



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

Jefferson County Office of the Fire Marshal

The Jefferson County Office of the Fire Marshal has jurisdiction pertaining to fire codes and fire safety within the county (Jefferson County 2023a). The Office of the Fire Marshal works with fire district chiefs to inform and protect the public.

The Fire Marshal makes important decisions regarding burn restrictions. Most recently, on June 30, 2023, the Jefferson County Fire Marshal declared a ban on all recreational fires after consulting with the fire Chiefs (Jefferson County Department of Community Development 2023a). The declaration was an extension of the June 5, 2023, ban on outdoor burning. The declaration is in effect until atmospheric and field conditions lower and the threat of wildfire has subsided (Jefferson County Department of Community Development 2023a). An amendment to the declaration was made July 3, 2023, which stated that due to a high fire hazard, the discharge, manufacture, sale, storage, or transportation of fireworks is prohibited (Jefferson County Department of Community Development 2023b).

WUI Property Development Guide

The Jefferson County Department of Community Development is responsible for enforcing WUI Code requirements as adopted by Washington State. The goal of these codes is to protect the safety of citizens by enhancing a home's ability to survive wildfire. The Jefferson County Department of Community Development provides a four-step process to determine building and defensible space requirements for customers to review prior to completing their building plans.

Port Townsend Municipal Code

The City of Port Townsend adopted and enforces the International Fire Code, 2018 edition, as amended by the Washington State Building Code Council in Chapter 51-54A WAC (City of Port Townsend 2023). The fire code is included in Chapter 16.04: Building Construction Code, which provides minimum standards to safeguard life, health, property, and public welfare through the regulation of design, construction, and maintenance of all buildings and structures within the City of Port Townsend.

For more information on the City of Port Townsend Planning and Community Development regulations, please visit: <https://cityofpt.us/planning-community-development/page/building-0>

Jefferson County Solid Waste Code

The Jefferson County Solid Waste Code represents the regulatory framework for the handling, storage, collection, transportation, and disposal of solid waste within Jefferson County. Outlining responsibilities for solid waste management, the code covers issues such as removal, disposal, unlawful dumping, burning prohibitions, and the requirement for disposal service, while also addressing the need for

compliance with fee schedules and hours of operation for solid waste facilities. The regulations are intended to promote public health, protect the environment, and ensure the proper management of solid waste.

To learn more about the Jefferson County Solid Waste Program, please visit:

<https://jeffersoncountysolidwaste.com/>

Jefferson Land Trust

Founded in 1988, Jefferson Land Trust began as a nonprofit group to conserve land in Jefferson County. The organization provides services to landowners within the county to identify conservation strategies that meet their goals and financial needs. Typical protected resources include wetlands, floodplains, farmlands, wildlife corridors, and scenic areas. The land trust often works with government agencies and the timber industry to retain working forest lands for sustainable timber production, wildlife habitat, recreation, and educational uses.

For more information on the Jefferson Land Trust, please visit: <https://saveland.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, this 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 private 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 2023b, 2023c, 2023d).



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 (EHSB) 2928 Forest Resiliency Pilot Project: In 2016, the Washington State Legislature passed the Forest Resilience Burning Pilot (EHSB 2928). This bill supported a pilot program to evaluate and monitor the effects of forest resiliency burning (Fire Adapted Communities Learning Network [FACLN] 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 (FACLN 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 2020a).

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 2023f). 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 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 2023). 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 2023). 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.

Hoh Indian Tribe

The Hoh Tribe owns and manages land within Jefferson County. Natural resources are managed for environmental, cultural, and economic benefit of the tribe and other communities within the Hoh River watershed (Hoh Indian Tribe 2023).

The Hoh Indian Tribe in Washington State employs a comprehensive approach to land management, rooted in their traditional connection to the Hoh watershed, treaty rights, and a commitment to self-governance and cultural preservation. This strategy encompasses multiple key components, including a tribal council overseeing reservation and trust lands, a natural resources department responsible for fisheries, wildlife, forestry, water quality, and environmental initiatives, a cultural resources program safeguarding cultural heritage and sacred sites, a land acquisition program focused on expanding ancestral territory. The tribe facilitates collaborative partnerships with various stakeholders, including

tribes, federal and state agencies, local governments, and nongovernmental organizations, to address land and resource-related issues (Hoh Indian Tribe 2023).

Quinault Indian Nation

The Quinault Indian Nation (QIN) in Washington state follows land management strategies rooted in their sovereignty, treaty rights, and cultural values. Their approach encompasses various vital components, including a tribal government responsible for overseeing the administration and governance of reservation and trust lands, a forestry department focusing on timber management, sustainable practices, and land restoration and a natural resources department managing fisheries, wildlife, water quality, and environmental programs. The QIN tribe works in collaboration with other tribes, federal and state agencies, local governments, and nongovernmental organizations to address land and resource-related issues (QIN 2023).

PUBLIC LAND MANAGEMENT

LAND MANAGEMENT STRATEGIES

Jefferson County Conservation District

The Jefferson County Conservation District (JCCD), established in 1946, assists landowners in conserving natural resources. It offers free technical and financial aid, funded primarily through state and federal grants. JCCD works with the NWCG to manage the Firewise program, enhancing protection from wildfires through community planning and safe construction. It also partners with the Natural Resources Conservation Service (NRCS), helping residents steward their land and access programs such as the NRCS Environmental Quality Incentives Program (EQIP). JCCD supports the Conservation Reserve Enhancement Program for restoring riparian salmon habitats. Furthermore, JCCD provides landowners with resources on native plants, rainwater harvesting, soil conservation, small farms, pollinators, and climate resilience for small forest owners (JCCD 2023).

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 2023g). 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 2023g). 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 2023h). 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 2023h).

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, such as Puget Sound (WA DNR 2023i). 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 2023i). 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 2023j).

Natural area preserves serve to protect rare plant and animal habitats identified by the Natural Heritage Program (WA DNR 2023j). 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 2023j).

Natural resource conservation areas (NRCAs) protect outstanding examples of native ecosystems, critical habitat, and scenic landscapes (WA DNR 2023j). 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 2023j). 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.

Jefferson County – City of Port Townsend All Hazard Mitigation Plan: In 2016, Jefferson County updated its hazard mitigation plan (HMP). A subsequent revision is underway but has not yet been released. Therefore, the 2016 version will be used for the purposes of this plan. The purpose of the HMP is to identify potential hazards and mitigation strategies in the county. This plan is intended to guide decision-makers on the best approaches for protecting life and property, and to aid in prioritizing projects and resource allocations. The stated goals of the HMP are to significantly reduce risk of injury and loss of life during disaster events; develop partnerships with organizations to communicate and coordinate hazard mitigation activities; minimize damage to critical infrastructure and property and minimize interruption of essential services and activities; protect the environment; and promote community resilience and public awareness through integration of hazard mitigation with public policy and standard business practices (Jefferson County DEM 2016). The prioritized hazards in the County are avalanches, climate change damaging winds, drought, earthquakes, floods, heat waves, landslides, tornadoes, tsunamis, volcanic events, wildfire, and winter storms (Jefferson County DEM 2016). The HMP includes risk assessment sections that profile potential hazards and vulnerability of geographic locations, populations, and infrastructure. This is followed by recommended mitigation approaches and a capacity assessment to identify needs for addressing expected hazards. A few specific wildfire-related mitigation actions identified in the HMP are as follows:

- Enhance Emergency Services to increase efficiency of wildfire response and recovery activities.
- Educate district personnel on federal cost-share and grant programs, etc., so that the full array of assistance to local agencies is understood.
- Create wildfire hazard atlas for City of Port Townsend.
- Install fire doors and fire suppression system.
- Develop and disseminate maps relating to fire hazards to help educate and assist builders and homeowners in wildfire mitigation activities and guide emergency services during response.
- Enhance outreach and education programs aimed at mitigating wildfire hazards and reducing or preventing the exposure of citizens, public agencies, private property owners, and businesses to natural hazards.
- Increase communication, coordination, and collaboration between wildland/urban interface property owners, local and county planners, and fire prevention crews and officials to address risks, existing mitigation measures, and federal assistance.

Jefferson County Emergency Response Plan: This plan was produced in 2018 and includes a section specific to wildfires in Annex F (Jefferson County DEM 2018). Here, wildland fire is defined as “the uncontrolled destruction of forested and wild lands by fire caused by natural or human-made events.” This section also notes that Jefferson County’s peak fire season usually runs from mid-May through October, and that fires can be exacerbated by strong, dry winds from the east. Home building in/near forests and wild lands is observed to increase the risk of loss by fire given that these areas are frequently far from

firefighting resources, are often difficult to access and usually lack adequate defensible space. Recommendations to reduce risk include effective early detection and warning communication systems, enforcement of no-burn periods, and fire-safe development planning (Jefferson County DEM 2018).

ADJACENT COUNTIES

Whenever possible, CWPPs and project recommendations should be designed to align with adjacent projects across county and jurisdictional boundaries.

HMPs exist for the adjacent counties of Clallam, Island, Kitsap, Mason, and Grays Harbor (Clallam County Emergency Management 2019; Grays Harbor County Department of Emergency Management 2018; Island County Department of Emergency Management 2020; Kitsap County Department of Emergency Management 2020; Mason County Division of Emergency Management 2023). Each of these plans was updated in the last 5 years, except Grays Harbor, which is currently under revision. These plans all delineate potential natural hazards of greatest concern to the county and mitigation strategies to reduce risk to life and property.

Shared HMP goals and strategies specific to wildfire for Jefferson County and adjacent counties include the following:

- Protect life, property, the environment, and the economy.
- Enhance community resilience through proactive measures to reduce hazards.
- Promote outreach and education programs to prevent/mitigate unnecessary exposure to wildfire risk.
- Leverage public and private partnering opportunities.
- Assess and strengthen wildfire response capabilities.
- Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions.
- Encourage and pursue multi-objective opportunities or solutions to reduce hazards and risk whenever possible.

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 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).

DNR's Plan for Climate Resilience: This plan outlines specific actions the DNR plans to take to meaningfully address issues of climate change (WA DNR 2020b). 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 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 2023b).

National Park Service

Jefferson County includes a significant portion of Olympic National Park and large 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 (FMP) was completed in 2005 and serves as the most current resource (NPS and U.S. Department of the Interior 2005). The FMP 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 FMP. The preferred alternative in the EA recommended revision/update of the 2005 FMP and the creation of separate Wilderness and Non-wilderness units for fire management purposes.

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APPENDIX B:

Supporting Maps

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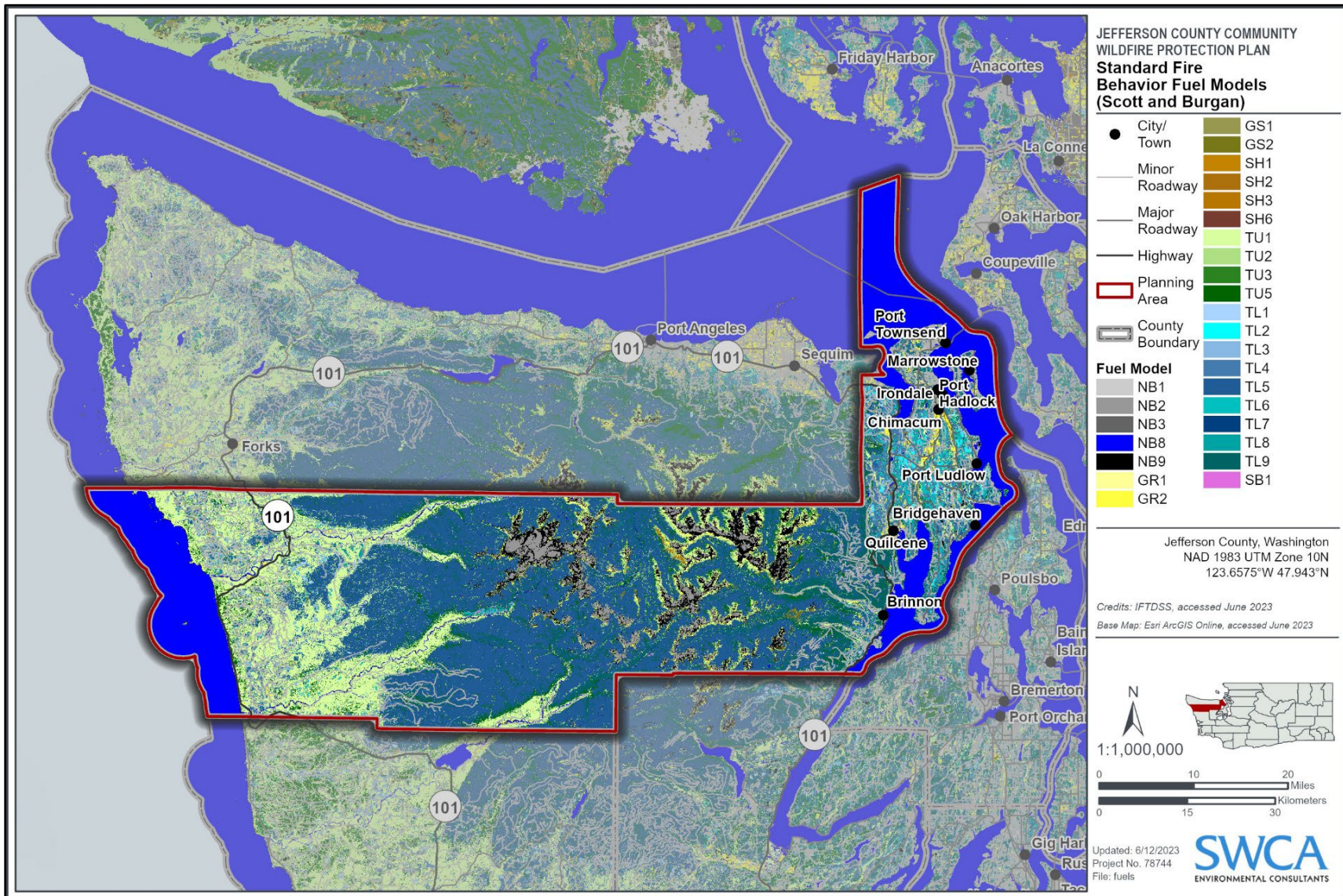


Figure B.1. Fuel model classifications for Jefferson County based on Scott and Burgan 40 fire behavior fuel models.

Note: some areas of active timber management may wrongly classify fuels as non-burnable due to limitations of the data. The Advisory Team is planning on addressing this limitation during future CWPP updates.

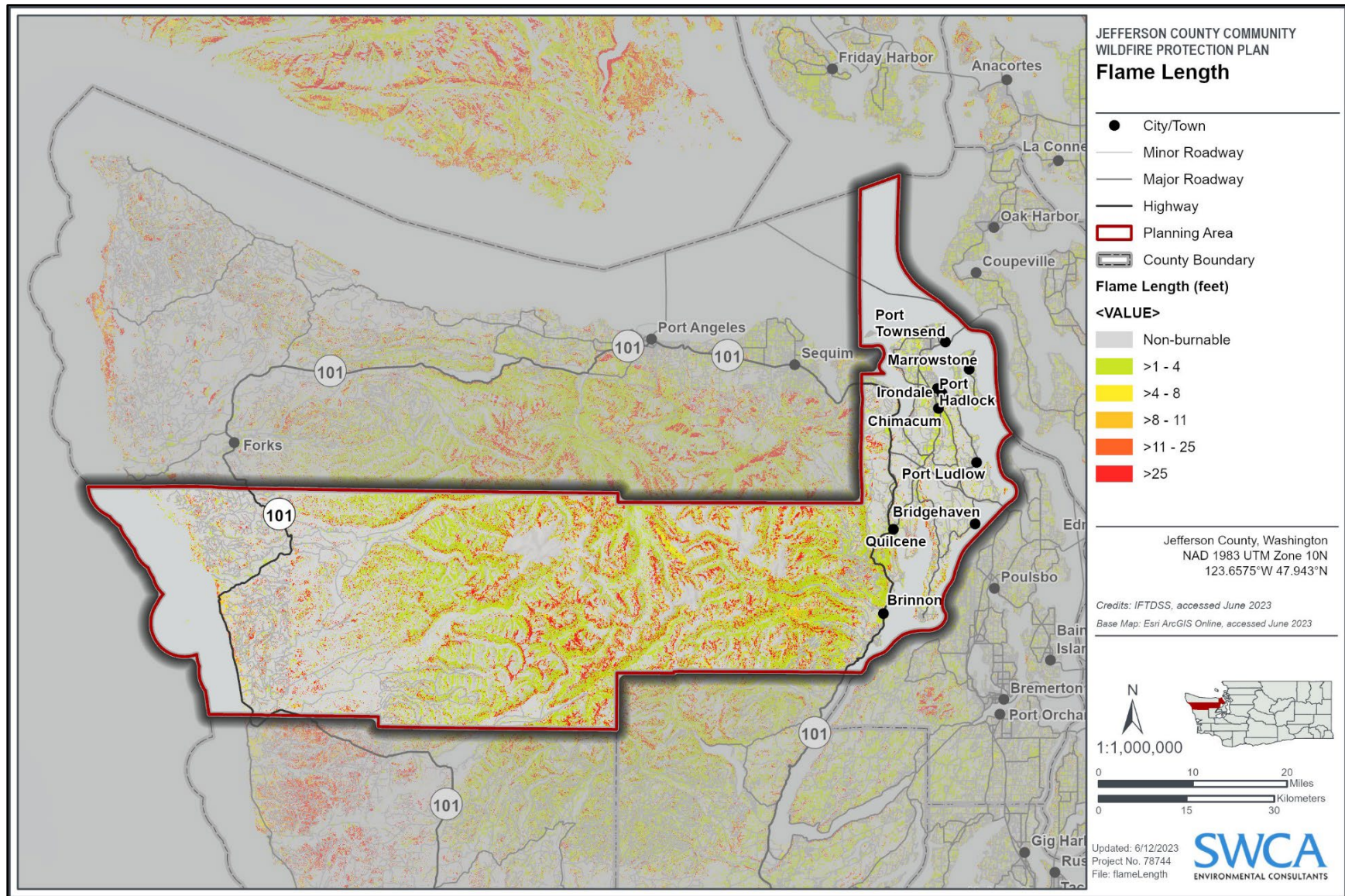


Figure B.2. Composite Risk-Hazard Model inputs: flame length, generated using IFTDSS.

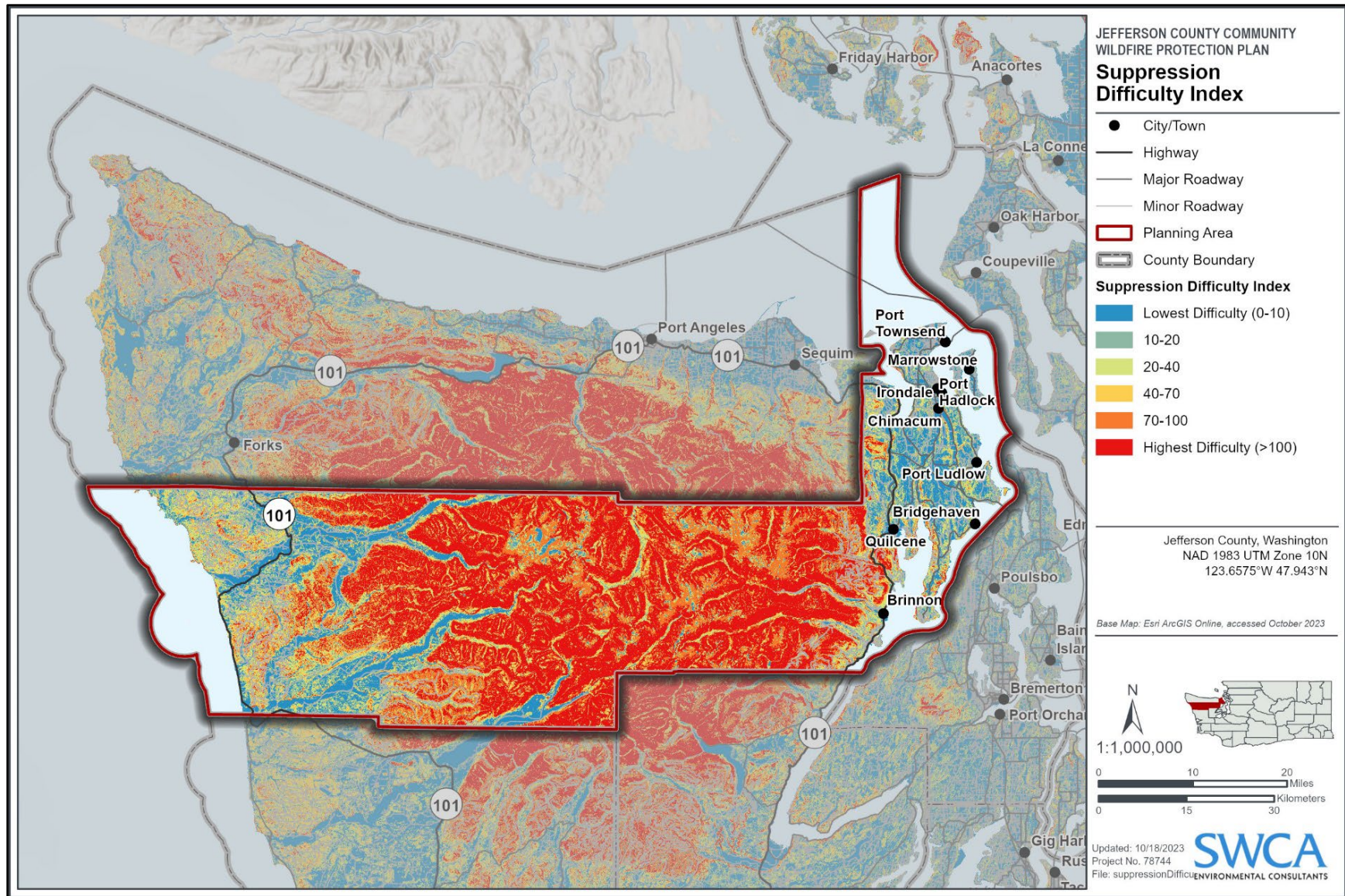


Figure B.3. Composite Risk-Hazard Model inputs: suppression difficulty index, based on analysis of fuels and fire suppression options.

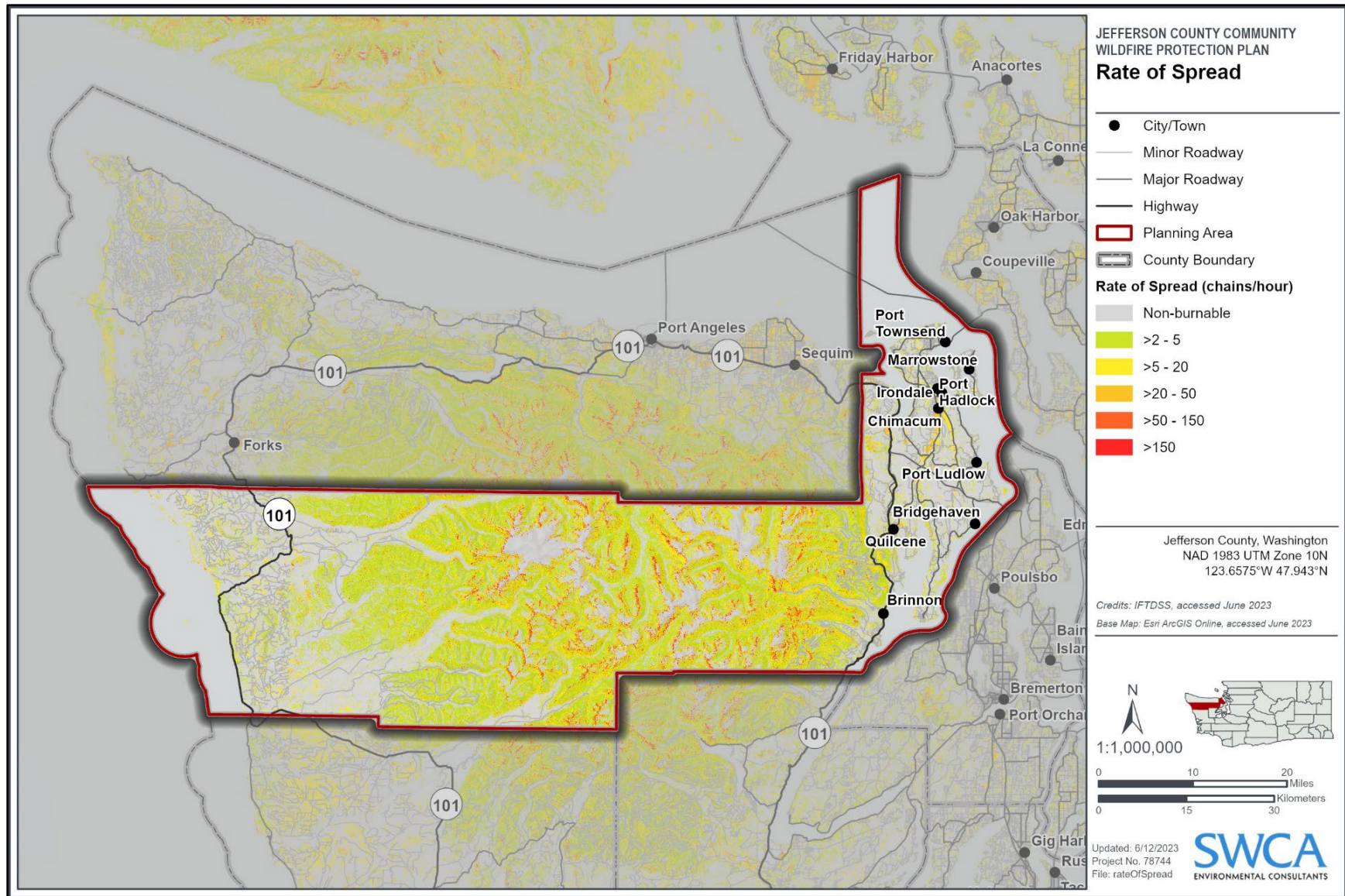


Figure B.4. Composite Risk-Hazard Model inputs: rate of spread, generated using IFTDSS.

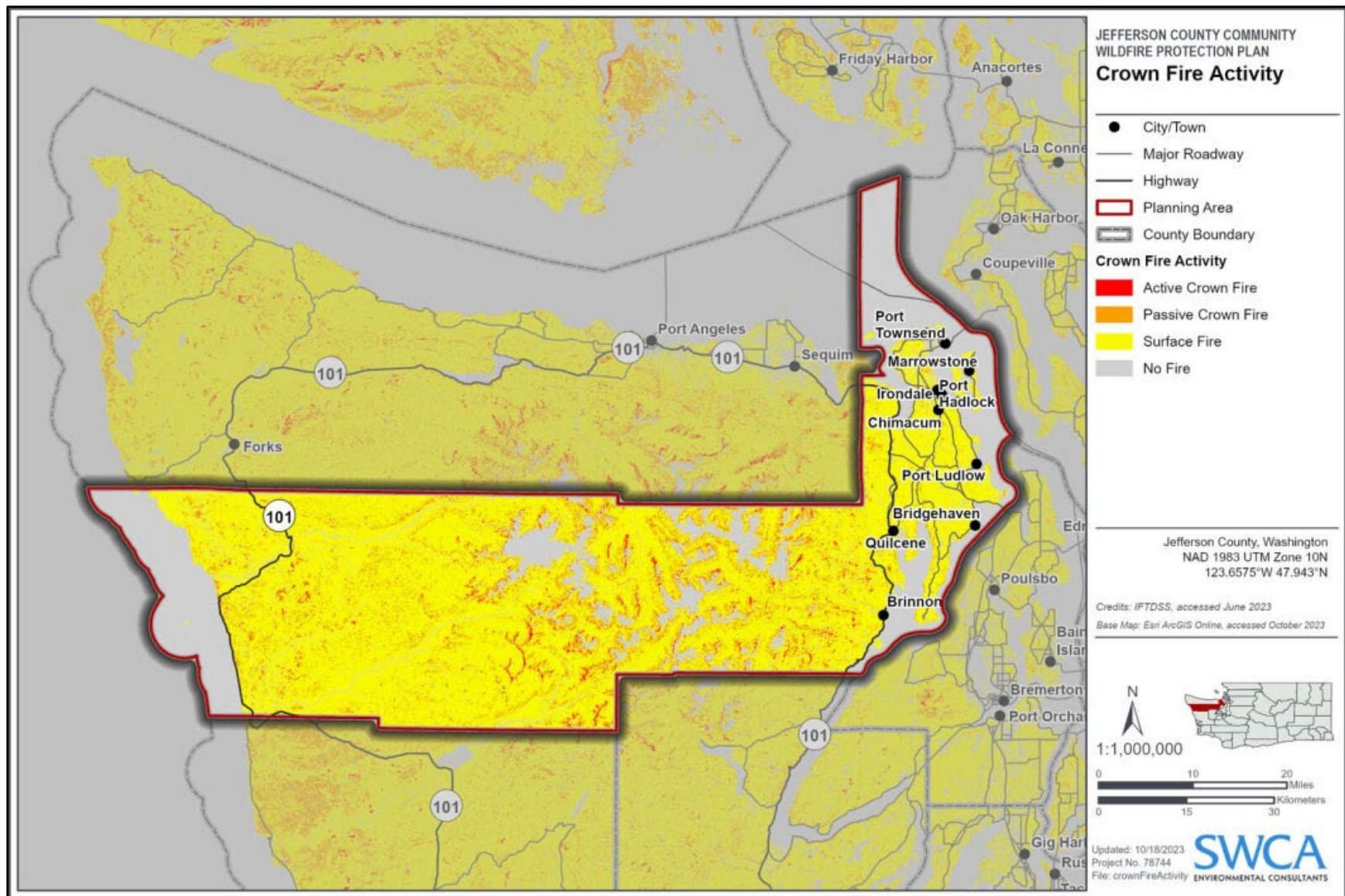


Figure B.5. Composite Risk-Hazard Model inputs: crown fire activity, generated using IFTDSS.

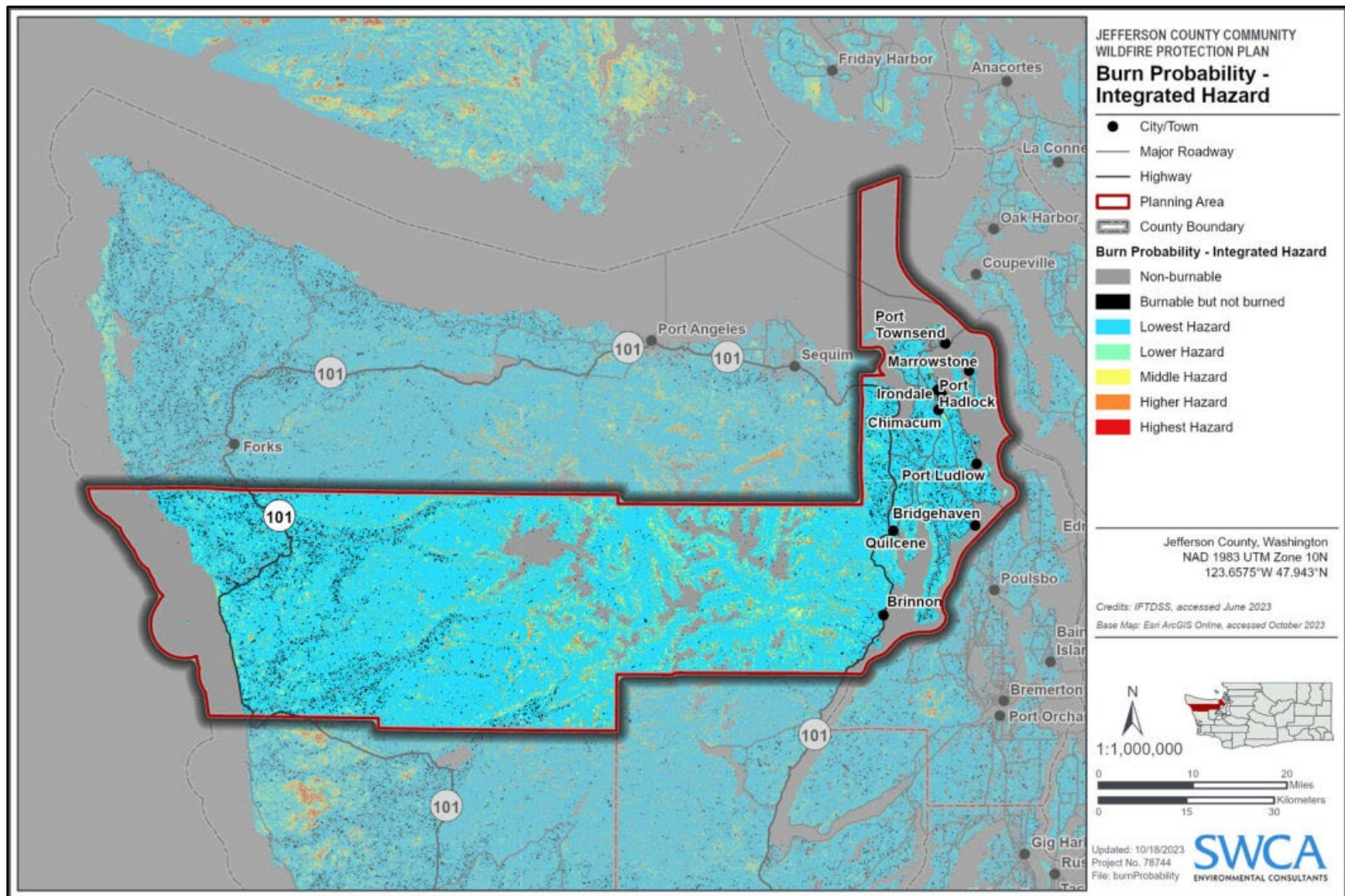


Figure B.6. Composite Risk-Hazard Model inputs: burn probability, generated using IFTDSS.

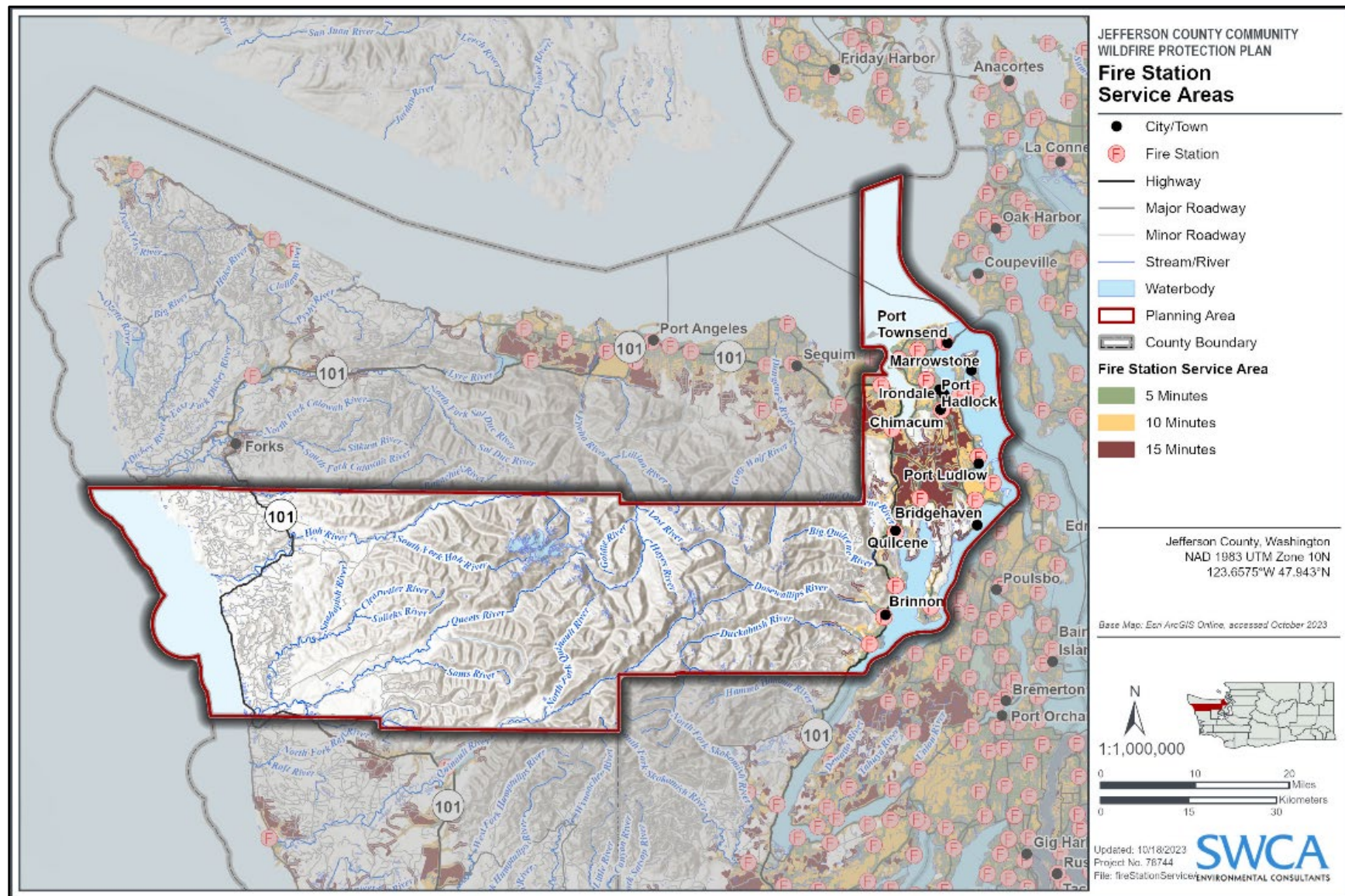


Figure B.7. Composite Risk-Hazard Model inputs: approximate fire station response times.

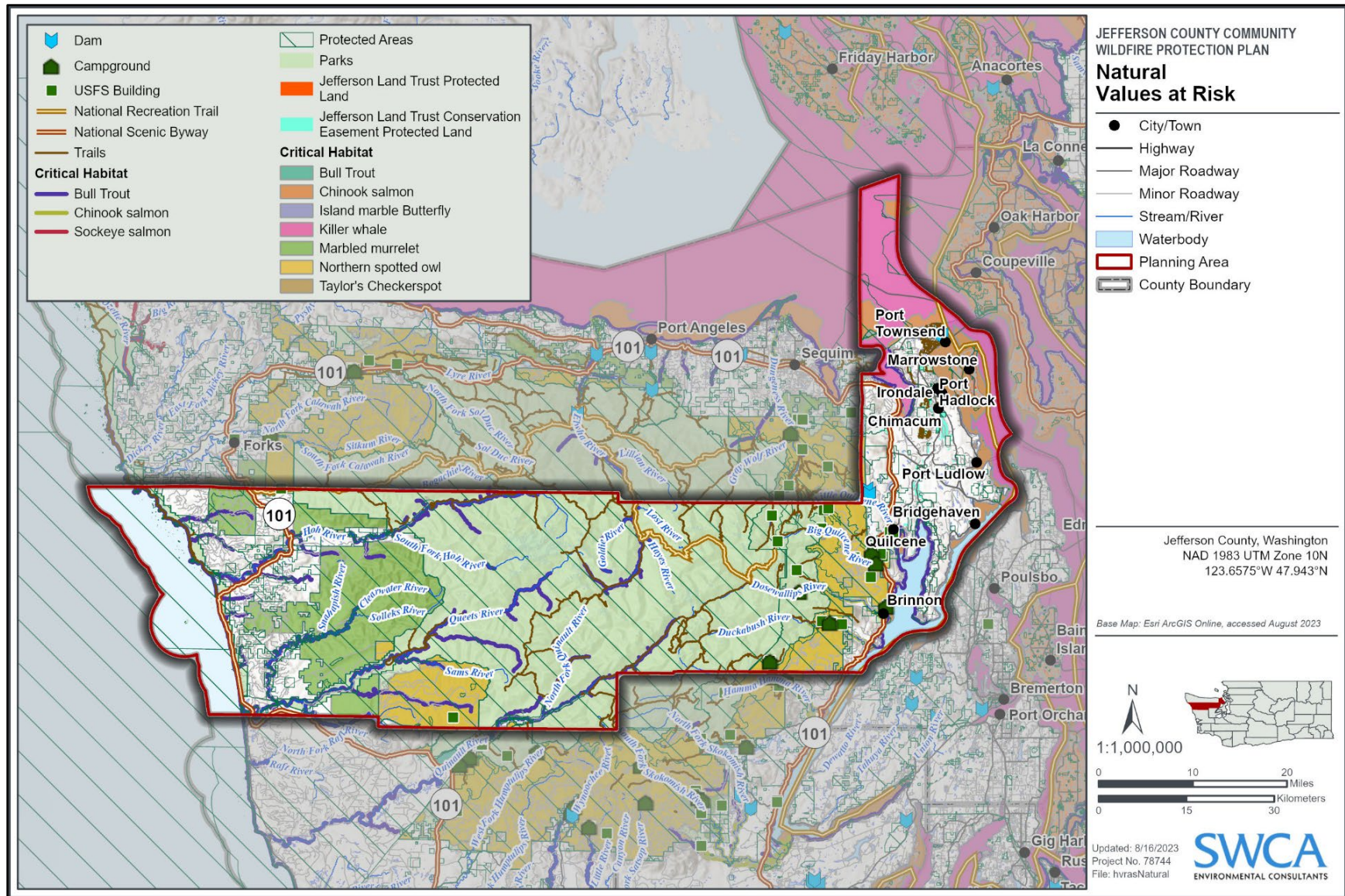


Figure B.8. Composite Risk-Hazard Model inputs: natural values at risk.

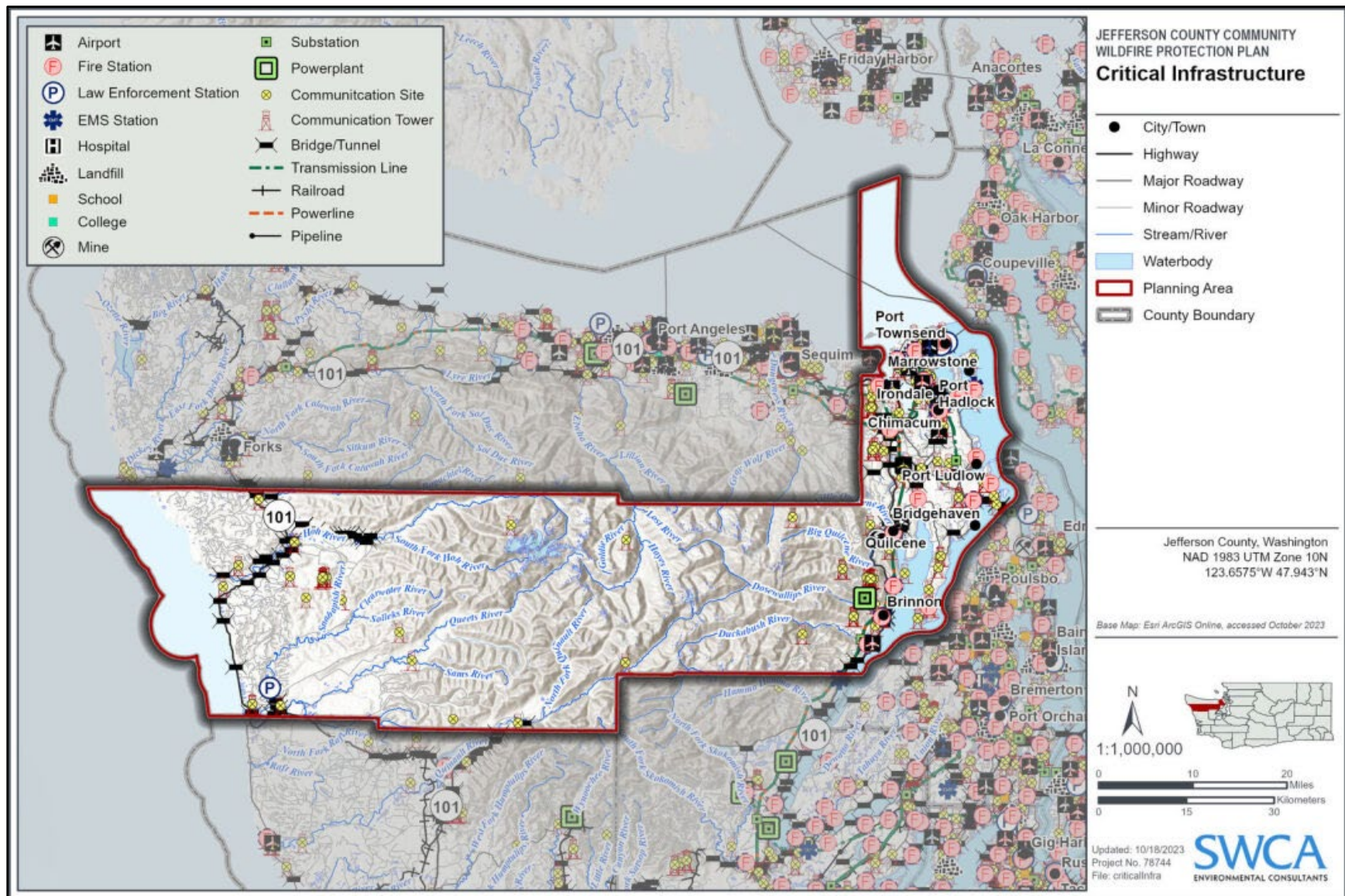


Figure B.9. Composite Risk-Hazard Model inputs: critical infrastructure/socioeconomic values at risk.

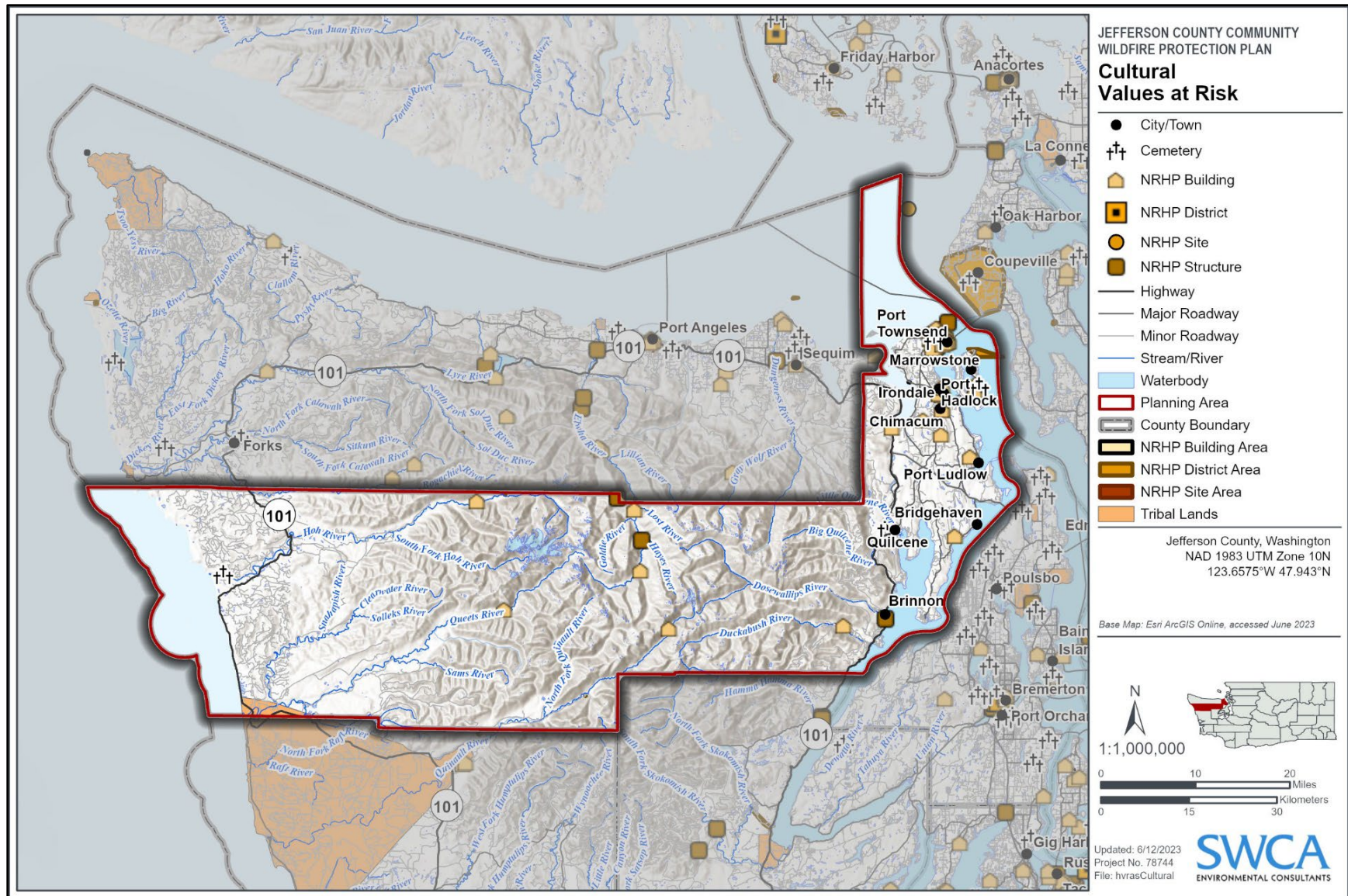


Figure B.10. Composite Risk-Hazard Model inputs: cultural values at risk.



APPENDIX C:

CWPP Field Assessments for Wildland-Urban Interface Communities

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JEFFERSON COUNTY

CWPP FIELD ASSESSMENTS

The CWPP field assessments were completed during September and October 2023 by trained SWCA staff with support from Jefferson County personnel. The assessments were completed by driving and walking through the communities and completing the NFPA 1144 assessment form below while assessing multiple properties that are representative of the community structure. Figure C.1 shows the communities surveyed during the field assessments.

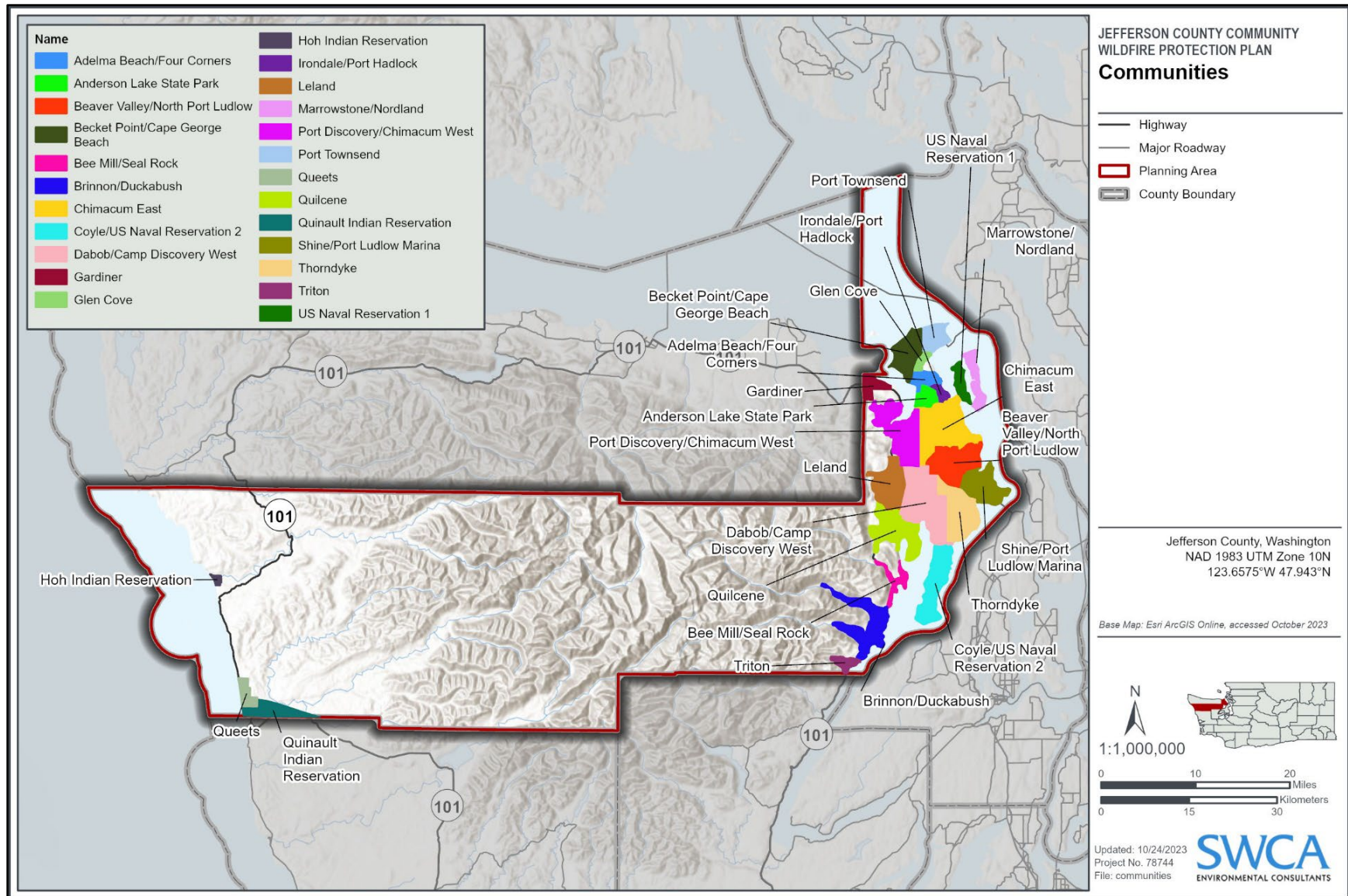


Figure C.1. Jefferson County community boundaries.

Understanding Appendix C

Composite Risk-Hazard Model vs. Field Assessment

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

Composite Risk-Hazard Models 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 at 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 Advisory Group will be able to revise the CWPP Composite Risk-Hazard Model to align with changing conditions.

Field assessments, conducted using the NFPA Structure Ignition 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 Composite Risk-Hazard Model risk/hazard 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 Composite Risk-Hazard Model 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 northeast to southeast and from the northwest to the southwest. Risk and hazard information is compiled from the field assessments only.

It is important to note that while we have provided detailed assessments for various communities, the evaluation does not extend to U.S. Naval Reservation 1. Additionally, the information provided for U.S. Naval Reservation 2 is limited to roadside observations. Please be aware that we did not conduct formal assessments in either of the Naval Reservations.

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 Jefferson County. At the end of each assessment is the total score given to the community and the corresponding risk level.

- **Mapping at Community Scale–**

- Values at Risk
 - The Values at Risk map delineates key Highly Valued Resources and Assets (HVRA) within the planning area, encompassing a diverse range of critical components. These include natural resources, vital habitats, cultural landmarks, and socioeconomic assets. By visually representing these values, the map aims to describe which areas may be identified at high levels of risk and contribute to the strategic planning of safeguarding these assets from the potential impacts of wildfires.
- Fire Response
 - The fire response map clearly marks the positions of fire stations and defines the boundaries of fire districts, offering a visual aid to understand coverage areas and illustrating how accessibility influences risk assessment.
- Fire Occurrence Density
 - The fire occurrence density map visually presents historical fire incidents within each community, identifying common ignition points and illustrating the historical fire frequency of the area. Fire occurrences are measured per square mile to provide a comprehensive understanding of the fire activity density in the region.

- Flame Length
 - Flame length, a key metric in wildfire analysis, refers to the height of flames produced by a fire. Measured in increments, flame length helps gauge the intensity and potential impact of a wildfire. Ranging from non-burnable areas to flame lengths over 25 feet, these increments provide valuable insights into fire behavior and its potential threat to surrounding landscapes. By delineating flame lengths into categories such as >1–4 feet, >4–8 feet, >8–11 feet, >11–25 feet, and >25 feet, land managers can better assess the severity and spread of wildfires, aiding in effective risk management and mitigation strategies.
- Areas of Concern
 - The map was created to highlight actions to reduce the risk of wildfire and potential treatment types. It is informed by the Composite Risk-Hazard Model (described in Chapter 3), the field assessments, and stakeholder input gathered during Advisory Group meetings. The areas of concern map and the recommendation matrices are used to inform agencies and the public where to take actions.
- **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.

1144 National Fire Protection Association Assessment Form

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

Table C.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	
Primary Predominant Vegetation	
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 (TU) 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 Assessments

1. Port Townsend Field Assessment Summary

Port Townsend		
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	Non-Burnable (NB)	Low
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	2	Moderate
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	5	Extreme
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	Both aboveground	Extreme
Community Hazard Rating	68	Moderate

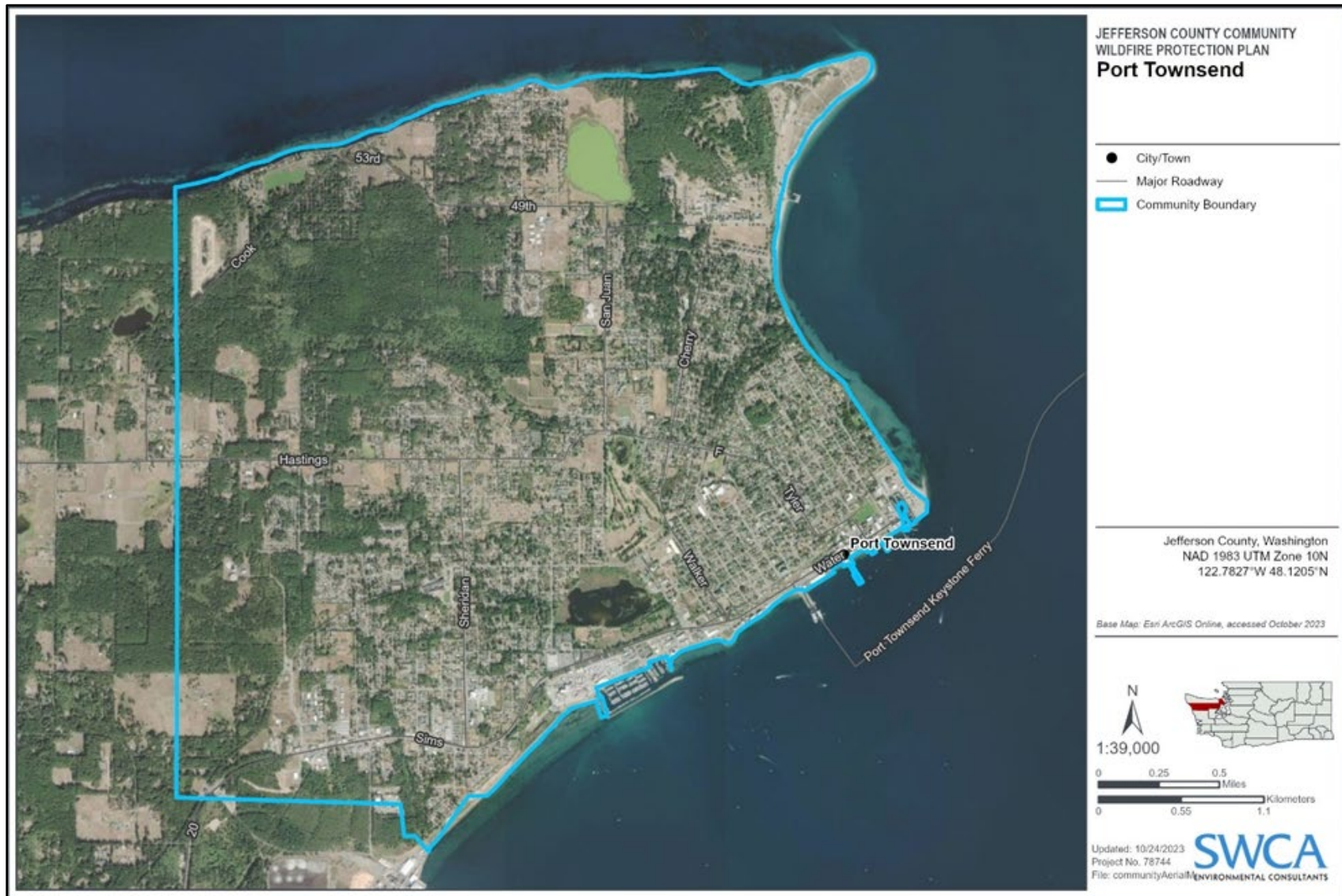


Figure C.3. Port Townsend: This community is one of the most densely populated in the county, and much of the area is urban development. Due to its position at the end of the peninsula, access and quick response is a concern. Structure-to-structure fire spread is also a concern because of the close proximity of buildings. This adjacency of structures limits opportunity for defensible space practices on some lots.

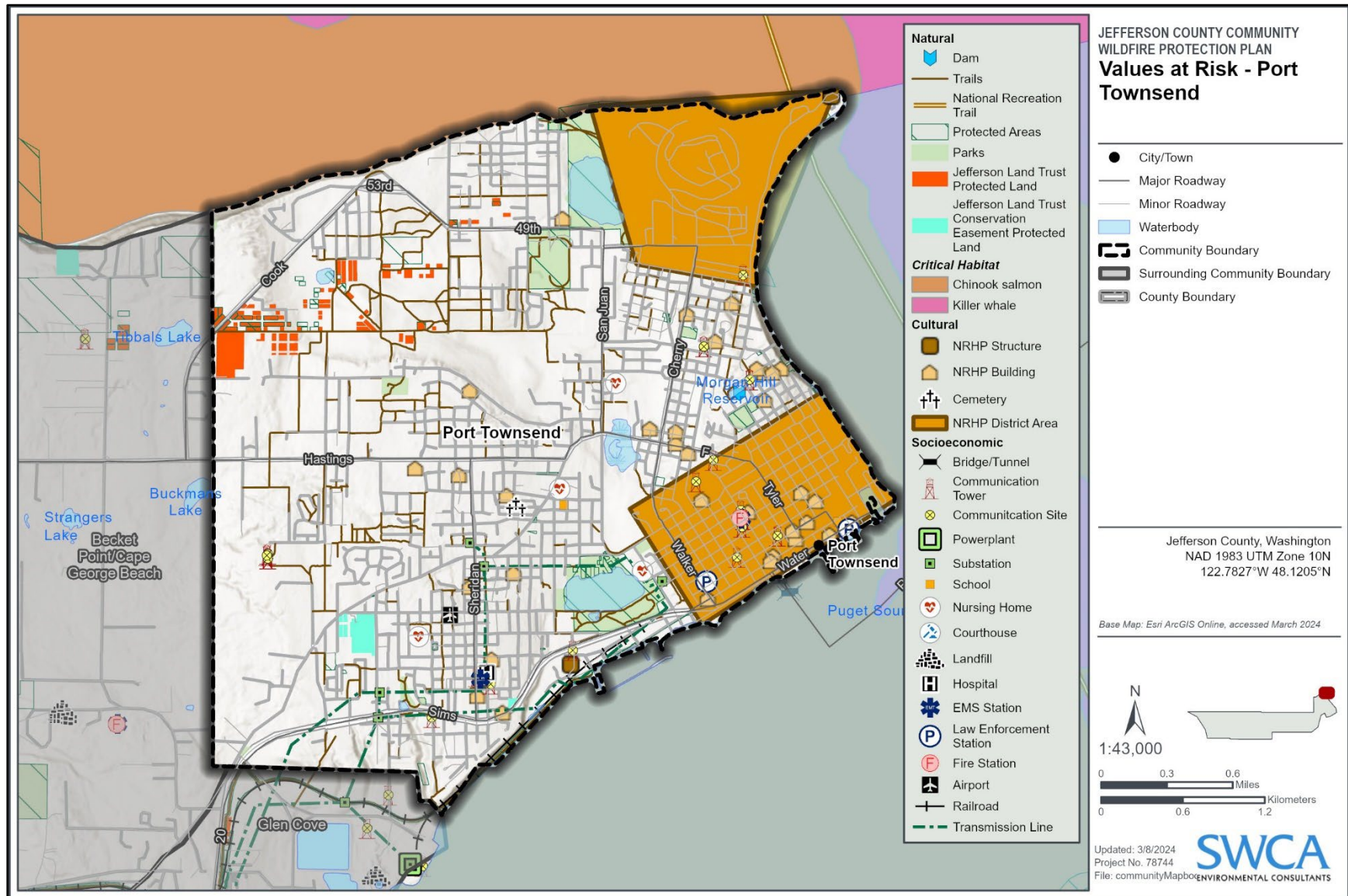


Figure C.4. Highly valued resources and assets for Port Townsend.

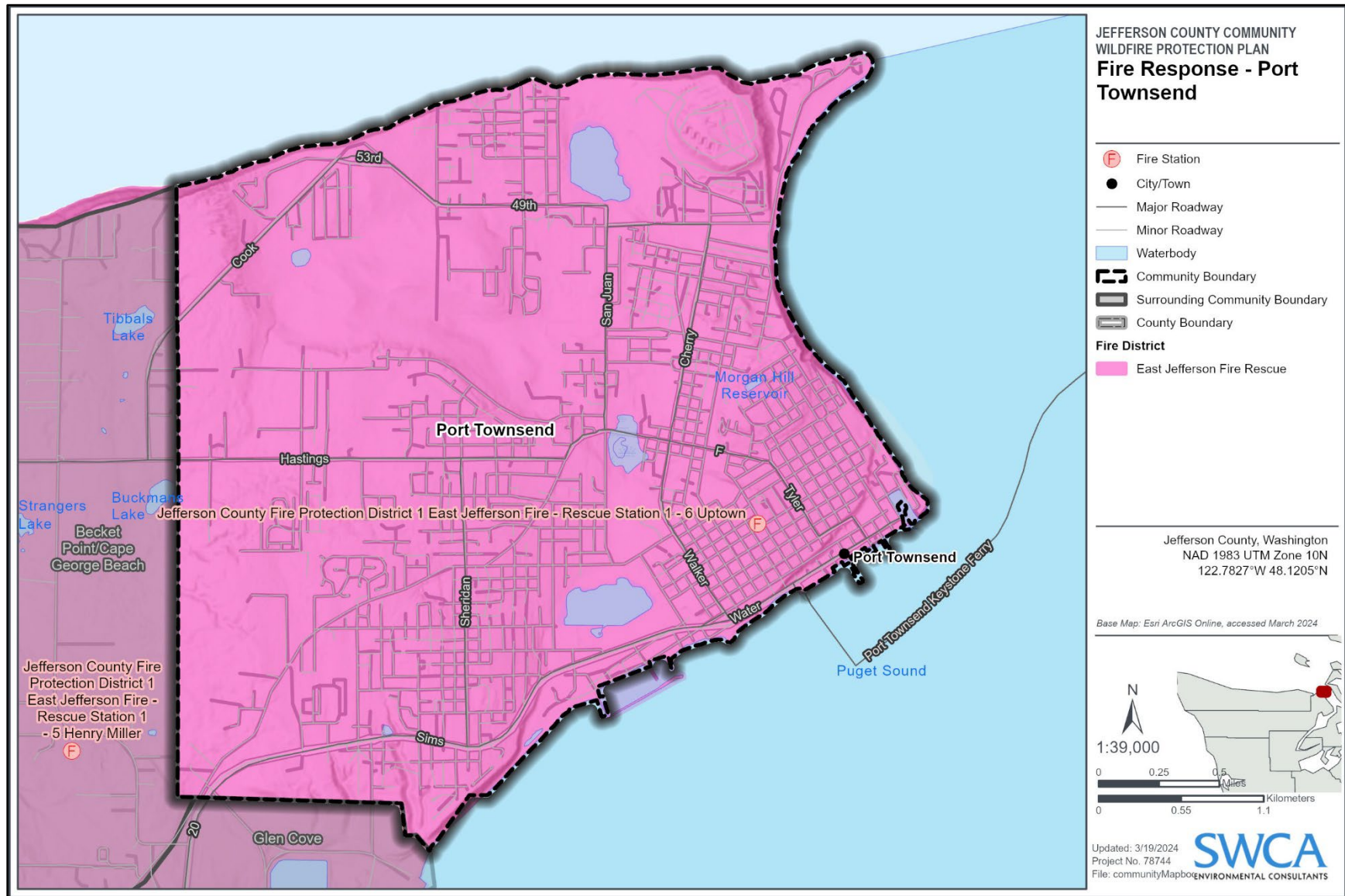


Figure C.5. Fire response for Port Townsend.

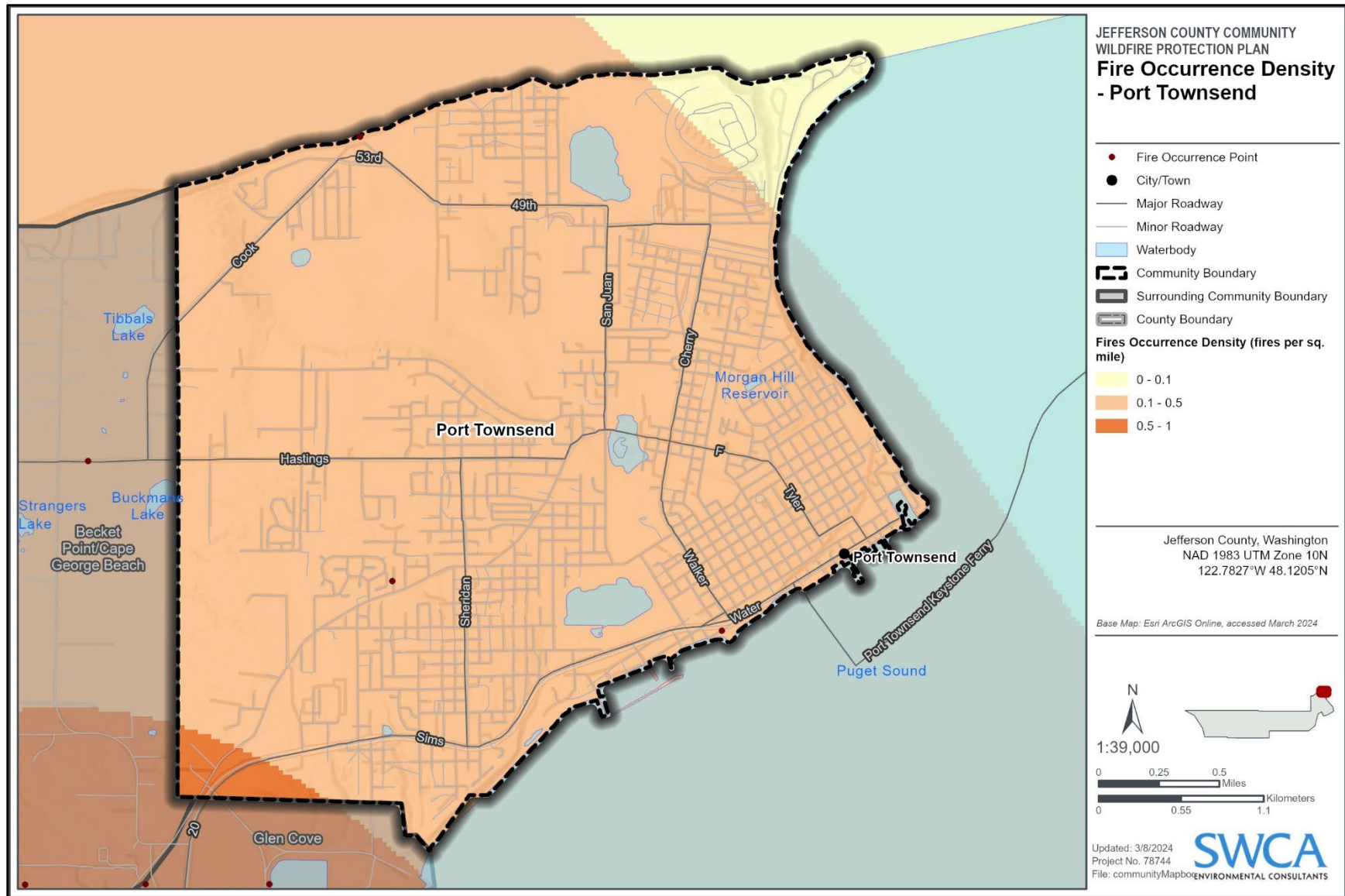


Figure C.6. Fire occurrence density for Port Townsend.

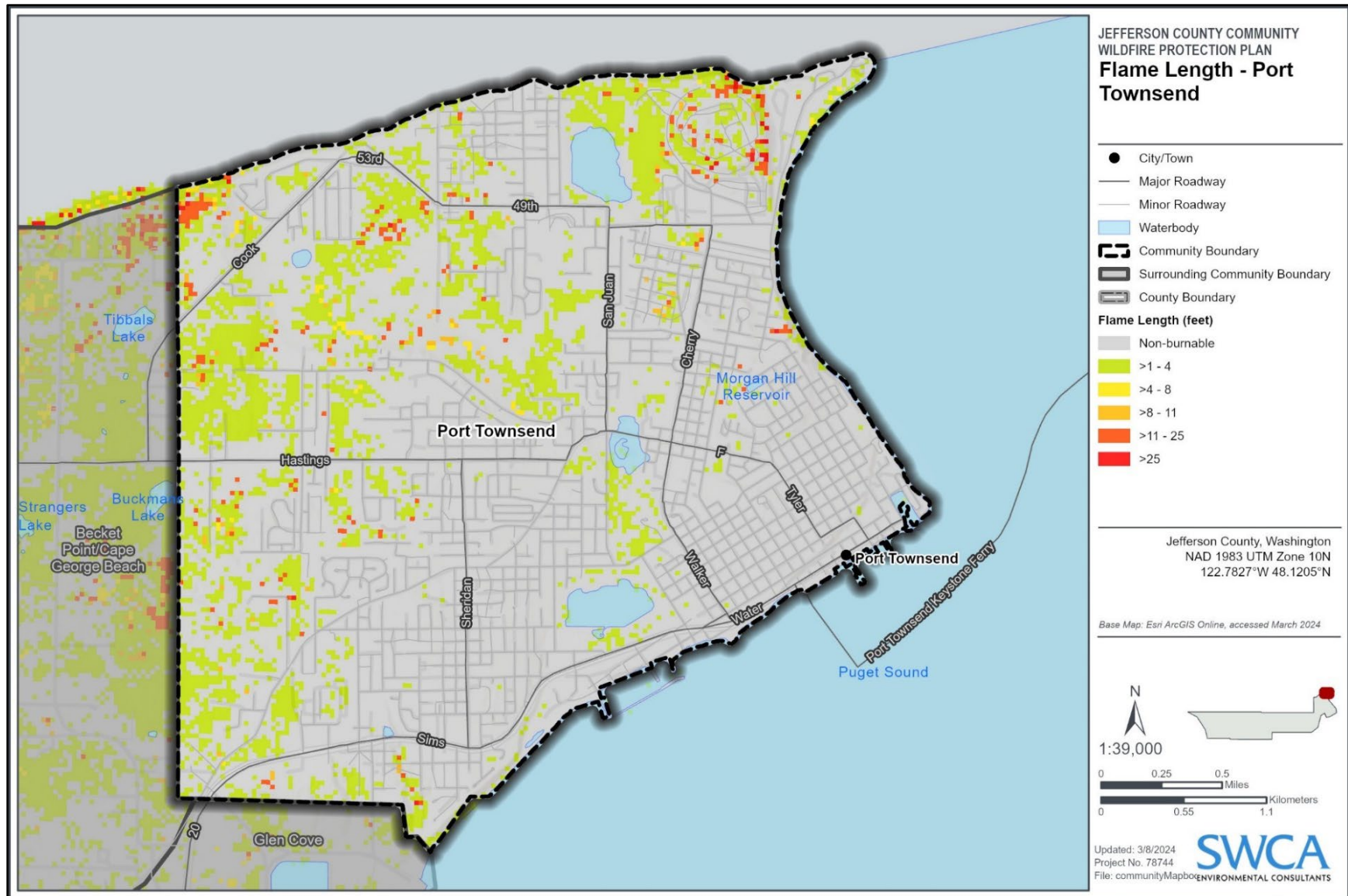


Figure C.7. Flame length for Port Townsend.

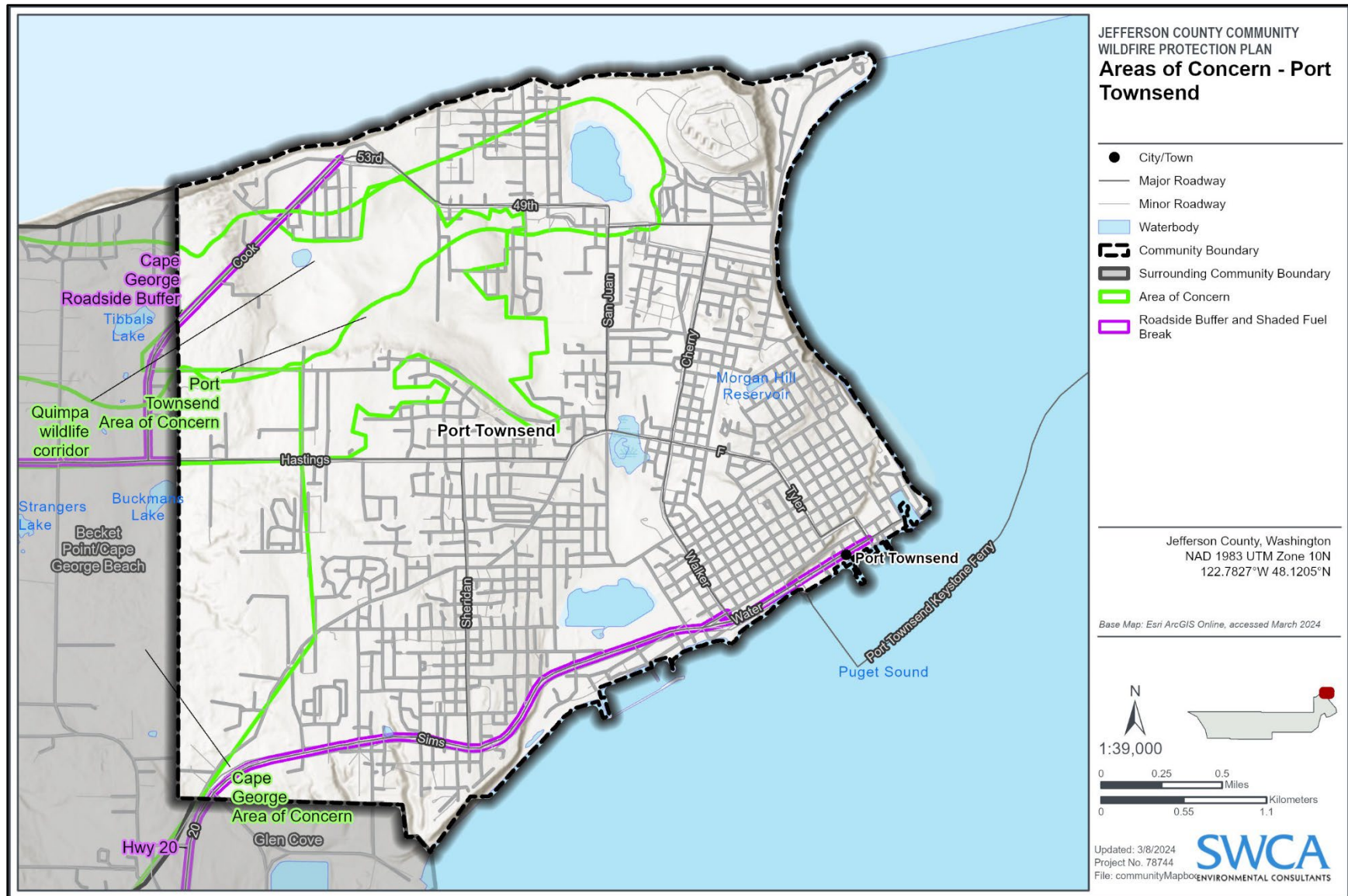


Figure C.8. Areas of concern detail for Port Townsend.

Key Observations

Field Assessment NFPA 1144 Survey Summary	
Positive Attributes (Low Scores)	Negative Attributes (High Scores)
- Ingress and egress: main highway paved, at least two roads in and out of community - Street signs: visible and reflective - Vegetation type: non-burnable - Organized response: fire department in community - Severe fire weather potential: low; high humidity - Water source: water availability through hydrants	- Building construction: combustible siding - Utility placement: aboveground - Decking and fencing: combustible - Separation of adjacent structures: minimal - Separation of adjacent structures: minimal

Recommended Mitigation

Areas of Concern:

Port Townsend and Cape George Areas of Concern:

- Develop education initiatives that focus on structure hardening and home ignition zone and include defensible space practices that can be implemented when lot size allows.
- Implement fuel modification strategies aimed at reducing hazardous fuel load and enhancing fuel discontinuity, with actions guided by existing land management plans and compliance standards.
- Explore opportunities for achieving multiple resource benefits through fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to mitigate fire risk to structures.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Highway 20, Cape George Roadside Buffer:

- Modify fuel along roadway to reduce potential fire intensity and travel in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires “jumping” roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

Composite Risk-Hazard Model vs. Field Assessments: Port Townsend

When comparing the Composite Risk-Hazard Model (Chapter 3) and the field assessments for Port Townsend, notable differences emerge. The Model classified much of Port Townsend as high to extreme risk, while the field assessment classifies the risk as moderate. The Model relies on a combination of multiple data sets, particularly emphasizing the WA-WUI map layer. However, there is concern about the WA-WUI delineation for the Port Townsend community. It shows a broad expanse of urban developed areas as WUI, which some stakeholders believe should be characterized as urban (having less than 50% vegetative cover).

One concern raised by the Advisory Group is this WA-WUI map may send a confusing message. They are concerned that this map may encourage development out of the urban core, where the city meets the wildland, which would increase the level of vulnerability.

Through Senate Bill 6120, Port Townsend stakeholders are appealing to DNR to revise the Port Townsend WUI, reducing its extent to a narrower area, resembling a strip of land adjacent to wildland fuels, rather than extending into the entire city. Consequently, the WUI would look more like a ribbon around Port Townsend rather than an expansive zone. In addition, the WA-WUI map indicates an erroneous delineation showing a straight line cutting off the eastern portion of the city, likely due to imagery limitations which are very common for this type of largescale mapping effort. This layer will therefore be subject to revision in future iterations of the WA-WUI map.

If this modification of the Port Townsend WUI occurs in the future, the desktop derived Composite Risk-Hazard Model for Port Townsend is expected to align with the field assessment ratings of moderate risk more closely, with some area of high-extreme risk remaining where structures are exposed to wildland fuels along urban margins and intermix areas (parks and vegetated lands interspersed with urban development). Stakeholders In Port Townsend are highlighting these WUI deficiencies in this version of the county CWPP in order to create a more refined WUI layer for the City that can help inform future planning in and around the WUI. These stakeholders plan to reconcile the concerns through future plan updates and more focused assessments in the Port Townsend area.

2. Becket Point/Cape George Beach Field Assessment Summary

Becket Point/Adelman Beach/Four Corners/Cape George Beach		
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-Litter (TL)	Extreme
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	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	Both aboveground	Extreme
Community Hazard Rating	83	High

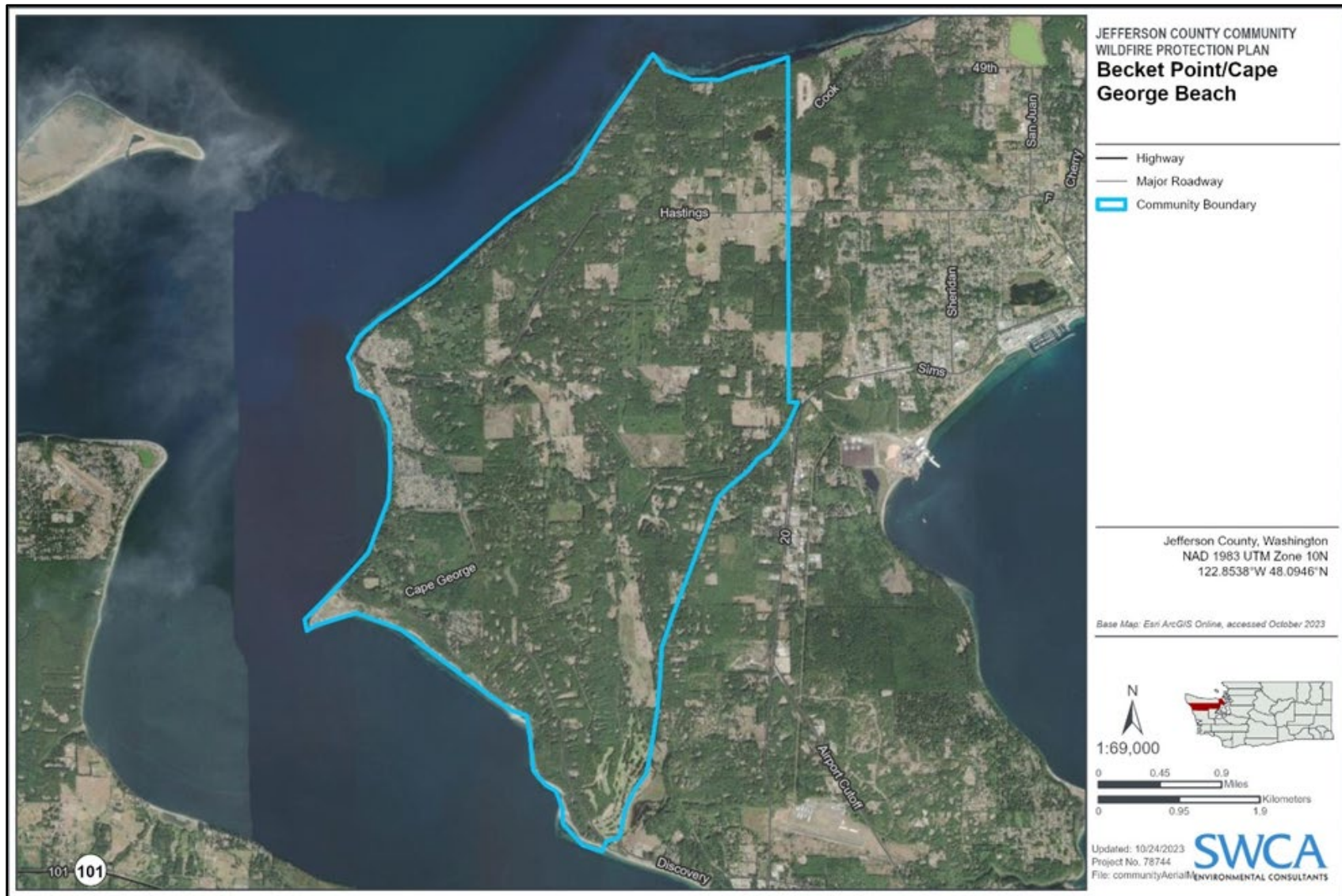


Figure C.9. Becket Point/Adelman Beach/Four Corners/Cape George Beach: The communities in this area are a mixture of rural and urban with varying levels of access due to narrow roads and limited turnaround. The central and eastern communities have dense canopy cover and larger parcels.

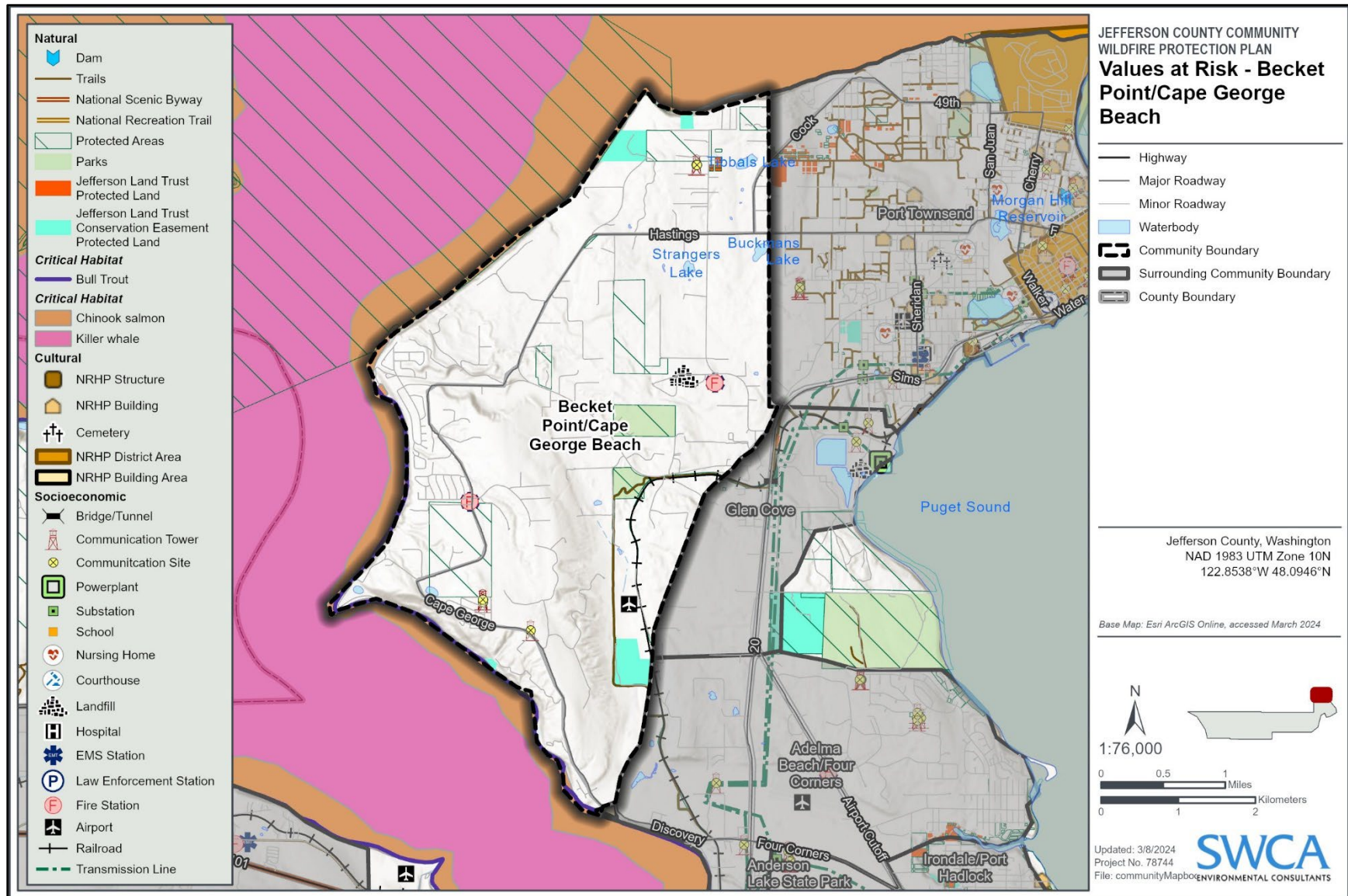


Figure C.10. Highly Valued Resources and Assets for Becket Point/ Cape George Beach.

