guide individuals through all aspects of a space that is wildfire ready. Consider fire stations, parks, and forests on rural lands. Identify suitable demonstration sites for defensible space in prominent locations with Firewise landscaping (e.g., fire stations with demonstration landscaping with native Firewise plants, or maintained parks and trails). Consider the variation of natural ecosystems and fire regimes present across the county. Identify suitable demonstration sites for healthy forests in different prominent forest types around the county. Consider active management that increases the fire resilience of forests. Host public events to display Firewise gardens. Consider building an educational app residents can use to take virtual tours of demonstration sites. Increase signage and educational displays at demonstration sites that educate visitors on Firewise landscaping. Assess demonstration materials. Incentivize Firewise landscaping. Consider the implementation of Firewise landscaping around communal structures. 	<ul style="list-style-type: none"> Educate residents on appropriate and manageable actions to create defensible spaces and landscapes. Educate residents on appropriate and manageable actions private forest landowners and public land managers can take to improve forest health and resilience as fire risk increases. 	<ul style="list-style-type: none"> Follow up with post-treatment stabilization practices and continued maintenance. Conduct an annual review of effectiveness. 	<ul style="list-style-type: none"> Firewise Grants FEMA Fire Prevention and Safety (FP&S) Grants FEMA Pre-Disaster Mitigation (PDM) Grant Program EPA Environmental Education Grants Community Wildfire Defense Grants (CWDG)

Project ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/ Lead Agency	Methodology/Approach	Serves To	Monitoring/Maintenance Requirements	Funding Sources
FAC4		M	0–2 years	Introduce or increase use of signage about fire bans, fire danger, and evacuation.	Countywide	City Council, fire departments, WSDOT, Clallam County DEM	<ul style="list-style-type: none"> • Increase burn ban signs. • Increase fire danger signs. <ul style="list-style-type: none"> ○ Install signs to main roadways such as 101 and 112 to garner attention from tourist populations in the summer. ○ Install signs showcasing the wildfire risk of fireworks, especially in forestlands within and surrounding South Sequim. • Increase use of highway message boards. 	<ul style="list-style-type: none"> • Protect communities and infrastructure by raising awareness of local citizens and those traveling in the area about actions that can prevent wildfires. 	<ul style="list-style-type: none"> • Conduct yearly reviews and updates/improvements to messaging as needed. • Set goals for expanding signage the following year. 	<ul style="list-style-type: none"> • Regional Catastrophic Preparedness (RCP) Grants • Community Wildfire Defense Grants (CWDG) • National Urban and Community Forest Program • FEMA Fire Prevention and Safety (FP&S) Grants • WA DNR Financial Assistance Program for Wildfire Resilience and Forest Health
FAC5		H	1–5 years	Develop a smoke education and preparedness campaign.	Countywide	Public Works, Clallam County	<ul style="list-style-type: none"> • Identify suitable locations throughout the county to establish smoke shelters. • Explore and access funding opportunities available through SB 762 to support the implementation of smoke shelters and air purifier distribution efforts. • Distribute air purifiers to vulnerable populations, such as individuals with respiratory conditions or low-income households. • Distribute education material regarding the public health concerns associated with wildfire smoke and how residents can mitigate these impacts. • Consider partnerships with organizations such as the Red Cross to distribute physical and educational materials. 	<ul style="list-style-type: none"> • Protect public health and mitigate the adverse impacts of wildfire smoke to county residents. • Enhance community resilience and well-being during wildfire events. • Align with the 2024 Clallam County Hazard Mitigation Plan. 	<ul style="list-style-type: none"> • Conduct regular inspections of smoke shelters. • Monitor the distribution and use of air purifiers. • Solicit feedback from community members. 	<ul style="list-style-type: none"> • FEMA Fire Prevention and Safety (FP&S) Grants • EPA Wildfire Smoke Preparedness Grants • Community Wildfire Defense Grants (CWDG) • University of Washington Earth Lab and Population Health Initiative Grants
FAC6		H	1–5 years	Implement a countywide program to support property owners in defensible space and home hardening measures, green waste disposal, home assessments, and addressing and signage improvements.	Countywide	Clallam County	<ul style="list-style-type: none"> • Integrate this program with educational programs (FAC1). • Procure or share chippers to support fire mitigation efforts (USFS, BLM). • Establish a defensible space and home hardening assistance program that covers funding and education. • Establish a wildfire mitigation assistance program for disabled, elderly, and low-income residents. • Establish a green waste disposal program to support residents in defensible space efforts. • Work with initiatives of the Insurance Institute of Business and Home Safety (IBHS) wildfire prepared homes program to support homeowners. • Prioritize efforts in areas that are high-risk, remote, and that lack adequate water supply. Consider: <ul style="list-style-type: none"> ○ Financial incentives such as tax credits for structure improvements. ○ Subsidies to offset mitigation costs (e.g., retrofits and new builds) for economically disadvantaged residents, for example, grants and cost-sharing opportunities. ○ Expanding technical assistance programs for communities at greatest risk with limited capacity. ○ Increasing financial support and technical resources to jurisdictions to hire staff and enhance capacity to adopt, enforce, and maintain building codes and standards that govern construction, design, and development in wildfire-prone areas. 	<ul style="list-style-type: none"> • Reduce wildfire risk and loss of structures through effective regulation. • Facilitate sustainable and resilient urban development. • Align with the 2024 Clallam County MJHMP. 	<ul style="list-style-type: none"> • Conduct annual program evaluation and updates as necessary. • Conduct regular assessments in heavily vegetated areas. 	<ul style="list-style-type: none"> • Firewise Grants • FEMA Fire Prevention and Safety (FP&S) Grants • Community Wildfire Defense Grants (CWDG) • WA DNR Financial Assistance for Wildfire Resilience and Forest Health

Project ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/ Lead Agency	Methodology/Approach	Serves To	Monitoring/Maintenance Requirements	Funding Sources
FAC7		H	0–2 years	Promote pursuit of additional Firewise Communities recognition throughout the county.	Countywide	Clallam County	<ul style="list-style-type: none"> Conduct Firewise/Ready, Set, Go! workshops to educate residents on reducing home vulnerabilities and encouraging pursuit of Firewise Communities recognition. Allocate resources within the county to build staff capacity dedicated to Firewise education initiatives, ensuring sustainable programs. Establish a part-time Firewise coordinator and explore funding options. Identify potential subdivisions for Firewise Communities USA recognition. Hold public meetings to educate citizens about Firewise principles. Provide free neighborhood and property assessments via website sign-ups. Offer wildfire assessor training. Supply home hardening resource lists, examples, and cost estimates. Distribute Firewise information and resources at meetings or workshops. Consider direct mailers and community signage to disseminate Firewise information. Educate school children on Firewise during Fire Prevention Week. 	<ul style="list-style-type: none"> Reduce wildfire risk through greater adoption of Firewise and structure hardening measures. 	<ul style="list-style-type: none"> Conduct an annual review of the number of events implemented. Conduct regular public outreach through surveys to assess effectiveness. Conduct a Firewise survey for the following metrics: <ul style="list-style-type: none"> Number of recognized communities, percentage of subdivisions in Clallam County. Number of Firewise homes, percentage of homes in Clallam County. Monitor total cost spent and hours volunteered by Firewise communities. 	<ul style="list-style-type: none"> Firewise Grants FEMA Fire Prevention and Safety (FP&S) Grants Community Wildfire Defense Grants (CWDG) WA DNR Wildfire Ready Neighbors Firewise USA Site Micro Grants
FAC8		M	0–2 years	Provide information to landowners for resources related to farming and agricultural lands and wildfires.	Countywide	Washington State University Extension and Disaster Education Network	<ul style="list-style-type: none"> Provide information on the following topics: livestock movement and housing during an emergency, livestock emergency assessment and health, agricultural producer safety during wildfires and emergency preparedness, wildfire recovery assistance to farms, soil erosion and rehabilitation, grass reseeding, vegetation rehabilitation, and grazing mitigation, as well as other preventative educational resources, including planned grazing and holistic management of lands. 	<ul style="list-style-type: none"> Provide information targeted toward farmers, ranchers, and agricultural lands. 	<ul style="list-style-type: none"> Update as new information becomes available. 	<ul style="list-style-type: none"> Environmental Quality Incentives Program (EQIP) USDA Sustainable Agriculture Research & Education (SARE) – West Region Program Grants
FAC9		H	1–5 years	Educate tourists about wildfire risks and promote responsible behavior while visiting the county.	Countywide	Clallam County	<ul style="list-style-type: none"> Conduct a thorough study aimed at understanding the common mistakes made by tourists and visitors that contribute to wildfire risk, using the results to develop educational materials. Collaborate with adjacent Jefferson County to develop cross-boundary education initiatives for tourists that travel between counties for recreation and temporary accommodations. Work with the Chamber of Commerce, Dungeness River Nature Center and/or Dungeness Wildlife Refuge to disseminate wildfire risk information to tourists through: <ul style="list-style-type: none"> visitor centers brochures websites Use social media platforms for messaging. Partner with seasonal property rentals and short-term rental owners to include wildfire risk information in: <ul style="list-style-type: none"> rental agreements welcome packets property listings 	<ul style="list-style-type: none"> Reduce the likelihood of human-caused wildfires and enhance the safety of visitors and residents alike. 	<ul style="list-style-type: none"> Monitor the dissemination of wildfire risk information through various channels. Solicit feedback from tourists and key stakeholders. Evaluate tourist behavior and compliance with wildfire safety protocols. 	<ul style="list-style-type: none"> FEMA Fire Prevention and Safety (FP&S) Grants Community Wildfire Defense Grants (CWDG)

Project ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/Lead Agency	Methodology/Approach	Serves To	Monitoring/Maintenance Requirements	Funding Sources
FAC10		M	1–5 years	Coordination of City and Countywide County codes.	City and Countywide	City, County	<ul style="list-style-type: none"> Code Compliance: Enforce code compliance across all phases of a project, with a focus on the WUI codes to be adopted in 2026. New WUI codes focus on roof, building materials, and vegetation management near driveways. Consider distributing doorhanger notices defining new codes for homeowners. Zoning Standards: review and update zoning standards as it relates to vegetation installation and placement New Developments: When planning new developments, reference the latest International Building Code rules, particularly those related to defensible space. Setback Requirements: Ensure adequate setback distances are established to enhance fire safety. Develop setback requirements for the areas adjacent to dense forest lands. 	<ul style="list-style-type: none"> Ensure regulatory alignment and safety. <p>See Appendix I for additional details on building code recommendations for Clallam County</p>	<ul style="list-style-type: none"> Conduct review of fire code and update accordingly. 	<ul style="list-style-type: none"> FP&S (FEMA) CWDG BRIC grants Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)

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4.3 GOAL 3: WILDFIRE RESPONSE

All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.



4.3.1 RECOMMENDATIONS FOR IMPROVING FIRE RESPONSE CAPABILITIES

Informing and empowering the public so they can reduce dependence on fire departments is essential because these resources are often stretched thin due to limited personnel. Increasing awareness and knowledge to enhance community preparedness is a key factor in supporting local fire departments in fire response, particularly educating residents about emergency notifications and evacuation protocols so that residents can safely evacuate an area while emergency responders prepare to protect life and property.

These recommendations for promoting safe and effective wildfire response incorporate a variety of measures and actions that aim to enhance the county's fire safety and emergency response capabilities. They include establishing improved response coordination, creating new positions, improving public safety communications, and enhancing fire response resources and capabilities. Additionally, there is a focus on increasing budget and funding support.

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Table 4.4. Recommendations for Safe, Effective, Risk-based Wildfire Response

Note: In the Project ID column, FR stands for Fire Response

Project ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/Lead Agency	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
FR1		H	1–3 years	Address and reduce wildfire risk from homeless encampments.	Countywide	Clallam County, Sheriff's Office	<ul style="list-style-type: none"> Create a working group that includes fire departments, social service providers, local government, law enforcement, and Tribal and public land managers. Develop joint protocols for camp response, cleanup, and hazard mitigation. Map recurring encampment sites in GIS and overlay historic ignition points. Partner with the Salvation Army, 4PA, Volunteers of America, and Clallam County Health to provide cleanup crews, fire-safe heating/cooking education, and shelter referrals. Draft a county ordinance prohibiting open-flame heating devices in designated high-risk zones and coordinate adoption with cities and the Port of Port Angeles. Implement regular cleanup and fuels reduction near known encampments. Identify alternative shelter locations away from high-risk wildland areas. 	<ul style="list-style-type: none"> Reduce human-caused ignitions. Protect adjacent structures and vegetation. 	<ul style="list-style-type: none"> Conduct quarterly patrol reports by Sheriff's Office logging site visits and encampment counts. Implement after-action updates to GIS layers following any camp-related fire or near-miss incidents. Conduct an annual effectiveness review by Clallam County DEM staff to analyze trends and recommend refinements. 	<ul style="list-style-type: none"> FEMA Hazard Mitigation Grant Program (HMGP) FEMA Pre-Disaster Mitigation Program (PDM) U.S. Department of Housing and Urban Development Emergency Solutions Grants (ESG) U.S. Department of Housing and Urban Development Community Development Block Grant (CDBG) WA DNR Community Fire Assistance Grant
FR2		H	1–3 years	Enhance water availability for firefighting purposes across the county.	Countywide	Clallam County, fire departments	<ul style="list-style-type: none"> Conduct a countywide water resources inventory, mapping hydrants, reservoirs, ponds, and drafting sites. Identify top ten "water gaps" exceeding 5 miles from any fire station. Deploy portable quick-connect water tanks at prioritized fill locations. Develop a property-tax credit program for private landowners hosting on-site water tanks. Coordinate with local water districts to extend or upsize water mains along high-risk corridors. 	<ul style="list-style-type: none"> Improve initial-attack capacity where hydrants are absent. Reduce round-trip drafting delays. 	<ul style="list-style-type: none"> Conduct an annual inspection of portable tanks (valves, fittings, structural integrity). Conduct a winter update of county water-gap map by Public Works. Track fill-site usage logs maintained by the Fire Marshal's Office. 	<ul style="list-style-type: none"> Community Wildfire Defense Grants (CWDG) FEMA Hazard Mitigation Grant Program (HMGP) FEMA Public Assistance (PA) Grant Program 2021 Bipartisan Infrastructure Law Slip-On Tanker Grant Program
FR3		H	1–3 years	Enhance fire station resources and equipment.	Local fire departments	Clallam County, fire departments	<ul style="list-style-type: none"> Conduct a station-by-station inventory of apparatus, personal protective equipment, radios, pumps, hoses, and support trailers. Compile a prioritized list of identified needs. Develop a coordinated procurement plan for equipment upgrades and bulk purchasing discounts. Standardize maintenance schedules and inspection checklists across districts. 	<ul style="list-style-type: none"> Enhance public safety, improve wildfire response, and limit size of wildfires. Increase capacity to address growth of new residential areas in the WUI. 	<ul style="list-style-type: none"> Conduct biannual equipment inventories and condition assessments by the Fire Marshal's Office. Review District-maintained maintenance logs for apparatus and PPE on a quarterly basis. 	<ul style="list-style-type: none"> FEMA Assistance to Firefighters Grants (AFG) FEMA Fire Prevention and Safety (FP&S) Grants Community Wildfire Defense Grants (CWDG) WA DNR Fire District Assistance Program
FR4		H	1–2 years	Update the county's emergency notification system.	Countywide	Clallam County DEM	<ul style="list-style-type: none"> Audit current alert platforms and protocols, including Everbridge subscriber data and GIS layers. Collaborate with relevant agencies, including fire departments, law enforcement, and emergency management, to ensure alignment with existing protocols and procedures. Coordinate with stakeholders and community partners to raise awareness of the updated system. Select and procure an integrated multi-channel notification system (text, email, voice, social media). Migrate existing subscriber lists and train DEM staff on new standard operating procedures for message issuance. Conduct live public-test exercises biannually. 	<ul style="list-style-type: none"> Enhance the effectiveness and reach of the county's emergency notification systems. Improve the clarity and comprehensibility of emergency alerts. 	<ul style="list-style-type: none"> Regularly test and evaluate the functionality of upgraded systems. Monitor usage and effectiveness. Conduct periodic training exercises and drills to familiarize residents. Establish a feedback mechanism to gather input from department members. 	<ul style="list-style-type: none"> Firewise Grants FEMA Fire Prevention and Safety (FP&S) Grants Community Wildfire Defense Grants (CWDG)

Project ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/Lead Agency	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
FR5		H	1–3 years	Conduct shared/mutual collaborative messaging and outreach between the local government and agencies.	Countywide	Clallam County Office of Public Affairs; Clallam County DEM	<ul style="list-style-type: none"> Establish a multiagency communications working group with city, Tribal, county, and state stakeholders. Develop a unified emergency-communications protocol, including alert templates, branding guidelines, and standard operating procedures. Synchronize public-notice calendars and social media messaging across all partner’s jurisdictions. Host quarterly community preparedness workshops and outreach events. 	<ul style="list-style-type: none"> Provide consistent, clear, and timely wildfire alerts. Increase community engagement in mitigation and preparedness actions. 	<ul style="list-style-type: none"> Generate a quarterly report regarding messaging reach, engagement rates, and subscriber growth. Review and update communications protocol and templates on an annual basis. Conduct post-event public surveys to assess message clarity and effectiveness. 	<ul style="list-style-type: none"> County general funds
FR6		H	1–2 years	Establish a permanent location for aerial wildfire suppression resources on the west end of the county in partnership with federal agencies, to address response gaps in remote and high-risk areas.	Western Clallam County	Clallam County, USFS, Olympic National Park, BLM, Olympic Interagency Fire Management Team	<ul style="list-style-type: none"> Initiate interagency dialogue and convene task force including representatives from USFS, Olympic National Park, BLM, and WA DNR. Draft and submit a formal request to the USFS Region 6 Fire and Aviation Management Office for pre-positioning air resources in western Clallam County. Establish memoranda of understanding (MOUs) with USFS and BLM for west-side aerial resource staging. Identify potential helispot locations, including fuel storage and crew-support facilities. Integrate federal rotor-wing assets into the county’s incident-management software for rapid dispatch. Conduct joint training drills twice per year to validate staging readiness. 	<ul style="list-style-type: none"> Reduce response times for aerial attack on west-side fires. Improve coordination between federal and local aviation assets. 	<ul style="list-style-type: none"> Conduct semiannual readiness inspections of helispots (fuel, landing surfaces, communications). Conduct after-action evaluations following each joint drill. Maintain and review flight-log integration in incident-management software on a quarterly basis. 	<ul style="list-style-type: none"> FEMA Hazard Mitigation Grant Program (HMGP) FAA Airport Improvement Grant Program (AIP)
FR7		H	1–3 years	Establish a local incident management team (ITM).	Countywide	Clallam County, Olympic National Forest, Olympic National Park, local fire districts, Tribal Emergency Management	<ul style="list-style-type: none"> Convene a steering committee to select the appropriate ITM Type (4 or 3) based on the county risk profile. Develop IMT organizational chart, roles, responsibilities, and delegation of authority documentation. Identify and assign core team positions; enroll members in ICS-300 and ICS-400 courses and required team-leader training. Draft standard operating guidelines for IMT activation, support, and demobilization. 	<ul style="list-style-type: none"> Strengthen unified command capabilities for large or complex fire incidents. Ensure standardized team structure. 	<ul style="list-style-type: none"> Conduct an annual full-scale IMT exercise coordinated by DEM. Maintain credential roster with automatic renewal reminders 60 days before expiration. Draft an after-action report following each IMT activation or exercise. 	<ul style="list-style-type: none"> FEMA Emergency Management Performance Grant (EMPG)
FR8		H	1–3 years	Increase wildfire training opportunities for fire response agencies.	Local fire departments	Clallam County, WA DNR; Olympic Interagency Fire Management Team	<ul style="list-style-type: none"> Conduct biennial training-needs assessment across all districts. Partner with WA DNR and Olympic Interagency Fire Management Team to deliver courses in WUI operations, pump-operator certification, and ICS 100-400. Host local workshops to build internal instructional capacity. Publish an annual training calendar and track attendance and certifications via the county training database. 	<ul style="list-style-type: none"> Enhance firefighter skills and safety in both wildland and structural contexts. Ensure standardized qualifications and ICS credentialing across agencies. 	<ul style="list-style-type: none"> Maintain a centralized training roster with expiration alerts for certifications. Conduct an annual review of training curricula and feedback surveys from participants. Conduct post-training skills validation exercises at regional drills. 	<ul style="list-style-type: none"> FEMA Emergency Management Performance Grant (EMPG) Regional Catastrophic Preparedness (RCP) Grants Staffing for Adequate Fire and Emergency Response (SAFER) WA DNR Fire District Assistance Program
FR9		M	1–5 years	Implement effective resource sharing between fire response agencies.	Countywide	Clallam County and local fire districts	<ul style="list-style-type: none"> Update and formalize mutual aid agreements among county, Tribal, state, and federal partners. Convene an annual interagency coordination workshop to review agreements and procedures. Maintain a shared asset-inventory database (engines, tenders, support units). Implement standardized resource-request protocols through the county’s incident-management software. 	<ul style="list-style-type: none"> Ensure rapid mobilization and allocation of resources during multijurisdictional incidents Reduce procedural delays in equipment and personnel deployment. 	<ul style="list-style-type: none"> Create an after-action review log for each mutual-aid activation. Conduct a quarterly audit of the shared inventory database for completeness and accuracy. Conduct an annual tabletop exercise to validate and refine request protocols. 	<ul style="list-style-type: none"> FEMA Emergency Management Performance Grant (EMPG)

Project ID	Status	Priority (H,M,L)	Timeline for Action	Project Description	Location	Land Ownership/Lead Agency	Methodology/Approach	Serves To:	Monitoring/Maintenance Requirements	Funding Sources
FR10		M	1–5 years	Build the capacity of local contractors to conduct fuel reduction treatments.	Countywide	Clallam County	<ul style="list-style-type: none"> • Compile and publish a registry of qualified vegetation-treatment contractors. • Provide targeted training and certification programs. <ul style="list-style-type: none"> ◦ Host two “how-to” workshops on mastication, chipping, and prescribed-fire support for registered contractors 	<ul style="list-style-type: none"> • Increase local workforce for hazardous fuels projects. • Reduce reliance on out-of-county crews. • Reduce wildfire risk by removing vegetative debris that can serve as fuel. 	<ul style="list-style-type: none"> • Conduct annual tracking of contract participation including number of: <ul style="list-style-type: none"> ◦ Contractors trained annually. ◦ Contractors certified or licensed for fuel treatment work. • Evaluate training and workforce development. • Track the number and types of trainings conducted. • Monitor acres treated and treatment types. 	<ul style="list-style-type: none"> • Community Wildfire Defense Grants (CWDG) • WA DNR Forest Resilience and Fuel Mitigation Grants
FR11		M	1–5 years	Increase the volunteer base for fire protection districts.	All fire protection districts	Clallam County, local fire districts	<ul style="list-style-type: none"> • Partner with local high schools (CTE programs), community colleges, and veteran support organizations to recruit through class presentations and job fairs. • Identify current volunteers to serve as ambassadors at community events, sharing first-hand experiences and mentorship. • Offer discounts on Clallam County Parks and Recreation facility memberships (gym, pool, classes) to active volunteers. 	<ul style="list-style-type: none"> • Bolster volunteer staffing to meet surge-capacity needs. • Enhance community engagement and resilience. 	<ul style="list-style-type: none"> • Monitor volunteer firefighter retention rates over time. 	<ul style="list-style-type: none"> • Staffing for Adequate Fire and Emergency Response (SAFER) • FEMA Fire Prevention and Safety (FP&S) Grants • WA DNR Fire District Assistance Program
FR12		M	2–5 years	Enhance signage for wildfire evacuation routes and bridge weight limits.	Key corridors and intersections countywide	Clallam County, WSDOT	<ul style="list-style-type: none"> • Assess existing road signage and bridge markings. • Map primary and secondary evacuation corridors in coordination with local fire districts and WSDOT. • Design reflective, standardized “Wildfire Evacuation Route” signs and mile markers. • Coordinate with emergency management to prioritize critical routes. • Ensure bridge weight limits are prominently displayed. • Install signs under a County/Public Works contract, securing easements as needed. • Publish route maps and signage locations on the county website. 	<ul style="list-style-type: none"> • Guide residents and responders during evacuations. • Reduce confusion and improve traffic flow under high-stress conditions. • Reduce risk of accidents or delays due to unclear signage or bridge limits. 	<ul style="list-style-type: none"> • Conduct semiannual inspections of sign condition and visibility by Public Works. • Immediately replace any damaged or vandalized signs. • Conduct an annual update of the digital route map on the county website. • Review feedback from emergency responders and the public to identify areas for improvement. 	<ul style="list-style-type: none"> • FEMA Fire Prevention and Safety (FP&S) Grants • State Farm Good Neighbor Citizenship Grants Infrastructure Investment and Jobs Act (IIJA) • Community Wildfire Defense Grants (CWDG)

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CHAPTER 5 – MONITORING AND EVALUATION

All stakeholders and signatories to this plan desire worthwhile outcomes. The investment needed to implement a plan such as this requires that there be a means to describe whether the goals and objectives expressed in this plan are being accomplished according to expectations. Furthermore, as the plan evolves over time, there may be a need to track changes in policy, requirements, stakeholder changes, and levels of preparedness. These can be significant for any future revisions and/or addendums to the plan.

It is recommended that project monitoring be a collaborative effort. There are many resources for designing and implementing community-based, multi-party monitoring that could support and further inform a basic monitoring program for the plan (Egan 2013). Table 5.1 identifies suggested monitoring strategies.

Table 5.1. Recommended Monitoring Strategies

Strategy	Task/Tool	Lead	Remarks
Project tracking system	Online web app to track hazardous fuels projects spatially, integrating wildfire risk layer to show progress toward wildfire hazard and risk reduction. The web app would include attribute tables that outline project details	County	Interactive tool will be easily updated and identify areas that require additional efforts
Photographic record (documents pre- and post-fuels reduction work, evacuation routes, workshops, classes, field trips, changes in open space, treatment type, etc.)	Establish field GPS location; photo points of cardinal directions; keep photos protected in archival location	Steering Committee member	Relatively low cost; repeatable over time; used for programs and tracking objectives
Number of acres treated (by fuel type, treatment method)	GPS/GIS/fire behavior prediction system	Steering Committee member	Evaluating costs, potential fire behavior

Strategy	Task/Tool	Lead	Remarks
Number of HIZs/defensible space treated to reduce structural ignitability	GPS	Homeowner	Structure protection
Number of residents/citizens participating in any plan projects and events	Meetings, media interviews, articles	Steering Committee member	Evaluate culture change objective
Number of homeowner contacts (brochures, flyers, posters, etc.)	Visits, phone	Agency representative	Evaluate objective
Number of jobs created	Contracts and grants	Steering Committee member	Evaluate local job growth
Education outreach: number, kinds of involvement	Workshops, classes, field trips, signage	Steering Committee member	Evaluate objectives
Emergency management: changes in agency response capacity	Collaboration	Agency representative	Evaluate mutual aid
Codes and policy changes affecting the plan	Qualitative	Steering Committee	Plan changes
Number of stakeholders	Added or dropped	Steering Committee	Plan changes
Wildfire acres burned, human injuries/fatalities, infrastructure loss, environmental damage, suppression, and rehabilitation costs	Wildfire records	Steering Committee	Compare with 5- or 10-year average

5.1 IMPLEMENTATION

This plan makes recommendations for prioritized fuels reduction projects, measures to reduce structural ignitability, and methods for carrying out public education and outreach. Implementation of projects must be tailored to the specific project and will be unique to the location depending on available funding resources and regulations. Information pertaining to funding is provided in Appendix E.

5.2 PLAN EVALUATION

CWPPs are intended to reduce the risk from wildfire for a community and surrounding environment. However, over time, communities change and expand, vegetation grows back, and forests and wildlands evolve. Therefore, the risk of wildfire to communities is constantly changing. The plans and methods to reduce risk must be dynamic to keep pace with the changing environment. An evaluation of this plan will gather information and identify whether the plans and strategies are on course to meet the desired outcomes or if modifications are needed to meet expectations (Figure 5.1). It is recommended that the plan be evaluated on an annual basis, which should be completed by convening the existing Steering Committee so that all entities contribute to the evaluation. The plan document and planning goals and objective should be updated annually, based on findings from the evaluation.



STEPS TO EVALUATE A CWPP

1 IDENTIFY OBJECTIVES:

What are the goals identified in the plan?
How are they reached? Is the plan performing as intended?



- Structural ignitability
- Fuel treatments (landscape and home ignition zone)
- Public education and outreach
- Multi-agency collaboration
- Emergency notifications/response

2 ASSESS THE CHANGING ENVIRONMENT:

How have population characteristics and the wildfire environment changed?



- Population change**
 - Increase or decrease
 - Visitor levels
 - Demographics
- Population settlement patterns**
 - Distribution
 - Expansion into the WUI
- Vegetation**
 - Fuel quantity and type
 - Drought and disease impacts

3 REVIEW ACTION ITEMS:

Are actions consistent with the plan's objectives?



- Check for status, i.e., completed/started/not started
- Identify completed work and accomplishments
- Identify lessons learned, challenges, and best practices
- Identify next steps congruent with other hazard mitigation planning efforts

4 ASSESS RESULTS:

What are the outcomes of the action items?



- Multi-agency collaboration**
 - Who was involved in the development of the CWPP?
 - Have partners involved in the development process remained involved in the implementation?
 - How has the planning process promoted implementation of the CWPP?
 - Have CWPP partnerships and collaboration had a beneficial impact to the community?
- Risk-hazard assessment**
 - How is the risk-hazard assessment utilized to make decisions about fuel treatment priorities?
 - Have there been new wildfire-related regulations?
 - Are at-risk communities involved in mitigating wildfire risk?
- Hazardous fuels**
 - How many acres have been treated?
 - How many projects are cross-boundary?
 - How many residents have participated in creating defensible space?
- Structural ignitability**
 - Have there been updates to fire codes and ordinances?
 - How many structures have been lost to wildfire?
 - Has the CWPP increased public implementation of structural ignitability and hazard reduction strategies?
- Public education and outreach**
 - Has public awareness of wildfire and mitigation strategies increased?
 - Have residents, visitors, and second homeowners been involved in wildfire mitigation activities?
 - Has there been public involvement?
 - Have vulnerable populations been involved?
- Emergency response**
 - Has the CWPP been integrated into relevant plans (e.g., hazard mitigation or emergency operations)?
 - Is the CWPP congruent with other hazard mitigation planning efforts?
 - Has availability and capacity of local fire departments changed since the CWPP was developed?
 - Have egress routes been publicized and mitigated?

Figure 5.1. Plan evaluations steps for CWPPs.

5.3 TIMELINE FOR UPDATING THE PLAN

The HFRA allows for maximum flexibility in the planning process, permitting the Steering Committee to determine the time frame for updating the plan. However, the Steering Committee members are encouraged to meet on an annual basis to review the project list, discuss project successes, and strategize regarding project implementation funding. It is suggested that the evaluation framework above be used annually to make plan updates, and a more formal revision be made on the fifth anniversary of signing and every 5 years following.

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ABBREVIATIONS AND ACRONYMS

ATSDR	Agency for Toxic Substances and Disease Registry
BAER	Burned Area Emergency Response
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CAL FIRE	California Department of Forestry and Fire Protection
CA GOPR	California Governor's Office of Planning and Research
CAP	Climate Action Plan
CCD	Clallam Conservation District
CDC	Centers for Disease Control and Prevention
CEMP	Comprehensive Emergency Management Plan
CIG	Conservation Innovation Grant
Cohesive Strategy	National Cohesive Wildland Fire Management Strategy
County	Clallam County
CUSP	Coalition for the Upper South Platte
CWDG	Community Wildfire Defense Grants
CWPP	community wildfire protection plan
DART	Disaster Airlift Response Team
DCD	Department of Community Development
DEM	Division of Emergency Management
EFRP	Emergency Forest Restoration Program
EMD	Emergency Management Division
EPA	U.S. Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
EWP	Emergency Watershed Protection
FEMA	Federal Emergency Management Agency
FHSP	Forest Health Strategic Plan
FP&S	Fire Prevention and Safety
FSA	Farm Service Agency
GIS	geographic information system
HFRA	Healthy Forests Restoration Act of 2003
HIZ	home ignition zone
HMGP	Hazard Mitigation Grant Program
HVRA	highly valued resource and asset
IFTDSS	Interagency Fuel Treatment Decision Support System

IMT	incident management team
IWUIC	International Wildland-Urban Interface Code
MJHMP	Multi-Jurisdictional Hazard Mitigation Plan
NFPA	National Fire Protection Association
NIFC	National Interagency Fire Center
NOAA	National Oceanic Atmospheric Administration
NPS	National Park Service
NRCA	natural resource conservation area
NRCS	Natural Resources Conservation Service
NWCG	National Wildfire Coordinating Group
Plan	Clallam County Community Wildfire Protection Plan
POD	Potential Operational Delineation
PWFC	Washington State Post-Wildfire Flood Committee
QWRA	Quantitative Wildfire Risk Assessment
RAW	remote automated weather
RWC	Revised Code of Washington
SAFER	Staffing for Adequate Fire and Emergency Response
SWCA	SWCA Environmental Consultants
ULI	Urban Land Institute
USDA	U.S. Department of Agriculture
USFA	U.S. Fire Administration
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WA DNR	Washington State Department of Natural Resources
WAFAC	Washington State Fire Adapted Communities Learning Network
WA-WUI	Washington Wildland-Urban Interface
WSDOT	Washington Department of Transportation
WUI	wildland-urban interface

GLOSSARY

Aspect: Cardinal direction toward which a slope faces in relation to the sun (NWCG 2021).

Active Crown Fire: A crown fire in which the entire fuel complex is involved in flame, but the crowning phase remains dependent on heat released from surface fuel for continued spread. An active crown fire presents a solid wall of flame from the surface through the canopy fuel layers. Flames appear to emanate from the canopy as a whole rather than from individual trees within the canopy. Active crown fire is one of several types of crown fire and is contrasted with passive crown fires, which are less vigorous types of crown fire that do not emit continuous, solid flames from the canopy (SWCA).

Available Canopy Fuel: The mass of canopy fuel per unit area consumed in a crown fire. There is no postfrontal combustion in canopy fuels, so only fine canopy fuels are consumed. We assume that only the foliage and a small fraction of the branchwood is available (Wooten 2021).

Available Fuel: The total mass of ground, surface and canopy fuel per unit area available fuel consumed by a fire, including fuels consumed in postfrontal combustion of duff, organic soils, and large woody fuels (Wooten 2021).

Backfiring: Intentionally setting fire to fuels inside a control line to contain a fire (Wooten 2021).

Biomass: Organic material. Also refers to the weight of organic material (e. g. biomass roots, branches, needles, and leaves) within a given ecosystem (Wooten 2021).

Burn Severity: A qualitative assessment of the heat pulse directed toward the ground during a fire. Burn severity relates to soil heating, large fuel and duff consumption, consumption of the litter and organic layer beneath trees and isolated shrubs, and mortality of buried plant parts (SWCA).

Canopy: The more or less continuous cover of branches and foliage formed collectively by adjacent trees and other woody species in a forest stand. Where significant height differences occur between trees within a stand, formation of a multiple canopy (multi-layered) condition can result (SWCA).

Chain: Unit of measure in land survey, equal to 66 feet (20 m) (80 chains equal 1 mile). Commonly used to report fire perimeters and other fireline distances. Popular in fire management because of its convenience in calculating acreage (example: 10 square chains equal one acre) (New Mexico Future Farmers of America 2010).

Climate adaptation: Adaptation is an adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (California Governor's Office of Planning and Research [CA GOPR] 2020).

Climate Change: A change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods (CA GOPR 2020).

Community Assessment: An analysis designed to identify factors that increase the potential and/or severity of undesirable fire outcomes in WUI communities (SWCA).

Communities at Risk: Defined by the HFRA as "Wildland-Urban Interface Communities within the vicinity of federal lands that are at high risk from wildfire."

Community Wildfire Protection Plan (CWPP): A planning document that seeks to reduce the threat to life and property from wildfire by identifying and mitigating wildfire hazards to communities and infrastructure located in the WUI. Developed from the HFRA, a CWPP addresses issues such as wildfire response, hazard mitigation, community preparedness, or structure protection (SWCA).

Conditional Surface Fire: A potential type of fire in which conditions for sustained conditional surface fire active crown fire spread are met but conditions for crown fire initiation are not. If the fire begins as a surface fire, then it is expected to remain so. If it begins as an active crown fire in an adjacent stand, then it may continue to spread as an active crown fire (Wooten 2021).

Contain: A tactical point at which a fire's spread is stopped by and within specific contain features, constructed or natural; also, the result of stopping a fire's spread so that no further spread is expected under foreseeable conditions. For reporting purposes, the time and date of containment. This term no longer has a strategic meaning in federal wildland fire policy (Wooten 2021).

Control: To construct fireline or use natural features to surround a fire and any control spot fires therefrom and reduce its burning potential to a point that it no longer threatens further spread or resource damage under foreseeable conditions. For reporting purposes, the time and date of control. This term no longer has a strategic meaning in federal wildland fire policy (Wooten 2021).

Cover Type: The type of vegetation (or lack of it) growing on an area, based on cover type minimum and maximum percent cover of the dominant species, species group or non-living land cover (such as water, rock, etc.). The cover type defines both a qualitative aspect (the dominant cover type) as well as a quantitative aspect (the abundance of the predominant features of that cover type; Wooten 2021).

Creeping Fire: A low-intensity fire with a negligible rate of spread (Wooten 2021).

Crown Fire: A fire that advances at great speed from crown to crown in tree canopies, often well in advance of the fire on the ground (National Geographic 2021).

Defensible Space: An area around a structure where fuels and vegetation are modified, cleared, or reduced to slow the spread of wildfire toward or from a structure. The design and distance of the defensible space is based on fuels, topography, and the design/materials used in the construction of the structure (SWCA).

Duff: The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil (SWCA).

Ecosystem: An interacting natural system including all the component organisms together with the abiotic environment and processes affecting them (SWCA).

Environmental Conditions: That part of the fire environment that undergoes short-term changes: weather, which is most commonly manifest as windspeed, and dead fuel moisture content (Wooten 2021).

Escape Route: A preplanned and understood route firefighters take to move to a temporary refuge area or other low-risk area. When escape routes deviate from a defined physical path, they should be clearly marked (SWCA).

Evacuation: The temporary movement of people and their possessions from locations threatened by wildfire (SWCA).

Fire-Adapted Community: A fire-adapted community collaborates to identify its wildfire risk and works collectively on actionable steps to reduce its risk of loss. This work protects property and increases the safety of firefighters and residents (USFA 2021b).

Fire Behavior: The manner in which fuel ignites, flame develops, and fire spread and exhibits other related phenomena as determined by the interaction of fuels, weather, and topography (Fire Research and Management Exchange System 2021).

Fire Break: Areas where vegetation and organic matter are removed down to mineral soil (SWCA).

Fire Environment: The characteristics of a site that influence fire behavior. In fire modeling the fire environment is described by surface and canopy fuel characteristics, windspeed and direction, relative humidity, and slope steepness (Wooten 2021).

Fire Frequency: A broad measure of the rate of fire occurrence in a particular area. For historical analyses, fire frequency is often expressed using the fire return interval calculation. For modern-era analyses, where data on timing and size of fires are recorded, fire frequency is often best expressed using fire rotation (SWCA).

Fire Hazard: Fire hazard is the potential fire behavior or fire intensity in an area, given the type(s) of fuel present – including both the natural and built environment – and their combustibility (CA GOPR 2020).

Fire History: The chronological record of the occurrence of fire in an ecosystem or at a specific site. The fire history of an area may inform planners and residents about the level of wildfire hazard in that area (SWCA).

Fire Intensity: A general term relating to the heat energy released in a fire (SWCA).

Fireline Intensity: Amount of heat release per unit time per unit length of fire front. Numerically, the product of the heat of combustion, quantity of fuel consumed per unit area in the fire front, and the rate of spread of a fire, expressed in kilowatts per minute (SWCA). This expression is commonly used to describe the power of wildland fires, but it does not necessarily follow that the severity, defined as the vegetation mortality, will be correspondingly high (Wooten 2021).

Fire Prevention: Activities such as public education, community outreach, planning, building code enforcement, engineering (construction standards), and reduction of fuel hazards that is intended to reduce the incidence of unwanted human-caused wildfires and the risks they pose to life, property or resources (CA GOPR 2020).

Fire Regime: A measure of the general pattern of fire frequency and severity typical to a particular area or type of landscape: The regime can include other metrics of the fire, including seasonality and typical fire size, as well as a measure of the pattern of variability in characteristics (SWCA).

Fire Regime Condition Class: Condition classes are a function of the degree of fire regime condition class departure from historical fire regimes resulting in alterations of key ecosystem components such as composition structural stage, stand age, and canopy closure (Wooten 2021).

Fire Return Interval: Number of years (interval) between two successive fires in a designated area (SWCA).

Fire Severity: A qualitative measure of the immediate effects of fire on the fire severity ecosystem. It relates to the extent of mortality and survival of plant and animal life both aboveground and belowground and to loss of organic matter. It is determined by heat released aboveground and belowground. Fire Severity is dependent on intensity and residence dependent of the burn. For trees,

severity is often measured as percentage of basal area removed. An intense fire may not necessarily be severe (Wooten 2021).

Fire Risk: “Risk” takes into account the intensity and likelihood of a fire event to occur as well as the chance, whether high or low, that a hazard such as a wildfire will cause harm. Fire risk can be determined by identifying the susceptibility of a value or asset to the potential direct or indirect impacts of wildfire hazard events (CA GOPR 2020).

Flammability: The relative ease with which fuels ignite and burn regardless of the quantity of the fuels (SWCA).

Flame Length: The length of flames in the propagating fire front measured along the slant of the flame from the midpoint of its base to its tip. It is mathematically related to fireline intensity and tree crown scorch height (Wooten 2021).

Foliar Moisture Content: Moisture content (dry weight basis) of live foliage, foliar moisture content expressed as a percent. Effective foliar moisture content incorporates the moisture content of other canopy fuels such as lichen, dead foliage, and live and dead branchwood (Wooten 2021).

Forest Fire: uncontrolled burning of a woodland area (National Geographic 2021).

Fuel Bed: An array of fuels usually constructed with specific loading, depth, and particle size to meet experimental requirements; also, commonly used to describe the fuel composition.

Fuel Break: A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled (NWCG 2021).

Fuel Complex: The combination of ground, surface, and canopy fuel strata (Wooten 2021).

Fuel Condition: Relative flammability of fuel as determined by fuel type and environmental conditions (SWCA).

Fuel Continuity: A qualitative description of the distribution of fuel both horizontally and vertically. Continuous fuels readily support fire spread. The larger the fuel discontinuity, the greater the fire intensity required for fire spread (Wooten 2021).

Fuel Loading: The volume of fuel in a given area generally expressed in tons per acre (SWCA). Dead woody fuel loadings are commonly described for small material in diameter classes of 0 to 0.25, 0.25 to 1, and 1 to 3 inches and for large material greater than 3 inches (Wooten 2021).

Fuel Management: Manipulation or removal of fuels to reduce the likelihood of ignition and to reduce potential damage in case of a wildfire. Fuel management methods include prescribed fire, mechanical treatments (mowing, chopping), herbicides, biomass removal (thinning or harvesting of trees, harvesting of pine straw), and grazing. Fuel management techniques may sometimes be combined for greater effect (SWCA).

Fuel Model: A set of surface fuel bed characteristics (load and surface-area-to- fuel model volume-ratio by size class, heat content, and depth) organized for input to a fire model (Wooten 2021).

Fuel Modification: The manipulation or removal of fuels (i.e., combustible biomass such as wood, leaves, grass, or other vegetation) to reduce the likelihood of igniting and to reduce fire intensity. Fuel modification activities may include lopping, chipping, crushing, piling and burning, including prescribed burning. These activities may be performed using mechanical treatments or by hand crews. Herbicides

and prescribed herbivory (grazing) may also be used in some cases. Fuel modification may also sometimes be referred to as “vegetation treatment” (CA GOPR 2020).

Fuel Moisture Content: This is expressed as a percent or fraction of oven dry fuel moisture content weight of fuel. It is the most important fuel property controlling flammability. In living plants, it is physiologically bound. Its daily fluctuations vary considerably by species but are usually above 80 to 100 percent. As plants mature, moisture content decreases. When herbaceous plants cure, their moisture content responds as dead fuel moisture content, which fluctuates according to changes in temperature, humidity, and precipitation (Wooten 2021).

Fuel Treatment: The manipulation or removal of fuels to minimize the probability of ignition and/or to reduce potential damage and resistance to fire suppression activities (NWCG 2021). Synonymous with fuel modification.

Grazing: There are two types of grazing: 1) traditional grazing, and 2) targeted grazing. Traditional grazing refers to cattle that are managed in extensive pastures to produce meat. Targeted grazing involves having livestock graze at a specific density for a given period of time for the purpose of managing vegetation. Even though both kinds of grazing manage fuel loading in range- and forested lands, targeted grazing is different in that its sole purpose is to manage fuels. Targeted grazing is done by a variety of livestock species such as sheep, goats, or cows (University of California Division of Agriculture and Natural Resources [UCANR] 2019).

Ground Fire: Fire that burns organic matter in the soil, or humus; usually does not appear at the surface (National Geographic 2021).

Ground Fuels: Fuels that lie beneath surface fuels, such as organic soils, duff, decomposing litter, buried logs, roots, and the below-surface portion of stumps (Wooten 2021).

Hazard: A “hazard” can be defined generally as an event that could cause harm or damage to human health, safety, or property (CA GOPR 2020).

Hazardous Areas: Those wildland areas where the combination of vegetation, topography, weather, and the threat of fire to life and property create difficult and dangerous problems (SWCA).

Hazardous Fuels: A fuel complex defined by type, arrangement, volume, condition, and location that poses a threat of ignition and resistance to fire suppression (NWCG 2021).

Hazardous Fuels Reduction: Any strategy that reduces the amount of flammable material in a fire-prone ecosystem. Two common strategies are mechanical thinning and prescribed burning (Wooten 2021).

Hazard Reduction: Any treatment that reduces the threat of ignition and spread of fire (SWCA).

Highly Valued Resources and Assets (HVRAs): Landscape features that are influenced positively and/or negatively by fire. Resources are naturally occurring, while Assets are human made (IFTDSS [n.d.](#)).

Ignition: The action of setting something on fire or starting to burn (SWCA).

Incident: An occurrence or event, either natural or person-caused, which requires an emergency response to prevent loss of life or damage to property or natural resources (Wooten 2021).

Influence Zone: An area that, with respect to wildland and urban fire, has a set of conditions that facilitate the opportunity for fire to burn from wildland fuels to the home and or structure ignition zone (NWCG 2021).

Initial Attack: The actions taken by the first resources to arrive at a wildfire to protect lives and property and prevent further extension of the fire (SWCA).

Invasive Species: An introduced, nonnative organism (disease, parasite, plant, or animal) that begins to spread or expand its range from the site of its original introduction and that has the potential to cause harm to the environment, the economy, or to human health (USGS 2021).

Ladder Fuels: Fuels that provide vertical continuity allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease (SWCA).

Litter: Recently fallen plant material that is only partially decomposed and is still discernible (SWCA).

Manual Treatments: Felling and piling of fuels done by hand. The volume of material generated from a manual fuel treatment is typically too small to warrant a biomass sale therefore collected material is disposed of by burning or chipping. The work can be performed by either a single individual or a large, organized crew with powered equipment (UCANR 2021a).

Mechanized Treatments: Mechanical treatments pulverize large continuous patches of fuel to reduce the volume and continuity of material. Mechanical treatments can be applied as either mastication or chipping treatments. Both treatments shred woody material, but mastication leaves residue on-site while chipping collects the particles for transportation off site. Similar to hand treatments, mechanical treatments can target specific areas and vegetation while excluding areas of concern. In addition, mechanical treatment is easily scalable to large areas (>30 acres) with little added cost. (UCANR 2021b).

Mitigation: Action that moderates the severity of a fire hazard or risk (SWCA).

Mutual Aid: Assistance in firefighting or investigation by fire agencies, irrespective of jurisdictional boundaries (NWCG 2021).

Native Revegetation: The process of replanting and rebuilding the soil of disturbed land (e.g., burned) with native plant species (USDA 2005).

Native Species: A species that evolved naturally in the habitat, ecosystem, or region as determined by climate, soil, and biotic factors (USDA 2005).

National Cohesive Strategy: The National Cohesive Wildland Fire Management Strategy is a strategic push to work collaboratively among all stakeholders and across all landscapes, using best science, to make meaningful progress toward three goals:

- Resilient Landscapes
- Fire-Adapted Communities
- Safe and Effective Wildfire Response

Vision: To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a nation, to live with wildland fire (Forests and Rangelands 2023).

Overstory: That portion of the trees in a forest which forms the upper or uppermost layer (SWCA).

Passive Crown Fire: A type of crown fire in which the crowns of individual trees or small groups of trees burn, but solid flaming in the canopy cannot be maintained except for short periods. Passive crown fire encompasses a wide range of crown fire behavior, from occasional torching of isolated trees to nearly active crown fire. Passive crown fire is also called torching or candling. A fire in the crowns of the trees in

which trees or groups of trees torch, ignited by the passing front of the fire. The torching trees reinforce the spread rate, but these fires are not basically different from surface (SWCA).

Prescribed Burning: Any fire ignited by management actions under specific, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. Usually, a written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition (USFS n.d.).

Rate of Spread: The relative activity of a fire in extending its horizontal dimensions. It is expressed as rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually, it is expressed in chains or acres per hour for a specific period in the fire's history (NWCG 2021).

Resilience: Resilience is the capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience (CA GOPR 2020).

Resilient Landscape: Landscapes or ecosystems that resist damage and recover quickly from disturbances (such as wildland fires) and human activities (Forests and Rangelands 2014).

Response: Movement of an individual firefighting resource from its assigned standby location to another location or to an incident in reaction to dispatch orders or to a reported alarm (SWCA).

Roadside Buffer: Intentional change or alteration in land cover and vegetation composition along roadways intended to reduce ladder fuels and canopy continuity. Buffers can reduce fire spread across roadways and improve the safety of designated evacuation routes.

Safety Element: One of the seven mandatory elements of a local general plan (a county plan that forms the foundation for future development), the safety element must identify hazards and hazard abatement provisions to guide local decisions related to zoning, subdivisions, and entitlement permits. The element should contain general hazard and risk reduction strategies and policies supporting hazard mitigation measures (CA GOPR 2020).

Shaded Fuel Break: Fuel breaks where understory vegetation is primarily cleared, leaving the forest canopy in-tact. These areas maintain higher relative humidity, lower temperatures, and sustain higher biodiversity while also reducing fuel loads.

Slash: Debris left after logging, pruning, thinning, or brush cutting. Slash includes logs, chips, bark, branches, stumps, and broken trees or brush that may be fuel for a wildfire (SWCA).

Slope Percent: The ratio between the amount of vertical rise of a slope and horizontal distance as expressed in a percent. One hundred feet of rise to 100 feet of horizontal distance equals 100 percent (NWCG 2021).

Suppression: The most aggressive fire protection strategy, it leads to the total extinguishment of a fire (SWCA).

Surface Fire: fire that typically burns only surface litter and undergrowth (National Geographic 2021).

Surface Fuel: Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants (SWCA).

Structural Ignitability: The ability of structures (such as homes or fences) to catch fire (SWCA).

Topography: The arrangement of the natural and artificial physical features of an area (SWCA).

Total Fuel Load: The mass of fuel per unit area that could possibly be consumed in a hypothetical fire of the highest intensity in the driest fuels (Wooten 2021).

Tree Crown: The primary and secondary branches growing out from the main stem, together with twigs and foliage (SWCA).

Understory: Low-growing vegetation (herbaceous, brush or reproduction) growing under a stand of trees. Also, that portion of trees in a forest stand below the overstory (SWCA).

Understory Fire: A fire burning in the understory, more intense than a surface fire with flame lengths of 1 to 3 m (Wooten 2021).

Values and Assets at Risk: The elements of a community or natural area considered valuable by an individual or community that could be negatively impacted by a wildfire or wildfire operations. These values can vary by community and can include public and private assets (natural and manmade) -- such as homes, specific structures, water supply, power grids, natural and cultural resources, community infrastructure-- as well as other economic, environmental, and social values (CA GOPR 2020).

Vulnerable Community: Vulnerable communities experience heightened risk and increased sensitivity to natural hazard and climate change impacts and have less capacity and fewer resources to cope with, adapt to, or recover from the impacts of natural hazards and increasingly severe hazard events because of climate change. These disproportionate effects are caused by physical (built and environmental), social, political, and/ or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality (CA GOPR 2020).

Wildfire: A “wildfire” can be generally defined as any unplanned fire in a “wildland” area or in the WUI (CA GOPR 2020).

Wildfire Exposure: During fire suppression activities, an exposure is any area/property that is threatened by the initial fire, but in National Fire Incident Reporting System a reportable exposure is any fire that is caused by another fire, i.e., a fire resulting from another fire outside that building, structure, or vehicle, or a fire that extends to an outside property from a building, structure, or vehicle (USFA 2020).

Wildfire Influence Zone: A wildland area with susceptible vegetation up to 1.5 miles from the interface or intermix WUI (CA GOPR 2020).

Wildland: Those unincorporated areas covered wholly or in part by trees, brush, grass, or other flammable vegetation (CA GOPR 2020).

Wildland Fire: Fire that occurs in the wildland as the result of an unplanned ignition (CA GOPR 2020).

Wildland Fuels (aka fuels): Fuel is the material that is burning. It can be any kind of combustible material, especially petroleum-based products, and wildland fuels. For wildland fire, it is usually live, or dead plant material, but can also include artificial materials such as houses, sheds, fences, pipelines, and trash piles. In terms of vegetation, there are six wildland fuel types (fuel type: an identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.) The six wildland fuel types are (NWCG 2021):

- **Grass**
- **Shrub**

- **Grass-Shrub**
- **Timber Litter**
- **Timber-Understory**
- **Slash-Blowdown**

Wildland-Urban Interface (WUI): The WUI is the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels (USFA 2021a). WUI areas in the state of Washington are determined using the WA-WUI map for implementing and enforcing building codes across all counties and cities. Chapter 51-55 WAC outlines the adoption and amendment of the 2021 edition of the Wildland-Urban Interface Code. The code mandates compliance in construction within the interface or intermix areas and specifies the process for updating or designating new WUI, with only the local jurisdiction's code official having the authority to modify the WA-WUI map (WA DNR 2023a). Section 302.3.6 of WAC 51-55 outlines the process for WUI area designation. It involves determining structure density, vegetation density, and proximity categories for a given area, and based on these criteria, the site is designated as either intermix or interface, depending on the specified conditions. Compliance with the code, including the Wildland-Urban Interface Code, is then determined accordingly.

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APPENDIX A:
Existing Regulations, Ordinances, and Programs

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This appendix provides background information on legislation and existing guidance and planning across jurisdictions in the county. This information is provided to facilitate future planning alignment between entities.

LEGISLATIVE DIRECTION

MUNICIPAL DIRECTION

Clallam County Office of the Fire Marshal

The Clallam County Fire Marshal's Office has jurisdiction pertaining to fire codes and fire safety within the county (Clallam County Fire District No. 3 2025). The Office of the Fire Marshal works with local fire districts and fire chiefs to ensure public safety and compliance with county fire regulations.

The Fire Marshal plays a central role in determining burn restrictions and wildfire prevention measures. For example, during the wildfire season, the Clallam County Fire Marshal implemented countywide outdoor burning restrictions after consultation with fire districts and emergency management officials (Clallam County Department of Community Development [DCD] 2025). The order prohibited outdoor burning, including campfires, until weather and fuel conditions improved, and the wildfire danger decreased.

The Clallam County Fire Marshal extended the restriction to include recreational fires due to elevated fire danger and dry conditions (Clallam County DCD 2025). In addition, fireworks restrictions were enacted during the July 4th holiday period, prohibiting the discharge, sale, and storage of fireworks in unincorporated areas of the county because of high fire hazard (Clallam County DCD 2025).

WUI Property Development Guide

The Clallam County DCD is responsible for enforcing WUI Code requirements as adopted by Washington State. These codes are intended to improve fire safety and resilience by reducing wildfire risk and enhancing a structure's ability to survive wildfire (Clallam County DCD 2025). At the time of writing, state guidance on the application of the WA WUI Code is yet to be finalized. For details on the building code recommendations developed for this plan, see Appendix I.

Clallam County provides guidance to property owners and developers on how to meet WUI standards during the permitting process. The Department reviews building applications for compliance with defensible space, access, water supply, and construction material requirements in wildfire-prone areas (Clallam County DCD 2025). The county directs applicants to WUI checklists and resources to ensure that building plans incorporate proper mitigation measures before permits are issued.

Clallam County Building and Fire Codes

Clallam County has adopted and enforces the Washington State Building Code, which incorporates the International Building Code, International Residential Code, International Fire Code, and other specialty codes as amended by the Washington State Building Code Council (Clallam County 2025b). The International Fire Code, 2018 edition, as amended in Chapter 51-54A WAC, is enforced in unincorporated areas of the county through Clallam County Code Title 21: Building & Construction. These

regulations establish minimum standards to safeguard life, health, property, and public welfare by regulating the design, construction, and maintenance of buildings and structures (Clallam County 2025b).

For more information on Clallam County Building and Community Development regulations, please visit: <https://www.clallamcountywa.gov/1092/Building-Codes>

Clallam County Solid Waste Code

The Clallam County Solid Waste Regulations, contained in Clallam County Code Chapter 41.11, provide the framework for managing solid waste within the county. The code governs storage, collection, transportation, and disposal, while also prohibiting unlawful dumping and open burning of solid waste. Responsibilities are outlined for property owners, operators, and occupants to ensure compliance with disposal requirements, facility operating hours, and fee schedules (Clallam County 2025c). The purpose of these regulations is to protect public health, preserve environmental quality, and ensure that solid waste is managed in a safe and efficient manner.

To learn more about the Clallam County Solid Waste Program, please visit: <https://www.clallamcountywa.gov/679/Solid-Waste-Management-Plan>

North Olympic Land Trust

Founded in 1990, the North Olympic Land Trust is a nonprofit conservation organization serving Clallam County. Its mission is to conserve lands that sustain the communities of the North Olympic Peninsula. The Land Trust partners with landowners to develop conservation strategies that balance ecological, agricultural, and financial needs. Priority resources for protection include farmland, working forests, rivers, wetlands, and wildlife habitat. In addition to private partnerships, the Land Trust collaborates with Tribal governments, public agencies, and conservation groups to protect natural resources for long-term community benefit. Conservation efforts also promote sustainable timber production, recreation, and environmental education (North Olympic Land Trust 2025).

For more information on the North Olympic Land Trust, please visit: <https://northolympiclandtrust.org/>

STATE DIRECTION

The 2019 Washington State Wildland Fire Protection 10-Year Strategic Plan recognizes that Washington faces continued and urgent threats from catastrophic wildfire. The purpose of this plan is to support the collaborative effort to better prepare for, respond to, and recover from wildland fire. The plan reflects extensive stakeholder involvement and is aligned with the National Cohesive Strategy and Washington's 20-Year Forest Health Strategic Plan (FHSP) for eastern Washington. The plan is centered around four major goals:

1. Washington's preparedness, response, and recovery systems are fully capable, integrated, and sustainable.
2. Landscapes are resilient—in the face of wildland fire, they resist damage and recover quickly.
3. Communities are prepared and adapted for current and future wildland fire regimes.
4. Response is safe and effective.

All strategies developed for the 2019 plan were aligned with those in the 20-Year FHSP, which was completed by the Washington State Department of Natural Resources (WA DNR) in 2017. Whereas the

FHSP focuses on forested lands in eastern Washington, the Strategic Plan takes a statewide approach and recognizes that wildland fires are not confined to forests, nor to eastern Washington. See Figure A.1 for an overview of how the plans are aligned.

In addition to crafting the FHSP, WA DNR partners with wildfire response agencies to provide information about current wildfires, wildfire prevention, and statewide burn restrictions. The WA DNR is Washington state’s wildfire fighting force with approximately 600 permanent and temporary employees who work on privately and state-owned forest lands. They often provide aid to local fire districts and collaborate with the National Weather Service to determine fire precaution levels (WA DNR 2025b, 2025c, 2025d).



Figure A.1. Washington’s FHSP and Wildland Fire Protection Strategic Plan support and reinforce each other.

Source: WA DNR (2018)

Washington Bills and Regulations

Engrossed Substitute House Bill 2928 Forest Resiliency Pilot Project: In 2016, the Washington State Legislature passed the Forest Resilience Burning Pilot Project (Engrossed Substitute House Bill 2928). This bill supported a pilot program to evaluate and monitor the effects of forest resiliency burning (Fire Adapted Communities Learning Network 2017). Through this program, WA DNR worked with three landscape collaborative groups, the Washington Prescribed Fire Council, and agency and nonprofit

partners to identify and implement controlled burning, monitoring of fire effects on vegetation, air quality monitoring, and prescribed fire outreach (Fire Adapted Communities Learning Network 2017).

Senate Bill 5546: The 2017 Washington Senate Bill 5546 aims to proactively address wildfire risk by creating a forest health treatment assessment. The bill authorized the WA DNR to conduct forest health treatments on state and private lands, and to establish a forest health revolving account to fund the treatments. Additionally, the bill created a forest health advisory committee that provides recommendations and guidance on forest health issues (Washington State Legislature 2017).

House Bill 1711: In 2017, Legislature passed Engrossed Second Substitute House Bill 1711. The bill aimed to prioritize lands to receive forest health treatments by directing the WA DNR to develop and implement a policy for prioritizing investments in forest health treatments on state forest lands. The overarching goal is to reduce wildfire risk and losses from wildfire, reduce insect infestation and disease, and improve forest health and resilience at a landscape scale (WA DNR 2020c).

House Bill 2561: Introduced in 2018, House Bill 2561 assigned temporary duties to the wildland fire advisory committee such as reviewing and making recommendations on the wildland fire suppression account, the wildland fire protection strategic plan, and the wildland fire response agreements (Washington State Legislature 2018a).

House Bill 2733: Washington House Bill 2733 established a prescribed burn certification program. More specifically, the bill authorizes the WA DNR to host a training program for those wanting to lead or participate in prescribed burns on their land (WA DNR 2025f). The program covers various aspects of prescribed fire such as legal requirements, safety, weather, fire behavior, smoke management, planning, and implementation. The Bill also affords liability protection for certified prescribed burn managers and landowners in accordance with the law and WA DNR rules and regulations (Washington State Legislature 2018b). The main goal of this bill is to encourage more use of prescribed fire as a cost-effective and efficient tool for forest management.

Senate Bill 6211: Washington Senate Bill 6211 allows state agencies to cooperate with federal agencies when conducting forest and watershed restoration projects on federal lands. It also facilitates funding from good neighbor agreements to perform prescribed burning, thinning, and watershed improvement on federal lands. State agencies must follow federal rules and regulations when implementing projects with federal funding and/or on federal land. The bill increased capacity and efficiency of forest and watershed restoration across ownership boundaries (Washington State Legislature 2018c).

House Bill 1168: Washington House Bill 1168 is an act aimed at addressing the growing concerns related to long-term forest health and the increasing dangers of wildfires in the state. The bill highlights the alarming increase in annual acres burned in Washington state and the devastating impacts of these wildfires on public health, property, and the environment. The bill also acknowledges the role of climate change, human development, and past fire suppression in contributing to wildfire risks. To mitigate these risks, the legislation proposes increased forest management activities, fuel reduction, and restoration efforts on federal, state, Tribal, and private lands. It emphasizes the importance of addressing the challenges posed by forest fragmentation and increasing development in the wildland-urban interface. Additionally, the bill aims to fully fund wildfire protection and forest health initiatives to enhance resilience and protect communities from the impacts of wildfires (Washington State Legislature 2023a).

Chapter 51-54A WAC: Chapter 51-54A WAC serves the purpose of implementing the directives of chapter 19.27 RCW, which mandates that the State Building Code Council maintains the State Building Code in alignment with the objectives outlined in RCW 19.27.020. The Council is responsible for regular reviews of updated versions of the codes established under the act and other relevant information.

Amendments to the codes are made as deemed appropriate by the Council. This specific chapter adopts and modifies the 2021 edition of the International Fire Code, outlining regulations and standards for fire prevention, safety, and protection in buildings and on properties. It also addresses wildfire-related aspects, such as defensible space, vegetation management, and construction designed to resist ignition (Washington State Legislature 2023b).

Senate Bill 5126: Washington State Senate Bill 5126, the Washington Climate Commitment Act of 2021, acknowledges address climate change as a major challenge with severe impacts to the environment and human health, including wildfires, floods, droughts, and rising temperatures. The bill establishes a cap-and-invest program to limit greenhouse gas emissions, directing investments toward clean energy, transportation, and natural climate solutions. It also creates a Climate Resilience Account, funding projects that enhance community and ecosystem resilience against climate impacts. The bill aims to transition to a low-carbon economy, create new opportunities in clean manufacturing, and provide protective measures for workers during this transition (Washington State Legislature 2023c).

2SHB 1578: Washington State House and Senate Bill 1578, the Cascading Impacts of Wildfire, relates to improving community preparedness, response, recovery, and resilience to wildland fire health and safety impacts in areas of increasing population density, including in the WUI in western Washington (Washington State Legislature 2024).

FEDERAL DIRECTION

Federal wildfire planning has evolved over time, guided by the U.S. Department of the Interior and influenced by significant events. In 1998, the U.S. Department of the Interior mandated fire management plans for all public lands with burnable vegetation. The National Fire Plan, established in response to the intense 2000 fire season, promoted collaboration among governmental agencies to effectively combat severe wildfires and ensure future firefighting capacity.

In 2001, a review and update of the 1995 Federal Wildland Fire Management Policy was released. The updated document, known as the 2001 Federal Wildland Fire Management Policy, provides a broad policy foundation for fire management programs and activities at the federal level, including those conducted under the National Fire Plan. The plan focuses on broad, internal strategic direction for fire management activities.

Recognizing declining forest health, the U.S. Congress passed the Healthy Forests Restoration Act (HFRA) in 2003 and President Bush signed the act into law (Public Law 108–148, 2003). Amendments in 2009 addressed funding changes and renewed focus on wildfire mitigation (H.R. 4233 - Healthy Forest Restoration Amendments Act of 2009). The HFRA facilitated expedited development and implementation of hazardous fuels reduction projects on federal lands, emphasizing collaborative efforts between federal agencies and communities.

Community wildfire protection plans (CWPPs) were integral to the HFRA, enabling communities to collaborate with federal agencies on prioritized hazardous fuels reduction projects. CWPPs allowed communities to define the WUI and identified priority treatment areas. Priority was given to municipal watersheds, critical wildlife habitat, and areas impacted by natural factors. Communities with established CWPPs received funding priority for hazardous fuels reduction projects aligned with the HFRA. These federal policies and acts have fostered collaborative approaches, prioritized risk reduction, and enhanced wildfire management strategies, ensuring the protection of communities and the environment.

In 2023, the Wildfire Leadership Council sought to update and enhance the strategic direction of the 2014 National Cohesive Wildland Fire Management Strategy framework. This was done through the 2023 National Cohesive Wildland Fire Management Strategy Addendum Update (Forests and Rangelands 2023). The updated strategy highlights critical emphasis areas that were not identified in the previous framework.

Included among these emphasis areas are:

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

Thorough analysis of these emphasis areas is provided for within the Addendum Update report, along with new management options to address them. Also identified within the update are numerous implementation challenges faced by the 2014 Cohesive Strategy. Examination of these challenges guided the enhancements that were made to the 2023 Cohesive Strategy. The national strategy takes a holistic approach to the future of wildfire management, as outlined through the updated vision statement:

To extinguish fire safely and effectively, when needed; use fire where allowable; manage our natural resources; and collectively, learn to live with wildland fire.

In order to achieve this vision, the updated national strategy goals are:

1. **Resilient Landscapes:** Landscapes, regardless of jurisdictional boundaries are resilient to fire, insect, disease, invasive species, and climate change disturbances, in accordance with management objectives.
2. **Fire-Adapted Communities:** Human populations and infrastructure are as prepared as possible to receive, respond to, and recover from wildland fire.
3. **Safe, Effective, Risk-based Wildfire Response:** All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

TRIBAL DIRECTION

Bureau of Indian Affairs

The Bureau of Indian Affairs (BIA) is the federal agency responsible for managing, protecting, and developing the trust lands and natural resources of American Indian and Alaska Native Tribes and individuals. The BIA's Office of Trust Services oversees all major activities associated with these trust responsibilities, such as land acquisitions, leasing, probate, environmental services, forestry, irrigation, and geospatial services (BIA 2024b). The BIA Division of Natural Resources is dedicated to improving the quality of life and economic prospects for American Indians, Indian Tribes, and Alaska Natives while safeguarding and enhancing their trust assets. They aim to achieve this by providing high-quality services and nurturing government-to-government relationships, in line with the principles of Indian self-determination (BIA 2024b). The BIA's overall land management strategies are to support Tribes' self-governance and self-determination, as well as to protect their cultural, spiritual, and traditional resources.

Jamestown S’Klallam Tribe

The Jamestown S’Klallam Tribe, headquartered in Blyn, exercises sovereignty through a comprehensive natural resource management framework. Their Natural Resources Department oversees forestry, fisheries, wildlife, and environmental stewardship while safeguarding treaty-reserved rights and cultural heritage. The Tribe maintains programs dedicated to habitat restoration, shellfish aquaculture, and climate resilience planning. Additionally, the Jamestown S’Klallam Tribe collaborates with federal and state agencies, Clallam County, local governments, and nonprofits to advance watershed health and sustainable land management practices (Jamestown S’Klallam Tribe 2025a).

Lower Elwha Klallam Tribe

The Lower Elwha Klallam Tribe, located near Port Angeles, manages resources and lands through an approach centered on their deep cultural connection to the Elwha River and surrounding ecosystems. Following the historic Elwha River dam removals, the Tribe has been at the forefront of river restoration, salmon recovery, and forestland stewardship. Their Natural Resources Department administers fisheries, wildlife, forestry, and water quality programs, while the Cultural Resources Department protects sacred and archaeological sites. The Tribe actively engages in co-management with state and federal agencies, ensuring treaty rights are upheld and that natural resource practices reflect traditional knowledge and community priorities (Lower Elwha Klallam Tribe 2022b).

Makah Tribe

The Makah Tribe, based in Neah Bay, holds extensive land and marine management responsibilities grounded in treaty rights and cultural traditions. The Tribe’s Natural Resources Division manages forestry, fisheries, wildlife, and environmental protection programs, while also operating the Makah Forestry Enterprise to support sustainable timber production. Marine stewardship is especially significant, given the Tribe’s reliance on ocean resources. The Makah Tribe also emphasizes cultural preservation, language revitalization, and protection of sacred sites, aligning resource management with community well-being. Partnerships with state, federal, and local governments, as well as other Tribes, strengthen their governance over trust and ancestral lands (Makah Tribe 2025).

PUBLIC LAND MANAGEMENT

LAND MANAGEMENT STRATEGIES

Clallam Conservation District

The Clallam Conservation District (CCD), formed in 1959, provides voluntary, non-regulatory assistance to landowners and land managers in Clallam County to conserve natural resources. Funded primarily through state and federal grants, the CCD offers technical support and cost-share opportunities for practices that improve soil health, water quality, forest stewardship, and fish and wildlife habitat. The CCD helps landowners implement wildfire risk-reduction measures through the Firewise program in coordination with the WA DNR and local fire districts. It also works with the Natural Resources Conservation Service (NRCS) to connect landowners to programs such as the Environmental Quality Incentives Program (EQIP), which supports forest health, irrigation efficiency, and erosion control projects. The District promotes riparian restoration along critical salmon streams through initiatives like

the Conservation Reserve Enhancement Program. In addition, CCD provides resources on small farm planning, rainwater harvesting, native plant landscaping, pollinator habitat, and climate-resilient practices for small forest landowners (CCD 2015).

State Land

The Commissioner of Public Lands, an elected official, guides the WA DNR's management of approximately 5.6 million acres of state lands. Much of the guidance comes from overarching policies, such as the federal Enabling Act, the State Constitution, and state statute, as well as various boards, councils, and commissions (WA DNR 2025g). Land managed by the WA DNR falls into three main categories:

1. State Trust lands – Forests producing revenue through timber or recreation.
2. State-owned aquatic lands – navigable lakes, rivers, streams, and marine waters such as Puget Sound and many beaches and tidelands.
3. State natural areas – Natural Area Preserves and Natural Resources Conservation Areas.

State Trust Lands

State Trust lands are managed for long-term timber production, specific habitat objectives, protection of clean water, and recreation (WA DNR 2025g). State Trust lands come with a legal responsibility to generate revenue for designated beneficiaries (i.e., schools, counties, and local services). To generate revenue, State Trust lands are used for producing timber, leased for agricultural purposes, or leased for communications sites, mining, energy production, commercial properties, and rights-of-way; WA DNR is obligated to follow common law duties of a trustee in these situations (WA DNR 2025h). Much of these lands are also certified under the Sustainable Forestry Initiative and Forest Stewardship Council, which set environmentally responsible, socially beneficial, and economically viable management standards.

