THE Ember Alliance

2025

Asotin County, Washington

Community Wildfire Protection Plan

Asotin County
Community Wildfire Protection Plan
2025 Update

PREPARED FOR ASOTIN COUNTY CONSERVATION DISTRICT

1397 PORT DR, CLARKSTON, WA 99403

PREPARED BY THE EMBER ALLIANCE

1631 E LINCOLN AVE, FORT COLLINS, CO 80524

Resolution 25- 01

Resolution of the Commissioners of Asotin County, Washington

A resolution of the Asotin County Board of Commissioners declaring county support and adoption of the Asotin County Community Wildfire Protection Plan.

WHEREAS, The previous Asotin County Community Wildfire Protection Plan was adopted in 2008 and has exceeded it's effective lifespan under the Healthy Forests Restoration Act (2003), and

WHEREAS, The Asotin County Multi-Hazard Mitigation Plan adopted in 2021 incorporates the previous Community Wildfire Protection Plan and identifies updating it as a priority, and

WHEREAS, Asotin County has participated in the development of the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The Asotin County Board of Commissioners supports the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The Asotin County Community Wildfire Protection Plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, the Asotin County Multi-Hazard Mitigation Plan as well as other purposes as deemed appropriate.

Now, THEREFORE, BE IT RESOLVED, that the Asotin County Board of Commissioners does hereby adopt and support and will facilitate implementation of the Asotin County Community Wildfire Protection Plan as deemed appropriate.

Be it FURTHER RESOLVED, that the Asotin County Multi-Hazard Mitigation Plan is amended to incorporate and reference this Community Wildfire Protection Plan where appropriate.

Adopted by Board of Commissioners, Asotin County	Attest:
Charles Whitman, Chairman	Stacey Harman, Clerk of the Board Date:
Chris Seubert, Vice Chair	Approved as to Form:
Brian Shinn, Member	Curt L. Liedkie, WSBA# 30371 Prosecuting Attorney

Resolution 25- 01

Blue Mountain Fire District #1

Resolution of the ***Board of Commissioners***

A resolution of the ***Board of Commissioners*** declaring ***Blue Mountain Fire District #1*** support and adoption of the Asotin County Community Wildfire Protection Plan.

WHEREAS, chapter 19.27 RCW authorizes ***Blue Mountain Fire District #1*** to adopt a Community Wildfire Protection Plan, and

WHEREAS, The previous Asotin County Community Wildfire Protection Plan was adopted in 2008 and has exceeded it's effective lifespan under the Healthy Forests Restoration Act (2003), and

WHEREAS, The Asotin County Multi-Hazard Mitigation Plan adopted in 2021 incorporates the previous Community Wildfire Protection Plan and identifies updating it as a priority, and

WHEREAS, ***Blue Mountain Fire District #1*** has participated in the development of the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The ***Blue Mountain Fire District #1*** supports the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The Asotin County Community Wildfire Protection Plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, the Asotin County Multi-Hazard Mitigation Plan as well as other purposes as deemed appropriate.

Now, THEREFORE, BE IT RESOLVED, that the ***Blue Mountain Fire District #1*** does hereby adopt and support and will facilitate implementation of the Asotin County Community Wildfire Protection Plan as deemed appropriate.

Be it FURTHER RESOLVED, that the Asotin County Multi-Hazard Mitigation Plan is amended to incorporate and reference this Community Wildfire Protection Plan where appropriate.

Approved this 13th day of January, 2025.

Brad Forgey, Chairman

Justin Moss, Commissioner

Mark Appleford, Commissioner

ATTEST:

Susie Appleford, Secretary

RESOLUTION NO. 2025-04

A RESOLUTION OF THE CITY OF CLARKSTON, WASHINGTON, DECLARING SUPPORT AND ADOPTION OF THE ASOTIN COUNTY COMMUNITY WILDFIRE PROTECTION PLAN

WHEREAS, the previous Asotin County Community Wildfire Protection Plan was adopted in 2008 and has exceeded its effective lifespan under the Healthy Forests Restoration Act (2003), and

WHEREAS, The Asotin County Multi-Hazard Mitigation Plan adopted in 2021 incorporates the previous Community Wildfire Protection Plan and identifies updating it as a priority, and

WHEREAS, The City of Clarkston has participated in the development of the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The City Council supports the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The Asotin County Community Wildfire Protection Plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, the Asotin County Multi-Hazard Mitigation Plan as well as other purposes as deemed appropriate.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Clarkston, Washington does hereby adopt and support and will facilitate implementation of the Asotin County Community Wildfire Protection Plan as deemed appropriate.

BE IT FURTHER RESOLVED, that the Asotin County Multi-Hazard Mitigation Plan is amended to incorporate and reference this Community Wildfire Protection Plan where appropriate.

DATED this 27th day of January, 2025.

Monika Lawrence

Monika Lawrence, Mayor

ATTEST:

Rachel Frost

Rachel Frost, City Clerk

Resolution 2025-02

Resolut on of the Asotin County Conservation District

A resolution of the ***Asotin County Conservation District*** declaring ***District*** support and adoption of the Asotin County Community Wildfire Protection Plan.

WHEREAS, The previous Asotin County Community Wildfire Protection Plan was adopted in 2008 and has exceeded it's effective lifespan under the Healthy Forests Restoration Act (2003), and

WHEREAS, The Asotin County Multi-Hazard Mitigation Plan adopted in 2021 incorporates the previous Community Wildfire Protection Plan and identifies updating it as a priority, and

WHEREAS, *Asotin County Conservation District* has participated in the development of the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The ***Asotin County Conservation District*** supports the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The Asotin County Community Wildfire Protection Plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, the Asotin County Multi-Hazard Mitigation Plan as well as other purposes as deemed appropriate.

Now, THEREFORE, BE IT RESOLVED, that the ***Asotin County Conservation District*** does hereby adopt and support and will facilitate implementation of the Asotin County Community Wildfire Protection Plan as deemed appropriate.

Be it FURTHER RESOLVED, that the Asotin County Multi-Hazard Mitigation Plan is amended to incorporate and reference this Community Wildfire Protection Plan where appropriate.

Approved on the 6th day of February 2025.

Board of Supervisors, Chairman

Resolution 2025 -747

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ASOTIN, WASHINGTON, DECLARING CITY SUPPORT AND ADOPTION OF THE ASOTIN COUNTY COMMUNITY WILDFIRE PROTECTION PLAN

WHEREAS, The previous Asotin County Community Wildfire Protection Plan was adopted in 2008 and has exceeded it's effective lifespan under the Healthy Forests Restoration Act (2003), and

WHEREAS, The Asotin County Multi-Hazard Mitigation Plan adopted in 2021 incorporates the previous Community Wildfire Protection Plan and identifies updating it as a priority, and

WHEREAS, The City of Asotin has participated in the development of the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The City of Asotin Council supports the Asotin County Community Wildfire Protection Plan, and

WHEREAS, The Asotin County Community Wildfire Protection Plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, the Asotin County Multi-Hazard Mitigation Plan as well as other purposes as deemed appropriate.

Now, THEREFORE, BE IT RESOLVED, that the City of Asotin Council does hereby adopt and support and will facilitate implementation of the Asotin County Community Wildfire Protection Plan as deemed appropriate.

Be it FURTHER RESOLVED, that the Asotin County Multi-Hazard Mitigation Plan is amended to incorporate and reference this Community Wildfire Protection Plan where appropriate.

Approved this 10th day of February, 2025.

Dwayne Paris, Mayor

Attest:

T Davidson

Tina Davidson, City Clerk/Treasurer

APPROVAL AND SIGNATURES

This Community Wildfire Protection Plan (CWPP) was developed in response to the [Healthy Forest Restoration Act of 2003](). The CWPP is a collaborative effort to guide our wildfire protection. Where possible, we intend to apply the recommended practices to improve our community and increase public safety.

The following individuals and organizations were engaged in developing the Asotin County CWPP and approve the 2025 update:

Name, Title
Fire Protection District

Signature: ______________________________

Date: ______________________________

George Geissler, State Forester
Washington Department of Natural Resources

Signature: ______________________________

Date: ______________________________

Name, Title
Asotin County Department of Emergency Management

Signature: ______________________________

Date: ______________________________

Name, Title
Organization

Signature: ______________________________

Date: ______________________________

ADDITIONAL SIGNATURES

The following individuals and organizations were engaged in developing the Asotin County CWPP and approve the 2025 update:

Name: ______________________________

Title: ______________________________

Organization: ______________________________

Signature: ______________________________

Date: ______________________________

Name: ______________________________

Title: ______________________________

Organization: ______________________________

Signature: ______________________________

Date: ______________________________

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Title: ______________________________ Title: ______________________________

Organization: _________________________ Organization: _________________________

Signature: ____________________________ Signature: ____________________________

Date: ________________________________ Date: ________________________________

Table of Contents

How to use this CWPP Document

This document is designed for everyone that lives, works, and manages land within and around Asotin County. Different sections will be most helpful to different people; please use this guide to direct you to the resources most relevant to you.

I want to learn the basics about wildfire, my community, and CWPPs.	• Section 1.a to learn about CWPPs. • Section 2.f to learn about wildfire threats in Asotin County. • Appendix A for an introduction to fire behavior.
I want to learn about protecting my home and family.	• Section 3.a to learn about the actions you can take, including detailed recommendations and research-backed guidance for protecting your home and family. • Section 3.b to find detailed hazard ratings and recommendations for your neighborhood.
I want to learn about community-led action.	• Sections 3.a, 3.b, and 4.c to learn about the actions communities can take together to better protect everyone, including funding opportunities. • Section 5.b to find all specific recommended actions for the community.
I want to learn about landscape-scale wildfire mitigation.	• Section 2.e, 2.f, and 2.g to learn about fire history and treatment history in the area. • Section 4.b. to learn about priority fuel treatment projects for this community. • Sections 4.b, 4.c, and 4.e for general recommendations for stand-level and roadside fuel treatments.
I want to learn about the science behind these recommendations.	• Appendix B to learn about modelling methodology for fire behavior and evacuation modeling, on-the-ground hazard assessments, and treatment prioritization. • Appendix C for survey methology and results. • Section 7 to see all referenced research and information.

Acronyms

ACCD	Asotin County Conservation District
ACFD1	Asotin County Fire District #1
BLM	Bureau of Land Management
BMFD1	Blue Mountain Fire District 1
CWPP	Community Wildfire Protection Plan
DEM	Department of Emergency Management
FAC	Fire Adapted Community
FEMA	Federal Emergency Management Agency
FD	Fire District
FPD	Fire Protection District
GUI	Grassland Urban Interface
HIZ	Home Ignition Zone
HOA	Homeowner's Association
IIBHS	Insurance Institute for Business & Home Safety
IRPG	Incident Response Pocket Guide
NFPA	National Fire Protection Association
NRCS	Natural Resources Conservation Service
NWCG	National Wildfire Coordinating Group
PNW	Pacific Northwest
POD	Potential Operational Delineation
QWRA	Quantitative Wildfire Risk Assessment
TEA	The Ember Alliance
USFS	U.S. Forest Service
WA DNR	Washington Department of Natural Resources
WDFW	Washington Department of Fish and Wildlife
WRCD	Washington Resource Conservation and Development Council
WSDOT	Washington Department of Transportation
WSP	Washington State Parks
WUI	Wildland-Urban Interface

Refer to the **Glossary** for definitions of the words and phrases used throughout this document.

1. Introduction

1.a. Purpose and Need for a CWPP

Community Wildfire Protection Plans (CWPPs) help communities assess local hazards and identify strategic investments to mitigate risk and promote preparedness (**Figure 1.a.1**). Assessments and discussions during the planning process assist fire protection districts with fire operations in the event of wildfire and help residents and communities prioritize mitigation actions. These plans also assist with funding gaps for fuel mitigation projects since many grants require an approved CWPP.

> *"Development of county-scale CWPPs is important to help Washington State communities be more resilient to wildfire… These protection plans are based on the needs of the people in the community and can address issues such as wildfire response, hazard mitigation, community preparedness, structure protection or all of the above." – Washington State Department of Natural Resources*

Located in the Southeastern corner of Washington State, Asotin County covers an area of 641 square miles and is bordered by Garfield and Whitman Counties to the West and North, and Oregon and Idaho to the South and East. The Snake River runs along the North and East edge of Asotin County, providing a major waterway for the region as well as recreation and transportation.

***Figure 1.a.1**. Elements of a holistic and actionable CWPP.*

The landscape of Asotin County is very diverse, including arid-agricultural lands, grasslands, shrub-steppe, rolling prairies, and sloping evergreen forests. Situated between the Cascade Mountain Range to the west and the Rocky Mountains to the east, Asotin County is protected from damp coastal weather and harsh winters. This area is the ancestral land of the Nimiipuu (Nez Perce), and Cayuse, Umatilla and Walla Walla Nations and the Confederated Tribes of the Colville Reservation.

The 2025 CWPP update prepared for Asotin County Conservation District (ACCD) is a robust update to the 2008 CWPP that takes advantage of recent advances in fire science and addresses changes to fire risk, home construction, and other characteristics of the community. The CWPP includes a wildfire risk analysis, prioritization of mitigation activities, and implementation recommendations. For the purpose of this CWPP, Asotin County was divided into 19 zones for comparing relative risk across the County and making specific recommendations to address wildfire risk and increase emergency preparedness (**Figure 1.a.2**).

This document is a tool for Asotin County residents, communities, land managers, business owners, agency personnel, and hazard mitigation managers to prioritize projects that will build a safer and more resilient community in a wildfire-prone ecosystem.

The objectives of this Community Wildfire Protection Plan Document are to:

- Engage community members during the CWPP process to ensure local needs and concerns are addressed.
- Define and designate Wildland Urban Interface (WUI) in a way that is useful to the county and its residents.

- Produce an actionable CWPP based on robust analyses of fuel hazards, burn probability, evacuation routes, post-fire erosion, and community values across the County.

- Clarify and publicize notification infrastructure and evacuation routes.

- Provide information on individual and community wildfire risk, actions that can be taken to reduce it, and available services and programs.

- Set the stage for planning and implementation by residents, local organizations, and agency partners to mitigate hazards and promote community preparedness (see **Implementation Recommendations** for a comprehensive list).

Complex interactions among wildland fuels, weather, and topography determine how wildfires behave and spread. Many aspects of wildfires are predictable based on known scientific research on the physical processes driving fire. Much of the work in this CWPP is based on scientific research and computer models of wildfire behavior. A basic understanding of fire behavior aids in interpreting the findings and recommendations reported herein. **See Appendix A. Introduction to Wildfire Behavior and Terminology** and the **Glossary** for key terms.

Photo credit: Asotin County Conservation District.

Why is the CWPP relevant to me?

Becoming a fire adapted community that can safely coexist with wildland fire takes a concerted, ongoing effort by everyone who lives, owns property, protects, or manages land in and around this community. This CWPP provides recommendations for how to prepare your family to safely evacuate during a wildfire, how to mitigate your home ignition zone to give your house a chance to stand strong during wildfires, and how to protect firefighters engaged in protecting your community.

Even if you do not have a permanent home on your property, you can take steps to protect your assets, including the value of your property; areas that are heavily burned have less aesthetic and monetary value. More importantly, the work you do to reduce fire risk on your property can amplify the work that your neighbors do on theirs, resulting in greater risk reduction for everyone. Removing trees from along roadways can increase the visibility of your property to firefighters, increase the accessibility of your property for fire engines, and reduce the chance that non-survivable conditions can develop and entrap residents and first responders during wildfires.

This CWPP is a *call to action* to do your part to continue making Asotin County a beautiful and safe community. Emergency Management and conservation partners are here to support your individual efforts, and they are committed to taking action to reduce wildfire risk and increase emergency preparedness for the benefit of this amazing community.

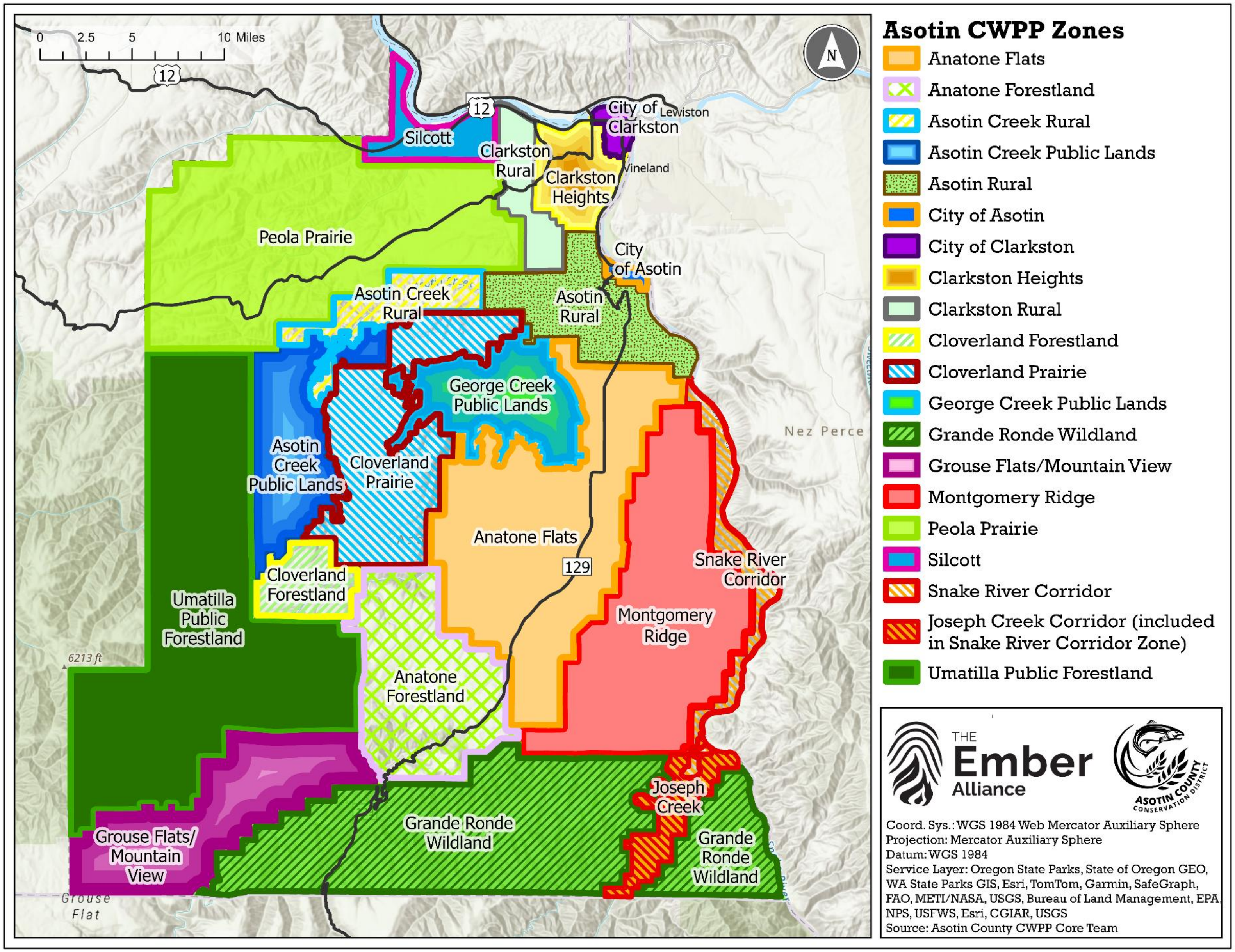


Figure 1.a.2. *Asotin County was divided into 19 separate hazard zones for the CWPP to compare relative risk and make specific recommendations to address wildfire risk and increase emergency preparedness. Source: Asotin County CWPP Core Team.*

1.b. Community and Partner Engagement

Collaboration is an essential part of CWPPs. Community engagement, partner commitment, and follow-through are what make a CWPP successful and effective. The Ember Alliance (TEA), a Colorado nonprofit dedicated to fire management and community engagement, was contracted to lead a team of local experts and write the Asotin County CWPP 2025 Update document. TEA and representatives from ACCD engaged local partners and agency personnel from across the landscape to develop the recommendations set forth in this CWPP. The team incorporated lessons learned from the recent challenging wildfire seasons in Washington and across the United States, and considered valuable insights shared by community members and other partners.

Recommendations in this CWPP also consider overlapping and related plans and prioritization. These include:

- 2008 Asotin County Community Wildfire Protection Plan
- 2021 Asotin County Multi-Hazard Mitigation Plan
- 2018 Asotin County Watershed Assessment
- 2021 Lower Grande Ronde Basin Geomorphic Assessment
- 2017 Washington Department of Natural Resource's 20-Year Forest Health Strategic Plan
- 2019 Washington State Wildland Fire Protection 10-Year Strategic Plan
- 2019 Washington Division of Fish & Wildlife's Blue Mountains Wildlife Area Management Plan
- 2018 Umatilla National Forest Land Management Plan
- 2024 Clearwater Power Wildfire Mitigation Plan
- 2024 WA DNR Forest Health Assessment Treatment Framework (RCW 76.06.200)

This project was made possible through support provided by the U.S. Department of Interior (DOI) Bureau of Land Management (BLM) to Washington Resource Conservation and Development Council (WRCD), under the terms of Agreement # L21AC10142. The content and opinions expressed herein are those of the author(s) and do not necessarily reflect the position or the policy of the DOI-BLM or the WRCD and no official endorsement should be inferred.

The "Asotin County Community Wildfire Protection Plan 2025 Update" is supported with funding from Washington's Climate Commitment Act (CCA).

TEA and ACCD would like to thank the following partners for their time and effort in developing content, providing data, providing feedback, and planning implementation projects for this CWPP:

- Asotin County Commissioners and County Departments
- Asotin County Conservation District (ACCD)
- Asotin County Fire District #1 (ACFD1)
- City of Asotin
- City of Clarkston
- City of Asotin Fire Department

- City of Clarkston Fire Department
- Bureau of Land Management (BLM) Oregon/Washington
- Blue Mountain Fire District 1 (BMFD1)
- Natural Resources Conservation Service (NRCS)
- U.S. Forest Service (USFS)
- Washington State Department of Natural Resources (WA DNR)
- Washington State Parks (WSP)
- Washington Department of Fish and Wildlife (WDFW)
- Washington Resource Conservation and Development Council (WRCD)
- Utility Companies: Avista Utilities, Clearwater Power Company

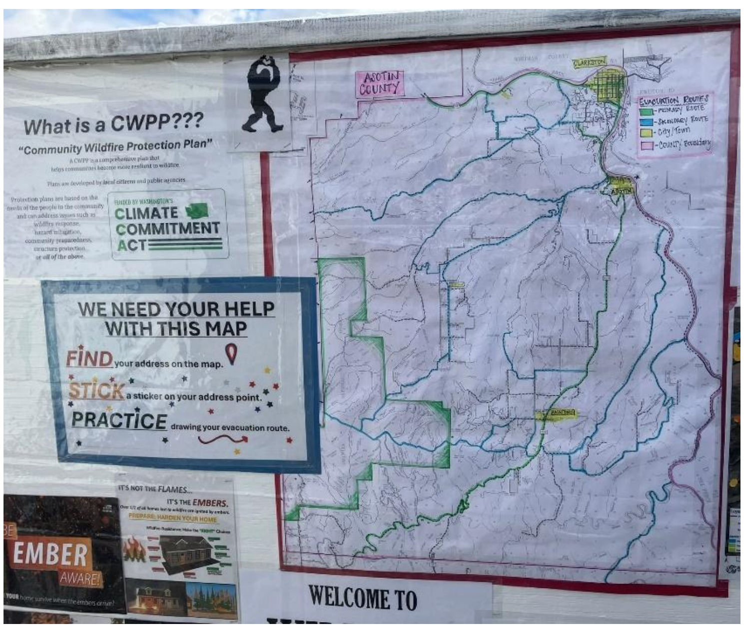
Special thanks to the Asotin County CWPP Core Team:

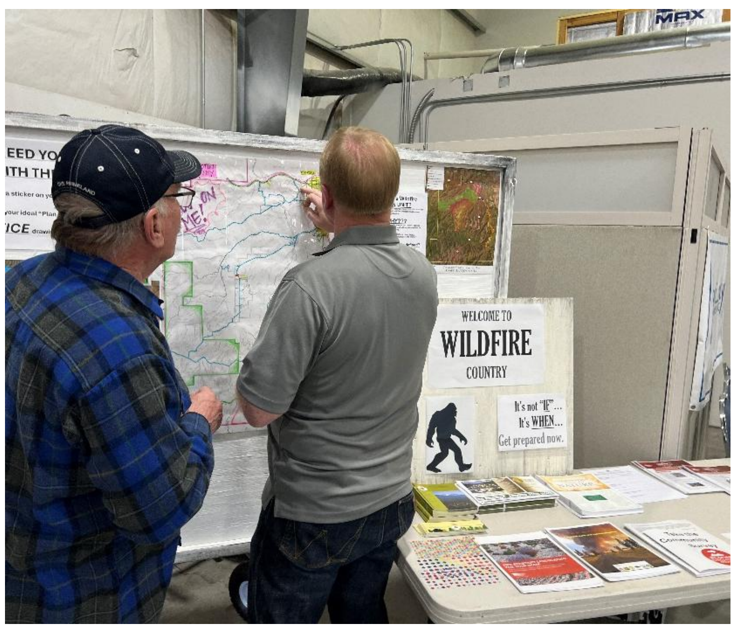
Name	Organization	Title
Alison Martin	WA DNR	Forest Resilience Coordinator
Andrew Naughton	WA DNR	Blue Mountain Unit Service Forester
Austin Summers	WA DNR	Assistant Fire Unit Manager
Bob Bell		Private Citizen
Brad Forgey	BMFD1	Fire Commissioner
Charlie Landsman	WA DNR	Community Resilience Coordinator
Jennifer Zipse	ACCD	District Assistant & Outreach Coordinator
Jason Hoerner	WA DNR	Blue Mountain Fire Management Officer
Joseph Sciarrino	USFS	North Zone Fuels Specialist
Karst Riggers	Asotin County	Asotin County Fire Marshall
Lacy Ausman-Ditto	ACCD	Forestry Program Coordinator
Noel Hardin	ACFD1	Fire Chief
Nick Bacon	Asotin County	Asotin County Department of Emergency Management (DEM) Director
Sophia Fox	WRCD	Natural Hazards Planner
Tara Mackleit	USFS	Fire Management Officer
Tom Schoenfelder	WA DNR	Wildfire and Forest Health District Manager

The CWPP Core Team conducted community and partner engagement to gain a better understanding of the community's current knowledge of wildfires, assess their concerns and needs, and learn about ongoing mitigation work. Engagement began in Spring of 2024 and included:

- Conducting a Community Kickoff at the ACCD booth at the Asotin County Fair on April 26-28, 2024, to introduce the community to the CWPP process and begin collecting input for inclusion in the CWPP. Over 8,000 people attended the fair.
- Creating and distributing a Community Wildfire Preparedness Survey to gather the opinions of residents. 123 people responded and provided vital information on the concerns of living in a wildfire prone environment. This information was used to guide the prioritization of mitigation projects across the county.
- Participating in public outreach throughout the spring and summer of 2024 at 4th of July fireworks stands, farmer's markets, and town hall meetings.
- Facilitating meetings with partners to gather feedback on relevant sections of the CWPP and set the stage for future collaboration.
- Leading a Final Community Meeting at ACFD1 in December 2024 to share findings and recommendations from the CWPP process.

Community engagement was a fundamental aspect of this CWPP. Thank you for helping us create a locally relevant and actional CWPP to meet your needs! Photos are from a booth hosted by ACCD and TEA at the Asotin County Fair in April 2024 to share information about the CWPP and measures to reduce wildfire risk in the home ignition zone. (Photo credit: Asotin County Conservation District).





1.c. Accomplishments Since the 2008 Asotin County CWPP

Since 2008, Asotin County and its partner organizations have made great strides to reduce the risk of wildfire in the community.

Fire Districts

- Asotin County Fire District #1 (ACFD1)
  - New fire station completed.
  - Created youth and adult wildfire education programs utilizing public education campaigns, youth education campaigns, and annual outreach to local elementary schools.
- Blue Mountain Fire District #1 (BMFD1)
  - Blue Mountain Fire District formed.
  - New building completed in the summer of 2024.
- City of Asotin Fire Department
  - Acquired a new brush truck and command vehicle.
- City of Clarkston Fire Department
  - Increased Department capabilities.
  - Received a grant for a new Type 6 Wildland Fire Fighting Vehicle.

Government Agencies

- Asotin County
  - Installed burn-ban signs at the entrance to and exit from Asotin, along the Snake River.
  - Installed fire danger level signs at entry points of USFS lands.
  - Developed communication interoperability plan between firefighting agencies and landowners.
  - Improved annual fuels mitigation activities along roadsides throughout the county.
  - Enhanced radio availability in each district, linked radios to existing dispatch, improved radio range, and converted to consistent standard of radio types.
  - Improved safety equipment and personal protective equipment for all fire districts in Asotin County with ongoing inventory of gear and supplies held by fire districts.
  - Supported the ongoing maintenance and enhancement of state and federal firefighting programs and resources across the county.
  - Established a reverse 911 system.
- Asotin County Building and Planning Department
  - Implemented county-wide policy requiring management of vegetation on empty or open lots and pastures.
- Asotin County Commissioners
  - Enacted burning periods and county-wide burn bans.
  - Continued free wood disposal program at the landfill.
  - Incorporated the 2008 CWPP into the 2021 Asotin County Multi-Hazard Mitigation Plan.
  - Included the 2008 CWPP in comprehensive emergency management planning.
  - Implemented fireworks bans.
  - Enforced International Building Codes and International Fire Codes county-wide to address substandard construction practices and access issues outside the incorporated city limits.

- Developed county policy to encourage land management agencies to implement a fuels reduction program at recreational or high-use areas and trailheads.
- Established a Fire Marshall position.

- Asotin County Conservation District (ACCD)
  - Facilitated youth and adult wildfire education programs and engaged in community outreach for wildfire mitigation.
  - Expanded forestry and wildfire mitigation programs for private landowners using State and Federal grants.
  - Administered Firewise USA® grants across the county.
  - Provided free Home Ignition Zone (HIZ) assessments to residents of Asotin County.
  - Provided forestry technical assistance to Asotin County residents and assisted with wildfire mitigation treatments, wildfire fuel breaks, and forest health enhancements.
  - Implemented noxious weed treatments on rangeland.
  - Administered post-wildfire mitigation activities after the 2021 Lick Creek Fire including rangeland fencing restoration, noxious weed control, rangeland seeding, erosion control and technical support.
  - Implemented riparian restoration projects to enhance watershed health, protect water quality, and increase resilience to wildfire events.
- Washington Department of Natural Resources (WA DNR)
  - Provided free forest health assessments and HIZ assessments to Asotin County residents.
  - Improved communications with new communication towers in Umatilla National Forest and a new fire-detection tower on Rattlesnake Grade.
  - Completed fuels reduction and forest health treatments in and around at-risk communities.
  - Bolstered cost-share financial assistance available to small forest landowners to perform forest health and fuels reduction treatments.
  - Facilitated youth and adult wildfire education programs.
- Washington Department of Transportation (WSDOT)
  - Conducted annual fuels mitigation improvements along roadsides throughout the County.
  - Completed fuels mitigation activities on the primary access routes in the County to ensure routes are maintained in case of an emergency.
- Natural Resources Conservation Service (NRCS)
  - Expanded forestry and rangeland conservation programs to serve commercial and non-commercial landowners in Asotin County.
  - Provided forestry technical assistance to Asotin County Residents and assisted with wildfire mitigation treatments, wildfire fuel breaks, and forest health enhancements.
  - Administered post-fire mitigation activities after the 2021 Lick Creek Fire including rangeland fencing restoration, noxious weed control, erosion control, and technical support.

Conservation easement projects for riparian areas are carried out by local partners. Creating artificial beaver dams known as Post-Assisted Log-Structures (PALS) can help retain water in the stream longer, and increase the moisture content of vegetation along streams, potentially reducing the intensity and damage sustained during wildfires. PALS can also be installed post-wildfire in watersheds with a high risk of soil erosion post-fire. Sediment Trap PALS were installed in 2022 in response to the Lick Creek fire and successfully captured fine sediments that would have otherwise impacted water quality in critical salmonid habitat downstream. Photo credit: Asotin County Conservation District.

2. Asotin County: Background

2.a. General Description

Asotin County is home to 22,500 residents. Approximately 23.8% of residents are over the age of 65, and 20% are under 18. 16.1% of residents live below the poverty line, 18.5% qualify as having a disability, and 72.2% own their home. (U.S. Census Bureau 2022). The Census Bureau estimates Asotin County's median household income is between $57,679 and $69,769. To qualify in as "low income" in Washington, the estimate must be less than $71,914 and, at a County level, Asotin County meets this criterion. Asotin County is also identified as "disadvantaged" by the Climate and Economic Justice Screening Tool (Council in Environmental Quality 2022).

The City of Asotin and City of Clarkston Fire Departments cover the area within the Lewiston-Clarkston Metropolitan area within Asotin County. The unincorporated region surrounding the metropolitan area is covered by Asotin County Fire District #1 (ACFD1). The Blue Mountain Fire District #1 (BMFD1), Washington Department of Natural Resources (WA DNR) and U.S. Forest Service (USFS) provide some coverage of the remainder of the County for wildland response only (Error! Reference source not found.). A major concern is that about 15% of the county is not c overed by an agency responsible for initial wildfire response. This CWPP recommends that residents in these areas work together to form their own fire protection district or annex into an existing one.

Most of the population is concentrated in the Northeastern corner of the County, in and around the cities of Asotin Clarkston, with large agriculture parcels and forestland dominating the rest of the County. As of 2020, 67% of the land in Asotin County was privately owned, followed by 14% owned by Washington Department of Fish and Wildlife (WDFW) and 13% owned by the USFS (**Figure 2.a.2**).

There are numerous non-residential highly valued resources within Asotin County, including Walla Walla Community College, ten K-12 public and private schools, four fire stations, three post offices, critical government services (e.g., county courthouse, city hall, prison/correctional facility), utility infrastructure, and over twenty communication towers (**Figure 2.a.3**). There are many campgrounds, trailheads, and picnic areas, including Asotin Creek Wildlife Area, Swallows Park, Fields Spring State Park, and Hells Canyon National Recreation Area, which draw thousands of visitors to the area. Fields Spring State Park is notably important because of its economic benefit to the county from year-round recreation and the critical communication tower and fire lookout site on the property.

Asotin County is part of the Palouse of the Columbia Basin, characterized by fertile rolling hills and prairies with many perennial grasses. The climate and ecosystem lend itself to three main industries that have flourished in the area since the late 1800s: timber production, dryland farming, and cattle-ranching.

The Eastern portion of Asotin County consists of riparian areas bordering the Snake River Corridor, shrub-steppe ecosystems, and agricultural lands primarily producing wheat, barley, and hay (**Figure 2.a.4**; **Table 2.a.1**). Forested lands fall mostly within the Umatilla National Forest in the Southwest portion of the County. Forests include variable mixes of Douglas fir, Ponderosa pine, Lodgepole pine, Engelmann spruce, Subalpine fir, Grand fir, Western larch, and Aspen. Many parts of the County have steep slopes, narrow valleys, and inaccessible terrain, particularly along the Snake River and on the Umatilla National Forest.

Table 2.a.1. *Perennial grasslands are the predominant vegetation type in Asotin County, followed in almost equal parts by forests, shrublands, and agricultural fields. Source: LANDFIRE.gov, data from 2022.*

Vegetation type/land cover	Percent of Asotin County land area
Perennial grasslands	35%
Forests	20%
Shrublands	19%
Agricultural fields	18%
Non-vegetated or sparsely vegetated	4%
Developed	3%
Riparian vegetation	1%

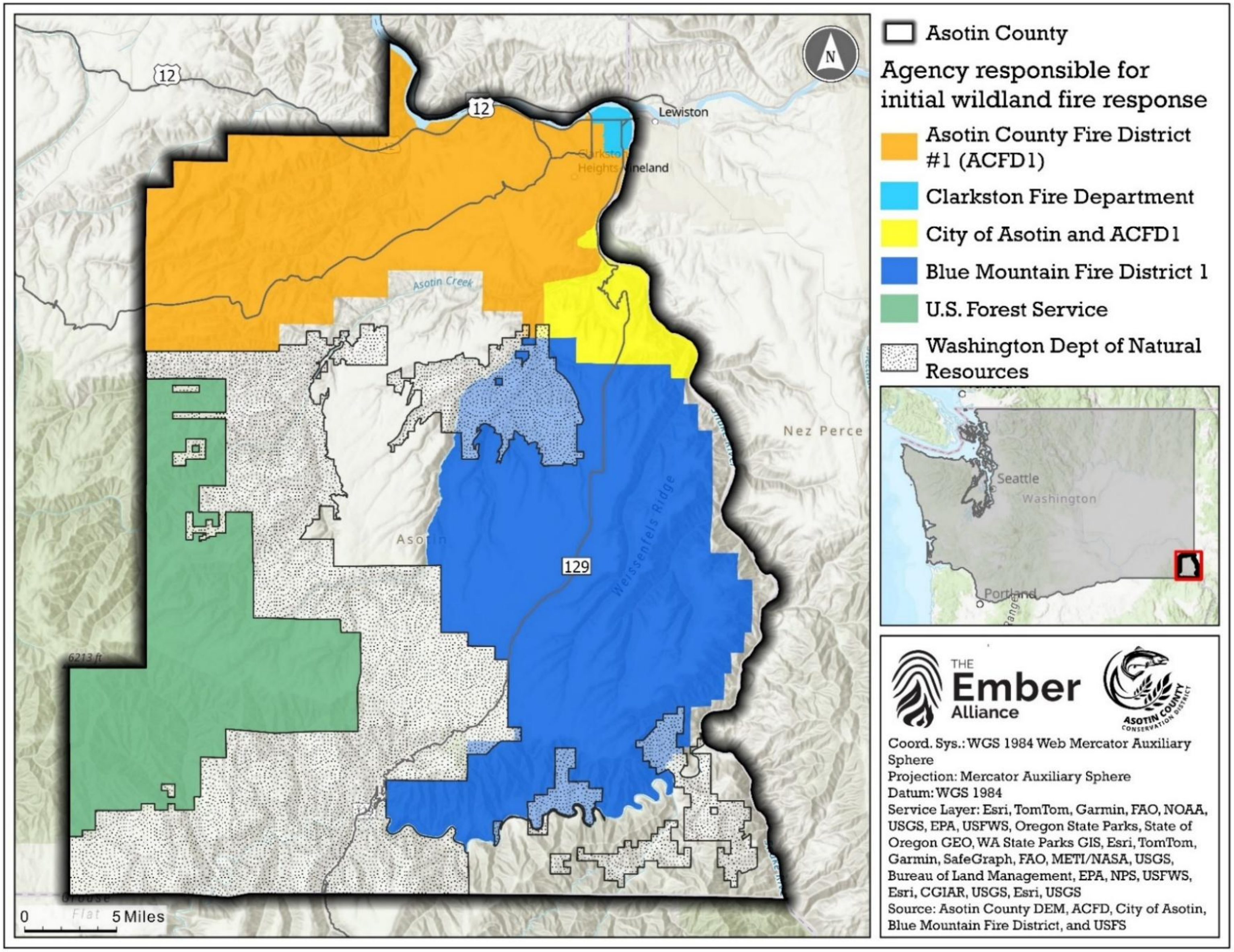


Figure 2.a.1. *Response areas for different fire protection departments in Asotin County. About 15% of the county is not covered by an agency responsible for initial wildfire response. Sources: Asotin County Department of Emergency Management, Asotin County Fire District #1, City of Asotin, Blue Mountain Fire District 1, and U.S. Forest Service.*

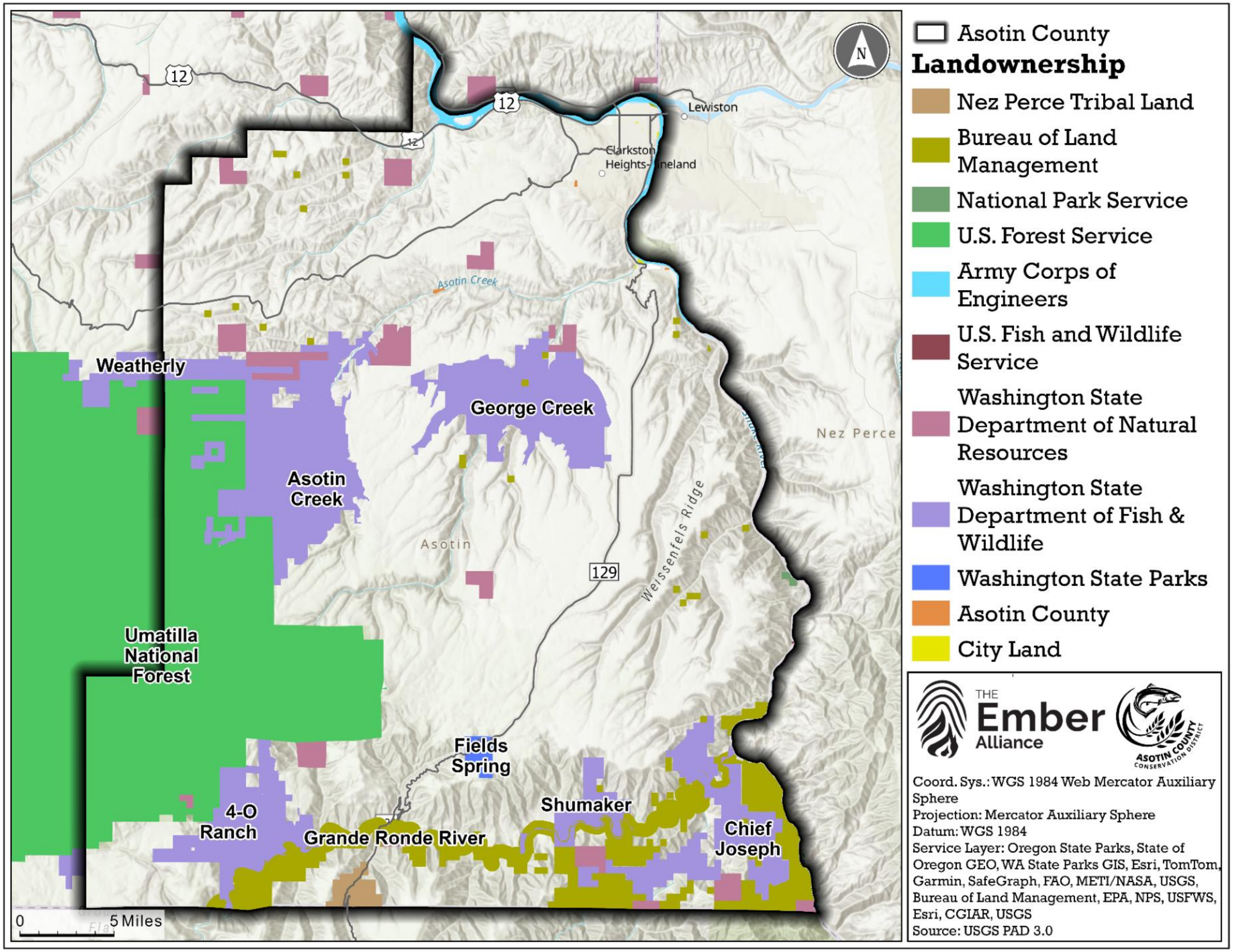


Figure 2.a.2. *Publicly owned land across Asotin County. Source: U.S. Geological Survey, Protected Areas Database of the United States.*

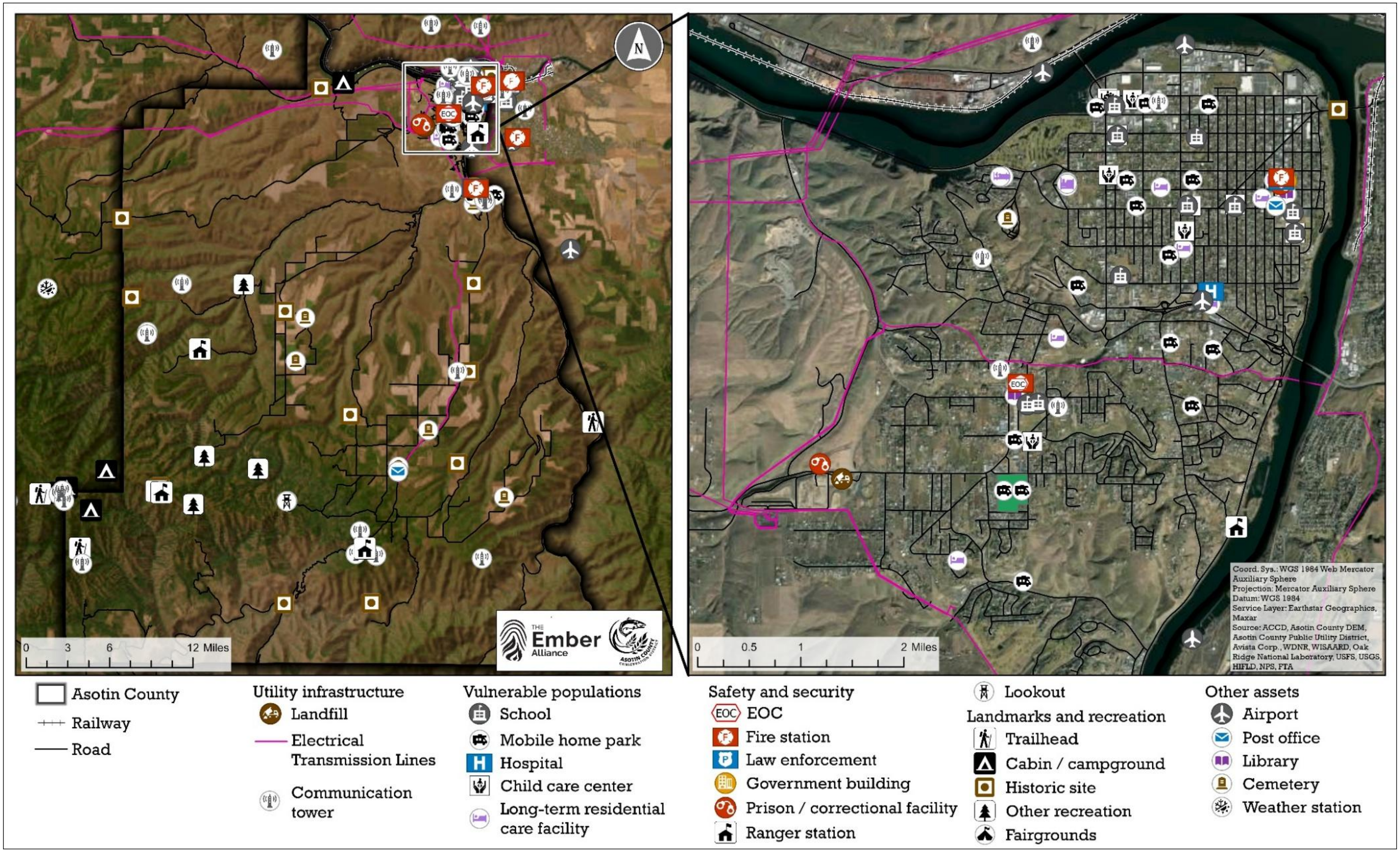


Figure 2.a.3. *Non-residential highly valued resources and assets in Asotin County. Sources: Asotin County Conservation District, Asotin County Department of Emergency Management, Asotin County Public Utility District, Washington Department of Natural Resources, Washington Information System for Architectural and Archeological Records Data, Oak Ridge National Laboratory, Homeland Infrastructure Foundation-Level Data, Federal Transit Administration, National Park Service, U.S. Forest Service, and U.S. Geological Survey.*

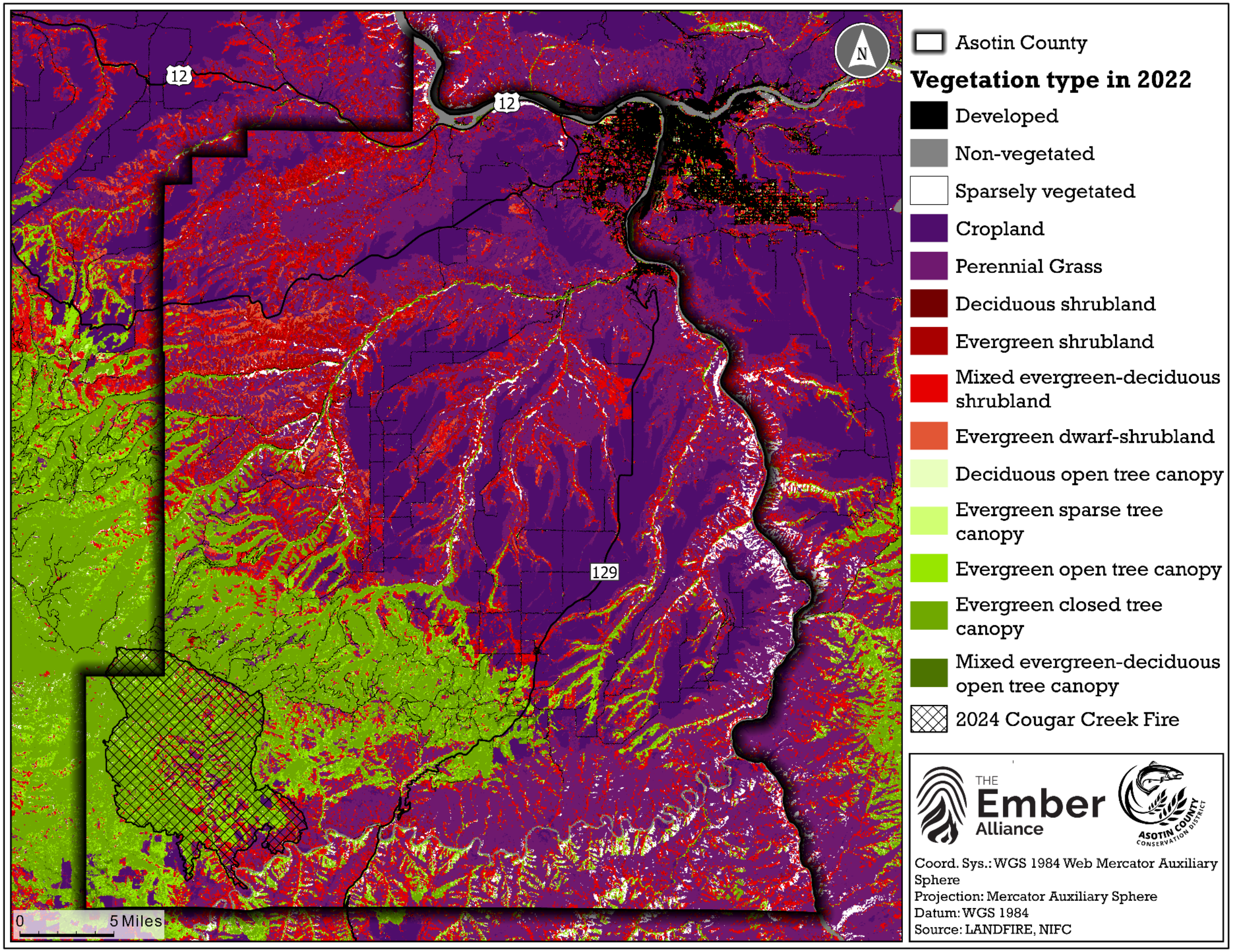


Figure 2.a.4. *Vegetation types across Asotin County circa 2022. The boundary of the 2024 Cougar Creek Fire is shown because vegetation changes in the burned area are not reflected by the data. Source: LANDFIRE.gov.*

2.*b.* District Capacity

Local engines at the 2024 Asotin County Fair. Photo credit: The Ember Alliance.