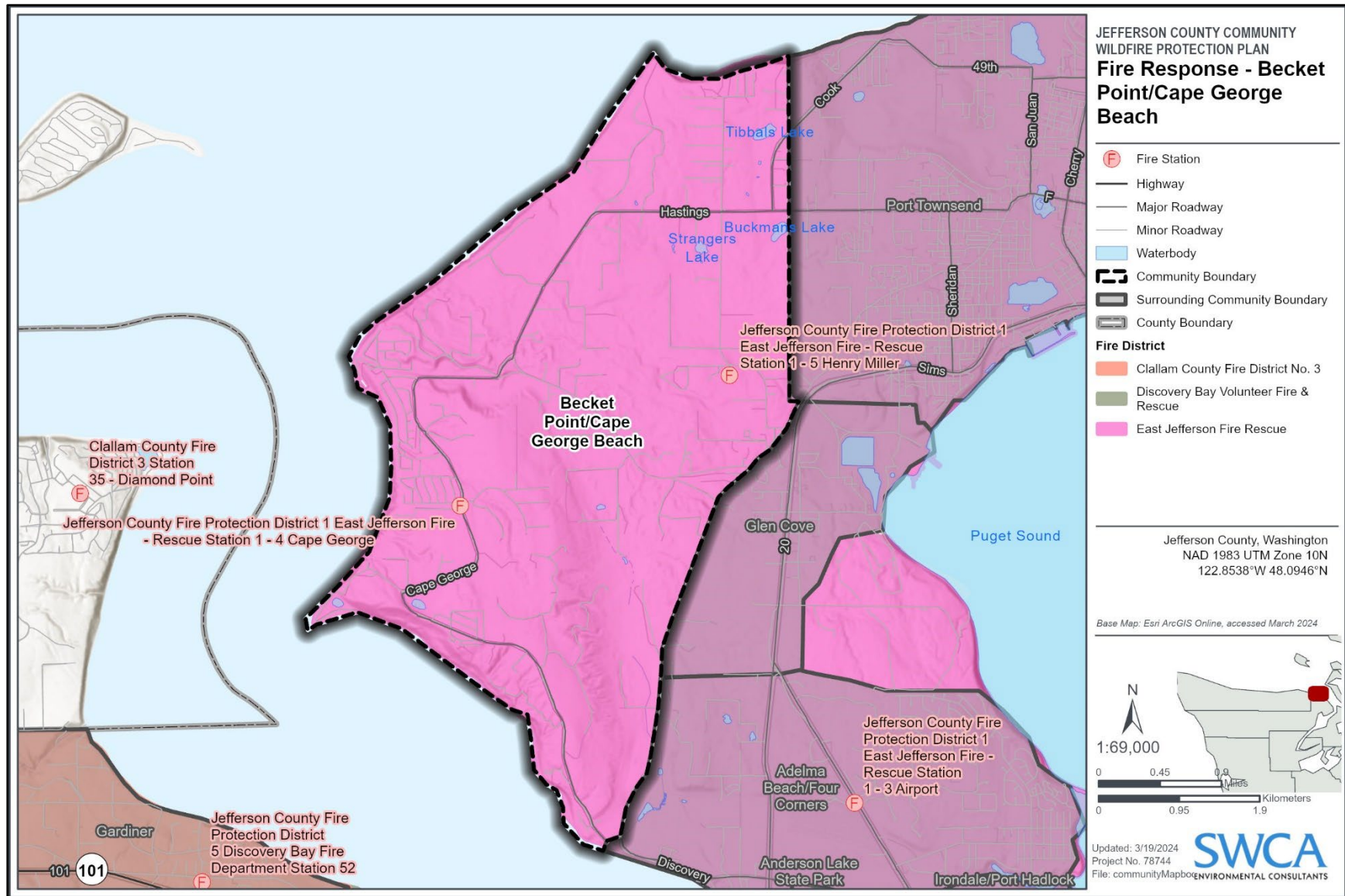


Figure C.11. Fire response for Becket Point/Cape George Beach.

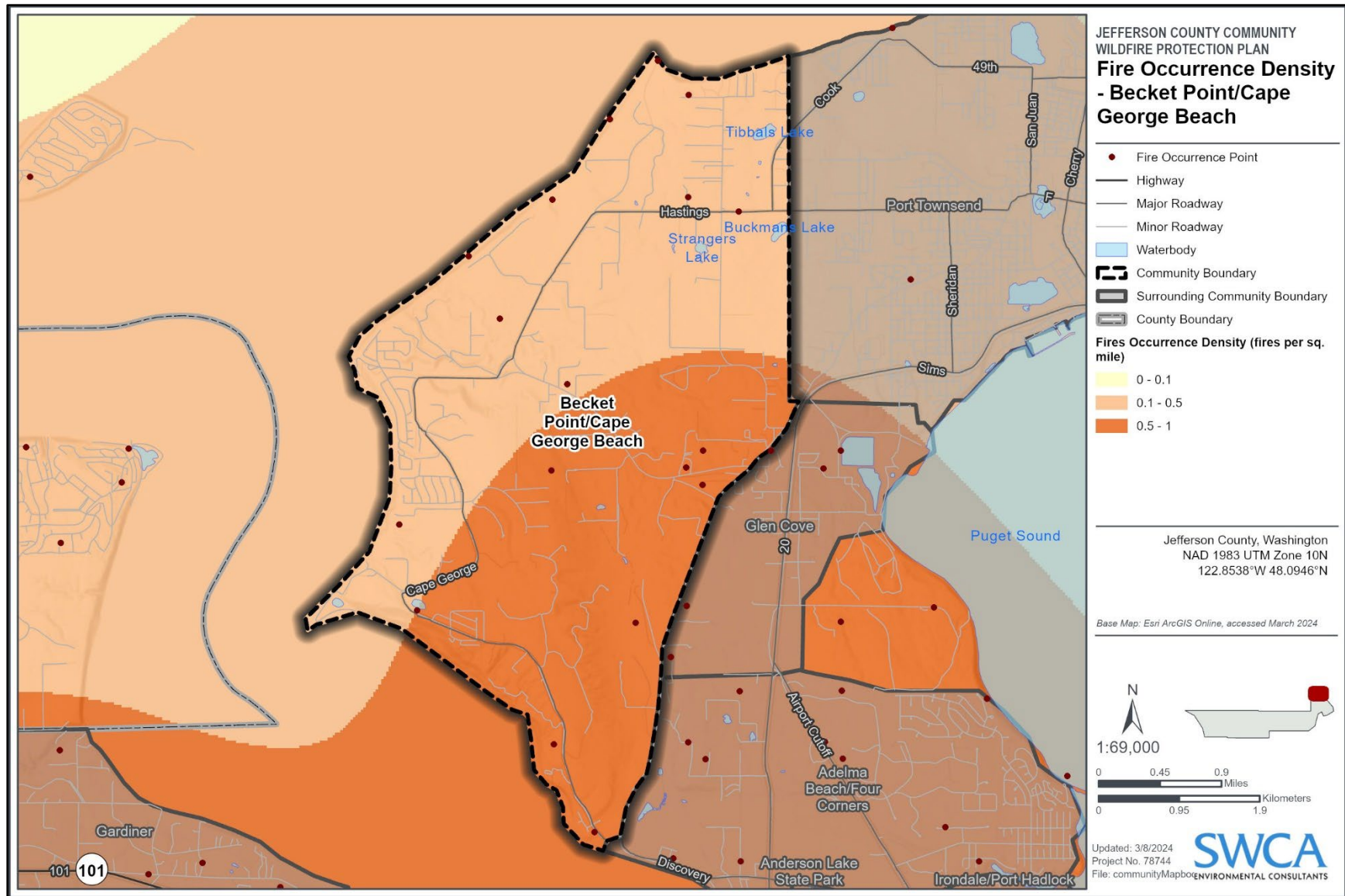


Figure C.12. Fire occurrence density for Becket Point/ Cape George Beach.

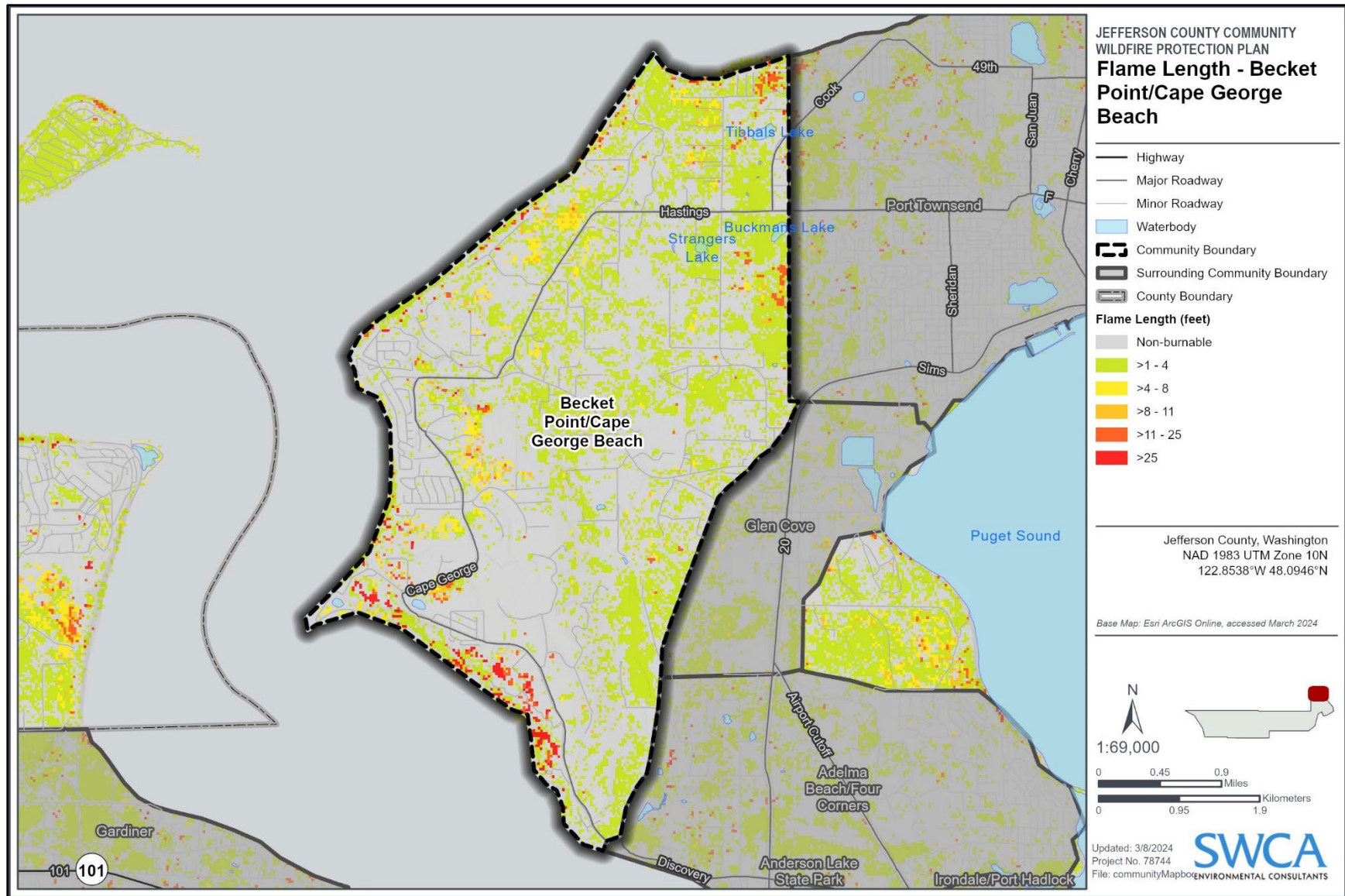


Figure C.13. Flame length for Becket Point/ Cape George Beach.

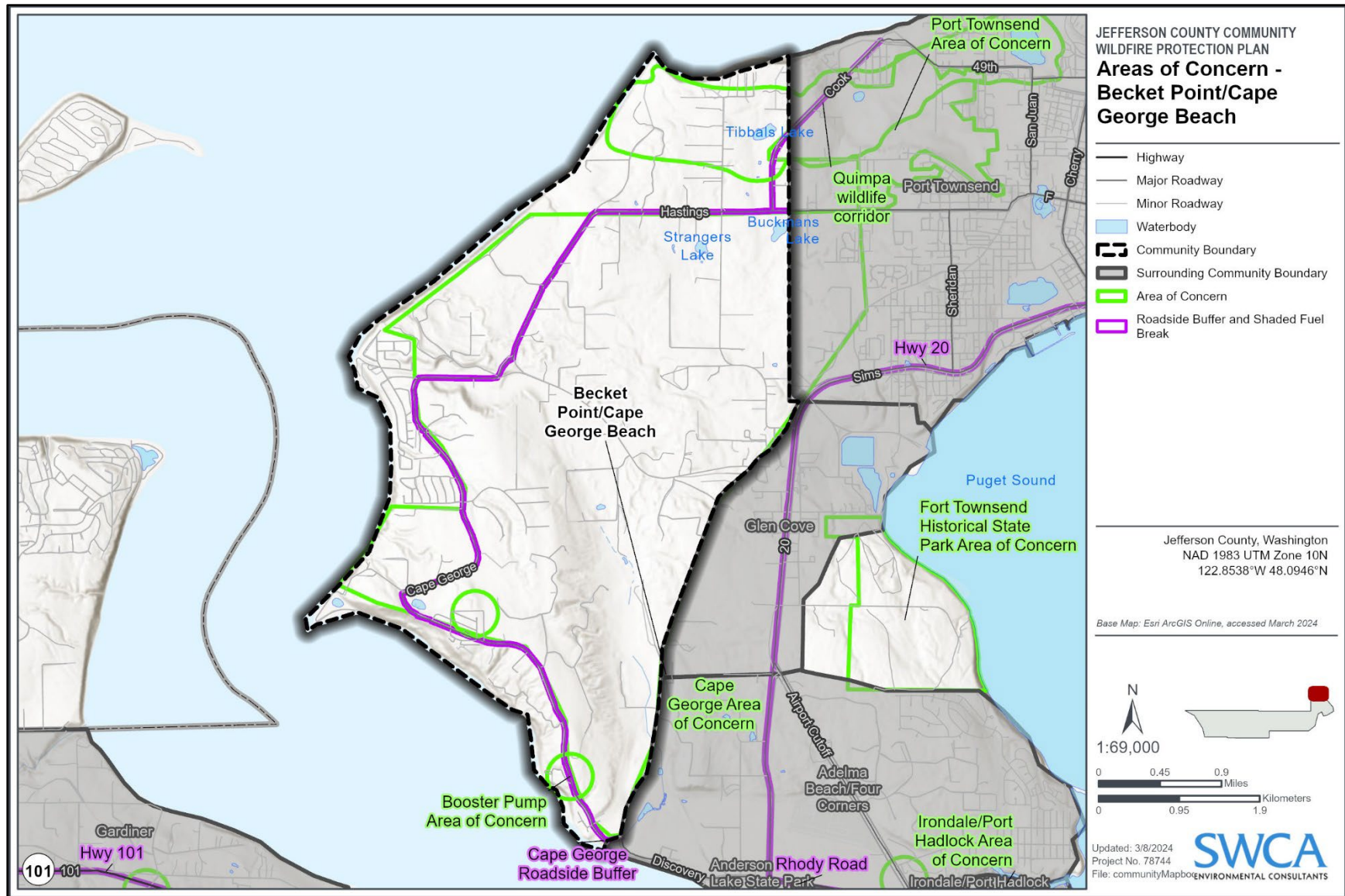


Figure C.14. Areas of concern detail for Becket Point/ Cape George Beach.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Street signs: visible and reflective
- Organized response: fire department in community
- Severe fire weather potential: low; high humidity
- Water source: water availability through hydrants

Negative Attributes (High Scores)

- Entrance/exit: only one road in and out of community
- Vegetation type: timber-litter, highly flammable
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible

Recommended Mitigation

Areas of Concern:

Cape George, Port Townsend Areas of Concern:

- Work with State Parks to identify areas where fuel modification could strengthen defensible space around Highly Valued Resources and Assets and provide for safer evacuation.
- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Cape George, Roadside Buffer:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

3. Glen Cove Field Assessment Summary

Glen Cove		
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	Moderate
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
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	1	Low
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	Both aboveground	Extreme
Community Hazard Rating	84	High

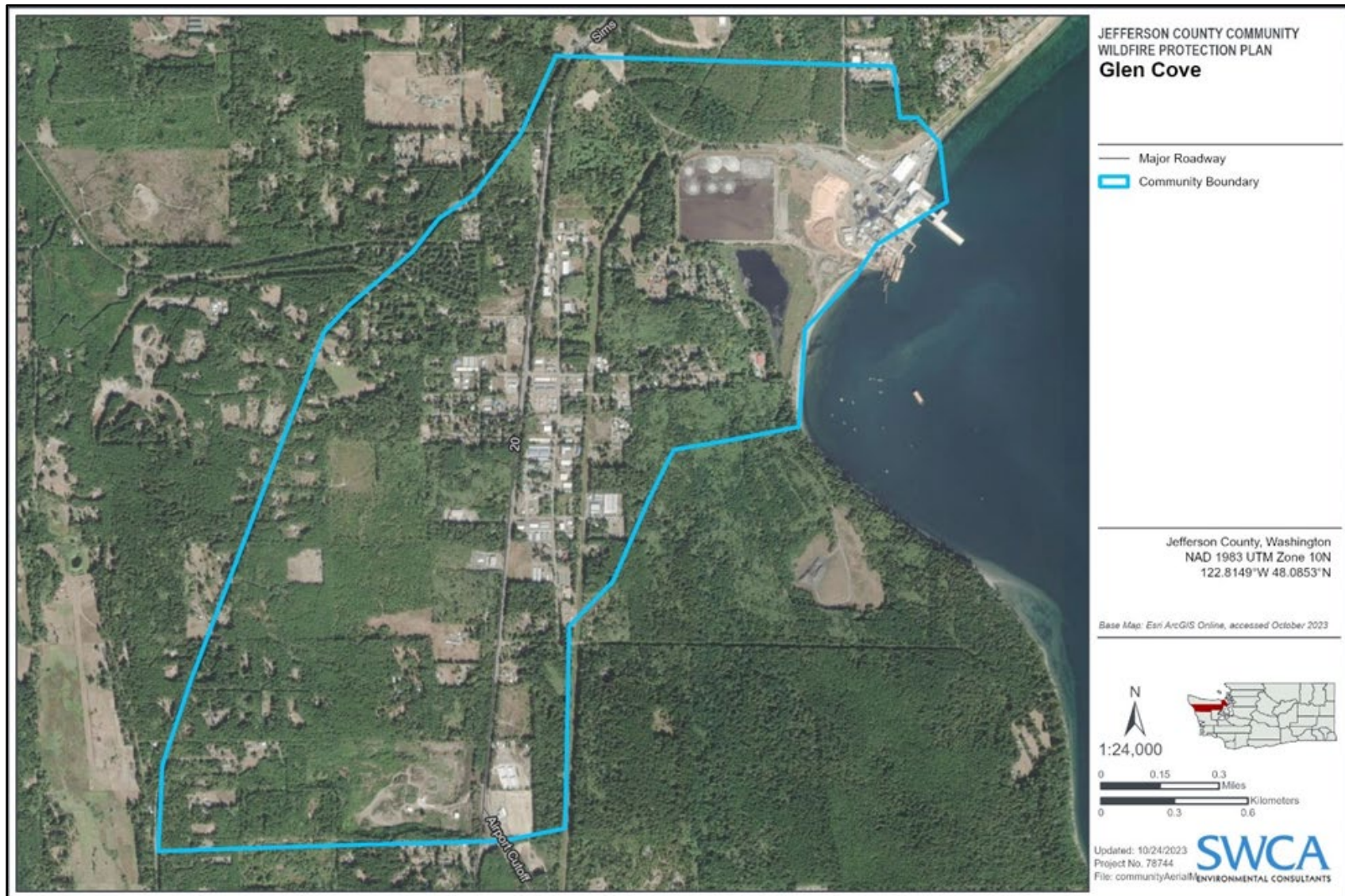


Figure C.15. Glen Cove: Most homes in the community are located on the main road. The western portion is more sparsely populated with homes that are harder to access. Fort Townsend State Park poses an evacuation risk during summer months due to a single access road.

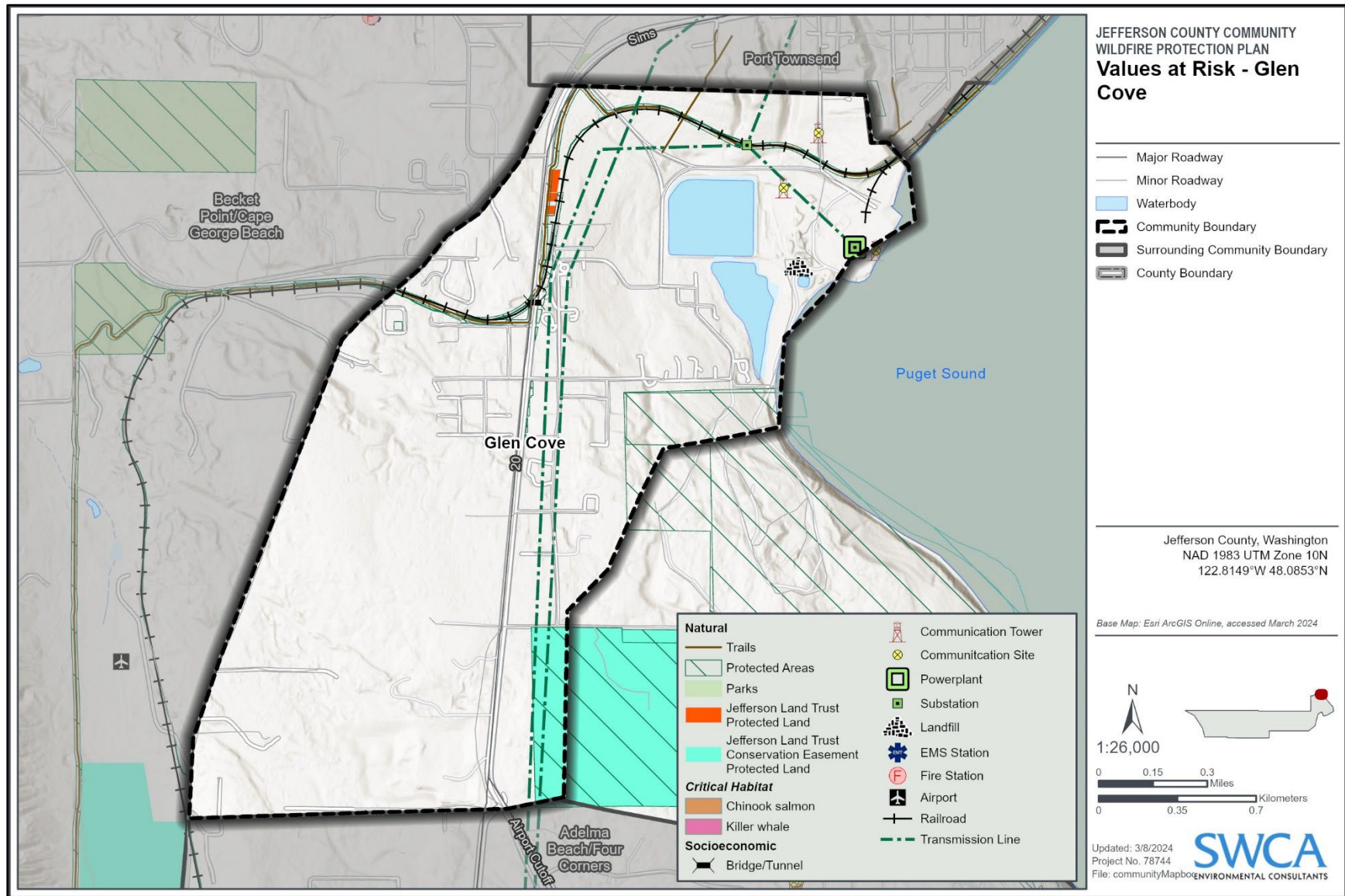


Figure C.16. Highly Valued Resources and Assets for Glen Cove.

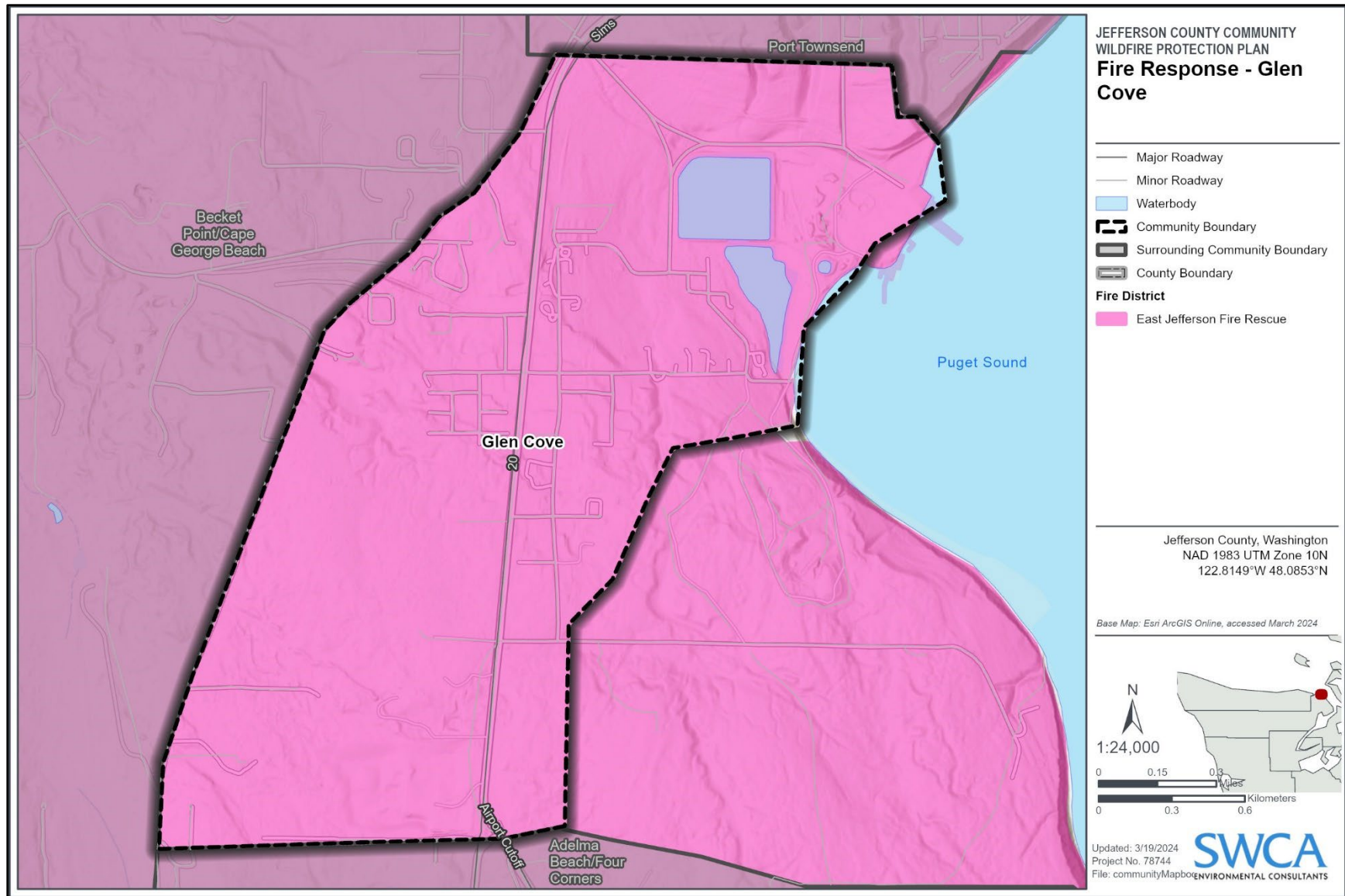


Figure C.17. Fire response for Glen Cove.

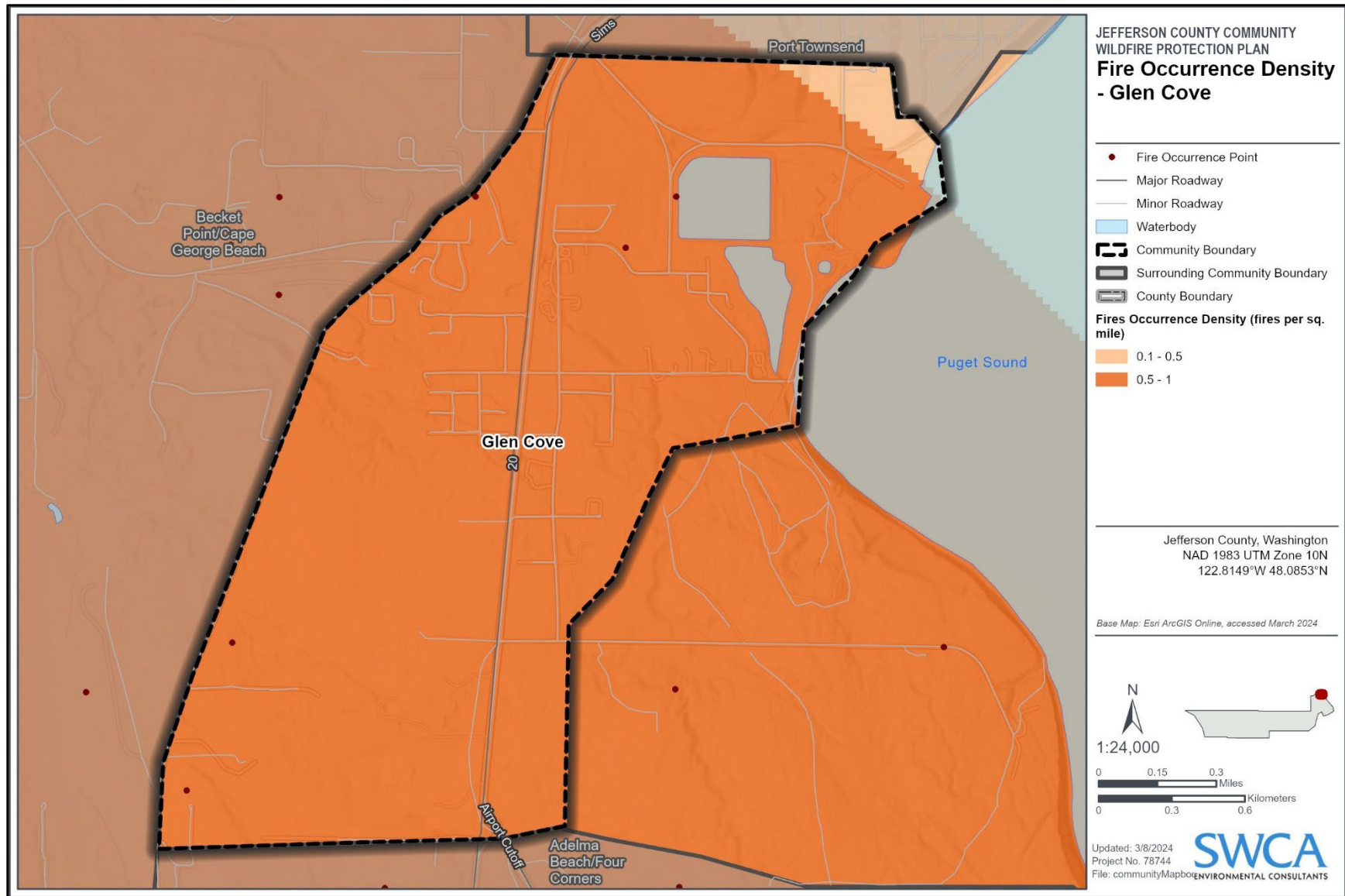


Figure C.18. Fire occurrence density for Glen Cove.

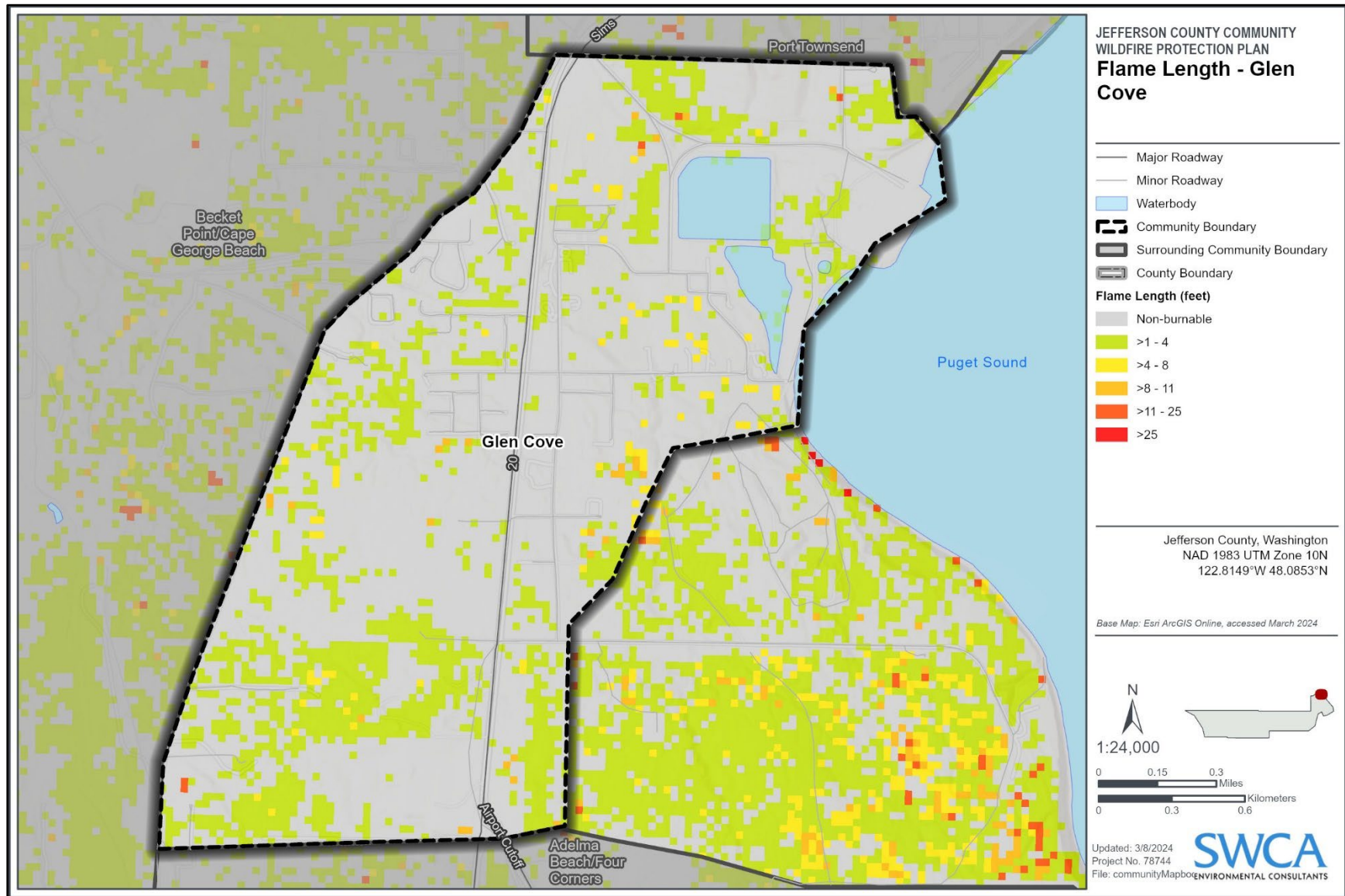


Figure C.19. Flame length for Glen Cove.

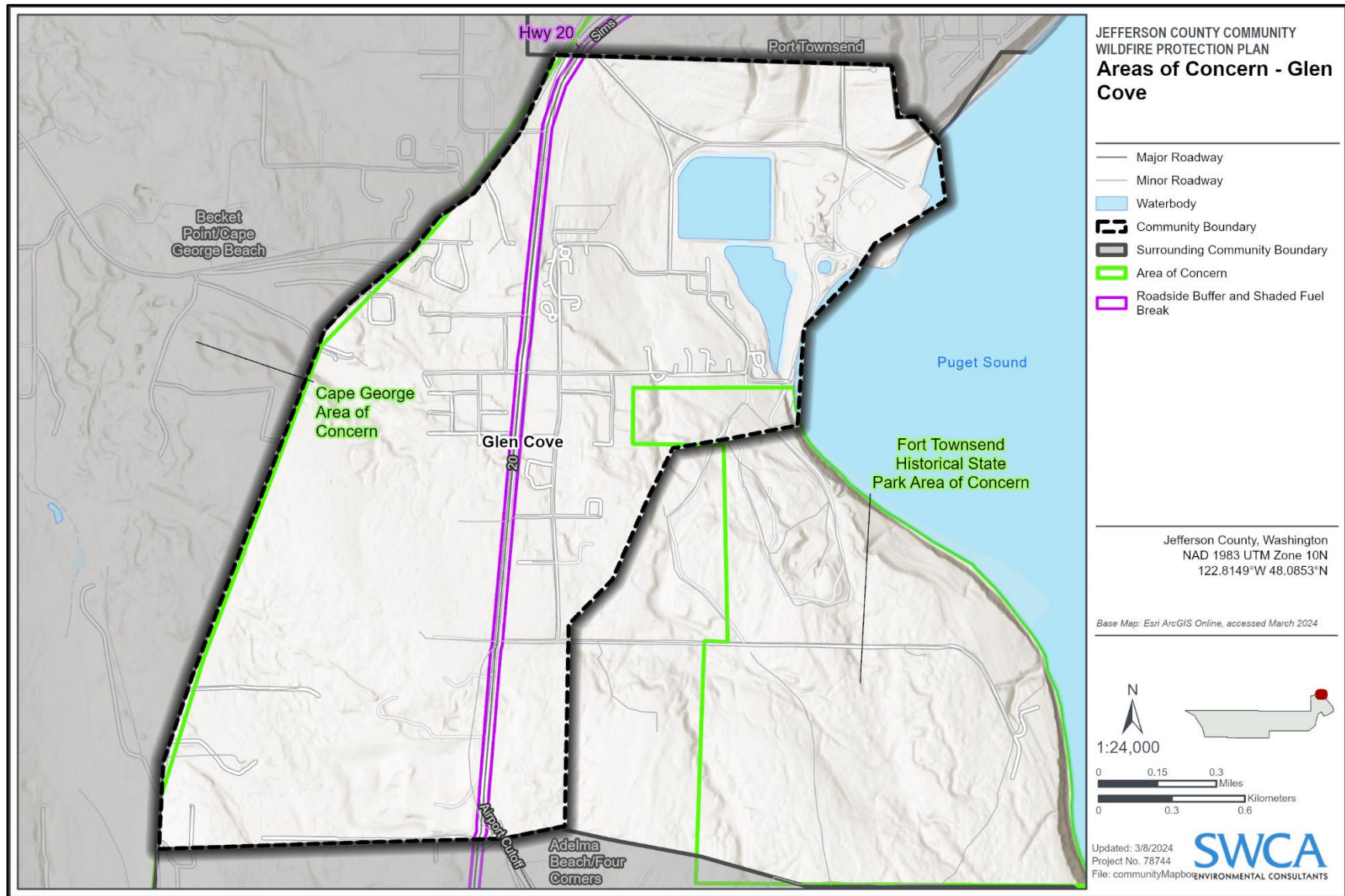


Figure C.20. Areas of concern detail for Glen Cove.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Ingress and egress: main highway paved
- Street signs: visible and reflective
- Organized response: fire department in community
- Severe fire weather potential: low; high humidity
- Water source: water availability through hydrants

Negative Attributes (High Scores)

- Entrance/exit: only one road in and out of community
- Vegetation type: predominantly timber-litter and highly flammable
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible

Recommended Mitigation

Areas of Concern:

Fort Townsend Historical State Park Area of Concern:

- Work with State Parks to identify areas where fuel modification could strengthen defensible space around Highly Valued Resources and Assets and provide for safer evacuation.
- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Highway 20:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

4. Adelma Beach/Four Corners Field Assessment Summary

Adelma Beach/Four Corners		
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%	Low
Fire Truck Access	<300 feet with turnaround	Low
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
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	1	Low
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	High
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	75	High

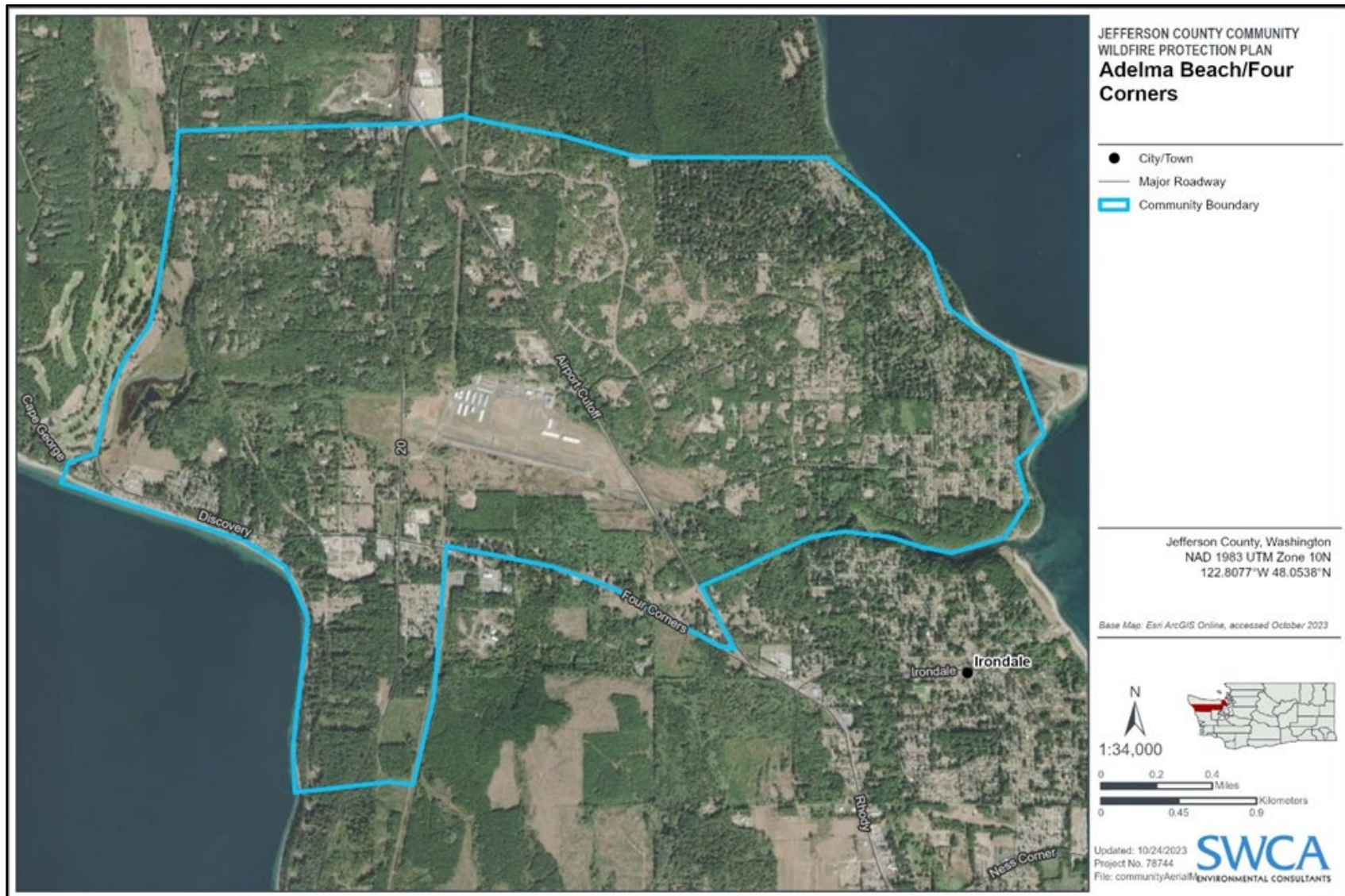


Figure C.21. Adelma Beach/Four Corners: The community contains the Jefferson County International Airport and has a high proportion of urbanized areas. The Kala Point community may be difficult to access due to small roads and an entrance gate. The beaches are commonly used for bonfires, posing an ignition risk and fire spread.

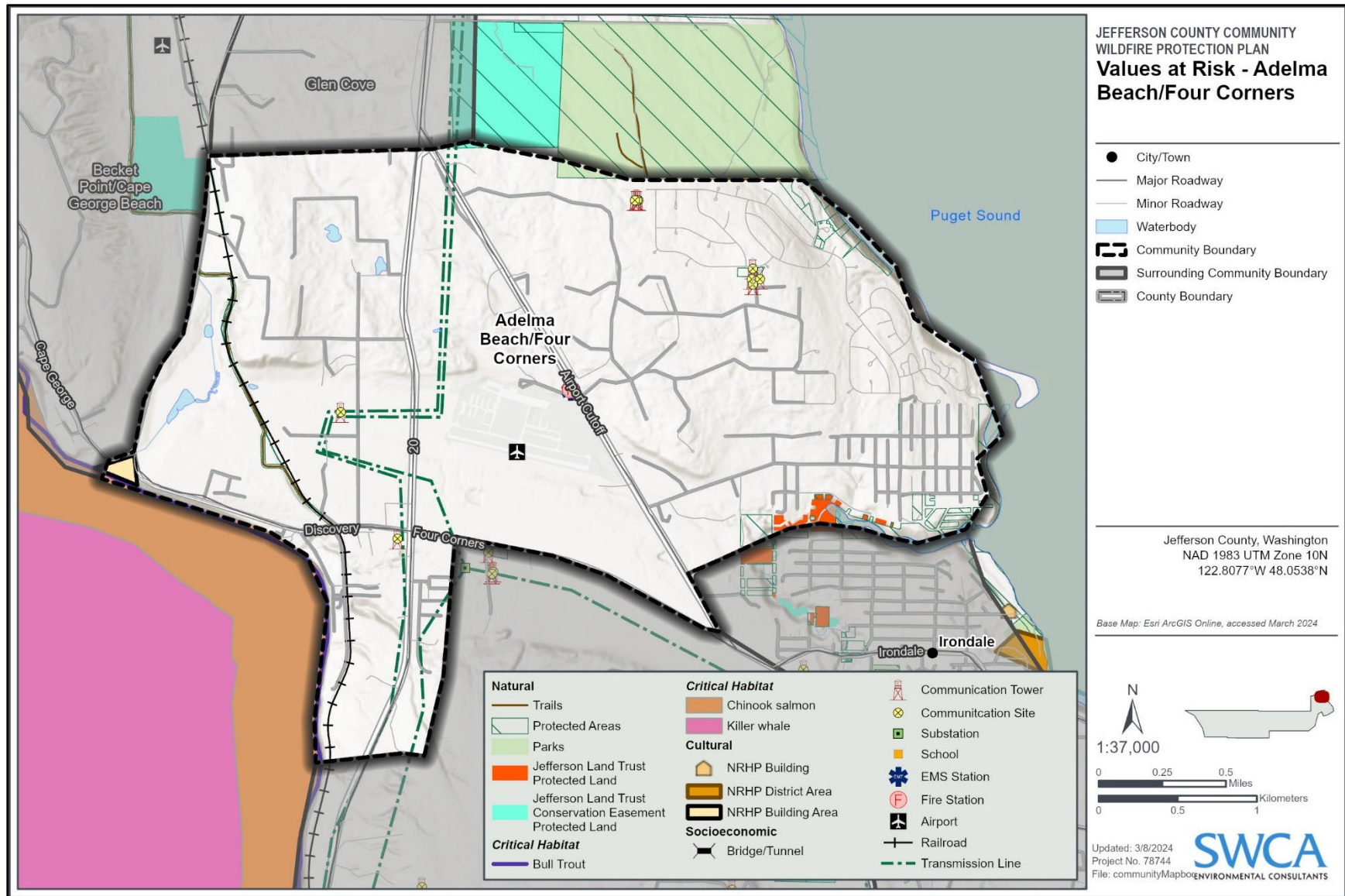


Figure C.22. Highly Valued Resources and Assets for Adelma Beach/Four Corners.

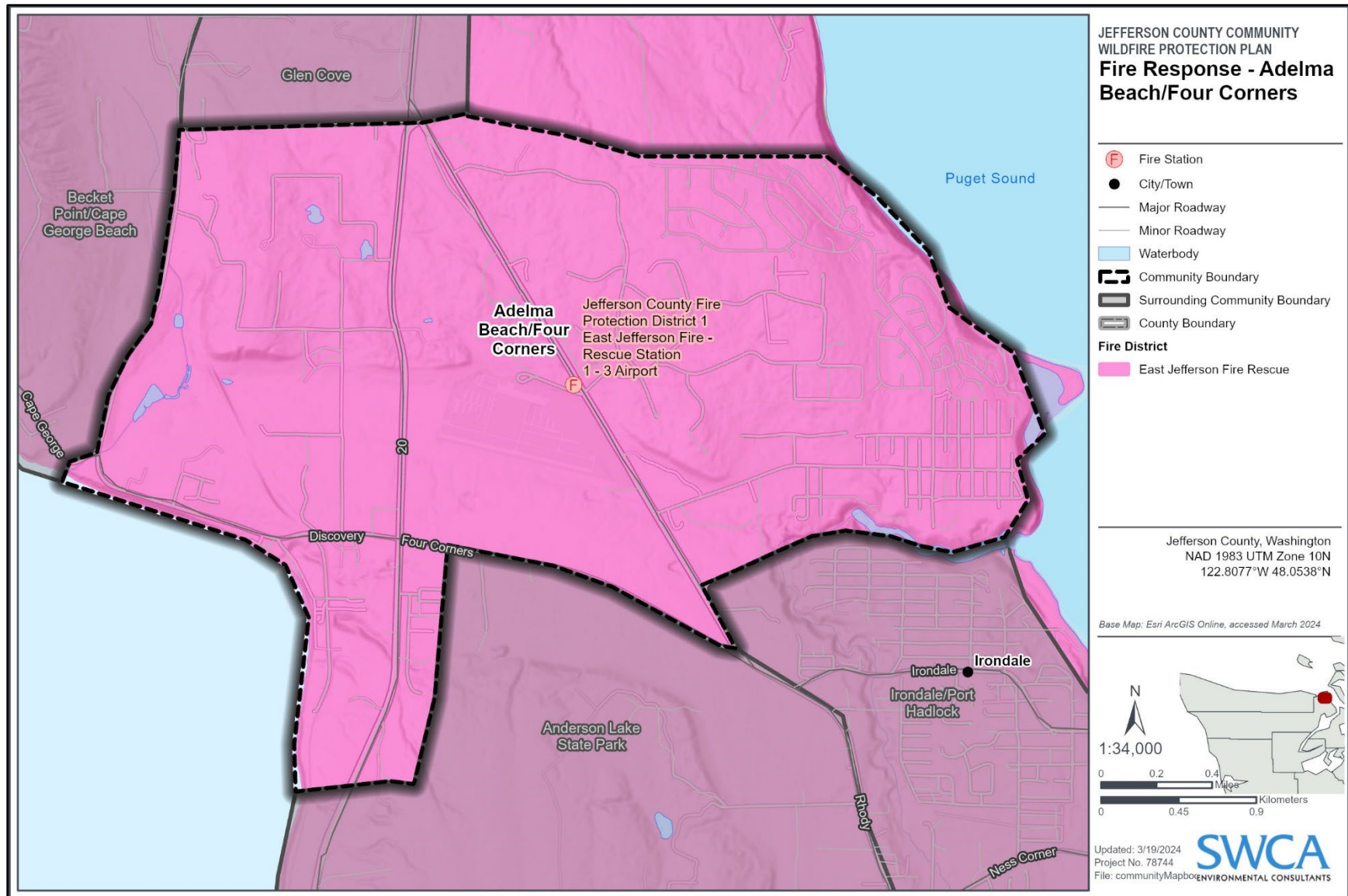


Figure C.23. Fire response for Adelma Beach/Four Corners.

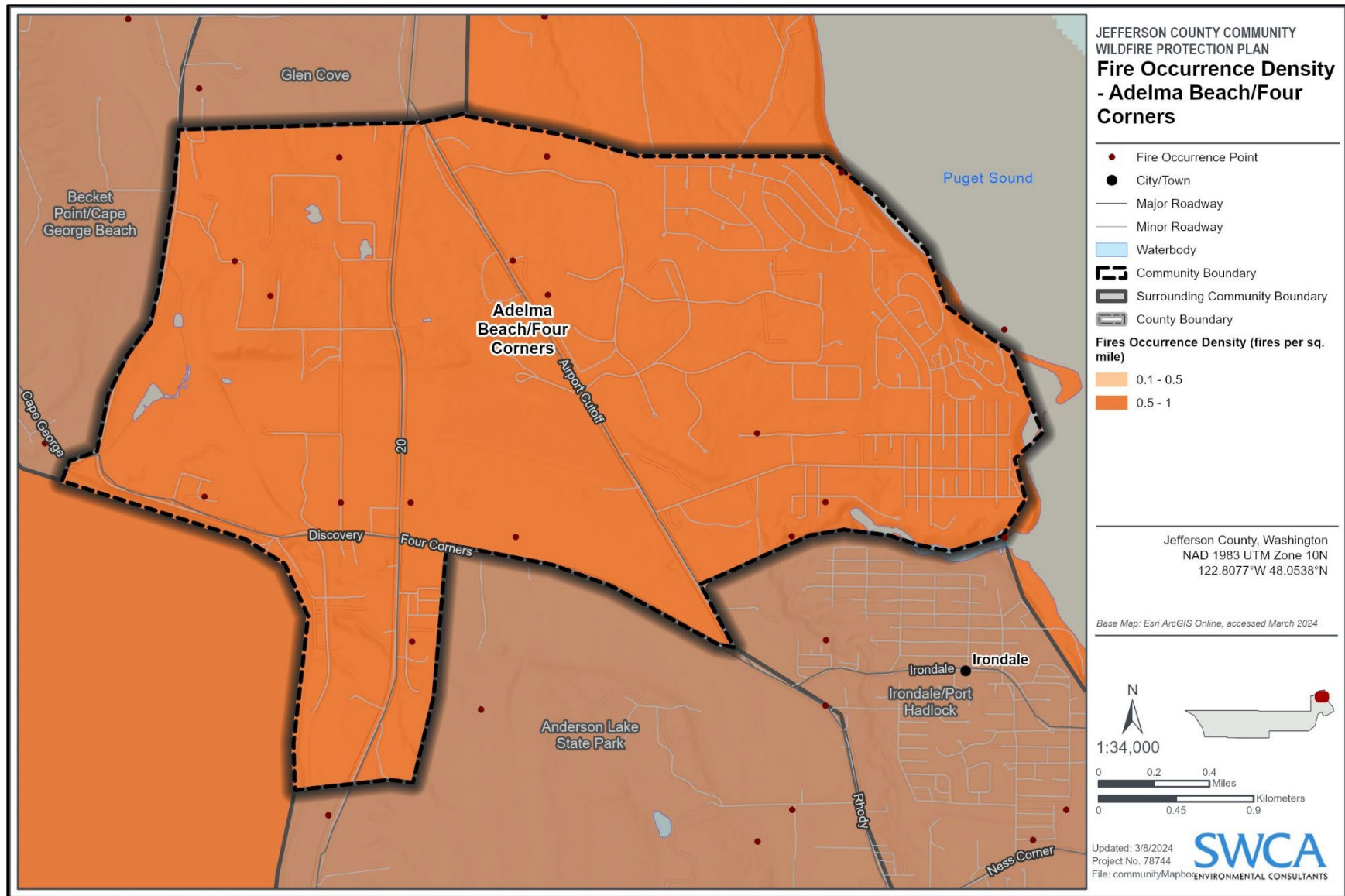


Figure C.24. Fire occurrence density for Adelma Beach/Four Corners.

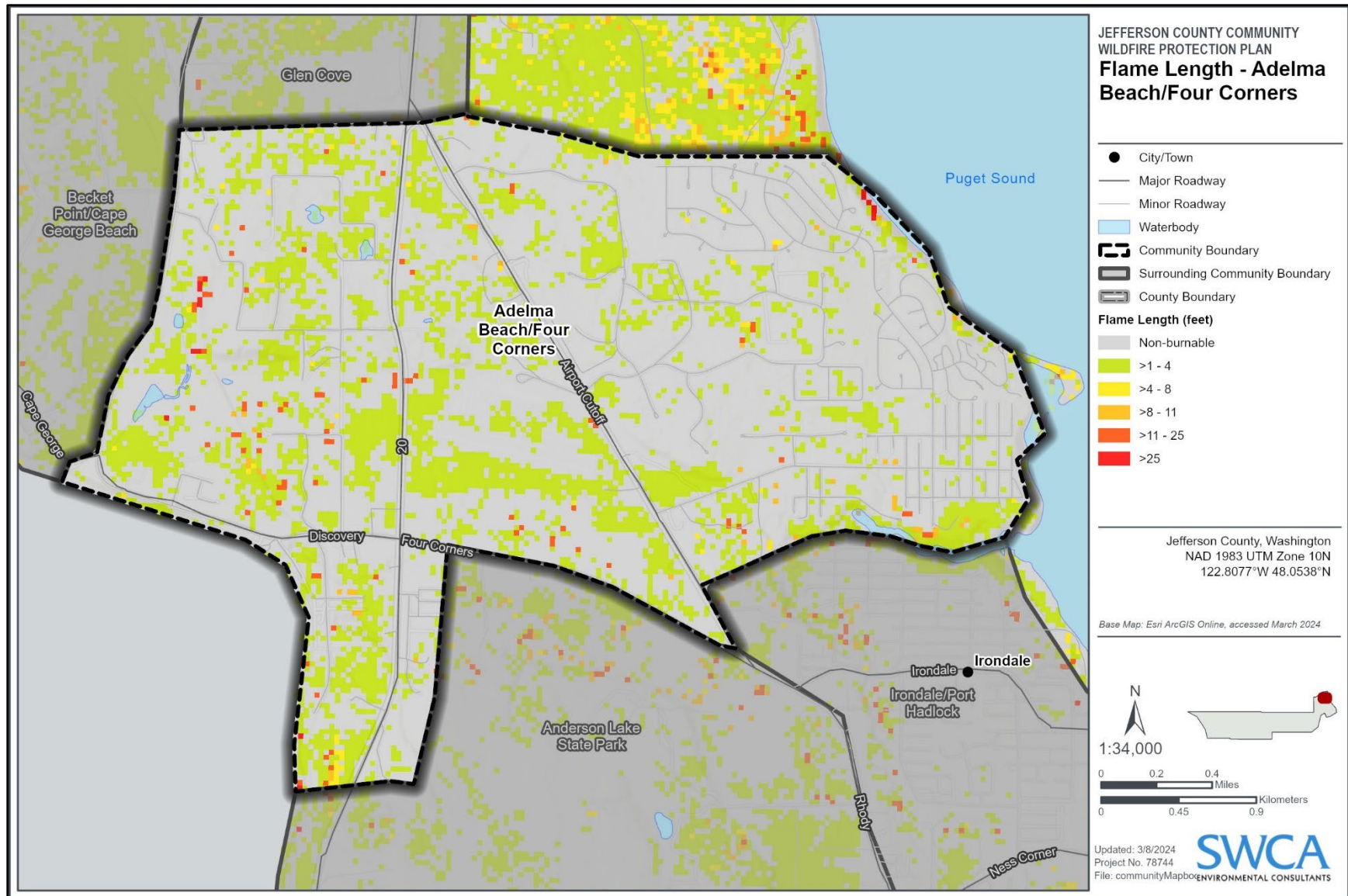


Figure C.25. Flame length for Adelma Beach/Four Corners.

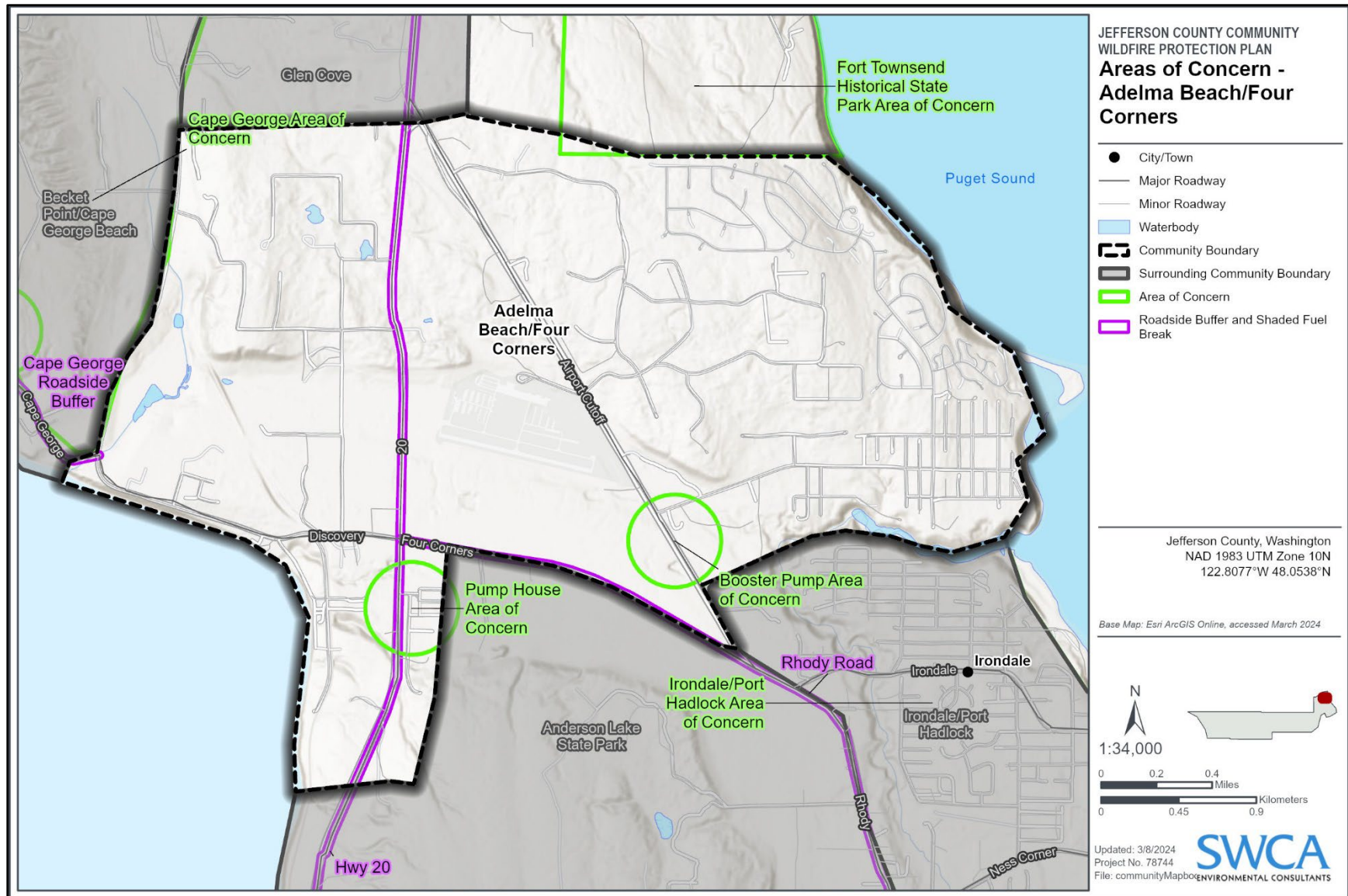


Figure C.26. Areas of concern detail for Adelma Beach/Four Corners.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Ingress and egress: main highway paved
- Street signs: visible and reflective
- Severe fire weather potential: low; high humidity
- Water source: water availability through hydrants

Negative Attributes (High Scores)

- Entrance/exit: only one road in and out of community
- Vegetation type: predominantly timber-litter and highly flammable
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible

Recommended Mitigation

Areas of Concern:

All:

- Work with State Parks to identify areas where fuel modification could strengthen defensible space around Highly Valued Resources and Assets and provide for safer evacuation.
- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Pump House and Booster Pump Area of Concern:

- Reduce fuel loading and create maintenance plan for protection of infrastructure.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Highway 20, Cape George Roadside Buffer, Rhody Road:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

5. Gardiner Field Assessment Summary

Gardiner		
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	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	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	Low
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	47	Moderate

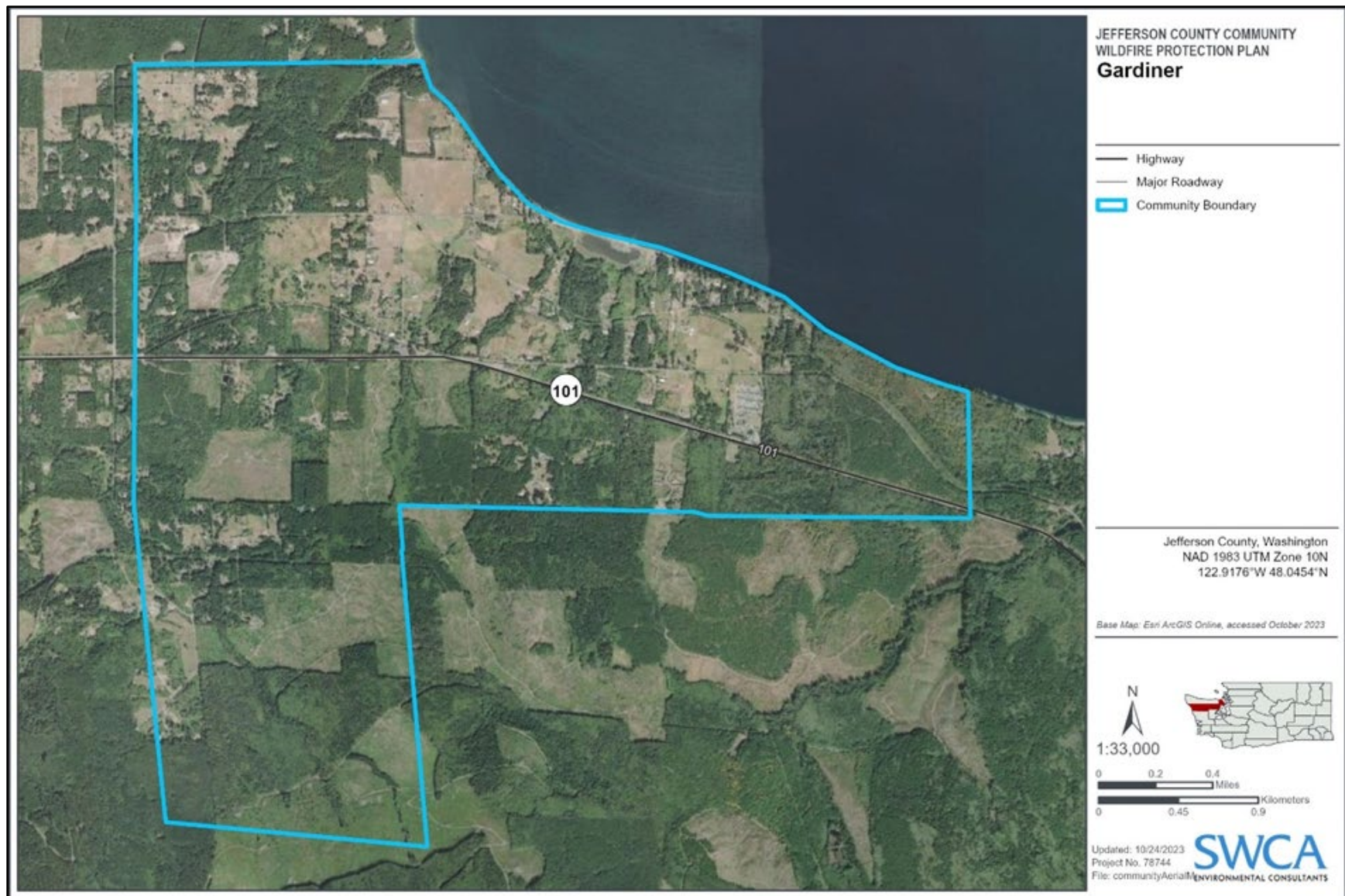


Figure C.27. Gardiner: The community is located along the banks of Discovery Bay with U.S. Highway 101 running through it. Much of the forest in the area is actively managed.

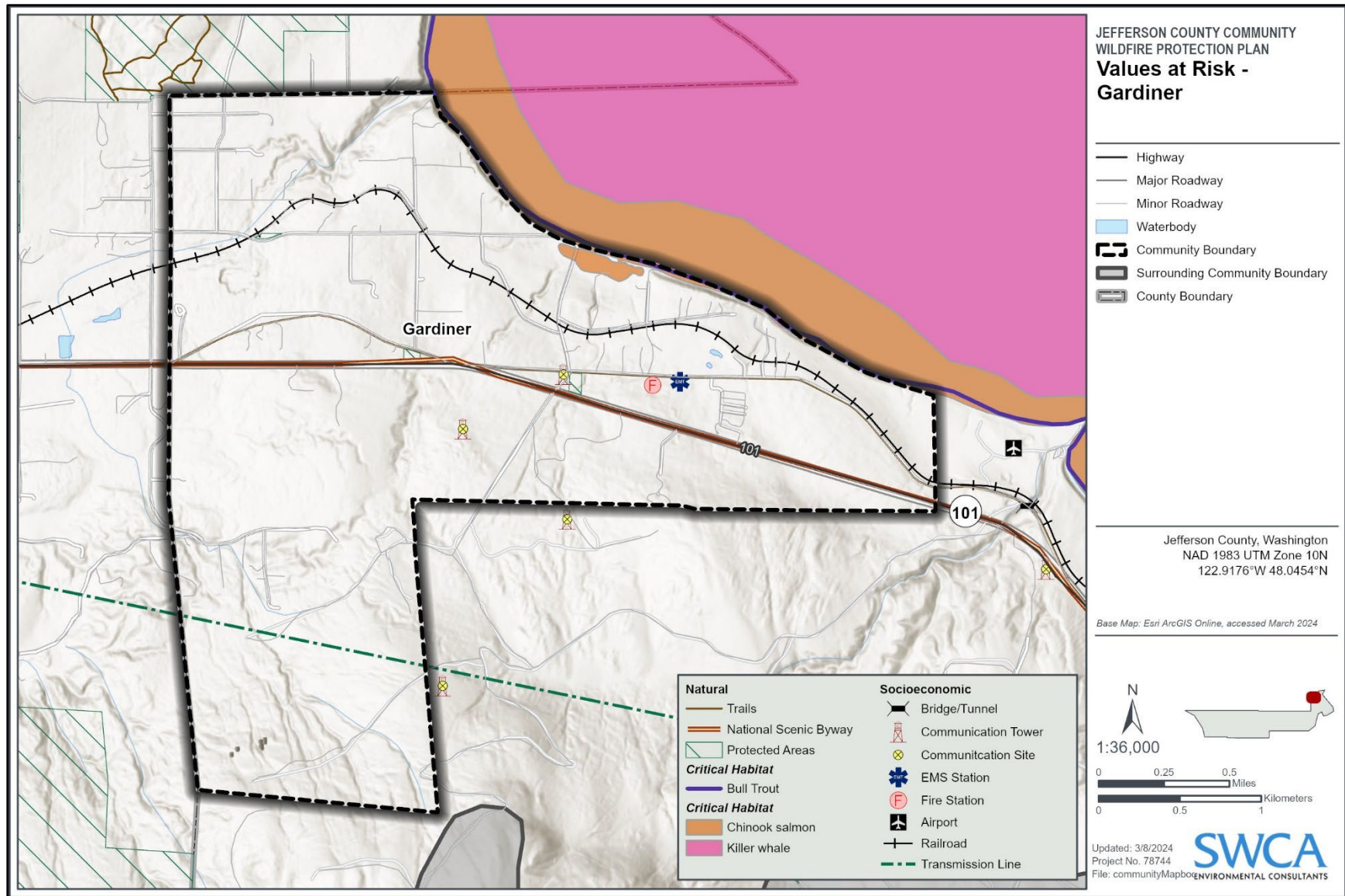


Figure C.28. Highly Valued Resources and Assets for Gardiner.

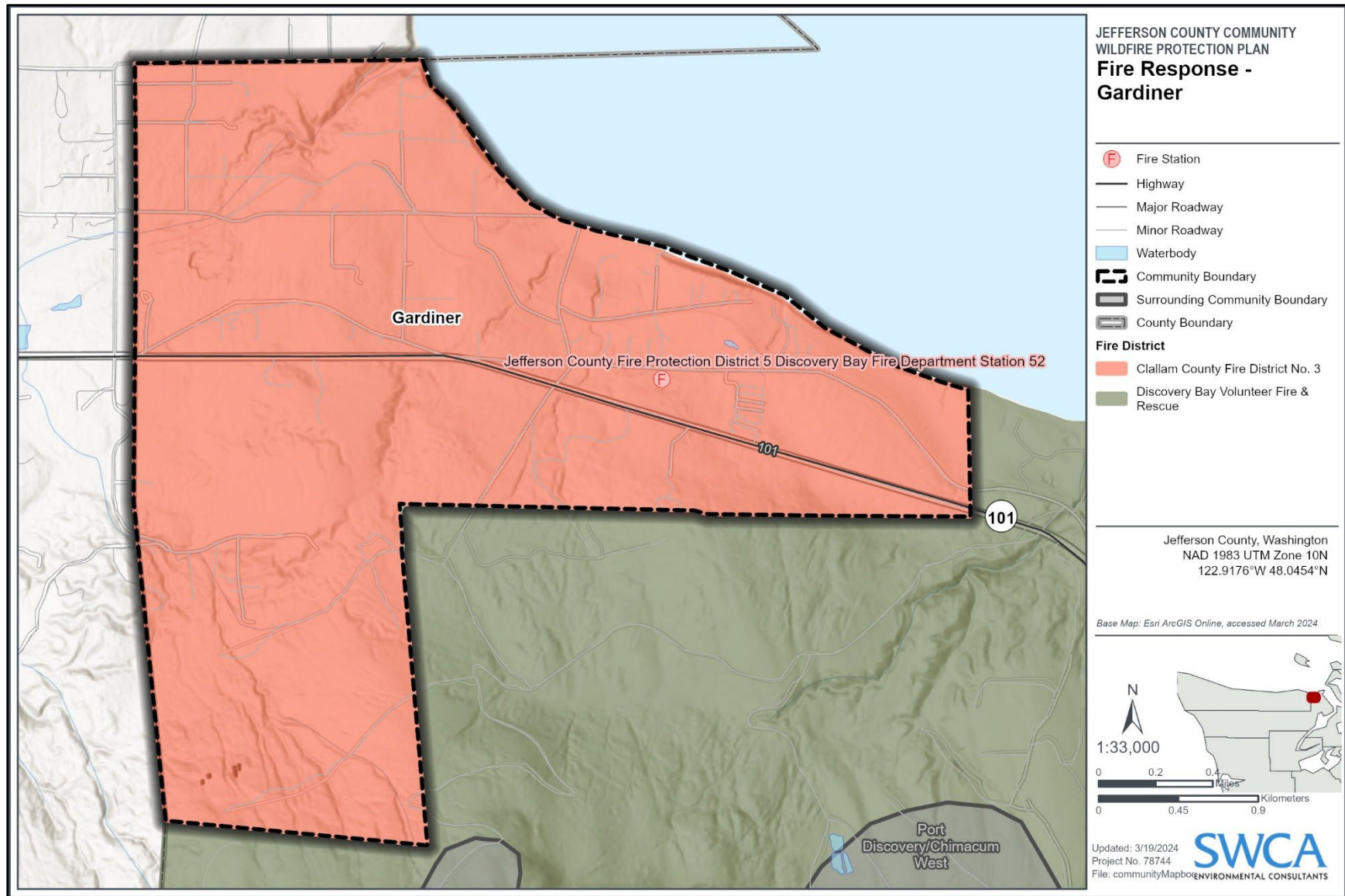


Figure C.29. Fire response for Gardiner.

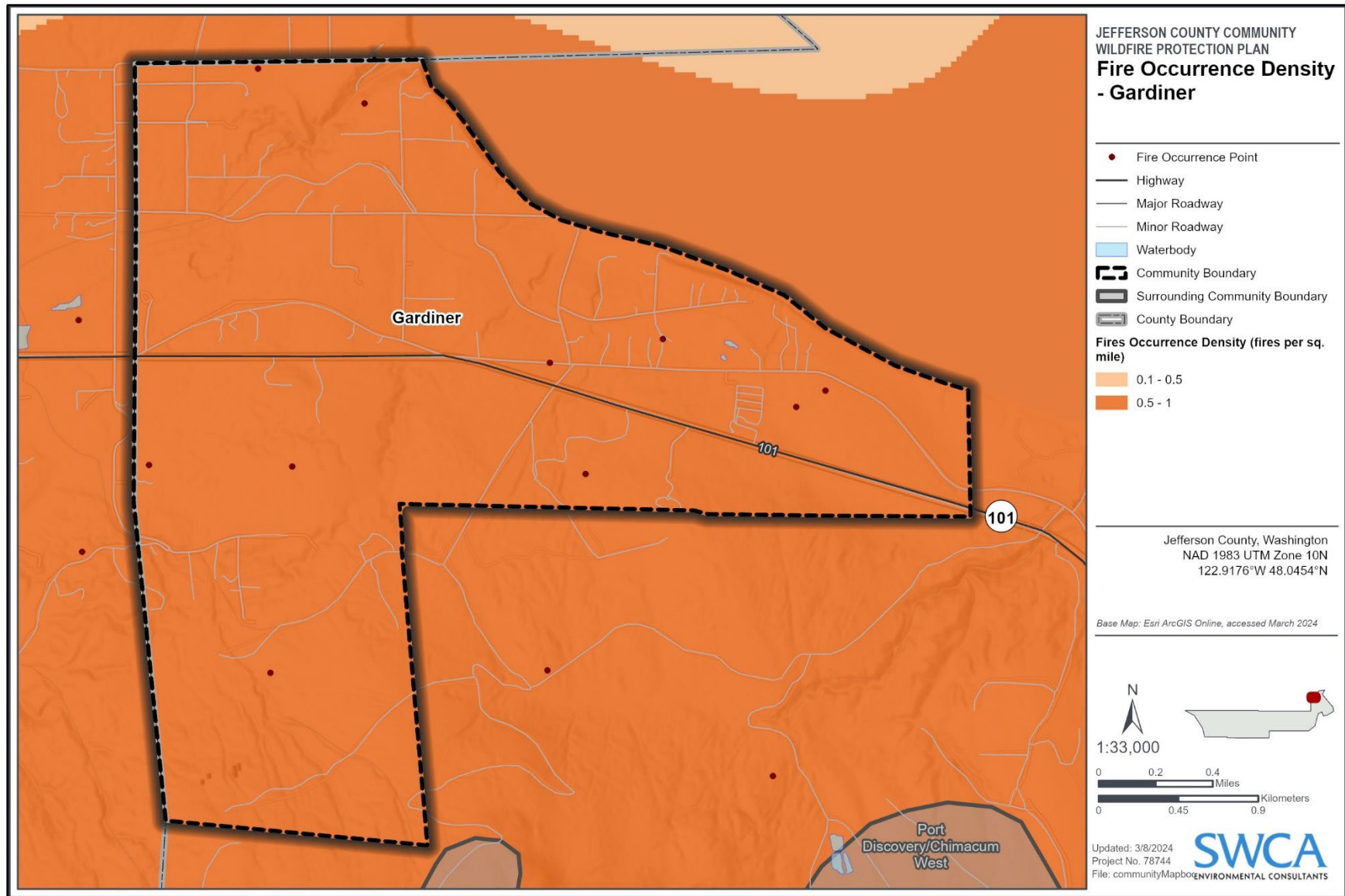


Figure C.30. Fire occurrence density for Gardiner.

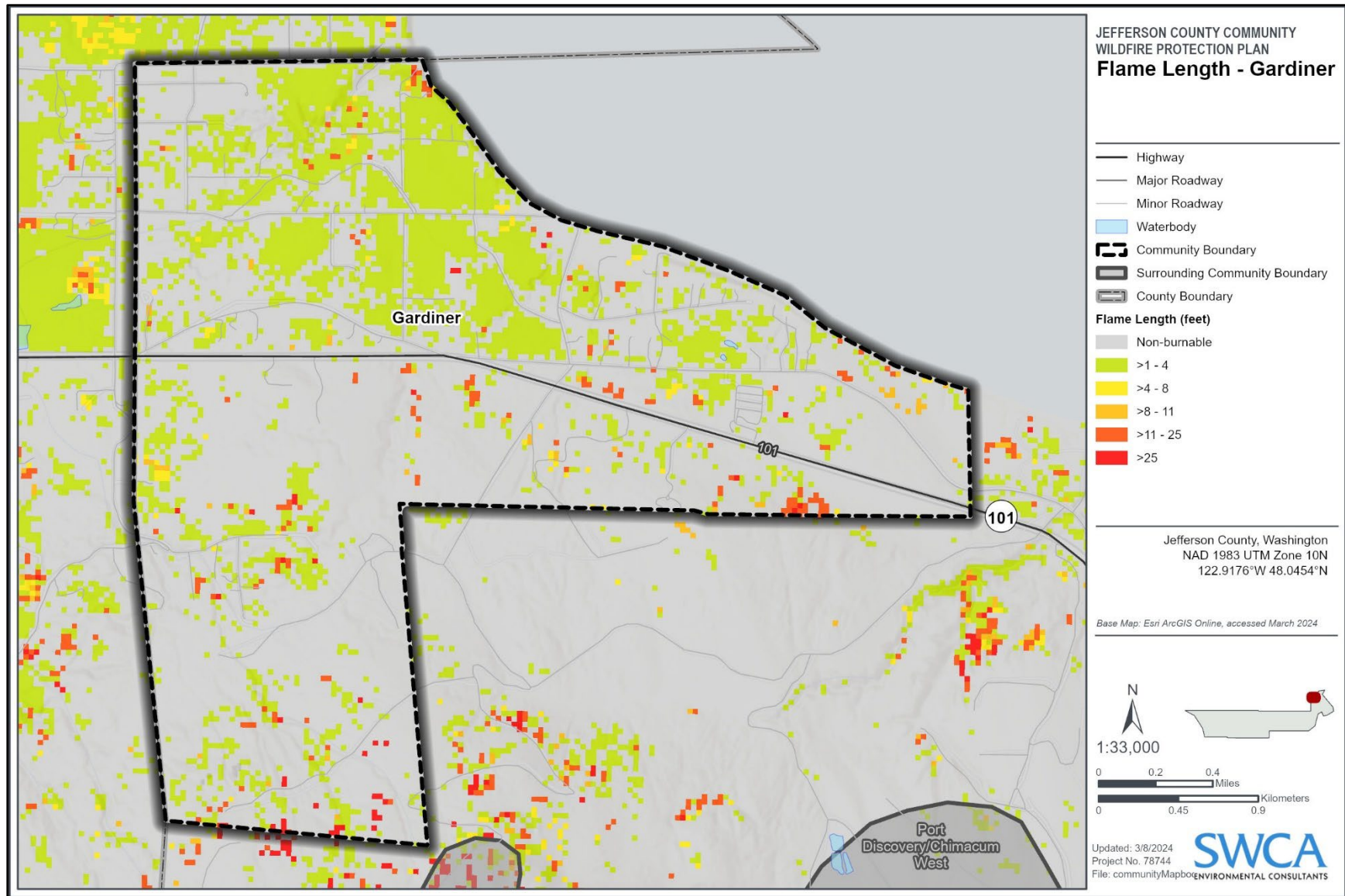


Figure C.31. Flame length for Gardiner.

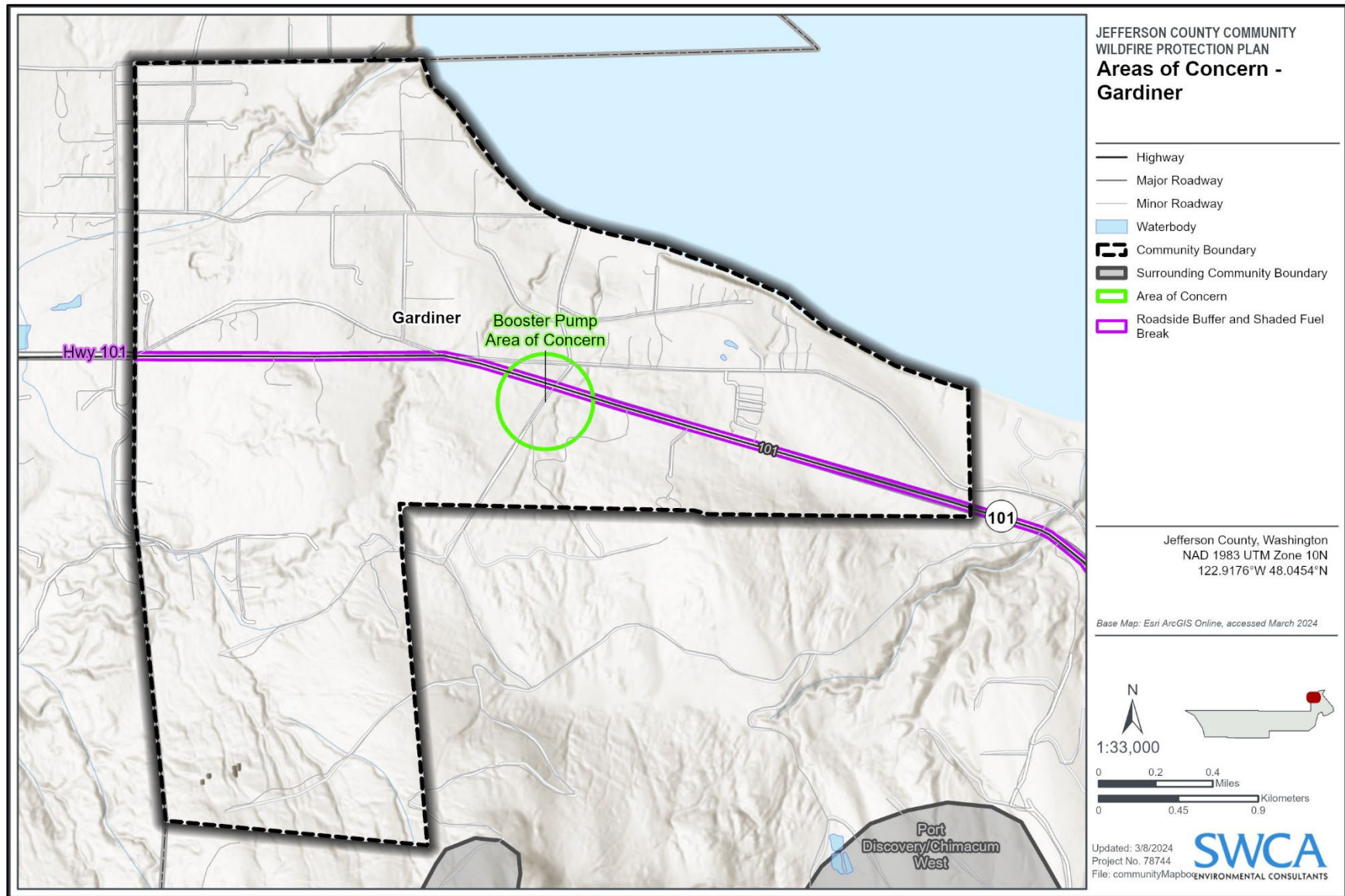


Figure C.32. Areas of concern detail for Gardiner.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Ingress and egress: main highway paved, at least two roads in and out
- Street signs: visible and reflective
- Organized response: fire department in community
- Water source: water availability through hydrants
- History of fire occurrence: low
- Severe fire weather potential: low; high humidity

Negative Attributes (High Scores)

- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible

Recommended Mitigation

Areas of Concern:

Booster Pump Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Reduce fuel loading and create maintenance plan for protection of infrastructure.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Highway 101:

- Develop an evacuation plan tailored to residences along the designated route.
- Collaborate with WSDOT and landowners to implement fuels mitigations on private properties, focusing on the creation of defensible space, as well as roadside brush cutting and mowing activities.
- Investigate the eligibility for FEMA grants targeting initiatives such as "Firewise" and fire-adapted communities to enhance preparedness efforts.
- Implement modifications to the fuel alongside the roadway to diminish potential fire intensity during evacuation scenarios, with the buffer width contingent upon landownership and site-specific conditions. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

6. Irondale/Port Hadlock Field Assessment Summary

Irondale/Port Hadlock		
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	Low
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	<9%	Low
Topographic Features	1	Low
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	5	Extreme
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	Extreme
Community Hazard Rating	53	Moderate

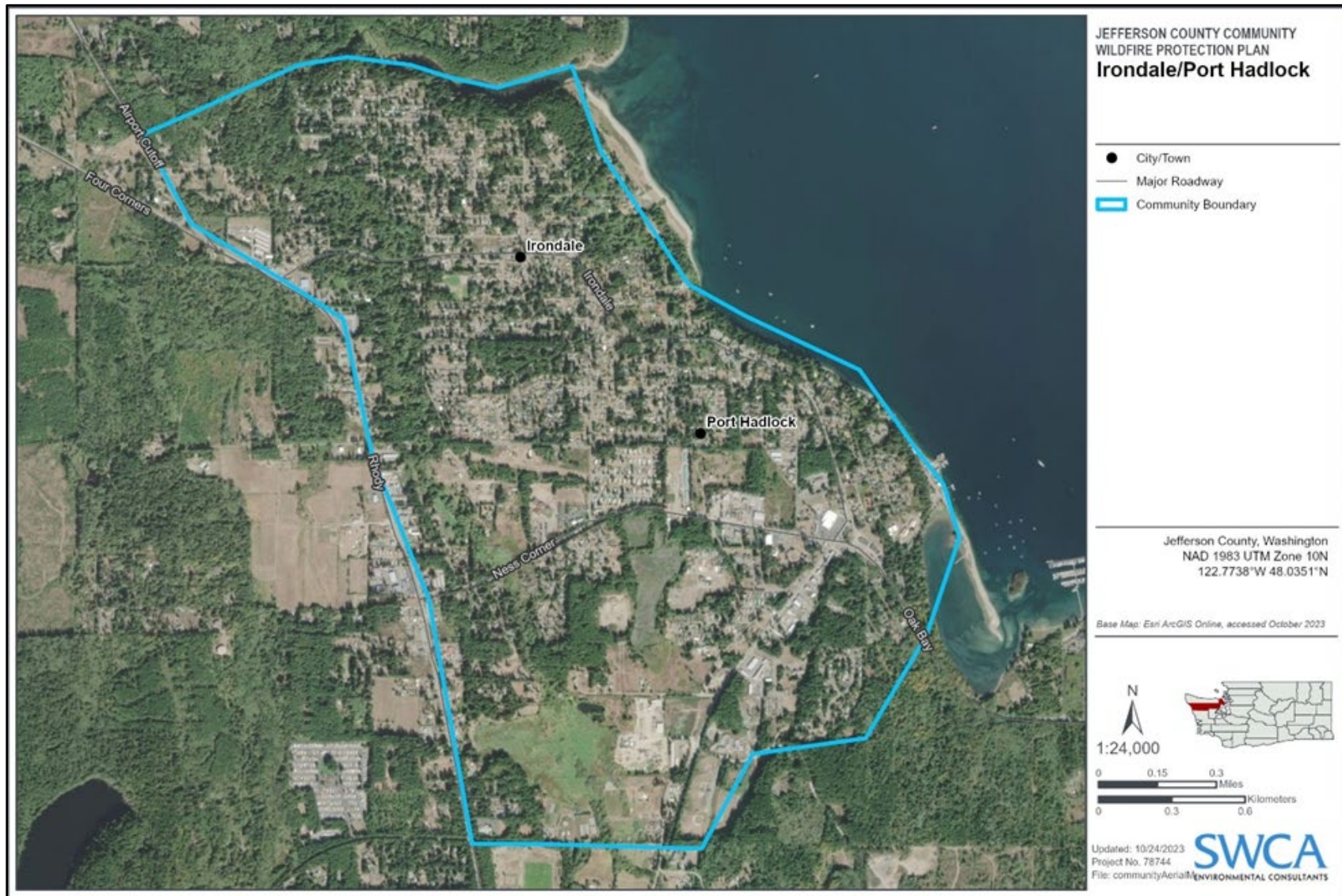


Figure C.33. Irondale/Port Hadlock: The community has a high amount of urban development, and homes are primarily on a grid street system. Homes in this area are built closer together compared with those in other parts of the county, leading to potential issues creating sufficient defensible space around a structure.