Community forests also fall into the category of State Trust lands. When lands are converted from forestry, the state loses the vital benefits that forests provide in the ecosystem (i.e., clean water, recreation, clean air, and carbon storage). Community forests offer a way for local community partners to protect working forestlands. They differ from other State Trust lands in that the primary focus is protection of ecosystem services rather than revenue generation (WA DNR 2025h).

State-owned Aquatic Lands

Washington's aquatic lands form a complex ecosystem used for trade, recreation, and wildlife habitat. Aquatic lands include navigable lakes, river, streams, and marine waters (WA DNR 2025i). WA DNR manages state-owned aquatic lands using five central goals:

- Encourage direct public use and access.
- Foster water-dependent uses.
- Ensure environmental protection.
- Create opportunities for utilization of renewable resources.
- Generate income from use of aquatic lands, when consistent with other goals.

Revenue generated from state-owned aquatic lands is reinvested in management and restoration of Washington's aquatic ecosystems. Examples of ways the WA DNR generates revenue include selling rights to harvest renewable resources (i.e., wild geoducks and other shellfish) and leasing and licensing the land (WA DNR 2025i). WA DNR also works closely with public ports and harbor lines to facilitate commercial transportation of state exports.

State Natural Areas

Natural area preserves and natural resource conservation areas are the two types of state managed natural areas. These natural areas often include recreation facilities such as trails or day use areas and offer environmental education opportunities for visitors (WA DNR 2025j).

Natural area preserves serve to protect rare plant and animal habitats identified by the Natural Heritage Program (WA DNR 2025j). The network of preserves leaves a legacy for future generations and ensures the state's traditional ecosystems are protected. Examples of western Washington preserves include large coastal ecosystems, salt marshes, late-successional forests, grasslands, bogs, and mounded prairies (WA DNR 2025j).

Natural resource conservation areas (NRCAs) protect outstanding examples of native ecosystems, critical habitat, and scenic landscapes (WA DNR 2025j). Many NRCAs allow for low-impact public use so long as protected features are not impacted. Examples of NRCAs include coastal and high-elevation forests, wetlands, scenic vistas, nesting birds of prey, and high-quality native plant communities (WA DNR 2025j). NRCAs can also be used to protect geologic, historical, archaeological, and cultural sites.

PAST PLANNING EFFORTS

LOCAL

There are several existing documents and/or programs relating to fire management in the county. This plan is meant to supplement and not replace any other existing plans.

Clallam County 2009 Community Wildfire Protection Plan: The 2009 Clallam County CWPP was developed by Clallam County. The plan identified wildland-urban interface areas, assessed wildfire hazard and risk using GIS-based analysis and community input, and provided recommendations for hazardous fuel reduction, defensible space, structural ignitability reduction, and public outreach. The 2009 CWPP also emphasized interagency coordination and served as a foundation for prioritizing mitigation projects. The 2025 Clallam County CWPP builds on this framework by incorporating updated hazard data and community feedback, while aligning with the goals of the National Cohesive Wildland Fire Management Strategy to promote resilient landscapes, fire-adapted communities, and safe, effective wildfire response (Clallam County 2009).

Clallam County 2019 Multi-Jurisdictional Hazard Mitigation Plan (MJHMP): The 2019 Clallam County MJHMP was developed by the Clallam County Division of Emergency Management (DEM) in collaboration with local jurisdictions, Tribes, and utility partners. The plan assessed the county's exposure to a range of natural and human-caused hazards, including wildfire, and outlined mitigation strategies to reduce long-term risks to life, property, and critical infrastructure. The 2019 update expanded upon the original 2010 plan by integrating more recent data, refining hazard profiles, and identifying priority mitigation actions for each participating jurisdiction (Clallam County DEM 2019). A 2025 update to the

2019 plan is currently underway, which will include a climate element to help the county prepare for climate change, in addition to inclusions of updated data (Clallam County 2025d).

Multi-Jurisdictional Hazard Mitigation Plan Clallam County 2024 Update: The 2024 MJHMP is a comprehensive update jointly led by Clallam County DEM and Clallam County DCD. It incorporates the latest scientific information, climate change considerations, and a new analysis of socially vulnerable populations. The plan identifies 21 hazards, including wildfire smoke and extreme heat, and integrates quantitative climate impact assessments into each hazard profile. The 2025 Clallam County CWPP aligns with the 2024 MJHMP by addressing wildfire risk within the broader hazard mitigation and climate resilience framework (Clallam County DEM 2024).

City of Sequim 2015 – 2023 Comprehensive Plan: The Sequim Comprehensive Plan emphasizes implementation through consistent zoning, subdivision, and environmental codes, as well as capital investments that align with long-term community goals. The Clallam County CWPP complements the comprehensive plan by identifying wildfire-related risks and strategies that can be incorporated into broader development and infrastructure planning to enhance community resilience.

Clallam County 2022 Comprehensive Emergency Management Plan (CEMP): The 2022 Clallam County CEMP was developed by Clallam County DEM to establish a countywide framework for preparing for, responding to, and recovering from major disasters. The plan outlines roles and responsibilities across government agencies, emergency services, and community partners, and incorporates core national frameworks. Wildfire is identified as one of the key hazards, and the CEMP includes provisions for evacuation, mutual aid coordination, public information, and infrastructure protection within wildfire-prone operational areas. The 2025 Clallam County CWPP aligns with the CEMP by expanding on wildfire-specific preparedness and mitigation strategies and reinforcing the importance of interagency coordination, public outreach, and resilience-building across the county's wildland-urban interface communities (Clallam County DEM 2022).

Clallam County 2022 Local Emergency Communication Committee (LECC) Public Alert and Warning System Plan: The Clallam County LECC Public Alert and Warning System Plan outlines protocols for issuing timely and coordinated emergency alerts through systems like the Emergency Alert System, Wireless Emergency Alerts, and CodeRED. The plan provides a framework for multiagency coordination, identifies authorized alerting entities, and emphasizes public safety through efficient communication during emergencies such as wildfires, severe weather, and hazardous material releases. The Clallam County CWPP aligns with this plan by identifying wildfires as a key hazard requiring early detection, notification, and response.

2023 Clallam Climate Action Plan (CAP): The 2023 Clallam County CAP was developed by the Clallam County Climate Advisory Committee with support from the North Olympic Development Council to address greenhouse gas (GHG) emissions and climate resilience. The plan includes 2019 GHG inventories—both geographic and consumption-based—and outlines five-year strategies across focus areas such as energy, transportation, land use, waste, and the natural environment. It identifies transportation as the leading source of emissions and prioritizes implementable actions. The 2025 Clallam County CWPP aligns with the CAP by advancing wildfire-specific mitigation and resilience strategies that protect critical natural resources, reduce emissions from wildfire events, and support climate-adaptive land and vegetation management, particularly within the wildland-urban interface (Clallam County Climate Advisory Committee 2023).

2023 City of Port Angeles Comprehensive Plan: The 2023 City of Port Angeles Comprehensive Plan outlines the city's long-term strategy for sustainable growth and development. Key focus areas include housing accessibility, economic development, land use, utility infrastructure, parks and recreation,

environmental protection, and transportation improvements. The Clallam County CWPP aligns with the Port Angeles Comprehensive Plan by emphasizing wildfire mitigation strategies that protect residents, infrastructure, and natural resources.

ADJACENT COUNTIES

Whenever possible, CWPPs and associated project recommendations should be developed to align across county and jurisdictional boundaries to improve regional coordination and effectiveness. Hazard mitigation plans exist for all counties adjacent to Clallam, including Jefferson, Island, Kitsap, Mason, and Grays Harbor County. These plans have all been updated within the last 5 years. Each plan identifies the major natural hazards facing its respective county and outlines long-term mitigation strategies to reduce risks to life, property, and critical infrastructure (Clallam County DEM 2024; Grays Harbor County Department of Emergency Management 2024; Island County Department of Emergency Management 2020; Jefferson County 2024; Mason County Division of Emergency Management 2023).

Shared wildfire-related goals and strategies across these adjacent counties include:

- Protecting life, property, the environment, and the local economy from wildfire-related hazards.
- Enhancing community resilience and preparedness through proactive risk reduction.
- Promoting public education and outreach to increase awareness of wildfire risks and mitigation actions.
- Strengthening emergency response and evacuation planning capabilities.
- Coordinating mitigation actions across jurisdictional boundaries and land ownerships.
- Preserving and restoring natural systems that contribute to hazard mitigation.
- Pursuing collaborative and multi-objective approaches to address wildfire risk.

STATE

2020 Washington Forest Action Plan: In 2020 the state provided a comprehensive review of forest needs across all ownership types, which was formally adopted by the WA DNR and USFS in October 2020 (WA DNR 2022a). Through 2025, the WA DNR has provided/will provide annual reports detailing progress toward the 2020 Action Plan goals. The current plan was an update of the original 2010 plan and now includes strategic alignment with other state-level works including the Wildland Fire Strategic Protection Plan and the Climate Resilience Plan. The WA DNR has also developed an interactive map showing areas of priority for forest health and resilience work in western Washington (WA DNR 2022a).

20-Year Forest Health Strategic Plan: Eastern Washington: Recognizing that isolated treatments are not doing enough to meaningfully improve forest conditions, this 20-year plan contains the following stated goals: 1) treat 1.25 million acres of prioritized watersheds and large landscapes to by 2037, 2) reduce risk of uncharacteristic wildfire to protect communities and working forests, 3) enhance economic development through implementation of forest restoration and management strategies, 4) plan and implement coordinated landscape-scale forest treatments in a manner that integrates landowner objectives, and 5) develop a forest health monitoring program to assess progress and adjust strategies over time (WA DNR 2022b).

Washington State Wildland Fire Protection 10-Year Strategic Plan: 2.2 million homes are currently exposed to wildfire risk in Washington state. This plan is intended to meaningfully address this risk by creating healthy, resilient landscapes, fire-adapted communities, and world-class wildland fire response capabilities (WA DNR 2018). Desired outcomes include improved safety for firefighters and the public, reduced fire suppression costs, elimination of unwanted, human-caused fire, and communities and ecosystems able to withstand and recover from wildland fire. Suppression, preparedness, and prevention are the top priorities of the plan, which was developed with significant public input (WA DNR 2018).

WA DNR's Plan for Climate Resilience: This plan outlines specific actions the WA DNR plans to take to meaningfully address issues of climate change (WA DNR 2020c). This includes restoring the health and resilience of eastern WA forests, specifically, as well as reforesting areas with tree species better suited to a changing climate. Other actions include better utilizing state-owned lands for renewable energy infrastructure, planting more trees within communities to capture stormwater and lower average temperatures, and strengthening roads and trails to better withstand increased flooding and landslides (WA DNR 2020b).

Federal

Bureau of Land Management

The Bureau of Land Management (BLM) does not have a general fire management plan; however, the BLM has a fire management program in Washington (BLM 2023a). The BLM also collaborates with several federal, state, and local organizations to develop and implement wildland fire programs. For instance, the BLM's fuels management program directs a wide range of active management vegetation treatments using mechanical, biological, and chemical tools and prescribed fire. The program consists of creating fuel breaks, reducing fuel loads, reducing fire risk near communities, targeted grazing, and herbicide to break fire-grass cycles. Fuels treatments are planned and implemented jointly with other BLM programs, and with federal, state, local, and nongovernmental collaborators (BLM 2025a).

National Park Service

Clallam County includes a significant portion of Olympic National Park and areas of the Olympic National Forest. Fire management in the national forest aligns with the National Cohesive Strategy (see Section 4 for details). For the National Park, a fire management plan was completed in 2005 and serves as the most current resource (National Park Service and U.S. Department of the Interior 2005). The fire management plan describes desired conditions for the park, divides the park into fire management units, and delineates several components of the Parks' Wildland Fire Management Program. Main program components include Wildland Fire Suppression, Wildland Fire Use (for resource benefit), Prescribed Fire, and Non-fire Fuels Treatment. Additionally, an [environmental assessment](#) (EA) for the entire park was completed by SWCA in 2019, specifically to address wildfire and fuels management strategies and actions identified in the fire management plan. The preferred alternative in the EA recommended revision/update of the 2005 fire management plan and the creation of separate Wilderness and Non-wilderness units for fire management purposes (SWCA 2019).

SWCA

APPENDIX B:
Fire Behavior Modeling/GIS Background and
Methodology

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SWC A

FIRE BEHAVIOR MODELING AND METHODOLOGY



Report: Landscape Burn Probability Summary Report

Model Output Name: ClallamBP

Landscape Name: Clallam_LCP-150m

Landfire Version: LF 2023

Landscape Acres (unbuffered): 5,996,599

Area of Interest Name: clallamaoi

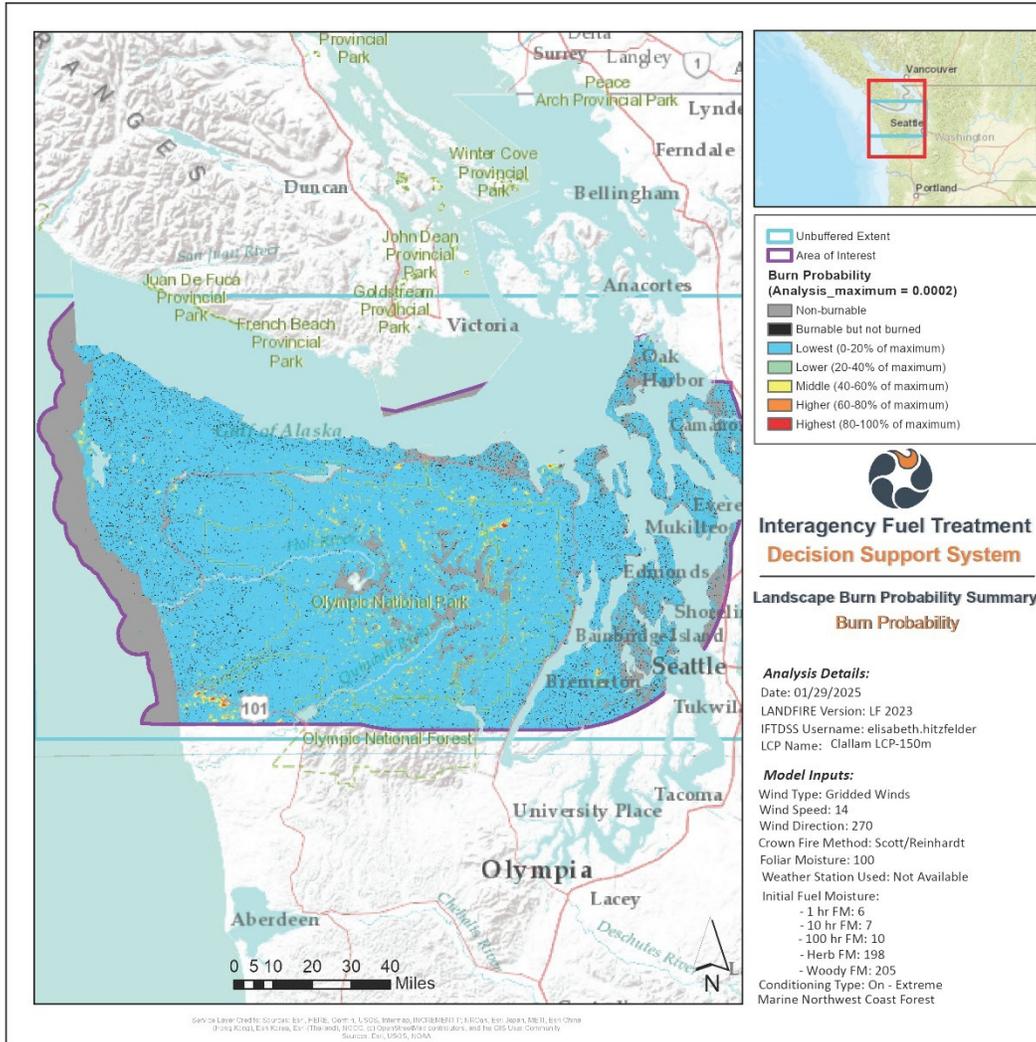
Area of Interest Acres: 4,266,790

Prepared for: Elisabeth Hitzfelder

May 16, 2025

Burn Probability

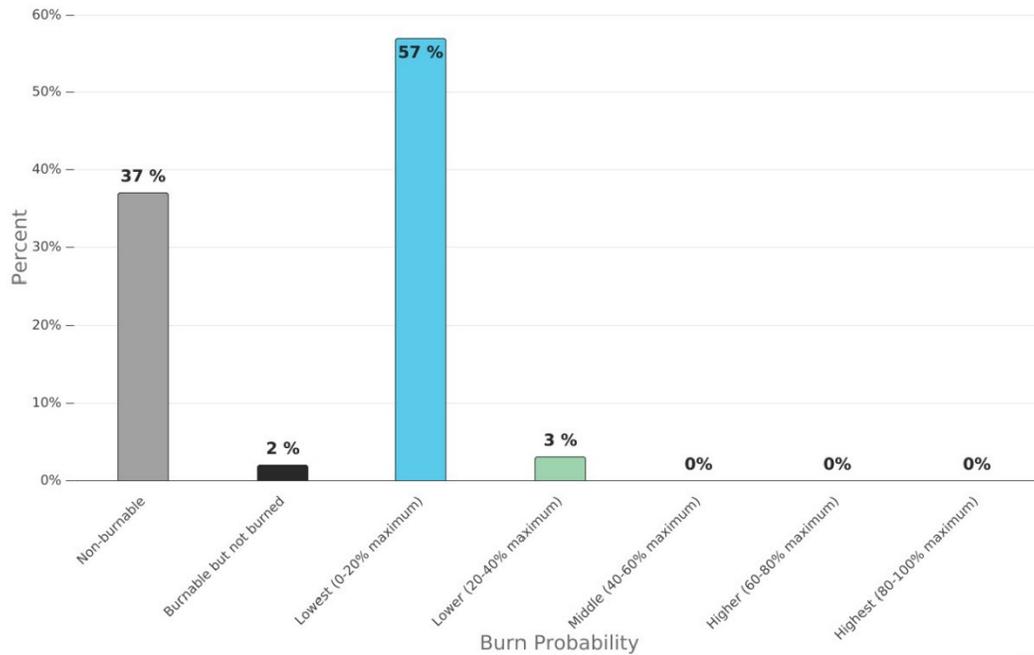
Burn Probability Data Summary for Area of Interest "clallamaoi" within "Clallam_LCP-150m" Landscape



Burn Probability

Burn Probability Data Summary for Area of Interest "clallamaoi" within "Clallam_LCP-150m" Landscape

Model Output Name: ClallamBP
 Landscape Name: Clallam_LCP-150m
 Landfire Version: LF 2023
 Landscape Acres (unbuffered): 5,996,599
 Area of Interest Name: clallamaoi
 Area of Interest Acres: 4,266,790
 Analysis Maximum Burn Probability: 0.000



Burn Probability

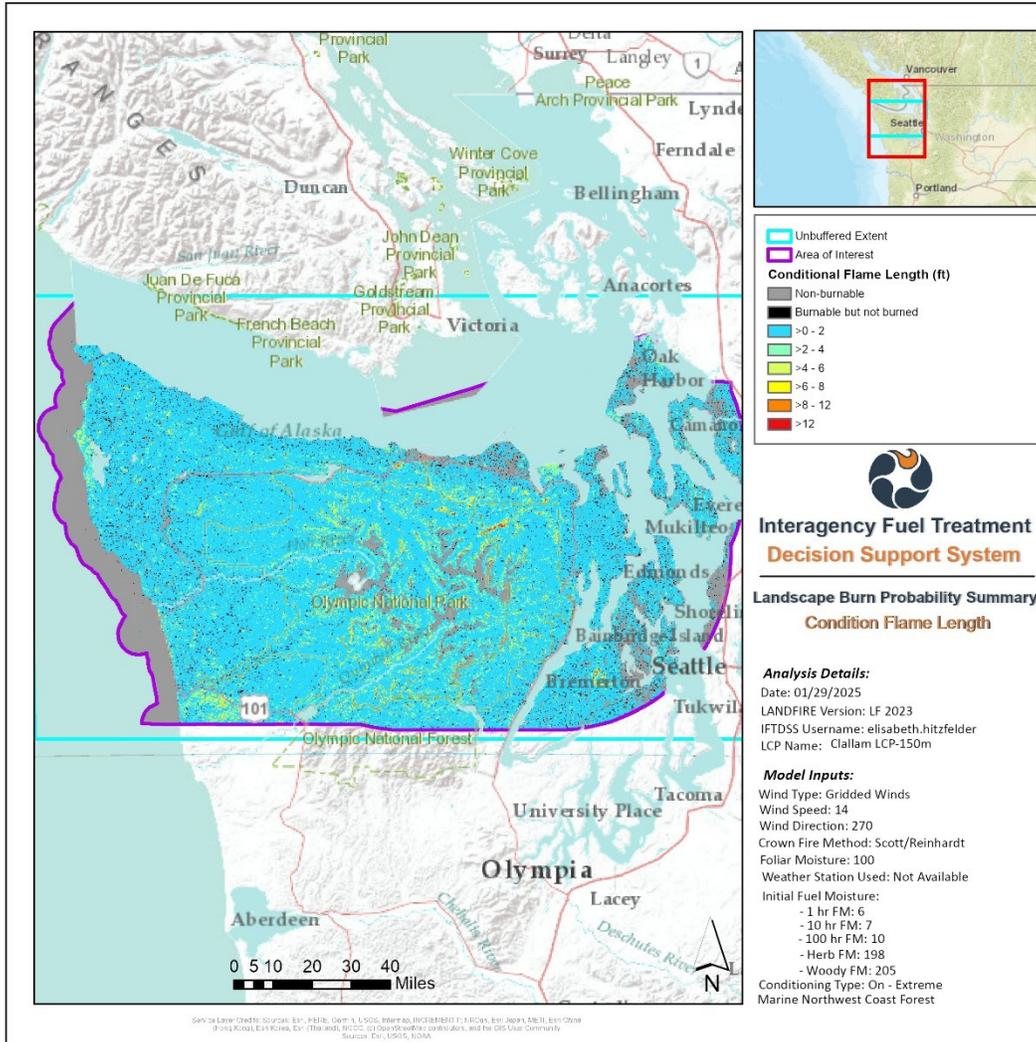
Burn Probability Data Summary for Area of Interest "clallamaoi" within "Clallam_LCP-150m" Landscape

Model Output Name: ClallamBP
 Landscape Name: Clallam_LCP-150m
 Landfire Version: LF 2023
 Landscape Acres (unbuffered): 5,996,599
 Area of Interest Name: clallamaoi
 Area of Interest Acres: 4,266,790
 Analysis Maximum Burn Probability: 0.000

Burn Probability	Pixel Count In AOI	Acres In AOI	Percent In AOI
Non-burnable	282,034	1,568,073	37%
Burnable but not burned	18,641	103,642	2%
Lowest (0-20% maximum)	440,975	2,451,764	57%
Lower (20-40% maximum)	22,644	125,898	3%
Middle (40-60% maximum)	2,599	14,450	0%
Higher (60-80% maximum)	434	2,413	0%
Highest (80-100% maximum)	99	550	0%

Conditional Flame Length

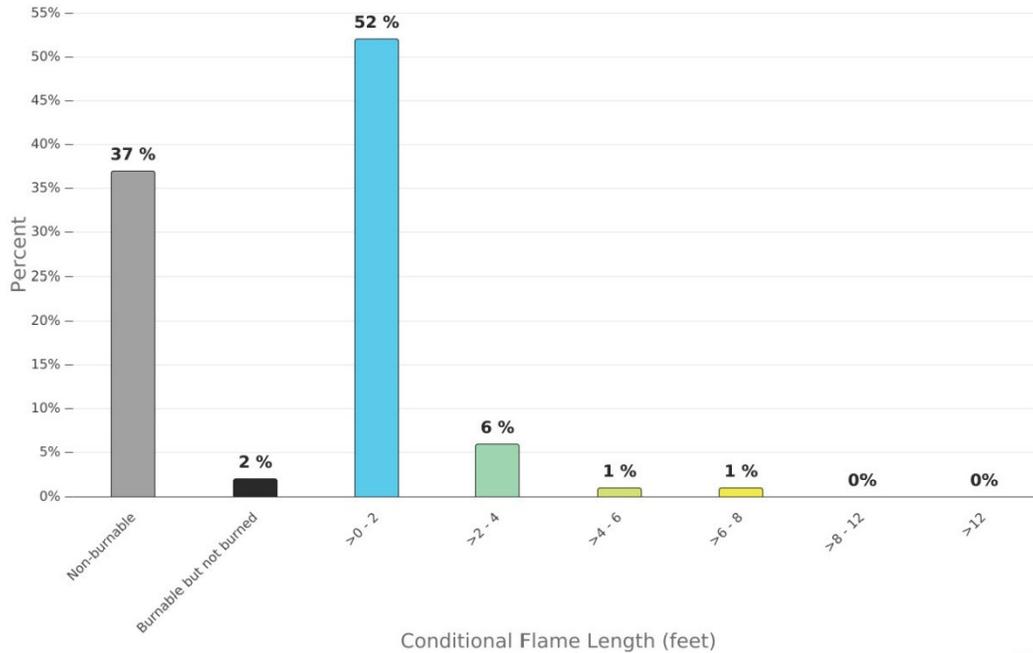
Conditional Flame Length (feet) Data Summary for Area of Interest "clallamaoi" within "Clallam_LCP-150m" Landscape



Conditional Flame Length

Conditional Flame Length (feet) Data Summary for Area of Interest "clallamaoi" within "Clallam_LCP-150m" Landscape

Model Output Name: ClallamBP
 Landscape Name: Clallam_LCP-150m
 Landfire Version: LF 2023
 Landscape Acres (unbuffered): 5,996,599
 Area of Interest Name: clallamaoi
 Area of Interest Acres: 4,266,790
 Analysis Maximum Burn Probability: 0.000



Conditional Flame Length

Conditional Flame Length (feet) Data Summary for Area of Interest "clallamaoi" within "Clallam_LCP-150m" Landscape

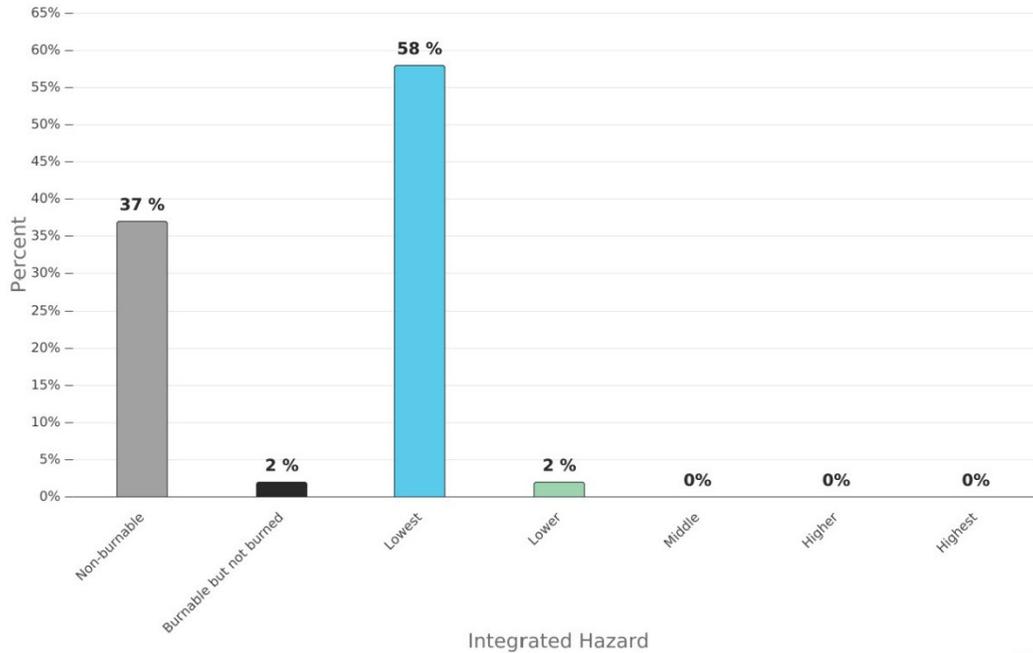
Model Output Name: ClallamBP
 Landscape Name: Clallam_LCP-150m
 Landfire Version: LF 2023
 Landscape Acres (unbuffered): 5,996,599
 Area of Interest Name: clallamaoi
 Area of Interest Acres: 4,266,790
 Analysis Maximum Burn Probability: 0.000

Conditional Flame Length (feet)	Pixel Count In AOI	Acres In AOI	Percent In AOI
Non-burnable	282,034	1,568,073	37%
Burnable but not burned	18,641	103,642	2%
>0 - 2	401,204	2,230,643	52%
>2 - 4	47,675	265,067	6%
>4 - 6	10,997	61,142	1%
>6 - 8	4,166	23,162	1%
>8 - 12	1,998	11,109	0%
>12	711	3,953	0%

Integrated Hazard

Integrated Hazard Data Summary for Area of Interest "clallamaoi" within "Clallam_LCP-150m" Landscape

Model Output Name: ClallamBP
 Landscape Name: Clallam_LCP-150m
 Landfire Version: LF 2023
 Landscape Acres (unbuffered): 5,996,599
 Area of Interest Name: clallamaoi
 Area of Interest Acres: 4,266,790
 Analysis Maximum Burn Probability: 0.000



Integrated Hazard

Integrated Hazard Data Summary for Area of Interest "clallamaoi" within "Clallam_LCP-150m" Landscape

Model Output Name: ClallamBP
 Landscape Name: Clallam_LCP-150m
 Landfire Version: LF 2023
 Landscape Acres (unbuffered): 5,996,599
 Area of Interest Name: clallamaoi
 Area of Interest Acres: 4,266,790
 Analysis Maximum Burn Probability: 0.000

Integrated Hazard	Pixel Count In AOI	Acres In AOI	Percent In AOI
Non-burnable	282,034	1,568,073	37%
Burnable but not burned	18,641	103,642	2%
Lowest	447,342	2,487,164	58%
Lower	14,667	81,547	2%
Middle	3,750	20,850	0%
Higher	870	4,837	0%
Highest	122	678	0%

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SWCA

APPENDIX C: Supporting Maps

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SEARCH

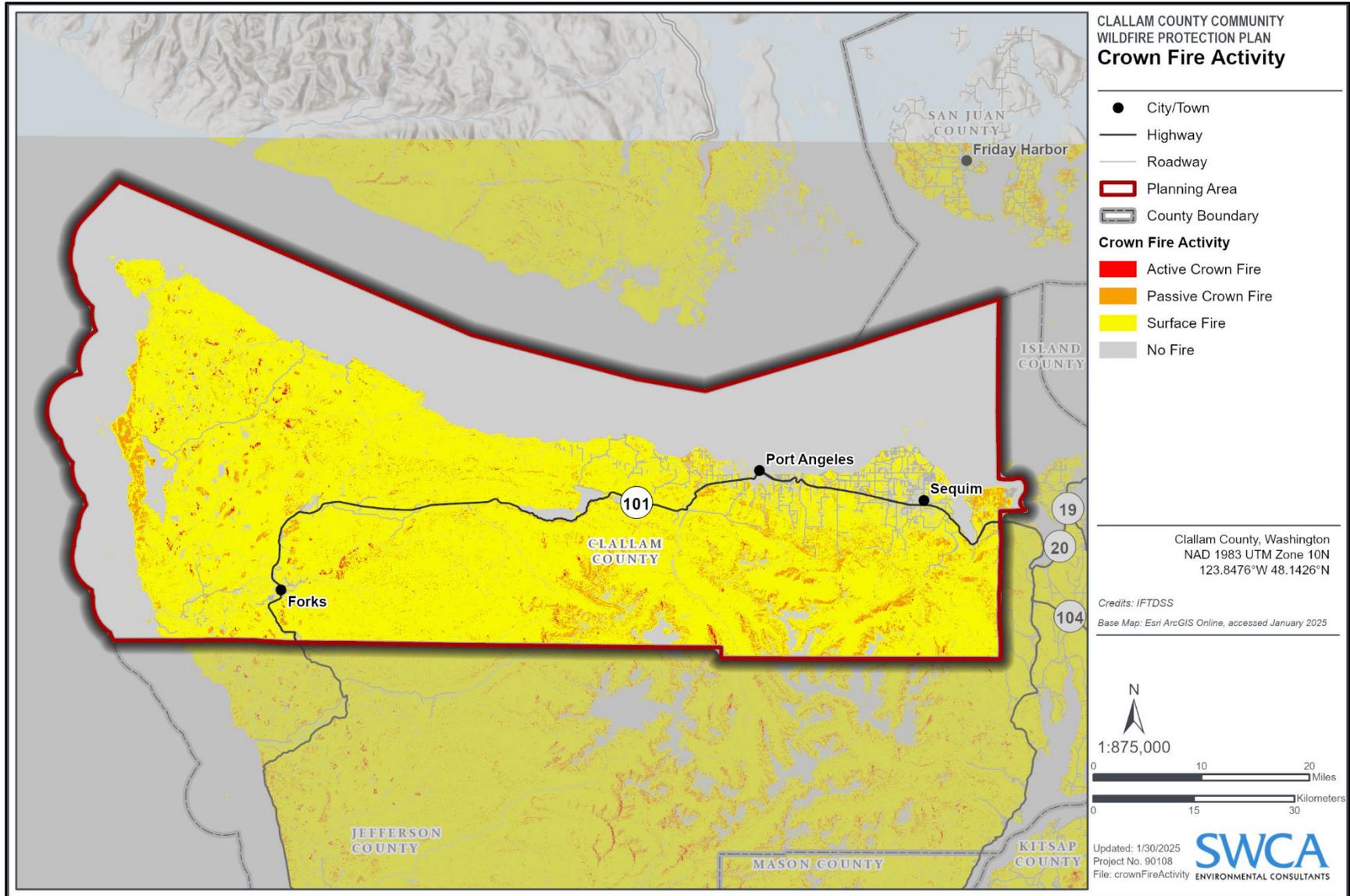


Figure C.1. Modeled crown fire activity for the planning area.

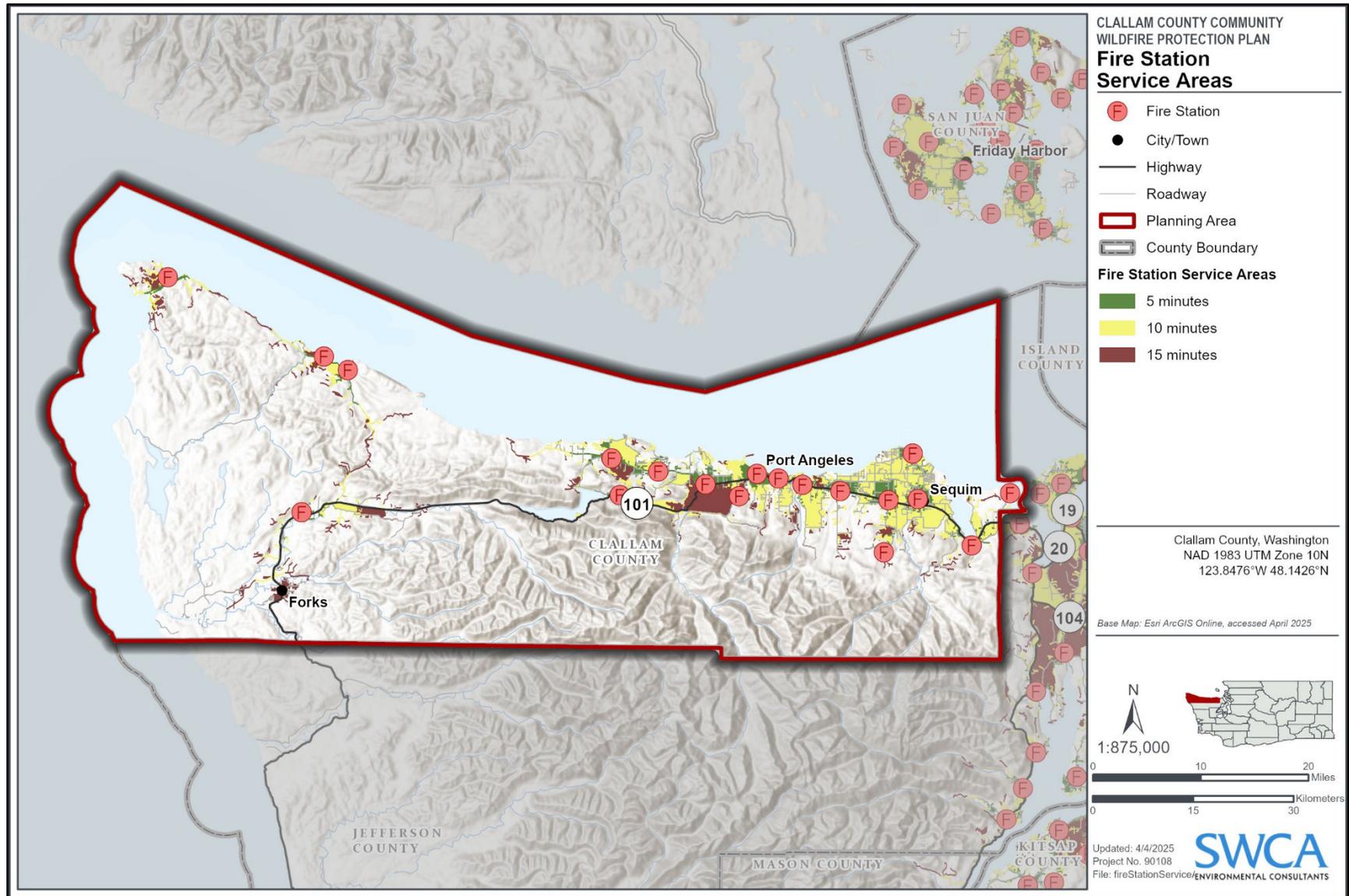


Figure C.2. Approximate fire station response times for the planning area derived from Esri’s Generate Service Areas Route Analysis tool. The tool utilizes road network data to estimate the mapping of response times.

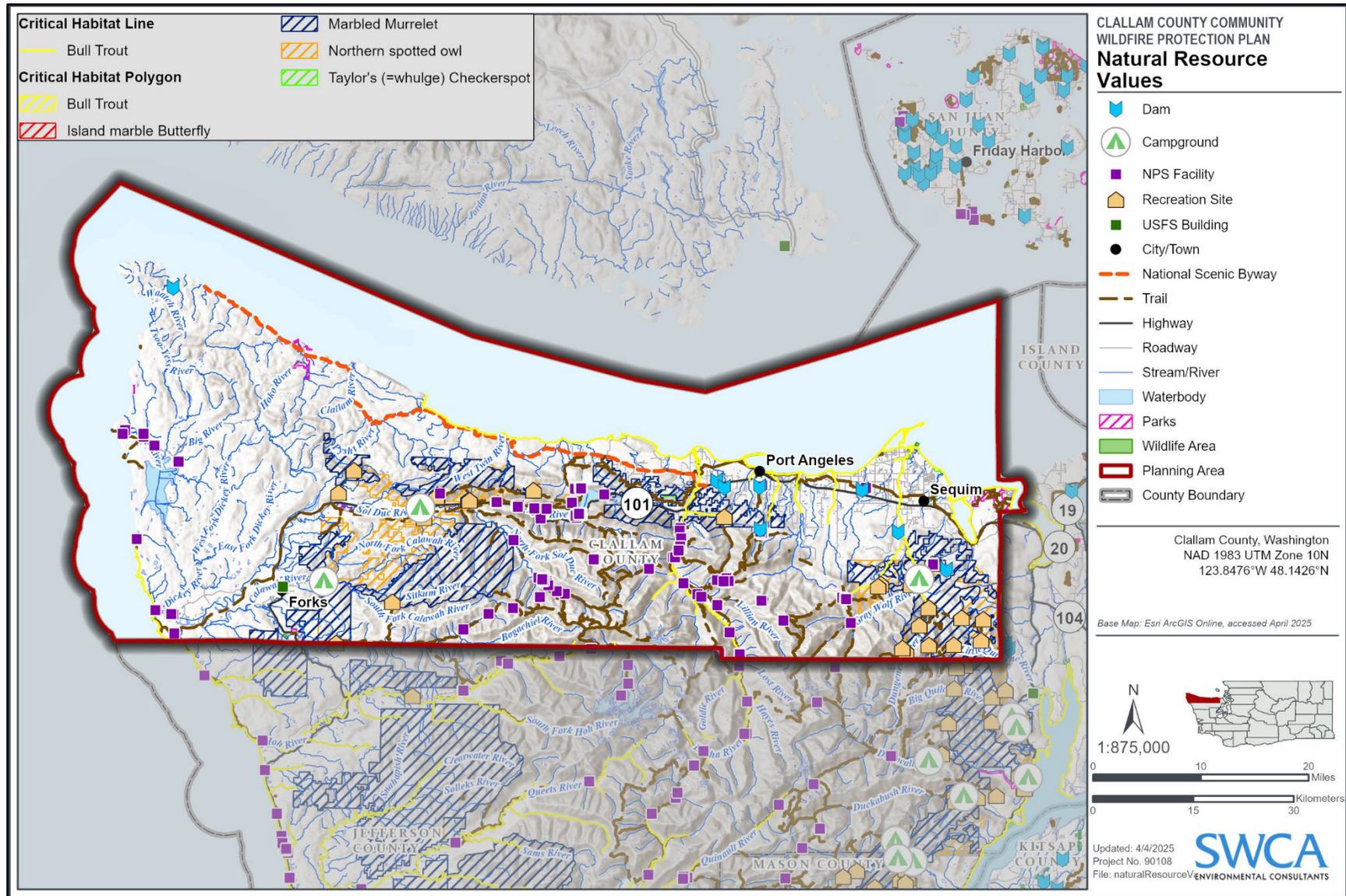


Figure C.3. Natural values identified across the planning area.

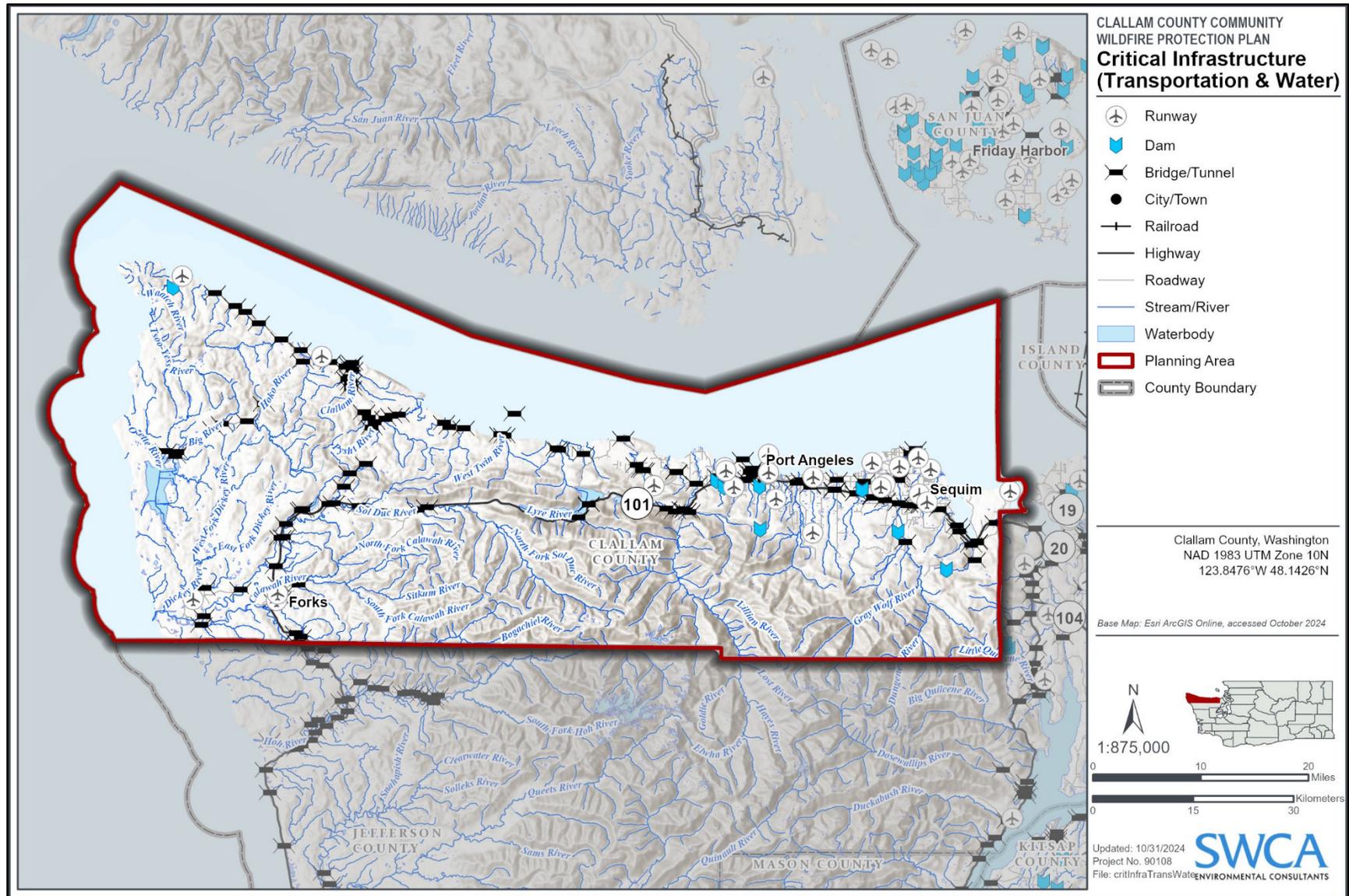


Figure C.4. Critical infrastructure (transportation and water) for the planning area.

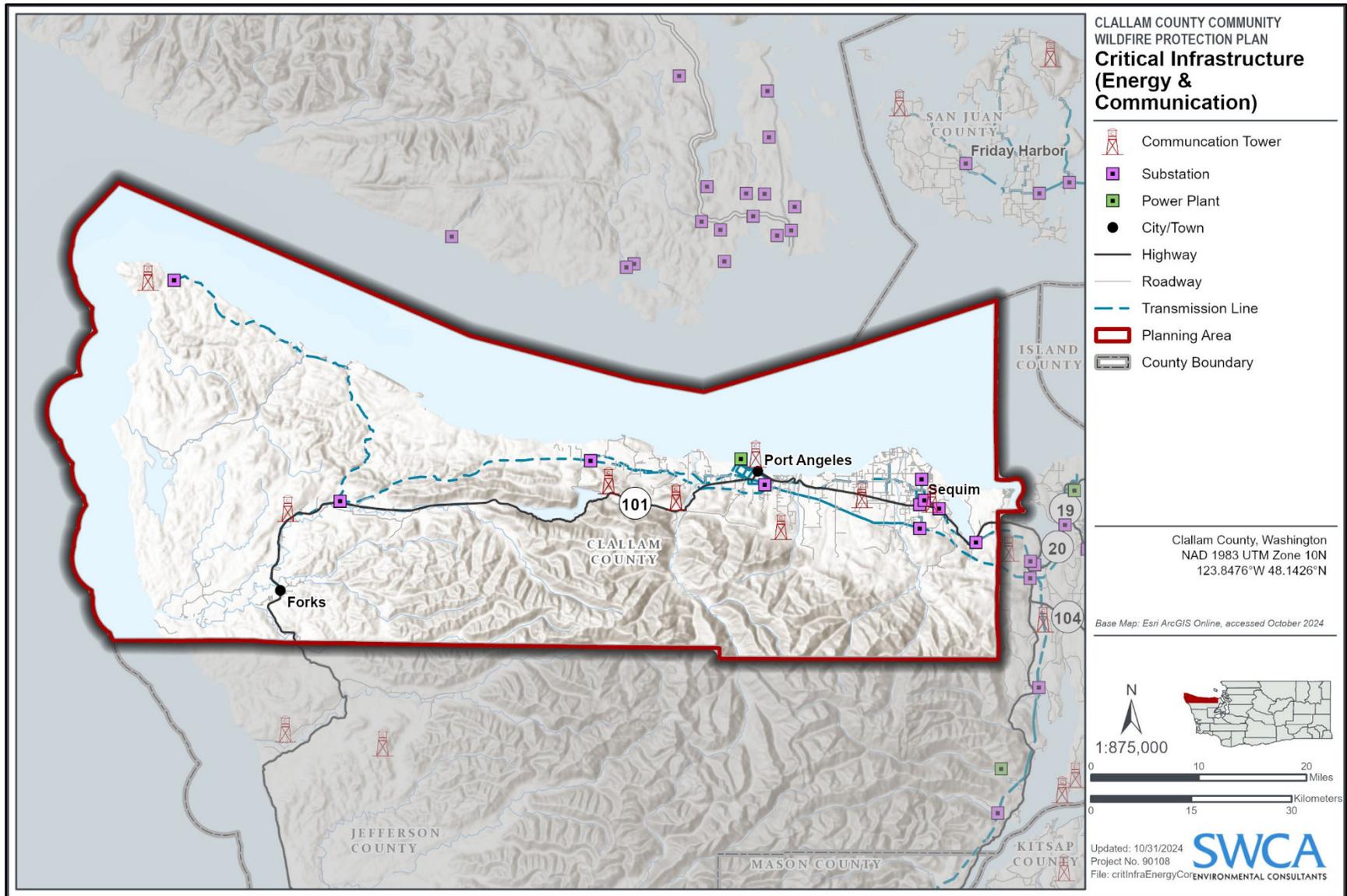


Figure C.5. Critical infrastructure (energy and communication) for the planning area.

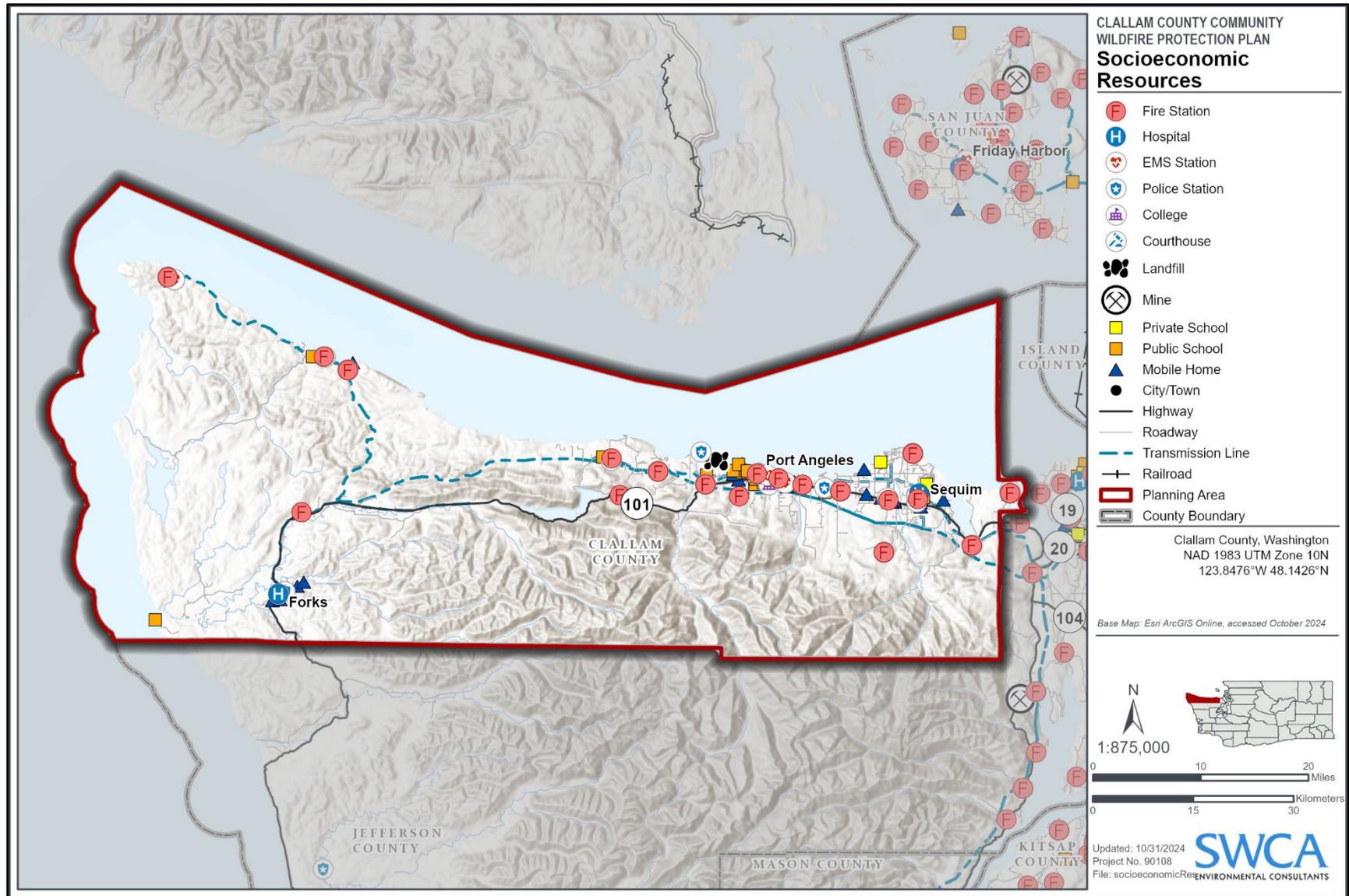


Figure C.6. Socioeconomic values identified across the planning area.

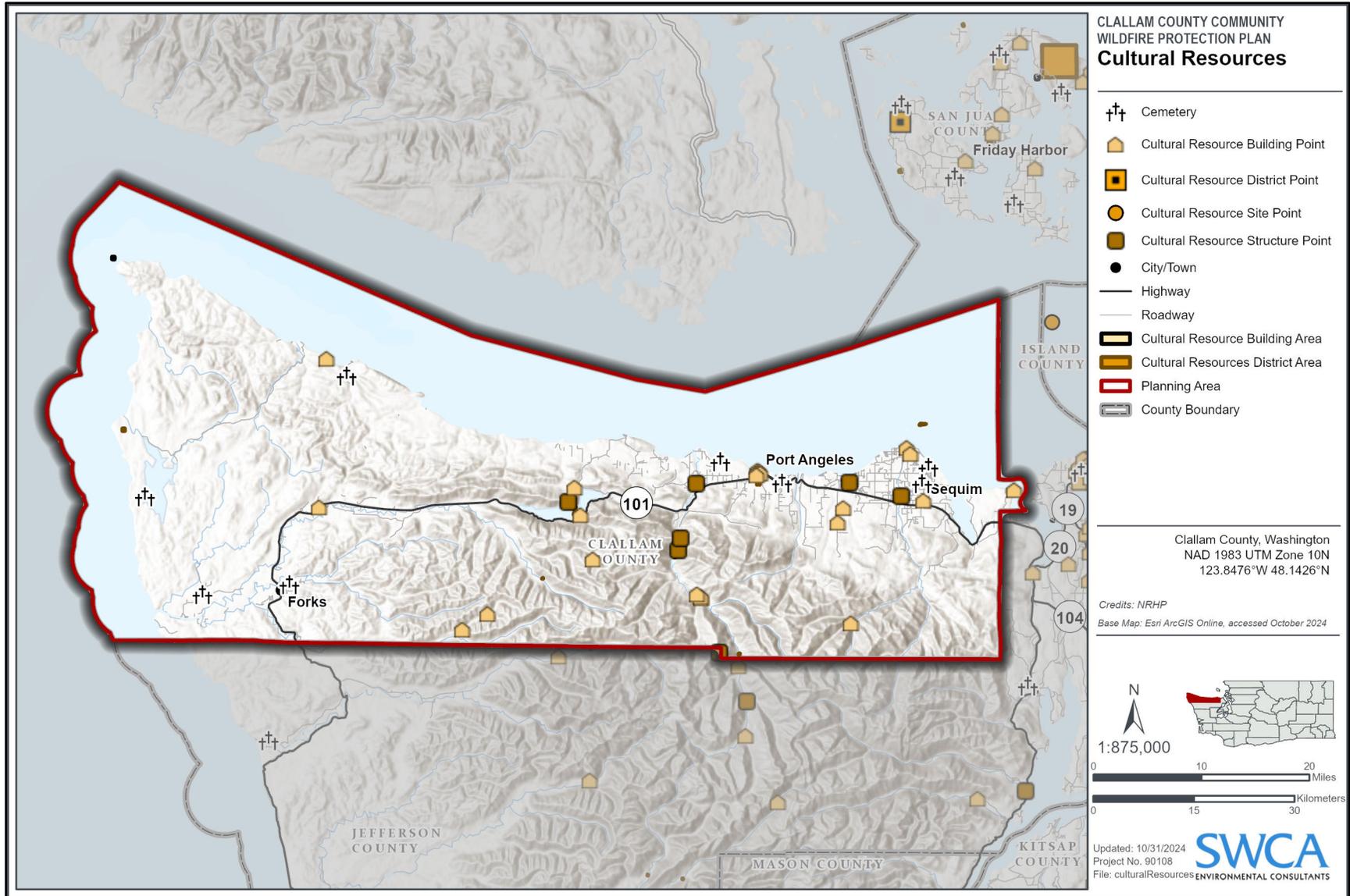


Figure C.7. Cultural values identified across the planning area.

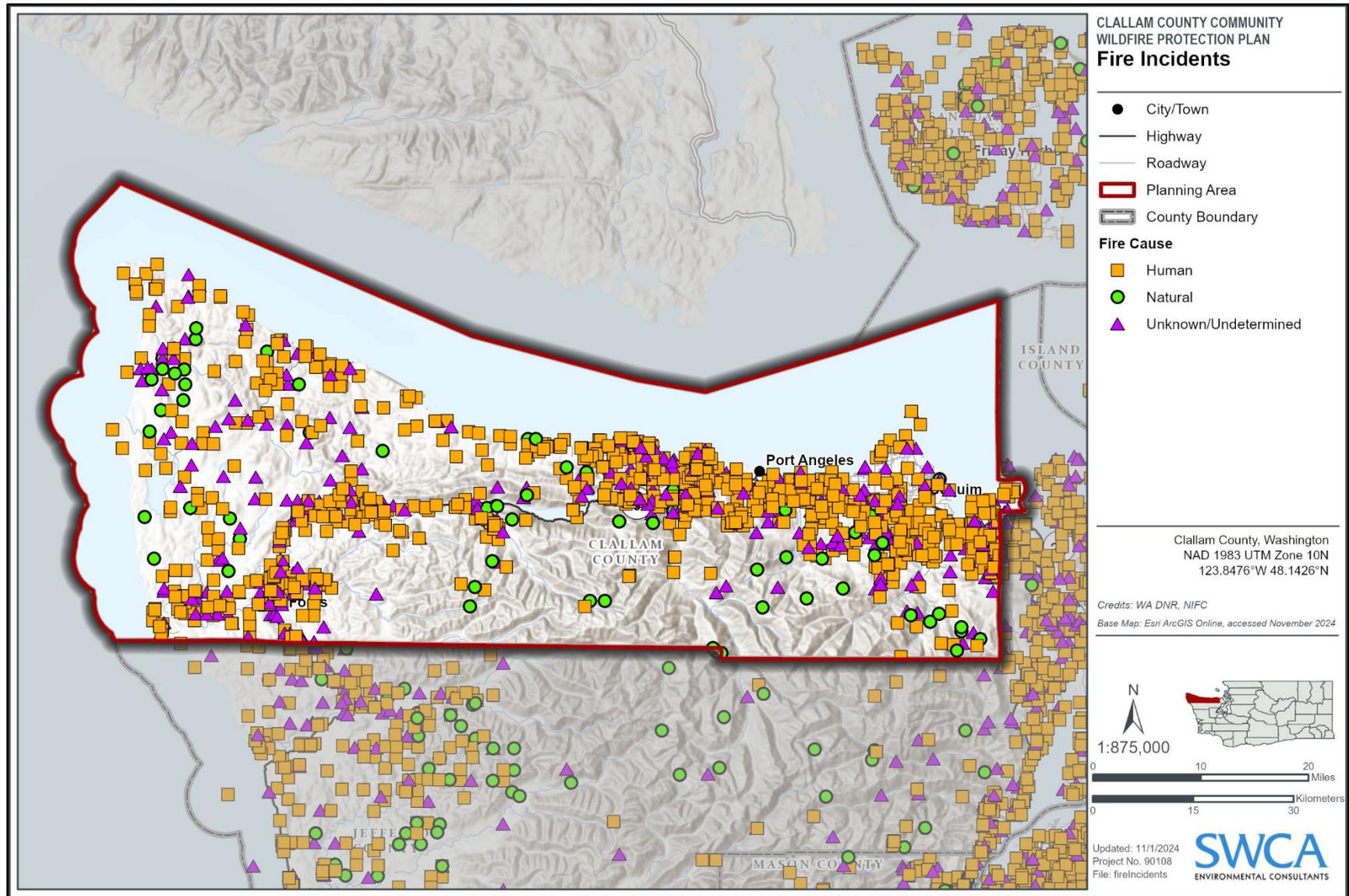


Figure C.8. Historical occurrence of wildfire by ignition cause type in the planning area.

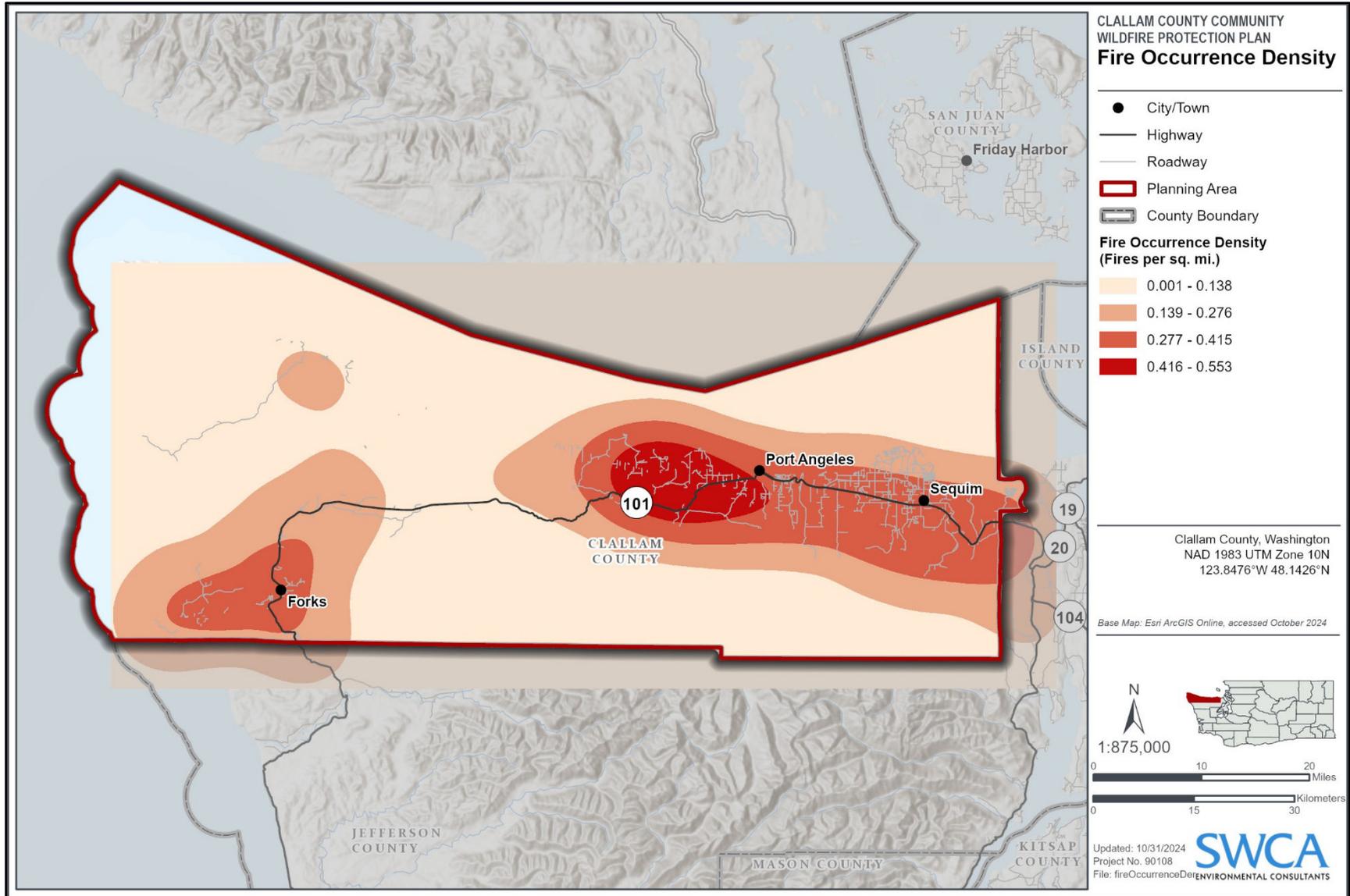


Figure C.9. Fire occurrence density for the planning area.

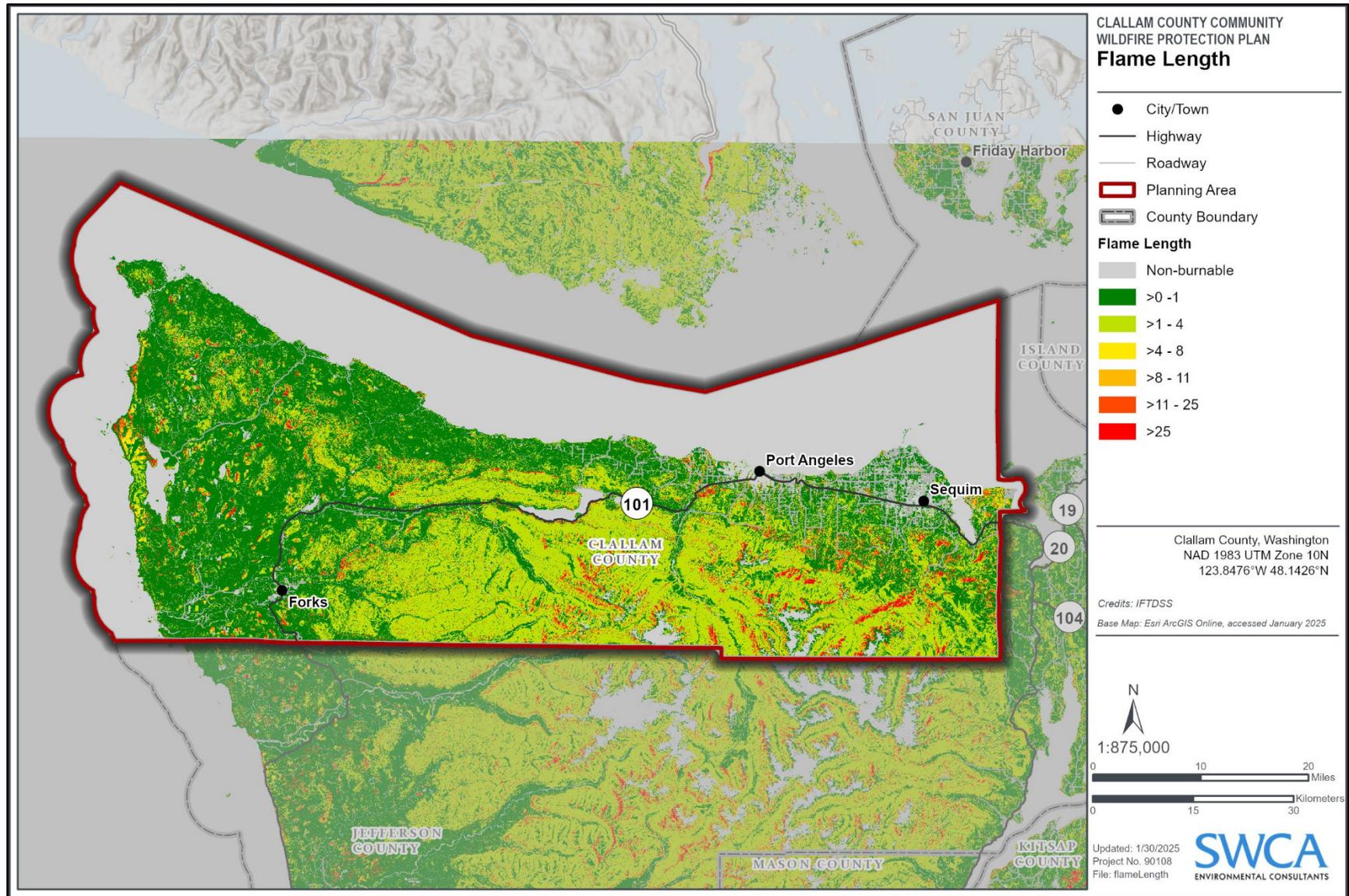


Figure C.10. Modeled flame length of wildfire for the planning area.

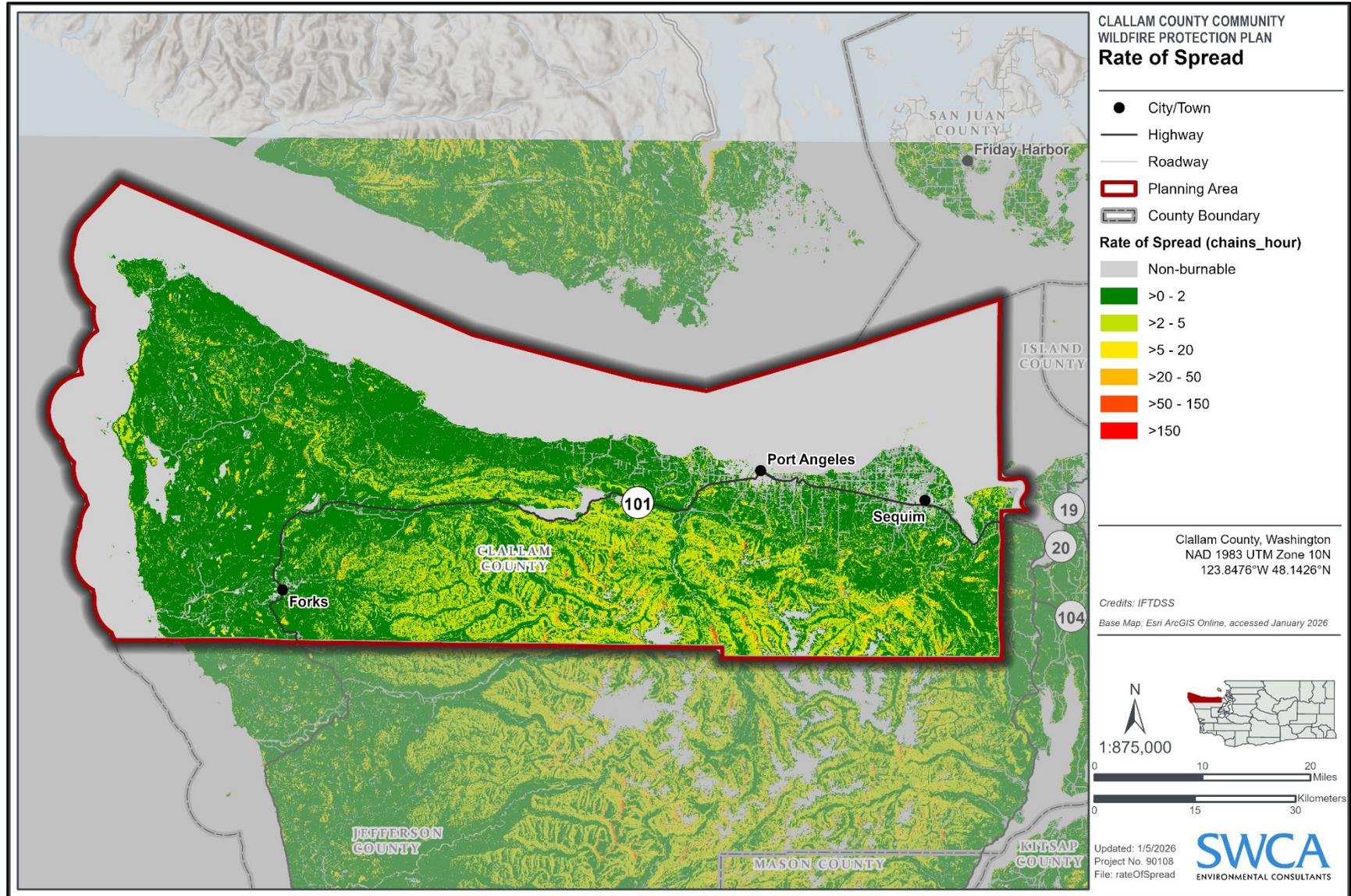


Figure C.11. Modeled rate of spread of wildfire for the planning area.