The City of Clarkston Fire Department has one fire station, a Fire Chief, thirteen paid full-time employees and one volunteer. This department responds to structure and wildland fire with two Type 1 structure engines and one Type 5 wildland engine.

The City of Asotin Fire Department has one fire station, a Fire Chief, no paid full-time employees and twelve volunteers. This department responds to structure and wildland fire with two structure engines, one Type 5 wildland engine, and one Type 6 wildland engine.

Asotin County Fire District #1 (ACFD1) has one fire station, a Fire Chief, two paid full-time employees and forty-five volunteers. This department responds to structure and wildland fire with two Type 1 structure engines, two Type 5 wildland engines, and three Type 6 wildland engines. Additionally, they are equipped with two tankers and two wildland ATVs.

The Blue Mountain Fire District 1 (BMFD1) has one fire station, a Fire Chief, no paid full-time employees and forty-two volunteers. The engines and equipment are staged at strategic locations across the Fire District during the fire season. This department responds to wildland fires only with one Type 4 engine and four Type 6 wildland engines. Additionally, they are equipped with two tankers, one dozer, and a mobile command trailer.

Firefighters with Asotin County Fire District #1 responding to the Blankenship Fire in a canyon just west of Silcott Road on August 24, 2022. Photo credit: Asotin County Fire District #1.

2.c. Wildland-Urban Interface

Every year, wildfires result in billions of dollars in fire suppression costs and destroy thousands of homes across the United States (Bayham et al., 2022; Higuera et al., 2023). Some of the most destructive, deadly, and expensive wildfires occurred in the past several years, partly due to construction of additional homes in the wildland-urban interface (WUI). Wildfire risk in the WUI is further exacerbated by severe fire weather perpetuated by climate change (Caton et al., 2016). Some examples include the 2024 Cougar Creek Fire, the 2021 Lick Creek Fire, the 2021 Silcott Fire, and the 2015 Gilmore Gulch Fire. See **Appendix A** for a discussion about how wildfire can threaten and destroy homes.

The WUI is any area where the built environment meets wildfire-prone areas—places where wildland fire can move between natural vegetation and the built environment and result in negative impacts on the community (Johnston, 2018). The built environment includes homes, businesses, infrastructure, services such as utilities, roadways, and geographic features that aid in wildfire suppression, such as roads or ridgetops (*Healthy Forest Restoration Act*, 2003). People that live and work in the WUI must be aware of the effect that wildland fires have on their lives.

According to the 2020 Wildfire Risk to Communities analysis by the USFS, homes in Asotin County have a greater risk from fire than 91% of counties in the United States (USFS, 2021a). All residents outside of the City of Clarkston[1] live in the WUI planning and prevention area for the 2025 Asotin County CWPP (**Figure 2.c.1**). These residents are exposed to elevated wildfire risk. The WUI planning and prevention area includes populated areas and the surrounding landscape that could transmit wildland fire towards homes, evacuation routes, and other highly valued resources and assets (see WUI methodology in **Appendix B**).

Residents that are not surrounded by forests are still part of the WUI. Grasslands can spread fires to neighborhoods and initiate home-to-home spread. Wildfires in grasslands and shrublands destroy more homes in the WUI than wildfires in forests across the United States (Radeloff et al., 2023). Grassland fires are common in Asotin County, such as the 2006 Kurby Fire, 2007 Rockpile Creek Fire, and 2021 Silcott Fire. Homeowners can take action to harden their homes and create defensible space to reduce the risk of ignition from wind-driving wildfires in grasslands and suburban and urban neighborhoods.

Although this area is not forested, homes surrounded by grasslands in Asotin can be exposed to flames, embers, and smoke from wildfires. Photo credit: Noel Hardin, Asotin County Fire District #1.

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[1] There was inconsistency between the WUI from the WA DNR and the assessment of wildfire risk to structures based on the analysis in this CWPP in the northeastern portion of Asotin County. Following discussions with the WA DNR, it was decided that the Asotin County CWPP WUI planning and prevention area could exclude the City of Clarkston and include Clarkston Heights. Clarkston Height-Vineland is #13 of the top 25 places in Washington likely to be exposed to wildland fire according to the Washington State Wildland Fire Protection 10-year Strategic Plan

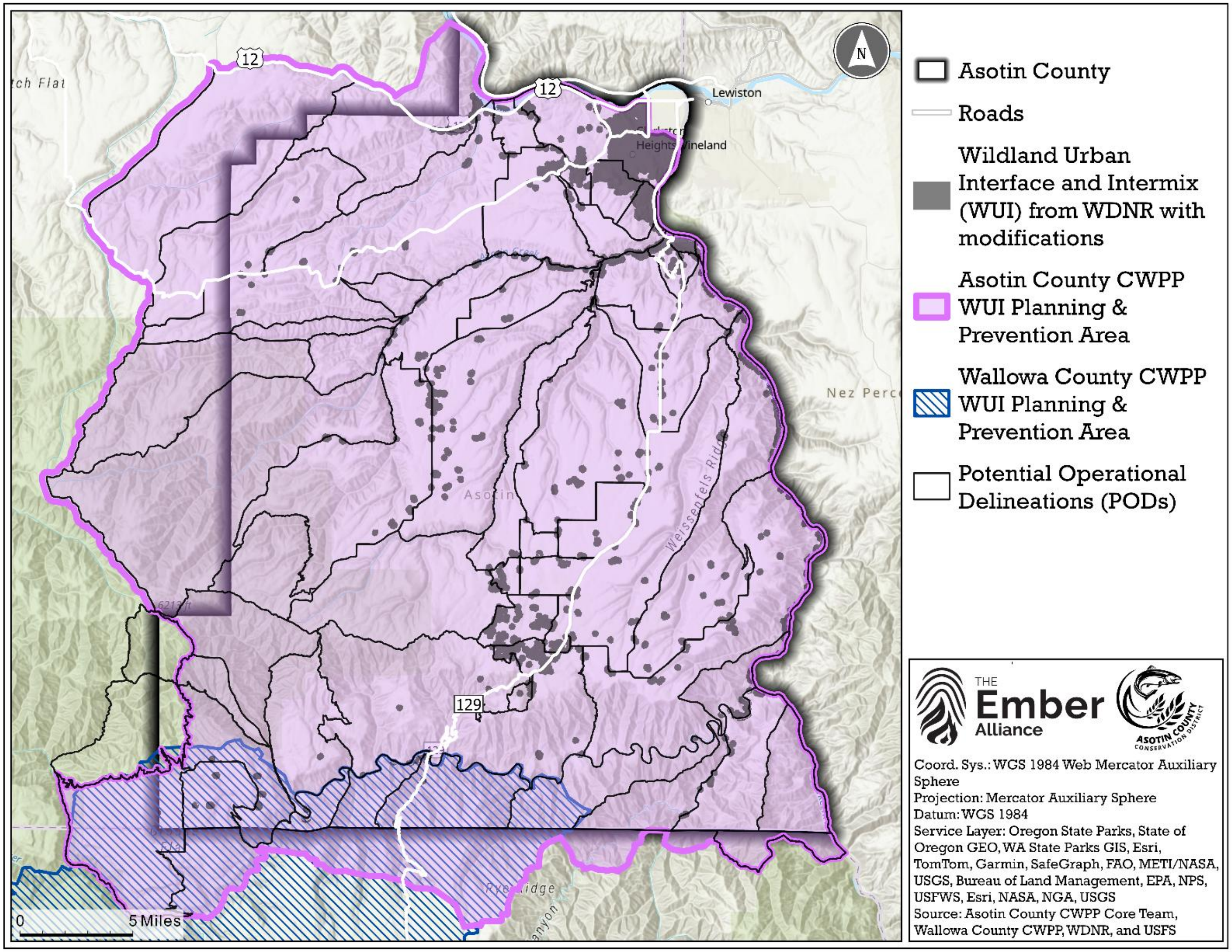


Figure 2.c.1. *All residents outside of the City of Clarkston live in the wildland-urban interface (WUI) planning and prevention area for the 2025 Asotin County CWPP. These residents are exposed to elevated wildfire risk. The WUI planning and prevention area includes populated areas and the surrounding landscape that could transmit wildland fire towards homes, evacuation routes, and other highly valued resources and assets (see methodology in* ***Appendix B****). Sources: Asotin County CWPP Core Team, Wallowa County CWPP, Washington Department of Natural Resources, and the U.S. Forest Service.*

2.d. Firefighting in the WUI

One of the standard firefighter orders is to "fight fires aggressively, having provided for safety first" (NWCG, 2018a). Firefighters are committed to protecting lives and property, but firefighting is particularly perilous in the WUI. The firefighting community is committed to wildland firefighter safety, which can require them to cease structure protection when conditions are exceedingly dangerous, particularly around homes with inadequate defensible space, safety zones, and egress routes.

High-intensity, fast-moving wildfires in the WUI can quickly overwhelm firefighting resources when homes begin igniting each other (Caton and others 2016). Firefighters are often forced to perform structure triage to effectively allocate limited resources during an incident, and more importantly, to protect the lives of firefighters. The Incident Response Pocket Guide (IRPG), which is carried by all firefighters certified under the National Wildfire Coordinating Group, explicitly states, "**Do not** commit to stay and protect a structure unless a safety zone for firefighters and equipment has been identified at the structure during size-up and triage" (NWCG, 2018a). The IRPG outlines four categories of structure triage:

1. Defensible – prep and hold.
2. Defensible – stand alone.
3. Non-defensible – prep and leave.
4. Non-defensible – rescue drive-by.

Do not count on firefighters staying to defend your home—your home should be able to stand strong on its own during a wildfire. There are never enough firefighters to stay and defend every single home during large incidents. The **Mitigate the Home Ignition Zone** section of this CWPP provides recommendations for how residents can increase the chance of their homes standing strong during wildfires and enhance the safety of wildland firefighters.

Mitigating the home ignition zone increases the likelihood of a home standing strong against wildfire. Photo credit: Wildfire Partners.

2.e. Fire History in Asotin County

Wildfires and cultural burning heavily influenced Washington's Blue Mountains before the era of fire suppression. Many Indigenous peoples utilized fire to steward the land, including the Nimiipuu (Nez Perce), Cayuse, Umatilla and Walla Walla Nations and the Confederated Tribes of the Colville Reservation. Frequent, low-severity fires were common in grasslands, shrub-steppe, and dry-mixed conifer and mesic mixed-conifer forests before European settlement in the 1850's, and other forest types, particularly subalpine forests at higher elevations, experienced infrequent but high-severity wildfires (**Figure 2.e.1**). Some plant species evolved adaptations to wildfire, for example, the heat from wildfires opening the cones of Lodgepole pine or mortality from wildfire triggering resprouting of Quaking aspen. Some wildlife benefit from recently burned ecosystems with lower tree densities and a greater abundance of understory plants (Kalies et al., 2012; Pilliod et al., 2006).

Wildfire behavior is vastly different today than it was over a century ago in many ecosystems in Washington. As the initial ranching and logging activities of Euro-American settlers subsided in the region and government-mandated fire suppression began in the late 1800's, forests filled in with trees (Reilly et al., 2021). Although many residents consider dense forest as "natural," these conditions are vastly different from the fire-resilient ecosystems that existed before.

A combination of dense wildland vegetation, extreme heat and high winds, unplanned ignitions, and housing developments in the WUI can create catastrophic wildfire scenarios (Haas et al., 2015). Climate change is making high-severity wildfires more frequent, intense, and larger in extent (Parks et al., 2016). Many catastrophic wildfires in Washington's history have occurred on dry and windy days, resulting in rapidly spreading fires that outpace the ability of firefighters to respond.

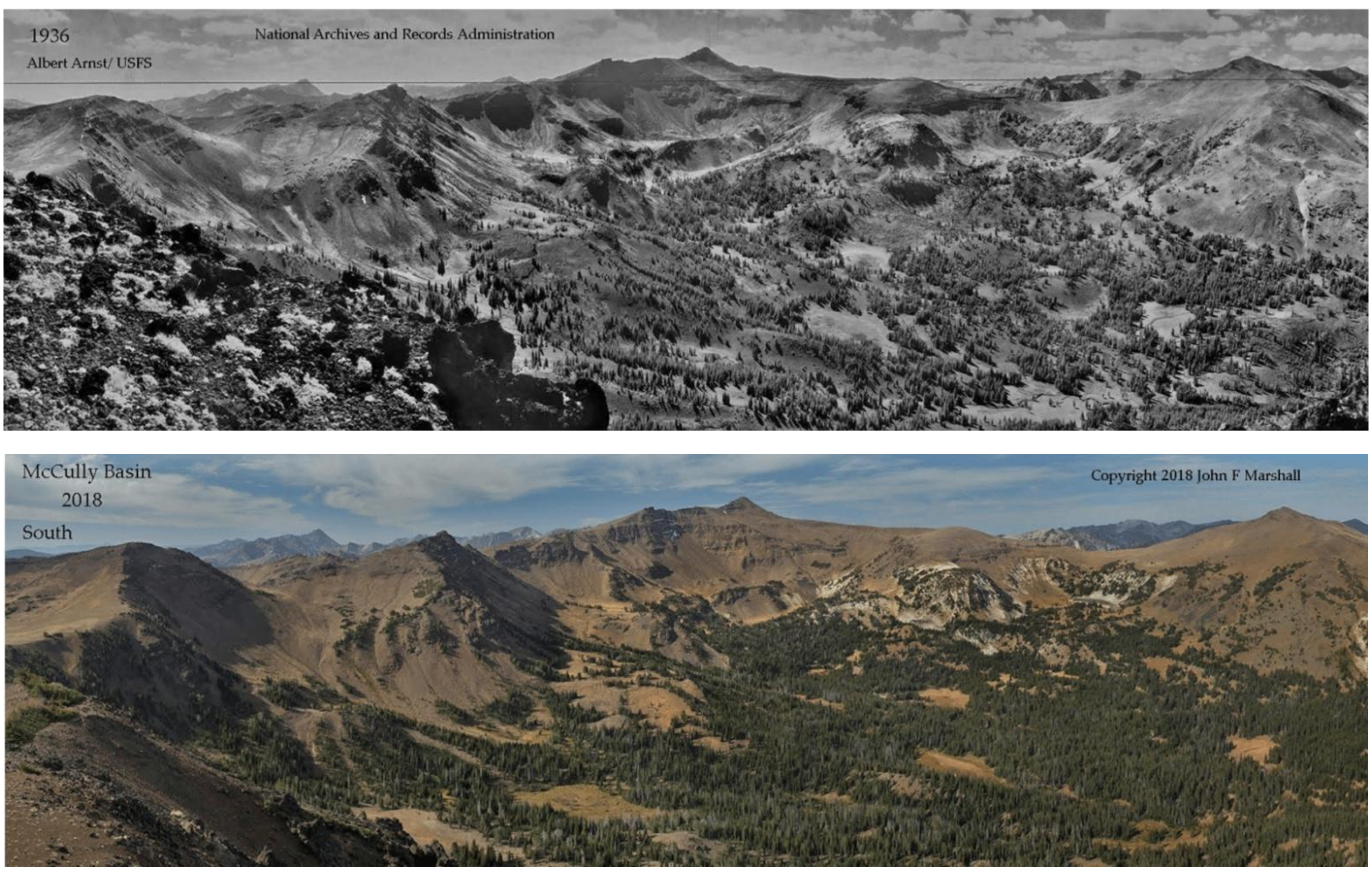


***Figure 2.e.1**. Tree densities in many dry-mixed conifer and mesic mixed-conifer forests are higher today than they were historically in part due to fire suppression, as demonstrated by these paired photographs in Wallowa County's McCully Basin, which is about 65 miles south of Asotin County. Photo credit: Albert Arnst, USFS, National Archives & Records Administration (top) and John F. Marshall (bottom).*

Asotin County and adjacent areas have significant wildland fire potential due to high hazard conditions such as dense forests, steep terrain, and limited road access. The recent 2024 Cougar Creek Fire spread across 24,000 acres in Asotin County, fueled by over 50 mph winds. The 2021 Dry Gulch and Lick Creek Fires were over 80,000 acres total and both triggered evacuations that forced families to evacuate from their communities (**Figure 2.e.2**).

Fortunately, wildland firefighters suppress a vast majority of ignitions in Asotin County before they exceed 1 acre in size, but fires can escape the initial capacity of firefighters under high, dry, and windy conditions. Lightning-caused ignitions predominate in Asotin County, with the most lightning-caused ignitions occurring in July and August and the most human-caused ignitions in July (**Figure 2.e.3**).

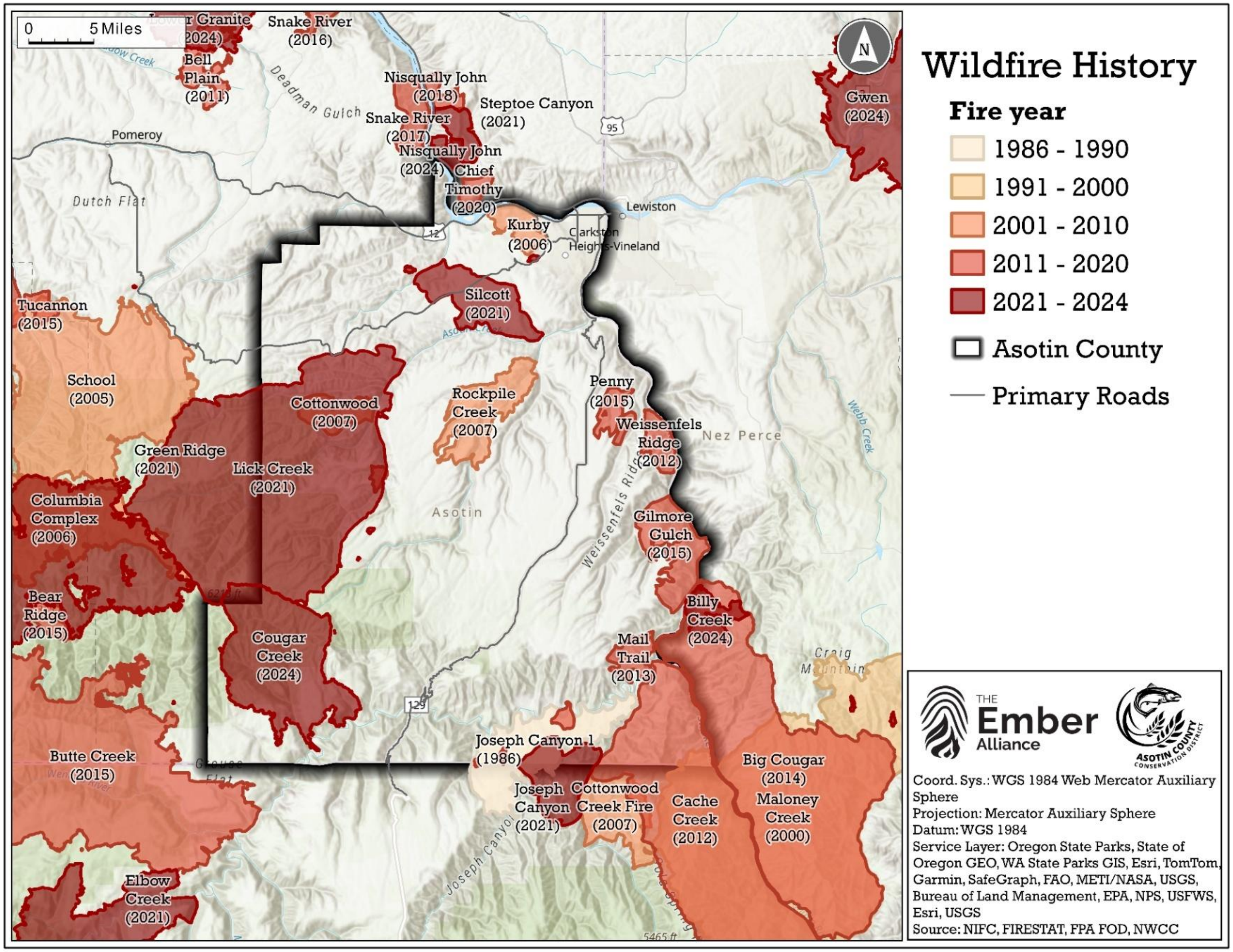


Figure 2.e.2 *Many significant wildfires have burned in and around Asotin County from 1986-2024. The 2024 Cougar Creek Fire burned through the southwestern part of Asotin County, destroying two structures, pastures, and fencing. Source: National Interagency Fire Center, Fire Program Analysis fire-occurrence database, and Northwest Coordination Center.*

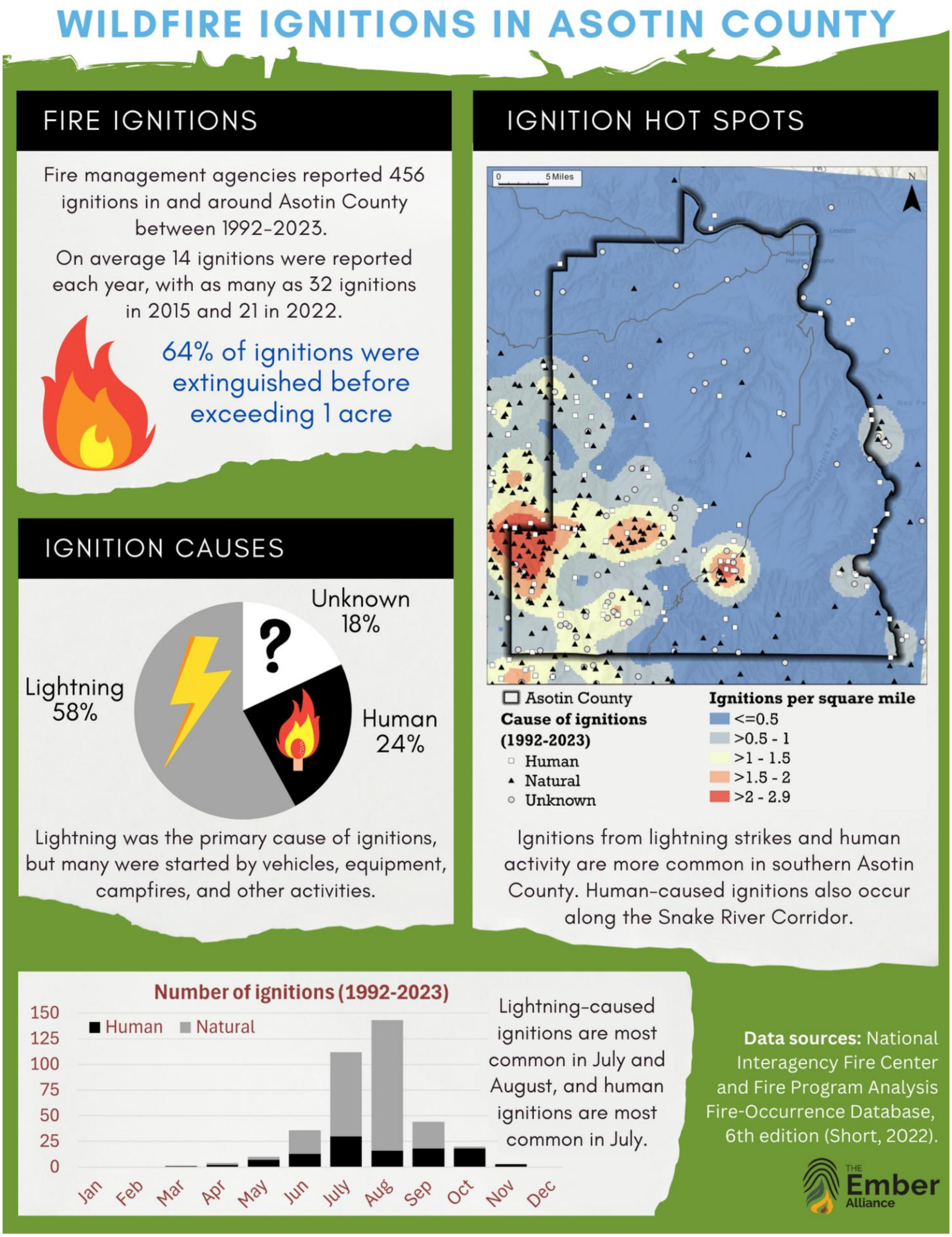


Figure 2.e.3. *Historic wildfire ignitions in Asotin County. Understanding when, why, and where ignitions occur can inform fire prevention campaigns and planning for firefighter staffing and equipment needs. Source: Short, 2022. Infographic by The Ember Alliance.*

2.f. Potential for Extreme Fire Behavior in Asotin County

Many parts of Asotin County could experience extreme fire behavior that could put the lives of residents, visitors, and firefighters at risk. The 2021 Lick Creek Fire, 2021 Silcott Fire, 2021 Joseph Canyon, and 2024 Cougar Creek Fire are several recent examples of wildfire behavior in grasslands and forested parts of Asotin County. A major concern is that about 15% of the county is not covered by an agency responsible for initial wildfire response (**Figure 2.a.1**). This CWPP recommends improving suppression challenges and increasing fire protection assets by joining an FPD or forming a volunteer FPD. To be effective, this effort must be led by community members, for community members. **There is an immediate need for this community to undertake proactive measures to mitigate wildfire risk to protect lives and property.**

Residents in Asotin County are highly concerned about wildfire risk (**Figure 2.f.1**). Fortunately, life safety concerns can be addressed through concerted efforts across the community to mitigate wildfire risk and increase emergency preparedness. Implementing recommendations in this CWPP will go a long way towards helping Asotin County become a fire-adapted community.

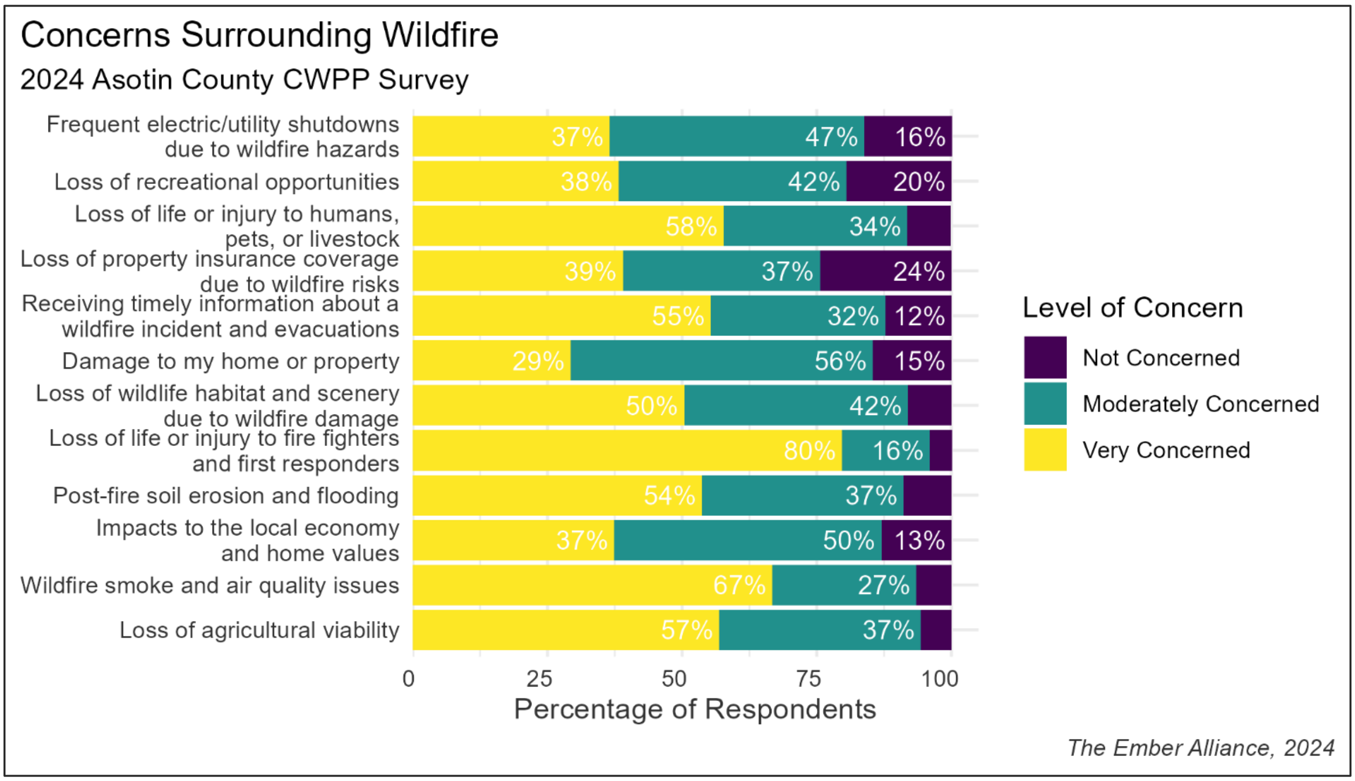


Figure 2.f.1. *Level of concern surrounding wildfire expressed by Asotin County residents who responded to the CWPP survey. Top concerns were loss of life or injury to residents, pets, livestock, and firefighters or first responders, wildfire smoke and air quality issues, and loss of agricultural viability. See* ***Appendix C*** *for a full summary of survey findings.*

Potential Fire Behavior

Topography and fuel conditions are highly variable across Asotin County (**Figure 2.f.2**), and this variation, plus alignment between wind patterns and topography, help explain the patterns of potential fire behavior across the landscape.

Lower-elevation portions of the County are covered in grasslands that dry out early in the year and carry fast-moving wildfire. Grassland fires can quickly burn uphill into forests in the Southwestern portion of the county. Forested portions of the county can support slower-moving but high-intensity wildfires, especially if shrubs and small trees in the understory serve as ladder fuels and carry wildfire from the surface into treetops. When trees are closely spaced in dense forests, fire can begin spreading as active crown fire. Riparian areas along creeks can serve as natural barriers to fire spread when streams are flowing and vegetation has high moisture content, but after prolonged drought, fire can burn through riparian vegetation and rapidly spread up steep valley slopes along river corridors.

The topography and weather of Asotin County can promote strong winds which can increase fire behavior. If wind is pushing wildfire up a steep slope, it can result in more extreme fire behavior than if a fire is backing down the leeward side of a slope.

Under hot, dry, and windy weather, 15% percent of Asotin County could experience high to extreme fire behavior, and 70% could experience rapid rates of spread that quickly outpace the ability of initial firefighting resources to suppress. High to extreme fire behavior includes ember production that ignites additional fires away from the main fire and the movement of high-intensity fire from treetop to treetop. Such fires are extremely challenging if not impossible to control until winds die down and fuel moisture increases. High-intensity wildfires and active crown fires are most likely in the Southwestern part of Asotin County (**Figure 2.f.3**). Homes serve as an additional source of fuel that could produce high-intensity flames, emit embers, and initiate home-to-home ignitions.

Fire growth could be extensive across Asotin County if wildland firefighters cannot engage due to dangerous conditions from extreme fire behavior and if wildland fire moves rapidly through shrublands and grasslands. The greatest potential for rapid fire growth is in the eastern part of the county where grassy fuels dominate (**Figure 2.f.4**).

Important Considerations about Fire Behavior Predictions

Fire behavior models can provide reasonable estimates of relative wildfire behavior across a landscape. However, wildfire behavior is complex, and models are a simplification of reality. Models also struggle to capture impacts of structures on wildfire spread and home-to-home ignitions. It is recommended to use the fire behavior analyses within this document to understand relative risk at a landscape scale, and not as an indication of a single property's risk.

Exceptionally hot, dry, and windy conditions are increasingly common due to climate change and could result in even more extreme fire behavior across Asotin County than predicted by this analysis.

This CWPP primarily uses fire behavior modeling from the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment (PNW QWRA). Modeling was completed prior to the 2024 Cougar Creek Fire, so post-fire conditions are not reflected in the maps shown here. The QWRA also made assumptions about post-fire conditions in the area burned by the 2021 Lick Creek and Silcott Fires that do not adequately account for the regrowth of invasive, annual grasses that can exacerbate wildfire behavior. All maps of fire behavior predictions in the CWPP include an overlay of recent wildfire history to indicate areas where model output might diverge from current conditions.

See **Appendix B** for details on fire behavior modeling conducted for this CWPP. Complete methodology for the 2023 PNW QWRA are provided by McEvoy et al. (2023).

Figure 2.f.2. *Fuel loads are variable across Asotin County, ranging from dense forests with abundant ladder fuels (top), to open forests with moderately spaced trees and few ladder fuels (foreground of middle), to grasslands and agricultural lands with scattered trees (bottom). Fuel type and fuel loads greatly influence fire behavior, intensity, and rate of spread. Photo credit: The Ember Alliance.*

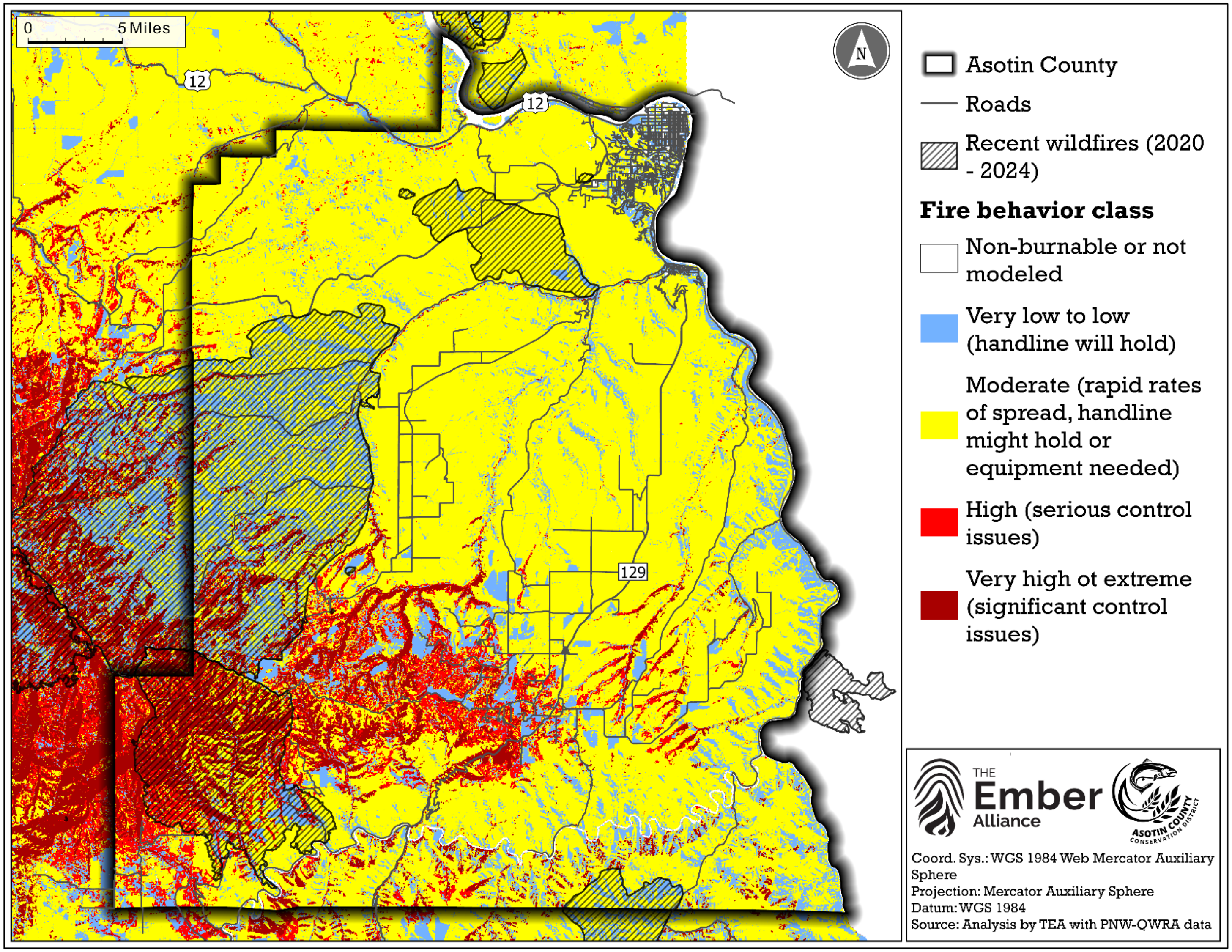


Figure 2.f.3. *Under hot, dry, and windy weather, 15% percent of the Asotin County could experience high to extreme fire behavior and 70% could experience rapid rates of spread that quickly outpace the ability of initial firefighting resources to suppress. High to extreme fire behavior includes ember production that ignites additional fires away from the main fire and the movement of high-intensity fire from treetop to treetop. Such fires are extremely challenging if not impossible to control until winds die down and fuel moistures increase. See* ***Appendix B*** *for a description of fire behavior modeling. Source: Analysis by The Ember Alliance using data from the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

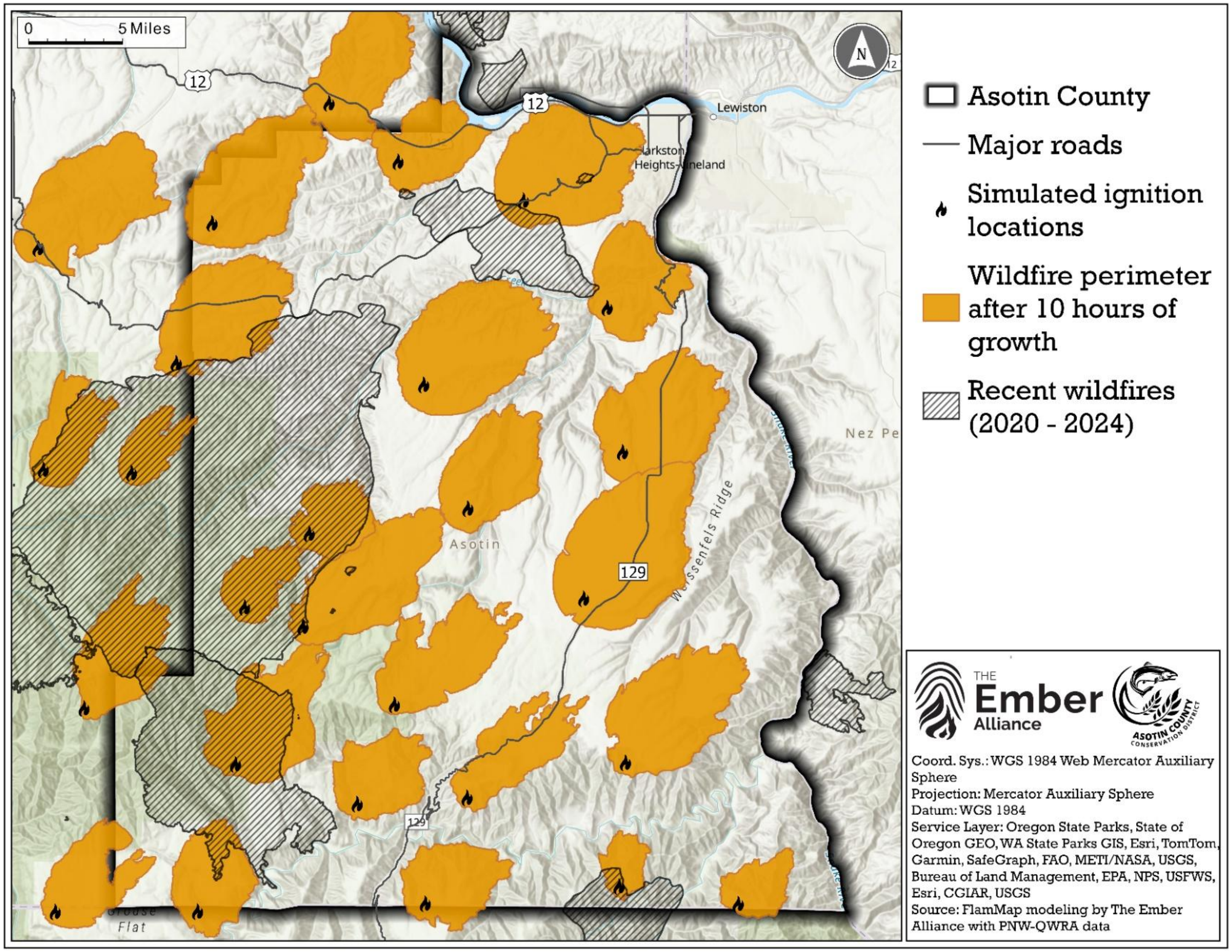


Figure 2.f.4. *Fire growth could be extensive across Asotin County under extreme fire weather conditions if wildland firefighters cannot engage due to dangerous conditions from extreme fire behavior and rapid rates of spread. Simulated fire perimeters were based on fire behavior predictions after 10 hours of fire growth without suppression activities from hypothetical ignition locations. Multiple fire perimeters are shown to demonstrate the variety of fire sizes, shapes, and travel paths that could happen in and around the county. See* ***Appendix B*** *for a description of fire behavior modeling. Source: Modeling by The Ember Alliance using data from the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

Likelihood of Wildfire

Wildfire risk is composed of hazard (potential intensity of wildfire and likelihood of wildfire) and vulnerability (exposure of highly valued resources and their susceptibility to damage). Burn probability is the annual probability of a wildfire burning a location. Most of Asotin County has high to very high probability relative to the state of Washington according to the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment (PNW QWRA) (**Figure 2.f.5**). High burn probabilities occur in much of Asotin County due to the potential for rapid rates of fire spread across expansive grasslands and in areas with steep, complex terrain. Very high burn probabilities were predicted for areas that burned in the 2024 Cougar Creek Fire. Lower burn probabilities are predicted for the area burned by the 2021 Lick Creek Fire, but the extensive colonization of invasive, annual grasses could, in reality, increase the likelihood of wildfire in the burned area.

Another metric of the likelihood of wildfires is the frequency of days with weather conducive to large-scale fire growth. Asotin County frequently experiences days with weather conducive to large-scale fire growth. A Red Flag Warning is issued by the National Weather Service when there is high confidence that Red Flag criteria will be met within the next 24 to 48 hours or when those criteria are already met or exceeded. Days with Red Flag Warnings indicate severe fire weather and require extra vigilance by fire departments and residents. Hot, dry, and windy conditions on Red Flag days can lead to exceptionally fast fire growth and high fire intensity that exceeds the ability of firefighters to quickly suppress the blaze. The occurrence of Red Flag Warnings is variable from year to year due to regional weather patterns and weather anomalies such as El Niño and La Niña. Asotin County experiences, on average, 10 days with weather conditions that qualify as Red Flag Warnings, with 26 occurring in 2015 alone. Climate change will further increase the number of days with very high fire weather danger, potentially by 11-15 days/year (**Figure 2.f.6**).

Take Away Message

Parts of Asotin County are at high risk for large, high-severity or rapidly spreading wildfires due to fuel conditions, dry and hot weather, and strong, gusty winds. Increasing drought and warming temperatures exacerbate wildfire risk in the area. **Proactive work by Fire Protection Districts, partners, and residents is imperative to protect lives and property.**

Strong, gusty wind contribute to rapid spread of fires in Asotin County, as observed during the 2021 Lick Creek Fire. Photo credit: Noel Hardin, Asotin County Fire District #1.

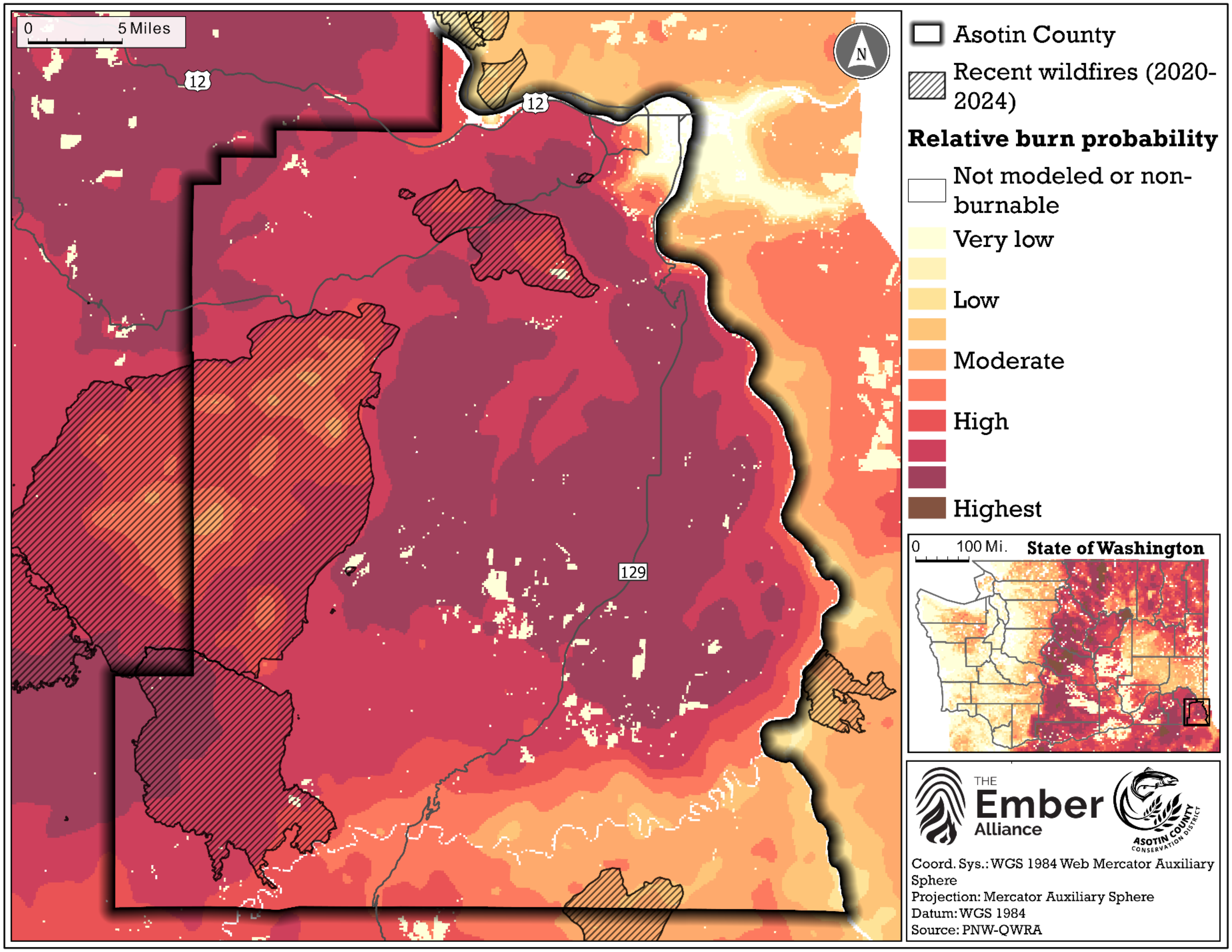


Figure 2.f.5. *Most of Asotin County has high to very high burn probability relative to the state of Washington. See* ***Appendix B*** *for a description of fire behavior modeling. Source: 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

FIRE WEATHER DANGER IN ASOTIN COUNTY

During Red Flag Warnings, all residents need to follow fire restrictions and be prepared to evacuate in the case of a wildfire.

RED FLAG CRITERIA

Red Flag Warnings issued by the National Weather Service indicate that warm temperatures, very low humidity, and strong or erratic winds are expected to result in elevated fire danger.

Asotin County falls within the Spokane Forecast Office and also receives input from the Pendleton Office. The County has two options for Red Flag criteria:

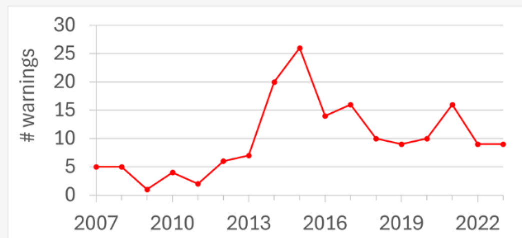
Option 1	Option 2
Relative humidity <= 15% Wind gusts >= 25 mph Dry fuels	Widely scattered dry thunderstorms Dry fuels

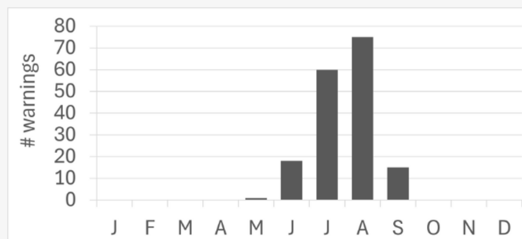
Many large wildfires around Asotin County occurred during Red Flag Warnings:

2024 Cougar Creek
2021 Joseph Canyon
2021 Green Ridge
2021 Lick Creek
2021 Silcott
2017 Snake River
2015 Butte Creek
2015 Gilmore Gulch

WARNINGS FROM 2007-2023

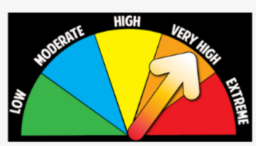
The National Weather Service issued on average 10 Red Flag Warnings/year for the fire weather zones that intersect Asotin County, with as many as 26 in 2015. Red Flag conditions most often occurred in July and August.





CLIMATE CHANGE MEANS MORE FIRE DANGER AHEAD

Hotter and dryer conditions due to climate change could result in **11-15 more days/year** with very high fire weather danger in Asotin County by 2050.



National Fire Danger Ratings are separate from Red Flag Warnings but use similar indicators of severe fire weather.

BE INFORMED ABOUT COUNTY FIRE RESTRICTIONS

Permissible activities are limited during fire restrictions to protect the community.