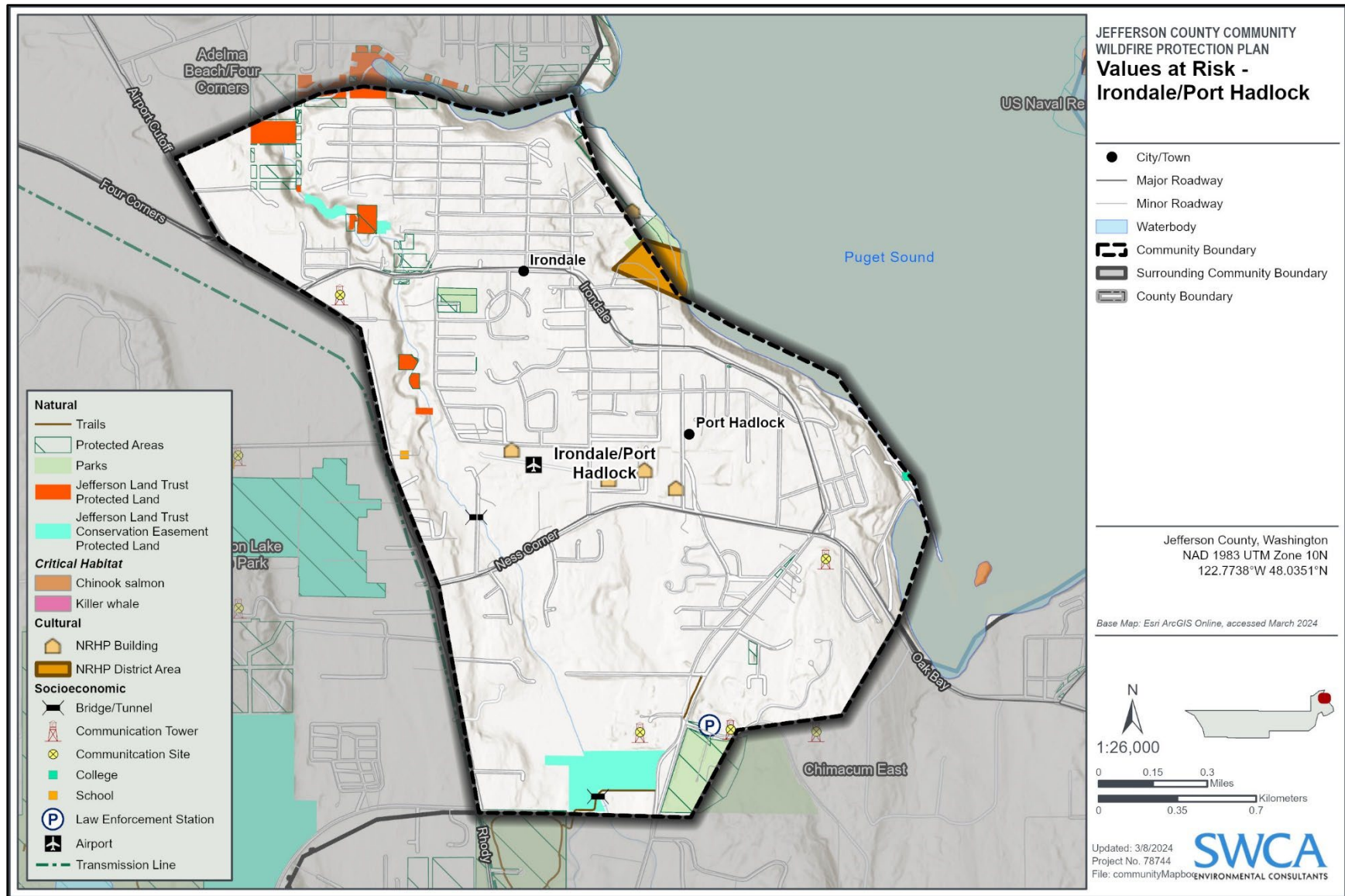


Figure C.34. Highly Valued Resources and Assets for Irondale/Port Hadlock.

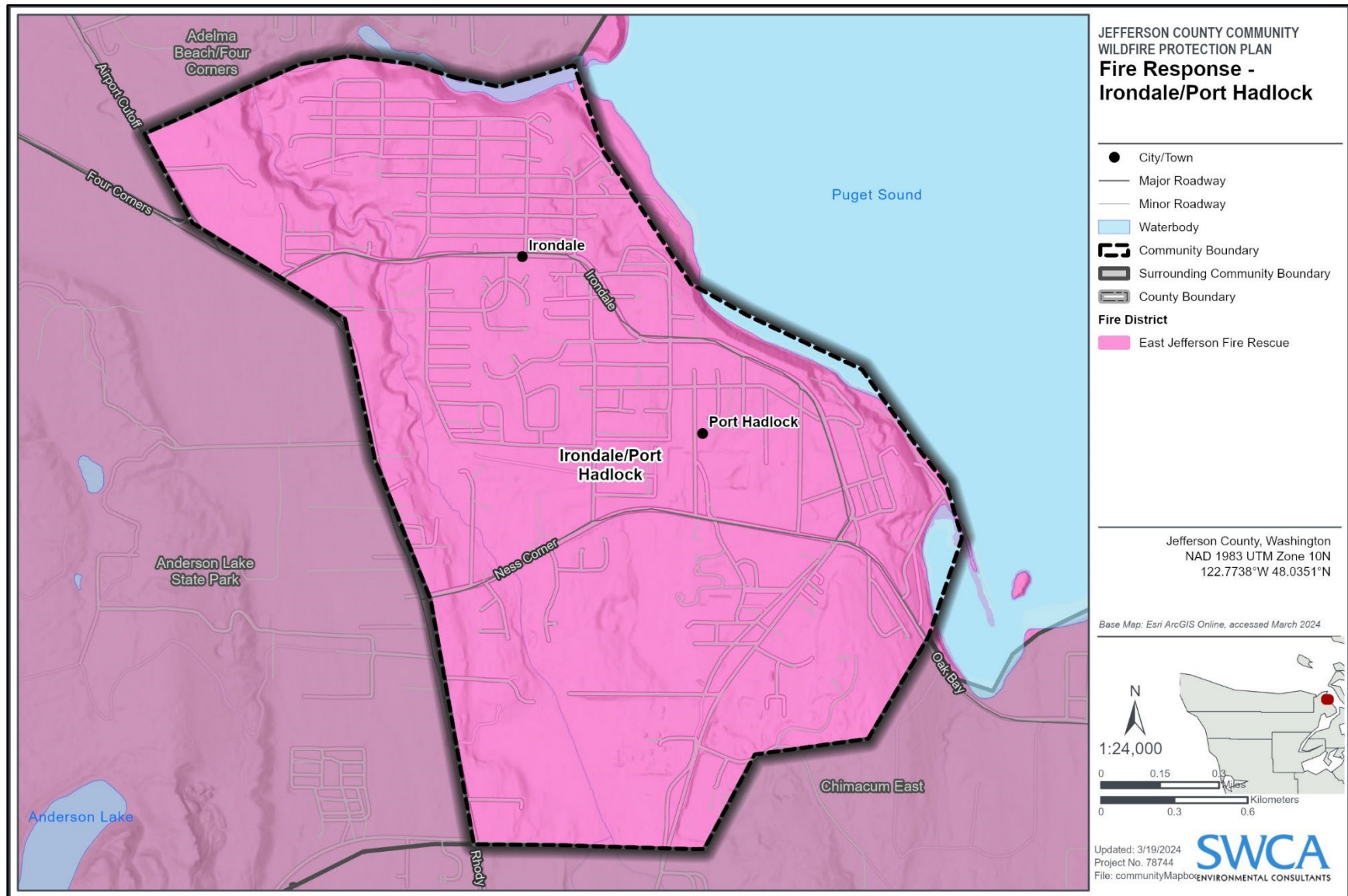


Figure C.35. Fire response for Irondale/Port Hadlock.

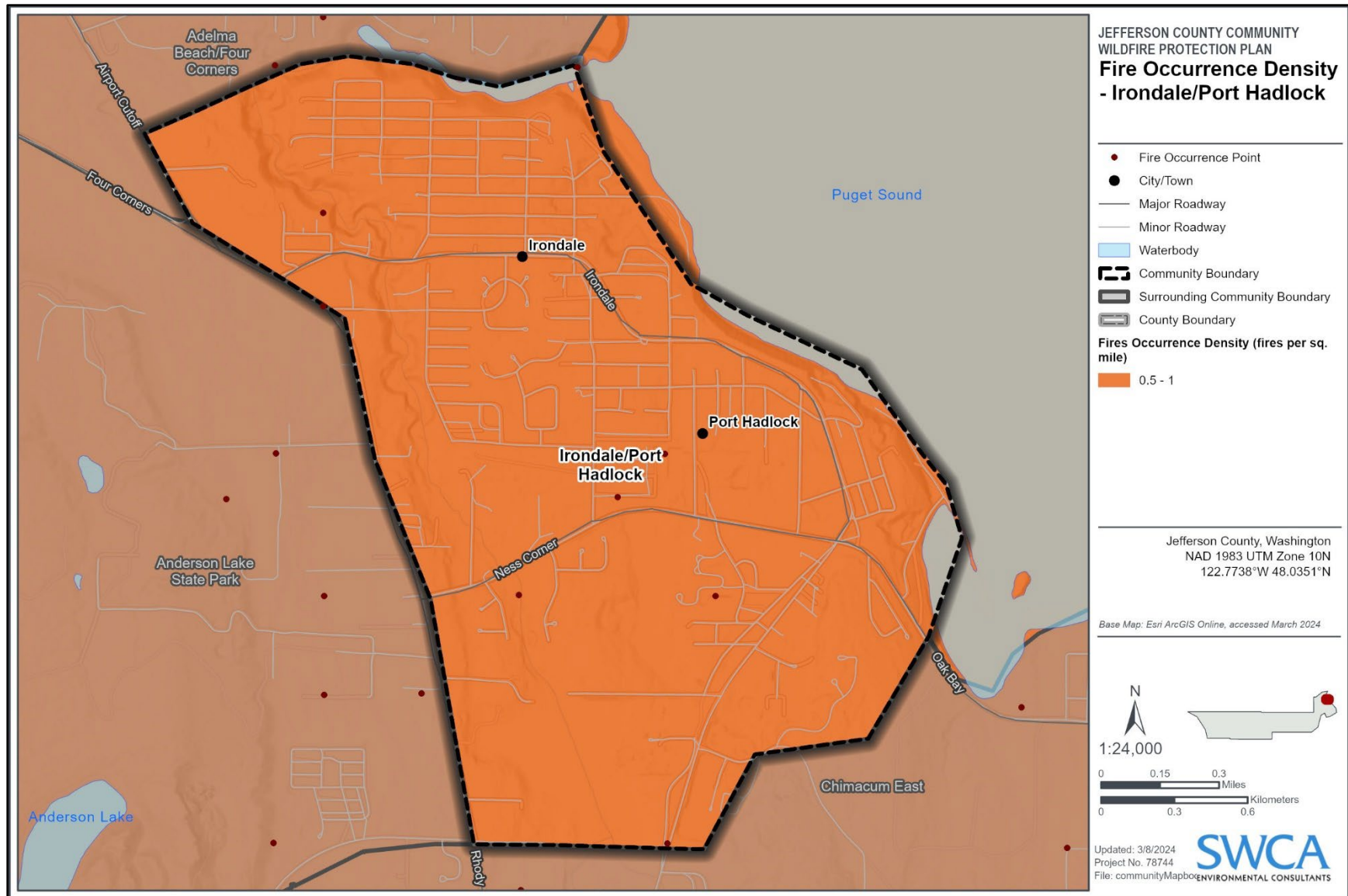


Figure C.36. Fire occurrence density for Irondale/Port Hadlock.

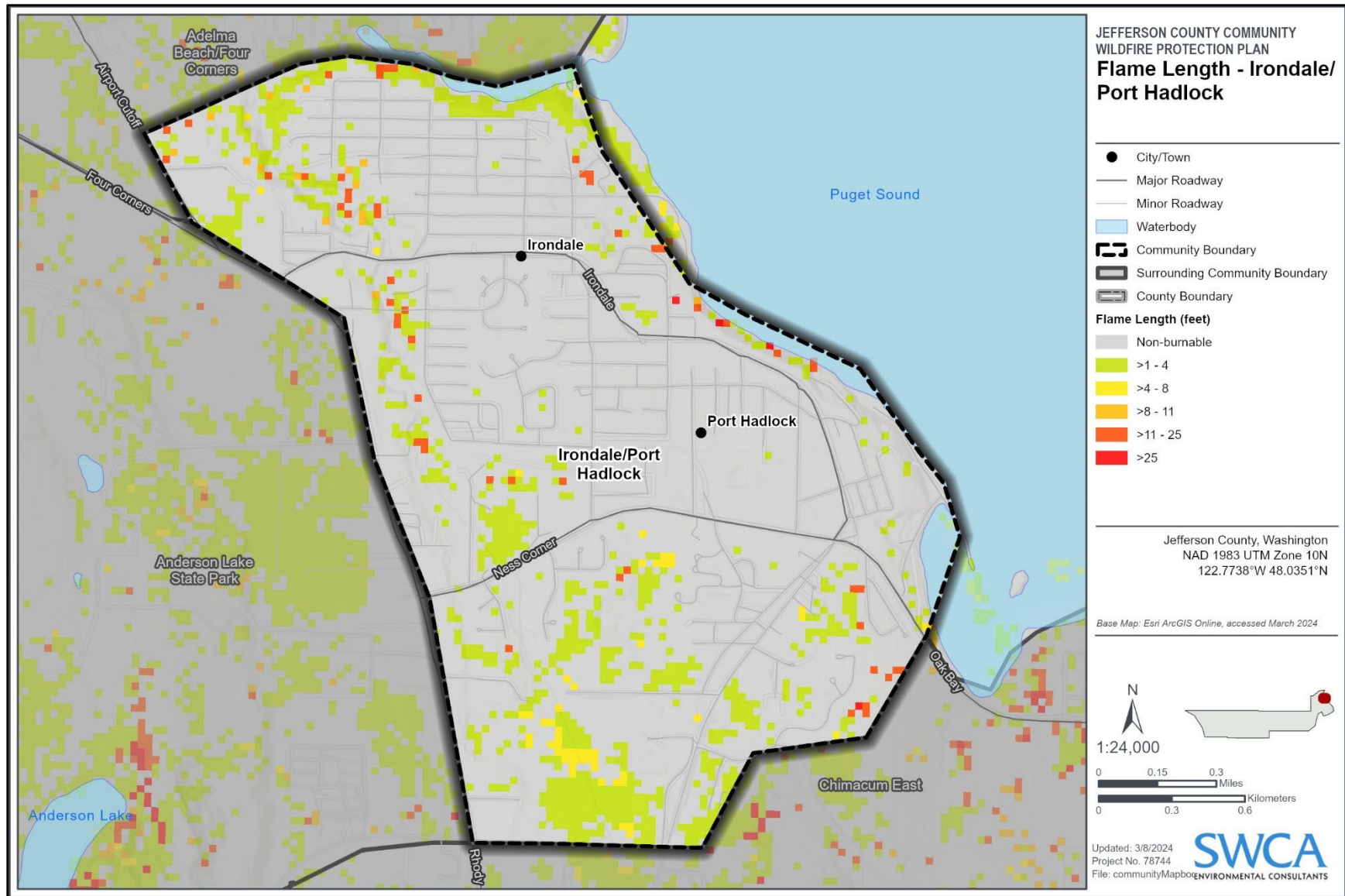


Figure C.37. Flame length for Irondale/Port Hadlock.

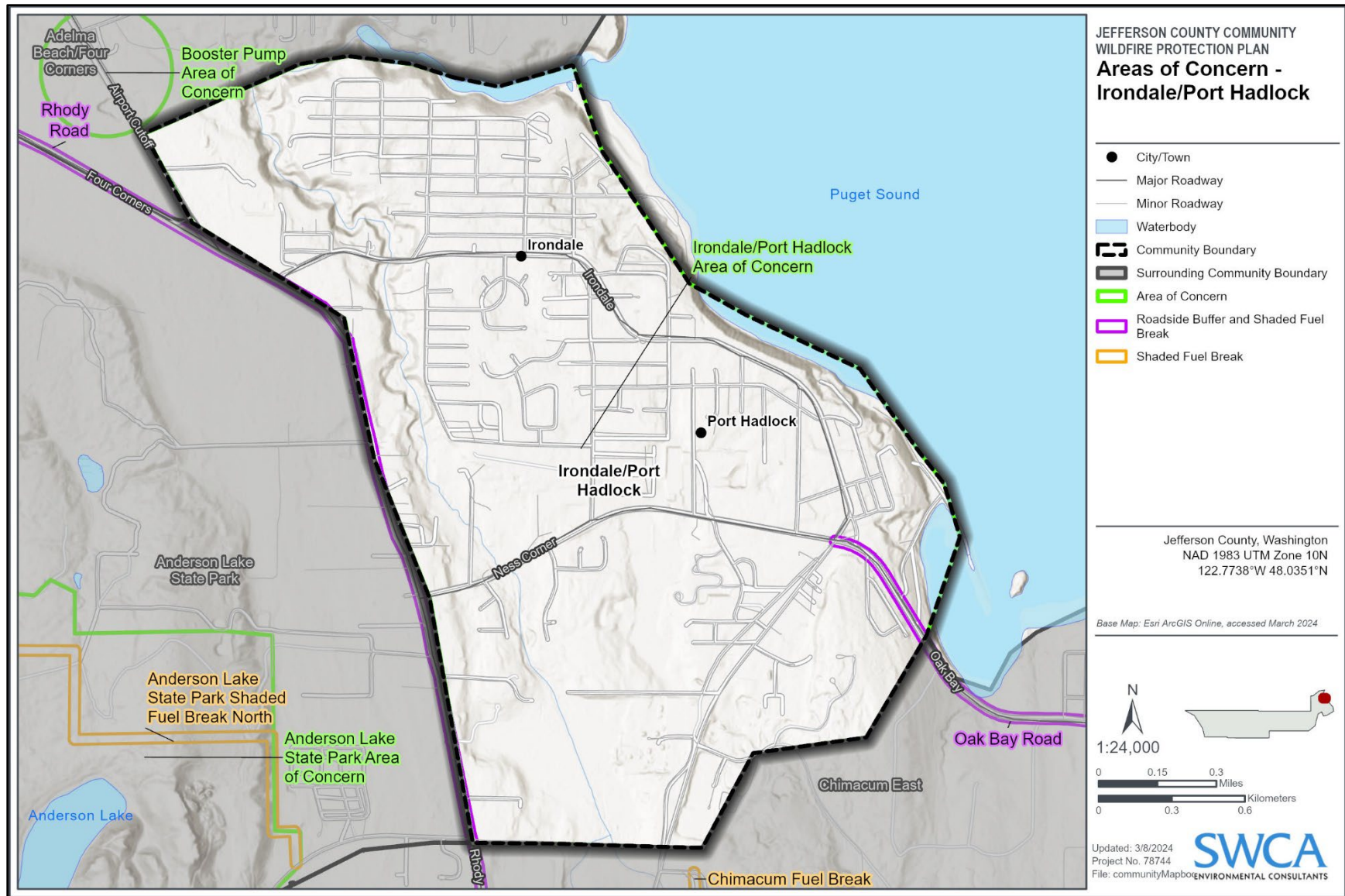


Figure C.38. Areas of concern detail for Irondale/Port Hadlock.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Ingress and egress: surfaced roads and at least two roads in and out of the community
- Street signs: visible and reflective
- Vegetation type: more humid forest cover
- Water source: water availability through hydrants
- Organized response: fire department in community
- History of fire occurrence: low
- Severe fire weather potential: low; high humidity

Negative Attributes (High Scores)

- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible
- Separation of adjacent structures: minimal

Recommended Mitigation

Areas of Concern:

Irondale/Port Hadlock Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and enhancing fuel discontinuity, with actions guided by existing land management plans and compliance standards.
- Explore opportunities for achieving multiple resource benefits through fuel modification efforts.
- Prioritize fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Foster cross-boundary collaboration, particularly at interfaces between federal lands and adjacent jurisdictions, to address fuel mitigation needs effectively.
- Develop educational programs to address defensible space and home hardening.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Oak Bay Road, Rhody Road:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

7. Anderson Lake State Park Field Assessment Summary

Anderson Lake State Park		
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-Litter (TL)	Extreme
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	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	1	Low
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	No deck or fence/non-combustible	Low
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	Extreme
Community Hazard Rating	94	High

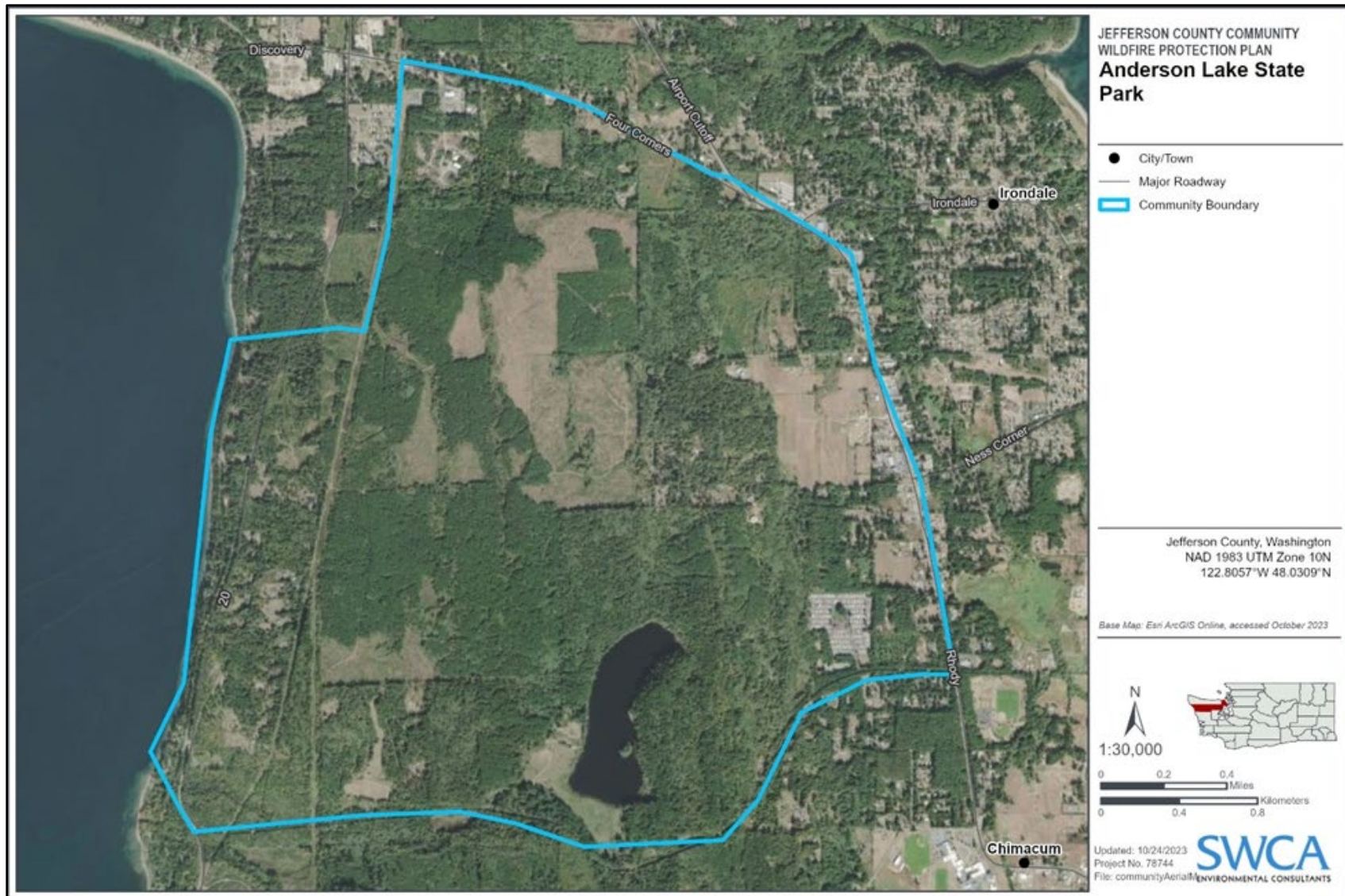


Figure C.39. Anderson Lake State Park: The area is mostly forested with residential portions located on the east and west sides of the park. Homes on the east side are located mostly along the main road, Highway 19. Homes on the west side are more spread out and have longer driveways.

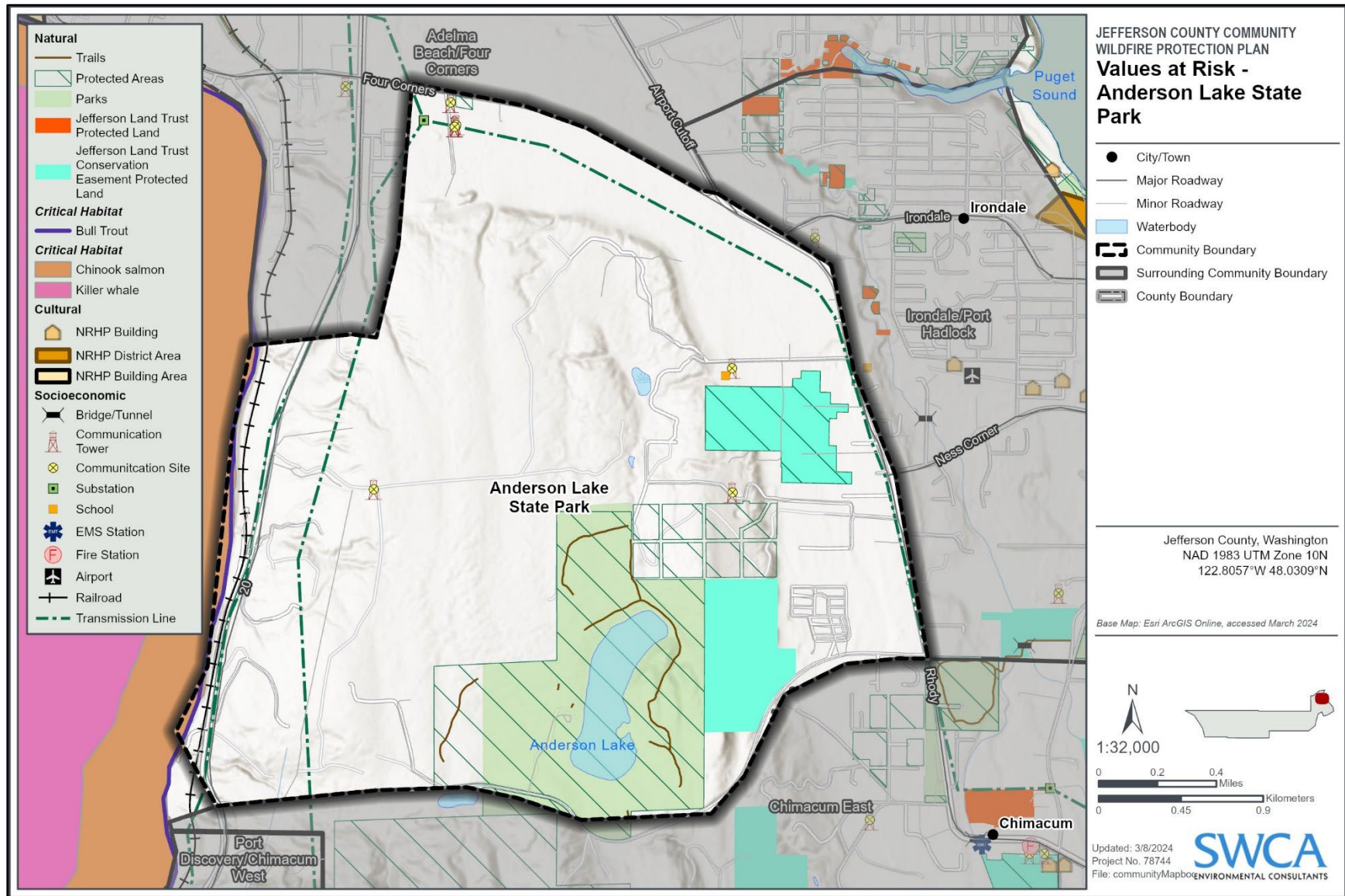


Figure C.40. Highly Valued Resources and Assets for Anderson Lake State Park.

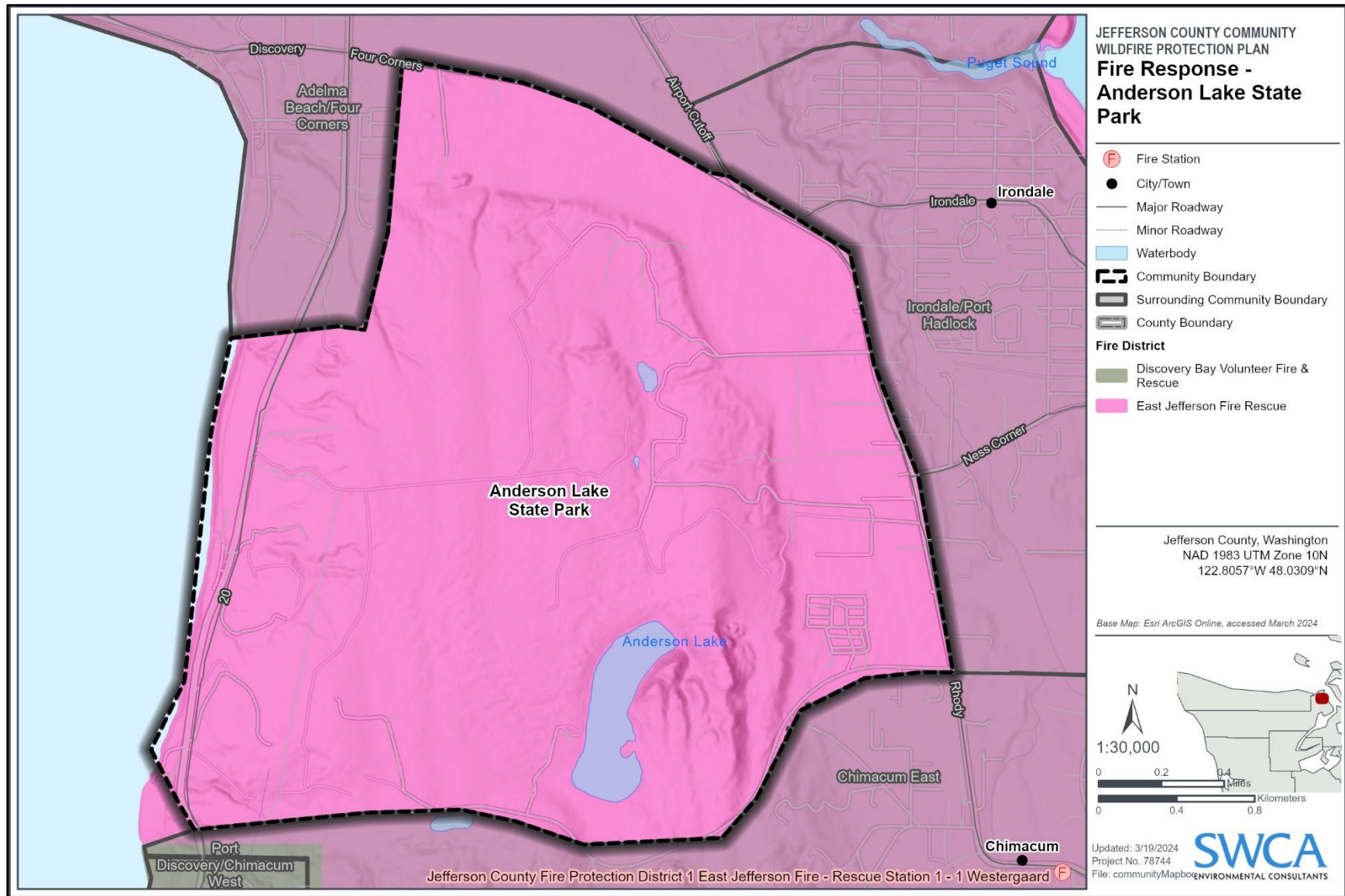


Figure C.41. Fire response for Anderson Lake State Park.

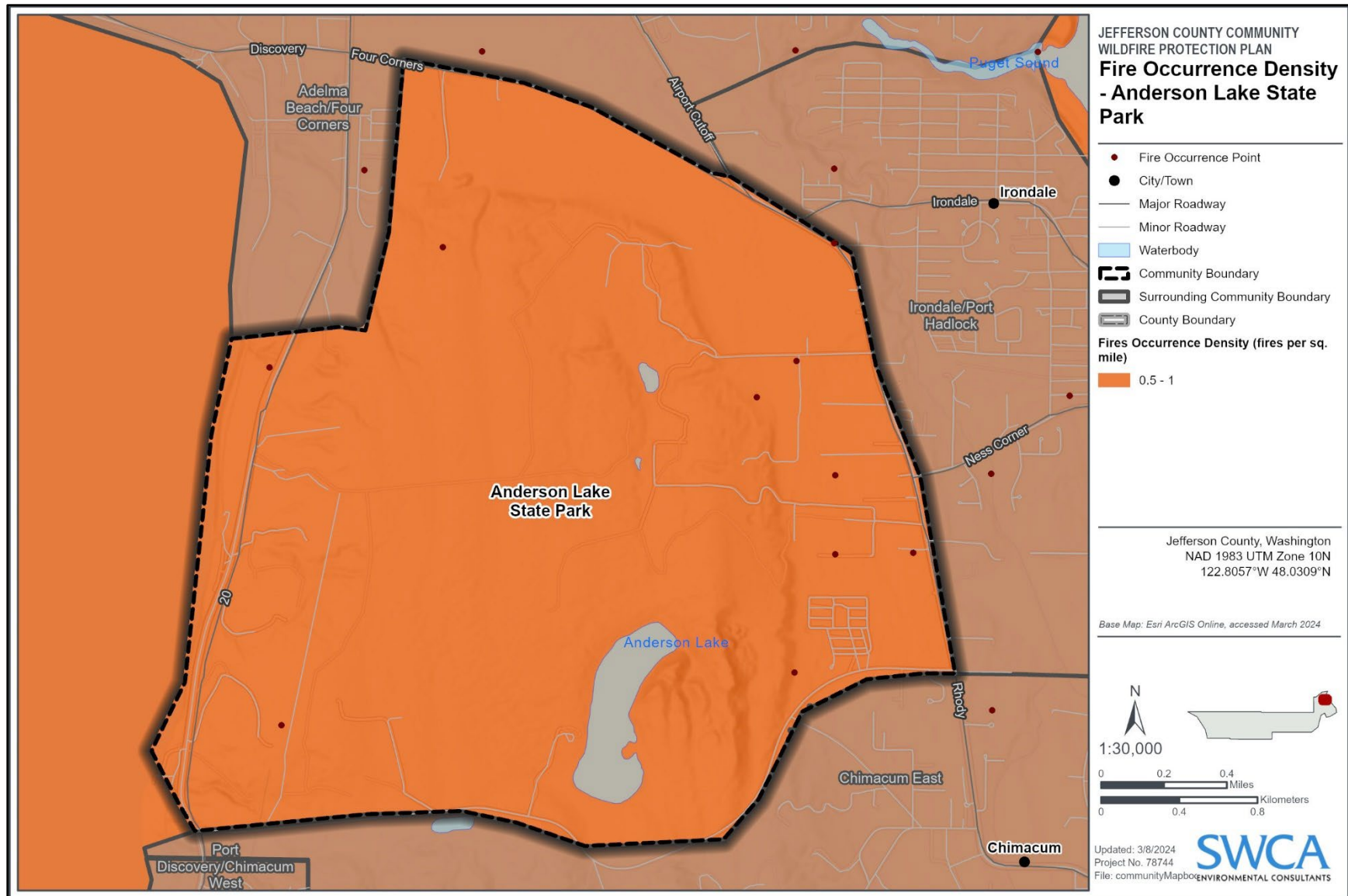


Figure C.42. Fire occurrence density for Anderson Lake State Park.

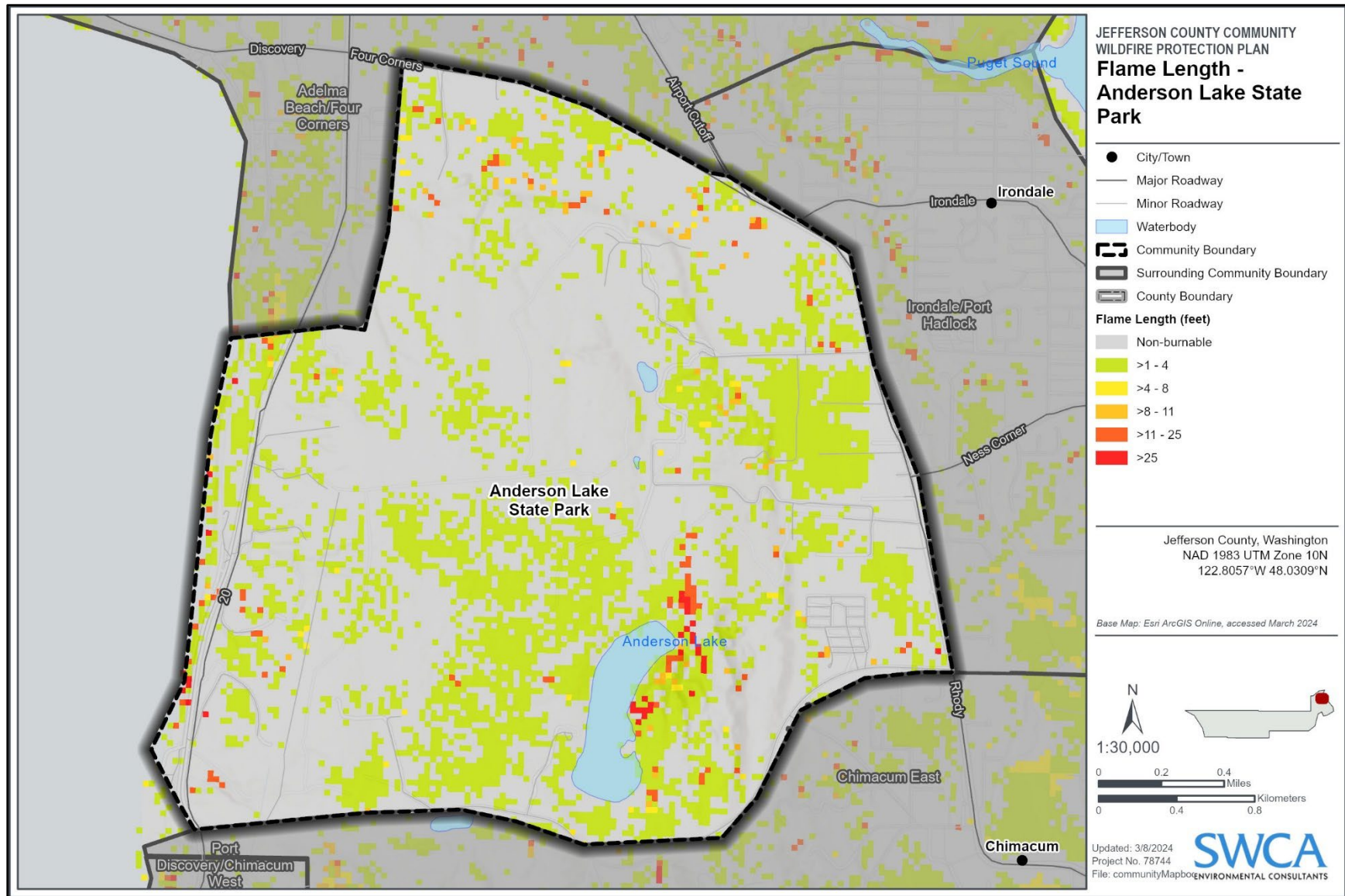


Figure C.43. Flame length for Anderson Lake State Park.

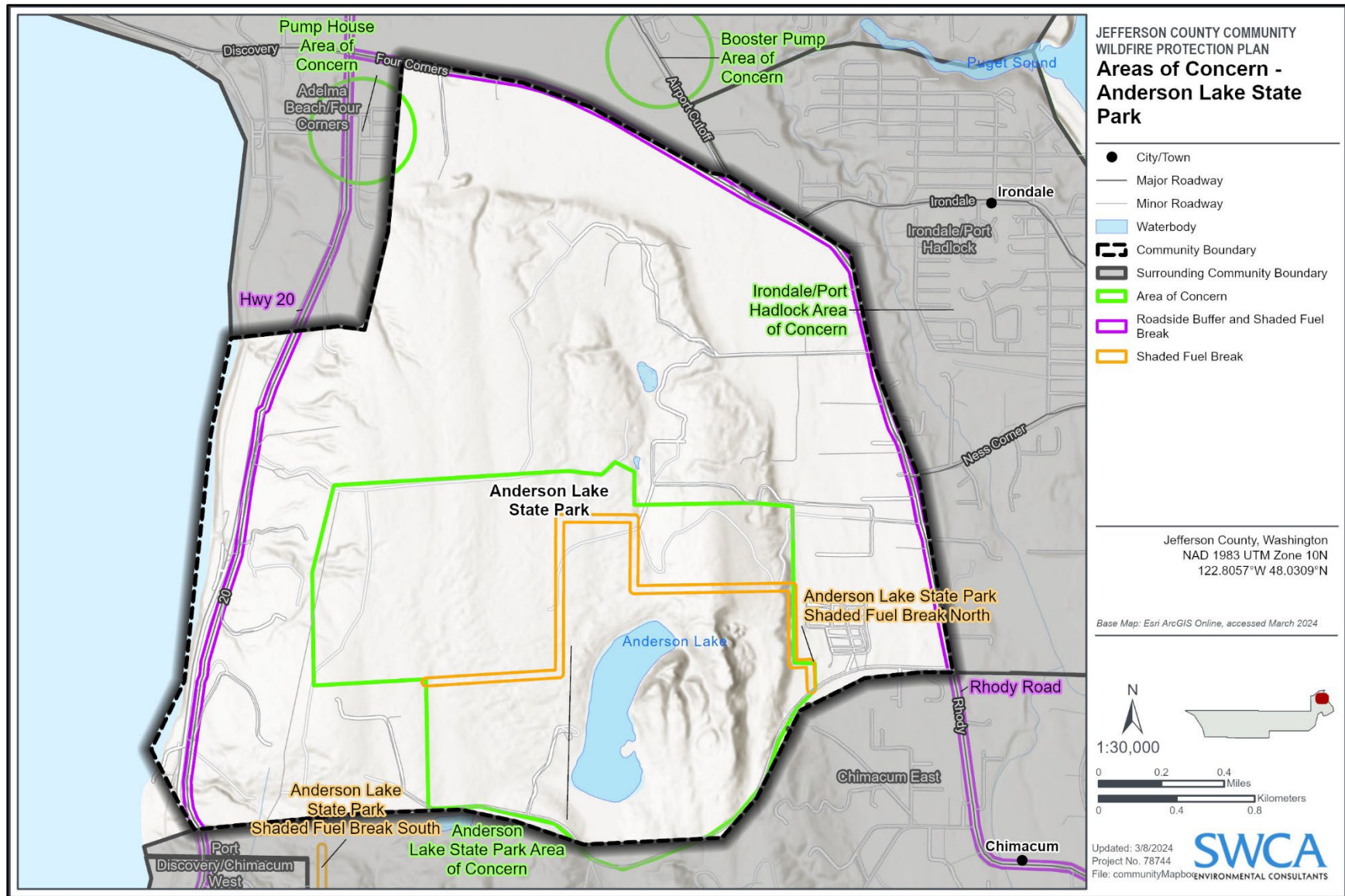


Figure C.44. Areas of concern detail for Anderson Lake State Park.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Ingress and egress: surfaced roads and more than one road in and out of community
- Street signs: visible and reflective
- Organized response: fire department in community
- History of fire occurrence: low
- Severe fire weather potential: low; high humidity
- Decking and fencing: made of non-combustible materials
- Water source: water availability through hydrants

Negative Attributes (High Scores)

- Vegetation: predominantly timber-litter, highly flammable
- Building construction: combustible siding
- Utility placement: aboveground
- Defensible space: minimal, with some homes with poor maintenance and refuse in yard

Recommended Mitigation

Areas of Concern:

Anderson Lake State Park Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and enhancing fuel discontinuity, with actions guided by existing land management plans and compliance standards.
- Explore opportunities for achieving multiple resource benefits through fuel modification efforts.
- Prioritize fuel mitigation in the home ignition zone to mitigate fire risk to structures.
- Foster cross-boundary collaboration, particularly at interfaces between federal lands and adjacent jurisdictions, to address fuel mitigation needs effectively.
- Develop educational programs to address defensible space and home hardening.

Shaded Fuel Break:

Anderson Lake State Park Shaded Fuel Break North:

Implement fuel break to slow fire progression. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height.

Roadside Buffer and Shaded Fuel Break:

Rhody Road, Highway 20:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

8. Marrowstone/Nordland Field Assessment Summary

Marrowstone/Nordland		
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%	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	1	Low
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	1	Low
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	1	Low
Organized Response	Station >5 miles from community	High
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	82	High

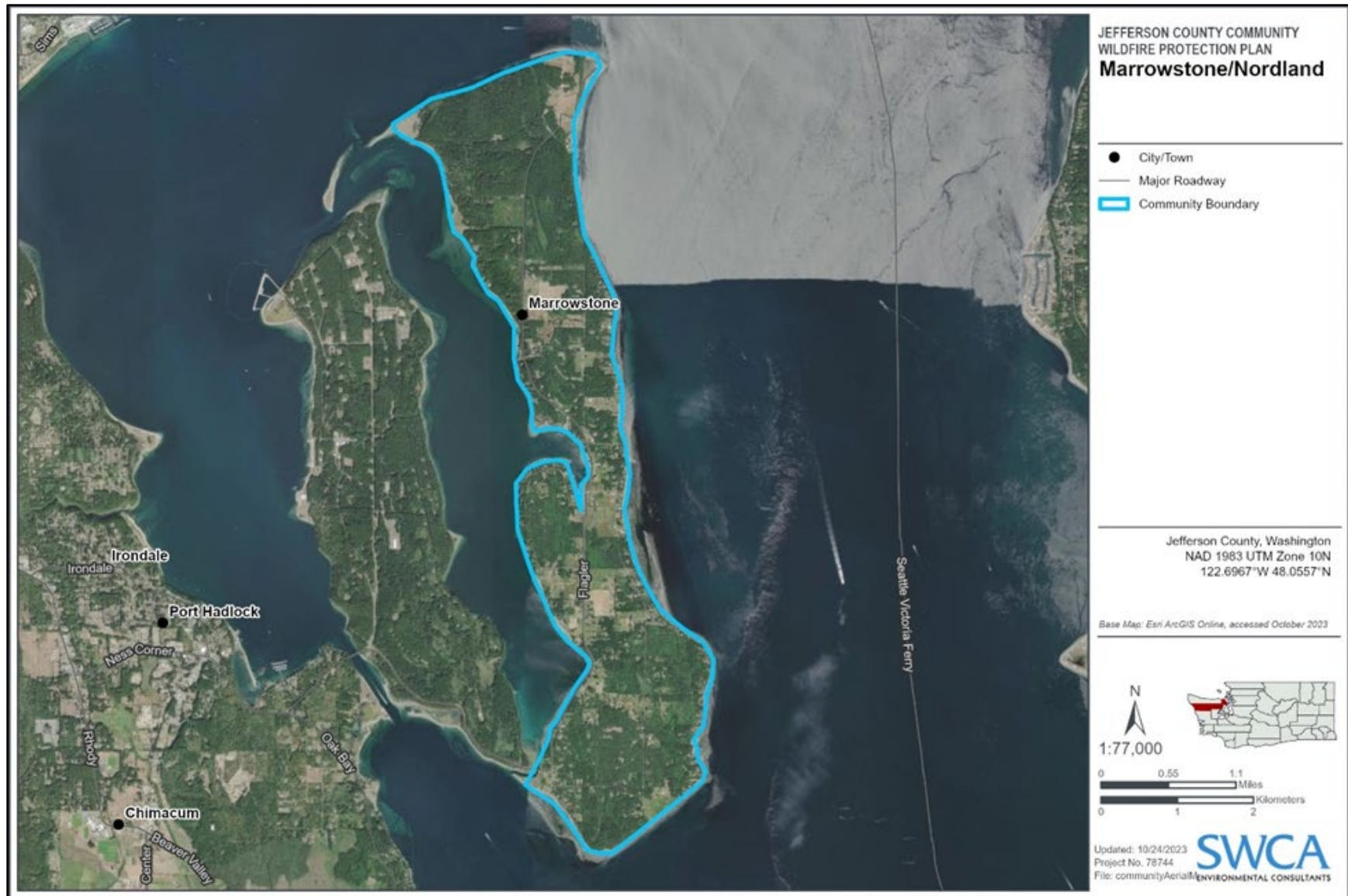


Figure C.45. Marrowstone/Nordland: The community contains a variety of natural and agricultural values such as an oyster farm, wineries, farms, and beaches. Many homes are located on coastal bluffs. The island also contains Fort Flagler.

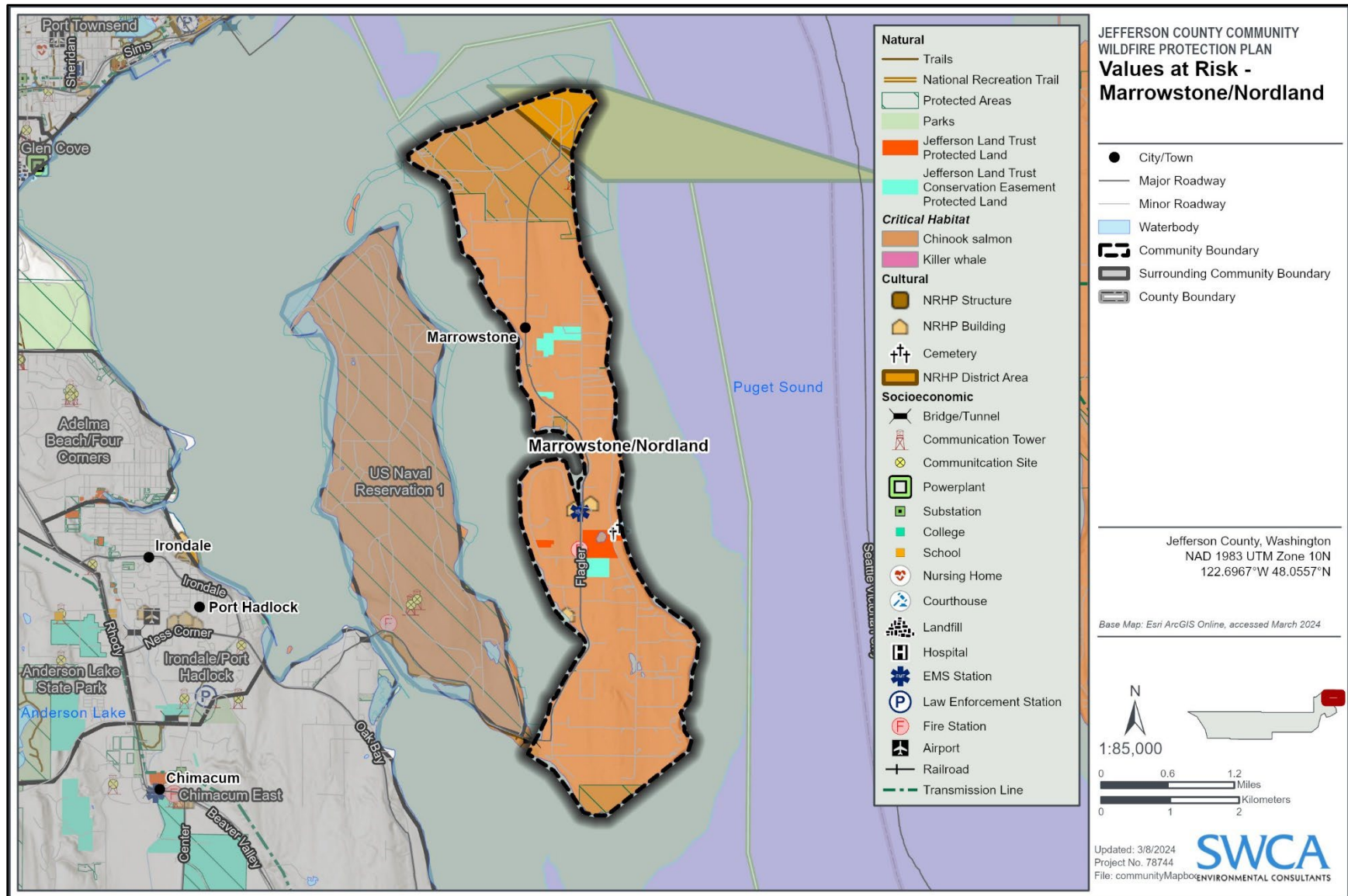


Figure C.46. Highly Valued Resources and Assets for Marrowstone/Nordland.

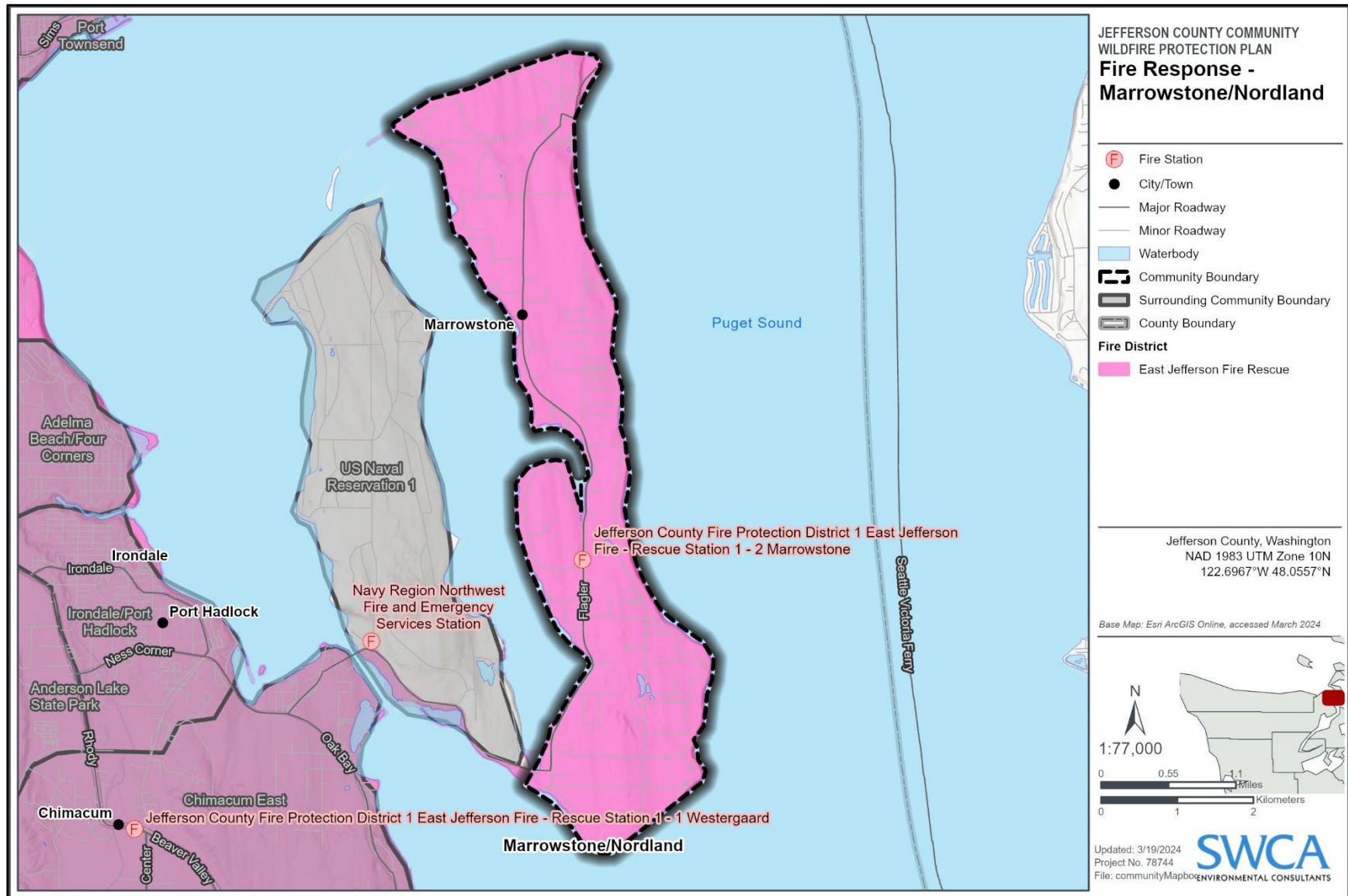


Figure C.47. Fire response for Marrowstone/Nordland.

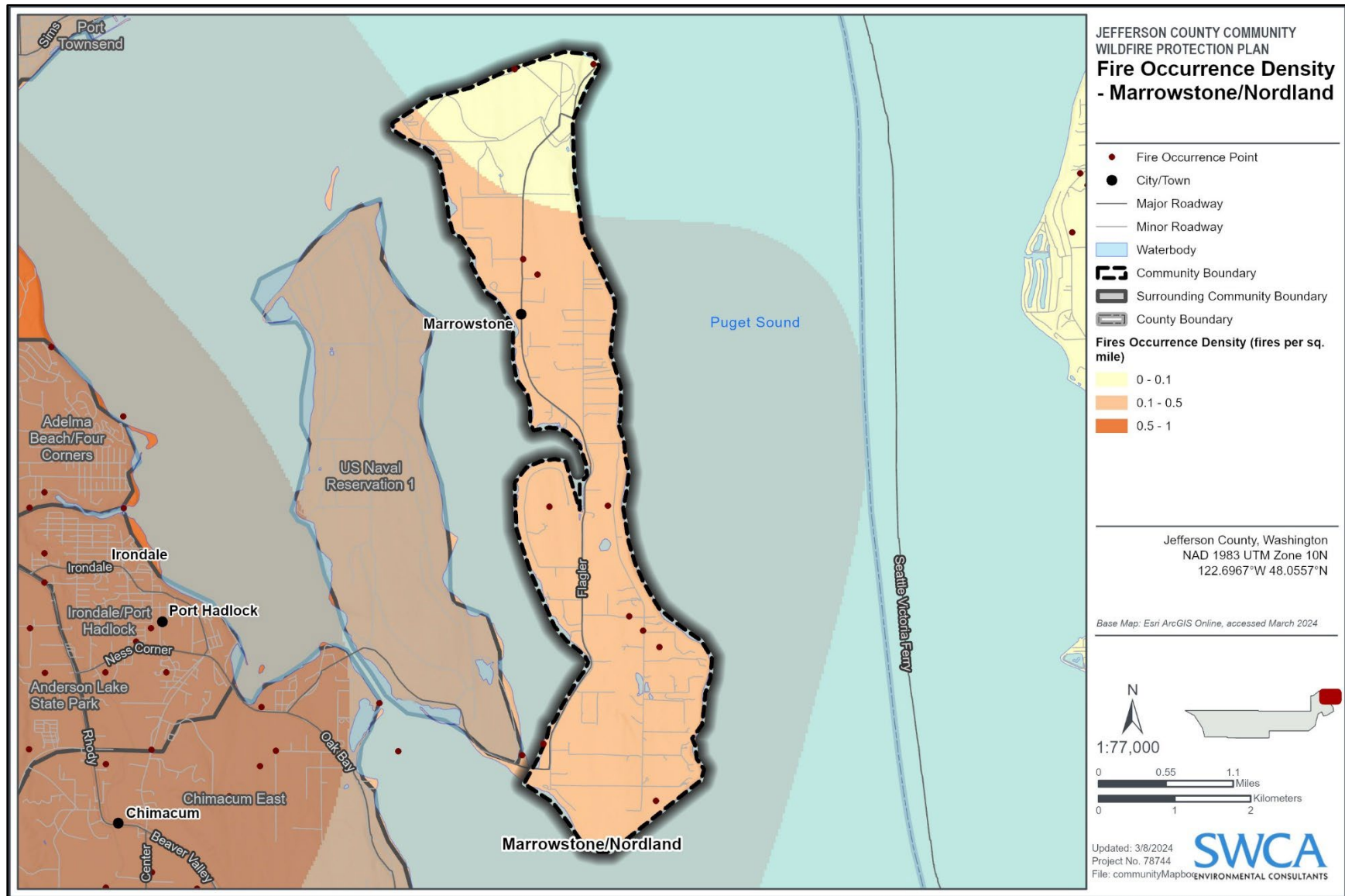


Figure C.48. Fire occurrence density for Marrowstone/Nordland.

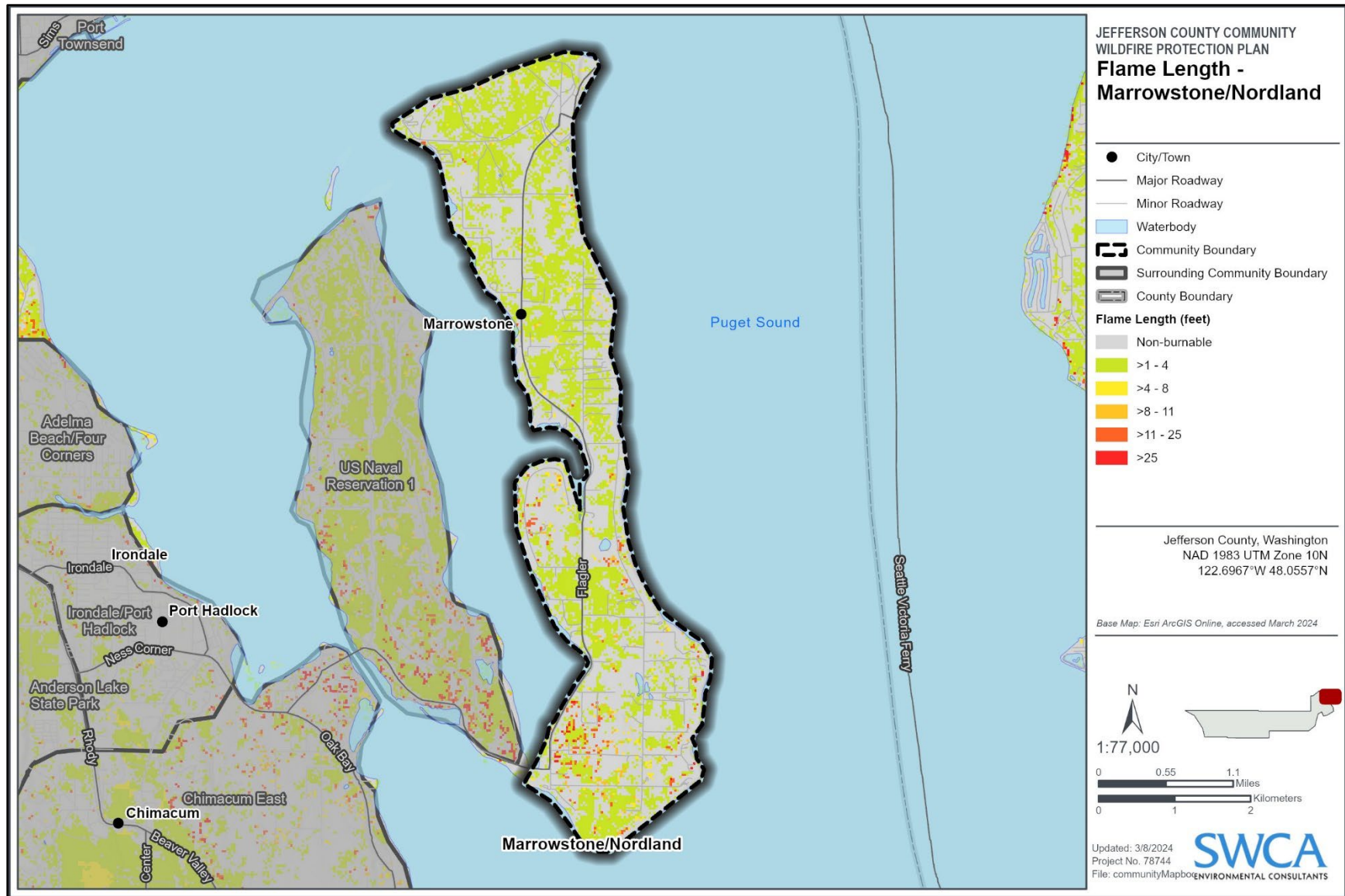


Figure C.49. Flame length for Marrowstone/Nordland.

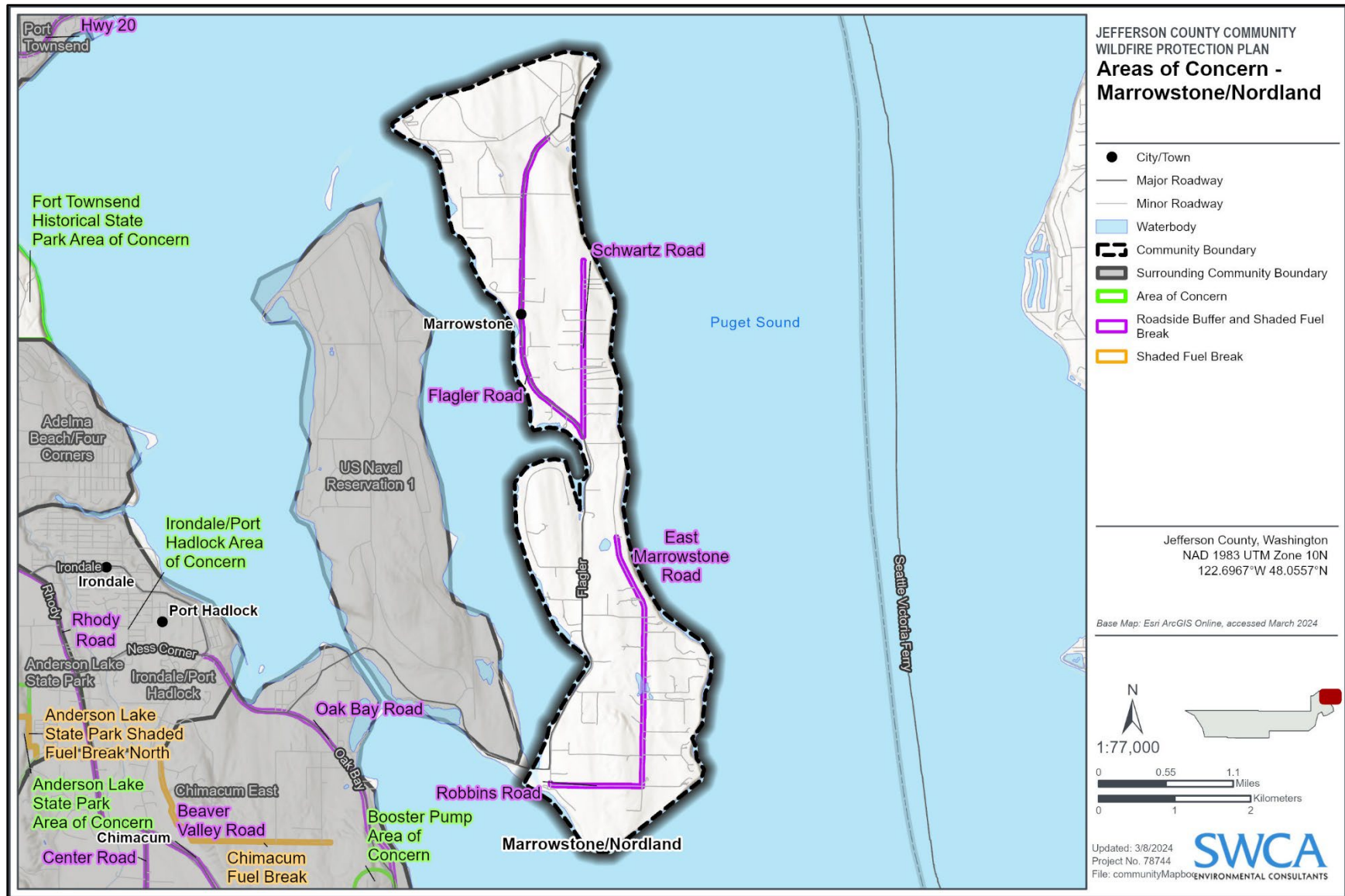


Figure C.50. Areas of concern detail for Marrowstone/Nordland.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Roads: surfaced roads throughout community
- Street signs: visible and reflective
- History of fire occurrence: low
- Severe fire weather potential: low; high humidity
- Water source: water availability through hydrants

Negative Attributes (High Scores)

- Entrance/exit: only one road in and out of community
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible

Recommended Mitigation

Areas of Concern:

No spatial delineations proposed at this time. Focus on creating and disseminating homeowner education on defensible space and evacuation planning.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

East Marrowstone Road, Flagler Road, Schwartz Road:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

9. Chimacum East Field Assessment Summary

Chimacum East		
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-Litter (TL)	Extreme
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	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	3	Moderate
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	No deck or fence/non-combustible	Low
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	Extreme
Community Hazard Rating	97	High

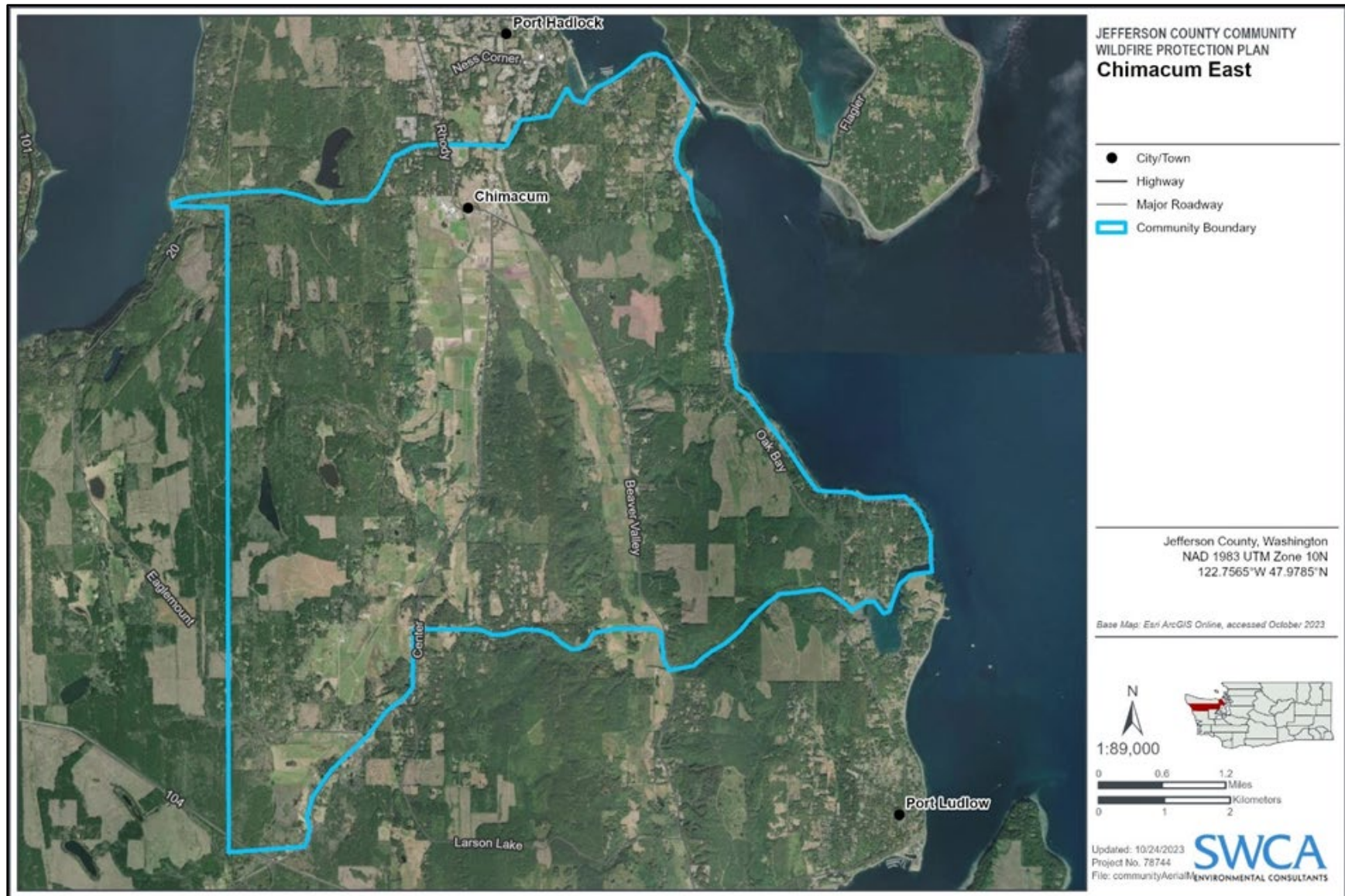


Figure C.51. Chimacum East: The area containing the community of Chimacum contains a large amount of agricultural land with forested land bordering the east and west. The area is sparsely populated, and access is generally good.

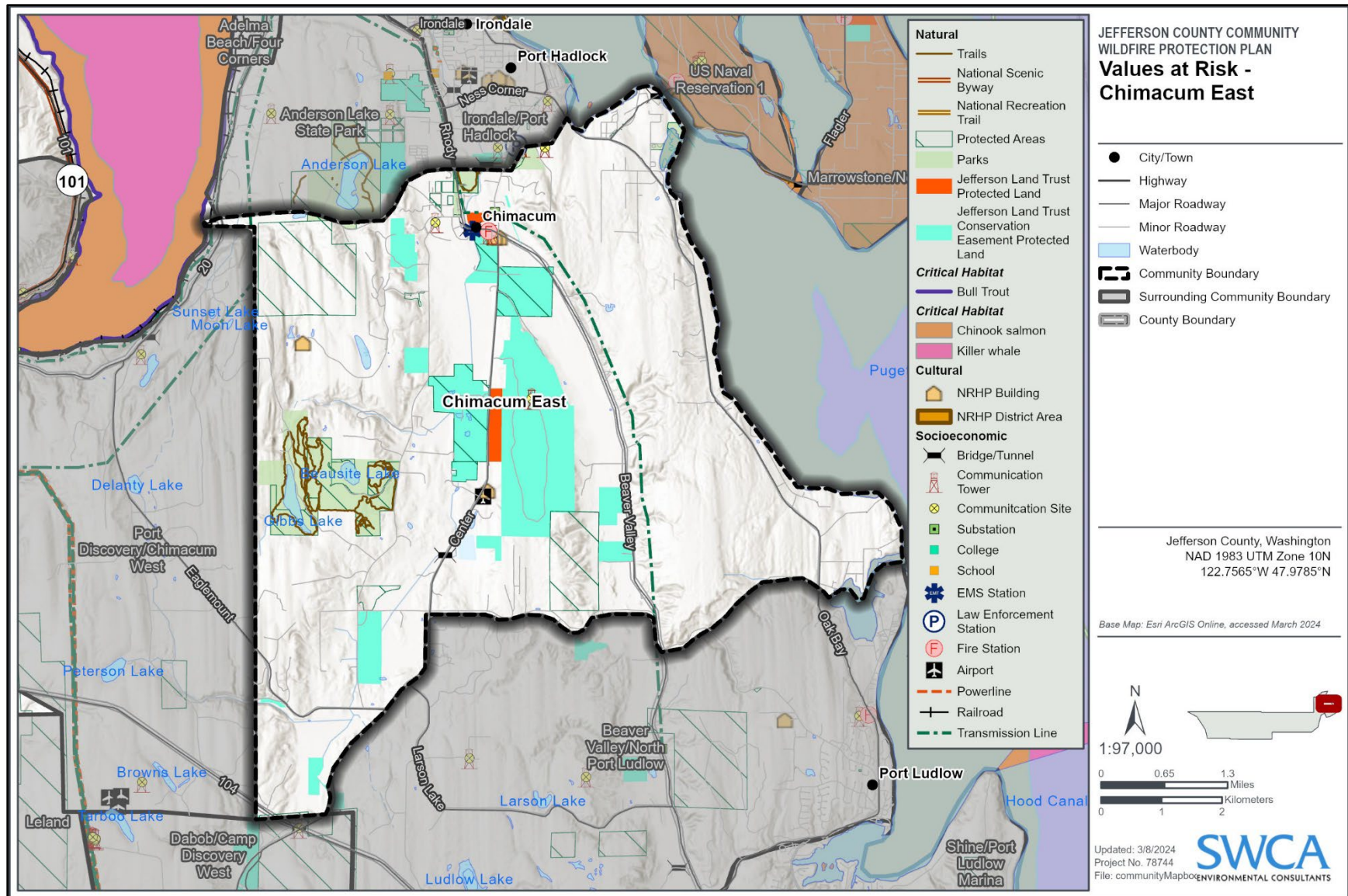


Figure C.52. Highly Valued Resources and Assets for Chimacum East.

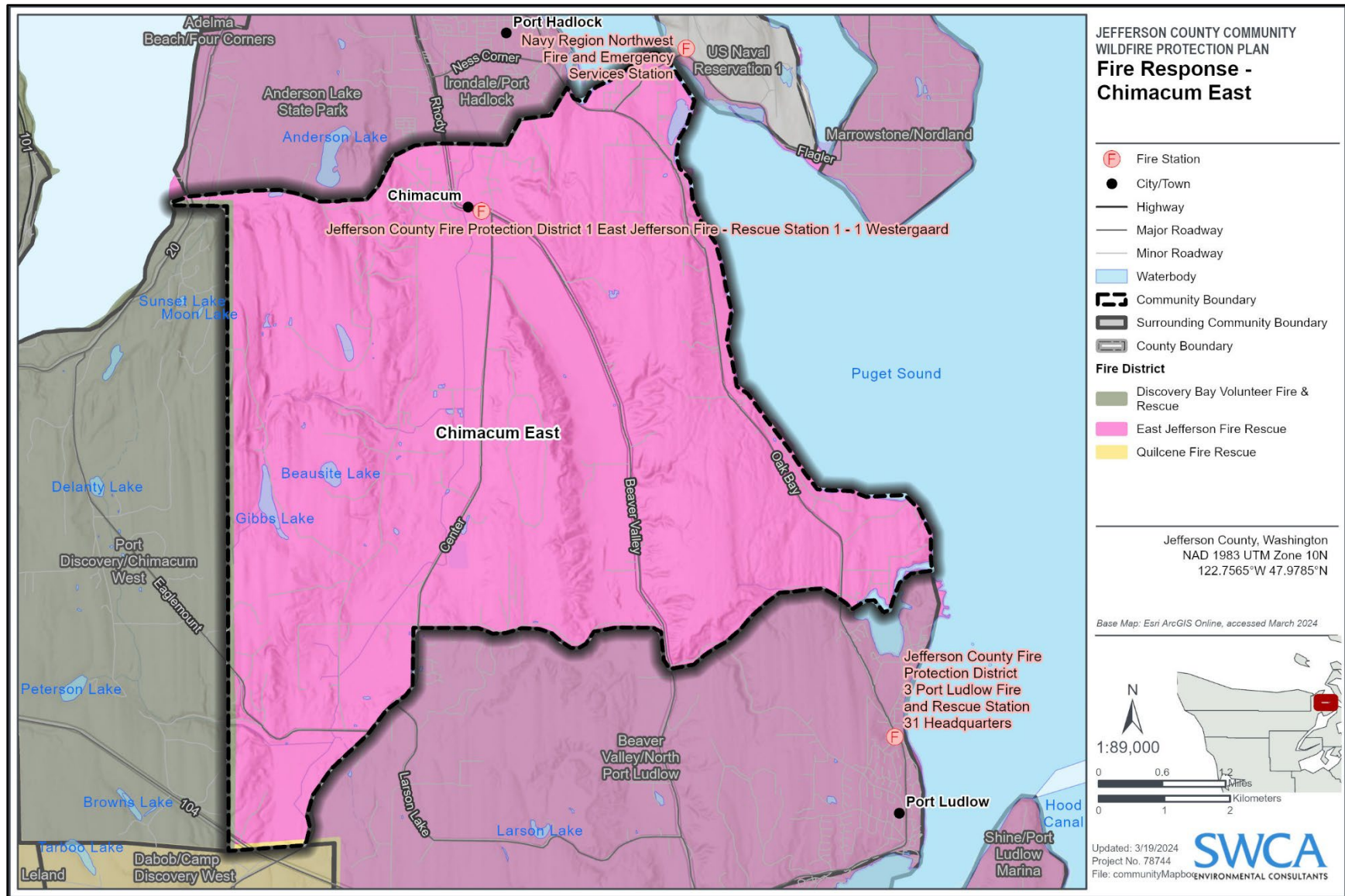


Figure C.53. Fire response for Chimacum East.

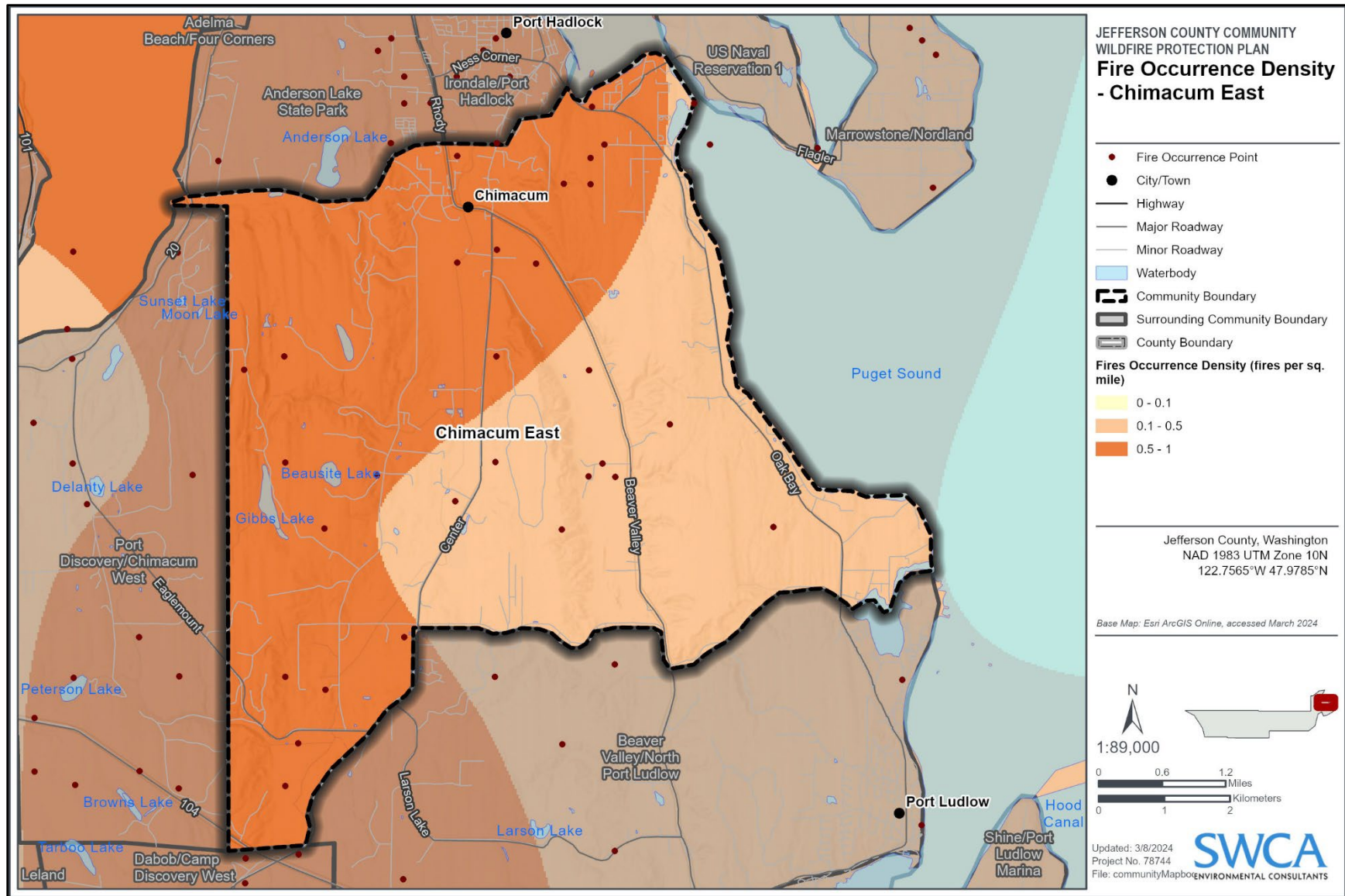


Figure C.54. Fire occurrence density for Chimacum East.

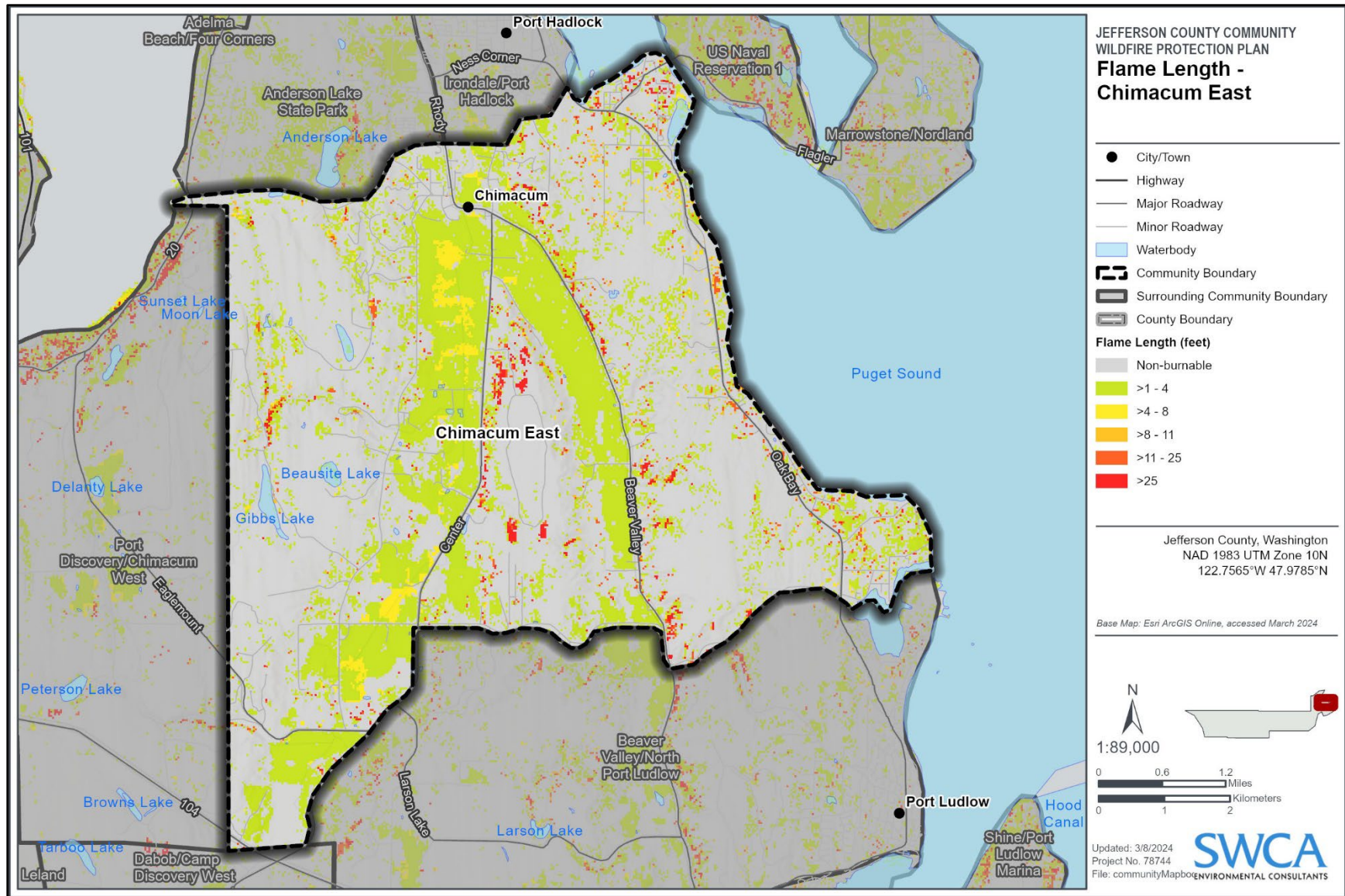


Figure C.55. Flame length for Chimacum East.

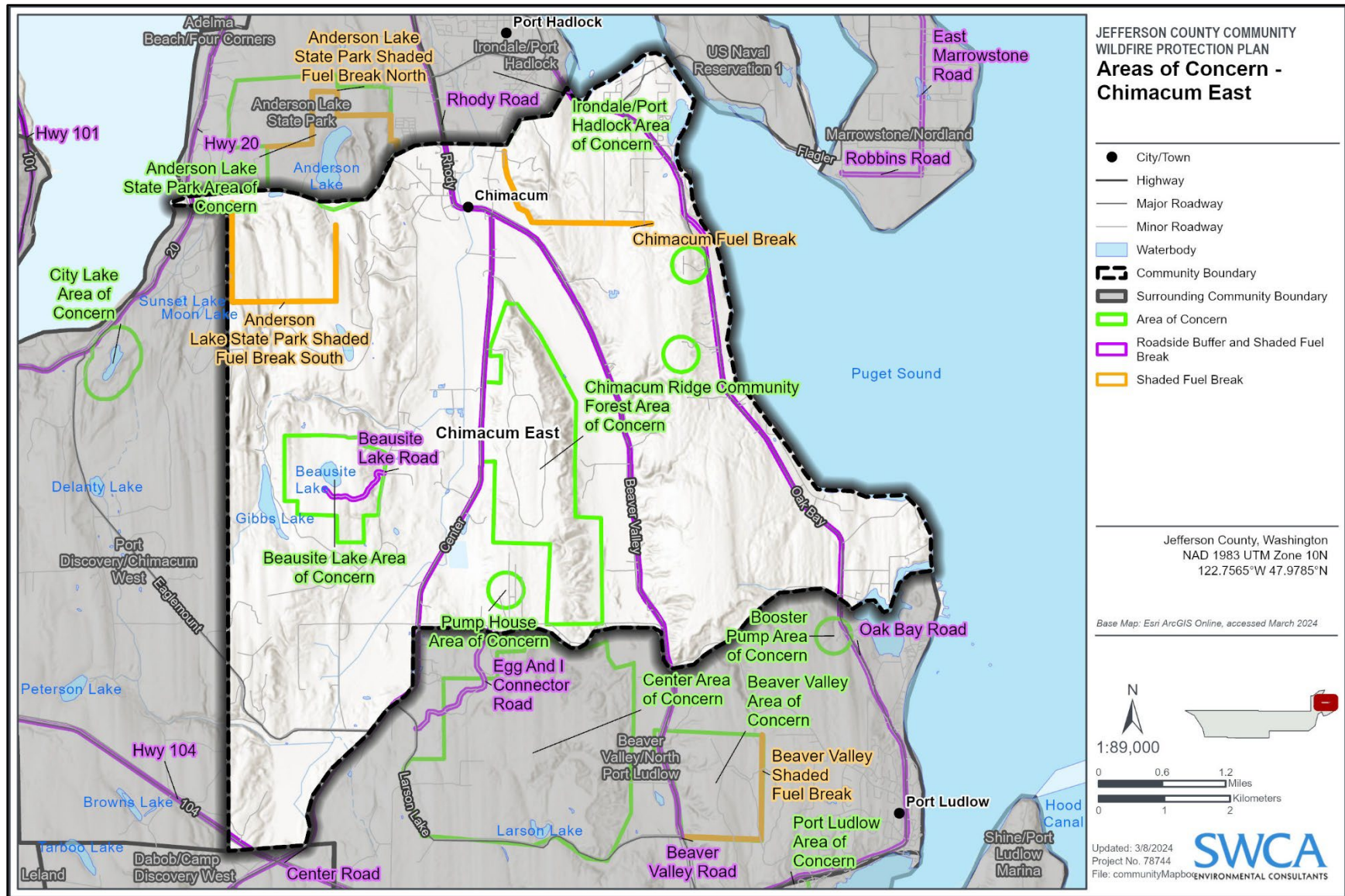


Figure C.56. Areas of concern detail for Chimacum East.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Ingress and egress: surfaced roadways, two or more roads in and out
- Street signs: visible and reflective
- Organized response: fire department in community
- History of fire occurrence: low
- Severe fire weather potential: low; high humidity
- Water source: water availability through hydrants
- Decks and fencing: not many present in community, often made of non-combustible materials if present

Negative Attributes (High Scores)

- Utility placement: aboveground
- Defensible space: minimal, with some homes with poor maintenance and refuse in yard
- Building construction: combustible siding
- Predominant vegetation: timber-litter, highly flammable

Recommended Mitigation

Areas of Concern:

Chimacum Ridge Community Forest, Beausite Lake, and Anderson Lake Areas of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Pump House Area of Concern:

- Reduce fuel loading and create maintenance plan for protection of infrastructure.
- Implement fuel modification measures aimed at reducing hazardous fuel load and enhancing fuel discontinuity within the area.
- Ensure that these actions align with established land management plans and regulatory compliance standards.
- Identify and capitalize on opportunities that offer multiple benefits across various resources.