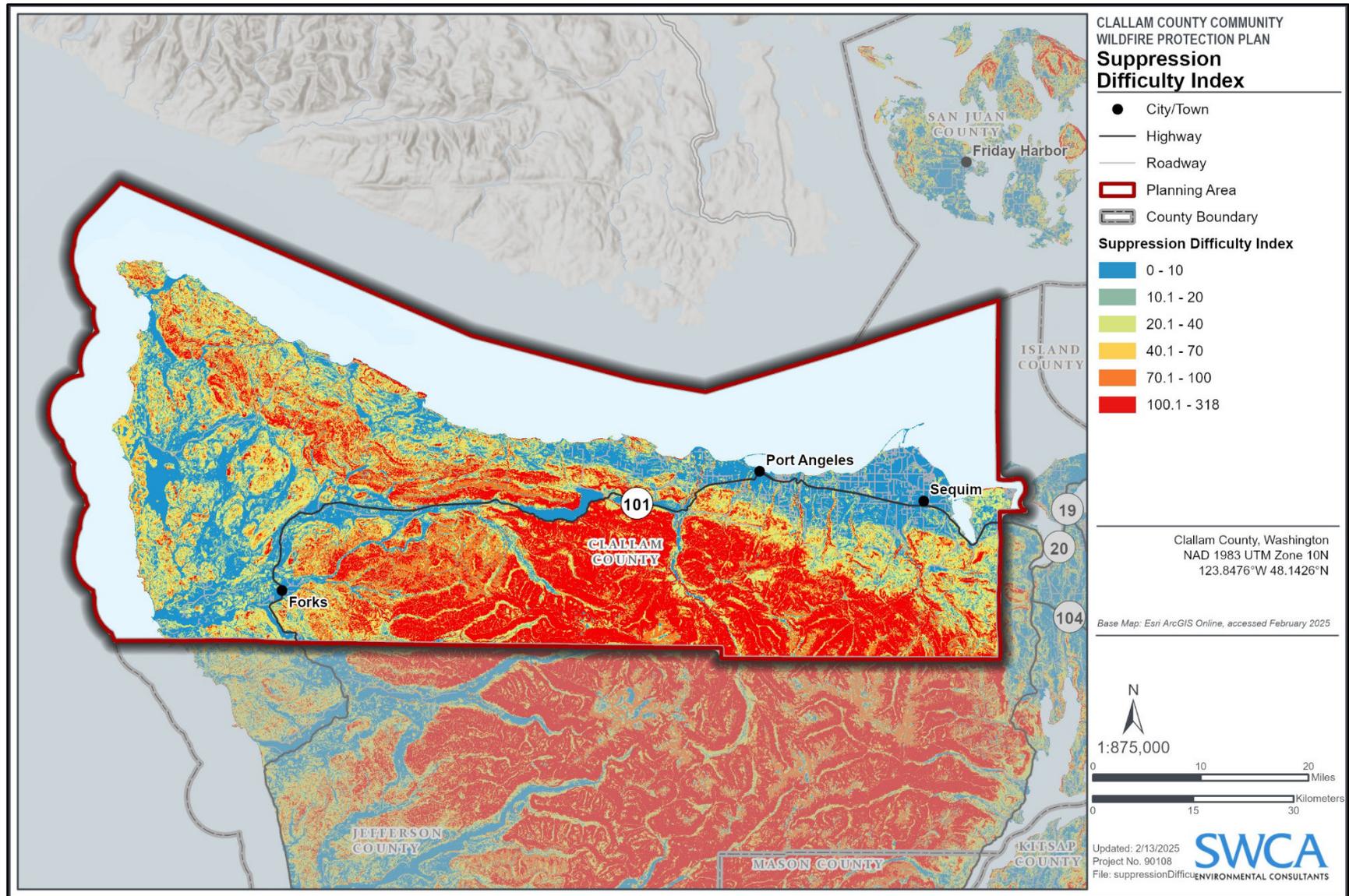


Figure C.12. Modeled suppression difficulty index on a 7-point scale from little to extreme difficulty for the planning area.

SWCA

APPENDIX D:
CWPP Field Assessments for
Wildland-Urban Interface Communities

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SCSW

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CLALLAM COUNTY

CWPP FIELD ASSESSMENTS

The CWPP field assessments were completed in May 2025 by trained SWCA staff with support from Clallam County personnel. The assessments were completed by driving and walking through the communities and completing an adapted NFPA 1144 assessment form (below) while assessing multiple properties that are representative of the community structure. Figure D.1 shows the communities surveyed during the field assessments.

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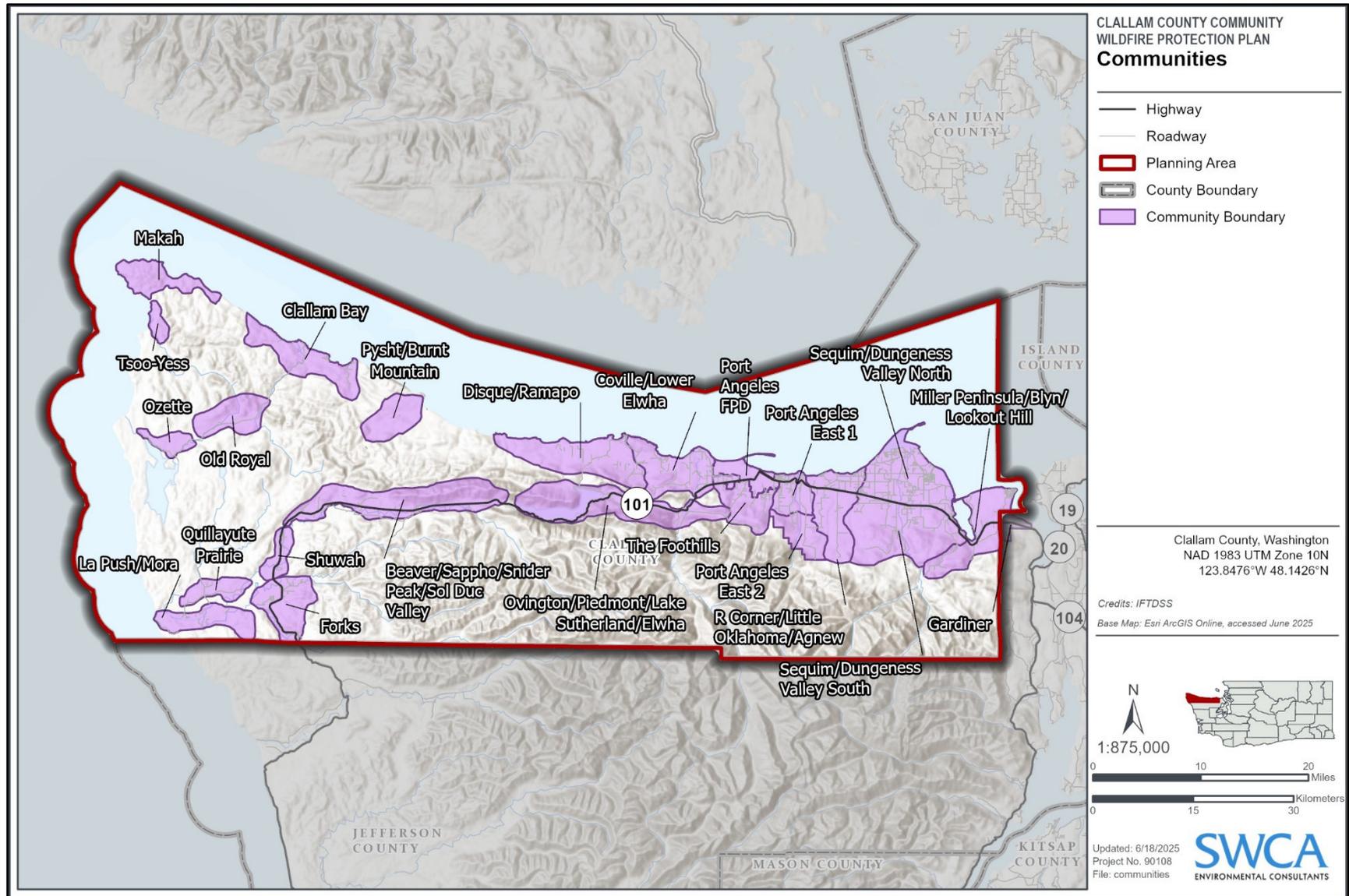


Figure D.1. Clallam County community boundaries.

Understanding Appendix D

Quantitative Wildfire Risk Assessment vs. Field Assessments

The key differences between the QWRA discussed in Chapter 3 and the on-site field assessments presented below, lie in their approaches and focus areas.

QWRA analyze potential wildfire behavior through a GIS-based desktop analysis by considering the interplay of fuels, topography, and weather using established fire behavior models like FARSITE, FSim, FlamMap, BehavePlus, and FireFamily Plus, along with ArcGIS Desktop Spatial Analyst tools. These models rely heavily on spatial data obtained from national sources like LANDFIRE to evaluate fire behavior and determine treatment strategies and priorities in the WUI, and are focused on a countywide scale. These are the best available data sources for modeling fire behavior but use coarse scale inputs (30-meter resolution) and therefore may not identify nuances on the ground. As these data sets and model platforms are revised, the CWPP Steering Committee will be able to revise the CWPP QWRA to align with changing conditions.

Field assessments, conducted using an adaptation of the NFPA Structure Ignitability Form 1144, concentrate on structure hazards observed across communities. These assessments, conducted in-person by trained personnel with support from local authorities, involve direct observation of community conditions, including access, vegetation, defensible space, topography, building characteristics, fire protection availability, and utility placement, resulting in ratings of low, moderate, high, or extreme risk.

It is important to note that the WA-WUI map was not used in any of the field assessments. In addition, the QWRA map described in Chapter 3 does not integrate findings from the field assessments since each assessment is focused on very different parameters (wildland fuels versus structure types) and completed at a different scale (countywide versus community). Due to the differing focus and resolutions associated with these two assessment methodologies, there may be deviations between the resulting risk rating outputs. Though important to note, this is expected when analyzing wildfire risk and hazard across scales.

For more information on both the QWRA and field assessments, please see Chapter 3.

Navigating this Section: Overview of Community Summaries

This section provides a comprehensive summary of communities arranged geographically from northwest to northeast and then from the southeast to the southwest. Risk and hazard information is compiled from the field assessments only.

The section includes:

- **Summary of Field Assessment –**
 - This table provides a hazard and risk ranking (e.g., low, moderate, high, or extreme) for each of the conditions observed during the field assessment and a ranking for the entire community.
 - The assessment summaries capture average conditions within each community area; therefore, the provided ratings may not universally apply to every parcel within the community. It's important to note that these ratings reflect the collective evaluation of the community as an entity and not necessarily the classification of extreme (or any other category) for every individual parcel.
 - These ratings are indicative of the overall assessment of the community's hazard and risk and may be used to guide strategies for informed mitigation actions. Please note that city boundaries may have been shifted to encompass surrounding development, so the boundaries may not reflect actual city limits.
 - Each line of the NFPA form is filled with a number evaluation, with lower numbers indicating a lower risk factor for that category. To make these assessments easier to comprehend, each risk level score was assigned a color to demonstrate risk ranging from low to high as described below:
 - a **green score** corresponds with **low risk**,
 - a **yellow score** corresponds to a **moderate risk**,
 - an **orange score** corresponds to a **high risk**, and
 - a **red score** indicates **extreme risk** for that category.
 - Using this method, residents and preparedness planners can quickly identify each community's main risk factors and opportunities to improve resilience. Below are the simplified risk assessments for the communities of Clallam County. At the end of each assessment is the total score given to the community and the corresponding risk level.
- **Areas of Concern Map –**
 - The map was created to highlight actions to reduce the risk of wildfire and potential treatment types. It is informed by the QWRA (described in Chapter 3), the field assessments, and stakeholder input gathered during Steering Committee meetings and in consultation with Tribes. The areas of concern map and the recommendation matrices are used to inform agencies and the public where to take actions.
 - Add Evacuation route assessment info here
- **Key Observations –**
 - Key observations that highlight the total score, the positive and negative attributes from the assessment summary table, areas of concern, and the associated recommended mitigation treatments or campaigns.

1144 National Fire Protection Association Assessment Form

This appendix provides a template form for conducting structural hazard assessments in the planning area.

Table D.1. National Fire Protection Association Assessment Form

SWCA – 1144 Assessment	
Community	Notes:
Surveyor	
Survey Date/Time	
Means of Access	
Ingress and Egress	
2 or more roads in and out score 0	
1 road in and out 7	
Road Width	
>24 ft 0	
>20 ft <24 ft 2	
<20 ft 4	
Road Conditions	
Surfaced road, grade <5% 0	
Surfaced road, grade >5% 2	
Non-surfaced road, grade <5% 2	
Non-surfaced road, grade >5% 5	
Other than all season 7	
Fire Access	
<300 ft with turnaround 0	
>300 ft with turnaround 2	
<300 ft with no turnaround 4	
>300 ft with no turnaround 5	
Street Signs	
Present – reflective 0	
Present – non-reflective 2	
Not present 5	
Notes:	
Vegetation (Fuel Models)	
Predominant Vegetation	
<i>Primary Predominant Vegetation</i>	
Non-Burnable (NB) Score 2	
Grass (GR) Score 5	
Grass-Shrub (GS) Score 10	
Shrub (SH) Score 15	
Timber-Understory (TU) Score 20	

Timber-Litter (TL) Score 25	
Slash-Blow (BU) Score 30	
Notes:	
Defensible Space	
>100 ft around structure 1	
>70 ft <100 ft around structure 3	
>30 ft <70 ft around structure 10	
<30 ft around structure 25	
Topography Within 300 ft of Structures	
Slope	
<9% 1	
10% to 20% 4	
21% to 30% 7	
31% to 40% 8	
>41% 10	
Additional Rating Factors (rate all that apply)	
Topographic features 1-5	
History of high fire occurrence 1-5	
Severe fire weather potential 1-5	
Separation of adjacent structures 1-5	
Notes:	
Roofing Assembly	
Roofing	
Class A - metal roof, clay/concrete tiles, slate, asphalt shingles 0	
Class B – pressure-treated composite shakes and shingles 3	
Class C - untreated wood shingle, plywood, particle board 15	
Unrated - Extremely poor roofing conditions 25	
Notes:	
Building Construction	
Siding Materials (predominant)	
Non-combustible (brick/concrete) 5	
Fire Resistive (stucco/adobe) 10	
Combustible (wood or vinyl) 12	
Deck and fencing (predominant)	
No deck or fence/noncombustible 0	

Combustible deck and fence 5				
Building Set-Back				
>30 ft to slope 1				
<30 ft to slope 5				
Notes:				
Available Fire Protection				
Water Sources				
Water Source? yes/no				
Water Source Type hydrant, water tank, other				
Other Water Source				
Water Source Score Hydrant = 1 Water Tank = 3				
Organized Response				
Station <5 mi from community 1				
Station >5 mi from community 3				
Notes:				
Placement of Gas and Electric Utilities				
Both underground 0				
One above, one below 3				
Both aboveground 5				
Highly Valued Resources and Assets Observations				
Forest Health Observations				
Land Use Observations				
Misc Observations				
Total				
Hazard Rating Scale	<40 Low	>40 Moderate	>70 High	>112 Extreme

Community Field and Evacuation Route Assessments

1. Makah Field Assessment Summary

Makah		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	1 road in and out	Extreme
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	>300 feet with turnaround	High
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	3	Moderate
History of High Fire Occurrence	2	Moderate
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	3	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	83	High

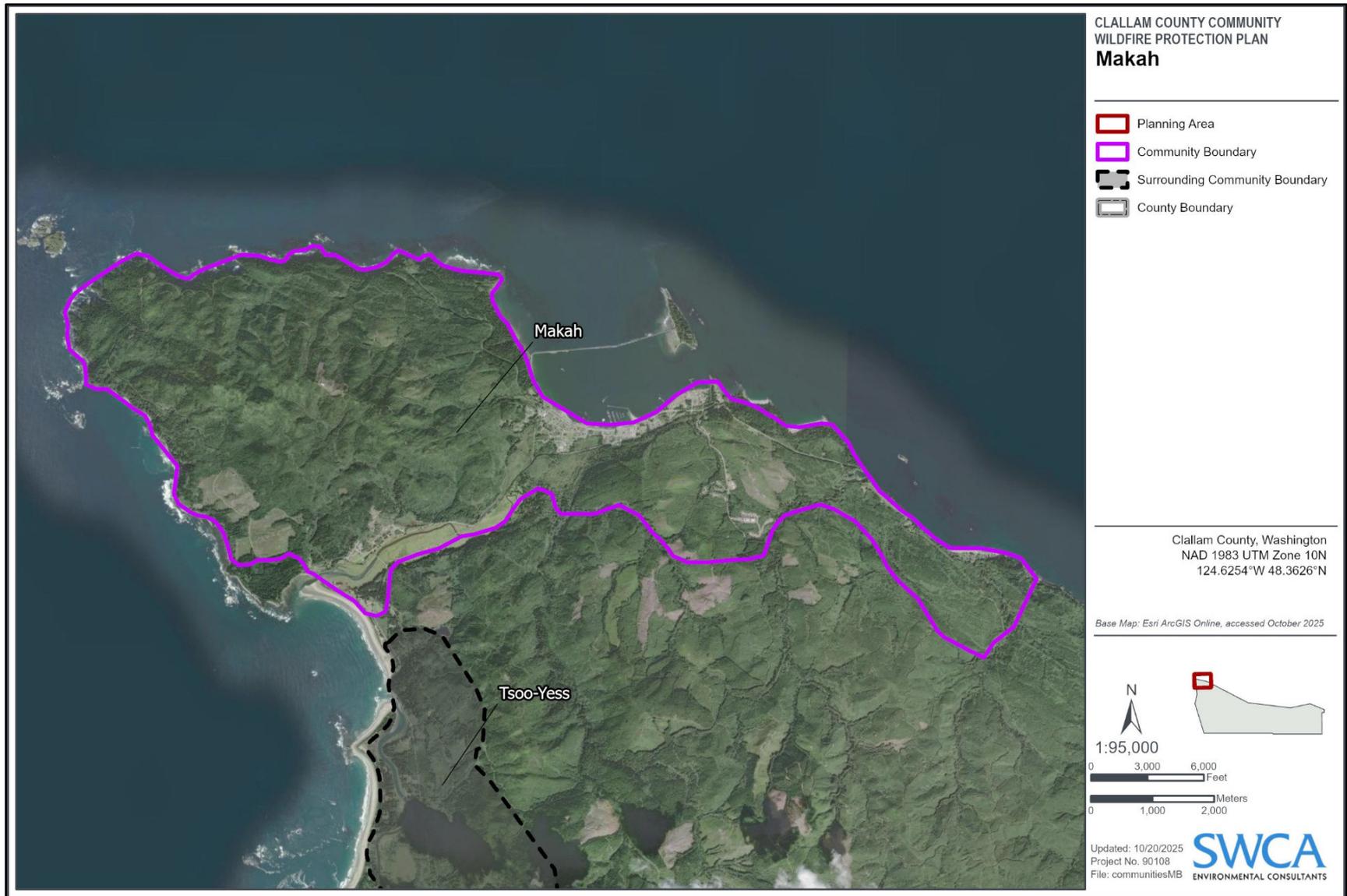


Figure D.2. Makah community boundary.

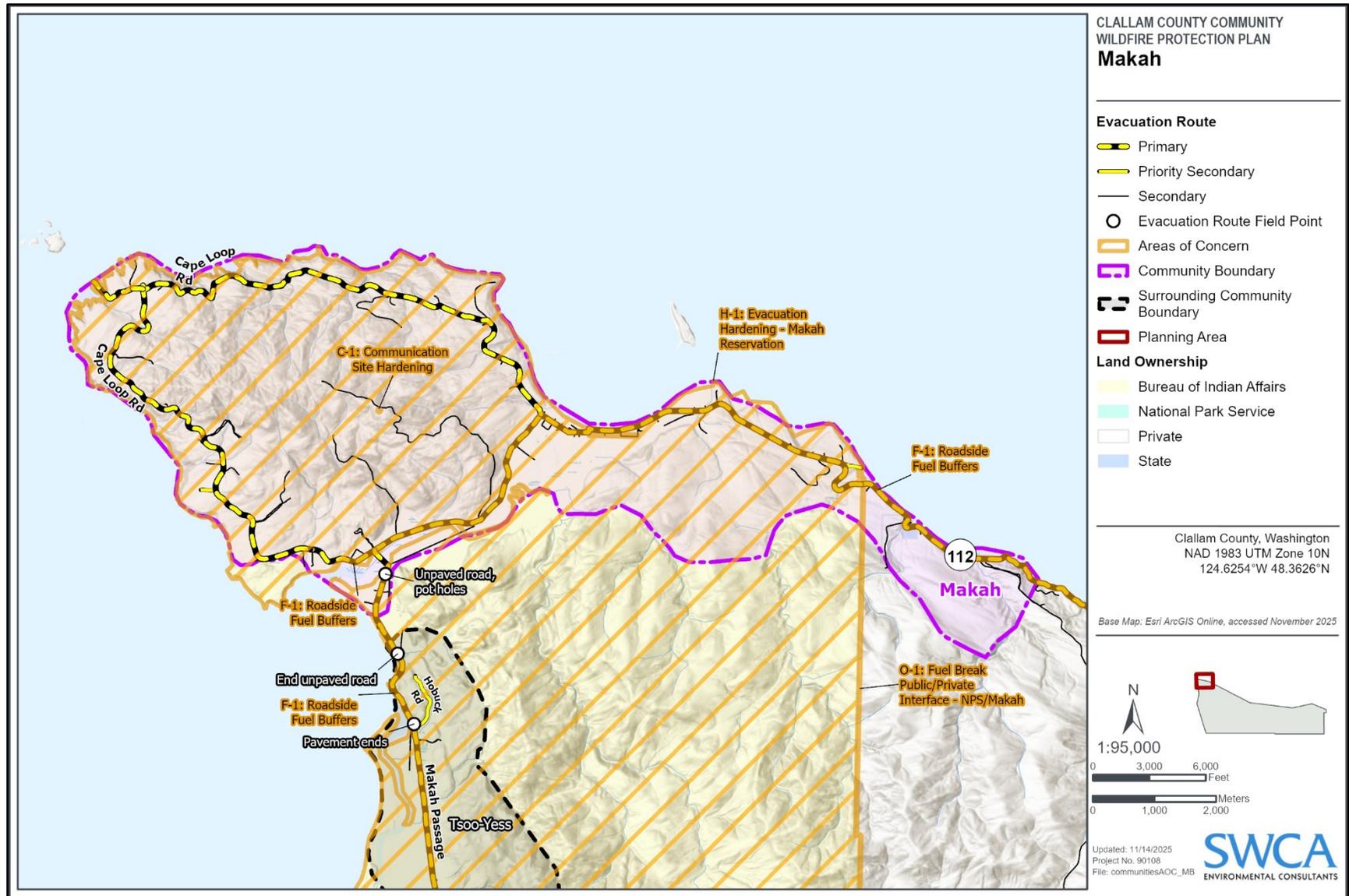


Figure D.3. Areas of concern and evacuation route details for the Makah Community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Active timber management/harvest – fuel break south of Neah Bay • Most homes in coastal or valley bottom areas • High annual precipitation 	<ul style="list-style-type: none"> • Landslide-prone, narrow, windy sections of Hwy 112 • Poor cell service • Limited evacuation routes

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>C-1: Communication Infrastructure Hardening:</p> <ul style="list-style-type: none"> • Improve the resilience of critical communication infrastructure in wildfire-prone areas by reducing vegetation hazards, securing backup power, and coordinating long-term maintenance across tower sites. <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts. <p>H-1: Tribal Evacuation Hardening for Makah Reservation:</p> <ul style="list-style-type: none"> • Improve evacuation safety on the Makah Reservation by resurfacing roads, creating roadside fuel buffers, and increasing resident awareness through targeted outreach. <p>O-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Establish fuel break installation along public-private land interface.

2. Tsoo-Yess Field Assessment Summary

Tsoo-Yess		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	1 road in and out	Extreme
Road Width	>20 to <24 feet	Moderate
Road Conditions	Non-surfaced road; grade >5%	Moderate
Fire Truck Access	>300 feet with turnaround	High
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	2	Moderate
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	High
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	78	High

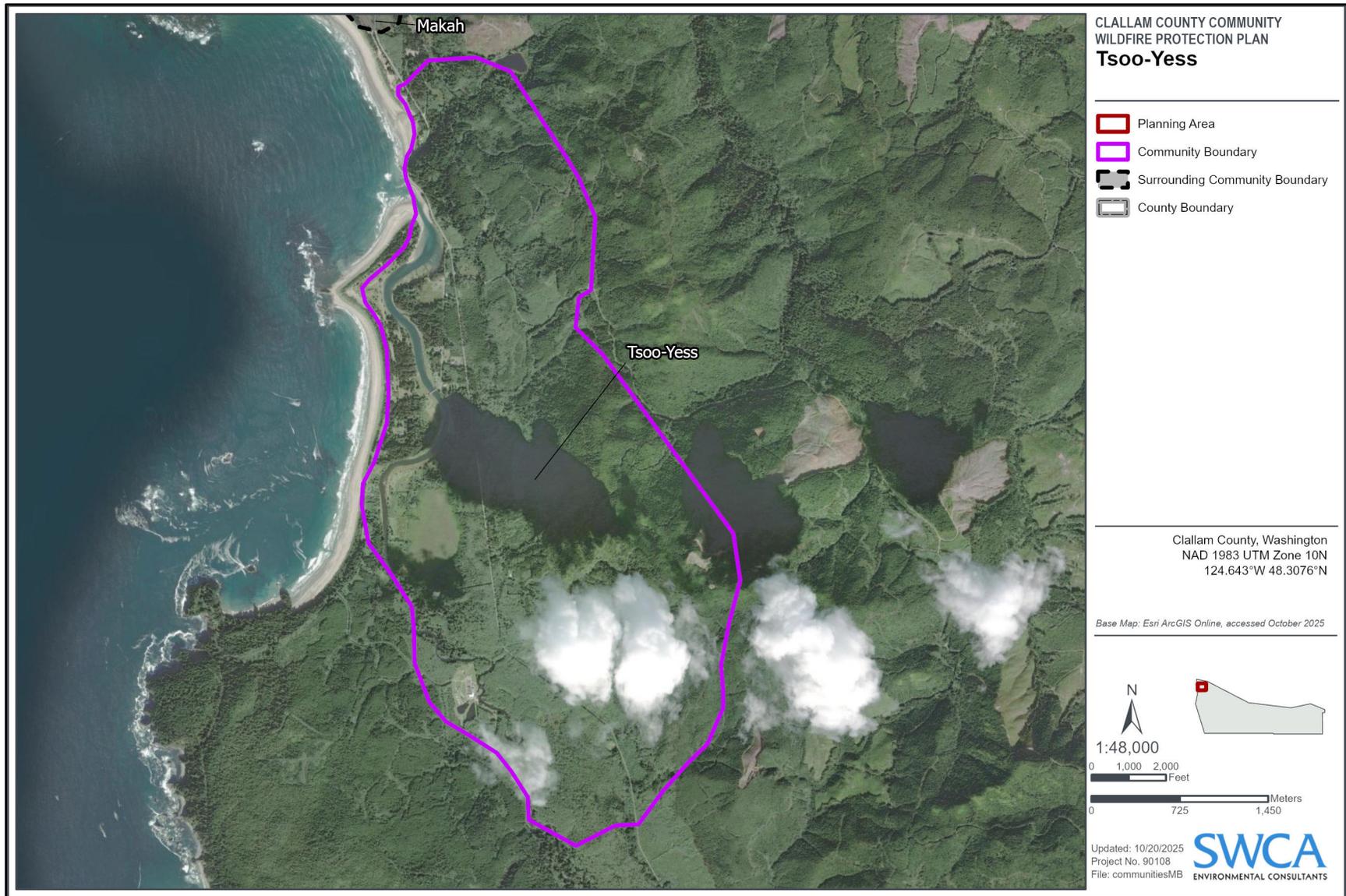


Figure D.4. Tsoo-Yess community boundary.

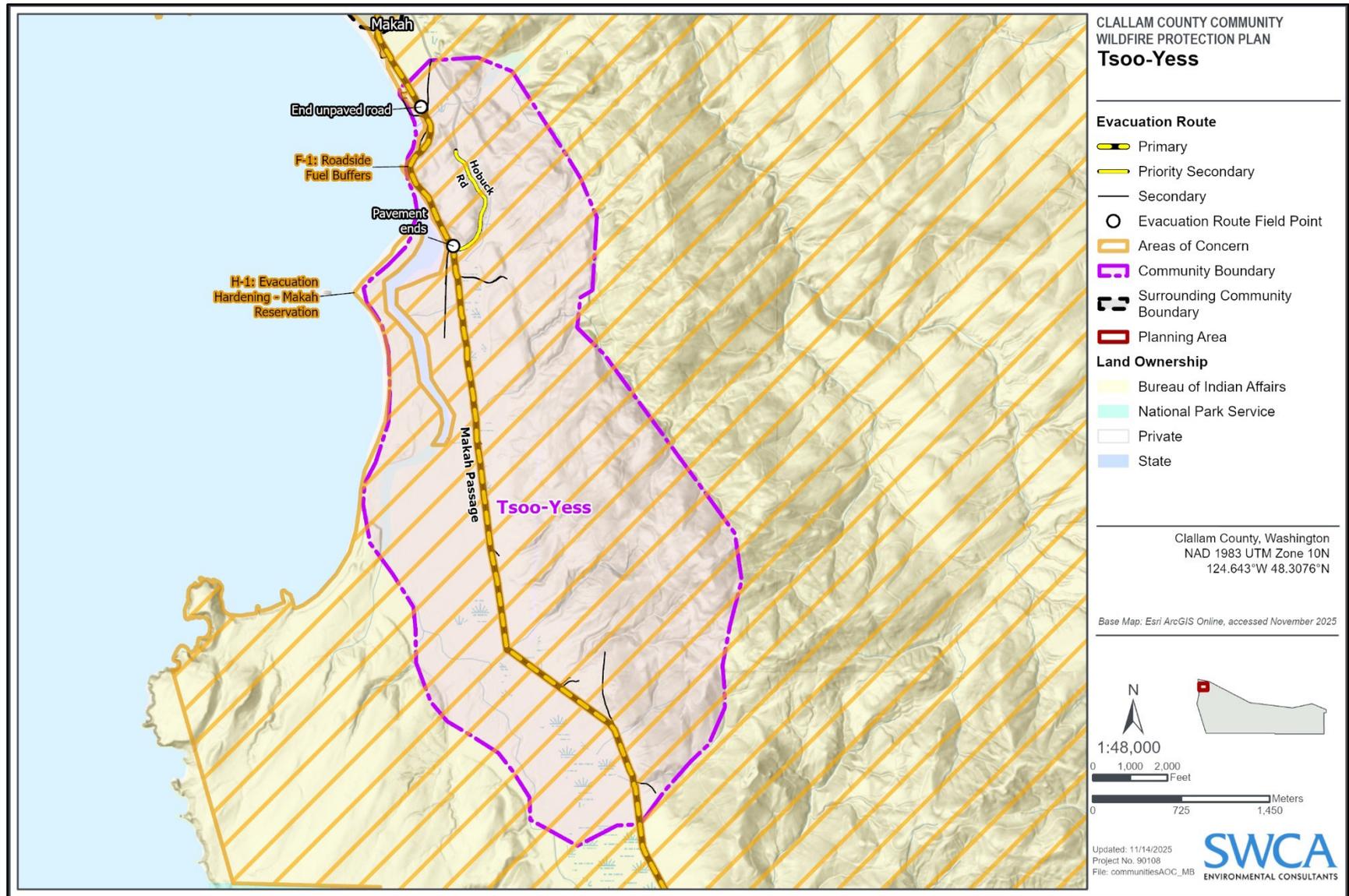
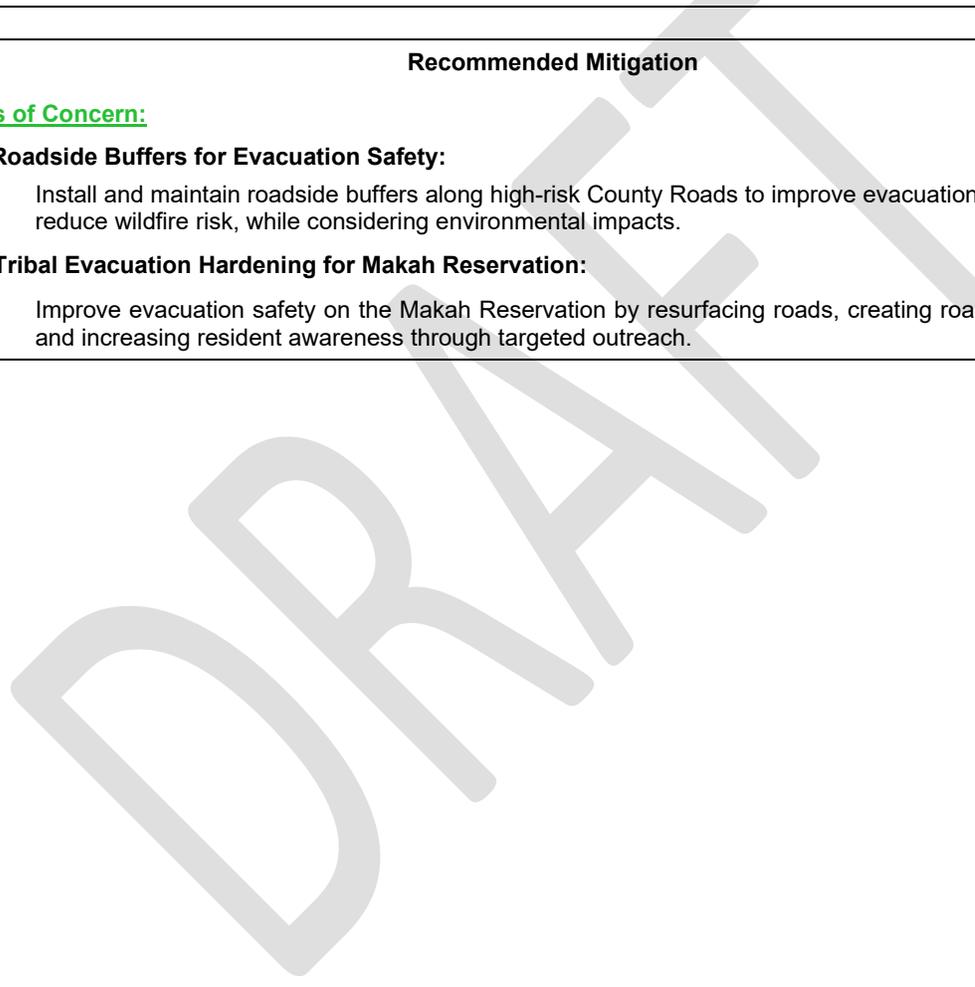


Figure D.5. Areas of concern detail and evacuation route details for the Tsoo-Yess community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Building construction: noncombustible siding • Building setback: far from slopes • Very sparse population • Wide roads with well-maintained buffer • Riparian lands 	<ul style="list-style-type: none"> • Entrance/exit: only one road in and out of community • Vegetation type: slash-blow, highly flammable • Organized response: fire department far from community • Unpaved roads, potholes • Poor service • Values at risk (tribal, recreational)

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts. <p>H-1: Tribal Evacuation Hardening for Makah Reservation:</p> <ul style="list-style-type: none"> • Improve evacuation safety on the Makah Reservation by resurfacing roads, creating roadside fuel buffers, and increasing resident awareness through targeted outreach.



3. Clallam Bay Field Assessment Summary

Clallam Bay		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	1 road in and out	Extreme
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	>300 feet with turnaround	Low
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	10% to 20%	Moderate
Topographic Features	3	Moderate
History of High Fire Occurrence	2	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Extreme
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	99	High

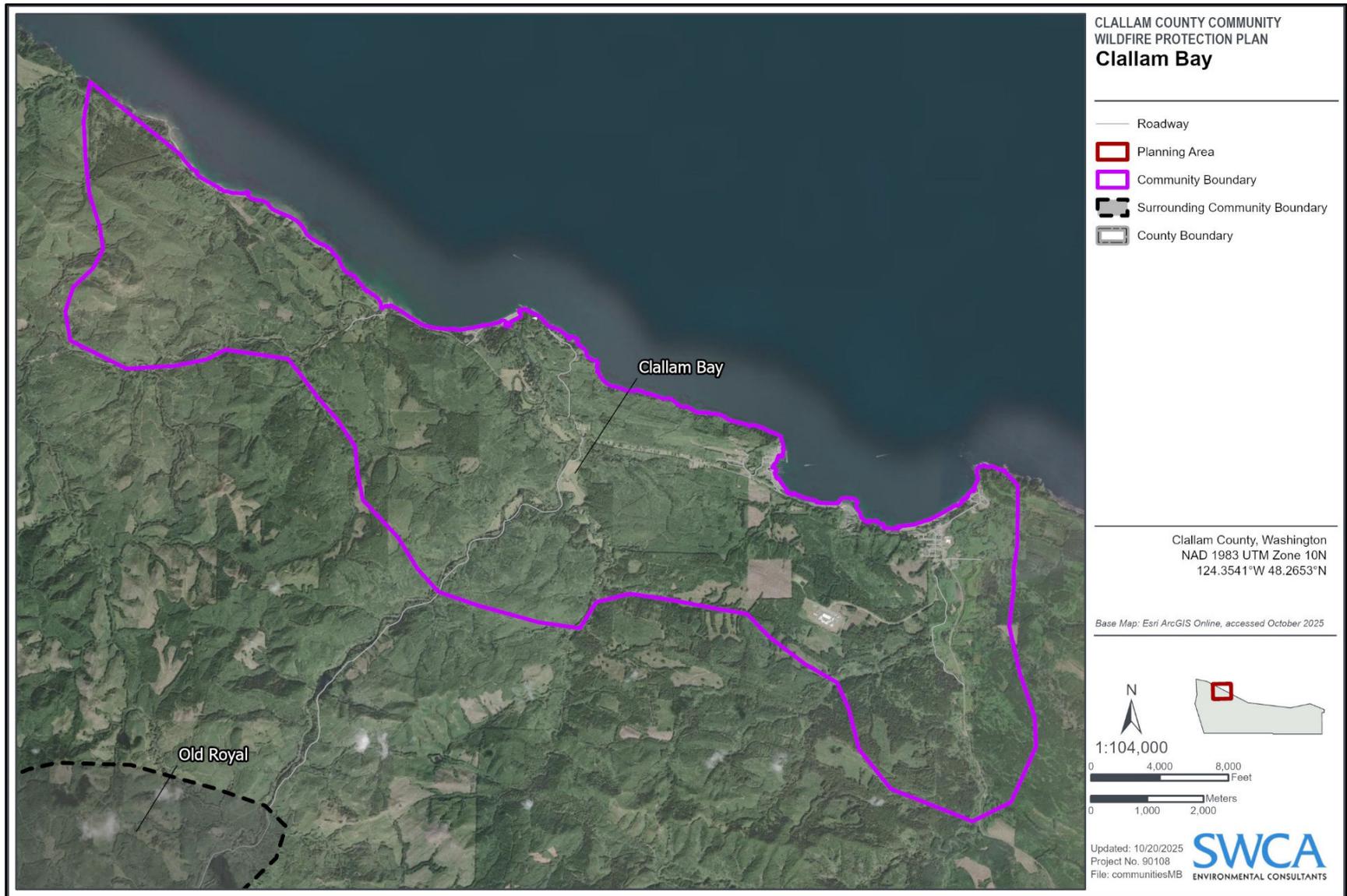


Figure D.6. Clallam Bay community boundary.

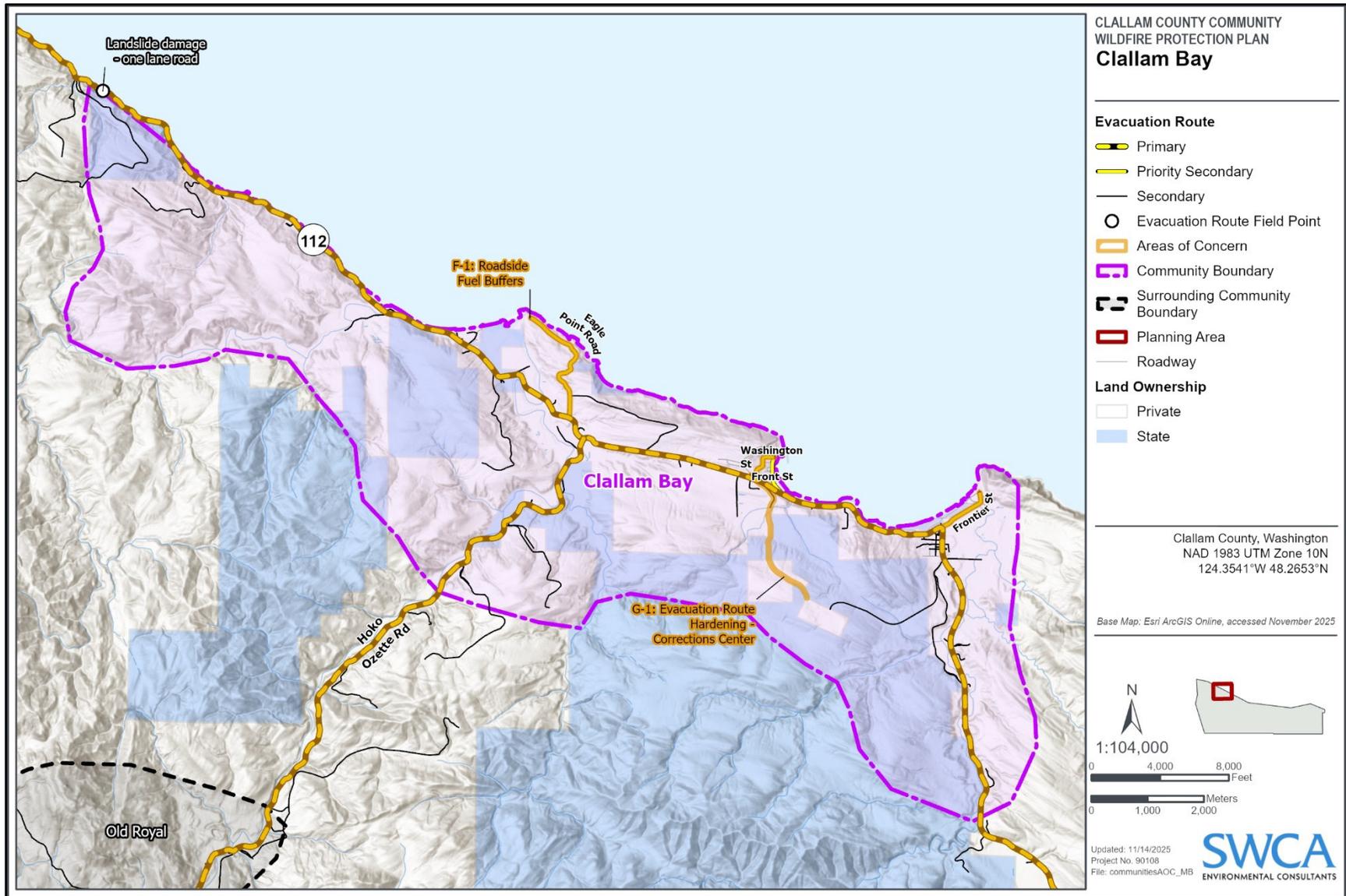
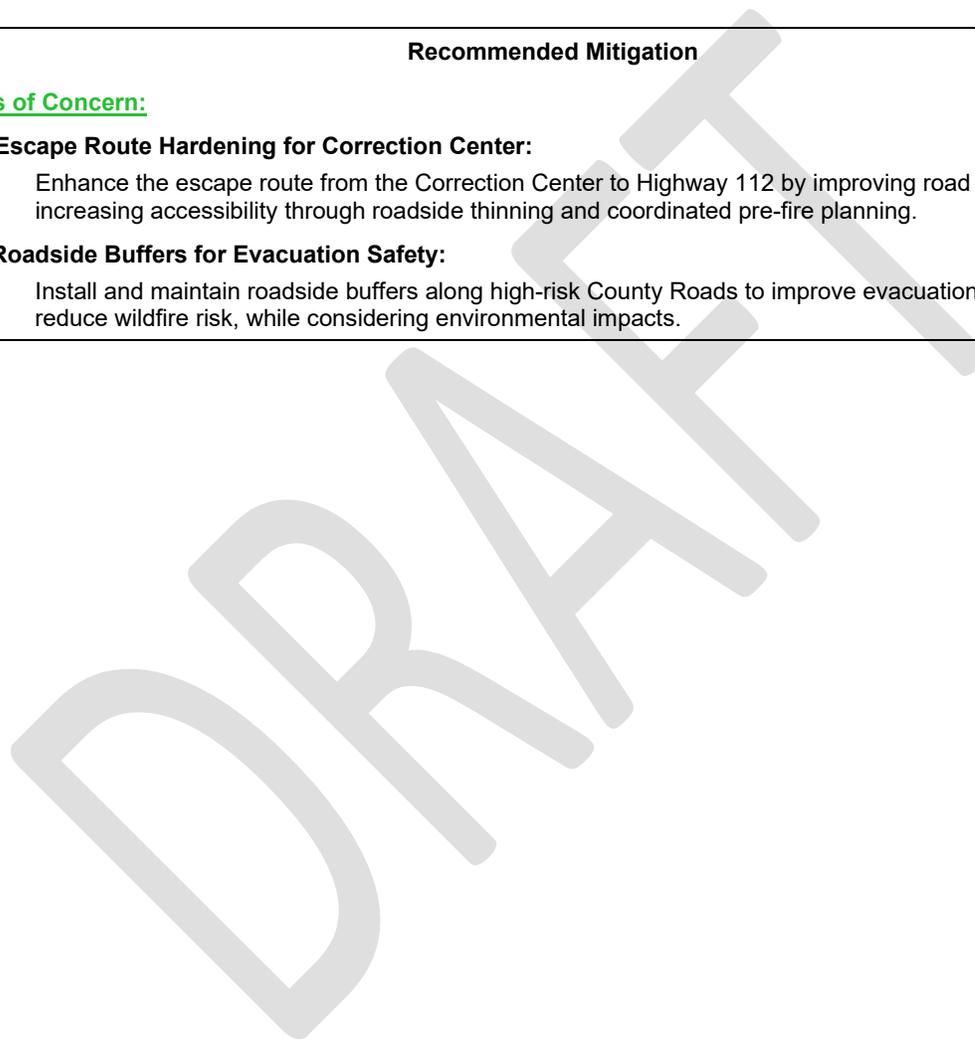


Figure D.7. Areas of concern and evacuation route in details for Clallam Bay community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Access via Hwy 112 • Homes concentrated along the coast or the valley bottom • Active timber management • 2 fire stations 	<ul style="list-style-type: none"> • Limited evacuation routes • High volume of values • Seasonal tourist traffic – potential for congestion

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>G-1: Escape Route Hardening for Correction Center:</p> <ul style="list-style-type: none"> • Enhance the escape route from the Correction Center to Highway 112 by improving road conditions and increasing accessibility through roadside thinning and coordinated pre-fire planning. <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.



4. Pysht/Burnt Mountain Field Assessment Summary

Pysht/Burnt Mountain		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>24 feet	Low
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	10% to 20%	Moderate
Topographic Features	3	Moderate
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	No	Extreme
Water Source Type	Other	Extreme
Water Source Score	10	High
Organized Response	Station >5 miles from community	High
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	85	High

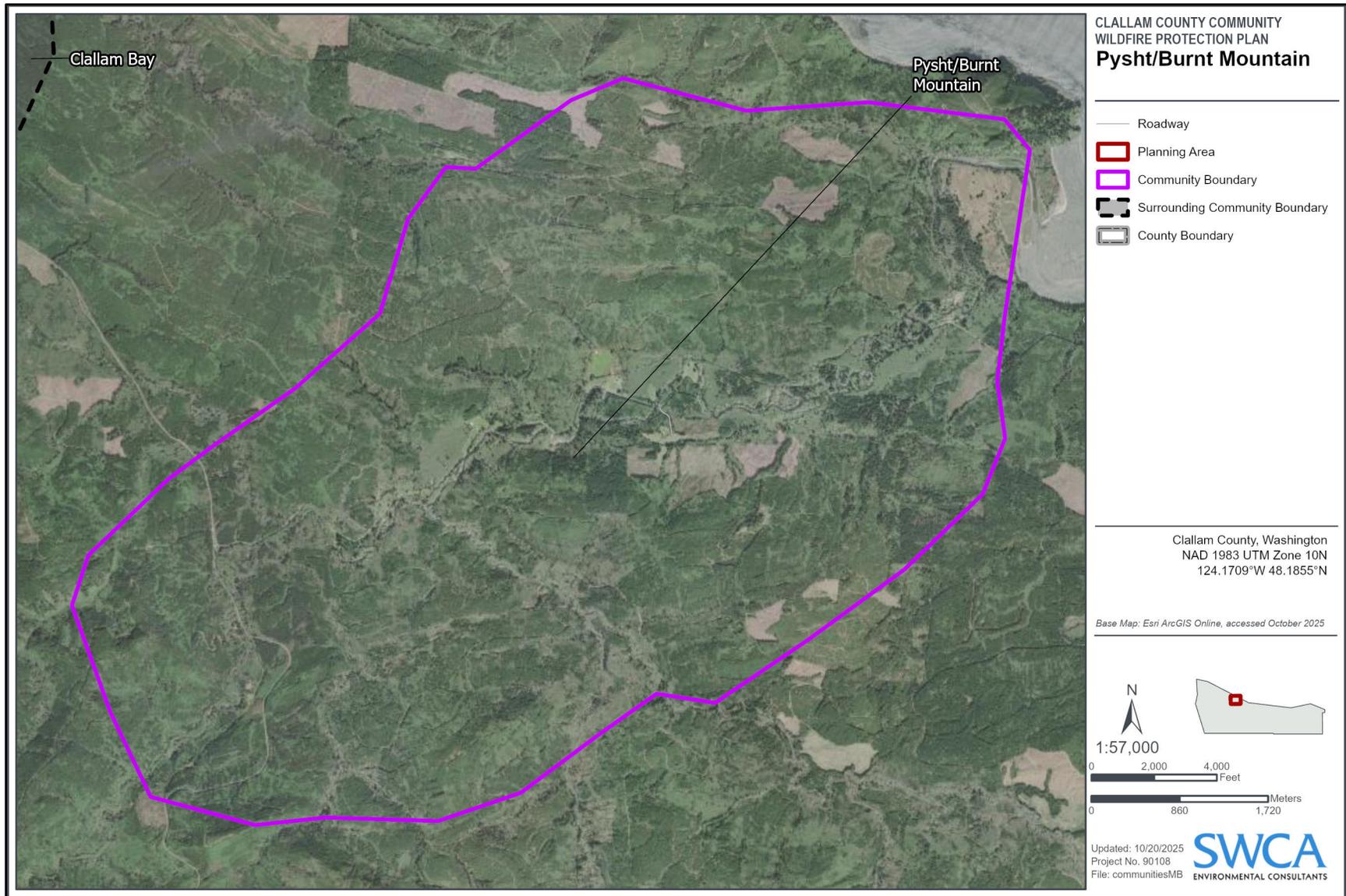


Figure D.8. Pysht/Burnt Mountain community boundary.

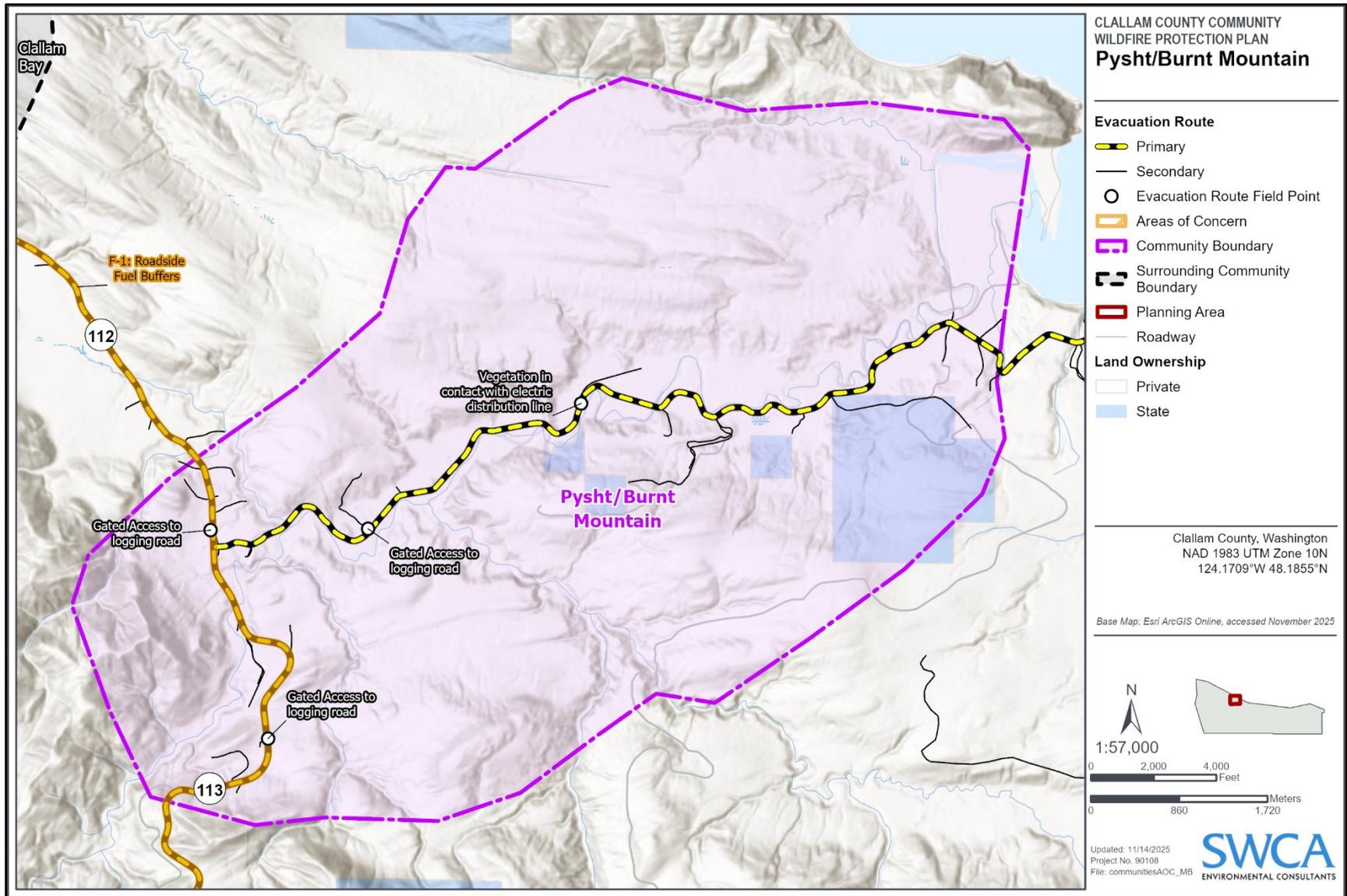


Figure D.9. Areas of concern and evacuation route details for the Pysht/Burnt Mountain community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed area of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<p><u>Positive Attributes (Low Scores)</u></p> <ul style="list-style-type: none"> • Low population density • Good defensible space and distance between structures • River access for water 	<p><u>Negative Attributes (High Scores)</u></p> <ul style="list-style-type: none"> • Poor service • Steep topography along 112 • Inaccessible driveways

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.

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5. Disque/Ramapo Field Assessment Summary

Disque/Ramapo		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	<300 feet with turnaround	Low
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	< 30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	2	Low
History of High Fire Occurrence	1	Moderate
Severe Fire Weather Potential	2	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	2	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	86	High

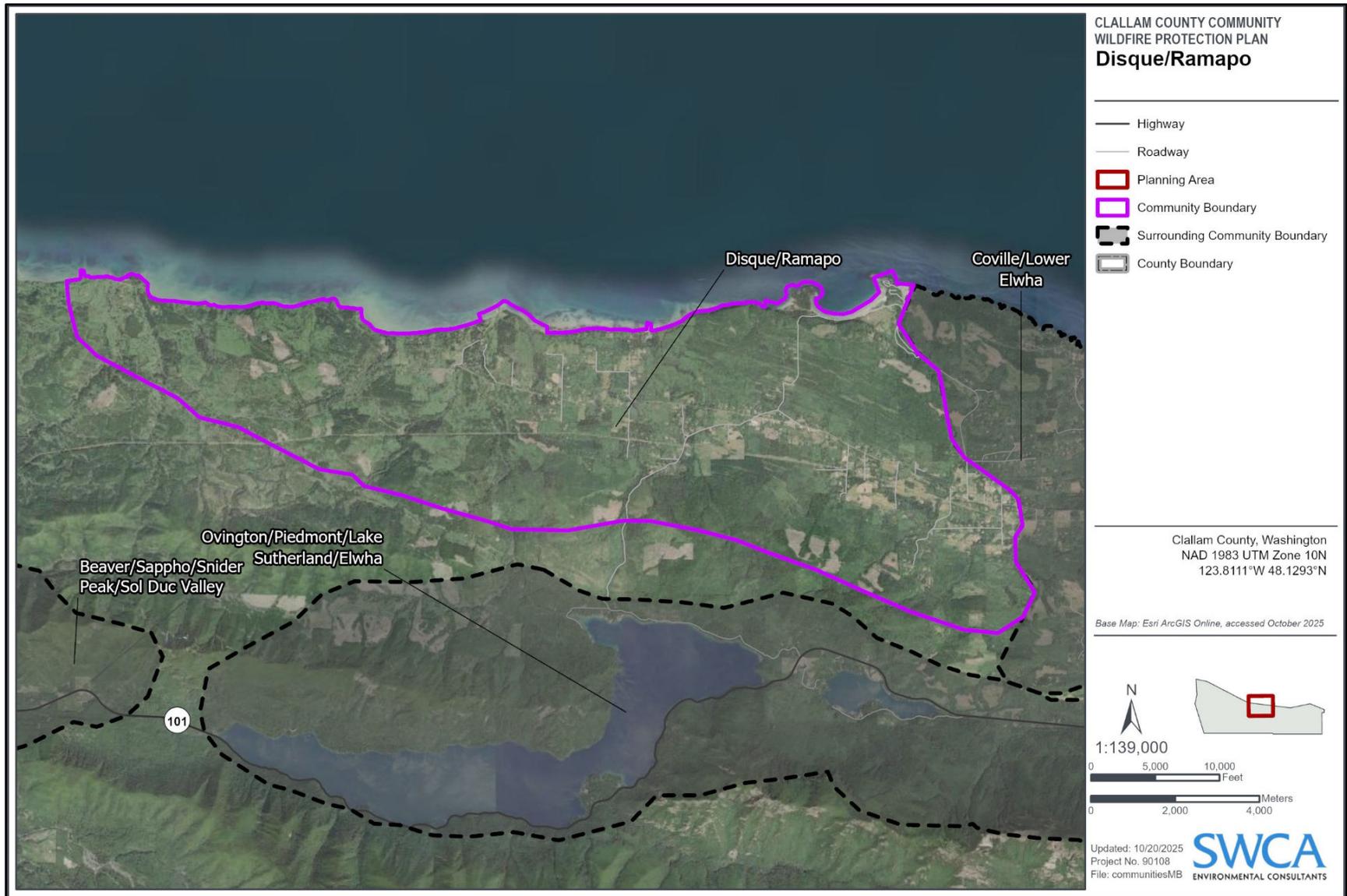


Figure D.10. Disque/Ramapo community boundary.

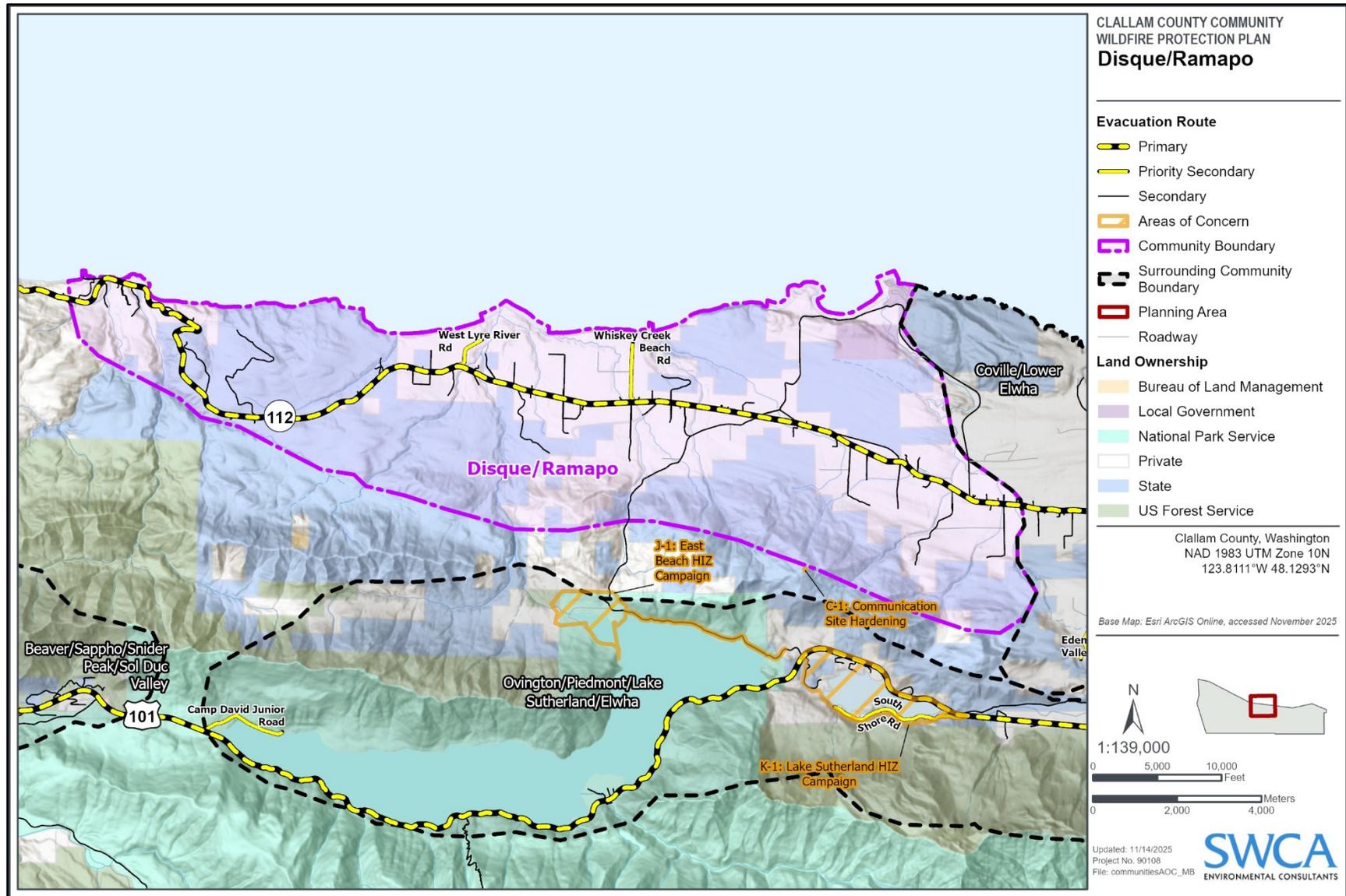


Figure D.11. Areas of concern and evacuation route details for the Disque/Ramapo community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Veg buffer and prior timber harvest around Hwy 112 • Most homes are concentrated in flat coastal areas • Reflective house numbers • Fire station 	<ul style="list-style-type: none"> • Gated driveways • Poor defensible space • Narrow, steeper roads towards homes up slope to the south

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>C-1: Communication Infrastructure Hardening:</p> <ul style="list-style-type: none"> • Improve the resilience of critical communication infrastructure in wildfire-prone areas by reducing vegetation hazards, securing backup power, and coordinating long-term maintenance across tower sites.

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6. Coville/Lower Elwha Field Assessment Summary

Coville/Lower Elwha		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	>300 feet with no turnaround	High
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	<10% to 20%	Moderate
Topographic Features	2	Moderate
History of High Fire Occurrence	2	Moderate
Severe Fire Weather Potential	2	Moderate
Separation of Adjacent Structures	1	Low
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Extreme
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	2	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	82	High

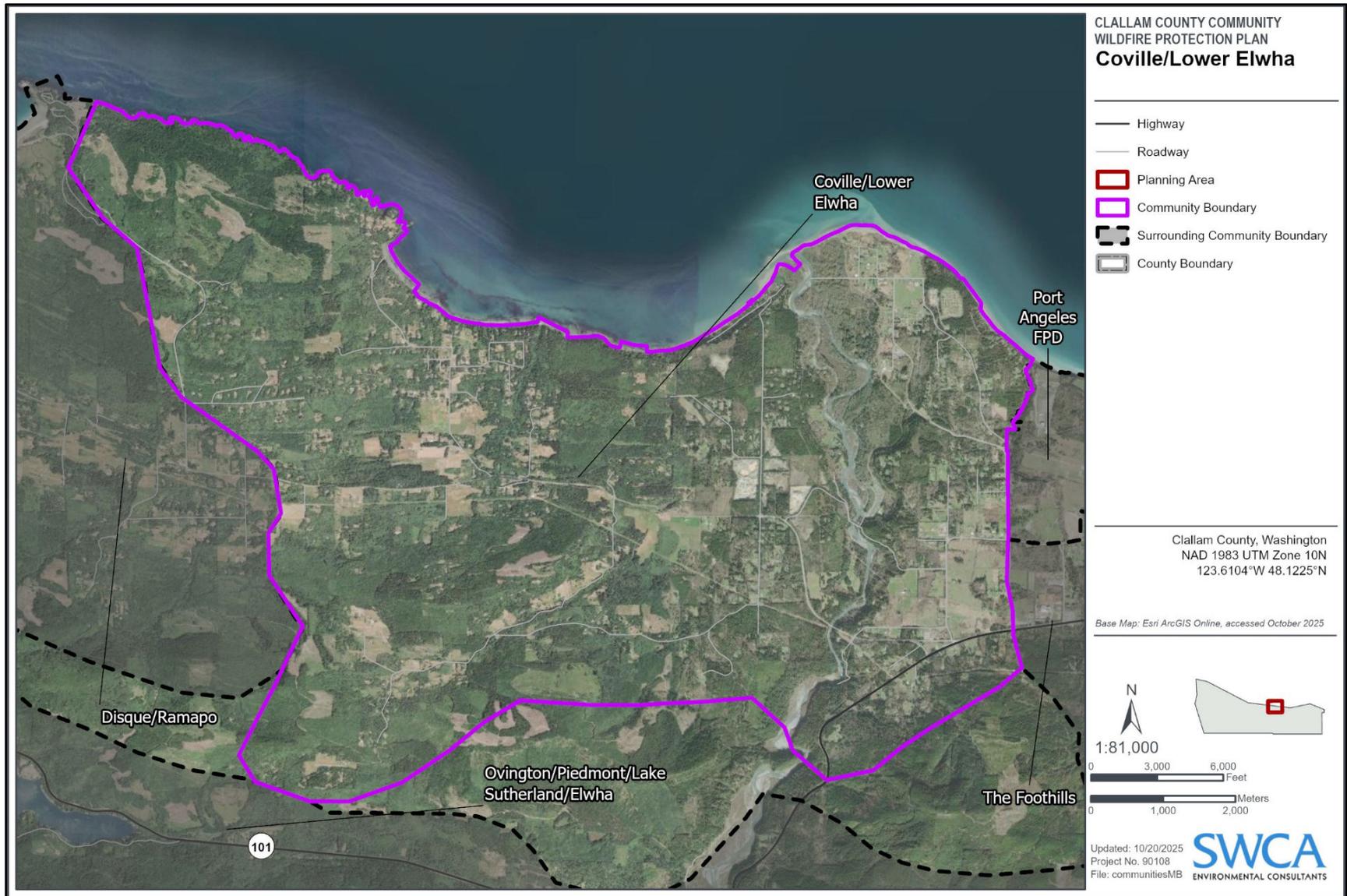


Figure D.12. Coville/Lower Elwha community boundary.

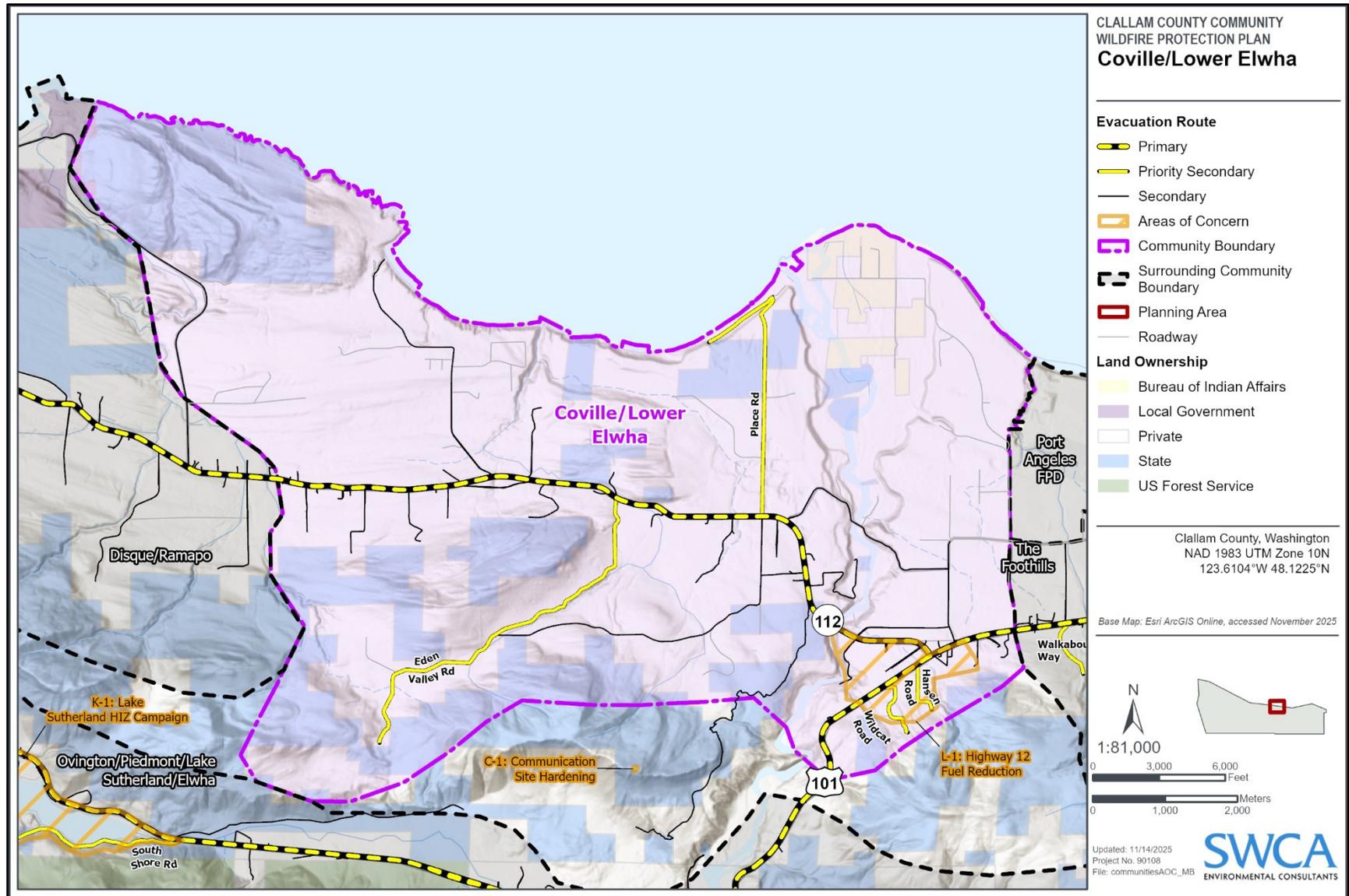


Figure D.13. Areas of concern and evacuation route details for the Coville/Lower Elwha community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u> <ul style="list-style-type: none"> • Proximity to fire response (2 stations) • Defensible space on lots north of Highway 112 • Timber management along Highway 112 	<u>Negative Attributes (High Scores)</u> <ul style="list-style-type: none"> • Long driveways • Veg encroachment along Eden Valley Rd • Steeper, gravel driveways south of Highway 112

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>L-1: Resident HIZ Projects for East Beach Rd and Lake Crescent Area:</p> <ul style="list-style-type: none"> • Increase wildfire resilience for homes along East Beach Rd and in the Lake Crescent Area through HIZ campaigns, roadside buffers, and pre-planning for properties on dead-end roads.