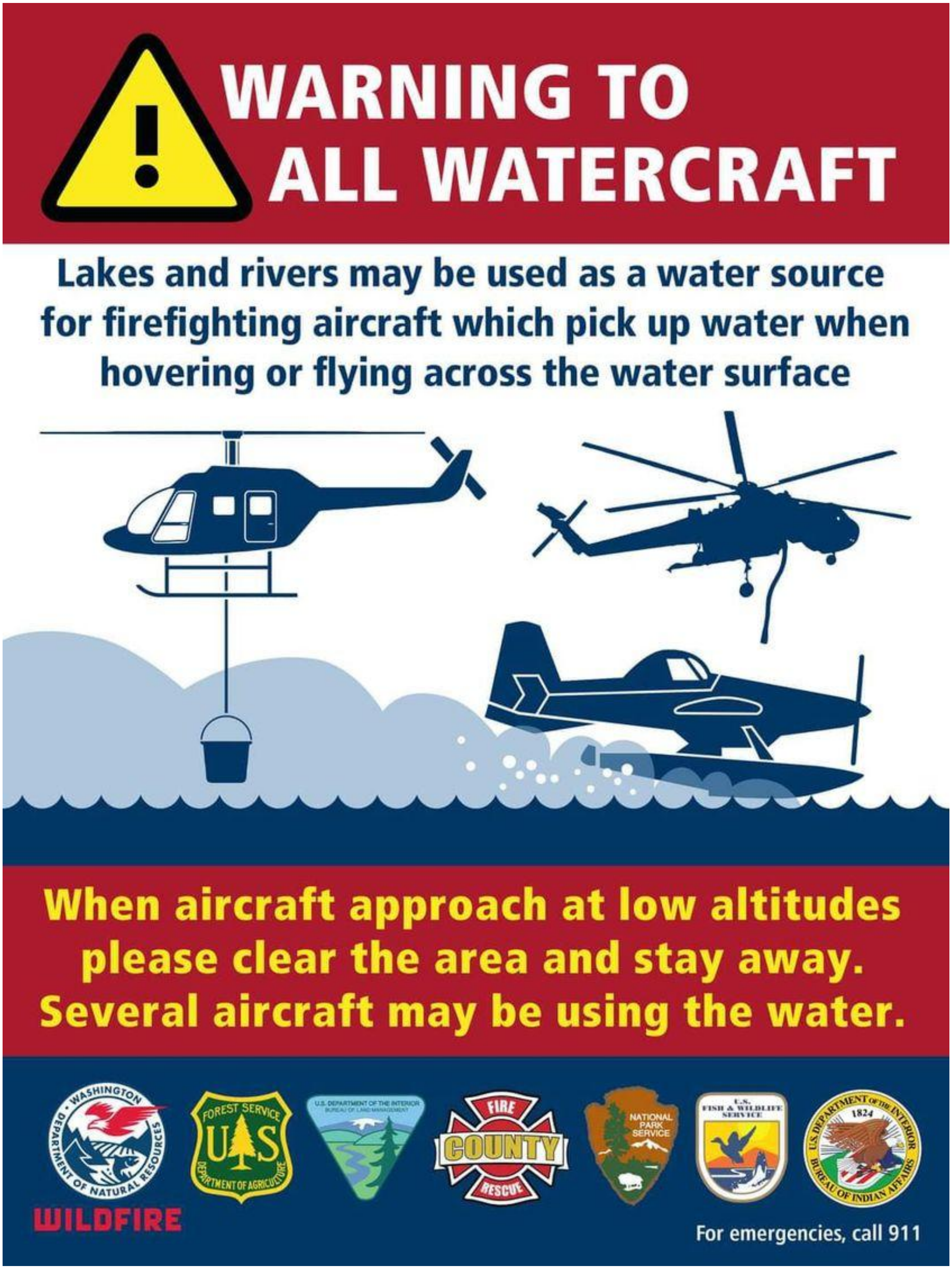
Asotin County: https://www.asotincountywa.gov/347/Open-Burning-Policy

WA DNR: https://burnportal.dnr.wa.gov/

THE Ember Alliance

Sources: Historic Red Flag Warnings for from Iowa Environmental Mesonet at Iowa State University. Future fire danger from https://climatetoolbox.org.

Figure 2.f.6. *Asotin County experiences on average 10 days with weather conditions that qualify as Red Flag Warnings, and climate change will further increase the number of days with high fire weather danger. Source: [Iowa Environmental Mesonet] and the [Climate Toolbox's Future Climate Scatter]. Infographic by The Ember Alliance.*



Aircrafts use water sources such as the Snake River and for fire suppression, educational signage at local boat launches reminds boaters of safety during wildfires. Source: Washington Department of Natural Resources.

Potential Consequences to the Community

Wildfires in Asotin County could threaten lives, homes, and property. Radiant heat from burning vegetation can ignite nearby homes, and embers emitted from burning vegetation or other homes can travel long distances and ignite vegetation and homes away from the main fire. Almost 10% of homes in Asotin County in the WUI planning and prevention area could be exposed to radiant heat, 17% of homes to embers, 18% of homes to wildfires with rapid rates of spread (**Figure 2.f.8**). The percentage of homes potentially exposed to embers is as high as 95% in the Anatone Forestland zone, 80% in the Montgomery Ridge zone, and 75% in the Grouse Flats/Mountain View zone (see **Figure 1.a.2** for a map of zone boundaries). Smoke from a wildfire could impact residents across the county, even in the City of Clarkston and City of Asotin, depending on the location of the fire, wind direction, and smoke dispersal.

Several non-residential highly valued resources could also be exposed to damaging wildfire, including schools and emergency facilities in downtown Asotin, several communication towers, and recreational facilities, including buildings at the Fields Spring State Park, the Washington Division of Fish & Wildlife Public Gun Range, and all of the trailheads, campgrounds, and historic buildings on the Umatilla National Forest (**Appendix B**). Fuel treatments and other recommendations in this CWPP seek to reduce this exposure and protect critical resources.

Homes serve as an additional source of fuel that could produce high-intensity flames, emit embers, and initiate home-to-home ignitions. The potential for home-home-home spread is especially high in Clarkston Heights and the City of Asotin where homes are adjacent to grasslands with the potential for wildfires with rapid rates of spread and homes are close together. Clarkston Heights-Vineland is #13 on WA DNR's top 25 places most likely to be exposed to wildland fire in the Washington State Wildland Fire Protection 10-year Strategic Plan. This CWPP outlines steps that residents and business owners can take to protect their property (see **Mitigate the Home Ignition Zone**).

Burning edge of the Amity Lane Fire which spread rapidly through dry grasses and emitted smoke that could impact nearby homes (seen in the background). Photo credit: Noel Hardin, Asotin County Fire District #1.

While it is always a good idea to invest in defensible space and home hardening for residents in the WUI, it is equally important to understand the limitations these steps have in certain environments. protect your home and family is naïv community is needed to make condi by an agency responsible for initial

High to extreme fire behavior can create non-survivable conditions along almost 12% of roadways in the Asotin County WUI planning and prevention area, particularly in the Anatone Forestland, Montgomery Ridge, and Grouse Flat/Mountain View zones, as well as along secondary evacuation routes through the Umatilla National Forest (**Figure 2.f.7**). Evacuation preparedness is of the utmost importance for residents in neighborhoods with hazardous conditions along roadways (see **Evacuation Preparedness**).

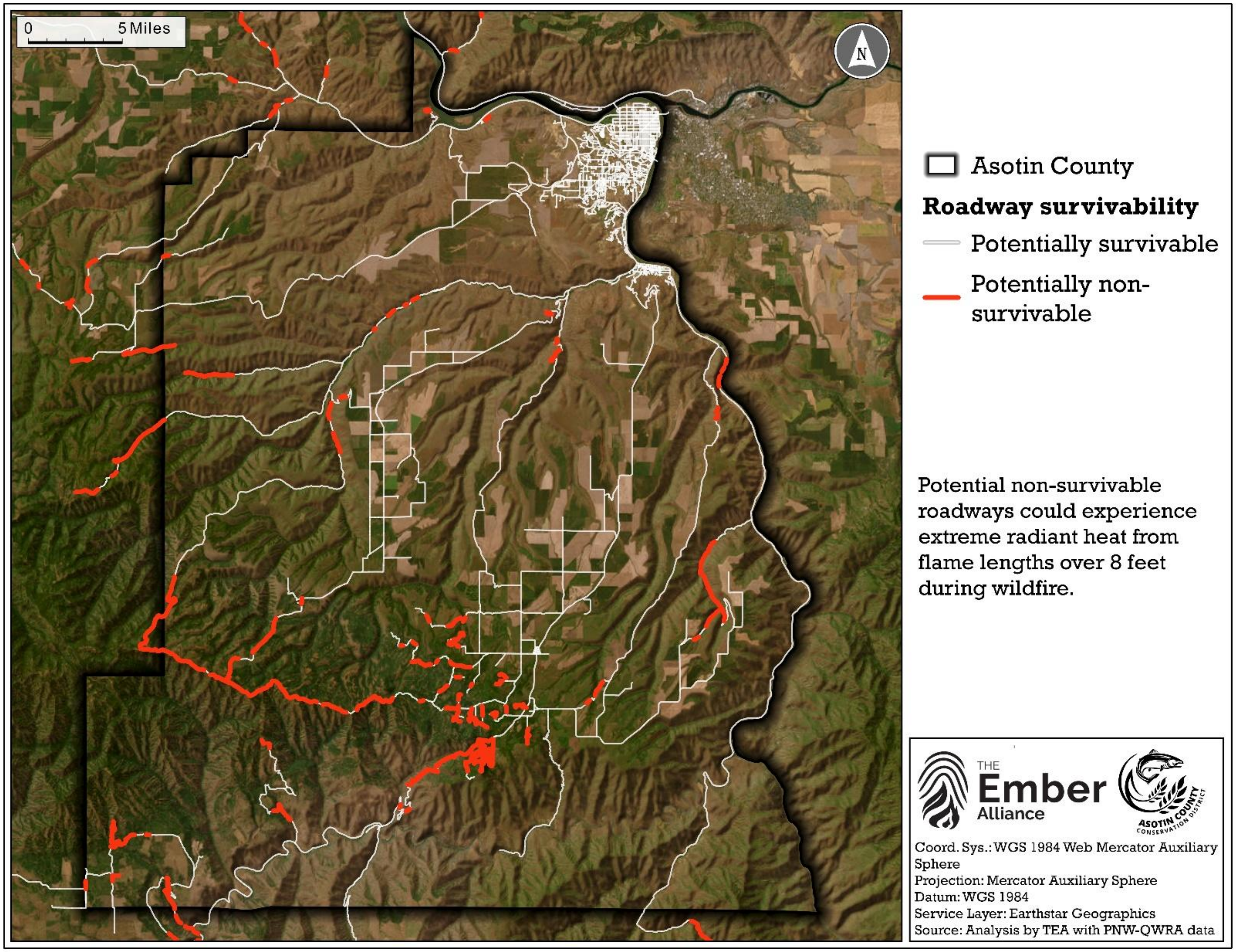


Figure 2.f.7. *Almost 12% of roads in Asotin County could experience potentially non-survivable conditions while a fire is actively burning over them if flame lengths exceed 8 feet. See **Appendix B** for a description of fire behavior modeling. Source: Analysis by The Ember Alliance with data from the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

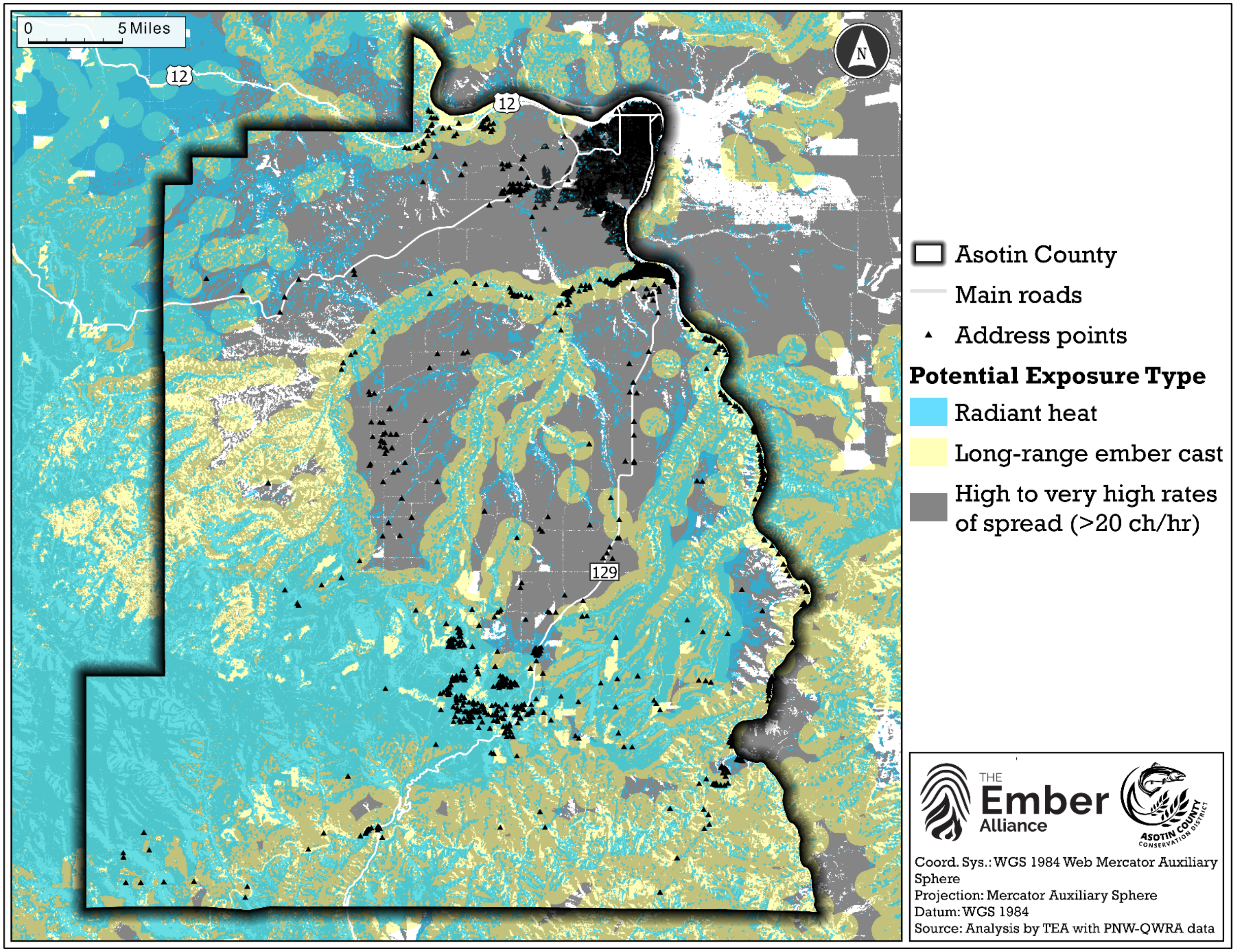


Figure 2.f.8. *Almost 10% of homes in Asotin County in the WUI planning and prevention area could be exposed to radiant heat, 17% of homes to embers, 18% of homes to wildfires with rapid rates of spread. Radiant heat from burning vegetation can ignite nearby homes, and embers emitted from burning vegetation or other homes can travel long distances and ignite vegetation and homes away from the main fire. See* ***Appendix B*** *for methodology.*

Potential Benefits of Wildfire

Keep in mind that not all wildfire is damaging and destructive. Many ecosystems in Asotin County have been shaped by wildfire for centuries, and wildfire creates important habitat for wildlife by removing trees and promoting the growth of a diversity of grasses and forbs. Areas burned by wildfires can serve as fuel breaks for decades afterwards and reduce the potential for damaging wildfire both in the burned area and surrounding landscape.

According to the 2023 PNW QWRA, wildfire and/or broadcast prescribe burning could benefit portions of Asotin County by restoring ecological conditions and reducing fuel loads. Beneficial fire is more likely in areas without homes and where expected fire behavior is moderate (**Figure 2.f.9**).

Wildfires can create diverse conditions on the landscape, improve habitat for some wildlife species, and reduce the potential for damaging wildfire in the coming years. Photo credit: Noel Hardin, Asotin County Fire District #1, taken during the 2021 Lick Creek Fire.

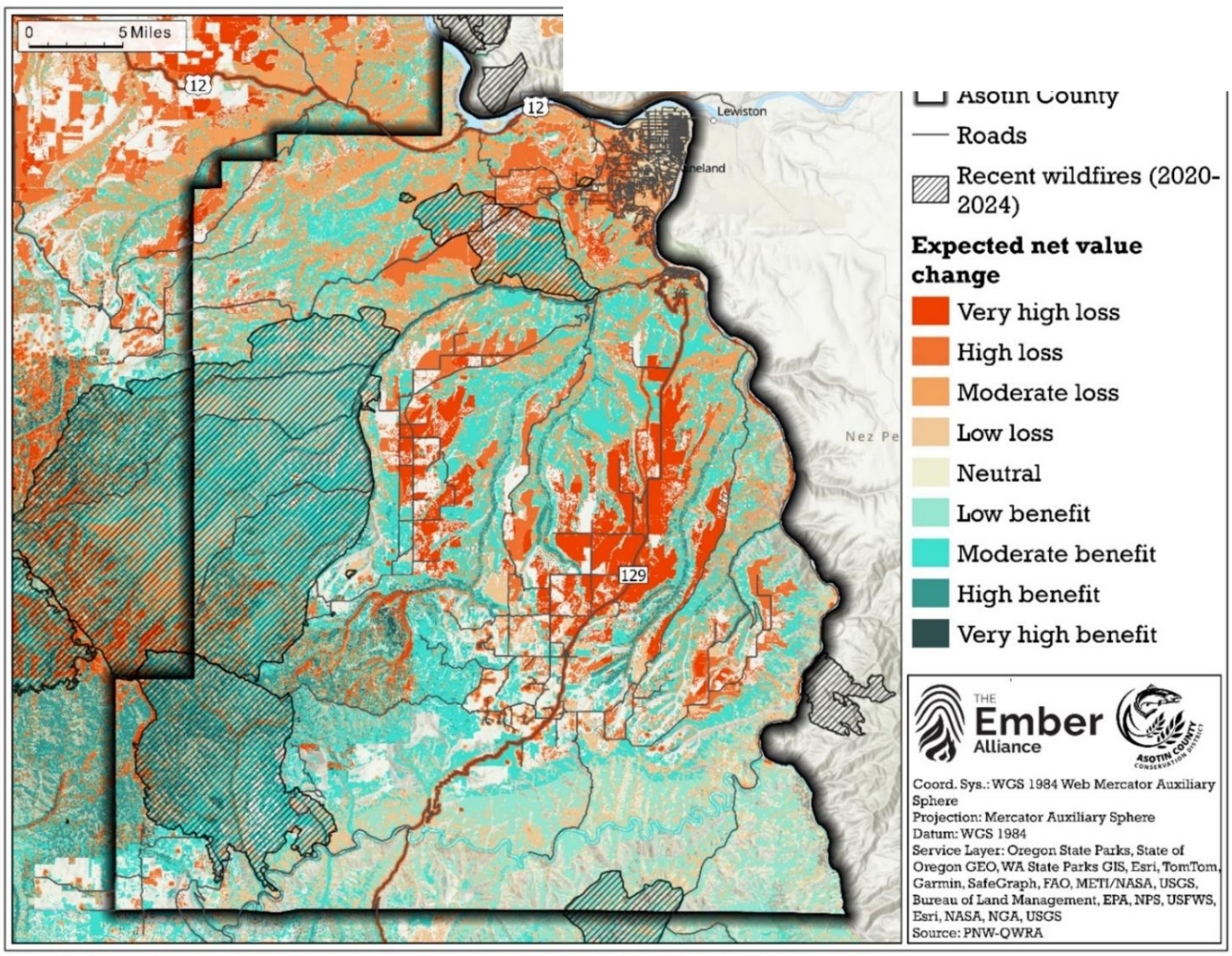


Figure 2.f.9. *Wildfire and/or broadcast prescribed burning could benefit portions of Asotin County by restoring ecological conditions and reducing fuel loads. See **Appendix B** for a description of fire behavior modeling. Source: 2023 Pacific Northwest Quantitative Wildfire Risk Assessment*

Post-Fire Impacts

Impacts of wildfires do not end once the flames are extinguished. Intense rainfall events can result in flash floods, erosion, sediment delivery and debris flows the first few years following a wildfire (Neary et al., 2005). It is very possible that a large storm in the years following a high-intensity wildfire in Asotin County could result in high to extreme sedimentation along the Snake River, Grande Ronde River, North Fork Asotin Creek, South Fork Asotin Creek, George Creek, Tenmile Creek, and Couse Creek (**Figure 2.f.10**). Many of these areas are important for fish habitat and retaining sediment to protect downstream water users, as is discussed in **Section 4.d. Watershed Protection for Wildfire-Prone Areas.**

Erosion and sedimentation are natural processes that shape streams, transport soil and nutrients across a landscape and create diversity in streams and riparian habitats (Prettyman, 2018). However, extreme post-fire sediment delivery and debris flows can damage and destroy homes, community assets, infrastructure, fisheries, and riparian vegetation. On June 3, 2022, flooding occurred in areas impacted by the 2021 Silcott Fire. A severe rain and hailstorm accelerated runoff in the burned region, leading to significant water flow across the landscape and inundation of local infrastructure. The exposed soil and lack of vegetation contributed to accelerated erosion, reshaping the terrain and affecting water quality due to sediment dispersion. Post-fire flooding also occurred in areas impacted by the 2021 Lick Creek Fire.

In addition to post-fire sedimentation, wind erosion can also increase after wildfires due to the removal of vegetation and leaf litter. Dust picked up by the wind can impact ecosystems and air quality for extended periods and across large distances outside of the burn area. Dust storms were observed in Asotin County after the 2021 Lick Creek Fire.

The potential for post-fire sediment delivery and damage to values at risk can be mitigated through activities to improve stream health and resilience, strategic fuel treatments to reduce fire hazards, and pre-planning for emergency response. See recommendations for homeowners in **Relative Risk Ratings and Targeted Action for CWPP Zones** and for land management partners in **Watershed Protection for Wildfire-Prone Areas**

Intense rainfall events after the 2021 Lick Creek Fire resulted in debris flows that damaged public and private property and altered riparian habitat. Photo credit: City of Asotin Park and Warner Gulch Flood, Asotin County Conservation District.

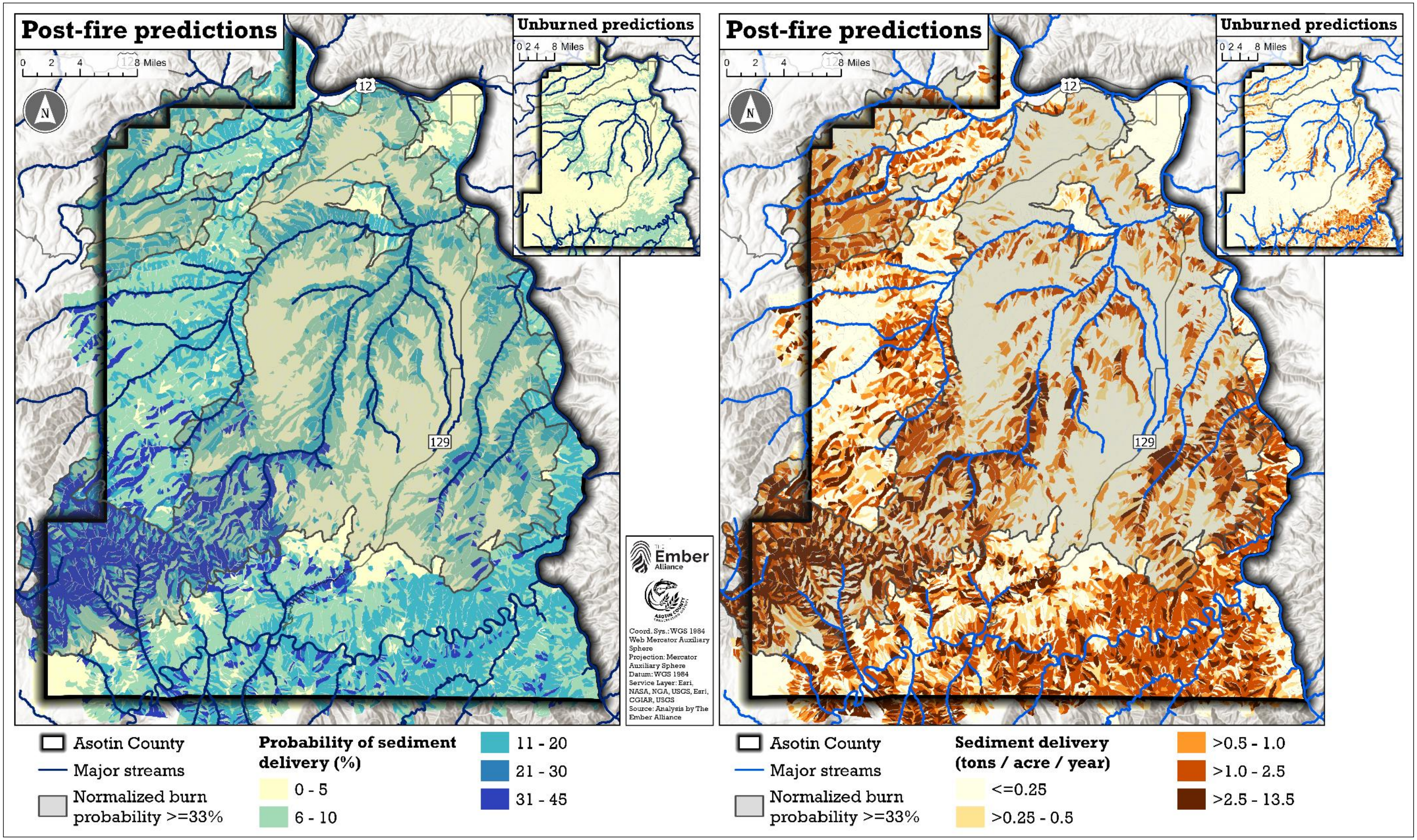


Figure 2.f.10. *Predicted probability of sediment delivery (the percentage of 50 simulated weather scenarios that resulted in sediment delivery >0 tons/acre) and the magnitude of sediment delivery (tons/acre/year) for the first year following wildfire vs under current, unburned conditions. Sediment delivery predictions were modeled with 1-in-50-year weather conditions. Shaded areas have elevated normalized burn probabilities and are therefore likelier to experience wildfire. See* ***Appendix B*** *for a description of post-fire erosion modeling for this CWPP.*

2.g. Fuel Treatment History in and around Asotin County

Fuel treatments reduce the amount of fuel in strategic locations, reducing fire risk to nearby communities and creating tactical opportunities for wildland firefighters to engage with wildland fires. Fuel treatments can also create healthy, restored forest conditions with abundant understory plants, improved wildlife habitat, and lower the risk of high-severity wildfires. The effectiveness of fuel treatments is influenced by a variety of factors, including the intensity, quality, and extent of treatment, location of treatments, maintenance of treatments, weather conditions and fire behavior, and actions of firefighters (Agee et al., 2000; Jain et al., 2021). Fuel treatment methods include tree thinning, pruning, pile burning, broadcast prescribed burning, and fuel mastication.

Between 2003 and 2024, the U.S. Forest Service thinned and/or broadcast prescribed burned 27,600 acres in and around Asotin County to reduce wildfire risk and restore ecosystem health (**Figure 2.g.1**). The U.S. Forest Service reports a total of 43,900 acres treated in the area because many areas were treated more than once. Initial entries involved cutting trees, follow-up entries focused on rearranging fuel generating by thinning, and third entries included broadcast prescribed burning to further mitigate wildfire risk, where appropriate. Public land managers with the WA DNR, WDFW, WSP, and ACCD and private residents completed treatments on an additional 5,000 acres between 2013-2023 in and around Asotin County.

WA DNR and USFS have successfully completed numerous large-scale broadcast prescribed burns in Asotin County. Alteration to fuels accomplished by the 4,200 acres of prescribed burning on the Umatilla National Forest in 2014-2015 likely contributed to the ability of firefighters to stop the northward spread of the 2024 Cougar Creek Fire (**Figure 4.a.2**). Broadcast prescribed burning can be an extremely effective method to reduce hazardous fuels and restore ecological conditions across a variety of grassland, shrubland, and forest ecosystems (Paysen et al., 2000; Stephens et al., 2009). Less than 1% of prescribed burns escape containment lines, and most of these are rapidly suppressed (Weir et al., 2019). The wildland fire community soberly reviews prescribed burn escapes to produce lessons learned and make improvements (Dether, 2005).

An essential component of this CWPP was identifying locations for additional fuel treatments to protect the community. **Section 4** outlines these priority locations and the land management agency leading these efforts in the coming years.

400 acres in Grouse Flats Wildlife Area underwent prescribed burning in 2020. Photo credit: Washington Department of Fish & Wildlife.

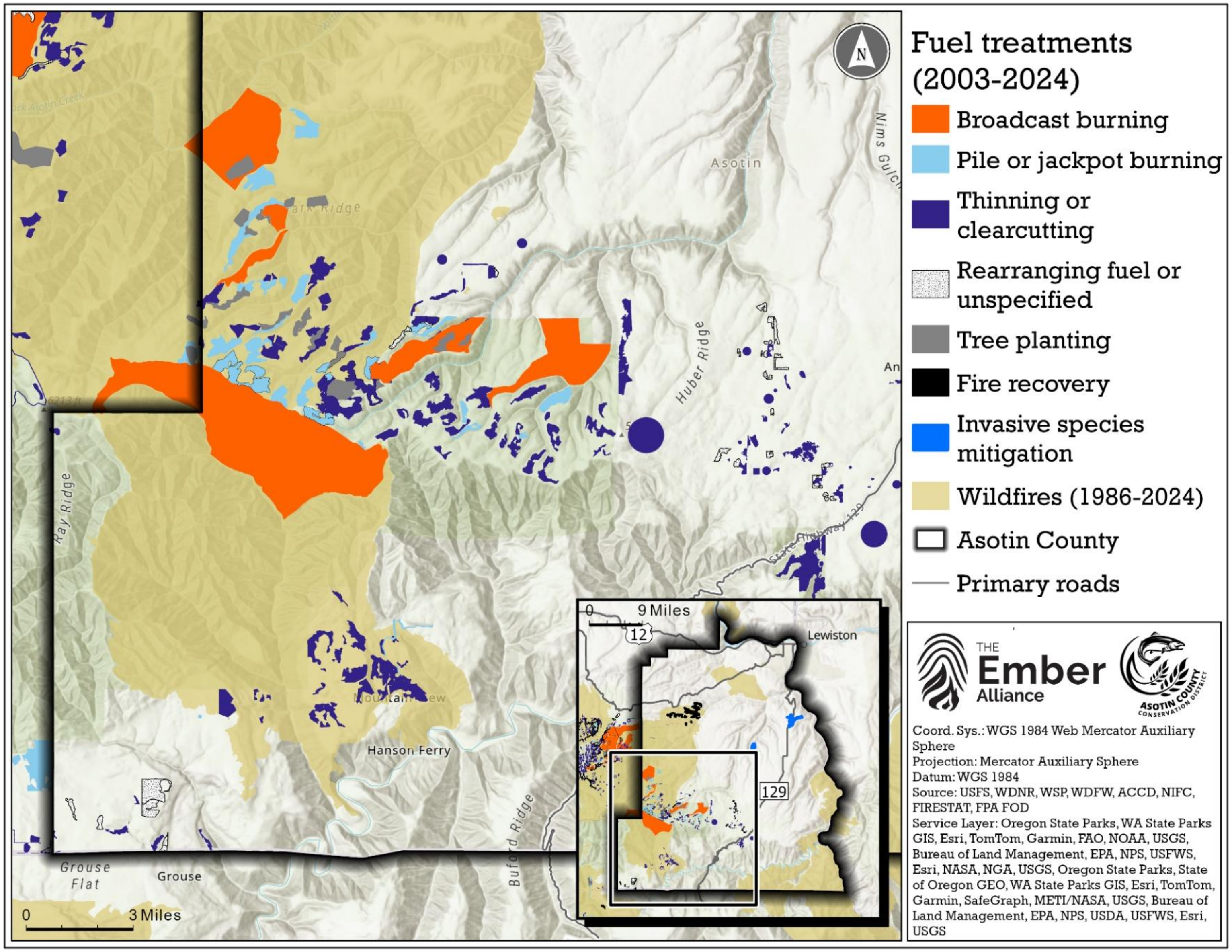


Figure 2.g.1. *Locations of fuel treatments and wildfires in and around Asotin County from 2003 – 2024. Sources: U.S. Forest Service, Washington Department of Natural Resources, Washington State Parks, Washington Division of Fish & Wildlife, Asotin Conservation District, National Interagency Fire Center, FIRESTAT, and Fire Program Analysis fire-occurrence database.*

3. Becoming a Fire Adapted Community

It is recommended that Fire Protection Districts (FPDs), Homeowner Associations (HOAs), and residents embrace the concept of Fire Adapted Communities (FAC), which is defined by the National Wildfire Coordinating Group (NWCG) as "a human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire". This concept can guide residents, fire practitioners, and communities through a holistic approach to become more resilient to fire (**Figure 3.1**).

"In catastrophic wildfire events like those we have seen ravaging our West Coast neighbors, there are no 'miracles' that save homes or communities. Those residents worked together to mitigate their mutual and individual wildfire hazards, and their efforts enabled firefighters to protect their homes and infrastructure. Those residents became fire adapted, and their communities were more resilient because of it." ~ Anonymous Spokane Firefighter, 2022

Your community's CWPP sets the stage for fire adaptation, and the next step is on-the-ground action and an ongoing commitment to risk mitigation at all levels of the community, from individuals and neighborhoods to FPDs and land managers. This section of the CWPP includes recommendations and resources for mitigating wildfire risk and enhancing emergency preparedness. FPDs and public land managers have an important role to play in implementing the recommendations in this CWPP, and they have made commitments to take on-the-ground action as outlined in **Section 4.**

Individual homeowners, neighborhoods, and HOAs also have a vital role to play in addressing shared wildfire risk. Action and community-building centered around mitigation have reduced wildfire risk and increased community resilience across the United States. Mitigation work by residents can spur mitigation by their neighbors (Brenkert-Smith et al., 2013). The cumulative impact of linked defensible space across private properties can improve the likelihood of home survival and protect firefighters during wildfire events (Jolley, 2018; Knapp et al., 2021). WA DNR Wildfire Ready Neighbors and National Fire Protection Agency (NFPA) Firewise USA® are community-based programs that exemplify the FAC concept and recognize commitment to reducing wildfire risk.

Approved Firewise USA® Action Plans or other approved community wildfire mitigation or action plans, regardless of their status at the time of writing, are incorporated into this plan. Action or mitigation plans for communities drafted after this plan are considered part of this CWPP and will be adopted into the plan at the next scheduled update.

PRACTICES THAT CREATE A MORE FIRE-ADAPTED WASHINGTON

Individual	Neighborhood	Community	Watershed	County/ Regional	State
Ignition-resistant building Home ignition zone preparation Evacuation kits Business continuity plans Home assessments Forest, range, and agricultural stewardship and management plans	Firewise USA® program Ingress/egress routes	Fuel breaks Proper addressing and signage Ingress/egress route WUI codes Land Use Planning Fire-adapted Communities Community Wildfire Protection Plans Home assessment training Ready, Set, Go! program	Forest restoration Spatial fire management planning/ prioritization Prescribed fire Fuel treatments	Communication plans Vegetation disposal and pick-up programs Wildfire-recovery plans Natural hazard mitigation plans Community Wildfire Protection Plans	Incentive programs for fuel reduction Technical assistance for community planning Incentive programs (cost-share) for home hardening Insurance discounts for homes certified as wildfire-resilient

Fire-adapted community coordinators, regional coordinating councils (Strategy #1.3), and fire-adapted community networks help facilitate coordinated actions at multiple scales.

Helping communities become more fire adapted requires shared responsibility to undertake a variety of projects that reduce the risk of uncharacteristic wildland fire and other disturbances to help protect lives, communities, property, ecosystems, assets, and working forests. Source: WA DNR 2019 Washington State Wildland Fire Protection 10-year Strategic Plan.

3.a. Recommendations for Residents

Mitigate the Home Ignition Zone

During catastrophic wildfires, property loss happens mostly due to conditions in the home ignition zone (HIZ) and a lack of defensible space around structures. The HIZ includes your home and other structures (e.g., sheds and garages), and the area within 100 feet of each structure extending out to 200 feet on steep slopes. Firefighter intervention, adequate defensible space, and home hardening measures are common factors for homes that stand strong during major wildfires (IIBHS, 2019; Knapp et al., 2021; Maranghides et al., 2022). If you are a home- or property- owner with long- or short-term renters, the responsibility to mitigate the HIZ is yours and recommendations in this section apply to you. A comprehensive list of recommendations from all sections of this document can be found in the **Implementation Plan and the Future of the CWPP** section.

Defensible space is the area around a building where vegetation, debris, and other types of combustible fuels have been treated, cleared, or removed to slow the spread of fire and reduce the structure's exposure to embers, radiant heat and direct flame. Homeowners who create and maintain adequate defensible space give their homes a better chance to survive during a wildfire event even when firefighting resources are limited.

Home hardening is the practice of making a home less likely to ignite from embers, radiant heat, and/or direct contact with flames. It is important to remember that even when the flaming front of a wildfire is far away, the **embers (not the flames) are what ignite 50 to 90% of the homes lost in wildfires** (Gropp, 2019; Holstrom et al., 2023; Johnston, 2018). Home hardening involves reducing this risk by changing building materials, installation techniques, structural characteristics, and routine maintenance of a home. Home hardening measures are particularly important for homes located within the WUI.

It is important for residents to work together as a community to mitigate shared wildfire risk in the HIZ. Structure-to-structure ignition is a major concern in high-density WUI neighborhoods and can cause substantial property loss. Neighbors can work together to increase their homes' chances of survival during wildfire by reducing hazards in their overlapping defensible space. Fortunately, many residents in Asotin County have already started taking actions to mitigate their home ignition zone (**Figure 3.a.1**). 13% of residents who responded to the CWPP survey had home wildfire mitigation assessments done, 83% of residents managed noxious weeds and vegetation, and 65% cut or limbed trees and removed flammable brush.

This home in the Anatone Forestland zone has many of the recommended home hardening and defensible space measures completed. Photo credit: The Ember Alliance.

Asotin County Commissioners and the Building and Planning Department are developing and enforcing building and zoning codes that affect wildfire mitigation. Codes may be enforced for new construction and some remodels or additions. Residents should work with Asotin County Building and Planning to ensure they are following the correct codes for their location.

You can increase the likelihood that your home will stand strong during a wildfire and help protect the safety of firefighters by creating defensible space, replacing or altering building materials to make your home less susceptible to ignition, and increasing firefighter access along your driveway.

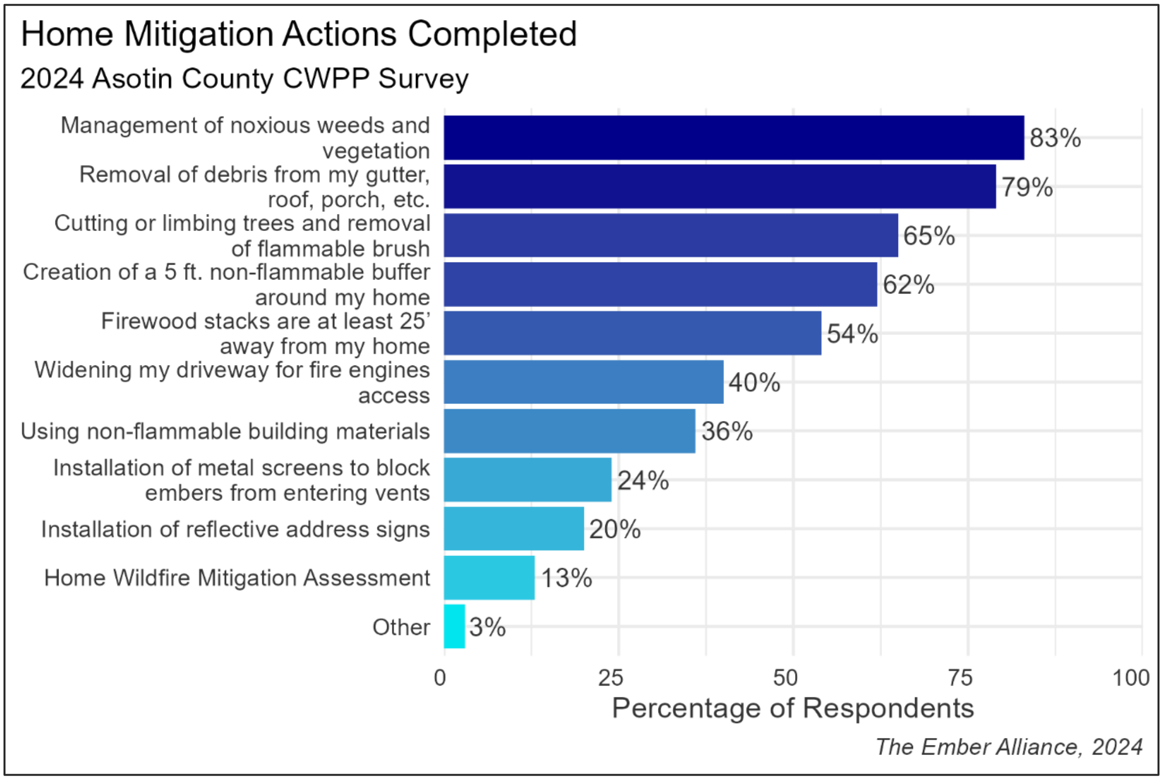


Figure 3.a.1. *Percentages of respondents to the CWPP survey that have completed different actions to mitigate risk in their home ignition zone. See* ***Appendix C*** *for a full summary of survey findings.*

Defensible Space

Defensible space creates a buffer between your home and grass, trees, and shrubs that could ignite during a wildland fire. Defensible space can slow the spread of wildfire, prevent direct flame contact, and reduce the chance that embers will ignite material on or near your home (Hakes et al., 2017). Substantially reducing flammable items and vegetation within the HIZ and removing vegetation that overhangs decks and roofs can reduce structure loss, especially for homes on slopes (Syphard et al., 2014)

Do not count on firefighters staying to defend your home—your home should be able to stand strong on its own during a wildfire. There are never enough firefighters to stay and defend every single home during large incidents. Properties that are not defensible will often not receive firefighter resources due to unsafe conditions and the higher likelihood of home loss regardless of firefighter intervention.

Defensible space is divided into three zones around a home or other structure, and recommended practices vary among zones. WA DNR Wildfire Ready Neighbors and NFPA Firewise USA® define the immediate zone as 0 to 5 feet from the home, the intermediate zone as 5 to 30 feet from the home, and the extended zone as 30 to 100 feet from the home (**Figure 3.a.2**). **It is important to acknowledge these distances are specific for flat ground. Aggressive topography can double the distance of each zone.**

Property owners should establish defensible space around each building on their property, including campers/RVs, detached garages, storage buildings, barns, and other structures. RVs are highly flammable and can emit embers that might ignite nearby homes and vegetation. Removing all vegetation under and around campers in the Immediate zone is crucial. Campers/RVs, boats, detached garages, storage buildings, barns, and other large structures should be placed at least 50 feet away from primary structures to prevent structure-to-structure fire spread (Maranghides et al., 2022).

A 2021 study from the University of Colorado-Boulder showed that homeowners living in the WUI typically underestimated the level of risk their home has due to wildfire and tended to overestimate the amount of work they have done to protect their property (Simpkins, 2021). Make sure you are informed about best practices for protecting your home (**Figure 3.a.6**). Refer to the NFPA Firewise USA® program and the WA DNR Wildfire Ready Neighbors program for recommendations. **Section 3.c** includes specific defensible space recommendations by vegetation type for the extended zone.

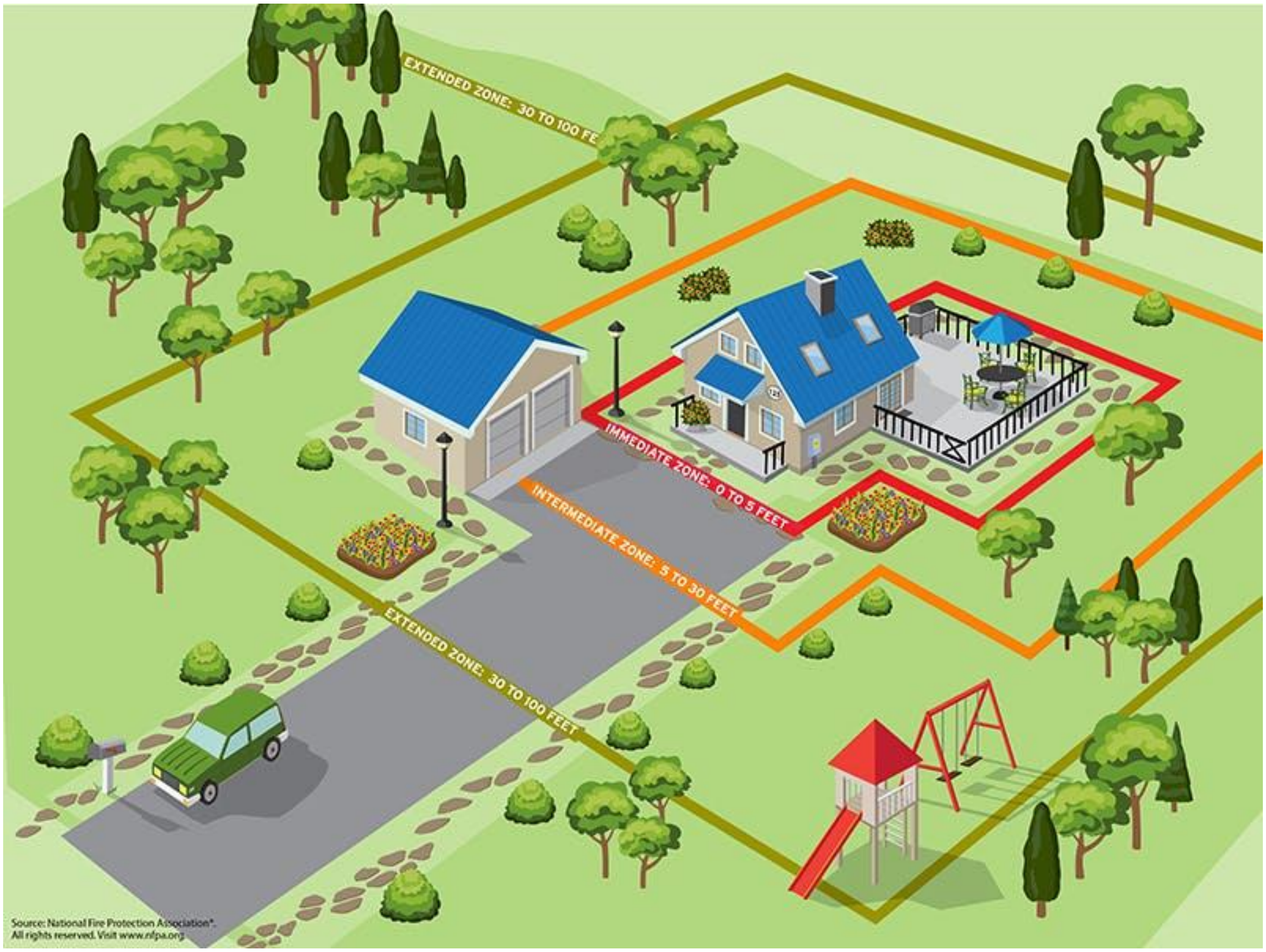


__Figure 3.a.2.__ Home ignition zone and immediate, intermediate, and extended zone recommendations. Using ignition-resistant building materials and removing burnable fuel around primary structures, outbuildings, and campers/RVs is crucial for increasing your home's chance of standing strong during a wildfire and creating safe conditions for wildland firefighters. Source: National Fire Prevention Association (NFPA).

Some homeowners in the WUI are concerned that removing trees will destroy the forest and reduce the aesthetic and monetary value of their property. In fact, many dense forests are unhealthy and greatly diverged from historical conditions that were maintained by frequent wildfires (**Figure 2.e.1**). Thinning with both forest health and fire mitigation values in mind is the best thing you can do for both the forest and your home. The reality is that nothing will decrease the aesthetic and monetary value of your home as much as a high-severity wildfire burning all the vegetation in the community, even if your home survives the fire. Forest management can look messy and destructive in the first years following treatment; however, grasses, shrubs, and wildflowers will respond to increased light availability after tree removal and create beautiful ecosystems with lower fire risk. It might even be said that the more trees you cut, the more trees you save from wildfire.

Many property owners enjoy their land even more after conducting effective fuel treatments. Removing trees can open incredible views of mountains, rivers, and rock formations, and wildlife are often attracted to forests with lower tree densities and a greater abundance of understory plants. Reducing fuel loads and increasing the spacing between trees increases the chance that your home and your neighbors' homes will stand strong during a wildfire, and most importantly, it increases the safety of wildland firefighters working to protect your community**.**

Grasses, shrubs, and wildflowers quickly respond to increased light availability after tree removal, resulting in beautiful ecosystems with lower fire risk and more high-quality wildlife habitat. Photos from the Tillicum Hazardous Fuels Reduction Project, a 4,000-acre thinning project administered by the WADNR Federal Lands Program on the Okanogan-Wenatchee National Forest. Photo credit: John Marshall. Photos appearing in the 2022 WA DNR Forest Health Assessment Treatment Framework (RCW 76.06.200).

Linked Defensible Space

The HIZ of individual homes can overlap that of their neighbors, so wildfire hazards on one property can threaten adjacent properties. Structures that are on fire can emit significant radiant heat and embers and endanger homes and structures near them**.** Most structures in Asotin County in the WUI planning and prevention area (85% of structures) have overlapping home ignition zones (0-100 feet from structures) with at least one neighboring structure, which increases their vulnerability to structure-to-structure ignition during wildfires (**Figure 3.a.3**).

Neighbors can increase their homes' chances of survival during wildfire if they work together to create linked defensible space. Linked defensible space also creates safer conditions and better tactical opportunities for wildland firefighters (**Figure 3.a.4**). Defensible space projects that span ownership boundaries are better candidates for grant funding due to their impact and strategic value.

How can you help inspire your neighbors to act? Start by creating defensible space and hardening your own home. Then try the ideas below:

- ✓ Invite your neighbors over for a friendly conversation about the risk assessment in this CWPP. Review resources about defensible space together, discuss each other's concerns and values, and develop joint solutions to address shared risk.
- ✓ Start a mitigation group in your neighborhood to help educate your community about the benefits of defensible space and home hardening. Work with organizations to host a mitigation event in your neighborhood. Seek guidance from ACCD or WA DNR Community Resilience.
- ✓ Help organize tours in your neighborhood to visit the property of residents with exemplary defensible space and home hardening. Witnessing the type of work that can be done, and seeing that a mitigated property can still be aesthetically pleasing, can encourage others to follow suit.
- ✓ Apply for grants that support fuels mitigation for multi-homeowner projects (see **Funding Opportunities**).
- ✓ Use WA DNR Wildfire Ready Neighbors resources to create a personalized wilfire ready plan.
- ✓ Work with your neighbors to get a community wildfire risk assessment and become a Firewise USA® site.