Shaded Fuel Break:

Anderson Lake State Park Shaded Fuel Break South and Chimacum Fuel Break:

- Tailor buffer width based on site-specific conditions, ensuring treatments are designed to diminish ladder fuels and elevate canopy base height.
- Plan and implement fuel break treatments to reduce ladder fuels and raise canopy base height.

Roadside Buffer and Shaded Fuel Break:

Center Road, Rhody Road, Beaver Valley Road, Oak Bay Road:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Buffer width will depend upon landownership and site conditions. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

Highway 104:

- Leverage typical stand management activities on lands primarily owned by Washington State and Rayonier Timber along most of the stretch of Highway 104 to fulfill fuel modification objectives.
- Implement Washington State Department of Transportation's (WSDOT)'s roadside management practices and assisting homeowners in creating defensible space and improving side road access/egress.
- Encourage exploration of potential grant opportunities from DNR and FEMA to support these initiatives.
- Work with the State and Rayonier Timber to create strategic roadside buffers through fuels modifications. Normal stand management activities should be used to meet fuel modification goals. Focus on the area where the highway and private homeowners intersect. Investigate use of possible DNR/FEMA grants to support fuel treatments.

10. Port Discovery/Chimacum West Field Assessment Summary

Port Discovery-Chimacum West		
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 no turnaround	Extreme
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Slash-Blow (TU)	Extreme
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	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	1	Low
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
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	Extreme
Community Hazard Rating	102	High

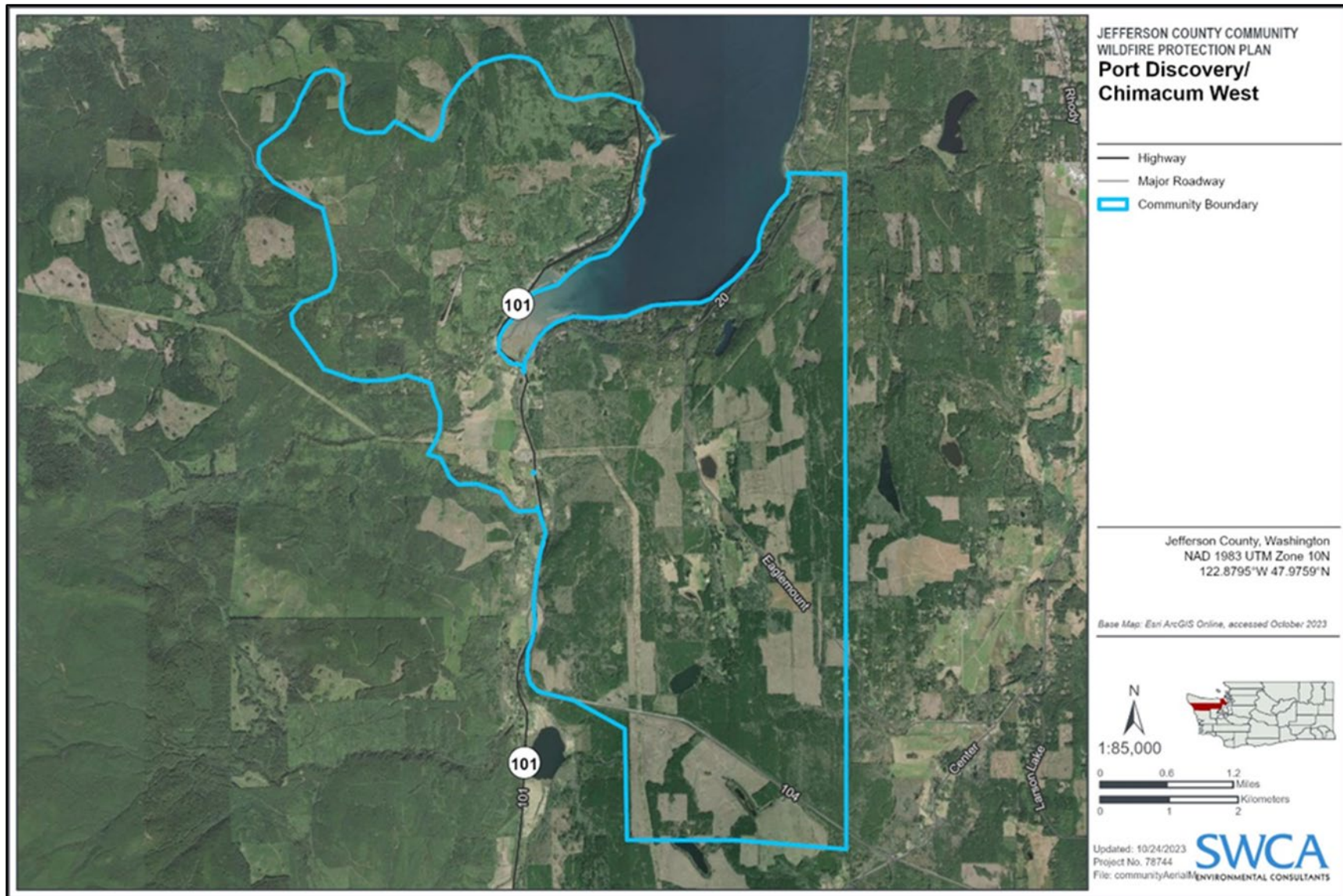


Figure C.57. Port Discovery/Chimacum West: The community is located adjacent to Discovery Bay, with most homes accessed from the main road.

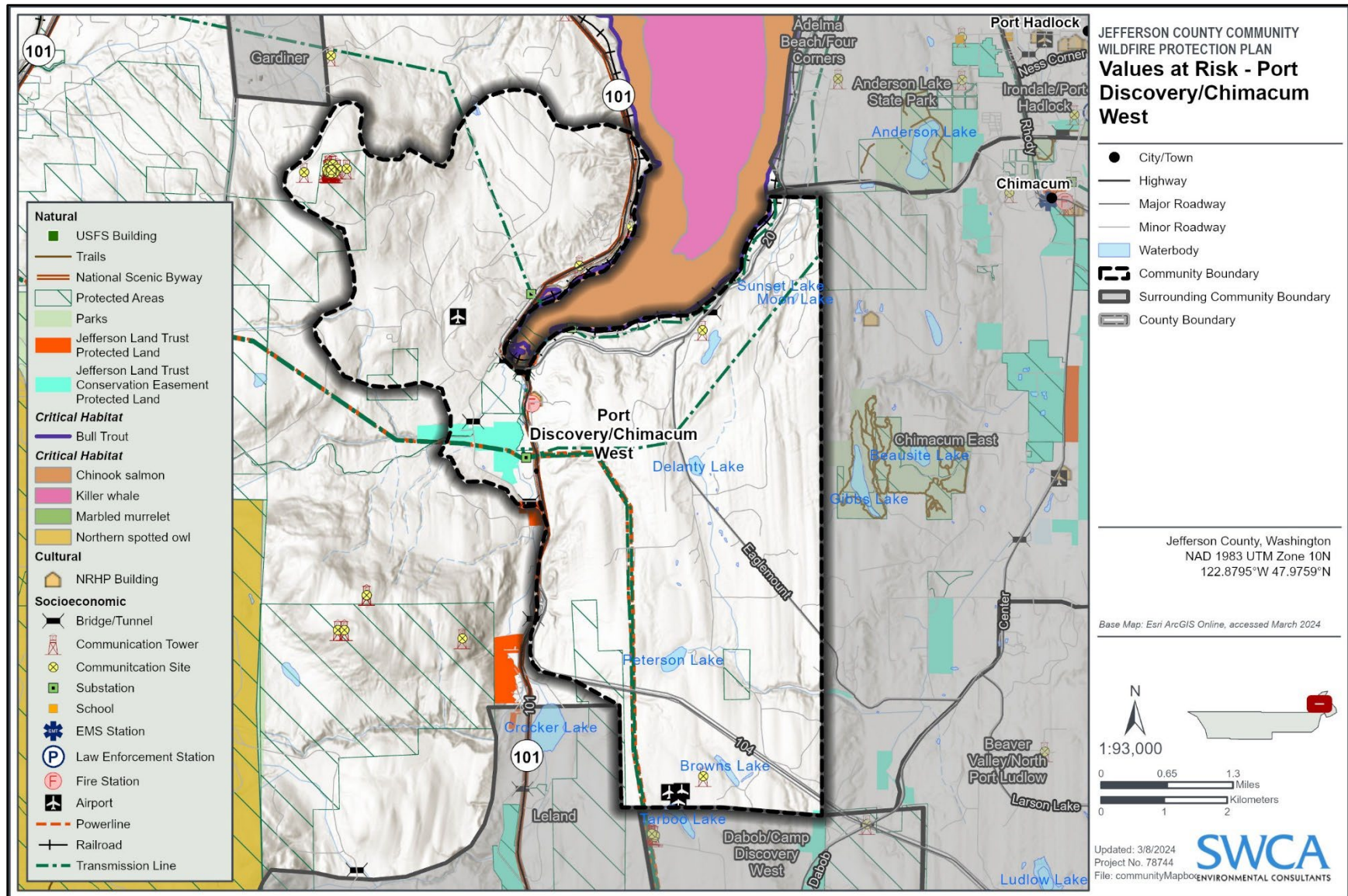


Figure C.58. Highly Valued Resources and Assets for Port Discovery/Chimacum West.

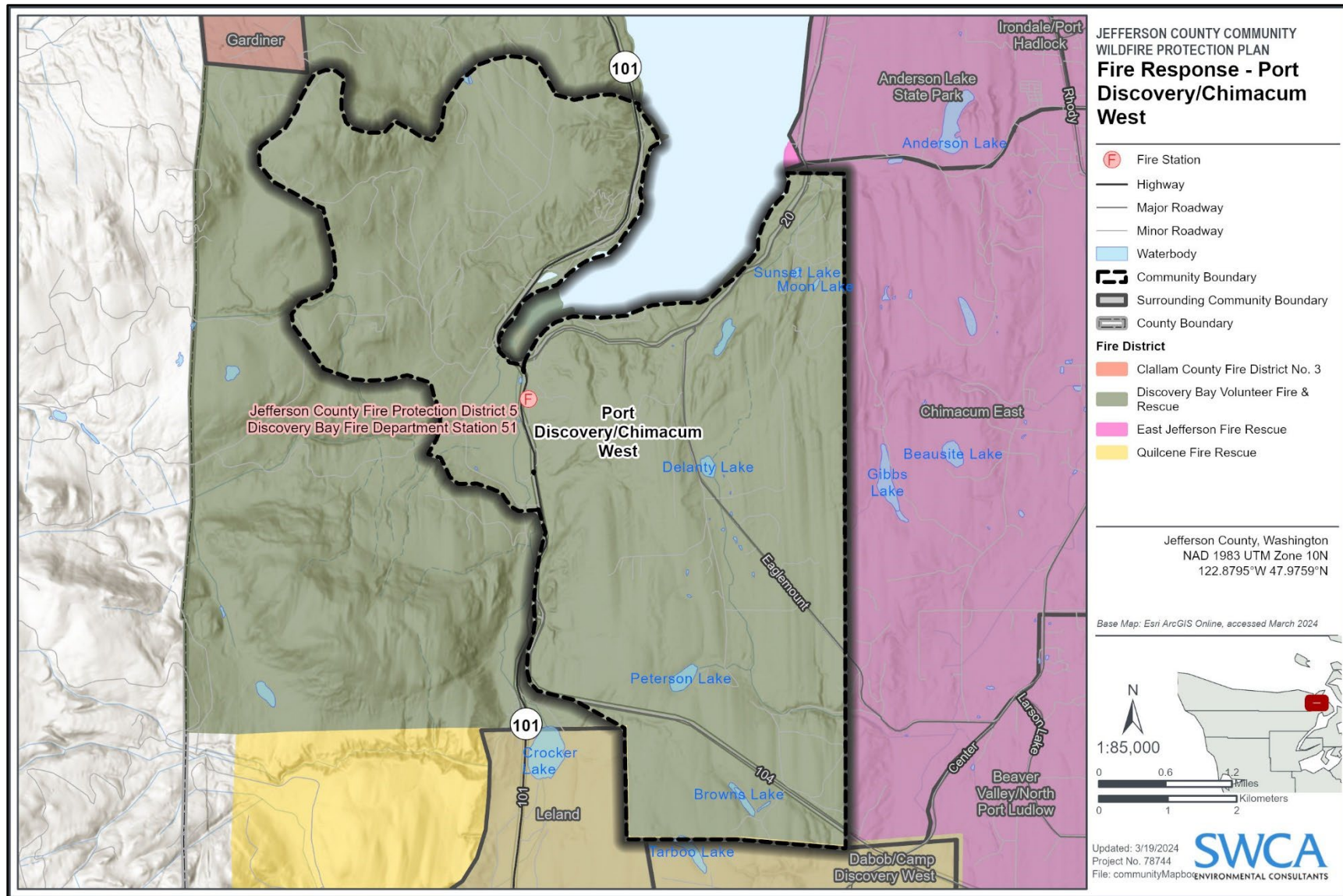


Figure C.59. Fire response for Port Discovery/Chimacum West.

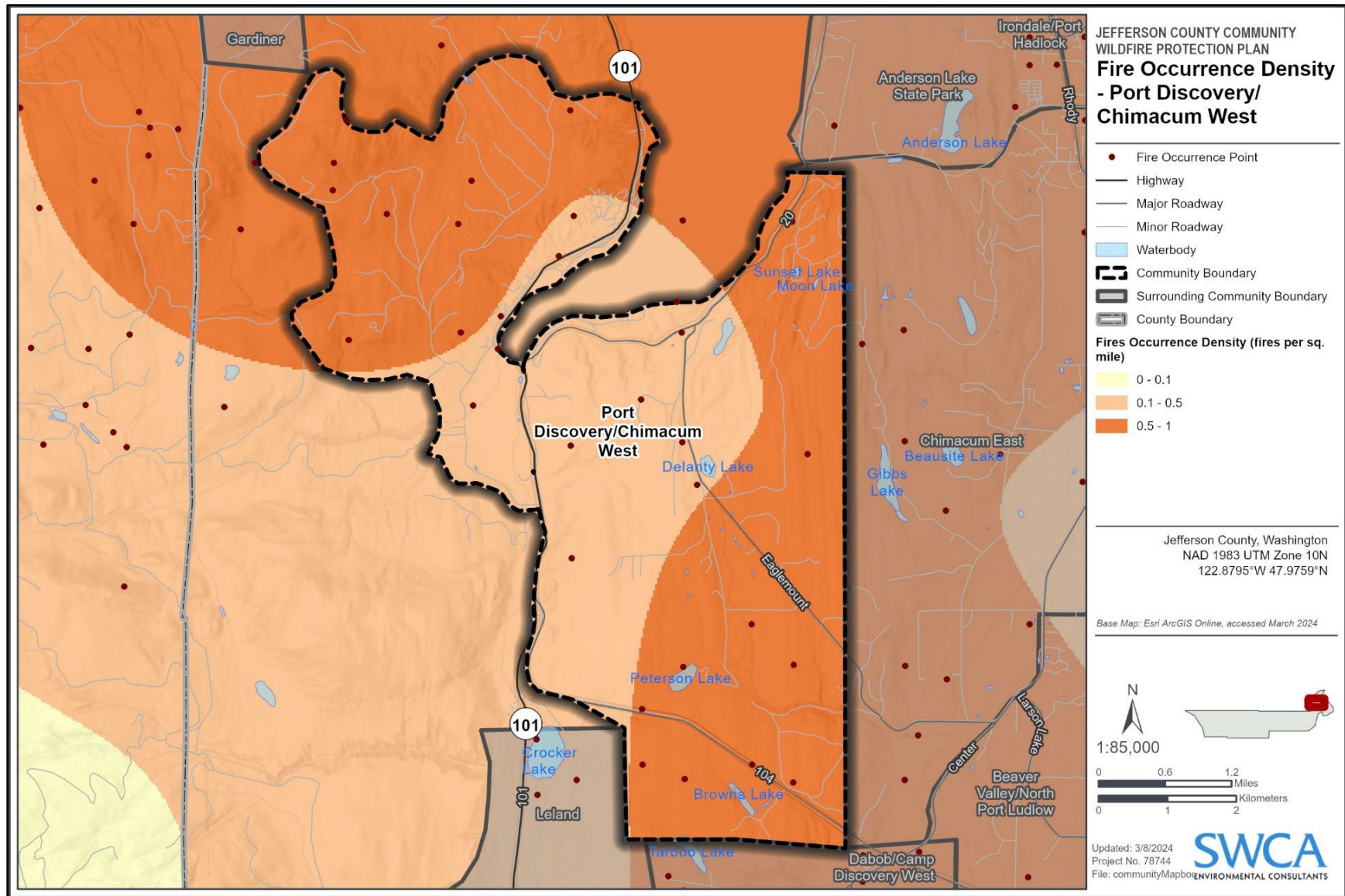


Figure C.60. Fire occurrence density for Port Discovery/Chimacum West.

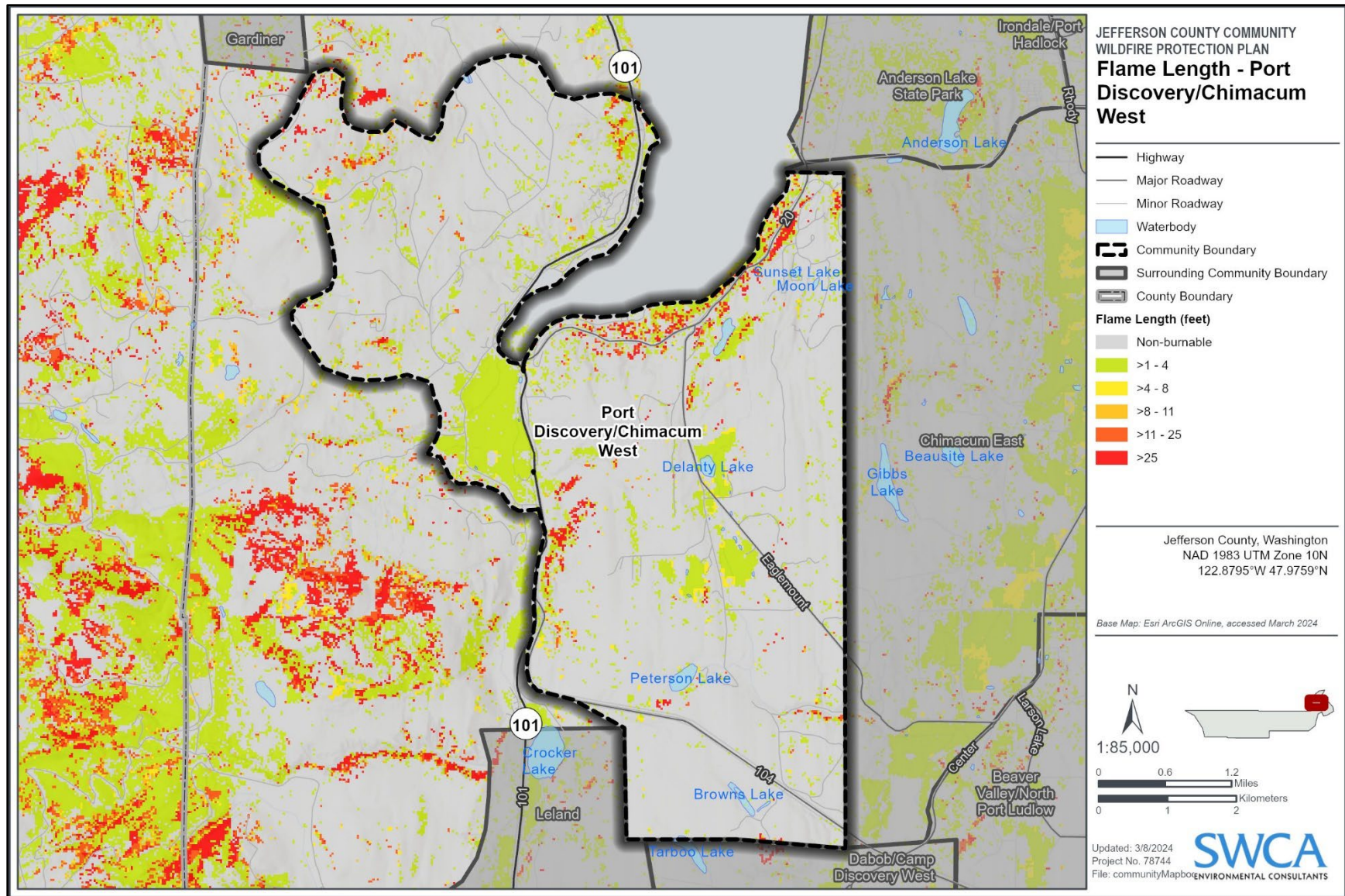


Figure C.61. Flame length for Port Discovery/Chimacum West.

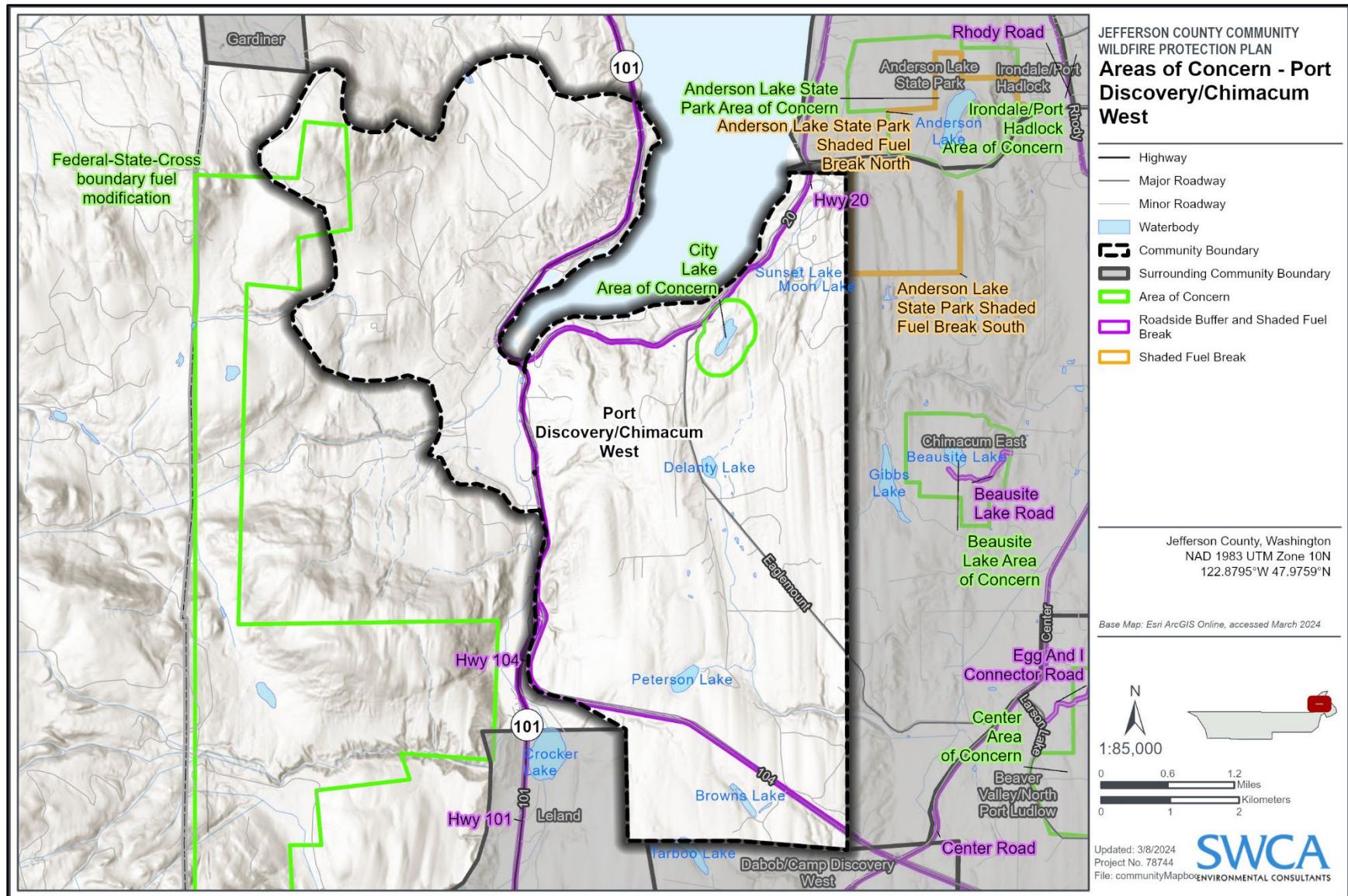


Figure C.62. Areas of concern detail for Port Discovery/Chimacum West.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Entrance/exit: more than two roads in/out
- Roads: surfaced, grade of <5%, and width of >24 feet
- Streets signs: present and reflective
- History of fire occurrence: low
- Severe fire weather potential: low
- Separation of adjacent structures: high
- Water sources: available hydrants
- Organized fire response: fire station <5 miles from community

Negative Attributes (High Scores)

- Predominant vegetation: slash-blow, highly combustible
- Defensible space: <30 feet around structures
- Fire truck access: <300 feet with no turnaround
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Recommended Mitigation

Areas of Concern:

Federal-State Cross-Boundary Fuel Modification:

- Design and implement hazardous fuels projects with a focus on state lands interfacing with USFS boundaries. Identify isolated residences where stand management activities (during normal stand rotation) may be used to create fuel breaks to protect structures.
- Work with homeowners to develop shelter in place/defensible space and evacuation plans. Investigate use of FEMA grants and DNR grants for homeowners.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

All:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

11. Beaver Valley/North Port Ludlow Field Assessment Summary

Beaver Valley/North Port Ludlow		
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-Litter (TL)	Extreme
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	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
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	Extreme
Community Hazard Rating	101	High

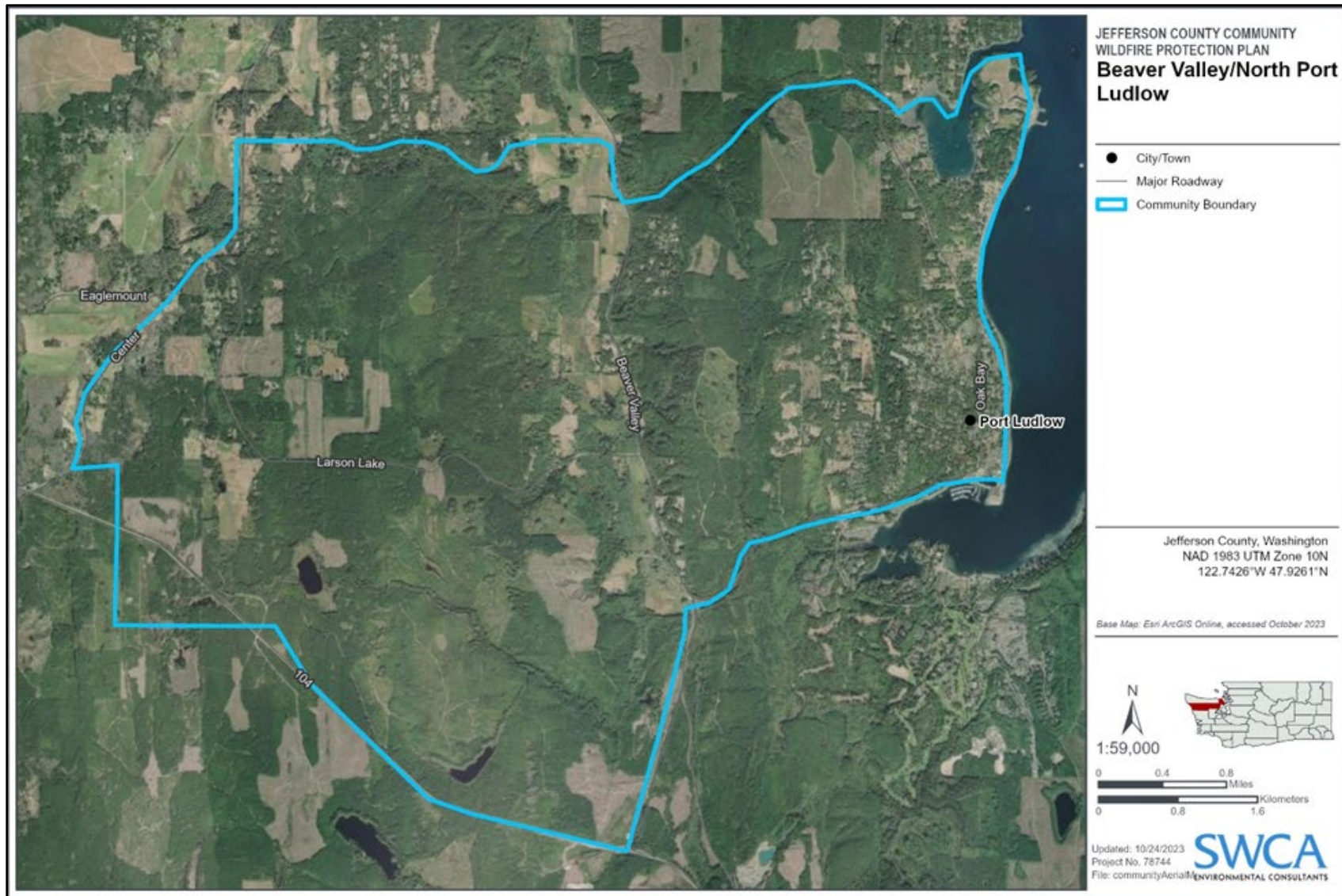


Figure C.63. Beaver Valley/North Port Ludlow: The community contains significant WUI residential areas. The forest adjacent to the communities is actively managed for a variety of purposes, including clear cutting, carbon offsets, and wildfire mitigation. Recent fires have impacted the area.

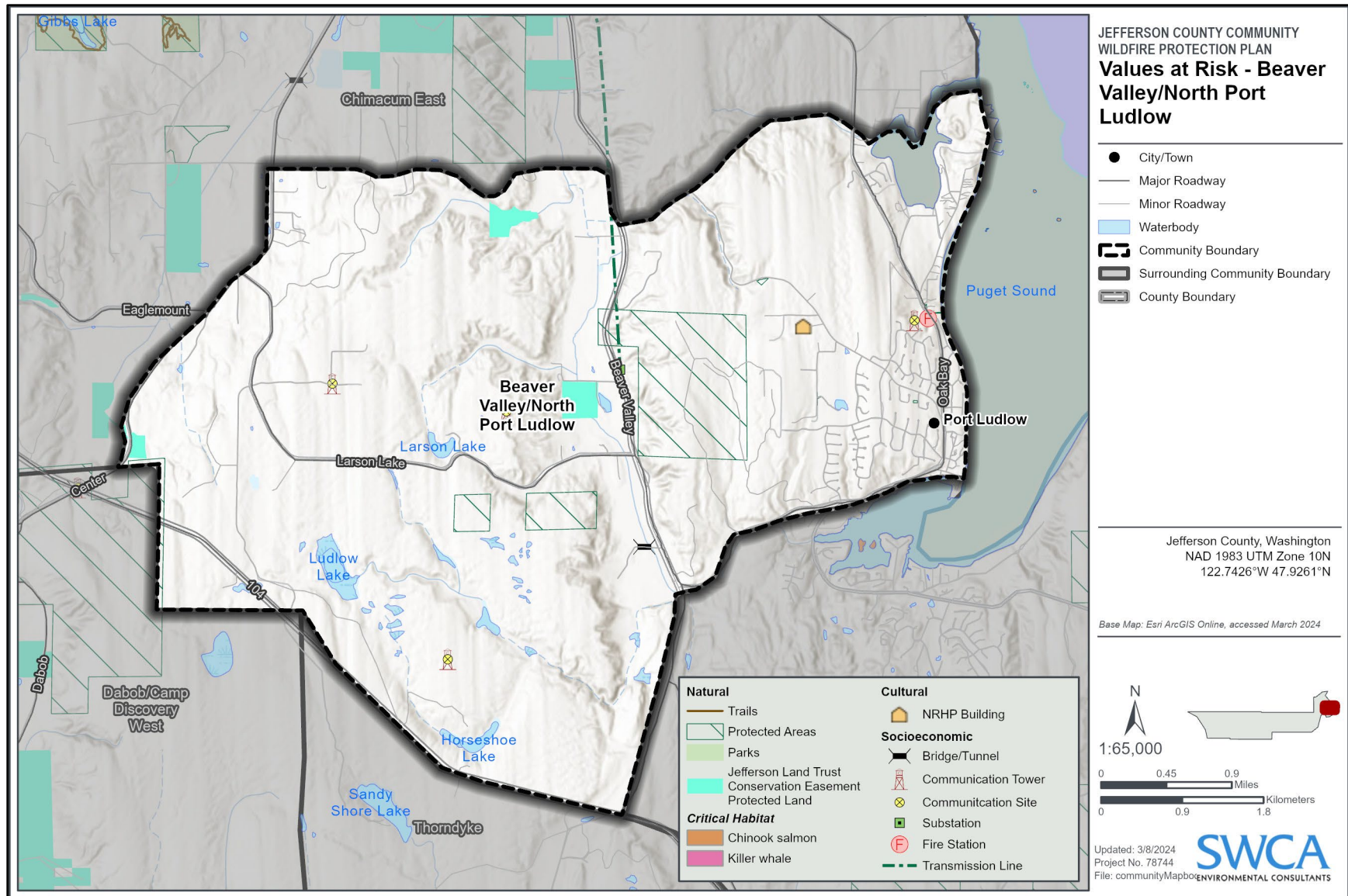


Figure C.64. Highly Valued Resources and Assets for Beaver Valley/North Port Ludlow.

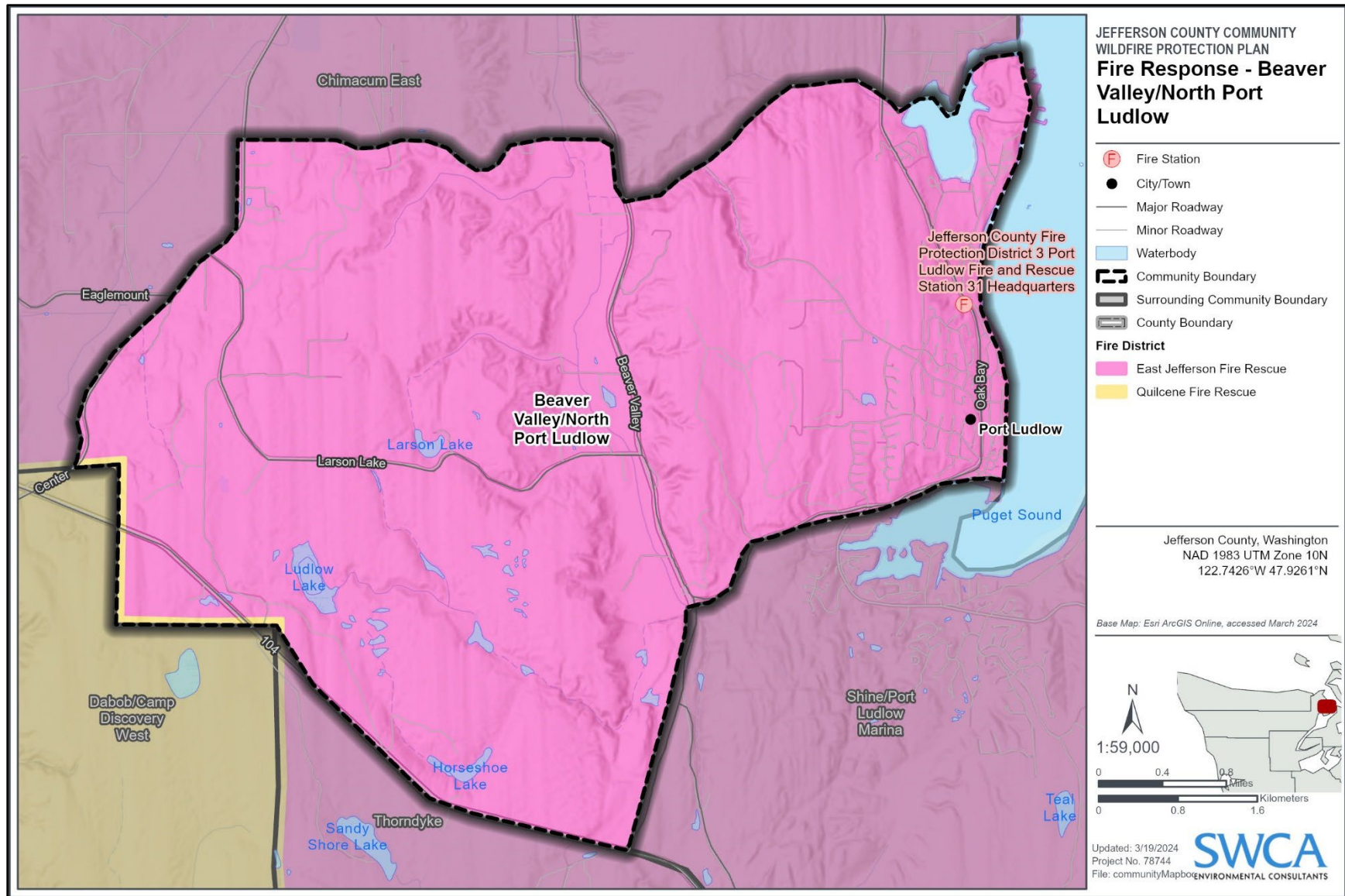


Figure C.65. Fire response for Beaver Valley/North Port Ludlow.

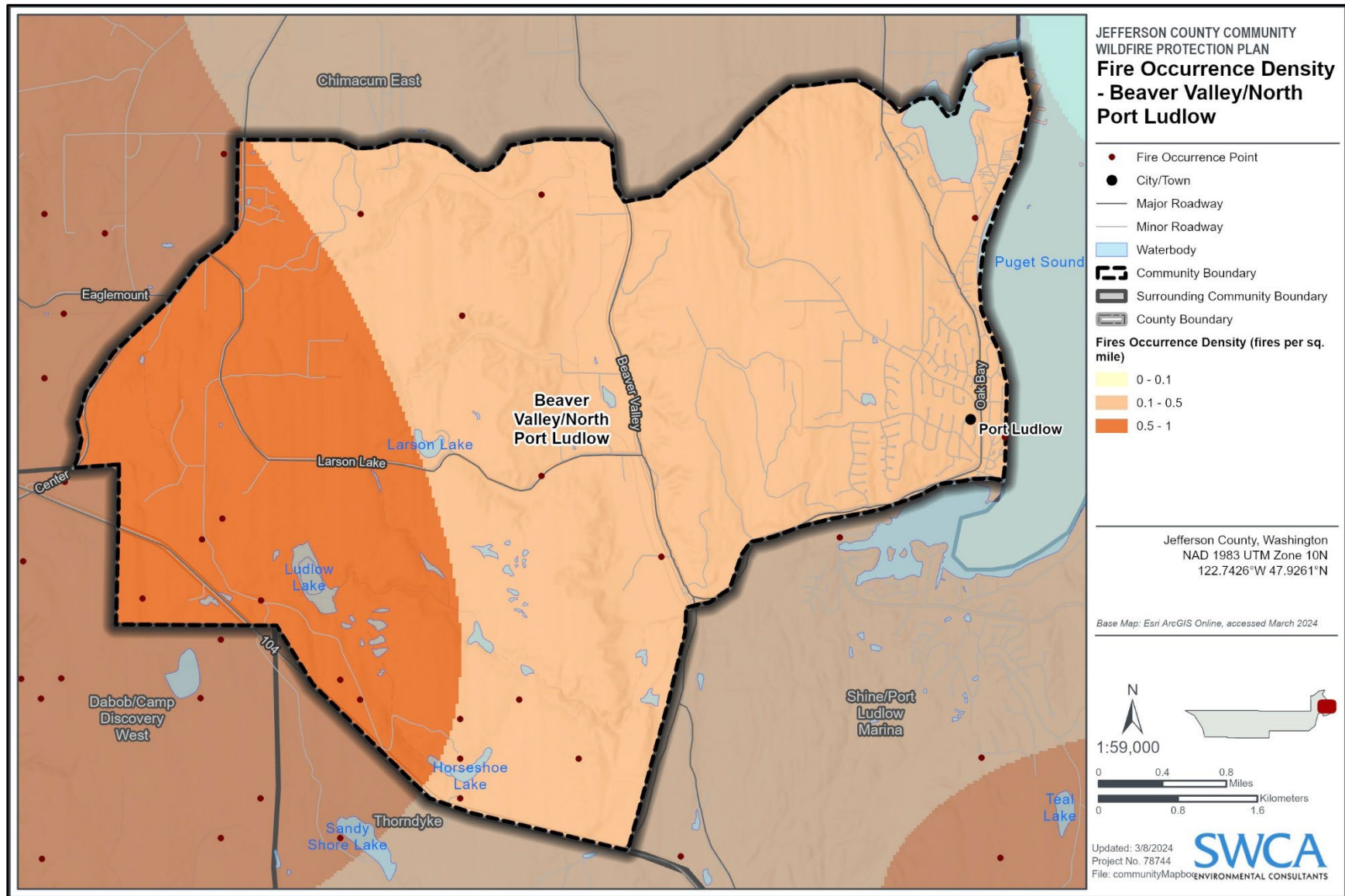


Figure C.66. Fire occurrence density for Beaver Valley/North Port Ludlow.

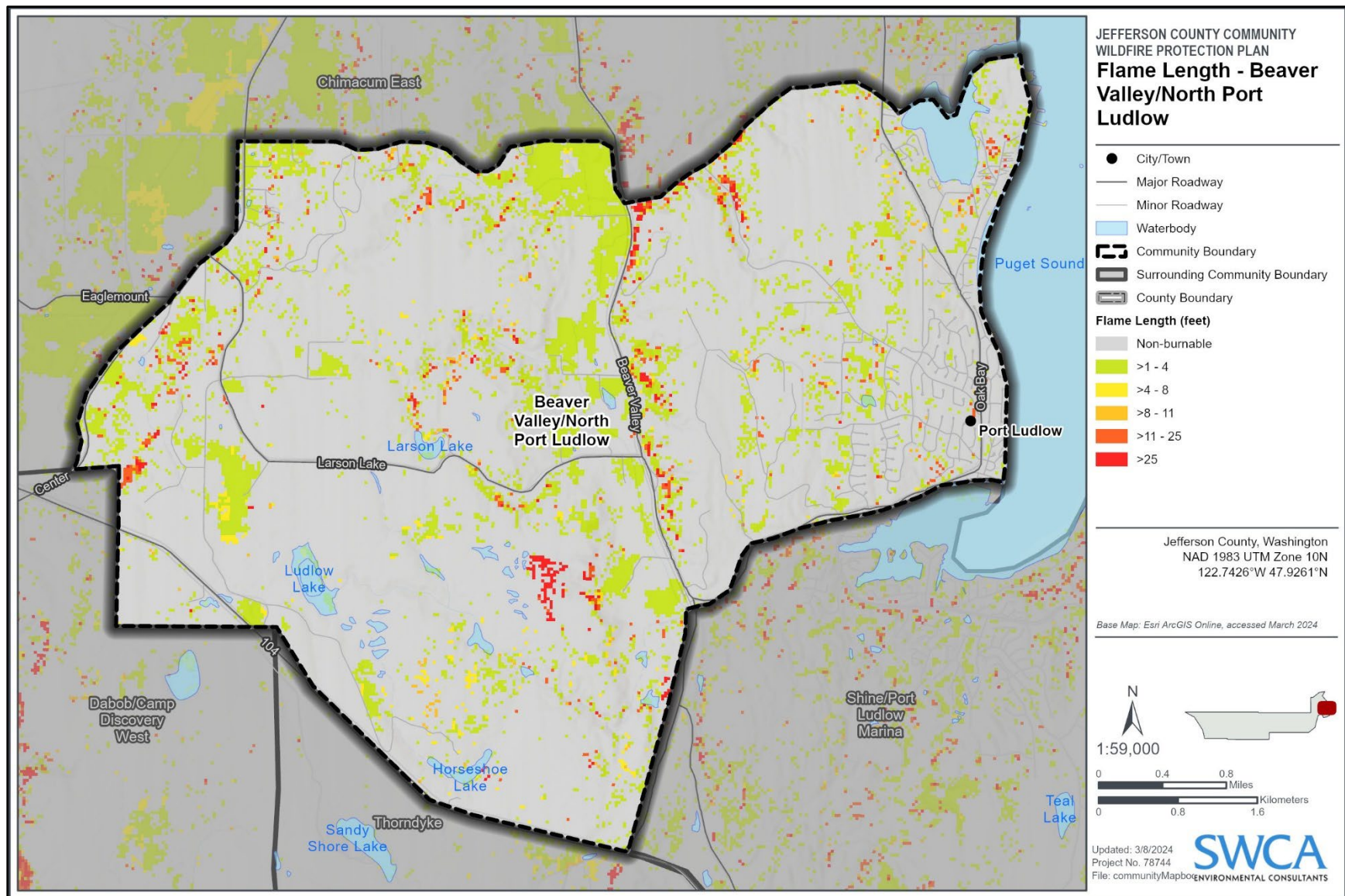


Figure C.67. Flame length for Beaver Valley/North Port Ludlow.

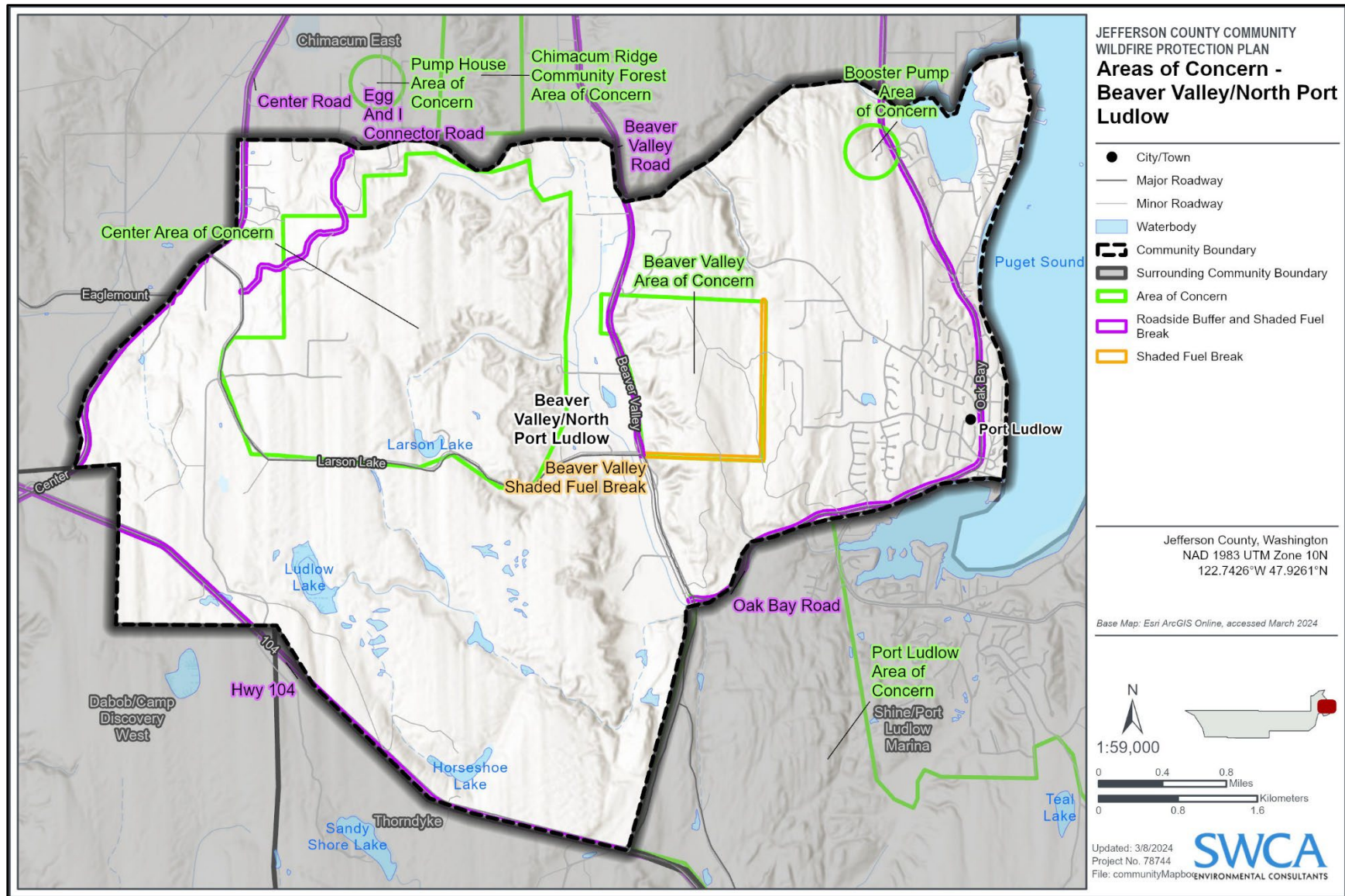


Figure C.68. Areas of concern detail for Beaver Valley/North Port Ludlow.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Entrance/exit: two or more paved roads in and out
- Street signs: visible and reflective
- Water source: water availability through hydrants
- Building setback: >30 feet to slopes
- Organized response: fire department in community
- History of fire occurrence: low
- Severe fire weather potential: low; high humidity

Negative Attributes (High Scores)

- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible
- Defensible space: minimal, with some homes with poor maintenance and refuse in yard.
- Predominant vegetation: timber-litter, flammable

Recommended Mitigation

Areas of Concern:

Beaver Valley, Center Areas of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Prioritize fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Shaded Fuel Break:

Beaver Valley Shaded Fuel Break:

- Implement fuel break in areas most exposed to high-severity wildfire.
- Incorporate treatments aimed at reducing ladder fuels and increasing canopy base height, adjusting buffer width according to site-specific condition.

Roadside Buffer and Shaded Fuel Break:

Highway 104:

- Identify state and private timber lands within the fuel break area.
- Prioritize activity-based fuel treatments along boundaries with private residential properties for establishing defensible spaces.
- Utilize stand management activities to achieve fuel modification goals along the Highway 104 corridor, particularly focusing on the east end near the Hood Canal Bridge.
- Collaborate with WSDOT to implement roadside management activities and improve side road access/egress.
- Engage homeowners to establish defensible space and enhance wildfire resilience.
- Explore funding opportunities through DNR and FEMA grants.
- Work with state and Rayonier Timber to create strategic roadside buffers through fuels modifications.
- Implement fuel modifications along Beaver Valley Road, Egg and I Connector Road, and Oak Bay Road to reduce fire intensity during evacuation, adjusting buffer width based on landownership and site conditions. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

12. Shine/Port Ludlow Marina Field Assessment Summary

Shine/Port Ludlow Marina		
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-Litter (TL)	Extreme
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	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	Low
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	89	High

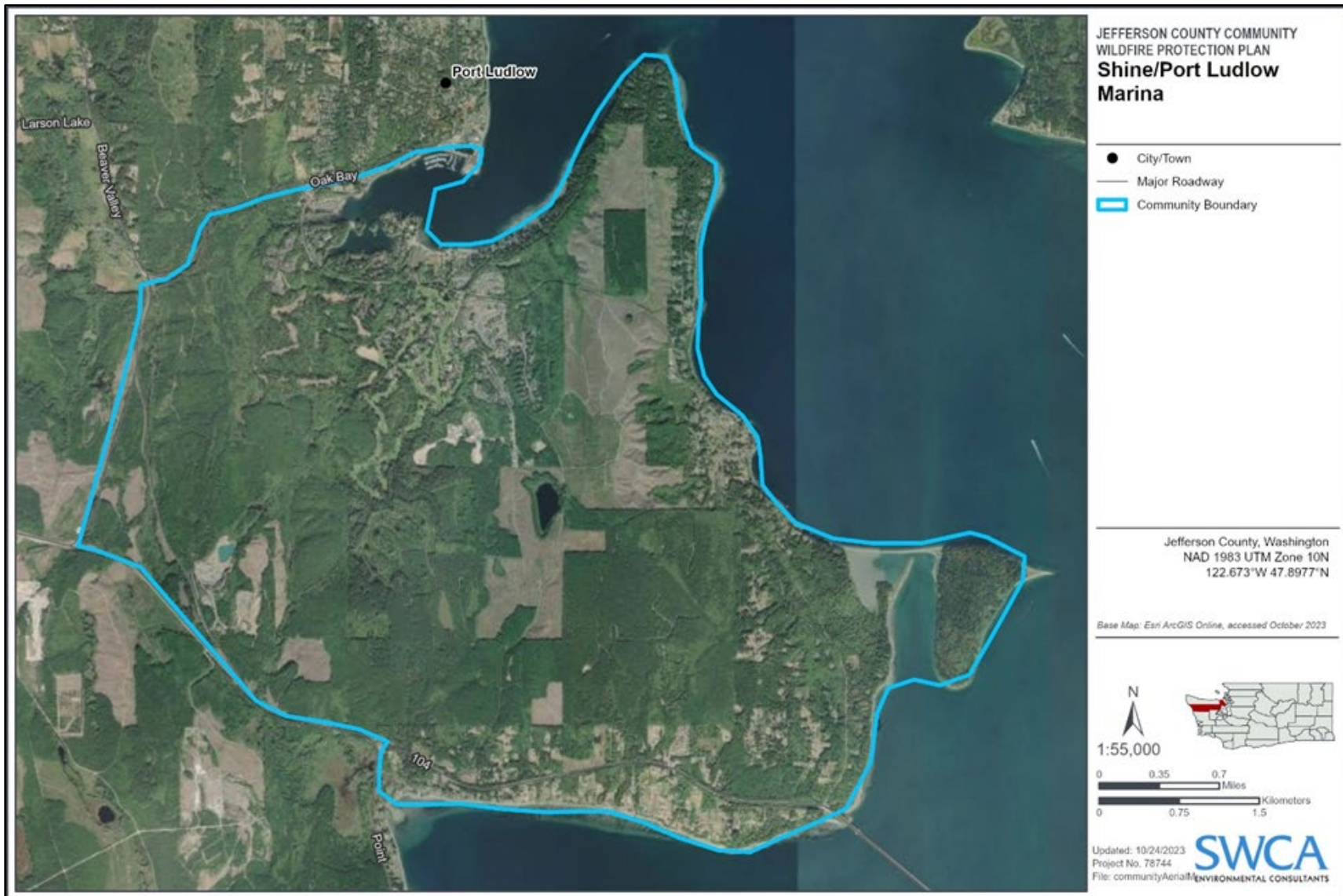


Figure C.69. Shine/Port Ludlow Marina: The community is heavily forested with homes mostly situated along the coast. The area contains a variety of resources such as the Shine Tidelands State Park. Many areas in Shine have single access routes, and some additional egress routes have been blocked with concrete blocks.

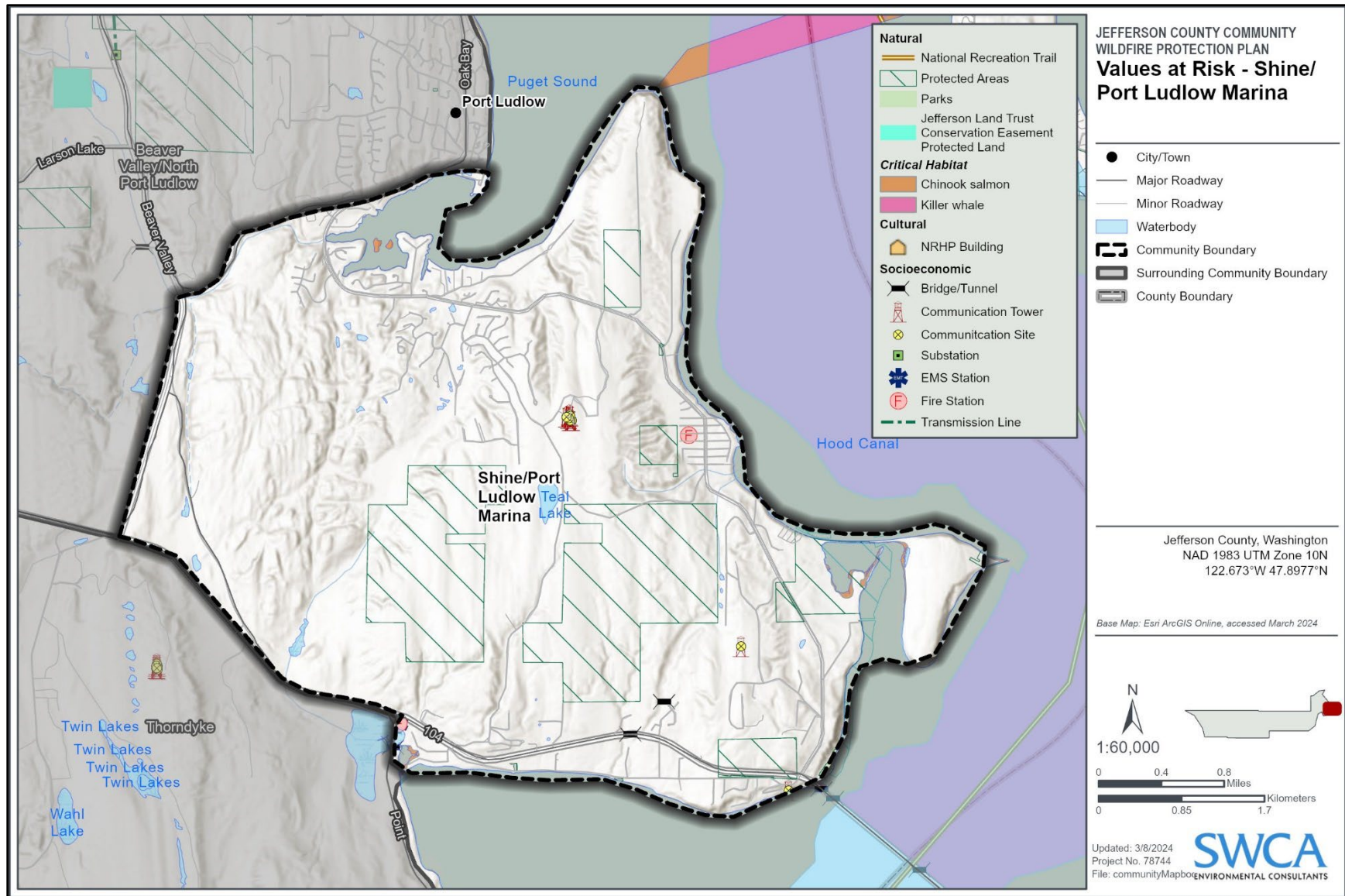


Figure C.70. Highly Valued Resources and Assets for Shine/Port Ludlow Marina.

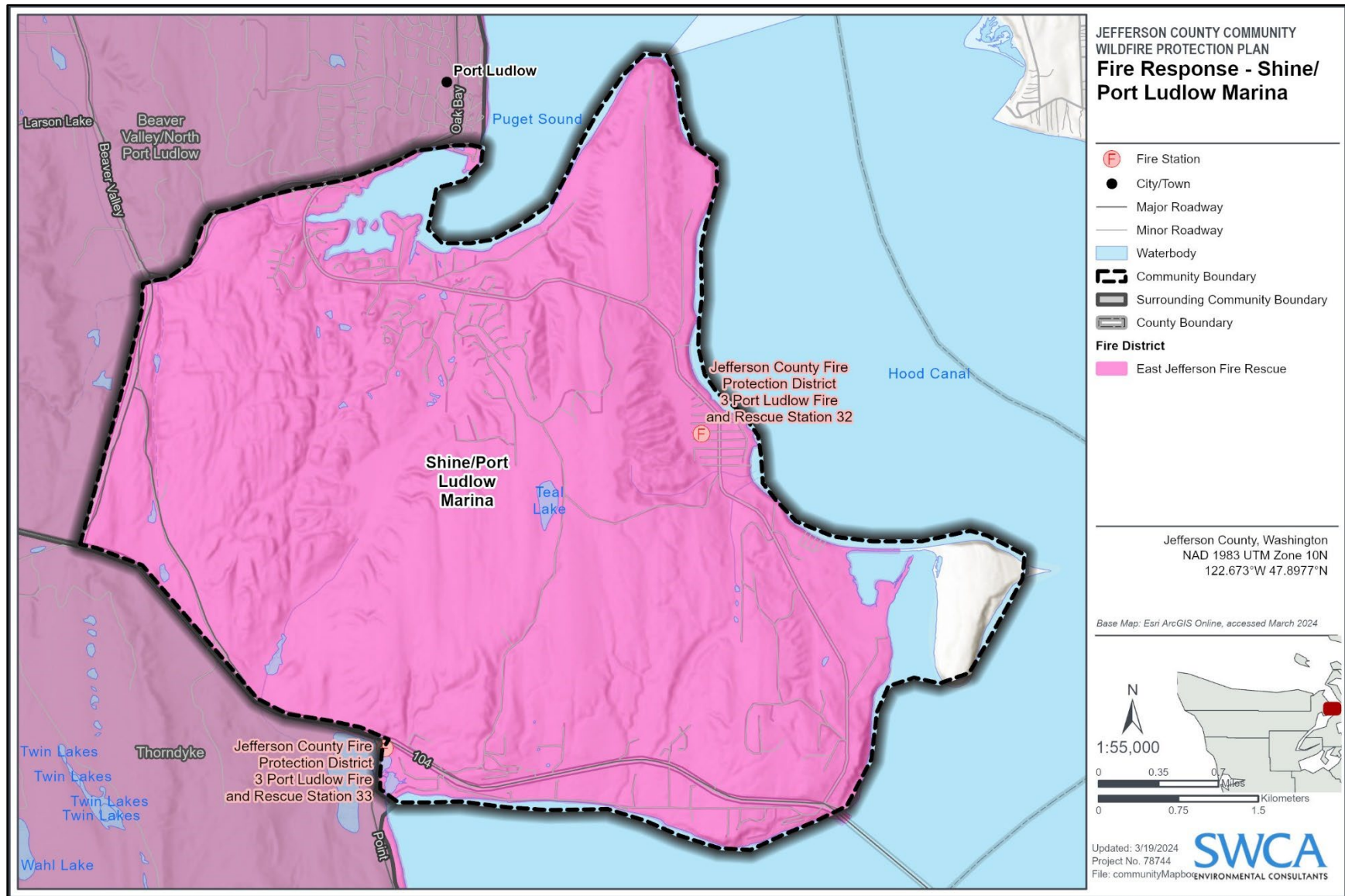


Figure C.71. Fire response for Shine/Port Ludlow Marina.

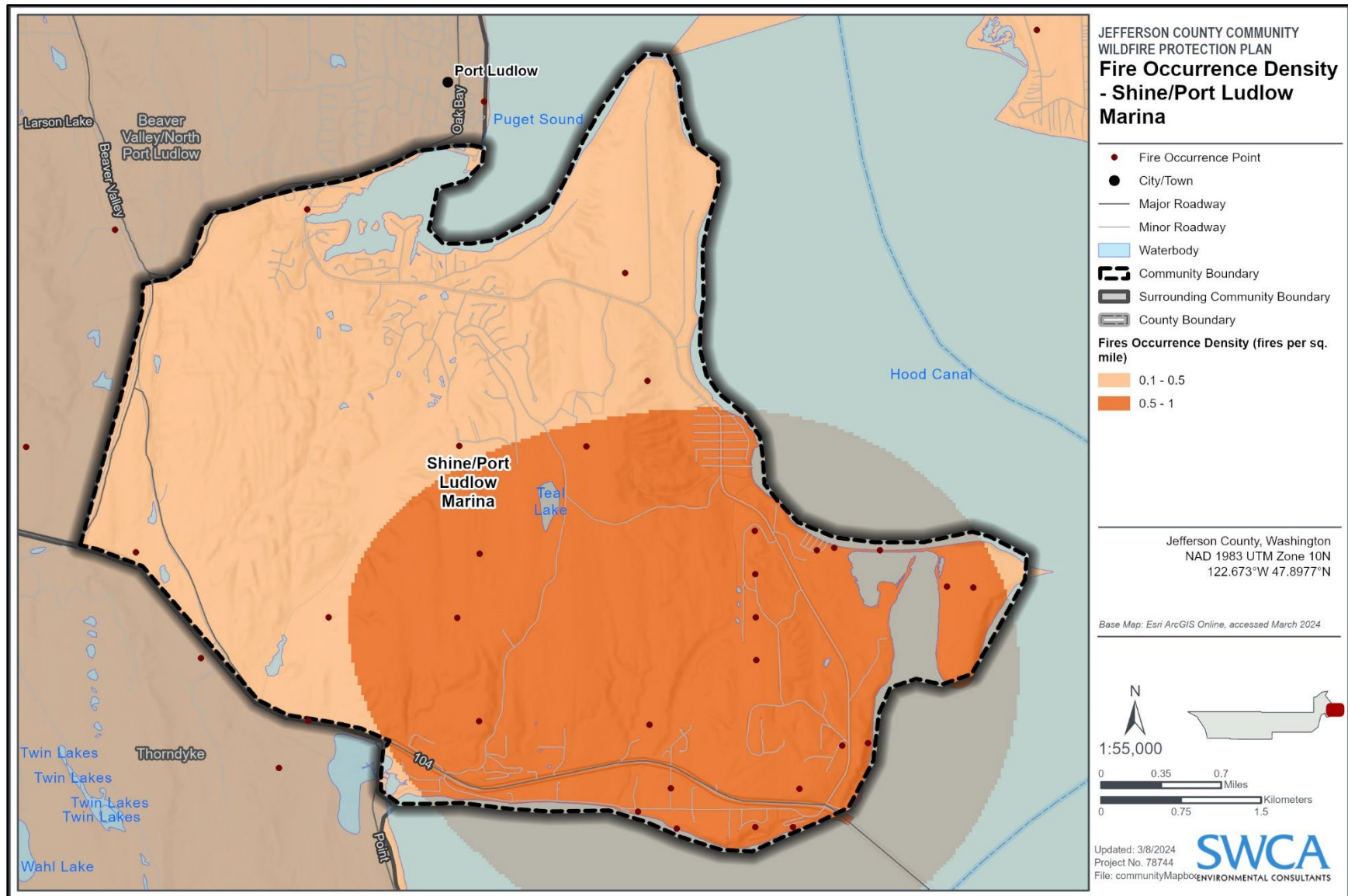


Figure C.72. Fire occurrence density for Shine/Port Ludlow Marina.

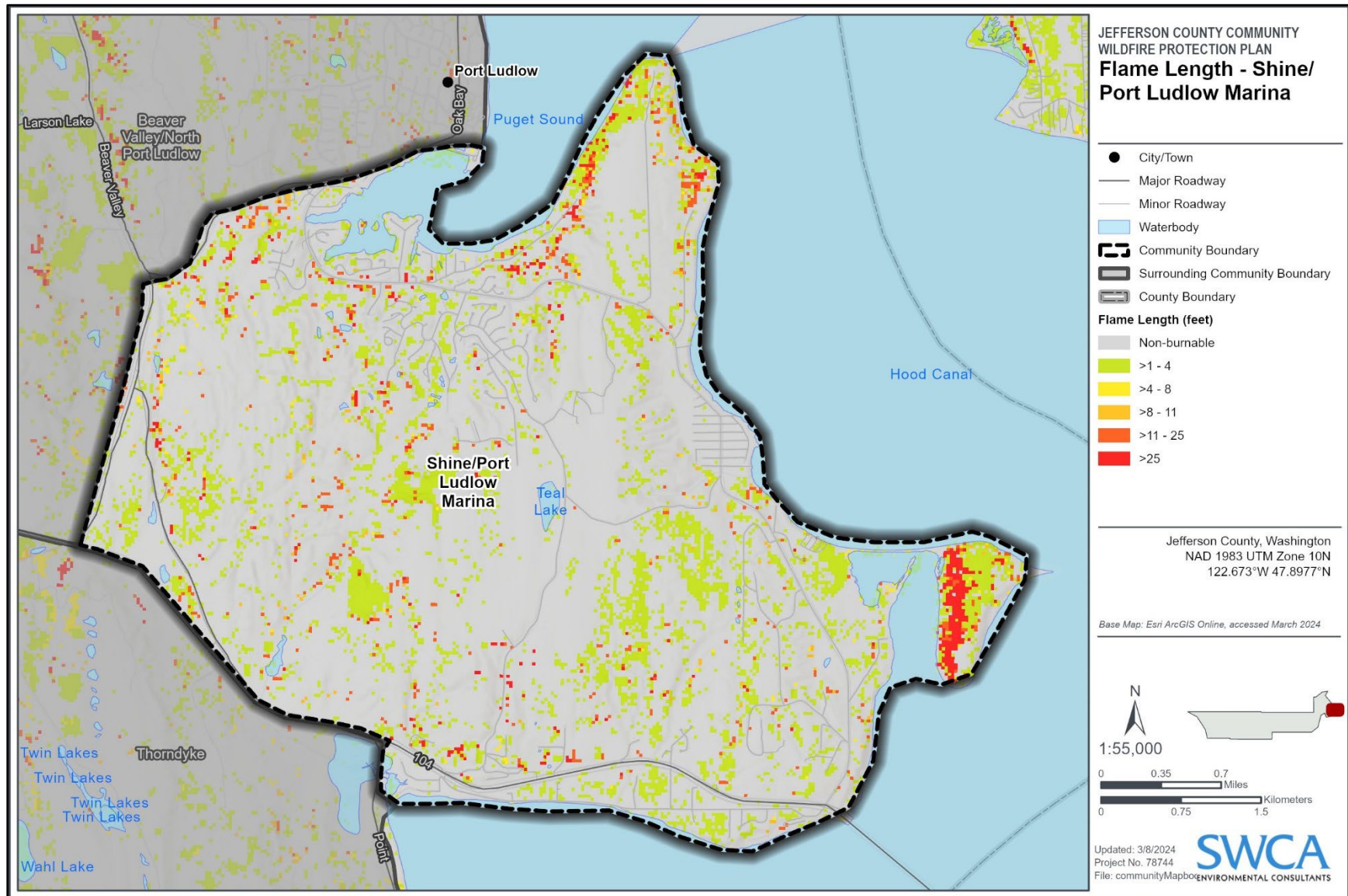


Figure C.73. Flame length for Shine/Port Ludlow Marina.

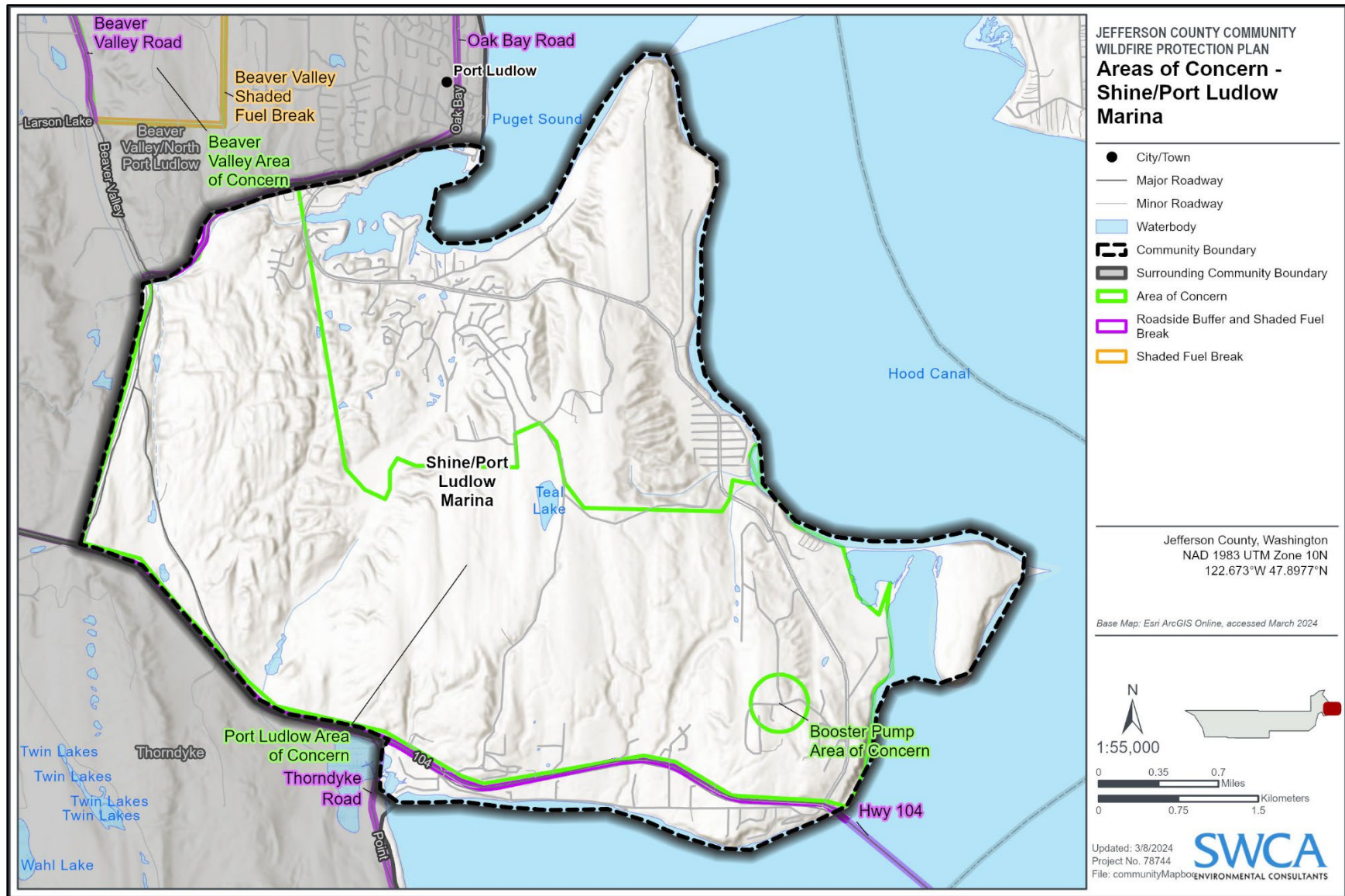


Figure C.74. Areas of concern detail for Shine/Port Ludlow Marina.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Ingress and egress: main highway paved, two or more roads in and out
- Street signs: visible and reflective
- Building setback: >30 feet to slope
- Organized response: fire department in community
- History of fire occurrence: low
- Severe fire weather potential: low; high humidity
- Water source: water availability through hydrants

Negative Attributes (High Scores)

- Dominant vegetation: timber-litter, highly flammable
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible
- Defensible space: minimal, with some homes with poor maintenance and refuse in yard

Recommended Mitigation

Areas of Concern:

Port Ludlow Area of Concern:

- Implement fuel modification efforts aimed at reducing hazardous fuel load and enhancing fuel discontinuity, prioritizing actions based on existing land management plans and regulatory compliance standards.
- Explore opportunities for multiple resource benefits while undertaking fuel modification activities.
- Encourage treatment of home ignition zones to mitigate potential fire hazards.
- Foster cross-boundary collaboration, particularly at interfaces between federal lands and adjacent jurisdictions, to effectively address fuel management challenges and ensure comprehensive wildfire risk reduction.
- Develop educational programs to address defensible space and home hardening.

Booster Pump Area of Concern:

- Reduce fuel loading and create maintenance plan for protection of infrastructure.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Highway 104:

- Implement normal stand management activities on Washington State and Rayonier Timber lands along the majority of Highway 104 to achieve fuel modification objectives.
- Focus efforts at intersections between the highway and private residential areas, particularly on the east end near the Hood Canal Bridge, by collaborating with WSDOT on roadside management activities.
- Explore potential funding opportunities through the DNR and FEMA to support fuel modification efforts along the roadway.
- Determine buffer widths based on landownership and site-specific conditions. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.
- Work with the state and Rayonier Timber to create strategic roadside buffers through fuels modifications. Normal stand management activities should be used to meet fuel modification goals. Focus on the area where the highway and private land intersect. Investigate use of possible DNR/FEMA grants to support fuel treatments.

13. Thorndyke Field Assessment Summary

Thorndyke		
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%	Low
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
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	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	Low
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	96	High

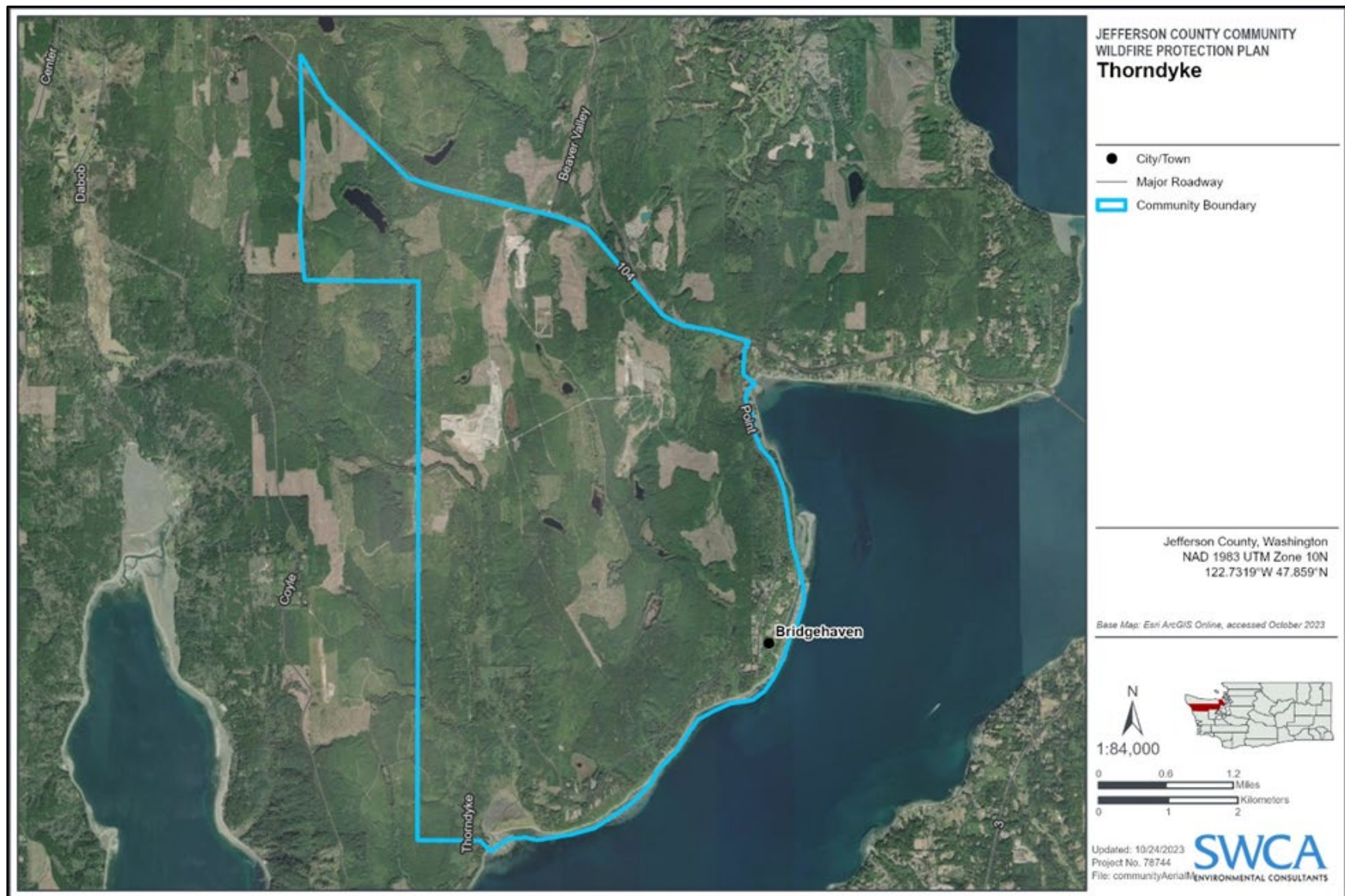


Figure C.75. Thorndyke: The community is mostly located along the coast with many homes accessed by a single road. Dense forests border the community to the west with some clear cuts and commercial forestry operations present.

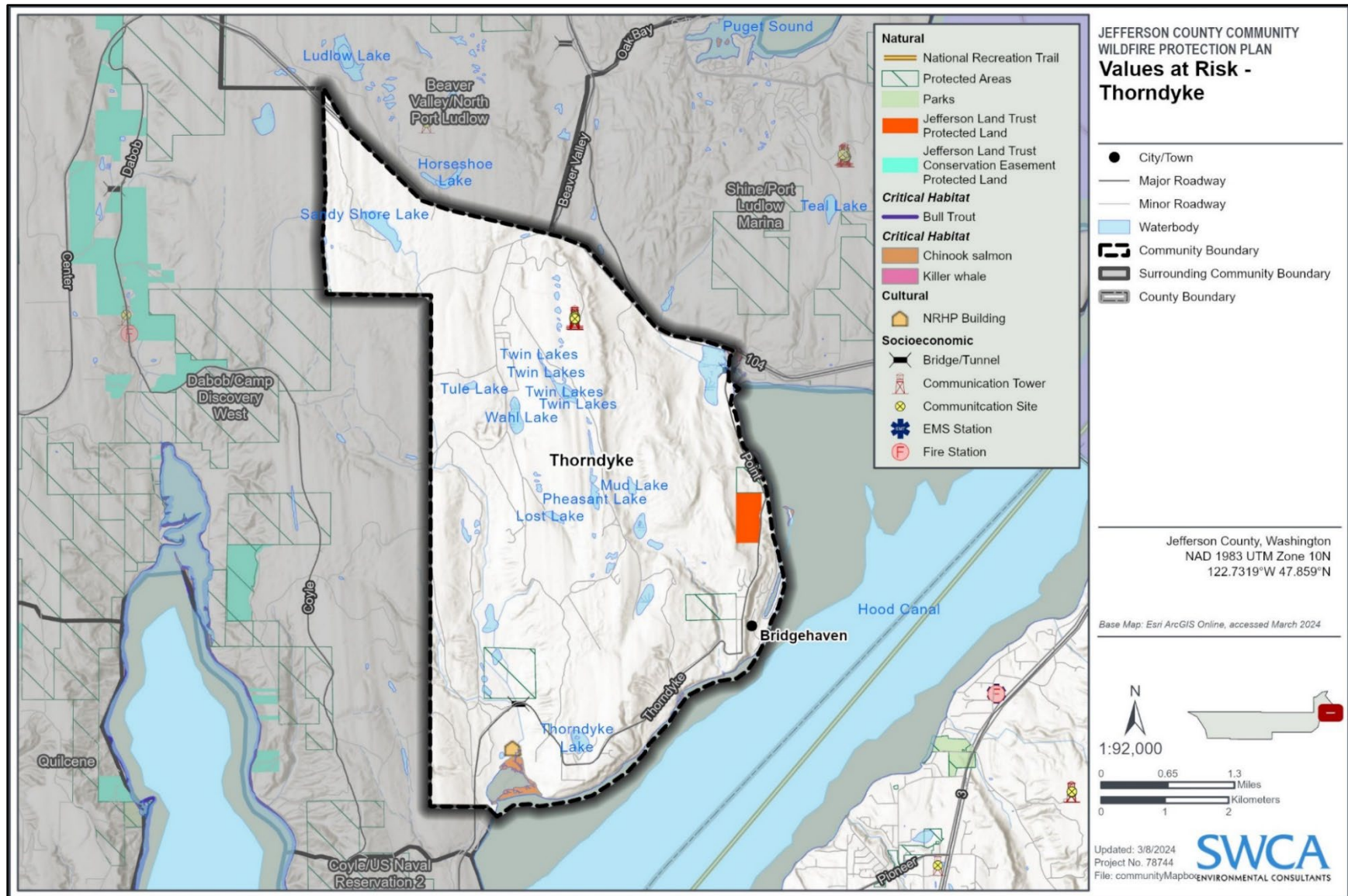


Figure C.76. Highly Valued Resources and Assets for Thorndyke.

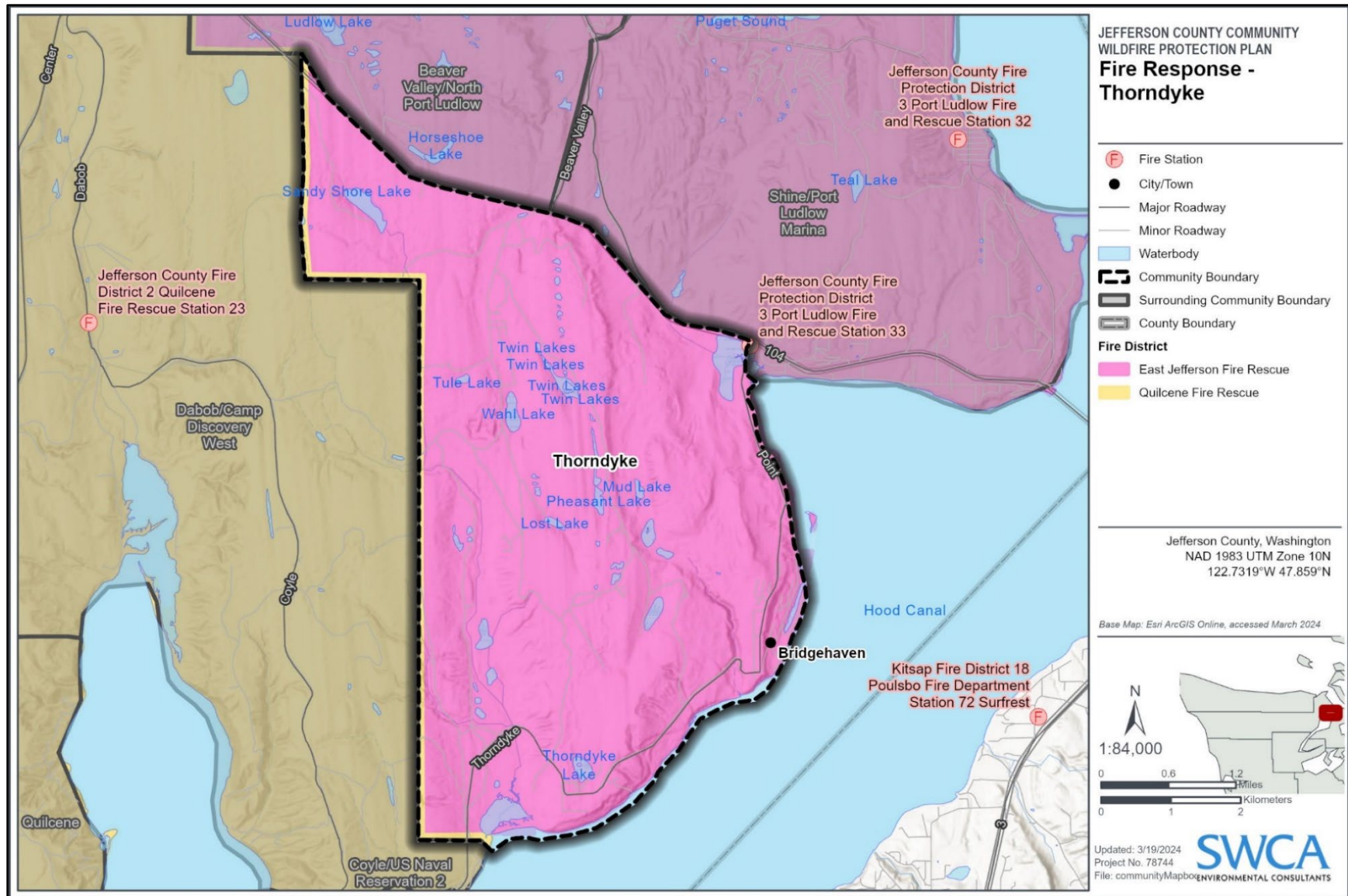


Figure C.77. Fire response for Thorndyke.

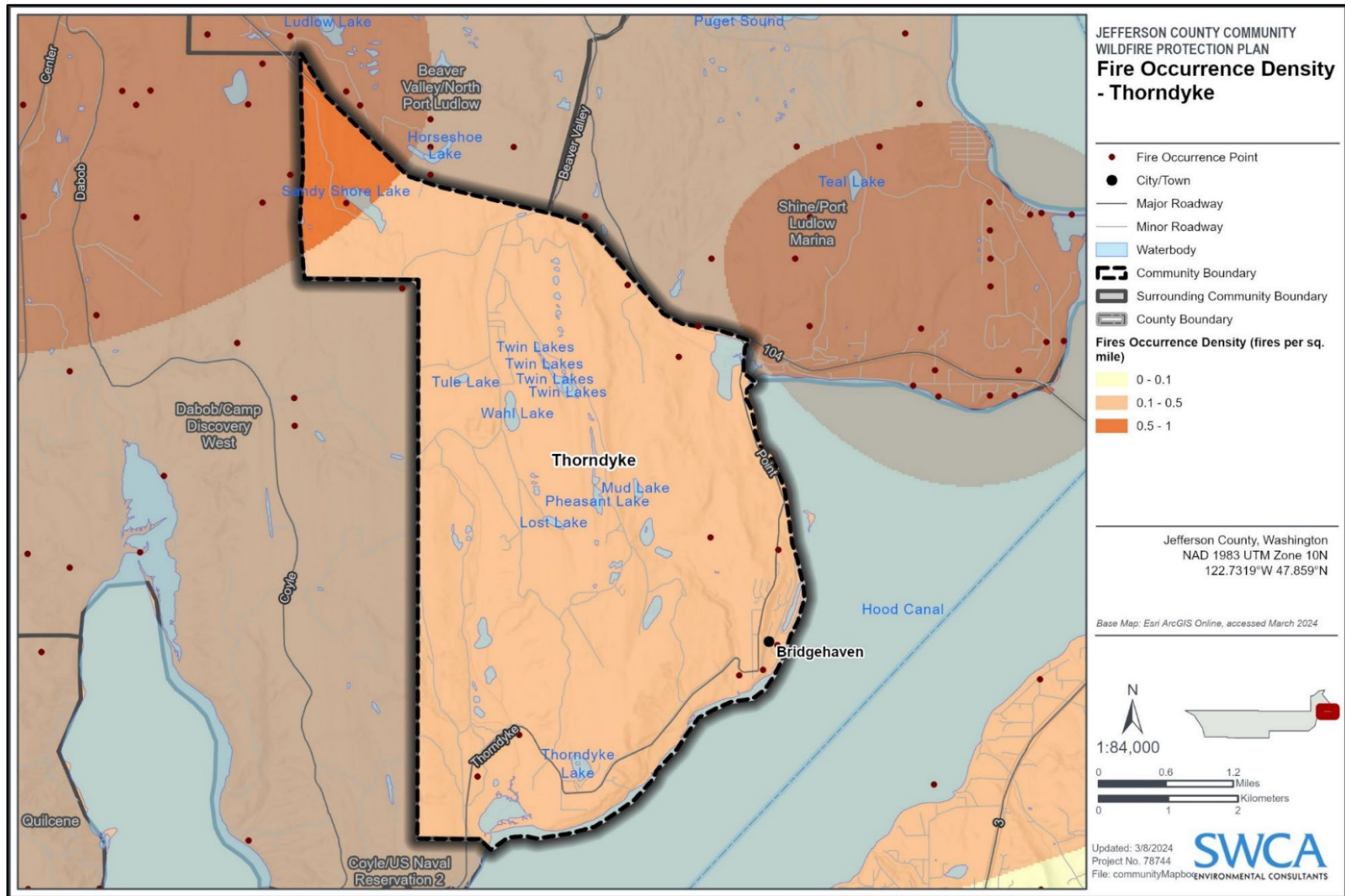


Figure C.78. Fire occurrence density for Thorndyke.