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7. Port Angeles FPD Field Assessment Summary

Port Angeles FPD		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Non-Burnable (NB)	Low
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	10% to 20%	Moderate
Topographic Features	1	Low
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	2	Moderate
Separation of Adjacent Structures	4	High
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	58	Moderate

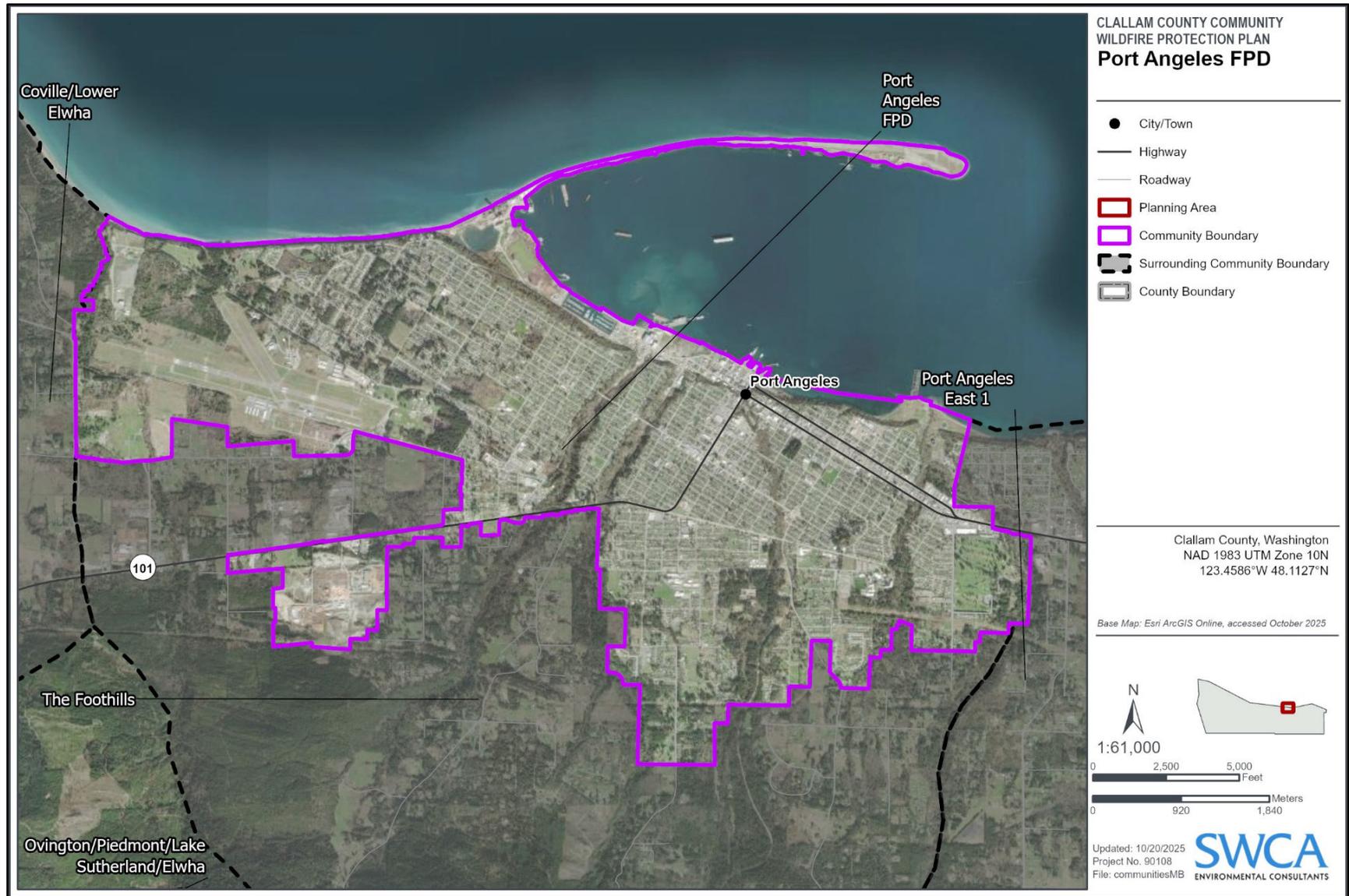


Figure D.14. Port Angeles FPD community boundary.

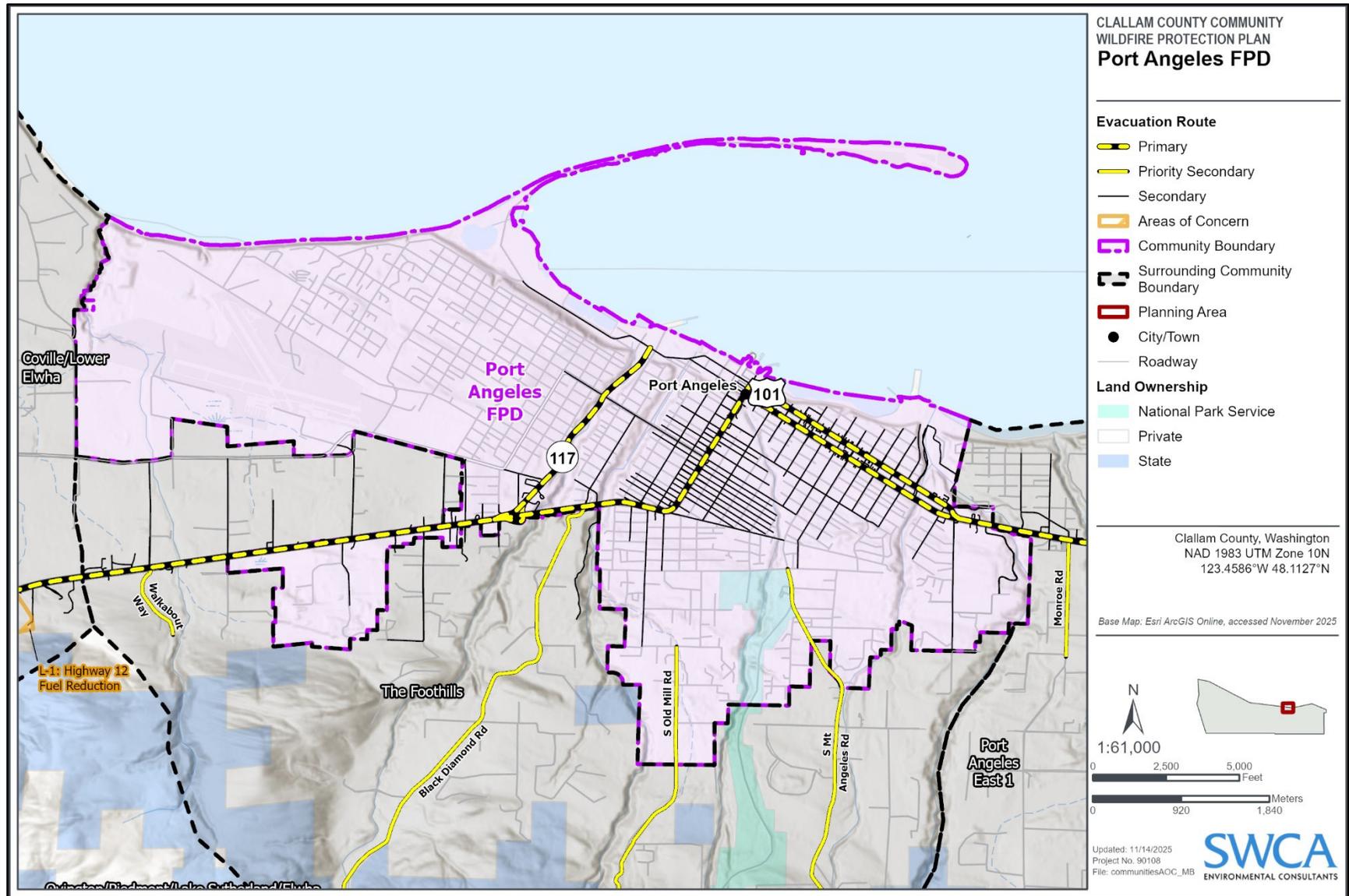


Figure D.15. Areas of concern and evacuation route details for the Port Angeles FPD community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed area of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Proximity to fire response • Hydrants • Minimal fuels near city core 	<ul style="list-style-type: none"> • Large Concentration of values • Tourism, congestion, traffic • Proximity of structures/homes

Recommended Mitigation
Areas of Concern: None identified during the CWPP planning process.

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8. The Foothills Field Assessment Summary

The Foothills		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>24 feet	Low
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	>300 feet with no turnaround	High
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	10% to 20%	Moderate
Topographic Features	2	Moderate
History of High Fire Occurrence	3	Moderate
Severe Fire Weather Potential	3	Moderate
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Extreme
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Other	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	82	High

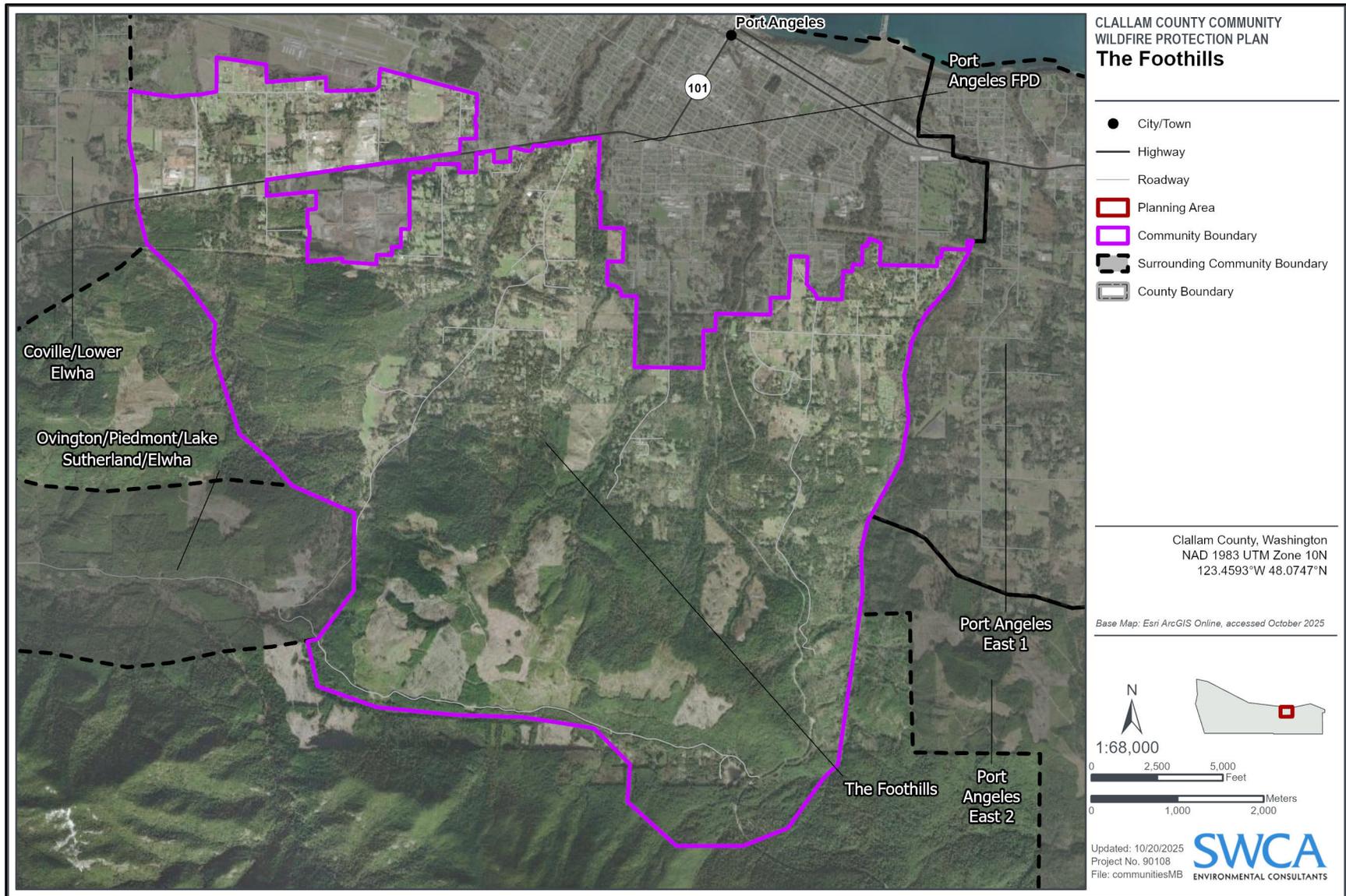


Figure D.16. The Foothills community boundary.

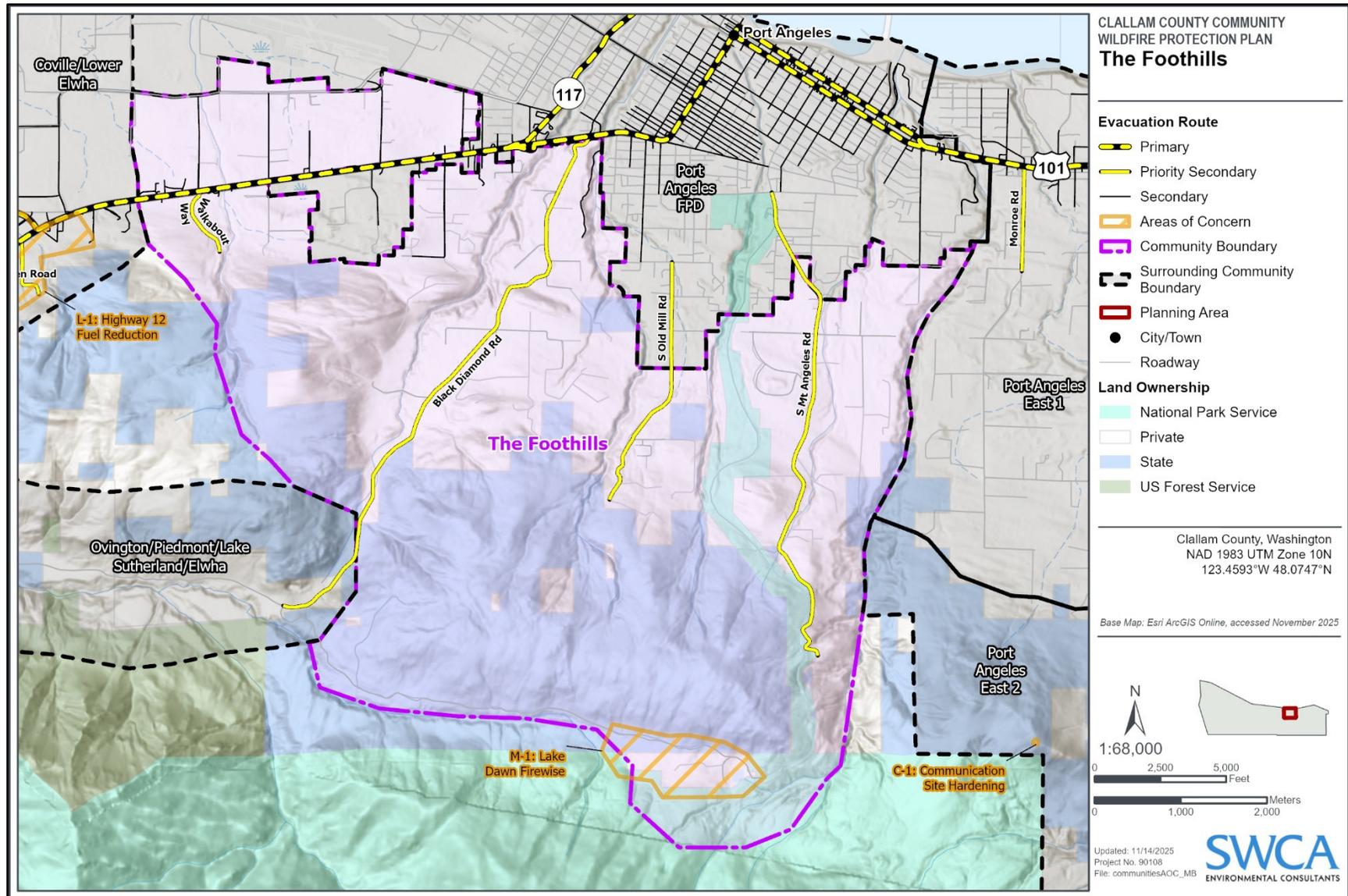


Figure D.17. Areas of concern and evacuation route details for the Foothills community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Proximity to fire response • Access via Black Diamond Rd • Veg buffer around electric transmission lines 	<ul style="list-style-type: none"> • Steep slopes • Fuels upslope to south • Narrow, longer drive ways on homes upslope

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>M-1: Lake Dawn Firewise:</p> <ul style="list-style-type: none"> • Promote the pursuit of additional Firewise Communities recognition in the community of Lake Dawn.

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9. Port Angeles East 1 Field Assessment Summary

Port Angeles East 1		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more road in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	>300 feet with no turnaround	High
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	<30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	10% to 20%	Moderate
Topographic Features	2	Moderate
History of High Fire Occurrence	2	Moderate
Severe Fire Weather Potential	3	Moderate
Separation of Adjacent Structures	3	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Moderate
Community Hazard Rating	95	High

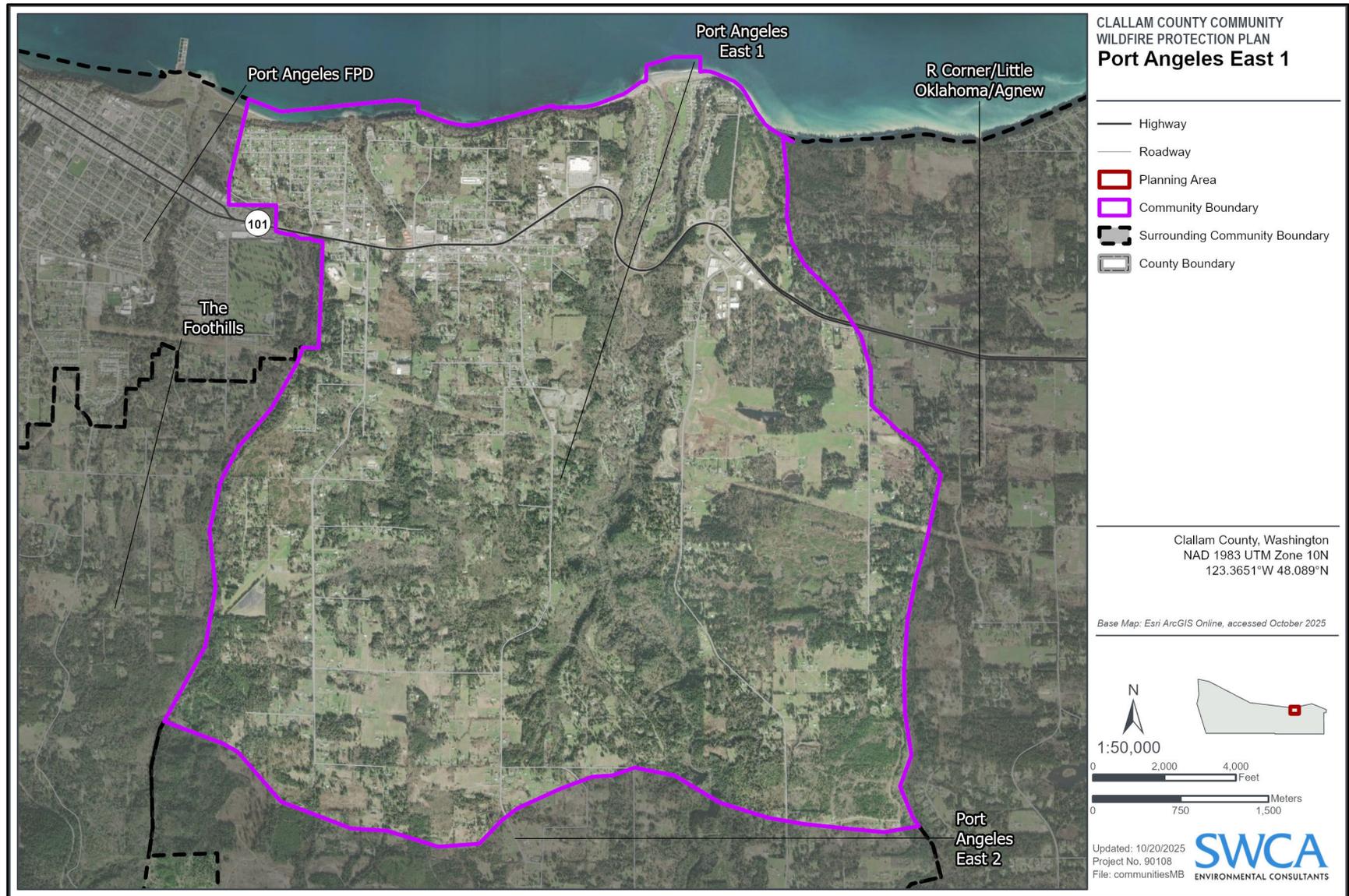


Figure D.18. Port Angeles East 1 community boundary.

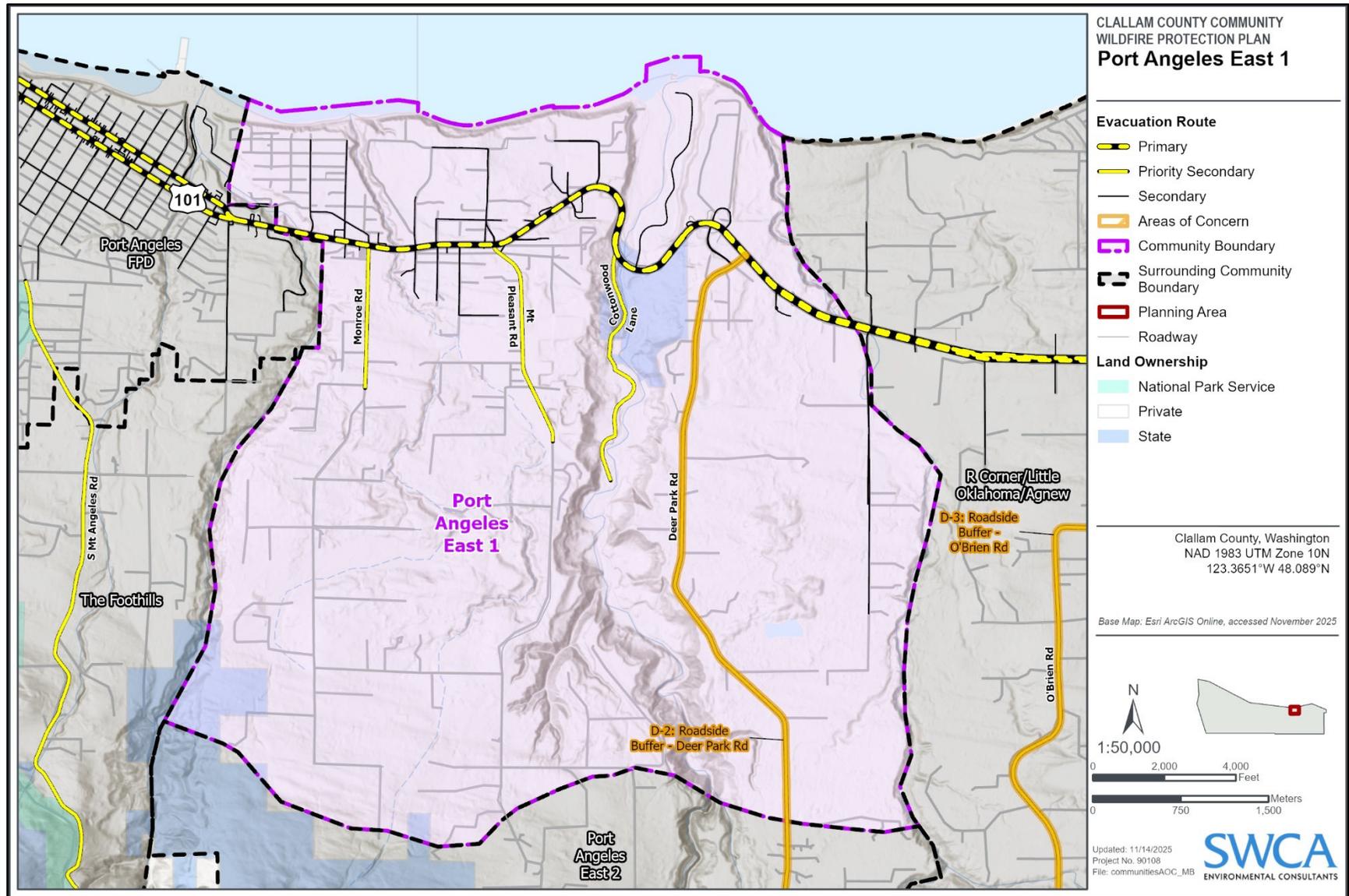


Figure D.19. Areas of concern and evacuation route details for the Port Angeles East 1 community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Proximity to fire response • Ingress/egress routes – Mt Pleasant Rd, Deer Park Rd • Morse Creek, riparian fuels 	<ul style="list-style-type: none"> • Fuels upslope to the south • Narrow roads, with overlapping veg going to the upslope • Poor defensible space for homes in WUI (e.g., homes off Cottonwood Ln)

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>D-2: Roadside Buffer Installation for Evacuation Hardening:</p> <ul style="list-style-type: none"> • Establish and maintain a roadside buffer along Blue Mountain Road and Deer Park Road to improve evacuation routes and reduce wildfire risk at the foothill-community interface.

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10. Port Angeles East 2 Field Assessment Summary

Port Angeles East 2		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	>300 feet with turnaround	Moderate
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	<30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	10% to 20%	Moderate
Topographic Features	3	Moderate
History of High Fire Occurrence	3	Moderate
Severe Fire Weather Potential	3	Moderate
Separation of Adjacent Structures	1	Low
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	<30 feet to slope	Extreme
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	3	High
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	100	High

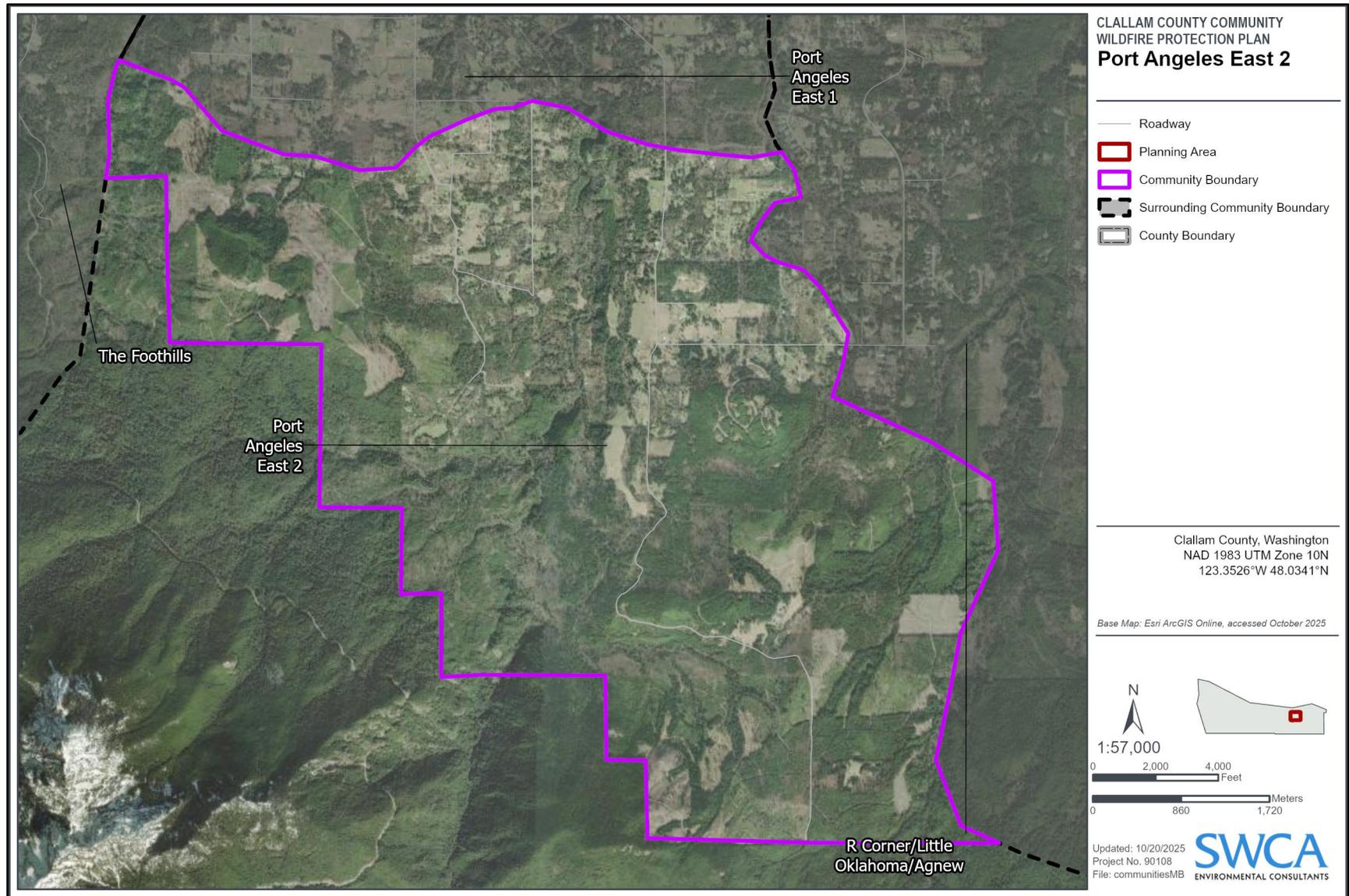


Figure D.20. Port Angeles East 2 community boundary.

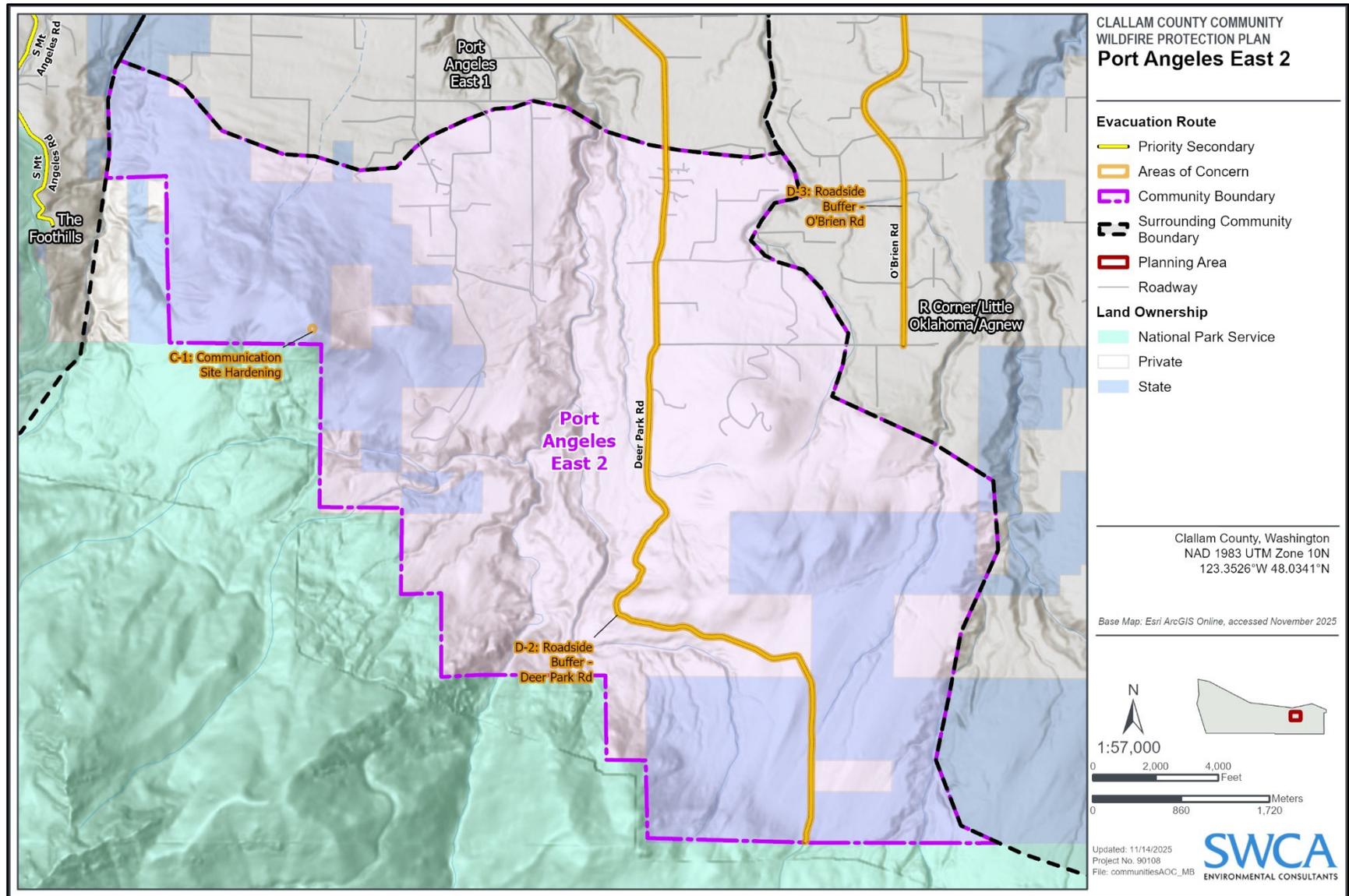


Figure D.21. Areas of concern detail and evacuation route details for the Port Angeles East 2 community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
Positive Attributes (Low Scores)	Negative Attributes (High Scores)
<ul style="list-style-type: none"> • Access via Deer Park Rd or Mount Pleasant Rd • Pump station • Proximity to fire response 	<ul style="list-style-type: none"> • Heavy fuels • Roads narrow upslope to south • Longer driveways

Recommended Mitigation
<p>Areas of Concern:</p> <p>C-1: Communication Infrastructure Hardening:</p> <ul style="list-style-type: none"> • Improve the resilience of critical communication infrastructure in wildfire-prone areas by reducing vegetation hazards, securing backup power, and coordinating long-term maintenance across tower sites. <p>D-2: Roadside Buffer Installation for Evacuation Hardening:</p> <ul style="list-style-type: none"> • Establish and maintain a roadside buffer along Blue Mountain Road and Deer Park Road to improve evacuation routes and reduce wildfire risk at the foothill-community interface.

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11. R Corner/Little Oklahoma/Agnew Field Assessment Summary

R Corner/Little Oklahoma/Agnew		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timbe-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	10% to 20%	Moderate
Topographic Features	3	Moderate
History of High Fire Occurrence	2	Moderate
Severe Fire Weather Potential	2	Moderate
Separation of Adjacent Structures	1	Low
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Moderate
Community Hazard Rating	76	High

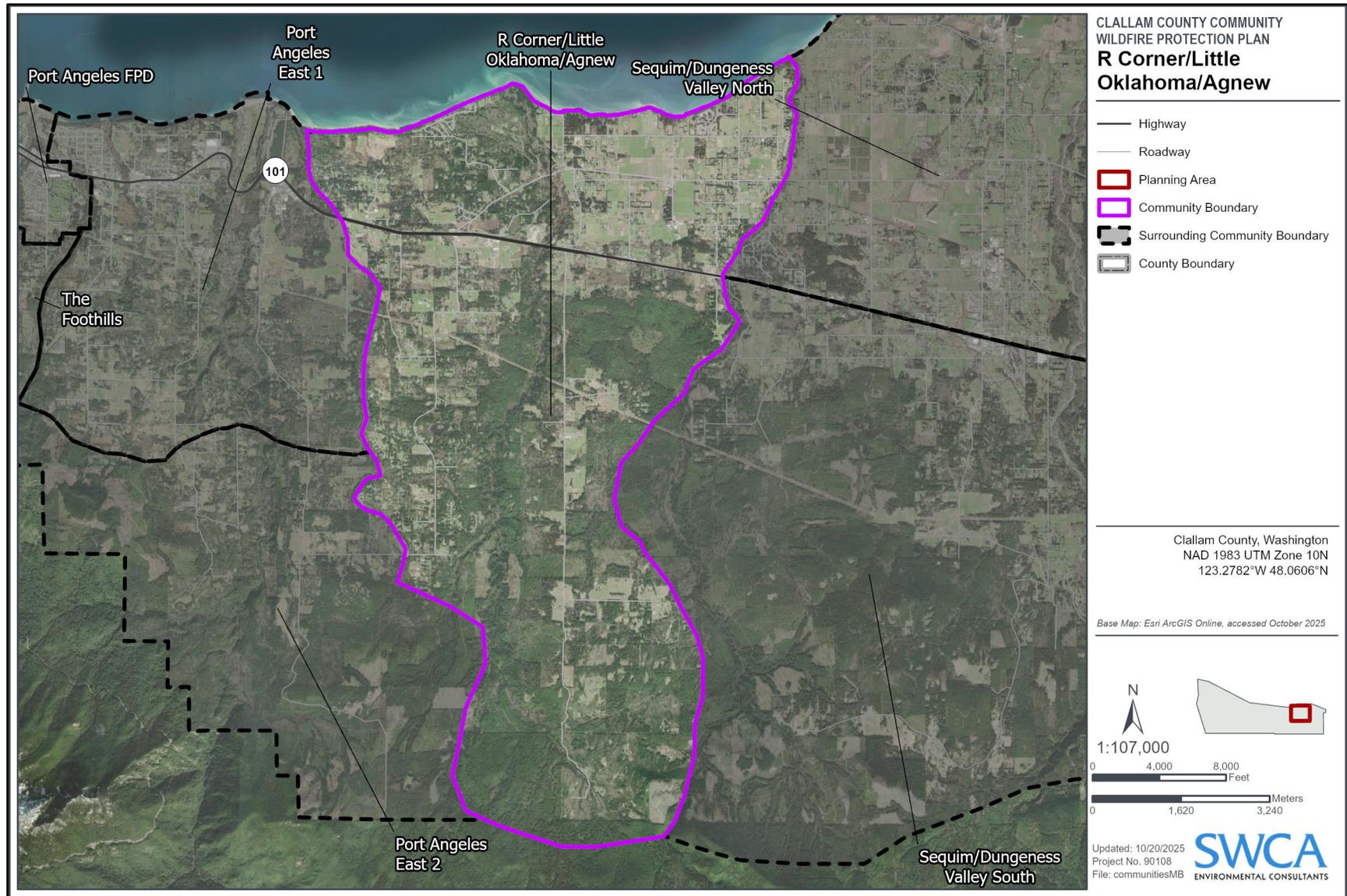


Figure D.22. R Corner/Little Oklahoma/Agnew community boundary.

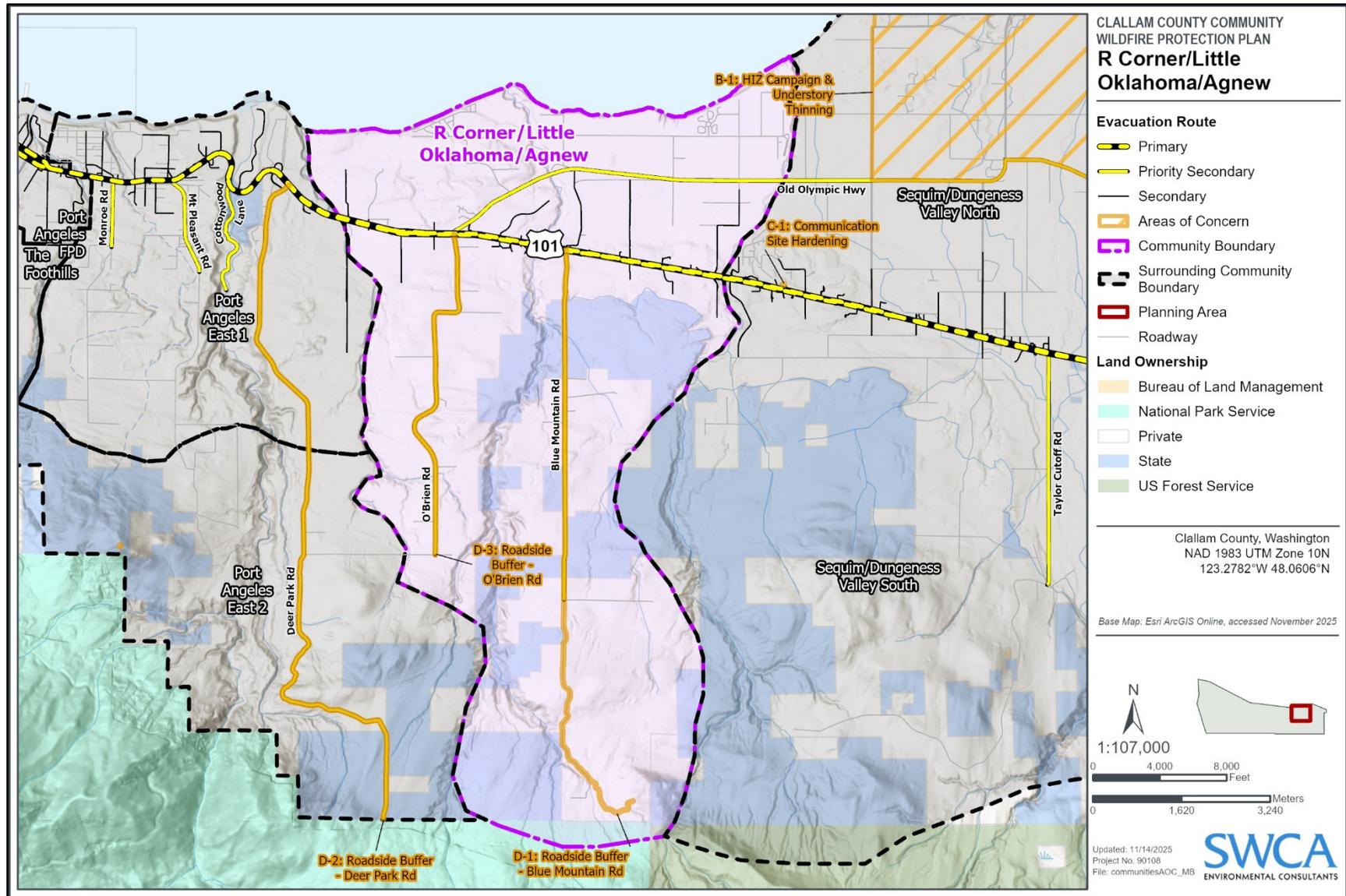


Figure D.23. Areas of concern and evacuation route details for the R Corner/Little Oklahoma/Agnew community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Plentiful hydrants • 70–100-foot average defensible space in new construction in north • 250 foot fuel break along transmission ROW 	<ul style="list-style-type: none"> • Poor defensible space in south portion • Steep topography in south, inaccessible driveways

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>D-2 and D-3: Roadside Buffer Installation for Evacuation Hardening:</p> <ul style="list-style-type: none"> • Establish and maintain a roadside buffer along Blue Mountain Road and Deer Park Road to improve evacuation routes and reduce wildfire risk at the foothill-community interface.

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12. Sequim/Dungeness Valley North Field Assessment Summary

Sequim/Dungeness Valley North		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>24 feet	Low
Road Conditions	Surfaced road; grade <5%	Low
Fire Truck Access	<300 feet with turnaround	Low
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Grass (GR)	Moderate
Defensible Space	>70 to <100 feet around structure	Moderate
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	1	Low
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	2	Moderate
Separation of Adjacent Structures	3	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	42	Moderate

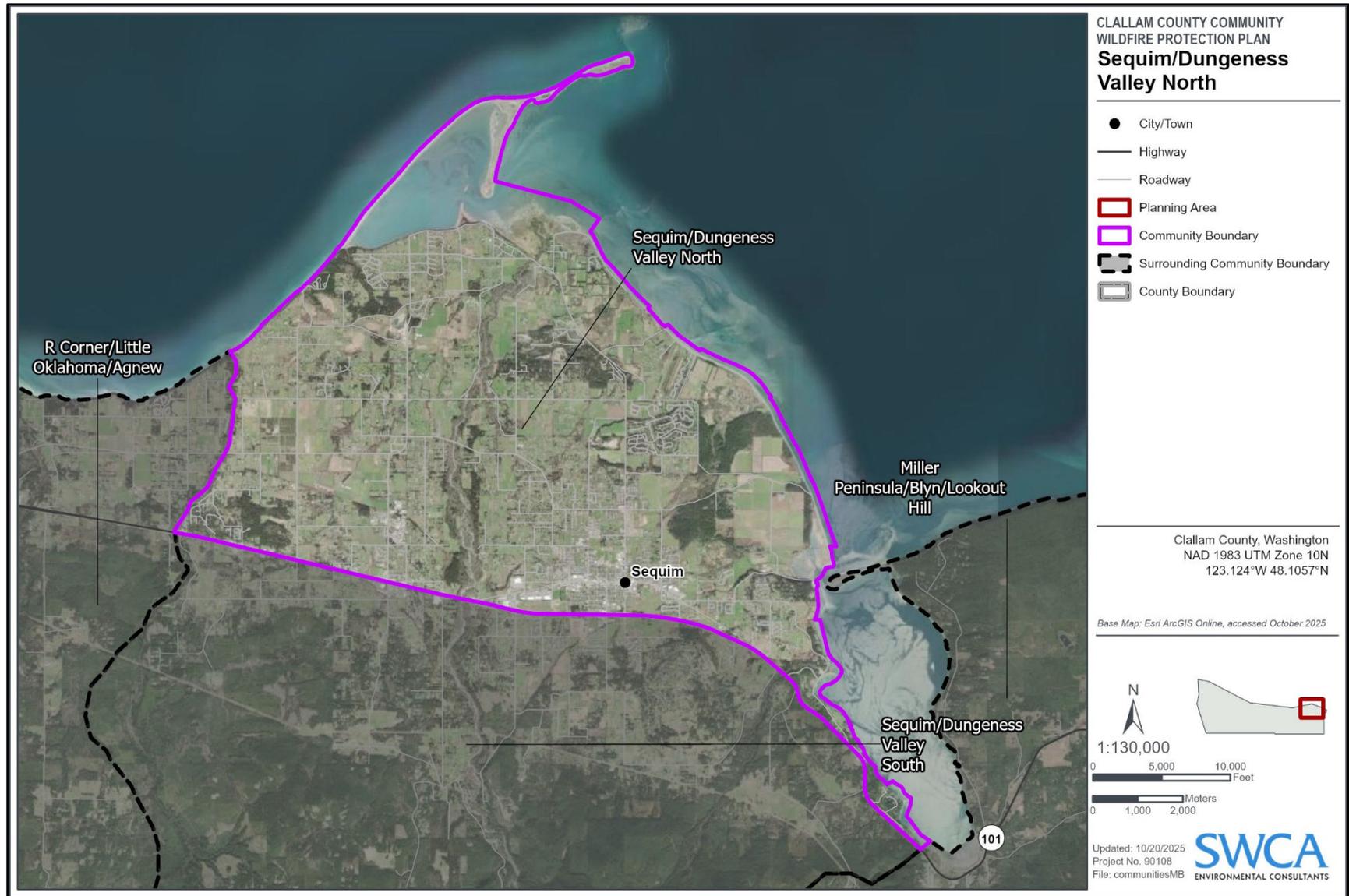


Figure D.24. Sequim/Dungeness Valley North community boundary.

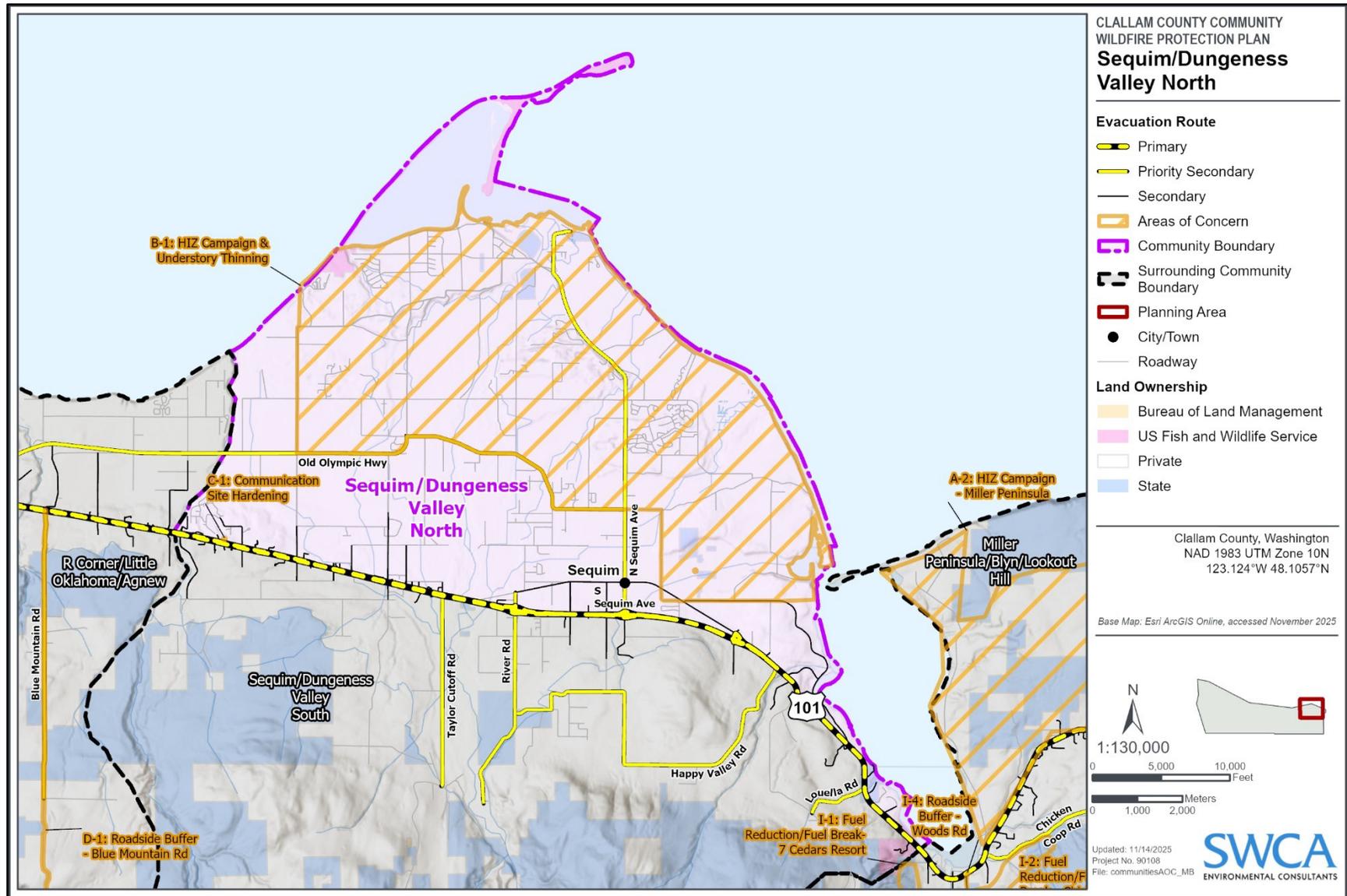


Figure D.25. Areas of concern and evacuation route details for the Sequim/Dungeness Valley North community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Agricultural lands, minimal fuels • New development with great defensible space • Hydrants • Multiple evacuation routes 	<ul style="list-style-type: none"> • Heavy tourism • Some areas with poor defensible space in forested regions (Woodland Heights)

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>B-1: HIZ Campaign & Understory Thinning for Wildfire Resilience:</p> <ul style="list-style-type: none"> • Conduct targeted HIZ campaign and understory thinning to reduce wildfire spread near communities and structures. <p>C-1: Communication Infrastructure Hardening:</p> <ul style="list-style-type: none"> • Improve the resilience of critical communication infrastructure in wildfire-prone areas by reducing vegetation hazards, securing backup power, and coordinating long-term maintenance across tower sites.

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13. Sequim/Dungeness Valley South Field Assessment Summary

Sequim/Dungeness Valley South		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	3	Moderate
History of High Fire Occurrence	3	Moderate
Severe Fire Weather Potential	3	Moderate
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	76	High

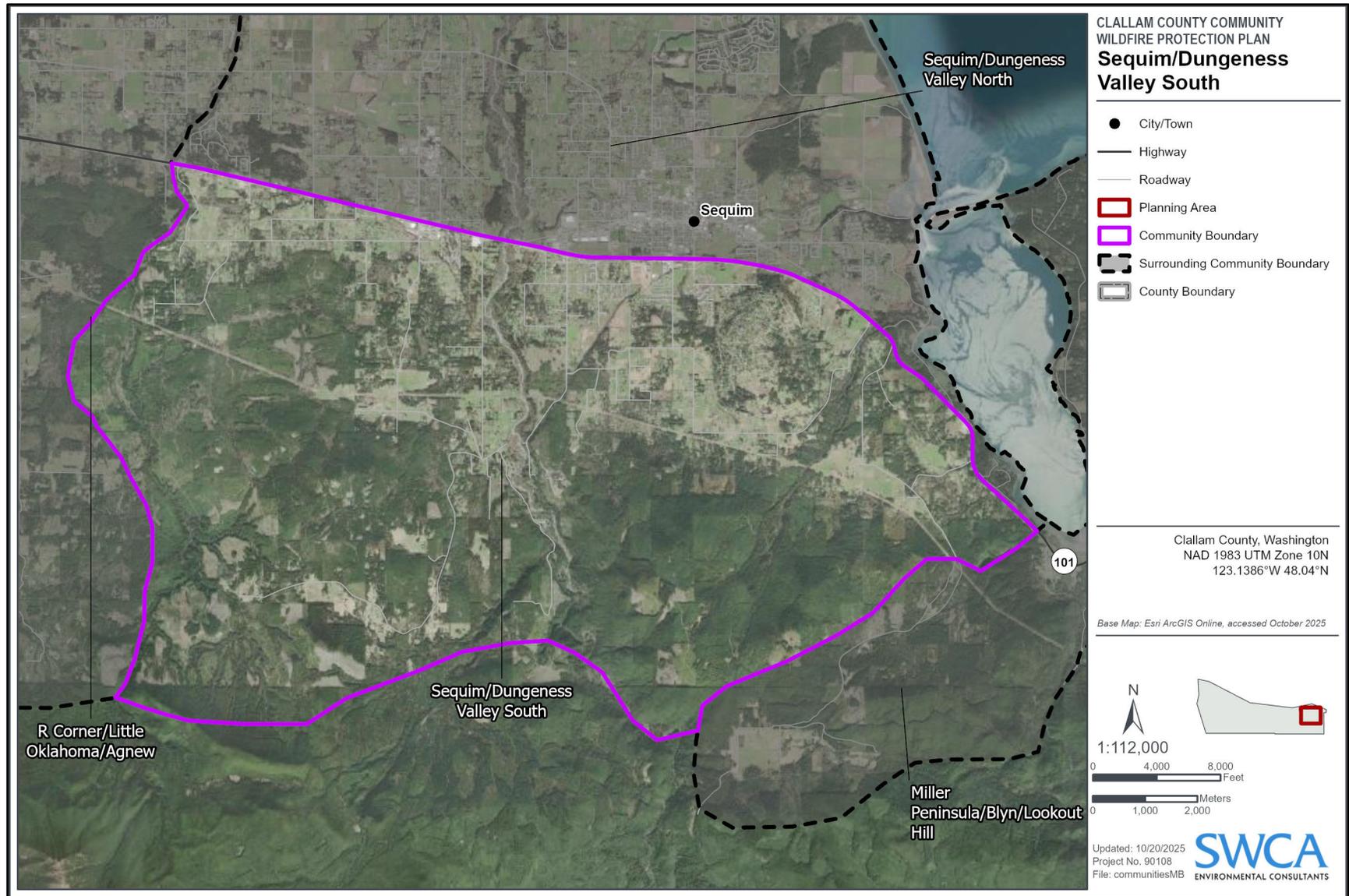


Figure D.26. Sequim/Dungeness Valley South community boundary.

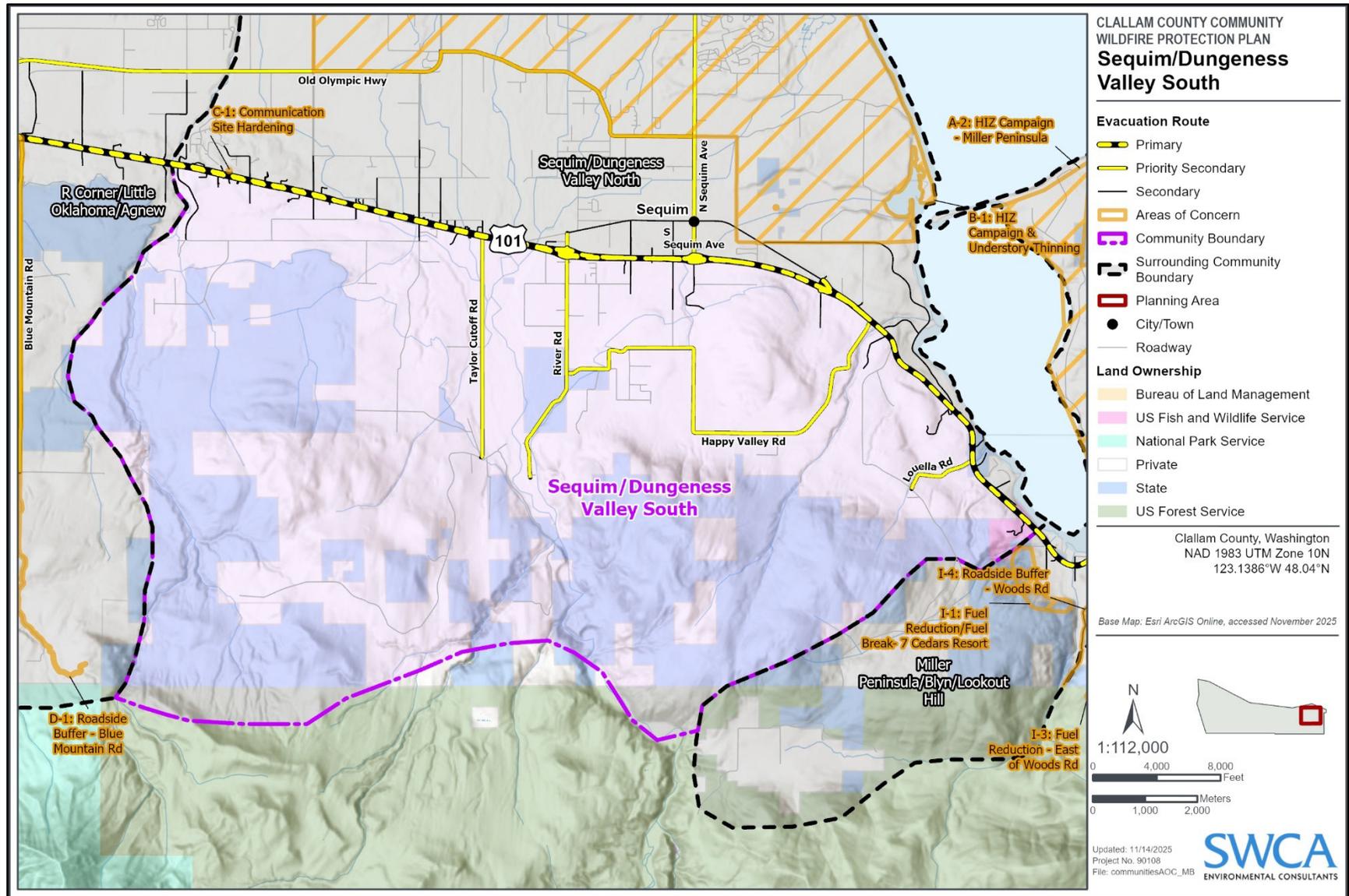


Figure D.27. Areas of concern and evacuation route details for the Sequim/Dungeness Valley South community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<p><u>Positive Attributes (Low Scores)</u></p> <ul style="list-style-type: none"> • Clear signage • Fire station in the community • Hydrants/water tanks present • Good yard maintenance 	<p><u>Negative Attributes (High Scores)</u></p> <ul style="list-style-type: none"> • Steep grades and narrow, unpaved roads/driveways in the south communities • Lacking east-west road connectivity

Recommended Mitigation
<p>Areas of Concern: None identified during the CWPP planning process.</p>

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14. Miller Peninsula/Blyn/Lookout Hill Field Assessment Summary

Miller Peninsula/Blyn/Lookout Hill		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	<30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	10% to 20%	Moderate
Topographic Features	2	Moderate
History of High Fire Occurrence	3	Moderate
Severe Fire Weather Potential	3	Moderate
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	93	High

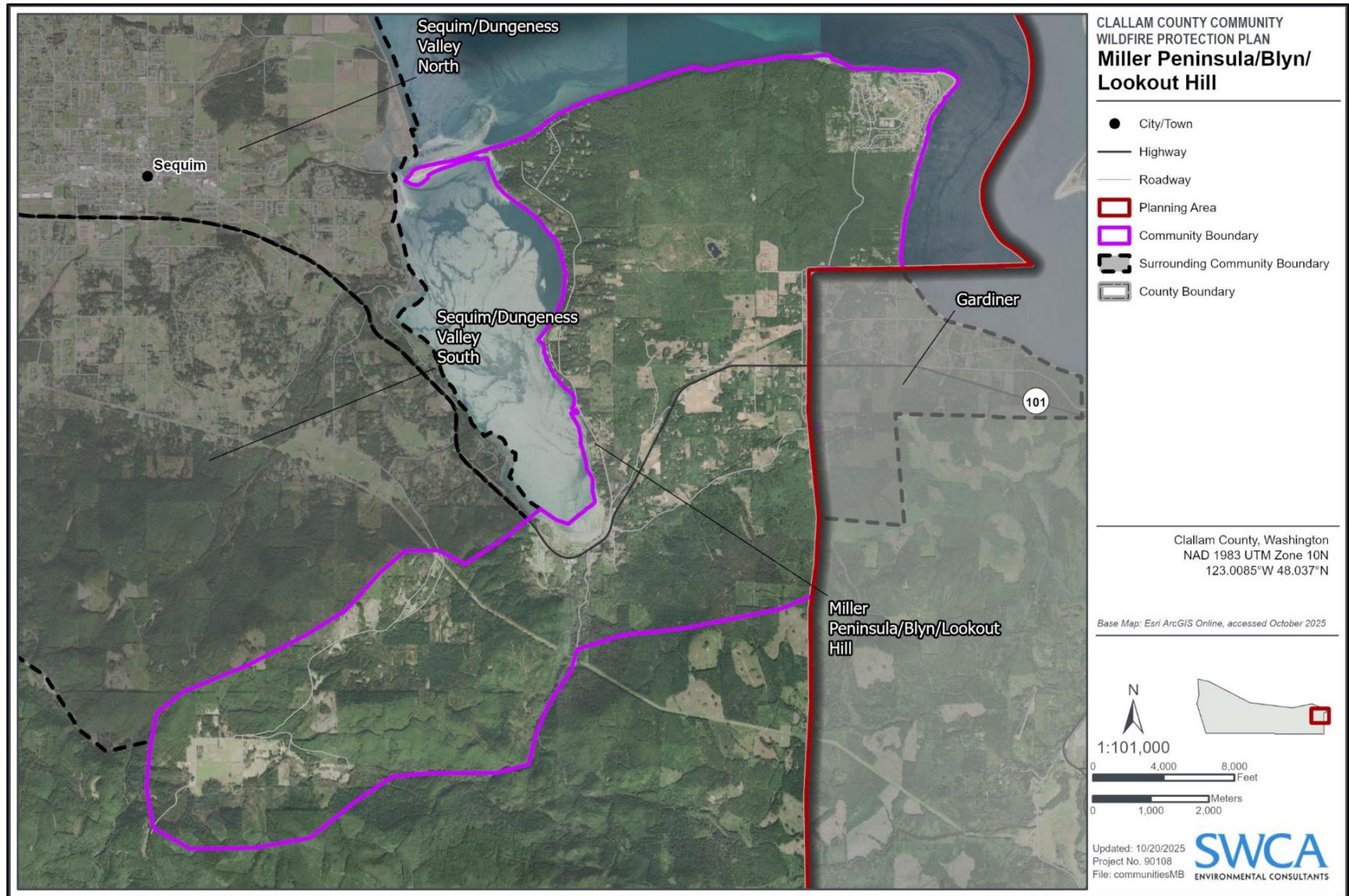


Figure D.28. Miller Peninsula/Blyn/Lookout Hill community boundary.

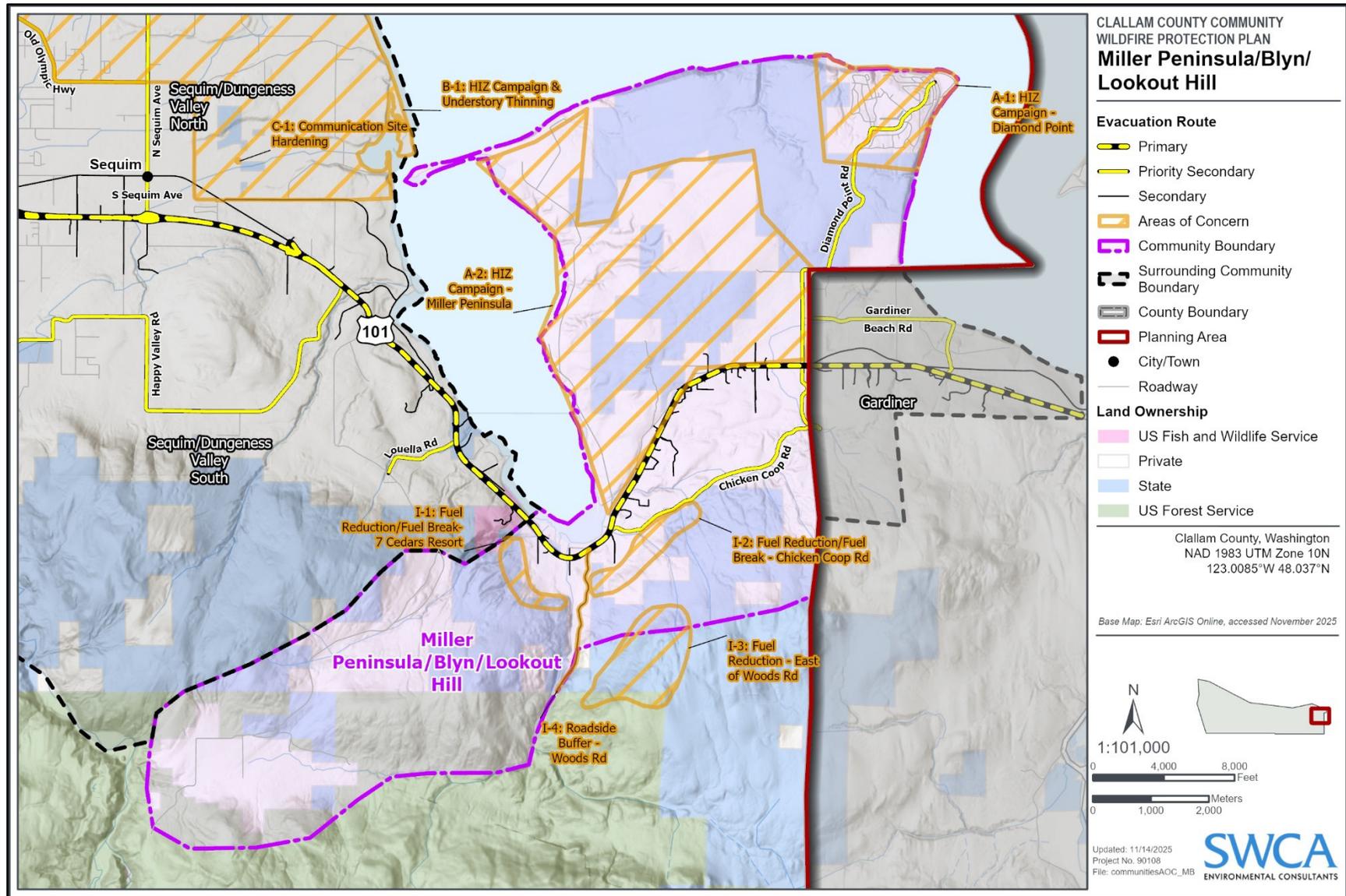
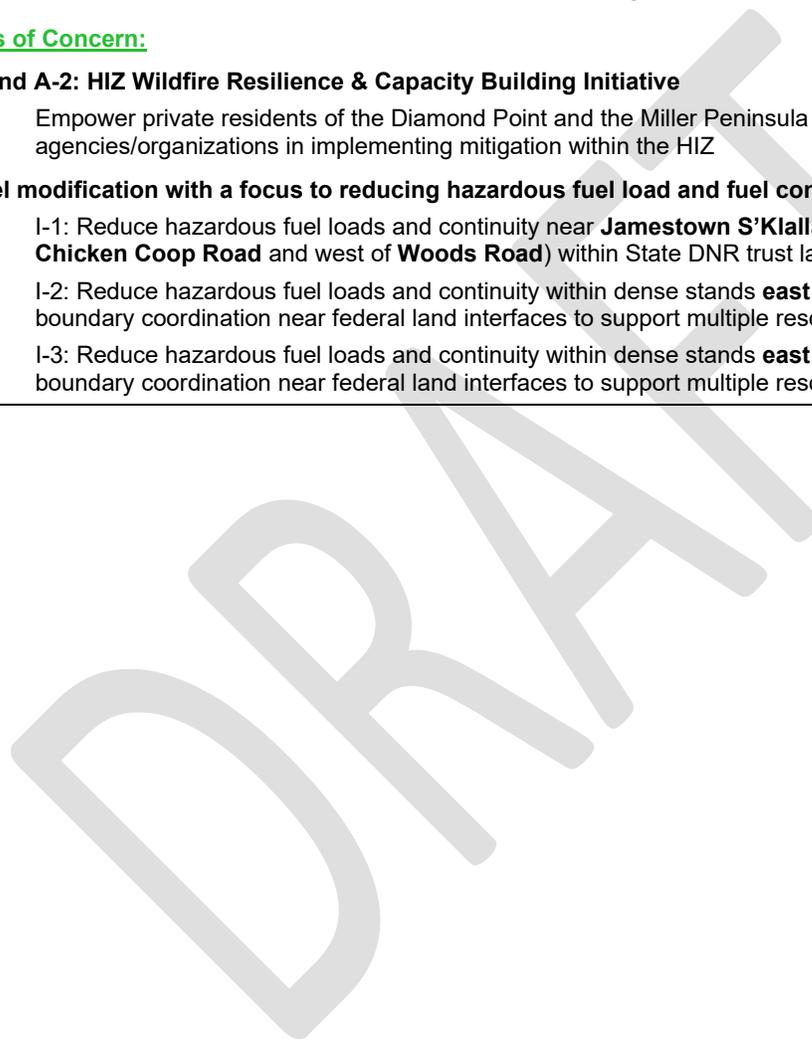


Figure D.29. Areas of concern and evacuation route details for the Miller Peninsula/Blyn/Lookout Hill community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
Positive Attributes (Low Scores)	Negative Attributes (High Scores)
<ul style="list-style-type: none"> • Street signs present and reflective • Two or more roads in and out of the community • Fire station within 5 miles of community 	<ul style="list-style-type: none"> • Poor defensible space • Combustible materials (wood siding and decks)

Recommended Mitigation
<p>Areas of Concern:</p> <p>A-1 and A-2: HIZ Wildfire Resilience & Capacity Building Initiative</p> <ul style="list-style-type: none"> • Empower private residents of the Diamond Point and the Miller Peninsula community and local agencies/organizations in implementing mitigation within the HIZ <p>I: Fuel modification with a focus to reducing hazardous fuel load and fuel continuity</p> <ul style="list-style-type: none"> • I-1: Reduce hazardous fuel loads and continuity near Jamestown S’Klallam Reservation (south of Chicken Coop Road and west of Woods Road) within State DNR trust lands and Tribal Lands. • I-2: Reduce hazardous fuel loads and continuity within dense stands east of Woods Road. Pursue cross-boundary coordination near federal land interfaces to support multiple resource objectives. • I-3: Reduce hazardous fuel loads and continuity within dense stands east of Woods Road. Pursue cross-boundary coordination near federal land interfaces to support multiple resource objectives.



15. Gardiner Field Assessment Summary

Gardiner		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
<i>Entrance/Exit</i>	2 or more roads in and out	Low
<i>Road Width</i>	>20 to <24 feet	Moderate
<i>Road Conditions</i>	Surfaced road; grade >5%	Low
<i>Fire Truck Access</i>	<300 feet with no turnaround	High
<i>Street Signs</i>	Present – reflective	Low
Vegetation (Fuel Model)		
<i>Predominate Vegetation</i>	Grass (GR)	Moderate
<i>Defensible Space</i>	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
<i>Slope</i>	<9%	Low
<i>Topographic Features</i>	1	Low
<i>History of High Fire Occurrence</i>	1	Low
<i>Severe Fire Weather Potential</i>	1	Low
<i>Separation of Adjacent Structures</i>	2	Moderate
Roofing Assembly		
<i>Roofing</i>	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
<i>Siding Materials</i>	Combustible (wood or vinyl)	Extreme
<i>Deck and Fencing</i>	Combustible deck and fence	Extreme
<i>Building Setback</i>	>30 feet to slope	Low
Available Fire Protection		
<i>Water Sources</i>	Yes	Low
<i>Water Source Type</i>	Hydrant	Low
<i>Water Source Score</i>	1	Low
<i>Organized Response</i>	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
<i>Utilities Placement</i>	Both aboveground	Extreme
Community Hazard Rating	50	Moderate

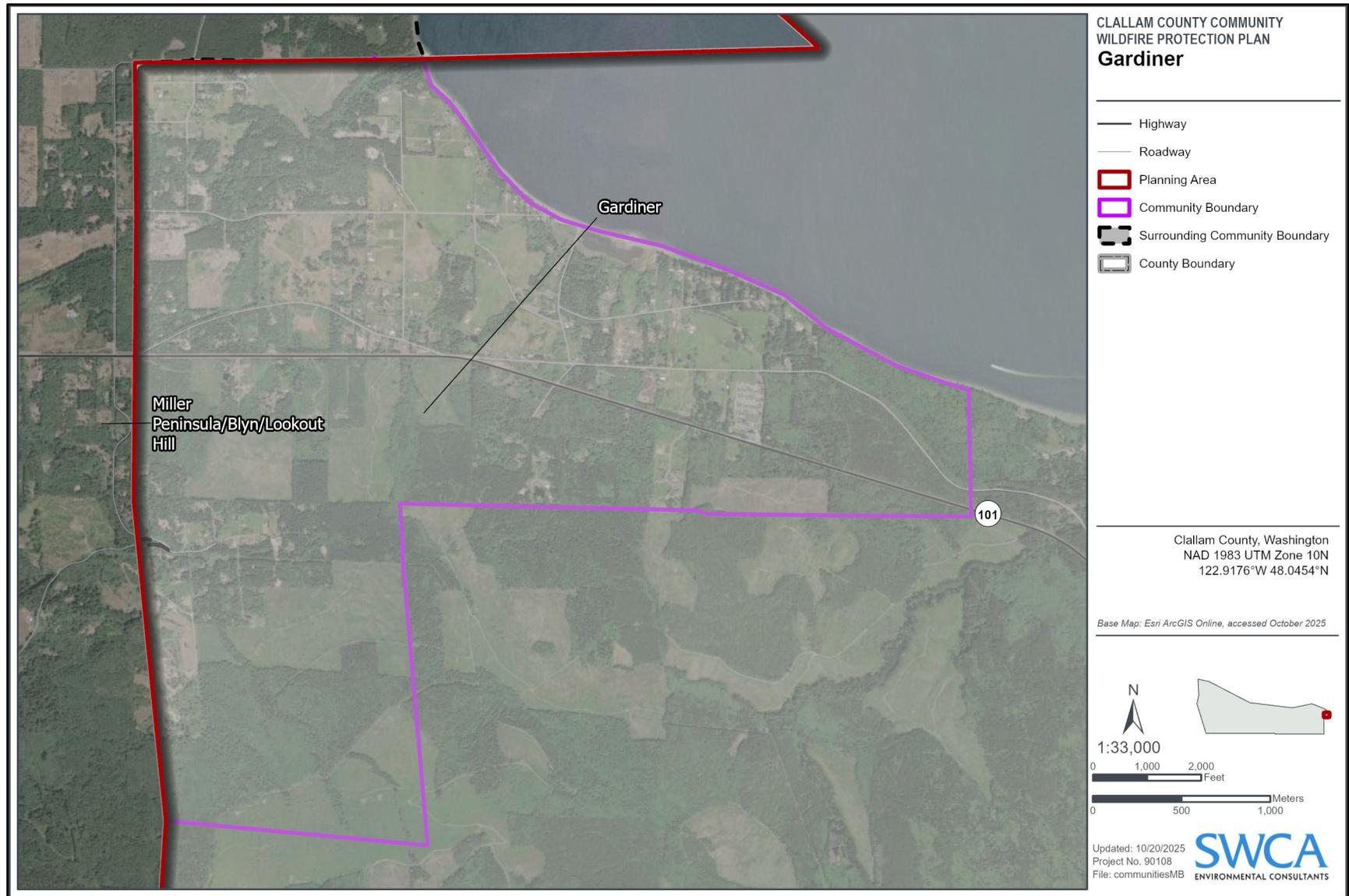


Figure D.30. Gardiner community boundary.