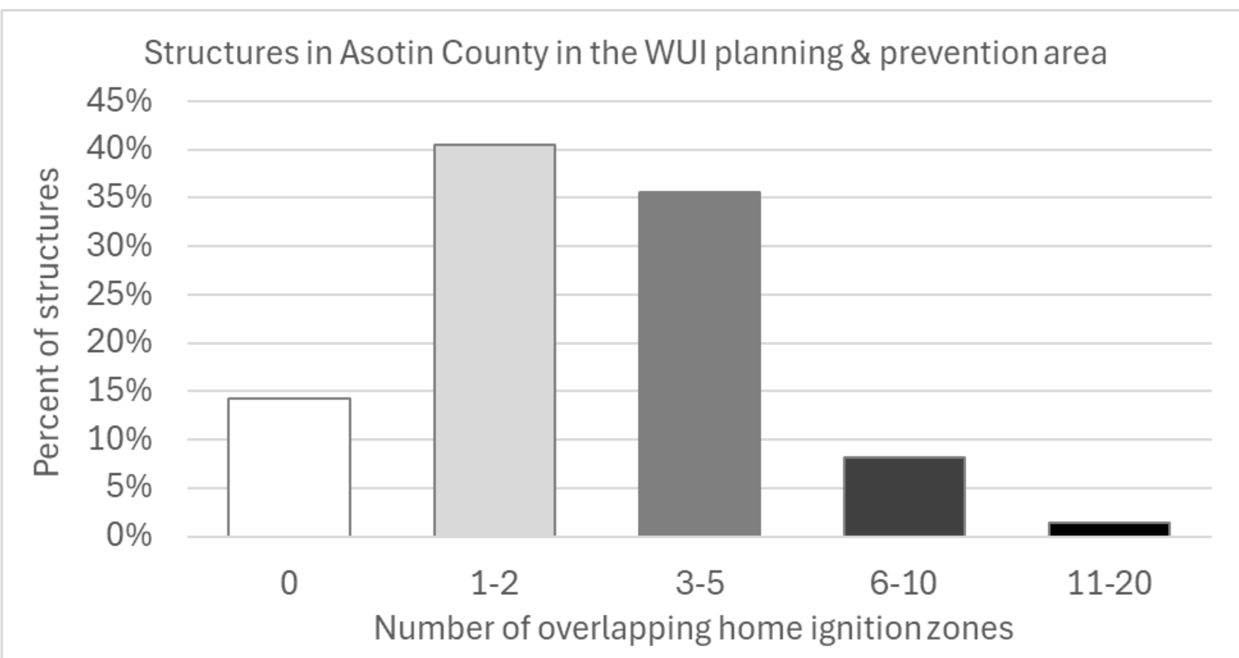


Figure 3.a.3. *85% of structures within Asotin County have overlapping HIZs with at least one other structure, increasing their vulnerability to structure-to-structure ignition. Coordinated action to treat overlapping home ignition zones can magnify the impact of mitigation actions by residents. Source: The Ember Alliance.*

Figure 3.a.4. *The NFPA Firewise USA® program is a framework for collective action. In Firewise communities, neighbors help each other implement and maintain fire risk reduction efforts across linked defensible space. Neighbors also cooperate on community fuelbreaks, safety zones, emergency access and communication plans. Source: University of Nevada Cooperative Extension.*

Mosaic Landscapes

Varied fuel types are known to slow the spread of fire, and heterogeneous landscapes (landscapes with multiple fuel types and trees of different sizes and ages) are more typical of historical forest conditions (Duncan et al., 2015). Creating a mosaic landscape in neighborhoods can help slow fire spread by changing the fuel types as it moves across a hill or valley. A mosaic landscape can be created in many ways. For example, a neighborhood could have a stand of mature ponderosa pine transitioning into a mature mixed conifer forest that has been selectively harvested with skips and gaps, allowing for pockets of young mixed conifer regeneration, next to a grassy meadow that is regularly cleared of trees, near a stream that has heavier riparian forests intermixed with areas of wetlands. Mosaic landscapes can be arranged in many ways for aesthetic and tactical purposes and will resemble a patchwork quilt or mosaic art (**Figure 3.a.5**). Neighborhoods that lie on hills of continuous mixed conifer or ponderosa pine should consider creating mosaic landscapes in these areas. The homes in each patch still need adequate defensible space, but this would create a more diverse landscape where fire may move slower as it transitions between forest types and unforested locations like shrublands or meadows. Slower fire movement means firefighters have time to defend more homes in the neighborhood. It also creates a diversity of biomes that both residents and wildlife enjoy. Work with both forestry professionals and wildlife professionals to ensure that forestry work still provides the resources and habitat for the wildlife that live there.

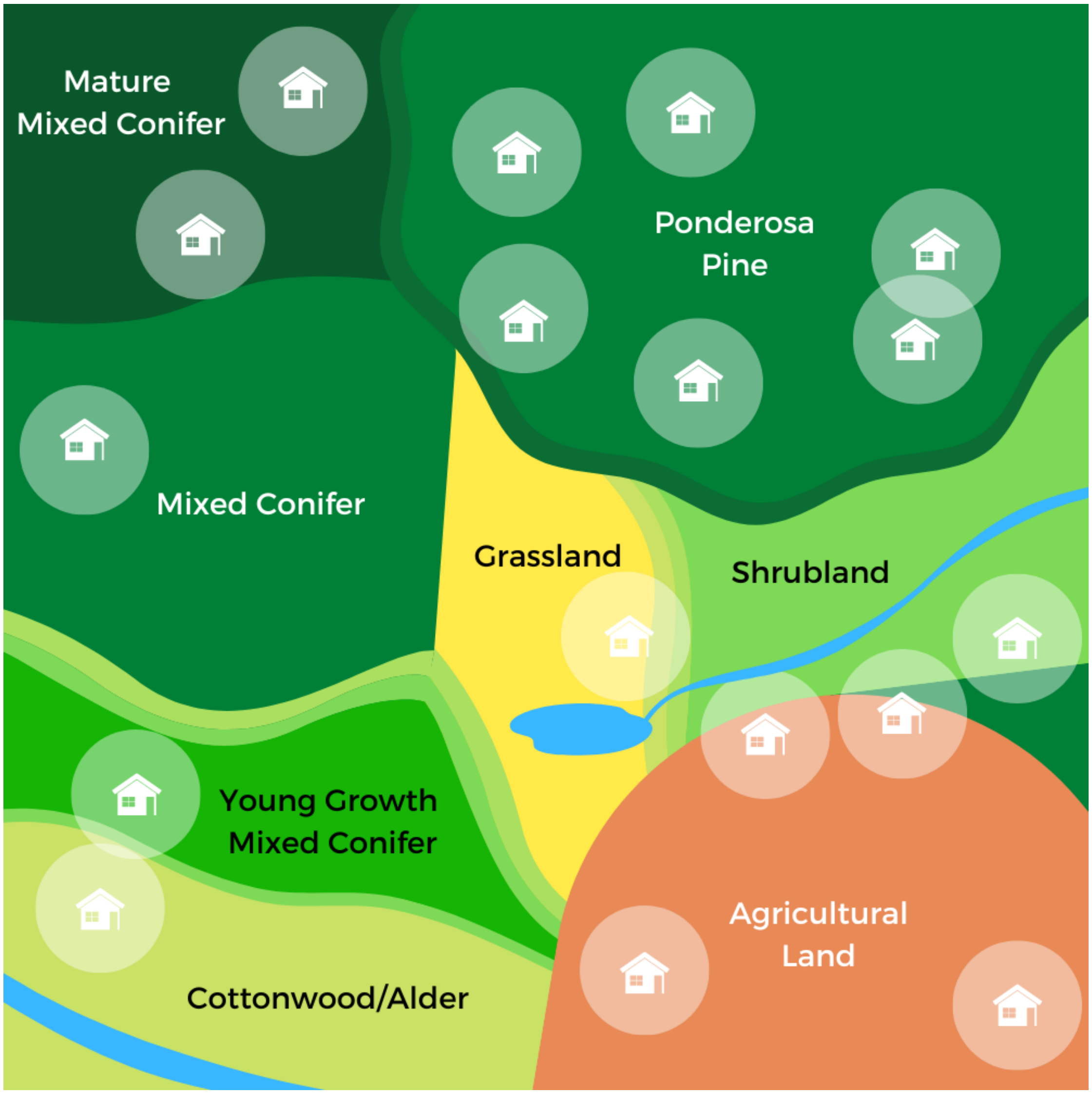
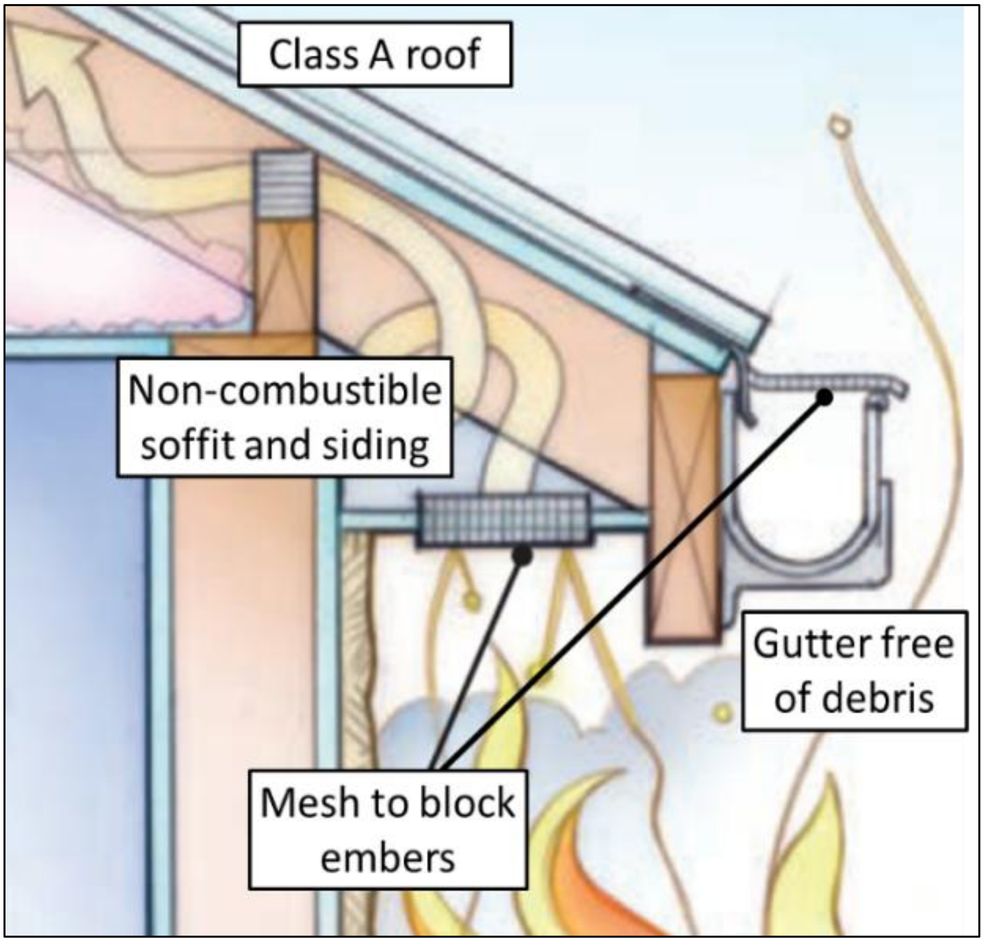


Figure 3.a.5. *Example of a mosaic landscape in a neighborhood. Each home has defensible space around it, and the landscape is varied throughout, providing tactical opportunities for firefighters working to defend homes. Source: The Ember Alliance.*

Home Hardening

Buildings cannot be made fireproof, but the chance of your home standing strong during wildfire increases when you reduce the ignitability of your home through home hardening and the creation and maintenance of defensible space. Research from the Insurance Institute for Business & Home Safety (IIBHS) clearly illustrates the benefits of home hardening for reducing the chance of home ignition from embers (watch a video of the research here). Home hardening is the only defense against embers. Material used to build homes tends to produce larger and more abundant embers that can travel farther distances than embers from burning grasses, shrubs, and trees (Zhou et al., 2019).

Almost 10% of homes in Asotin County in the WUI planning and prevention area could be exposed to radiant heat, 17% of homes to embers, 18% of homes to wildfires with rapid rates of spread (**Figure 2.f.8**). Fire models cannot predict ember production and radiant heat produced from burning structures, but the areas in Asotin County with a high density of structures, such as the City of Clarkston, Clarkston Heights, and City of Asotin, have elevated risk for home-to-home ignition from radiant heat and embers. Reducing the ability of embers to penetrate and ignite your home is recommended for everyone in Asotin County.



Residents can increase their homes' chance of survival by making it harder for embers to enter and ignite their homes (image from Healthy Building Science).

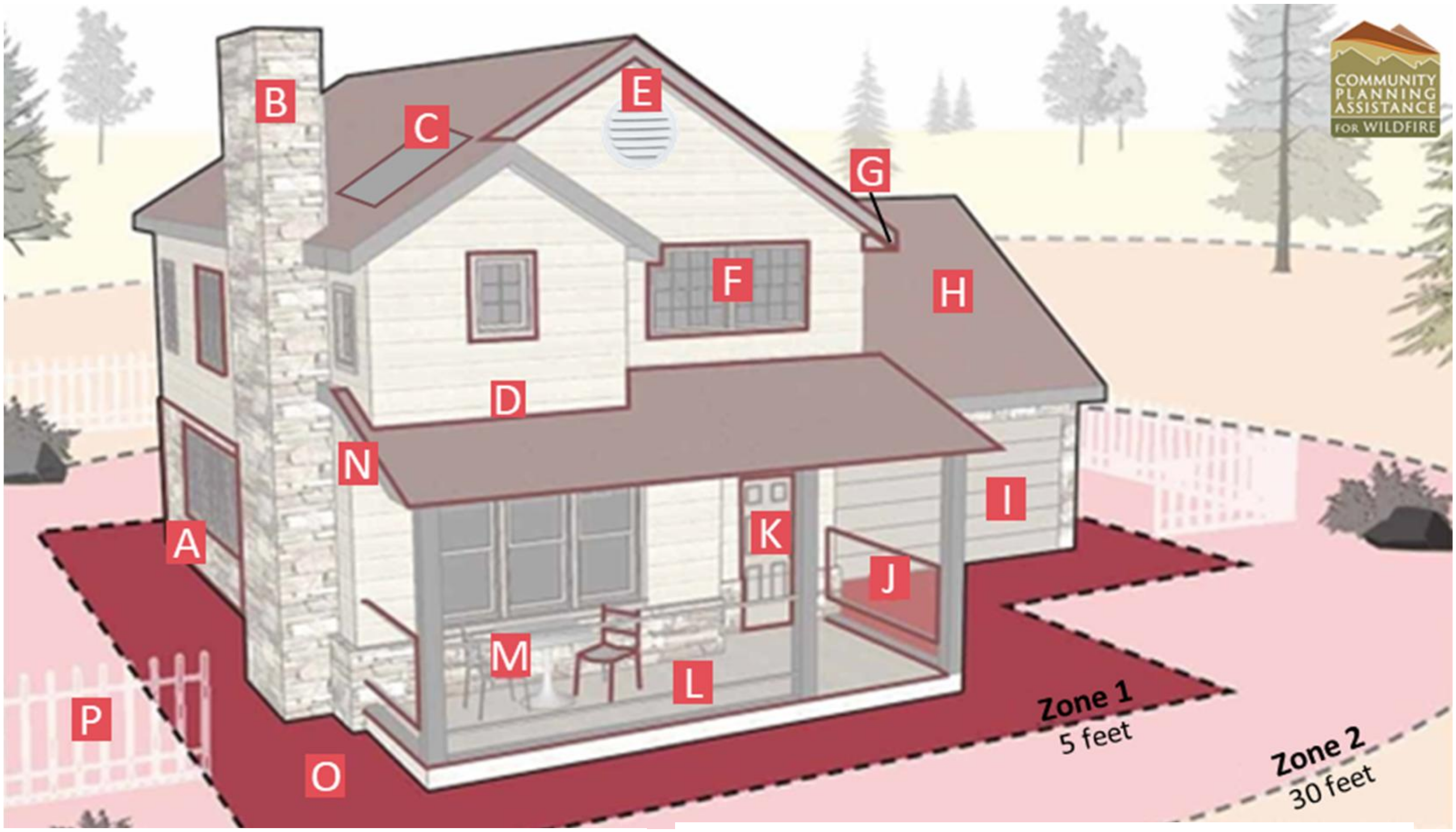
Roofs, siding, decks, windows, vents, and gutters are particularly vulnerable to embers from wildfire, and actions that prevent embers from penetrating your home can offer additional benefits such as reduced maintenance costs, greater durability, and increased energy efficiency:

- **Roofs** should be rated Class A and made of noncombustible materials[2] such as some composites, metal, cement, or tile, which tend to be more durable against wind, snow, and hail as well as wildfire.
- **Siding and decking** should be made of ignition-resistant or noncombustible materials, which is particularly effective when homes also have a 5-foot noncombustible border of dirt, stone, or gravel around them. Non-wood siding and decking, such as stucco, brick, metal, and some composites, are often more durable and require less routine maintenance than traditional wood.
- **Multi-pane windows** have greater resistance to radiant heat and provide better insulation and energy efficiency for your home. Windows often fail before a home ignites, providing a direct path for flames and airborne embers to enter a home (CSFS, 2021).

[2] See the **Glossary** on page 106 for the definition of terms used the describe the performance of building materials when exposed to fire (e.g., wildfire-resistant, ignition-resistant, and noncombustible).

- **Enclosed eaves and vent screens** reduce the penetration of wind-born embers into structures, and can deter pests and critters from nesting in your home's vents and eves (Hakes et al., 2017; Syphard and Keeley, 2019).
- **Fences and gates** should be made of noncombustible materials within at least 8 feet from the home (and at least 20 feet away from a home or structure for double combustible fences). Fences can serve as pathways for wildfire to travel between vegetation and structures and from structure to structure (Maranghides et al., 2022). Ignition-resistant and noncombustible fences are more durable and require less maintenance than wood fences, and are recommended within 8 feet from the home, or beyond when possible.

There are many low-cost actions you can start with to harden your home (**Figure 3.a.6**). Keep home-hardening practices in mind and use ignition-resistant materials if you replace a damaged roof or remodel your home. Also, remember that many home hardening practices are encouraged by Asotin County for new buildings and certain remodels.



Low-cost actions:

B. Cover chimneys and stovepipe outlets with 3/8th to ½ inch corrosion-resistant metal mesh.

C. Minimize debris accumulation under and next to solar panels.

E. Cover vent openings with 1/16th to 1/8th inch corrosion-resistant metal mesh. Install dryer vents with metal flappers and keep closed unless in use.

G. Clear debris from roof and gutters regularly.

I. Install metal flashing around and under garage doors that goes up at least 6 inches inside and outside the door.

J. Use noncombustible lattice, trellis, or other decorative features.

K. Install weather stripping around and under doors.

L. Remove combustible materials from underneath, on top of, or within 5 feet of deck.

M. Use noncombustible patio future.

N. Cover all eaves with screened vents.

O. Establish and maintain a 5-foot

Actions to plan and save for:

A. Use noncombustible or ignition-resistant siding and trim (e.g., stucco, fiber cement, fire-retardant treated wood) at least 2 feet up around the base of your home.

C. Use multipaned glass for skylights, not materials that can melt (e.g., plexiglass), and use metal flashing.

D. Install a 6-inch vertical noncombustible surface on all gables above roofs.

F. Install multi-pane windows with at least one tempered-glass pane and metal mesh screens. Use noncombustible materials for window frames.

G. Install noncombustible gutters, gutter covers, and downspouts.

H. Install ignition-resistant or noncombustible roofs (composite, metal, or tile).

I. Install 1-hour fire rated garage doors.

K. Install 1-hour fire rated front and back doors.

L. Use ignition-resistant or noncombustible decking. Enclose crawl spaces.

N. Use noncombustible eaves.

P. Replace wooden fences with noncombustible materials and keep at least 8 feet away from the home (at least 20 feet away for double combustible fences).

Figure 3.a.6. *A home can never be made fireproof, but home hardening practices decrease the chance that flames, radiant heat, and embers will ignite your home. Infographic by [Community Planning Assistance for Wildfire] with modifications from The Ember Alliance to include information from CALFIRE 2019 and Maranghides et al. 2022.*

Annual Safety Measures and Home Maintenance

Reviewing safety protocols, creating defensible space, and hardening your home are not one-time actions, but part of *annual* home maintenance when living in the WUI. During a wildland fire, homes that have clear defensible space are identified as sites for wildland firefighters to engage in structure protection, and homes that are not safely defensible will not usually receive firefighter resources. Suggestions below come from the Be Ember Aware publication from the University of Nevada:

- Plug openings in roof coverings, such as the open ends of barrel tiles, with non-combustible materials.
- Remove plant debris such as pine needles, leaves, branches and bark from the roof.
- Keep rain gutters free of plant debris during fire season. Consider using rain gutter covers to reduce maintenance.
- Fill gaps in siding and trim materials with a good quality caulk and replace poor condition building materials.
- Move firewood stacks and scrap lumber piles at least 30 feet from the house or other buildings.
- Place combustible patio furniture, such as lounges, tables and hammocks, inside the house or garage if wildfire is threatening.
- Replace deck boards that are less than one inch thick or that are in poor condition with thicker, good condition boards. Use metal flashing between the deck and the house.
- Remove plant debris from the gaps between deck boards, the gap between the deck and house, and lying on top of the deck.
- Remove combustible materials from the porch and deck including newspapers, wicker baskets, door mats, pinecones and dried flower arrangements, and place BBQ propane tanks indoors.
- Remove plant debris, wood piles and other easily ignited materials from under decks.
- Do not use wooden lattice to enclose decks.
- Remove wooden flowerboxes from beneath windows if wildfire is threatening.
- Cover open eaves with sheathing, such as plywood or fiber-cement board. Use tongue and groove joints or other intricate joint types and don't use butt joints.
- Replace wood mulches with noncombustible types and remove plant debris, including dried grass and flowers, dead leaves and dead branches from flowerbeds next to the house, other buildings and next to wooden fences. Replace ornamental junipers with low-growing deciduous shrubs or flowers under irrigation.
- Adjust garage doors to achieve as tight as fit as possible with the door frame. Consider using trim around the garage door to reduce the size of gap openings. Close the garage door if wildfire is threatening.
- Use garbage cans covered with tight fitting lids near the house or other buildings. Move newspaper recycling bins indoors.
- Maintain wooden fences in good condition and create a noncombustible fence section or gate next to the house for at least five feet.

Pile Burn Cooperatives

Building and burning slash piles is an effective way to remove slash from the extended zone, and thus, reduce wildfire risk to your home. Pile Burn Cooperatives (PBCs) are groups of neighbors that get together to help each other burn slash piles, with support from their local fire authority and local organizations. Pile burning is an appropriate method for slash management in the areas of Asotin County where homes are not densely packed together. WA DNR's Burn Portal should be consulted before any burning is planned or conducted.

A pile build workshop hosted by The Ember Alliance. Photo credit: The Ember Alliance (left), Evan Barrientos Photography (right).

Mitigation Barriers and Opportunities

Homeowners and residents in the WUI share concerns about mitigating risk and maintaining safer conditions in their home ignition zone. Top challenges cited in Asotin County CWPP Survey include cost/financial aspect (45% of respondents), lack of time (28%) and lack of knowledge/unsure what to do (28%) (**Figure 3.a.7**).

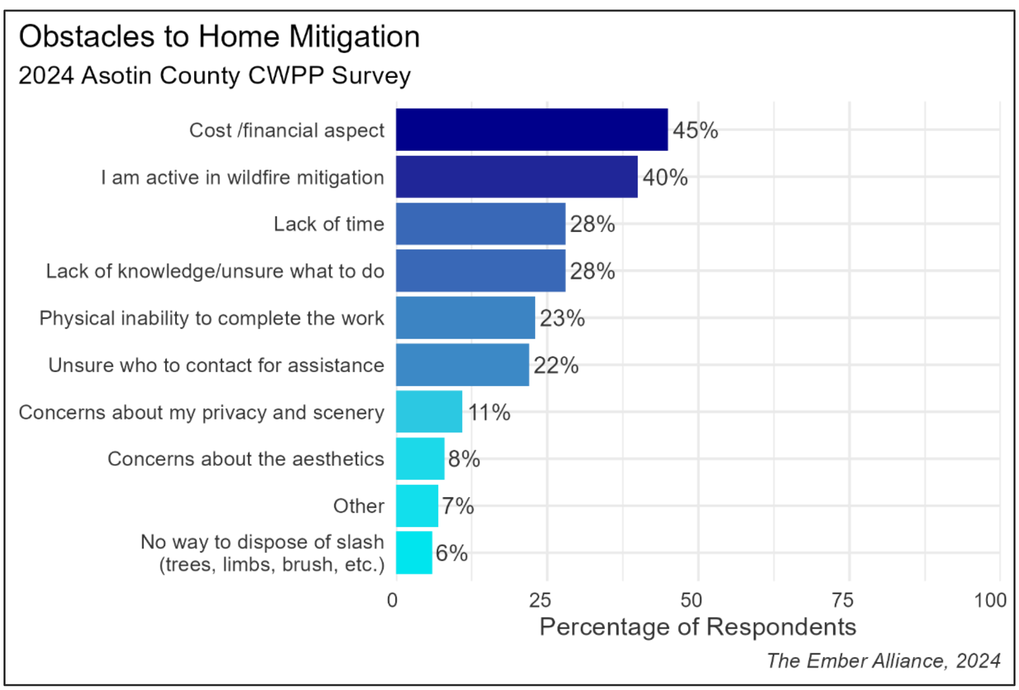


Figure 3.a.7. *Percentage of respondents to the 2024 CWPP survey and their obstacles to completing further wildfire mitigation on their home/land. See* ***Appendix C*** *for a full summary of survey findings.*

Concern: I don't have the resources to invest in defensible space.

Creating adequate defensible space can take years and a significant financial investment. Fortunately, there are effective, low-cost measures that residents can start with:

- ✓ Annually remove leaves, needles, and other vegetation from roofs, gutters, decks, and around the base of homes.
- ✓ Use hand tools like a pole saw to remove tree branches that hang less than 10 feet above the ground.
- ✓ Remove combustible materials (dry vegetation, wooden picnic tables, juniper shrubs, etc.) from underneath, on top of, or within 5 feet of decks.
- ✓ Remove vegetation and combustible materials within 5 feet of windows and doors.
- ✓ Replace wood mulch within 5 feet of all structures with dirt, stone, or gravel.
- ✓ Remove downed logs and branches within 30 feet of all structures.
- ✓ Participate in free wood waste disposal at the Asotin County Regional Landfill.
- ✓ Apply for cost-sharing grants as an individual or with your neighbors to subsidize the creation of defensible space (see **Section 3.e** for potential funding sources).
- ✓ Apply for the Washington Firewise USA® Site Assistance Micro Grant through the WA DNR.
- ✓ Research cost share programs like WA DNR's Financial Assistance for Wildfire Resilience and Forest Health.

Concern: I don't have the resources to invest in home hardening.

Retrofitting an existing home to be ignition-resistant can be expensive, particularly actions like replacing flammable roofs and siding. Some of these costs can be divided and prioritized into smaller projects. If you are building a new home, the cost of using ignition-resistant materials is roughly the same as using traditional building materials (Quarles and Pohl, 2018). Ignition-resistant features often come with additional benefits, such as greater durability and reduced maintenance.

The following are effective, low-cost measures from WA DNR's 12 Steps to Defend Your Home from Wildfire:

- ✓ Rake leaves, dead limbs and twigs. Remove leaves and rubbish from under structures and remove vines from the walls of the home. Clear all flammable vegetation.
- ✓ Thin a 15-foot space between tree crowns and remove limbs within 15 feet of the ground.
- ✓ Remove dead branches that extend over the roof.
- ✓ Prune tree branches and shrubs within 15 feet of a stovepipe or chimney outlet.
- ✓ Ask the power company to clear branches from powerlines.
- ✓ Mow grass regularly.
- ✓ Clear a 10-foot area around propane tanks and the barbecue. Place a screen over the grill – use nonflammable material with mesh no coarser than one- quarter inch.
- ✓ Regularly dispose of newspapers and rubbish at an approved site. Follow local burning regulations.
- ✓ Place stove, fireplace and grill ashes in a metal bucket, soak in water for 2 days; then bury the cold ashes in mineral soil.
- ✓ Store gasoline, oily rags and other flammable materials in approved safety cans. Place cans in a safe location away from the base of buildings.
- ✓ Stack firewood at least 100 feet away and uphill from your home. Clear combustible material within 20 feet.
- ✓ Review your homeowner's insurance policy and prepare/update a list of your home's contents.

Concern: I don't know where to start with creating defensible space.

- ✓ Review WA DNR's [Fire-Resistant Plants for Eastern Washington] guide for mitigation and landscaping recommendations.
- ✓ Residents in Asotin County can reach out to ACCD or WA DNR Community Resilience to learn about defensible space and home hardening tactics or schedule a home assessment.
- ✓ Talk to neighbors who have taken steps to mitigate fire risk on their property.
- ✓ Use WA DNR Wildfire Ready Neighbors resources to create a personalized wilfire ready plan
- ✓ Research NFPA's Firewise USA® for resources for individuals and communities

Concern: I am afraid that removing trees will destroy the forest and reduce the aesthetic and monetary value of my property.

The reality is that nothing will decrease the value of your home as much as a high-severity wildfire burning all the vegetation in the community, even if your home survives the fire. Some ideas to help reconcile different values you hold for your property are to:

- ✓ Drive around the community and look for homes that have followed the guidelines in **Figure 3.a.2**. Some properties in Asotin County have exemplary defensible space and beautiful landscaping at the same time.
- ✓ Read about low-flammability plants from WA DNR and Firescaping from Fire Safe Marin for suggestions on beautiful, fire-resistant landscaping. As an added benefit, fire-resistant landscaping is often more drought tolerant.
- ✓ Learn about the ecology and fire regimes of the forests of the Blue Mountain by reading *Fire in the Blue Mountains: a history, ecology, and research agenda* (Miller, 2018). Restored ecosystems can be aesthetically pleasing, benefit wildlife and light-loving wildflowers and grasses, and protect your home from high-severity wildfires.

Fire-resistant landscaping in the immediate zone can be aesthetically pleasing and more drought tolerant, requiring less watering during the summer. Limbed and thinned trees in the intermediate zone (as seen in the background of this photo) can create beautiful, open conditions that allow understory vegetation to flourish under higher light conditions and provide habitat for wildlife. Photo credit: Washington State University Master Gardener Program.

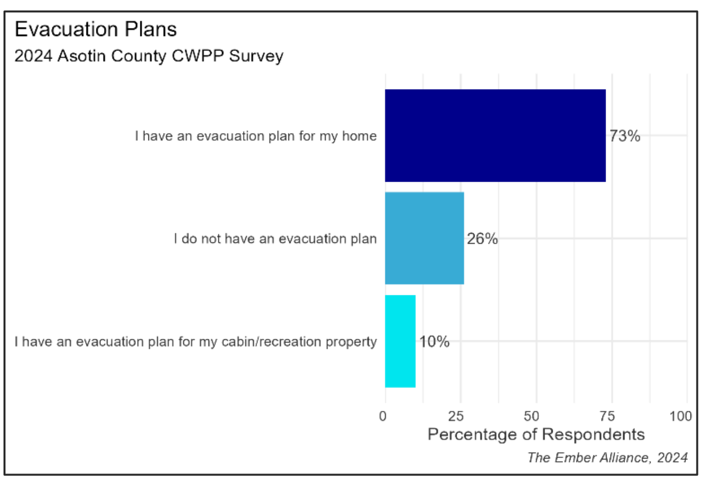
Evacuation Preparedness

Evacuation can weigh heavily on the minds of residents in Asotin County. The death of 86 people in Paradise, California during the 2018 Camp Fire, many of whom were stranded on roadways during evacuation, underscores the importance of evacuation preparedness and fuel mitigation along evacuation routes. Roads lined closely with dense, tall vegetation can create flame lengths and heat that are dangerous to evacuees. Roads that may be unpassable during a wildfire event are referred to as potentially non-survivable in this CWPP.

Evacuation preparedness is the responsibility of each resident in Asotin Couty. The best way to get out quickly and safely during an evacuation is to be prepared. 73% of respondents to the CWPP survey have evacuation plans for their home but 61% have not practiced evacuating people, pets, or livestock (**Figure 3.a.8**). Visit the Ready for Wildfire website to learn about go-bags and evacuation planning—simple and crucial actions that can save lives.

In addition to preparing a go-bag, have a family emergency plan **before** the threat of wildfire is in your area. Some residents have family members or neighbors with physical limitations who might struggle to evacuate in a timely manner. Develop specific emergency plans that address these unique needs and vulnerabilities. Parents should work with their neighbors to develop a plan for how to evacuate children that might be home alone.

Source: Seattle Office of Emergency Management.



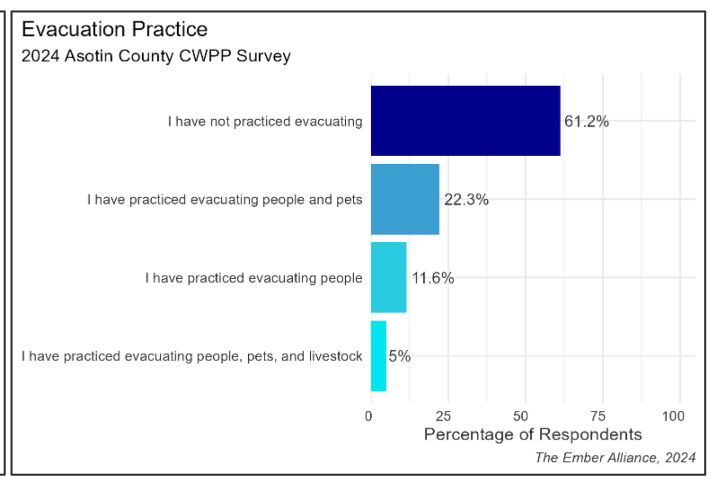
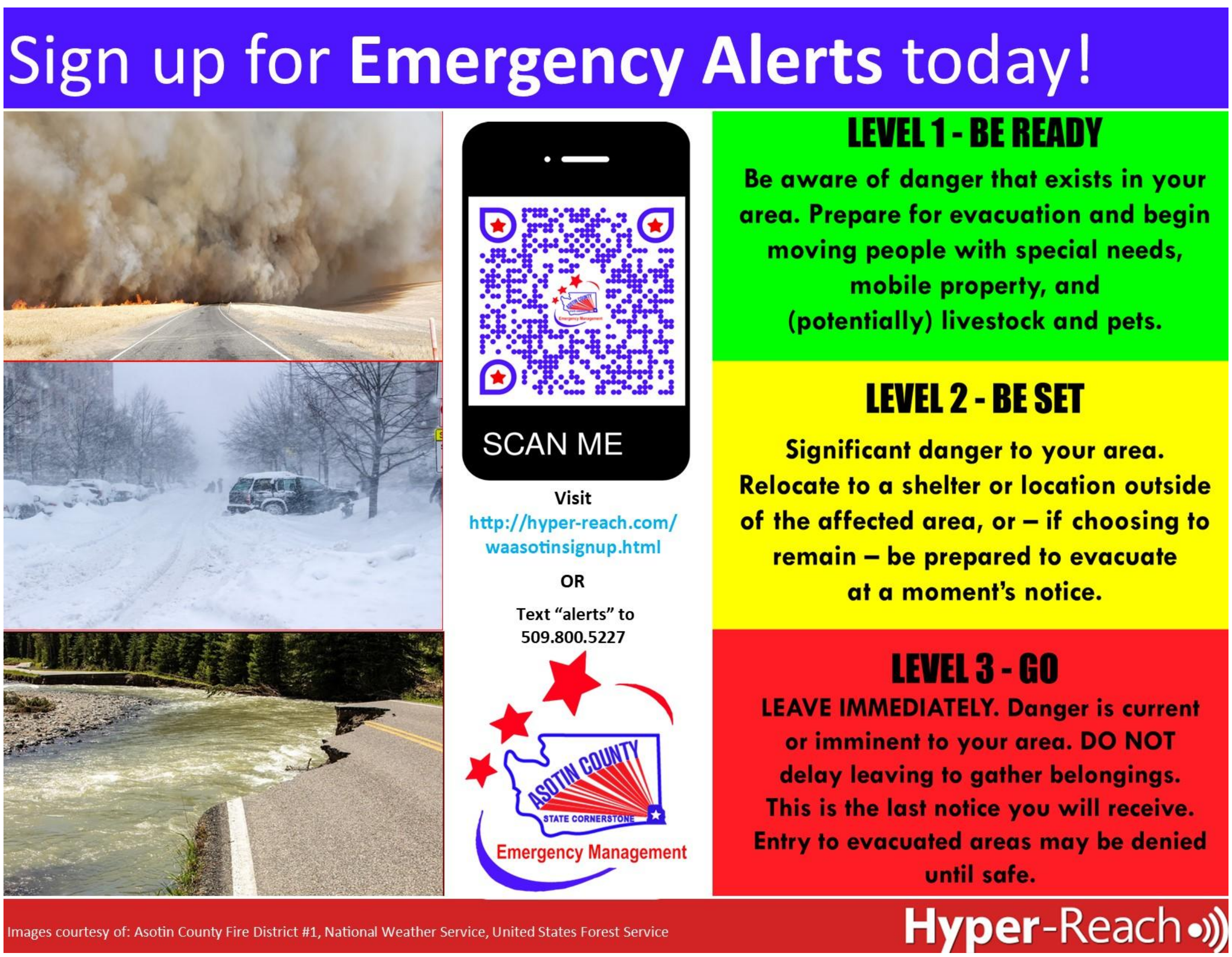


Figure 3.a.8. *Percentage of respondents to the 2024 CWPP survey and their evacuation plans and practice. See **Appendix C** for a full summary of survey findings.*

Residents with livestock trailers should plan to leave during voluntary evacuation notices to allow time for their preparations and create more space on the roads for other residents during a mandatory evacuation. It is important to have a plan for where to take livestock to reduce some of the chaos and uncertainty created by wildfire evacuations. The Federal Emergency Management Agency (FEMA) provides tips for protecting livestock during a disaster. In Asotin County, local volunteers work in conjunction with law enforcement, fire, and emergency management to safely and efficiently evacuate and shelter animals.

All residents in Asotin County should sign up for local emergency notifications to ensure timely and accurate information during emergencies. Information on emergency notifications was accurate and current as of the writing of the Asotin County CWPP in December 2024. Understanding types of emergency alerts and terminology can help you be prepared and take appropriate action during emergencies. Each county uses its own terminology. Residents can also follow Facebook pages for ACDF1, BMFD1, Asotin County Sheriff's Office, and Asotin County DEM for more information.

All residents should know the primary and secondary evacuation routes from their community, as well as emergency evacuation locations for their family and livestock (**Figure 3.a.9**). Residents should drive these routes under different conditions, such as at night and in the rain, to simulate the poor visibility that is common in dense smoke from wildfires.



Follow evacuation etiquette to increase the chance of everyone exiting Asotin County in a safe and timely manner during a wildfire or other emergency:

- ✓ Register for emergency notifications.
- ✓ Leave as quickly as possible after receiving an evacuation notice.
- ✓ Follow instructions of local officials
- ✓ If there is time:
    - Let others know when you left and where you are going.
    - Make arrangements for pets. Animals may not be allowed in public shelters.
    - Shut off water, gas, and electricity, if instructed to do so.
- ✓ Listen to a battery-powered radio for the location of emergency shelters and check authoritative Facebook pages for updates.
- ✓ Lock your home.
- ✓ Take your emergency go-bag (which should be packed and ready during the wildfire season, especially on days with Red Flag Warnings).
- ✓ Use travel routes specified by local officials.
- ✓ Wear protective clothing and sturdy shoes.
- ✓ Leave with as few vehicles as possible to reduce congestion and evacuation times across the community.
- ✓ Drive safely and with headlights on. Maintain a safe and steady pace. Do not stop to take pictures.
- ✓ Yield to emergency vehicles.
- ✓ Follow directions of law enforcement officers and emergency responders.

Pay attention to roadsides across Asotin County. Photo credit: The Ember Alliance.

Evacuation tips provided by the Asotin County Department of Emergency Management and Asotin County CWPP Core Team.

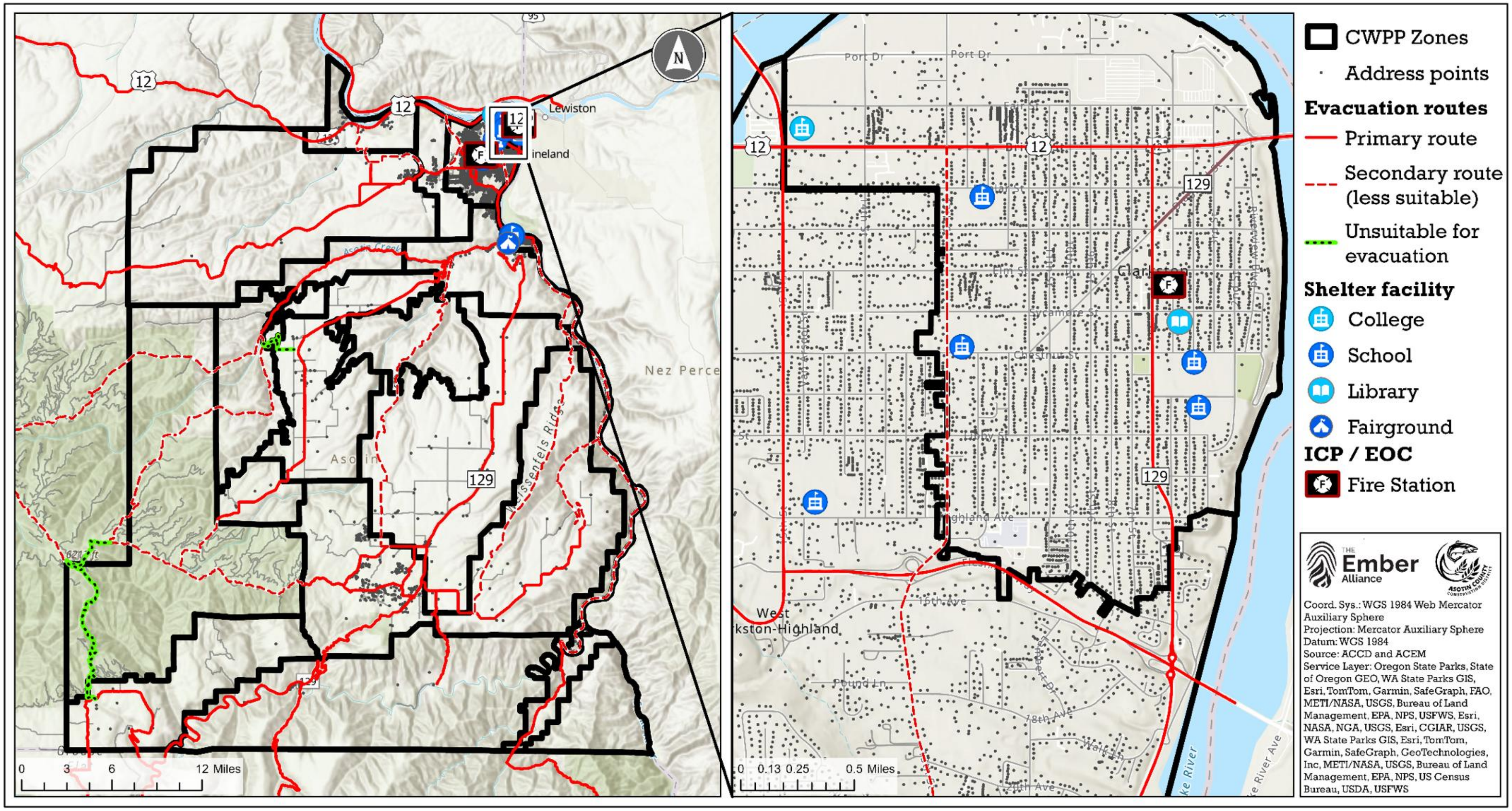


Figure 3.a.9. *Primary and secondary evacuation routes in Asotin County. Secondary evacuation routes have less suitable road surfaces and are only recommended if primary routes are unavailable. All residents should familiarize themselves with the available routes and practice evacuating under different conditions.*

Accessibility and Navigability for Firefighters

Signs

Installing reflective address numbers can save lives by making it easier for firefighters to find your home at night and under smokey conditions. Reflective signs are available from the County Building Department, making it an easy and inexpensive action you can accomplish to protect firefighters and your family. Mount reflective signs near your driveway on noncombustible posts, not on stumps, trees, wooden posts, or chains across driveways. Chains across driveways might be removed during wildfire suppression to permit access to your property. Make sure the numbers are clearly visible from both directions on the roadway.

Driveways

Many driveways within Asotin County do not meet current access requirements and pose safety issues that are difficult to mitigate. Long, narrow, steep driveways lacking turnarounds, and dense trees on the sides of the road can create challenges for emergency response vehicles during wildfires. Photo credit: The Ember Alliance.

It is important to ensure emergency responders can locate and access your home. Narrow driveways without turnarounds, tree limbs hanging over the driveway, and dead and down trees may make it unsafe for firefighters to defend your home during a wildfire event (Brown, 1994).

Some driveways and private roads in Asotin County have accessibility and navigability issues, such as narrow widths, inadequate vertical clearance for engines, and heavy fuel loading on the sides of the road. These unsafe road and driveway conditions could turn firefighters away from attempting to defend homes. According to the NFPA, driveways and roads should have a minimum of 20 feet of horizontal clearance and 13.5 feet of vertical clearance to allow engines to safely access the roads (O'Connor, 2021). Residents should remove trees and low-hanging limbs along driveways to facilitate firefighter access, as well as removing all dead trees that could fall across the driveway and block access.

Where possible, residents should improve roadway access, and where this is not feasible, it is vital that homeowners take measures to harden their home and create defensible space. Some actions to increase access to your home are simple, such as installing reflective address numbers, and others take time and investment, such as widening driveways and extending culverts to accommodate fire engines.

If you or your neighborhood has a private bridge, post the bridge weight limits. Not all firefighting equipment will cross unmarked bridges, so knowing and posting weight limits may help firefighters access and defend your home. If your community or home has a gate, consider installing a knox box to allow access to emergency personnel. If you have an access gate with a keypad, consider setting a code for emergency responders and give that code to the 911 dispatch center.

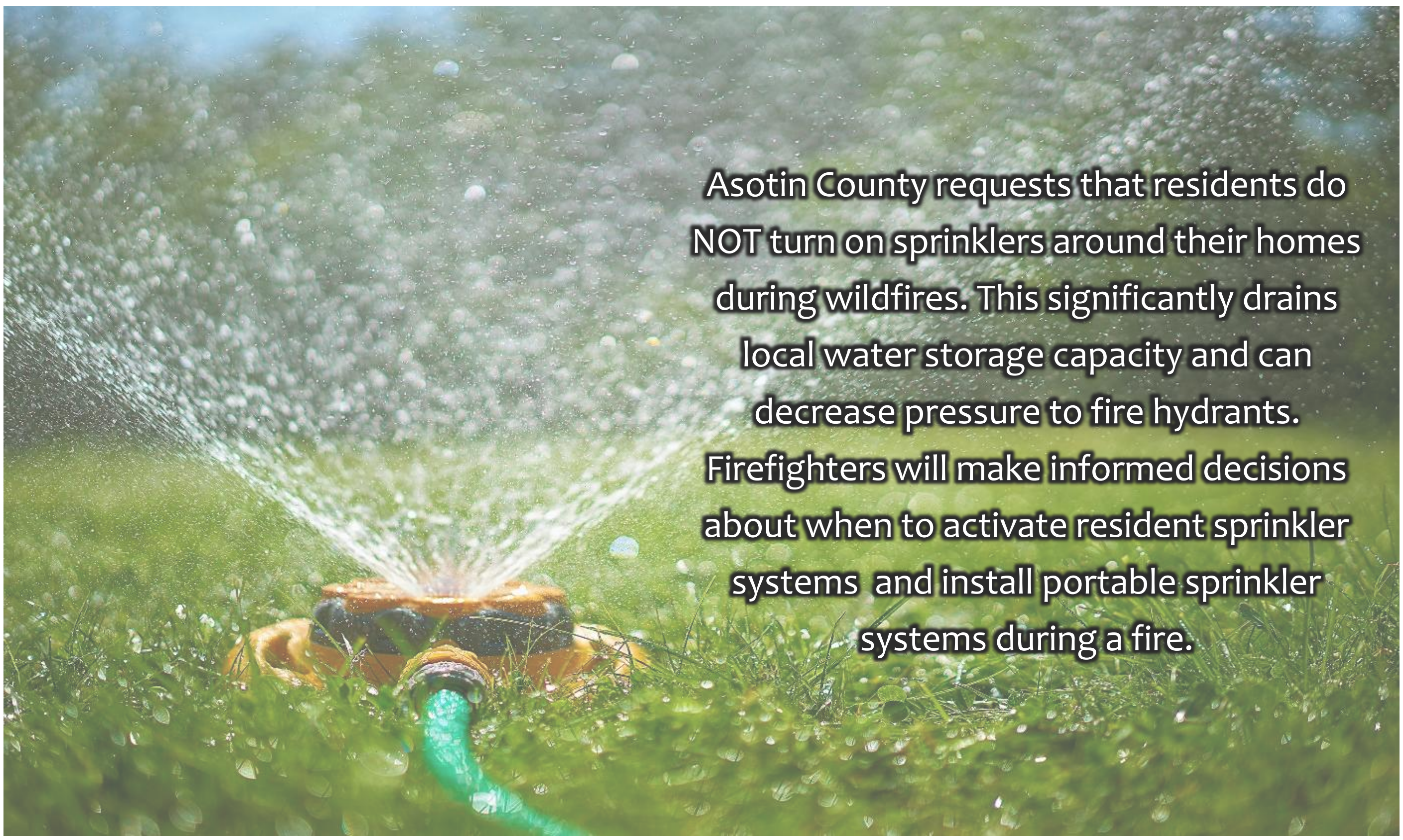
Private Water Resources

Water resources to fight fires in part of the County can be scarce, especially during the fire season in late summer and fall. Firefighters are skilled at determining the most beneficial ways to use water to protect structures from an approaching fire. Providing clear access to suitable water resources around your home or neighborhood can help them defend your home.