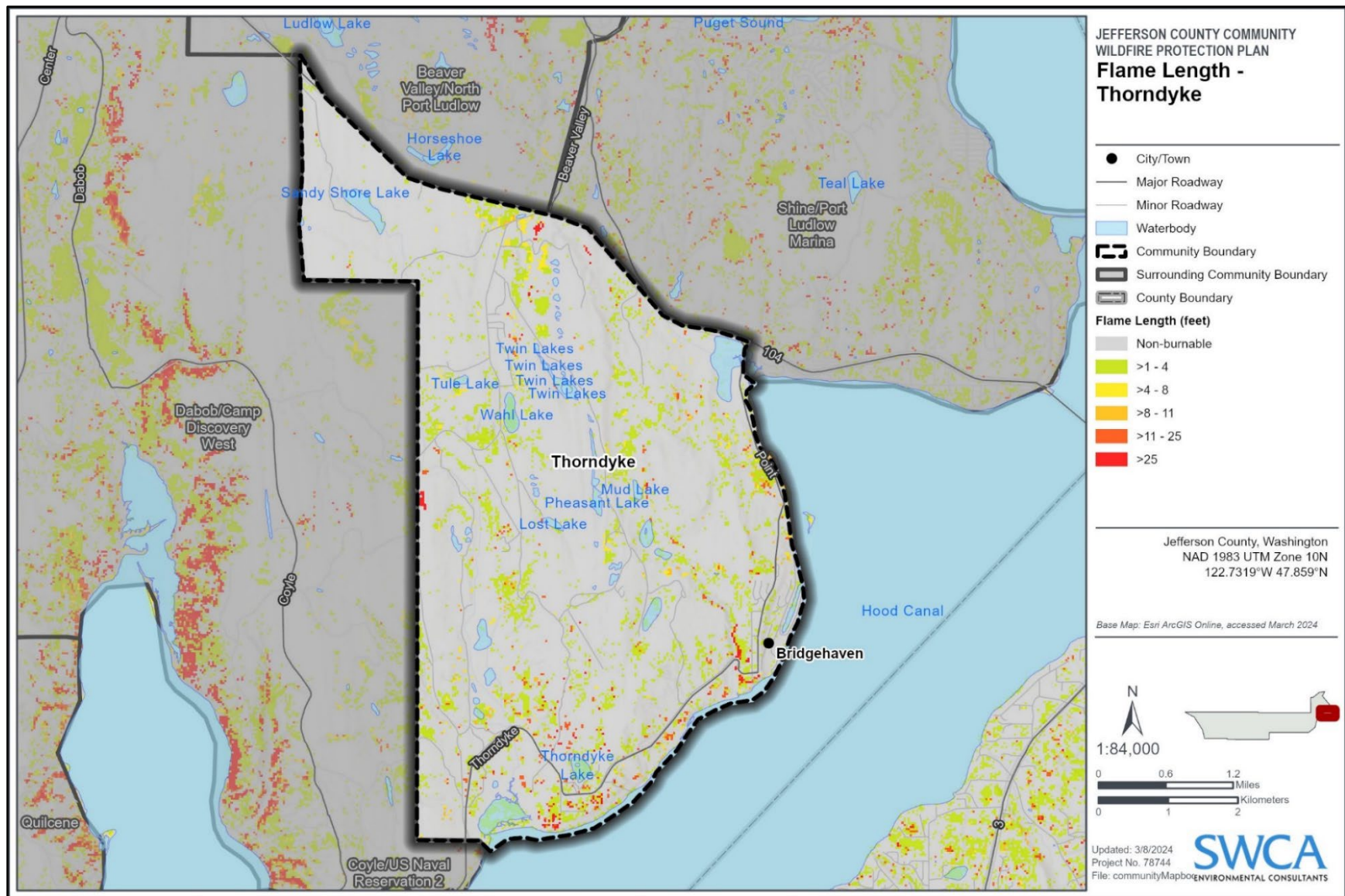


Figure C.79. Flame length for Thorndyke.

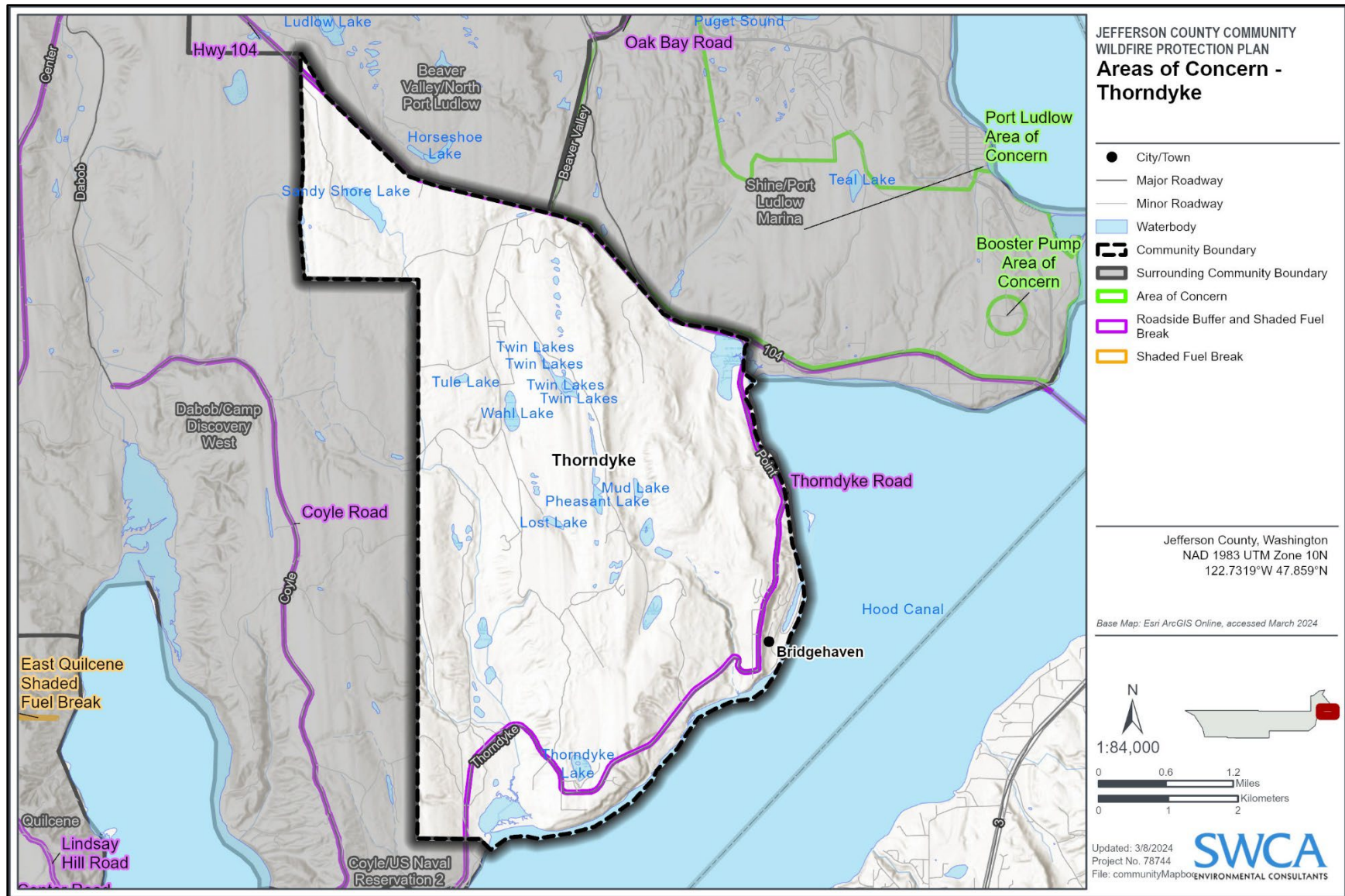


Figure C.80. Areas of concern detail for Thorndyke.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Topography: low slope, history of fire occurrence is low
- Water sources: hydrants available
- Organized response: fire station nearby
- Roads: surfaced
- Street signs: visible and reflective

Negative Attributes (High Scores)

- Entrance/exit: only one road in/out
- Vegetation: predominantly timer-litter and highly combustible
- Defensible space: less than <30 feet around structures
- Siding materials, decks, and fencing: combustible (wood or vinyl)
- Utilities: all aboveground

Recommended Mitigation

Areas of Concern:

No spatial delineations proposed at this time. Focus on creating and disseminating homeowner education on defensible space and evacuation planning.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Highway 104:

- Utilize normal stand management activities to achieve fuel modification goals, particularly on lands owned by Washington State and Rayonier Timber along Highway 104.
- Prioritize roadside management activities along intersections of the highway with private residences, notably near the Hood Canal Bridge's east end; WSDOT should lead these efforts, while homeowners should establish defensible space treatments and improve driveway access/egress.
- Explore potential grants from the DNR and FEMA to support these initiatives.

Thorndyke Road:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

14. Coyle/US Naval Reservation 2 Field Assessment Summary

Coyle/US Naval Reservation 2		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	1 road in and out	Extreme
Road Width	<20 feet	Extreme
Road Conditions	Non-surfaced road; grade >5%	High
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
Defensible Space	<30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	21% to 30%	Moderate
Topographic Features	3	Moderate
History of High Fire Occurrence	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	3	Moderate
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
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	Water Tank	Moderate
Water Source Score	3	High
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	131	Extreme

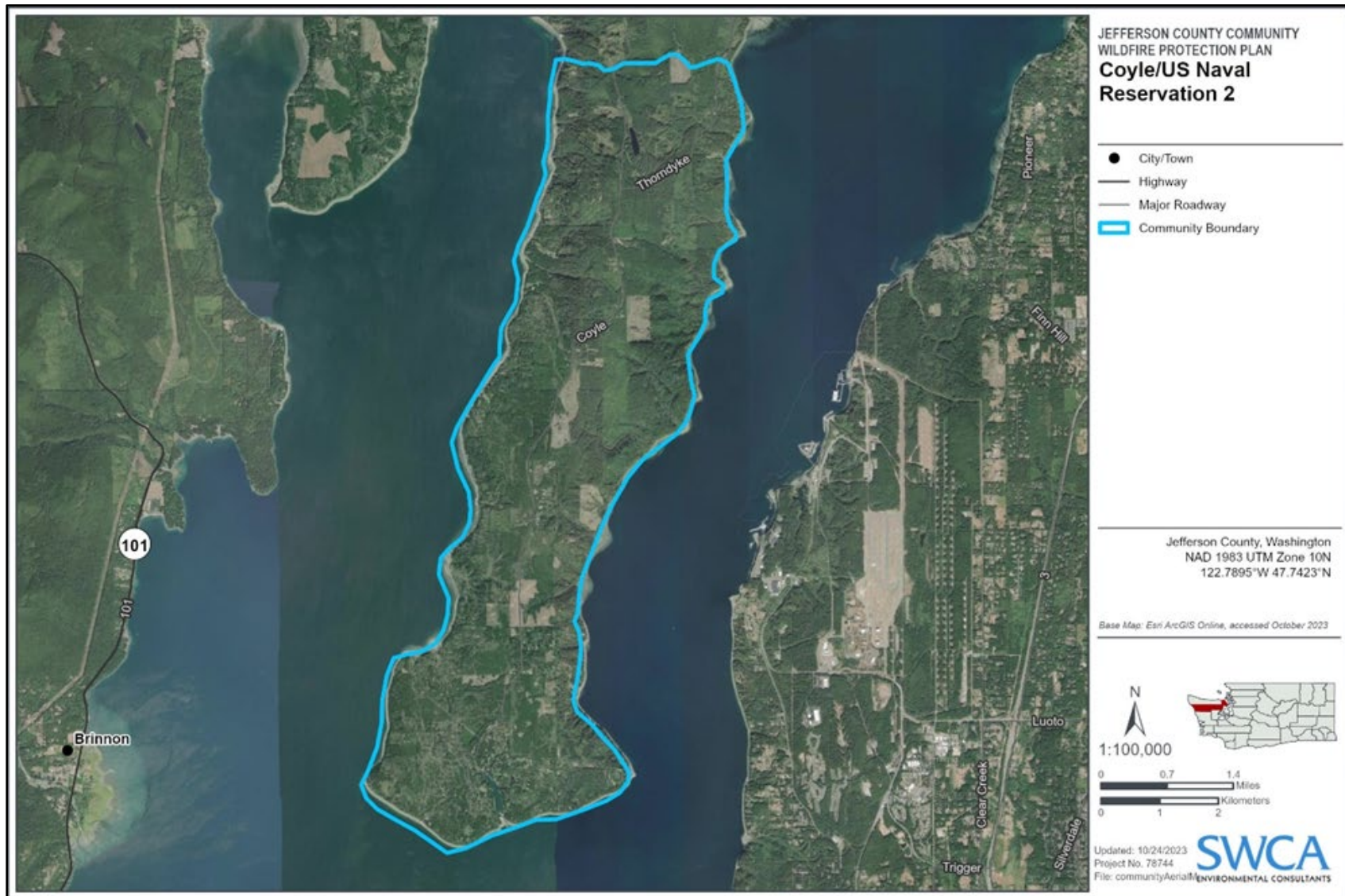


Figure C.81. Coyle/US Naval Reservation 2: The community contains many homes that are difficult to access and located off long driveways with locked gates. The community in the southern portion in particular has a labyrinth of roads that are difficult to navigate. The area contains a variety of home sizes and types.

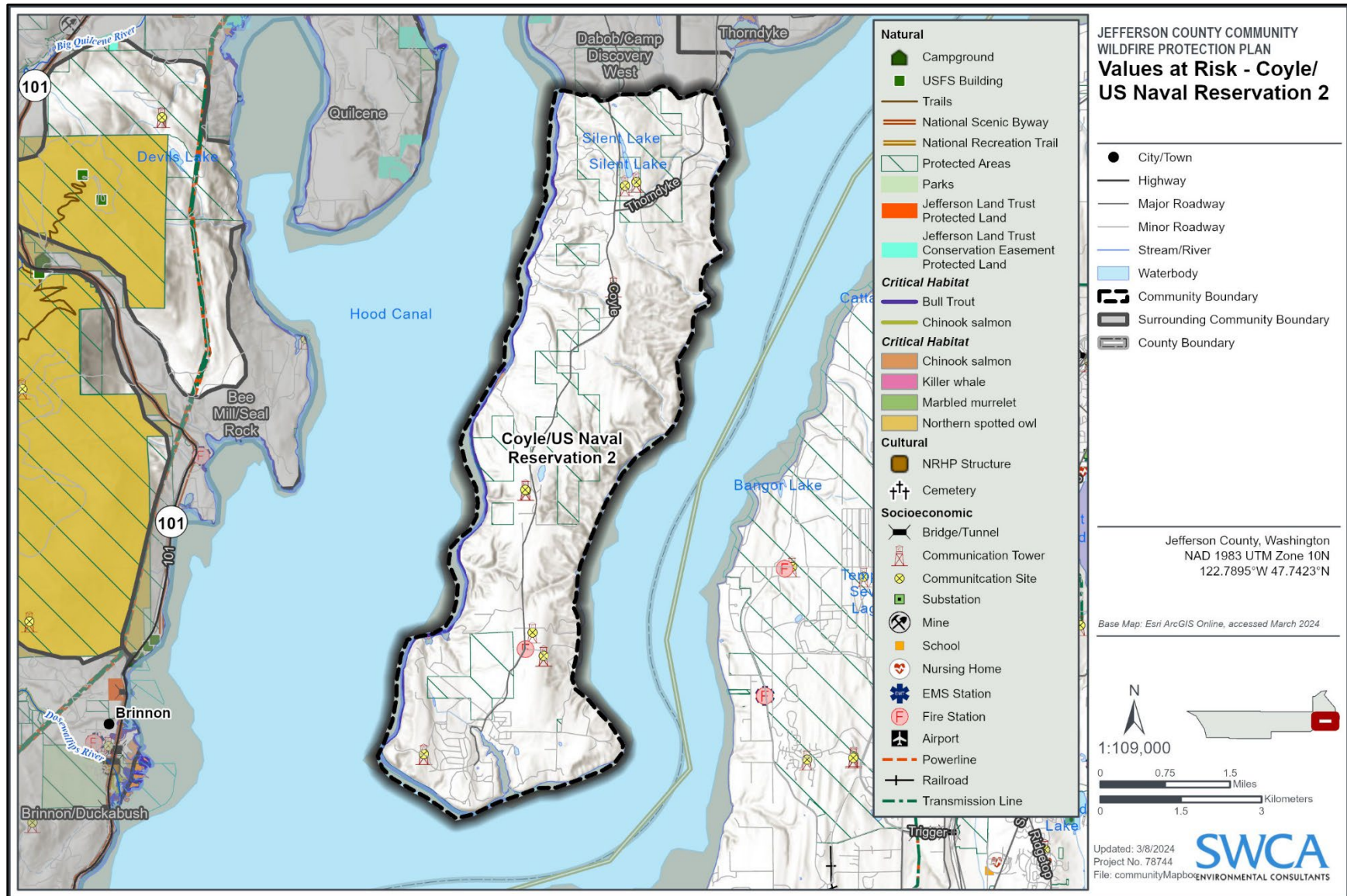


Figure C.82. Highly Valued Resources and Assets for Coyle/US Naval Reservation 2.

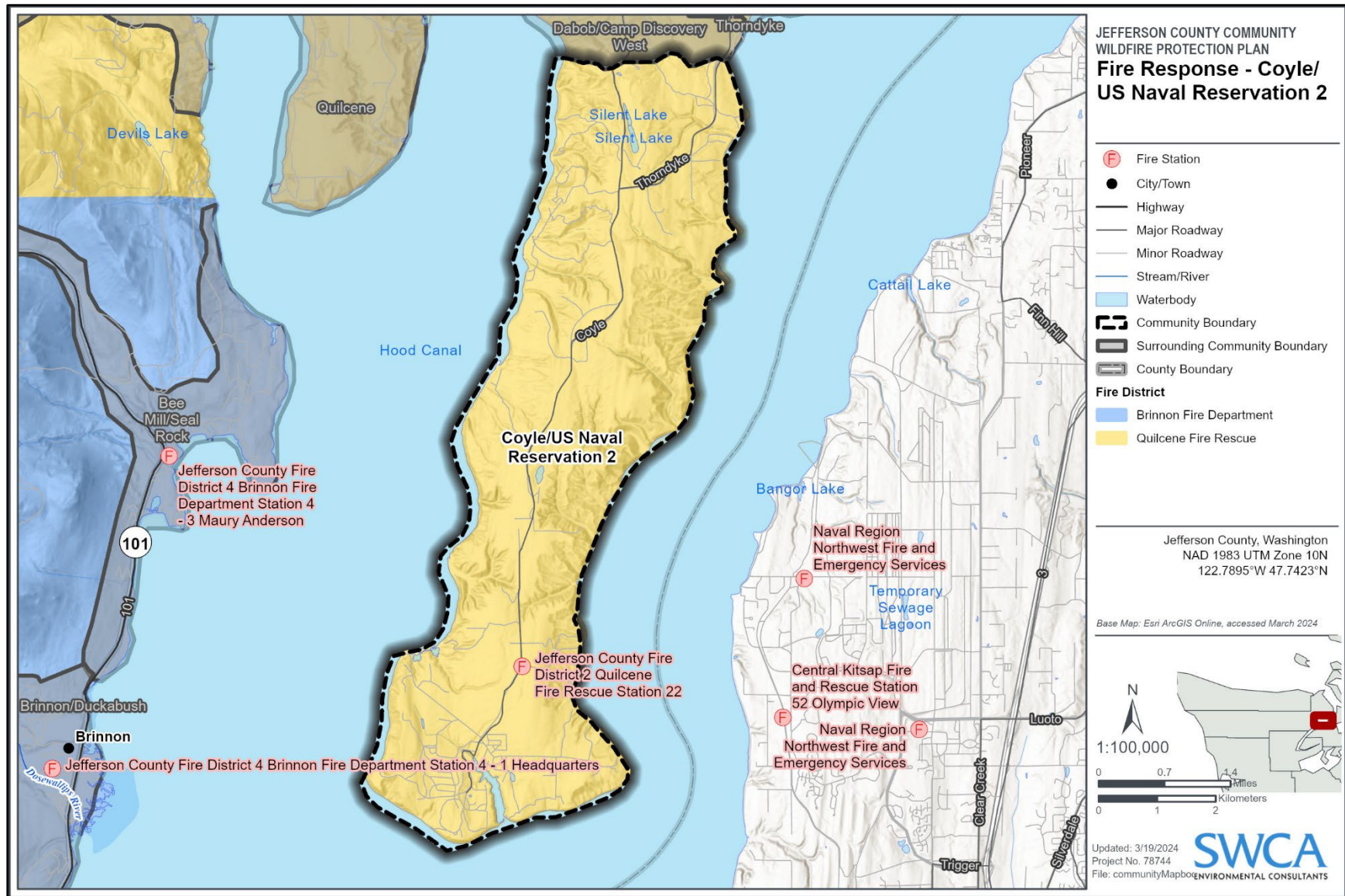


Figure C.83. Fire response for Coyle/US Naval Reservation 2.

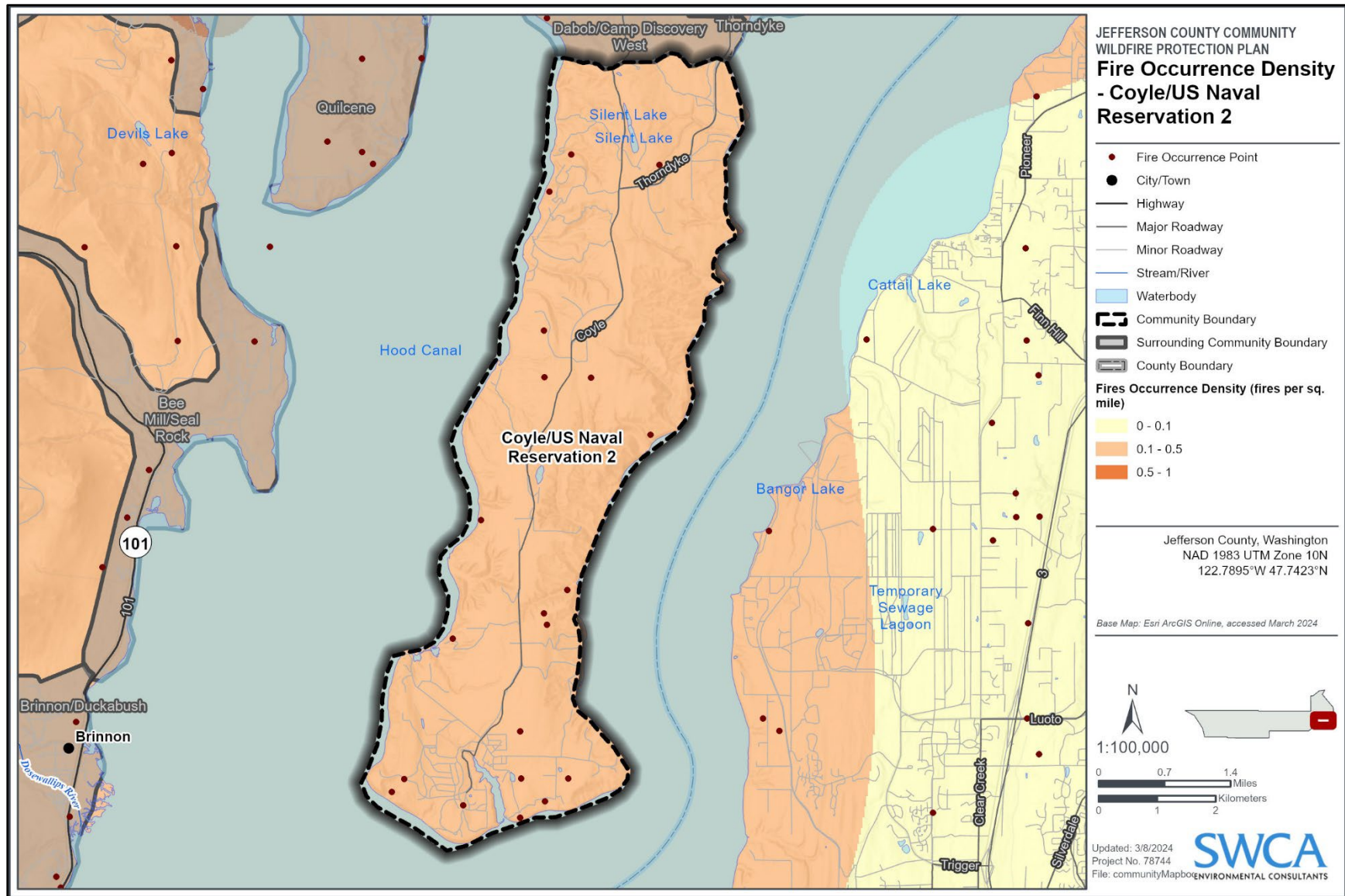


Figure C.84. Fire occurrence density for Coyle/US Naval Reservation 2.

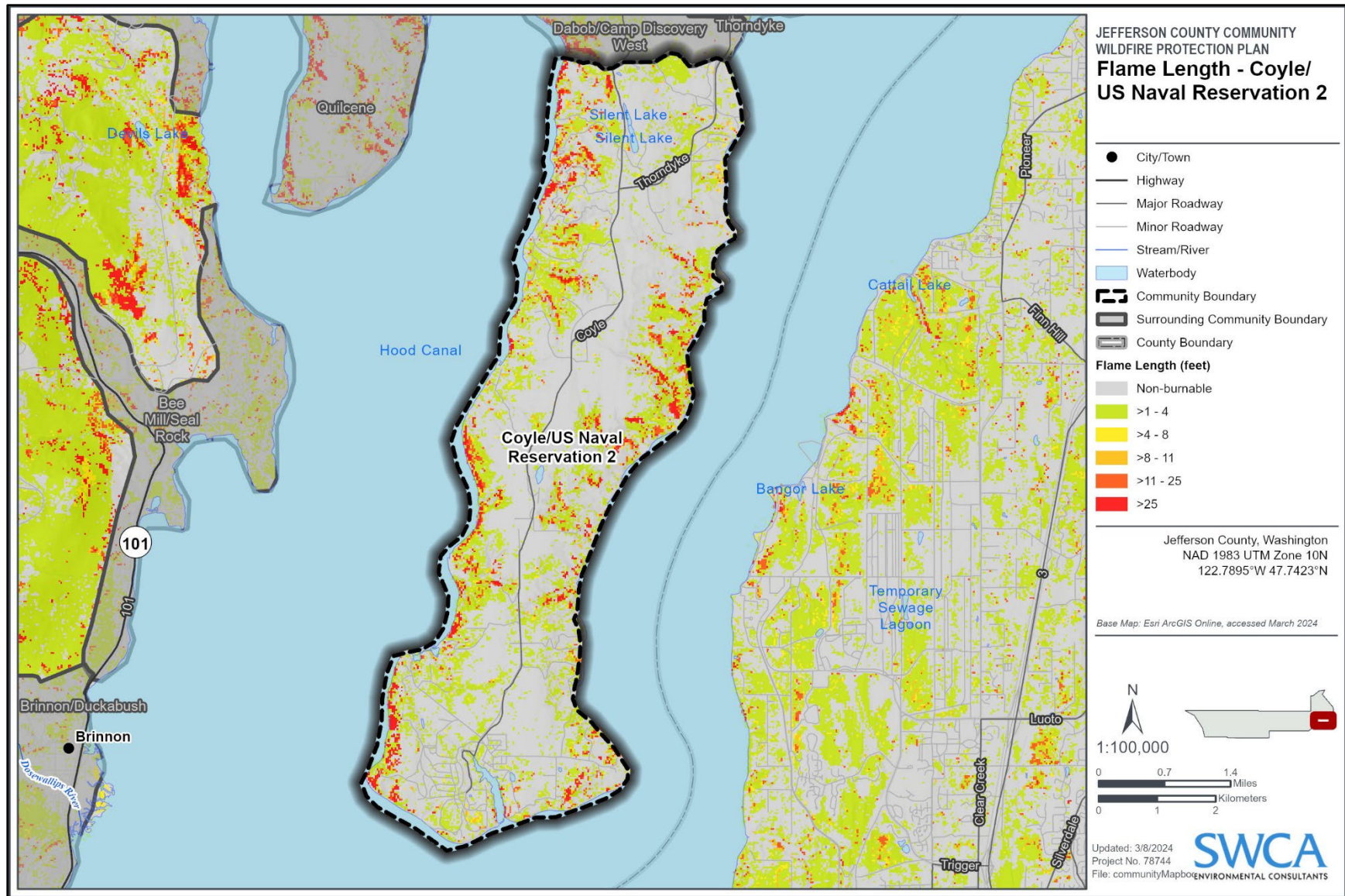


Figure C.85. Flame length for Coyle/US Naval Reservation 2.

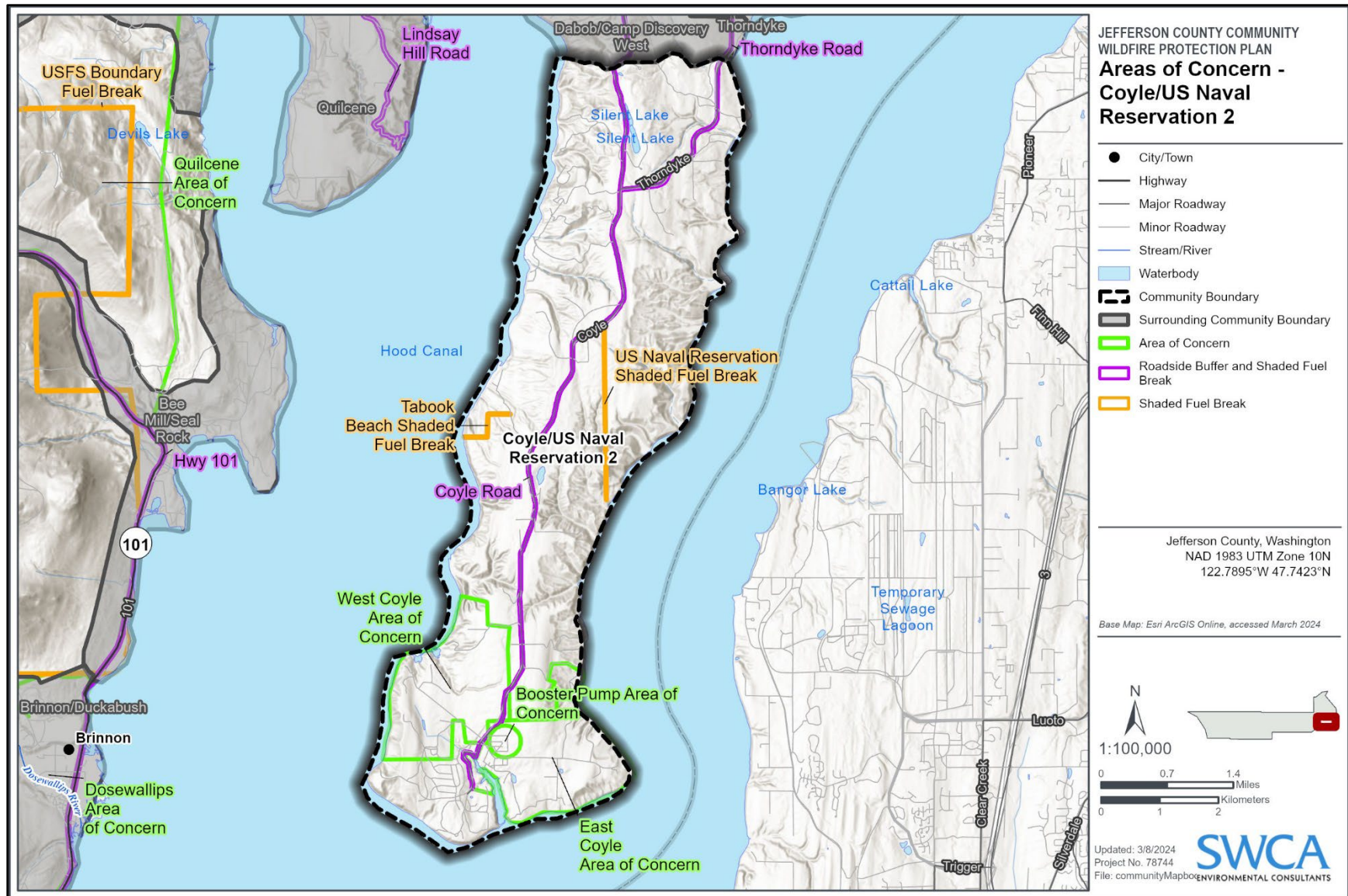


Figure C.86. Areas of concern detail for Coyle/US Naval Reservation 2.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Street signs: visible and reflective
- Organized response: fire department in community
- History of fire occurrence: low
- Severe fire weather potential: low; high humidity
- Water source: no water availability through hydrants but a water tank is available

Negative Attributes (High Scores)

- Entrance/exit: One road in and out of community
- Road width: generally less than 20 feet wide
- Predominant vegetation: timber-litter, combustible
- Building construction: combustible siding
- Building setback: <30 feet to slope
- Utility placement: aboveground
- Decking and fencing: combustible
- Defensible space: minimal, with some homes with poor maintenance and refuse in yard.

Recommended Mitigation

Areas of Concern:

East Coyle Area of Concern:

- Look for opportunities to encourage activity fuels treatments (slash removal) along state and private timber lands that have boundaries with private residential structures.
- Where conservation land intermixes with developed areas, develop fuels mitigation, ground fuel manipulations, or fuel breaks.
- Consider property line fuel break and fuel mitigations around Zelatched Point Naval site.
- Encourage homeowners to develop individual defensible space and evacuation plans. Utilize grant funding from the state and FEMA to support educational initiatives.

West Coyle Area of Concern:

- Collaborate with the Navy to assess the feasibility of implementing a fuel break to mitigate potential wildfire spread to private lands in the area.
- Utilize routine stand management activities to establish the fuel break effectively.
- Explore opportunities for grant funding from the state and Department of Defense (DOD) to support the implementation of wildfire mitigation measures.

Shaded Fuel Break:

US Naval Reservation Shaded Fuel Break:

- Collaborate with the Navy to assess the feasibility of implementing a fuel break to mitigate potential wildfire spread to private lands in the area.
- Utilize routine stand management activities to establish the fuel break effectively.
- Explore opportunities for grant funding from the state and DOD to support the implementation of wildfire mitigation measures.

Tabook Beach Shaded Fuel Break:

- Establish a fuel break to safeguard the Camp Harmony community, leveraging DNR-managed lands potentially integrated into the future expansion of the Dabob Natural Area.
- Conduct homeowner education programs emphasizing responsible burning practices, defensible space creation, and maintenance of adequate road and lot access.
- Evaluate the feasibility of implementing a shaded fuel break as part of regular stand management activities, considering the varied topography and stand composition.
- Collaborate with DNR to explore incorporating maturing stands into carbon sequestration projects and devise management strategies to mitigate potential hazardous fuel risks.

Roadside Buffer and Shaded Fuel Break:**Coyle Road Roadside Buffer:**

- Work with state and private timber companies to encourage activity fuel treatments on boundaries with private residential properties.
- Where conservation lands intermix with developed areas, explore fuels mitigation and ground fuel manipulations and/or fuel breaks.
- Encourage homeowners to develop individual homeowner defensible space and preparedness/ evacuation plans.
- Seek grant funding through the state and FEMA.

Thorndyke Road Roadside Buffer:

- Implement roadside buffering using shaded fuel break approach and in collaboration with County roads.
- Create and disseminate homeowner education on defensible space and evacuation planning.
- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires “jumping” roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

15. Dabob/Camp Discovery West Field Assessment Summary

Dabob/Camp Discovery West		
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 – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
Defensible Space	<30 feet around structure	Extreme
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	2	Moderate
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
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	Both aboveground	Extreme
Community Hazard Rating	107	High

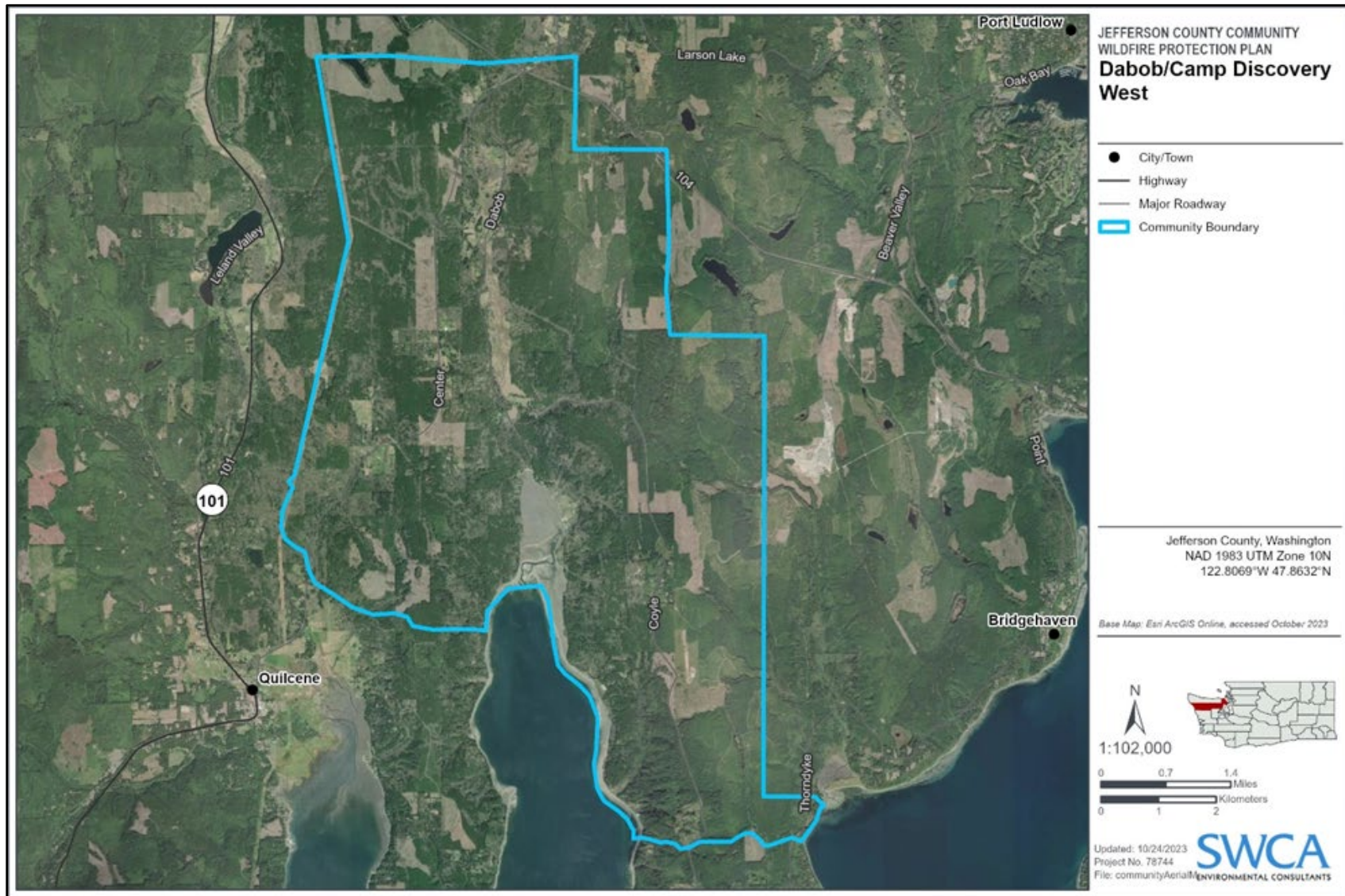


Figure C.87. Dabob/Camp Discovery West: The community contains many riparian areas containing dense vegetation and moist vegetation conditions. The topography is steep near Camp Discovery and along the coast. The community contains many deciduous tree species, especially near Dabob Bay, and also contains some rare plants species.

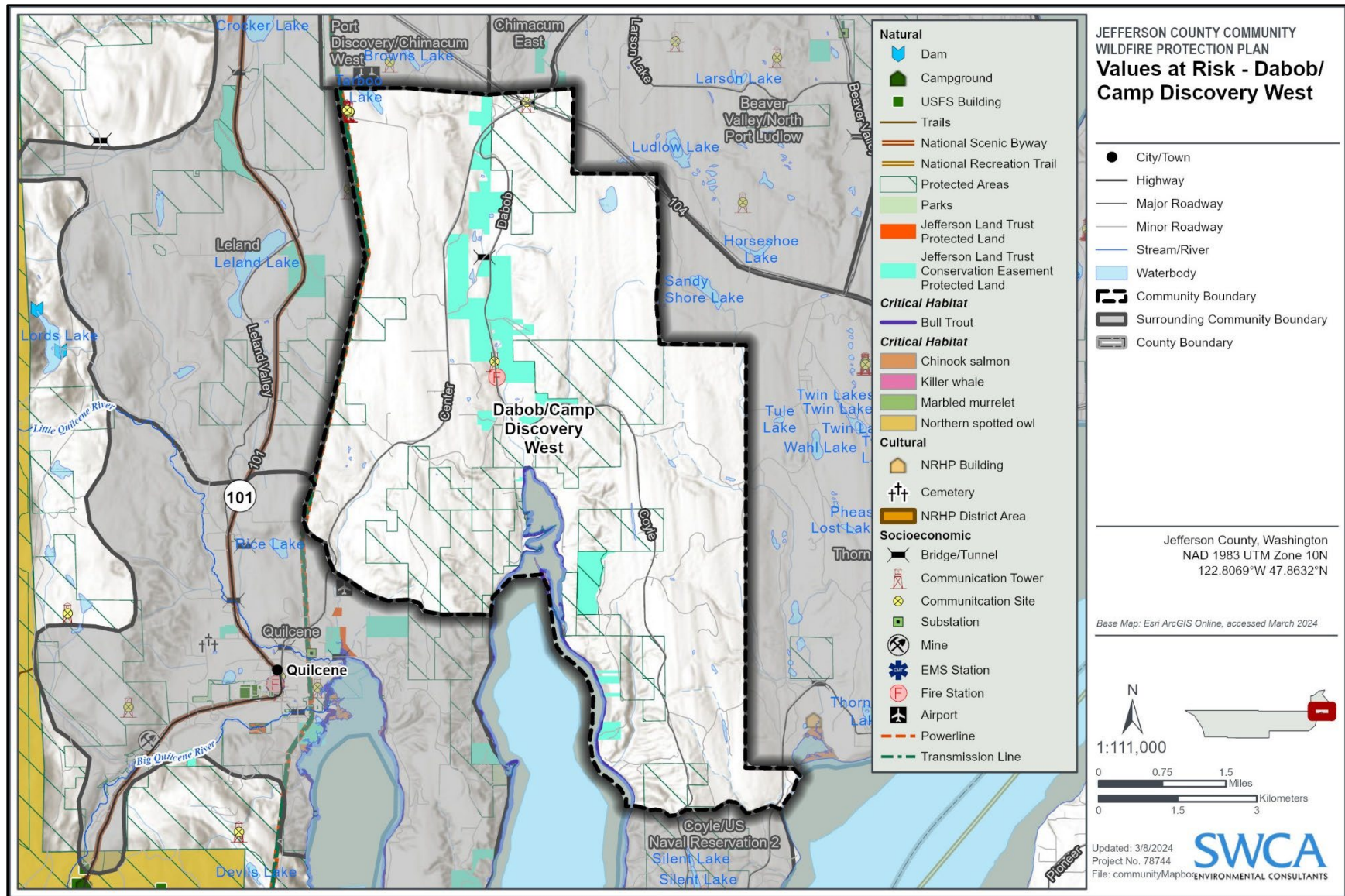


Figure C.88. Highly Valued Resources and Assets for Dabob/Camp Discovery West.

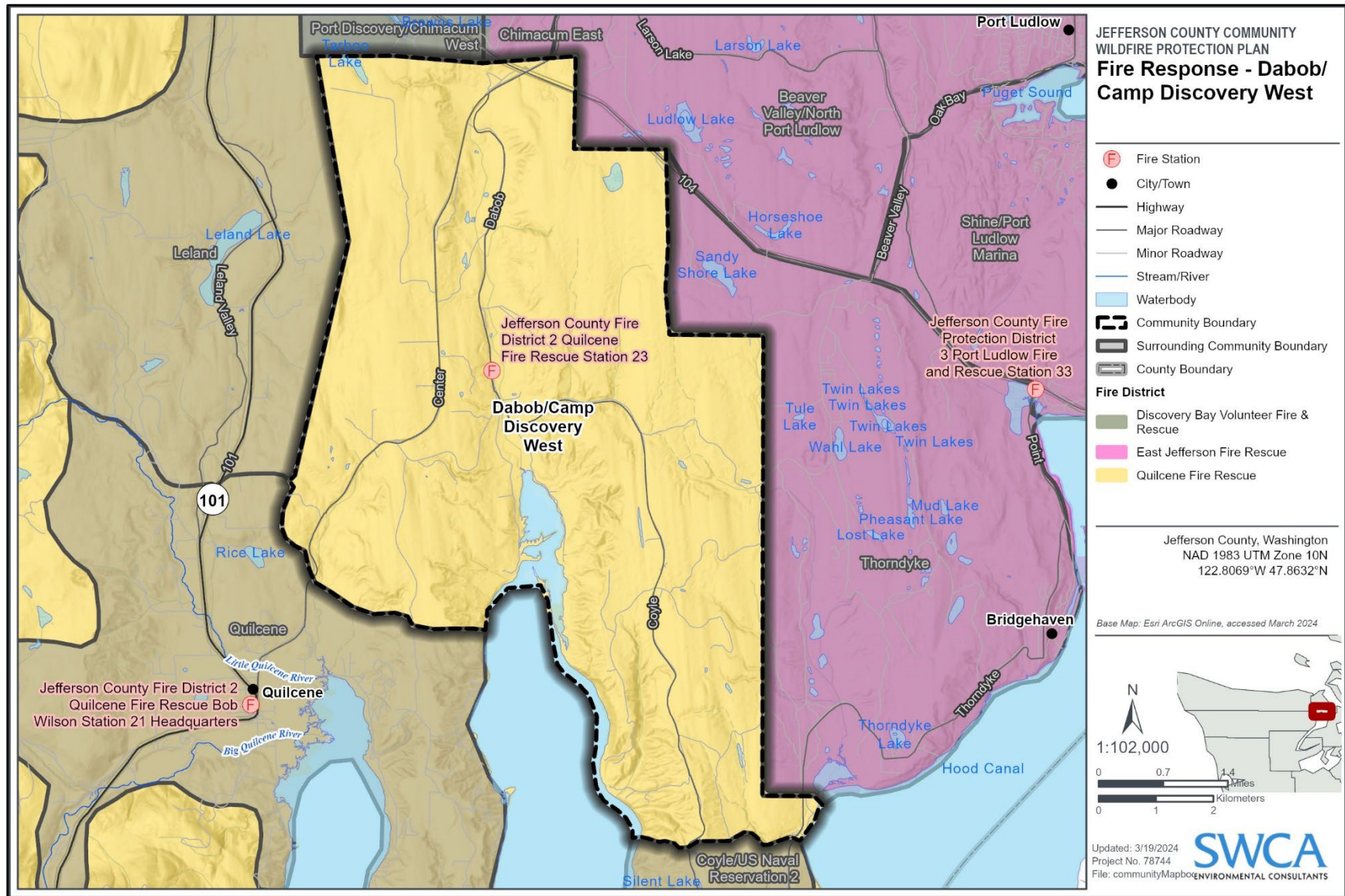


Figure C.89. Fire response for Dabob/Camp Discovery West.

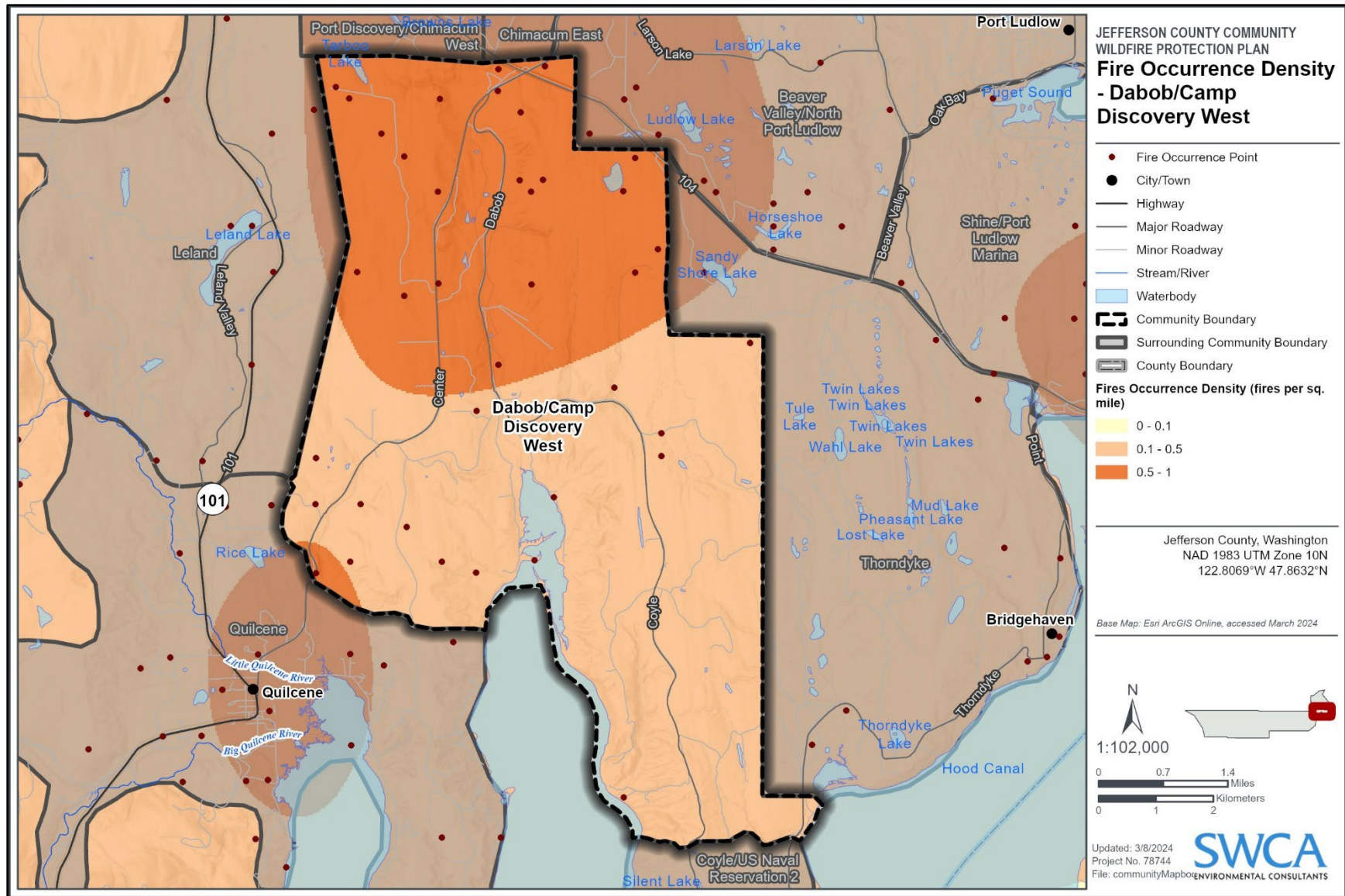


Figure C.90. Fire occurrence density for Dabob/Camp Discovery West.

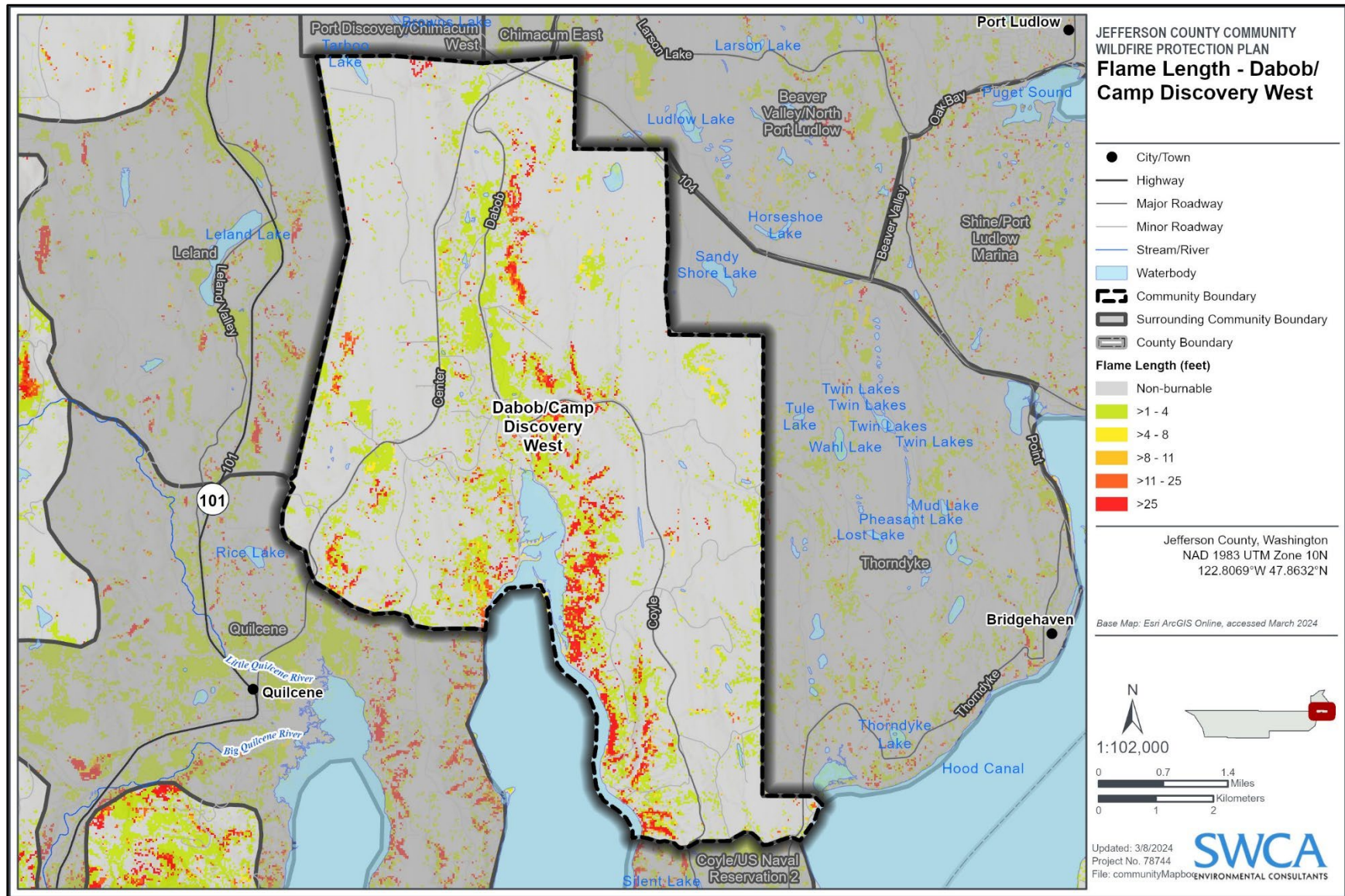


Figure C.91. Flame length for Dabob/Camp Discovery West.

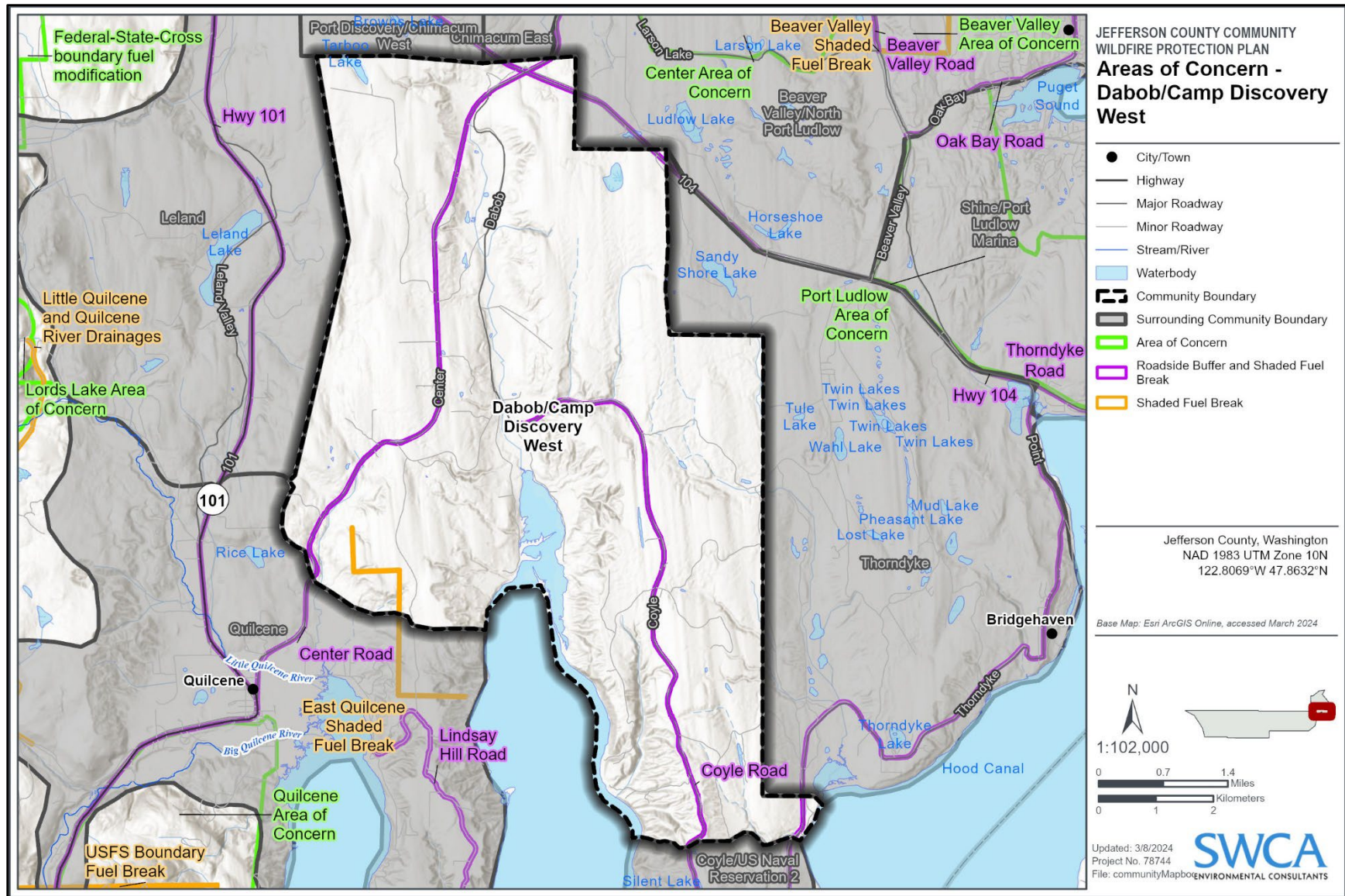


Figure C.92. Areas of concern detail for Dabob/Camp Discovery West.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Ingress and egress: main highway paved, two or more roads in or out of communities
- Water source: water availability through hydrants
- Street signs: visible and reflective
- Organized response: fire department in community
- Severe fire weather potential: low; high humidity

Negative Attributes (High Scores)

- Predominant vegetation: timber-litter, flammable
- Building construction: combustible siding
- Utility placement: aboveground
- Decking and fencing: combustible
- Building setback: <30 feet to slopes
- Defensible space: minimal, with some homes with poor maintenance and refuse in yard

Recommended Mitigation

Areas of Concern:

No spatial delineations proposed at this time. Emphasis should be placed on homeowner actions to implement defensible space and structure hardening.

Shaded Fuel Break:

East Quilcene Shaded Fuel Break:

- Work with private, state, and federal land managers to identify areas for strategic fuel breaks to protect Highly Valued Resources and Assets. Ongoing and future stand management may break up fuel continuity so consider opportunities to utilize ongoing practices.
- Work with homeowners (private homeowners and Rayonier Timber) along all boundaries to implement fuels mitigations.
- Develop evacuation plans for residences along Dabob Bay/Carl Johnson Road and Lindsey Hill Road. Seek grant funding to support initiatives from FEMA and DOD. Consider DNR grants for homeowners.

Roadside Buffer and Shaded Fuel Break:

Coyle/Center Road Roadside Buffer:

- Work with state and private timber companies to encourage activity fuel treatments on boundaries with private residential properties.
- Where conservation lands intermix with developed areas, explore fuels mitigation and ground fuel manipulations and/or fuel breaks.
- Manage roadside vegetation to foster natural fuel breaks. Remove canopy connections that could allow fire to spread over roads and create blocks on evacuation routes.
- Encourage homeowners to develop individual homeowner defensible space and preparedness/evacuation plans.
- Seek grant funding through Washington State and FEMA.

16. Leland Field Assessment Summary

Leland		
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 no turnaround	Extreme
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
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	1	Low
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	No	Extreme
Water Source Type	Other	Extreme
Water Source Score	10	Extreme
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	86	High

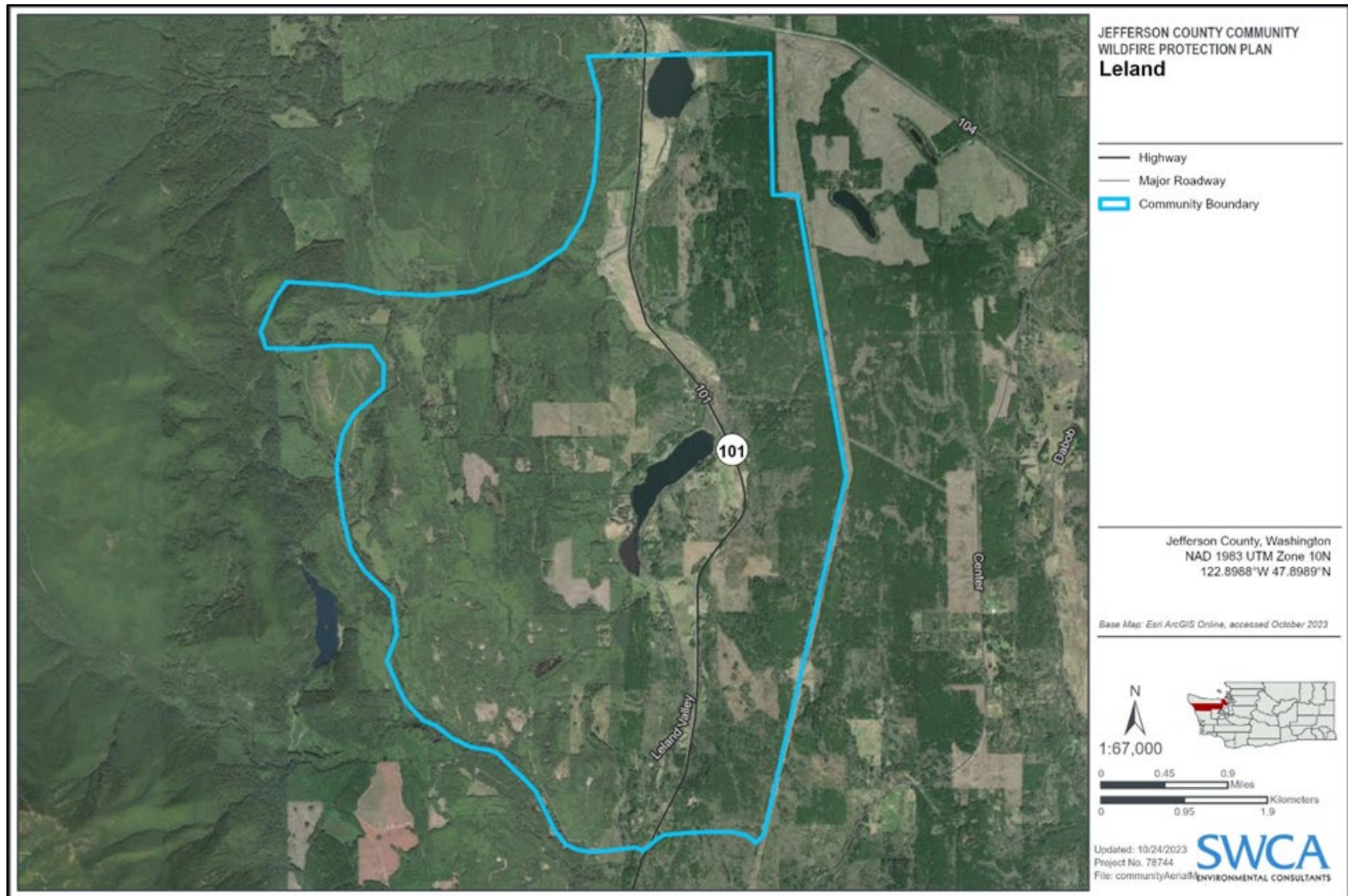


Figure C.93. Leland: The small community is adjacent to dense, continuous forest. The community contains a variety of cultural and natural values such as recreation areas, campgrounds, and a music venue.

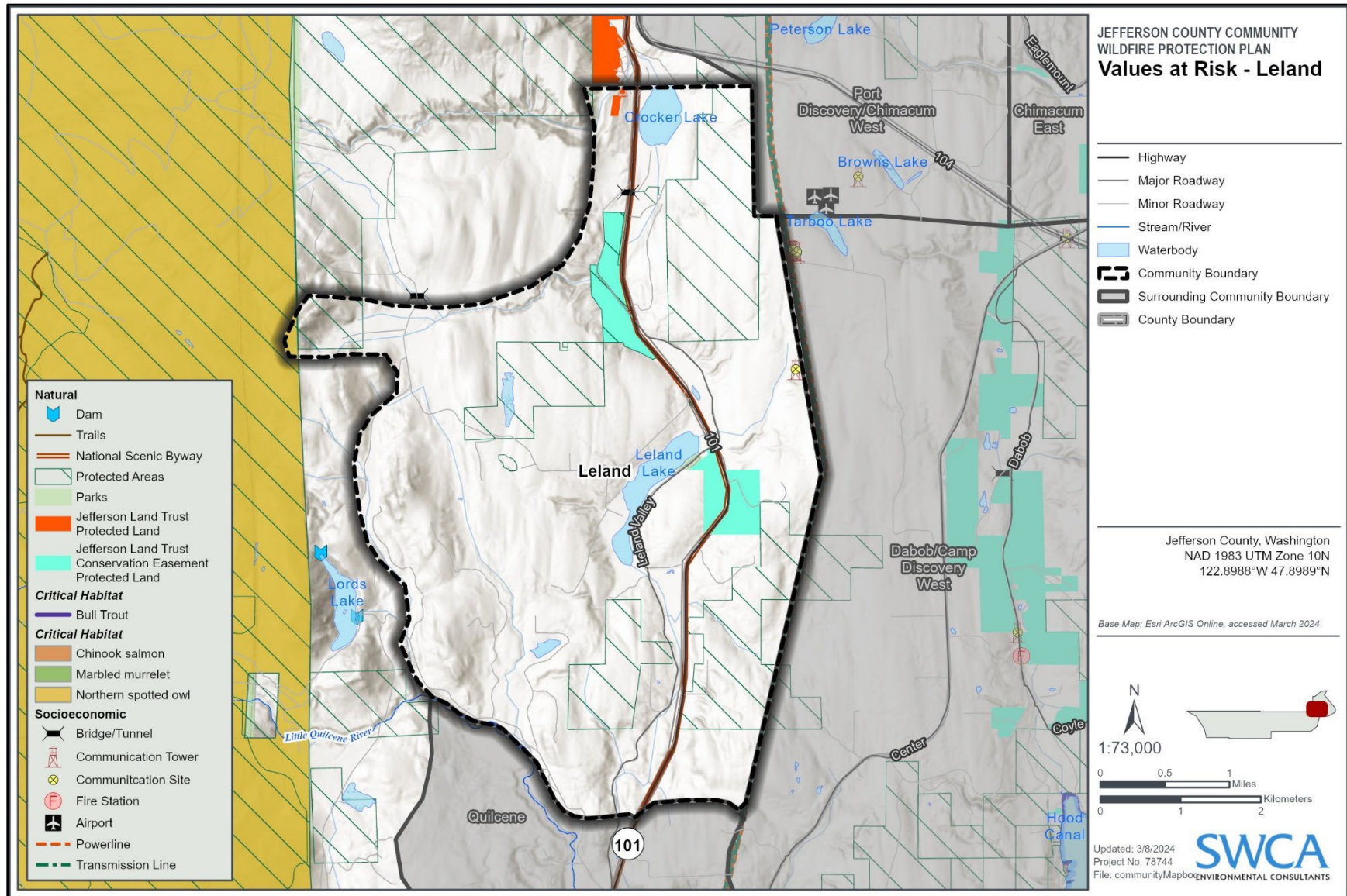


Figure C.94. Highly Valued Resources and Assets for Leland.

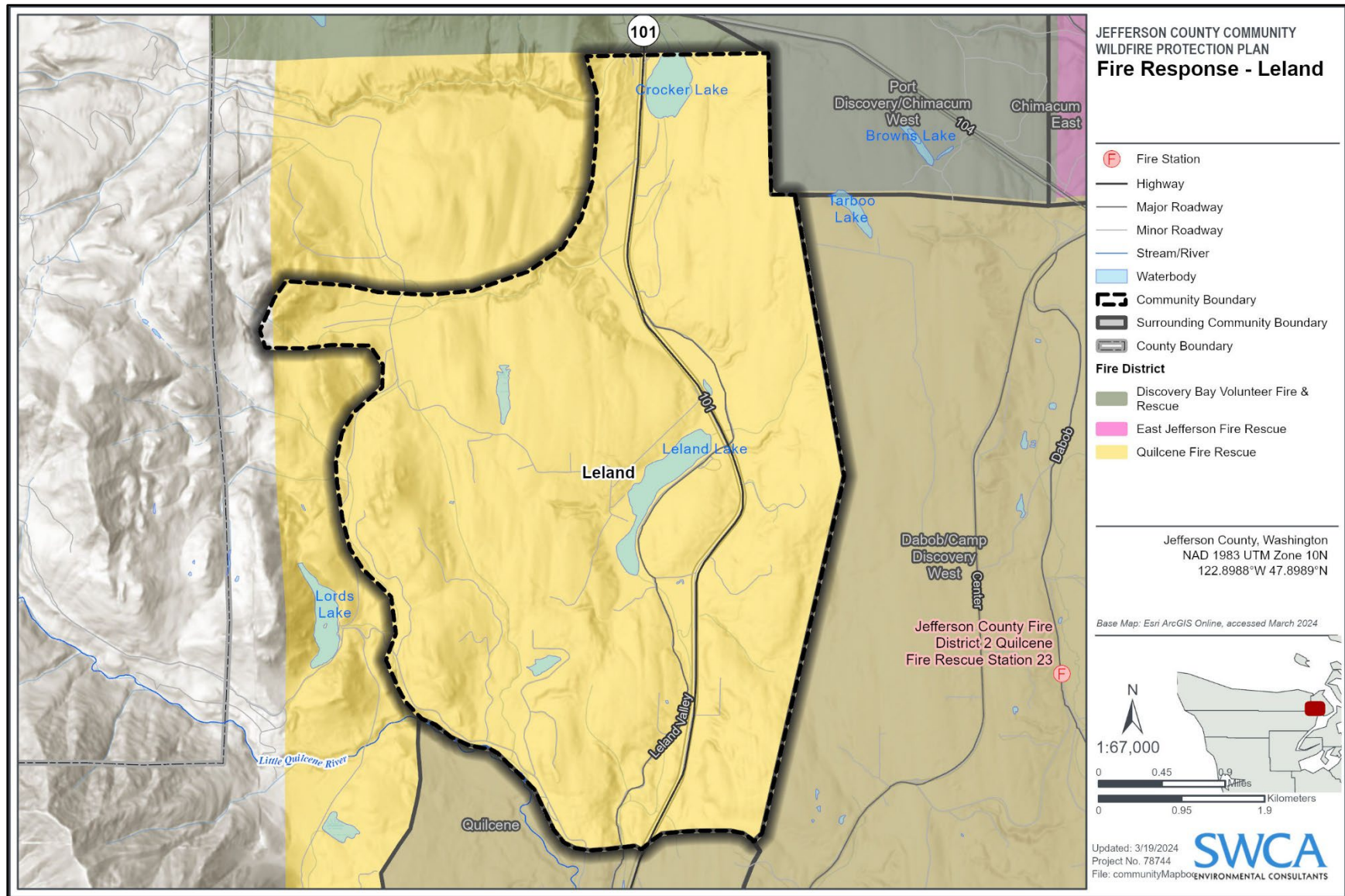


Figure C.95. Fire response for Leland.

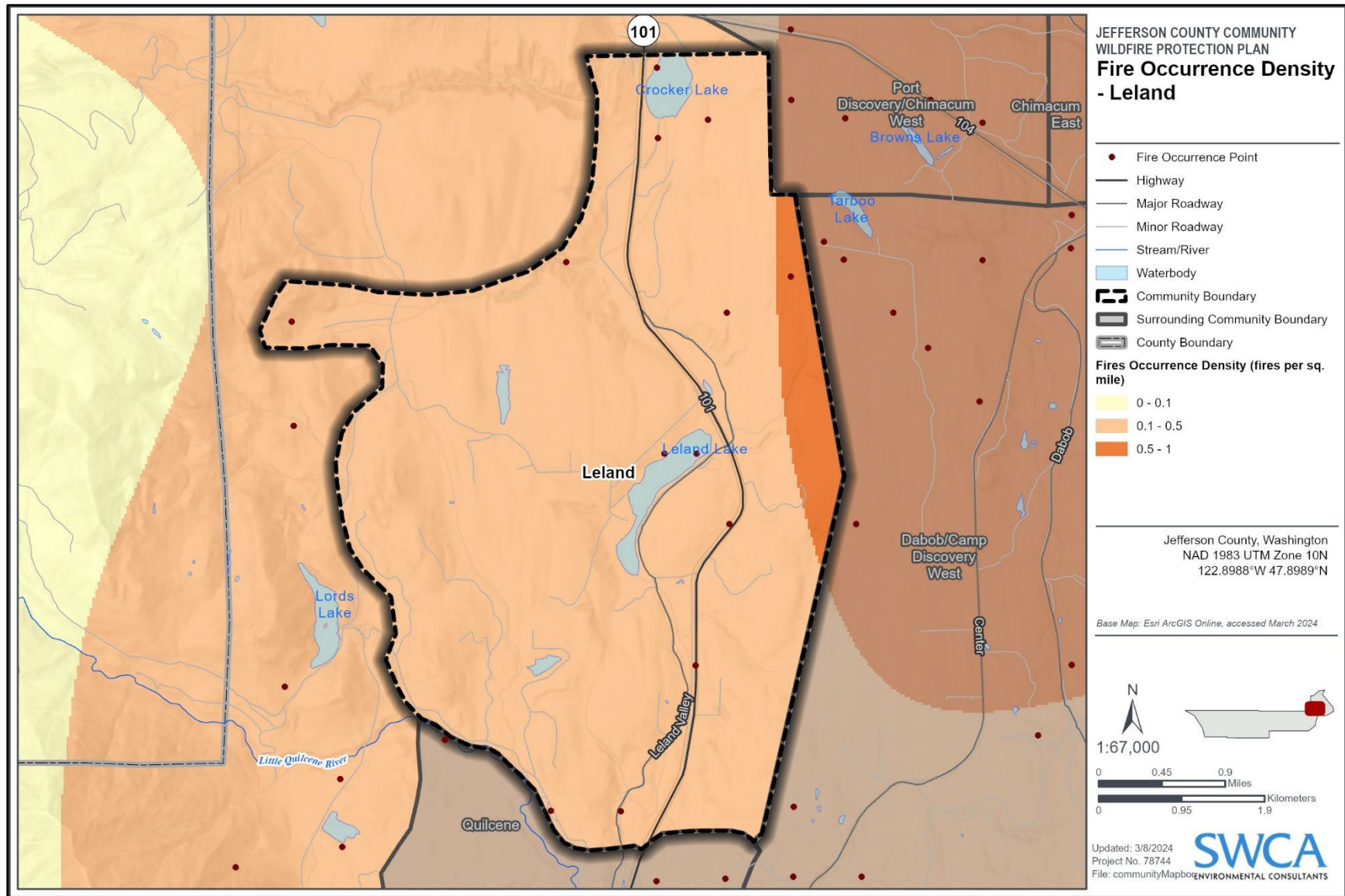


Figure C.96. Fire occurrence density for Leland.

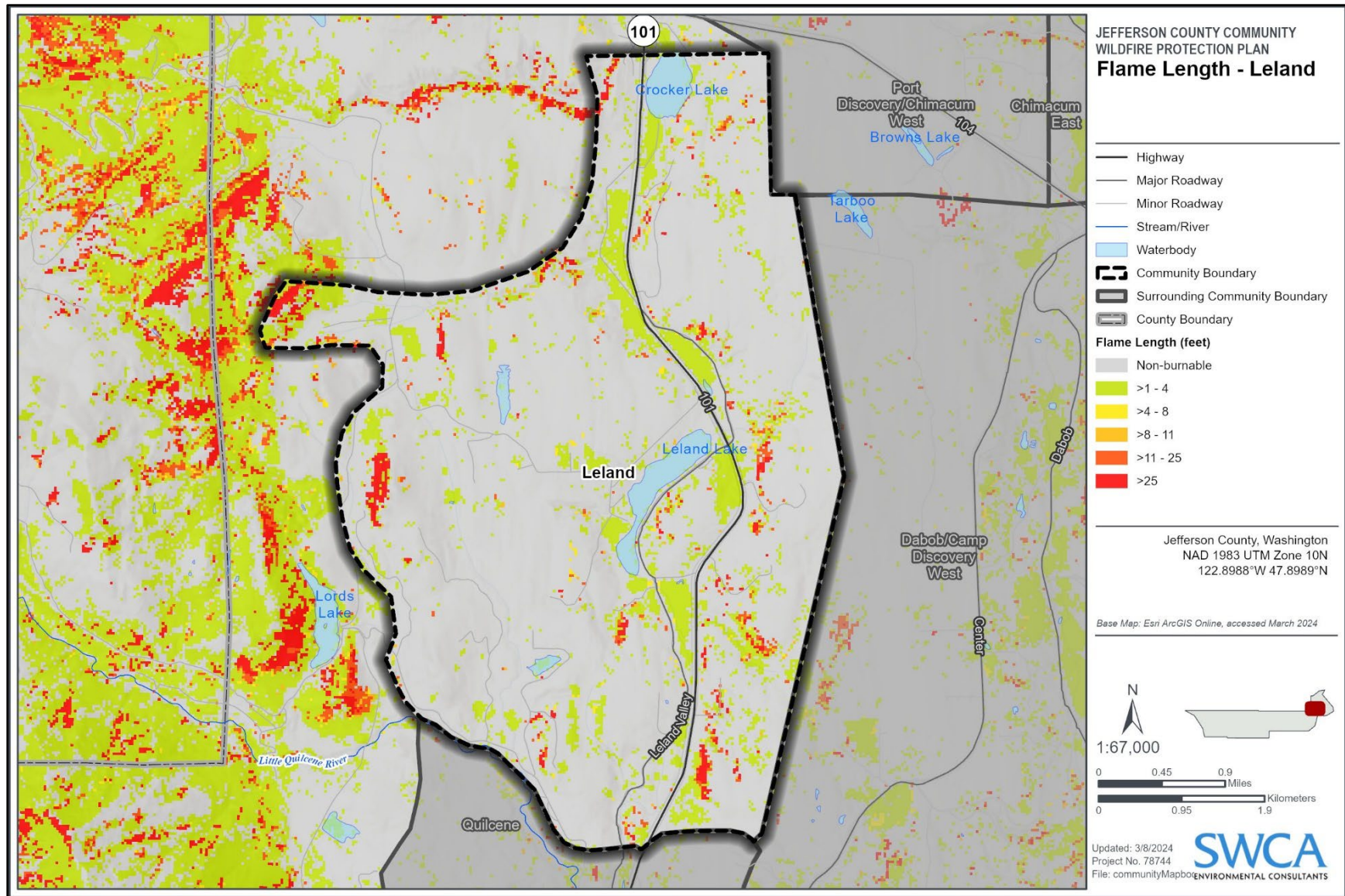


Figure C.97. Flame length for Leland.

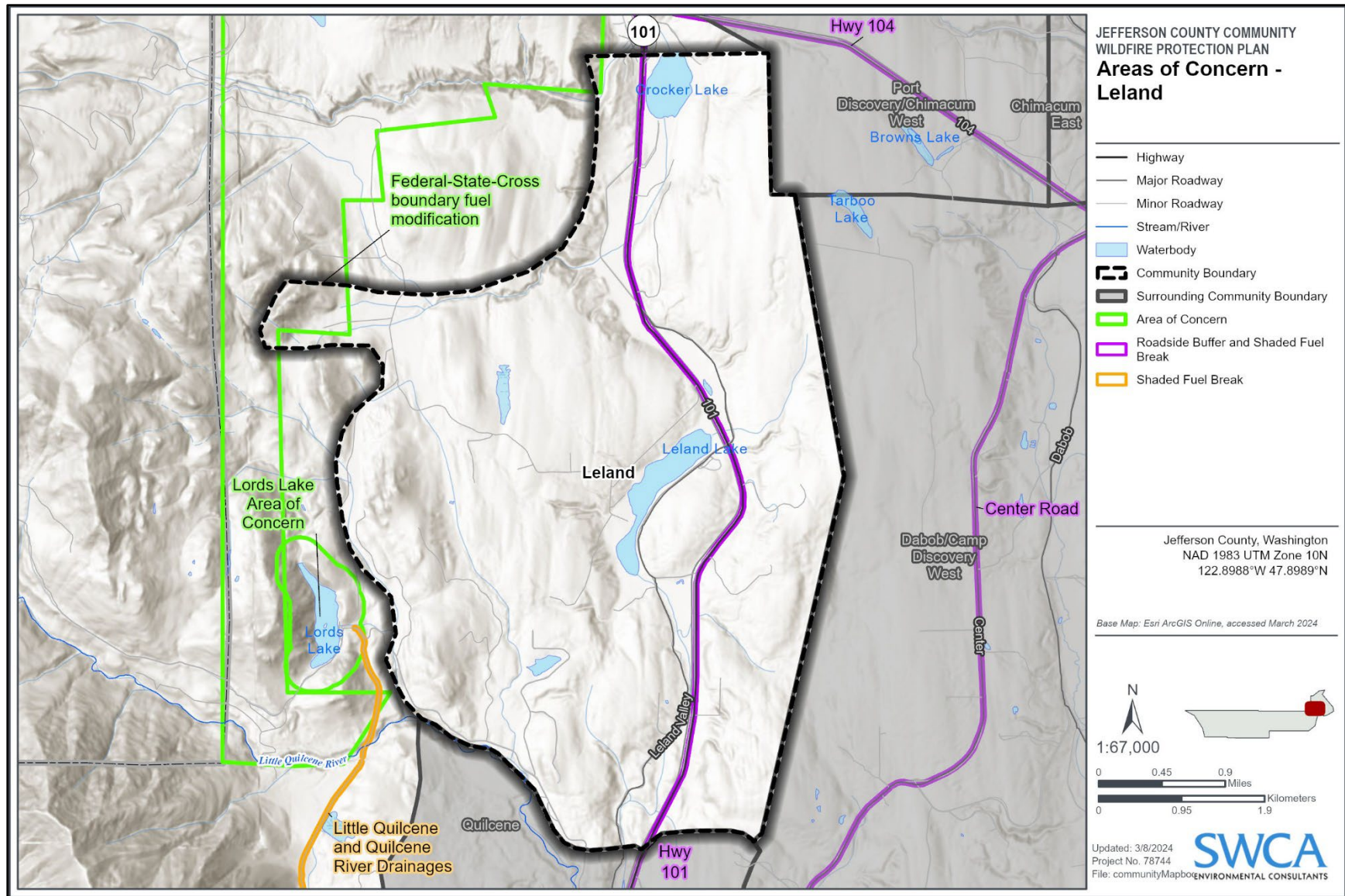


Figure C.98. Areas of concern detail for Leland.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Street signs: present and reflective
- Building setback: >30 feet to slope
- Organized response: fire department in community
- Severe fire weather potential: low
- Separation of adjacent structures: high

Negative Attributes (High Scores)

- Entrance/exit: one road in and out of community
- Fire truck access: >300 feet with no turnaround
- Building construction: combustible siding, decks, and fencing
- Water source: no water availability through hydrants
- Utility placement: aboveground

Recommended Mitigation

Areas of Concern:

Federal-State Cross-Boundary Fuel Modification:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Foster cross-boundary collaboration for fuel mitigation in areas where federal lands interface with other jurisdictions.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Highway 101:

- Develop an evacuation plan for the residences along the route. Work with WSDOT and landowners to develop fuels mitigations on private properties (defensible space) and roadside brush cutting/mowing. Seek DNR grant support for WSDOT to purchase equipment or to enhance staffing.
- Explore FEMA grants for "Firewise" and fire-adapted communities.
- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

17. Quilcene Field Assessment Summary

Quilcene		
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 no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
Defensible Space	<30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	21% to 30%	Moderate
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 C - untreated wood shingle; plywood; particle board	High
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	No	Extreme
Water Source Type	Water Tank	Moderate
Water Source Score	1	Low
Organized Response	Station <5 miles from community	Low
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	125	Extreme

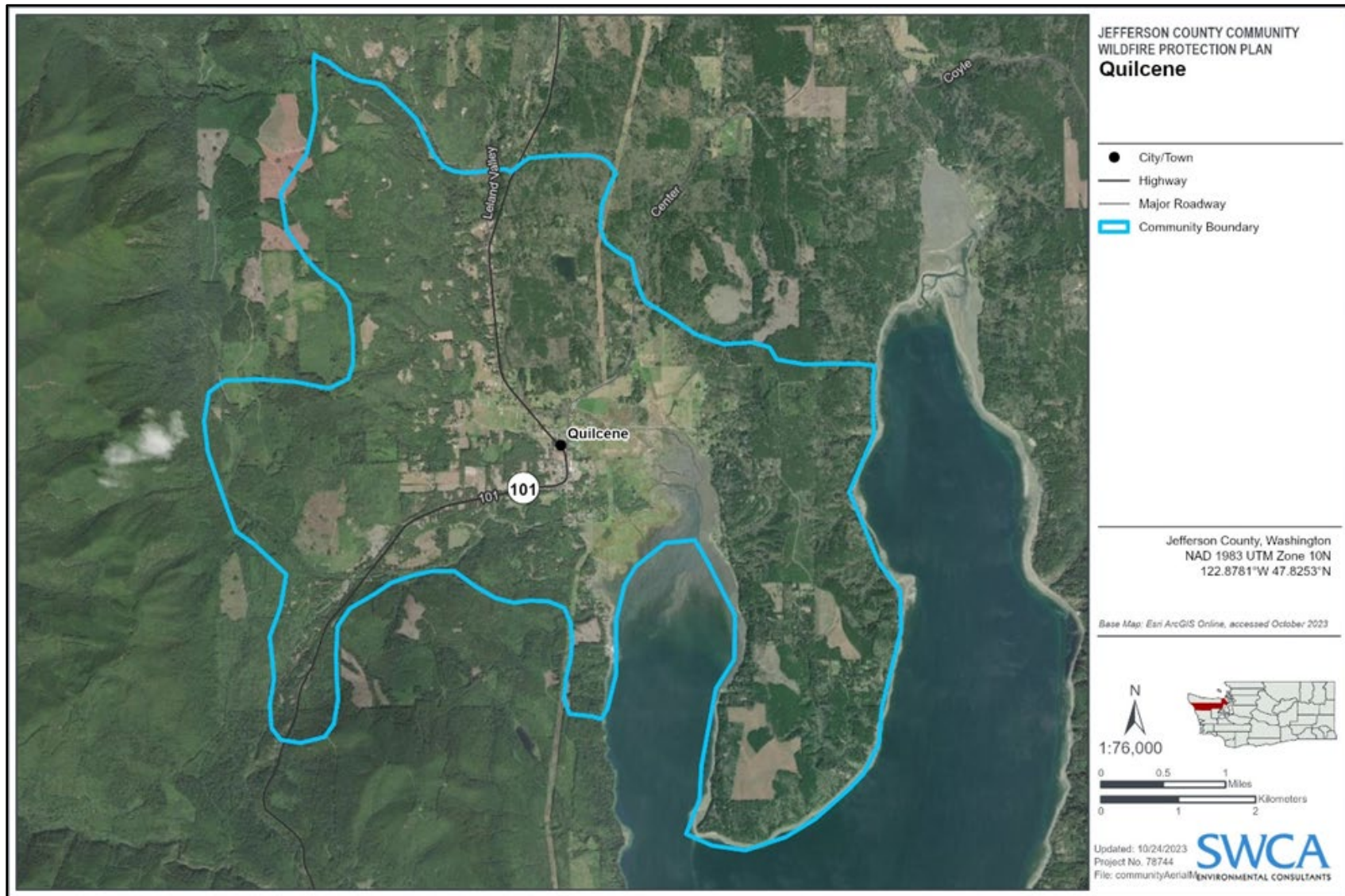


Figure C.99. Quilcene: The community contains a mix of urban and rural settings with many homes along Highway 101 within the WUI. Many homes are also located along the river and are difficult to see from the road. The community provides access to the Olympic National Forest and Olympic National Park.

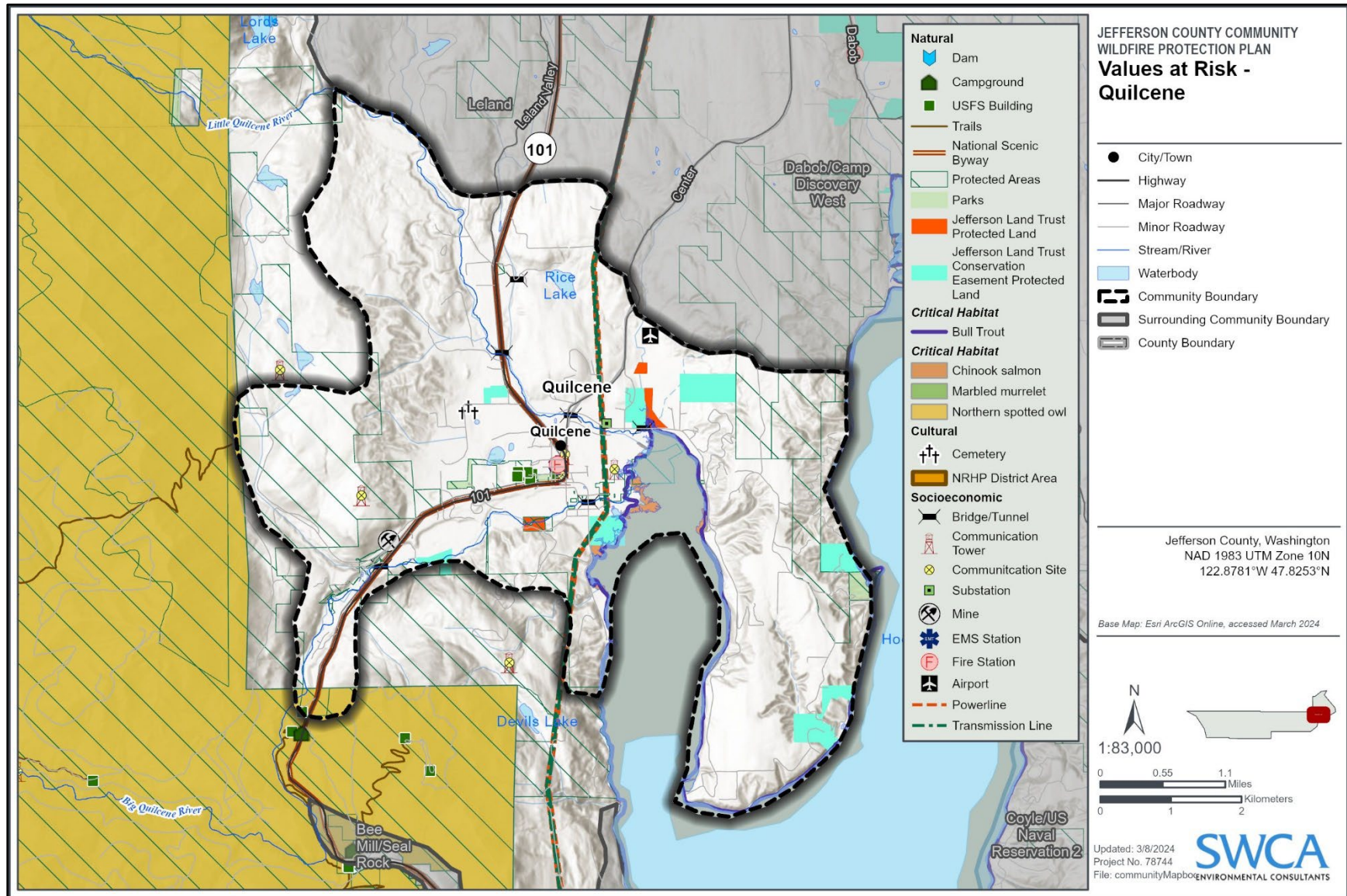


Figure C.100. Highly Valued Resources and Assets for Quilcene.