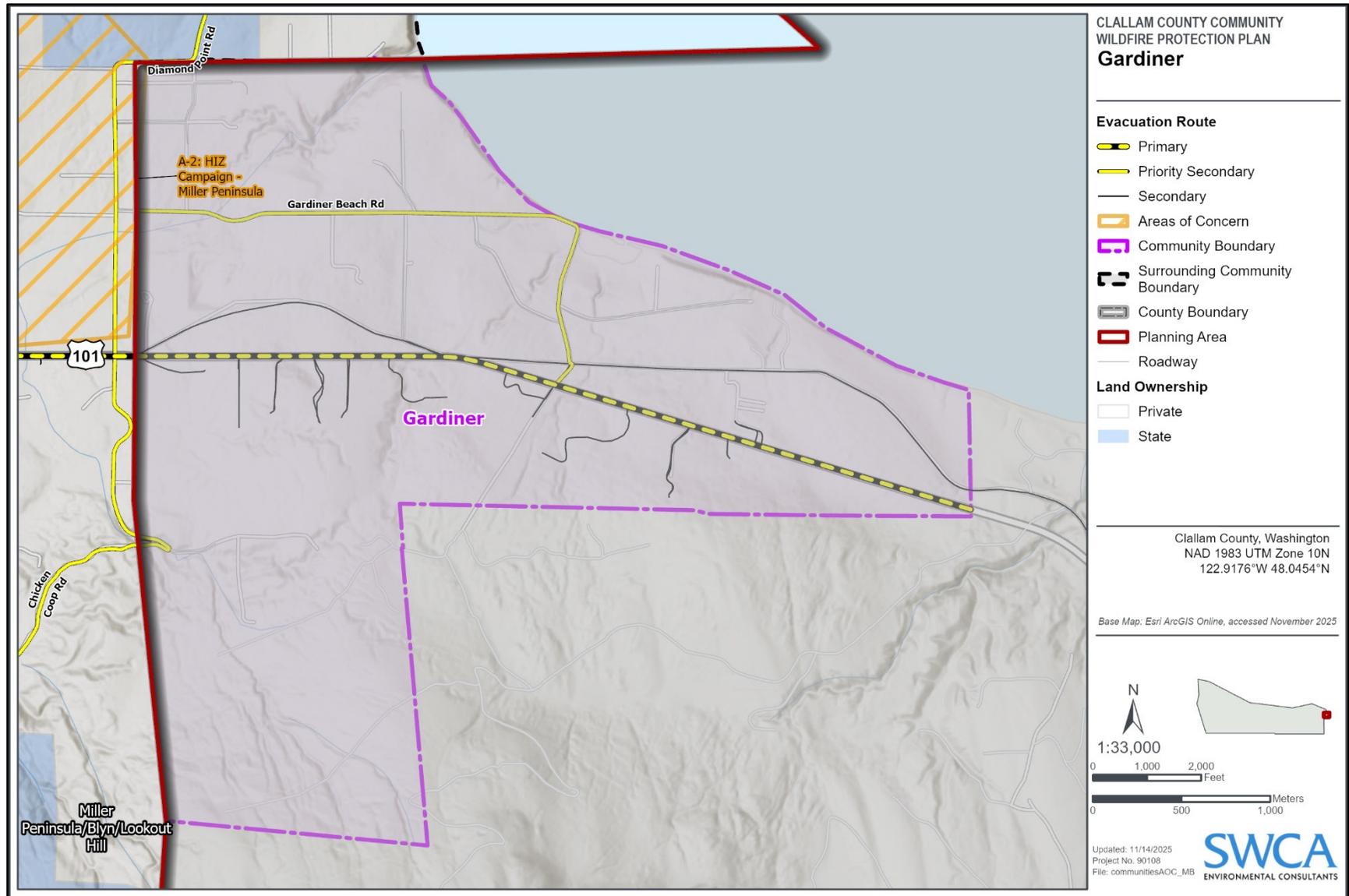


Figure D.31. Areas of concern and evacuation route details for the Gardiner community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<p><u>Positive Attributes (Low Scores)</u></p> <ul style="list-style-type: none"> • Fire station in the community • Good defensible space and distance between structures • Multiple ways in and out of communities 	<p><u>Negative Attributes (High Scores)</u></p> <ul style="list-style-type: none"> • Combustible materials (wood siding and decks) • Scotch broom

Recommended Mitigation
<p>Areas of Concern: None identified during the CWPP planning process.</p>

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16. Ozette Field Assessment Summary

Ozette		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	1 road in and out	Extreme
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	>300 feet with turnaround	Moderate
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	2	Moderate
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Moderate
Water Source Type	Other – Lake	Moderate
Water Source Score	2	Moderate
Organized Response	Station >5 miles from community	High
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	79	High

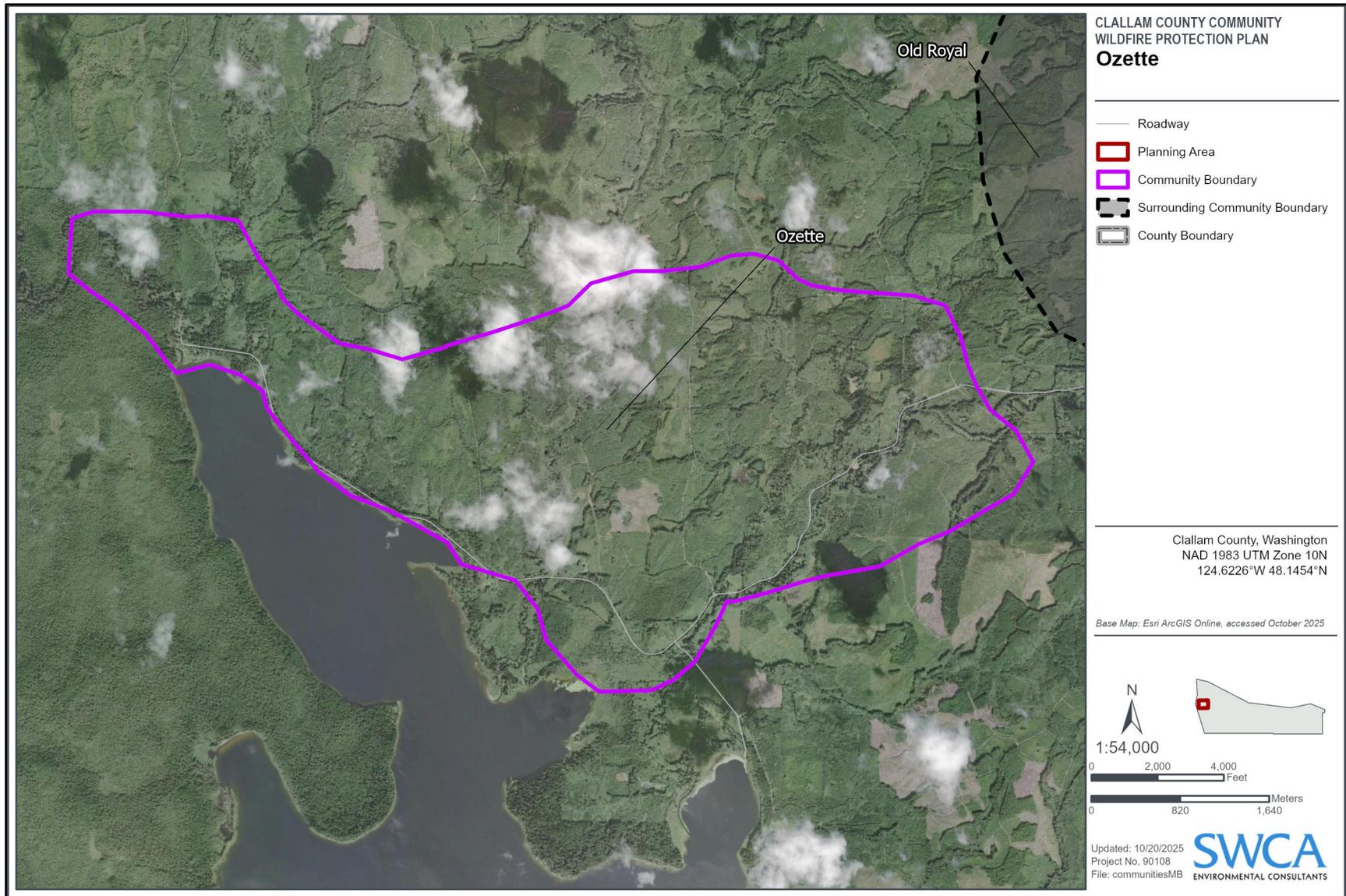


Figure D.32. Ozette community boundary.

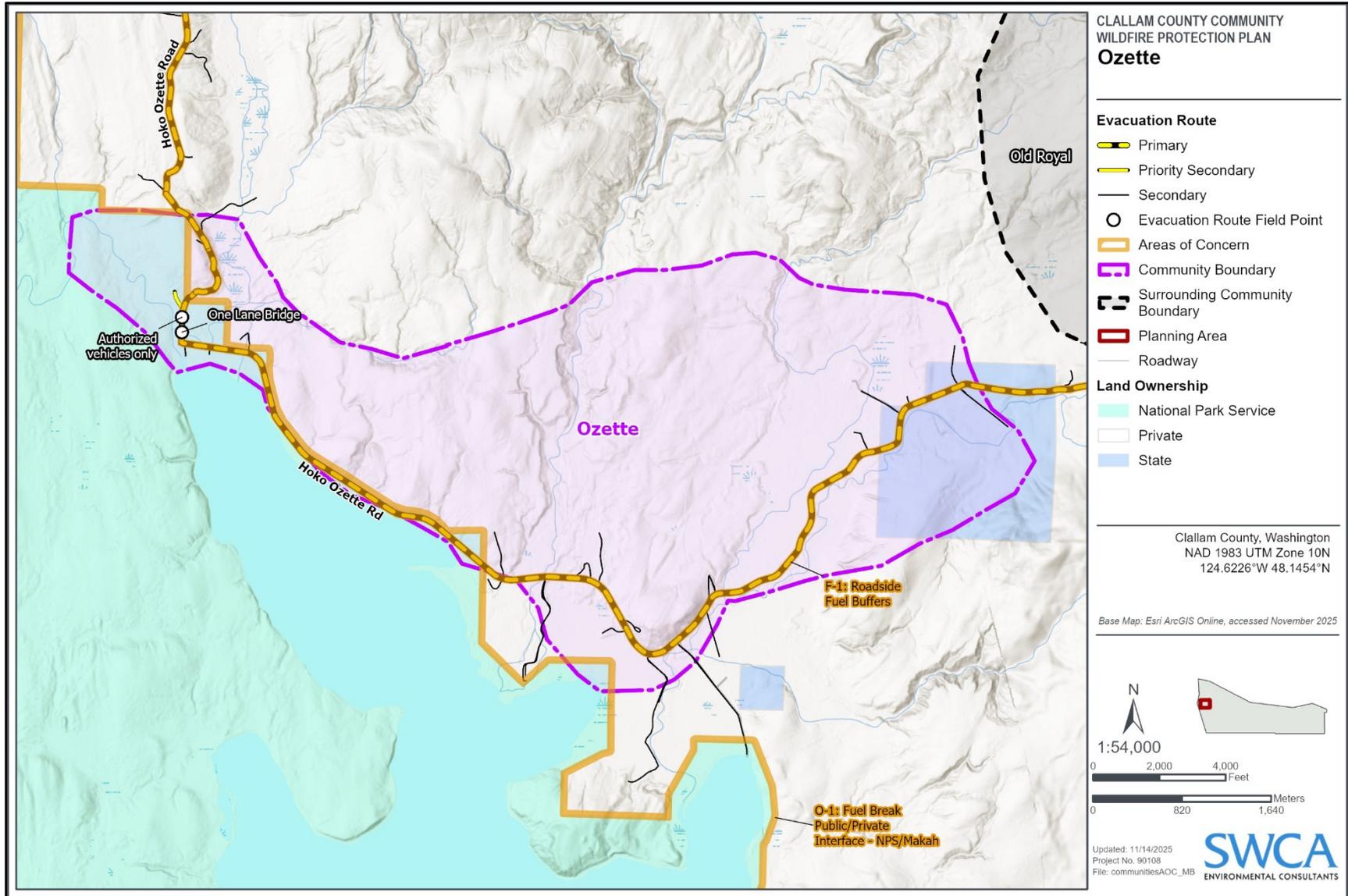


Figure D.33. Areas of concern and evacuation route details for the Ozette community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<p><u>Positive Attributes (Low Scores)</u></p> <ul style="list-style-type: none"> • Lake/ivers as a water source • Low population density 	<p><u>Negative Attributes (High Scores)</u></p> <ul style="list-style-type: none"> • Poor cell service • Only one way in/out • Fire station >10 miles away (Clallam Bay) • Inaccessible driveways • Tourist activity

Recommended Mitigation
<p>Areas of Concern:</p> <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.

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17. Old Royal Field Assessment Summary

Old Royal		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	1 road in and out	Extreme
Road Width	> 20 ft < 24 ft	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	>300 feet with turnaround	Moderate
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	2	Moderate
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Other	High
Water Source Score	3	High
Organized Response	Station > 5 mi from community	High
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	82	High

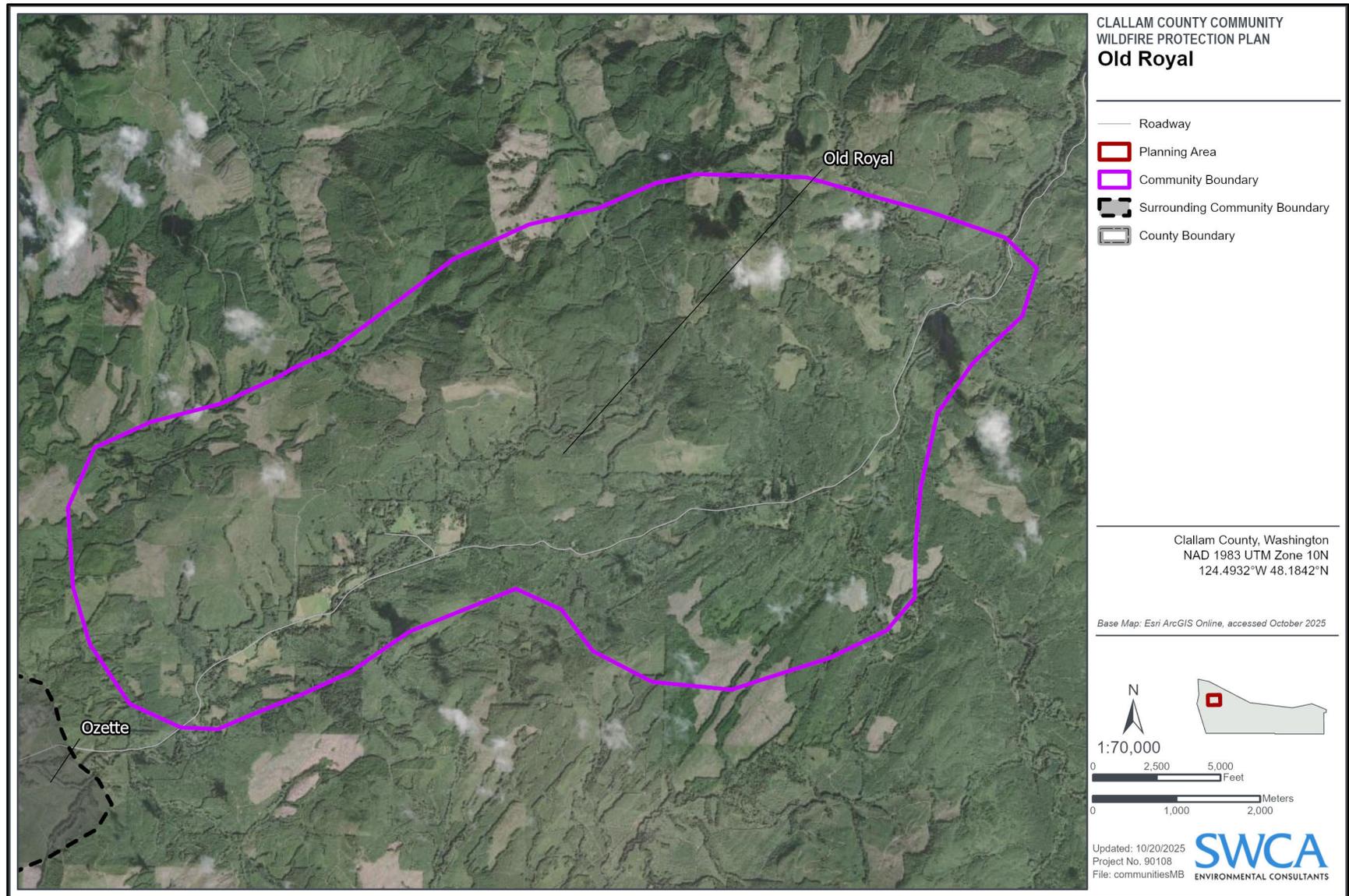


Figure D.34. Old Royal community boundary.

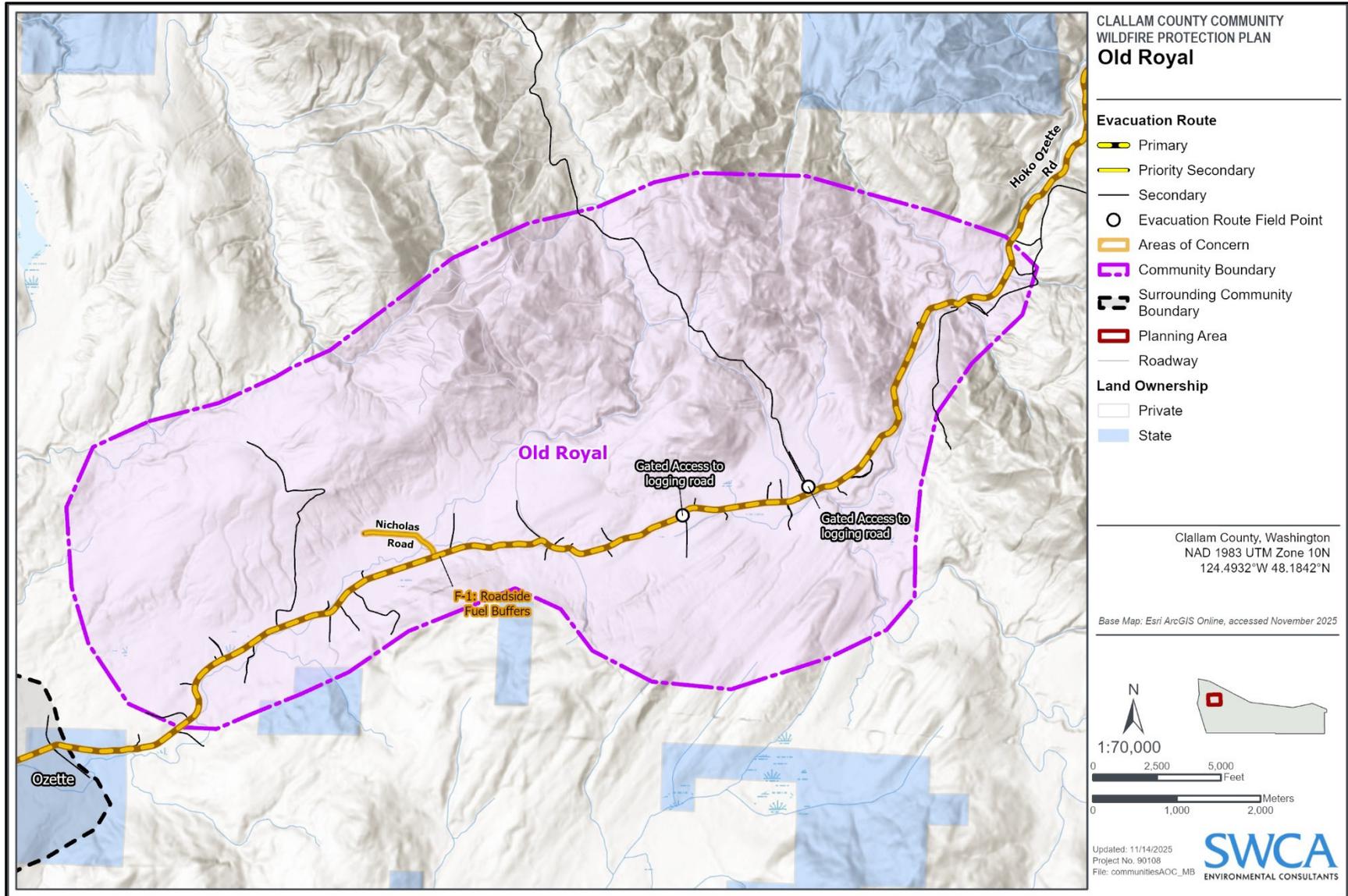


Figure D.35. Areas of concern and evacuation route details for the Old Royal community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed area of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<p><u>Positive Attributes (Low Scores)</u></p> <ul style="list-style-type: none"> • Road signs present, reflective • 2 ways in/out • Sparse population • River access for water 	<p><u>Negative Attributes (High Scores)</u></p> <ul style="list-style-type: none"> • >10 miles to nearest fire station (Clallam Bay) • Limited water sources • Inaccessible driveways • Poor cell service

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.

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18. Beaver/Sappho/Snider Peak/Sol Duc Valley Field Assessment Summary

Beaver/Sappho/Snider Peak/Sol Duc Valley		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Low
Fire Truck Access	>300 feet with turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	<30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	1	Low
History of High Fire Occurrence	2	Moderate
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	1	Low
Roofing Assembly		
Roofing	Class A - metal roof; clay/concrete tiles; slate; asphalt shingles	Low
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	<30 feet to slope	Extreme
Available Fire Protection		
Water Sources	Yes	Moderate
Water Source Type	Other - River	Moderate
Water Source Score	1	Moderate
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	85	High

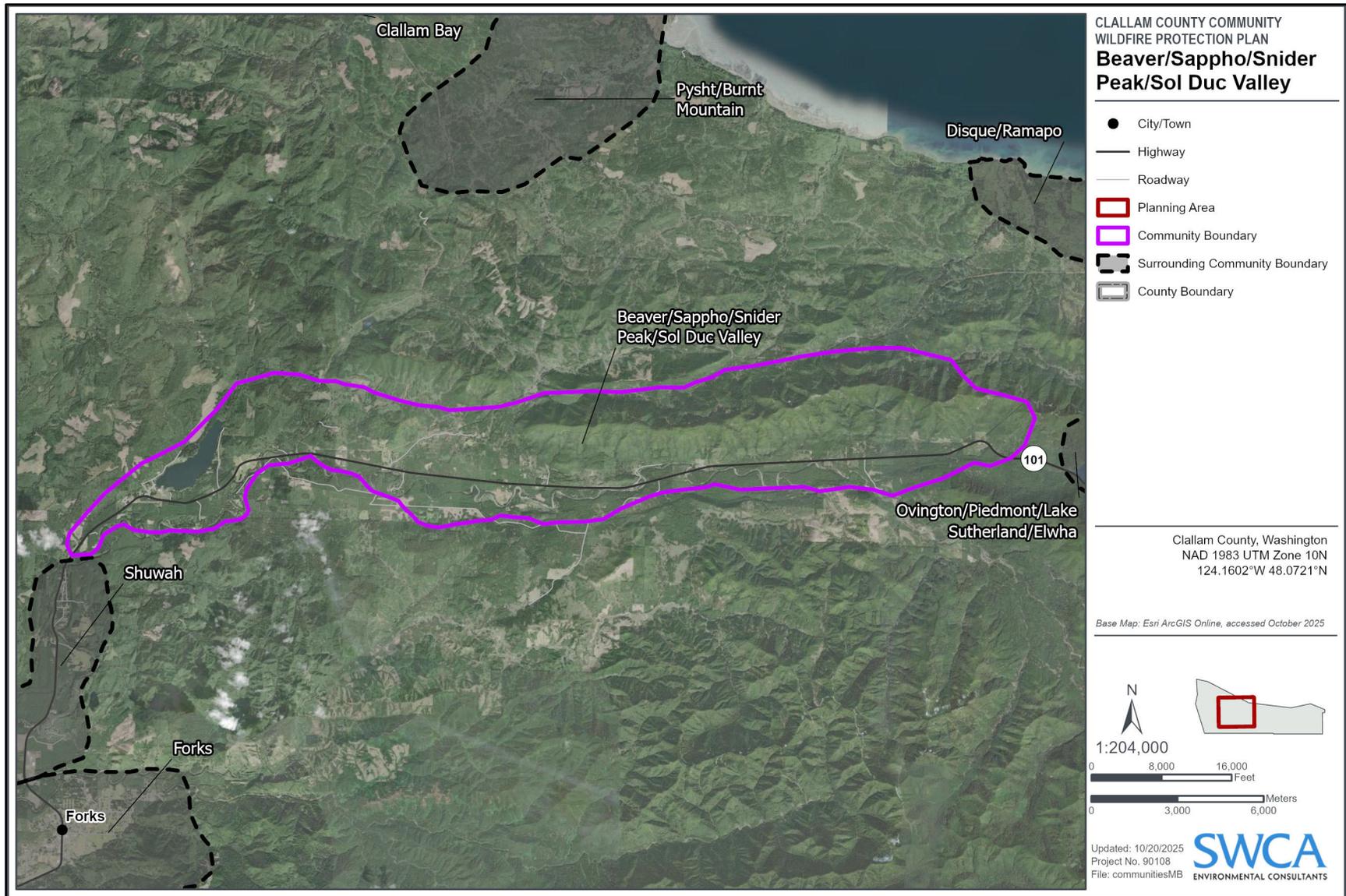


Figure D.36. Beaver/Sappho/Snider Peak/Sol Duc Valley community boundary.

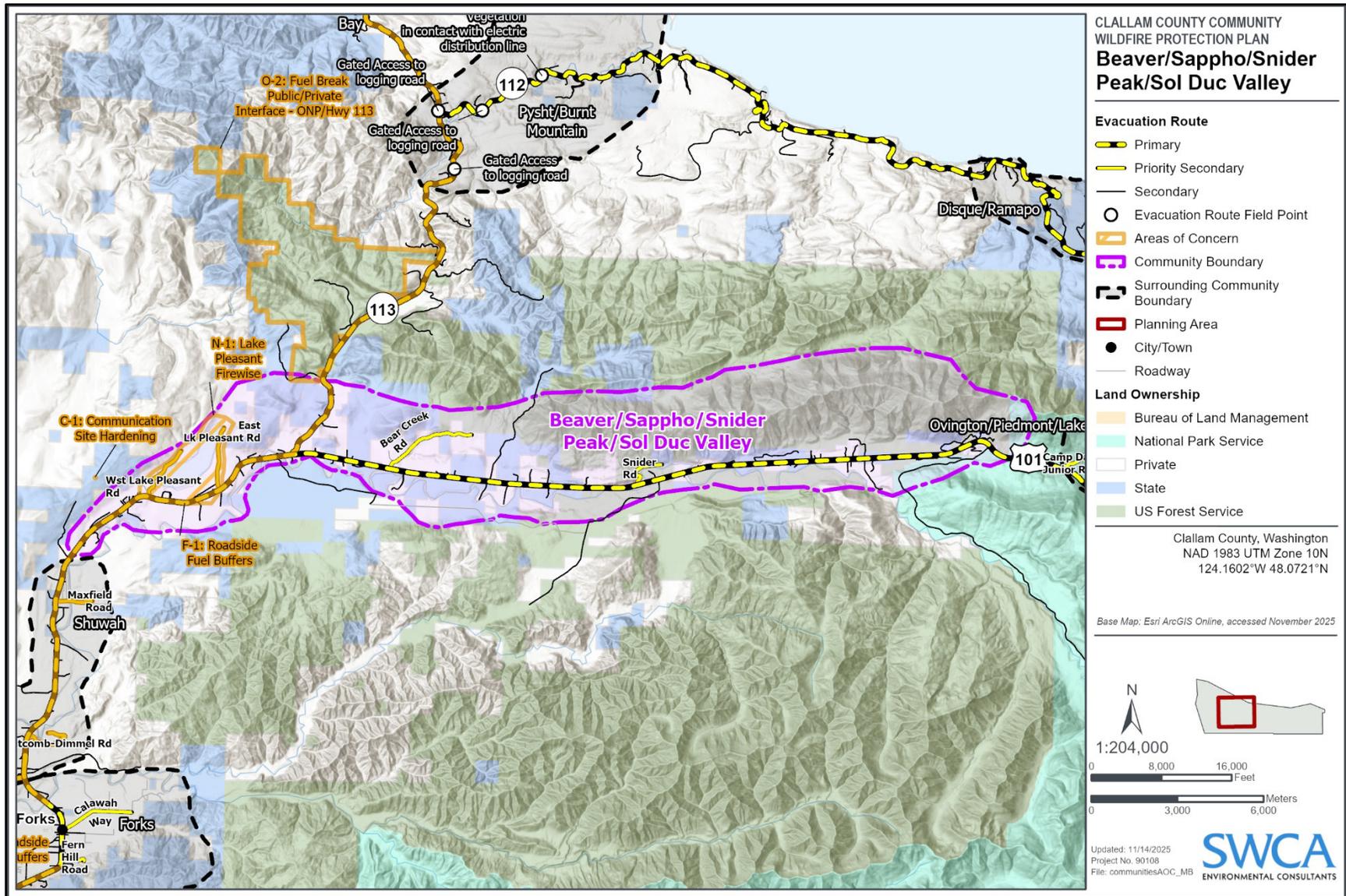


Figure D.37. Areas of concern and evacuation route details for the Beaver/Sappho/Snider Peak/Sol Duc Valley community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Good access via Hwy 101 • Lake access for water • Veg management around Hwy 101 • Riparian fuels • Reflective signs/house numbers 	<ul style="list-style-type: none"> • High traffic – recreation/tourists • Steep slopes, landslide-prone • Homes on steep slopes around lakes

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts. <p>N-1: Lake Pleasant Firewise:</p> <ul style="list-style-type: none"> • Promote pursuit of additional Firewise Communities recognition in community of Lake

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19. Ovington/Piedmont/Lake Sutherland/Elwha Field Assessment Summary

Ovington/Piedmont/Lake Sutherland/Elwha		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	<300 feet with turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	21% to 30%	Moderate
Topographic Features	4	High
History of High Fire Occurrence	3	Moderate
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Extreme
Available Fire Protection		
Water Sources	Yes	Moderate
Water Source Type	Other	Moderate
Water Source Score	2	Moderate
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	86	High

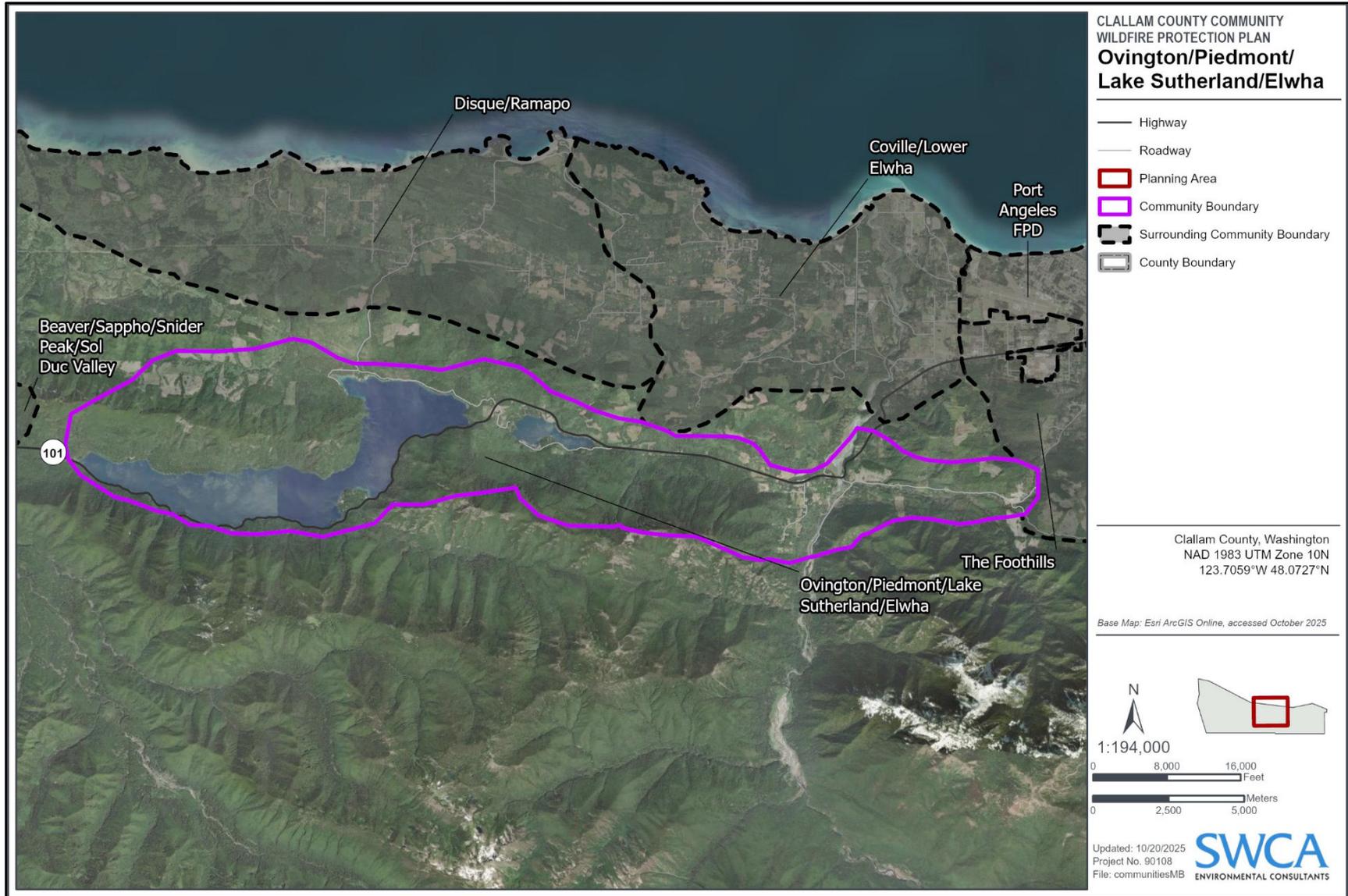


Figure D.38. Ovington/Piedmont/Lake Sutherland/Elwha community boundary.

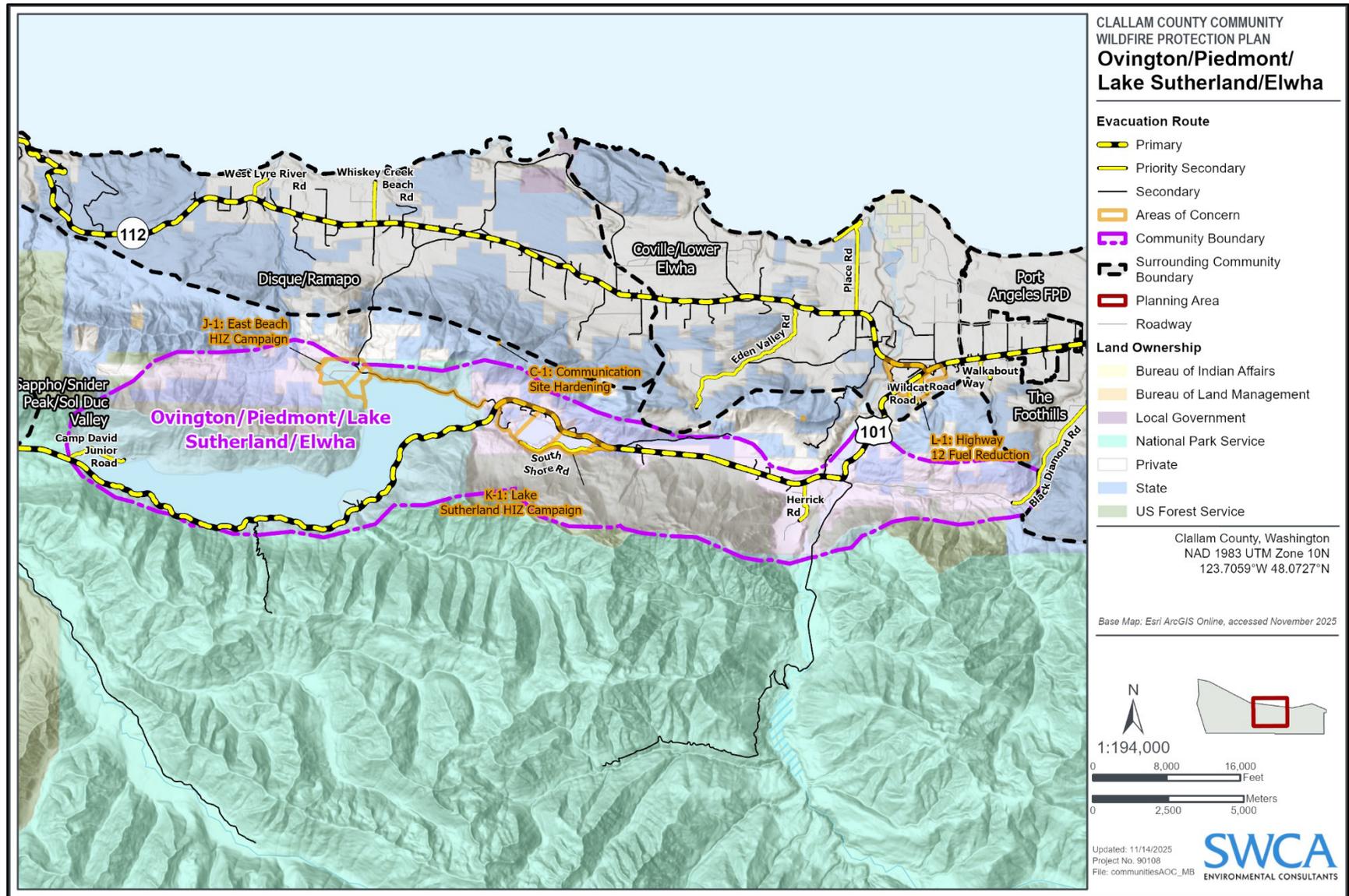


Figure D.39. Areas of concern and evacuation route details for the Ovington/Piedmont/Lake Sutherland/Elwha community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Lake as a water source • Access via Hwy 101 – wide shoulders, veg buffer • Signage and reflective house numbers 	<ul style="list-style-type: none"> • Tourist activity • Landslide-prone • Poor cell service • Extremely high slopes and access to waterfront homes

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>J-1: Resident HIZ Projects – East Beach Road:</p> <ul style="list-style-type: none"> • Increase wildfire resilience for homes along East Beach Rd and in the Lake Crescent Area through HIZ campaigns, roadside buffers, and pre-planning for properties on dead-end roads. <p>K-1: Resident HIZ Projects – Lake Sutherland:</p> <ul style="list-style-type: none"> • Increase wildfire resilience for homes in the Lake Crescent Area through HIZ campaigns, roadside buffers, and pre-planning for properties on dead-end roads.

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20. Shuwah Field Assessment Summary

Shuwah		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	High
Defensible Space	>30 to <70 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	10% to 20%	Moderate
Topographic Features	2	Moderate
History of High Fire Occurrence	2	Moderate
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Moderate
Water Source Type	Other - River	Moderate
Water Source Score	2	Moderate
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	91	High

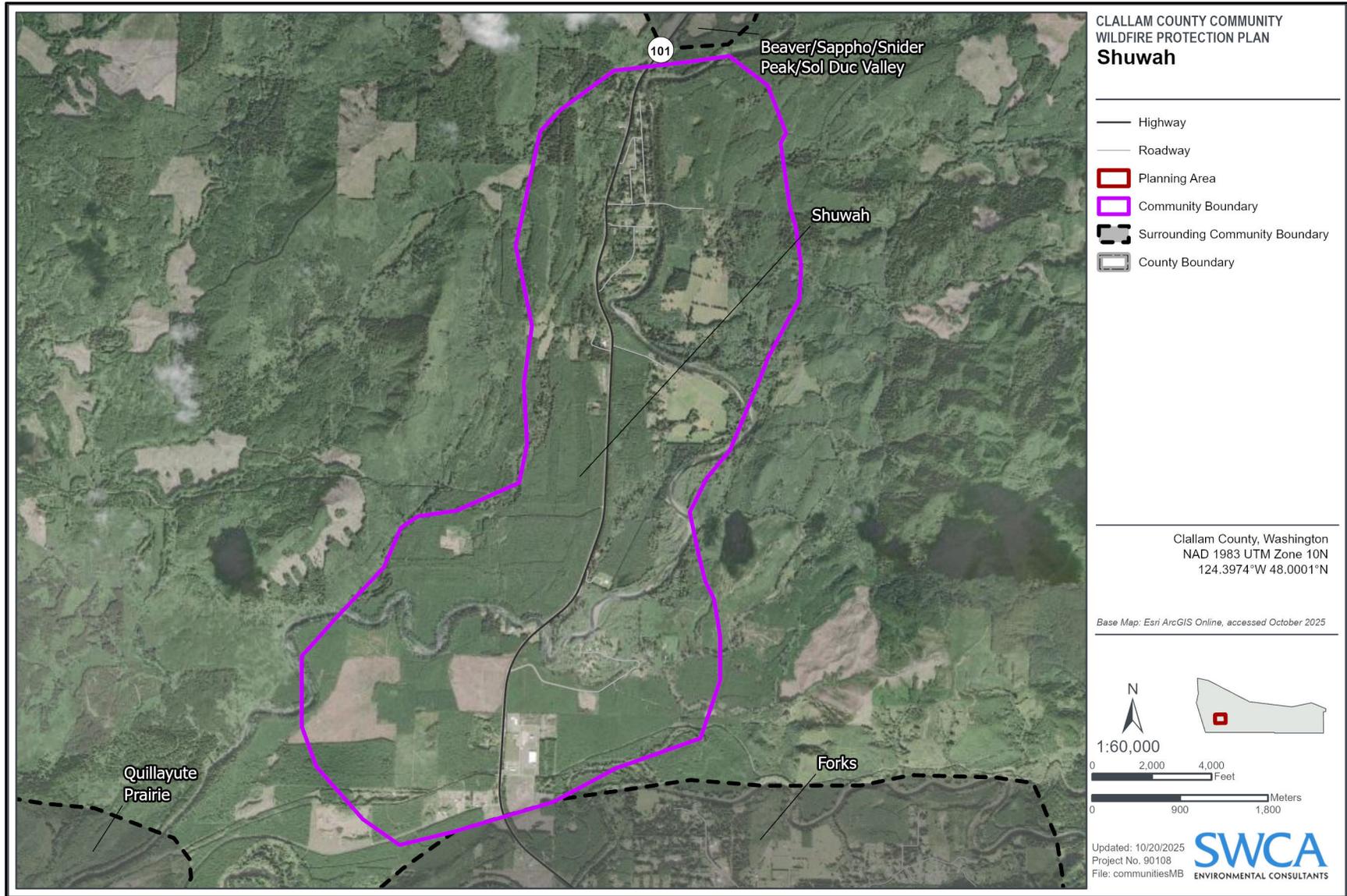


Figure D.40. Shuwah community boundary.

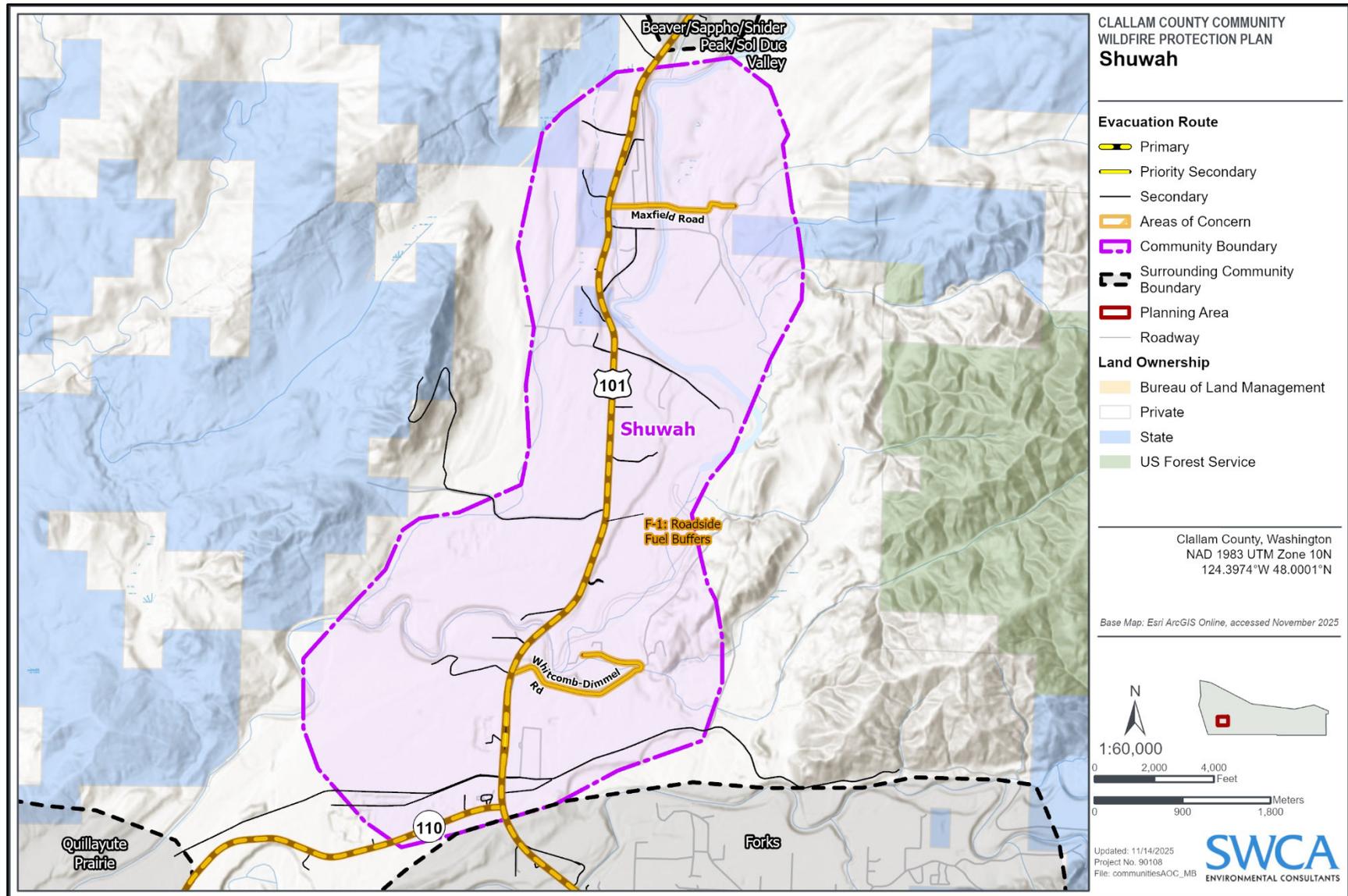


Figure D.41. Areas of concern and evacuation route details for the Shuwah community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed area of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<u>Positive Attributes (Low Scores)</u>	<u>Negative Attributes (High Scores)</u>
<ul style="list-style-type: none"> • Access via Hwy 101 (main ingress/egress) • Active timber harvest/management along Hwy 101 (fuel breaks) • Access to Sol Duc River (water source) • Proximity to fire response 	<ul style="list-style-type: none"> • Limited evacuation routes • Season tourist traffic – potential for congestion

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.

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21. Quillayute Prairie Field Assessment Summary

Quillayute Prairie		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade <5%	Low
Fire Truck Access	>300 feet with turnaround	Moderate
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	1	Low
History of High Fire Occurrence	2	Moderate
Severe Fire Weather Potential	2	Moderate
Separation of Adjacent Structures	1	Low
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	69	Moderate

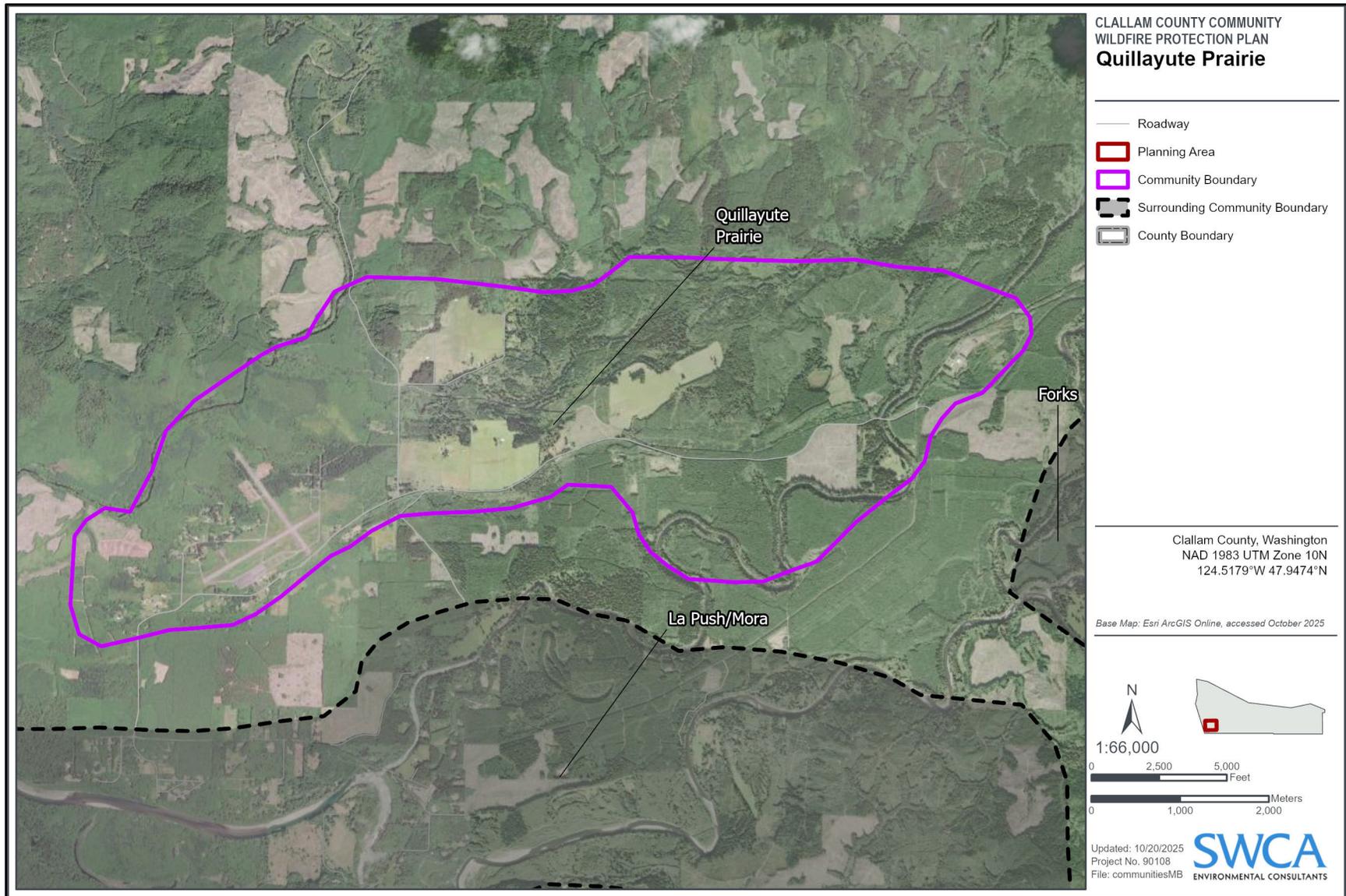


Figure D.42. Quillayute Prairie community boundary.

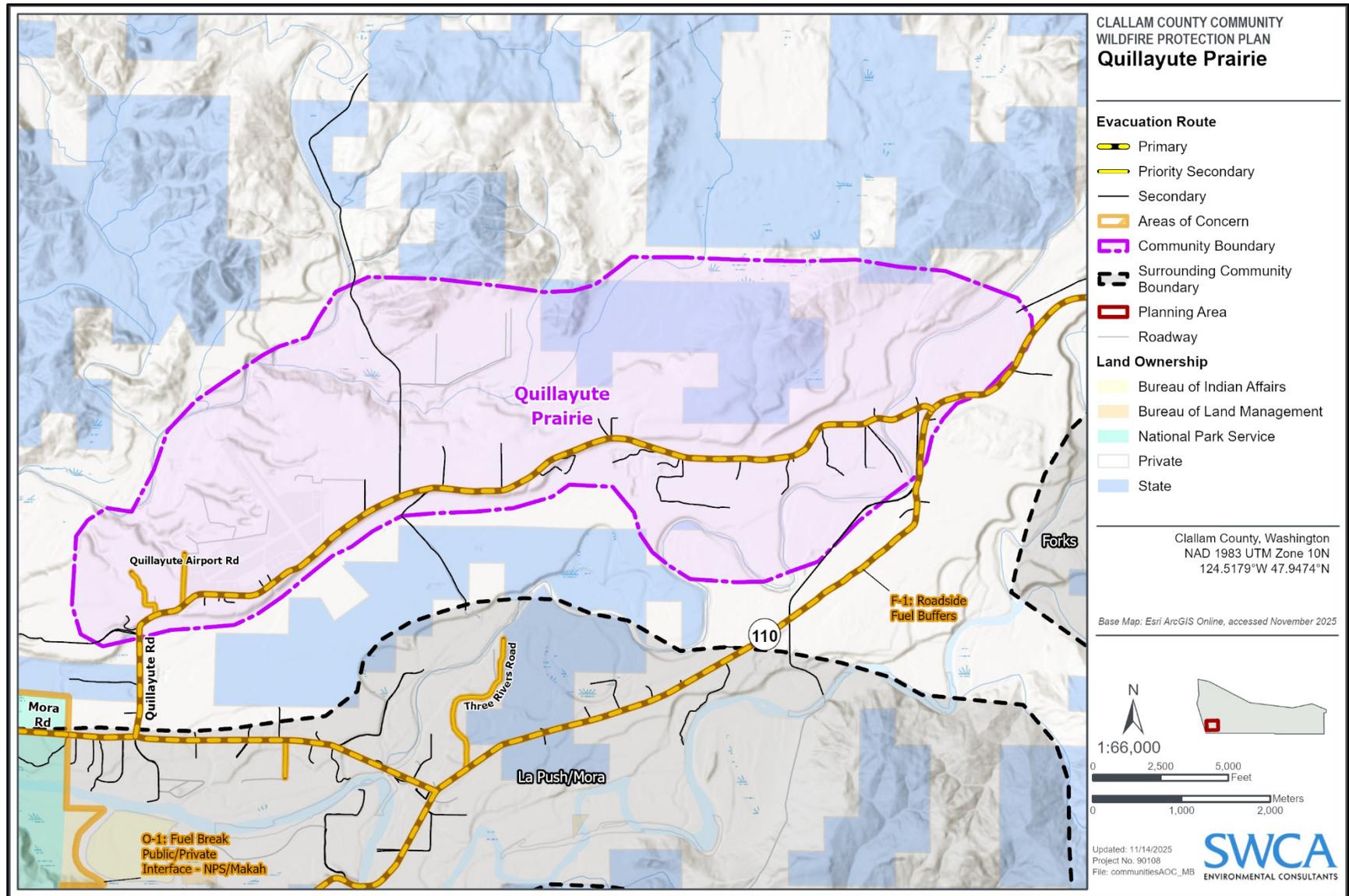


Figure D.43. Areas of concern and evacuation route details for the Quillayute Prairie community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<p><u>Positive Attributes (Low Scores)</u></p> <ul style="list-style-type: none"> • Sparse population • Hydrants • Timber harvest 	<p><u>Negative Attributes (High Scores)</u></p> <ul style="list-style-type: none"> • Fire station >5 miles away • Limited evacuation routes • Combustible materials (wood siding and fences)

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.

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22. La Push/Mora Field Assessment Summary

La Push/Mora		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	1 road in and out	Extreme
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade >5%	Moderate
Fire Truck Access	<300 feet with turnaround	High
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	2	Moderate
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Other - Water Tank	Moderate
Water Source Score	3	High
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	82	High

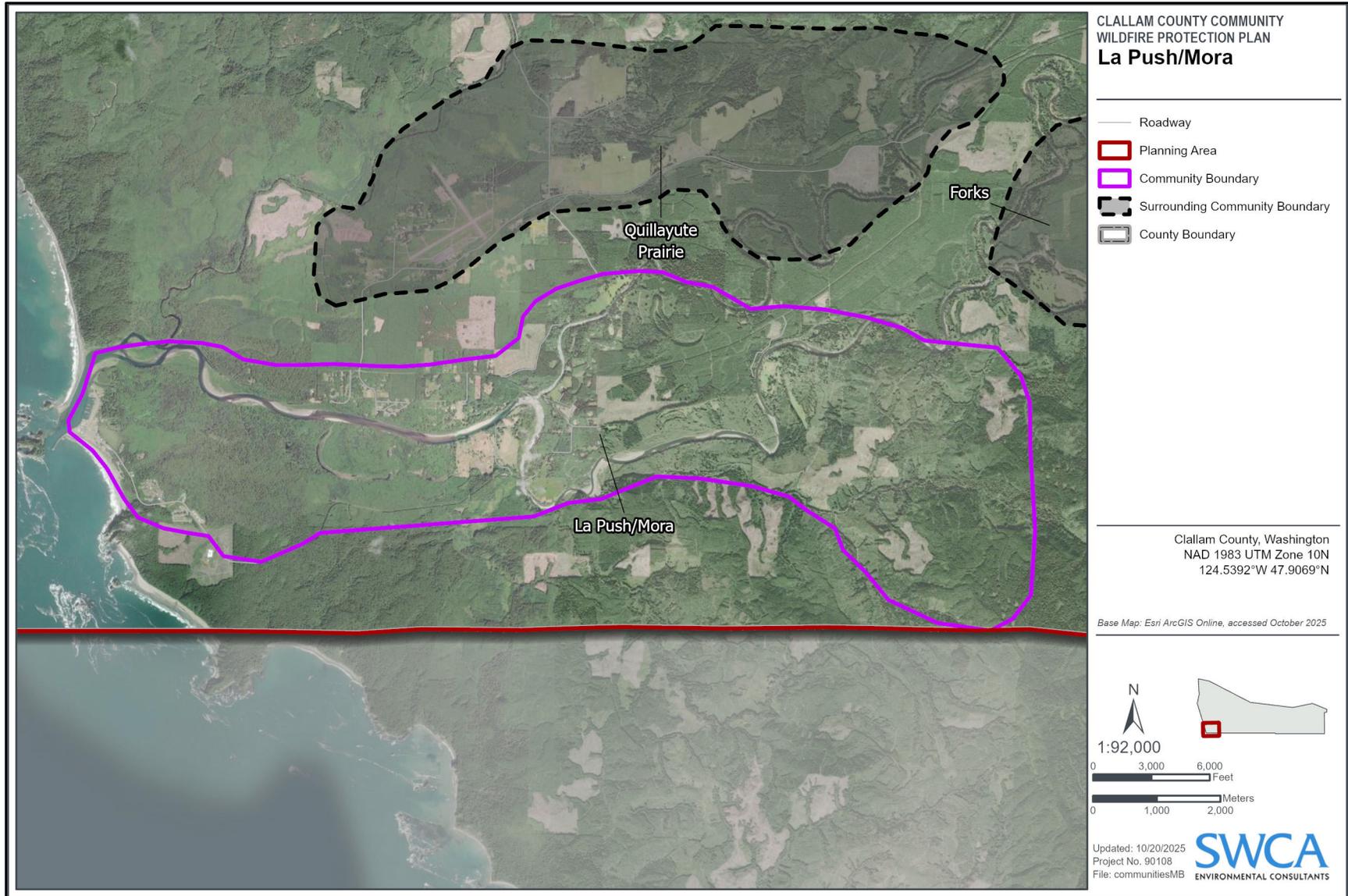


Figure D.44. La Push/Mora community boundary.

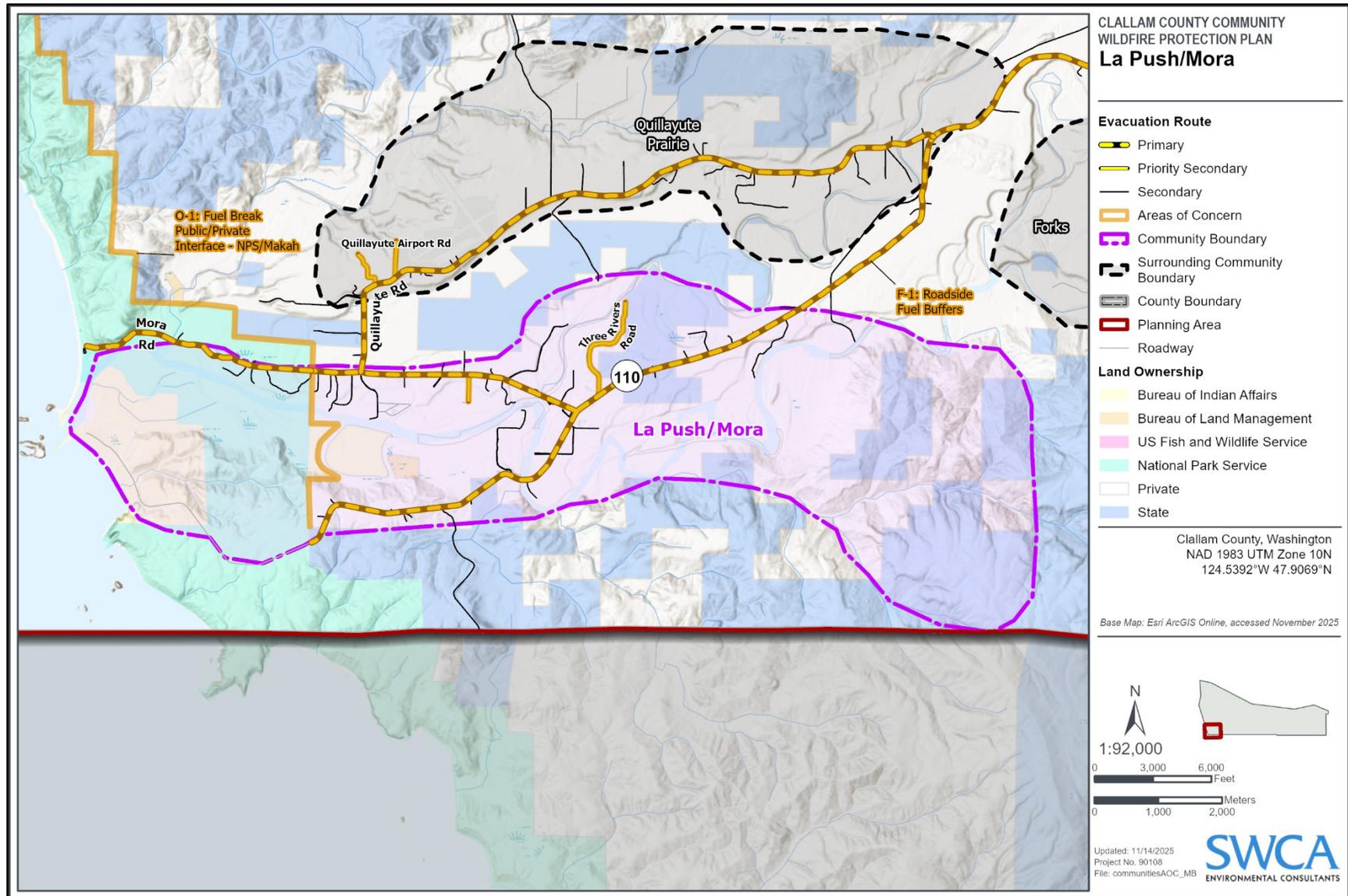


Figure D.45. Areas of concern and evacuation route details for the La Push/Mora community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<p><u>Positive Attributes (Low Scores)</u></p> <ul style="list-style-type: none"> • Well-managed road corridors • Clear address signage 	<p><u>Negative Attributes (High Scores)</u></p> <ul style="list-style-type: none"> • Heavy tourism and recreation • Community prone to severe weather and storms • Poor building construction with combustible materials • Limited evacuation routes

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County Roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.

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23. Forks Field Assessment Summary

Forks		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	2 or more roads in and out	Low
Road Width	>20 to <24 feet	Moderate
Road Conditions	Surfaced road; grade <5%	Low
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Understory (TU)	High
Defensible Space	>30 to <70 feet around structure	High
Topography within 300 feet of Structures		
Slope	<9%	Low
Topographic Features	3	Moderate
History of High Fire Occurrence	3	Moderate
Severe Fire Weather Potential	2	Moderate
Separation of Adjacent Structures	4	High
Roofing Assembly		
Roofing	Class B – pressure-treated composite shakes and shingles	Moderate
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fence	Extreme
Building Setback	>30 feet to slope	Low
Available Fire Protection		
Water Sources	Yes	Low
Water Source Type	Hydrant	Low
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	One above; one below	Moderate
Community Hazard Rating	75	High

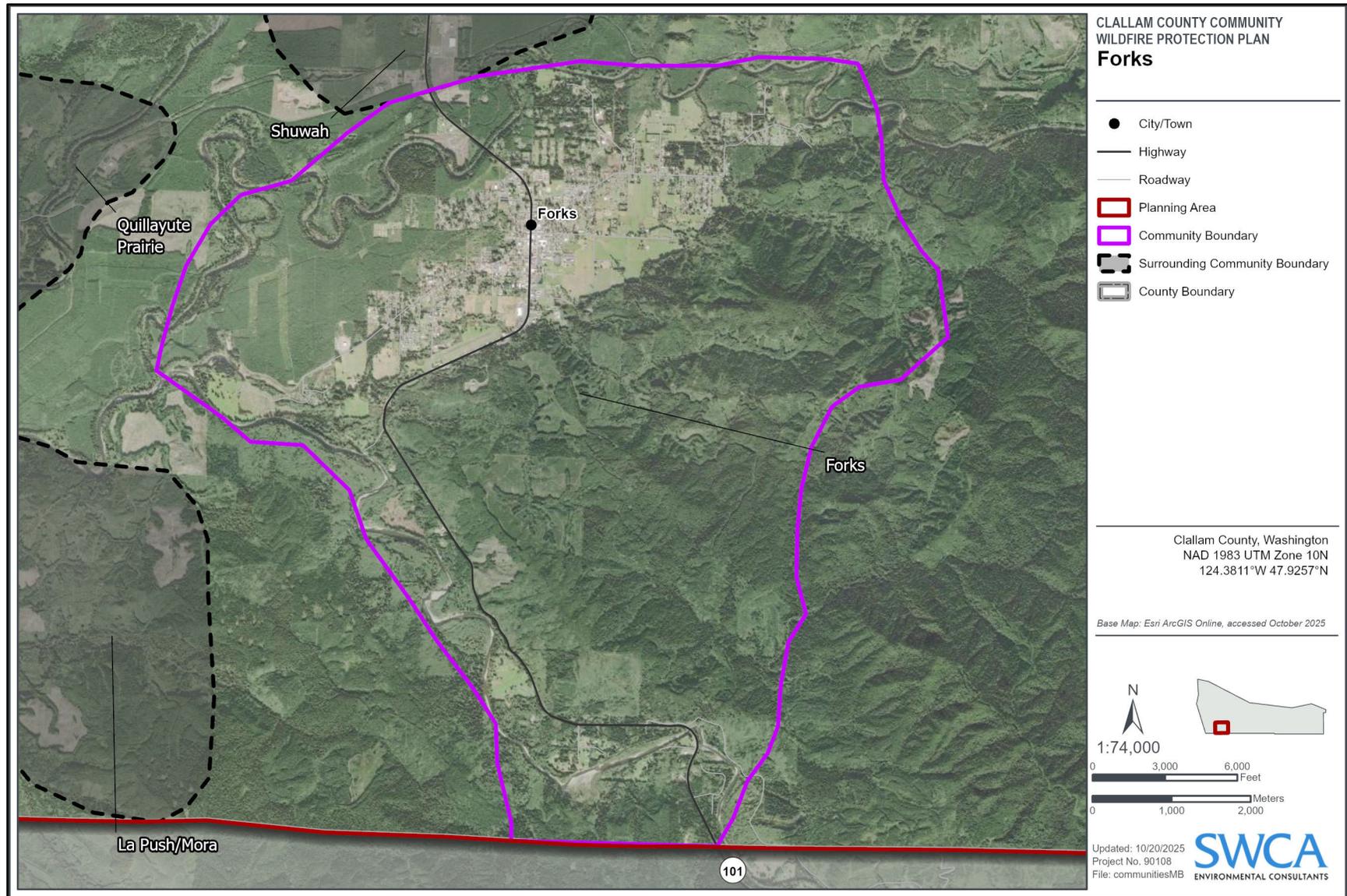


Figure D.46. Forks community boundary.

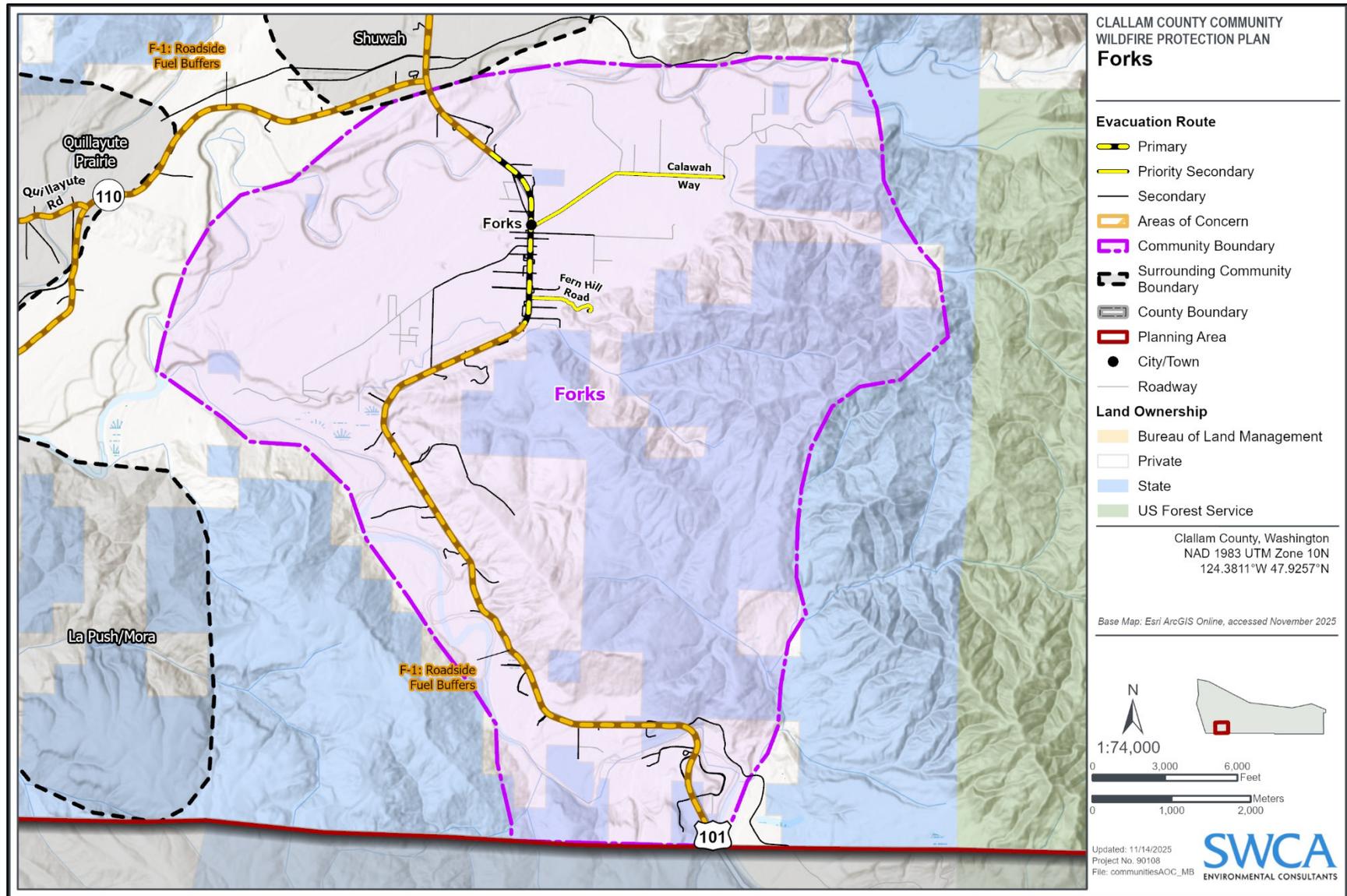


Figure D.47. Areas of concern and evacuation route details for the Forks community. See Table 4.1 in Chapter 4 for detailed recommendations and strategies for the listed areas of concern.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
<p><u>Positive Attributes (Low Scores)</u></p> <ul style="list-style-type: none"> • Hydrants • Well-maintained roads • Fire station within the community 	<p><u>Negative Attributes (High Scores)</u></p> <ul style="list-style-type: none"> • Poor defensible space (in WUI areas) and spacing between structures • Steeper grades • Tourism

Recommended Mitigation
<p><u>Areas of Concern:</u></p> <p>F-1: Roadside Buffers for Evacuation Safety:</p> <ul style="list-style-type: none"> • Install and maintain roadside buffers along high-risk County roads to improve evacuation routes and reduce wildfire risk, while considering environmental impacts.