Do not turn sprinklers on around your home as you evacuate. This is counterproductive to protecting your home because continuous use of water far in advance of the fire can drain local wells and cisterns long before the fire reaches your neighborhood. This leaves firefighters with less resources to defend your home, putting their lives and your property at higher risk. Leave sprinklers visible but **turned off** so firefighters can determine whether they will be useful or not. Read [this post by Fire Safe Marin] about why it is unwise to leave water running when you evacuate during a wildfire.

Before you evacuate, prepare personal water resources by making them easily accessible and clearly labelling how to access them. Unlock pump house doors and remove vegetation or other obstructions. If you have a generator, leave it in an accessible location in case the power is turned off. Contact your local FPD when planning a new cistern to ensure it is compatible with their fire equipment.

Most importantly, create defensible space around your home and buildings so that water resources can be used effectively. Water is not a reliable resource in Eastern Washington. Maintaining a property that requires less water and resources to defend is more likely to stand strong during and be more resilient to wildfire.



Support Your Local Fire Department or Fire Protection District

Fire Departments (FDs) are associated with cities and funded by taxes collected by the city they serve, Fire Protections Districts (FPDs) are associated with multiple communities and unincorporated areas and are funded by property taxes from the area they serve. FDs and FPDs play critical roles in structure and wildland fire—but not all of Asotin County is protected. See **Section 3.b** for zone-specific recommendations around joining and forming FPDs.

Education and outreach are incredibly important to Asotin County–connecting with constituents is a vital part of building relationships and providing the highest quality services. Your support for your local fire department and districts can improve the safety of Asotin County:

- Consider volunteering with your local FD or FPD, check each department's website for volunteer opportunities.
- Provide financial support in the form of monetary donations or initiate and vote for local ballot measures that provide tax revenue for local FDs and FPDs so they can better respond to residents in their time of need.
- Attend events hosted by FDs, FPDs, and their partner organizations about wildfire mitigation and emergency preparedness. Protecting your home from wildfire can also protect your local firefighters. Share information you learn with neighbors to build community resilience and magnify the impact of individual actions.

Photo credit: Courtesy of Cougar Creek Fire Facebook.

When you volunteer with Asotin County Fire Departments and Fire Protection Districts, you become an asset to your community & part of our family!

Steps to enhance firefighter safety and access BEFORE a fire:

- Install reflective address numbers on the street to make it easier for firefighters to navigate to your home under smoky conditions and at night. **Installing reflective address numbers can save lives and is inexpensive and easy to accomplish.**
    - Make sure the numbers are clearly visible from both directions on the roadway.
    - Use noncombustible materials for your address sign and sign supports.
- Improve roadway accessibility for fire engines. Long, narrow, steep, and curving private drives and driveways without turnarounds significantly decrease firefighter access to your property, depending on fire behavior.
    - Fill potholes and eroded surfaces on private drives and driveways.
    - Remove trees along narrow private drives and driveways so the horizontal clearance is 20 feet wide and prune low-hanging branches of remaining trees, so the unobstructed vertical clearance is at least 13.5 feet per NFPA recommendations.
- Post the load limit at any private bridges or culverts on your property.

Steps to enhance firefighter safety and access DURING a fire:

- Park cars in your driveway or garage, not along narrow roads, to make it easier for fire engines to access your home and your neighbors' homes.
- Clearly mark septic systems with signs or fences. Heavy fire equipment can damage septic systems.
- Clearly mark wells and water systems. Leave hoses accessible for firefighters to use when defending your home, but **DO NOT** leave the water running. This can reduce water pressure to hydrants across the community and reduce the ability of firefighters to defend your home.

Photo credit: Courtesy of Cougar Creek Fire Facebook.

3.b. Relative Risk Ratings and Targeted Action for CWPP Zones

This CWPP is a useful planning document, but it will only affect real change if residents, neighbors, FPDs, local forestry and community groups, and agency partners come together to address shared risk and implement strategic projects. This section of the CWPP provides relative risk ratings for CWPP zones in Asotin County and outlines priority recommendations for collective action to address shared risk and magnify the impact of mitigation actions by individual residents. Guidelines for priority action could be spearheaded by neighborhood ambassadors in each CWPP zone with support from fellow residents. If you are a homeowner or a property owner with long- or short-term renters, the responsibility to mitigate the HIZ is yours and recommendations in this section apply to you.

CWPP zones are areas with shared fire risk where residents can organize and support each other to effectively reduce wildfire risk and enhance emergency preparedness. We delineated 19 zones in Asotin County by considering clusters of addresses, connectivity of roads, topographic features, land parcels, land ownership, and local knowledge of community organization. Amendments were made to boundaries based on local knowledge of the CWPP Core Team.

The ACCD conducted on-the-ground observations to assess fire risk, fire suppression challenges, evacuation hazards, and home ignition zone hazards during the summer of 2024, and TEA combined these observations with output from our fire behavior and post-fire sedimentation analyses. Fire risk incorporates the type and probability of wildfire in the area. Evacuation hazards include roadway quality and quantity, roadside hazards, and cell phone coverage. Suppression challenges include the fire protection coverage, accessibility of roads for fire engines, water sources, and home/road signage. Home ignition zone hazards are based on the general quality of home hardening and defensible space work on structures in the area, the exposure of homes to wildfire, and the potential for home-to-home ignitions. Post-fire hazards include the potential for landslides and post-fire erosion and the vulnerability of clean surface drinking water to wildfire. See **Appendix B** for a description of hazard rating methodology. Zone hazard ratings are specific to Asotin County and not suitable for comparing this county to other counties in Washington or the country.

According to the 2020 Wildfire Risk to Communities analysis by the USFS, homes in Asotin County have a greater risk from fire than 91% of counties in the United States (USFS, 2021a). The potential for wildfires to pose a threat to lives and property is high across Asotin County, but risk is relatively higher in some parts of the county than others (**Figure 3.b.1**; **Figure 3.b.2**). Zones with higher relative risk are strong candidates for immediate action and additional support to mitigate hazardous conditions. However, zones with moderate relative risk still possess conditions that could threaten life and/or property in the case of wildfire.

Zones in the southern portion of Asotin County have the highest overall relative risk. These zones tend to have high or extreme relative risk in all five of the risk categories (fire risk, fire suppression challenges, evacuation hazards, home ignition zone hazards, and post-fire hazards). One exception is the Snake River Corridor and Joseph Creek Corridor zone where fire behavior is less extreme than other parts of the County due to fuel conditions, but this zone has extreme suppression challenges, evacuation hazards, and post-fire hazards. Umatilla Public Forestland has extreme risk in terms of fire behavior but only has moderate overall relative risk due to the lack of homes.

There are multiple wildfire response agencies across Asotin County (**Figure 2.a.1**). Some CWPP zones are fully protected by a fire protection district or other agency, while other zones are only partially protected or completely unprotected. This variation in protection leaves many areas vulnerable to wildfire and puts surrounding areas at further risk due to the potential for fire to spread. Asotin Creek Rural, Cloverland Prairie, and Snake River Corridor & Joseph Creek Corridor zone are completely unprotected by wildland FPDs; George Creek Public Lands and Grande Ronde Wildland zones are only partially protected by FPDs; and Asotin Creek Public Lands, Cloverland Forestland, Anatone Forestland, Grouse Flats/Mountain View, and most of the Grande Ronde Wildland zone receive only initial fire response by WA DNR due to proximity to public lands. This variation in wildfire response across the county was one of many variables considered in the relative risk rating.

The following sections include descriptions of relative risk and priority action for residents in each zone. Zoomed in zone maps are included that show highly valued resources, roadway hazards, and priority project areas, which are described in detail in section **4.c. Priority Project Areas for Asotin County**. A comprehensive list of recommendations from all sections of this document can be found in the **Implementation Plan and the Future of the CWPP** section.

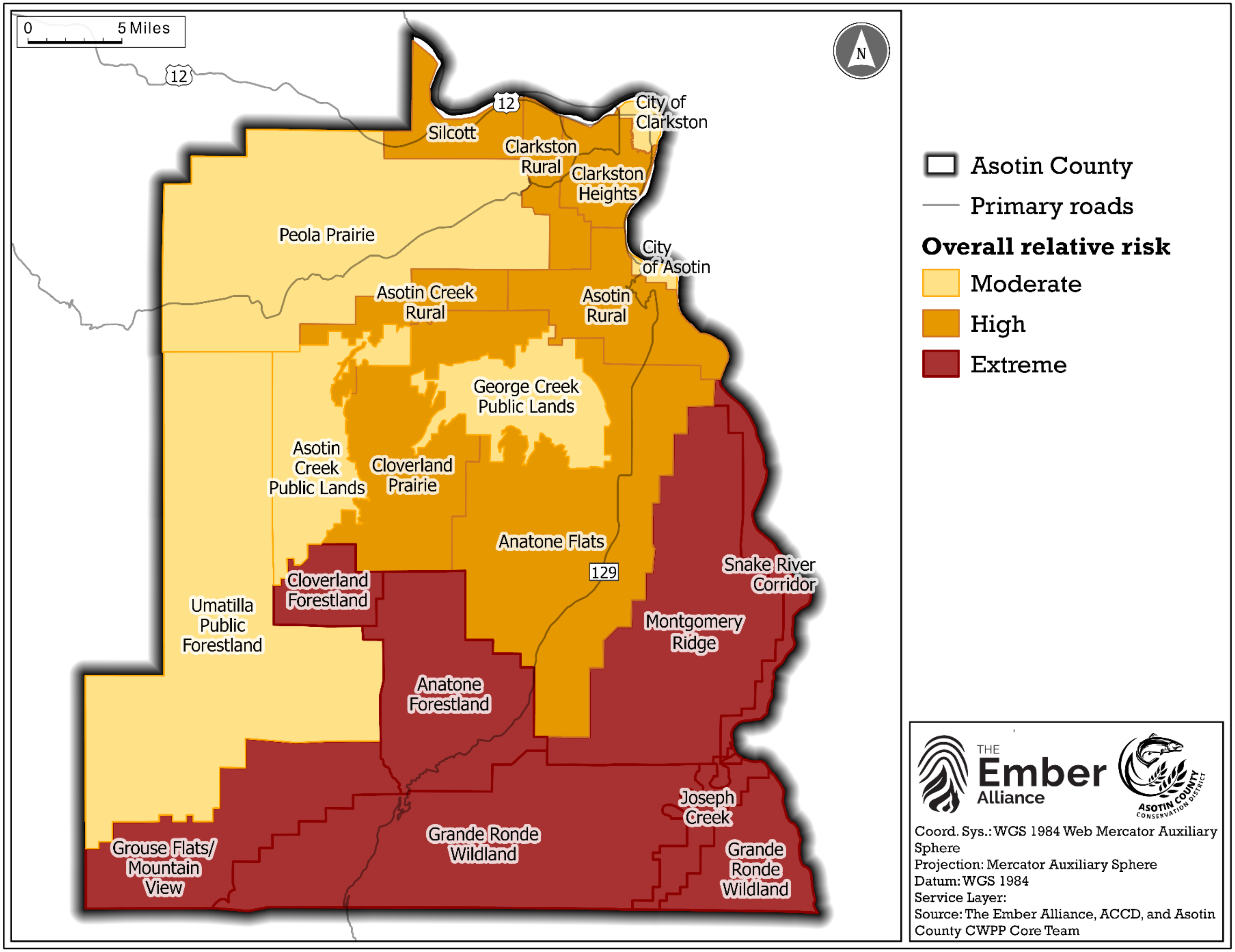


Figure 3.b.1. *Relative risk rating for zones across Asotin County. "Moderate" risk is a relative term – most residents within Asotin County are exposed to elevated fire danger due to topography and fuels in this part of Washington and should take recommended actions in this CWPP seriously.*

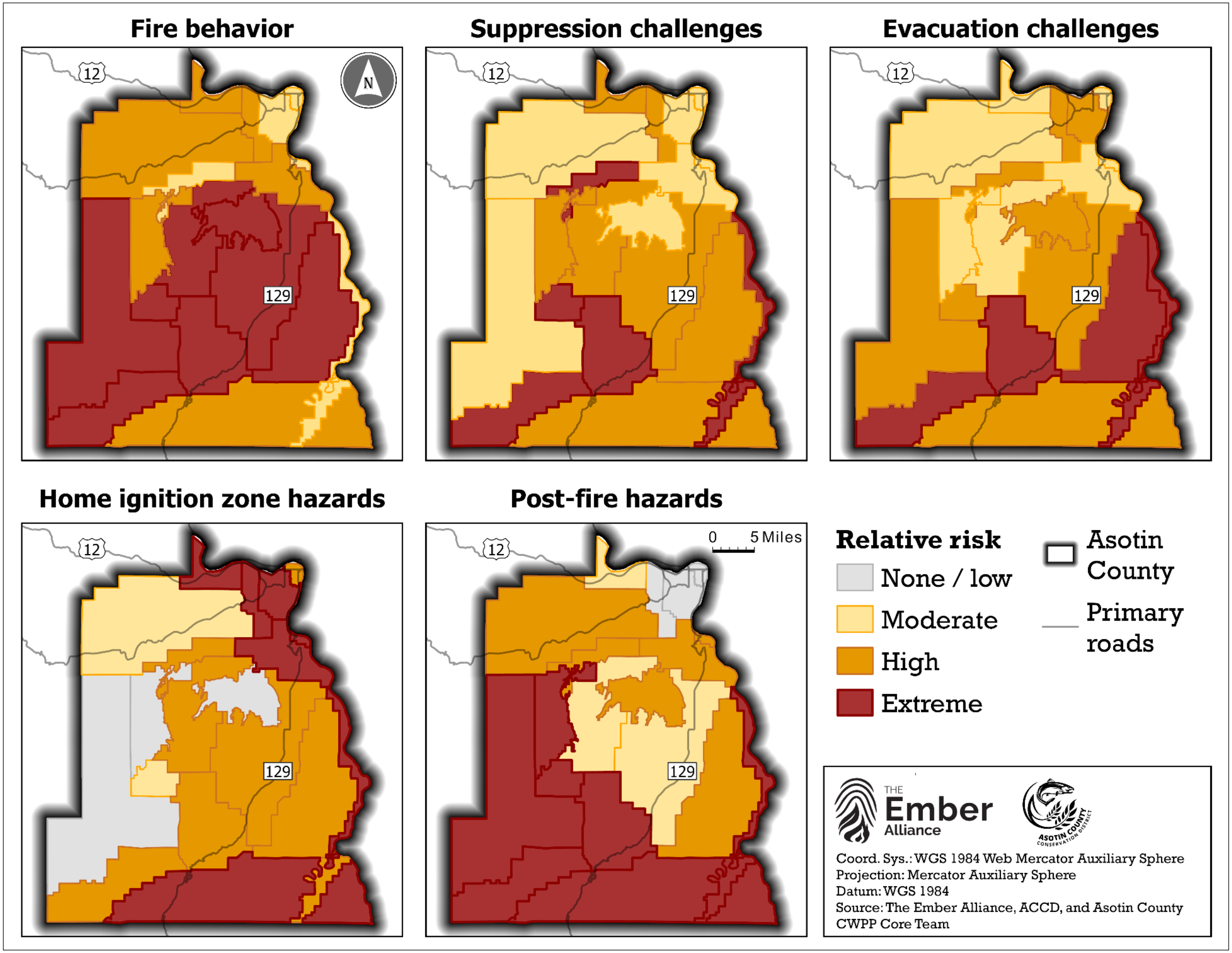


***Figure 3.b.2**. Zone relative risk for each component used to determine overall risk ratings in Asotin County. See **Appendix B** for methodology.*

Anatone Flats

High relative risk rating

Under high to extreme fire weather and during a fire:

- **90%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **3%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **high** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **33% of homes** could be exposed to radiant heat from burning vegetation.
- **25% of homes** could be exposed to embers from burning vegetation.
- This zone has a **moderate** potential for structure-to-structure fire spread due to the moderate number of closely spaced structures.
- **0% of roads (0.2 of 55.2 miles of roads)** have potentially non-survivable conditions.

Fire Protection: BMFD1

Vegetation, topography, and potential fire behavior: The Anatone Flats zone is primarily made up of rangeland, dryland crops, and conservation reserve program managed land with an abundance of annual grasses. In this zone, agricultural dryland farming prairies are broken up by homestead parcels that are intersected by steep, narrow canyons managed as rangeland.

There is no risk of active crown fire due to the lack of forest cover in this zone, except for some forested areas on steep slopes along Pintler Creek and Tenmile Creek. Fire can move quickly through tall grasses across much of this zone, especially under dry and windy conditions. The likelihood of wildfire (burn probability) in this zone is high due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control wildfire and increase the risk of fires impinging upon homes and other structures.

Hazards in the home ignition zone: The main threats to the homes in this zone are radiant heat from burning vegetation and embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; most homes have Class A roofing and some homes have non-fire-resistant siding, decking, and wood fencing. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate, intermediate, and extended zones while others need significant work. Some homes have flammable conifer hedges and many have additional hazards within 30 feet of the home. Homes built above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The primary evacuation route for this zone is Highway 129 and the secondary, less suitable, evacuation route is Myers Ridge Road. Practically all roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. Many properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is protected by BMFD1. This zone has a high likelihood of wind-driven events which could spread fire and embers quickly over long distances. Practically all roads in this zone are accessible for Type 3 fire engines, few homes have hydrants, cisterns, or draft sites available nearby, and most roads and homes have visible and reflective signs. There are no mid-slope homes but there are many homes on ridgetops and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is a moderate relative potential for post-fire sedimentation in this zone. Areas that could experience elevated sedimentation are steep slopes with a greater potential for destruction of vegetation and surface litter by wildfire, including steep slopes along Pintler Creek, George Creek, Kelly Creek, Beckman Gulch, and Tenmile Creek.

Recommendations for residents in Anatone Flats:

1. Support and participate in activities with BMFD1 and local natural resources conservation agencies.
1. Prepare your home for wildfire by mitigating in the immediate, intermediate, and extended zones.
2. Replace combustible siding, decking, and fencing with fire-resistant materials.
3. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
4. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
5. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
6. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
7. Advocate for Asotin County to implement programs to host yard waste or slash collection events.
8. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
9. Install visible, reflective signs near driveways. These are available from the County Building Department.
10. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
11. Work with ACCD to develop a noxious weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.
12. Voice support for efforts by WSDOT and partners to reduce roadside wildfire fuel and the potential for ignitions from vehicles along State Route 129 (see priority project areas in **Figure 4.c.1**).
13. Explore the need to create alternative sources of water for fire suppression, such as multi-use ponds.

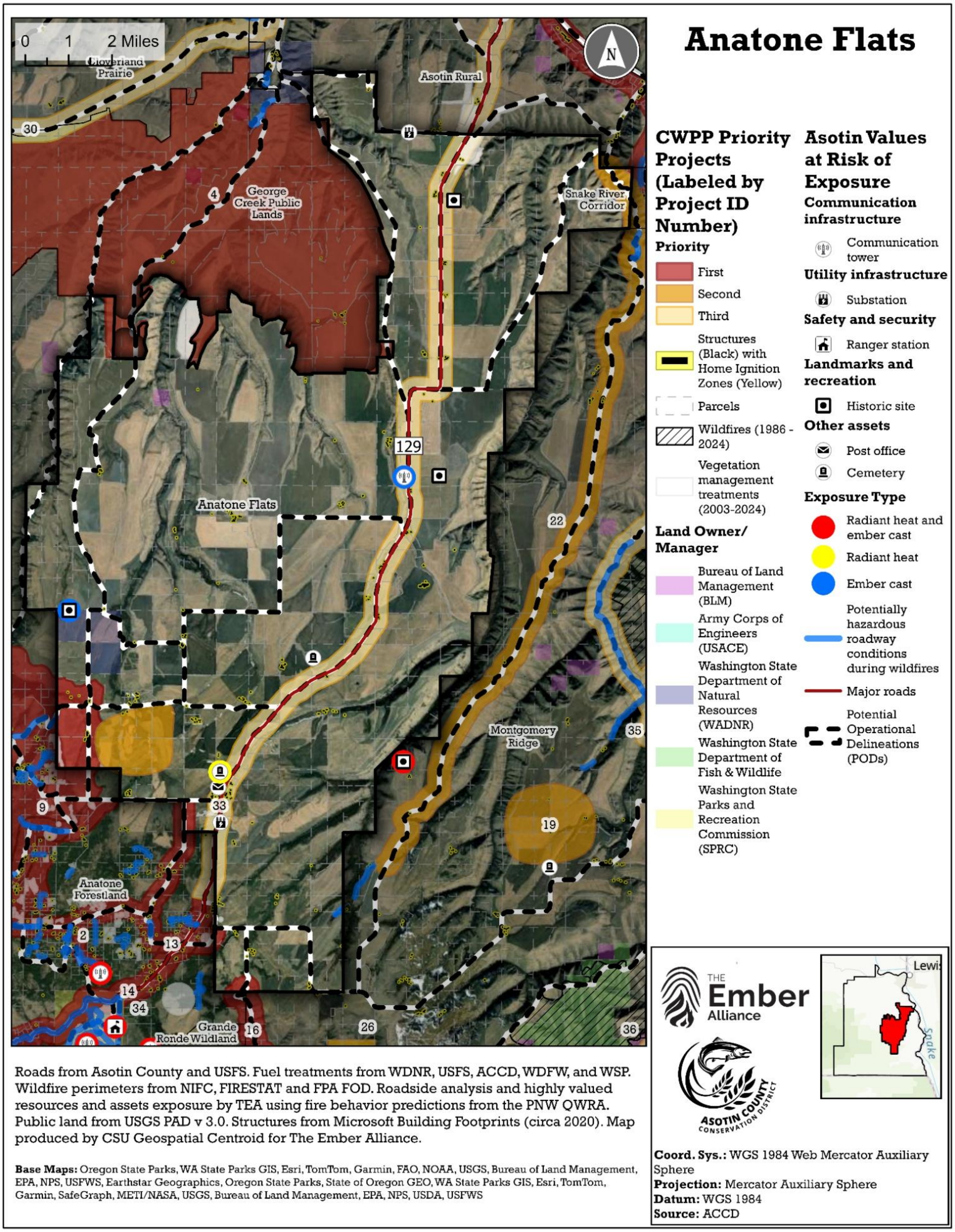


*Figure 3.b.3. Highly valued resources, roadway hazards, and priority project areas (detailed in **Section 4.c**) within Anatone Flats zone.*

Anatone Forestland

Extreme relative risk rating


Under high to extreme fire weather and during a fire:

- **70%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **40%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **moderate** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **95% of homes** could be exposed to radiant heat from burning vegetation.
- **100% of homes** could be exposed to embers from burning vegetation.
- This zone has a **low** potential for structure-to-structure fire spread due to the low number of closely spaced structures.
- **36% of roads (16.5 of 45.5 miles of roads)** have potentially non-survivable conditions.

Fire Protection: Unprotected by an FPD, initial wildland fire response by WA DNR

Vegetation, topography, and potential fire behavior: The Anatone Forestland zone contains public access land, private forestland, timberland, and forested rangeland with full-time residences and recreational cabins. This zone is mainly considered timberland with minor rolling slopes and small creeks. This zone is a predominantly healthy forestland with pockets of overgrown forest and overgrown understory.

These pockets of dense forest could experience intense wildfire due to large amounts of surface and ladder fuels. Dense vegetation creates the potential for extreme fire behavior. Fire can move quickly through vegetation in much of this zone, especially in grassy areas on steep slopes and under dry and windy conditions. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures. Lightning strikes are relatively more common in this zone than in other parts of the county, which increases the opportunities for ignition.

Hazards in the home ignition zone: The main threats to the homes in this zone are radiant heat from burning vegetation and embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; most homes have Class A roofing and some homes have non-fire-resistant siding, decking, and wood fencing. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate zones, while few have adequate intermediate and extended zones that need significant work. Some homes have flammable conifer hedges and many have additional hazards within 30 feet of the home. Homes built above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The primary evacuation routes for this zone are Highway 129 and East & West Mountain Roads; there are no secondary evacuation routes. Most roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. Many properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is unprotected by an FPD but receives initial wildland fire response by WA DNR. Lightning strikes are relatively more common in this zone than in other parts of the county, which increases the opportunities for ignition. Most roads in this zone are accessible for Type 3 fire engines, few homes have hydrants, cisterns, or draft sites available nearby, and few roads and homes have visible and reflective signs. There are no mid-slope homes and no homes on ridgetops, but there are numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is an extreme relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Areas that could experience elevated sedimentation are steep slopes with a greater potential for destruction of vegetation and surface litter by wildfire, including steep slopes along George Creek, Coombs Canyon, Rattlesnake Creek, Big Butte, and Anatone Butte. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in Anatone Forestland:

1. Consider improving suppression challenges and increasing fire protection assets by joining an FPD or forming a volunteer FPD. To be effective, this effort must be led by community members, for community members.
2. Support and participate in activities with local natural resources conservation agencies.
3. Prepare your home for wildfire by mitigating in all defensible space zones, with particular focus on the intermediate and extended zones.
4. Replace combustible siding, decking, and fencing with fire-resistant materials.
5. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
6. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
7. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
8. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
9. Advocate for Asotin County to implement programs to host yard waste or slash collection events.
10. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
11. Install visible, reflective signs near driveways. Many homes in this zone do not have that and they are available from the County Building Department.
12. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
13. Coordinate with Asotin County Road Department and Asotin County Department of Emergency Management (DEM) to remove vegetation along shared roads in the community. Several roads in this zone have potentially non-survivable conditions and were identified as priority locations for roadside fuel treatments in this CWPP (see priority project areas in **Figure 4.c.1**). Magnify the impact of these

projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.

14. Voice support for efforts by WSDOT and partners to reduce roadside wildfire fuel and the potential for ignitions from vehicles along State Route 129 (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.
15. Voice support for priority projects on public land to restore forest and riparian vegetation in the Upper George Creek Watershed and Cougar Creek Fire burned area (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.

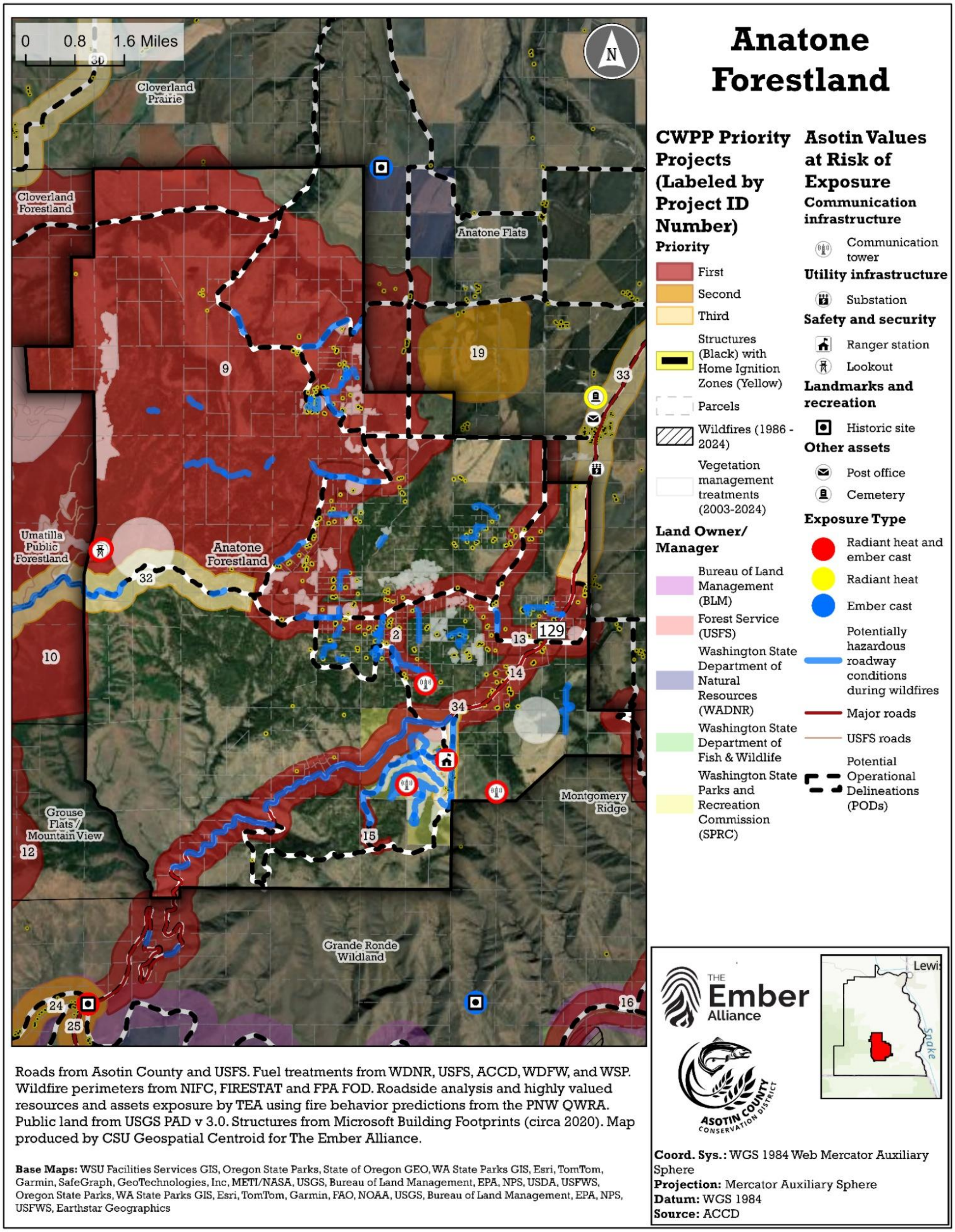


Figure 3.b.4. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within Anatone Forestland zone.*

Asotin Creek Public Lands

Moderate relative risk rating

Under high to extreme fire weather and during a fire[3]:

- **63%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **4%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **moderate** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **9% of roads (1.4 of 14.9 miles of roads)** have potentially non-survivable conditions.

Fire Protection: Unprotected by an FPD, initial wildland fire response by WA DNR due to proximity to public lands

Vegetation, topography, and potential fire behavior: The Asotin Creek Public Lands zone includes public access land and the Asotin Creek Wildlife Area. Additionally, this zone contains agricultural dryland farming plots and prairies that are intersected by steep, narrow canyons managed as rangeland. Most vegetation is riparian with pockets of conifer timberland as well as an abundance of annual grasses. Asotin Creek drainage is located in this zone and is lined by steep, narrow canyons with valleys and ridges.

There is very little risk of active crown fire in this zone except in the southwestern part of the zone along the South Fork Asotin Creek where there are pockets of continuous forest cover. Fire can move quickly through tall grasses and shrubs across more than half of this zone, especially under dry and windy conditions and in narrow canyons and valleys. The likelihood of wildfire (burn probability) is moderate in the eastern portion of the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire.

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[3] Fire behavior predictions come from the 2023 PNW QWRA, which made assumptions about the impact that the 2021 Lick Creek Fire had on fuel conditions that reduced the intensity of predicted fire behavior. However, invasive weeds have colonized much of the area burned by the Lick Creek Fire, which could increase the potential for rapid rates of fire spread in the zone, especially on steep slopes and with dry, windy fire weather conditions.

The Asotin Creek Public Lands zone was impacted by the 2007 Cottonwood Fire, 2018 Warner Gulch Fire, and 2021 Lick Creek Fire. Invasive weeds have colonized much of the area burned by the Lick Creek Fire, which could increase the potential for rapid rates of fire spread, especially in narrow canyons and valleys.

Hazards in the home ignition zone: There are currently no homes in the Asotin Creek Public Lands zone.

Roadway accessibility and evacuation capacity: The primary evacuation route for this zone is Asotin Creek Road and the secondary, less suitable, evacuation routes are Lickfork Road/Lick Creek Road and South Fork Road. Campbell Grade Road is unsuitable for evacuation purposes. Practically all roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. There are no homes in this zone but there are recreators during the hunting season.

Fire suppression considerations: This zone is unprotected by an FPD but receives initial wildland fire response by WA DNR due to proximity to public lands. Most roads in this zone are accessible for Type 3 fire engines, there is only remote access to water for fire suppression, and practically all roads have visible and reflective signs. There are no homes in this zone but there are numerous saddles, ravines, or chimneys.

Post-fire hazards: There is an extreme relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Most portions of the zone could experience elevated sedimentation due to the complex topography of steep valleys and ravines and the potential for wildfire in grasslands to consume surface litter. Notable areas that could experience post-fire sedimentation include steep slopes along North Fork Asotin Creek, South Fork Asotin Creek, and Bachelor Gulch. Post-fire sedimentation could impact Lickfork Road and Smoothing Iron Road, which are secondary evacuation routes. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for Asotin Creek Public Lands:

1. Install visible, reflective signs where appropriate to increase visibility of evacuation routes. These are available from the County Building Department.
2. Remove trees, shrubs and tall grasses along primary access roads to improve evacuation safety and firefighter access during a wildfire.
3. Explore the need to create alternative sources of water for fire suppression, such as multi-use ponds.
4. Voice support for priority projects on private and public land to restore forest and riparian vegetation across the North Fork Asotin Creek Watershed and along Lick Creek, Asotin Creek, and Charley Creek (see priority project areas in **Figure 4.c.1**).
5. See **Section 4.c. Priority Project Areas for Asotin County** for specific recommendations for ecological restoration and roadside projects in this area**.**
6. Post signage at trailheads and informational kiosks regarding safe practices for wildfire prevention on public lands.
7. Volunteer with WDFW on projects to reduce wildfire risk at the Public Gun Range.

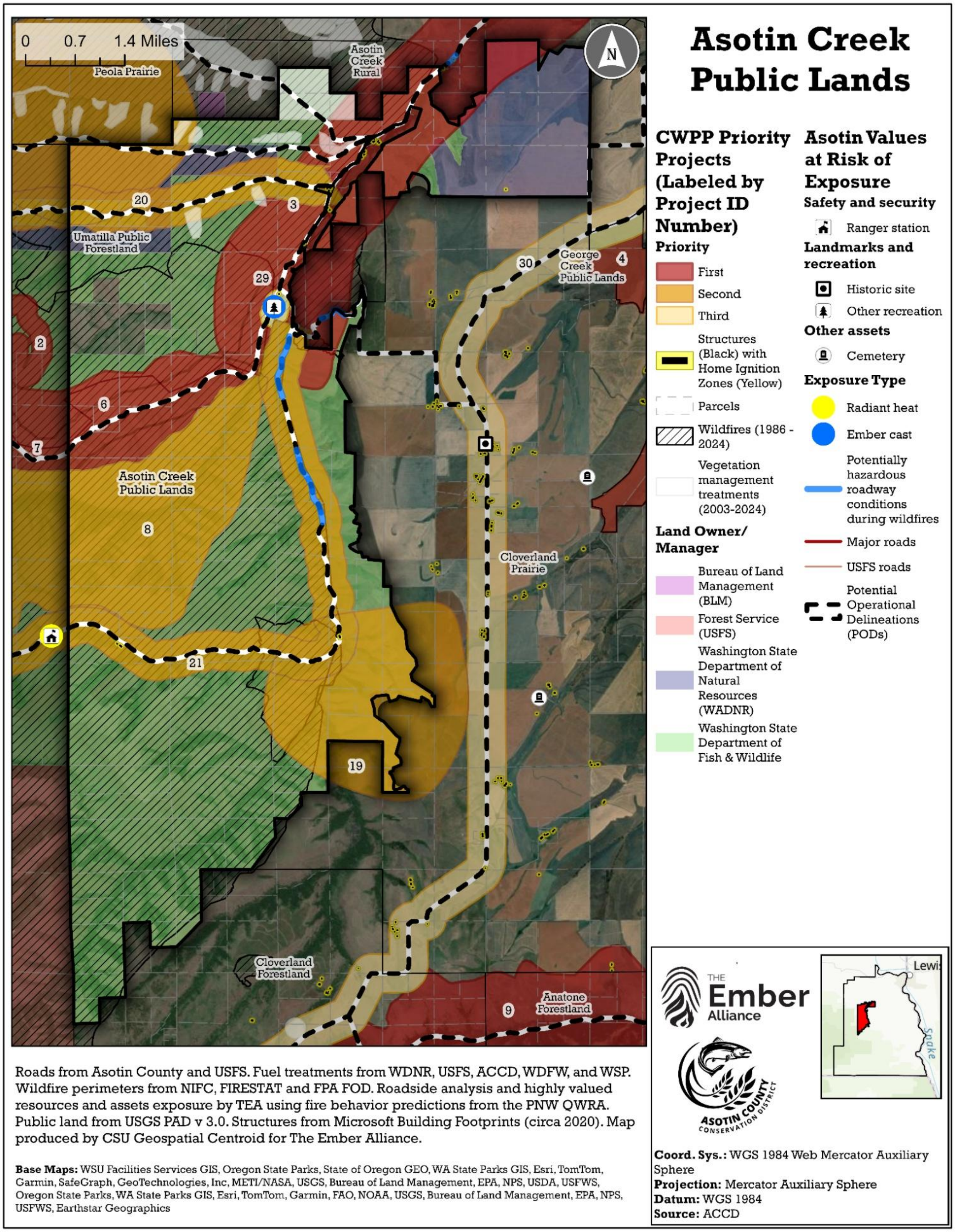


Figure 3.b.5. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the Asotin Creek Public Lands.*

Asotin Creek Rural

High relative risk rating

Under high to extreme fire weather and during a fire[4]:

- **88%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **3%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **moderate** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **75% of homes** could be exposed to radiant heat from burning vegetation.
- **100% of homes** could be exposed to embers from burning vegetation.
- This zone has a **low** potential for structure-to-structure fire spread due to the low number of closely spaced structures.
- **12% of roads (1 of 8.7 miles of roads)** have potentially non-survivable conditions.

Fire Protection: Unprotected by an FPD and WA DNR

Vegetation, topography, and potential fire behavior: The Asotin Creek Rural zone is a suburban area at the bottom of Asotin Creek canyon that has primarily large deciduous trees. Within this zone, Asotin Creek and the canyon bottom are surrounded by steep rangeland which creates the potential for extreme fire behavior, although the creek also serves as a fuel break.

There is very little risk of active crown fire in this zone except on steep slopes along Asotin Creek in pockets of dense vegetation and continuous cover of grasses and shrubs. Fire can move quickly through tall grasses and shrubs across a majority of this zone, especially under dry and windy conditions. The likelihood of wildfire (burn

[4] Fire behavior predictions come from the 2023 PNW QWRA, which made assumptions about the impact that the 2021 Lick Creek Fire had on fuel conditions that reduced the intensity of predicted fire behavior. However, invasive weeds have colonized much of the area burned by the Lick Creek Fire, which could increase the potential for rapid rates of fire spread in the zone, especially on steep slopes and with dry, windy fire weather conditions.

probability) is moderate across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

The Asotin Creek Rural zone was impacted by the 2021 Lick Creek Fire and 2021 Silcott Fire. Invasive weeds have colonized much of the area burned by the Lick Creek and Silcott Fires, which could increase the potential for rapid rates of fire spread, especially in narrow canyons and valleys.

Hazards in the home ignition zone: The main threats to the homes in this zone are radiant heat from burning vegetation and embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; some homes have Class B or C roofing and non-fire-resistant siding and decking but practically no homes have wood fencing. Hazards present in the home ignition zone vary across this zone; few homes have adequate immediate zones, some have adequate intermediate and extended zones, and others need significant work in all zones. Few homes have flammable conifer hedges but many have additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The primary evacuation route for this zone is Asotin Creek Road; there are no secondary evacuation routes. Practically all roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. This zone has a denser population compared to other zones in the county and many properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is completely unprotected by a wildland FPD and WA DNR. Practically all roads in this zone are accessible for Type 3 fire engines, few homes have hydrants, cisterns, or draft sites available nearby, and most roads and homes have visible and reflective signs. There are few mid-slope homes, no homes on ridgetops, and no saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is a high relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Areas that could experience elevated sedimentation are steep slopes along Asotin Creek with a greater potential for destruction of vegetation and surface litter by wildfire. Sedimentation into Asotin Creek has a high potential of impacting surface drinking water for downstream users. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in the Asotin Creek Rural:

1. Consider improving suppression challenges and increasing fire protection assets by joining an FPD or forming a volunteer FPD. To be effective, this effort must be led by community members, for community members.
2. Support and participate in activities with the local natural resource conservation agencies.
3. Prepare your home for wildfire by mitigating in all defensible space zones, with particular focus on the immediate zone.
4. Replace combustible roofing, siding and decking with fire-resistant materials.
5. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
6. Move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
7. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
8. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
9. Advocate for Asotin County to implement programs to host yard waste or slash collection events.

10. Work with ACCD to develop a weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.
11. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
12. Install visible, reflective signs near driveways. These are available from the County Building Department.
13. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
14. Explore the need to create alternative sources of water for fire suppression, such as multi-use ponds.
15. Voice support for priority projects on private and public land to restore forest and riparian vegetation along Asotin Creek and Charley Creek (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.
16. Several homes in this zone could be exposed to damaging post-fire flooding and sediment delivery (**see analysis in Appendix B**). Homeowners are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

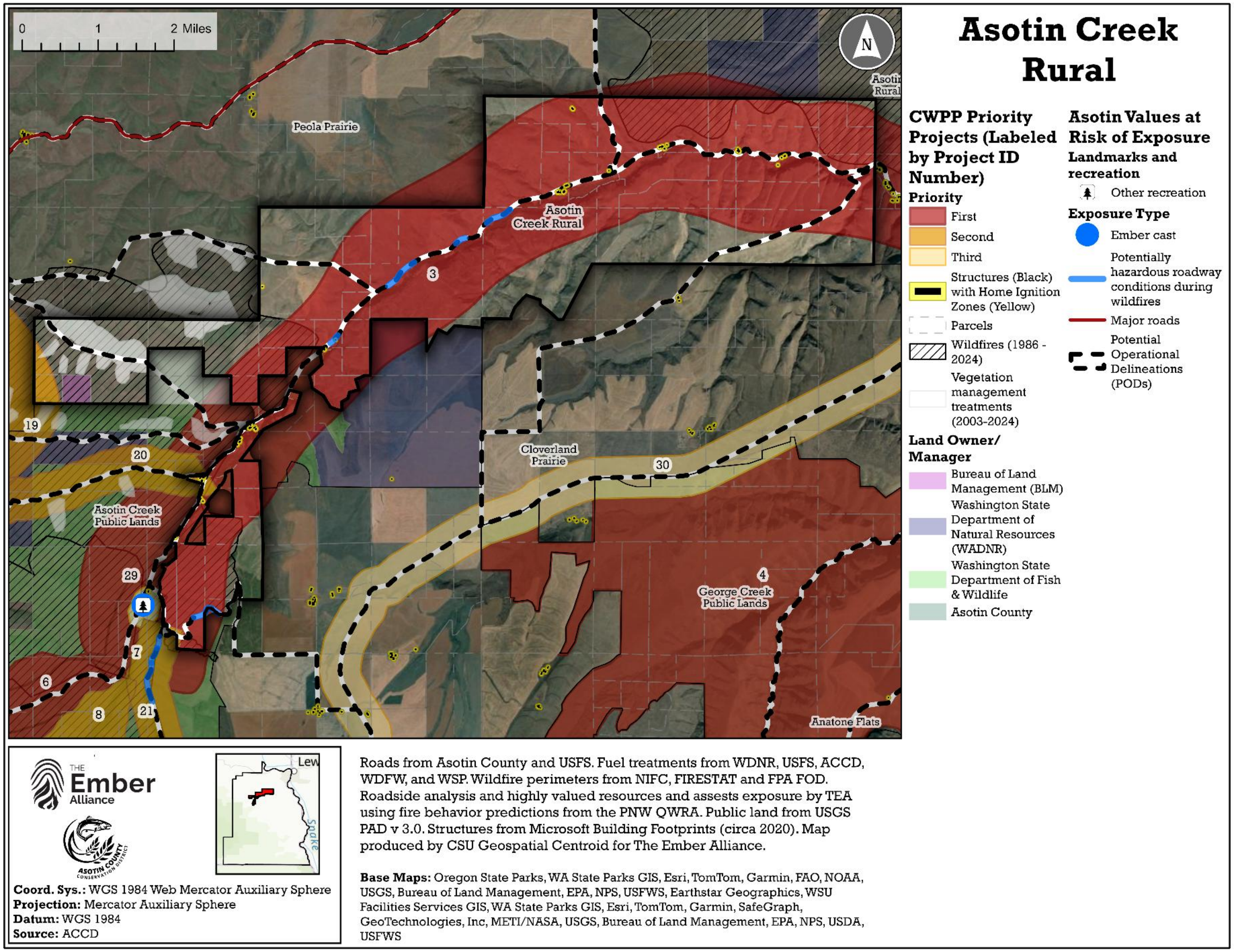


Figure 3.b.6. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the Asotin Creek Rural zone.*

Asotin Rural

High relative risk rating

Under high to extreme fire weather and during a fire:

- **85%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **1%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **high** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **26% of homes** could be exposed to radiant heat from burning vegetation.
- **50% of homes** could be exposed to embers from burning vegetation.
- This zone has a **moderate** potential for structure-to-structure fire spread due to the moderate number of closely spaced structures.
- **3% of roads (0.9 of 31 miles of roads)** have potentially non-survivable conditions.

Fire Protection: City of Asotin Fire Department and ACFD1

Vegetation, topography, and potential fire behavior: The Asotin Rural zone is the residential area surrounding the City of Asotin and is composed of rangeland, dryland crops and conservation reserve program managed land. Rangeland across this zone is dissected by steep drainages and narrow canyons. Housing becomes less dense further from the City of Asotin, but there are neighborhoods located at the lower end of Asotin Creek. Hillsides in this zone have tall, abundant annual and native grasses.

There is very little risk of active crown fire in this zone; however, fire can move quickly through tall grasses and shrubs across a majority of this zone, especially under dry and windy conditions. The likelihood of wildfire (burn probability) is high across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

The Asotin Rural zone was impacted by the 2021 Silcott Fire. Invasive weeds have colonized much of the area burned by the Silcott Fire, which could increase the potential for rapid rates of fire spread, especially in narrow canyons and valleys.

Hazards in the home ignition zone: The main threat to the homes in this zone is embers landing on roofs or within 30 feet of structures and igniting them. The dense construction of portions of the area is an added concern as it can allow for building-to-building ignitions. Home age and construction vary in this zone; some homes have Class B or C roofing, non-fire-resistant siding, decking, and wood fencing. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate, intermediate, and extended zones while others need significant work. Many homes have flammable conifer hedges and additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: This zone is bordered by the Snake River to the East, which limits evacuation routes. The primary evacuation routes for this zone are Asotin Creek Road and Highway 129, and the secondary, less suitable, evacuation route is Snake River Road. Most roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. Some properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is protected by the City of Asotin Fire Department and ACDF1. This zone is bordered by the Snake River to the East, which provides a natural fuel break and an important water source. Most roads in this zone are accessible for Type 3 fire engines, all homes have hydrants, cisterns, or draft sites available nearby, and most roads and homes have visible and reflective signs. There are many mid-slope homes, few homes on ridgetops, and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is a high relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Areas that could experience elevated sedimentation are steep slopes with a greater potential for destruction of vegetation and surface litter by wildfire, including areas along Asotin Creek, steep valleys west of Cherry Street and River Canyon Drive, and steep slopes along the Snake River. Sedimentation into Asotin Creek has a high potential of impacting surface drinking water for downstream users, and sedimentation off the slope west of Snake River Road could damage the road. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in the Asotin Rural:

1. Support and participate in activities with the City of Asotin Fire Department, ACFD1, and local natural resources conservation agencies.
2. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
3. Replace combustible roofing, siding, decking, and fencing with fire-resistant materials.
4. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
5. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
6. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
7. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
8. Advocate for Asotin County to implement programs to host a yard waste or slash collection events.
9. Work with ACCD to develop a weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.
10. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
11. Install visible, reflective signs near driveways. These are available from the County Building Department.

12. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
13. Voice support for efforts by WSDOT and partners to reduce roadside wildfire fuel and the potential for ignitions from vehicles along State Route 129 (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.
14. Voice support for priority projects on private and public land to restore forest and riparian vegetation along and around Asotin Creek (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.
15. Several homes in this zone could be exposed to damaging post-fire flooding and sediment delivery (**see analysis in Appendix B**). Homeowners are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

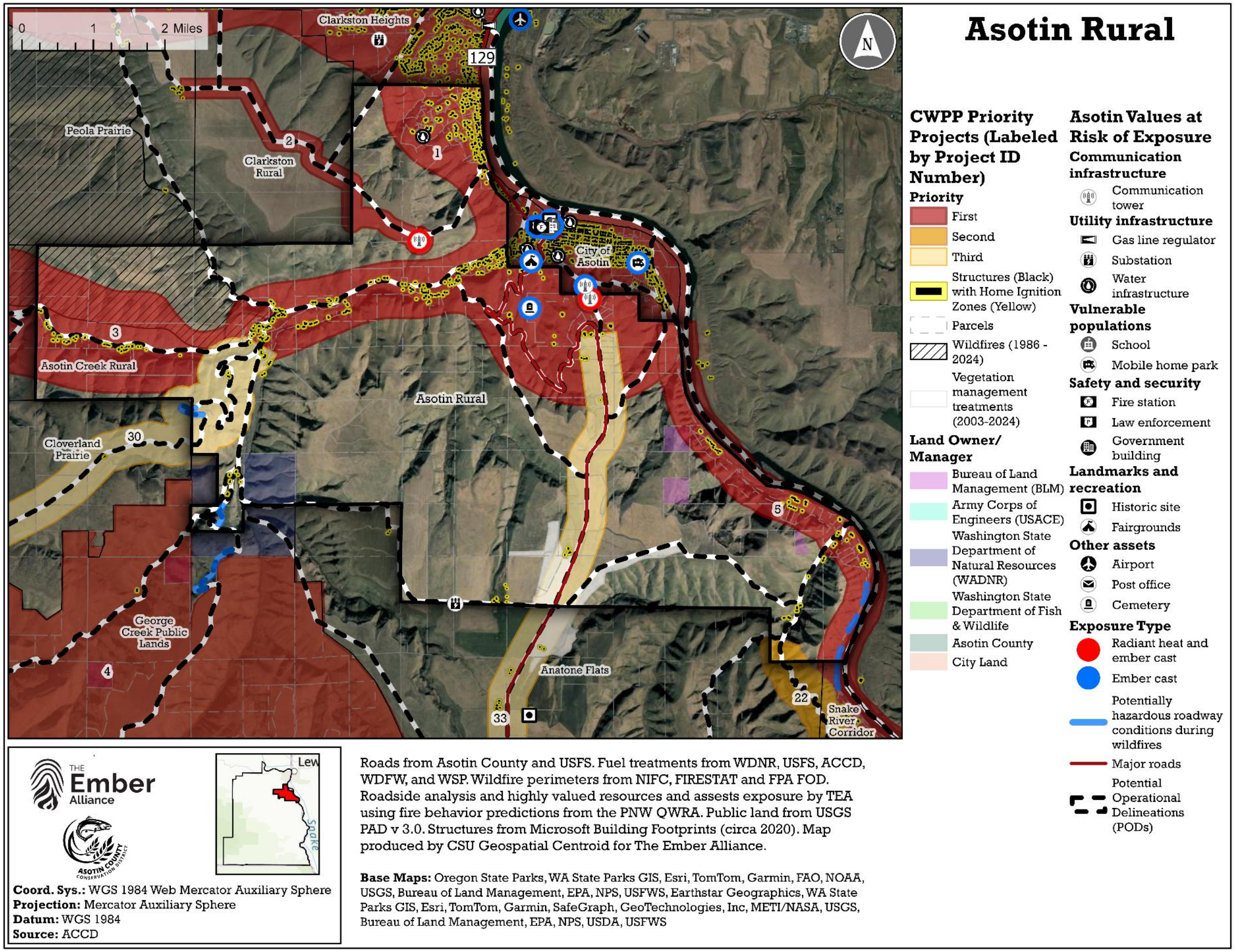


Figure 3.b.7. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the Asotin Rural zone.*

City of Asotin

Moderate relative risk rating

Under high to extreme fire weather and during a fire:

- **30%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **0%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **moderate** likelihood of wildfire (burn probability) relative to the rest of Washington.
- **1% of homes** could be exposed to radiant heat from burning vegetation.
- **83% of homes** could be exposed to embers from burning vegetation.
- This zone has a **high** potential for structure-to-structure fire spread due to the high number of closely spaced structures.
- **0% of roads (0 of 13.6 miles of roads)** have potentially non-survivable conditions.