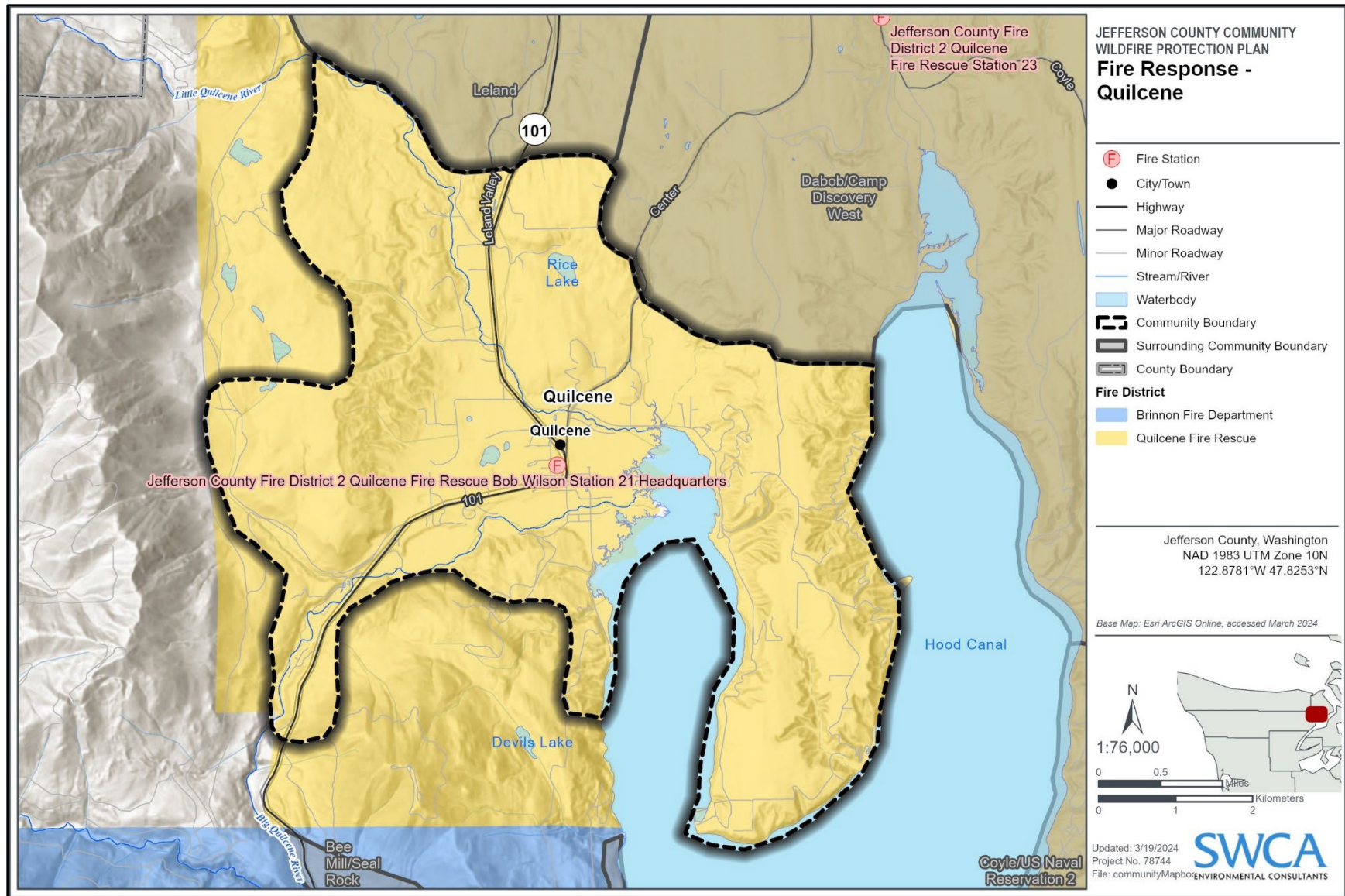


Figure C.101. Fire response for Quilcene.

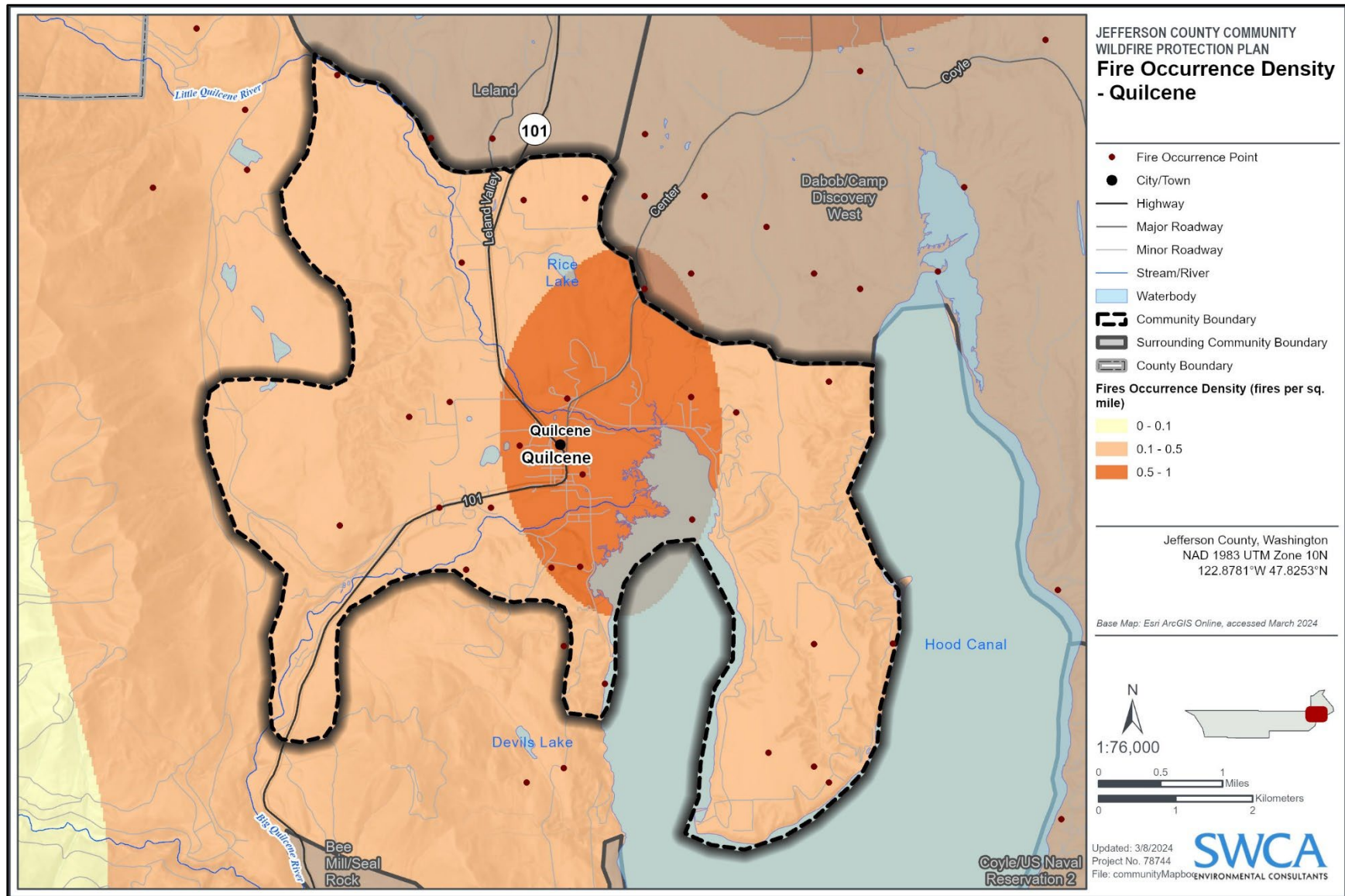


Figure C.102. Fire occurrence density for Quilcene.

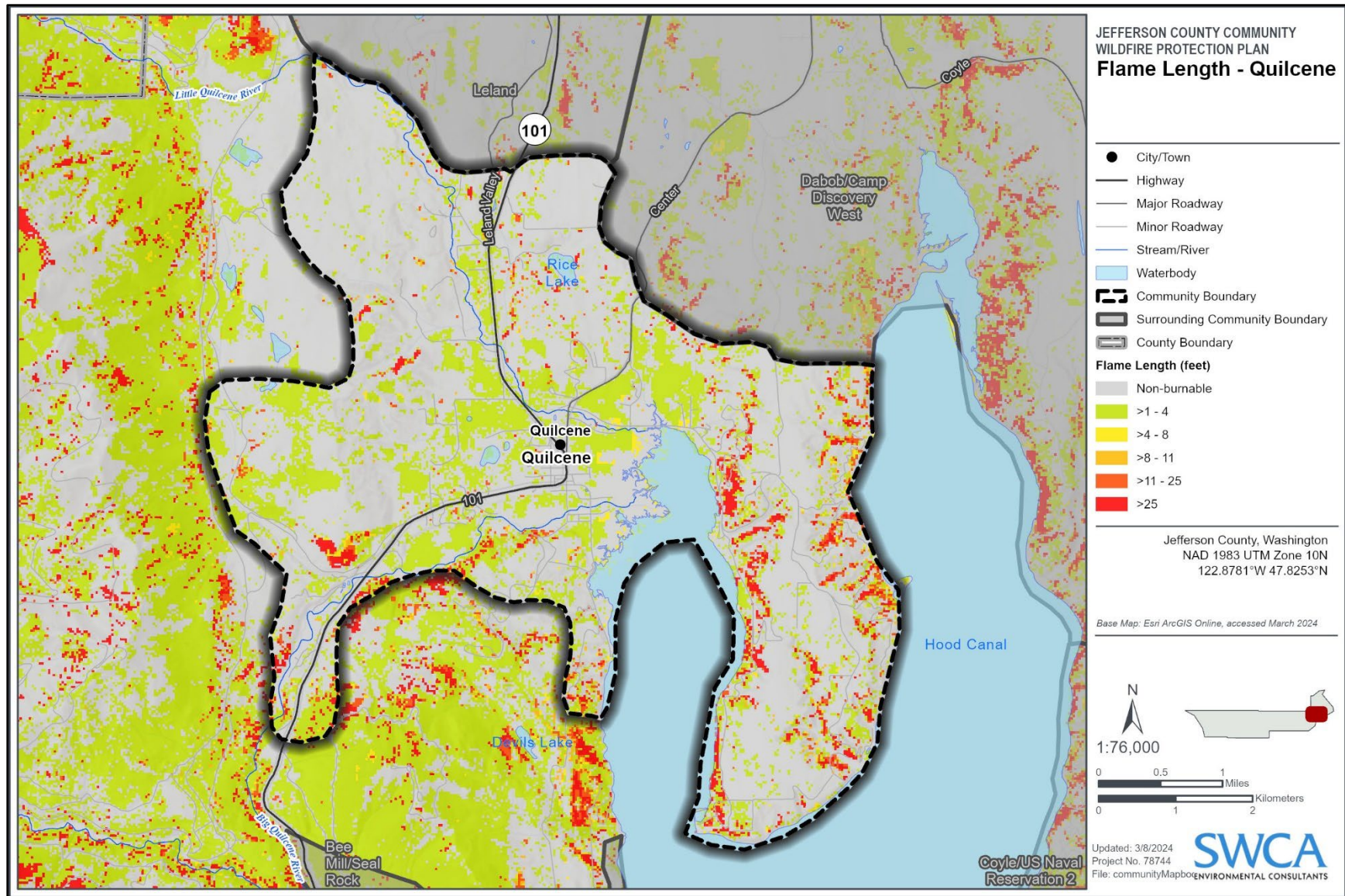


Figure C.103. Flame length for Quilcene.

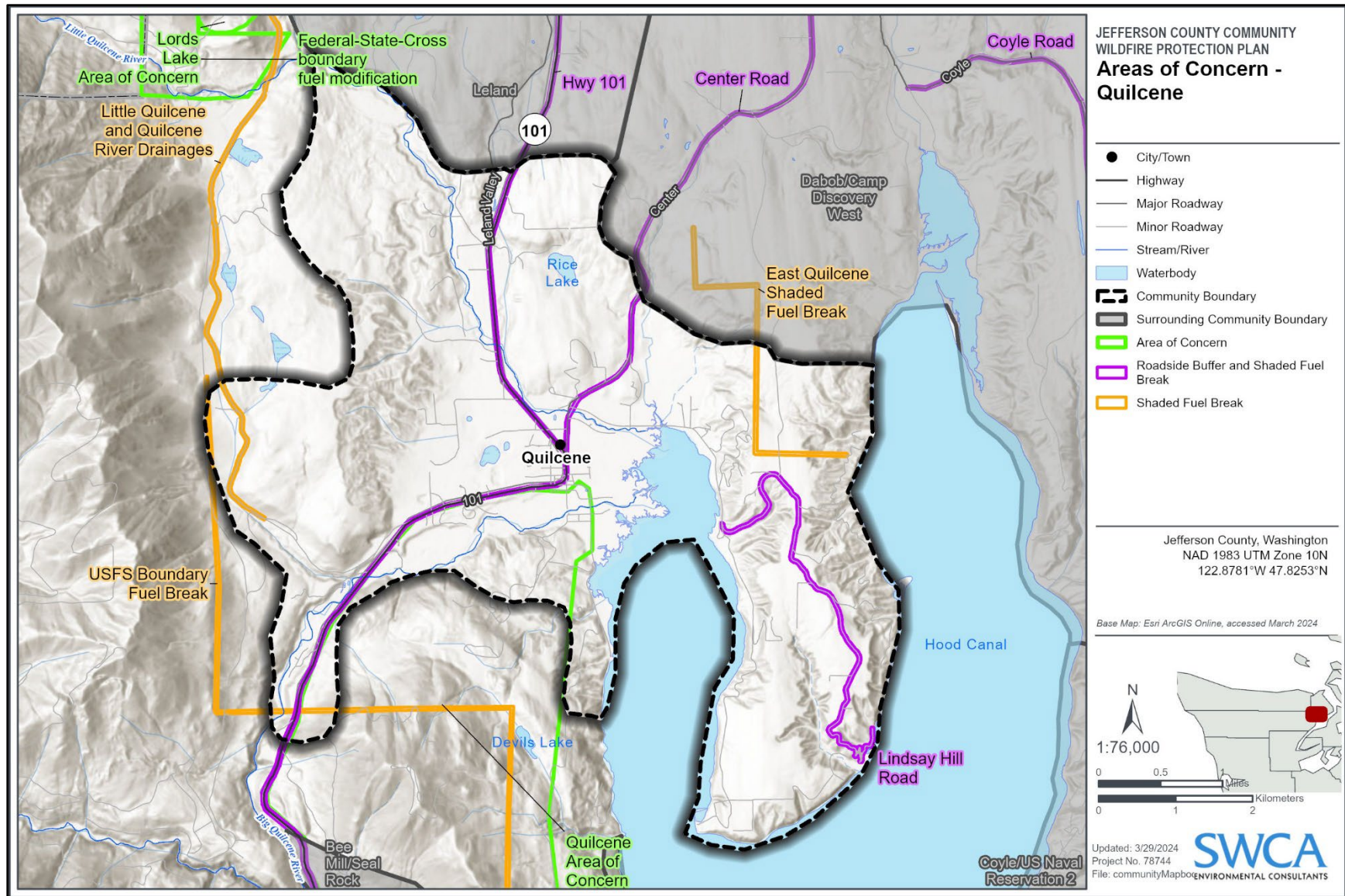


Figure C.104. Areas of concern detail for Quilcene.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Street signs: visible and reflective
- Organized response: fire department in community
- Severe fire weather potential: low; high humidity

Negative Attributes (High Scores)

- Entrance/exit: only one road in and out of community
- Predominant vegetation: timber-litter, highly combustible
- Building construction: combustible siding
- Water source: no water availability through hydrants but do have water tank
- Utility placement: aboveground
- Decking and fencing: combustible
- Building setback: <30 feet to slope
- Defensible space: minimal, with some homes with poor maintenance and refuse in yard

Recommended Mitigation

Areas of Concern:

Quilcene Area of Concern:

- Disseminate Firewise and defensible space materials to residents in the most populated area of Quilcene Fire Rescue's jurisdiction.
- Develop and distribute evacuation plans and community preparedness materials, with a focus on high-risk zones like the Herb Beck Marina, where terrain may impede fuel modification efforts.
- Identify potential state land areas south of town for transfer to DNR conservation zones (e.g., Mt. Walker/ Devil's Lake area) and collaborate with DNR to integrate hazardous fuels considerations into land management plans.
- Collaborate with DNR to understand and align with management goals for natural areas and shorelines in the Mt. Walker area.
- Pursue grant opportunities from FEMA and DNR to support mitigation activities in and around Quilcene.

Shaded Fuel Break:

USFS Boundary Fuel Break:

- Design and implement fuel break treatments with intention to reduce ladder fuels and raise canopy base height. Focus on areas with the greatest exposure to severe wildfire hazards.

Roadside Buffer and Shaded Fuel Break:

Highway 101:

- Develop an evacuation plan for the residences along this route. Work with WSDOT and landowners to develop fuels mitigations on private properties (defensible space) and roadside brush cutting/mowing. Obtain DNR grant support for WSDOT to purchase equipment or to enhance staffing.
- Explore FEMA grants for "Firewise" and fire-adapted communities.

Center Road Roadside Buffer:

- Develop an evacuation plan for the residences along this route from Highway 104 South. Work with County Roads and landowners to develop fuels mitigations on private properties (defensible space) and fuels modifications on private and state timber lands.
- Ensure roadside buffers are maintained along determined evacuation routes to avoid canopy fires blocking routes.
- Consider potential for a shaded fuel break near areas with high or extreme risks. Work with County Roads to enhance roadside brush cutting/mowing.
- Investigate available FEMA and Washington State grants to support mitigation work.

Lindsay Hill Road Roadside Buffer:

- Develop an evacuation plan for the residents along this route. Work with County Roads and landowners to develop fuels mitigations on private properties (defensible space) and roadside brush cutting/mowing.
- Consider development of a temporary refuge/shelter-in-place plan for Lindsey Beach to address access and evacuation concerns. Fuel modification in the area may be impeded by terrain.
- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height.

18. Bee Mill/Seal Rock Field Assessment Summary

Bee Mill/Seal Rock		
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 no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
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	Moderate
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	3	Moderate
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
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	Extreme
Water Source Score	1	Low
Organized Response	Station >5 miles from community	High
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	133	Extreme

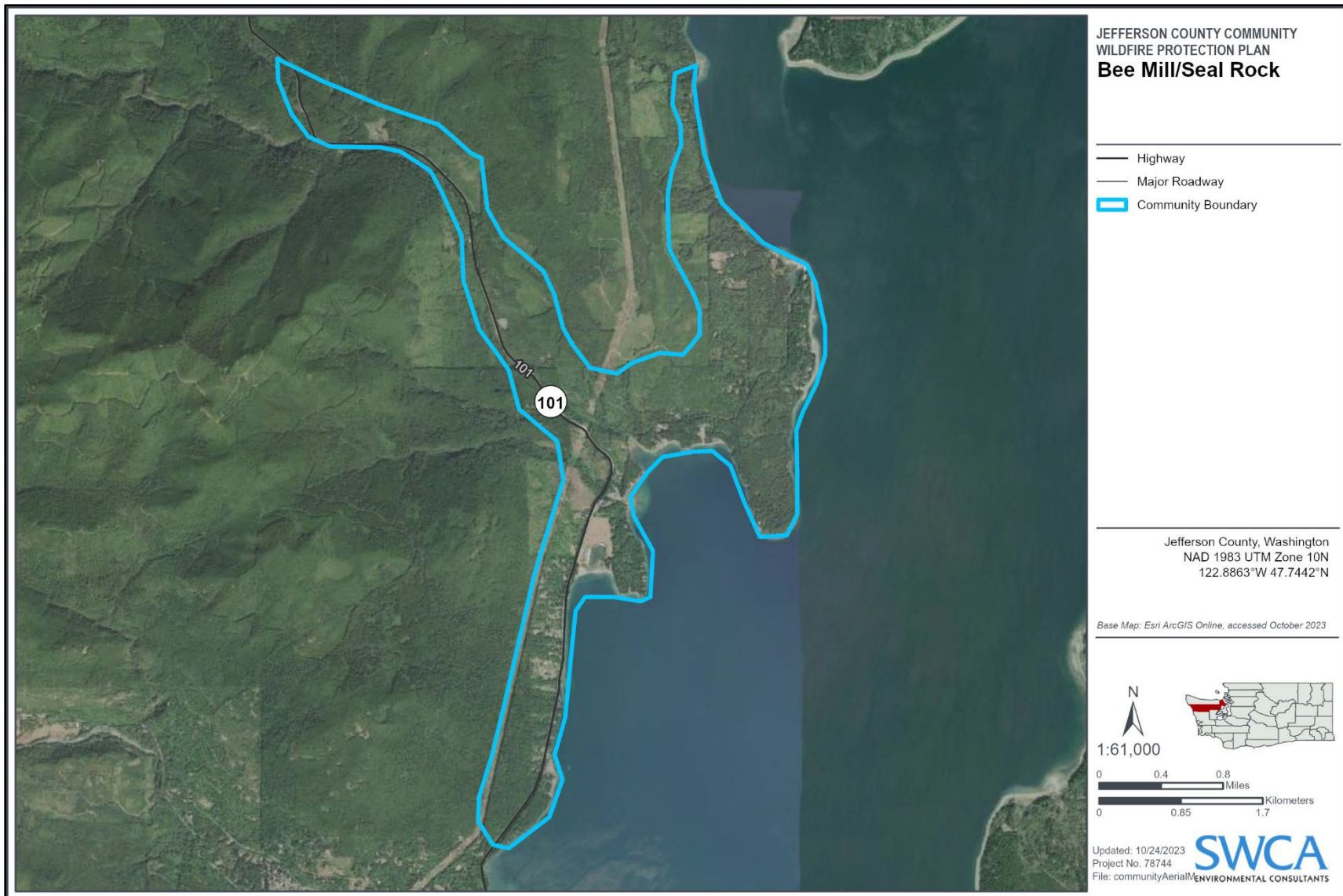


Figure C.105. Bee Mill/Seal Rock: The small community is adjacent to dense, continuous forest to the east, and borders Dabob Bay to the west. Most houses in the community are coastal or close to Highway 101. Multiple clear cut and logged areas are within and adjacent to the community.

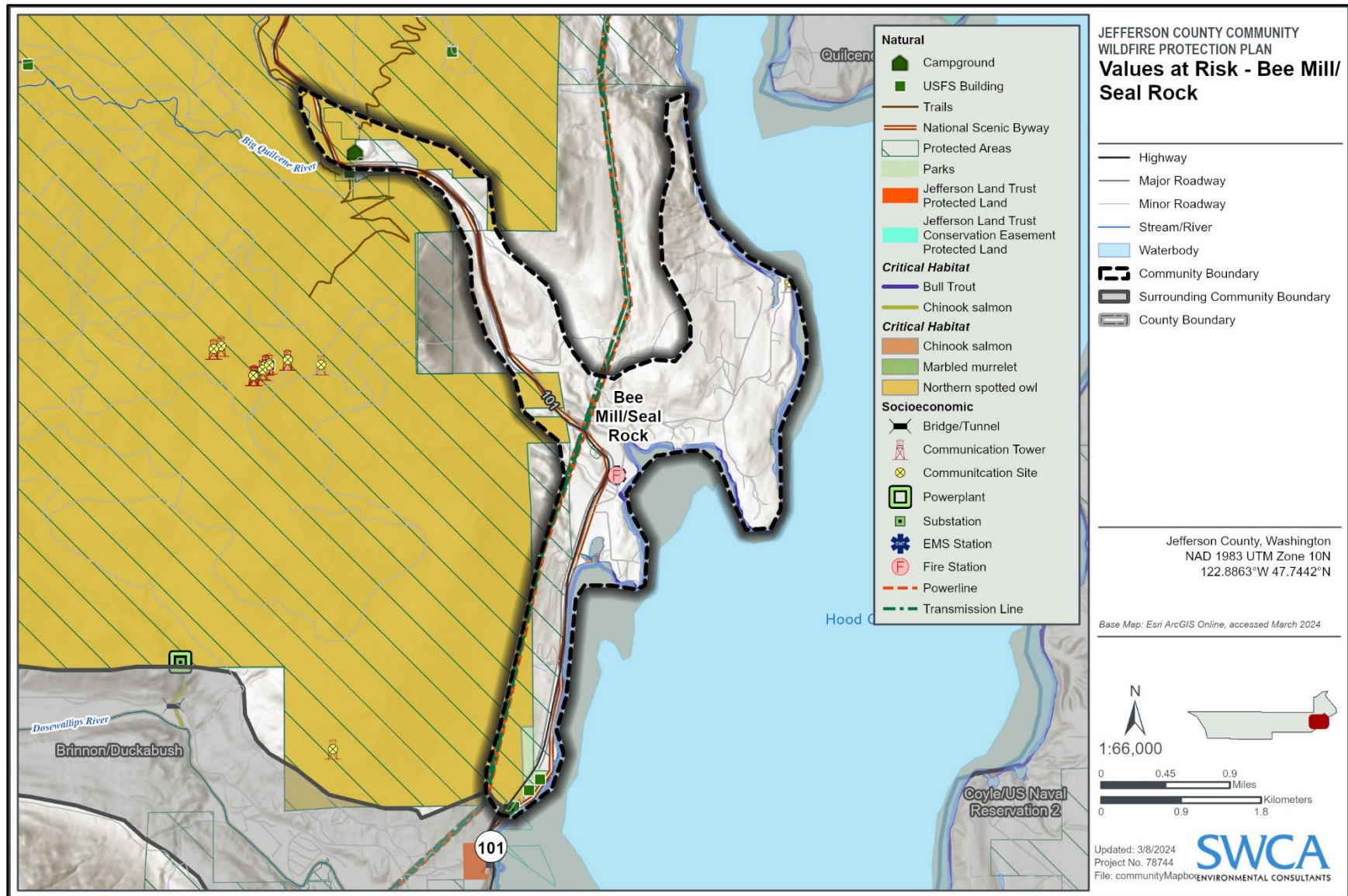


Figure C.106. Highly Valued Resources and Assets for Bee Mill/Seal Rock.

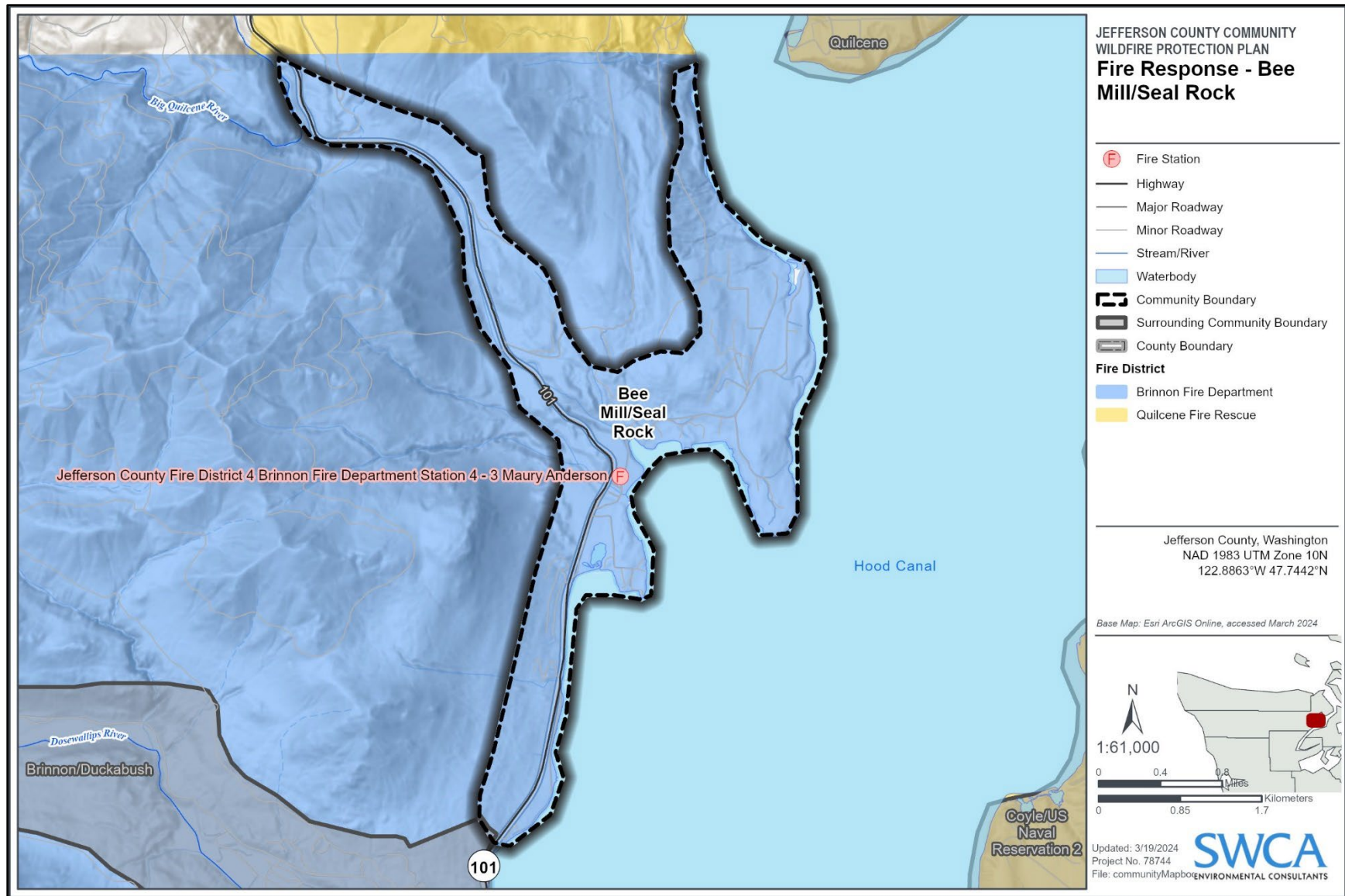


Figure C.107. Fire response for Bee Mill/Seal Rock.

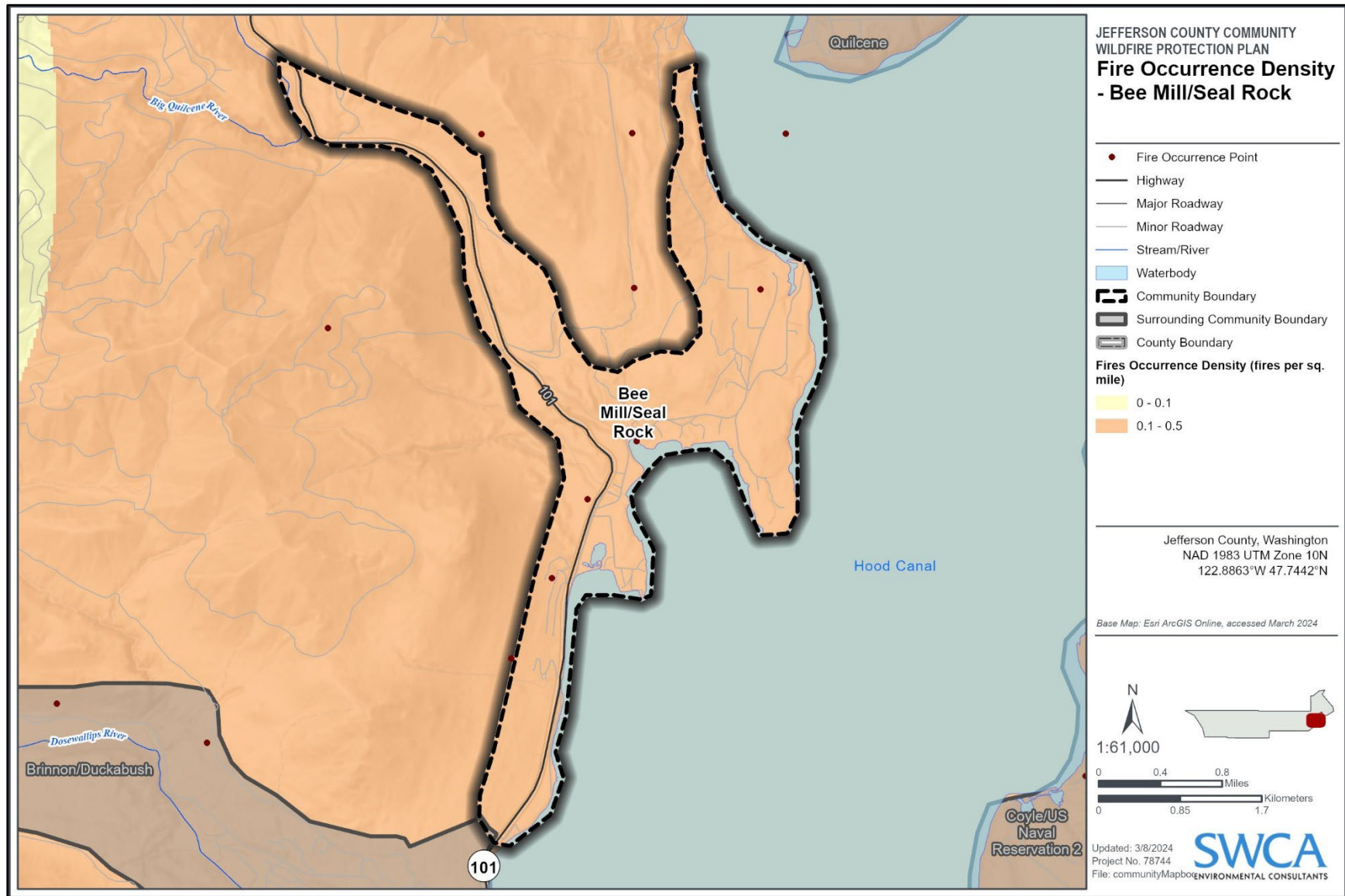


Figure C.108. Fire occurrence density for Bee Mill/Seal Rock.

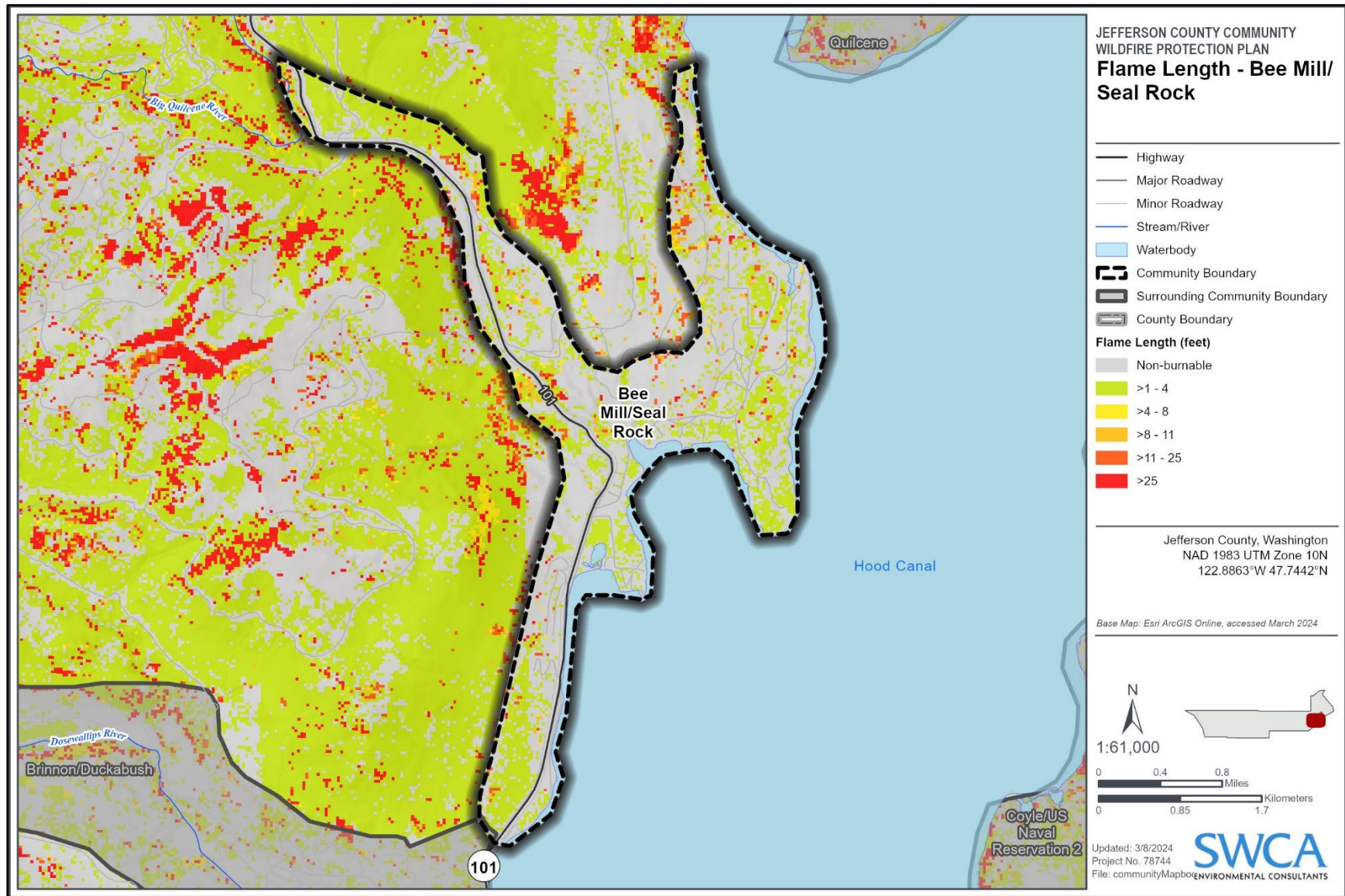


Figure C.109. Flame length for Bee Mill/Seal Rock.

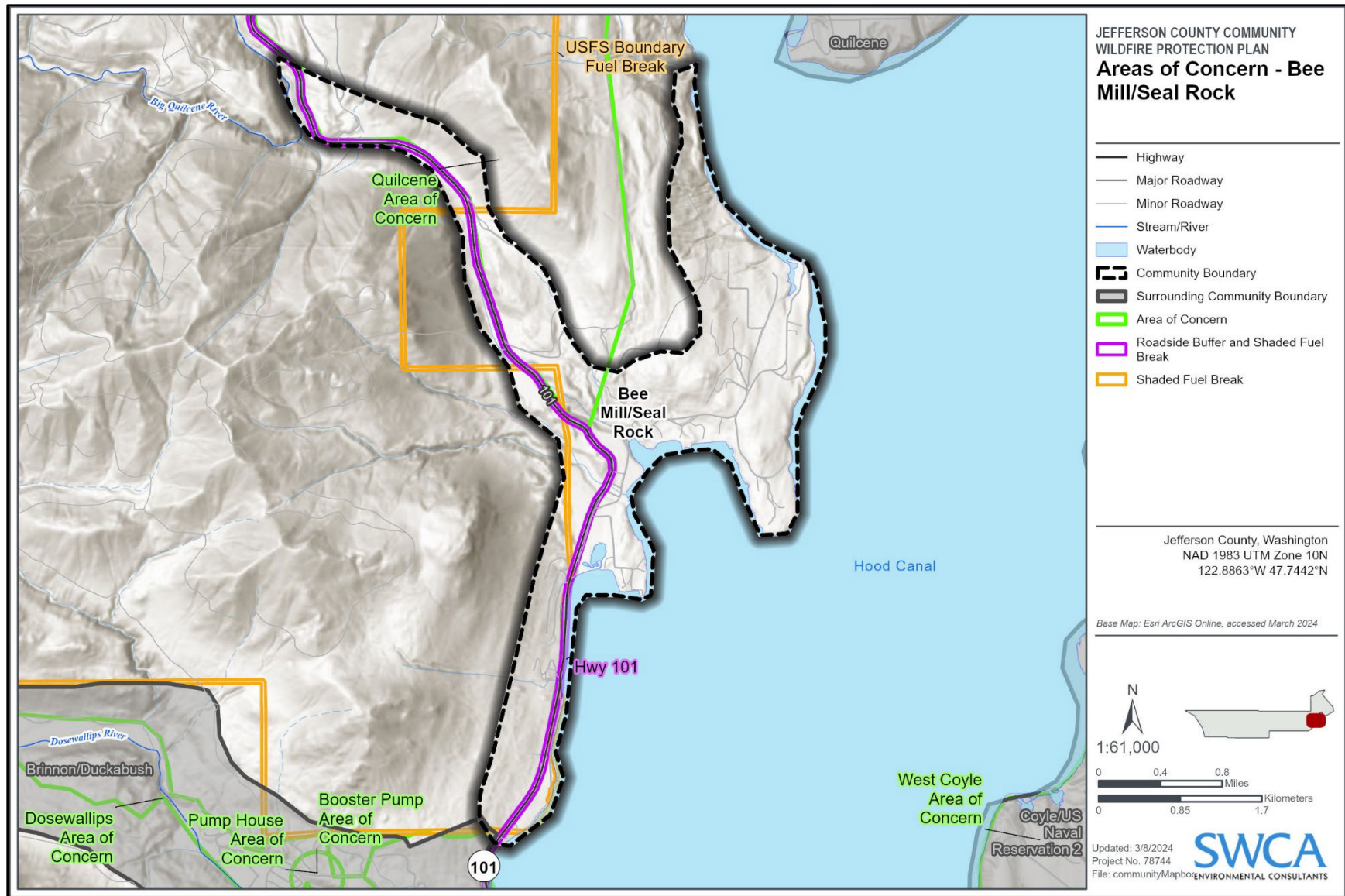


Figure C.110. Areas of concern detail for Bee Mill/Seal Rock.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Street signs: present and reflective Severe fire weather potential: low
- Water source: water availability in community
- Separation of adjacent structures: high
- Water source: present

Negative Attributes (High Scores)

- Entrance/exit: one road in and out of community
- Predominant vegetation: timber-litter and highly flammable
- Defensible space: Minimal, with less than 30 feet available around structures
- Building setback: <30 feet to slopes
- Fire truck access: <300 feet with no turnaround
- Building construction: combustible siding, decks, and fencing
- Utility placement: aboveground

Recommended Mitigation

Areas of Concern:

Quilcene Area of Concern:

- Disseminate Firewise and defensible space materials to residents in the most populated area of Quilcene Fire Rescue's jurisdiction.
- Develop and distribute evacuation plans and community preparedness materials, with a focus on high-risk zones like the Herb Beck Marina, where terrain may impede fuel modification efforts.
- Identify potential state land areas south of town for transfer to DNR conservation zones (e.g., Mt. Walker/ Devil's Lake area) and collaborate with DNR to integrate hazardous fuels considerations into land management plans.
- Collaborate with DNR to understand and align with management goals for natural areas and shorelines in the Mt. Walker area.
- Pursue grant opportunities from FEMA and DNR to support mitigation activities in and around Quilcene.

Shaded Fuel Break:

USFS Boundary Fuel Break:

- Design and implement fuel break treatments with intention to reduce ladder fuels and raise canopy base height. Focus on areas with the greatest exposure to severe wildfire hazards.

Roadside Buffer and Shaded Fuel Break:

Highway 101:

- Develop an evacuation plan for the residences along this route. Work with WSDOT and landowners to develop fuels mitigations on private properties (defensible space) and roadside brush cutting/mowing. Obtain DNR grant support for WSDOT to purchase equipment or to enhance staffing.
- Explore FEMA grants for "Firewise" and fire-adapted communities.

19. Brinnon/Duckabush Field Assessment Summary

Brinnon/Duckabush		
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 no turnaround	Extreme
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
Defensible Space	<30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	21% to 30%	Moderate
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 C - untreated wood shingle; plywood; particle board	High
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	No	Extreme
Water Source Type	Other	Extreme
Water Source Score	3	High
Organized Response	Station >5 miles from community	High
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	137	Extreme

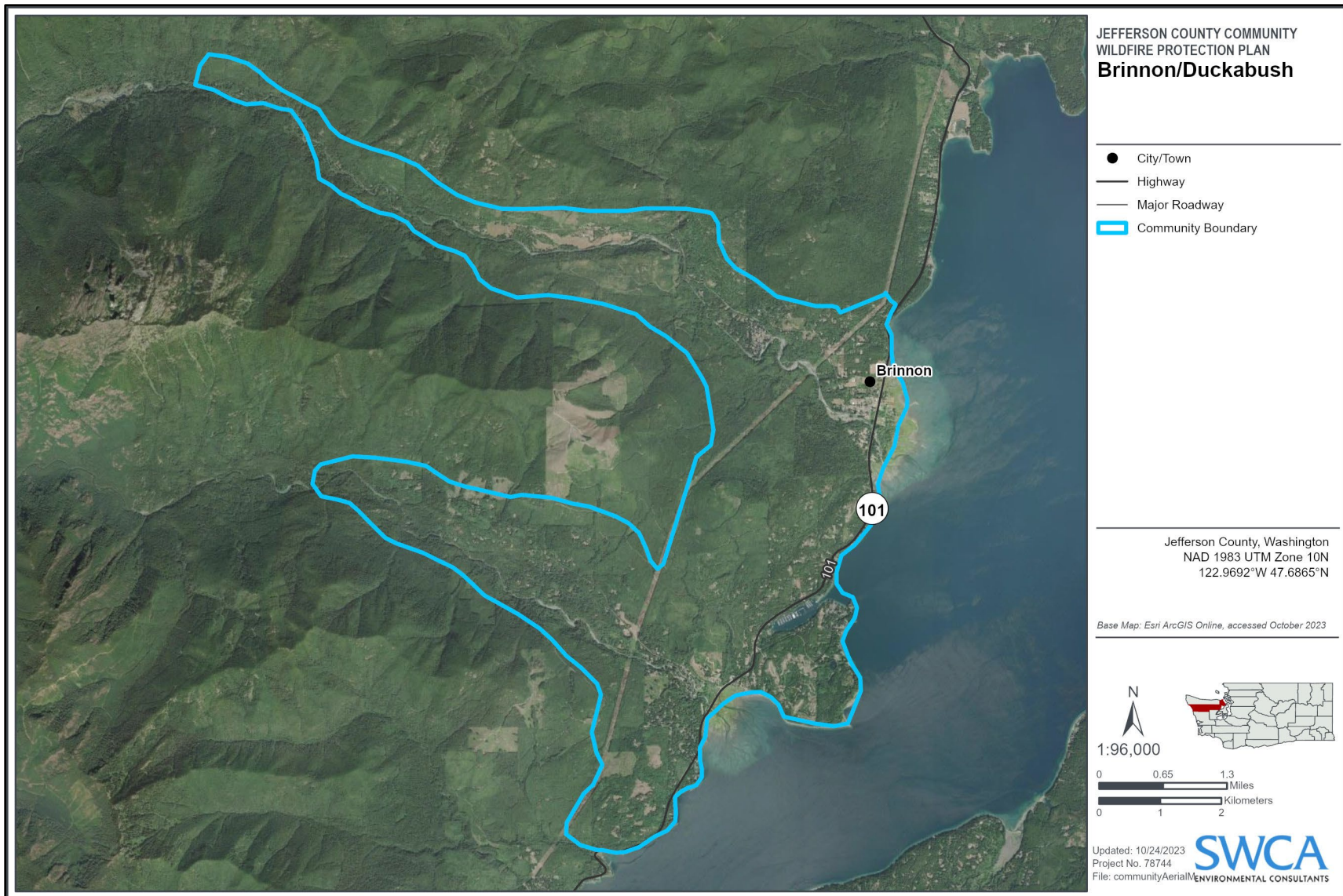


Figure C.111. Brinnon/Duckabush: The communities are situated on hilly terrain with often overgrown vegetation around homes and roadways. Many roads are unpaved, and communities are often accessed by a single road. The area receives tourist traffic as people enter the national forest and national park.

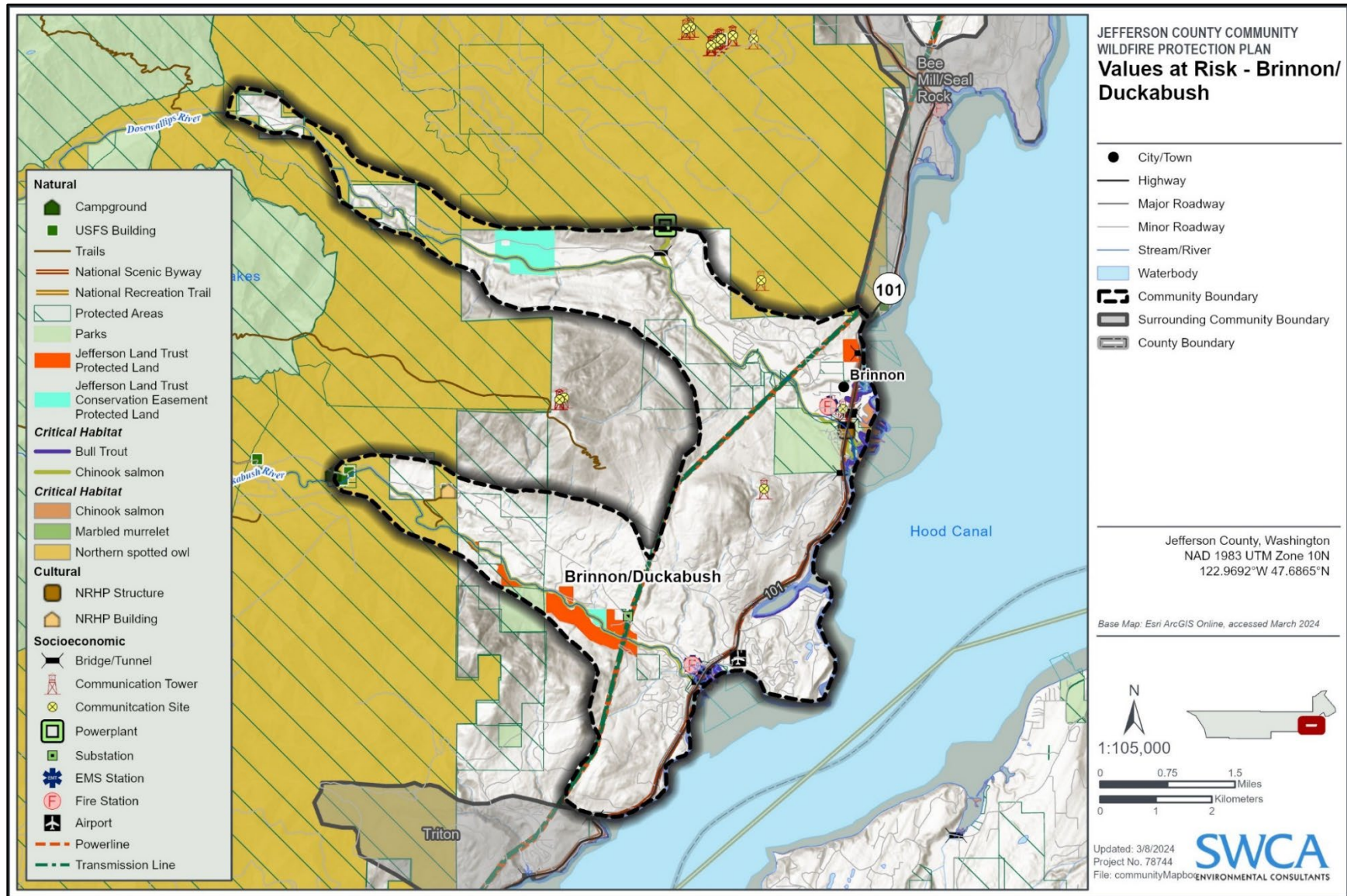


Figure C.112. Highly Valued Resources and Assets for Brinnon/Duckabush.

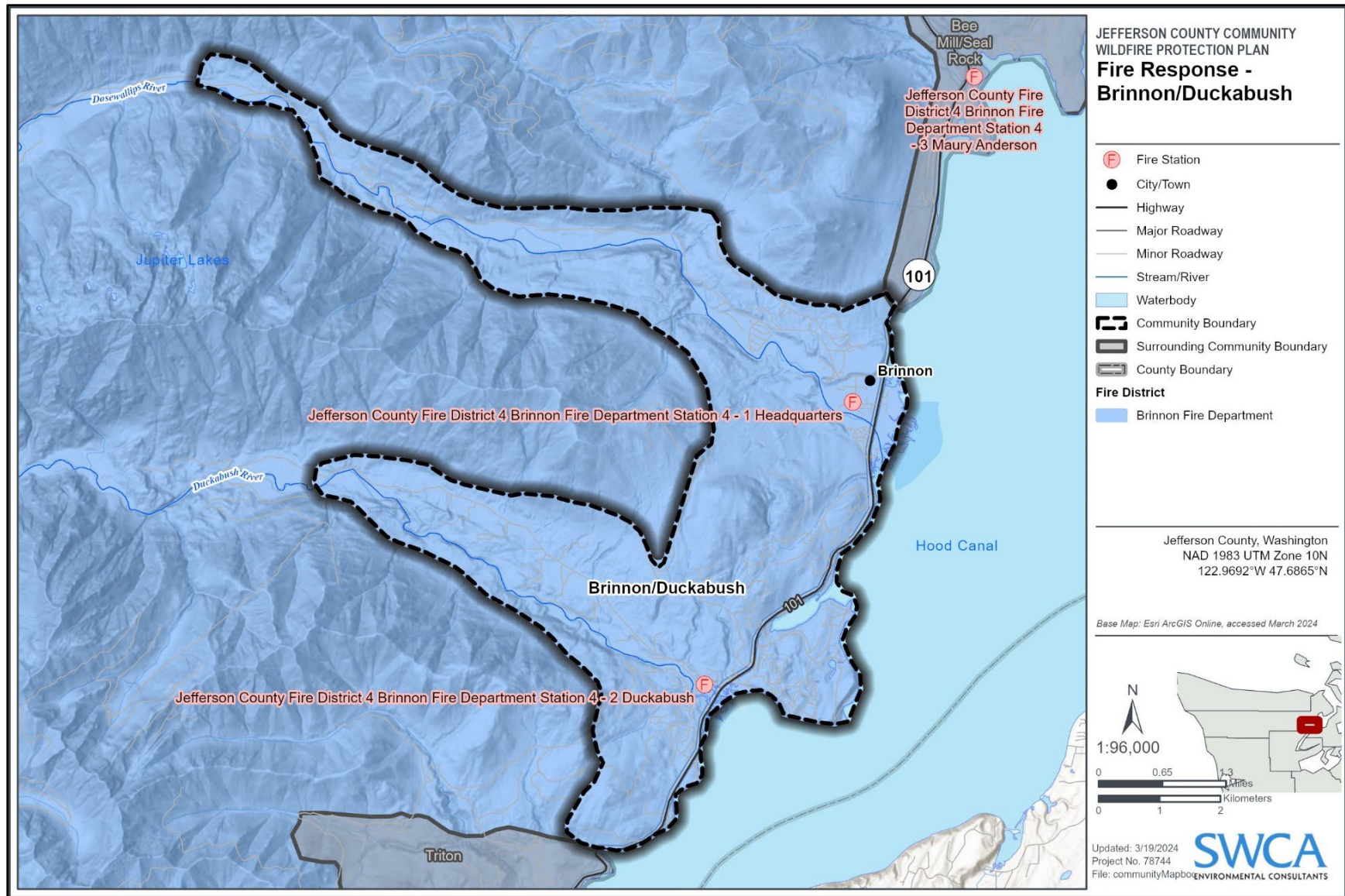


Figure C.113. Highly Valued Resources and Assets for Brinnon/Duckabush.

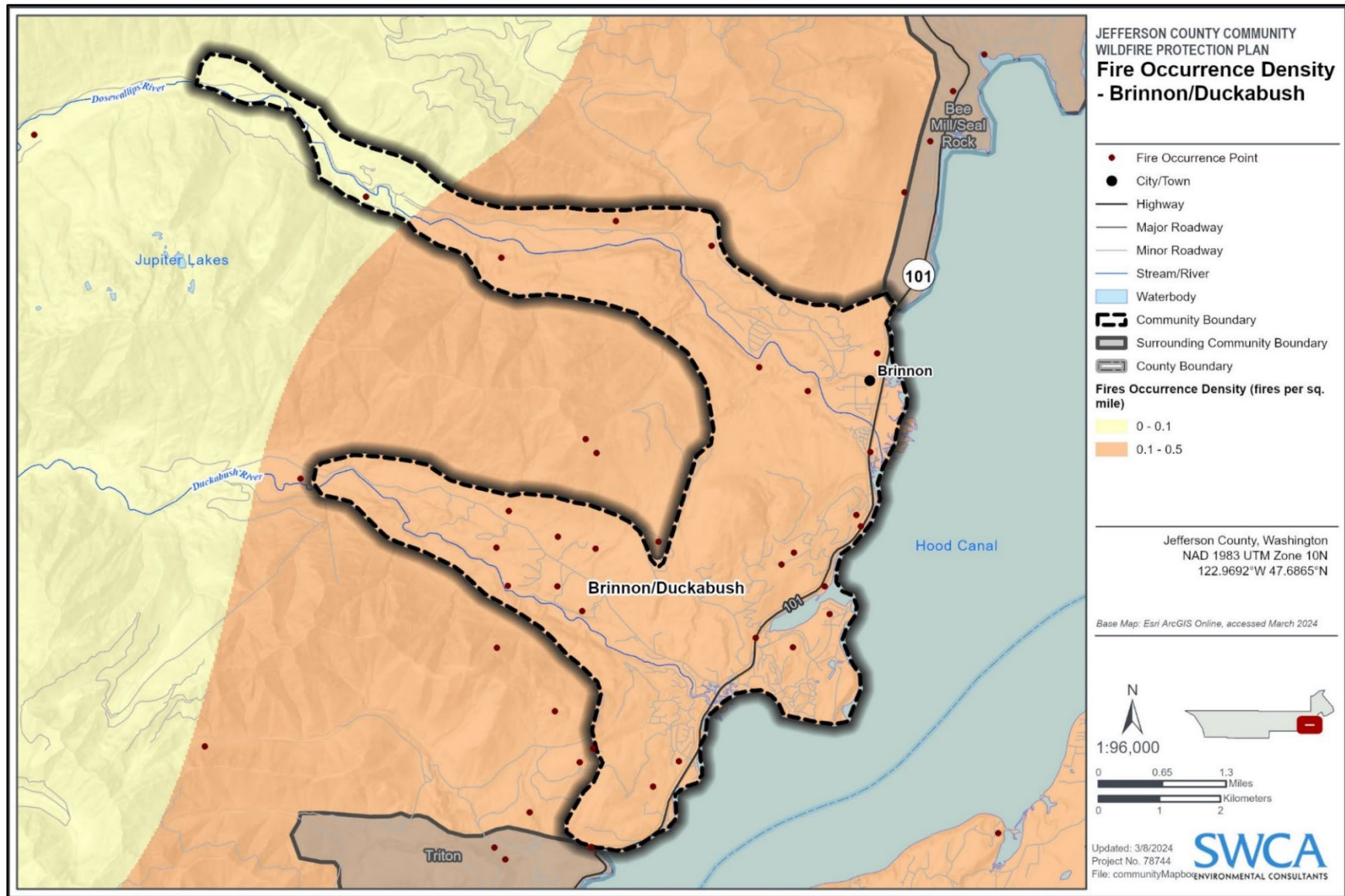


Figure C.114. Fire occurrence density for Brinnon/Duckabush.

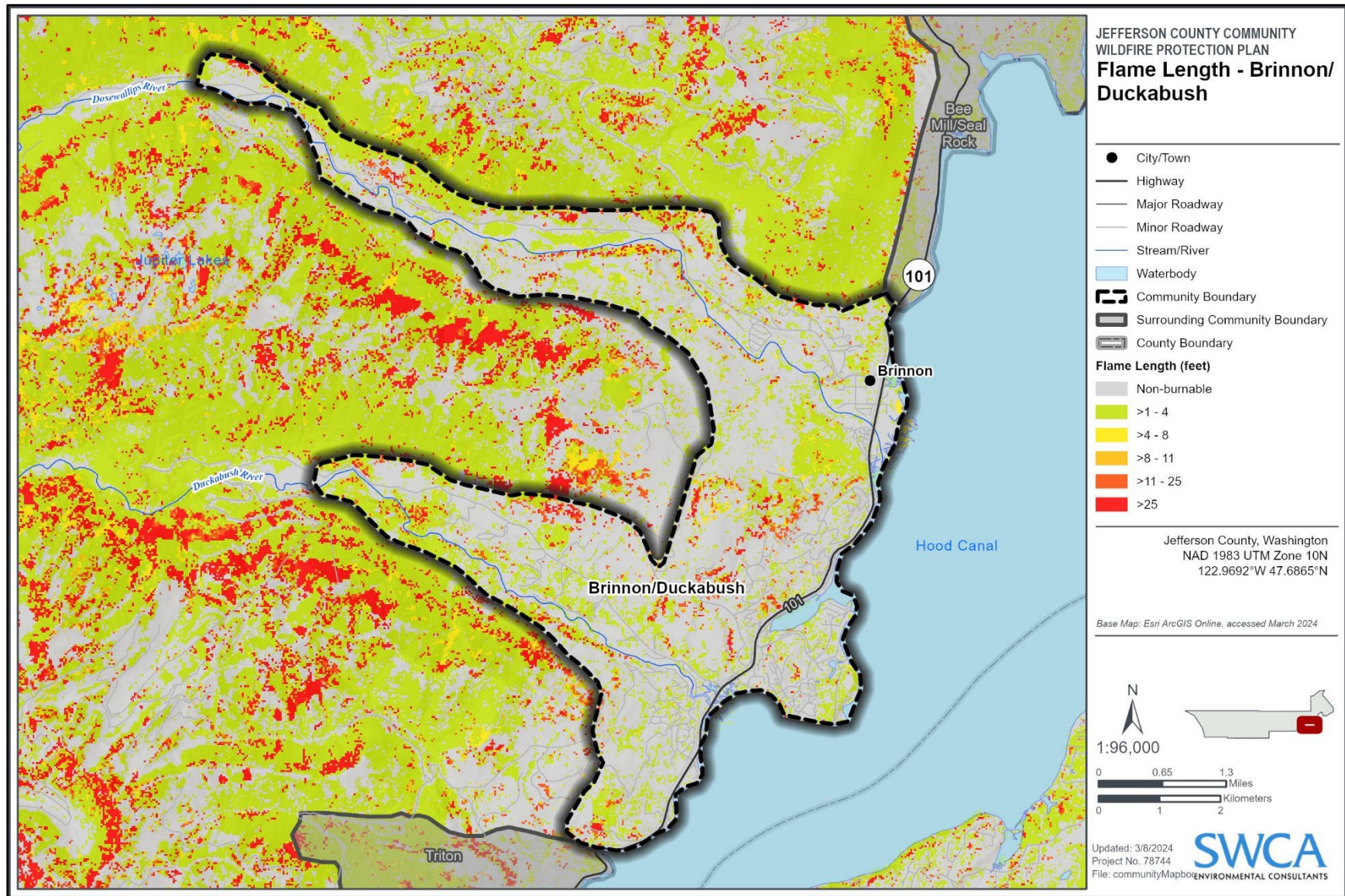


Figure C.115. Flame Length for Brinnon/Duckabush.

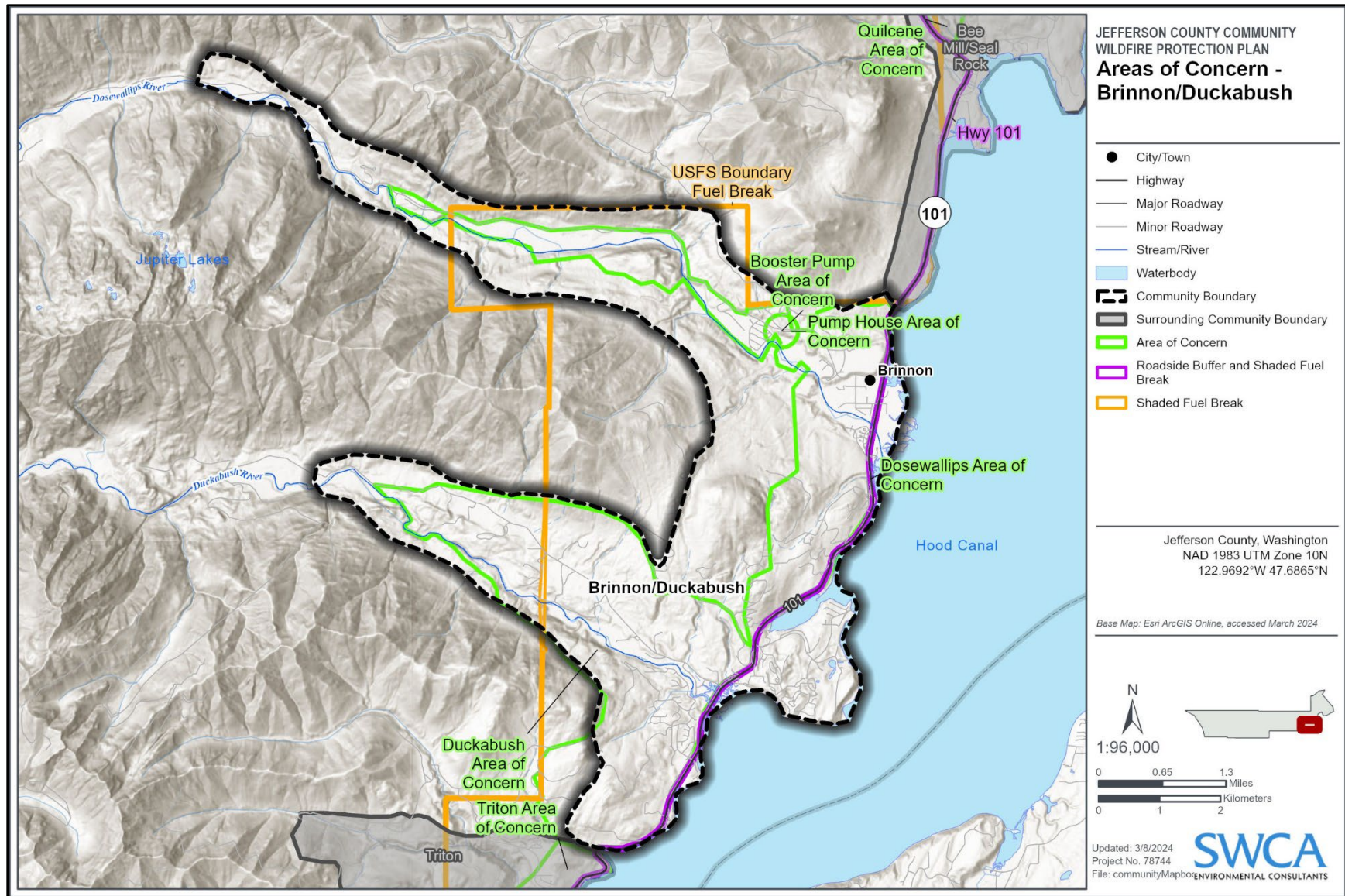


Figure C.116. Areas of concern detail for Brinnon/Duckabush.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Street signs: present and reflective
- Severe fire weather potential: low

Negative Attributes (High Scores)

- Entrance/exit: one road in and out of community
- Predominant vegetation: timber-litter, highly combustible
- Defensible space: <30 feet around structures
- Siding, deck, and fencing: highly combustible materials (wood or vinyl)
- Water sources: no major water sources within community
- Utilities: aboveground

Recommended Mitigation

Areas of Concern:

Dosewallips/Duckabush Areas of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Foster cross-boundary collaboration for fuel mitigation in areas where federal lands interface with other jurisdictions.

Shaded Fuel Break:

USFS Boundary Fuel Break:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height.
- Focus long-term efforts on areas with the highest exposure to severe wildfire impacts, ensuring compliance with federal and state environmental and cultural regulations as necessary.

Roadside Buffer and Shaded Fuel Break:

Highway 101:

- Develop an evacuation plan for the residences along this route. Work with WSDOT and landowners to develop fuels mitigations on private properties (defensible space) and roadside brush cutting/mowing. Obtain DNR grant support for WSDOT to possibly purchase equipment and enhance staffing resources.
- Explore FEMA grants for "Firewise" and fire-adapted communities.
- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

20. Triton Field Assessment Summary

Triton		
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 no turnaround	High
Street Signs	Present – reflective	Low
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
Defensible Space	<30 feet around structure	Extreme
Topography within 300 feet of Structures		
Slope	21% to 30%	Moderate
Topographic Features	3	Moderate
History of High Fire Occurrence	2	Moderate
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	2	Moderate
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	Combustible deck and fencing	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	High
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	126	Extreme

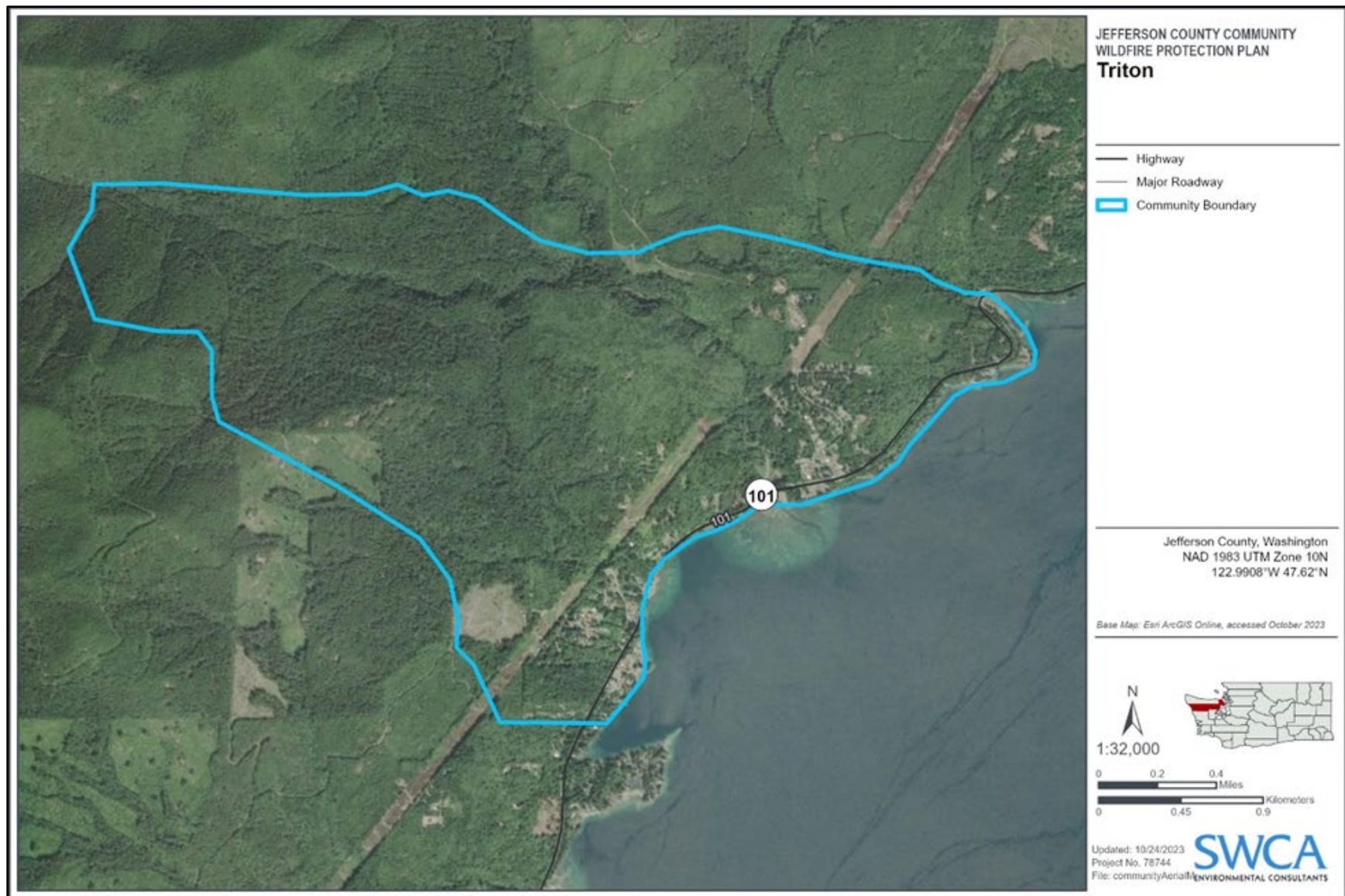


Figure C.117. Triton: The community has hilly terrain that hides most homes from sight. The forest to the west is very dense and has been impacted by drought in recent years.

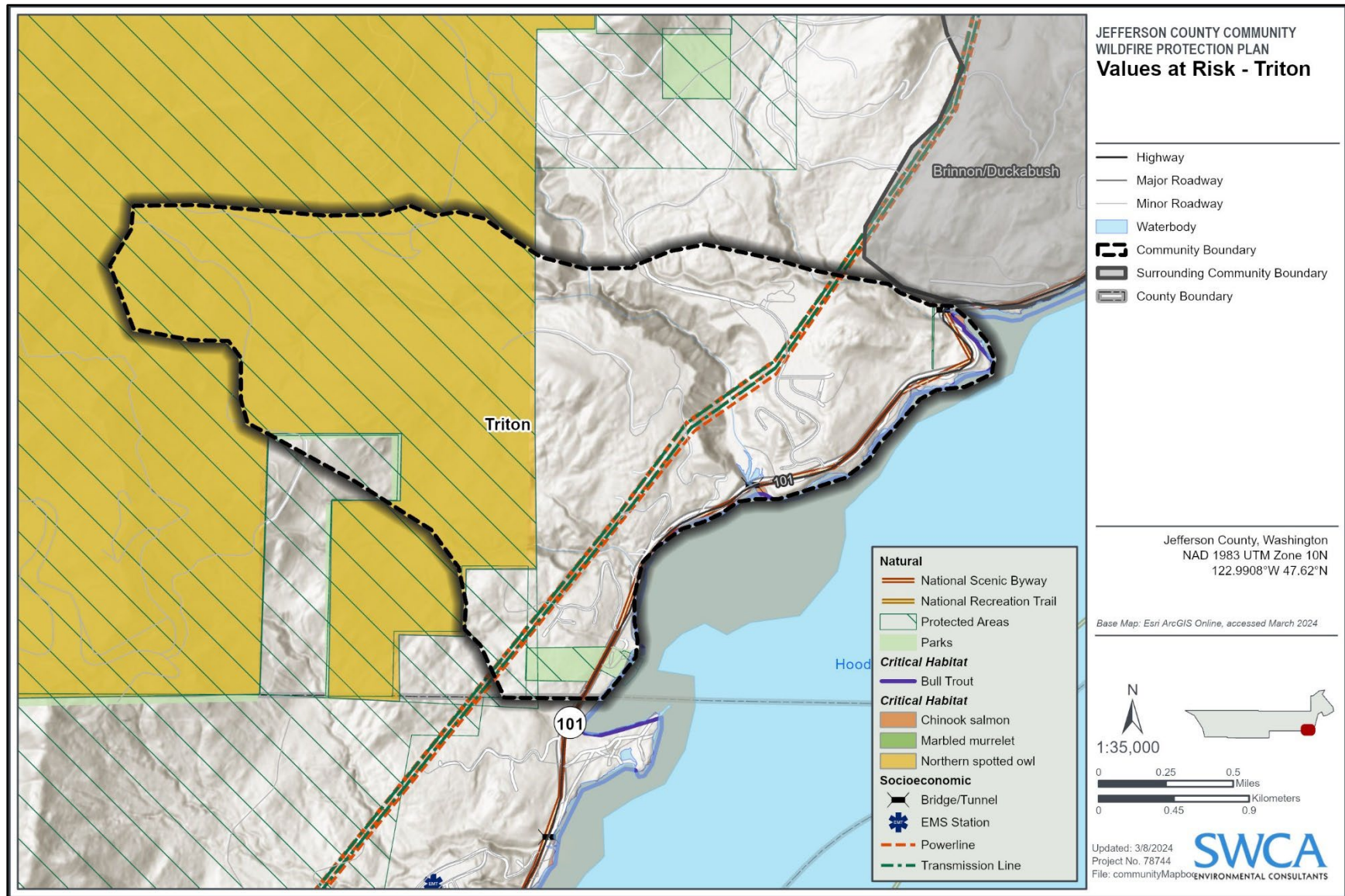


Figure C.118. Highly Valued Resources and Assets for Triton.

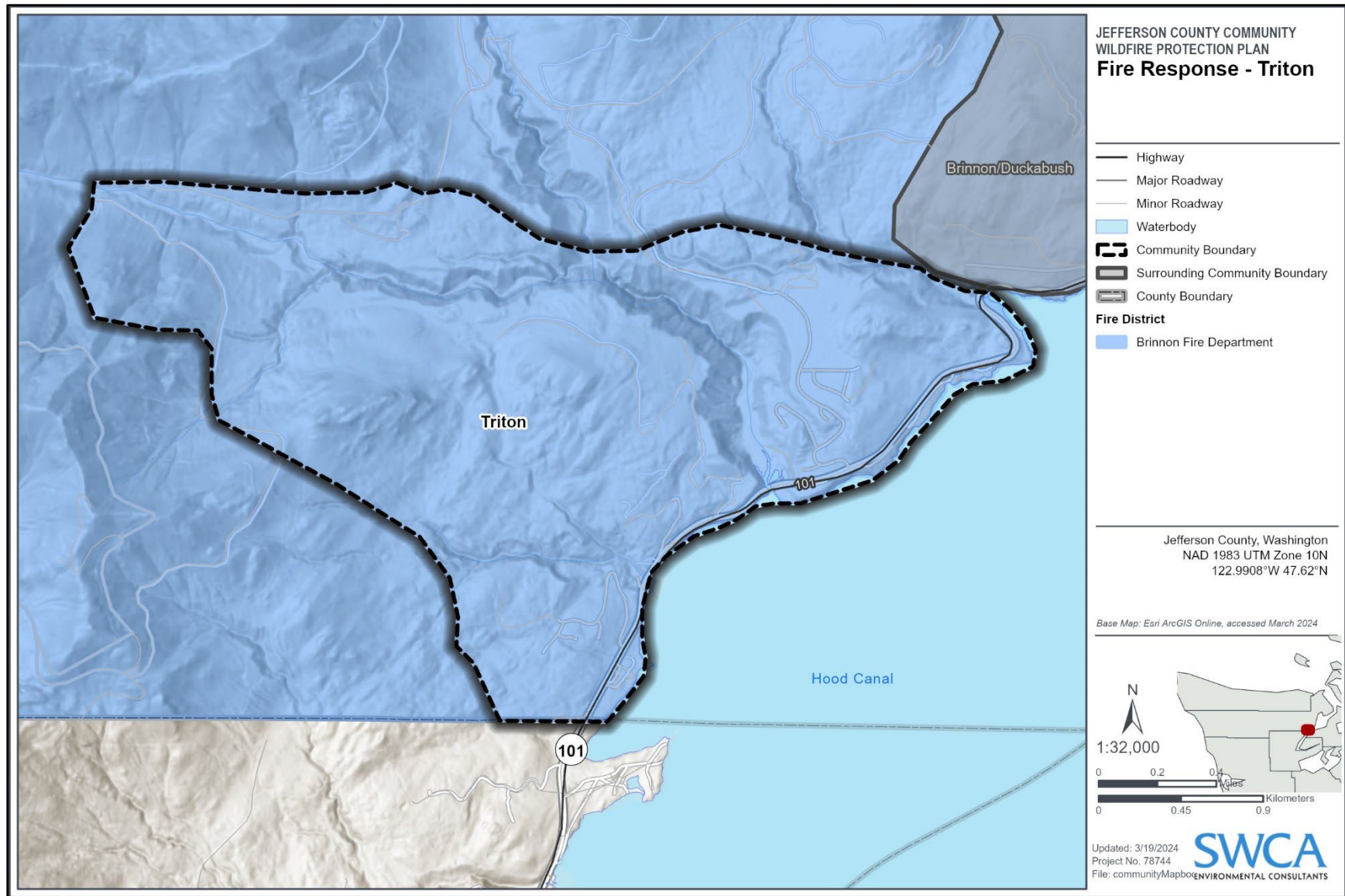


Figure C.119. Fire response for Triton.

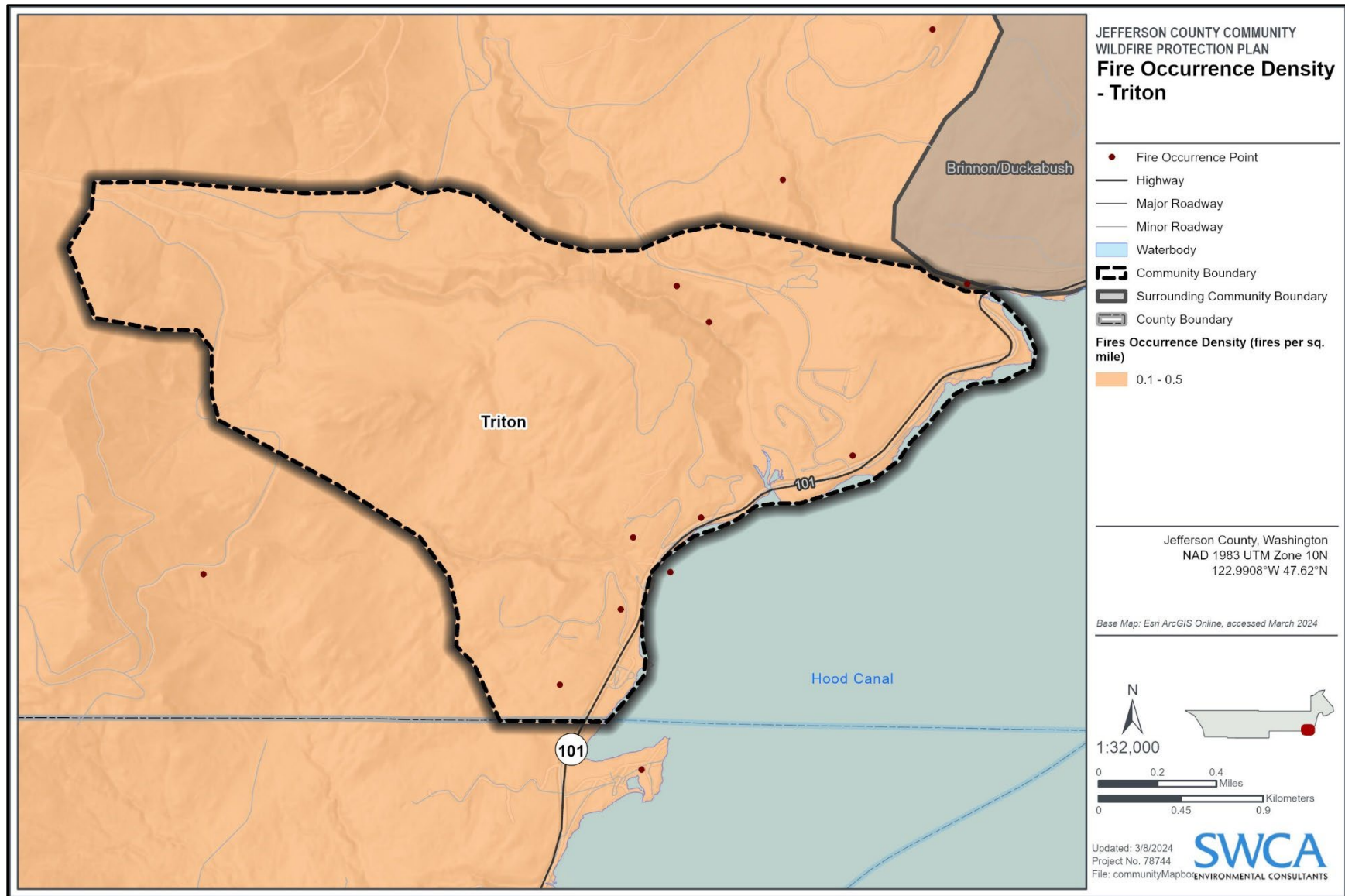


Figure C.120. Fire occurrence density for Triton.

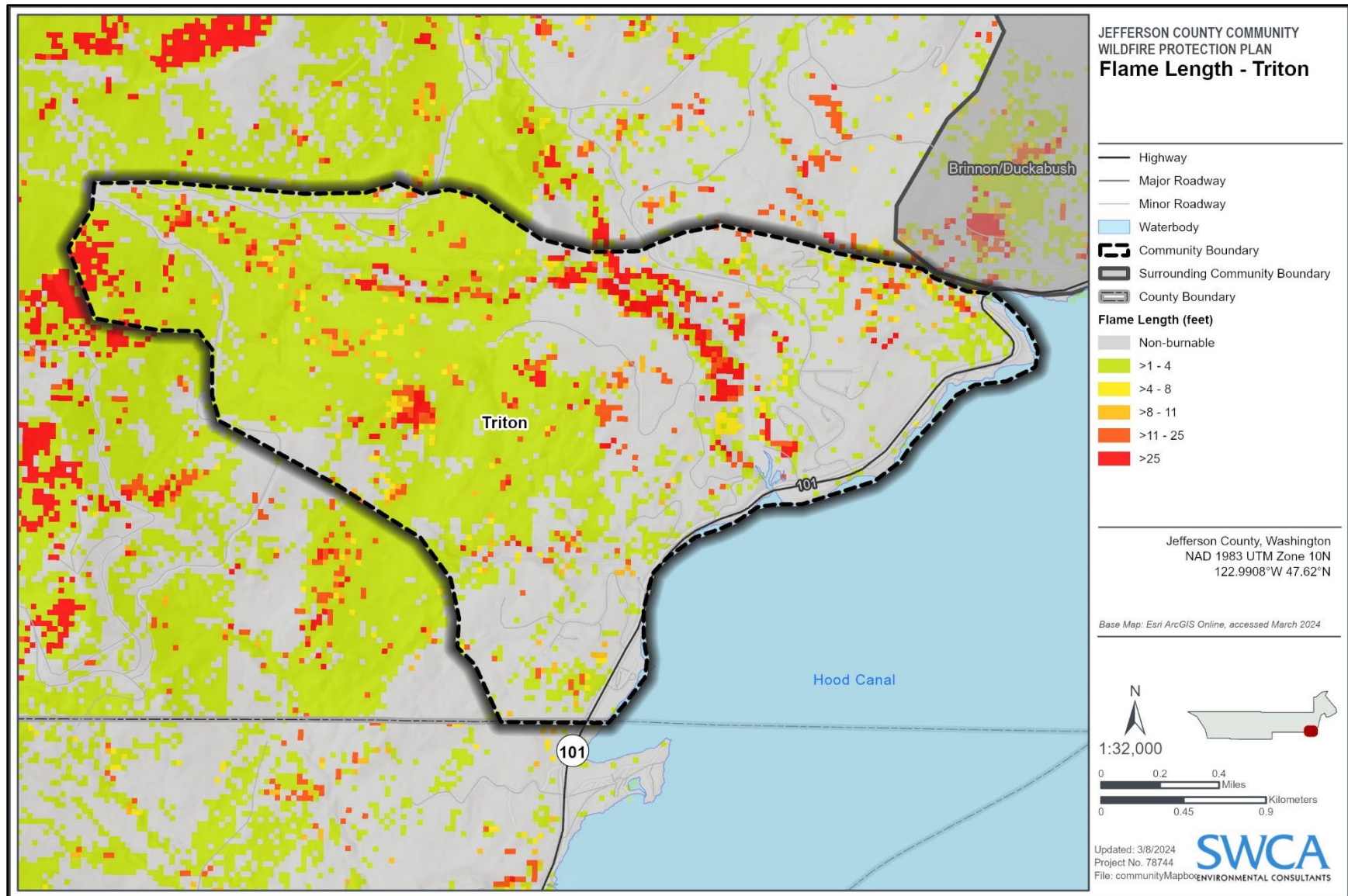


Figure C.121. Flame length for Triton.

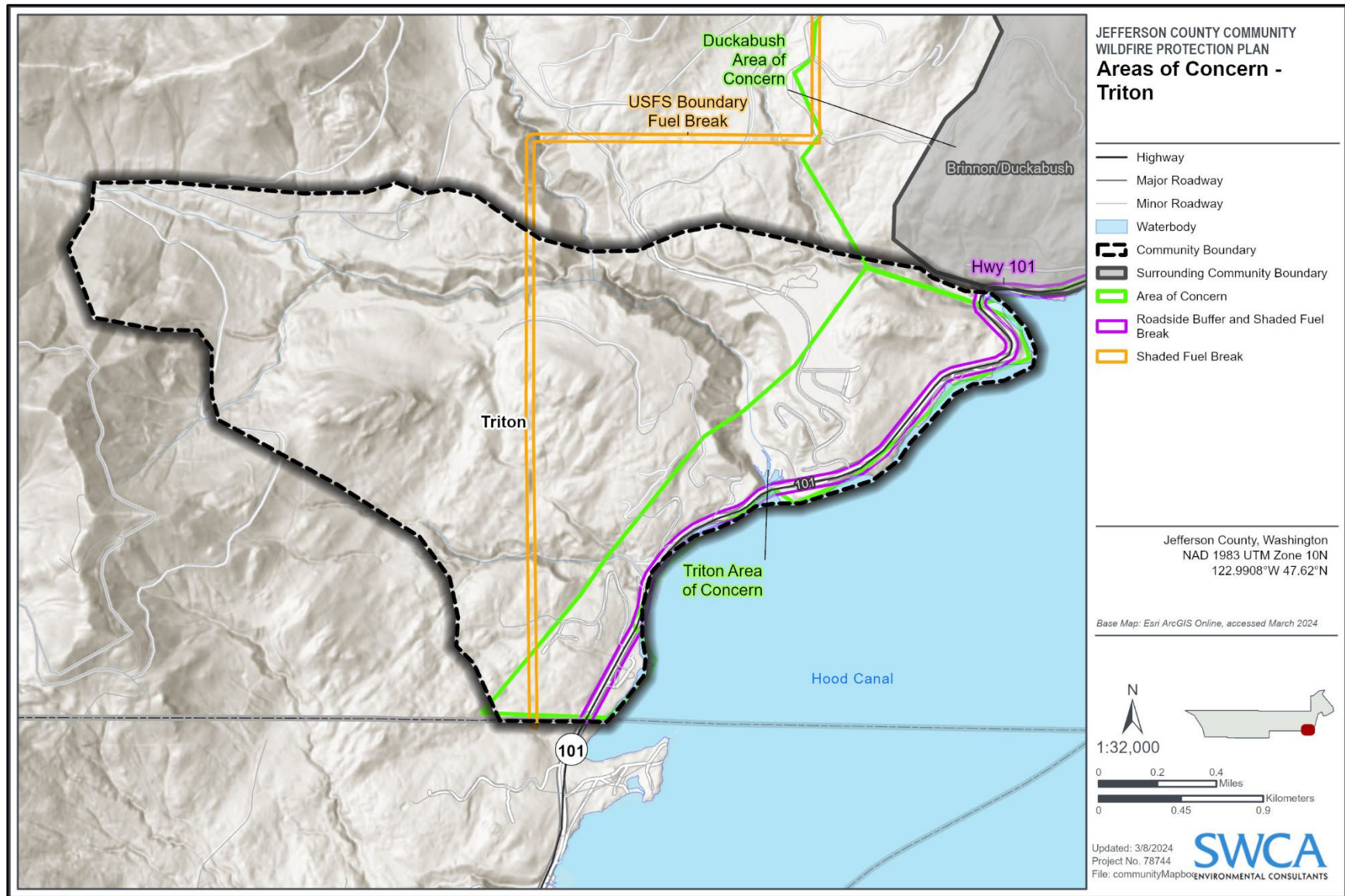


Figure C.122. Areas of concern detail for Triton.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Street signs: present and reflective
- Severe fire weather potential: low
- Water sources: available hydrants

Negative Attributes (High Scores)

- Entrance/exit: only one road in and out
- Predominant vegetation: timber-litter, highly combustible
- Defensible space: >30 feet around structures
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Building setback: <30 feet to slope
- Utilities: aboveground

Recommended Mitigation

Areas of Concern:

Triton:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.
- Foster cross-boundary collaboration for fuel mitigation in areas where federal lands interface with other jurisdictions.