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APPENDIX E:
Funding Sources and Programs

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FEDERAL FUNDING INFORMATION

This section lists funding sources and programs at the federal level. A short description of each program and a link to the program's website is also included. However, it should be noted that these funding sources are subject to change over time based on program availability.

Source: 2022 Infrastructure Investments and Jobs Act

Agency: Multiple

Website: <https://www.congress.gov/bill/117th-congress/house-bill/3684>

Eligible Applicants: Jurisdictions

Description: The Infrastructure Investments and Jobs Act allocated funding through various departments for infrastructure projects including, but not limited to roads, bridges, and major projects; passenger and freight rail; highway and pedestrian safety; public transit; broadband; ports and waterways; airports; water infrastructure; power and grid reliability and resiliency; resiliency, including funding for coastal resiliency, ecosystem restoration, and weatherization; clean school buses and ferries; electric vehicle charging; addressing legacy pollution by cleaning up Brownfield and Superfund sites and reclaiming abandoned mines; and Western Water Infrastructure.

Specifically, the Community Wildfire Defense Grant Program is a \$1 billion program for which the U.S. Department of Agriculture (USDA) will provide grants to communities at risk from wildfire to develop or revise their community wildfire protection plans and carry out projects described within those plans. It will include a mix of formula and competitive funds.

Section 40803 addresses wildfire risk reduction, Section 40804 deals with ecosystem restoration, Section 40806 handles the establishment of fuel breaks in forests and other wildland vegetation, and Section 70302 addresses reforestation.

Source: Hazard Mitigation Grant Program (HMGP)

Agency: Federal Emergency Management Agency (FEMA)

Website: <https://www.fema.gov/grants/mitigation/hazard-mitigation>

Eligible Applicants: Local communities, Tribes, and territories

Description: The HMGP provides funding to state, local, Tribal, or territorial governments (and individuals or businesses if the community applies on their behalf) to rebuild with the intentions to mitigate future losses due to potential disasters. This grant program is available after a presidentially declared disaster.

Source: Hazard Mitigation Grant Program (HMGP) – Post Fire

Agency: FEMA

Website: <https://www.fema.gov/grants/mitigation/post-fire>

Eligible Applicants: States, federally recognized Tribes, and territories

Description: The HMGP Post Fire grant program provides assistance to communities for the purpose of implementing hazard mitigation measures following a wildfire or other major disaster. The program is intended to substantially improve communities' resilience to future disaster events, specifically wildfire.

A cost-benefit analysis must be completed for all projects to ensure funding is cost-effective. Pre-calculated benefits are available for the following mitigation measures:

- Soil stabilization
- Flood diversion
- Reforestation

Source: Flood Mitigation Assistance Grant Program

Agency: FEMA

Website: <https://www.fema.gov/grants/mitigation/floods>

Eligible Applicants: States, territories, federally recognized Tribes, local governments.

Description: The Flood Mitigation Assistance Grant Program is a competitive grant program that provides funding to states, local communities, federally recognized Tribes, and territories. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program. FEMA chooses recipients based on the applicant's ranking of the project and the eligibility and cost-effectiveness of the project. The program will fund capacity building, planning, technical assistance, project scoping, and project implementation.

Source: Emergency Management Performance Grant (EMPG)

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/emergency-management-performance>

Eligible Applicants: State, local, Tribal, and territorial emergency management agencies

Description: The Emergency Management Performance Grant program provides funding to state, local, Tribal, and territorial emergency management agencies with aligning to the goals of FEMA's strategic plan. The three goals of the plan are to instill equity as a foundation of emergency management, lead whole of community in climate resilience, and promote and sustain a ready FEMA and prepared nation. The main objectives of the program are 1) closing capability gaps that are identified in the state or territory's most recent Stakeholder Preparedness Review; and 2) building or sustaining those capabilities that are identified as high priority through the Threat and Hazard Identification and Risk Assessment/Stakeholder Preparedness Review process and other relevant information sources. The grant recipient and Regional Administrator must come to an agreement on program priorities, which are crafted based on national, state, and regional priorities.

Source: Fire Management Assistance Grant

Agency: FEMA

Website: <https://www.fema.gov/assistance/public/fire-management-assistance>

Eligible Applicants: States, local and Tribal governments

Description: The Fire Management Assistance Grant is available to state, local, and Tribal governments for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster. The Fire Management Assistance declaration process is initiated when a state submits a request for assistance to the FEMA Regional Director at the time a "threat of major disaster" exists. The entire process is accomplished on an expedited basis and a FEMA decision is rendered in a matter of hours. Before a grant can be awarded,

a state must demonstrate that total eligible costs for the declared fire meet or exceed either the individual fire cost threshold, which applies to single fires, or the cumulative fire cost threshold, which recognizes numerous smaller fires burning throughout a state. The program will fund field camps, tools and equipment, mobilization activities, and other materials, supplies, and other activities required as a result of a declared fire.

Source: Regional Catastrophic Preparedness Grants

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/regional-catastrophic>

Eligible Applicants: States, local and Tribal governments

Description: The Regional Catastrophic Preparedness Grant program provides funding to increase collaboration and capacity in regard to catastrophic incident response and preparation. The program is focused on community-level resilience with an emphasis on disadvantaged communities. The program is intended to address planning gaps especially as they relate to housing, community resilience, readiness, and equity. Proposed projects must span an entire metropolitan area and should plan for and address long-term readiness through collaborations, workgroups, and community focused efforts.

Source: Emergency Forest Restoration Program (EFRP)

Agency: USDA Farm Service Agency

Website: <https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/emergency-forest-restoration/index>

Eligible Applicants: Owners of private forests (non-industrial)

Description: The EFRP assists non-industrial private forest owners in restoring forests impacted by natural disasters. The program provides financial support for recovery efforts, including clearing debris from downed or damaged trees, site preparation, replanting, and restoring essential infrastructure such as forest roads, fire lanes, fuel breaks, and erosion control structures. Additional eligible activities may include installing fencing, tree shelters, and wildlife habitat enhancements.

Administration of the EFRP falls under the local Farm Service Agency (FSA) County Committee, which oversees disaster response efforts, except in cases of drought and insect infestations. To qualify, the land must have existing tree cover and be owned by a private individual, group, association, corporation, or similar legal entity. Landowners should contact their state's FSA for enrollment details and specific eligibility requirements.

Source: Emergency Conservation Program

Agency: FSA

Website: <https://www.fsa.usda.gov/programs-and-services/conservation-programs/emergency-conservation/index>

Eligible Applicants: Farmers and ranchers

Description: The Emergency Conservation Program helps farmers and ranchers to repair damage to farmlands caused by natural disasters and to help put in place methods for water conservation during severe drought. The Emergency Conservation Program does this by giving ranchers and farmers funding and assistance to repair the damaged farmland or to install methods for water conservation. The grant could be used for restoring conservation structures (waterways, diversion ditches, buried irrigation

mainlines, and permanently installed ditching system). Landowners must check with their state's FSA for details on signing up for the program.

Source: Indian Community Development Block Grant Program

Agency: U.S. Department of Housing and Urban Development

Website: https://www.hud.gov/program_offices/public_indian_housing/ih/grants/icdbg

Eligible Applicants: Federally recognized Tribes, band, group, or nations, and some Tribal organizations

Description: The Indian Community Development Block Grant Program provides eligible grantees with direct grants for use in developing viable Indian and Alaska Native communities, including decent housing, a suitable living environment, and economic opportunities, primarily for low- and moderate-income persons. The grants provide funding for housing rehabilitations, community facilities such as roads, water and sewer facilities, and buildings, and economic development including a wide variety of commercial, industrial, and agricultural projects.

Source: Indian Housing Block Grant Program

Agency: U.S. Department of Housing and Urban Development

Website: https://www.hud.gov/program_offices/public_indian_housing/ih/grants/ihbg

Eligible Applicants: Federally recognized Tribes, Tribally designated housing entities, and a limited number of State-recognized Tribes.

Description: The Indian Housing Block Grant program is the primary means by which the federal government fulfills its trust responsibilities to provide adequate housing to Native Americans and is the single largest source of Indian housing assistance. It is a formula grant that is distributed annually and funds affordable housing activities including new housing construction, rehabilitation, and housing services, and much more.

Source: Indian Environmental General Assistance Program (GAP) Grant

Agency: U.S. Environmental Protection Agency (EPA)

Website: <https://www.epa.gov/general-assistance-program-gap>

Eligible Applicants: Federally Recognized Tribes and Intertribal Consortium

Description: The GAP program provides financial assistance to Tribes seeking to participate in federal environmental programs, to develop solid and hazardous waste programs, and to develop multimedia programs to address environmental issues. "Specific activities could include defining and developing administrative and legal infrastructures; conducting assessments, monitoring, planning and other actions; fostering compliance with federal environmental statutes by developing appropriate Tribal environmental programs, ordinances and services; and establishing the capacity to meaningfully participate in authorized environmental program implementation activities of federal, state, local and other Tribal governments."

Source: The Environmental Justice Thriving Communities Technical Assistance Centers Program

Agency: EPA

Website: <https://www.epa.gov/environmentaljustice/environmental-justice-thriving-communities-technical-assistance-centers>

Eligible Applicants: Local communities, Tribes, and territories

Description: This program provides free technical assistance to support the environmental justice needs of local and Tribal governments and community organizations. This funding aims to remove barriers and improve accessibility for communities with environmental justice concerns. With this critical investment, designated regional centers will provide training and other assistance to build capacity for navigating federal grant application systems, developing strong grant proposals, and effectively managing grant funding. In addition, these centers will provide guidance on community engagement, meeting facilitation, and translation and interpretation services for limited English-speaking participants, thus removing barriers and improving accessibility for communities with environmental justice concerns. Each of the technical assistance centers will also create and manage communication channels to ensure all communities have direct access to resources and information.

Source: Environmental Quality Incentives Program (EQIP)

Agency: NRCS

Website: <https://www.nrcs.usda.gov/programs-initiatives/eqip-environmental-quality-incentives>

Eligible Applicants: Farmers, ranchers, and forest landowners

Description: EQIP is a voluntary program authorized under the Agricultural Act of 2014 (2014 Farm Bill) that helps farmers, ranchers, and forest landowners who own or rent agricultural land to implement practices and/or install measures to protect soil, water, plant, wildlife, and other natural resources while ensuring sustainable production on their farms, ranches, and working forest lands. Washington EQIP ranking pools include energy, forestry, livestock, and soil health.

Source: Emergency Watershed Protection (EWP) Program

Agency: NRCS

Website: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/>

Eligible Applicants: States, local and Tribal governments

Description: The program offers technical and financial assistance to help local communities relieve imminent threats to life and property caused by floods, fires, windstorms, and other natural disasters that impair a watershed. No state or federal disaster designation is required, rather the NRCS can declare a local watershed emergency and sign a cooperative agreement with an eligible sponsor.

Eligible sponsors include cities, counties, towns, conservation districts, or any federally recognized Native American Tribe or Tribal organization. Interested public and private landowners can apply for EWP Program recovery assistance through one of those sponsors.

EWP Program covers the following activities.

- Debris removal from stream channels, road culverts, and bridges
- Reshape and protect eroded streambanks
- Correct damaged drainage facilities
- Establish vegetative cover on critically eroded lands
- Repair levees and structures
- Repair conservation practices

Source: Assistance to Firefighters Grants Program**Agency:** U.S. Fire Administration (USFA)**Website:** <https://www.usfa.fema.gov/a-z/grants/>**Eligible Applicants:** Fire response agencies

Description: Includes grants and general information on financial assistance for fire departments and first responders. USFA administers three funding programs which include the Assistance to Firefighters Grant Program, Staffing for adequate fire and emergency response grants, and fire prevention and safety grants.

Source: Tribal Environmental General Assistance Program**Agency:** EPA**Website:** <https://www.epa.gov/r10-tribal/region-10-tribal-environmental-gap-funding>**Eligible Applicants:** Tribal governments and intertribal consortia

Description: Funding under this program is used to assist Tribes in planning, developing, establishing, and maintaining the capacity to implement federal environmental programs administered by the EPA and to assist in implementation of Tribal solid and hazardous waste programs. Funding is primarily expected to assist Tribes in developing core program capacity.

Source: Specific EPA Grant Programs**Agency:** EPA**Website:** <https://www.epa.gov/grants/specific-epa-grant-programs>**Eligible Applicants:** State, local, and Tribal governments, businesses, students, and more

Description: Various grant programs are listed under this site.

Source: Conservation Innovation Grant (CIG)**Agency:** NRCS**Website:** <https://www.nrcs.usda.gov/programs-initiatives/cig-conservation-innovation-grants>**Eligible Applicants:** Private landowners

Description: Within the overarching CIG program, the NRCS manages three separate funding opportunities; the national, state, and on-farm innovation programs. CIG is a competitive funding program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging federal investment in environmental enhancement and protection, in conjunction with agricultural production. CIG enables the NRCS to work with other public and private entities to accelerate technology transfer and adoption of promising technologies and approaches to address some of the nation's most pressing natural resource concerns. CIG will benefit agricultural producers by providing more options for environmental enhancement and compliance with federal, state, and local regulations. The NRCS administers the CIG program. The CIG requires a 50/50 match between the agency and the applicant. The program will not fund activities or technology that is already commonly used in a region, including activities fundable through the EQIP program.

Source: Urban and Community Forestry Program

Agency: USFS

Website: <https://www.fs.usda.gov/managing-land/urban-forests/ucf>

Eligible Applicants: State agency, local government, Indigenous Tribes, nonprofit organizations.

Description: USFS funding through the Urban and Community Forestry Program works with local communities to establish climate-resilient tree species to promote long-term urban forest health. The program will fund activities related to public education and engagement, protection and expansion of urban canopy, planning and assessment, capacity building and training, and cooperative partnership planning and coordination.

Source: Catalog of Federal Funding Sources; Land Resources

Agency: Multiple

Website: <https://ordspub.epa.gov/ords/wfc/f?p=165:512:10535656593775:::512::>

Eligible Applicants: Suitable applicants vary

Description: The Land Finance Clearing House is a catalog of federal funding sources for all things land related.

Examples of the types of grants found at this site are:

- Forest and Woodlands Resource Management Grant: https://sam.gov/fal/a798ad78cac749639b48270db3e86fdc/view?index=cfda&page=2&organization_id=100011100
- Environmental Education Grant: <https://www.epa.gov/education/grants>
- Public Assistance Grant Program: <https://www.fema.gov/assistance/public>

Source: Catalog of Federal Funding Sources; Water Resources

Agency: Multiple

Website: <https://ofmpub.epa.gov/apex/wfc/f?p=165:12:6483383318137:::12::>

Eligible Applicants: Suitable applicants vary

Description: The Water Finance Clearing House is a catalog of federal funding sources for all things water related.

Examples of the types of grants found at this site are:

- Water Conservation Field Services Program: <https://www.usbr.gov/waterconservation/>
- Mead Foundation Environmental Programs: <http://www.gileswmeadfoundation.org/about.html>
- Source Water Protection Program: <https://doh.wa.gov/community-and-environment/drinking-water/source-water/source-water-protection>
- State Water Quality Grants and Loans: <https://ecology.wa.gov/about-us/payments-contracts-grants/grants-loans/find-a-grant-or-loan/water-quality-grants-and-loans>

Source: National Fire Protection Association (NFPA) Firewise USA™ Program

Agency: Multiple

Website: <http://www.firewise.org>

Description: Many different activities encouraged through the NFPA Firewise USA™ Program can help homes and whole neighborhoods become safer from wildfire without significant expense. Community cleanup days, awareness events, and other cooperative activities can often be successfully accomplished through partnerships among neighbors, local businesses, wildfire agencies, conservation districts, and local fire departments at little or no cost.

The kind of assistance needed will depend on specifics related to each individual community or neighborhood. Among the different activities that individuals and neighborhoods can undertake, the following often benefit from seed funding or additional assistance from an outside source:

- Thinning/pruning/tree removal/clearing on private property—particularly on very large, densely wooded properties
- Retrofit of home roofing or siding to noncombustible materials
- Managing private forest
- Community slash pickup or chipping
- Creation or improvement of access/egress roads
- Improvement of water supply for firefighting
- Public education activities throughout the community or region

Source: Staffing for Adequate Fire and Emergency Response (SAFER)

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/firefighters/safer>

Eligible Applicants: Fire departments and volunteer firefighter interest organizations

Description: The purpose of SAFER grants is to help fire departments increase the number of frontline firefighters. The goal is for fire departments to increase their staffing and deployment capabilities and ultimately attain 24-hour staffing, thus ensuring that their communities have adequate protection from fire and fire-related hazards. The SAFER grants support two specific activities: 1) hiring of firefighters and 2) recruitment and retention of volunteer firefighters. The hiring of firefighters activity provides grants to pay for part of the salaries of newly hired firefighters over the 5-year program.

Source: Fire Prevention and Safety (FP&S) Grants

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/firefighters/safety-awards>

Eligible Applicants: Firefighting agencies and fire safety project coordinators

Description: FP&S offers support to projects that enhance the safety of the public and firefighters who may be exposed to fire and related hazards. The primary goal is to target high-risk populations and mitigate high incidences of death and injury. Examples of the types of projects supported by FP&S include fire prevention and public safety education campaigns, juvenile fire-setter interventions, media campaigns, and arson prevention and awareness programs. In fiscal year 2005, Congress reauthorized

funding for FP&S and expanded the eligible uses of funds to include firefighter safety research and development.

Source: Federal Excess Personal Property

Agency: USFS

Website: <https://www.fs.usda.gov/managing-land/fire/fepp>

Eligible Applicants: State Forester and cooperators

Description: The Federal Excess Personal Property program refers to USFS-owned property that is on loan to State Foresters for the purpose of wildland and rural firefighting. Most of the property originally belonged to the Department of Defense. Once acquired by the USFS, it is loaned to State Cooperators for firefighting purposes. The property is then loaned to the State Forester, who may then place it with local departments to improve local fire programs. State Foresters and the USFS have mutually participated in the Federal Excess Personal Property program since 1956.

Source: Assistance to Firefighters Grants

Agency: FEMA

Website: <https://www.fema.gov/grants/preparedness/firefighters>

Eligible Applicants: Fire departments and firefighting agencies

Description: The Assistance to Firefighters Grants program funds critically needed resources to equip and train emergency personnel, enhance efficiencies and support community resilience. Three FEMA lead programs fall under this grant series: the Assistance to Firefighters, SAFER, and FP&S Grants.

Source: Community Wildfire Defense Grant

Agency: USFS

Website: <https://www.fs.usda.gov/managing-land/fire/grants>

Eligible Applicants: Units of local government, Indigenous Tribes, nonprofit organizations, state forestry organizations.

Description: The Community Wildfire Defense Grant is a program aimed at assisting local communities and Tribes within the WUI in their planning efforts to reduce wildfire risk. The USFS intends to do this through the implementation of three goals from the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy). Included in these three goals is restoring and maintaining landscapes, creating fire-adapted communities, and improving wildfire response within the specific at-risk community. Grant funding of no more than \$250,000 will be awarded for the development and revision of CWPPs and no more than \$10 million will be awarded for the implementation of projects outline in CWPPs that are less than 10 years old.

STATE FUNDING INFORMATION

This section lists funding sources and programs at the state level. A short description of each program and a link to the program's website is also included. However, it should be noted that these funding sources are subject to change over time based on program availability.

Source: Financial Assistance for Wildfire Resilience and Forest Health

Agency: WA DNR

Website: [Financial Assistance for Wildfire Resilience and Forest Health | WA - DNR](#)

Eligible Applicants: Non-federal landowners with less than 5,000 acres of forested land

Description: The state financial assistance program is the evolution of the state's cost-share program that was formerly only available to eastern residents. The expanded program provides technical and financial assistance to landowners to improve forest health and mitigate forested land against the impacts of wildfire. The program will also assist with costs related to developing a forest management plan. The program offers landowners free consultations to assess wildfire risk and forest health. Following an assessment, eligible applicants may be selected to receive funding assistance to complete treatments on their property. Funded applicants can elect to either hire a forester to complete treatments, or complete work by themselves.

Source: Fire District Assistance Program

Agency: WA DNR

Website: <https://www.dnr.wa.gov/FireDistrictAssistance>

Eligible Applicants: Fire departments, protections districts

Description: WA DNR manages multiple funding opportunities related to improving firefighter education, department capacity, and equipment stocks. Some programs are directly geared toward improving department response and capabilities related to wildland fire. Programs managed under the assistance program include DNR Surplus Engine Program, Volunteer Fire Assistance Grants, House Bill 1168 Grants, Wildland Fire Training, and the Firefighter Property Program.

Source: Urban and Community Forestry Assistance Grant

Agency: WA DNR

Website: <https://www.dnr.wa.gov/urbanforestry/#grants>

Eligible Entities: Local governments, Tribes, education institutions, nonprofit organizations

Description: The program is intended to foster collaboration between environmental professionals and community members to address community identified needs for trees and forestry; 50% of funding is dedicated to communities with high environmental health disparities. Communities are expected to implement improvements to urban canopy, tree health, equitable tree distributions, and protection for urban forests.

Source: WA DNR Firewise USA™ Microgrants

Agency: WA DNR

Website: No website – information is sent out to all Firewise USA Program community contacts as well as to local partners and communities who have previously expressed interest or need

Direct contact: WA DNR Western WA Community Resilience Coordinator – Jennifer Coe, jennifer.coe@dnr.wa.gov

Eligible Entities: Firewise USA sites, neighborhoods, or communities working to become official Firewise USA Sites

Description: This grant opportunity is designed to encourage neighbors to work together to take action and reduce wildfire risks through implementation of mitigation strategies identified in Firewise USA site Action Plans. Reimbursement maximums may vary based on available funds each year, but typically it's around \$3000. Information on this grant typically is released in mid-winter and supports projects implemented in the spring through mid-June. Communities are encouraged to celebrate Wildfire Community Preparedness Day/Wildfire Awareness Month in May.

Source: Source Water Protection Local Assistance Program

Agency: Washington State Department of Health

Website: <https://doh.wa.gov/community-and-environment/drinking-water/source-water/local-assistance-grant-program>

Eligible Entities: Local governments, conservation districts, Tribes, nonprofit organizations, educational institutions

Description: The program is intended to support projects that directly improve water quality and or quantity for public drinking sources. The program will fund planning and design, implementation, and security related to long-term improvements for water supply.

Source: Water Quality Grants and Loans

Agency: Washington State Department of Ecology

Website: <https://ecology.wa.gov/about-us/payments-contracts-grants/grants-loans/find-a-grant-or-loan/water-quality-grants-and-loans>

Eligible Entities: Program-dependent eligibility

Description: The state ecology department manages multiple grant and loan opportunities related to water quality. Programs under this direction include the clean water act Section 319 grants, centennial clean water program, streamflow restoration program, and the clean water state revolving fund. These programs provide funding to a variety of recipients to plan and implement projects that protect or restore water quality for the funded community. The foundation funds projects in northern California, Oregon, Washington, and Alaska.

Source: The Mead Foundation Grant Program

Agency: The Mead Foundation

Website: <http://www.gileswmeadfoundation.org/apply.html>

Eligible Entities: Scientific and medical organizations

Description: The Mead foundation manages a funding program to support environmental improvements, medical science advancements, and social needs. Environmental organizations are generally funded in the areas of forestry, fisheries, and sustainable natural resource use.

PRIVATE FUNDING INFORMATION

This section lists funding sources and programs at the private level. A short description of each program and a link to the program's website is also included. However, it should be noted that these funding sources are subject to change over time based on program availability.

Source: State Farm Good Neighbor Citizenship Grants

Agency: State Farm

Website: <https://www.statefarm.com/about-us/corporate-responsibility/community-grants/good-neighbor-citizenship-grants>

Description: State Farm funding is directed at:

- Auto and roadway safety
- Teen driver education
- Home safety and fire prevention
- Disaster preparedness
- Disaster recovery

Source: The Urban Land Institute (ULI)

Website: <http://www.uli.org>

Eligible Applicants: Municipal, county, state or federal government entities, nonprofit organizations, educational institutions

Description: ULI is a 501(c)(3) nonprofit research and education organization supported by its members. The institute has more than 22,000 members worldwide, representing the entire spectrum of land use and real estate development disciplines, working in private enterprise and public service. The mission of the ULI is to provide responsible leadership in the use of land to enhance the total environment. ULI and the ULI Foundation have instituted Community Action Grants that could be used for Firewise Communities activities. Applicants must be ULI members or part of a ULI District Council. Contact actiongrants@uli.org or review the web page to find your District Council and the application information.

Source: Environmental Systems Research Institute (Esri)

Website: <http://www.esri.com/grants>

Eligible Applicants: Suitable applicants vary

Description: Esri is a privately held firm and the world's largest research and development organization dedicated to geographic information systems. Esri provides free software, hardware, and training bundles under Esri-sponsored grants that include such activities as conservation, education, and sustainable development, and posts related non-Esri grant opportunities under such categories as agriculture, education, environment, fire, public safety, and more. You can register on the website to receive updates on grant opportunities.

Source: National Forest Foundation; Innovative Finance for National Forests Grant Program

Website: <https://www.nationalforests.org/grant-programs/innovative-finance-for-national-forests-grant-program>

Eligible Applicants: Suitable applicants vary

Description: The Innovative Finance for National Forests Grant Program aims to bring in non-USFS funds to increase forest resilience. There are three main topics for funding: Wildfire Resilience and Recovery, Sustainable Recreation Access and Infrastructure, and Watershed Health. In addition, three

types of projects are funded: pilot programs with on-the-ground implementation, scaling projects to deliver backlogs of unfunded work, and research and development to provide to new forest information.

Source: Matching Awards Program

Agency: National Forest Foundation

Website: <https://www.nationalforests.org/grant-programs/map>

Eligible Applicants: Nonprofit organizations, Tribal governments and organizations, and universities

Description: The National Forest Foundation is soliciting proposals for its Matching Awards Program to provide funds for direct on-the-ground projects benefitting America's National Forests and Grasslands. By pairing federal funds provided through a cooperative agreement with the USFS with non-federal dollars raised by award recipients, the Matching Awards Program measurably multiplies the resources available to implement stewardship projects that benefit the National Forest System.

Source: Patagonia Environmental Grants and Support

Agency: Patagonia

Website: <https://www.patagonia.com/how-we-fund/>

Eligible Applicants: Suitable applicants vary

Description: Patagonia supports innovative work that addresses the root causes of the environmental crisis and seeks to protect both the environment and affected communities. Patagonia focuses on places where they have built connections through outdoor recreation and through their network of retail stores, nationally and internationally.

Source: Leonardo DiCaprio Foundation Grants

Agency: Leonardo DiCaprio Foundation

Website: <https://www.rewild.org/>

Eligible Applicants: Indigenous peoples, local communities, influential leaders, nongovernmental organizations, governments, companies

Description: The foundation supports projects around the world that build climate resiliency, protect vulnerable wildlife, and restore balance to threatened ecosystems and communities.

Source: U.S. Endowment for Forestry and Communities

Agency: EPA, NRCS, USFS, Department of Defense, U.S. Economic Development Agency

Website: <https://www.usendowment.org/>

Eligible Applicants: Suitable applicants vary based on program

Description: As the nation's largest public charity dedicated to keeping our working forests working and ensuring their bounty for current and future generations, the Endowment deploys the creativity and power of markets to advance their mission: The Endowment works collaboratively with partners in the public and private sectors to advance systemic, transformative and sustainable change for the health and vitality of the nation's working forests and forest-reliant communities. The endowment manages a variety of funding programs with request for proposals released as funds are available. Programs include technical and financial assistance for forest health, restoration, and carbon crediting.

Source: Moore Foundation Wildfire Resilience Initiative

Agency: Gordan and Betty Moore Foundation

Website: <https://www.moore.org/article-detail?newsUrlName=moore-foundation-launches-new-wildfire-resilience-initiative>

Eligible Applicants: Suitable applicants vary

Description: The western United States has experienced a shift in wildfire behavior over the past century, with large, catastrophic fires raising in frequency. This is partially due to the historic mismanagement of wildfire, leading to fuel accumulation and disruptions in historic fire regimes. To combat this, the Moore Foundation plans on investing in new systems that will increase wildfire resiliency for fire-prone communities while promoting ecosystems health fire-adapted vegetation among other ecological co-benefits.

OTHER FUNDING INFORMATION

The following resources may also provide helpful information for funding opportunities:

- Western Forestry Leadership Coalition: <https://www.thewflc.org/>
- USDA Information Center: <https://www.nal.usda.gov/main/information-centers>
- USFS Fire Management website: <https://www.fs.usda.gov/managing-land/fire>
- Insurance Services Office Mitigation Online (town fire ratings): <http://www.isomitigation.com/>
- NFPA: <http://www.nfpa.org>
- National Interagency Fire Center (NIFC), Wildland Fire Prevention/Education: <https://www.nifc.gov/fire-information/fire-prevention-education-mitigation>
- USFA: <https://www.usfa.fema.gov/index.html>

AWCA

APPENDIX F:

Home Hardening and Fuel Treatment Methods

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SEARCH

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FUELS TREATMENT SCALES AND METHODS

DEFENSIBLE SPACE

Defensible space is perhaps the fastest, most cost-effective, and most efficacious means of reducing the risk of loss of life and property. Although fire agencies can be valuable in providing guidance and assistance, creating defensible space is the responsibility of the individual homeowner (Figure F.1). The Casualty Actuarial Society compared the impact of individual and community-level mitigation on individual homeowner risks. They found that “the model indicates that all mitigation measures reduce the individual risk, but individual home mitigation – which individual homeowners’ control – can have a bigger impact than any community mitigation alone” (Casualty Actuarial Society 2023).

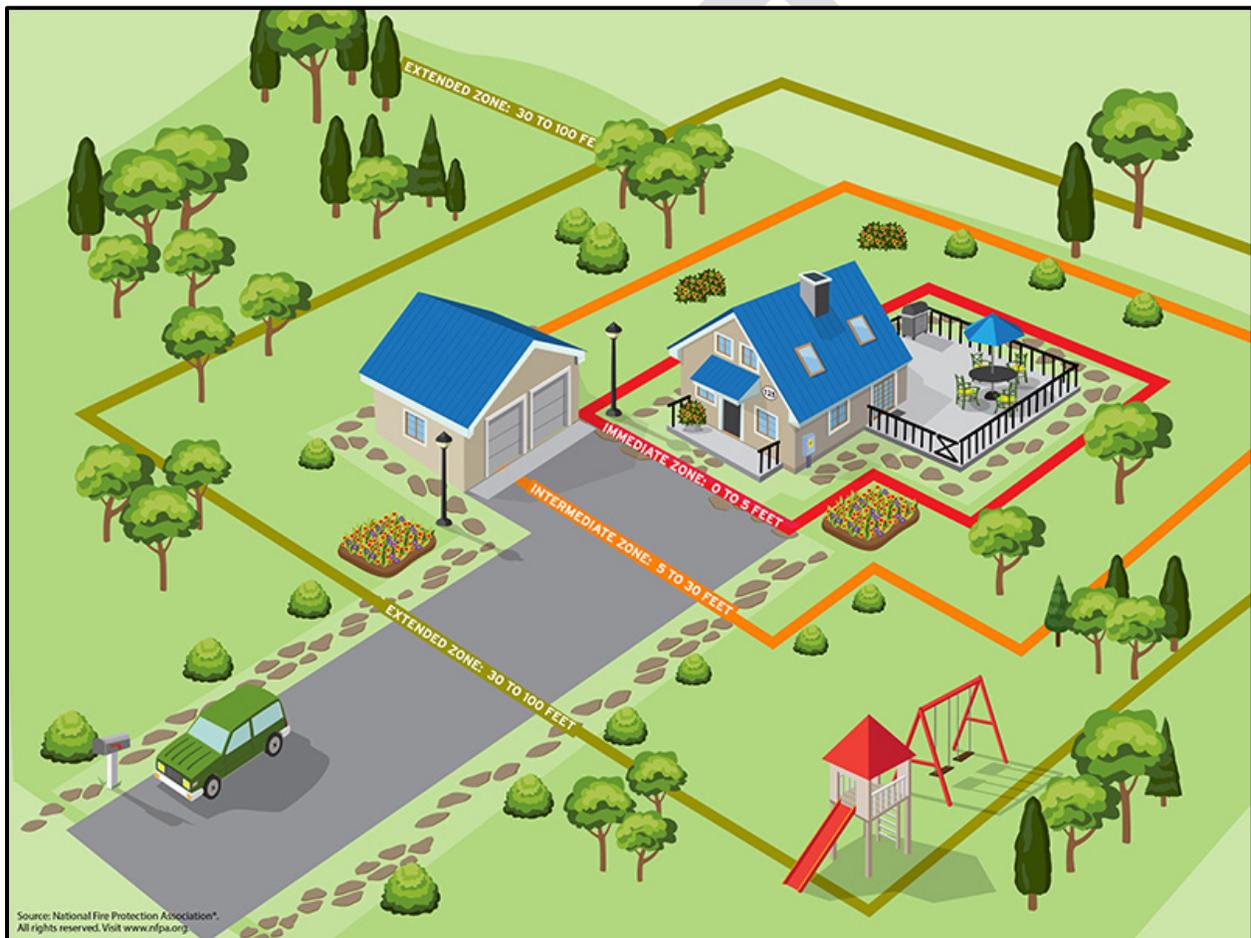


Figure F.1. Defensible space zones providing clearance between a structure and adjacent woodland or forest fuels.

Source: NFPA (2022)

Effective defensible space consists of creating an essentially fire-free zone adjacent to the home, a treated secondary zone that is thinned and cleaned of surface fuels, and (if the parcel is large enough) a transitional third zone that is basically a managed forest area (see Figure F.1). These components work together in a proven and predictable manner. Zone 1 keeps fire from burning directly to the home; Zone 2 reduces the adjacent fire intensity and the likelihood of torching, crown fire, and ember production; and

Zone 3 does the same at a broader scale, keeping the fire intensity lower by maintaining a more natural, historic condition (see Figure F.1). Three zones for defensible space actions are described as general recommendations for homeowners. However, it is encouraged to seek out site-specific recommendations from local wildfire experts. Experts can assess homes on an individual basis to maximize the quantity of native vegetation maintained and preserved in an area while still creating an area of defensible space for fire mitigation.

The three general zones include:

Zone 1: Immediate Zone This zone, which consists of an area of 0 to 5 feet around the structure, is designed to prevent flames from coming in direct contact with the structure. Use nonflammable, hard surface materials in this zone, such as rock, gravel, sand, cement, bare earth or stone/concrete pavers.

Recommendations for treating Zone 1 include (NFPA 2022):

- Remove all flammable vegetation, including shrubs, slash, mulch and other woody debris.
- Do not store firewood or other combustible materials inside this zone.
- Prune tree branches hanging over the roof or decks and remove all fuels within 10 feet of the chimney.
- Regularly remove all needles, cones, leaves and other debris from the roof, deck, and gutters.
- Rake and dispose of needles, cones, dead leaves, mulch, and other organic debris within 5 feet of all decks and structures. Farther than 5 feet from structures, raking material will not significantly reduce the likelihood of ignition and can negatively affect other trees.
- Do not use space under decks for storage.

Zone 2: Intermediate Zone This zone, which consists of an area of 5 to 30 feet around the structure, is designed to give an approaching fire less fuel, which will help reduce its intensity as it gets nearer to your home or any structures.

Recommendations for treating Zone 2 include (NFPA 2022):

- Mow grasses to 4 inches tall or less.
- Avoid large accumulations of surface fuels such as logs, branches, slash, and mulch.
- Remove enough trees to create at least 10 feet* of space between crowns. Measure from the outermost branch of one tree to the nearest branch on the next tree.
- Small groups of two or three trees may be left in some areas of Zone 2. Spacing of 30 feet* should be maintained between remaining tree groups to ensure fire doesn't jump from one group to another.
- Remove ladder fuels under remaining trees. This is any vegetation that can bring fire from the ground up into taller fuels.
- Prune tree branches to a height of 6 to 10 feet from the ground or a third of the total height of the tree, whichever is less.
- Remove stressed, diseased, dead, or dying trees and shrubs. This reduces the amount of vegetation available to burn and improves forest health.

- Common ground junipers should be removed whenever possible because they are highly flammable and tend to hold a layer of flammable material beneath them.
- You can keep isolated shrubs in Zone 2, as long as they are not growing under trees. Keep shrubs at least 10 feet* away from the edge of tree branches.
- Periodically prune and maintain shrubs to prevent excessive growth. Remove dead stems annually.
- Spacing between clumps of shrubs should be at least 2 1/2 times* their mature height. Each clump should have a diameter no more than twice the mature height of the vegetation.
Example: For shrubs that grow 6 feet tall, space clumps 15 feet apart or more (measured from the edge of the crowns of vegetation clumps). Each clump of these shrubs should not exceed 12 feet in diameter.

* Horizontal spacing recommendations are minimums and can be increased to reduce potential fire behavior, particularly on slopes. Consult a forestry, fire, or natural resource professional for guidance with spacing on slopes.

Zone 3: Extended Zone This zone, which consists of an area of 30 to 100 feet around the structure, focuses on mitigation that keeps fire on the ground, but it is also a space to make choices that can improve forest health. Healthy forests include trees of multiple ages, sizes, and species, where adequate growing room is maintained over time. If the distance of 100 feet to the edge of Zone 3 stretches beyond your property lines, it is encouraged to work with adjoining property owners to complete an appropriate defensible space. If your house is on steep slopes or has certain topographic considerations, this zone may be larger.

Recommendations for treating Zone 3 include (NFPA 2022):

- Mowing grasses is not necessary in Zone 3.
- Watch for hazards associated with ladder fuels. The chance of a surface fire climbing into the trees is reduced in a forest where surface fuels are widely separated and low tree branches are removed.
- Tree crown spacing of 6 to 10 feet is suggested. Consider creating openings or meadows between small clumps of trees so fire must transition to the ground to keep moving.
- Where practical, prune tree branches to a height of 6 to 10 feet from the ground or a third of the total height of the tree, whichever is less.
- Any approved method of slash treatment is acceptable in this zone, including removal, piling and burning, lop and scatter, or mulching. Lop-and-scatter or mulching treatments should be minimized in favor of treatments that reduce the amount of woody material in the zone. The farther this material is from the home, the better.

Please see the figures below for a visual representation of minimum horizontal (Figure F.2) and vertical spacing (Figure F.3), as well as spacing on slopes (Figure F.4).

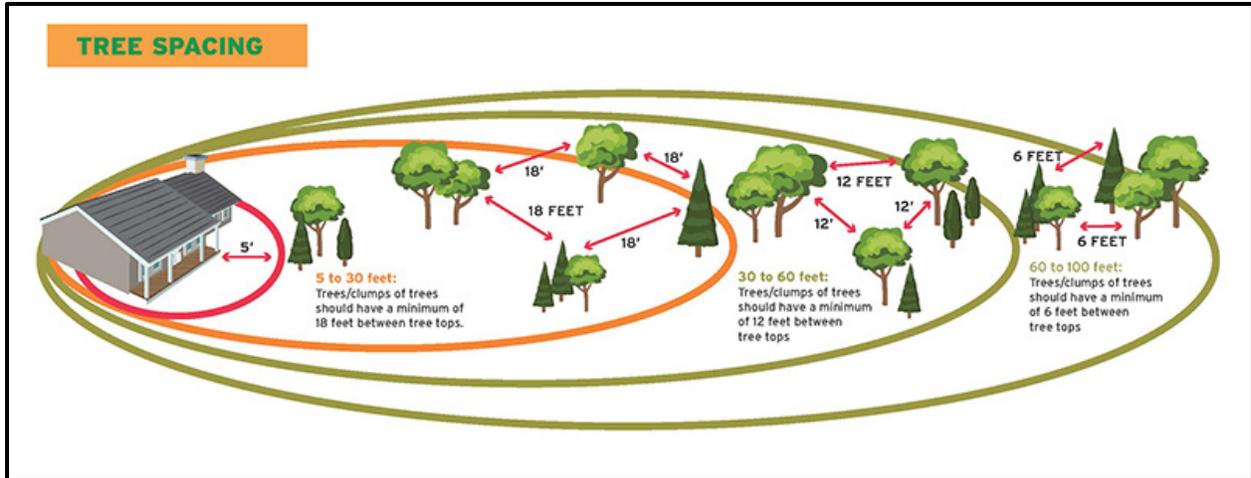


Figure F.2. Recommended tree spacing.

Source: NFPA (2022)



Figure F.3. Recommended minimal vertical clearance.

Source: CAL FIRE (2022)

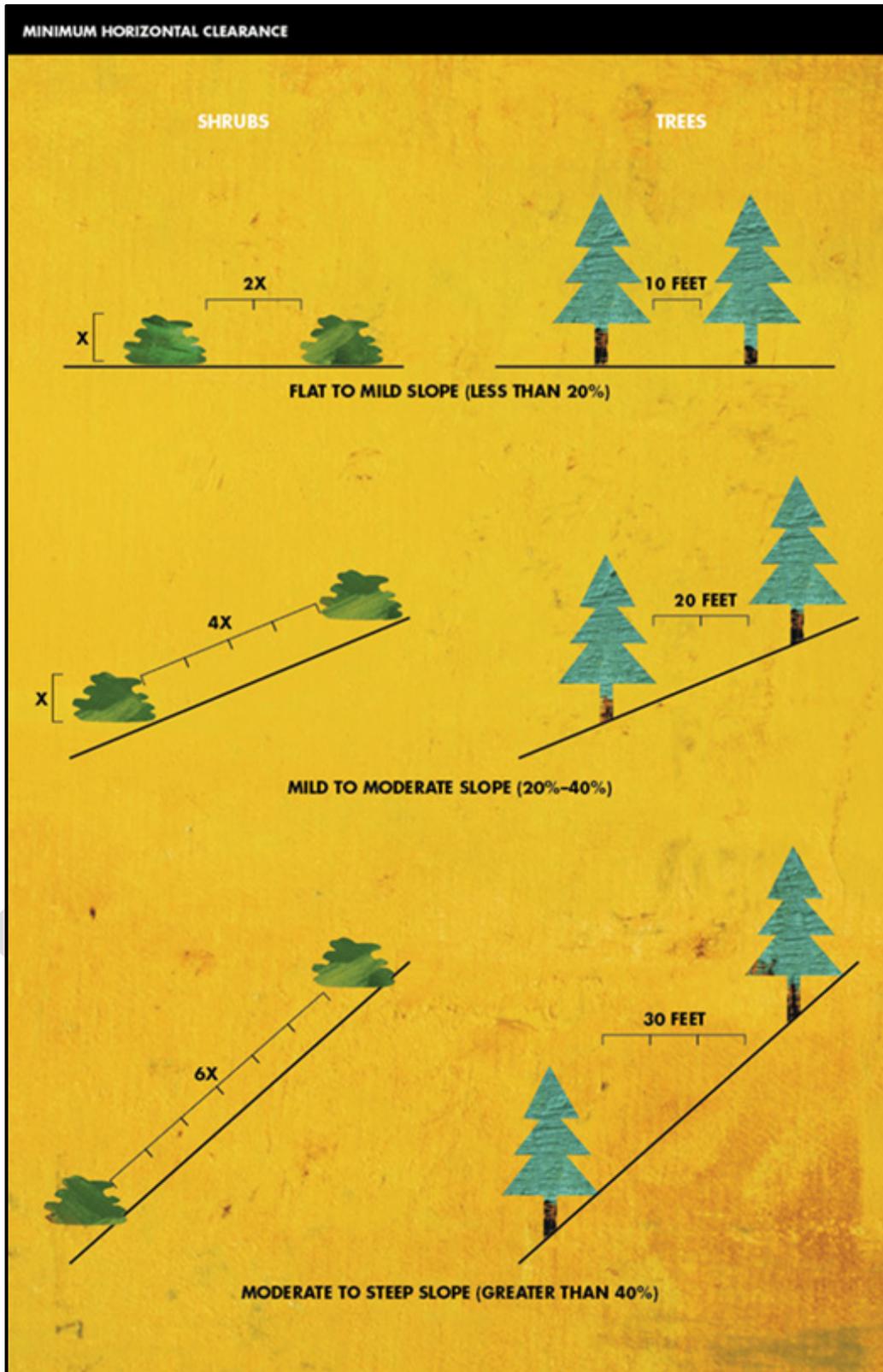


Figure F.4. Minimum horizontal clearance.

Source: CAL FIRE (2022)

It is crucial to underscore the significance of tailoring wildfire mitigation strategies to specific sites. While general recommendations provide valuable guidance, this plan emphasizes the importance of seeking insights from local wildfire experts to identify site-specific measures. This approach ensures a more targeted and effective mitigation strategy, accounting for the unique characteristics and risks of each location. By engaging with local experts, the community can enhance its resilience to wildfires and create a safer environment for residents.

Specific recommendations should be based on the hazards adjacent to a structure such as slope steepness and fuel type. Firewise guidelines are excellent resources but creating defensible space does not have to be an overwhelming process. The NFPA offers a free [Community Wildfire Risk Assessment Tutorial](#) and an online learning module: [Understanding the Wildfire Threat to Homes](#). Both tools are great resources for learning about, and implementing, defensible space.

Home Hardening and the Home Ignition Zone

This topic is best addressed via the Jack Cohen video “Your Home Can Survive a Wildfire” found here: https://www.youtube.com/watch?v=vL_syp1ZScM

A comprehensive resource list for residents can be found on WA DNR’s Community Resilience Resource Library under the Ignition Resistant Homes section. Homeowners should consider ways to assist neighbors that may not be physically able to do the work themselves, have the tools to do the work, the funds to do the work, or are not physically present to do the work. Homeowner actions have been found to also motivate neighbors to act, increasing the scope of wildfire mitigation across a community (Evans et al. 2015). Adopting a phased approach can make the process more manageable and encourage maintenance (Table E.1). The more neighbors can work together to be better prepared for wildfire, the more resilient the neighborhood will be as a whole.

Table E.1. Example of a Phased Approach to Mitigating Home Ignitability

Year	Project	Actions
1	Basic yard cleanup (annual)	Dispose of clutter in the yard and under porches. Remove dead branches from yard. Mow and rake. Clean off roofs and gutters. Remove combustible vegetation near structures. Coordinate disposal as a neighborhood or community. Post 6-inch reflective address numbers visible from road.
2	Understory thinning near structures	Repeat basic yard cleanup. Limb trees up to 6–10 feet. Trim branches back 15 feet from chimneys. Trim or cut down brush. Remove ladder fuels that can carry fire into forest canopy. Coordinate disposal as a neighborhood or community.
3	Understory thinning on private property along roads and drainages	Limb trees up to 6–10 feet. Trim or cut down brush. Remove ladder fuels that can carry fire into forest canopy. Coordinate disposal as a neighborhood or community.

Year	Project	Actions
4	Overstory treatments on private property to improve forest health and wildfire resilience	Evaluate the need to thin mature or diseased trees. Prioritize and coordinate tree removal within neighborhoods to increase cost-effectiveness.
5	Restart defensible space treatment cycle	Continue the annual basic yard cleanup. Evaluate need to revisit past efforts or catch those that were bypassed.

Fuel Breaks and Open Space Cleanup

The next location priority for fuels treatments should be where the community meets wildland. This may be the outer margins of a town or an area adjacent to occluded open spaces such as a park. Fuel breaks (also known as shaded fuel breaks) are strips of land where fuel (for example, living trees and brush, dead branches, leaves or downed logs) has been modified or reduced to limit the fire's ability to spread rapidly. Fuel breaks should not be confused with firebreaks, which are areas where vegetation and organic matter are removed down to mineral soil. Shaded fuel breaks may be created to provide options for suppression resources or to provide opportunities to introduce prescribed fire. In many cases, shaded fuel breaks may be created by thinning along roads. This provides access for mitigation resources and firefighters, as well as enhancing the safety of evacuation routes.

Larger-Scale Treatments

Farther away from WUI communities, the emphasis of treatments often becomes broader. While reducing the buildup of hazardous fuels remains important, other objectives are often included, such as forest health and resiliency to catastrophic wildfire and climate change considerations. Wildfires frequently burn across jurisdictional boundaries, sometimes on landscape scales. As such, these larger treatments need to be coordinated on a strategic level. This requires coordination between projects and jurisdiction, as is currently occurring.

This appendix is included as a compilation of resources to provide guidance for the implementation of fuel treatments and home hardening.

HOME HARDENING

The primary focus for creating a defensible space should be your home. To safeguard your home from embers during wildfires, it is crucial to recognize that exterior vegetation is not the sole source of fuel for these embers. All homeowners, regardless of their abilities, have the capacity to access resources to harden their homes. Wildfires can spread between structures and wildland vegetation or from structures to structures. Houses that are close together may find that hardening their home is the most effective option if there aren't options to manage exterior vegetation. Fortifying or retrofitting your home serves as a strong defense against ember intrusion. Starting protection measures from the house outward, using appropriate materials, regular maintenance, and attention to small details that may expose the home to embers are emphasized for effective wildfire preparedness (Sustainable Defensible Space 2025; UCANR 2025).

For more information and additional components surrounding home hardening activities for increasing wildfire resilience, reducing structural ignitability, and preparing for wildfires, please visit:

<https://wildfireprepared.org/> or any of the resources described below.

Ready.gov: This webpage provides comprehensive information and resources on preparing for, staying safe during, and recovering from wildfires. It covers various aspects such as recognizing warnings and alerts, making emergency plans, strengthening homes, knowing evacuation zones, gathering supplies, and staying safe during wildfire events. Additionally, it offers guidance on returning home after a wildfire and provides additional resources such as videos, social media toolkits, and links to related organizations.

Link: <https://www.ready.gov/wildfires>

WA DNR Community Wildfire Resilience and Preparedness: This webpage outlines the efforts of the WA DNR to enhance community wildfire resilience and preparedness. It discusses the vision and mission of the program, emphasizing the importance of adapting, preparing for, and recovering from wildfires. The page provides key resources for homeowners and landowners to mitigate wildfire risks, including access to educational materials and technical assistance programs. Contact information for WA DNR representatives involved in community resilience efforts is also provided.

Link: <https://www.dnr.wa.gov/programs-and-services/wildfire/wildfire-preparedness>

Fire-Resistant Plants for Home Landscapes: This guide offers valuable information on selecting fire-resistant plants for landscaping in the Pacific Northwest. It emphasizes the importance of maintaining defensible space around homes and highlights the distinction between fire-prone and fire-resistant vegetation. The guide provides practical advice on factors to consider when choosing plants, such as climate, soil, root space, plant height, and spread. It also encourages the use of noncombustible materials in landscaping design. The purpose of the publication is to educate homeowners, businesses, and landscapers about landscaping techniques to reduce the risk of wildfire damage and provide examples of fire-resistant plant species suitable for the region.

Link: https://dnr.wa.gov/sites/default/files/2025-03/rp_fire_resistantplants_in_nw.pdf?obhkmd=

Ready, Set, Go! The Ready, Set, Go! Program aims to empower fire departments to engage with residents in wildfire community risk reduction. It provides free tools and resources for fire departments to help residents understand their wildfire risk and take actions to mitigate it. By collaborating with Firewise USA and other wildfire education efforts, the program amplifies preparedness messages to create fire-adapted communities. Managed by the International Association of Fire Chiefs, the program offers free membership with benefits such as printed action guides, Go Bags, grant funding eligibility, and training.

Link: https://www.wildlandfirersg.org/s/?language=en_US

WA DNR How to Prepare for a Wildfire: This guide outlines how to prepare for, respond to, and recover from a wildfire. It covers various aspects, including wildfire basics, evacuation procedures, defensible space and fire-resistant materials, insurance, emergency notifications, personal and property protection, and post-wildfire safety measures. It emphasizes the importance of proactive planning, such as creating defensible space around properties, knowing evacuation routes, staying informed about weather conditions, and having emergency supplies ready. Additionally, it provides resources for further information and assistance, ensuring individuals and communities are well-equipped to mitigate wildfire risks and manage wildfire incidents effectively.

Link: https://www.dnr.wa.gov/publications/rp_fire_how_to_prepare_wildfire.pdf

Disaster Safety: Prepare for Wildfire: The page provides information about various projects aimed at helping home and business owners protect their properties from damage caused by natural disasters, including wildfires. These projects cover topics such as maintaining defensible space, inspecting, and maintaining roofs, fire-resistant landscaping, and guidance for farms and ranches.

Link: <https://disastersafety.org/wildfire/>

WA DNR Wildfire Ready Neighbors: The page provides information about the Wildfire Ready Neighbors program, a collaboration between the WA DNR and local wildfire experts to help communities prepare for wildfires. It emphasizes the importance of community involvement in reducing wildfire risk and offers a free Wildfire Ready Plan to prioritize actions on properties. Contact information for local wildfire experts and resources for wildfire preparedness are also provided.

Link: <https://www.dnr.wa.gov/wildfirereadyneighbors>

National Significant Wildland Fire Potential Outlook: The National Significant Wildland Fire Potential Outlook provides a comprehensive forecast of fire potential across different geographic areas in the United States. It amalgamates predictions from various predictive services units to offer insights into the likelihood of significant wildfire activity. The outlook considers factors such as recent fire activity, precipitation patterns, temperature trends, and drought conditions to assess the potential fire risk. By analyzing these factors, the outlook aims to assist fire management agencies and policymakers in planning and allocating resources for wildfire prevention and suppression efforts.

Link: <https://www.nifc.gov/nicc/predictive-services/outlooks>

COMPONENTS FOR REDUCING IGNITABILITY

Roof

The roof is identified as the most vulnerable component during wildfires, requiring resistance to windblown embers and other exposures. Complex roofs present additional vulnerabilities. Evaluating the vulnerability of the roof is emphasized for new homes or remodeling projects, with proper maintenance being critical to reduce the ignition risk. It is important to install a Class A roof covering and address gaps between covering and sheathing, chimney protection, and proper installation instructions (Sustainable Defensible Space 2025).

Upgrading an existing structure's roof with Class A rated material is recommended. Blocking spaces between roof decking and covering chimneys with noncombustible screens are essential measures. Regular maintenance and professional inspections play key roles in ensuring a home's resilience to ember intrusion and wildfire exposures (Sustainable Defensible Space 2025).

Gutters

Dry debris, when ignited by embers, can lead to flames reaching the roof edge and adjacent siding, even with Class A fire-rated roof coverings. Installing noncombustible leaf guards over gutters, using noncombustible materials for gutters and downspouts (such as galvanized steel, copper, and aluminum), and incorporating a drip edge are all recommended actions to minimize ignitability. The drip edge serves the dual purpose of protecting the roof edge from flaming exposures and minimizing ember entry into roof undersides by blocking gaps between the roof sheathing and the top of the fascia. In upgrading construction, the same measures are recommended (Sustainable Defensible Space 2025).

Vents

Roof vents, vital for attic air circulation and moisture control, are highly vulnerable to flames and embers. While shutters and metal screens help prevent ember entry, they don't fully protect against wildfire-

generated hot gases. Additional protection involves considering fire dampers in HVAC ducts, which automatically close in high heat. Addressing vent vulnerabilities is crucial for fire resistance in new construction. For existing construction, reducing vulnerability to wildfires and embers requires retrofitting the structure to reflect the above measure (Sustainable Defensible Space 2025).

Walls, Sidings, Coatings

Exterior walls are vulnerable to direct flames, conductive heat, and radiant heat. Solid wood and wood composite wall coverings can ignite leading to fire potentially spreading to other components and causing substantial damage. Windborne embers and firebrands are common ignition sources trapped in wall cracks. Recommended materials include concrete, fiber-cement panels, pressure-impregnated fire-retardant treated wood, traditional stucco, masonry, and metals. Materials to avoid are non-treated wood siding, vinyl siding, metal siding susceptible to warping. Creating a 6-inch noncombustible area at the siding base minimizes ignition risk. For upgraded construction, using nonflammable materials to replace current coverings, and removing combustible debris in proximity to exterior walls on a regular basis are both recommended (Sustainable Defensible Space 2025).

Windows

Windows, sliding glass doors, and skylights play a crucial role in preventing the ignition of a home's interior due to windborne embers, hot gases, and radiant heat. The recommendations for new constructions include using tempered glass with low-e coatings or proprietary reflective coatings, insulated glazing units (IGU), and solid metal frames. Exterior window shutters are advised for added protection, particularly solid metal shutters. Dome skylights are preferred for low-slope roofs, while flat skylights on steep-slope roofs should feature dual-pane systems. When upgrading existing construction, it is essential to replace susceptible windows, door vision panels sliding glass doors, and skylight with fire-resistant materials in accordance with the previously mentioned recommendations (Sustainable Defensible Space 2025).

Doors

Safeguarding exterior doors, including garage doors, against ember intrusion or radiant heat is crucial in wildfire zones. Fire-rated doors with a solid, noncombustible mineral core are recommended. Installing adjustable weatherstripping and an automatic door bottom or threshold weatherstripping enhances protection. Insulated, metal garage doors with tested weatherstripping and noncombustible exterior trim further fortify the structure (Sustainable Defensible Space 2025).

When upgrading existing construction, reinforcing existing doors, adding weatherstripping, replacing vision panels, upgrading sliding glass doors and replacing wooden garage doors, is recommended to increase the resilience of the home's openings and reduce heat transmission (Sustainable Defensible Space 2025).

Fences and Decks

Fences and decks pose varying fire risks and play a crucial role due to their proximity to house siding, windows and sliding doors. Combustible materials can fuel wildfires, while plastic and metal offer better resistance and help to better minimize risks. A metal plate at the fence-wall connection is suggested, but long-term moisture-related issues may arise. Considerations for increased fire safety include keeping combustible components at a distance and avoiding fences with gaps. Careful vegetation selection and

regular maintenance are emphasized. It's also crucial to avoid storing combustible materials beneath the deck. For upgrading construction, ensure that the precautions are made to follow the above recommendations and ensure that materials used follow up to date building codes (Sustainable Defensible Space 2025).

Landscaping

Landscaping is an important consideration for homeowners, especially those located in the WUI. In addition to preparing your home in accordance with the hazard ignition zone recommendations, when possible, homeowners should design and maintain landscaping that can bolster defensible space. This includes using vegetation that is fire resistant and planning landscaping with mature sizing and appropriate spacing in mind. No vegetation is 100% fire resistant, but considering desired climate and soil conditions, plant height and spread, and other growth requirements can help in developing a fire-resilient landscape around your home.

The WA DNR, in coordination with the BLM, Cascadia Conservation District, and Washington State University have developed a guide for choosing plants and their location around your home to create fire-resistant landscaping. The guide was developed specifically for eastern Washington, but another western specific guide is planned to be produced. The guide still provides a valuable perspective and methodology for choosing landscaping through a fire resilience lens.

Fire-Resistant Plants for Home Landscapes is available at the following link:

<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/pnw590.pdf>

FUEL TREATMENT METHODS

Since specifics of the treatments are not provided in detail in Table E.1, different fuels reduction methods are outlined in the following narrative.

Several treatment methods are commonly used for hazardous fuels reduction, including manual treatments, mechanized treatments, prescribed fire, and grazing (Table E.2). This brief synopsis of treatment options is provided for general knowledge; specific projects will require further planning. The appropriate treatment method and cost will vary depending on factors such as the following:

- Diameter of materials
- Proximity to structures
- Acreage of project
- Fuel costs
- Steepness of slope
- Area accessibility
- Density of fuels
- Project objectives

It is imperative that long-term monitoring and maintenance of all treatments is implemented. Post-treatment rehabilitation such as seeding with native plants and erosion control may be necessary.

In addition, post-treatment fuel cleanup is a must as neglected piles of vegetation may result in increased fire risk.

Table E.2. Summary of Fuels Treatment Methods

Treatment	Comments
Machine mowing	Appropriate for large, flat, grassy areas on relatively flat terrain.
Manual treatment with chipping or pile burning	Requires chipping, hauling, and pile burning of slash in cases where lop and scatter is inappropriate. Pile burning must comply with smoke management policy.
Brush mastication	Brush species tend to re-sprout vigorously after mechanical treatment. Frequent maintenance of treatments is typically necessary. Mastication tends to be less expensive than manual (chainsaw) treatment and eliminates disposal issues.
Timber mastication	Materials up to 10 inches in diameter and slopes up to 30% can be treated. Eliminates disposal issues. Environmental impact of residue being left on-site is still being studied.
Prescribed fire	Can be very cost-effective for public land but not close to the city. Ecologically beneficial. Can be used as training opportunities for firefighters. May require manual or mechanical pretreatment. Carries risk of escape. Unreliable scheduling due to weather and smoke management constraints.
Feller buncher	Mechanical treatment on slopes more than 30% or of materials more than 10 inches in diameter may require a feller buncher rather than a masticator. Costs tend to be considerably higher than masticator.
Targeted grazing (e.g., goats)	Can be cost-effective. Ecologically beneficial. Can be applied on steep slopes and shrubby and flashy fuels. Requires close management.

MANUAL TREATMENT

Manual treatment refers to crew-implemented cutting with chainsaws. Although it can be more expensive than mechanized treatment, crews can access many areas that are too steep or otherwise inaccessible with machines. Treatments can often be implemented with more precision than prescribed fire or mechanized methods allow. Merchantable materials and firewood can be removed while non-merchantable materials are often lopped and scattered, chipped, or piled and burned on-site. Care should be exercised to not increase the fire hazard by failing to remove or treat discarded material in a site-appropriate manner.

Strategic timing and placement of fuels treatments is critical for effective fuels management practices and should be prescribed based on the conditions of each treatment area. Some examples of this would be to place fuel breaks in areas where the fuels are heavier and in the path of prevailing winds and to mow grasses just before they cure and become flammable. Also, fuel reductions on slopes/ridgelines extending from the WUI to enhance community protection. In areas where the vegetation is sparse and not continuous, fuels treatments may not be necessary to create a defensible area where firefighters can

work. In this situation, where the amount of fuel to carry a fire is minimal, it is best to leave the site in its current condition to avoid the introduction of exotic species.

MECHANIZED TREATMENTS

Mechanized treatments include mowing, mastication (ground-up timber), and whole tree felling. These treatments allow for more precision than prescribed fire and are often more cost-effective than manual treatment.

Mowing, including ATV and tractor-pulled mower decks, can effectively reduce grass fuels adjacent to structures and along highway rights-of-way and fence lines. For heavier fuels, several different masticating machines can be used, including drum- or blade-type masticating heads mounted on machines and ranging in size from a small skid-steer to large front-end loaders. Some masticators can grind standing timber up to 10 inches in diameter. Other masticators are more effective for use in brushes or surface fuels. Mowing and mastication do not actually reduce the amount of on-site biomass but alter the fuel arrangement to a less combustible profile.

In existing fuel break areas maintenance is crucial especially in areas of encroaching shrubs or trees. In extreme risk areas more intensive fuels treatments may be necessary to keep the fire on the ground surface and reduce flame lengths. Within the fuel break, shrubs should be removed, and the branches of trees should be pruned from the ground surface to a height of 4 to 8 feet, depending on the height of the fuel below the canopy, and thinned with a spacing of at least two to three times the height of the trees to avoid movement of an active fire into the canopy.

Mechanical shears mounted on feller bunchers are used for whole tree removal. The stems are typically hauled off-site for utilization while the limbs are discarded. The discarded material may be masticated, chipped, or burned in order to reduce the wildfire hazard and to speed the recycling of nutrients.

GRAZING

Fuel modifications targeted toward decreasing both vertical and horizontal continuity in fuels is critical as a prevention method against fire proliferation. The primary objectives for these modifications are treating surface fuels and producing low-density and vertically disconnected stands. Goat grazing is an effective, nontoxic, nonpolluting, and practically carbon-neutral vegetation treatment method. A goat grazing system typically consists of a high density of goats enclosed by a metallic or electrified fence guided by herders. Goats feed on a variety of foliage and twigs from herbaceous vegetation and woody plants (Lovreglio et al. 2014).

PRESCRIBED BURNING

Prescribed burning is also a useful tool to reduce the threat of extreme fire behavior by removing excessive standing plant material, litter, and wood debris while limiting the encroachment of shrubby vegetation. Where possible, prescribed fire could occur on public land since fire is ecologically beneficial to this fire-adapted vegetation community and wildlife habitat.

All prescribed fire operations will be conducted in accordance with federal and state laws and regulations. Public safety would be the primary consideration in the design of any prescribed burn plan to not negatively impact the WUI. Agency use of prescribed fire on public land would be carried out within the confines of the agency's fire management planning documents and would require individual prescribed

burn plans that are developed for specific burn units and consider smoke management concerns and sensitive receptors within the WUI. Smoke monitors could be placed in areas where smoke concerns have been raised in the past.

Following any type of fuels reduction treatment, post-treatment monitoring should continue to ensure that management actions continue to be effective throughout the fire season. The vegetation within this ecosystem can change rapidly in response to drought or moisture from year to year and during the course of the season, so fuels treatments should be adjusted accordingly. To learn more about firing techniques, visit the EFIRE Fire Techniques webpage: <https://efire.cnr.ncsu.edu/efire/fire-techniques/>.

A maintenance plan outlining a burn schedule may be needed to meet full resource management objectives.

Cultural Burning

Within the Pacific West, fire has historically been a means of forest management and restoration by Indigenous communities (Long et al. 2021). Cultural burning has been defined as the “purposeful use of fire by a cultural group (e.g., family unit, Tribe, clan/moiety, society) for a variety of purposes and outcomes,” and is included under the terms Indigenous fire management, Indigenous burning, and Indigenous stewardship (Long et al. 2021).

Rather than focusing solely on fuel reduction, or as a means of wildfire mitigation, cultural burning is done with a more holistic view, under the philosophy of “reciprocal restoration,” meaning, as stewardship responsibilities to the land are fulfilled, those actions will in turn benefit the peoples who depend on those ecosystems (Long et al. 2021). Cultural burning is typically performed with a variety of objectives, such as landscape management, ecosystem and species biodiversity and health, transmission of environmental and cultural knowledge, ceremonies and spiritual well-being, a sense of place, and material services (i.e., food, medicine, plan materials, etc.). Extensive site preparation is typically done before a burn, and post-burn monitoring and additional cultural practices are a common factor of the land stewardship tradition (Long et al. 2021).

Impacts of Prescribed Fire on Communities

Prescribed fires can have impacts on air quality that may impact local communities. Impacts on a regional scale are typically only acute when many acres are burned on the same day. Local problems are occasionally acute due to the large quantities of smoke that can be produced in a given area during a short period of time. Residents with respiratory problems may be impacted during these burning periods since smoke consists of small particles of ash, partly consumed fuel, and liquid droplets that are considered air pollutants. Other combustion products include invisible gases such as carbon monoxide, carbon dioxide, hydrocarbons, and small quantities of nitrogen oxides. Nitrogen oxides are usually produced at temperatures only reached in piled or windrowed slash or in very intense wildfires that are uncommon in the region. In general, prescribed fires produce inconsequential amounts of these gases. Inappropriate management of prescribed fires can be bothersome to residents, and it can negatively affect community health.

Smoke from burning vegetation produces air pollutants that are regulated by both the EPA and the State of Washington (EPA 2023). Additionally, smoke can increase ambient air pollution levels to a point where it exceeds air quality standards (WA DNR 2019; Washington Smoke Information 2025). Smoke from wildfires is the greatest source of particle pollution within the state of Washington, and Washington has been noted at times for having the worst quality air in the world due to wildfire smoke (WA DNR 2019).

Therefore, effective smoke management is a vital component of planning and conducting prescribed fires. WA DNR has smoke management guidelines that protect the health and welfare of Washington citizens from the impacts of smoke (EPA 2023). In August 2023, the EPA approved an updated Smoke Management Plan for Washington State (EPA 2023). This plan aims to make the approval process easier so that prescribed burns become a consistent and efficient tool to reduce the risk of catastrophic wildfire within Washington State (EPA 2023). In addition, WA DNR developed a certified burn program to help professionals and private citizens develop the skills and tools to safely and successfully utilize prescribed burns (WA DNR 2025n). In Clallam County, agencies must apply for and receive a permit through the WA DNR's Burn Portal to start a prescribed burn (WA DNR 2025n). For recreational and residential burning permits within Clallam County, residents must apply with their local fire department.

In addition, the National Wildfire Coordinating Group (NWCG) released the NWCG Smoke Management Guide for Prescribed Fire in 2020 (NWCG 2020). This plan is designed to act as a guide to all those who use prescribed fire. Smoke management techniques, air quality regulations, public perception of prescribed fire, foundational science behind prescribed fire, modeling, smoke tools, air quality impacts, and more are all discussed in this plan. The document is meant to pair with NWCG's Interagency Prescribed Fire Planning and Implementation Procedures Guide for planning and addressing smoke when prescribed fire is used (NWCG 2020). To view the plan, please visit:

<https://nrfirescience.org/sites/default/files/InteragencyPrescribedFirePlanningProceduresGuide.pdf>.

Effects of smoke can be managed by burning on days when smoke will blow away from smoke-sensitive areas. Precautions are taken when burning near populated areas, highways, airports, and other smoke-sensitive areas. Any smoke impact downwind is considered before lighting a fire. Smoke management is a significant component of all prescribed burn plans. Other mitigating actions include alerting the public of upcoming burning activities, including the purpose, best conditions for ensuring good smoke dispersal, duration, size, and location of projects. Land management agencies in the planning area work with the community regarding smoke management and attempt to provide solutions such as the placement of smoke monitors at sensitive sites.

Thinning and Prescribed Fire Combined

Combining thinning and prescribed fire can be the most effective treatment (Graham et al. 2004). In forests where fire exclusion or disease has created a buildup of hazardous fuels, prescribed fire cannot be safely applied, and pre-burn thinning is required. The subsequent use of fire can further reduce residual fuels and reintroduce this ecologically imperative process.

MANAGEMENT OF NONNATIVE PLANTS

Fuel treatment approaches should always consider the potential for introduction or proliferation of invasive nonnative species as a result of management actions. The USDA maintains a list of introduced, invasive, and noxious plants (USDA 2023). The Washington State Noxious Weed Control Board (2023) also maintains a list of plant species that are considered noxious and therefore actionable at the county level and provides on its website an inventory of nonnative plant species that threaten Washington's wildlands.

For more info on Washington state invasive plant lists, please visit the following link:

Washington State Noxious Weed Control Board: <https://www.nwcb.wa.gov/printable-noxious-weed-list>

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APPENDIX G:
Post-Fire Response and Restoration

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POST-FIRE RESPONSE AND REHABILITATION

This appendix is included to provide resources to residents and agencies in navigating the post-fire environment.

The recent increase in fires within Clallam County has highlighted the numerous complexities of post-fire response. Following a fire, heavy rains may result in widespread floods carrying trees, boulders, and soil through areas, ultimately damaging communities, watersheds, and critical infrastructure. The recent fires within Clallam County, including Mason County's Bear Gulch Fire adjacent to Clallam, highlight the need for focused mitigative and preventative activities in areas impacted by wildfire.