Fire Protection: City of Asotin Fire Department and ACFD1

Vegetation, topography, and potential fire behavior: The City of Asotin zone encompasses a small city with an urban population. Bordered by the Snake River, this zone is mostly flat, but terrain becomes very steep beyond the city limits. The City of Asotin is surrounded by steep grasslands that overlook small canyons and drainages. Many properties in this zone have large deciduous trees and coniferous bushes, creating potential for moderate fire behavior with ember production.

There is no risk of active crown fire in this zone due to the lack of forest cover; however, fire can move quickly through tall grasses and shrubs across almost a third of this zone, especially under dry and windy conditions. The likelihood of wildfire (burn probability) is moderate across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

Hazards in the home ignition zone: The main threat to the homes in this zone is embers landing on roofs or within 30 feet of structures and igniting them. The dense construction of the area is an added concern as it can allow for building-to-building ignitions. Home age and construction vary in this zone; some homes have Class B or C roofing, non-fire-resistant siding, decking, and wood fencing. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate, intermediate, and extended zones while others need significant work. Many homes have flammable conifer hedges and additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The City of Asotin is bordered by the Snake River to the East and North, which limits evacuation routes. The primary evacuation routes for this zone are Asotin Creek Road and Highway 129, and the secondary, less suitable, evacuation route is Snake River Road. All roads in this zone can accommodate two-way traffic. Some road access is constricted in areas of this zone (one-way-in/one-way-out). This zone has a denser population compared to other zones in the county and some properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is protected by the City of Asotin Fire Department and ACFD1. This zone is bordered by the Snake River to the East and North, which provides a natural fuel break and an important water source. Practically all roads in this zone are accessible for Type 3 fire engines, all homes have hydrants, cisterns, or draft sites available nearby, and most roads and homes have visible and reflective signs. There are many mid-slope homes, no homes on ridgetops, and several saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is a moderate relative potential for post-fire sedimentation and a high relative potential for negative impacts to surface drinking water in this zone. Areas that could experience elevated sedimentation are steep slopes along Perropointe Road with a greater potential for destruction of vegetation and surface litter by wildfire. Water quality in the City of Asotin could be negatively impacted by post-fire sedimentation were wildfire to occur upstream. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions along Asotin Creek, which can help mitigate post-fire sedimentation (see **Figure 4.c.1**).

Recommendations for residents in City of Asotin:

1. Support and participate in activities with the City of Asotin Fire Department, ACDF1, and local natural resources conservation agencies.
2. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
3. Replace combustible roofing, siding, decking, and fencing with fire-resistant materials.
4. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions.
5. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
6. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
7. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
8. Advocate for Asotin County to implement programs to host a slash sort yard or slash collection events.
9. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
10. Install visible, reflective signs near driveways.
11. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
12. Several homes in this zone could be exposed to damaging post-fire flooding and sediment delivery (**see analysis in Appendix B**). Homeowners are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

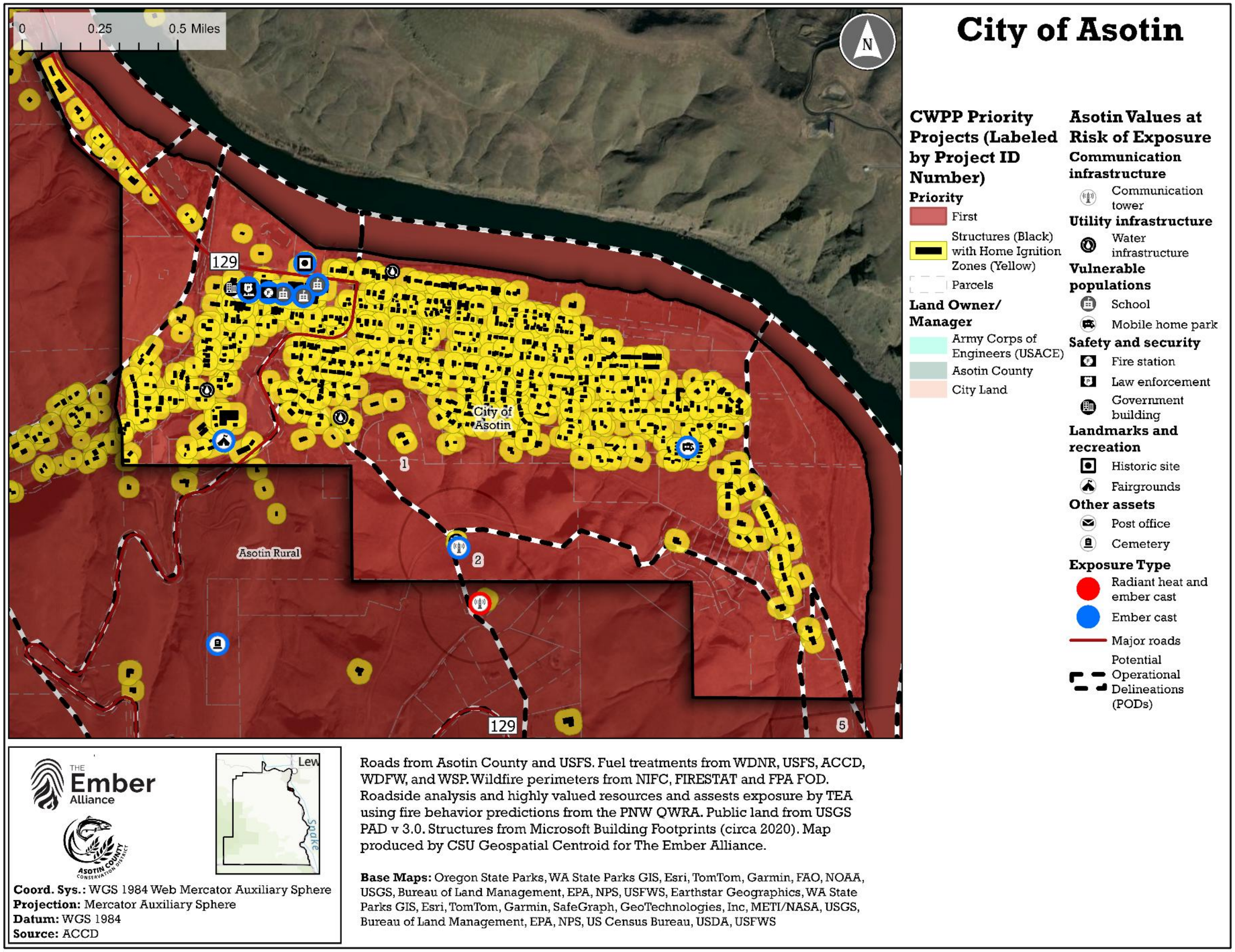
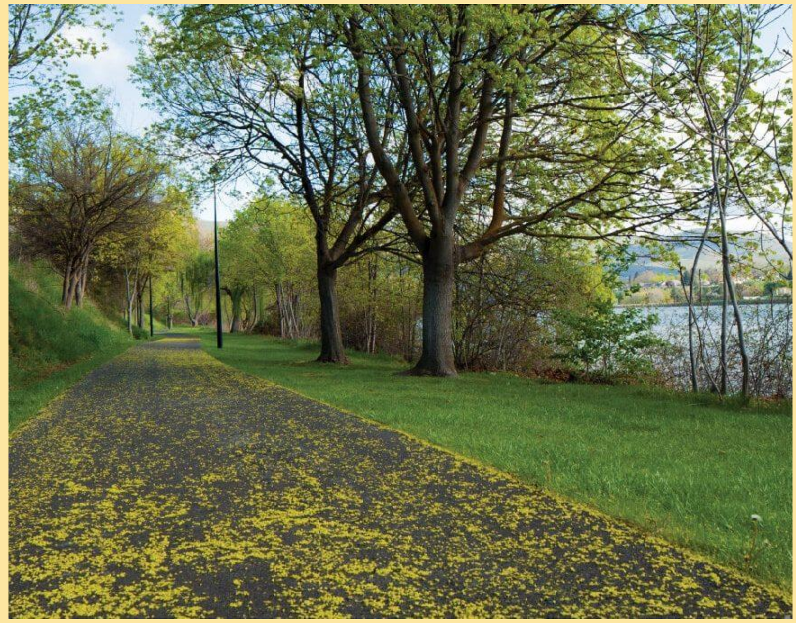


Figure 3.b.8. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the City of Asotin zone.*

City of Clarkston

Moderate relative risk rating



Under high to extreme fire weather and during a fire:

- **6%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **0%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **low** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **0% of homes** could be exposed to radiant heat from burning vegetation.
- **0% of homes** could be exposed to embers from burning vegetation.
- This zone has a **high** potential for structure-to-structure fire spread due to the high number of closely spaced structures.
- **0% of roads (0 of 35.1 miles of roads)** have potentially non-survivable conditions.

Fire Protection: City of Clarkston Fire Department

Vegetation, topography, and potential fire behavior: The City of Clarkston zone has public spaces and amenities, a high housing density, a diversity of vegetation, and trees and shrubs very close to homes. Arborvitae are common landscaping plants in this zone, and these plants are extremely flammable and could emit prolific embers. Bordering the Snake River, this zone is mostly flat but has a high housing density and risk of home-to-home ignition.

Hazards in the home ignition zone: The main threat to the homes in this zone is embers landing on roofs or within 30 feet of structures and igniting them from wildfire within the zone. The dense construction of the area is an added concern as it can allow for building-to-building ignitions. Home age and construction vary in this zone; some homes have Class B or C roofing, non-fire-resistant siding, decking, and wood fencing. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate, intermediate, and extended zones while others need significant work. Many homes have flammable conifer hedges and additional hazards within 30 feet of the home.

Roadway accessibility and evacuation capacity: This zone is bordered by the Snake River to the East and North, which limits evacuation routes. The primary evacuation routes for this zone are U.S. 12/Bridge Street and 6th Street/Highway 129, and the secondary, less suitable, evacuation route is 13th Street. All roads in this zone can accommodate two-way traffic. This zone has a denser population compared to other zones in the county and some properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is protected by the City of Clarkston Fire Department. The City of Clarkston is bordered by the Snake River to the East and North which provides a natural fuel break and an important water source. Practically all roads in this zone are accessible for Type 3 fire engines, have hydrants available near all homes, and have visible and reflective signs. There are no mid-slope homes, few homes on ridgetops, and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: Due to shallow slopes across the City of Clarkston, there is no risk of post-fire sedimentation in this zone.

Recommendations for residents in City of Clarkson:

1. Support and participate in activities with the City of Clarkston Fire Department and local natural resources conservation agencies.
2. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
3. Replace combustible roofing, siding, decking, and fencing with fire-resistant materials.
4. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
5. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
6. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
7. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
8. Advocate for Asotin County to implement programs to host a slash sort yard or slash collection events.
9. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
10. Install visible, reflective signs near driveways.

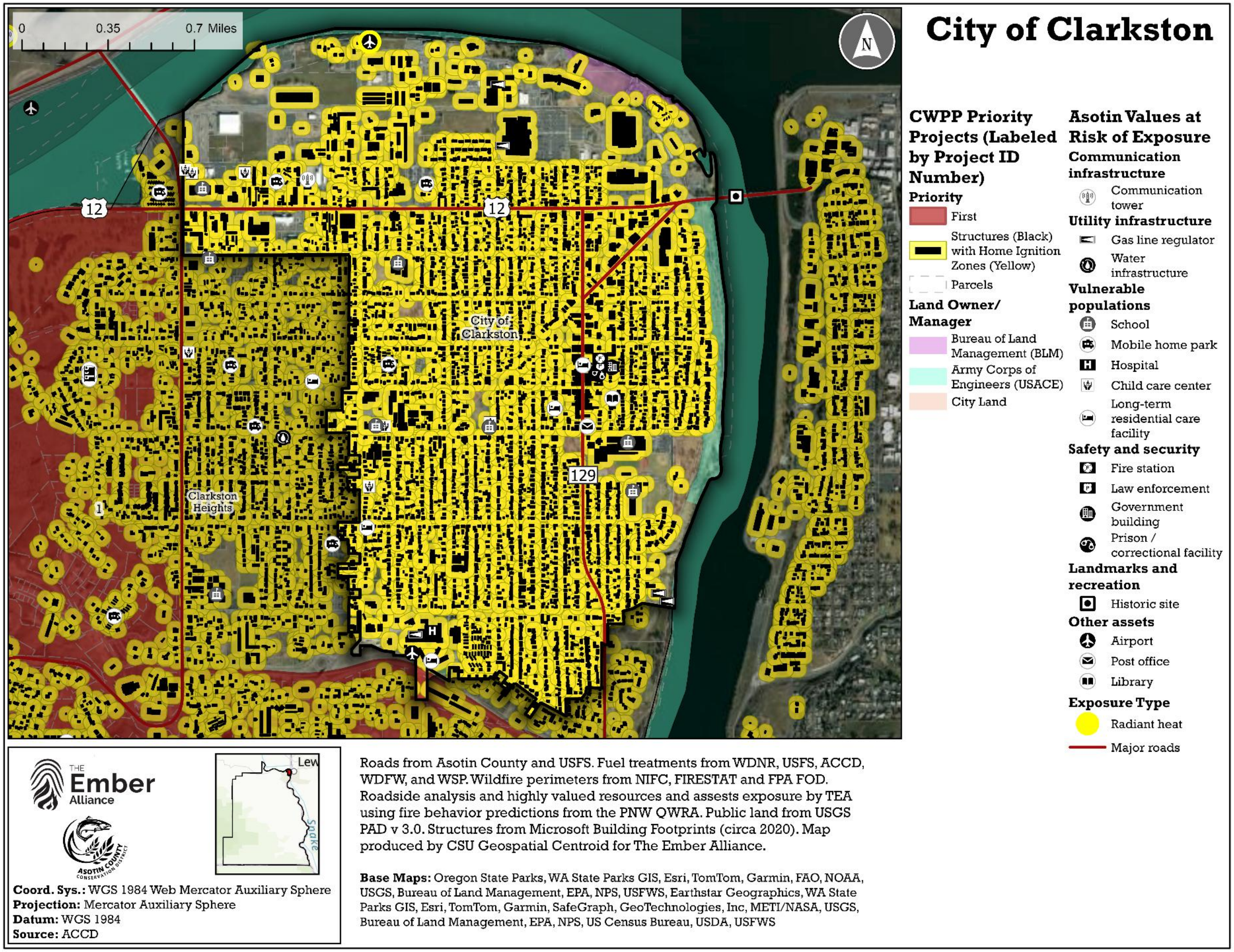


*Figure 3.b.9. Highly valued resources, roadway hazards, and priority project areas (detailed in **Section 4.c**) within the City of Clarkston zone*

Clarkston Heights

High relative risk rating

Under high to extreme fire weather and during a fire:

- **50%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **1%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **low** likelihood of wildfire (relative burn probability) relative to the rest of Washington.[5]
- **1% of homes** could be exposed to radiant heat from burning vegetation.
- **0% of homes** could be exposed to embers from burning vegetation.
- This zone has a **high** potential for structure-to-structure fire spread due to the high number of closely spaced structures.
- **0% of roads (0 of 107.2 miles of roads)** have potentially non-survivable conditions.

Fire Protection: ACFD1

Vegetation, topography, and potential fire behavior: The Clarkston Heights zone is an unincorporated suburban area with high housing density and risk of home-to-home ignition. Homes in this zone are densely arranged on steep grassland slopes overlooking small canyons and drainages. Lower-density housing can be found along the border of this zone amongst tall, abundant annual and native grasses.

Clarkston Heights is #13 on WA DNR's top 25 places most likely to be exposed to wildland fire in the Washington State Wildland Fire Protection 10-year Strategic Plan. Although there is no risk of active crown fire in this zone due to the lack of forest cover, half of the zone could experience rapid rates of fire spread in tall grasses and

[5] The "low likelihood" of wildfire in Clarkston Heights is based on the PNW QWRA. However, Clarkston Heights-Vineland is #13 on WA DNR's top 25 places most likely to be exposed to wildland fire in "Washington State Wildland Fire Protection 10-year Strategic Plan". These analyses used different fire behavior predictions, and the Fire Protection 10-year Strategic Plan considered likelihood of home loss, whereas burn probability from the PNW QWRA only looks at potential for fire spread due to fuels and topography and the historic distribution of wildfire ignitions in the past.

shrubs, especially under dry and windy conditions. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

Hazards in the home ignition zone: The main threat to the homes in this zone is embers landing on roofs or within 30 feet of structures and igniting them. The dense construction of portions of the area is an added concern as it can allow for building-to-building ignitions. Home age and construction vary in this zone; some homes have Class B or C roofing, non-fire-resistant siding, decking, and wood fencing. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate, intermediate, and extended zones while others need significant work. Many homes have flammable conifer hedges and some have additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: This zone is bordered by the Snake River to the East and North, which limits evacuation routes. The primary evacuation routes for this zone are Bridget Street/U.S. 12, 15th Street/Highway 129, Fleshman Parkway, 6th Avenue, Critchfield Road, and various other connecting roads, as well as the secondary, less suitable, evacuation routes are Evans Road and 13th Street. Most roads in this zone can accommodate two-way traffic. Some road access is constricted in areas of this zone (one-way-in/one-way-out). This zone has a denser population compared to other zones in the county and many properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is protected by ACFD1. This zone is bordered by the Snake River to the East and North which provides a natural fuel break and an important water source. Most roads in this zone are accessible for Type 3 fire engines, have hydrants, cisterns, or draft sites available near all homes, and have visible and reflective signs. There are many mid-slope homes and homes on ridgetops, and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: Due to shallow to moderate slopes across Clarkston Heights, and the lower risk for high-severity wildfires, there is practically no risk of post-fire sedimentation in this zone.

Recommendations for residents in Clarkston Heights:

1. Support and participate in activities with the ACFD1 and local natural resources conservation agencies.
2. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
3. Replace combustible roofing, siding, decking, and fencing with fire-resistant materials.
4. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
5. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
6. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
7. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
8. Advocate for Asotin County to implement programs to host a slash sort yard or slash collection events.
9. Work with ACCD to develop a weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.
10. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
11. Install visible, reflective signs near driveways.
12. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.

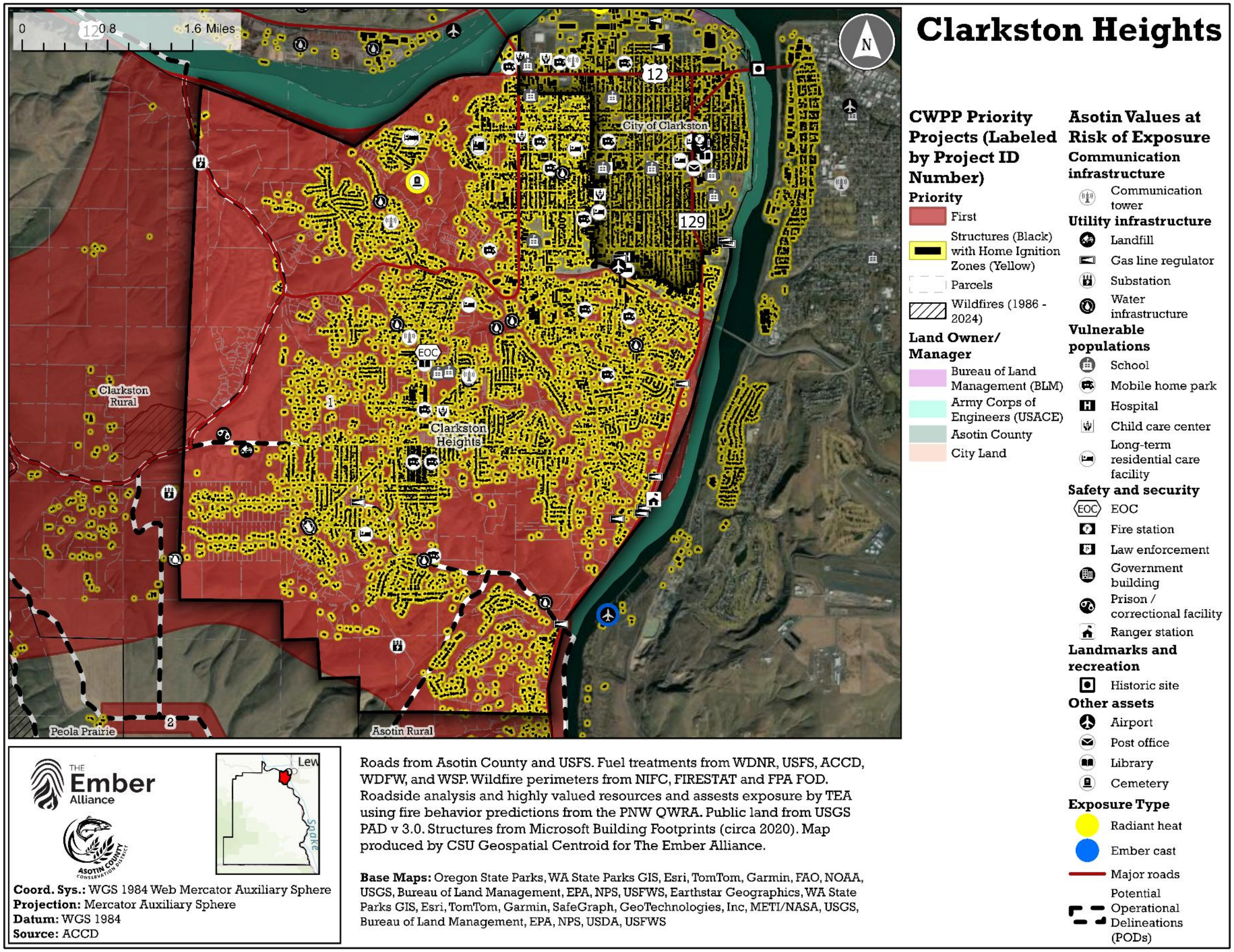
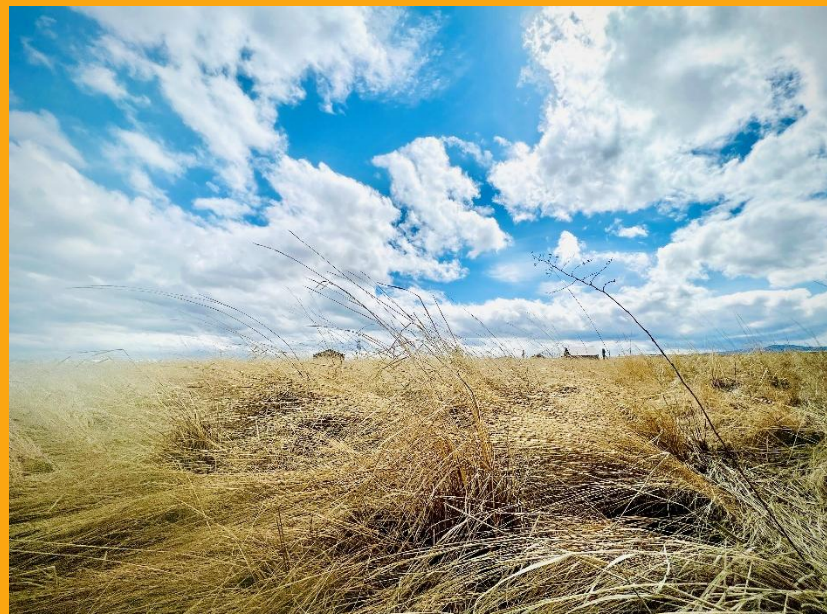


Figure 3.b.10 *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the Clarkston Heights zone.*

Clarkston Rural

High relative risk rating



Under high to extreme fire weather and during a fire:

- **95%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **0%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **high** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **42% of homes** could be exposed to radiant heat from burning vegetation.
- **8% of homes** could be exposed to embers from burning vegetation.
- This zone has a **low** potential for structure-to-structure fire spread due to the low number of closely spaced structures.
- **0% of roads (0 of 8.5 miles of roads)** have potentially non-survivable conditions.

Fire Protection: ACFD1

Vegetation, topography, and potential fire behavior: The Clarkston Rural zone is an unincorporated area of low-density housing composed of grasslands, sagebrush ecosystems, and dryland farming dissected by steep drainages. This zone has tall, abundant annual and native grasses. This variation in vegetation combined with steep terrain could increase unpredictable fire behavior.

Although there is no risk of active crown fire in this zone due to the lack of forest cover, almost all of the zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. The likelihood of wildfire (burn probability) is high across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

Hazards in the home ignition zone: The main threats to the homes in this zone are radiant heat from burning vegetation and embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; some homes have Class B or C roofing, non-fire-resistant siding, decking, and wood fencing but there is newer development present in this area. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate, intermediate, and extended zones while others need significant work. Some homes have flammable conifer hedges and many have additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: This zone is bordered by the Snake River to the North, which limits evacuation routes. The primary evacuation routes for this zone are Peola Road and Evans Road; the secondary, less suitable, evacuation route is Silcott Road. Most roads in this zone can accommodate two-way traffic. Some road access is constricted in areas of this zone (one-way-in/one-way-out). Many properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is protected by ACFD1. This zone is bordered by the Snake River to the North which provides a natural fuel break and an important water source. Most roads in this zone are accessible for Type 3 fire engines. Some homes have hydrants, cisterns, or draft sites available nearby and have visible and reflective signs. There are many mid-slope homes and homes on ridgetops, and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: Due to shallow to moderate slopes across the Clarkston Rural zone, and the lower risk for high-severity wildfires, there is very low risk of post-fire sedimentation in this zone.

Recommendations for residents in Clarkston Rural:

1. Support and participate in activities with the ACFD1 and local natural resources conservation agencies.
2. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
3. Replace combustible roofing, siding, decking, and fencing with fire-resistant materials.
4. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
5. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
6. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
7. Advocate to bring WA DNR’s Wildfire Ready Neighbors program to Asotin County.
8. Advocate for Asotin County to implement programs to host a slash sort yard or slash collection events.
9. Work with ACCD to develop a weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.
10. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
11. Install visible, reflective signs near driveways. These are available from the County Building Department.
12. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.

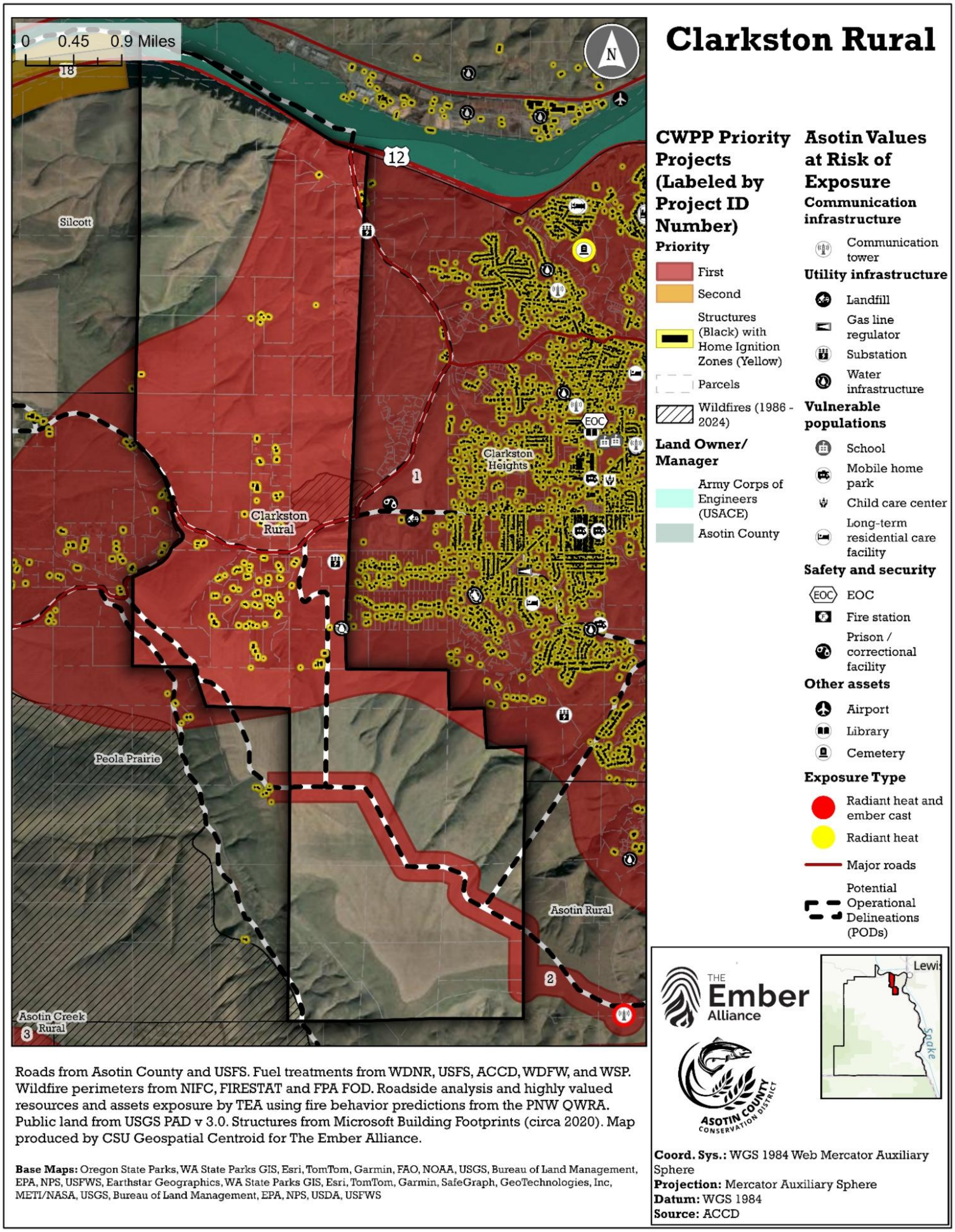


Figure 3.b.11. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the Clarkston Rural zone.*

Cloverland Forestland

Extreme relative risk rating

Under high to extreme fire weather and during a fire:

- **70%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **35%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **high** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **100% of homes** could be exposed to radiant heat from burning vegetation.
- **100% of homes** could be exposed to embers from burning vegetation.
- This zone has a **low** potential for structure-to-structure fire spread due to the low number of closely spaced structures.
- **7% of roads (0.5 of 6.5 miles of roads)** have potentially non-survivable conditions.

Fire Protection: Unprotected by an FPD, initial wildland fire response by WA DNR due to proximity to public lands

Vegetation, topography, and potential fire behavior: The Cloverland Forestland zone is mainly timberland, forested rangeland with access to public land. There are a handful of full-time residences and recreational cabins. Healthy timberland covers minor rolling slopes and steep canyons in this zone.

Dense vegetation creates the potential for extreme fire behavior across a third of the zone. There are many steep slopes, with many narrow valleys and ridges that could also increase unpredictable fire behavior. A majority of the zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. The likelihood of wildfire (burn probability) is high across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

Hazards in the home ignition zone: The main threats to the homes in this zone are radiant heat from burning vegetation and embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; most homes have Class A roofing, some homes have non-fire-resistant siding and decking, but there is practically no wood fencing in this area. Hazards present in the home ignition zone vary across this zone; few homes have adequate immediate, intermediate, and extended zones and need significant work. Few homes have flammable conifer hedges and many have additional hazards within 30 feet of the home. Homes built above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The primary evacuation route for this zone is Cloverland Road; there are no secondary evacuation routes. Most roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. Most properties have livestock that may require additional time and resources to evacuate. There are few permanent homes in this zone but many cabins, which would require door-to-door evacuation notification due to limited cell service.

Fire suppression considerations: This zone is unprotected by an FPD but receives initial wildland fire response by WA DNR due to proximity to public lands. Most roads in this zone are accessible for Type 3 fire engines, few homes have hydrants, cisterns, or draft sites available nearby, and most roads and homes have visible and reflective signs. There are no mid-slope homes or homes on ridgetops, but there are numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is an extreme relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Most portions of the zone could experience elevated sedimentation due to the complex topography of steep valleys and ravines and the potential for wildfire to consume surface litter. Notable areas that could experience post-fire sedimentation include steep slopes along Smith Gulch, Petty Ridge Gulch, and George Creek. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in Cloverland Forestland:

1. Consider improving suppression challenges and increasing fire protection assets by joining an FPD or forming a volunteer FPD. To be effective, this effort must be led by community members, for community members.
2. Support and participate in activities with local natural resource conservation agencies.
3. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
4. Replace combustible siding and decking with fire-resistant materials.
5. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
6. Move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
7. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
8. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
9. Advocate for Asotin County to implement programs to host a slash sort yard or slash collection events.
10. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
11. Install visible, reflective signs near driveways. These are available from the County Building Department.
12. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
13. Voice support for efforts by the Asotin County Road Department and USFS to reduce roadside wildfire fuel and the potential for ignitions from vehicles along Cloverland Road (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.

14. Voice support for priority projects on private and public land to restore forest and riparian vegetation in the Upper George Creek Watershed (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.
15. Several homes in this zone could be exposed to damaging post-fire flooding and sediment delivery (**see analysis in Appendix B**). Homeowners are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

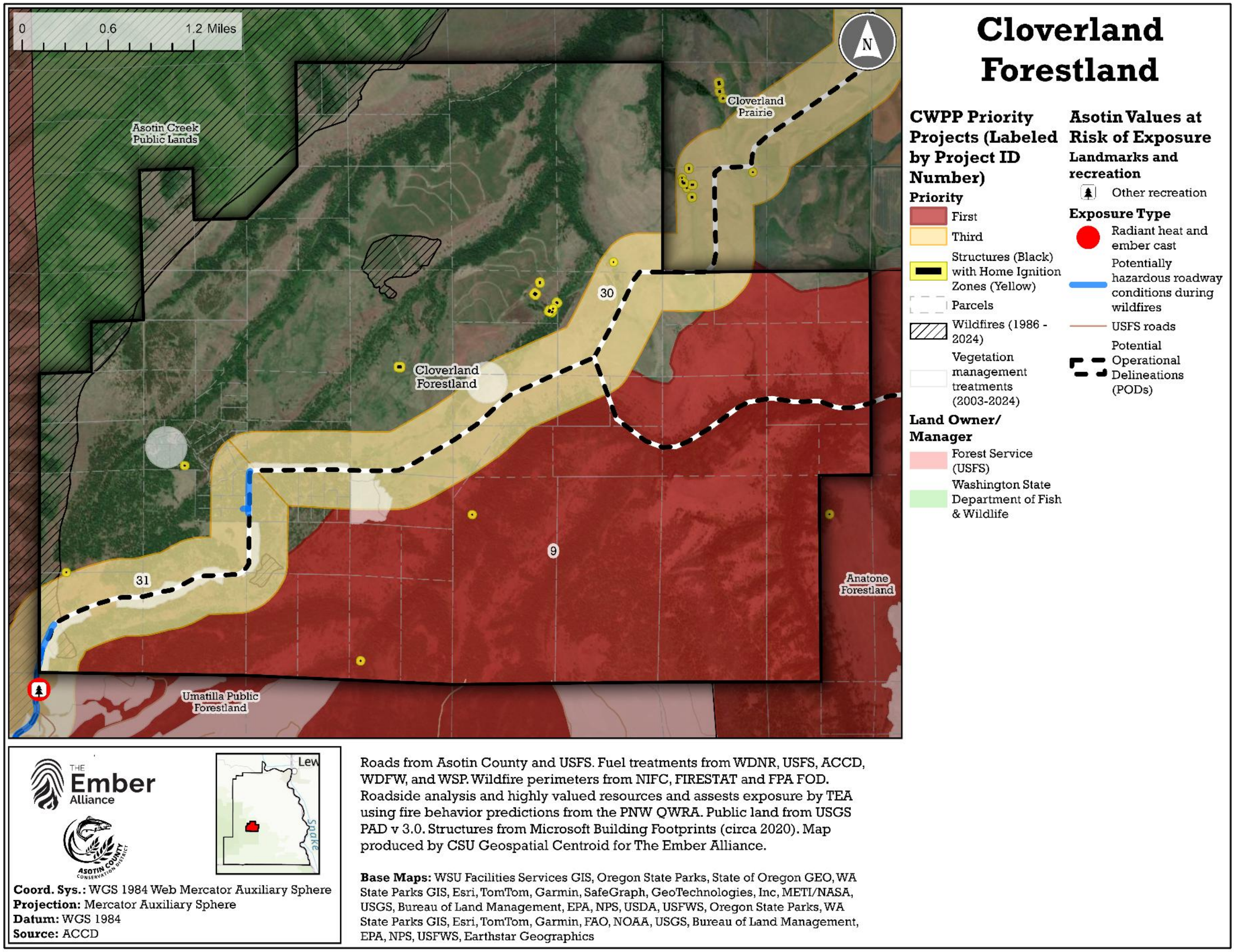


Figure 3.b.12. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the Cloverland Forestland zone.*

Cloverland Prairie

High relative risk rating

Under high to extreme fire weather and during a fire:

- **95%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **2%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **high** likelihood of wildfire (burn probability) relative to the rest of Washington.
- **20% of homes** could be exposed to radiant heat from burning vegetation.
- **3% of homes** could be exposed to embers from burning vegetation.
- This zone has a **moderate** potential for structure-to-structure fire spread due to the moderate number of closely spaced structures.
- **1% of roads (0.3 of 40.9 miles of roads)** have potentially non-survivable conditions.

Fire Protection: Unprotected by wildland FPD and WA DNR

Vegetation, topography, and potential fire behavior: The Cloverland Prairie zone is composed of agricultural dryland farming prairies intersected by steep, narrow canyons managed as rangeland that meets forestland. This zone is comprised of dryland crops rotated out by chemical fallow and conservation reserve program managed lands.

Pockets of dense forest on steep slopes and narrow valleys along Alder Gulch could experience active crown fire and unpredictable fire behavior. Almost all of the zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. The likelihood of wildfire (burn probability) is high across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

Hazards in the home ignition zone: The main threat to the homes in this zone is embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; some homes have Class B or C roofing and non-fire-resistant siding, decking, and wood fencing. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate, intermediate, and extended zones while others need significant work. Some homes have flammable conifer hedges and many have additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The primary evacuation route for this zone is Cloverland Road; there are no secondary evacuation routes. Campbell Grade Road is unsuitable for evacuation purposes. Practically all roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. Many properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is completely unprotected by an FPD and WA DNR. There is only remote access to water for fire suppression. Practically all roads in this zone are accessible for Type 3 fire engines, few homes have hydrants available nearby but cisterns/draft sites are available in some neighborhoods, and most roads and homes have visible and reflective signs. There are no mid-slope homes but many homes on ridgetops and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is a moderate relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Areas that could experience elevated sedimentation occur in the southern part of the zone where there are steep slopes with a greater potential for destruction of vegetation and surface litter by wildfire. Notable areas that could experience post-fire sedimentation are steep slopes along Alder Gulch and George Creek.

Recommendations for residents in Cloverland Prairie:

1. Consider improving suppression challenges and increasing fire protection assets by joining an FPD or forming a volunteer FPD. To be effective, this effort must be led by community members, for community members.
2. Support and participate in activities with local natural resource conservation agencies.
3. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
4. Replace combustible roofing, siding, decking, and fencing with fire-resistant materials.
5. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
6. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
7. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
8. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
9. Advocate for Asotin County to implement programs to host a slash sort yard or slash collection events.
10. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
11. Install visible, reflective signs near driveways. These are available from the County Building Department.
12. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
13. Voice support for efforts by the Asotin County Road Department and USFS to reduce roadside wildfire fuel and the potential for ignitions from vehicles along Cloverland Road (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.
14. Explore the need to create alternative sources of water for fire suppression, such as multi-use ponds.
15. Voice support for priority projects on private and public land to restore forest and riparian vegetation in the Upper George Creek Watershed and along Asotin Creek (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.

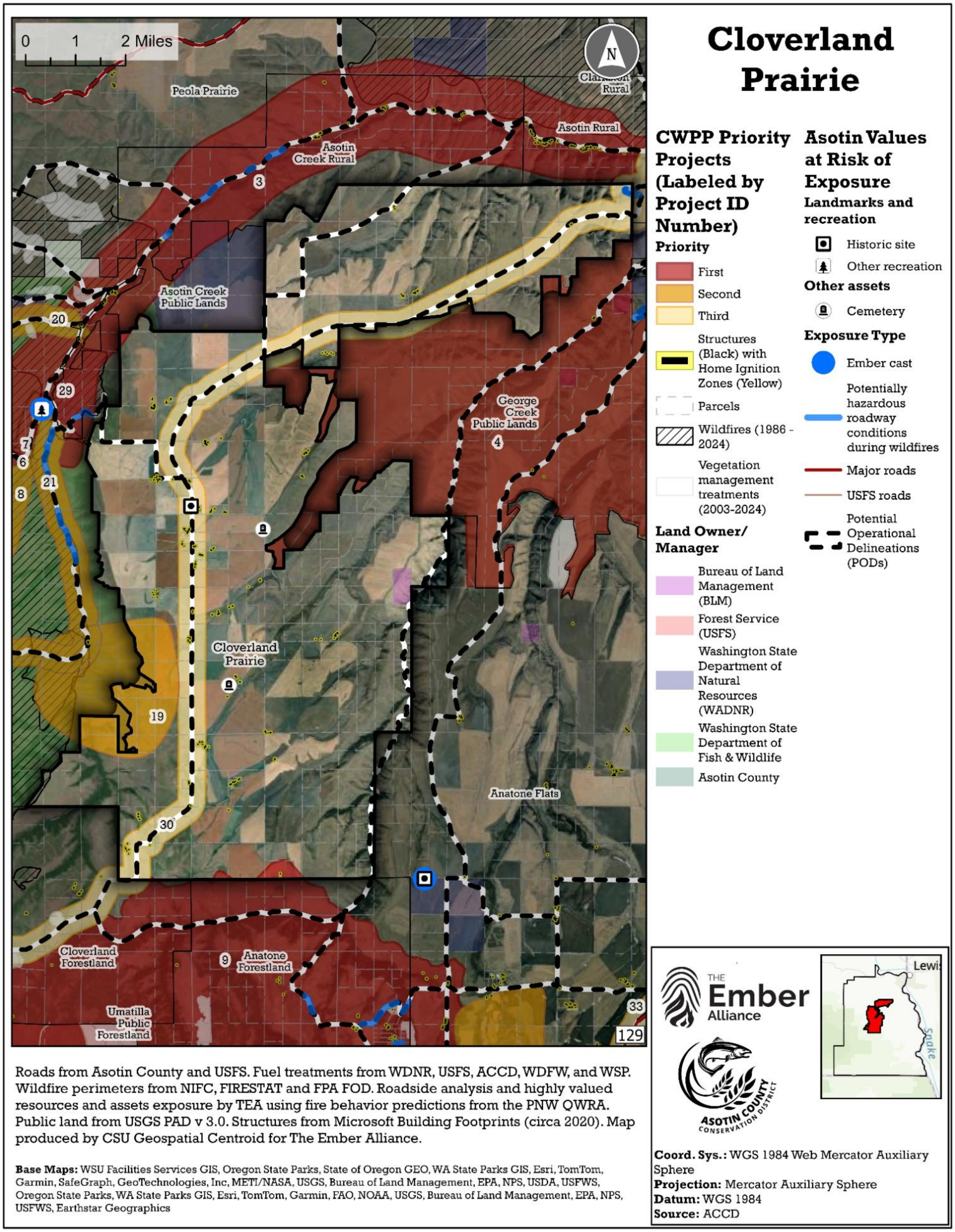


Figure 3.b.13. *Highly valued resources, roadway hazards, and priority project areas (detailed in **Section 4.c**) within the Cloverland Prairie zone.*

George Creek Public Lands

High relative risk rating

Under high to extreme fire weather and during a fire:

- **90%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **1%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **high** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **10% of roads (0.7 of 7 miles of roads)** have potentially non-survivable conditions.

Fire Protection: Partially protected by BMFD1 (eastern portion), partially protected with initial wildland fire response by WA DNR due to proximity to public lands (western portion).

Vegetation, topography, and potential fire behavior: The George Creek Public Lands zone is composed of public access land, George Creek Wildlife Area, and agricultural dryland farming prairies. Riparian vegetation is surrounded by steep rangeland and rocky hillsides. George Creek and Pintler Creek are intersected by steep, narrow canyons managed as rangeland, which could increase unpredictable fire behavior.

Almost all of the zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. The likelihood of wildfire (burn probability) is high across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire.

Hazards in the home ignition zone: There are currently no homes in the George Creek Public Lands zone.

Roadway accessibility and evacuation capacity: The only evacuation route for this zone is Myers Ridge Road. Most roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. There are no homes in this zone but there are recreators during the hunting season.

Fire suppression considerations: This zone is partially protected by Blue Mountain Fire District 1 and receives initial fire response by WA DNR due to proximity to public lands. Practically all roads in this zone are accessible for Type 3 fire engines and most roads have visible and reflective signs.

Post-fire hazards: There is a high relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Many portions of the zone could experience elevated sedimentation due to the complex topography of steep valleys and ravines and the potential for wildfire to consume surface litter. Notable areas that could experience post-fire sedimentation include steep slopes along George Creek, Stringtown Gulch, Pintler Creek, and Ayers Gulch. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for George Creek Public Lands:

1. Voice support for priority projects on public land to restore forest and riparian vegetation in the George Creek Unit of Blue Mountains Wildlife Area (see priority project areas in **Figure 4.c.1**).
2. Support integrated land management actions on rangeland and riparian areas. See **Section 4.c. Priority Project Areas for Asotin County** for specific recommendations for ecological restoration projects on the George Creek Unit of Blue Mountains Wildlife Area**.**

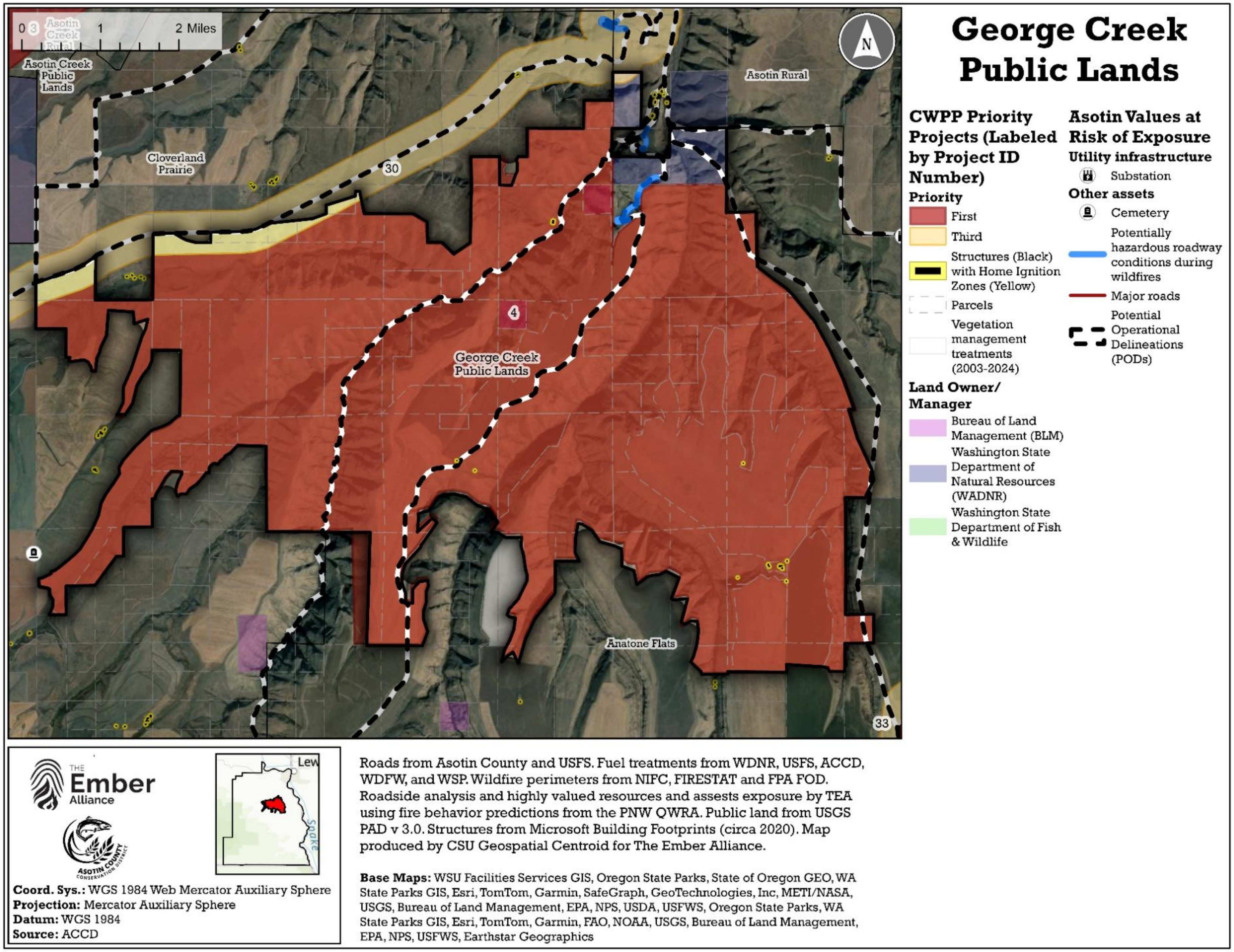


Figure 3.b.14. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the George Creek Public Lands zone.*

Grande Ronde Wildlands

Extreme relative risk rating

Under high to extreme fire weather and during a fire:

- **75%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **10%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **low** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **26% of homes** could be exposed to radiant heat from burning vegetation.
- **100% of homes** could be exposed to embers from burning vegetation.
- This zone has a **low** potential for structure-to-structure fire spread due to the low number of closely spaced structures.
- **1% of roads (0.3 of 25.6 miles of roads)** have potentially non-survivable conditions.