Shaded Fuel Break:

USFS Boundary Fuel Break:

- Identify and implement fuel break treatments to reduce ladder fuels and raise canopy base height. Focus on areas with the greatest exposure to severe wildfire hazard.

Roadside Buffer and Shaded Fuel Break:

Highway 101:

- Develop an evacuation plan for the residences along the route. Work with WSDOT and landowners to develop fuels mitigations on private properties (defensible space) and roadside brush cutting/mowing. Seek DNR grant support for WSDOT to purchase equipment or to enhance staffing.
- Explore FEMA grants for "Firewise" and fire-adapted communities.
- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

21. Hoh Indian Reservation Field Assessment Summary

Hoh Indian Reservation		
Risk Variable	Assessed Condition	Risk Rating
Means of Access		
Entrance/Exit	1 road in and out	Extreme
Road Width	>24 feet	Low
Road Conditions	Surfaced road; grade <5%	Low
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
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	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	5	Extreme
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
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	Extreme
Organized Response	Station >5 miles from community	High
Placement of Gas and Electric Utilities		
Utilities Placement	Both aboveground	Extreme
Community Hazard Rating	120	Extreme

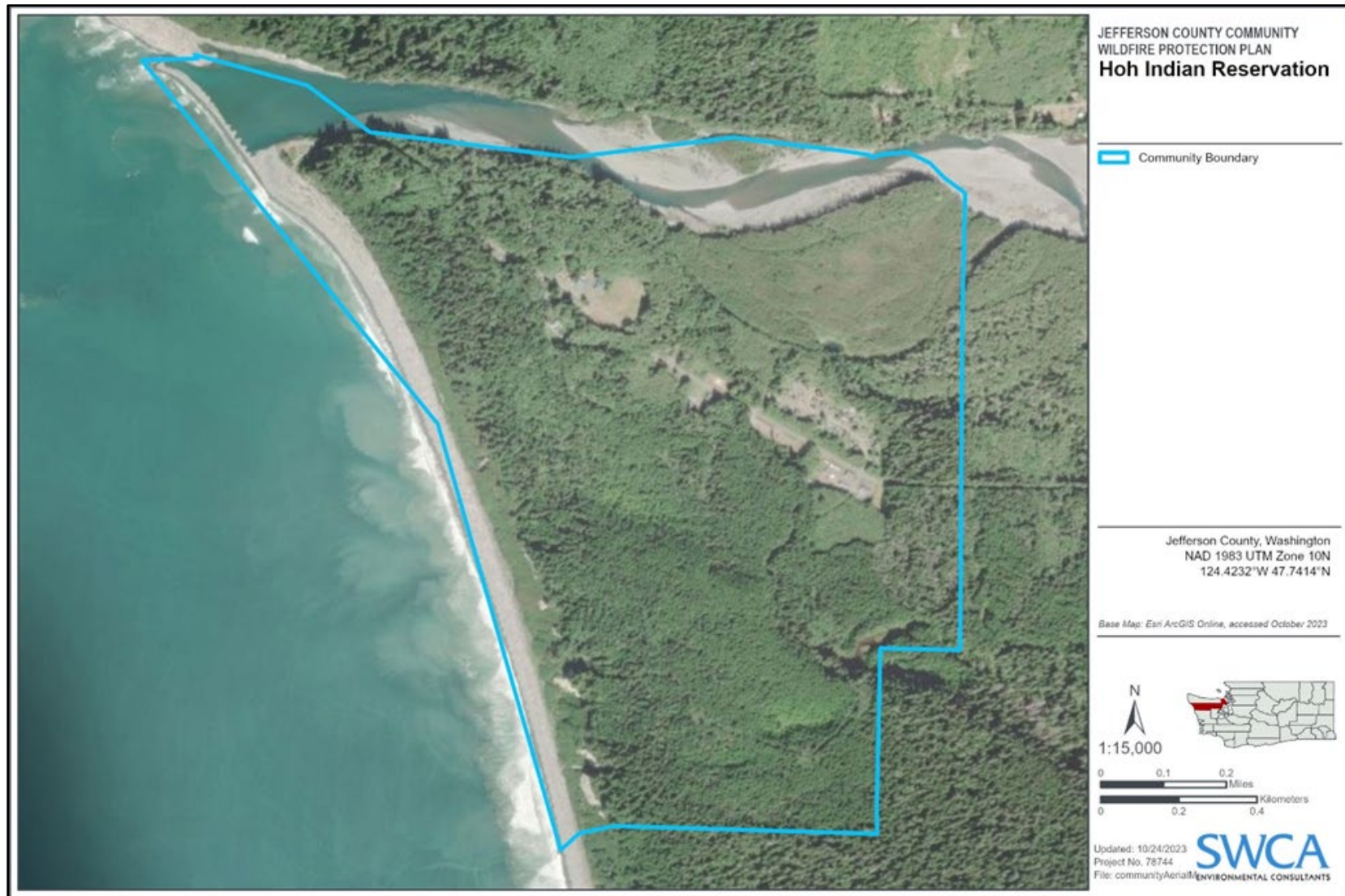


Figure C.123. Hoh Indian Reservation: Around 120 tribal residents inhabit the Hoh Indian Reservation. The community is accessed via a single main road that ends at the ocean. The absence of a fire station within the vicinity poses significant challenges for emergency response. As a result of escalating tsunami risk, the community is actively relocating to higher ground as a precautionary measure.

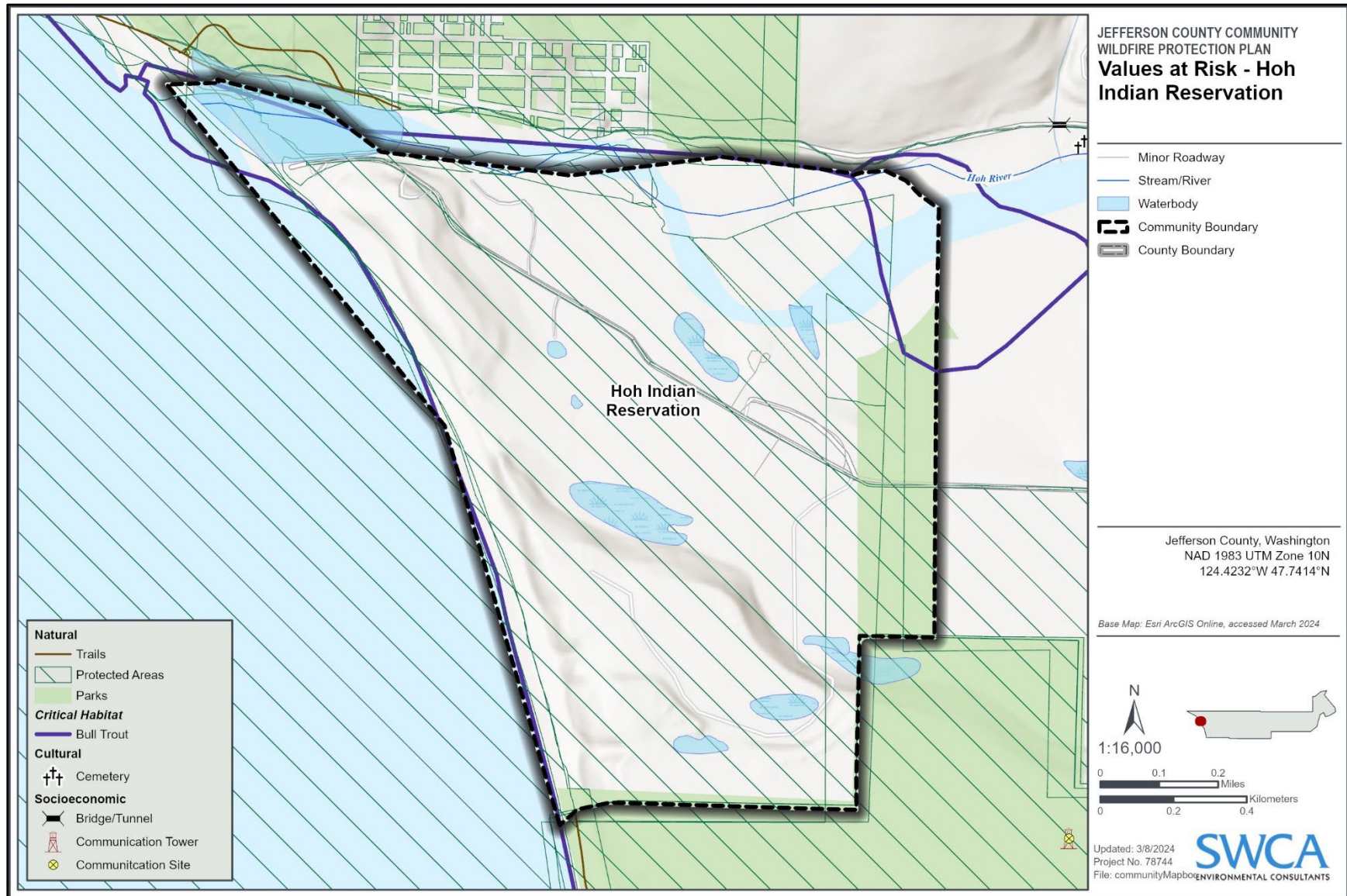


Figure C.124. Highly Valued Resources and Assets for Hoh Indian Reservation.

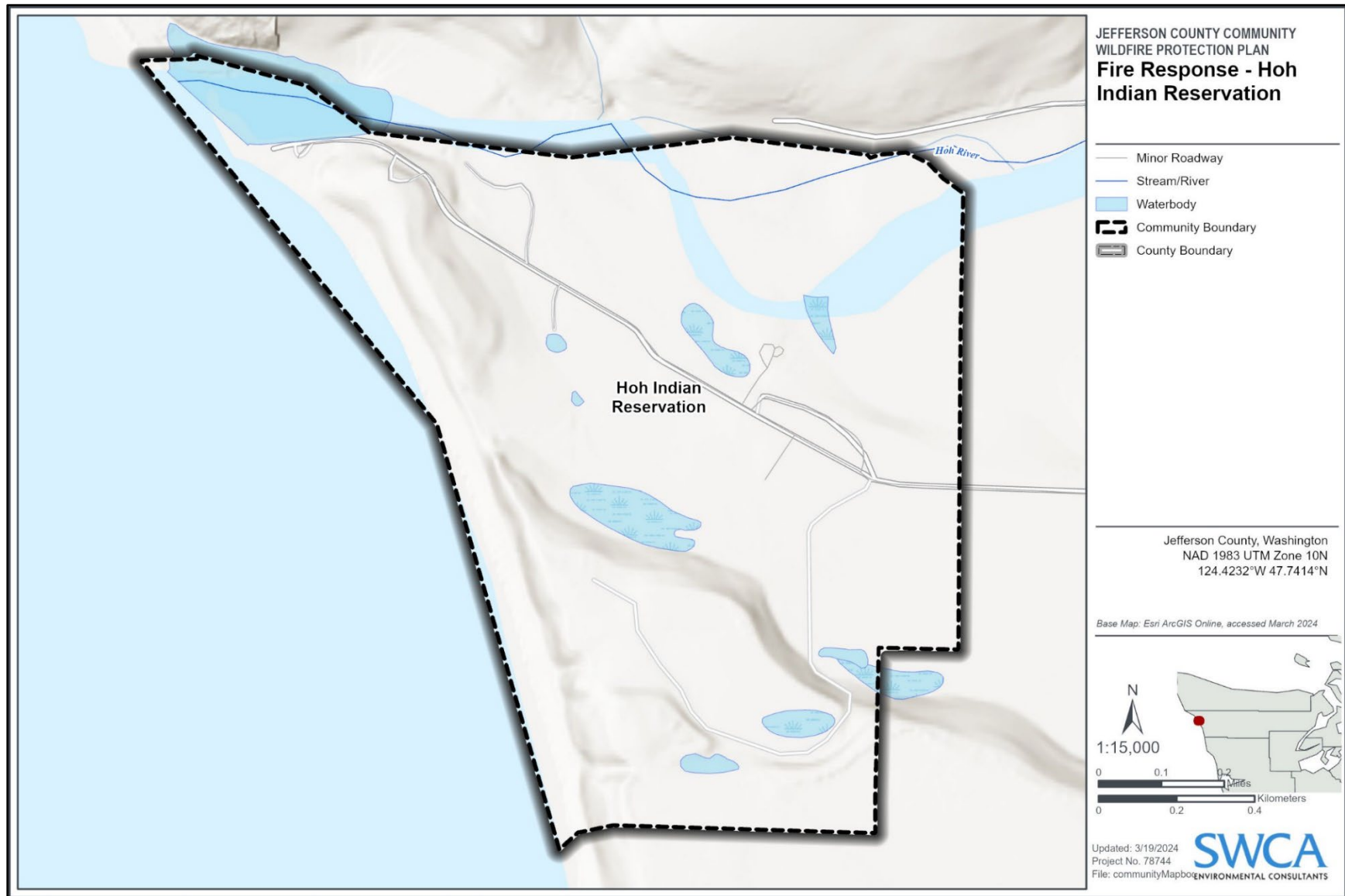


Figure C.125. Highly Valued Resources and Assets for Hoh Indian Reservation.

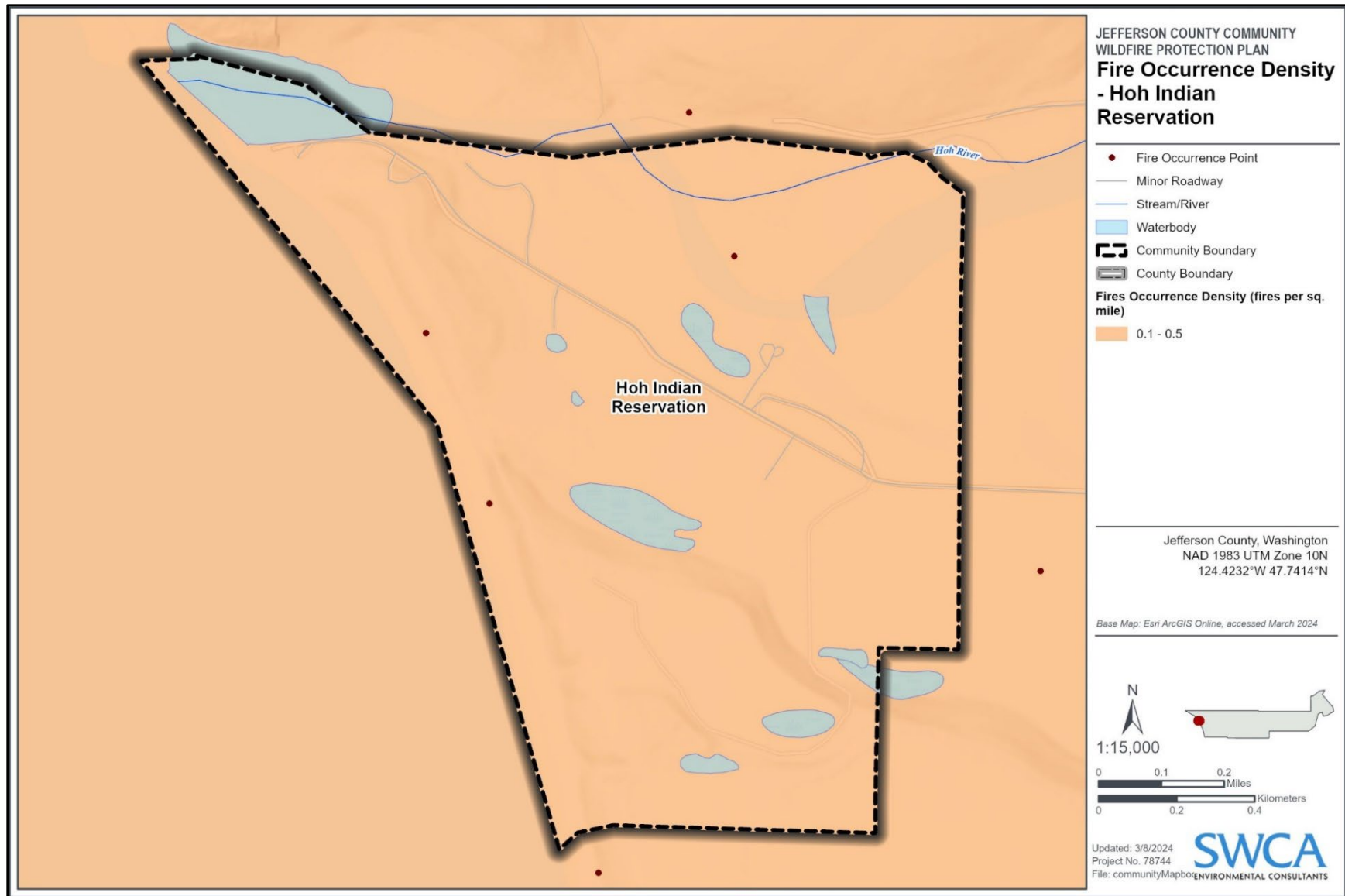


Figure C.126. Fire occurrence density for Hoh Indian Reservation.

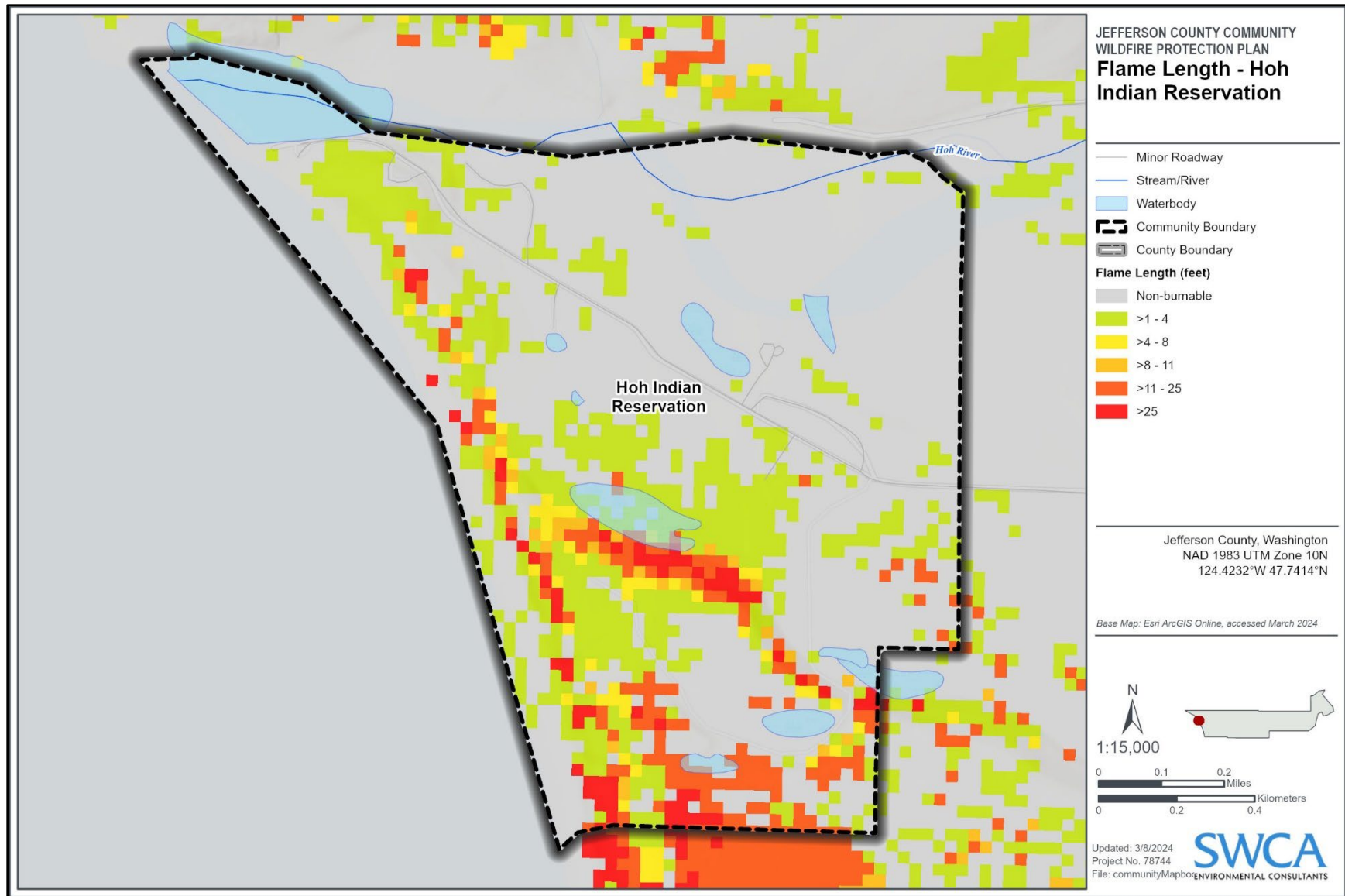


Figure C.127. Flame length for Hoh Indian Reservation.

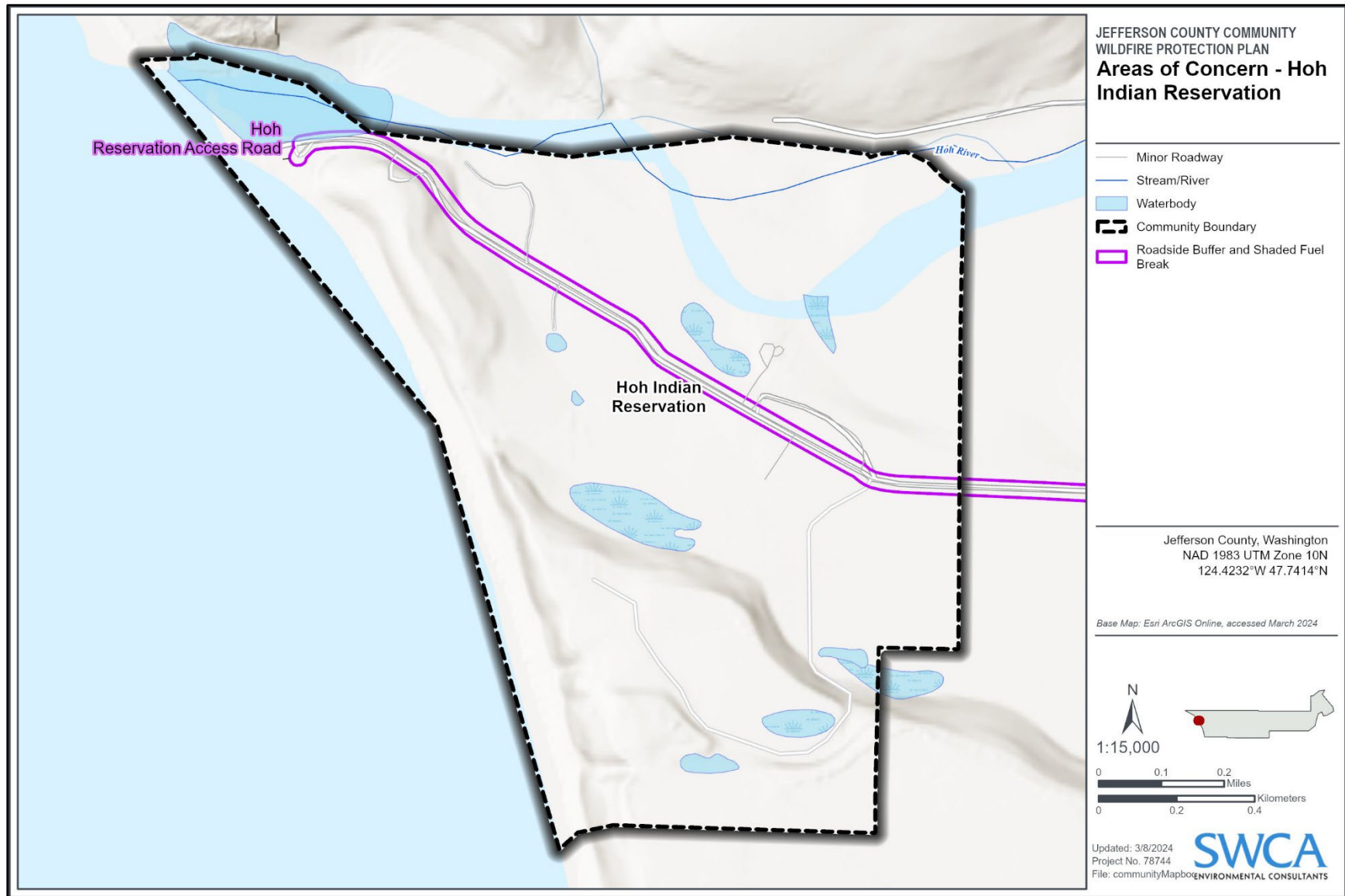


Figure C.128. Areas of concern detail for Hoh Indian Reservation.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Roads: surfaced and >24 feet
- Topography: <9% slope
- History of fire occurrence: low
- Severe weather potential: low
- Building setback: >30 feet to slope

Negative Attributes (High Scores)

- Entrance/exit: one road in and out
- Predominant vegetation: timber-litter and highly combustible
- Defensible space: >30 feet around structures
- Separation around adjacent structures: low
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Water sources: none
- Organized response: fire station >5 miles from the community

Recommended Mitigation

Areas of Concern:

No spatial delineations proposed at this time. Emphasis should be placed on pre-fire planning, enhanced community preparedness, defensible space actions, and securing funding for firefighting resources and capacity.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Hoh Reservation Access Road:

- Engage FEMA, Washington State, and Bureau of Indian Affairs in potential resilience projects to enhance access. Seek partnerships with WSDOT and Clallam/Jefferson Roads.
- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

22. Queets Field Assessment Summary

Queets		
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-Litter (TL)	Extreme
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	1	Low
Severe Fire Weather Potential	2	Moderate
Separation of Adjacent Structures	5	Extreme
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
Building Construction		
Siding Materials	Combustible (wood or vinyl)	Extreme
Deck and Fencing	No deck or fence/non-combustible	Low
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	Extreme
Community Hazard Rating	100	High

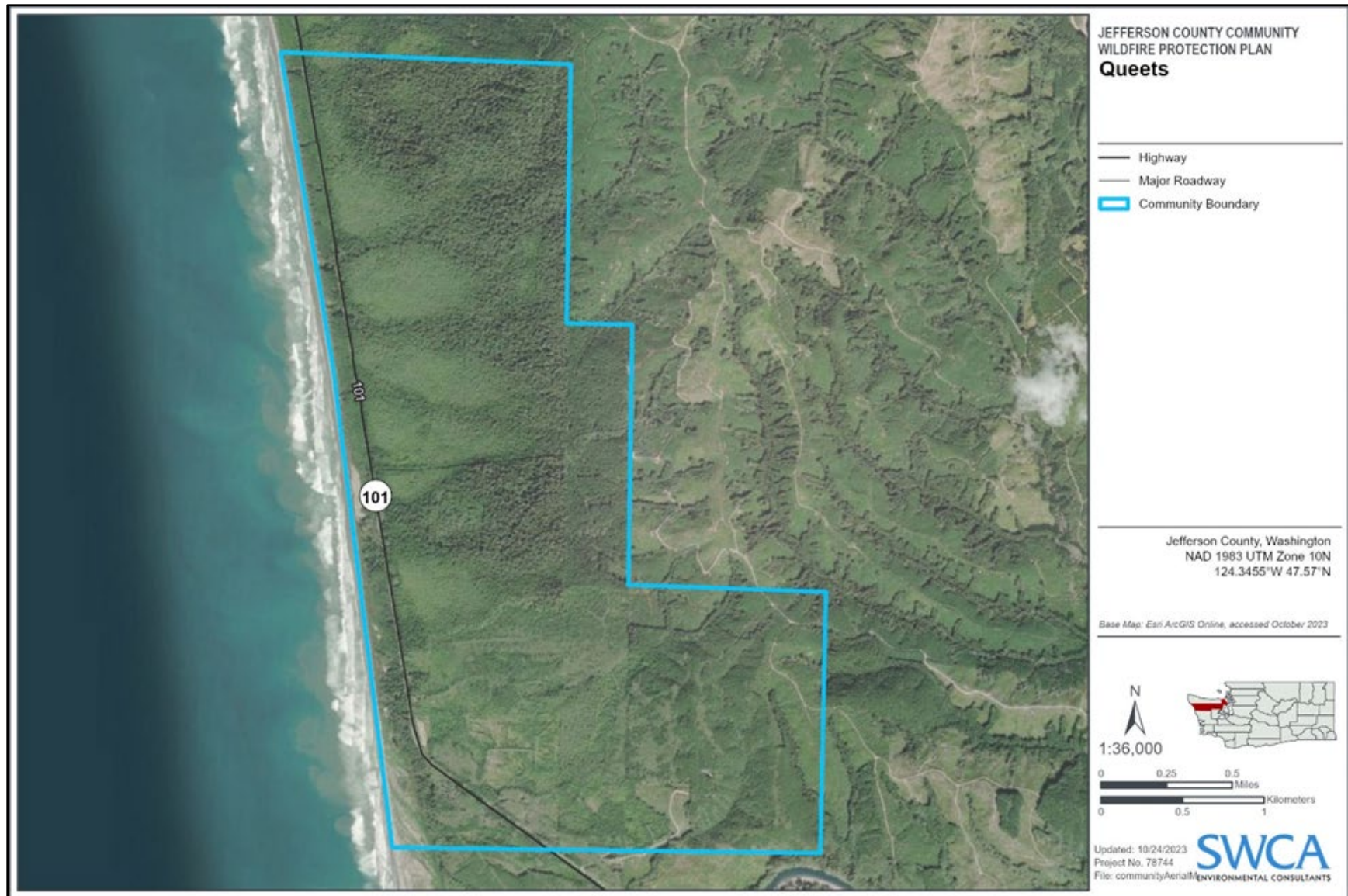


Figure C.129. Queets: A small tribal community with homes closely clustered. The community is situated close to the Quinault River.

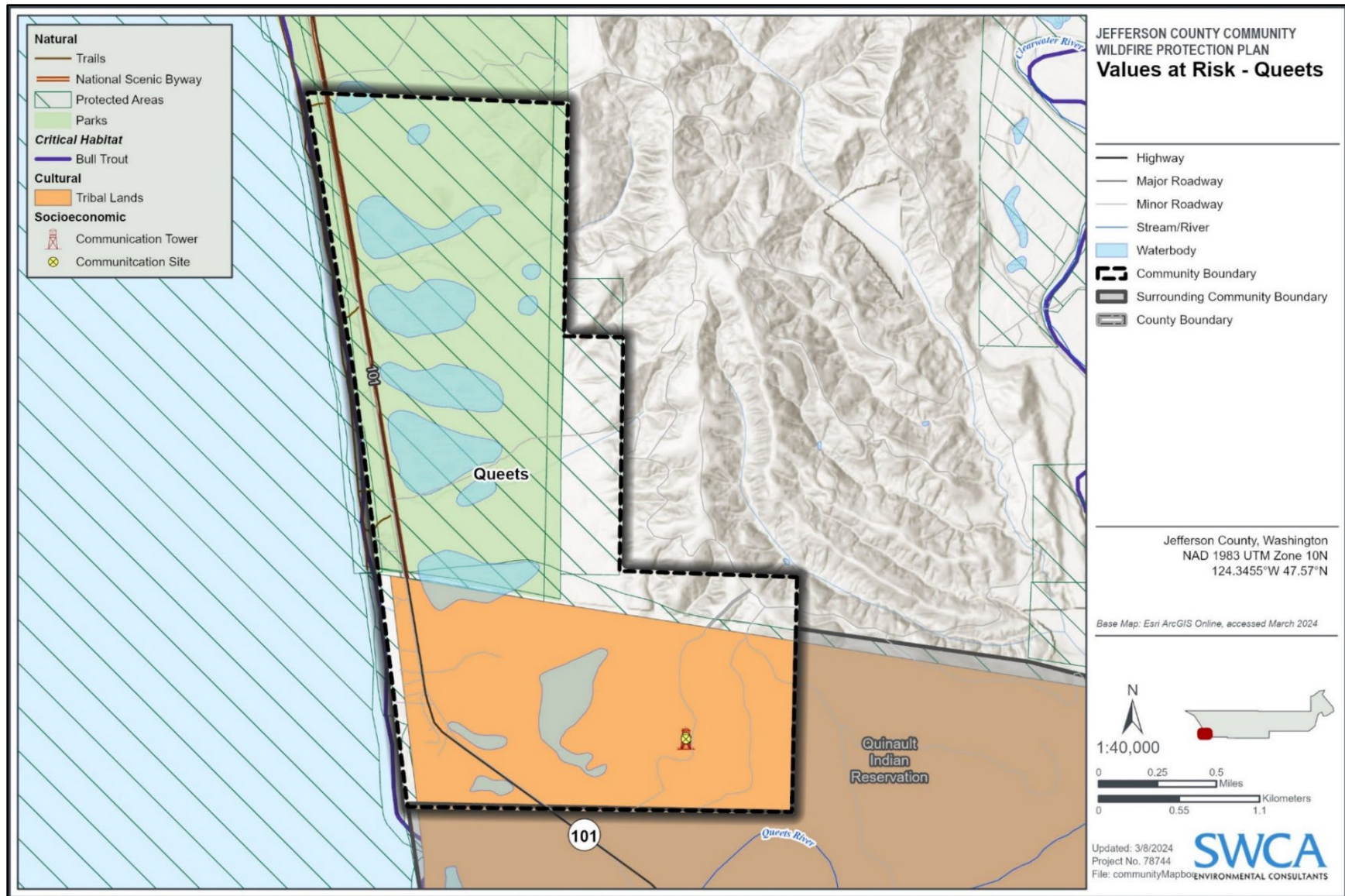


Figure C.130. Highly Valued Resources and Assets for Queets.

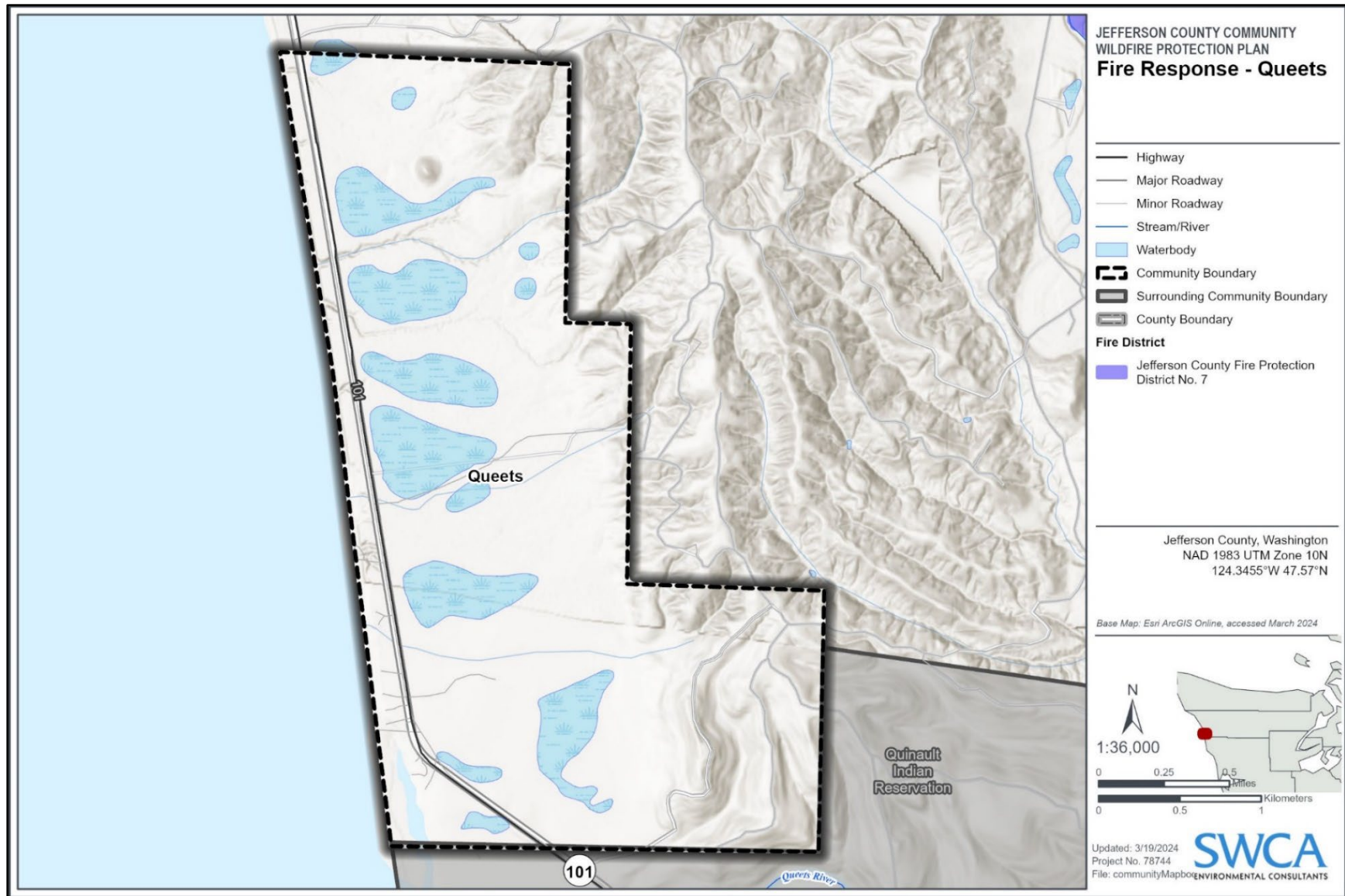


Figure C.131. Fire response for Queets.

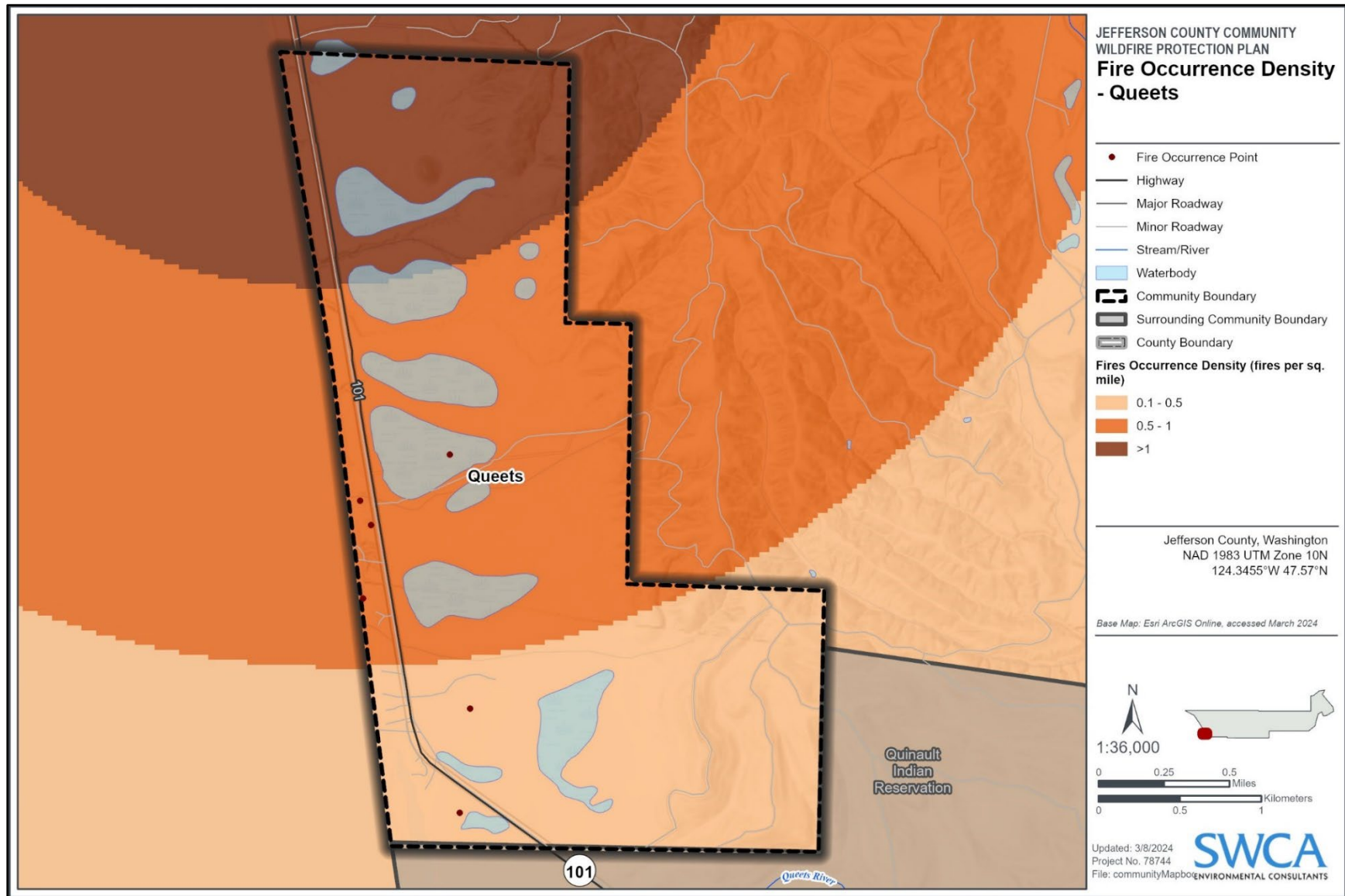


Figure C.132. Fire occurrence density for Queets.

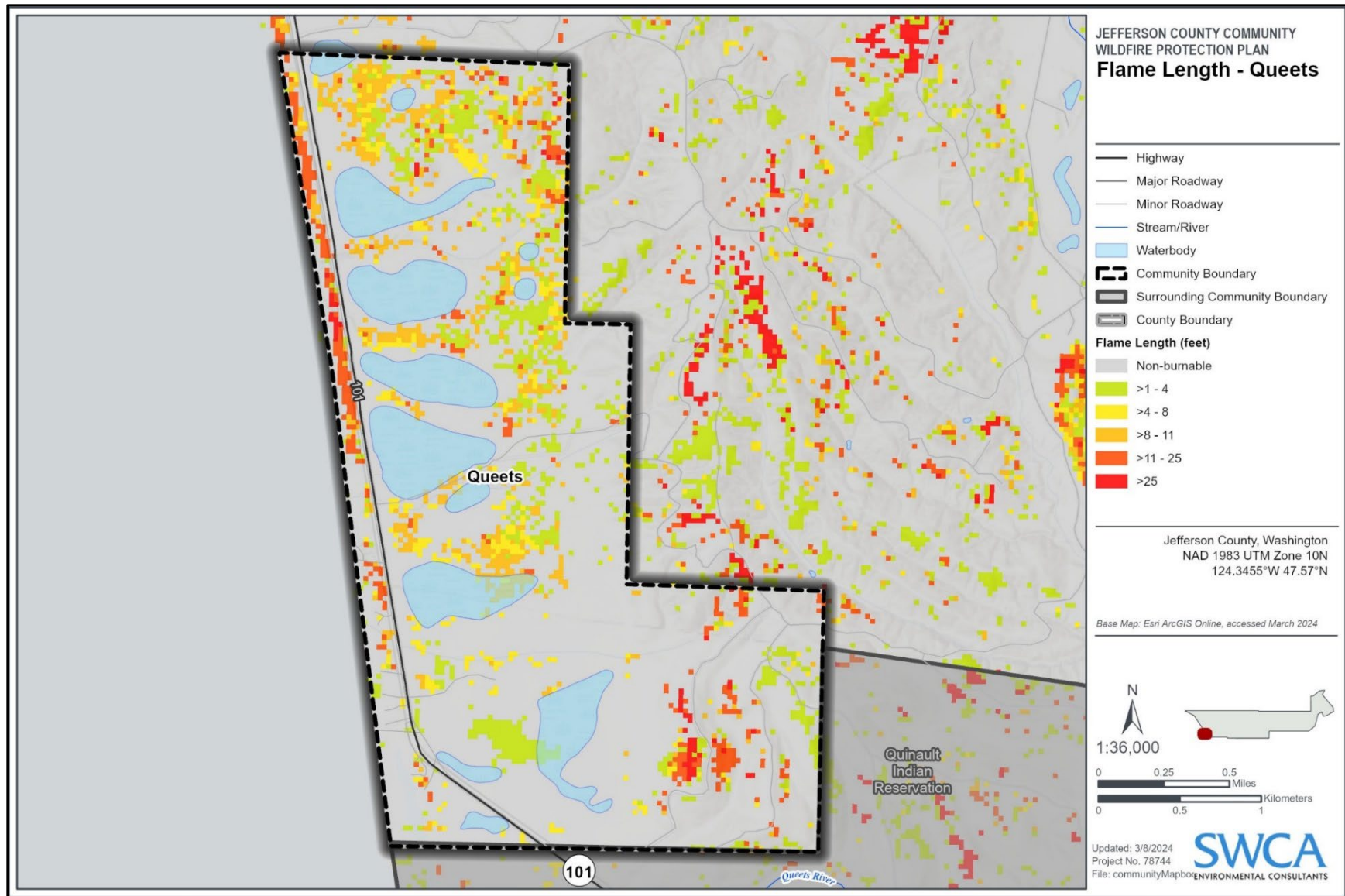


Figure C.133. Flame length for Queets.

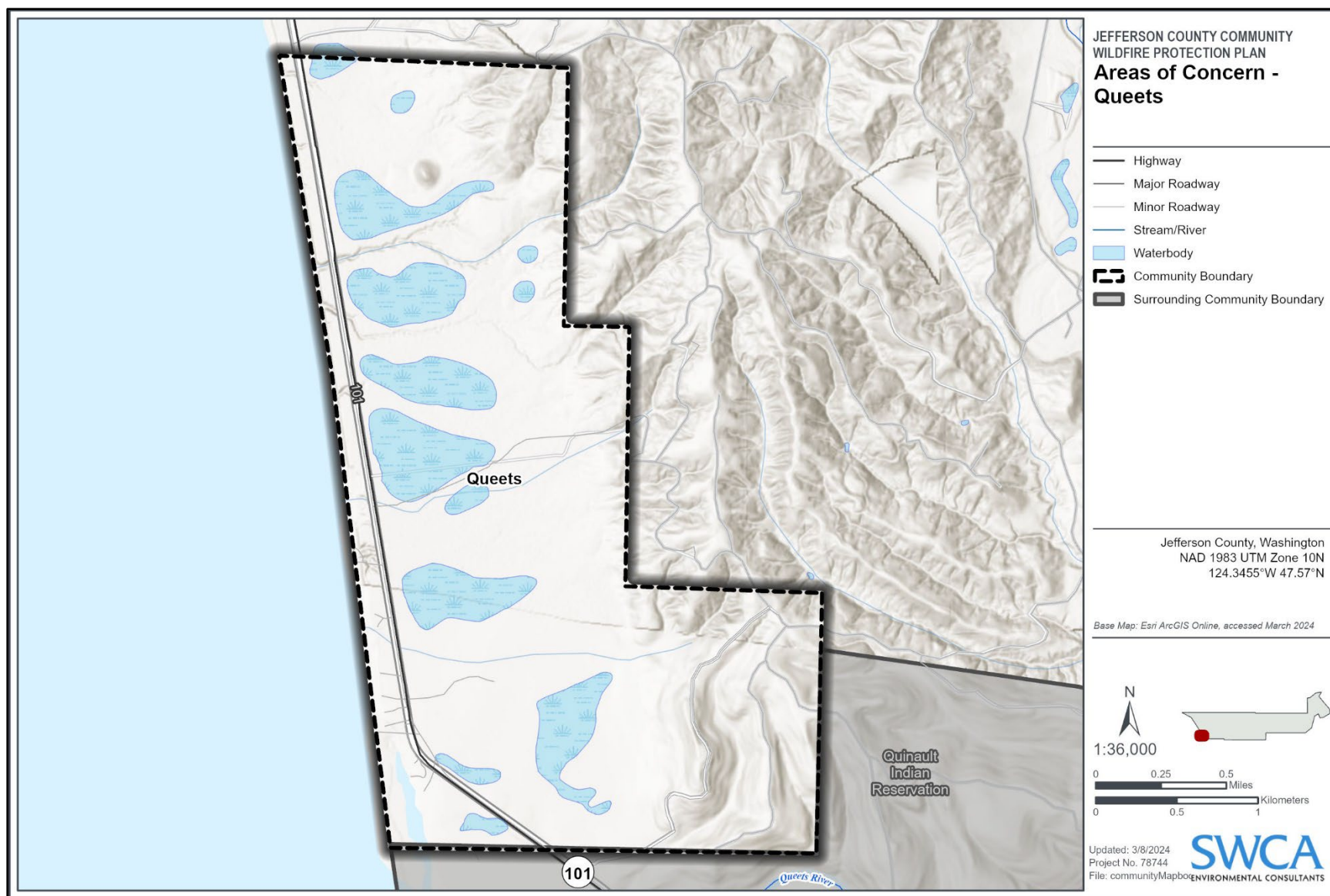


Figure C.134. Areas of concern detail for Queets.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Entrance/edit and roads: 2 or more roads in and out, adequate street signage, surfaced roads
- Topography: low slope, history of fire occurrence is low
- Organized response: Nearby fire station
- Severe fire weather potential: moderate
- Siding materials/Deck and Fencing: non-combustible, few decks and little fencing.
- Available water protection: water sources available, hydrants

Negative Attributes (High Scores)

- Defensible space: <30 feet around structures
- Siding materials: highly combustible (made of wood or vinyl).
- Utilities: placed aboveground

Recommended Mitigation

Areas of Concern:

No spatial delineations proposed at this time. Emphasis should be placed on pre-fire planning, enhanced community preparedness, defensible space actions, and securing funding for firefighting resources and capacity.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

No spatial treatments proposed at this time.

23. Quinault Indian Reservation Field Assessment Summary

Quinault Indian Reservation		
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%	Low
Fire Truck Access	<300 feet with no turnaround	High
Street Signs	Present – non-reflective	Moderate
Vegetation (Fuel Model)		
Predominate Vegetation	Timber-Litter (TL)	Extreme
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	1	Low
Severe Fire Weather Potential	1	Low
Separation of Adjacent Structures	5	Extreme
Roofing Assembly		
Roofing	Class C - untreated wood shingle; plywood; particle board	High
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	Extreme
Community Hazard Rating	102	High

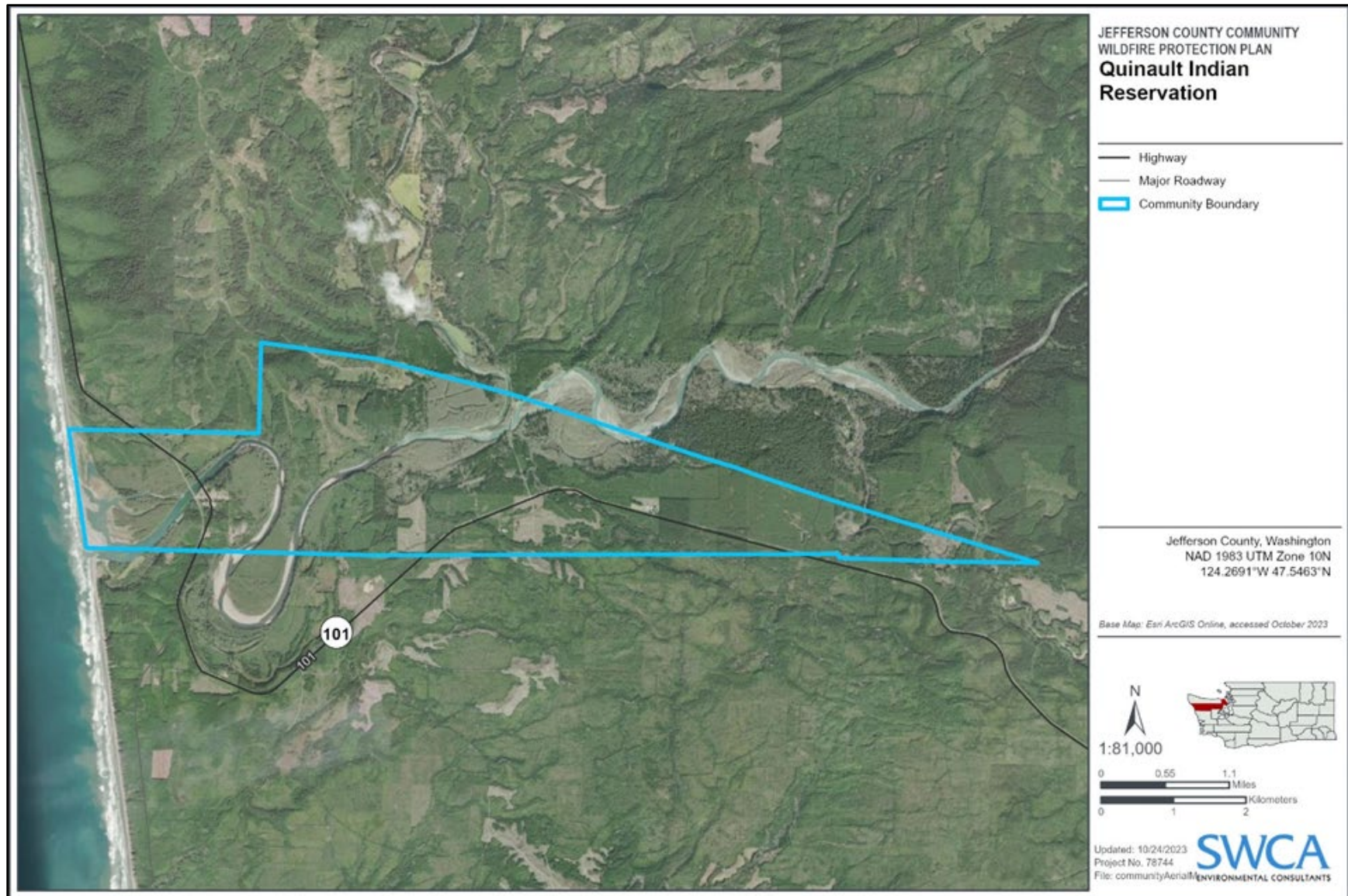


Figure C.135. Quinault Indian Reservation: The small community is divided into two residential areas, both of which have dead end loops. The community is located along the Queets River and within dense forest.

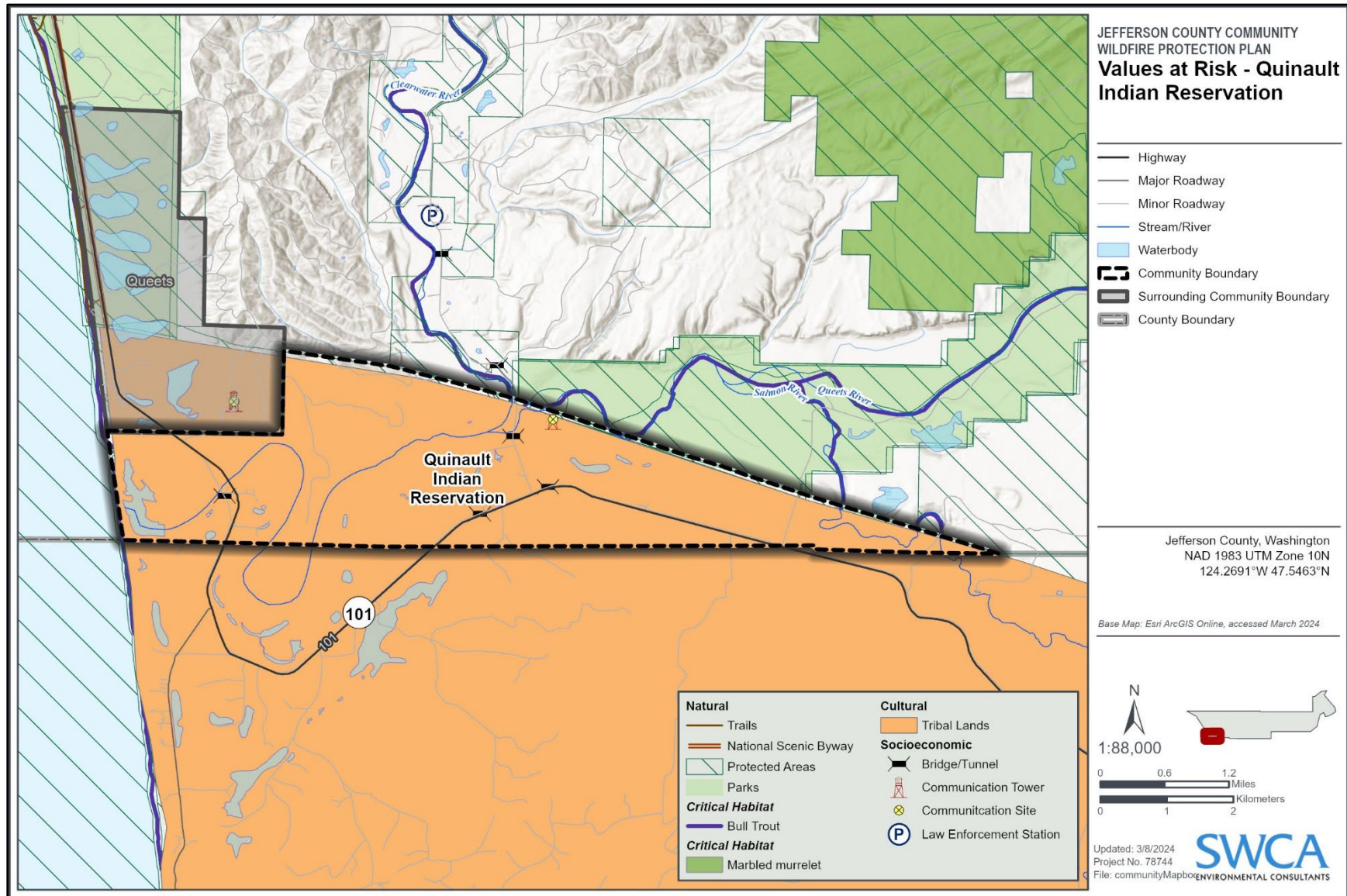


Figure C.136. Highly Valued Resources and Assets for Quinault Indian Reservation.

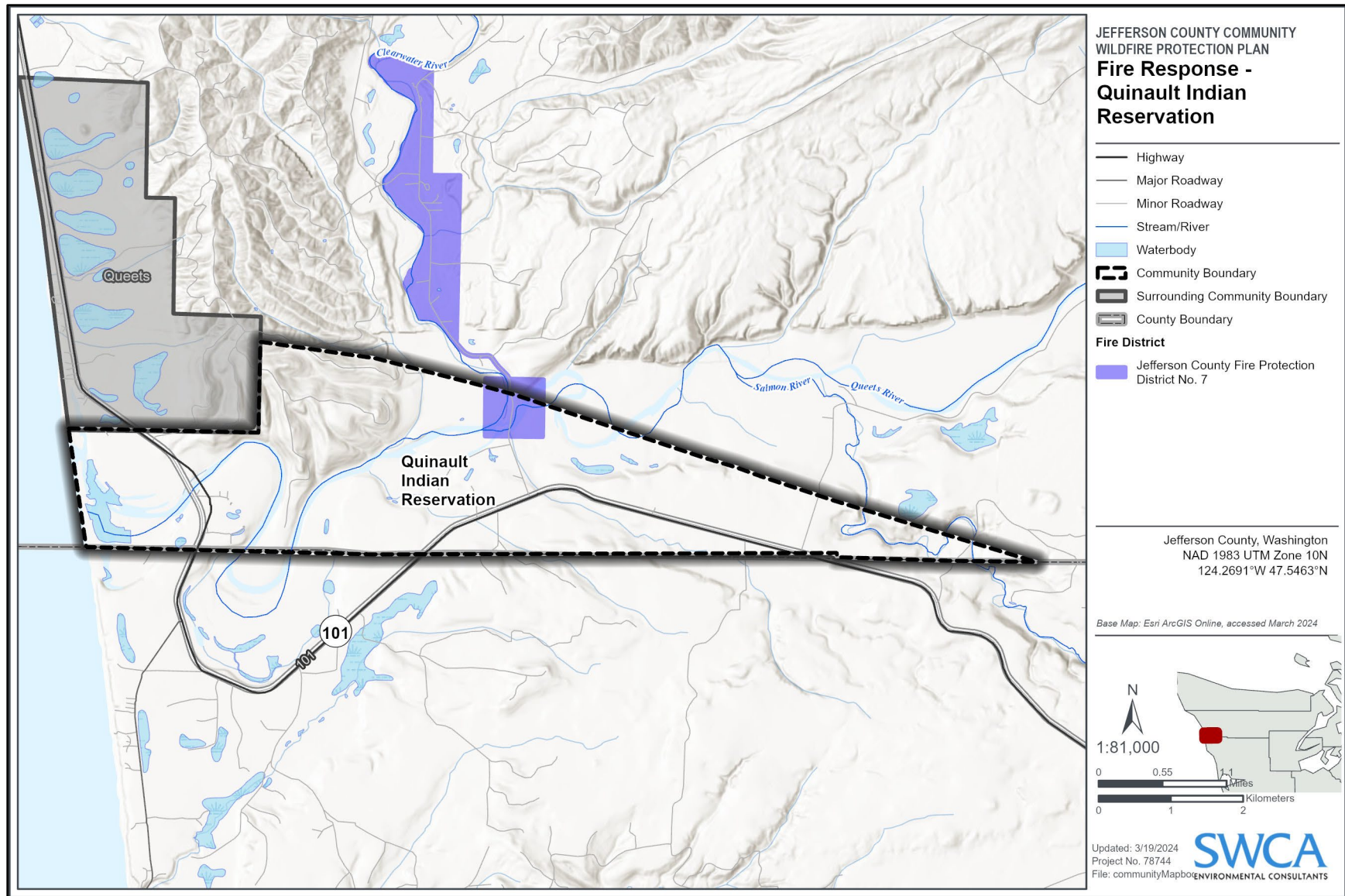


Figure C.137. Fire response for Quinault Indian Reservation.

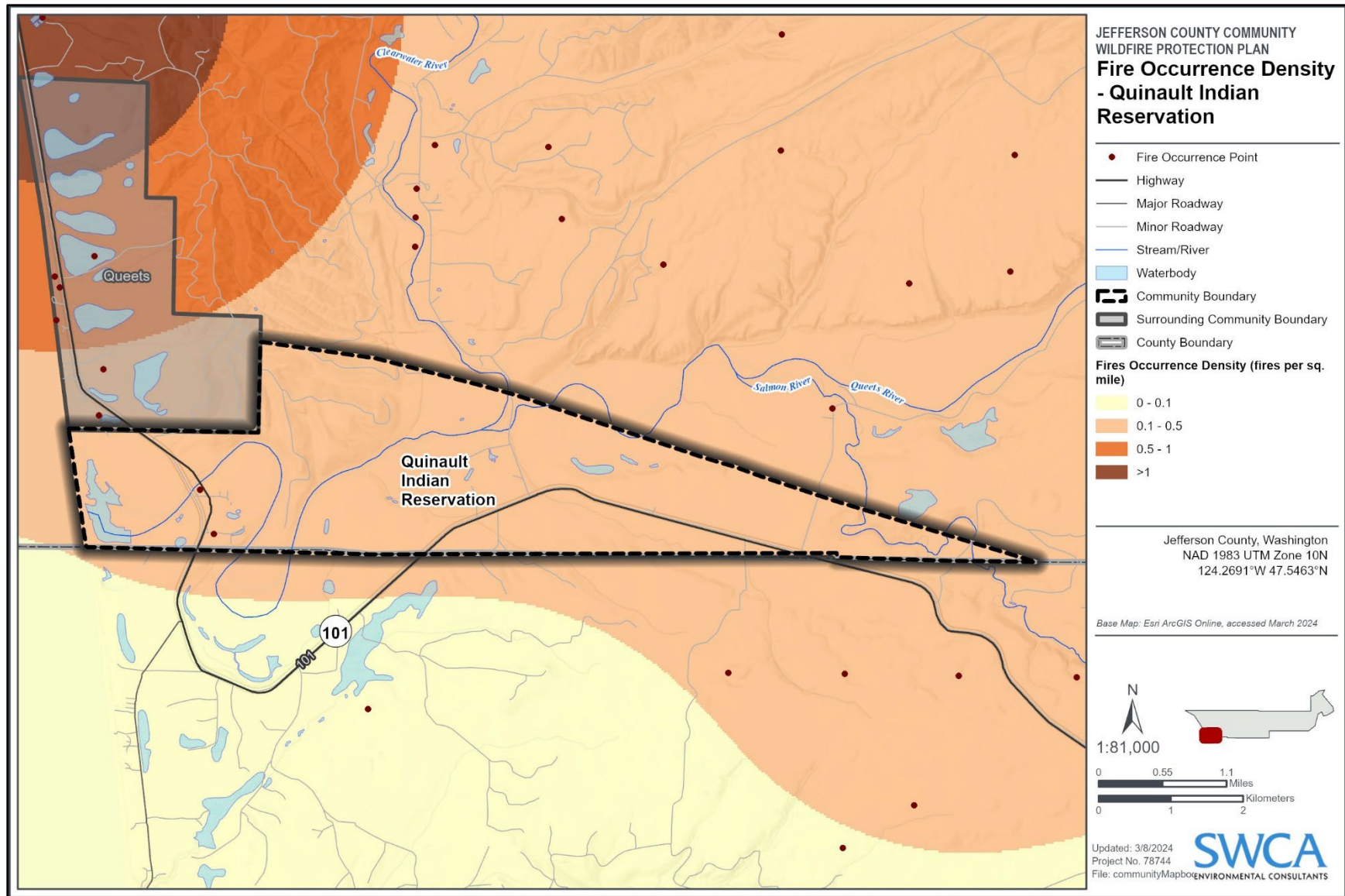


Figure C.138. Fire occurrence density for Quinault Indian Reservation.

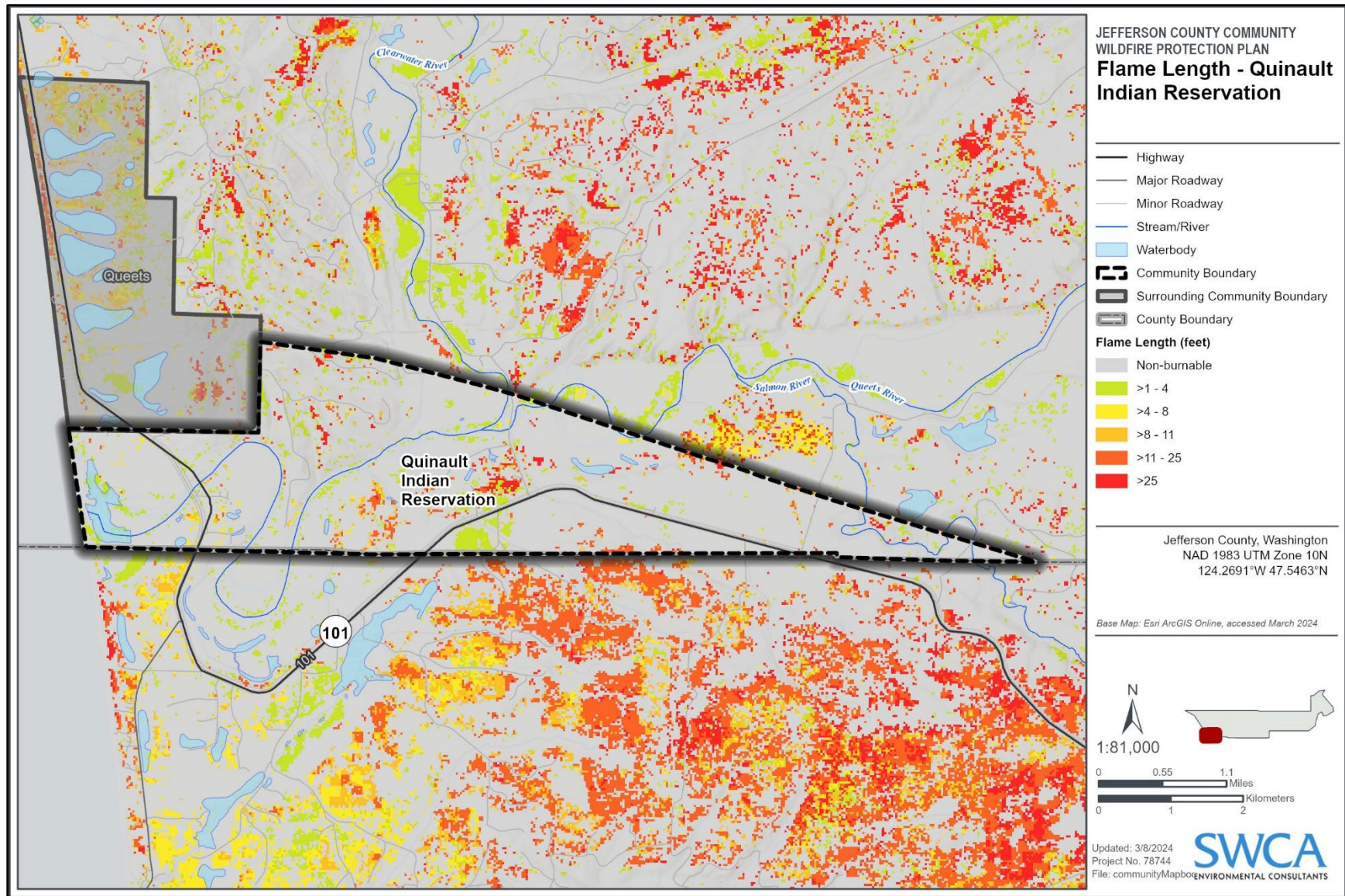


Figure C.139. Flame length for Quinault Indian Reservation.

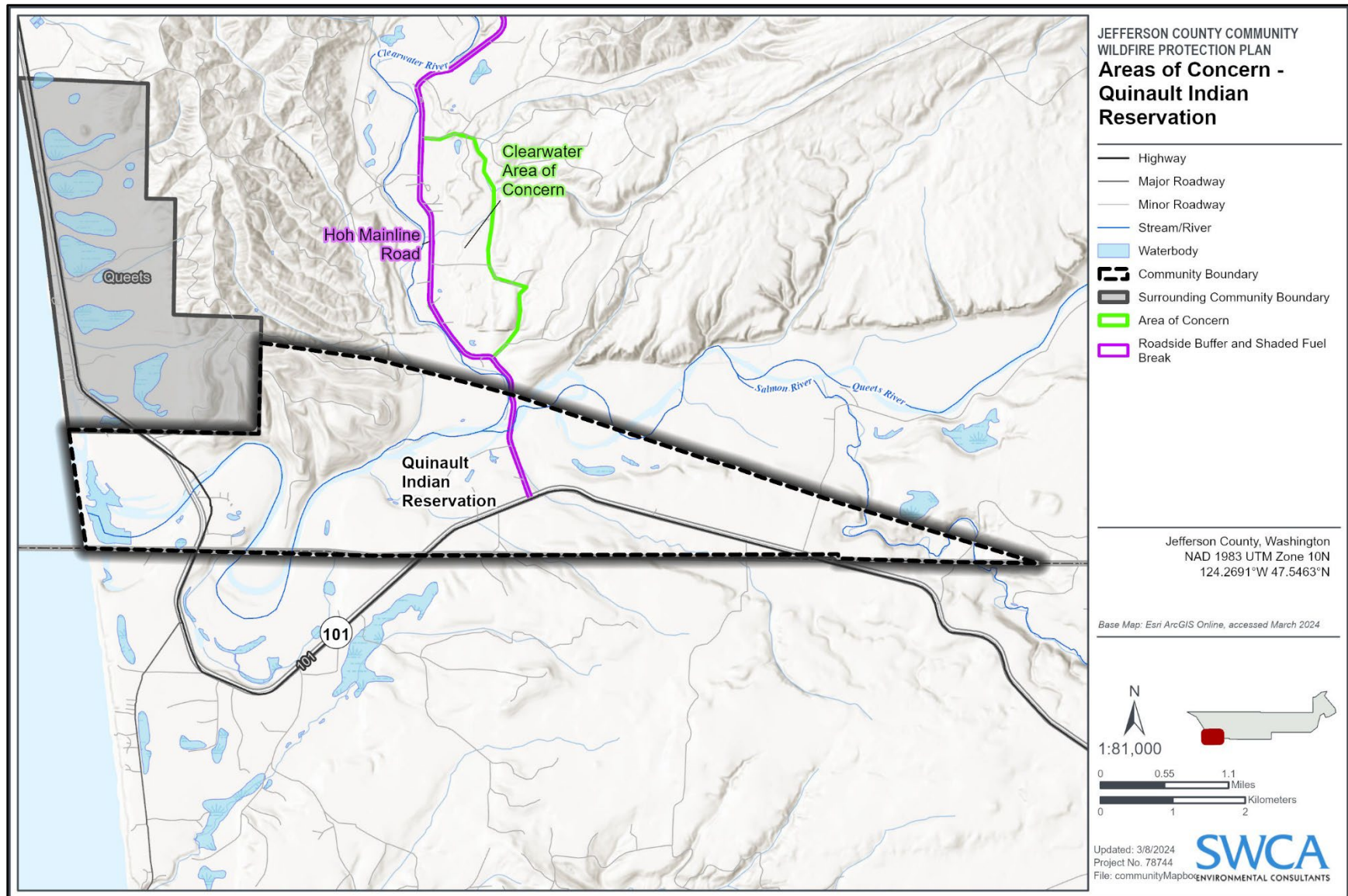


Figure C.140. Areas of concern detail for Quinault Indian Reservation.

Key Observations

Field Assessment NFPA 1144 Survey Summary

Positive Attributes (Low Scores)

- Road conditions: surfaced roads
- Topography: <9% slope
- History of fire occurrence: low
- Severe fire weather potential: low
- Building setback: >30 feet to slope
- Water sources: available hydrants
- Organized response: fire station <5 miles from the community

Negative Attributes (High Scores)

- Entrance/exit: only one road in/out
- Predominant vegetation: timber-litter and highly combustible
- Defensible space: <30 feet around structures
- Separation of adjacent structures: low
- Siding, deck, and fencing materials: combustible (wood or vinyl)
- Utilities: aboveground

Recommended Mitigation

Areas of Concern:

Clearwater Area of Concern:

- Implement fuel modification strategies aimed at reducing hazardous fuel load and fuel continuity, guided by existing land management plans and compliance standards.
- Pursue opportunities for multiple resource benefits while undertaking fuel modification efforts.
- Encourage fuel mitigation in the home ignition zone to enhance community resilience against wildfires.

Shaded Fuel Break:

No spatial treatments proposed at this time.

Roadside Buffer and Shaded Fuel Break:

Hoh Mainline Road:

- Modify fuel along roadway to reduce potential fire intensity in event of evacuation. Adjust buffer width according to site-specific conditions, emphasizing treatments aimed at reducing ladder fuels and elevating canopy base height. The objective should be to reduce likelihood of fires "jumping" roads in the canopy, rather than fully removing roadside vegetation which would contradict other county requirements. Roadside vegetative buffers may be maintained while also reducing fuel loads and canopy connection.

FIRE STATION RESOURCES

Table C.2. Fire Station Resources

Fire Department Name	East Jefferson Fire and Rescue FD1	Quilcene Fire Rescue FD2	Clallam County Fire District No. 3 CCFD3	Brinnon Fire Department FD4	Discovery Bay Volunteer and Fire Rescue FD5	Jefferson County Fire Protection District No. 7 FD7
Station Number	1,2,3,4,5,6,7,8,9, Admin	21		41		
Fulltime firefighters	57	5		3		
On-call firefighters	0	0		0		
Volunteer firefighters	5 (2 structure, 3 wildland)	7		25		
Water Tenders						
Type 1	4	0		1		
Type 2	0	0		1		
Type 3	0	1		1		
Wildland Engines						
Type 1	0	0		0		
Type 2	0	0		0		
Type 3	0			2		
Type 4	0	0		0		
Type 5	0	0		0		
Type 6	3	2		0		
Type 7	0	0		0		
Structure Engines						
Type 1	9	0		2		
Type 2	0	2		0		
Port-a-tanks	4	2		1		

Fire Department Name	East Jefferson Fire and Rescue FD1	Quilcene Fire Rescue FD2	Clallam County Fire District No. 3 CCFD3	Brinnon Fire Department FD4	Discovery Bay Volunteer and Fire Rescue FD5	Jefferson County Fire Protection District No. 7 FD7
Portable pumps	0	2		1		
Agreements with other fire response agencies	Kitsap and Clallam Counties, Quilcene Fire District	Mutual aid within county and with surrounding counties, forest responses agreement in place with DNR. No agreement with the federal agencies directly.		Mason, Kitsap, and Clallam Counties		
Suggested Needs	Additional training, wildfire fighting gear and wildfire engines/tenders.	Upgrading of wildland engines, increased staffing, recruitment of volunteers who are physically fit.		Department is staffed with only two people daily (one on call), and the district is no longer covered until mutual aid arrives or volunteers come out afterward.		

APPENDIX D:

Funding Sources and Programs

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CONTENTS

Federal Funding Information D-1

State Funding Information D-9

Private Funding Information D-11

Other Funding Information..... D-13

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FEDERAL FUNDING INFORMATION

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 <https://www.fs.usda.gov/managing-land/fire/grants> is a \$1 billion program where 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. This grant program will be available through 2027 (plus or minus) with applications periods opening each year typically in the summer and closing in the fall. WA DNR is responsible for assisting with and administering this grant in Washington State. More information can be found here <https://www.dnr.wa.gov/WildfireDefense>

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. To learn more about the Act, please see the guidebook located here: <https://www.whitehouse.gov/build/guidebook/>.

Source: Building Resilient Infrastructure and Communities (BRIC) Grant Program

Agency: FEMA

Website: <https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>

Eligible Applicants: Local communities, tribes, and territories

Description: BRIC will support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. The BRIC program guiding principles are supporting communities through capability and capacity building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency. You can find more information on the BRIC program here: <https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>

Source: Hazard Mitigation Grant Program (HMGP)

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

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 Emergency Forest Restoration Program (EFRP) helps the owners of non-industrial private forests restore forest health damaged by natural disasters. The EFRP does this by authorizing payments to owners of private forests to restore disaster damaged forests. The local Farm Service Agency County Committee implements the EFRP for all disasters with the exceptions of drought and insect infestations. Eligible practices may include debris removal, such as down or damaged trees; site preparation, planting materials, and labor to replant forest stand; restoration of forestland roads, fire lanes, fuel breaks, or erosion-control structures; fencing, tree shelters; wildlife enhancement.

To be eligible for EFRP, the land must have existing tree cover; and be owned by any non-industrial private individual, group, association, corporation, or other private legal entity. Landowners must check with their state's farm service agency for details on signing up for the program.

Source: Emergency Conservation Program

Agency: USDA Farm Service Agency

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 farm service agency for details on signing up for the program.

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: U.S. Environmental Protection 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. To find out more about this funding opportunity please contact Tribal Branch Manager, Adam Baron, at baron.adam@epa.gov.

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. Listed below are examples of grants offered:

- Multipurpose Grants to States and Tribes: <https://www.epa.gov/grants/multipurpose-grants-states-and-tribes>
- Environmental Education Grants: <https://www.epa.gov/education/grants>
- Environmental Justice Grants: <https://www.epa.gov/environmentaljustice/environmental-justice-grants-funding-and-technical-assistance>

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, Indian 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: 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 Assistant to Firefighters Grants, Staffing for Adequate Fire and Emergency Response, and Fire Prevention and Safety Grants.

Source: Community Wildfire Defense Grant

Agency: USFS

Website: <https://www.fs.usda.gov/managing-land/fire/grants>

Eligible Applicants: Units of local government, Indian 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

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

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 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.

Source: Better Together Resilient Communities Grant Program

Agency: Pacific Gas and Electric Company (PG&E)

Website: https://www.pge.com/en_US/residential/in-your-community/local-environment/resilient-communities/resilient-communities-grant-program.page

Eligible Applicants: Governmental organizations, educational institutions, or certified 501(c)3 nonprofit organizations

Description: PG&E recognizes that California will continue to face a myriad of climate related hazards, many of which will impact to wildfire frequency and severity. PG&E is requesting proposals of \$100,000 to fund projects that facilitate greater community-level resiliency to wildfire. Among the eligible applicants are governmental organizations, educational institutions, or certified 501(c)3 nonprofit organizations and must include a local or tribal government within PG&E's service area as a partner.

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>

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APPENDIX E:

Home Hardening and Fuel Treatment Methods

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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 2024; UCANR 2024).

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: [Fire-Resistant Plants for Home Landscapes](#)

Link: <https://www.bifd.org/pdfs/Fire-Resistant%20Landscaping.pdf>

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 (WRN) 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 2024).

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 2024).

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 2024).

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 2024).

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 2024).

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 2024).

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 2024).

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 2024).

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 following the above recommendations and ensure that materials used follow up to date building codes (Sustainable Defensible Space 2024).

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 utilizing 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 with intention on creating 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 lense.

Fire-Resistant Plants for Home Landscapes is available at the following link:

<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/pnw590.pdf>

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 E.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).

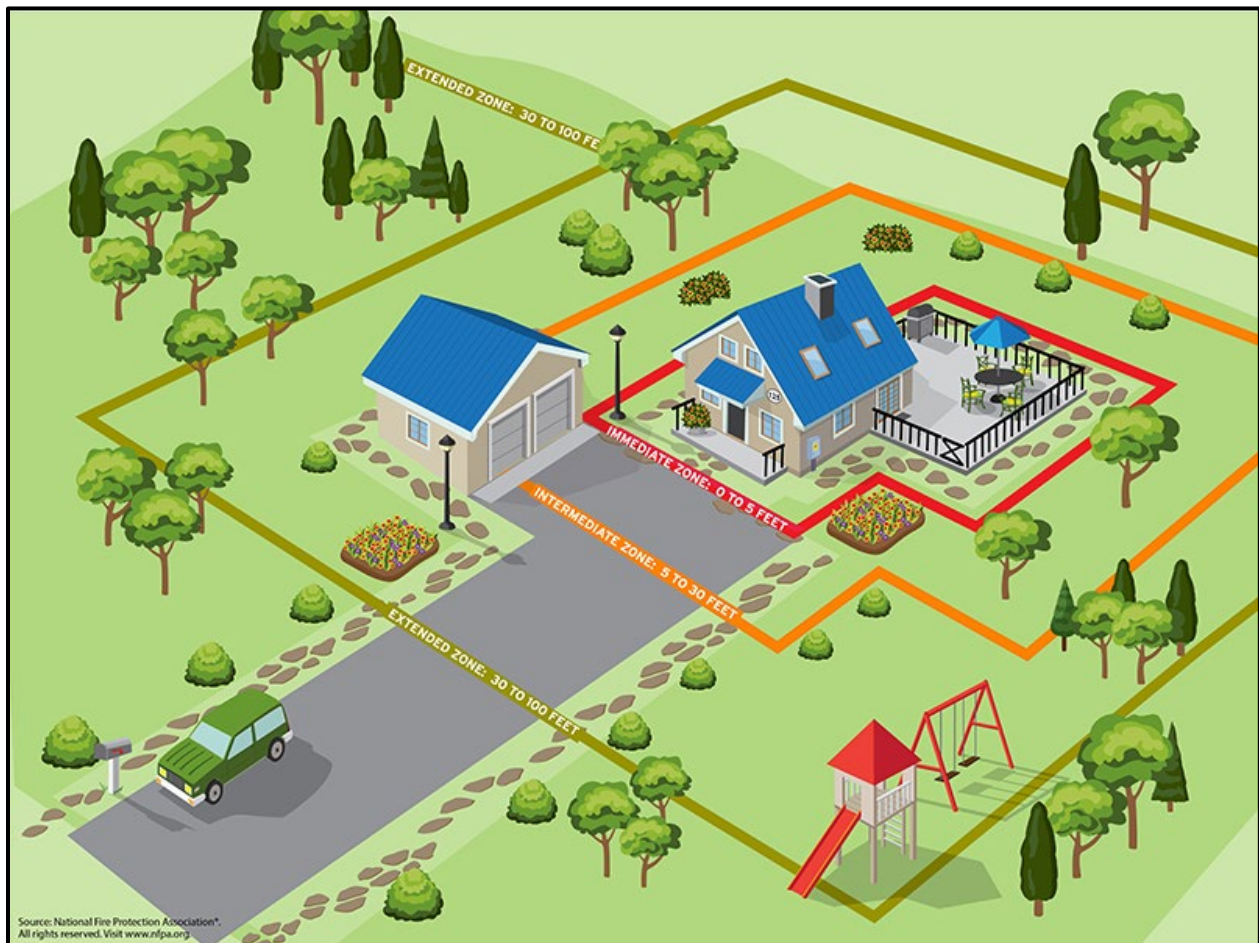


Figure E.1. Defensible space zones providing clearance between a structure and adjacent woodland or forest fuels.

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 E.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 E.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 pine needles and other debris from the roof, deck, and gutters.
- Rake and dispose of pine needles, 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 E.2) and vertical spacing (Figure E.3), as well as spacing on slopes (Figure E.4).

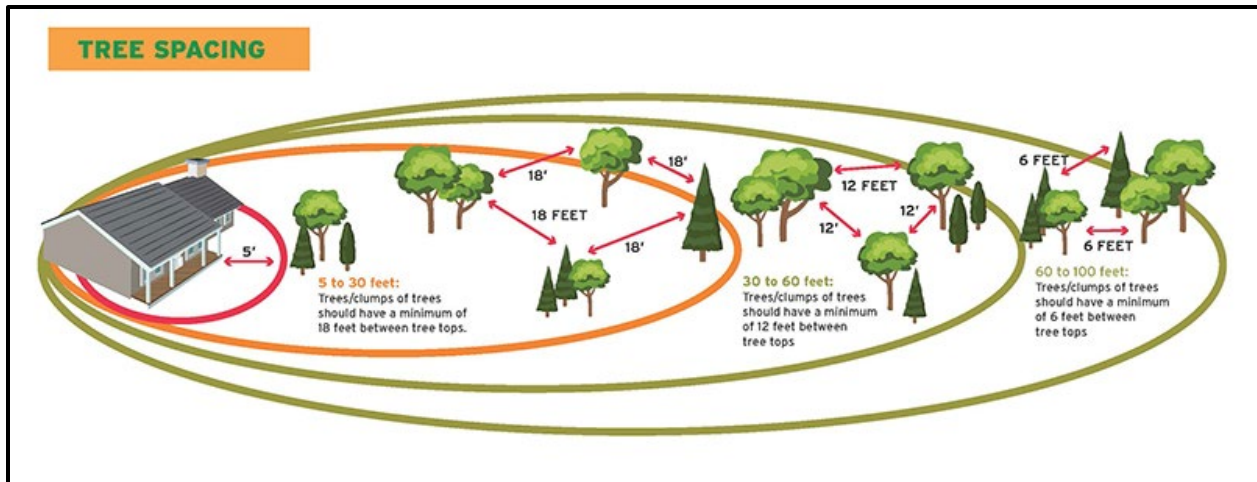


Figure E.2. Recommended tree spacing.

Source: NFPA (2022)



Figure E.3. Recommended minimal vertical clearance.

Source: CAL FIRE (2022)

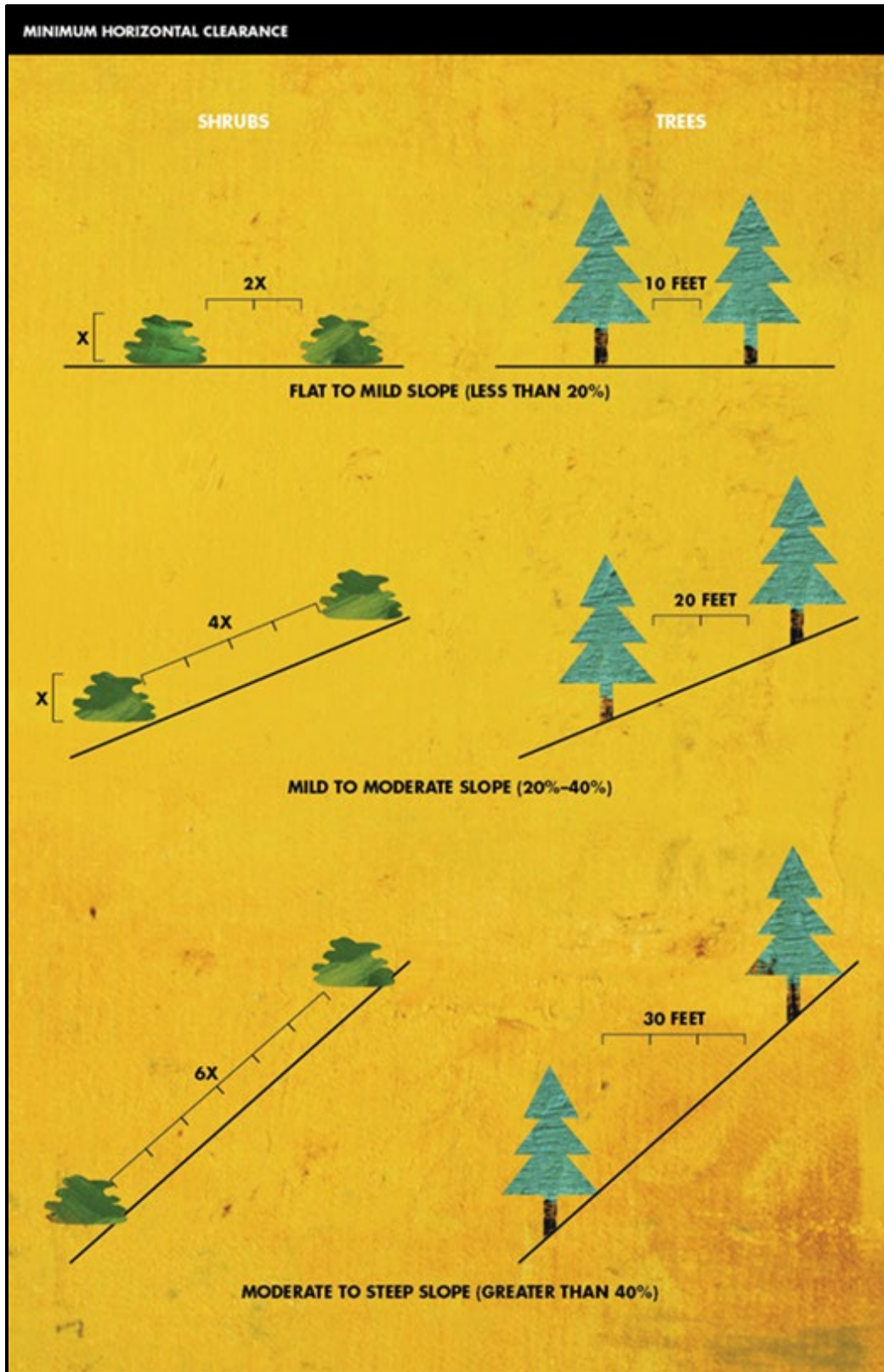


Figure E.4. Minimum horizontal clearance.