There are many facets to post-fire recovery, including but not limited to:

- Ensuring public health and safety—prompt removal of downed and hazard trees, addressing watershed damage, and mitigating potential flooding.
- Rebuilding communities and assessing economic needs—securing the financial resources from state, federal or private or public organizations sufficient for communities to rebuild homes, businesses, and essential infrastructure.
- Restoring the damaged landscape—restoration of watersheds, soil stabilization, and tree planting.
- Reducing fire risk in the future—identifying hazard areas and implementing mitigation.
- Prioritizing the needs of vulnerable and disadvantaged communities during response and disaster recovery efforts.
- Reducing post-fire recovery time by replanting native species.
- Ensuring fire protection measures enhance sustainability of restoration projects e.g., introducing prescribed fire to a fire-dependent ecosystem where fire had previously been excluded.
- Retaining downed logs for erosion control and habitat maintenance.
- Evaluating and updating disaster recovery plans every 5 years to respond to changing needs and characteristics of the community.
- Coordinating with planning, housing, health and human services, and other local, regional or state agencies to develop contingency plans for meeting short-term, temporary housing needs of those displaced during a catastrophic wildfire event.
- Incorporating forecasted impacts from climate change trends and projections of future risk and consideration of policies to address identified risk.
- Updating codes and ordinances to specify procedures and standards for planning and permitting the reconstruction of buildings destroyed by wildfire.

For rural communities, such as Clallam County, recovering from a severe wildfire event would be challenging for many reasons, including the lack of local financial resources available for the recovery response, the lack of sufficient local staff to manage the post-fire response, broadband and cellular communication challenges, the difficulty of terrain or remote locations, the possibility of supplies being cut off due to a Highway 101 road closure, and limited emergency housing, which may be further impacted by the influx of emergency responders and aid workers.

COMMUNITY RESPONSE AND RECOVERY

Recovery of the vegetated landscape is often more straightforward than recovery of the human environment. Assessments of the burned landscape are often well-coordinated through the use of interagency crews who are mobilized immediately after a fire to assess the post-fire environment and make recommendations for rehabilitation efforts.

For the community impacted by fire, however, there is often very little planning at the local level to guide their return after the fire. Residents impacted by the fire need assistance making insurance claims; finding temporary accommodation for themselves, pets, and livestock; rebuilding or repairing damaged property; removing debris and burned trees; stabilizing the land for construction; mitigating potential flood damage; repairing infrastructure; reconnecting to utilities; and mitigating impacts to health. Oftentimes, physical impacts can be mitigated over time, but emotional impacts of the loss and change to surroundings are long-lasting and require support and compassion from the community.

Emergency Assistance: Before, During, and After a Fire

Team Rubicon

Team Rubicon is a veteran-led humanitarian organization that serves communities around the world before, during, and after disasters such as earthquakes, floods, hurricanes, tornadoes, and wildfire. Team Rubicon focuses on serving vulnerable and at-risk populations affected by disasters, and all services are provided free of charge. Services include incident management, debris management, hazard mitigation, volunteer management, home repair, and emergency medicine. With respect to fire-related assistance, Team Rubicon assists with any action that would limit the impact of a wildfire, such as helping homeowners make their home fire safe, providing staff to assist with mitigation projects (e.g., fuels reduction), and removing debris and hazardous trees (Team Rubicon 2022).

To find out more about Team Rubicon, please visit <https://teamrubiconusa.org/capabilities-services/>.

AFTER THE FIRE

Rebuilding and recovery from wildfire can vary greatly across income levels and demographics. Rural areas, low-income neighborhoods, and immigrant communities generally do not have the necessary resources to cover insurance and rebuilding expenses that occur after a fire. Due to this, many of these areas take more time to recover than those with greater access to resources. In addition, the occurrence of wildfire can worsen existing mental health conditions and lead to post-traumatic stress (PTS), low self-esteem, and depression for at-risk populations.

RETURNING HOME

First and foremost, follow the advice and recommendations of emergency management agencies, fire departments, utility companies, and local aid organizations regarding activities following the wildfire. Do not attempt to return to your home until fire personnel have deemed it safe to do so.

When driving, watch for trees, brush, and rock which may have been weakened or loosened by the fire. Be aware of any damage or debris on roads and driveways. Traffic may be delayed, or lanes closed due

to firefighter operations. Use extreme caution around trees, power poles, and any other tall objects that may have been weakened by the fire (After the Fire WA 2023).

Even if the fire did not damage your house, do not expect to return to normal routines immediately. Expect that utility infrastructure may have been damaged and repairs may be necessary. When you return home, check for hazards, such as gas or water leaks and electrical shorts. Turn off damaged utilities if you did not do so previously. Request that the fire department or utility companies turn the utilities back on once the area is secured. Similarly, water supply systems may have been damaged; do not drink from the tap until you have been advised that it is safe to do so. Finally, keep a “fire watch”; look for smoke or sparks in houses and other buildings. Once at home, check for the following (CAL FIRE 2019):

- Check the roof and exterior areas for sparks or embers.
- Check grounds for hot spots, smoldering stumps, and vegetation.
- Check for fire damage to your home, turn off all appliances and make sure the meter is not damaged before turning on the main circuit breaker.
- Check the attic and throughout your house for any hidden burning sparks or embers.
- Do not drink water from the faucet until emergency officials say it is okay, water supply systems can be damaged and become polluted during wildfires.
- Discard any food that has been exposed to heat, smoke, flood water, or soot.
- If you have a propane tank or natural gas, leave valves closed until the supplier or utilities can inspect your system.
- If you have a solar electrical system, this system should be inspected by a licensed technician to verify that the solar panels and electrical wiring are safe for continued operation.
- Consult local experts on the best way to restore and plant your land with fire-safe landscaping.
- Contact 911 if any danger is perceived.
- Ash contains toxic substances and may be irritating to the eyes, nose, throat, and skin. Ash is harmful to breathe and may trigger asthma attacks. Follow these tips to reduce your exposure to ash (California Department of Public Health 2017):
 - Do not allow children to play in the ash and wash off children’s toys before children play with them.
 - Immediately wash any part of your body that touches ash to avoid irritation.
 - Wash fruits and vegetables from your garden thoroughly before eating them.
 - Keep pets out of ash areas.
 - Frequently clean indoor surfaces by wet mopping.
 - Wear protective clothing and a respirator when working outside.

INSURANCE CLAIMS

The Washington State Office of the Insurance Commissioner advises homeowners to be aware of the wildfire risk during drought-like conditions, which can affect properties in both suburban and rural areas. Homeowner insurance typically covers all fires, including wildfires, unless they are intentionally set by the

policyholder. It is recommended that homeowners review their insurance policies regularly to ensure they have adequate coverage for property and possessions. Insurance rates and coverage are often based on factors such as fire protection available to the home, the presence of utilities, and more. Homeowners are encouraged to create a household inventory and take proactive steps to protect their homes, such as creating natural firebreaks, installing water pumps, and using fire-resistant building materials (Washington State Office of the Insurance Commissioner 2023a).

In 2023, the state insurance commissioner issued the following guidance on how to best deal with insurance claims after a fire has impacted your property (Washington State Office of the Insurance Commissioner 2023b):

- Contact your insurance company once you and your household are safe.
- Do not discard damaged items until your insurer inspects them.
- In case your home is uninhabitable, check whether your policy covers temporary housing.
- Obtain a complete copy of your insurance policy and understand your coverage, especially the "Duties after Loss" section.
- If you're unsure about your policy, seek assistance from an insurance professional.
- It's your responsibility to protect your property from further damage, including mitigation and temporary repairs. Discuss the process with your insurance company and avoid permanent repairs until they inspect your property.
- Keep and organize all receipts.
- Save all relevant emails and documentation related to your claim.
- Support your claim with photos, details, estimates, etc., to prove your loss, but do not exaggerate your claim as it constitutes insurance fraud.
- Maintain copies of all documentation and communication with insurers.

The NW Insurance Council is a nonprofit organization dedicated to serving consumers and communities in Washington, Oregon, and Idaho, by providing timely and accurate information about property and casualty insurance. Their key initiatives encompass media relations and information dissemination, consumer education and engagement, public policy advocacy and communication, industry leadership and coordination, and promoting awareness of insurance crimes and loss prevention. Their mission is to be a valuable resource for insurance-related matters in the region (Northwest Interagency Coordination Center 2023). With respect to fire damage, NW Insurance Council encourages homeowners to prepare and mitigate the impact of wildfires, providing tips for protection and highlighting actions that homeowners can take to reduce wildfire risk and receive discounted rates (Northwest Interagency Coordination Center 2023).

For additional information on tools and measures available for homeowners to safeguard their property, please visit the following webpage: <https://www.nwinsurance.org/wildfire>

COMMUNITY SAFETY: POST-FIRE FLOODS AND DEBRIS FLOWS

A debris flow is a swiftly moving mixture of water, rocks, soil, vegetation, and even large objects like trees and boulders that flows downhill, posing a significant danger. Several factors contribute to debris flows, including steep slopes, heavy rainfall, wildfires, weak or loose rock and soil, earthquakes, changes in runoff patterns, and improper construction. After wildfires, areas are particularly susceptible to debris flows due to the loss of vegetation and the creation of water-repellent soils, which can lead to flash floods turning into destructive debris flows (WA DNR 2025o).

The Washington Geological Survey's Landslide Hazards Program, known as WALERT, plays a crucial role in aiding communities affected by wildfires. They conduct rapid assessments of debris flow hazards in areas recently burned by wildfires, even extending their evaluation to downstream regions that may be at risk. They compile summary reports outlining the areas at risk of geologic hazards, assisting emergency response planning and mitigation efforts by sharing this information with relevant agencies. (WA DNR 2025n).

These reports are accessible for download once post-wildfire assessments are completed, and can be access on the following WA DNR webpage: <https://www.dnr.wa.gov/wildfire-debris-flows#reports>.

Residents are strongly advised to heed evacuation warnings and be prepared for debris flows. While the threat is often anticipated immediately following wildfires, the danger can persist for up to 5 years. Staying informed through local officials, official weather forecasts, flood and emergency alerts, and practicing emergency plans is essential. If sheltering in place, residents should select a secure location, watch for signs of approaching debris flows, and avoid lower-floor bedrooms adjacent to hazardous slopes. Being cautious, vigilant, and responsible for personal safety is emphasized throughout (WA DNR 2025o).

More detailed information on what to do to prepare for debris flow can be found here, on the WA DNR website: <https://www.dnr.wa.gov/wildfire-debris-flows#what-you-should-know-and-what-you-can-do>

RESOURCES FOR MOBILIZING YOUR COMMUNITY

Proactive recovery planning, conducted before any disaster strikes, is vital for community preparedness and resilience. It involves anticipating and addressing various scenarios, both expected and unexpected, that may arise in the aftermath of a disaster. This type of planning considers how mitigation and emergency management plans may be impacted, leading to updated plans, regulations, and zoning codes. Quick action post-disaster sets a positive recovery trajectory and prevents a return to old routines before recovery efforts have begun. Communities equipped with proper planning and preparation can access more assistance through disaster assistance programs, even if not directly impacted by the disaster. The Washington State Emergency Management Division (EMD) and FEMA provide valuable resources to aid communities in recovery planning, such as the National Disaster Recovery Framework, planning guides, and toolkits (Washington State EMD 2025).

The Washington State EMD offers support to communities through training, technical services, and various forms of assistance. While Washington is a home rule state, meaning local jurisdictions and Tribes are primarily responsible for disaster response, the state plays a coordinating role for state and federal resources and facilitates recovery efforts between different entities following a disaster. The extent of the state's involvement depends on the local jurisdiction's capacity and the incident's complexity (Washington State EMD 2025).

For more information and to access the resources, please visit: <https://mil.wa.gov/recovery>.

The Washington State Fire Adapted Communities Learning Network (WAFAC) is a peer learning network aimed at supporting local efforts to adapt to and recover from wildfires in Washington state. Their focus is on preparing communities before, during, and after fires by collaborating with local organizations and agencies to develop and implement place-based strategies and priorities. Since its founding in 2015, WAFAC has sponsored and supported wildfire resiliency efforts throughout the state. Housed within the WAFAC website is a range of valuable resources and detailed guides that outline wildfire incident pre-planning, mitigative actions, post-fire recovery and more (WAFAC 2023).

In 2023, WAFAC completed After the Fire Toolkits covering many different aspects of wildfire recovery. These toolkits can be found by scrolling down the page here:

<https://www.fireadaptedwashington.org/toolkit>

WA DNR has a Post-Fire Recovery Program that was established in 2021. The program operates within the Forest Resilience Division at WA DNR with an overarching goal of helping communities and watersheds recover from wildfires increasing in size, severity and long-term impacts felt across Washington. Development of tools and resources for communities is underway.

More information can be found on the WA DNR Post-Fire Recovery page:

<https://www.dnr.wa.gov/postfirerecovery>

The Washington Silver Jackets team is a group of federal and state agencies that aim to enhance coordination for flood risk management, response, recovery, preparedness, and mitigation. The team facilitated the creation of the Washington State Post-Wildfire Flood Committee (PWFC) in response to elevated post-wildfire flood risks in the state. The PWFC focuses on policy, projects, and awareness to reduce the threat of post-wildfire flooding, with agency participation spanning federal, state, local governments, universities, nongovernmental organizations, and the private sector. These entities collaborate voluntarily to address post-fire challenges faced by communities after destructive wildfires (PWFC 2023).

The PWFC website offers valuable post-fire impact safety information, community assistance, and guidance on the road to recovery: <https://afterthefirewa.org/>

COMMUNICATION

The Emergency Communications Toolkit provided by the Washington State Department of Health offers a comprehensive set of resources for public health and emergency response partners during natural disasters and other emergencies. It includes templates, checklists, and fact sheets, encouraging customization with agency-specific information and real-time emergency details. The toolkit offers resources to help prioritize and make decisions in the early hours of an emergency. This includes sample draft news releases to aid in response efforts tailored to the agency and current situation, with an emphasis on coordination with public information staff and adherence to agency communication procedures.

For more detailed information on this important tool for communication during emergency response, please visit the following webpage: <https://doh.wa.gov/public-health-provider-resources/emergency-preparedness/emergency-communications-toolkit>

POST-FIRE REHABILITATION AND RESOURCES

Wildfires that cause extensive damage necessitate dedicated efforts to avert issues afterward. As aforementioned, loss of vegetation increases soil susceptibility to erosion; water runoff may increase and lead to flooding; sediments and debris may be transported downstream and damage properties or saturate reservoirs putting endangered species and water reserves at risk (USFS n.d.(a)). Following a fire, the primary priority is emergency stabilization to prevent additional damage to life, property, or natural resources. The soil stabilization work starts immediately and may proceed for up to a year. The rehabilitation effort to restore damage caused by the fire starts after the fire is out and may persist for many years. For the most part, rehabilitation efforts focus on the lands not likely to recover naturally from wildfire damage (USFS n.d.(b)).

The USFS's post-fire emergency stabilization program is called the Burned Area Emergency Response (BAER) program. The goal of the BAER program is to discover post-wildfire threats to human life and safety, property, and critical natural or cultural resources on USFS lands and take appropriate actions to mitigate unacceptable risks (NIFC 2022). BAER teams are composed of trained professionals from different fields, including soil scientists, engineers, hydrologists, biologists, botanists, archaeologists, and others who quickly assess the burned area and advise emergency stabilization treatments (NIFC 2022).

The NRCS Emergency Watershed Protection (EWP) program provides technical and financial services for watershed repair on public (state and local) and private land. The goal is reduced flood risk via funding and expert advice for land treatments. The EWP program can provide up to 75% funding for qualifying projects; remaining funds may be paid with in-kind volunteer labor (Coalition for the Upper South Platte [CUSP] 2016). This funding is used by the State Emergency Rehabilitation Team (a multiagency group assembled by the NRCS) to develop specific recovery and treatment plans.

Examples of potential treatments include (USFS 2022):

- Hillside stabilization (for example: placing bundles of straw parallel to the slope to slow erosion)
- Hazard tree cutting
- Felling trees perpendicular to the slope contour to reduce runoff
- Mulching areas seeded with native vegetation
- Stream enhancements and construction of catchments to control erosion, runoff, and debris flows
- Planting or seeding native species to limit spread of invasive species

The USFS provides a science-based framework to guide post-fire restoration efforts in National Forest lands in the Pacific Northwest. The framework is based on a process that leads to the development of a restoration portfolio that can inform project planning and monitoring (USFS 2022). The framework is available at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd1062404.pdf

A comparison of potential hillside, channel, and road treatments is available at: <https://www.afterwildfirenm.org/post-fire-treatments/which-treatment-do-i-use>

SPECIFIC TREATMENT DETAILS

Hillslope Treatments

Cover Applications:

Dry mulch: provides immediate ground cover with mulch to reduce erosion and downstream flow.

Wet mulch (hydromulch): provides immediate cover to hold moisture and seeds on slopes using a combination of organic fibers, glue, suspension agents, and seeds (most effective on inaccessible slopes).

Slash spreading: provides ground cover to reduce erosion by felling trees in burned areas.

Seeding: reduces soil erosion over time with an application of native seed mixtures (most successful in combination with mulching). Breaking up and loosening topsoil to break down the hydrophobic layer on top of the soil is also effective.

Erosion Barrier Applications:

Erosion control mat: organic mats staked on the soil surface to provide stability for vegetation establishment.

Log erosion barrier: trees felled perpendicular to the hillslope to slow runoff.

Fiber rolls (wattles): rolls placed perpendicular to the hillslope to reduce surface flows and reduce erosion.

Silt fencing: permeable fabric fencing installed parallel to the slope contour to trap sediment as water flows down the hillslope.

Channel Treatments

Check dam: small dams built to trap and store sediment in stream channels.

In-channel tree felling: felling trees in a staggered pattern in a channel to trap debris and sediment.

Grade stabilizer: structures made of natural materials placed in ephemeral channels for stabilization.

Stream bank armoring: reinforcing streambanks with natural materials to reduce bank cutting during stream flow.

Channel deflector: an engineered structure to direct flow away from unstable banks or nearby roads.

Debris basin: constructed to store large amounts of sediment moving in a stream channel.

Road and Trail Treatments

Outsloping and rolling dips (water bars): alter the road shape or template to disperse water and reduce erosion.

Overflow structures: protect the road by controlling runoff and diverting stream flow to constructed channels.

Low water stream crossing: culverts replaced by natural fords to prevent stream diversion and keep water in the natural channel.

Culvert modification: upgrading culvert size to prevent road damage.

Debris rack and deflectors: structure placed in a stream channel to collect debris before reaching a culvert.

Riser pipes: filter out debris and allow the passage of water in stream channels.

Catchment-basin cleanout: using machinery to clean debris and sediment out of stream channels and catchment basins.

Trail stabilization: constructing water bars and spillways to provide drainage away from the trail surface.

These treatments and descriptions are further detailed at: <https://afterwildfirenm.org/post-fire-treatments/treatment-descriptions>

For more information about how to install and build treatments, see the Wildfire Restoration Handbook at: https://www.flyingwrenchfoundation.org/library/Fire_Restoration_Handbook_1.pdf

TIMBER SALVAGE

Many private landowners may decide to harvest trees killed in the fire, a decision that can be highly controversial. Trees remaining post-fire can be instrumental for soil and wildlife habitat recovery, but dead standing trees may also pose safety concerns and fuel loadings may still be conducive to future high intensity wildfires. Burned soil is especially susceptible to soil compaction and erosion so it is recommended to have professionals perform the timber salvage. Several programs assist landowners with timber salvage, including the NRCS Environmental Quality Incentives Program (EQIP) (CUSP 2016).

INVASIVE SPECIES MANAGEMENT AND NATIVE REVEGETATION

Wildfire provides an opportunity for many invasive species to dominate the landscape because many of these species thrive on recently burned landscapes. It is imperative that landowners prevent invasive establishment by eradicating weeds early, planting native species, and limiting invasive seed dispersal (CUSP 2016).

Planting native seeds is an economical way to restore a disturbed landscape. Vegetation provides protection against erosion and stabilizes exposed soils. To be successful, seeds must be planted during the proper time of year and using correct techniques. Use a native seed mixture with a diversity of species and consider the species' ability to compete with invasive species. Before planting, the seedbed must be prepared with topsoil and by raking to break up the hydrophobic soil layer. If you choose to transplant or plant native species, consider whether the landscape has made a sufficient recovery to ensure the safety of the individuals (CUSP 2016).

LONG-TERM COMMUNITY RECOVERY

On non-federal land, recovery efforts are the responsibility of local governments and private landowners. Challenges associated with long-term recovery include homes that were severely damaged or were saved but are in high-severity burn areas. Furthermore, homes saved but located on unstable slopes or in areas in danger of flooding or landslides present a more complicated challenge. Economically, essential businesses that were burned or were otherwise forced to close pose a challenge to communities of all sizes. Given these complications, rebuilding and recovery efforts can last for years, with invasive species control and ecosystem restoration lasting even longer (CUSP 2016). It is critical that a long-term plan is in place and there is sufficient funding and support for all necessary ecosystem and community recovery. To learn about more post-fire recovery resources, visit the After the Flames website here:

<https://aftertheflames.com/resources/>.

ADDITIONAL RESOURCES

National Resources

U.S. Fire Administration WUI Toolkit

The U.S. Fire Administration (USFA) is an entity of the U.S. Department of Homeland Security's FEMA that aids in the preparation for and response to fire. Their WUI toolkit consists of a list of websites and other information regarding risk assessments, public outreach, and community training. Find the toolkit here: <https://www.usfa.fema.gov/wui/>.

NFPA/Insurance Institute for Business and Home Safety Resources

National Fire Protection Association

The NFPA is a global nonprofit organization devoted to eliminating death, injury, property, and economic loss due to fire, electrical, and related hazards. Its 300 codes and standards are designed to minimize the risk and effects of fire by establishing criteria for building, processing, design, service, and installation around the world.

The NFPA develops easy-to-use educational programs, tools, and resources for all ages and audiences, including Fire Prevention Week, an annual campaign that addresses a specific fire safety theme.

The NFPA's Firewise Communities program (www.firewise.org) encourages local solutions for wildfire safety by involving homeowners, community leaders, planners, developers, firefighters, and others in the effort to protect people and property from wildfire risks.

The NFPA is a premier resource for fire data analysis, research, and analysis. The Fire Analysis and Research Division conducts investigations of fire incidents and produces a wide range of annual reports and special studies on all aspects of the nation's fire problem.

Evacuation Guide for People with Disabilities: <https://www.nfpa.org/downloadable-resources/guides/evacuation-guide-pdf>

Insurance Institute for Business and Home Safety (IBHS)

Protect your home

- Critical Home Preparation: <https://ibhs.org/wildfireready/>.
- Exterior Home Upgrades: <https://ibhs.org/wildfirereadyhomeupgrades/>.
- Create a Wildfire Resistant Yard: <https://ibhs.org/wildfirereadyhomedefensiblespace/>.
- Home Preparation Checklist: <https://wildfireprepared.org/wp-content/uploads/WPH-How-To-Prepare-My-Home-Checklist.pdf>.
- Wildfire Prepared Home (free online assessment): <https://wildfireprepared.org/wildfire-prepared-home-base-assessment/>.
- Homeowner Articles and Testimonies: <https://wildfireprepared.org/homeowner-articles/>.
- Applications for Wildfire Prepared Certifications: <https://wildfireprepared.org/get-started/>.

Preparation for evacuation

- Prepare your Home for Evacuation: <https://ibhs.org/ibhs-in-the-news/prepare-your-home-for-evacuation-from-wildfire/>.
- Home Evacuation Steps: <https://ibhs.org/wildfirereadyhomeevacuation/>.

Miscellaneous

- Wildfire Evacuation Checklist: <https://www.usfa.fema.gov/downloads/pdf/publications/wildfire-evacuation-checklist.pdf>.
- The following resources may also provide helpful information for funding opportunities:
 - Western Forestry Leadership Coalition: <https://www.thewflc.org/>.
 - USDA Information Center: <https://www.nal.usda.gov/main/information-centers>.
 - USFS Fire Management website: <https://www.fs.usda.gov/science-technology/fire>.
 - National Fire Protection Association: <http://www.nfpa.org>.
 - NIFC Fire Prevention, Education, and Mitigation: <https://www.nifc.gov/fire-information/fire-prevention-education-mitigation>.
 - U.S. Fire Administration: <https://www.usfa.fema.gov/index.html>.

Infrastructure Investment and Jobs Act Resources: <https://www.gfoa.org/the-infrastructure-investment-and-jobs-act-ijja-was>

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APPENDIX H:
Community Survey Results

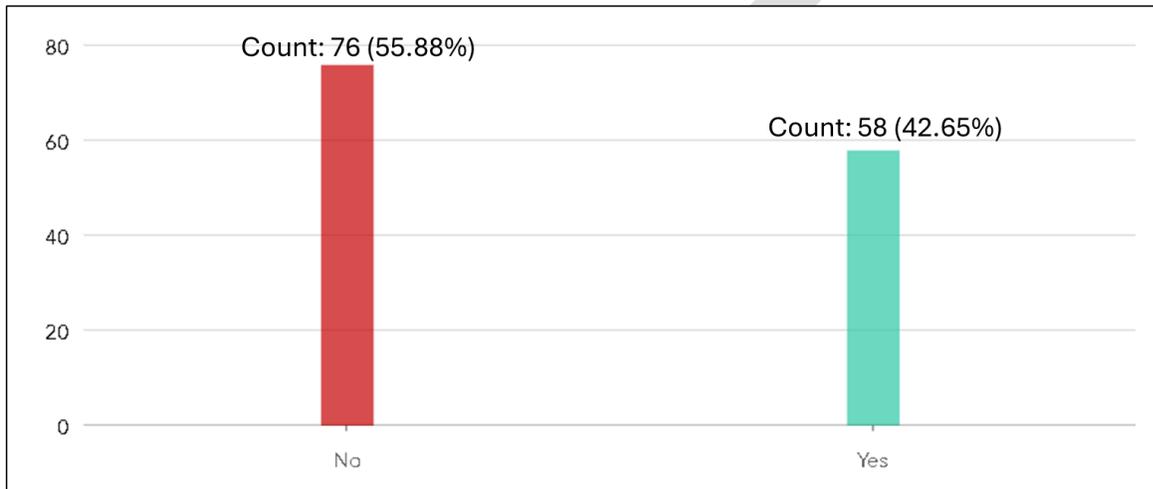
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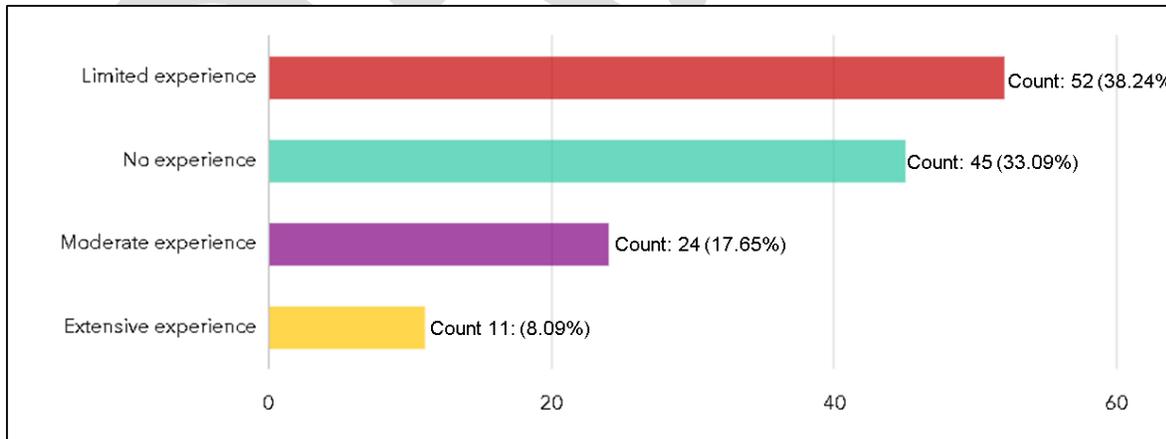
From April to October 2025, the Clallam County CWPP team conducted a public survey to better understand community perspectives, experiences, and preparedness related to wildfire risk. The survey gathered 136 responses from residents across the county, focusing on topics such as personal experience with wildfire, perceptions of risk, preparedness actions, challenges, and priorities for future mitigation and funding.

The following section presents a visual summary of the survey findings. For each question, results are shown both in text and in accompanying graphs. Text summaries include the count and percentage for each response option, or for rank questions, the average rank for each response.

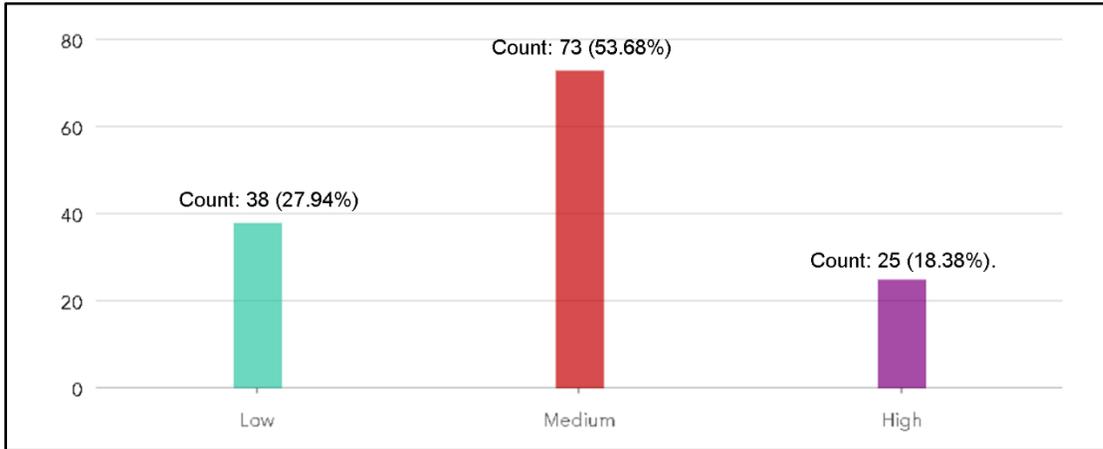
Question 1: Survey responses to “Have you ever been affected by wildfire?”
 (No: 76, 55.88%; Yes: 58, 42.65%).



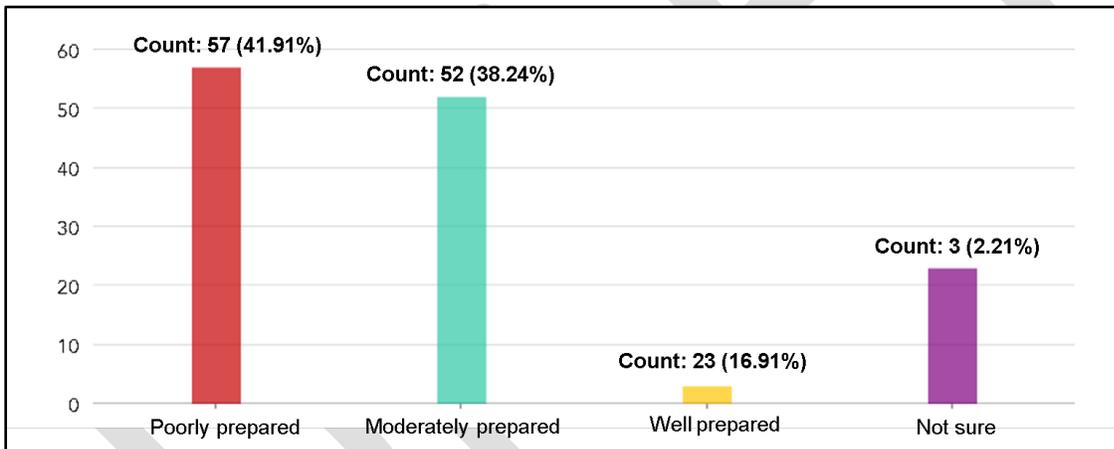
Question 2: Survey responses to “How would you rate your level of experience with wildfire?”
 (Limited experience: 52, 38.24%; No experience: 45, 33.09%; Moderate experience: 24, 17.65%; Extensive experience: 11, 8.09%).



Question 3: Survey responses to “How would you rate your house in terms of risk from wildfire?”
 (Medium: 73, 53.68%; Low: 38, 27.94%; High: 25, 18.38%).

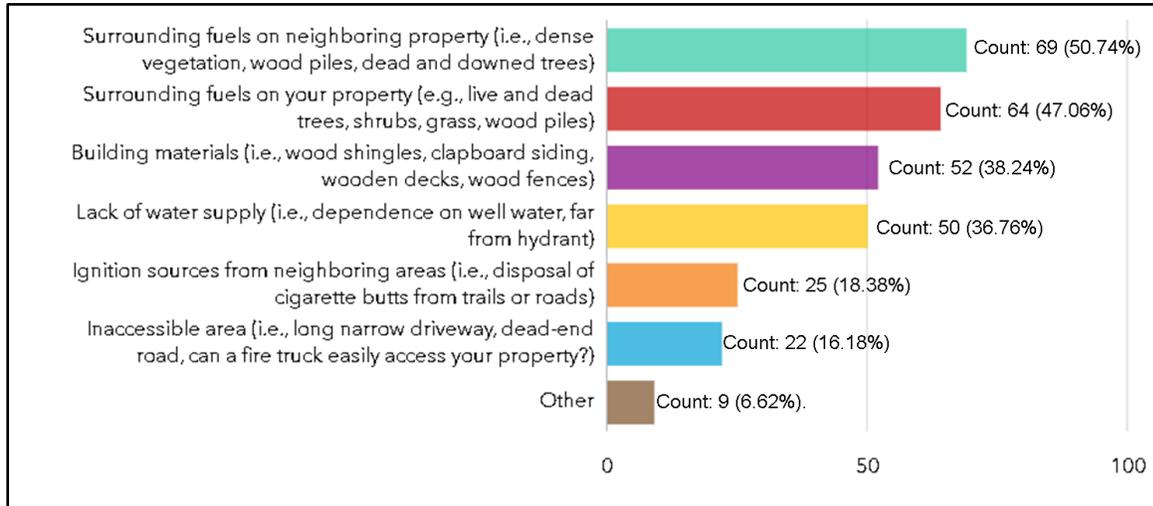


Question 4: Survey responses to “How prepared is your neighborhood for large wildfire?”
 (Poorly prepared: 57, 41.91%; Moderately prepared: 52, 38.24%; Not sure: 23, 16.91%; Well prepared: 3, 2.21%).



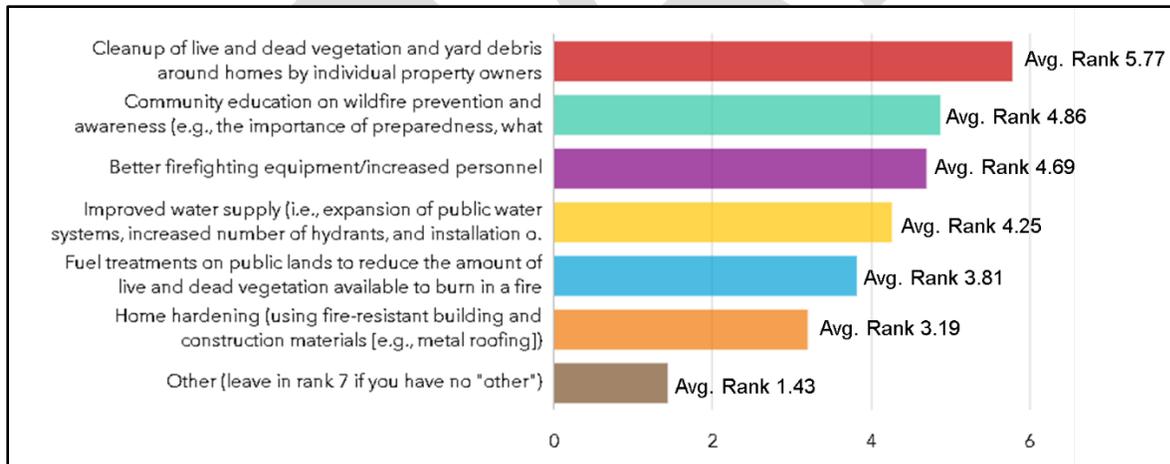
Question 5: Survey responses to “My home is vulnerable to wildfire because of...”

(Surrounding fuels on neighboring property: 69, 50.74%; Surrounding fuels on your property: 64, 47.06%; Building materials: 52, 38.24%; Lack of water supply: 50, 36.76%; Ignition sources from neighboring areas: 25, 18.38%; Inaccessible area: 22, 16.18%; Other: 9, 6.62%).



Question 6: Survey responses to “Rate the following actions in their importance to making the community better prepared for wildfire”

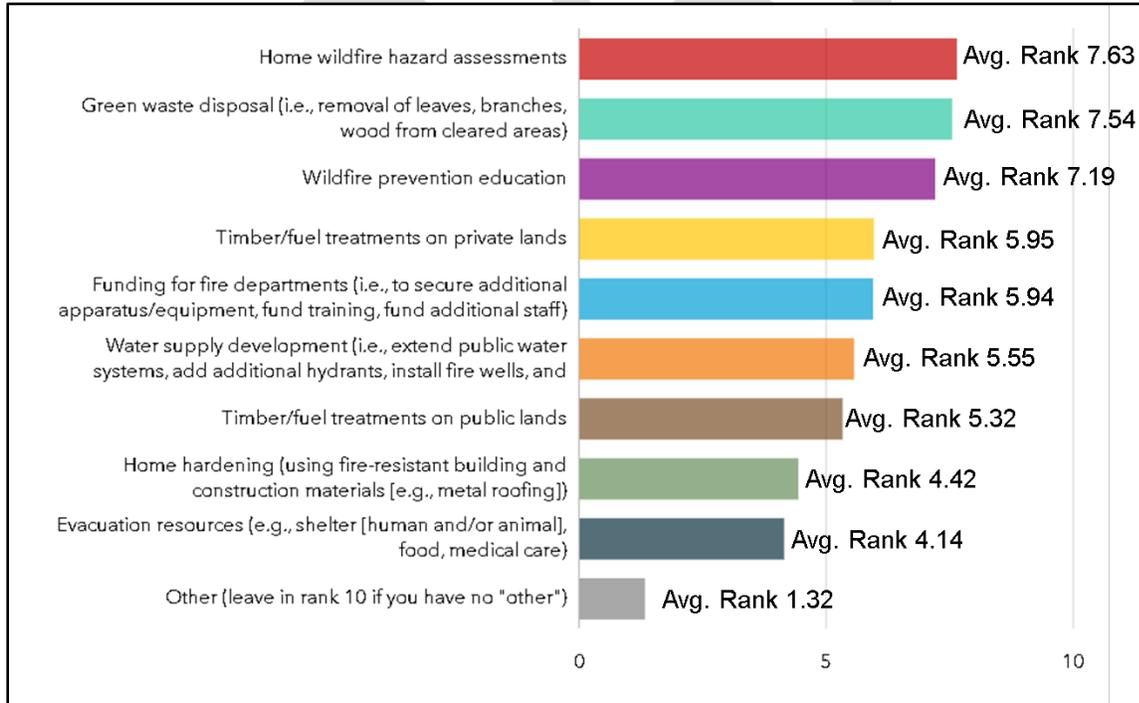
(Cleanup of debris: Avg. Rank 5.77; Community education: 4.86; Better equipment/increased personnel: 4.69; Improved water supply: 4.25; Fuel treatments on public lands: 3.81; Home hardening: 3.19; Other: 1.43).



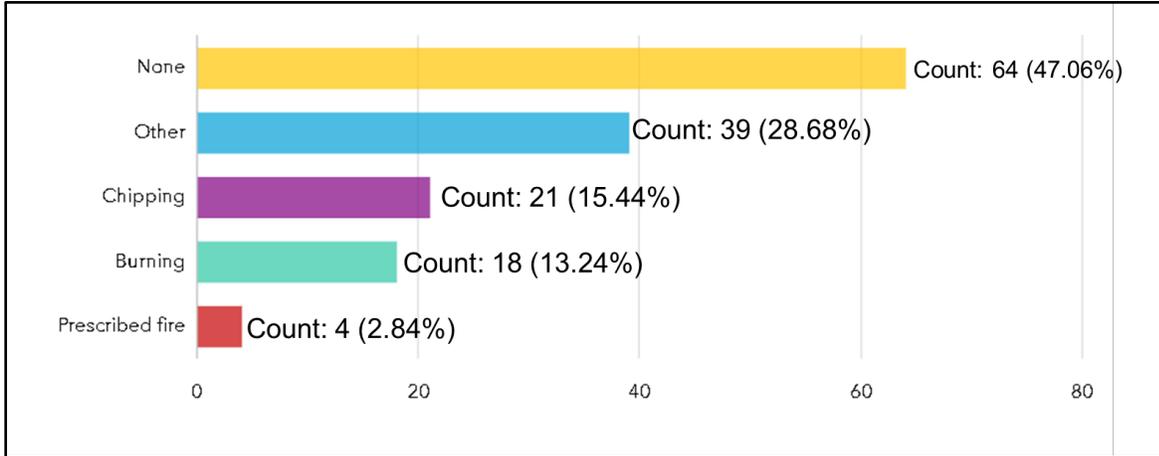
Question 7: Survey responses to “My biggest challenge to making my home fire safe is...”
 (Financial burden: Avg. Rank 4.82; Time: 4.64; Not knowing what to do: 3.81; No challenge: 3.24; Contractor availability: 2.53; Other: 1.97).



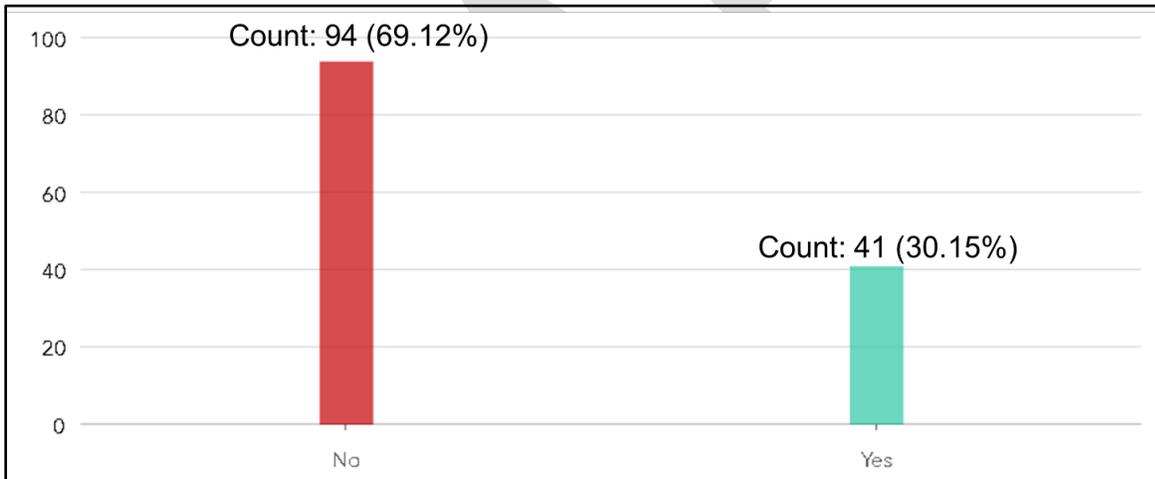
Question 8: Survey responses to “I would be most interested in funding to help me and my community with...”
 (Home hazard assessments: Avg. Rank 7.63; Green waste disposal: 7.54; Wildfire prevention education: 7.19; Timber/fuel treatments on private lands: 5.95; Funding for fire departments: 5.94; Water supply development: 5.55; Timber/fuel treatments on public lands: 5.32; Home hardening: 4.42; Evacuation resources: 4.14; Other: 1.32).



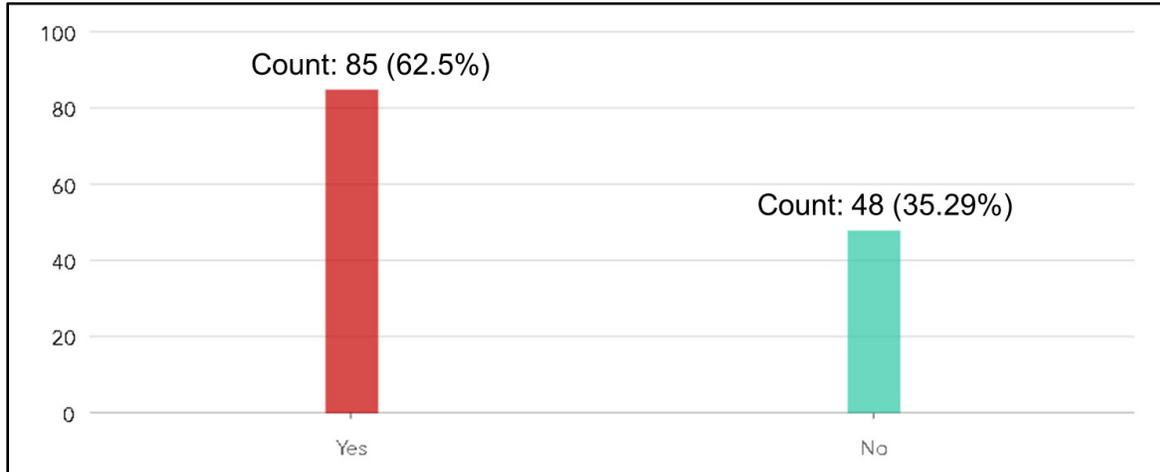
Question 9: Survey responses to “Are you currently using any methods to reduce fuels on your property?”
 (None: 64, 47.06%; Other: 39, 28.68%; Chipping: 21, 15.44%; Burning: 18, 13.24%; Prescribed fire: 4, 2.94%).



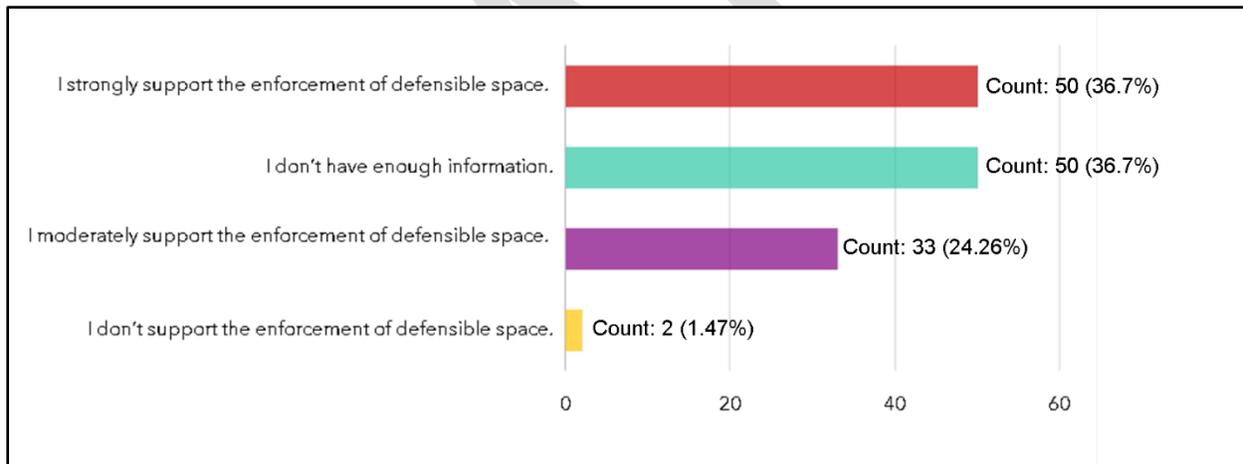
Question 10: Survey responses to “Do you know what the Firewise program is?”
 (No: 94, 69.12%; Yes: 41, 30.15%).



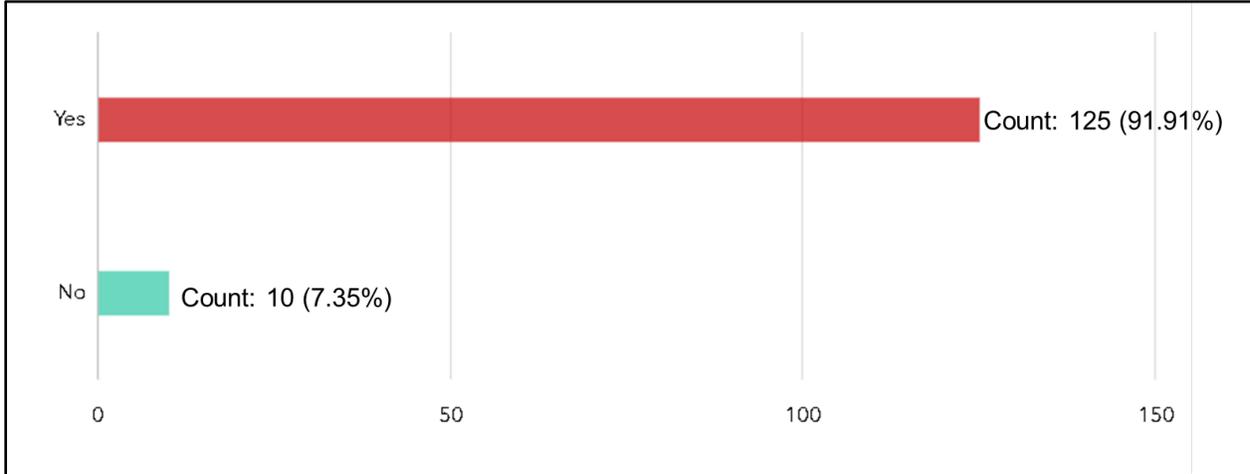
Question 11: Survey responses to “Do you know what defensible space is?”
 (Yes: 85, 62.5%; No: 48, 35.29%).



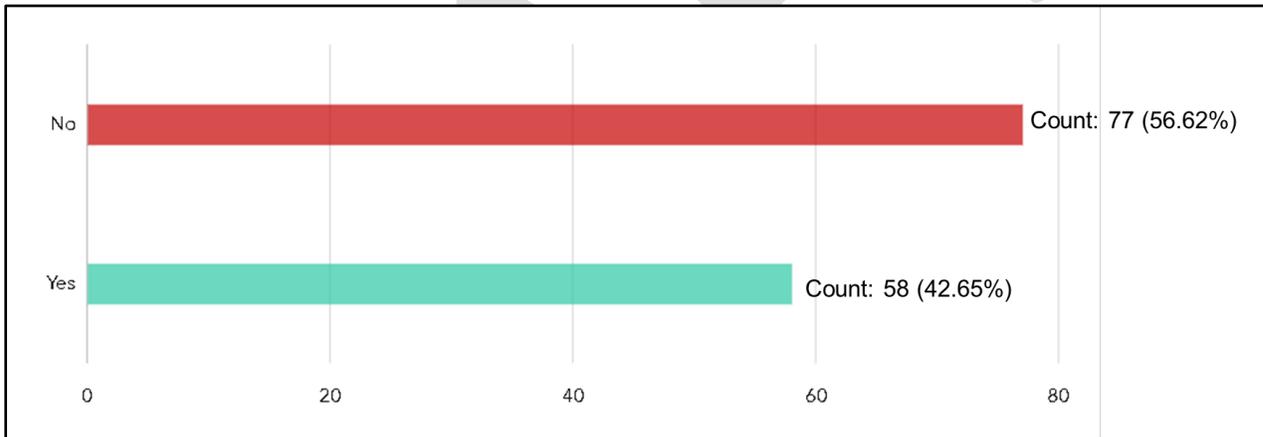
Question 12: Survey responses to “Please select the statement that best represents your view of the enforcement of defensible space.”
 (I strongly support enforcement: 50, 36.76%; I don’t have enough information: 50, 36.76%; I moderately support enforcement: 33, 24.26%; I don’t support enforcement: 2, 1.47%).



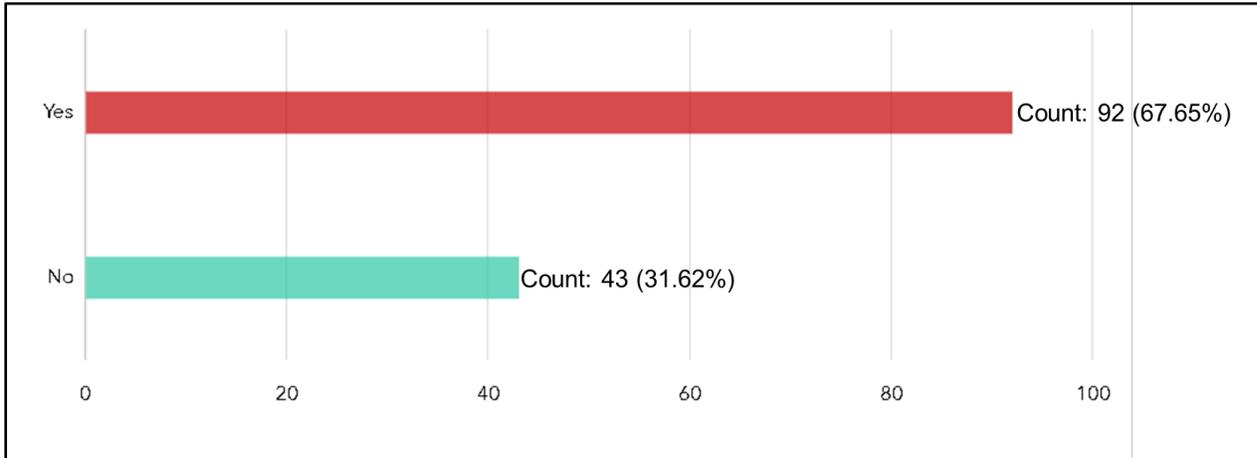
Question 13: Survey responses to “Are you capable of evacuating your property without assistance?”
(Yes: 125, 91.91%; No: 10, 7.35%).



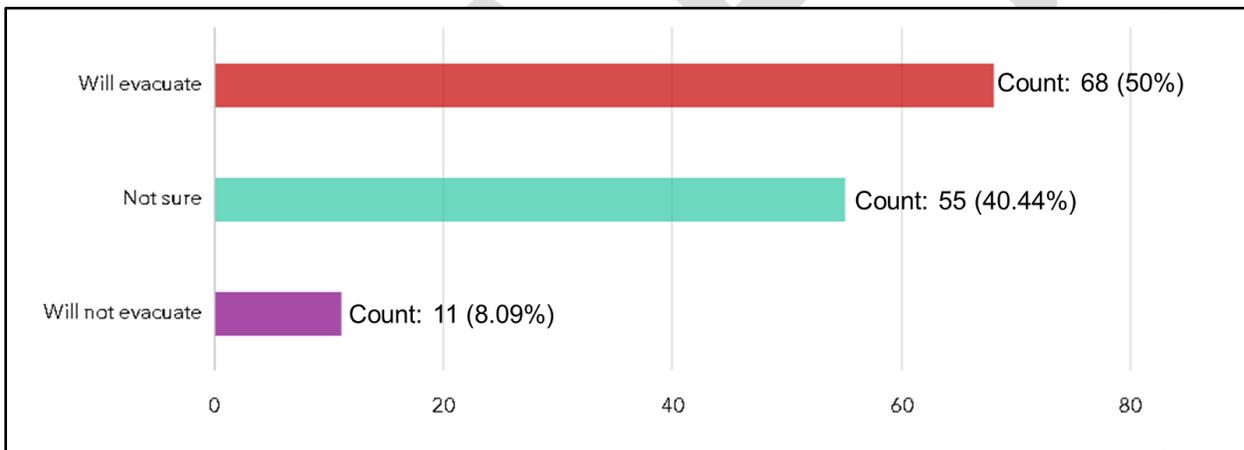
Question 14: Survey responses to “Do you have an updated evacuation plan for you/your family, livestock, pets, etc.?”
(No: 77, 56.62%; Yes: 58, 42.65%).



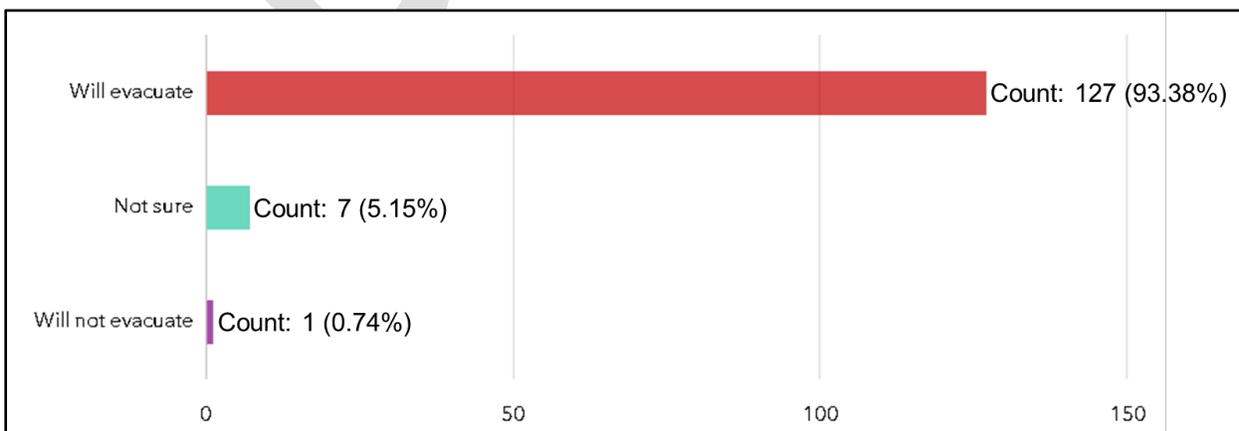
Question 15: Survey responses to “Are you generally familiar with local evacuation routes?”
 (Yes: 92, 67.65%; No: 43, 31.62%).



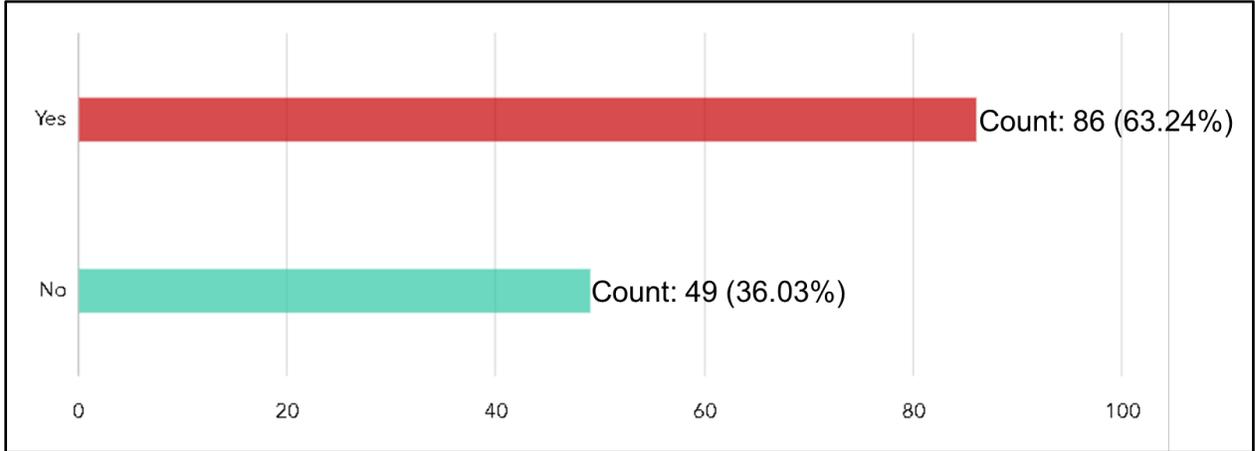
Question 16: Survey responses to “How likely are you to leave your home under an optional evacuation order?”
 (Will evacuate: 68, 50%; Not sure: 55, 40.44%; Will not evacuate: 11, 8.09%).



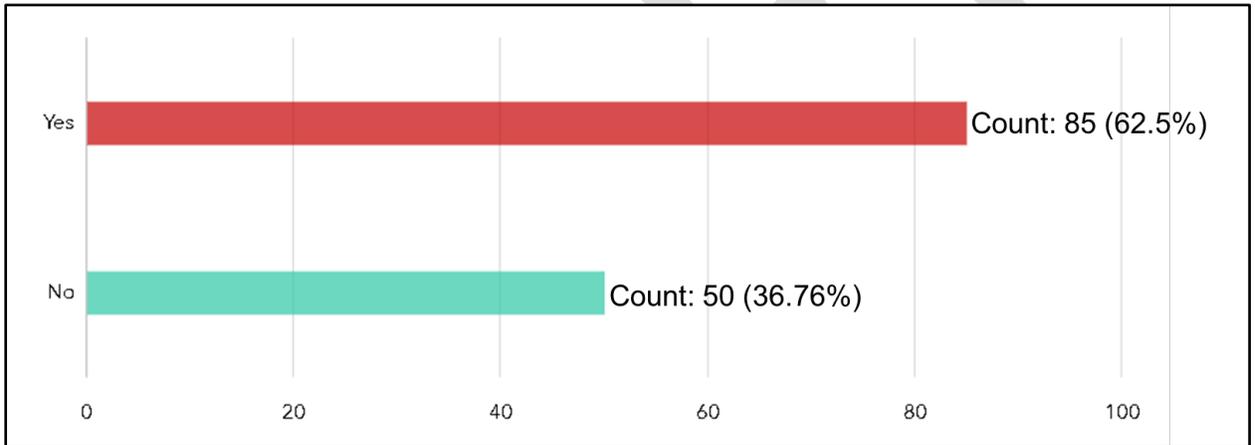
Question 17: Survey responses to “How likely are you to leave your home under a mandatory evacuation order?”
 (Will evacuate: 127, 93.38%; Not sure: 7, 5.15%; Will not evacuate: 1, 0.74%).



Question 18: Survey responses to “Do you know how to sign up for local emergency notifications?”
 (Yes: 86, 63.24%; No: 49, 36.03%).



Question 19: Survey responses to “Are you registered for local emergency notifications?”
 (Yes: 85, 62.5%; No: 50, 36.76%).



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APPENDIX I:
Building Code Recommendations

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SCIENCE

WUI CODE-RELATED RECOMMENDATIONS

A review of wildfire-related codes and standards was conducted for Clallam County and its included jurisdictions, and very little was found in this regard. This outline presents a brief overview of code-related recommendations for Clallam County, Washington. Many of these recommendations could be applied at either the county, municipal, or Tribal level. Should Clallam County decide to include these recommendations as initiatives or action items, they should be included in the CWPP process.

Realizing the inherent complexity of public policy in relation to code adoption, proper codes and standards, or rules and regulations should be considered and adopted at each level, i.e., county, municipal, and Tribal. It is incumbent upon each level to do their part to protect their constituents and neighbors from the threat of wildfire. It is recommended to not wait for others to lead the way, but to affect change at each level in a timely manner. Most of the recommendations in this report, including the specific recommendations, could be considered for adoption, in whole or in part, by all relevant levels or groups. Clallam County may want to consider having a qualified code writer and wildfire mitigation expert author new codes and amendments and assist with the adoption process.

“The State’s WUI Code adopts a limited number of provisions from the entire IWUIC. The State’s WUI code focuses on class 1 ignition-resistant construction (roof coverings, exterior walls, appendages and projections) and driveways. The State WUI code cannot be adopted until the completion of a statewide wildfire hazard map and a base-level wildfire risk map for each county of the state (RCW 43.30.580). To meet this mapping requirement, the Washington State Department of Natural Resources (DNR) is leading the development of a Wildfire Hazard and Risk Mapping Initiative, as directed by Senate Bill 6120.”

~ Community Wildfire Planning Center, October 2025

Once WUI mapping for the State of Washington is complete and has been adopted by the legislature, and a limited WUI Code is adopted for the State of Washington, jurisdictions will have to adopt the statewide code. However, a limited WUI Code adopted by the State of Washington will not be enough. Jurisdictions should create additional amendments that account for more current science-based best practices, which consensus codes unfortunately aren’t able to employ in a timely manner.

SPECIFIC RECOMMENDATIONS FOR CITY OF PORT ANGELES

Recommendation PA1 – Update 18.08.110 Fire Suppression Requirements

- Correct the language in Section A.3.b, which currently reads: “An approved residential sprinkler system, adequate clearance to expose structures, and compliance with the defensible space requirements prescribed in the current IFCI Urban-Wildland Interface Code.” This section also has a reference to a document that does not exist (e.g., IFCI). It is recommended to change the code language to something along the lines of:

“An approved NFPA 13D residential system, which shall also incorporate a dedicated cistern or “home hydrant” which will include a minimum three hundred (300) gallon tank and pump system. This tank and pump system shall be dedicated solely for the sprinkler system to be able to flow a minimum of thirty (30) gallons per minute for a minimum of ten (10) minutes. Additionally, the minimum three hundred (300) gallon tank will need to be designed to ensure that the tank always remains full, utilizing an auto-refill valve or similar appurtenance. In these cases, it is recommended that each structure be outfitted with a backup power supply that can activate the tank and pump system in the event of a power outage during a wildfire event.

Exception: As an alternative to the NFPA 13D system for single-family residences, a listed NFPA 750 residential water mist fire protection system, with tank and pump, and able to provide a minimum of 10 minutes of flow, may be utilized with review and approval by the City of Port Angeles.”

~ MC Fire, LLC – Sage Hill Subdivision Wildfire Safety Plan

Recommendation PA2 – Zoning Standards

- Zoning standards for vegetation installation and placement should include proper selection of fire-resistive plant materials in relation to the separation distance from structures, both residential and commercial. Currently, there is language which pushes for the use of conifers, for screening, that may end up posing an increased hazard to structures depending upon required spacing and separation distances from structures.
- Organic mulch should NOT be used within 5 feet of any structure including attachments (e.g., decks). Rather, decomposed granite or other noncombustible materials should be used in these areas. Additionally, ornamental grasses and other highly flammable plant materials should not be allowed within at least 5 feet of any structure.
- Where screening is required, consider two rows of staggered plantings to increase separation distances between vegetation, so it is not all one contiguous row of plantings which can lead to fire transmission issues.

Preclude the use of combustible shrubs under trees, which can act as ladder fuels bringing fire up into the canopy of trees.

Note: the emphasis on utilizing native vegetation is nice to see.

SPECIFIC RECOMMENDATIONS FOR CLALLAM COUNTY

Recommendation C1 – Update 33.07.020 Commercial Forests (CF)

- Per the 2024 International Wildland-Urban Interface Code (IWUIC), roofing in higher risk areas can be Class A by assembly, which is highly ignition-resistant, versus the current requirement for “noncombustible” materials, which does not provide a Class A by assembly rating (International Code Council 2024). While the roof covering itself is noncombustible, the assembly may not be Class A rated if there are unscreened openings in the eave ends which is common with corrugated metal roofs for instance. The language should be changed to align with Ignition-Resistant 1 (IR1) construction requirements per the 2024 IWUIC.
- The language regarding the 30-foot buffer should be altered to account for recommended tree spacing (Figure I.1). This reduces the likelihood of fire moving through the vegetation to the structure.

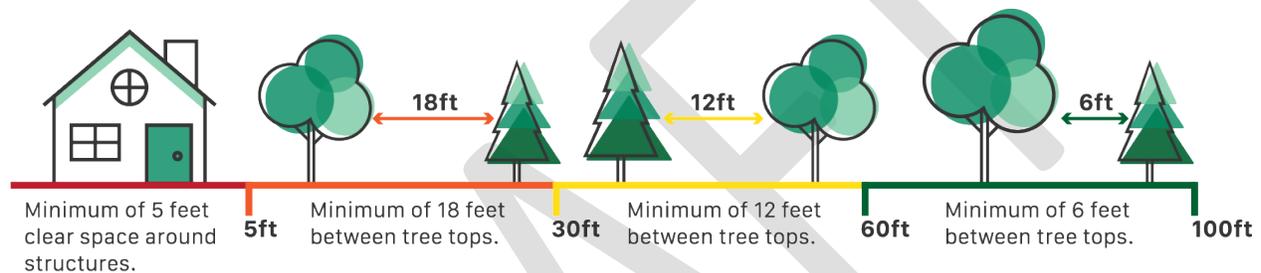


Figure I.1. Example of Tree Spacing, by Pacific Tree Preservation.

Recommendation C2 – Crosswalk CWPP Into Multi-Jurisdictional Hazard Mitigation Plan

- Integrating code improvements into the Clallam County MJHMP will provide additional opportunities for future grant funding to implement recommendations identified through the CWPP process. Separately, integrating these two processes and plans into one will ensure that the CWPP is updated every 5 years at the same time, and with the same stakeholders, as the Clallam County MJHMP. An example of this is Ada County, Idaho, which used a crosswalk document from the Idaho Office of Emergency Management to blend the Ada County Multi-Hazard Mitigation Plan and Community Wildfire Protection Plan into one document.

GENERAL CODE RECOMMENDATIONS FOR ALL JURISDICTIONS

Recommendation CR1 – Adopt 2024 IWUIC

Adopt the 2024 IWUIC with specific jurisdictional amendments. Adopt the 2024 IWUIC with an updated adoption every 3 years, to coincide with the next IWUIC cycle. A code consultant would be useful in this regard. Where appropriate, amendments should be more stringent and localized than the IWUIC itself or any sort of limited Washington State adoption. This would include:

- a focus on appropriate requirements for medium- and high-density development according to the National Institute of Standards and Technology (NIST) Hazard Mitigation Methodology (HMM); more specifically, amendments should include stringent requirements for structural hardening in

new high-density developments due to the possibility of a devastating structure-to-structure urban conflagration,

- IWUIC appendix A requirements for vegetation control and ignition source control,
- vent protection for IR3 structures, identical to IR1 and IR2, and
- an amendment on fencing with provisions that preclude the use of combustible fencing within 10 feet of any habitable structure per NIST HMM recommendations.

An alternative method to Clallam County adopting an entire code, would be to create customized WUI amendments as a whole chapter and insert them (as an amendment) into an empty/blank chapter of the International Fire Code when it is updated/amended by the County. This would also allow for current, science-based information to be adopted earlier rather than waiting for the next revision of the IWUIC, which is a consensus document and does not necessarily reflect current best practices related to wildfire-prone areas.

Recommendation CR2 – Wildfire Safety Plans for New Developments

New developments should be required to provide, and have approved, a detailed Wildfire Safety Plan, written by a “Special Expert” such as a NFPA Certified Wildfire Mitigation Specialist. The term “Special Expert” comes directly from the International Fire Code and refers to “An individual who has demonstrated qualifications in a specific area, outside the practice of architecture or engineering, through education, training, and experience.” These Wildfire Safety Plans should be required to be incorporated into any Codes, Covenants, and Restrictions (CC&Rs) for the development to ensure that the architectural or design review committee maintains the integrity of the plan over time; this alleviates pressure on the jurisdictional authorities to ensure compliance with the requirements of the Wildfire Safety Plan.

The Wildfire Safety Plan would also fulfill the requirement for a Vegetation Management Plan from the IWUIC, and would be submitted during the platting process, and would include such information as the project/development description and density, area ecology and fuel model, topography, fire history and weather, description of utilities and water supply, as well as requirements for:

- access roads and turnarounds,
- recreational and multi-use paths,
- pond construction and depth,
- ignition-resistant landscaping and perpetual maintenance,
- structure ignition zones along with perpetual maintenance of these zones,
- setbacks from open space areas and auxiliary structures,
- type of ignition-resistant construction (e.g., IR1, IR2, or IR3), based on site-specific hazards,
- ignition source control,
- perpetual funding requirements for maintenance and audits, and
- future plan updates.

Recommendation CR3 – Setbacks from Continuous Forested Areas

Setbacks to large contiguous forested areas, which cannot be readily mitigated, should be increased to 50 feet to minimize the radiant heat exposure to structures.

Recommendation CR4 – Setbacks from Other Structures

Where possible, setbacks between structures, or structure separation distance, should be a minimum of 50 feet per recommendations from the NIST HMM, which greatly limits the ability for sufficient radiant heat to transfer from one structure to another to the point of ignition. This recommendation should be utilized for habitable structures and accessory dwelling units.

Recommendation CR5 – Manufactured Home Decking and Skirting

Consider requirements for either noncombustible or Class A ignition-resistant decking materials and skirting materials, as manufactured homes are highly susceptible to ignition during windblow ember storms (e.g., 2020 Almeda Fire in Talent and Phoenix, Oregon)

Recommendation CR6 – Prohibited Flammable Plant List

Create a prohibited flammable plant list like other jurisdictions have done (e.g., Ashland, Oregon) (City of Ashland 2025).

Recommendation CR7 – Managed Housing Units

Create an ordinance which requires owners and/or property managers of multi-family housing complexes and single-family rentals to harden their structures against wildfire (radiant heat, direct flame, and embers) and to employ proper vegetation management. A sunrise clause could be added to the ordinance to allow time to complete required actions.

OTHER GENERAL CODE-RELATED RECOMMENDATIONS

Recommendation OR1 – Drone-based LiDAR Acquisition

Acquire high-resolution, drone-based LiDAR, RapidEye, and/or other appropriate data sets for known higher hazard areas, to help make a better determination as to actual hazard, and to prioritize projects and initiatives. For cost-sharing considerations, it is recommended to work collaboratively with highway districts, water purveyors, power utilities, universities, and other stakeholders who may also want to acquire similar data sets for different reasons.

Recommendation OR2 – Hire Dedicated Mitigation and Outreach Staff

Hire dedicated personnel for wildfire mitigation programs and outreach, such as a Wildfire Mitigation Specialist and/or Fire Adapted Communities Coordinator. Ideally one position would focus on fuels treatments, and another position would focus on assessments, outreach, and education.

Recommendation OR3 – Hire Dedicated Plans Review, Inspection, and Enforcement Staff

Hire dedicated staff to conduct plan reviews, inspections, and code enforcement of new/remodeled construction and landscaping.

Example: in the City of Austin, Texas, the Austin Fire Department was able to fund several Lieutenant Inspector positions to conduct wildfire-related building inspections utilizing a new permit fee, which covers two inspections for new builds and remodels.