Fire Protection: Partially protected by BMFD1 (northeastern portion), partially protected with initial wildland fire response by WA DNR due to proximity to public lands (western portion), partially unprotected (southeastern portion).

Vegetation, topography, and potential fire behavior: The Grande Ronde Wildlands zone is composed of forestland, rangeland, and steep canyons that overlook the Grande Ronde River. Canyon bottoms across the zone support riparian vegetation. Flat areas and rolling hills across the zone are covered in rangeland with abundant annual grasses and weed infestations.

Steep, north-facing slopes along the Grande Ronde River could experience active crown fire. A majority of this zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

The Grande Rone Wildlands zone has experienced numerous wildfires in the past 20 years, including the 2012 Cache Creek Fire, 2013 Grand Ronde Fire, 2013 Mail Trail Fire, and 2021 Joseph Canyon Fire.

Hazards in the home ignition zone: The main threat to the homes in this zone is embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; some homes have

Class B or C roofing and non-fire-resistant siding, decking, and wood fencing. Hazards present in the home ignition zone vary across this zone; few homes have adequate immediate, intermediate, and extended zones and need significant work in all zones. Some homes have flammable conifer hedges and many have additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The primary evacuation routes for this zone are Highway 129, Grande Ronde Road, and Shumaker Grade Road; there are no secondary evacuation routes. Most roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and most roadways are primitive. Some properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is partially protected by BMFD1 and some areas receive initial wildland fire response by WA DNR due to proximity to public lands. The Grande Ronde River runs through this zone, which provides a natural fuel break and an important water source. Cell phone reception is a challenge in this zone. Most roads in this zone are accessible for Type 3 fire engines, no homes have hydrants available nearby and most homes do not have cisterns or draft sites available, and most roads and homes have visible and reflective signs. There are few mid-slope homes, no homes on ridgetops, and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is an extreme relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Most portions of the zone could experience elevated sedimentation due to the complex topography of steep valleys and ravines and the potential for wildfire to consume surface litter. Post-fire sedimentation could impact State Route 129, Grande Ronde Road, and Shumaker Grade Road, which are important evacuation routes. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in Grande Ronde Wildlands:

1. Consider improving suppression challenges and increasing fire protection assets by joining an FPD or forming a volunteer FPD. To be effective, this effort must be led by community members, for community members.
2. Support and participate in activities with local natural resource conservation agencies.
3. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
4. Replace combustible roofing, siding, decking, and fencing with fire-resistant materials.
5. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
6. Remove flammable confer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
7. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
8. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
9. Advocate for Asotin County to implement programs to host a slash sort yard or slash collection events.
10. Work with ACCD to develop a weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.
11. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
12. Consider installing a landline to receive emergency notifications due to very limited cell service in this zone.
13. Install visible, reflective signs near driveways. These are available from the County Building Department.

14. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
15. Voice support for efforts by WSDOT, Asotin County Road Department, USFS, and other partners to reduce roadside wildfire fuel and the potential for ignitions from vehicles along State Route 129, Mallory Ridge, Shumaker Grade Road, Cougar Creek Road, Hansen Ridge Road, Grande Ronde Road, and Joseph Creek Road (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.
16. Voice support for priority projects on private and public land to restore forest and riparian vegetation in the Cougar Creek Fire burned area and Shumaker Unit of Blue Mountains Wildlife Area and along the Grande Ronde River, Shumaker Creek, and Buford Creek (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.
17. Several homes in this zone could be exposed to damaging post-fire flooding and sediment delivery (**see analysis in Appendix B**). Homeowners are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

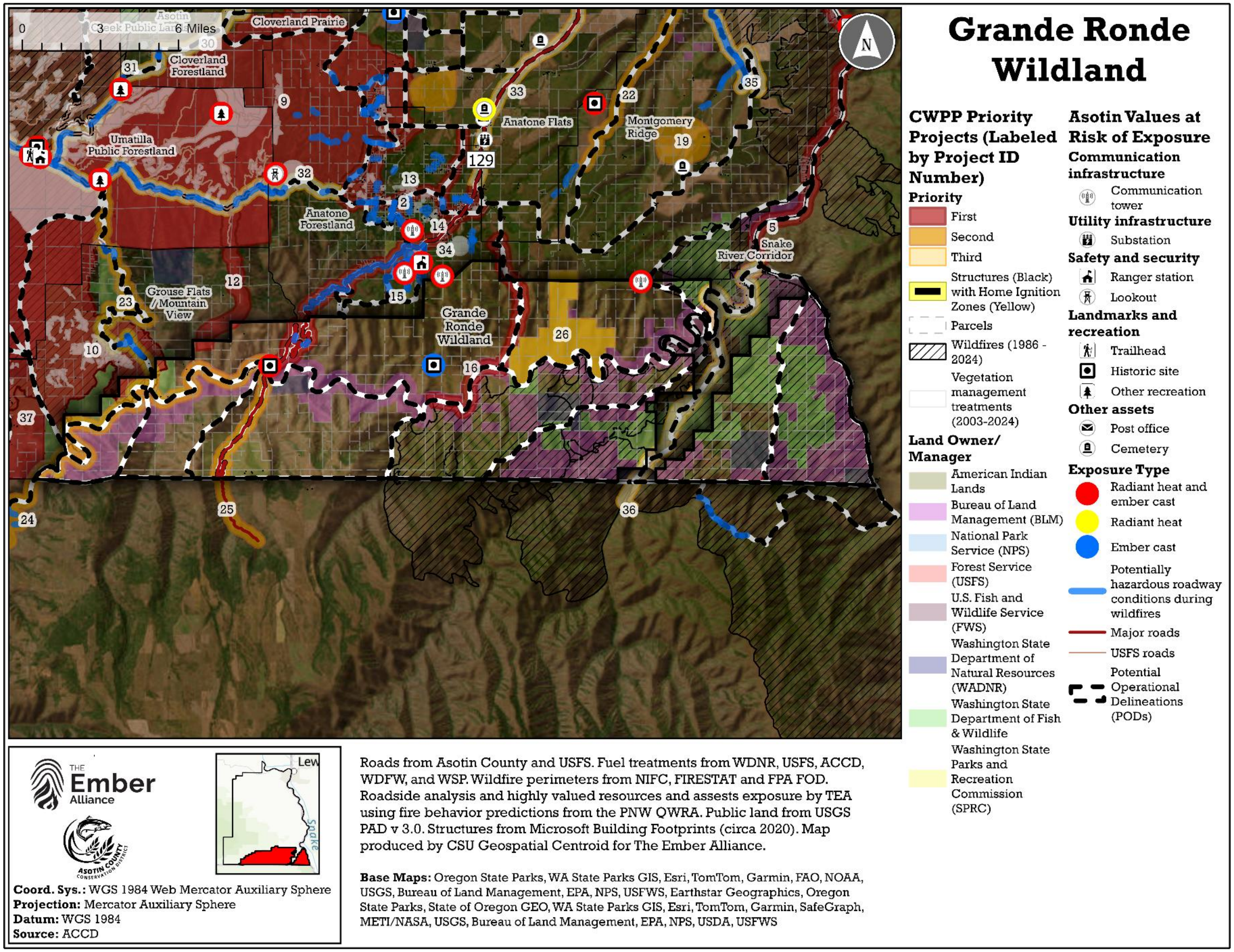


Figure 3.b.15. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****)* within the Grande Ronde Wildlands zone.

Grouse Flats/Mountain View

Extreme relative risk rating

Under high to extreme fire weather and during a fire[6]:

- **70%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **35%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **moderate** likelihood of wildfire (relative burn probability) relative to the rest of Washinton.
- **78% of homes** could be exposed to radiant heat from burning vegetation.
- **100% of homes** could be exposed to embers from burning vegetation.
- This zone has a **low** potential for structure-to-structure fire spread due to the low number of closely spaced structures.
- **23% of roads (5.5 of 24.3 miles of roads)** have potentially non-survivable conditions.

Fire Protection: Unprotected by an FPD, initial wildland fire response by WA DNR due to proximity to public lands

Vegetation, topography, and potential fire behavior: The Grouse Flats/Mountain View zone is composed of rangeland and dryland crops with pockets of conifer timberland. Prairies in this zone are intersected by steep, narrow canyons managed as rangeland and timberland.

Dense vegetation on steep, north- and northwest-facing slopes creates the potential for extreme fire behavior. Fire behavior can be unpredictable in areas with complex topography and an abundance of narrow valleys. A majority of this zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

[6] Fire behavior predictions come from the 2023 PNW QWRA, which was conducted for conditions prior to the 2024 Cougar Creek Fire.

Portions of the Grouse Flats/Mountain View zone were burned by the 2024 Cougar Creek Fire. Some areas burned with high intensity fire that killed trees and consumed organic matter on the soil surface. Other areas burned with low severity and still have abundant vegetation that could reburn with high to extreme fire behavior. If invasive weeds colonize the burned area in the coming years, it could increase the potential for rapid rates of fire spread in the zone, especially on steep slopes and under dry, windy fire weather conditions.

Hazards in the home ignition zone: The main threats to the homes in this zone are radiant heat from burning vegetation embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; some homes have Class B or C roofing and non-fire-resistant siding and decking but practically no wood fencing is present in this zone. Hazards present in the home ignition zone vary across this zone; few homes have adequate immediate, intermediate, and extended zones and need significant work in all zones. Few homes have flammable conifer hedges but many have additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The primary evacuation route for this zone is Grouse Flats Road; there are no secondary evacuation routes. Pomeroy Grouse Flat Road is unsuitable for evacuation purposes. Most roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and most roadways are primitive. Some properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is unprotected by an FPD but receives initial wildland fire response by WA DNR due to proximity to public lands. Most roads in this zone are accessible for Type 3 fire engines, few homes have hydrants, cisterns, or draft sites available nearby, and most roads and homes have visible and reflective signs. There are many mid-slope homes, few homes on ridgetops, and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is an extreme relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Most portions of the zone could experience elevated sedimentation due to the complex topography of steep valleys and ravines and the potential for wildfire to consume surface litter. The southwestern portion of this zone is less likely to experience post-fire sedimentation due to shallow slopes and the lower potential for intense wildfires. The 2024 Cougar Creek Fire burned across steep slopes in this zone, which increases the potential for post-fire sedimentation in the coming years before vegetation re-establishes and surface litter reaccumulates. Post-fire sedimentation from the Cougar Creek Fire could impact Grande Ronde Road, and post-fire sedimentation from future fires could impact State Route 129 and Shumaker Grade Road, which are important evacuation routes. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in Grouse Flats/Mountain View:

1. Consider improving suppression challenges and increasing fire protection assets by joining an FPD or forming a volunteer FPD. To be effective, this effort must be led by community members, for community members.
2. Support and participate in activities with local natural resource conservation agencies.
3. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
4. Replace combustible roofing, siding, and decking with fire-resistant materials.
5. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
6. Move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
7. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.

8. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
9. Advocate for Asotin County to implement programs to host a ward waste or slash collection events.
10. Work with ACCD to develop a weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.
11. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
12. Consider installing a landline or using Voice over Internet Protocol (VoIP)to receive emergency notifications due to very limited cell service in this zone.
13. Install visible, reflective signs near driveways. These are available from the County Building Department.
14. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
15. Voice support for efforts by WSDOT, Asotin County Road Department, USFS, and other partners to reduce roadside wildfire fuel and the potential for ignitions from vehicles along State Route 129, Mallory Ridge, Cougar Creek Road, Hansen Ridge Road, and Grande Ronde Road (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.
16. Voice support for priority projects on private and public land to restore forest and riparian vegetation in the Cougar Creek Fire burned area and along the Grande Ronde River (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.
17. Several homes in this zone could be exposed to damaging post-fire flooding and sediment delivery (**see analysis in Appendix B**). Homeowners are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

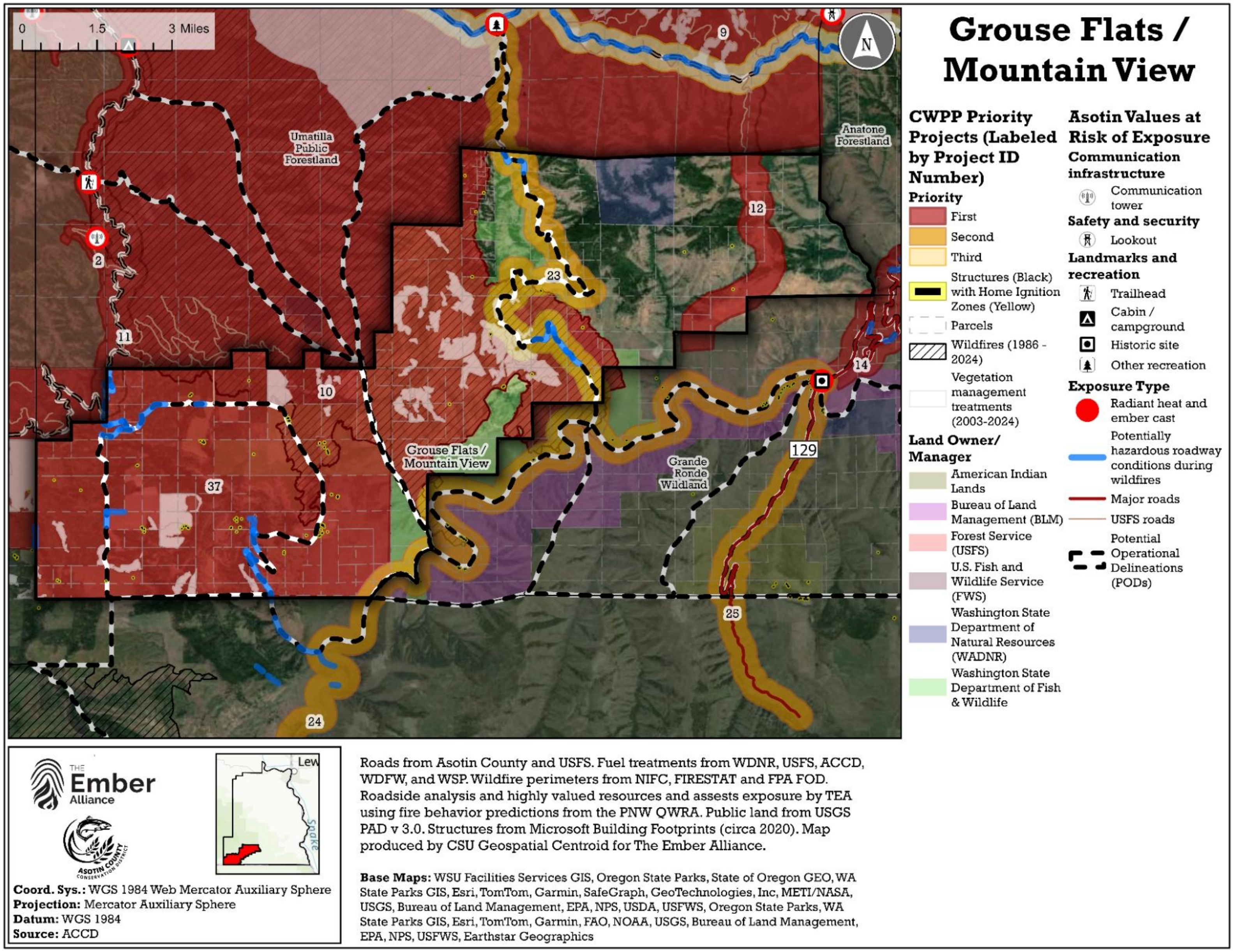
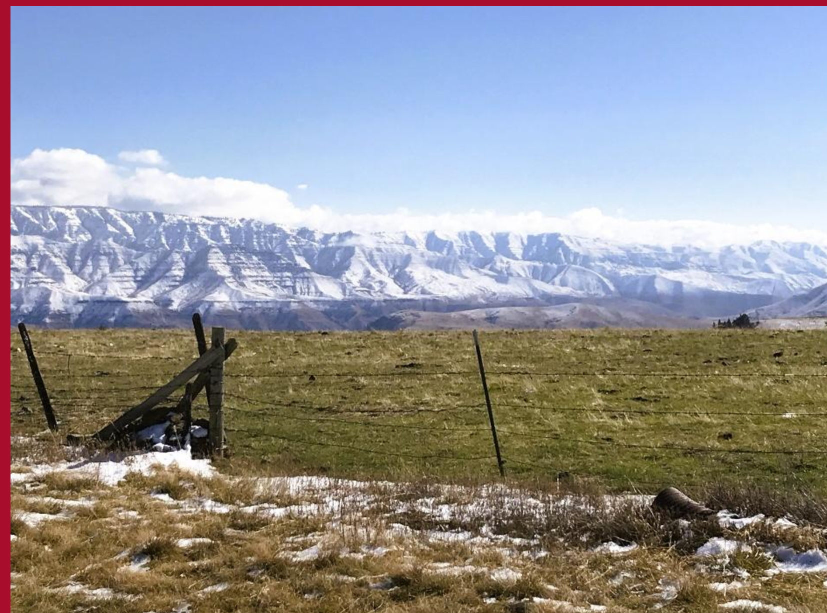


***Figure 3.b.16** Highly valued resources, roadway hazards, and priority project areas (detailed in **Section 4.c**) within the Grouse Flats/Mountain View zone.*

Montgomery Ridge

Extreme relative risk rating



Under high to extreme fire weather and during a fire:

- **85%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **7%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **high** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **80% of homes** could be exposed to radiant heat from burning vegetation.
- **75% of homes** could be exposed to embers from burning vegetation.
- This zone has a **low** potential for structure-to-structure fire spread due to the low number of closely spaced structures.
- **14% of roads (5.7 of 41.3 miles of roads)** have potentially non-survivable conditions.

Fire Protection: BMFD1

Vegetation, topography, and potential fire behavior: The Montgomery Ridge zone is composed of rangeland, dryland crops, and Conservation Reserve Program (CRP) managed lands with pockets of forestland. The agricultural dryland farming prairies are intersected by steep, narrow canyons managed as rangeland. There are a couple of significant creeks running through the canyons that lead to the Snake River that could serve as fuel breaks.

Pockets of dense forest on steep slopes and narrow valleys along Matheny, Fisher, and Eugene Gulches and Tenmile Creek could experience active crown fire and unpredictable fire behavior. A majority of the zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. The likelihood of wildfire (burn probability) is high across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

The Montgomery Ridge zone was impacted by the 2013 Mail Trail Fire and 2015 Gilmore Gulch Fire.

Hazards in the home ignition zone: The main threats to the homes in this zone are radiant heat from burning vegetations and embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; some homes have Class B or C roofing and non-fire-resistant siding and decking but practically no wood fencing. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate zones, few have adequate intermediate and extended zones, while others need significant work in all zones. Few homes have flammable conifer hedges but many have additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The primary evacuation route for this zone is Montgomery Ridge Road and the secondary, less suitable, evacuation routes are Weissenfels Ridge Road and Sherry Grade Road. Practically all roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. Many properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is protected by BMFD1. This zone has a high likelihood of wind-driven events which could spread fire and embers quickly over long distances. There is only remote access to water for fire suppression. Practically all roads in this zone are accessible for Type 3 fire engines, no homes have hydrants, cisterns, or draft sites available nearby, and few roads and homes have visible and reflective signs. There are few mid-slope homes, many homes on ridgetops, and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is a high relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Many portions of the zone could experience elevated sedimentation due to the complex topography of steep valleys and ravines and the potential for wildfire to consume surface litter. Notable areas that could experience post-fire sedimentation include steep slopes along Tenmile Creek, Couse Creek, Montgomery Gulch, Gilmore Gulch, and valleys coming off Montgomery Ridge. Post-fire sedimentation could impact Sherry Grade Road and Couse Creek Road, which are secondary evacuation routes. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in Montgomery Ridge:

1. Support and participate in activities with BMFD1 and local natural resource conservation agencies.
2. Prepare your home for wildfire by mitigating in all defensible space zones, with particular focus on the intermediate and extended zones.
3. Replace combustible roofing, siding, and decking with fire-resistant materials.
4. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
5. Move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
6. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
7. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
8. Advocate for Asotin County to implement programs to host yard waste or slash collection events.
9. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
10. Install visible, reflective signs near driveways. These are available from the County Building Department.
11. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
12. Explore the need to create alternative sources of water for fire suppression, such as multi-use ponds.
13. Voice support for efforts by WSDOT, Asotin County Road Department, BLM, and other partners to reduce roadside wildfire fuel and the potential for ignitions from vehicles along Snake River Road,

Schumaker Grade Road, Weissenfels Ridge Road, Montgomery Ridge Road, Sherry Grade Road, and Couse Creek Road (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.

14. Voice support for priority projects on private and public land to restore forest and riparian vegetation in the Shumaker Unit of Blue Mountains Wildlife Area and along Shumaker Creek (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.
15. Several homes in this zone could be exposed to damaging post-fire flooding and sediment delivery (**see analysis in Appendix B**). Homeowners are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

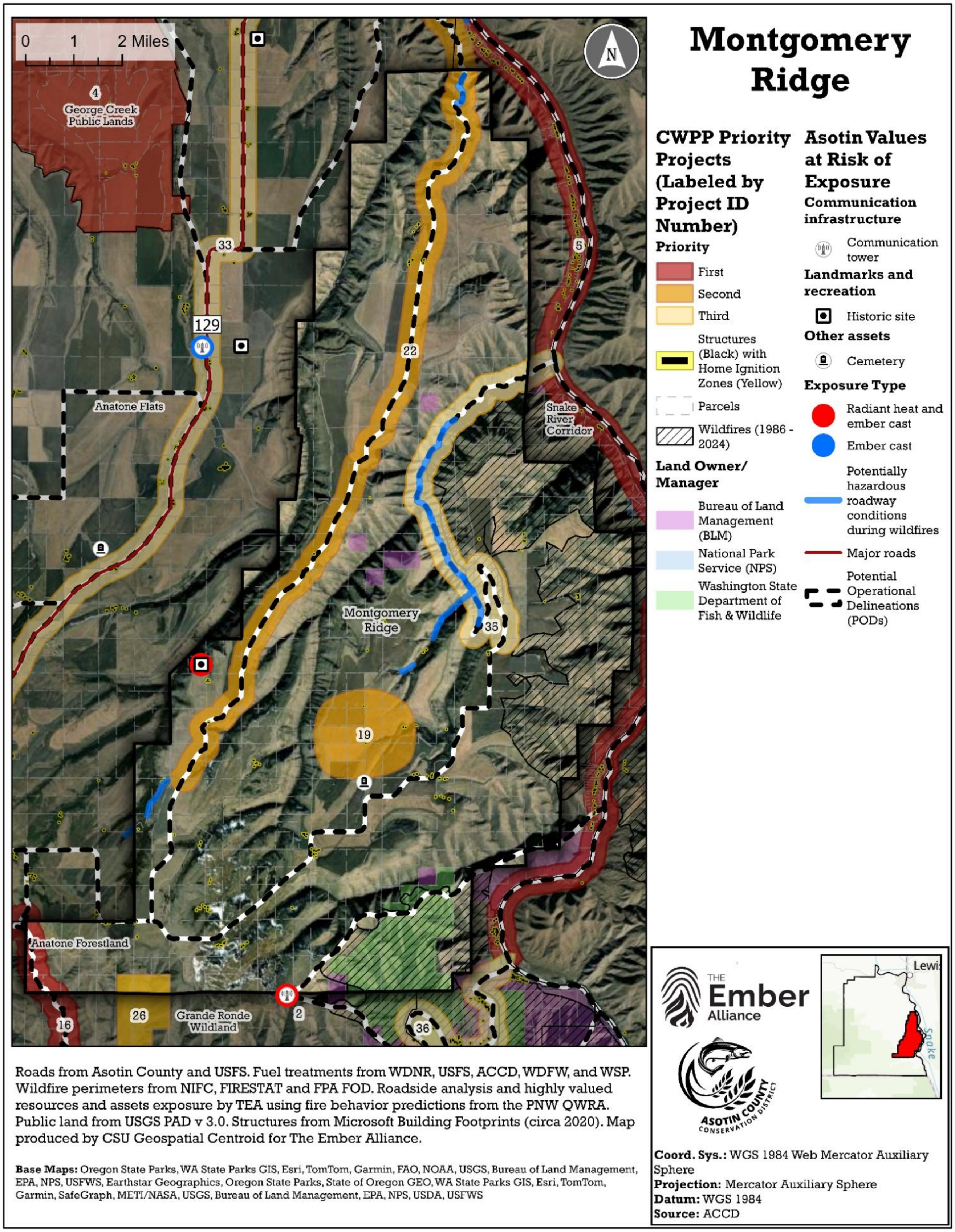


Figure 3.b.17 *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the Montgomery Ridge zone.*

Peola Prairie

Moderate relative risk rating

Under high to extreme fire weather and during a fire:

- **95%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **1%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **moderate** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **15% of homes** could be exposed to radiant heat from burning vegetation.
- **2% of homes** could be exposed to embers from burning vegetation.
- This zone has a **low** potential for structure-to-structure fire spread due to the low number of closely spaced structures.
- **2% of roads (0.7 of 37.7 miles of roads)** have potentially non-survivable conditions.

Fire Protection: ACFD1

Vegetation, topography, and potential fire behavior: The Peola Prairie zone has steep hills with large, open plains covered by shrub-steppe vegetation and dryland crop area that is rotated out by chemical fallow. The prairies in this zone are dissected by steep drainages managed as rangeland.

Pockets of dense vegetation on steep slopes and narrow valleys along Pow Wah Kee Gulch could experience intense and unpredictable fire behavior. A majority of the zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. The likelihood of wildfire (burn probability) is moderate across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

The Peola Prairie zone was impacted by the 2021 Silcott Fire. Invasive weeds have colonized much of the area burned by the Silcott Fire, which could increase the potential for rapid rates of fire spread, especially in narrow canyons and valleys.

Hazards in the home ignition zone: The main threat to the homes in this zone is embers landing on roofs or within 30 feet of structures and igniting them. Newer construction is present in the area with most homes having Class A roofing, fire-resistant siding, and practically no wood fencing. There is some non-fire-resistant decking throughout this zone. Hazards present in the home ignition zone vary across this zone; many homes have adequate immediate zones but need significant work in the intermediate and extended zones. Some homes have flammable conifer hedges and many have additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The primary evacuation route for this zone is Peola Road and the secondary, less suitable, evacuation route is Silcott Grade Road. Practically all roads in this zone can accommodate two-way traffic. Some road access is constricted in areas of this zone (one-way-in/one-way-out). Many properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is protected by ACFD1. The Peola Prairie zone has a higher likelihood of wind-driven events which could spread fire and embers quickly over long distances. Practically all roads in this zone are accessible for Type 3 fire engines, hydrants are available near most homes, and most roads and homes have visible and reflective signs. There are few mid-slope homes and homes on ridgetops but numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is a high relative potential for post-fire sedimentation and negative impacts to surface drinking water in the western portion of this zone. Areas that could experience elevated sedimentation are steep slopes with a greater potential for destruction of vegetation and surface litter by wildfire, including steep slopes along Dry Gulch, Blankenship Gulch, Driscoll Gulch, and Pow Wah Kee Gulch. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in Peola Prairie:

1. Support and participate in activities with the ACFD1 and local natural resources conservation agencies.
2. Prepare your home for wildfire by mitigating in all defensible space zones, with particular focus on the intermediate and extended zones.
3. Replace combustible decking with fire-resistant materials.
4. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
5. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
6. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
7. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
8. Advocate for Asotin County to implement programs to host yard waste or slash collection events.
9. Work with ACCD to develop a weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.
10. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
11. Install visible, reflective signs near driveways. These are available from the County Building Department.
12. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
13. Voice support for efforts by WSDOT and partners to reduce roadside wildfire fuel and the potential for ignitions from vehicles along U.S. 12 (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.
14. Explore the need to create alternative sources of water for fire suppression, such as multi-use ponds.

15. Voice support for priority projects on private and public land to restore forest and riparian vegetation along Pow Wah Kee Creek and Alpowa Creek (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.

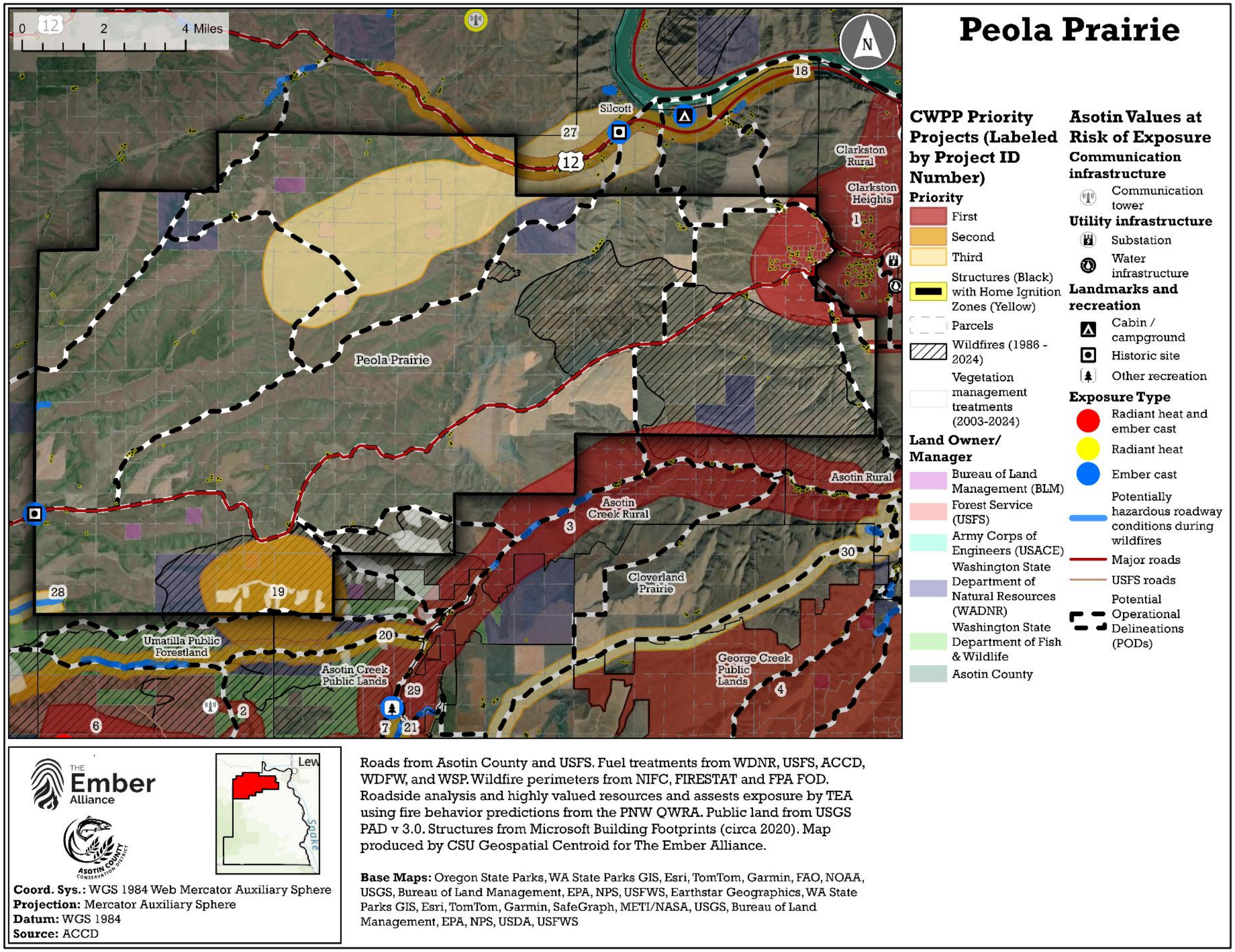


***Figure 3.b.18** Highly valued resources, roadway hazards, and priority project areas (detailed in **Section 4.c**) within the Peola Prairie zone.*

Silcott

High relative risk rating

Under high to extreme fire weather and during a fire:

- **80%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **3%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **moderate** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **80% of homes** could be exposed to radiant heat from burning vegetation.
- **95% of homes** could be exposed to embers from burning vegetation.
- This zone has a **low** potential for structure-to-structure fire spread due to the low number of closely spaced structures.
- **7% of roads (0.7 of 10.3 miles of roads)** have potentially non-survivable conditions.

Fire Protection: ACFD1

Vegetation, topography, and potential fire behavior: The Silcott zone is an area of new development in Asotin County that encompasses steep bluffs overlooking the Snake River and the Silcott community. In this zone, agricultural rangeland and dryland crops are surrounded by grasslands and sagebrush ecosystems that are dissected by steep drainages.

There is no risk of active crown fire due to the lack of forest cover in this zone, however, fire can move quickly through tall grasses and, if left unmitigated, cause homes to ignite.

Pockets of dense vegetation on steep slopes and narrow valleys along Alpowa Creek and Twin Gulch could experience intense and unpredictable fire behavior. A majority of the zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. The likelihood of wildfire (burn probability) is moderate across the zone due to the abundance of grassy fuels, which can quickly dry out and support rapid growth of wildfires. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

This zone has an elevated potential for human-caused ignitions from vehicles along U.S. 12. This increases the potential for wildfires to start at the base of steep slopes along the road that could rapidly spread uphill.

The Silcott zone was impacted by the 2021 Silcott Fire. Invasive weeds have colonized much of the area burned by the Silcott Fire, which could increase the potential for rapid rates of fire spread, especially in narrow canyons and valleys.

Hazards in the home ignition zone: The main threat to the homes in this zone are radiant heat from burning vegetation and embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone; some homes have Class B or C roofing and non-fire-resistant siding, decking, and wood fencing. There is newer development present in this area. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate, intermediate, and extended zones while others need significant work in all zones. Many homes have flammable conifer hedges and some have additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The Silcott zone is bordered by the Snake River to the North, which limits evacuation routes. The primary evacuation route for this zone is U.S. 12/Bridge Road and the secondary, less suitable, evacuation routes is Silcott Grade Road. Most roads in this zone can accommodate two-way traffic. Some road access is constricted in areas of this zone (one-way-in/one-way-out) and some roads are primitive. Many properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is protected by ACFD1. The Silcott zone has a higher likelihood of wind-driven events which could spread fire and embers quickly over long distances. Few roads in this zone are accessible for Type 3 fire engines, hydrants are available near some homes, cisterns or draft sites are available in most neighborhoods, and some roads and homes have visible and reflective signs. There are many mid-slope homes and homes on ridgetops, and numerous saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is a moderate relative potential for post-fire sedimentation to surface drinking water in this zone. Areas that could experience elevated sedimentation occur in the southern part of the zone where there are steep slopes with a greater potential for destruction of vegetation and surface litter by wildfire. Notable areas that could experience post-fire sedimentation are steep slopes along Alpowa Creek and steep slopes along the Snake River. Post-fire sedimentation could impact some portions of U.S. 12, which is an important evacuation route. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in Silcott:

1. Support and participate in activities with ACFD1 and local natural resources conservation agencies.
2. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
3. Replace combustible roofing, siding, decking, and wood fencing with fire-resistant materials.
4. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
5. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
6. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
7. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
8. Advocate for Asotin County to implement programs to host a slash sort yard or slash collection events.
9. Work with ACCD to develop a weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.

10. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
11. Install visible, reflective signs near driveways. These are available from the County Building Department.
12. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
13. Voice support for efforts by WSDOT and partners to reduce roadside wildfire fuel and the potential for ignitions from vehicles along U.S. 12 (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.
14. Voice support for priority projects on private and public land to restore forest and riparian vegetation along Pow Wah Kee Creek and Alpowa Creek (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.
15. Several homes in this zone could be exposed to damaging post-fire flooding and sediment delivery (**see analysis in Appendix B**). Homeowners are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

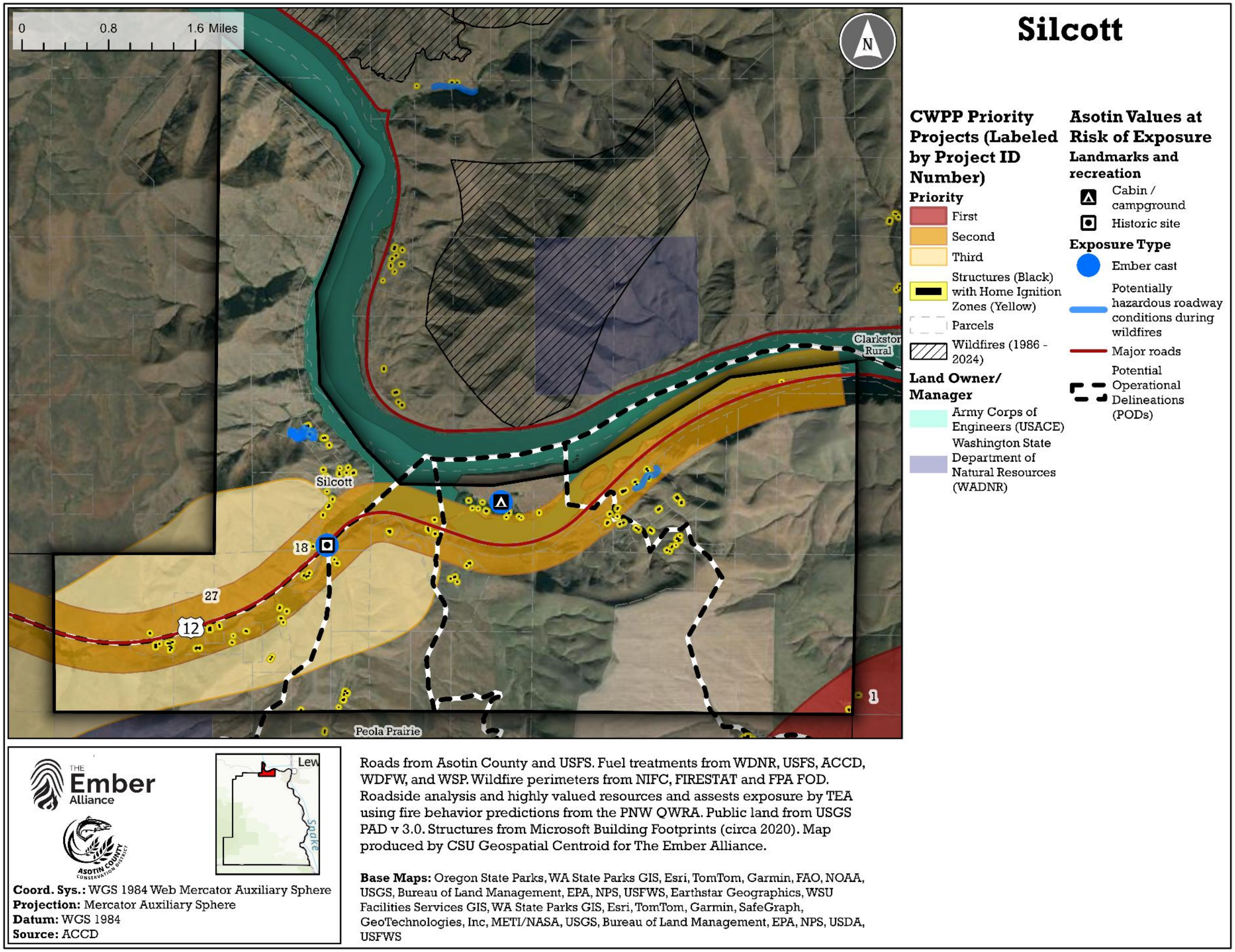
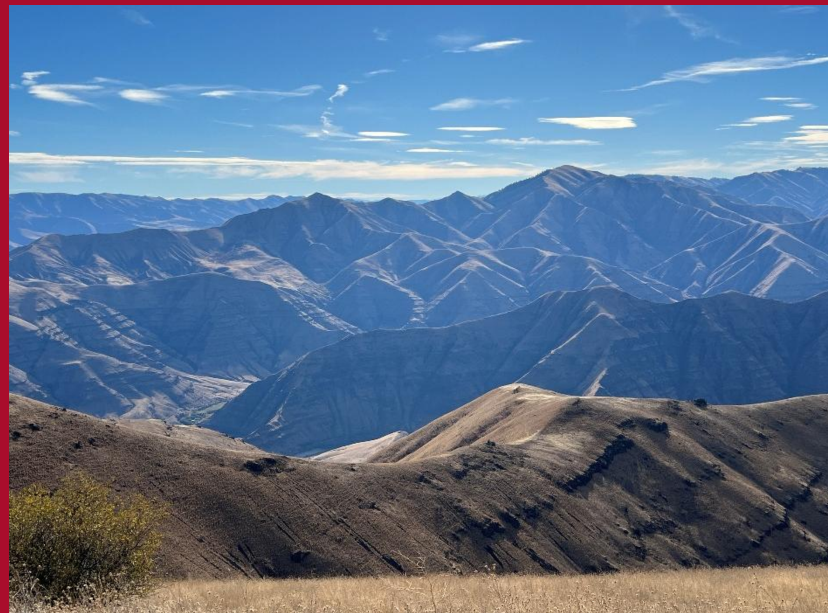


***Figure 3.b.19** Highly valued resources, roadway hazards, and priority project areas (detailed in **Section 4.c**) within the Silcott zone.*

Snake River Corridor and Joseph Creek Corridor

Extreme relative risk rating



Under high to extreme fire weather and during a fire:

- **57%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **3%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **low** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **45% of homes** could be exposed to radiant heat from burning vegetation.
- **70% of homes** could be exposed to embers from burning vegetation.
- This zone has a **moderate** potential for structure-to-structure fire spread due to the moderate number of closely spaced structures.
- **1% of roads (0.3 of 26.5 miles of roads)** have potentially non-survivable conditions.

Fire Protection: Unprotected by an FPD.

Vegetation, topography, and potential fire behavior: The Snake River Corridor and Joseph Creek Corridor zone encompasses the plains between the Snake River and Joseph Creek as well as homes and recreation properties along these waterways. Overlooking the Snake and Grande Ronde River, this zone contains riparian vegetation surrounded by rock bluffs, steep rangeland, and annual grasses with weed infestations on hillsides.

Pockets of dense vegetation on steep slopes and narrow valleys along the river corridor could experience intense and unpredictable fire behavior. Over half of the zone could experience rapid rates of fire spread in tall grasses and shrubs, especially under dry and windy conditions. Rapidly growing fires can outpace the ability of firefighters to control a wildfire and increase the risk of fires impinging upon homes and other structures.

This zone has an elevated potential for human-caused ignitions from recreators and vehicles along the Snake River. This increases the potential for wildfires to start at the base of steep slopes along the river corridor that could rapidly spread uphill.

The Snake River Corridor and Joseph Creek Corridor zone has experienced numerous wildfires in the past 20 years, including the 2012 Cache Creek Fire, 2013 Mail Trail Fire, 2015 Gilmore Gulch, and 2021 Joseph Canyon Fire.

Hazards in the home ignition zone: The main threats to homes in this zone are radiant heat from burning vegetations and embers landing on roofs or within 30 feet of structures and igniting them. Home age and construction vary in this zone with some homes having Class B or C roofing and non-fire-resistant siding, decking, and wood fencing. Hazards present in the home ignition zone vary across this zone; some homes have adequate immediate zones, few homes have adequate intermediate and extended zones, while others need significant work in all zones. Many homes have flammable conifer hedges and additional hazards within 30 feet of the home. Homes built on hillsides or above dense vegetation are at higher fire risk. Firefighters may not be able to protect these homes in an extreme wildfire event due to the steep slopes or limited road access with no escape routes.

Roadway accessibility and evacuation capacity: The Snake River Corridor and Joseph Creek Corridor zone is bordered by the Snake River to the East, which limits evacuation routes. The primary evacuation routes for this zone are Snake River Road and Joseph Creek Road; there are no secondary evacuation routes. Practically all roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and some roadways are primitive. Some properties have livestock that may require additional time and resources to evacuate.

Fire suppression considerations: This zone is completely unprotected by an FPD and WA DNR. The Joseph Creek corridor has very limited access on a single primitive road. Most roads in this zone are accessible for Type 3 fire engines, no homes have hydrants available nearby but most neighborhoods have cisterns or draft sites available, and few roads and homes have visible and reflective signs. There are few mid-slope homes, no homes on ridgetops, and several saddles, ravines, or chimneys in this zone.

Post-fire hazards: There is an extreme relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Most portions of the zone could experience elevated sedimentation due to steep slopes along the Snake River, Grande Ronde River, and Joseph Creek. The southwestern portion of this zone is less likely to experience post-fire sedimentation due to shallow slopes and the lower potential for intense wildfires. Post-fire sedimentation could impact Snake River Road and Joseph Creek Road, which are important evacuation routes. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for residents in The Snake River and Joseph Creek Corridors:

1. Consider improving suppression challenges and increasing fire protection assets by joining an FPD or forming a volunteer FPD. To be effective, this effort must be led by community members, for community members.
2. Support and participate in activities with local natural resource conservation agencies.
3. Prepare your home for wildfire by mitigating the immediate, intermediate, and extended zones.
4. Replace combustible roofing, siding, decking, and wood fencing with fire-resistant materials.
5. Get a home assessment from ACCD or WA DNR to identify specific mitigation actions that need to be taken.
6. Remove flammable conifer hedges and move hazards such as wood piles, propane tanks, and old wooden sheds at least 30 feet away from homes and structures.
7. Work with neighbors to create linked defensible space. Projects that span multiple properties are more effective at reducing wildfire risk. Contractor costs can sometimes be shared among homeowners, reducing the cost for everyone involved.
8. Advocate to bring WA DNR's Wildfire Ready Neighbors program to Asotin County.
9. Advocate for Asotin County to implement programs to host yard waste or slash collection events.
10. Work with ACCD to develop a weed mitigation strategy to reduce the cover of weedy species like cheatgrass and Mediterranean sage that can increase the risk of wildfire.
11. Develop an evacuation plan for your family, sign up for emergency notifications from Asotin County Hyper-Reach, and coordinate with neighbors who might need additional support during evacuations.
12. Consider installing a landline or using Voice over Internet Protocol (VoIP) to receive emergency notifications due to very limited cell service in this zone.

13. Install visible, reflective signs near driveways. These are available from the County Building Department.
14. Remove trees, shrubs and tall grasses along private roads and driveways to improve evacuation safety and firefighter access during a wildfire.
15. Voice support for efforts by WSDOT and partners to reduce roadside wildfire fuel and the potential for ignitions from vehicles along Snake River Road and Joseph Creek Road (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement defensible space projects on adjacent private land.
16. Voice support for priority projects on private and public land to restore forest and riparian vegetation along Joseph Creek (see priority project areas in **Figure 4.c.1**). Magnify the impact of these projects by working with ACCD, NRCS, and WA DNR to implement ecological restoration and wildfire mitigation projects on adjacent private land.
17. Several homes in this zone could be exposed to damaging post-fire flooding and sediment delivery (**see analysis in Appendix B**). Homeowners are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

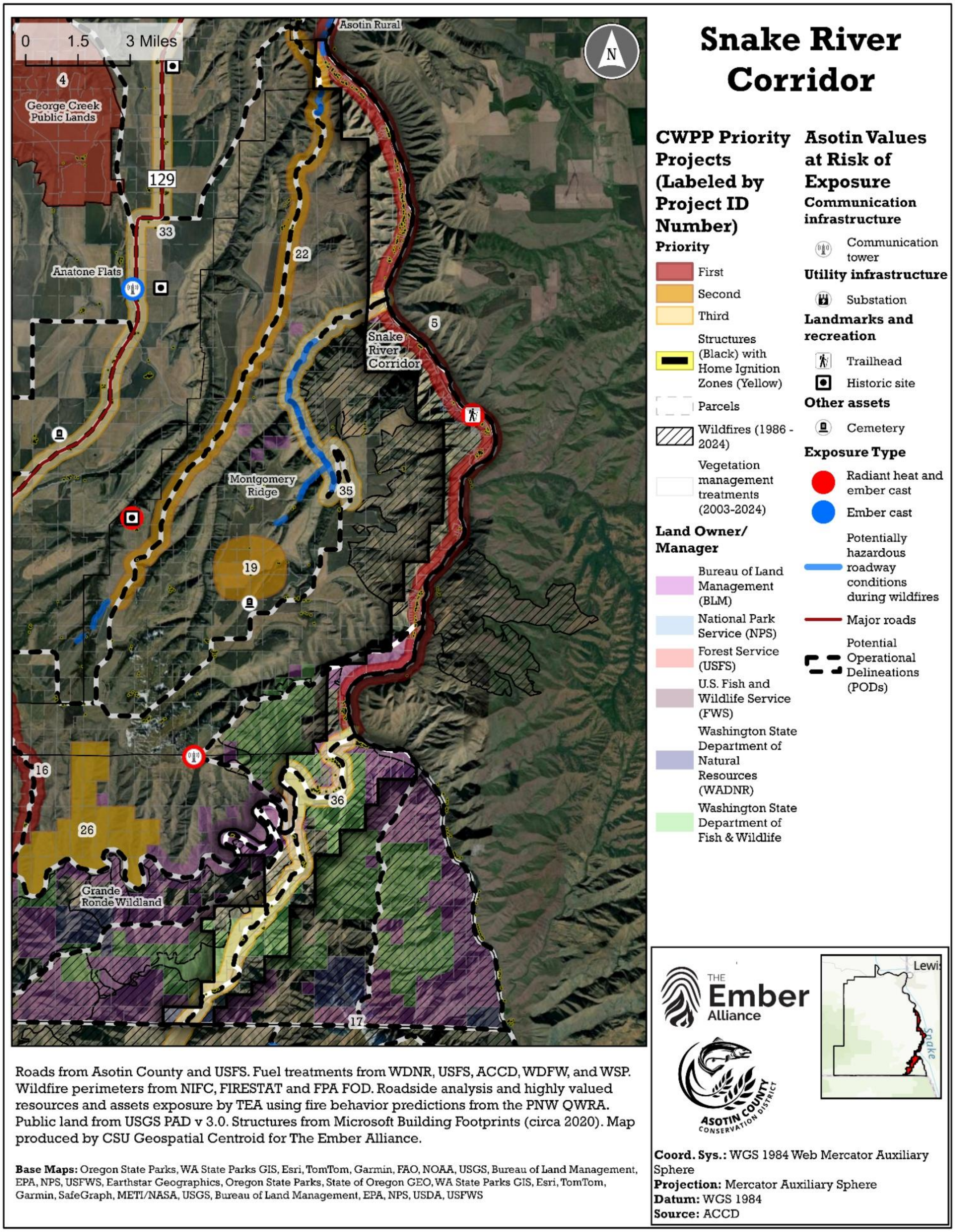
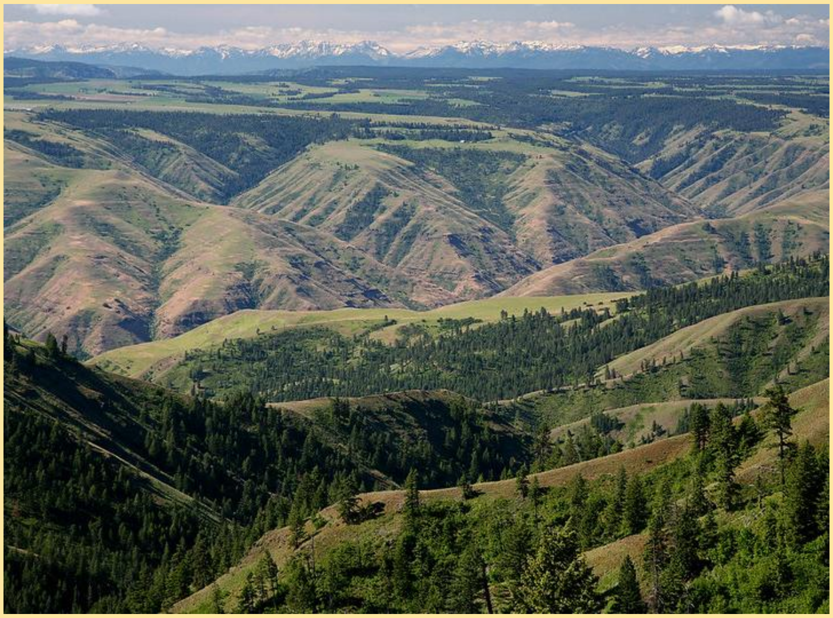


Figure 3.b.20. Highly valued resources, roadway hazards, and priority project areas (detailed in ***Section 4.c****) within the Snake River Corridor and Joseph Creek Corridor zone.*

Umatilla Public Forestland

Moderate relative risk rating



Under high to extreme fire weather and during a fire[7]:

- **60%** of the area could experience rapid rates of fire spread (>20 chains/hour).
- **45%** of the area could experience high to extreme fire behavior (fire transitioning from the surface into treetops, spreading from treetop to tree, and/or emitting prolific embers).
- This zone has a **moderate** likelihood of wildfire (relative burn probability) relative to the rest of Washington.
- **53% of roads (15.7 of 29.8 miles of roads)** have potentially non-survivable conditions.