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.

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 brush 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, plant 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 U.S. Environmental Protection Agency (EPA) and the state of Washington (EPA 2019). Additionally, smoke can increase ambient air pollution levels to a point where it exceeds air quality standards (WA DNR 2019; Washington Smoke Information 2023). 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, 2023k). 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 2023a). In August 2023, the EPA approved an updated Smoke Management Plan for Washington State (EPA 2023a, 2023b). 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 2023a). 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 2023l). In Jefferson County, agencies must apply for and receive a permit through the WA DNR's Burn Portal to start a prescribed burn (WA DNR 2023m). For recreational and residential burning permits within Jefferson County, residents must apply with their local fire department.

In addition, the 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:

WA Noxious Weed Control Board: <https://www.nwcb.wa.gov/printable-noxious-weed-list>



APPENDIX F:

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 Jefferson 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 and critical infrastructure. The recent fires within Jefferson County, including the Paradise Fire, Delabarre Fire, and the Hayes Fire, 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 necessary for communities to rebuild homes, business, and 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.

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 (OIC) 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 OIC 2023a).

State Insurance Commissioner Mike Kreider issued the following guidance on how to best deal with insurance claims after a fire has impacted your property (Washington State OIC 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 2023n)

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 2023n).

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 five 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 2023n).

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 2023).

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 2023).

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.(b)). 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 multi-agency 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.flyingwranchfoundation.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/>.

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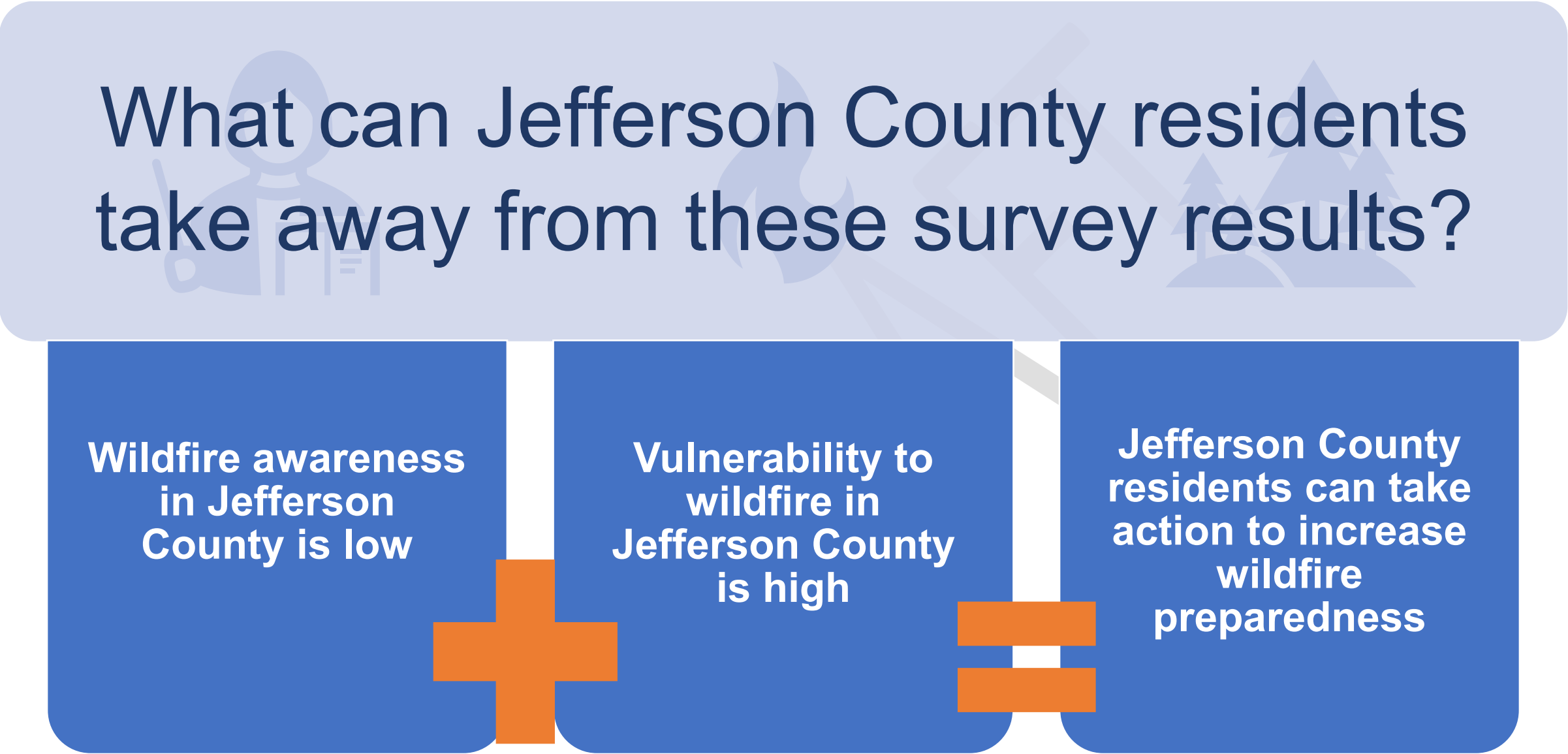
APPENDIX G:

Community Survey Results

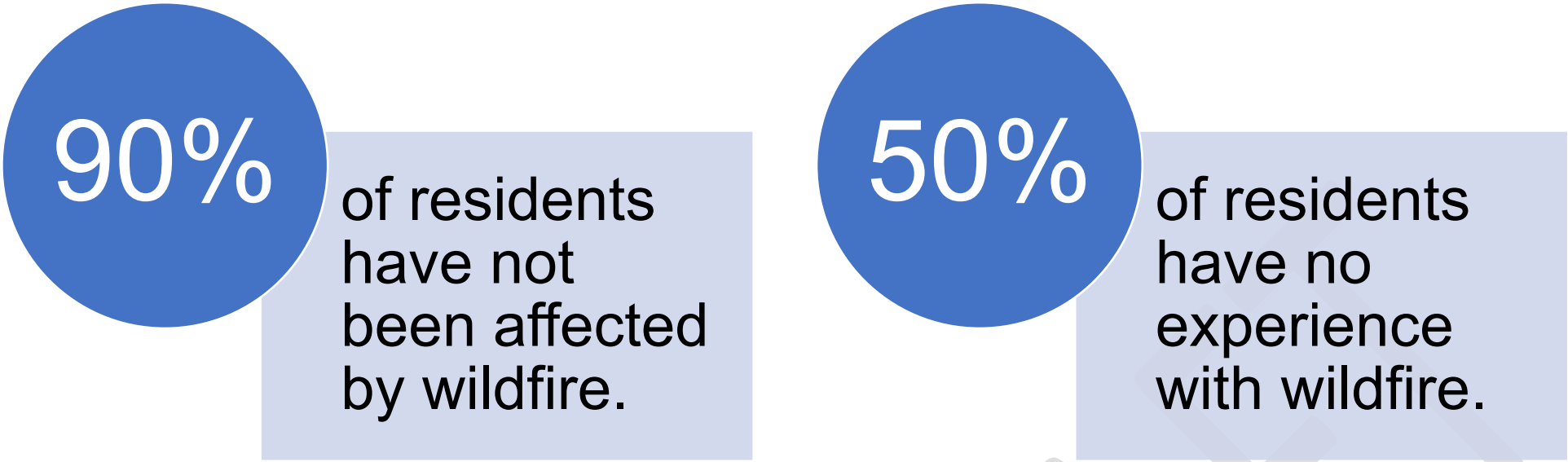
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This appendix provides key insights about Jefferson County residents' thoughts about wildfire.

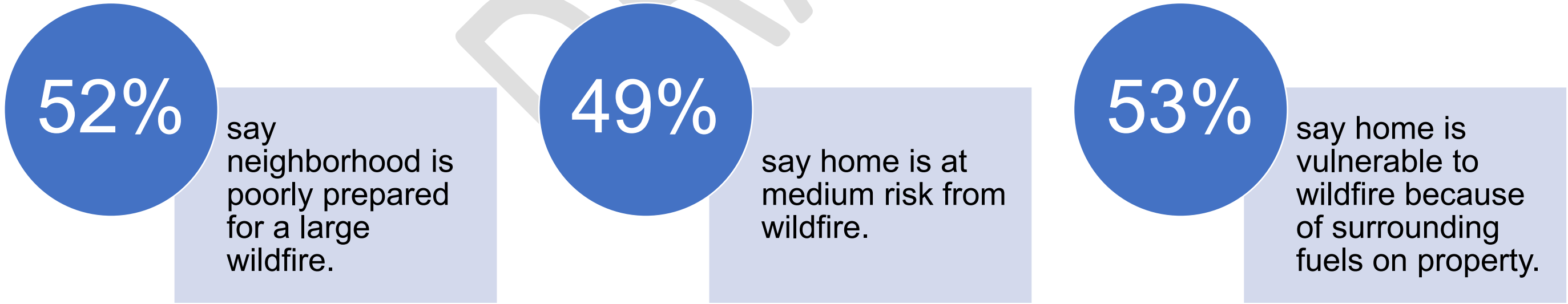
800+ Community Survey Responses from Jefferson County Residents



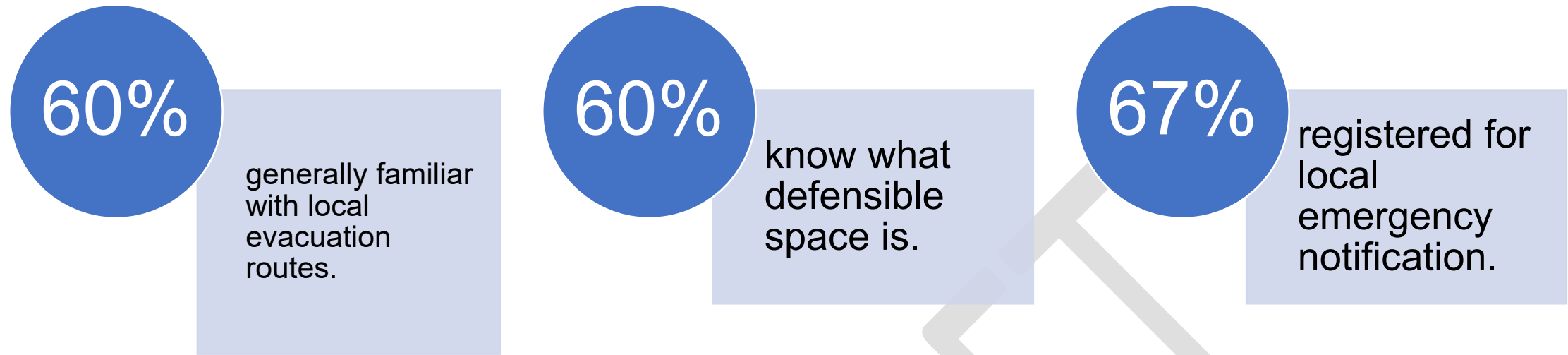
Wildfire awareness is low:



Vulnerability to wildfire is high:



Actions people are taking or recognize as beneficial:



Actions ranked #1:



Biggest challenges to making my home fire safe:



Actions people are not taking:



How can residents increase wildfire preparedness?



Recognize the importance of personal responsibility in wildfire prevention



Create personal and neighborhood evacuation plans



Take action to reduce wildfire risk to your home



Reduce fuels (e.g., vegetation, yard debris) on your property

How can Jefferson County increase wildfire preparedness?



Offer education and outreach about wildfire preparedness, home hardening, and defensible space



Offer assistance to residents to clean up live and dead vegetation (e.g., organize a chipper event)



Increase opportunities for residents to access a home wildfire assessment through local fire departments



Demonstrate a wildfire-safe property

Visit the [Jefferson County CWPP hub site](#) for more homeowner resources.



APPENDIX H: Recommendations

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Table H.1. Recommendations for Creating Resilient Landscapes (Hazardous Fuels Modification)

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
RL 1		H	Spring 2025	Allocate resources for fuels management on city, county, state, and USFS roads and rights-of-way (ROWs).	All roads throughout the county, with emphasis on road segments determined to be at highest wildfire risk	All	- Streamline management of ROWs that interface with privately owned lands by grouping them into cohesive blocks, reducing complexity for the city in handling scattered strips of land within privately owned properties. - Prioritize providing funding support to Public Utility Districts (PUD) for the removal of fuels resulting from tree trimming in critical areas within ROW. - Support other agencies with funding support. - Update engineer design standards to account for wildfire resilience along road networks. - Work with agency vegetation managers/fuel specialists to develop prescriptions based on vegetation type and condition. - Expand ROW mowing program. - Seek funding to purchase masticator, grinder, and/or mulcher for use on City and County ROWs. Procure funds for continued masticator operations. Ensure regular maintenance plan is developed and adhered to.	- Reduce roadside wildfire risk and hazards. - Reduce number of human-caused wildfire ignitions. - Provide improved ingress/egress capabilities during wildfire.	Implement yearly maintenance and monitoring of roads.	- Building Resilient Infrastructure and Communities (BRIC) grants - National Fire Plan (NFP) grants - Regional Catastrophic Preparedness (RCP) grants - Community Wildfire Defense Grants (CWDG) - Fire Management Assistance Grant (FMAG) - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
RL 2		H	Spring 2024	Utilize the CWPP Composite Risk-Hazard Model to identify specific areas in need of vegetation and brush removal. Focus on high-risk areas or critical locations (see areas of concern map [Figure 4.2]).	Countywide	All	- Invest in building the City's capacity to remove fuels by equipping personnel with the necessary training and equipment. - Enhance coordination between agencies to facilitate cross-boundary fuel modification efforts. - Secure funding resources dedicated to vegetation and brush removal in these identified areas. - Develop clear and comprehensive rules and guidelines for the removal of fuels. These rules should outline safety protocols, environmental considerations, and compliance with local regulations. - Evaluate the feasibility of establishing buffer zones on private land surrounding old complex forests where management of forest parcels could focus on reduced fuel loading, forest health resilience, and creation of potential control lines and anchor points. Develop a comprehensive monitoring and maintenance plan (including funding) to ensure long-term effectiveness and sustainability. - Carry out more detailed parcel-level home assessments to inform wildfire risk at a fine scale. - Hire a contractor or staff member to do a deep assessment of existing fuel models for the Olympic Peninsula area, in conjunction with local fuels specialists. Specifically, focus on modeling active and dynamic nature of fuels in treatment areas, as well as areas taken out of production for conservation and biodiversity and carbon offsets. Assess the role of increased structural diversity and biodiversity in forest resilience. Engage academic institutions as needed. - Prioritize areas of high fire risk, considering factors outlined within CWPP Composite Risk-Hazard Assessment. - Monitor treated areas for invasive and noxious species such as scotch broom. Complete invasive management as needed at treated sites. - Seek funding to recalibrate the fuel model to address limitations for modeling timber management areas (i.e., calibration from non-burnable to slash models).	- Protect life and property by mitigating fuels, providing defensible space for firefighters protecting structures. - Create a fuel arrangement unlikely to support crown fire or fast rates of spread. - Increase understanding of risks and hazards associated with different forest types and locations. - Reduce the potential for large and severe fires in the future amidst hotter and drier summers.	- Follow up with post-treatment stabilization practices. - Frequent communication, collaboration, and cooperation with landowners. - Regular maintenance to ensure the fuel break remains clear of vegetation. - Monitor and treat invasive species. - Continued management of fire breaks maintained by grazing, brush breaking, and prescribed burns. - Record number of acres treated (by fuel type, treatment method).	- Environmental Quality Incentives Program (EQIP) - U.S. Endowment for Forestry and Communities - NFP grants - BRIC grants - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)



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
RL 3		H	Spring 2024	Address fuels treatment in moderate, high, and extreme risk areas and promote equity in fire mitigation efforts.	Countywide	All	• Use existing organizations to leverage capabilities to carry out fuel treatment and forest resilience initiatives. Collaborate with organizations such as the Washington Conservation Corps or Team Rubicon, which can contribute valuable resources and personnel. • Offer support and assistance to individuals residing in moderate to high-risk areas to increase forest resilience, and remove fuels around their properties. Ensure that these efforts prioritize equity to assist those who may face financial or logistical barriers. • Explore opportunities to expand the workforce by engaging arborists and adults seeking gainful employment. • Consider the establishment of NPREP (Neighborhood Preparedness) crews dedicated to cleaning up fuels around residential properties. Identify and flag trees that require attention to minimize fire risks. • Address issue of non-resident property owners who implement limited property maintenance and tailor outreach approaches for fuels mitigation to accommodate those property owners. • Work to optimize cost-effective thinning techniques for younger forests by working with private companies and/or County Forestry Consultant to develop and implement strategies. • Learn from other programs. Research and adopt successful programs from other regions, such as Community Planning Assistance for Wildfire, the Flagstaff, Arizona Fire Prevention Permitting, and Flagstaff, Arizona Watershed Protection Programs to enhance Firewise prevention efforts. Use programs, like Habitat for Humanity, to combine fire prevention with emergency repairs for lower-income households for implementation. • Foster synergy between the proposed initiatives and existing programs to maximize resources and community impact. This dovetailing approach will help create a comprehensive and efficient fire mitigation strategy. • Implement fuel treatments along boundaries with private residential properties, encouraging individual defensible space for enhanced resilience and evacuation. • Enhance coordination between agencies to facilitate cross-boundary fuel modification efforts. • Collaborate with homeowners to achieve fuel breaks where needed in the Federal–State cross-boundary area. • Establish access road buffers through fuel mitigation and brush cutting. • Monitor treated areas for invasive and noxious species such as scotch broom. Complete invasive management as needed at treated sites. • Where circumstances permit and landowners are willing, reintroduce beavers to expand wetlands and riparian areas and support potential wildfire refuge or evacuation routes. • On high-risk slopes, consider how the removal of brush would impact erosion risk/rates.	• Build equitable community fire resiliency and address potential for extreme wildfire behavior for underserved populations. • Reduce the risk of home and structure ignitions for socially vulnerable communities.	• Follow up with post-treatment stabilization practices. • Frequent communication, collaboration, and cooperation with landowners. • Regular maintenance to ensure the fuel break remains clear of vegetation. • Monitor and treat invasive species. • Continued management of fire breaks maintained by grazing, brush breaking, and prescribed burns. • Record number of acres treated (by fuel type, treatment method).	• BRIC grants • NFP grants • RCP grants • Challenge Cost Share Grant Program • CWDG • FMAG • Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)

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
RL 4		H	Spring 2025	Create potential shelter locations.	Community specific	Community specific	• Work with the Fire Chiefs and Emergency Managers to identify and designate safe refuge areas where vegetation has been treated to a prescription that could reduce hazards (shielding needs to be 4 times potential flame lengths). • Focus ROW hardening and roadside clearance on areas that would accommodate passage to safe refuge areas. • Work with Public Information Officers and community leaders to communicate that any safe refuges should be considered an absolute last resort and that early evacuation should always be prioritized. • Clarify Fire Chiefs' roles during evacuation. Stop disinformation that Fire Chiefs would drive through neighborhoods and lead evacuations.	• Provide a "last resort" alternative for residents who are unable to evacuate safely.	• Ensure any plans for safe refuge areas are accompanied with comprehensive maintenance plans to ensure effectiveness and wildfire resilience	• BRIC grants • RCP grants
RL 5		M	Spring 2025	Integrate wildfire mitigation as a standard component of all resource management planning.	Countywide and all jurisdictions	Multi-agency	• Align existing and future planning efforts with the findings and recommendations in the CWPP (e.g., upcoming Port Townsend Urban Forestry Plan, County HMP, County Emergency Response Plan County/City Comprehensive Plan). • Utilize the CWPP Advisory Group as conduits to agency planning staff to facilitate coordination across jurisdictions and disciplines. • Utilize the CWPP hub site as a platform to share data and recommendations. • Work with agency planners and decision makers to integrate wildfire mitigation into other resource management efforts and planning projects countywide, for example considering hazardous fuel loading and wildfire hazard when planning for wildlife habitat improvements, maintenance of scenic vistas, recreational planning, environmental compliance, riparian enhancements, and sensitive species protections.	• Integrate wildfire mitigation into resource management planning to ensure a holistic approach to creating wildfire resilience	• Convene pertinent agency planning staff on an annual basis to review existing and upcoming plans for inclusion of wildfire mitigation measures.	• NFP grants • CWDG • FMAG • Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
RL 6		H	Spring 2024	Support green waste removal initiatives.	All WUI communities	County	• Create a mobile chipper program and/or leverage existing equipment for use by the public to support defensible space practices. • Create a mobile incinerator/biochar program. Purchase equipment for program. • Develop Washington Conservation Corps crew to operate equipment. • Provide training to staff. • Provide trained staff for safe operations when used in a community setting. • Research and compile best practices for managing slash piles.	• Encourage defensible actions by facilitating green waste removal	• Arrange meeting each year to assess participation, review accomplishments, and address future needs. • Frequent communication, collaboration, and cooperation with residents and landowners.	• BRIC grants • NFP grants • RCP grants • CWDG • FMAG • Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)



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
RL 7		H	Fall 2024	Develop standard wildfire mitigation prescriptions and management techniques for forestlands.	Public and private forest lands	Private, City, County, State, USFS, Land Trust, Climate Action Committee	• Work with academic institutions, subject matter experts, climate specialists, local fuels specialists, and other experts to assess appropriate management for forest types in the planning area. • Consider utilizing Land Trust management techniques as a possible template of management for biodiversity and wildfire resilience. • Ensure prescription considers potential climate change impacts on vegetation and forest health. Reference Climate Action Committee research and initiatives (e.g., canopy study). • Incorporate management actions that would reduce stems per acre, increase crown spacing, reduce heavy fuel loading, create greater structural diversity, and limit potential for crown fire initiation and spread. • Consider introduction of vegetation buffers through strategic planting of species like red alder. • Look for opportunities to implement an approach with emphasis on highest risk parcels adjacent to WUI and HVRA. • Look for potential land acquisitions where the above approach would create buffers to WUI areas.	• Reduce fire spread potential and protect HVRA	• Follow up with post-treatment stabilization practices and regular maintenance. • Use the project tracker to document updates for stakeholders and other entities throughout the project's lifetime. • Frequent communication, collaboration, and cooperation with academic institutions, subject matter experts, climate specialists, local fuels specialists. • Monitor and treat invasive species. • Record number of acres treated (by fuel type, treatment method).	• BRIC grants • NFP grants • RCP grants • CWDG • FMAG • Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
RL 8		H	Spring 2025	Implement countywide hazardous fuels and forest health project tracking system.	Public and Private forest lands	Private, City, County, State, USFS, Land Trust, Climate Action Committee	• Create an interactive web application accessible to stakeholders throughout the county, allowing for easy tracking and monitoring of hazardous fuels projects. • Incorporate CWPP wildfire risk layer into web application to visualize areas of high wildfire hazards and track progress toward overall risk reduction. • Populate attribute tables within the web application to provide detailed information on each hazardous fuels project, including data points such as: ◦ Project status ◦ Locations ◦ Objectives ◦ Funding sources	• Provide an efficient and effective tool for tracking and monitoring hazardous fuels projects countywide.	• Ensure web application is regularly updated. • Solicit feedback from uses to identify area of improvement. • Conduct periodic evaluation to assess web application effectiveness.	• BRIC grants • NFP grants • RCP grants • CWDG • FMAG • Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
RL 9		M	Spring 2025	Determine feasibility of a goat grazing program.	Countywide	Public lands	• Carry out feasibility study to determine potential acreages and carrying capacity of a goat herding program. • Work with livestock providers to design program and assess investment needs and sourcing.	• Provide alternative treatment methods for areas where mechanical treatments are not feasible due to slope and vegetation type	• Follow up with post-treatment stabilization practices and continued maintenance. • Utilize project tracker to document updates for stakeholders and other entities throughout the project's lifetime.	• BRIC grants • NFP grants • RCP grants • CWDG • FMAG • Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)



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
RL 10		H	Spring 2024	Foster economic incentives to mitigate fire risk through forest harvest practices that increase forest resilience.	Countywide	All	- Evaluate existing economic incentives for forest management and timber harvest practices, collaborating with local government agencies, landowners, timber companies, and forest management. - Define the objectives of enhancing forest resilience, taking into account local ecological conditions, climate change projections, and community interests. - Invest in research and innovation to develop and promote best practices for sustainable forest management. - Work with relevant government agencies and organizations to design and implement new economic incentive programs tailored to the community's needs, conducting financial analysis to determine cost-benefit effectiveness. - Assess results, best practices, and lessons learned from the economic incentive programs from forest management organizations throughout the region and industry.	Increase forest resilience and community wildfire resilience through greater participation in mitigative action.	- Track the number of participants, the acreage of forest land under improved management, and the reduction in fire risk. - Maintain an open feedback loop with stakeholders and adjust the economic incentive programs based on their input and evolving forest management needs.	- BRIC grants - NFP grants - RCP grants - CWDG - Check Inflation Reduction Act Forestry grants
RL 11				Promote the production and use of cross-laminated timber (CLT) through Forest Stewardship Council (FSC)-certified practices. *see table note	Countywide	All	- Actively seek out and develop new regional markets within the most urbanized areas of the county (including Port Angeles) for timber that is removed during forest management operations, with a focus on CLT. CLT is a sustainable building material made from timber that isn't otherwise merchantable. - Identify potential clients in construction sector that may be interested in using CLT. - Consider development and funding of marketing campaigns to promote FSC-certified CLT. - Education campaigns to raise awareness about CLT and highlight its benefits. - Continue to invest in research and development to explore new uses for CLT (such as furniture) and to develop other building materials.	- Encourage sustainable practices to increase forest health and resiliency. - Encourage the use of fire-resistant building materials.	- Arrange meeting each year to assess participation, review accomplishments, and address future needs. - Frequent communication, collaboration, and cooperation with residents and landowners. - Facilitate regular FSC audits to ensure compliance.	- BRIC grants - NFP grants - RCP grants - CWDG - Check Inflation Reduction Act Forestry grants
RL 12		H	Spring 2024	Develop collaborative efforts and partnerships.	Countywide	All	- Explore opportunities to leverage partnership with the DNR. - Utilize DNR's expertise and resources to achieve goals more efficiently. - Communication consistency with DNR messages. - Explore opportunities to leverage Natural Resources Conservation Service (NRCS) conservation programs for private forested landowners.	Enhance community resilience through collaborative efforts.	- Arrange a standing multi-agency meeting each year to review accomplishments and address future needs. - Establish channels of communication between participating groups, organizations, and agencies. - Consider formation of an local wildfire coordinating/working group.	- BRIC grants - NFP 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
RL 13		M	Spring 2025	Improve water systems.	Community specific	County, City	- Invest in new, and upgrade current, water infrastructure. - Identify and allocate water resources for wildfire prevention and response. - Protect key water resources in areas of elevated fire risk through fuel mitigation and other mitigation activities.	- Protect life and property by improving fire suppression capabilities. - Improve efficiency and speed of wildfire response and suppression. - Enhance public and firefighter safety and mitigate wildfire risk within the county.	- Convene annually to assess and document status of county-specific water resource capabilities. - Conduct an annual review of water resources.	- BRIC grants - NFP grants - RCP grants - CWDG - FMAG - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)

*While not considered experts on cross-laminated timber (CLT), it is our opinion that mass timber buildings, using CLT and other methods, can be safely constructed in wildfire prone areas, taking all things into consideration. Mitigation measures such as noncombustible siding, 1/8" or rated vents, tempered glass where appropriate, and adequate separation from accessory structures and highly combustible vegetation should be incorporated into building design, with the intent of protecting the structure from exposures related to embers, direct flame, and radiant heat. More information on fire performance of cross-laminated timber assemblies can be found at: https://bit.ly/CLT_Fire . Additional information on exposures and recommended separation distances can be found at https://bit.ly/NIST_HMM .

Table H.2. Recommendations for Creating Fire-Adapted Communities (Public Education and Structural Ignitability)

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
FAC 1		H	Summer 2025	Design and implement a unified initiative for a marketing campaign/strategy for wildfire mitigation alongside a comprehensive countywide public education program.	Countywide	All	• Work with the DNR Community Resilience team to launch the Wildfire Ready Neighbors Program. • Convene a committee of public information officers and relevant agency staff to develop a comprehensive, multi-jurisdictional approach. • Develop wildfire mitigation materials tailored specifically to Jefferson County communities and forest types, emphasizing the significance of fuels reduction practices. • Focus Firewise messaging on potential entrapment due to evacuation concerns, including evacuation and safe refuge strategies. • Disseminate materials through varied channels to increase exposure, considering diverse communication preferences. • Allocate resources within the City of Port Townsend to build staff capacity dedicated to Firewise education initiatives, ensuring sustainable programs. • Utilize existing community events as platforms for disseminating wildfire mitigation/safety messaging. • Utilize the CWPP hub site to share materials and resource links for broader accessibility. Seek grant support to provide finances for long-term hub site maintenance. • 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, and educational materials. • Emphasize the importance of creating personal preparedness plans, including shelter in place considerations and maintaining essential resources like gas and electric vehicle charging during wildfire season. • Promote safe fuel storage practices as part of wildfire mitigation efforts.	• 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.	• Yearly updates to marketing materials, ensuring alignment with best science. • 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.	• Regional Catastrophic Preparedness (RCP) grants • Building Resilient Infrastructure and Communities (BRIC) grants • Community Wildfire Defense Grants (CWDG) • Firewise grants National Urban and Community Forest Program • FP&S (FEMA) • Environmental Protection Grants (EPA)



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
FAC 2		H	Fall 2024	Create demonstration sites for healthy forests and defensible space.	County Fire Departments/Schools/Community Centers, Chimacum Ridge Community Forest)	WA DNR, County, Jefferson Land Trust, Jefferson County Conservation District, Master Gardeners/ WSU	- Identify suitable demonstration sites for defensible space in prominent locations with Firewise landscaping (e.g., fire stations with demonstration landscaping with native Firewise plants). Take into consideration 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. Take into consideration active management that increases the fire resilience condition of forests. Host public events to display Firewise gardens. - Assess demonstration materials. - Incentivize Firewise landscaping. - Utilize the WA DNR western WA fire-resistant plant and landscaping guide. - Coordinate the adoption of the WUI code (in March 2024) with landscaping regulations or guidance. Coordinate with the DNR for consistent talking points about WA-WUI maps. - Consider the implementation of Firewise landscape around communal structures.	- Educate residents on appropriate and manageable actions to create defensible spaces and landscapes. - Educate residents on appropriate and manageable actions private forest land owners and public land managers can take to improve forest health and resilience as fire risk increases.	- Follow up with post-treatment stabilization practices and continued maintenance. - Annual review of effectiveness.	- Firewise grants including WA DNR Firewise Microgrant - FP&S (FEMA) - EPA Environmental Education Grants - CWDG - BRIC grants - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FAC 3		H	Fall 2025	Effectively communicate how to prepare for wildfire using accessible language and symbols, for non-English speakers, and those with vision, hearing or language impairments.	Countywide	All	- Work through the Wildfire Ready Neighbors Program resources to translate outreach materials. - Connect with the Washington State Fire Adapted Communities Learning Network (WAFAC) to access resources for vision-, hearing-, or language-impaired residents. - Translate printed and virtual materials to make information accessible to non-English speakers and individuals with varying abilities, including those with vision, language, and hearing impairments. - Direct community engagement with community members through targeted outreach programs and events. - Conduct demographic analysis (using census data) to identify community make up and tailor outreach efforts accordingly.	Protect communities and infrastructure by raising awareness of residents and visitors regardless of their background.	- Conduct yearly updates to materials. - Establish channels of communication with targeted groups.	- Firewise grants including WA DNR Firewise Microgrant - FP&S (FEMA) - EPA Environmental Education Grants - CWDG - BRIC grants - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR) - County Accessible Communities Advisory Committee



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
FAC 4		H	Summer 2025	Coordination of City and County codes.	Countywide	City, County	- Revise land use codes to encourage holistic planning approaches that reduce wildfire risks and hazards. - Code Compliance: Enforce code compliance across all phases of a project, with a focus on the WUI codes to be adopted March 15, 2024. New WUI codes focus on roof, building materials, and vegetation management near driveways. Consider distributing doorhanger notices defining new codes for homeowners. - New Development: When planning new developments, reference the latest International Building Code rules, particularly those related to defensible space. - Legacy Development: Review and update safety measures to align with current standards and regulations to enhance fire mitigation efforts. - Fuel Disposal: Implement responsible fuel disposal practices within the easement or ROW, adhering to regulations. - Setback Requirements: Ensure adequate setback distances are established to enhance fire safety. Develop setback requirements for the areas below powerlines. - Road Standards: Ensure alignment with existing municipal, county, and state road development and maintenance standards. Where necessary, update road maintenance standards to maintain safe conditions on evacuation routes. Prioritize standards to address private roads, shared driveways, and bridged driveways if such standards do not already exist.	Ensure regulatory alignment and safety.	Conduct review of fire code and update accordingly.	- FP&S (FEMA) - EPA Environmental Education Grants - CWDG - BRIC grants - National Urban and Community Forest Program - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FAC 5		M	Summer 2025	Create a Fire Safe Council for the County.	Countywide	All	- Analyze the identified risks, vulnerabilities, and community needs outlined in the CWPP; provide a solid foundation for the establishment of a collaborative Fire Safe Council. - Establish a Jefferson County Wildfire Coordinator position to lead the Fire Safe Council. - Use the Fire Safe Council as a platform for messaging and public engagement. - Task the Fire Safe Council with providing oversight for the CWPP and manage the annual review and update of the plan. Tasks would include: - Track changes to the WA DNR WUI and implement updates to the Composite Risk-Hazard Model as needed. - Review the project tracker and identify obstacles to implementation. - Seek grant opportunities to facilitate implementation of CWPP recommendations. - Investigate potential to expand Firewise Community initiatives across the county, providing more detailed community-scale risk analysis and mitigation projects. - Oversee annual CWPP updates including integration of other ancillary planning efforts that are pertinent to the CWPP. - Oversee the 5-year full CWPP update.	Provide a central organization for wildfire mitigation in the County.	- Convene annually to document actions taken and document success and failures of mitigative action. - Conduct an annual assessment of staffing needs. - Track community participation and engagement.	- Emergency Management Performance Grant (EMPG) (FEMA) - RCP grants - BRIC 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
FAC 6		H	Spring 2024	Introduce or increase use of signage about fire bans.	Countywide	WSDOT, Fire Departments, City, County	Coordinate with WSDOT for marquees with messages about fire bans.	Protect communities and infrastructure by raising awareness of local citizens and those traveling in the area about actions that can prevent fires.	- Conduct yearly reviews and updates/improvements to materials. - Set goals for expanding signage the following year.	- RCP grants - BRIC grants - CWDG - National Urban and Community Forest Program - FP&S (FEMA) - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FAC 7		M	Spring 2024	Emphasize the significance of defensible space in light of the growing mandates for urban density.	Countywide	WSDOT, Fire Departments, City, County	- Develop zoning regulations that balance urban density goals with defensible space requirements. - Consider differentiating zones within urban areas, allowing for varying density in centralized areas, gradually decreasing densities toward the WUI. - Promote the use of fire-resistant plants in landscaping designs, reducing the risk of fire spread. - Enforce building codes that require the use of fire-resistant materials in construction. This includes roofing, siding, and windows. - Advocate for designs that incorporate defensible space directly into new developments, such as setbacks, firebreaks, and noncombustible zones.	Create resilient communities that can withstand the threat of wildfires while still meeting the demands of urbanization	- Continuously evaluate and adapt defensible space strategies based on changing environmental conditions. - Conduct assessments to track participation and assess need for levels of enforcement.	- RCP grants - BRIC grants - CWDG - National Urban and Community Forest Program - FP&S (FEMA) - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FAC 8				Create a Port Townsend-specific CWPP Addendum.	Port Townsend	City	- Create a CWPP Annex that addresses specific wildfire hazards that face Port Townsend. - Leverage countywide CWPP as a foundation and develop a document in a style and format that is consistent with the County plan. - Convene a Core Team of City stakeholders. - Create subdivision-scale base maps. - Delineate the WUI in conjunction with DNR. - Create subdivision-scale Composite Risk-Hazard Model that is ground truthed through the field assessment process described below. - Carry out subdivision-scale field assessments using the NFPA 1144 protocols to identify high-risk areas due to structure type, access, firefighting resource availability, and adjacent fuels. - Hold public education and outreach meetings to engage the community and provide buy-in. - Develop a written document and integrate with the county document by reference or as an appendix to the countywide plan. - Upload to the County CWPP hub site to increase visibility. - Plan for periodic updates to the Annex in coordination with the CWPP.	Address finer resolution mapping and planning needs.	N/A	- City funds - CWDG - BRIC grants - WA DNR
FAC 9		H	Spring 2024	Create an interagency calendar for WUI-related public engagement events.	Host on the hub site	All agencies on the Advisory Group	Create and regularly update a calendar of WUI-related public engagement events organized and hosted by agencies in Jefferson County.	Increases public awareness.	Monthly or as needed updates to calendar.	County/City funds

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
FAC 10		H	Spring 2024	Identify and collaborate with social service agency partners within Jefferson County to enhance wildfire readiness for low-income and vulnerable populations.	Countywide	Fire Departments, City, County, Health Department, Red Cross	- Conduct a comprehensive survey of social service agencies within Jefferson County and Contact potential partners. - Determine and allocate resources (financial, informational, logistical) to support wildfire preparedness activities tailored to vulnerable populations. - Set up communication channels to facilitate ongoing collaboration and updates. - Create and distribute customized educational materials and emergency kits for vulnerable populations.	Provide targeted support to those who are most at risk and may lack the resources or knowledge to prepare adequately.	Monitor specific milestones (e.g. number of agencies engaged, training sessions conducted, and materials distributed).	- RCP grants - BRIC grants - CWDG - National Urban and Community Forest Program - FP&S (FEMA) - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FAC 11		M	Spring 2025	Provide information and resources related to farming and agricultural lands and wildfires.	Countywide	Washington State University Extension and Disaster Education Network	Provide information on the following topics: livestock movement and housing during an emergency; information on livestock injury assessment and health; ag producer safety during wildfires and emergency preparedness, wildfire recovery assistance for farms, soil erosion and rehabilitation; grass reseeding, vegetation rehabilitation, grazing mitigation as well as other preventative educational resources including planned grazing and holistic management of lands.	Provide information targeted toward farms, farmers, ranchers and agricultural lands.	Update as new information becomes available.	County/City funds

Table H.3. Recommendations for Safe, Effective, Risk-based Wildfire 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
FR 1		H	Spring 2024	Fire departments to prioritize a strategy to secure funding for wildland firefighting equipment, especially water tenders.	Countywide	Fire Departments	- Develop a funding strategy to acquire and maintain wildland firefighting equipment, including vehicles, protective gear, and communication tools. - Upgrade water tenders. - Recognize that their use is different from traditional fire response (the need to transport water to rural areas is different from fire response in urban areas). - Current fleet is aging. The youngest tender is 18 years old. There is a need to invest in modern efficient tenders. - Evaluate the impact on pump systems from pulling water from various sources. Ensure that the system can safely extract water while considering the wear and tear on the pumps. - Acknowledge the difficulty of accessing water sources in wildland areas and recognize that tenders provide a reliable and efficient supply of water for remote locations. - Encourage property owners in vulnerable areas to consider the installation of sprinkler kits as part of their wildfire preparedness strategy, conduct an awareness campaign to spread knowledge about the benefits of sprinkler kits and their proper use. - Explore partnerships and collaborate with local, state, or federal agencies, as well as community organizations, to acquire the necessary funding for fire inspection and investigation vehicle.	Enhance public safety, improve wildfire response, and limit size of wildfires.	- Conduct fire stations inventories of tools and appliances. - Replace outdated/degraded tools and appliances.	- Emergency Management Performance Grant (EMPG) (FEMA) - Regional Catastrophic Preparedness (RCP) grants - Building Resilient Infrastructure and Communities (BRIC) grants - Firefighter Property Program (DNR) - Federal Excess Personal Property (DNR)



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
FR 2		M	Spring 2025	Increase wildfire training opportunities for fire department and other appropriate agency personnel.	Lands appropriate for prescribed fire exercises	DNR, Conservation Districts/Conservation Commission, Land Trust, Fire Departments	- Send staff to NFPA's Assessing Structure Ignition Potential (ASIP) Trainings hosted by WA DNR, Conservation Commission, and other partners throughout the state. - Utilize prescribed fire management opportunities on public lands as a way to train County firefighters (career and volunteer) in wildfire management and suppression techniques. Partner with federal agencies, DNR, County Parks and Recreation, and the Land Trust. - Support training for fire and land managers on fire operations in the WUI. - Look at possible training opportunities with tribal communities to integrate cultural burning (prairie maintenance and traditional foods program) concepts and Traditional Ecological Knowledge. - Utilize resources and expertise from the Center for Natural Lands Management.	- Increase staff understanding of WUI fire behavior and wildfire risk reduction actions residents should take. - Increase capacity for wildfire response by local crews. - Enhance public safety, improve wildfire response, and limit size of wildfires.	- Provide annual red card training/refresher/pack test events before start of fire season. - Provide online wildfire training classes/refresher courses.	- RCP grants - BRIC grants - Firewise grants National Urban and Community Forest Program - FP&S (FEMA) - Funding support associated with Wildfire Ready Neighbors - Firefighter Property Program (DNR) - Wildland Fire Training (DNR)
FR 3		H	Spring 2024	Increase access for fire response.	Private lands	Private, County, Fire Departments	- Fire Departments to work with large landowners to identify access issues and coordinate future access – locked gates and blocked roads. - Develop new protocols for access rights to public lands.	- Reduce response times for emergency responders. - Provides safe and effective wildfire response capabilities. - Provides safe and effective means of evacuation in case of emergencies.	- Conduct regular monitoring and maintenance to make sure roads are drivable for emergency response vehicles. - Consider the use of herbicide on invasive species growth encroaching on access routes, in consultation with Jefferson County Noxious Weed Board.	- BRIC grants - National Fire Plan (NFP) grants - RCP grants 2022 Infrastructure Investments and Jobs Act - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FR 4		M	Spring 2025	Address the need for increased human resources.			- Focus on the "people element" of the operations. - Investigate potential for more career firefighting staff in areas of concern. - Enhance coordination with local contractors and tree service organizations. - Establish a comprehensive "Call When Needed" list of personnel who can be deployed when needed. List to include individuals with various skillsets and qualifications (e.g., dozer operators). - All people on the "Call When Needed" list should meet recommended training recommendations so they are prepared to respond in their respective roles.	- Increase capacity for wildfire response. - Enhance public safety, improve wildfire response, and limit size of wildfires.	- Provide annual red card training/refresher/pack test events before start of fire season. - Provide online wildfire training classes/refresher courses.	- EMPG (FEMA) - BRIC grants - RCP grants - Wildland Fire Training (DNR)



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
FR 5		H	Spring 2025	Develop Comprehensive Evacuation Plan.	Countywide	County DEM, County Roads, landowners	• Create a committee with multiple agencies to develop a countywide evacuation plan. • Develop specific evacuation plans for residences along specific highways (e.g. Highway 101, Highway 104, SR 20). • Identify WUI communities vulnerable to the impacts of evacuation, devising solutions and mitigative efforts. • Utilize Ladris analysis to identify high-risk areas for evacuation. • Hold mock evacuation to inform plan utilizing live response and “opt in” using NIXEL. • Model a fire response through selected WUI neighborhood. • Focus on coordination between agencies. • Utilize event as a way to inform and educate the public on the Incident Command System and terminology. • Test Ladris software in real time. • Conduct after-action review to inform planning. • Align plan with Emergency Response Plan and HMP. • Integrate with evacuation planning for all natural hazards, as appropriate. • Include “micro-evacuation planning” in the plan, specifically identifying areas that might increase hazards for evacuees (e.g., avoiding passage or sheltering near hazardous materials sites). • Work on fuels mitigation, defensible space, and possible shaded fuel breaks.	• Facilitate safe evacuation of residents and support emergency response for responders. • Protect life and lessen high-risk fire behavior along important roads. • Educate the public about efficient safe evacuations.	• Conduct annual maintenance. • Updates materials annually.	• RCP grants • BRIC grants • Firewise grants National Urban and Community Forest Program • FP&S (FEMA) • Community Wildfire Defense Grants (CWDG)
FR 6		H	Spring 2025	Build tribal fire management capacity.	Hoh Reservation, Queets	Tribal, DNR, BIA	• Build firefighting capacity for wildfire suppression. • Seek funding to support creation of fire department (or enhancements of fire department) for each tribal community, equipment, apparatus, personnel, and training.	• Enhance fire response and protection of life and property on the western side of the County.	• Conduct annual maintenance. • Update materials annually.	• RCP grants • BRIC grants • National Urban and Community Forest Program • FP&S (FEMA) • Firefighter Property Program (DNR) • Federal Excess Personal Property (DNR)
FR 7		H	Summer 2025	Create unified protocol for fire restrictions and communications.	Countywide	All	• Develop definitive protocols for communications on fire restrictions. • Identify lessons learned from previous events. • Investigate limitations for existing notifications, including residents with no cell phone access. Consider hard line notifications or radio announcements. Coordinate through DEM, NPREP, and PUD. • Identify the locations of residents who don't have cell phones.	• Reduce conflicts and confusion across jurisdictions. • Enhance public safety and improve wildfire response.	• Conduct regular monitoring and review of effectiveness. • Provide updates to materials as necessary.	• RCP grants • BRIC grants • National Urban and Community Forest Program • FP&S (FEMA) • 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
FR 8		L	Spring 2025	Improve fire recording and documentation.	Countywide	County Fire Marshal	- Establish standardized protocols for documenting wildfires, ensuring consistent data collection, and reporting by all relevant agencies and personnel. - Allocate funding for necessary resources, personnel and training for comprehensive fire recording and documentation. - Track fire ignitions and causes and document with meta data. - Assess how education, outreach, mitigation, and prevention could be used to address common ignition sources. - Update spatial data related to past wildfires in the county.	- Better understand causes of wildfire and utilize data to inform education and outreach. - Better understand areas with history of regular wildfire activity to prioritize risk and hazard reduction.	- Maintain database of pertinent wildfire data. - Review and update outreach materials.	- RCP grants - BRIC grants - National Urban and Community Forest Program - FP&S (FEMA) - Federal Excess Personal Property (DNR)
FR 9		H	Summer 2025	Enhance pre-event planning.	Countywide	All	- Pre-identify Incident Command Posts. - Identify and map dip sites. - Document and inventory personnel and equipment. - Implement mock events that practice transition from initial attack and extended attack. - Carry out after-action review of mock event to inform future wildfire response training and resource needs.	Train and inform fire responders to enhance wildfire response.	- Conduct yearly review and updates to materials. - Set goals for the following year.	- EMPG (FEMA) - CWDG - BRIC grants - RCP grants - Wildland Fire Training (DNR)
FR 10		H	Spring 2024	Identify the needs of each fire district to ensure they have the specific equipment essential for fire response.	Countywide	All fire districts	- East Jefferson Fire District has identified a need for a dozer and hand crews (Type 2) to mitigate threats. - Hand crews are needed for work throughout the entire county.	Enhance fire response and protection of life and property.	- Conduct review of effectiveness and update accordingly. - Set goals for the following year.	- BRIC grants - NFP grants - RCP grants - Community Wildfire Defense Grants (CWDG) - Fire Management Assistance Grant (FMAG) - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FR 11		H	Spring 2024	Increase the housing supply for workforces.	Countywide	All	- Initiate a plan to create more housing options to meet the needs of the workforce. Currently, there is an insufficient availability of housing for workers. - Perhaps create specific housing for fire-related workforce.	Improve the living situations for wildfire responders.	- Conduct annual maintenance. - Communicate with firefighting personnel on effectiveness.	- RCP grants - BRIC grants - National Urban and Community Forest Program - FP&S (FEMA)
FR 12		M	Spring 2025	Use a code or regulatory program to address the issue of residents creating their own addresses and posting these addresses on signs, making fire response more difficult.	Port Townsend	City of Port Townsend	- Ensure the code applies to all homes. (Second homes are presently excluded from standardized address signs.) - Raise awareness that address signs need to be accurate for emergency response services.	Protect life and property through improving wildfire response.	- Ensure regulatory alignment and safety. - Conduct review of code and update accordingly.	- RCP grants - BRIC grants - National Urban and Community Forest Program - FP&S (FEMA)
FR 13		M	Spring 2025	Consider using investigative drones and operators to provide real-time aerial insights, enabling efficient monitoring, assessment, and response to fire incidents.	Countywide	Fire departments, City, County	- Conduct a feasibility study to assess the suitability of using investigative drones in the designated wildfire-prone areas covered by the CWPP. - Collaborate with experienced drone operators with expertise in wildfire monitoring and response. - Develop protocols for deploying drones in different wildfire scenarios, considering factors such as weather conditions, terrain, and potential risks. - Using drones at initial attack is ideal for hard-to-reach areas. - Can be crucial in identifying imminent danger to structures, such as the Beaver Valley Fire.	Enhance decision-making and resource allocation.	- Conduct review of effectiveness and update accordingly. - Regular training sessions and updates will ensure effective utilization of this technology.	- RCP grants - BRIC grants - National Urban and Community Forest Program - FP&S (FEMA) - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)



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
FR 14		M	Spring 2025	Expand the city's legal capacity to address concerns related to wildfire.	Countywide	City of Port Townsend	• Conduct a comprehensive review of existing legal frameworks, ordinances, and regulations related to wildfire, ensuring they are up-to-date and aligned with best practices in wildfire management. • Identify potential legal obstacles for wildfire mitigation activities and evaluate possible solutions. ◦ Examples of legal obstacles: Zoning and land-use regulations, Property access and easements, Property rights and liability issues, Building codes and permits, etc. • Collaborate with regional, state, and federal policy authorities to create and enhance litigation related to wildfire management (e.g. land-use planning, permitting, and building codes). • Increase or establish abatement funding to address various community concerns.	• Enhance the County's ability to address wildfire-related concerns and challenges effectively. • Protect life and property through improving wildfire mitigation impacted by legal hurdles.	• Continuously evaluate the legal framework and policies for alignment with changing wildfire dynamics and community needs. • Periodically review the legal capacity expansion efforts.	• RCP grants • BRIC grants • National Urban and Community Forest Program
FR 15		H	Spring 2024	Prepare community for red flag day power shutoffs.	Countywide	All	• Implement power shutoff protocols on red flag days. • Launch community-wide awareness campaign to educate citizens about the procedure. • Prioritize support for vulnerable populations, such as the elderly, by offering guidance on preserving medications, as well as guidance on electric vehicle charging alternatives.	• Enhance public safety by reducing ignition potential.	• Conduct review of effectiveness and update accordingly.	• RCP grants • BRIC grants • National Urban and Community Forest Program • CWDG • Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FR 16		H	Spring 2024	Enhance personnel.	Countywide	DNR, fire departments, City, County	• Expand volunteer base for water tender drivers. • Bolster staffing for the County Office of the Fire Marshal. • Offer training to interested volunteers to increase their depth and availability. • Collaborate for cross training with the DNR. • Establish a workforce exchange with the DNR during wildfire season.	• Enhance public safety, improve wildfire response, and limit size of wildfires.	• Provide annual red card training/refresher/pack test events before start of fire season. • Provide online wildfire training classes/refresher courses.	• EMPG (FEMA) • RCP grants • BRIC grants • National Urban and Community Forest Program • FP&S (FEMA) • CWDG Firefighter Property Program (DNR)
FR 17		H	Spring 2024	Fire departments should invest in back-up fuel pods.	Countywide	All	• Back-up fuel pods are needed to ensure adequate gas supply for reaching remote locations during emergencies. • Integrate the inclusion of fuel tenders into pre-event planning to enhance the efficiency of resource refueling on larger wildland incidents, particularly in rural areas.	• Enhance public safety, improve wildfire response, and limit size of wildfires.	• Conduct review of effectiveness and update accordingly. • Set goals for the following year.	• EMPG (FEMA) • RCP grants • BRIC grants • National Urban and Community Forest Program • FP&S (FEMA) • Firefighter Property Program (DNR) • Federal Excess Personal Property (DNR)



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
FR 18		H	Spring 2024	Coordinate City and County to optimize fire safety efforts.	Countywide	All	- City should consider strengthen its capacity for fire prevention, safety, and response. - County (or Jefferson Conservation District) should consider hiring a community wildfire risk specialist. - Explore collaboration with the Jefferson Conservation District, leveraging their potential staff capacity to support and house a wildfire position or work group. - Consolidate funding and resources collaboratively between the City and County. - Coordinate regular communications with private landowners on wildfire risks and hazards, and where to find resources to address high-risk conditions. - Coordinate with county to create a local Fire Safe Council.	Improve overall fire safety and coordination within the community.	- Conduct review of effectiveness and update accordingly. - Set goals for the following year.	- RCP grants - BRIC grants - Firewise grants National Urban and Community Forest Program - CWDG - Washington State Conservation Commission - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FR 19		M	Spring 2024	Increase fire hydrants in communities.	Countywide	City water departments, PUD, private water purveyors	- Evaluate the community to identify areas with a higher risk of fires, considering factors such as population density, historical fire incidents, and proximity to flammable structures or materials. - Identify locations/communities that need fire hydrants. - Install fire hydrants in these designated locations. - Explore the feasibility of mobile and stationary “fracking” style water tanks as hydrant alternatives.	Improve wildfire response capabilities and capacity to suppress fires.	Ongoing design, planning, and implementation of projects is necessary.	- RCP grants - BRIC grants - National Urban and Community Forest Program - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FR 20		H	Fall 2024	Conduct a comprehensive review and redesign standards for new subdivisions with a focus on wildfire safety.	Port Townsend	City of Port Townsend	- Set standards to be used as appropriate model for new subdivisions. - Address ingress and egress, street width, and driveway related issues in accordance with new subdivision codes. - Address the challenges posed by old plats that lack planning for the back side of the subdivision, which currently has no secondary access. - Implement zoning and land-use policies that promote higher-density development within existing urban areas, allowing for more efficient land use while reducing the pressure to expand into undeveloped forestland. *See table note. - Explore the possibility of incentive programs for property developers, builders, and homeowners who contribute to increasing density in urban areas (e.g., permitting fees, tax credits, or other financial benefits).	Enhance public safety and improve wildfire response.	Conduct review effectiveness and update accordingly.	- BRIC grants - National Urban and Community Forest Program - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)
FR 21		L	Fall 2025	East Jefferson County RAWs Installation and Monitoring	Eastern Jefferson County	Fire departments, City, County	- Conduct a geographic and climatic survey of eastern Jefferson County to identify optimal locations for RAWs. - Collaborate with local meteorologists, fire departments, and environmental scientists. - Identify and apply for grant funding opportunities from federal, state, and private sources. - Partner with a professional installation team to set up the stations. - Establish a data management system to collect, store, and analyze weather data.	Improve understanding of local weather and microclimates to inform wildfire mitigation strategies. Foster a safer and more informed community.	Conduct regular reviews and calibrations of the RAWs to ensure data accuracy and reliability. Schedule frequent maintenance checks and inspections. Generate monthly and annual reports summarizing weather data.	- FEMA Hazard Mitigation Assistance Grants - RCP grants - BRIC grants - Firewise grants National Urban and Community Forest Program - CWDG - Financial Assistance Program for Wildfire Resilience & Forest Health (DNR)

* Increased density and narrower streets may be appropriate for urban core areas that do not have an increased hazard from wildfire exposures (e.g. windblown embers, direct flame, and radiant heat). However, planners should be extremely careful when dealing with areas that have a higher hazard from these exposures. Increased density creates more risk for urban-conflagration (e.g., Marshall Fire, Camp Fire, Maui Wildfires, etc.), and narrower streets create increased congestion for ingress and egress during emergency situations and evacuations. Policy makers and community planners should be cognizant of these considerations when allowing development in wildfire-prone areas. Local jurisdictions should also collaborate with their fire district code officials in these matters.



APPENDIX I:

Building Code Recommendations

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WUI CODE-RELATED RECOMMENDATIONS

JEFFERSON COUNTY AND LOCAL JURISDICTIONS

This outline presents a brief overview of code recommendations for Jefferson County, Washington. These recommendations could be applied at either the county or municipal level. Should Jefferson 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 and municipal. 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 could be considered for adoption, in whole or in part, by all relevant levels or groups. Jefferson County may want to consider having a qualified code writer and wildfire mitigation expert author new code and assist with the adoption process.

Recommendation 1: Adopt the State-adopted IWUIC with specific jurisdictional amendments. Adopt 2021 or 2024 International Wildland-Urban Interface Code (IWUIC) in 2024, with an updated adoption every three (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 State adoption. This would include:

- clarity on the “retroactivity” section of the State adoption (Note: there may be confusion between the last sentence in Section 101.2 “Scope” and Section 101.4 “Retroactivity”),
- a focus on appropriate requirements for medium- and high-density development as per the NIST Hazard Mitigation Methodology (HMM); more specifically, amendments should include stringent requirements for structural hardening in new high-density developments,
- IWUIC appendix A requirements for vegetation control and ignition source control (Note: the State did not specifically adopt Appendix A),
- vent protection for IR3 structures, identical to IR1 and IR2, and
- a section on fencing with provisions that preclude the use of combustible fencing within eight feet (8’) of any habitable structure.

An alternative method to Jefferson County adopting an entire code, such as the State of Washington adopted IWUIC, would be to create customized WUI amendments as a whole chapter and insert them into an empty/blank chapter of the International Fire Code when it is adopted 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 2: Acquire 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 3: Hire dedicated personnel in Jefferson County for wildfire mitigation programs and outreach (e.g., Wildfire Mitigation Specialist and Fire Adapted Communities Coordinator positions).

Recommendation 4: Hire dedicated Jefferson County staff to conduct plan reviews, inspections, and code enforcement of landscaping and construction.

Recommendation 5: Provide quality, customized education to help provide context to the code, as well as how to best mitigate risk around existing homes and businesses.

Recommendation 6: Share the simplified breakdown of the code adoption that Jefferson County put together www.co.jefferson.wa.us/DocumentCenter/View/16526/WUI-Brochure with other jurisdictions and relevant stakeholders.

Recommendation 7: Once structures in new developments are occupied, Wildfire Safety Plans (see Recommendation 9) can be incorporated as a reference document into the Community Wildfire Protection Plan to ensure voluntary compliance with codes and standards for long-term safety and maintenance of these communities.

Recommendation 8: Integrating code improvements into the Jefferson County Hazard Mitigation Plan 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 five (5) years at the same time, and with the same stakeholders, as the Hazard Mitigation Plan. An example of this is Ada County, Idaho, who utilized 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.

Recommendation 9: 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 (CWMS). The term “Special Expert” comes directly out of 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.”

The Wildfire Safety Plan would also fulfil the requirement for a Vegetation Management Plan from Section 701 of the State of Washington adopted WUI Code. The Wildfire Safety Plan (WSP) 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,
- 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.



APPENDIX J:

Evacuation Analysis

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Jefferson County Evacuation Analysis

Evacuation Simulations & Data Analysis

Ladris Technologies, Inc.

CAUTION: This report pertains to a modeling algorithm that identifies patterns in disaster response. It is dependent upon the assumptions used by the operator in generating the report and the accuracy of third-party data. It is unlikely to fully reflect all of the complexity inherent in chaotic environments. Any assessment of future outcomes carries inherent risk, and Ladris does not assume responsibility for decisions made as a result of projections. End users should possess expertise in understanding the real-world implications of forecasts, and should always exercise sound judgment and expert discretion when interpreting results.

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Executive Summary

This report consists of outputs from the Ladris AI for Evacuations modeling software for a set of evacuation scenarios in the Jefferson County area.

With direction from Jefferson County's Department of Emergency Management, analysis of total clearance times and single vehicle trip times was identified as the highest priority for this stage of Ladris modeling for the CWPP.

For each of the simulated scenarios, a visualization is included along with several key metrics: clearance time, vehicle trip times, and road network congestion.

The report concludes with a summary of all the evacuation scenarios for an accessible comparison of the results.

Data Collection

Scenarios were designed in consultation with representatives from SWCA and the Jefferson County Department of Emergency Management from the Town of Woodside and the Woodside Fire Protection District. Results were gathered using the Ladris Operator platform for evacuation simulations.

Further Analysis

License holders are able to directly engage with the Ladris AI for Evacuations software application to easily simulate how traffic patterns may develop and change over time for an unlimited number of what-if evacuation scenarios.

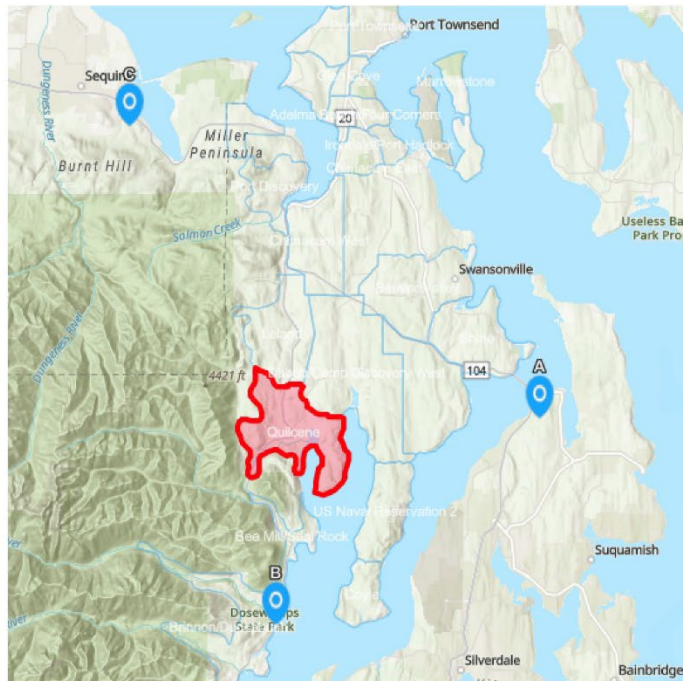


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Simulated Scenarios

Scenario 1: Quilcene - Input Parameters

Parameter Name	Value
Impact Area	Quilcene
Waypoints	A - Kitsap Peninsula via Hood Canal Bridge B - Brinnon C - Sequim
Vehicle Count	1368
Departure Time Frame	45 mins
Road Blocks	None
Heavy Vehicle %	20%

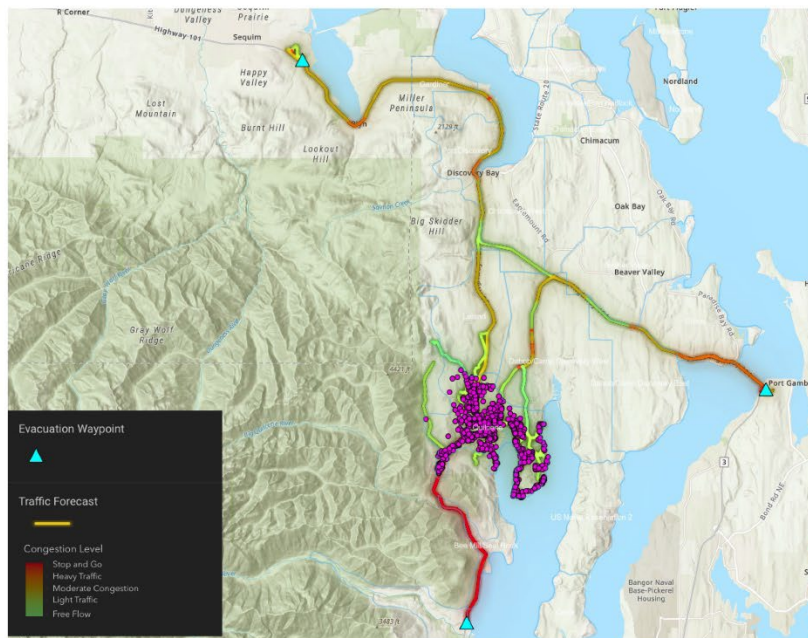




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Scenario 1: Quilcene - Simulation Results

Metric	Value
Total Clearance Time	1 hr 20 mins
Worst Case Single Vehicle	56 mins
Average Single Vehicle	34 mins



In this simulation, 1,368 vehicles depart from Quilcene towards Waypoint A (Kitsap Peninsula via the Hood Canal Bridge), Waypoint B (Brinnon), and Waypoint C (Sequim). With all vehicles departing from the area within 45 minutes, the simulation results show:

It takes 1 hr 20 mins for all vehicles to reach safety.

The average travel time for a single vehicle is 34 mins.

The worst possible trip time for a single vehicle is 56 mins to reach one of the two designated safety points



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Scenario 2: Brinnon / Duckabush - Input Parameters

Parameter Name	Value
Impact Area	Brinnon / Duckabush
Waypoints	A - Skokomish B - Kitsap Peninsula via Hood Canal Bridge C - Sequim
Vehicle Count	1860
Departure Time Frame	45 mins
Road Blocks	None
Heavy Vehicle %	20%

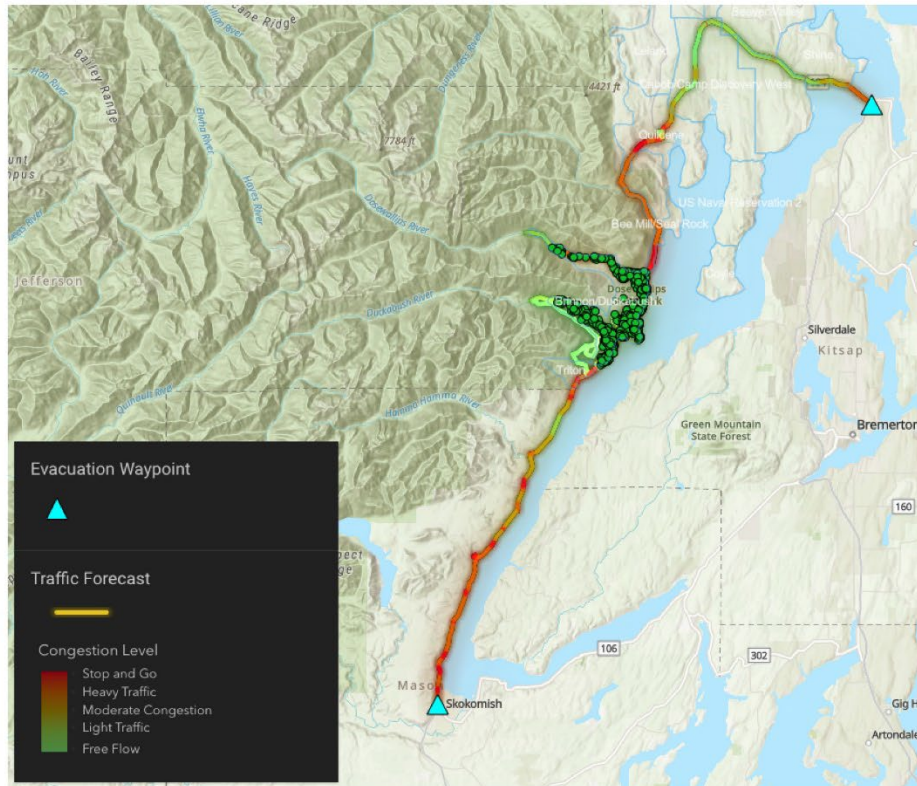




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Scenario 2: Brinnon/Duckabush - Simulation Results

Metric	Value
Total Clearance Time	2 hr 53 mins
Worst Case Single Vehicle	2 hrs 27 mins
Average Single Vehicle	1 hr 20 mins





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In this simulation, 1,860 vehicles depart from Brinnon/Duckabush towards Waypoint A (Skokomish) and Waypoint B (Kitsap Peninsula via the Hood Canal Bridge).

With all vehicles departing from the area within 45 minutes, the simulation results show:

It takes 2 hrs 53 mins for all vehicles to reach safety.

The average travel time for a single vehicle is 1 hr and 20 mins.

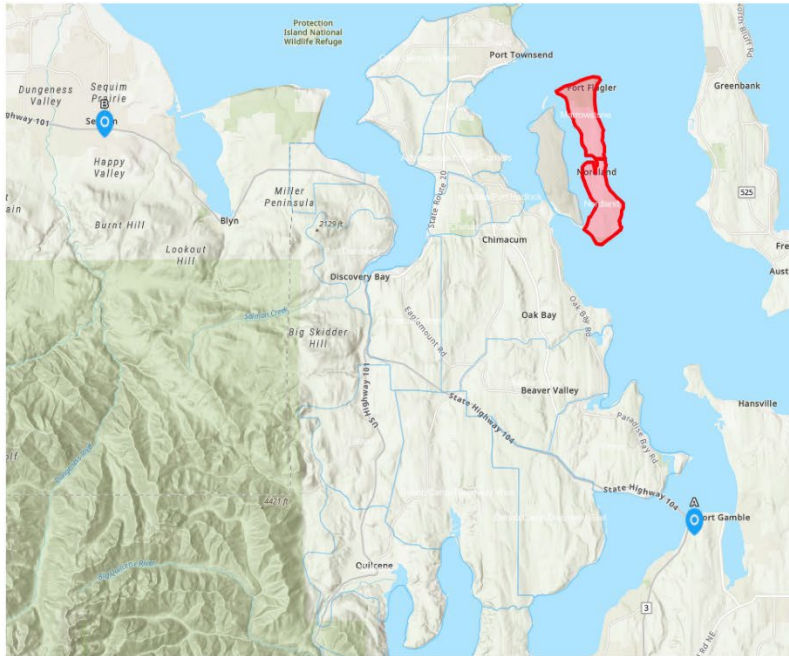
The worst possible trip time for a single vehicle is 2 hrs and 27 mins to reach one of the two designated safety points



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Scenario 3: Marrowstone Island - Input Parameters

Parameter Name	Value
Impact Area	Marrowstone Island (Marrowstone & Nordland)
Waypoints	A - Kitsap Peninsula via Hood Canal Bridge B - Sequim
Vehicle Count	Marrowstone - 408 Nordland - 776
Departure Time Frame	45 mins
Road Blocks	None
Heavy Vehicle %	20%

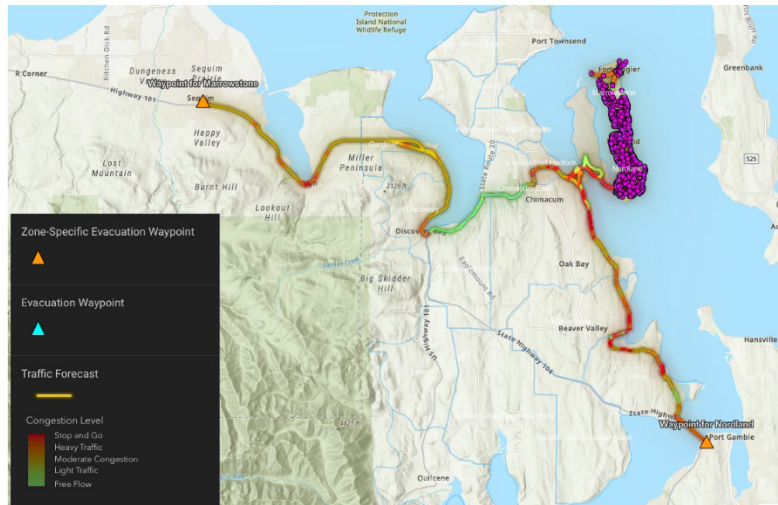




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Scenario 3: Marrowstone Island - Simulation Results

Metric	Value
Total Clearance Time	2 hrs 42 mins
Worst Case Single Vehicle	2 hrs 6 mins
Average Single Vehicle	1 hr 0 mins



In this simulation, 1,184 vehicles depart from Marrowstone Island (Marrowstone and Nordland) towards Waypoint A (Kitsap Peninsula via the Hood Canal Bridge) and Waypoint B (Sequim).

With all vehicles departing from the area within 45 minutes, the simulation results show:

It takes 2 hrs 42 mins for all vehicles to reach safety.

The average travel time for a single vehicle is 1 hr and 1 min.

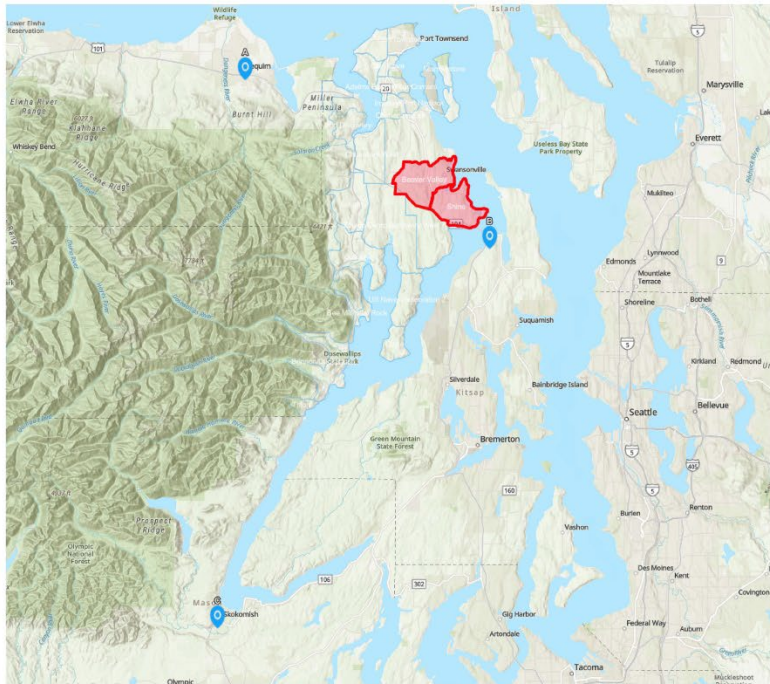
The worst possible trip time for a single vehicle is 2 hrs and 6 mins to reach one of the two designated safety points



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Scenario 4: Beaver Valley & Shine - Input Parameters

Parameter Name	Value
Impact Area	Beaver Valley & Shine
Waypoints	A - Kitsap Peninsula via Hood Canal Bridge B - Sequim C - Skokomish
Vehicle Count	Beaver Valley - 2152 Shine - 2756
Departure Time Frame	45 minutes
Road Blocks	None
Heavy Vehicle %	20%

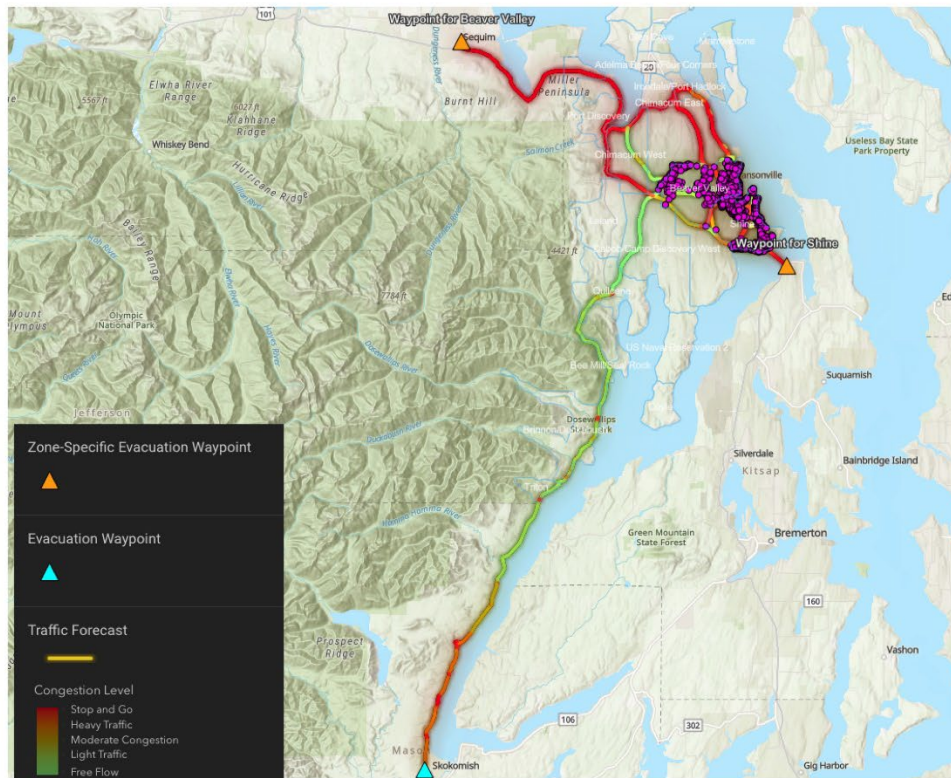




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Scenario 4: Beaver Valley & Shine - Simulation Results

Metric	Value
Total Clearance Time	4 hrs and 9 mins
Worst Case Single Vehicle	4 hrs and 8 mins
Average Single Vehicle	1 hr and 34 mins





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In this simulation, 4,908 vehicles depart from Beaver Valley and Shine toward Waypoint A (Sequim), Waypoint B (Kitsap Peninsula via the Hood Canal Bridge), and Waypoint C (Skokomish).

With all vehicles departing from the area within 15 minutes, the simulation results show..

It takes 4 hrs and 9 mins for all vehicles to reach safety.

The average travel time for a single vehicle is 1 hr and 34 mins.

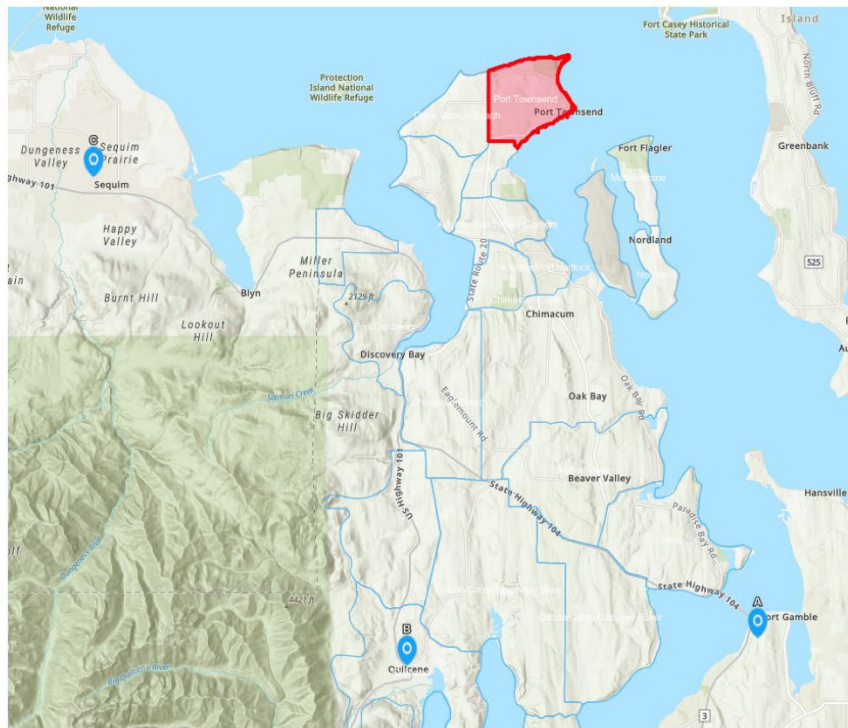
The worst possible trip time for a single vehicle is 4 hrs and 8 mins to reach one of the three designated safety points



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Scenario 5: Port Townsend - Input Parameters

Parameter Name	Value
Impact Area	Port Townsend
Waypoints	A - Kitsap Peninsula via Hood Canal Bridge B - Quilcene C - Sequim
Vehicle Count	Port Townsend - 9675
Departure Time Frame	45 mins
Road Blocks	None
Heavy Vehicle %	20%

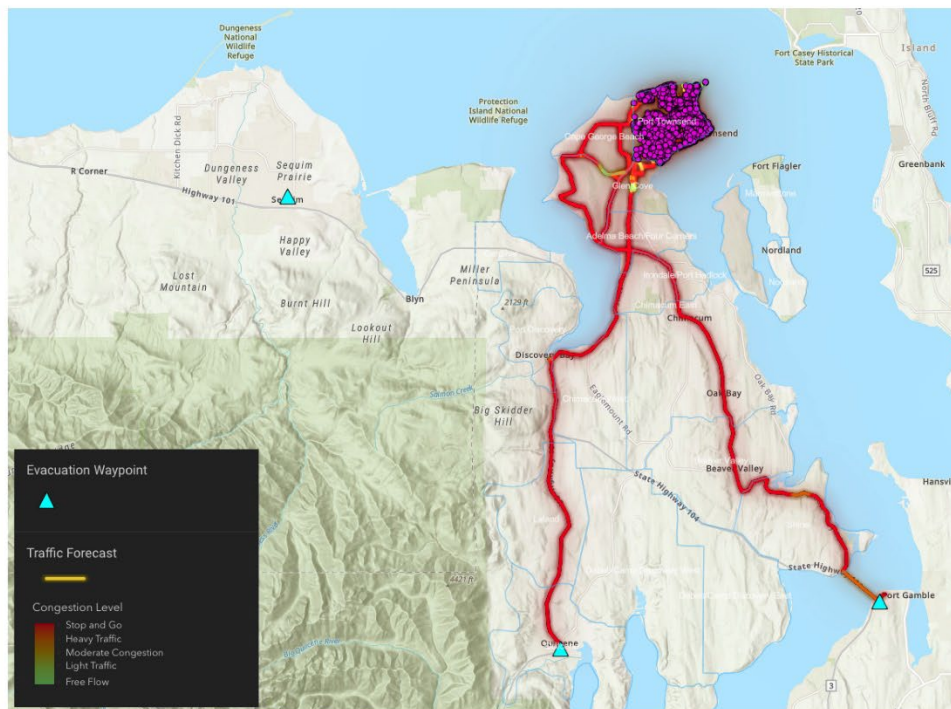




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Scenario 5: Port Townsend / Glen Cove - Simulation Results

Metric	Value
Total Clearance Time	9 hrs 7 mins
Worst Case Single Vehicle	9 hrs 0 min
Average Single Vehicle	6 hrs 57 mins





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In this simulation, 9,675 vehicles depart from Port Townsend toward Waypoint A (Kitsap Peninsula via the Hood Canal Bridge) and Waypoint B (Quilence). The simulated drivers determine the distance to Sequim is too far to be a viable route.

With all vehicles departing from Port Townsend within 45 minutes, the simulation results show:

It takes 9 hrs and 7 mins for all vehicles to reach safety.

The average travel time for a single vehicle is 6 hrs 57 mins.

The worst possible trip time for a single vehicle is 9 hrs and 0 mins to reach one of the two designated safety points.



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Summary of All Scenarios

Figure A provides an overview and comparison of the simulated scenarios.

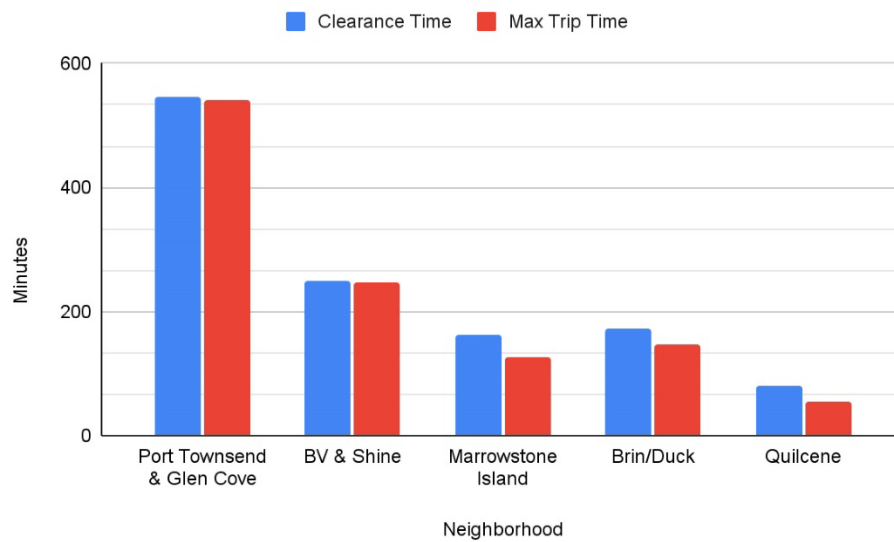


Figure A: Evacuations by Region in Woodside

Full Scenario Summary

Neighborhood	Max Trip Time	Clearance Time	Vehicles
Port Townsend	540	547	9675
Beaver Valley & Shine	248	249	4908
Marrowstone Island	126	162	1184
Brinnon/Duckabush	147	173	1860
Quilcene	56	80	1368



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Limitations

Modeling Limitations

While the Ladriss Software uses scientifically backed modeling techniques for traffic simulation and evacuation behavior, there are a variety of factors for which the model cannot account for. These factors include car crashes, highly erratic behavior by evacuees, and more.

Scenario Limitations

While the scenarios modeled were determined to be high priority by the Ladriss team and local officials, not every potential evacuation scenario was modeled. It is possible that there are many serious scenarios that were not analyzed in this study.

In particular, this study did not address large scale evacuation scenarios such as the entire region needing to simultaneously evacuate.

General Risk

In general, evacuations are a highly variable event and the results of any mathematical modeling may vary significantly from real world outcomes.

Additionally, this study has not analyzed the potential severity of wildfire conditions or other threats along the roadway in question. Therefore, it is highly possible that the roads presented in this study, despite having the highest levels of evacuation traffic, may not pose the highest risk in a disaster scenario.



APPENDIX K: Evacuation Recommendations

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QUILCENE

Issues: heavy potential congestion in the event of a community-scale evacuation event along the northern and southern extents of Highway 101.

BRINNON/DUCKABUSH

Issues: heavy potential congestion in the event of a community-scale evacuation event along Highway 101 and along the Lilliwaup area.

MARROWSTONE ISLAND

Issues: heavy potential congestion in the event of a community-scale evacuation event along Highway 116 (the only artery into and out of the island).

BEAVER VALLEY AND SHINE

Issues: heavy potential congestion in the event of a community-scale evacuation event along the western extent of Highway 101, Highway 19, and Oak Bay Road.

PORT TOWNSEND AND GLEN COVE

Issues: heavy potential congestion in the event of a community-scale evacuation event along Cook Avenue, South Jacob Miller Road, South Discovery Road, and portions of Highways 19 and 20.

RECOMMENDATIONS

Project Topic	Approach
Policy and planning solutions	• Develop evacuation zones to prioritize specific sections of the community based on fire risk and overall vulnerability. • Implement dynamic traffic management systems that adjust traffic signals, lane directions, and speed limits to optimize traffic flow during evacuations. • Install smart signage along evacuation routes that can display real-time information, including alternate routes, estimated travel times, and evacuation orders. • Build regular mock evacuations into policy and planning. • Conduct thorough reviews after each evacuation to develop after-action reports and identify areas for improvement and incorporate lessons learned into future evacuation planning efforts.
Improve resident response and collaboration	• Encourage residents to prepare evacuation kits in advance, containing essential items (e.g., medication, important documents, and emergency supplies) to facilitate a swift evacuation. • Advocate for residents to develop personalized evacuation plans that include primary and secondary evacuation routes. • Emphasize the importance of having a communication plan in place for family members and friends to stay connected during evacuations. • Provide residents with training programs on basic emergency response, including fire extinguisher use, basic first aid, and evacuation procedures. • Promote early evacuation decisions, emphasizing the importance of leaving early to avoid congestion and potential road closures. • Collaborate with community organizations and agencies to identify and assist vulnerable populations in evacuation planning. • Establish a neighborhood watch program to enhance community collaboration and ensure that everyone is accounted for during evacuations.
Enhanced agency response	• Establish effective communication channels for authorities to provide real-time updates on evacuation routes, shelter locations, and fire conditions. • Ensure the availability of sufficient resources, including emergency personnel and equipment, to manage evacuation procedures efficiently. • Establish sufficient redundancy in staffing across all critical roles to provide seamless coverage in the event of staff turnover or stretched capacity. • Foster collaboration between transportation agencies, law enforcement, and emergency services to coordinate traffic management efforts seamlessly. • Establish communication protocols for sharing real-time traffic data and coordinating traffic control measures across jurisdictions. • Use mock evacuations to identify weaknesses in operations, communications, roles and responsibilities and agency policies. • Conduct thorough post-evacuation assessments to evaluate the effectiveness of agency response efforts. • Analyze response times, resource allocations, and coordination among agencies to identify areas for improvement and implement changes for future evacuations.

Project Topic	Approach
Investigate road improvements and alternative methods	- Invest in road widening projects along key evacuation routes to accommodate increased traffic during emergencies (link to AOC map). - Prioritize sections of roads that traverse wildfire-prone areas or that connect critical evacuation points. - Where feasible, identify and establish alternative evacuation routes to provide options for residents in case primary routes become impassable. - Create fuel breaks along critical roadways to reduce the risk of fires compromising evacuation routes. - Integrate wildfire resilience considerations into road infrastructure planning and design. - Use fire-resistant materials for road construction and consider natural barriers or firebreaks along roadways. - Install clear and visible signage along evacuation routes to guide residents, particularly in rural and remote areas. - Implement routine maintenance programs to address road hazards and ensure the proper functionality of evacuation routes. - Solicit input from local communities on road improvement priorities, considering the unique needs of each area. - Ensure that bridges and culverts along evacuation routes are designed to withstand wildfires and post-fire flooding and debris flows.
Evacuation planning and preparedness	- Conduct regular evacuation drills to familiarize residents with evacuation routes, emergency procedures, and the location of assembly points. - Use the simulated traffic scenarios during drills to test modeling and identify potential congestion points and adjust evacuation plans accordingly. - Aim for at least one drill per year and consider additional drills in high-risk areas. - Include scenarios in drills that specifically address the needs of vulnerable populations, such as the elderly, disabled, or those with limited mobility. - Practice communication protocols during drills, including the use of emergency notification systems, public address systems, and social media. - Coordinate evacuation drills closely with emergency services, including fire departments, law enforcement, and medical responders. - Evaluate response times, resource deployment, and interagency communication during drills. - Conduct evaluations after each drill, seeking feedback from both residents and emergency responders. - Identify areas for improvement and update evacuation plans based on lessons learned during drills. - Encourage active community participation in evacuation drills. - Include schools, nursing homes, and other institutions in drills. - Identify minimum parameters for a location/property to serve as a <u>temporary</u> refuge area (TRA) (i.e. minimum acreage devoid of vegetation or combustible materials, adjacent vegetation type, number of access nodes etc.) and consider integration into evacuation education as appropriate.

Project Topic	Approach
Community education and outreach	• Increase community awareness through educational programs, workshops, newsletters, and outreach events to ensure residents are well-informed and prepared. • Create and distribute evacuation related information through online platforms, mobile apps, printed materials, and physical signage. • Provide detailed printed and physical maps with written instructions that guide residents on evacuation routes. • Provide important education materials in multiple languages (as needed) and ensure that the materials are accessible. • Establish community committees or forums to facilitate ongoing dialogue between residents, local authorities, and emergency planners. • Solicit feedback from residents to gauge the effectiveness of evacuation plans and procedures. • Educate residents about the importance of including animals in their evacuation plans.
Explore technological solutions	• Develop and promote mobile apps specifically designed for wildfire evacuation, providing real-time information on evacuation routes, traffic conditions, and emergency updates. • Utilize drones and aerial surveillance technology to monitor wildfire behavior, assess road conditions, and identify potential obstacles or hazard along evacuation routes. • Integrate real-time drone footage into emergency management systems for enhanced situational awareness. • Enhance emergency alert systems to deliver targeted and timely evacuation orders to residents through multiple communication channels, including text messages, phone calls, and sirens. • Establish satellite communication systems to ensure reliable communication in areas with limited or disrupted traditional communication infrastructure.