Recommendation OR4 – Provide Customized Training and Education

Provide quality, customized training and education to county, municipal, and Tribal members, as well as other stakeholders, and the community, to help provide context to the code, as well as how to best mitigate risk around existing homes and businesses. See www.mcfirellc.com for information on available courses for your area (MC Fire, LLC 2025).

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APPENDIX J:
Smoke Impacts Analysis and
Future Climate Assessment

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SEARCH

WILDFIRE SMOKE IMPACTS ANALYSIS

This section evaluates how wildfire smoke affects air quality, public health, and the local economy in Clallam County. It summarizes the regional and local weather patterns that transport smoke into the County, outlines the primary seasonal smoke sources, and reviews historical particulate matter 2.5 microns in diameter or smaller (PM_{2.5}) and Air Quality Index (AQI) data from nearby monitoring stations. The section also describes associated health and tourism impacts and provides recommended preparedness and mitigation strategies. Finally, it presents practical tools and forecast based guidance that agencies and community partners can use to anticipate smoke events and reduce exposure for residents and visitors.

WILDFIRE SMOKE BACKGROUND

Situated on the north end of the Olympic Peninsula, with ocean on three sides, vast and largely undeveloped wilderness to the south, and a population of about 45 residents per square mile, Clallam County enjoys very good air quality on most days.

The nearby greater Seattle area has a population of over four million people and can have poor air quality days associated with urban pollution and smog. The poorest air quality days, from human sources, occur in the colder months due to home heating from wood burning, and winter inversions that hold stagnant air at the surface. Seattle is downwind from Clallam County's prevailing westerly winds; however, southeastern winds and offshore breezes in Seattle can push poor-quality air into the county. When southeastern winds occur, light winds bring in more urban air pollution than stronger winds, which allow the poor-quality air to mix and loft higher into the atmosphere.

Barring volcanic eruptions, the greatest natural threat to poor visibility and air quality in the county comes from wildland fire smoke. Known for its temperate coastal rainforests, very large and long-duration wildfires in the west side of the county are relatively uncommon. When the county experiences poor air quality, it often is the result of very large fires in more arid regions of Canada, Eastern Washington and Idaho, or California and Oregon that impact the entire Puget Sound Region.

In recent history, the "smoke storm" of September 2020 is when the county experienced its poorest and most unhealthy air quality (Figure J.1).

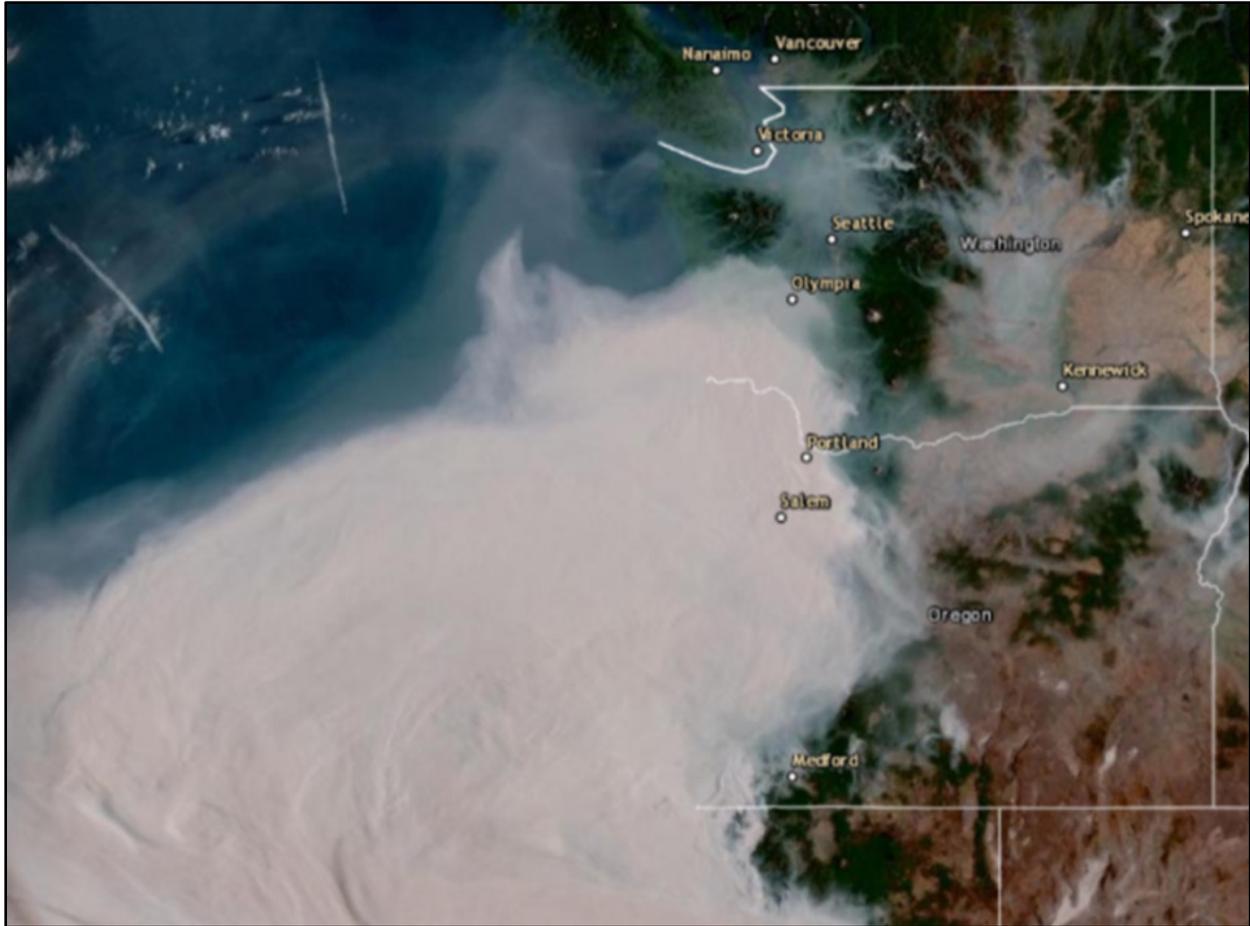


Figure J.1. Satellite image of the plume of smoke from Oregon wildfires moving into Washington on September 8, 2020.

Source: Washington State Department of Ecology 2020.

On September 7, 2020, a strong high-pressure ridge set up over central Washington state, while a low-pressure system settled along the coast. These conditions cause winds to flow from the high pressure in the east to the low pressure in the west. Meanwhile, in Oregon, very large fires had been occurring, with plumes of smoke settling along the coast until onshore breezes began pushing this thick, humid smoke northward. As this smoke reached Washington and was held at a low mixing height by the easterly winds, most of the state was engulfed by unhealthy air. The smoke persisted until a front moved in from the ocean on September 17th, slowly pushing the smoky air northeast and bringing rain and eventually clear skies (Washington State Department of Ecology 2020).

This event shows how it takes a complex 'perfect storm' of regional weather events to bring distant smoke into Clallam County. It is somewhat rare, as wildfire smoke tends to occur downwind from the prevailing weather patterns, but when it does, the acrid air and low visibility conditions create health issues and economic impacts.

Smoke impacts from large fires in distant regions are very difficult to forecast in advance. Not only do the conditions for very large fires have to align (dry fuels, winds, and an ignition source), but complex weather events must also occur to transport the smoke to the Puget Sound area.

Prevailing winds in the Puget Sound area tend to be from the south or southwest in the winter and the northwest in the summer. Winds coming off the Pacific Ocean are unlikely to bring smoke under prevailing conditions (though smoke from as far away as Russia has passed high overhead in recent years). Large-scale weather patterns and teleconnections, meaning climate patterns that link atmospheric conditions across distant regions (such as El Niño or the Pacific Decadal Oscillation), combined with local geographic features, diurnal weather patterns, and on and offshore breezes, can override the prevailing winds and bring smoke in from distant locations (National Oceanic and Atmospheric Administration [NOAA] 2022). This results in anything from a light and moderate air quality haze over a week or two to unhealthy and thick, acrid smoke for several days.

The following section discusses when fires, whether distant or within the Olympic Peninsula, produce smoke that affects Clallam County. By monitoring distant smoke production, combined with forecasting from local meteorologists, it may be possible to anticipate unhealthy air a day or two in advance so that the public, especially sensitive populations, could prepare.

Fires in Canada, surprisingly, can create a lot of smoke early in the year, in May and June (when the boreal forests burn after snow melt and before green-up). The fires may moderate in July during green-up and then pick up again in August and early September. Patterns that bring weather from the Northeast would be the biggest concern for Clallam County in the spring months.

Oregon, Eastern Washington, Idaho, and Montana tend to have peak smoke production fire season when timbered regions burn from mid-July until late September (low elevation grass/shrub fires may occur earlier). Patterns that bring weather from the east, southeast, and south would be the biggest concern for Clallam County in the summer months. Smoke from summer fires in British Columbia, Canada, often comes down the Fraser River Valley.

Northern California is like Oregon with a peak fire season in the summer; however, southern California tends to produce the most smoke in the late fall and early winter months when the Santa Ana winds occur. Patterns that bring weather from the south would be the biggest concern for Clallam County in the fall and early winter months.

Health and Economic Impacts

Health Impacts

Wildland fire smoke contains toxic gases like carbon monoxide, nitrogen oxides, and other irritants and carcinogens. The amount and concentration of these pollutants vary by what is burning and the distance the smoke travels. Smoke from burning structures, vehicles, fossil fuels, and other human infrastructure contains vastly more toxic pollutants than that from burning vegetation. Staying indoors, with air filtration, is the best way to mitigate the impacts of smoke, short of leaving the area for cleaner air.

One of the major health hazards from smoke is particulate matter. Smoke contains solid particles of different sizes and shapes that can have a large variety of chemical compositions. Particulate matter is measured in microns. A human hair is about 60 microns. Dust, pollen, and mold, which can be inhaled, are 10 microns (known as PM₁₀). Wildfire smoke contains very small particulate matter, which is of particular concern, of 2.5 microns (PM_{2.5}).

Fine 2.5-micron particles are capable of penetrating deep into the human respiratory tract and bloodstream. This causes short-term health issues such as eye, nose, throat, and lung irritation, sneezing, coughing, and shortness of breath. Long-term exposure can lead to heart disease and heart

attacks, reduced lung function, and lung cancer. For sensitive individuals with health issues like asthma and chronic obstructive pulmonary disease (COPD), the effects are even more hazardous.

PM_{2.5} is monitored at air quality stations and will be mentioned throughout this document. PM₁₀ data is often available as well, and though a significant health concern, these somewhat larger particles are common outside of fire season, unlike the much smaller particles that are observed in wildfire smoke.

Fine PM_{2.5} particles can travel hundreds, even thousands of miles, and stay in the air for weeks. The coarser PM₁₀ particles tend to stay in the air for minutes or hours and tend to drop out of the air within 30 miles of a wildfire.

In addition to particulate matter, wildfire smoke contains volatile organic compounds (VOCs) that include dioxins, benzene, formaldehyde, and hundreds of other chemicals, many of which are toxic. VOCs remain in wildfire smoke over long distances and can linger indoors and deposit on surfaces, continuing to off-gas in warmer temperatures after the smoke itself has subsided. Wildfire from distant locations may appear as more of a light haze and have more of a chemical scent as ultraviolet radiation breaks down the components of smoke that give it that distinct 'campfire' scent, leaving just the unhealthy PM_{2.5} and VOCs.

There is not a great deal of research available on short-term exposures to wildfire smoke, except for a few studies on wildland firefighters. There is, likely, a cumulative effect of continued exposure to wildfire smoke, and though the general public is typically only exposed for a few days at a time, it is important to be cautious and limit strenuous outdoor activities and to remain in clean indoor air during periods with intense wildfire smoke.

Tourism and Economic Impacts

Though the population of Clallam County is less than 100,000 residents, its ocean, forest, and mountain scenery, town amenities, and recreational opportunities make it a popular tourist destination. Approximately 1.37 million people visited Clallam County in 2023, spending over 284 million dollars in the local economy and generating nearly 25 million dollars in taxes (Olympic Peninsula Tourism Commission 2025). Most of these visitors arrive in the summer months, when smoke impacts are most likely to occur. Visitors often view webcams of hikes and lookouts in recreational areas such as Olympic National Park's Hurricane Ridge to assess whether to cancel a trip due to low visibility of these scenic viewsheds and the health impacts of low air quality (Figure J.2) (National Park Service 2026).

Few quantitative studies of the economic costs of smoke on tourism exist. One national 2023 study determined that, for campers, the impacts of wildfire smoke resulted in an average loss of \$107 per visitor per trip (Resources for the Future 2023). The duration of the smoke is an obvious impact, and the study found that 'when a campground is affected by smoke on only one day in the week of arrival, estimated damages are as low as \$32 per person per trip, but when it is affected on all seven days, losses are as high as \$432 (Resources for the Future 2023). On average, the loss, per visitor, per day, due to smoke is about \$38. This study assumed the visitors were camping and that they drove from their destination, so it considers gasoline and food but not flights, rental cars, and lodging losses (Resources for the Future 2023). Daily tourism losses per visitor are, therefore, likely much higher than this research found.

Visitors who are less sensitive to smoke, especially if it is of short duration, may not cancel their trips entirely, but extended-duration smoke can, clearly, deter tourists and lead to cancellations, shortened stays, or shifts to plans and destinations. Visitors are subjected to the same health concerns as residents, but they tend to come for the views and outdoor activities and are less resilient, which likely results in greater economic impacts per person.



Figure J.2. Smoke from the 2003 Griff Fire as seen from Hurricane Ridge.

Source: Olympic National Park (provided directly).

Air Quality Measures

Particulate Matter (PM_{2.5})

PM_{2.5} was discussed in the health section above. It is measured in micrograms per cubic meter (µg/m³). The 2024 EPA standard for healthy PM_{2.5} in the air is 6 micrograms per cubic meter.

The health thresholds for PM_{2.5} are included in the table below the following AQI discussion.

Air Quality Index (AQI)

The AQI is the EPA's tool for describing daily air quality to the public. It measures a variety of pollutants, including PM_{2.5}, and gives a numerical value with color-coded adjective ratings (Table J.1). The five pollutants included in the metric are:

- Ground-level ozone
- Particle pollution (PM_{2.5} and PM₁₀)
- Carbon monoxide
- Sulfur dioxide
- Nitrogen dioxide

AQI is provided in real time and may change throughout the day. Most websites that show AQI will provide a forecast for the following day, but forecasts up to 5 days are available and described below.

With the lack of major metropolitan areas in Clallam County, when there is no smoke from wildfires, the AQI is generally good. The poorest air quality days in the county tend to occur from natural events, like wildfire smoke.

Based on the above ratings (Table J.1), the EPA provides recommendations for populations sensitive to air quality issues and for the general population. These can be found at the following link:

<https://document.airnow.gov/air-quality-guide-for-particle-pollution.pdf>.

Table J.1. AQI Categories and Associated PM_{2.5} Concentration Ranges

Daily AQI Color	Levels of Concern	Values of Index	PM _{2.5} µg/m ³	Description of Air Quality
Green	Good	0–50	0.0–9.0	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51–100	9.1–35.4	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101–150	35.5–55.4	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151–200	55.5–125.4	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201–300	125.5–225.4	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301+	225.5+	Health warning of emergency conditions: everyone is more likely to be affected.

Air Quality Stations and Historical Smoke Analysis

There are three air quality monitoring stations in Clallam County:

- 1) Neah Bay
- 2) Port Angeles
- 3) Forks (since 2025, SensWA station, not reporting PM_{2.5} yet)

Though not in Clallam County, the Port Townsend Air Monitoring Station is nearby and will be discussed in this document.

Additionally, there are 17 PurpleAir Air Sensors scattered throughout the county, primarily in the populated northeast corner. These additional low-cost sensors expand the range of the air quality being monitored; however, it should be noted that the raw output data can overestimate particulate matter concentrations as compared to the more advanced stations installed by agencies for regulatory monitoring. Sites like AirNow, linked below, apply a correction equation to the PurpleAir monitors.

On February 26, 2025, the Cheeka Peak NCORE and IMPROVE air monitoring sites went offline. PM_{2.5} historical data was previously collected on the NCORE monitor, but it is no longer available. There are no plans to restore power to this site; however, multiple new sensors, called SensWA, developed by the Washington Department of Ecology (ECY), will be installed in the region. Forks are one of these new monitors. It was installed in January 2005, but, as of writing, it has not collected enough PM_{2.5} data to report on. At least one more SensWA monitor is likely to be installed in Clallam County in the next couple of years (Olympic Region Clean Air Agency [ORCAA] 2025).

The data that follows evaluate the historic PM_{2.5} data for the three regulatory stations near Clallam County: Neah Bay, Port Angeles, and Port Townsend as of late July 2025.

The data below were derived from the USFS AirFire Tools PM_{2.5} historical monitoring information. Screen caps are provided in this document, but readers are encouraged to follow the link and click around to drill deeper into more current data.

In the past decade, the worst AQI and PM_{2.5} concentrations occurred at all stations in the mid-September 2020 “smoke storm.” The peak PM_{2.5} concentration in the county was 207.8 micrograms per cubic meter at Port Angeles on September 14, 2020, far exceeding the 2024 EPA standard of 9 micrograms for healthy air (Figure J.3).

In Figure J.3, other unhealthy PM_{2.5} levels at Port Angeles can be seen with four ‘spikes’ in August. These were the result of fires in Canada in 2017 and Eastern Washington in 2018. From this data, it can be seen that, though air quality may be in the moderate range for a week or so during wildfire smoke events, the unhealthy range tends to occur for very brief one-to-three-day periods.

For the 9 years of Port Angeles reporting in AirFire, there were 10 days with unhealthy to very unhealthy air quality. For the Neah Bay station with 14 years of data, there were 6 days, and for Port Townsend’s 20 years, 7 days. Combined, no station had more than an average of 0.3% of days with unhealthy air quality.

The annual cumulative PM_{2.5} exposure at all stations tends to remain in the “good” range throughout the year. The county averages 291 days per year in the good range and 72 days in the low moderate range. Despite the intense wildfire smoke in 2020, that year did not represent the worst annual cumulative air quality. With just one week of unhealthy conditions, the good air quality throughout the rest of the year brought the average down. This is good news for residents over the long term, but it does not mitigate the impacts to visitors who were only in the area during that poor air quality week.

Port Townsend and Port Angeles stations enter the low end of moderately poor cumulative air quality from January through April. These poorer air quality days in the winter months are likely due to home heating from wood stoves and occasional inversions or light offshore breezes bringing smog particulates from the Seattle area (Energy Justice Network 2014).

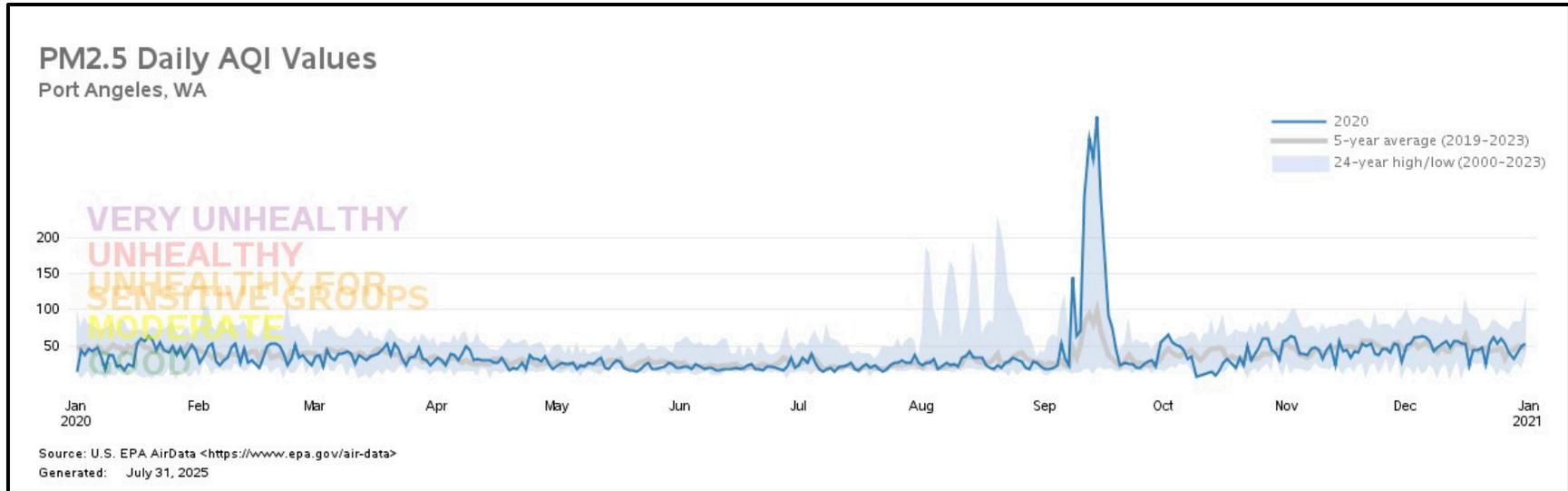


Figure J.3. Port Angeles Daily PM_{2.5} 24-year high/low with 2020 highlighted by dark blue line.

Source: Energy Justice Network 2014

DRAFT

The following figures (Figures J.4–J.9) summarize cumulative PM_{2.5} exposure, AQI category days, and the highest daily smoke concentrations recorded at the three regulatory monitoring stations in and near Clallam County: Neah Bay, Port Angeles, and Port Townsend. These visualizations illustrate long-term air quality patterns and highlight the short-duration but intense smoke events that have occurred in recent years, including the mid-September 2020 regional smoke incident. While annual average air quality remains predominantly in the good to moderate range, these figures demonstrate how wildfire smoke can cause brief periods of unhealthy conditions across the county.

Neah Bay

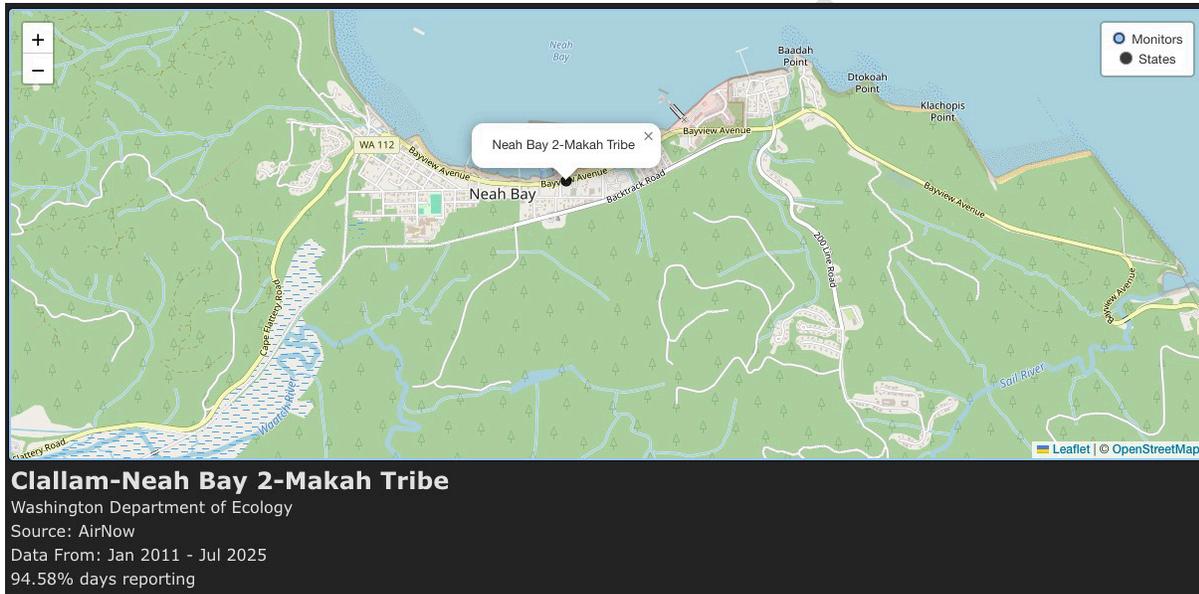


Figure J.4. Location of the Neah Bay 2–Makah Tribe air quality monitoring station.

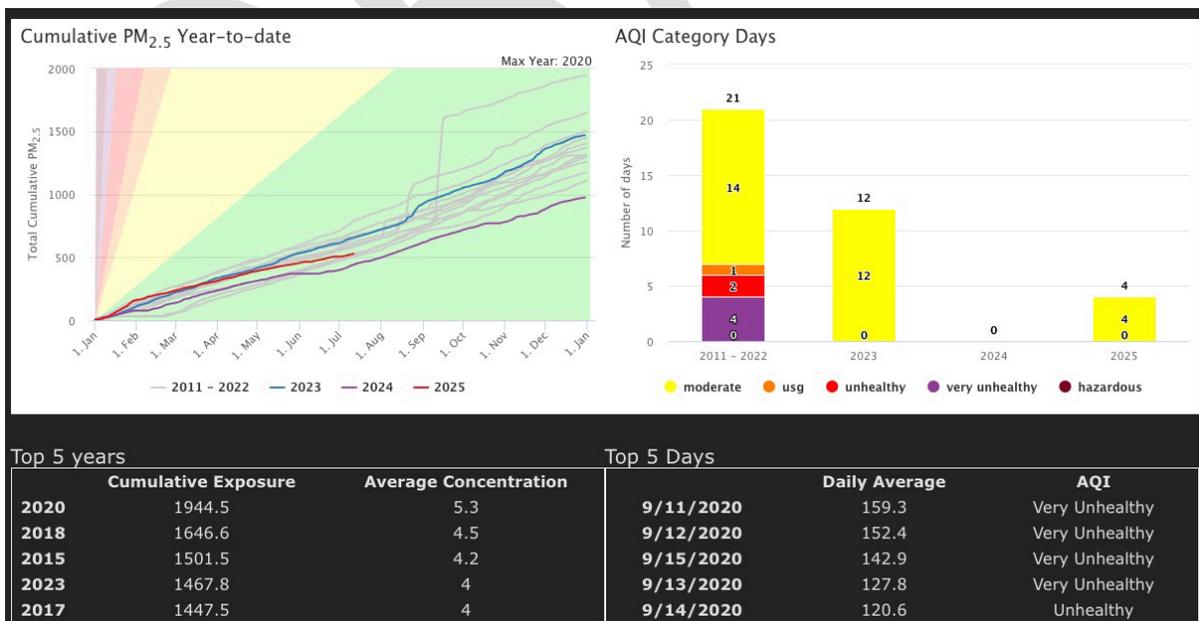


Figure J.5. Cumulative PM_{2.5} exposure and AQI category days recorded at the Neah Bay 2–Makah Tribe station. The highest cumulative exposure year was 2020.

Port Angeles

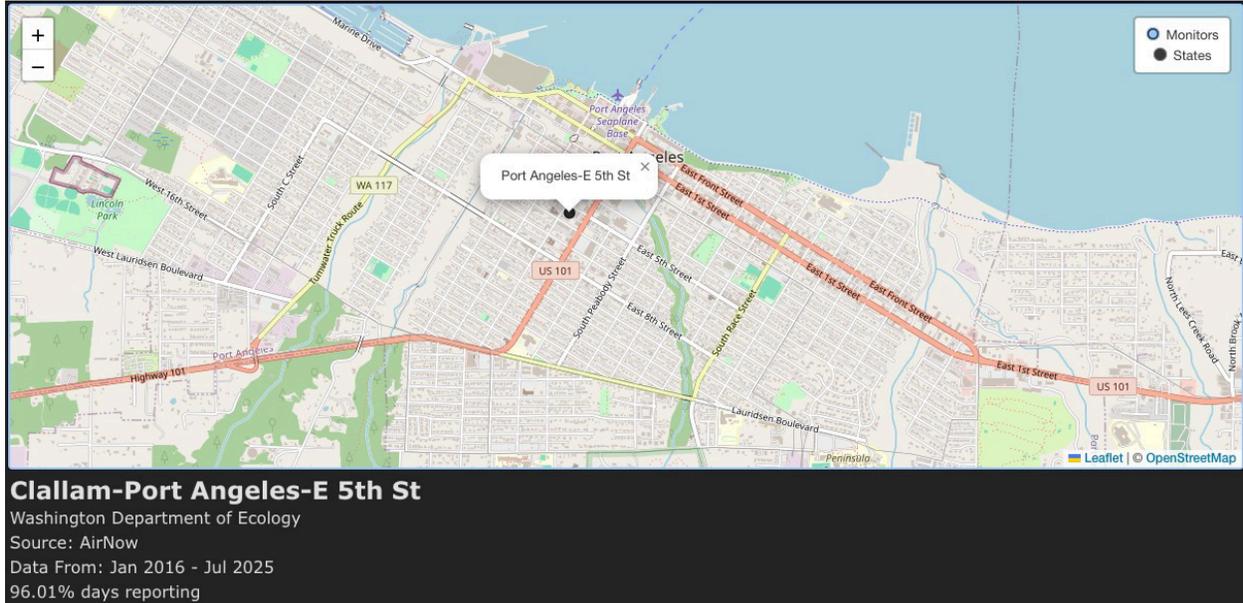


Figure J.6. Location of the Port Angeles E 5th Street air quality monitoring station.

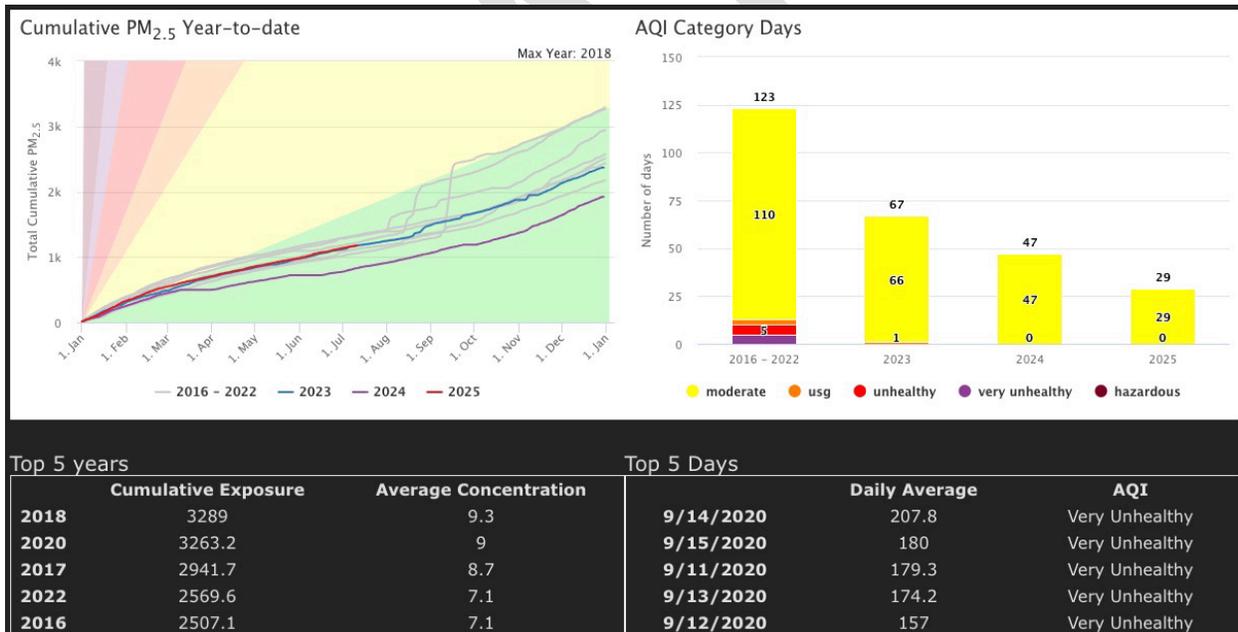


Figure J.7. Cumulative PM_{2.5} exposure and AQI category days recorded at the Port Angeles station. The highest cumulative exposure year was 2018, with the most significant daily spike occurring during the September 2020 regional smoke event.

Port Townsend

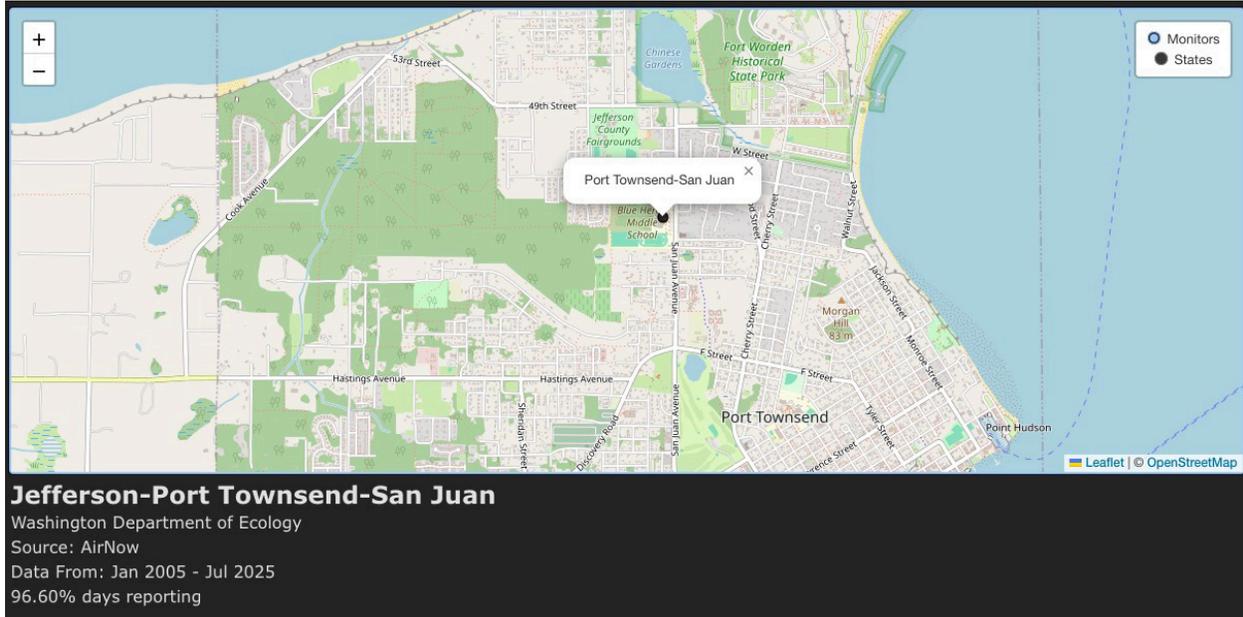


Figure J.8. Location of the Port Townsend San Juan Avenue air quality monitoring station.

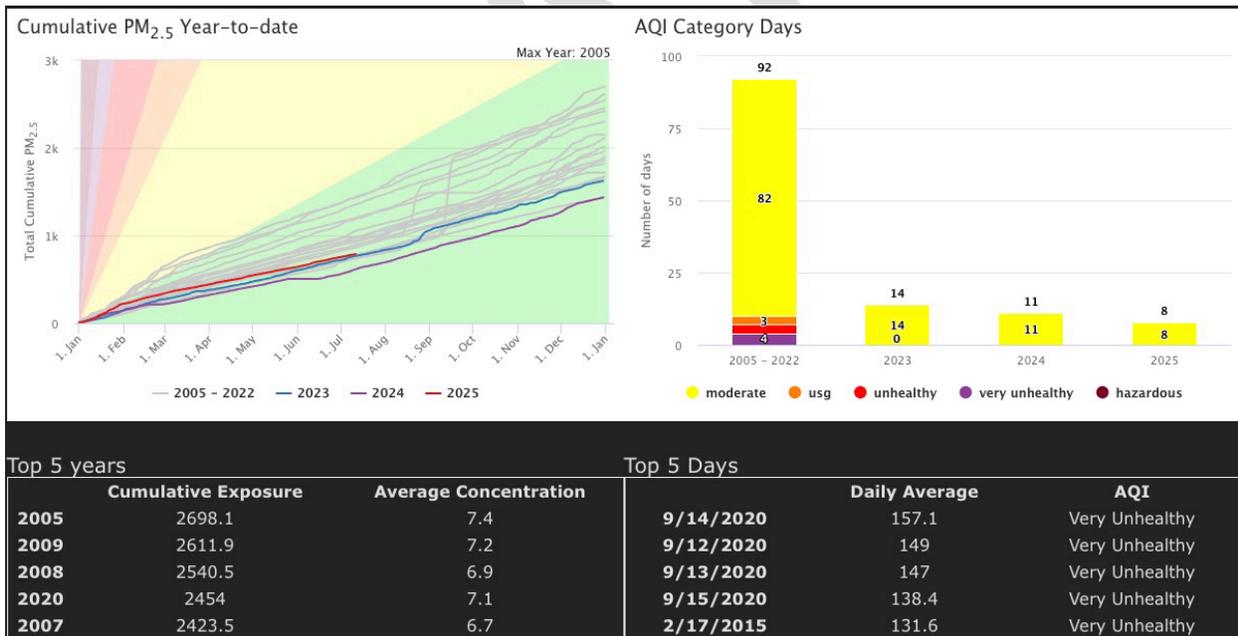


Figure J.9. Cumulative PM_{2.5} exposure and AQI category days recorded at the Port Townsend station. Elevated PM_{2.5} years include 2005, 2009, and 2020, with short-duration smoke impacts occurring during regional wildfire events.

Smoke Mitigations

Wildfire smoke is episodic and challenging to forecast, leaving few options to improve outdoor air quality at downwind locations. Major smoke impacts are typically driven by large, uncontrollable wildfires that

subside only with favorable weather. Nevertheless, several measures can help mitigate health and economic effects before and during smoke events, including:

- **Proactive Planning and Collaboration** – Develop and implement smoke management plans with community and business leaders and city and county managers to minimize impacts to the community and tourism.
- **Communication and Education** – Provide accurate information to the community and visitors about air quality, as far in advance of the event as possible.
- **Adaptive Measures** – Encourage improved air filtration in residential homes, businesses, and tourist facilities. Modify planned outdoor community events and activities and provide indoor alternatives. Adjust operational procedures to encourage the community to work around smoke and limit outdoor activities.

Tracking and anticipating smoke activity is essential. When AQI is expected to reach 100 or more, it is important to alert the community that the air is anticipated to become unhealthy, especially for sensitive populations, so they can make plans to adjust their outdoor activities. The [Guide for Particle Pollution](#) is a valuable and actionable resource.

Smoke Policy and Local Mitigation Resources

The [Clallam County Multi-Hazard Mitigation Plan](#), the [Washington Department of Natural Resources \(DNR\) Smoke Management Plan](#), and the [Washington Department of Health Smoke-Ready Toolkit](#) each provide guidance on how communities can prepare for and respond to smoke events. These documents recommend improving public communication systems, supporting indoor air quality resilience (particularly for sensitive populations), and identifying clean air spaces and adaptive alternatives when outdoor conditions deteriorate.

These priorities are consistent with the [Community Fire Resilience Workgroup Recommendations](#) produced under the [Washington State Wildland Fire Protection 10-Year Strategic Plan \(2023\)](#), which emphasize:

- Identifying and supporting clean air spaces in public buildings.
- Expanding access to portable HEPA air cleaners for smoke-vulnerable households.
- Providing training for schools and service providers on interpreting air quality data.
- Promoting clear, practical public messaging on how to use AQI forecasts in daily planning.
- Supporting basic weatherization to reduce indoor smoke infiltration in older homes.

It is difficult to forecast smoke risks and probabilities until there is a fire nearby or distant regional smoke to track and model. The following list of tools is provided to help community leaders anticipate potential smoke issues after fires have started but before the smoke arrives, and to track air quality in order to reduce health and economic impacts. Recommended preparedness actions tied to forecasted air quality conditions are summarized in Table J.2.

Situational Awareness Tools for Tracking Smoke

Table J.2 provides an overview of tools that community leaders, emergency managers, and the public can use to track wildfire smoke, evaluate air quality, and anticipate health impacts. These tools vary in complexity from public-facing AQI dashboards to advanced modeling portals intended for agency use.

Table J.2. Smoke and Air Quality Situational Awareness Tools

Tool/Resource	Primary Function	Key Features	Link
Washington Department of Ecology Interactive Air Quality Map	Real-time AQI and smoke forecasting	Mobile friendly; current AQI; 5 day forecasts; pollutant concentrations (PM _{2.5} , PM ₁₀ , O ₃ , NO ₂ , SO ₂ , CO); meteorological data; station reports	https://enviwa.ecology.wa.gov/mobile
Olympic Region Clean Air Agency (ORCAA) Current and Forecast Air Quality	Local AQI snapshot and next day forecast	County level AQI; station data; simple for public messaging	https://www.orcaa.org/air-quality/current-air-quality/messaging
EPA AirNow Fire and Smoke Map	Integrated smoke and fire perimeter monitoring	Regulatory monitors plus PurpleAir sensors; active fire perimeters; links to InciWeb	https://fire.airnow.gov/#7.61/48.244/-123.131
U.S. Interagency Smoke Impact and Population Exposure Tracker	Population smoke exposure tracking	Shows percent and number of residents within 20 km of monitors; tracks changes over time; use as supplemental tool	https://covid.airfire.org/tracking/air-quality/pacific-northwest/washington/clallam
USFS AirFire Research Portal	Agency level smoke modeling and analytics	Historical and real-time PM2.5; modeling products; satellite tools; links to technical resources	https://portal.airfire.org/
WatchDuty – Public Wildfire and Smoke Activity Awareness	Real-time wildfire and smoke awareness	Wildfire alerts; mapped perimeters; smoke trajectory visuals; sourced from analysts and responders	https://www.watchduty.org/
ALERT Wildfire – Wildfire Camera Network (Emerging Resource)	Early detection live camera feeds	Live wildfire cameras across the West; no cameras currently in Clallam County; potential future partnership	https://www.alertwildfire.org/

While the tools listed above allow agencies and the public to track developing smoke conditions and identify deterioration in air quality, communities also need clear guidance on what actions to take as conditions worsen. Forecasted AQI provides valuable lead time for preparing clean indoor air spaces, adjusting outdoor work and recreation, coordinating with schools and vulnerable populations, and issuing timely public messaging.

Table J.3 outlines recommended preparedness actions based on the 5 day AQI forecast. These actions help agencies and community organizations reduce exposure, support public health, and implement proactive measures before air quality reaches unhealthy levels.

Table J.3. Recommended Preparedness Actions Based on 5-Day AQI Forecast

Forecast AQI Level	Air Quality Category	Recommended Preparedness Actions
0–100	Good to Moderate	<ul style="list-style-type: none"> No special actions required. Use forecast information to plan messaging if smoke appears likely in the coming days. Encourage residents to maintain HVAC/air filtration systems seasonally.

Forecast AQI Level	Air Quality Category	Recommended Preparedness Actions
101–150	Unhealthy for Sensitive Groups	<ul style="list-style-type: none"> Issue early information to the public, emphasizing impacts to sensitive groups (older adults, young children, pregnant individuals, and those with asthma/COPD). Encourage households to check or change HVAC filters and use portable HEPA cleaners if available. Schools and recreation programs begin planning potential indoor alternatives for outdoor activities. Provide traveler/visitor messaging during peak tourism season.
151–200	Unhealthy	<ul style="list-style-type: none"> Publicize locations of clean air spaces (e.g., libraries, community centers, senior centers). Shift or postpone outdoor public events, children's programs, and high-exertion activities. Encourage employers to modify outdoor work schedules and add rest/indoor recovery periods. Provide traveler/visitor messaging during peak tourism season.
201+	Very Unhealthy to Hazardous	<ul style="list-style-type: none"> Recommend limiting all outdoor activity and staying in filtered indoor environments. Support health care providers and social services in outreach to smoke-vulnerable individuals. Expand access to portable HEPA air cleaners for households without adequate indoor air filtration. Encourage remote work or reduced exposure for outdoor workers when feasible.

Additional Resources

Table J.4 below, provides supplemental information on wildfire smoke impacts, community resilience, and smoke-ready planning. These materials may be useful for agencies, health partners, and community organizations developing or expanding smoke preparedness strategies:

Table J.4. Supplemental Wildfire Smoke and Community Preparedness Resources

Resource	Description	Link
Washington Department of Ecology Statewide Air Quality Map	Statewide real-time AQI and smoke forecasts	https://enviwa.ecology.wa.gov/mobile
American Lung Association "State of the Air" Report	Annual air quality and ozone metrics by county	https://www.lung.org/research/sota/city-rankings/states/washington/clallam
EPA Air Quality Flag Program	Flag system for schools and organizations to communicate daily AQI	https://www.airnow.gov/air-quality-flag-program/
NWCG Emissions and Smoke Portal	Training modules, guidebooks, webinars, and technical smoke management resources	https://www.frames.gov/smoke
Pacific Northwest Fire Science Consortium	Research summaries and practitioner products on wildfire and smoke resilience	https://nwfirescience.org/

CLIMATE HISTORICAL AND FUTURE CONDITIONS ASSESSMENT

This document will evaluate the historical climate for Clallam County as it relates to wildland fire. Specific discussions on the possible changes to soils and vegetation that could influence future fire size and severity will be described. Lastly, as a compendium to the recently completed CWPP, actionable monitoring, mitigation, and proactive planning suggestions to prepare for a changing climate will be recommended.

CLIMATE BACKGROUND

In March of 2025, [Clallam County received a Climate Vulnerability Assessment](https://www.clallamcountywa.gov/DocumentCenter/View/23352/Appendix-K-Clallam-County-Climate-Vulnerability-Assessment?bidId=) funded through Washington's Climate Commitment Act. The document can be found at this link: <https://www.clallamcountywa.gov/DocumentCenter/View/23352/Appendix-K-Clallam-County-Climate-Vulnerability-Assessment?bidId=>.

The Clallam County Climate Vulnerability Assessment (CCCVA) is comprehensive and evaluates multiple climate impacts on Community Health, Natural Environment and Economic Development, and Built Infrastructure. In association with the Clallam County CWPP, this climate assessment will delve deeper into wildland fire vulnerability, tied to the wildfire evaluation in the Natural Environment section of the CCCVA.

Per the Vulnerability Assessment, Clallam County will see an increased risk of drought, leading to greater wildfire risk and severity, greater smoke impacts, more required evacuations, and greater potential for loss of highly valued assets, resources, and infrastructure. Climate risk, for wildfire and wildfire smoke, was given a Hazard Mitigation Plan rating of High in the CCCVA. The impacts on public health from extreme heat, wildfires, and smoke were moderate to high, disproportionately impacting vulnerable populations like older adults and lower-income residents. The risk to housing and energy infrastructure from climate-influenced wildfire is rated as high.

Historical Climate Summary

The climate of Clallam County is greatly impacted by being surrounded, on three sides, by the Pacific Ocean. Summers are warm, but very hot; high fire danger days are relatively uncommon. Similarly, winters are temperate, cool, but lacking high snowpack and freezing temperatures at the lower elevations. Precipitation, generally seen in the form of rain, is most common in late fall and winter. Populated areas of the county experience from 6 inches to 1 foot of total snow over the winter, with most snowfalls resulting in 1 or 2 inches of accumulation that melts within a day. Higher elevations get snowpack, but, unlike some areas of the Rocky Mountain west, there is little correlation between snowpack and the subsequent fire season.

Though temperatures are relatively similar across the county, there is a vast difference in precipitation from west to east.

Table J.5 shows the mean average annual weather statistics for three long-running weather stations in the county. Minimum and maximum temperatures are similar, but the Forks station, on the west side of the county, receives almost 120 inches of rain while Sequim, in the east, receives just a little over 16 inches.

Table J.5. Mean Annual Temperature and Precipitation between 1916 and 2025

Location	Period of Record	Mean Annual Precipitation (Inches)	Mean Total Snowfall (Inches)	Mean Annual Temperature (°F)	
				Maximum	Minimum
Forks	1916–2025	118.69	13.6	58.6	40.8
Port Angeles	1916–2025	25.21	4.6	56.3	42.2
Sequim	1916–2025	16.43	5.6	58.2	40.6

The following charts (Figures J.10–J.12) show average annual weather statistics for the entire county since the early twentieth century.

As shown in Figure J.10, prior to 1980, mean temperatures tended to be average or below, with occasional, mostly single-year spikes above average. After 1980, the above-average single-year spikes became more common with multiple sequential years above average, especially after the millennium until the present.

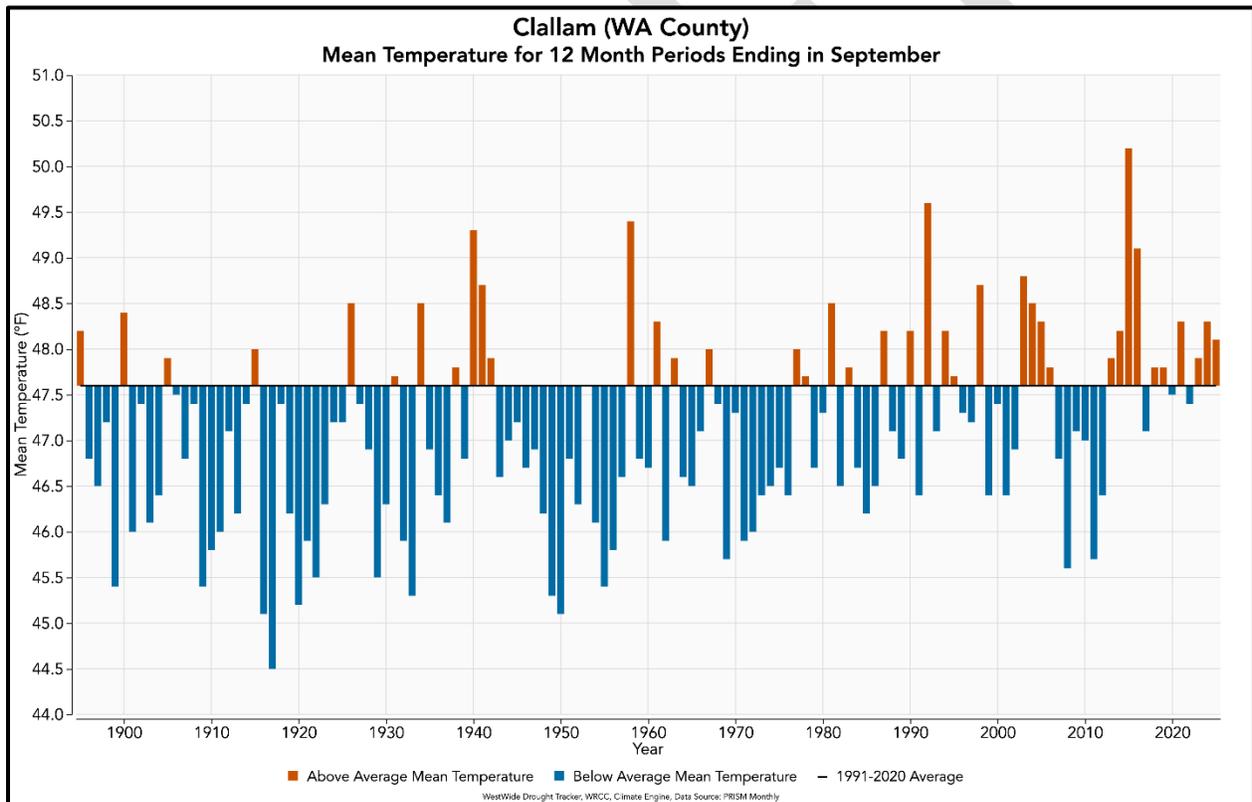


Figure J.10. Mean temperature for Clallam County for 12-month periods ending in September, relative to the 1991–2020 average. Orange bars represent years with above-average mean temperatures, and blue bars represent years with below-average temperatures.

Because of the wide variation in precipitation, annual averages are less meaningful from a countywide perspective. In Figure J.11, the black line at 90 inches is the average annual rainfall. Unlike the temperature graph above, there is no clear signal that average rainfall amounts are seeing a downward trend at the countywide level on an annual basis. The time of season that particular areas of the county

receive precipitation, and the amounts received at a specific point location, may be changing in recent decades and are likely to be altered by climate change in the future

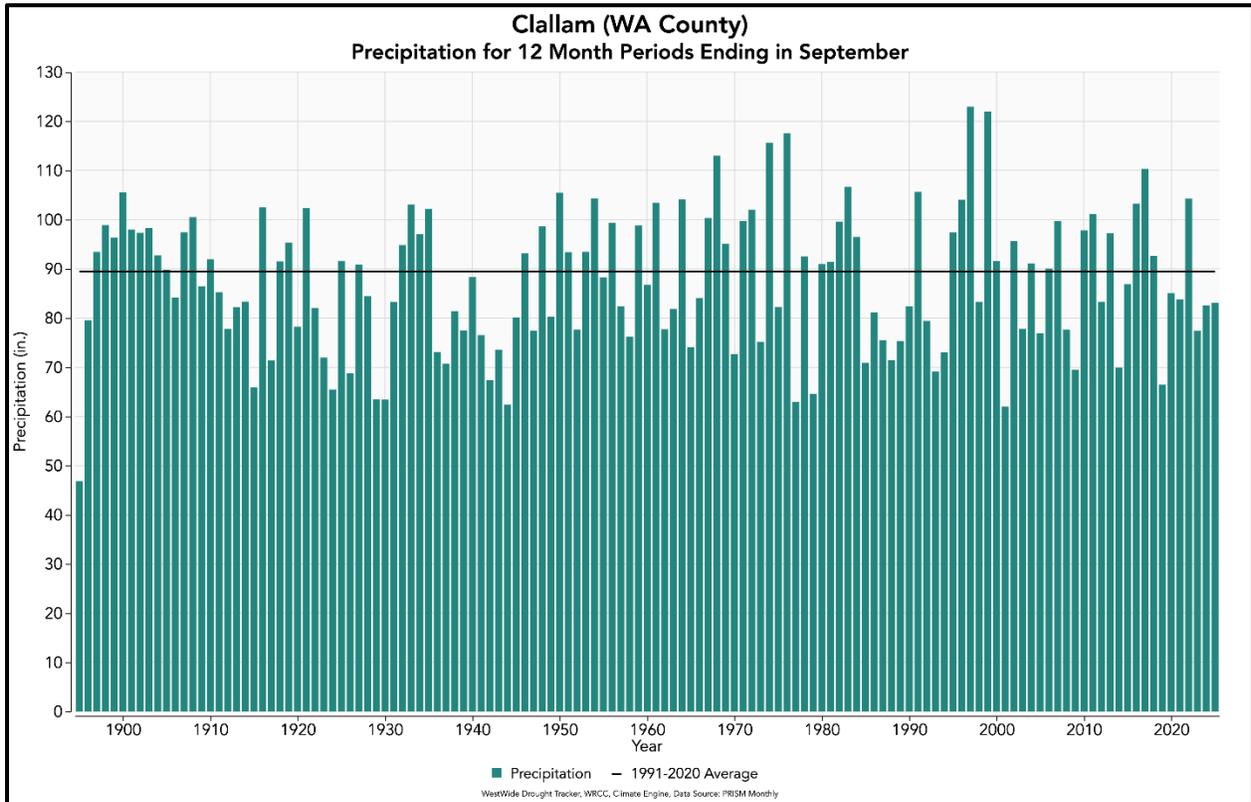


Figure J.11. Total precipitation for Clallam County for 12-month periods ending in September, with the black line representing the 1991–2020 average (approximately 90 inches).

Based on the Standardized Precipitation Index (SPI) for the county (Figure J.12), which evaluates meteorological drought based on precipitation anomalies, a recent drying trend is evident. After the late 1980s, longer (multi-year) and deeper, more pronounced drought events began to appear compared with the earlier part of the twentieth century. It is probable that the climate will get hotter and drier. Though average countywide precipitation has not changed significantly, when combined with temperature and drought indicators, drier fuels and longer fire seasons can be expected.

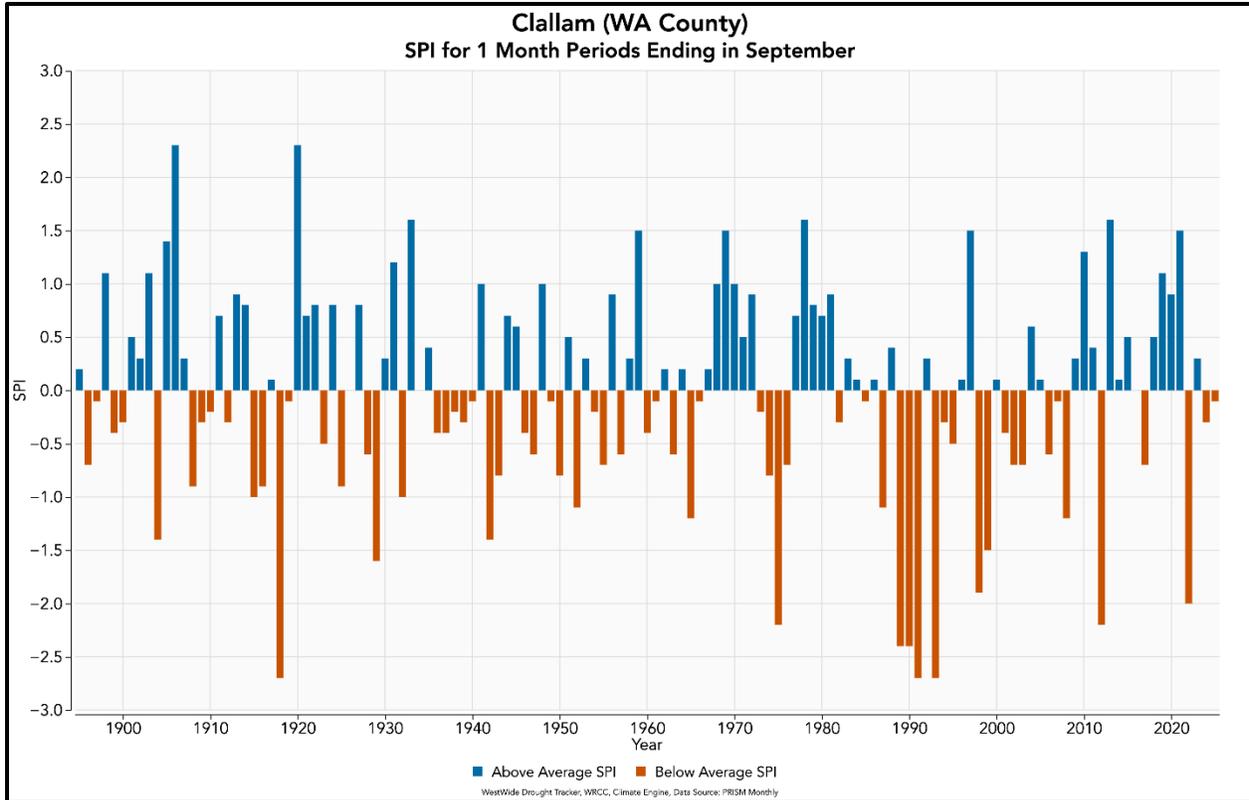


Figure J.12. SPI for 1-month periods ending in September in Clallam County, showing relative wet (positive SPI) and dry (negative SPI) conditions over time.

Future Climate Assessment

The expectation for the future climate in Clallam County is that it will become hotter and drier. Countywide, warmer temperatures with less precipitation will, clearly, increase wildfire potential, size, and severity. This will become more noticeable, first, in the already drier eastern portions of the county.

A particular challenge exists in forecasting future wildfire potential in the west side of the county. Unless precipitation decreases by 50% or more, quite suddenly, the changes to vegetation and fire regime in the western half of the county are likely to occur more gradually than in the east. Permanent shifts to known teleconnections, like the El Niño/Southern Oscillation, could occur rapidly and have dramatic impacts on precipitation amounts in the west. These are very difficult to forecast accurately. Determining whether a shift in weather patterns over a year or several years is the result of a shorter-term weather-related phenomenon or a significant change in the long-range climate may be a future challenge. Intermittent periods of cooler and wetter fire seasons could occur, but regardless, the overall trend, over time, will be towards hotter and drier. This requires monitoring, planning, and preparation to not get caught behind the curve in staffing and wildfire mitigation efforts.

It is well documented that night temperatures have been consistently increasing over the past few decades along the western coastline. This continual increase in temperatures has an impact on atmospheric moisture (relative humidity in fire danger indices) and dead fuel moisture, which is a function of temperature and moisture via the equilibrium moisture content. These changes will cause phenological changes and adaptations in biodiversity. Additionally, suppression tactics and operational management will need to adjust accordingly to the future (Brown et al. 2022a, 2022b). The operational strategies used

at night were a complementary tactic to manage fire when temperatures were lower, relative humidities were higher, in turn moderating fire behavior. These trends will not only affect suppression strategies when a fire occurs, but they should also cause a point to ponder on rehabilitation efforts and species diversity post-fire.

Climate Impacts to Fire Weather

According to Sheehan et al. (2015), climate change will result in an increase in the number of high fire danger days in future decades. As compared to the 30-year (1971–2000) baseline, there will be an increase of 5 high fire danger days until 2039. This will double to 10 high fire danger days by 2070.

Along with the increase in fire days, the “tails” of the fire season, in the early spring and late fall, are likely to extend by a week or two in either direction. The combination of a longer fire season, with almost 2 weeks of additional high fire danger days, will have a significant impact on the number, size, and severity of fires. This will, initially, be more obvious in the drier east side of the county, with the impacts gradually increasing in the wetter western half.

The climatic changes the western United States is experiencing are impacting the duration of the “fire season,” which is commonly referenced as a “fire year.” Despite Clallam County having fires or long-duration fires, these drying changes will affect the duration of fires outside of the county but will impact the county through smoke.

Climate Impacts on Soils

Climate change can influence soils by altering moisture levels, nutrient cycling, humidity, and temperature, and these changes will shape future vegetation patterns and fire activity. Hotter and drier conditions can increase the decomposition of organic matter and reduce soil carbon stocks, while cooler and wetter periods can contribute to soil saturation and erosion, lowering overall soil productivity. Although these processes introduce uncertainty, understanding current soil composition provides a baseline for anticipating potential vegetation changes and their influence on fire regimes.

Precipitation and temperature both play roles in soil formation, but precipitation is the dominant influence in Clallam County. Most soils in the County are mesic (USDA Soil Conservation Service 1987). Rainfall varies significantly across the County, and this variation affects how fuels develop and decompose. In the western half of the County, higher precipitation produces abundant vegetation and organic matter that tends to decay rather than burn (USDA Soil Conservation Service 1987). In the warmer and drier eastern half and at lower elevations, nutrients are more likely to cycle through fire (USDA Soil Conservation Service 1987).

Soils in Clallam County are generally loam, with gravelly soils at higher elevations and sandy or silty soils at lower elevations. Drainage ranges from very good to very poor depending on soil structure and slope position. Less permeable soils are typically found on flatter, lower elevation slopes and in riparian areas, which pose lower fire and erosion risk. Steeper mid-elevation slopes that support timber fuels are more susceptible to fire impacts and post-fire erosion.

The soil information in Table J.6 is from the USDA Soil Survey of Clallam County Area, Washington (1987). Although more recent soil surveys exist, this dataset provides a pre-climate change baseline for understanding potential future soil shifts.

Table J.6. Soil Data for Clallam County

Geographic Range	Elevation/Setting	Soil Series	Key Species
East	Sequim / Carlsborg — low elevation	Carlsborg–Puget–Dungeness	Douglas-fir
	Hwy 101 Bench – Port Angeles/Joyce	Elwha–Clallam–Catla	Douglas-fir, Red alder
	Higher elevations above Hwy 101 (non–NP)	Terbies–Louella	Douglas-fir
West	Coastal Low Elevation	Ozette–Kydaka Series	Western redcedar
	Lower Elevation Riparian Zones	Queets–Tealwhit–Solduc–Klone–Calawah Series	Western hemlock, Sitka spruce, Red alder
	Mid-Elevation Zones	Palix–Ilwaco Series	Sitka spruce, Western hemlock
	Highest Elevations (non–National Park)	Snahopish–Solleks–Makah Series	Western hemlock, Pacific silver fir

These baseline soil patterns show that the drier east side can support fire-prone Douglas-fir at most elevations. The wetter west side supports Western redcedar at low elevations and Western hemlock, Sitka spruce, Pacific silver fir, and red alder at mid and high elevations.

Overall, existing soil types across the County can support vegetation under a warmer and drier climate, and many soils would favor Douglas-fir with reduced rainfall. Over time, Douglas-fir may become mixed with fire-adapted pine species. Soil change will occur more slowly than vegetation change, but repeated large fires, particularly on slopes, may eventually accelerate erosion and alter soil characteristics. In the near term, existing root systems and later post-fire treefall will help stabilize soils until multiple fire entries and new vegetation communities become established.

Climate Impacts on Vegetation/Fuels

While current soils are capable of supporting a wide range of vegetation types, predicting climate-driven vegetation change in Clallam County is challenging. In much of the arid Rocky Mountain West, a warmer and drier climate typically shifts vegetation upslope or northward, with lower elevation species replacing higher-elevation communities. These transitions follow a general pattern from cacti to grass to sage and oak brush to pinyon and juniper to ponderosa pine to larch and lodgepole pine to mixed conifer to subalpine fir and spruce.

Clallam County sits at sea level with a temperate coastal climate and high winter precipitation, which breaks from this typical elevation and latitude sequence. As a result, forecasting future vegetation change in response to climate warming and drying is less straightforward than in interior mountain regions.

Eastern Clallam County

In the eastern portion of the county, a warmer and drier climate is likely to accelerate shifts toward more fire-adapted vegetation, with noticeable changes occurring across all elevations.

- Grass and brush fuels are expected to become denser, increasing fuel loads and producing more frequent, fast-moving fires.
- Timbered areas may experience higher rates of crown fire and could transition from Douglas-fir to a pine or larch forest type .

- Mid-elevation cedar/hemlock and silver fir forests may convert to Douglas-fir or mixed-conifer forests with greater fire dependence.
- Higher-elevation subalpine fir may expand upward as alpine and rocky zones support new shrub cover.
- Overall fire behavior is likely to increase in frequency, severity, and size compared to current conditions.

Western Clallam County

In the western portion of the county, climate-driven drought and repeated fire over decades may ultimately transform the coastal rainforest into a more fire-dependent mixed-conifer landscape.

- Sustained drought could stress vegetation and set the stage for a series of large fires.
- Cedar/hemlock forests, which are not fire-adapted, may incur high mortality even from low-intensity burns.
- Post-fire openings would expose fuels to greater sunlight and wind, accelerating drying and surface-fuel accumulation, and increasing reburn potential.
- Repeated fires of higher intensity may favor colonization by fire-adapted species and drive a gradual shift to mixed-conifer forest types.
- The wettest areas could transition from coastal rainforest to ecosystems with more frequent and severe fire.

CLIMATE THREATS AND MITIGATION

The 2026 CWPP is meant to provide planning guidance and mitigation for a period of several years under the current climate. Many of the recommendations and mitigations listed in this document describe actions that will be beneficial, over time, in a warming and drying future climate. It is important, every few years, to update and refresh the CWPP based on the observed climatic conditions and vegetation changes, and disturbances in recent years, with an anticipation of the number, size, duration, and severity of fires to increase in the future. Fire behavior models and risk analyses can be run, and new thinning and home hardening priorities adjusted, based on the outputs.

Expanding on Chapter 4 of the CWPP (*Mitigation Strategies*), the following are longer-range climate-adapted mitigation strategies to maintain landscapes for resilient fire-adapted communities, with a wildfire response that continues to function in a warmer and drier climate.

Vegetation (Fuel) and Weather Monitoring and Evaluation:

It is difficult to forecast exactly what will happen with vegetation and weather in the future under the climate change scenario. Over time, it will be important to track weather statistics and trends and take note of the associated vegetation changes to stay ahead of the planning curve.

Many of the current species, particularly western redcedar, are not fire-adapted and will suffer high mortality even in relatively low-severity fires. This species grows post-fire through reseeding, but growth is very slow and, unless a return to cool and wet conditions occurs, is likely to be outcompeted by more fire-resistant or fire-dependent species in a warming climate.

Recommendations to track weather and vegetation changes are as follows:

- Establish pre- and post-fire vegetation monitoring plots with Brown's transects to quantify vegetation change, detect invasive species, and identify appropriate native or fire-resilient species for BAER reseeding and planting; incorporate findings into budgeting and transition materials.
- Track new fire starts and perimeter polygons to observe changes in fire regimes, and use the Fire Effects Information System to assess post-fire vegetation response and implications for future fire behavior (<https://www.feis-crs.org/feis/>).
- Maintain the RAWS network and Special Interest Groups to monitor historical and current weather trends, using Fire Family Plus or similar tools to evaluate fire danger.
- Supplement RAWS data with gridded climate datasets from the Desert Research Institute's Western Regional Climate Center to track drought, weather, and fire danger (<https://wrcc.dri.edu/my/login>).
- Develop a working relationship with the Northwest Fire Science Consortium to integrate current research into land management and community protection efforts (<https://nwfirescience.org/>).
- Coordinate with Canadian partners to share information on wildfire conditions and management in wetter habitat types.
- Consider establishing National Weather Service Fire Weather Observers within the county to support weather validation and monitoring (<https://www.weather.gov/coop/BecomeAnObserver>).

Fuel Treatments and Modifications:

- Based on the above observations, re-run fire behavior models and Quantitative Wildfire Risk Assessments with fuel model and weather changes to determine new priority areas for treatments based on the evolving weather and fuel conditions.
- Using a similar interdisciplinary team that developed current CWPP treatments to develop a prioritized list of areas to target mechanical and prescribed fire mitigations.
- Assess the effectiveness of the prior treatments either within the county or in adjacent counties with similar fuels and vegetation types, and work with local professionals to modify treatments as needed.

Refugia:

- At each CWPP update, convene an interdisciplinary and interagency team of ecologists to identify existing vegetation types that are at threat from climate change.
- With fire experts, evaluating roads, natural barriers, and Potential Operational Delineations (PODs), identify any islands of native vegetation that could be protected from wildland fire.
- If desired, identify these areas as refugia, areas where the existing vegetation will be maintained, free of fire disturbance, to preserve these ecological systems as long as possible.
- Sequim Garry oak (*Quercus garryana*) is an example of a species-based refugia to consider preserving. Though fire-adapted, this oak is considered more "fire resistant" than "fire required." Post-fire regeneration occurs more from root sprouting than from seedling generation from

acorns. Species-specific plans for preservation in future hotter and drier climates should be considered. In the case of the Garry oak, wildfire exclusion and mechanically preventing an accumulation of new growth or fuels at tree bases with possible, light under-burning, would be a prescription to incorporate.

Fire-Adapted Communities:

- With each CWPP update, anticipate the future weather/fuels conditions, the associated fire behavior, and any existing or new threats that would result from a worst-case scenario of a continued warming and drying climate.
- Re-evaluate PODs and Potential Control Lines (PCLs) with each CWPP update, assessing them for their ability to contain fire under more severe future conditions.
 - For examples of PODs, what they are, and how they are used, please visit: <https://storymaps.arcgis.com/collections/f513b2593f5342a59207334207d853a8?item=4>.
- Evaluate the weighting of existing Highly Valued Resources and Assets and whether this has changed if fire probability and severity increase.
- Evaluate infrastructure and ingress egress routes for areas that are lower probability today, that could become a much higher probability in the short-term future.
 - Example: The Makah Reservation is isolated, with homes that house multigenerational families. Highway 112 is the only supply route and evacuation road, and a single power line along the highway would be vulnerable to fire. Under historic climate conditions, these values are not at high risk of wildfire, but in a warming and drying climate, the probability of fire is likely to increase.

Public Education and Outreach:

- Coordinate wildfire education efforts with existing county partners, including fire departments, federal and local agency personnel, dispatch centers, and local resource or watershed groups. Aligning messaging and sharing communication platforms can improve consistency, increase reach, and reduce duplication of effort.
- Increase youth-focused wildfire education through school programming. Consider utilizing existing curriculum resources such as [Project Learning Tree – Nature of Fire](#) and the [U.S. Forest Service Rocky Mountain Research Station’s FireWorks](#) education program to introduce concepts of wildfire ecology, prevention, and preparedness.
- Offer voluntary site assessments for homeowners to evaluate structure and property vulnerability and to provide guidance on mitigation strategies that reduce wildfire risk.
- Collaborate with county planning and zoning offices to integrate “fire-safe” considerations into new development standards, subdivision planning, and defensible space guidance for built environments.
- Coordinate with the Washington State University Clallam County Extension Office for technical assistance, community workshops, and additional public outreach resources.
- Incorporate relevant educational and land stewardship materials developed by the CCD (NRCS), including guidance on reforestation, invasive weed management, post-fire rehabilitation, soil testing, and sustainable land management practices.

Reducing Structural Ignitability:

- Defensible space standards and home hardening methods for existing structures may have to be improved as fire frequency, intensity, and different ember risks arise.
- All new developments should implement defensible space and home hardening with the anticipation of a much-increased wildfire hazard in the future.
- Agencies, counties, and communities should consider implementing zoning and building requirements that incorporate wildfire threats to prepare for fire hazards in the near, mid-, and long term.

Wildfire Response:

- Incorporate weather and vegetation change considerations into Incident Command briefings and planning documents. Reference the Wildfire Suppression Difficulty Index map (90th percentile) and compare with Interagency Fuel Treatment Decision Support System (IFTDSS) outputs (e.g., 97th percentile runs) to understand how suppression difficulty may shift under more extreme conditions. This is particularly important in areas where no fuel treatments have yet been implemented, and operational hazards remain.
- Include information on desired future conditions, PODs, PCLs, and identified refugia to guide strategic suppression actions.
- Regularly update values at risk based on interdisciplinary team input to support timely, risk-informed decisions by Incident Management Teams and operational personnel.