Fire Protection: USFS

Vegetation, topography, and potential fire behavior: The Umatilla Public Forestland zone encompasses forestland, timberland, forested rangeland, and public access lands. This zone includes a wide variety of coniferous forests of ponderosa, lodgepole, and western white pines; grand, subalpine, and Douglas fir; as well as Englemann spruce and western larch. The Umatilla Public Forestland has some mountainous terrain, but most of the zone consists of V-shaped valleys separated by narrow ridges or plateaus. This complex topography could promote unpredictable, fast-moving fires.

Almost all of the Umatilla Forestland zone has experienced at least one fire since 2000. Major fires include the 2007 Cottonwood Fire, 2021 Lick Creek Fire, and 2024 Cougar Creek Fire. Some portions of the Cougar Creek Fire burned with high intensity fire that killed trees and consumed organic matter on the soil surface. Other areas burned with low severity and still have abundant vegetation that could reburn with high to extreme fire behavior. If invasive weeds colonize the burned area in the coming years, it could increase the potential for rapid rates of fire spread in the zone, especially on steep slopes and under dry, windy fire weather conditions.

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[7] Fire behavior predictions come from the 2023 PNW QWRA, which was conducted for conditions prior to the 2024 Cougar Creek Fire. The PNW QWRA also made assumptions about the impact that the 2021 Lick Creek Fire had on fuel conditions that reduced the intensity of predicted fire behavior. However, invasive weeds have colonized much of the area burned by the Lick Creek Fire, which could increase the potential for rapid rates of fire spread in the zone, especially on steep slopes and with dry, windy fire weather conditions.

Hazards in the home ignition zone: There are no homes in the Umatilla Public Forestland zone, but there are USFS-owned historic structures and several important recreation areas, including Wenatchee Trailhead, Saddle Spring Trailhead, Cabin Saddle Campground, Cloverland Sno-Park, Indian Tom Corral, and Little Butte Corral. Additionally, there are three radio repeaters.

Roadway accessibility and evacuation capacity: Evacuation routes are South Fork/Smoothing Iron Road, Lick Fork Road/Lick Creek, Wenatchee-Big Butte Road, and Cloverland Road. These roads should not be used as primary evacuation routes for other zones unless there is no alternative due to road conditions. Pomeroy Grouse Flat Road is unsuitable for evacuation purposes. Most roads in this zone can accommodate two-way traffic. Road access is constricted in some areas of this zone (one-way-in/one-way-out) and most roadways are primitive.

Fire suppression considerations: This zone is protected by the USFS. Steep incised canyons dissecting a mixed topography of ridgelines, benches, plateaus and secondary drainages leads to difficult access. Cell phone reception is a challenge in this area.

Post-fire hazards: There is an extreme relative potential for post-fire sedimentation and negative impacts to surface drinking water in this zone. Most of the southern half of the zone could experience elevated sedimentation due to the complex topography of steep valleys and ravines and the potential for wildfire to consume surface litter. The 2024 Cougar Creek Fire burned across steep slopes in this zone, which increases the potential for post-fire sedimentation in the coming years before vegetation re-establishes and surface litter reaccumulates. Post-fire sedimentation originating from the burned area could impact Grande Ronde Road, which is an important evacuation route. Several priority projects in the CWPP are aimed at restoring and enhancing riparian conditions in this zone, which can help mitigate post-fire sedimentation (see priority project areas in **Figure 4.c.1**).

Recommendations for Umatilla Public Forestland:

1. Install signs indicating the quality of roads for evacuation.
2. Conduct roadside fuel treatments along Cloverland Road (Forest Service Road 43), Wenatchee-Big Butte Road (Forest Service Road 43), Lick Creek Road (Forest Service Road 41), Mallory Ridge (Forest Service Road 4303140), and Pomeroy Grouse Road (Forest Service Road 40) to improve evacuation safety and firefighter access during a wildfire (see priority project areas in **Figure 4.c.1**).
3. Voice support for priority projects on private and public land to restore forest and riparian vegetation in the North Fork Asotin Creek Watershed, Upper George Creek Watershed, and Cougar Creek Fire burned area, and along Lick Creek (see priority project areas in **Figure 4.c.1**).
4. See **Section 4.c. Priority Project Areas for Asotin County** for specific recommendations for ecological restoration projects on the Umatilla National Forest**.**

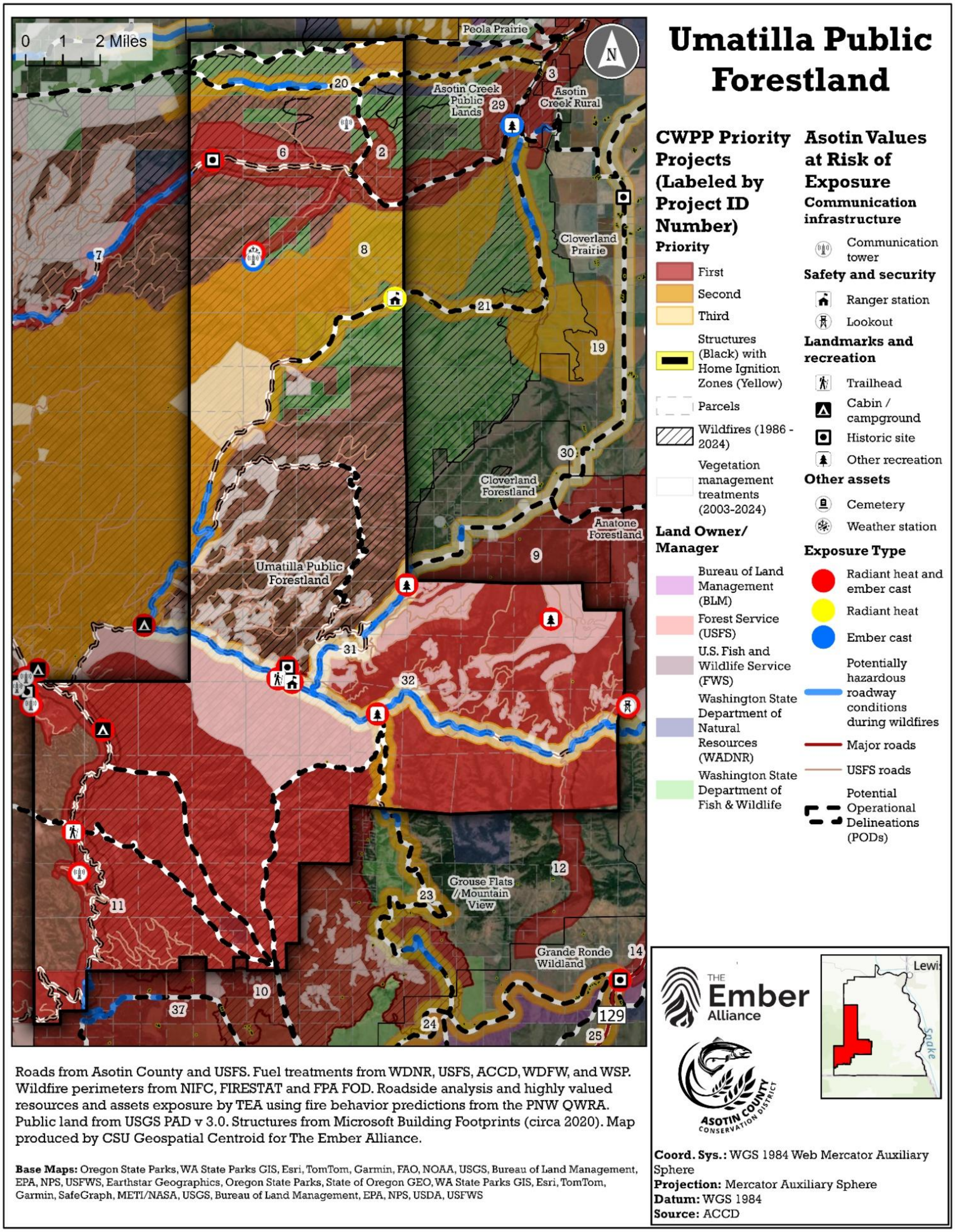


Figure 3.b.21. *Highly valued resources, roadway hazards, and priority project areas (detailed in* ***Section 4.c****) within the Umatilla Public Forestland zone.*

3.c. Home Ignition Zone Recommendations by Vegetation Type

Local knowledge and professional expertise are needed to design effective, site-specific fuel treatments based on the best available science. Specific fuel treatment recommendations are dependent on forest type, tree density, fuel loads, terrain, land use, and management objectives. The location and purpose of treatments matter. Treatments in large, forested areas can include the retention of individual trees and groups of trees in ponderosa pine ecosystems or patch cuts in Douglas-fir ecosystems. Evenly and widely spaced trees might be reasonable in the extended zone, but this tree arrangement would not be appropriate to apply across the entire forest. Homeowners often enjoy the more open forests around their home because it lets in more light that encourages understory grasses and shrubs to grow and, in turn, can increase wildlife sightings near their home. Fewer trees near homes also reduces the amount of maintenance required by landowners each year: less pine-needle debris collecting next to the home means less pine-needles to clean-up annually.

Treatments in the extended zone (30-100 feet away from the home, extending out to 200 feet on steep slopes) can restore historical forest structure, **but it is most important to focus on reducing wildfire risks to the home.** The topography and wind-patterns surrounding your home influences fire behavior and intensity, so the size of your extended zone may increase or decrease depending on your risk. We often picture a wildfire front approaching homes on the ground, but the biggest risks to infrastructure come from the embers produced during a wildfire event, not the actual flame front. Reducing wildfire hazards in the extended zone decreases the duration and intensity of ember storm exposure, creating safer conditions for firefighters by giving them more space to defend communities, easier access to defensible spaces, and increased visibility of homes from the road. The extended zone often overlaps neighboring properties and requires residents to work together to address shared wildfire risk.

For all fuel treatments, it is important to address surface fuels. Forest management operations often increase surface fuel loads and can fail to achieve fire mitigation objectives if fuels created by the harvest activities (also known as slash) are not addressed (Agee and Skinner, 2005). Slash can include small trees, limbs, bark, and treetops. See **Approaches to Slash Management** for pros and cons of different slash management options.

Mitigating the impacts of tree removal on soil compaction and erosion is also important when treatments occur near streams and riparian ecosystems. WDFW recommends streamside Riparian Habitat Area (RHA) widths of at least 150 feet (CSFS, 2023). Treatments should be monitored for colonization of invasive, weedy plants that might require control through integrated weed management. It's always a good idea to take pictures of treatments before and after to help evaluate effectiveness and monitor changes over time.

Here we provide general recommendations for treatments in the extended zone by vegetation types. Guidance for defensible space is summarized from the WA DNR publication Fire Resistant Plants for Eastern Washington. **It is important to work with a forester or local conservation expert that has experience and knowledge in wildfire mitigation to help design an effective treatment plan specific to the current conditions around your home.** Site assessments, technical assistance, and treatment recommendations are often offered to landowners and residents free of charge by local public agencies including WA DNR, NRCS, and ACCD. Financial and cost-share assistance programs may be available for landowners and agricultural producers. Additional wildfire resilience programs such as Wildfire Ready Neighbors and Firewise USA® help entire neighborhoods work together to prepare and prevent wildfire disasters (See **Mitigation Barriers and Opportunities** and **Funding Opportunities**). Approved Firewise USA® Action Plans or other approved community wildfire mitigation or action plans, regardless of their status at the time of writing, are incorporated into this plan. Action or mitigation plans for communities drafted after this plan are considered part of this CWPP and will be adopted into the plan at the next scheduled update.

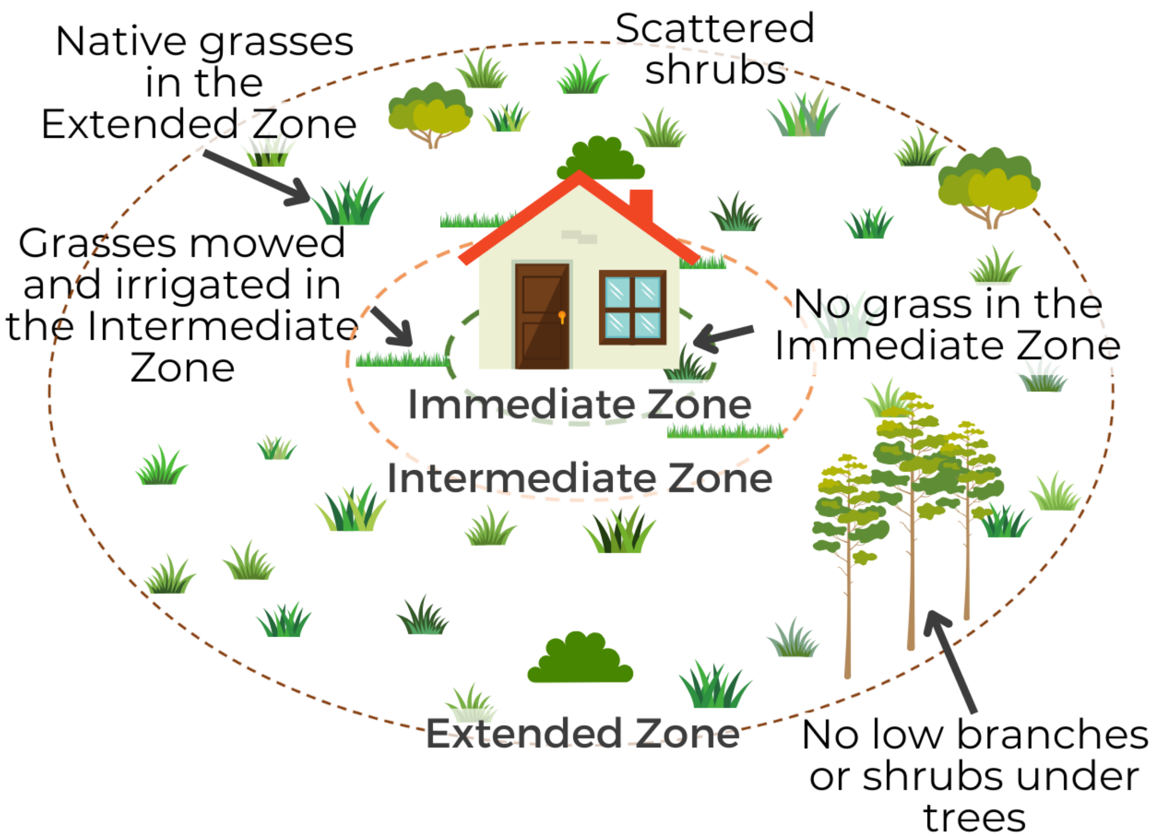
Grassland

Species: Idaho fescue, sheep fescue, crested wheatgrass, bluebunch wheatgrass, needle grass, giant wild rye, Sandberg bluegrass, rabbit brush, bitterbrush, wildflowers
Typical elevation: 400 - 4,500 ft
Fire severity: Low- to extreme-severity, depending on composition and conditions
Primary exposure risks: flashy-fuels, fast-moving flame front, homes exposed to ember storms for short periods of time.

Management in the Extended Zone

Wildfires can spread rapidly across grasslands, and the management of grasslands is important for both fire resilience and ecological restoration.

- Homeowners adjacent to grasslands should focus their efforts in the Immediate Zone and the Intermediate Zone .
- Remove cheatgrass and other invasive grasses with herbicide, grazing, or prescribed burns, and seed with native species.
- Replace wooden fences with non-flammable materials to reduce the chance of fire spreading from grasses to fences to homes.
- Use goats, cows, or other livestock to manage grasses and/or woody plants.



Sources: CSFS Home Ignition Zone; Battaglia et al. 2018. Forest Ecology & Management 422:147-160; Rocky Mountain Research Station GTR-310; WA DNR Wildfire Ready Neighbors; Agee, 1996; FEIS 2017 - Fire regimes of conifer forests in the Blue Mountains.

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Shrub-steppe

Species: Basin big sagebrush, mountain big sagebrush, antelope bitterbrush, green rabbitbrush, stiff sagebrush, four wing saltbush, bluebunch wheatgrass, Idaho fescue, intermediate wheatgrass

Typical elevation: 800-3,500 ft

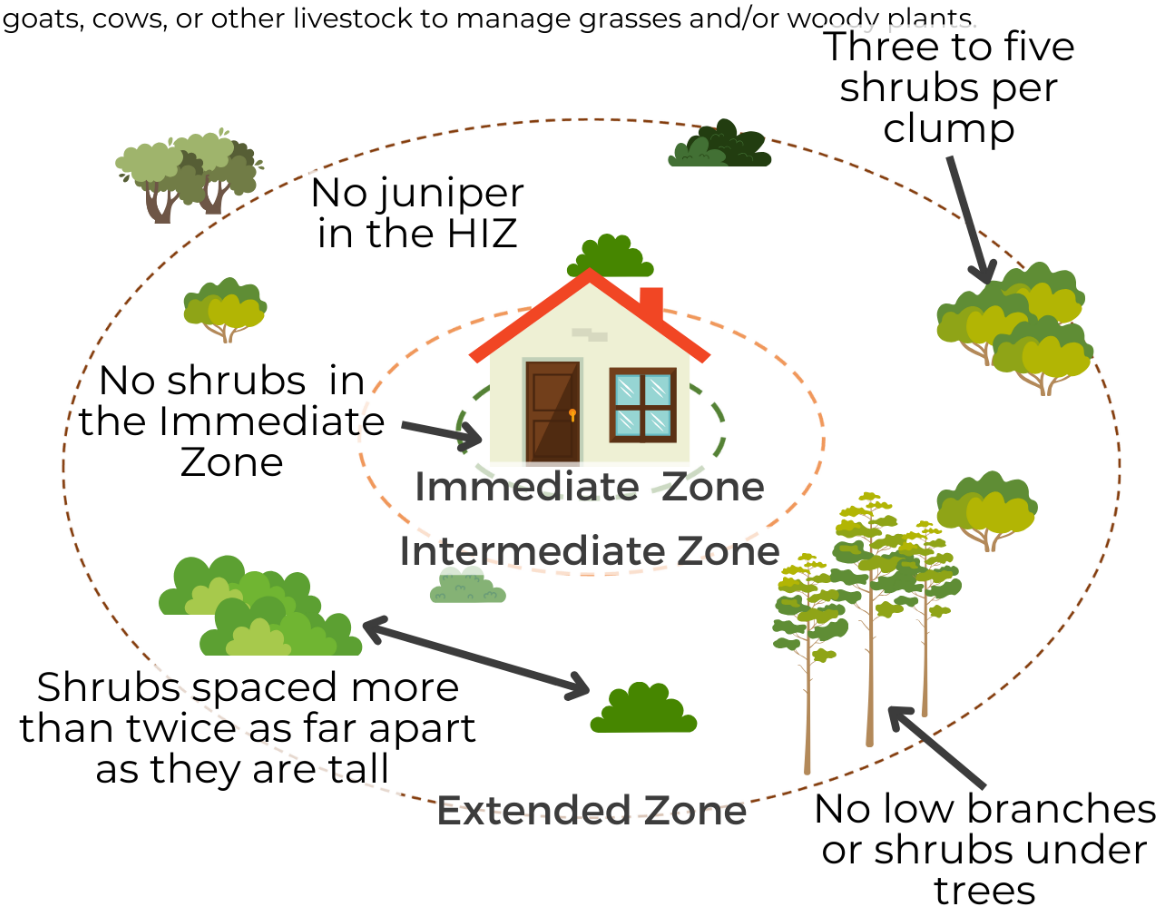
Fire severity: Low- to extreme-severity, depending on composition and conditions

Primary exposure risks: flashy-fuels, longer flame-lengths, homes exposed to ember storms and radiant heat.

Management in the Extended Zone

Shrubs that are close together and adjacent to homes are hazardous, they can burn very hot and emit embers.

- Remove shrubs under tree canopies.
- Remove limbs below 6-10 feet on scattered trees.
- Remove any junipers near homes, which are highly flammable.
- Thin clumps of shrubs down to three to five shrubs/clump.
- Use mastication, mowing, herbicide, and prescribed fire for shrub removal, depending on the species and appropriate use of these management tools.
- Use goats, cows, or other livestock to manage grasses and/or woody plants.



Sources: CSFS Home Ignition Zone; Battaglia et al. 2018. Forest Ecology & Management 422:147-160; Rocky Mountain Research Station GTR-310; WA DNR Wildfire Ready Neighbors; Agee, 1996; Nature Serve.org - Columbia Plateau Steppe and Grassland.

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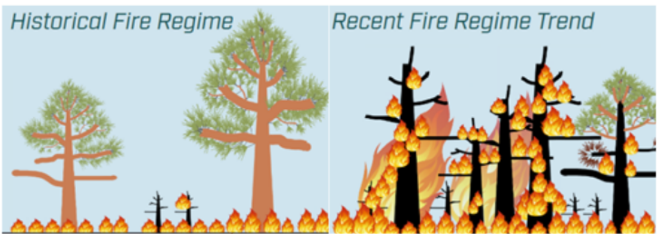
Ponderosa Pine/Dry Mixed-Conifer Forests

Species: Ponderosa pine, Douglas-fir, lodgepole pine
Typical elevation: 1,700-5,000 ft
Fire return interval: 15 -30 years
Fire severity: Surface fires at low- to moderate-severity; high-severity fires limited and spatially isolated.
Primary exposure risks: radiant heat, long flame-lengths, homes exposed to severe ember storms and radiant heat for longer periods of time.



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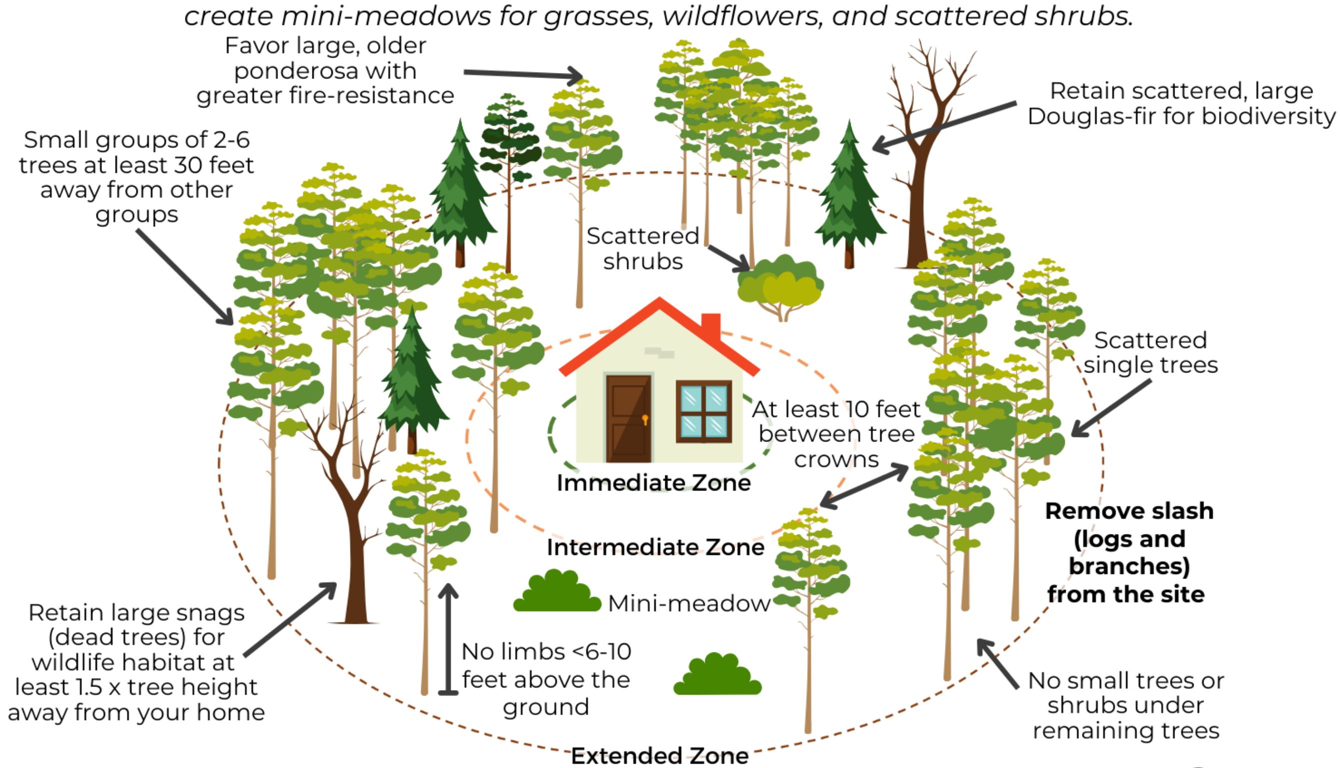
Dry mixed-conifer forests are fire dependent. Historically, fire burned across the forest floor, controlling tree regeneration, removing lower limbs on mature trees, and creating large, open spaces between trees.

Human management activities and shifts in climate have resulted in unnaturally dense forests. During extreme weather, high winds can easily spread fire between tree crowns, resulting in very large high-severity wildfires where most trees are killed. This is not always the case but is a trend that has occurred more frequently in this forest type in the last few decades.

Management in the Extended Zone

To restore ecological conditions, increase fire resilience, and increase your home's ability to stand against wildfire, leave space between trees and tree stands in the Extended Zone and create mini-meadows for grasses, wildflowers, and scattered shrubs.



Sources: CSFS Home Ignition Zone; Battaglia et al. 2018. Forest Ecology & Management 422:147-160; Rocky Mountain Research Station GTR-310; WA DNR Wildfire Ready Neighbors; Agee, 1996; FEIS 2017 - Fire regimes of conifer forests in the Blue Mountains.

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Douglas-fir/Grand Fir Mixed-Conifer Forests

Species: Douglas-fir and ponderosa pine; limited areas of Engelmann spruce, and western larch
Typical elevation: 3,500 - 6,000 ft
Fire return interval: 15-30 years
Fire severity: Variable severity; frequent low-severity fires, modeate- and high-severity fires at undetermined intervals maintaining a mosaic of tree species and ages
Primary exposure risks: radiant heat, long flame-lengths, homes exposed to severe ember storms and radiant heat for longer periods of time.

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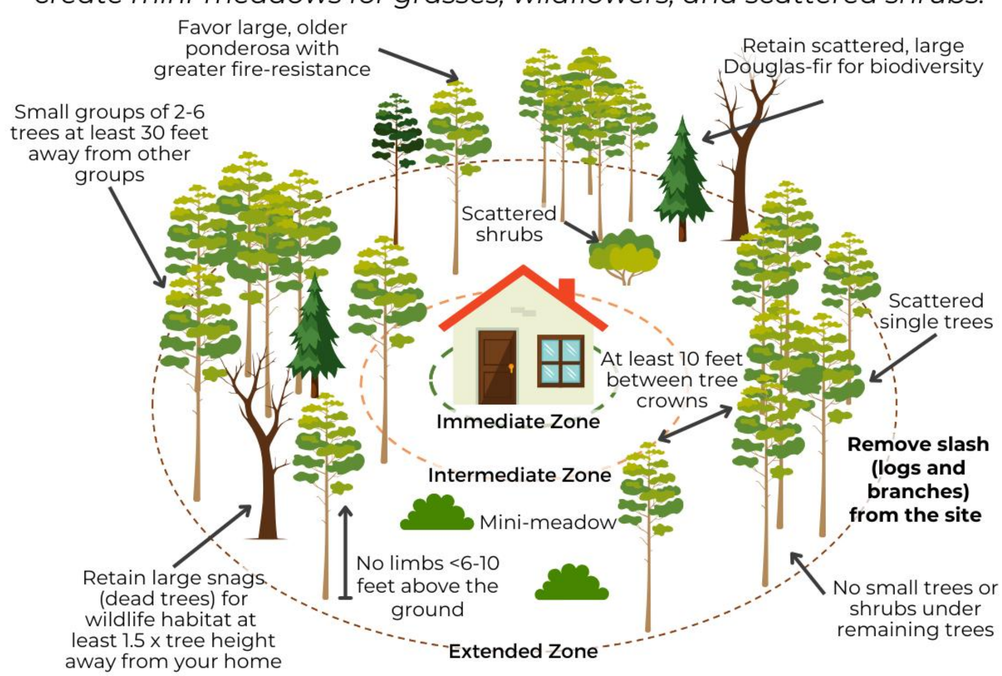
Douglas-fir/Grand Fir mixed-conifer forests contain a diversity of tree species, many of which are not as fire tolerant as dry mixed-confer forests. These forests also tend to be cooler and wetter, and as a result do not burn as frequently. When fire burns in these areas, patches of stand-replacing fire can be common. These forests are naturally denser than lower elevation forests, but human management activities and shifts in climate have resulted in unnaturally dense forests that can fuel larger, more extreme wildfires.

Management in Extended the Zone

To restore ecological conditions, increase fire resilience, and increase your home's ability to stand against wildfire, leave space between trees and tree stands in the Extended Zone and create mini-meadows for grasses, wildflowers, and scattered shrubs.



Sources: CSFS Home Ignition Zone; Battaglia et al. 2018. Forest Ecology & Management 422:147-160; Rocky Mountain Research Station GTR-310; WA DNR Wildfire Ready Neighbors; Agee, 1996; FEIS 2017 - Fire regimes of conifer forests in the Blue Mountains.

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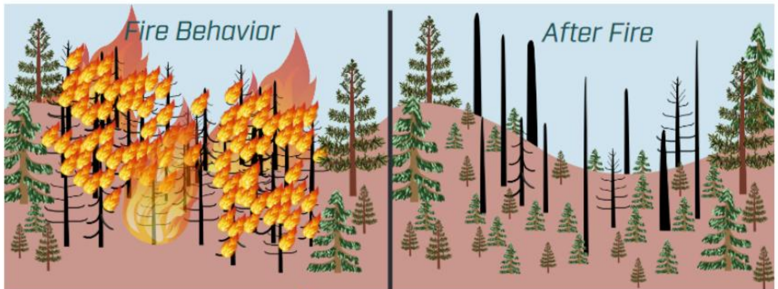
Vegetation Arrangement in Forested Communities

Species: Subalpine fir, Engelmann spruce, lodgepole pine; limited areas of Douglas-fir and western larch.

Typical elevation: 6,000-8,000 ft

Fire return interval: 100 to 125 years

Fire severity: Mixed-severity surface and crown fires, long-interval stand-replacement crown fires



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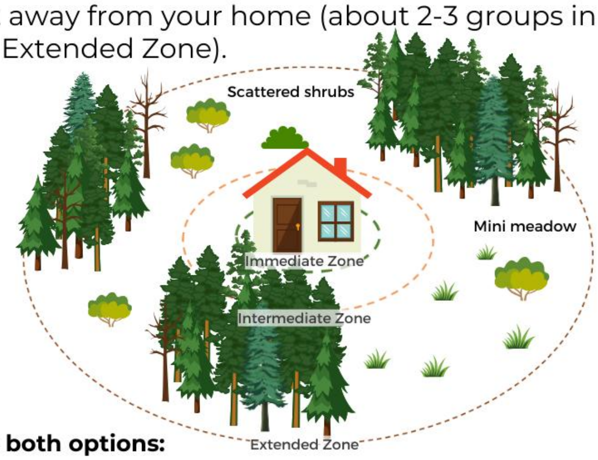
Subalpine forests are the wettest and densest forests. When extended dry conditions occur in these forests, dead trees and other fuels that have accumulated over long periods of time dry out, creating conditions ripe for fire. Fires are infrequent, stand-replacing, and often synchronous across the region tied to widespread drought. More research is needed to understand forest recovery following the combination of drought, climate change, and recent wildfires.

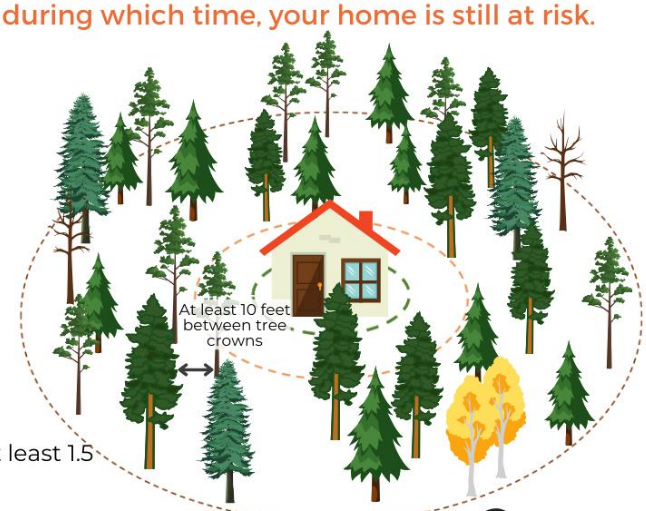
Management in the Extended Zone

Spruce and fir trees can blow over if too many neighboring trees are removed before they can adapt to the wind. There are two options for managing spruce and fir in the Extended Zone to increase your home's chance of standing strong during a wildfire and to reduce windthrow:

Option 1: Leave groups of 15-30 trees at least 30-50 feet apart from other groups and at least 30 feet away from your home (about 2-3 groups in the Extended Zone).



Option 2: Slowly thin the stand, no more than 30% of trees each time. Repeat to achieve at least 10-feet between tree crowns (no more than 80 trees/acre or 50 trees within the Extended Zone, fewer for larger trees or on steep slopes). This can take about 10 years to achieve, during which time, your home is still at risk.



For both options:

- No limbs <6-10 feet above the ground
- No small trees or shrubs under remaining trees
- Very few to no trees in the Intermediate Zone and none in the Immediate Zone
- Retain several large snags (dead trees) for wildlife habitat at least 1.5 x tree height away from your home
- **Remove slash (logs and branches)**

Sources: CSFS Home Ignition Zone; Battaglia et al. 2018. Forest Ecology & Management 422:147-160; Rocky Mountain Research Station GTR-310; WA DNR Wildfire Ready Neighbors; Agee, 1996; FEIS 2017 - Fire regimes of conifer forests in the Blue Mountains.

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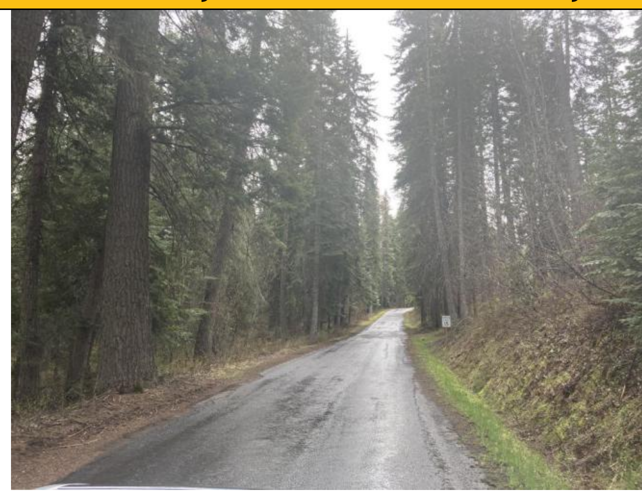
3.d. Recommendations for Asotin County and Partner Organizations

Evacuation Planning and Capacity

Responsible Parties: Asotin County Sheriff's Office, Asotin County DEM

A comprehensive list of recommendations from all sections of this document can be found in the **Implementation Plan and the Future of the CWPP** section.

There is a high likelihood of evacuation congestion and long evacuation times during wildfire. Many residents have concerns about where to go, what to bring, and receiving timely information in the event of an evacuation. **Mitigation actions along sections of road with high risk for non-survivable conditions during a wildfire can increase the chances of survival for residents stranded in their vehicles during and decrease the chance that roadways become impassable due to flames.**

Potentially Survivable Roadways	*Potentially Non-Survivable Roadways*
	

Some roads in Asotin County have been well mitigated by removing tall trees and saplings, removing limbs on the remaining trees, and keeping grass mowed (left image). Other roads could experience potentially non-survivable conditions because they are narrow and lined by thick forests that have an abundance of ladder fuels (right image). Photo credit: The Ember Alliance.

Asotin County uses Hyper-Reach for emergency alerts. Residents can register their cell phones, landlines, VoIP phones, Amazon Alexa devices, and email addresses to receive additional notifications through the Hyper-reach website.

Asotin County

hyper-reach
the power of instant communication

Click here to sign up for Hyper-Reach

For more information, visit the Asotin County website on emergency preparedness.

Reliable technology provides warnings and information about evacuations that can help residents feel confident in their ability to evacuate during a wildfire. Each county manages their own emergency alert system, also known as reverse 911, to communicate evacuation orders to residents. Agencies, organizations, and residents should actively extend awareness about this alert system to neighbors that are unaware of the program. Not all areas of Asotin County have reliable cell service, and this should be considered in individual and collective evacuation planning and preparedness.

Recommendations to improve evacuation preparedness:

- Conduct tree removal, cut low limbs, and mow grass along roadways to increase the likelihood of safe evacuation conditions during a wildfire. Priority roadways for treatments are outlined in **Section 4.c. Priority Project Areas for Asotin County**, and recommended approaches to roadside fuel treatments are outlined in **Section 4.b Recommendations for Roadside Fuel Treatments**.
- Coordinate with neighboring county Emergency Management departments to increase participation in their respective emergency alert systems. While 22% of respondents to the CWPP survey indicated that they have signed up for the Asotin County Hyper-Reach alert system, only 172 residents were enrolled in the program at the time of the writing of this document.
- Coordinate with neighboring county Emergency Management departments to create pre-determined evacuation zones, routes, and plans.
- Communicate the importance of following evacuation orders, and encourage residents to evacuate whenever they feel unsafe, even before receiving mandatory evacuation orders. **Failing to leave the community in a timely manner during a wildfire emergency can put first responders at risk.**
- Create a secondary egress route for zones that only have one primary evacuation route: Anatone Forestland, Asotin Creek Rural, Cloverland Forestland, Cloverland Prairie, George Creek Public Lands, Grande Ronde Wildlands, Grouse Flats/Mountain View, Snake River Corridor and Joseph Creek Corridor.
- Encourage residents to leave with only one vehicle per household to reduce congestion.
- Encourage all households to develop family evacuation plans and to pack go-bags. 61% of respondents to the CWPP survey do not have evacuation plans for their home and 86% were concerned they didn't know what to bring during an evacuation.
- Encourage residents to work with their neighbors to develop a plan for helping each other with evacuation if a resident is not at home, school-aged children or pets might be home alone, livestock are present on the property, or residents have mobility impairments and need special assistance.
- Consider conducting district- or community-wide evacuation drills with the counties.
- Equip key emergency responders with compact, portable satellite-based internet service kits to improve coordination and communication (i.e., Starlink).
- Acquire AI-driven disaster impact prediction software for modeling and visualizing evacuation scenarios (i.e., Ladris.

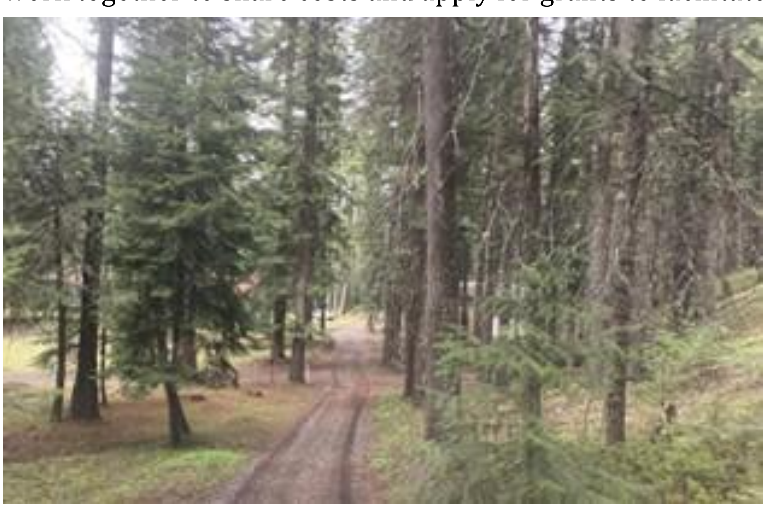
Accessibility and Navigability for Firefighters

Responsible Parties: WSDOT, Asotin County Road Department, and landowners with private roads on their property.

11 of the 19 zones in Asotin County (Anatone Forestland, Asotin Creek Public Lands, Asotin Rural, Clarkston Heights, Clarkston Rural, Cloverland Forestland, Grande Ronde Wildlands, Grouse Flats/Mountain View, Silcott, Snake Ricer Corridor & Joseph Creek Corridor, and Umatilla Public Forestland) have roads that are inaccessible to some fire engines. There are many driveways throughout the County that are also inaccessible to fire engines during a wildfire. Homeowners are responsible for address signage and, in at least 4 of the 19 zones (Anatone Forestland, Montgomery Ridge, Silcott, and Snake River Corridor & Joseph Creek Corridor), few residents have noncombustible, clear, and reflective signs and road signs. Wood, painted or stamped metal, and other nonreflective address and road signs may not be visible to firefighters at night or under heavy smoke. The community can take action to increase the likelihood that emergency responders can locate and access all structures in Asotin County.

Recommendations to improve accessibility and navigability for Firefighters:

- Road and right-of-way owners and managers should improve roadway access where feasible by widening road networks, adding a center lane on 2-lane roads, and/or creating turnarounds and pullovers to accommodate fire engines and two-way traffic during evacuation. Priority locations for roadside treatments include roads that are potentially non-survivable (**Figure 2.f.7**).
- Road and right-of-way owners and managers should work with community groups and private landowners to remove trees from along roads to reduce the chance of non-survivable conditions occurring during wildfires. Priority locations for roadside treatments include roads that are potentially non-survivable (**Figure 2.f.7**).
- Natural resources conservation organizations and community groups should conduct outreach with residents to encourage them to remove trees along driveways and prune low-hanging branches to increase horizontal and vertical clearance. According to the National Fire Protection Association, driveways and roads should have a minimum of 20 feet of horizontal clearance and 13.5 feet of vertical clearance to allow engines to safely access the roads (O'Connor, 2021).
- Turnarounds are required for dead-end access roads that are over 150-feet (see specification in the 2021 International Fire Code Appendix D. Fire Apparatus Access Roads). Also consider creating turnarounds at the end of long driveways to facilitate engine access.
- Responsible parties should apply for grants to fund roadway improvements and roadside fuel treatments. Widening roads and removing fuels along roadways can be time-consuming and expensive, but this work is vital for the safety of residents and first responders. Residents, community leaders, and partners can work together to share costs and apply for grants to facilitate this important work



It would not be possible for a fire engine to enter this one-lane dirt road if residents were evacuating. Photo credit: The Ember Alliance.

Slash Management

Responsible Parties: Asotin County Building and Planning Department, ACCD, FPDs, natural resource conservation groups, and residents.

Building and burning small slash piles is an effective method for removing slash from the extended zone, and thus, reducing wildfire risk to your home. Controlled burning is permitted outside the incorporated areas of Asotin County with certain seasonal, time, and size parameters. See the Controlled Burning Policy for Asotin County to learn more about burning on your property. 93% of residents who responded to the CWPP survey support prescribed or controlled burning to mitigate wildfire risk (**Figure 3.d.1**).

Recommendations for slash management:

- Residents should dispose of slash through the free wood waste disposal program at the Asotin County Regional Landfill. Asotin County should consider providing a program that will pick up slash material and bring it to the landfill.
- Asotin County should consider creating and managing a community slash pile, effectively reducing barriers for residents to complete mitigation work thoroughly (see **Community Slash Piles**).
- Asotin County should consider creating additional programs for slash disposal and chipping. Neighborhoods and Firewise USA® Sites can also utilize WA DNR's Micro grant for funding things like chipping or dumpster days (see **Funding Opportunities**).
- Asotin County should consider partnering with neighboring counties to permit residents that live near the border of the county to utilize the any nearby slash collection sites or participate in available chipping programs.
- Residents managing slash on their own properties through burning should familiarize themselves with the Controlled Burning Policy for Asotin County and WA DNR's Burn Portal.
- ACCD and FPDs should encourage and facilitate the participation of residents in the WA DNR Prescribed Fire Program and Certified Burner Program. This training and certification helps individuals become knowledgeable and capable of safely planning and conducting controlled or prescribed burns.

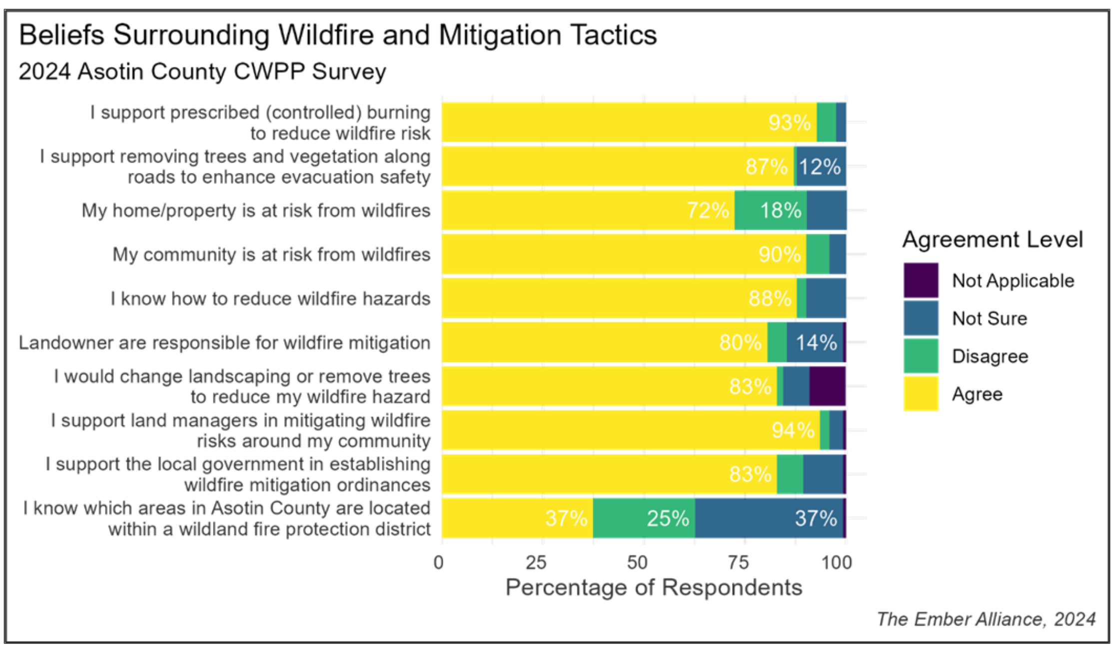


Figure 3.d.1. *Asotin County CWPP Survey responses on resident beliefs about wildfire risk, mitigation, and tactics. In general, this shows significant support for a variety of wildfire mitigation tactics. See **Appendix C** for a full summary of survey findings.*

Outreach and Education

Responsible Parties: WA DNR, Asotin County, ACCD, CWPP Core Team, FPDs, and local natural resource conservation groups.

ACCD and members of the CWPP Core Team should continue to engage with community members using a variety of methods, including the CWPP StoryMap, community events, social media, and educational materials for residents and visitors. The following priority recommendations may fall to different entities or partners within and around Asotin County.

Firewise USA® Community

Encouraging communities to meet a voluntary set of criteria to be qualified as Firewise USA® sites can help neighborhoods get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level (NFPA, 2024). Being recognized as a Firewise USA® site increases community resilience and capacity and can qualify residents for **Firewise USA® Site Micro Grant** from WA DNR.

Approved Firewise USA® Action Plans or other approved community wildfire mitigation or action plans, regardless of their status at the time of writing, are incorporated into this plan. Action or mitigation plans for communities drafted after this plan are considered part of this CWPP and will be adopted into the plan at the next scheduled update.

Wildfire Ready Neighbors

Bringing the WA DNR Wildfire Ready Neighbors Program to Asotin County will help residents better understand wildfire risks, provide much needed resources, and spark coordinated action that effects positive change across the County. This program enables action on an individual level that feeds into Firewise USA® community-level work within the Fire Adapted Communities framework.

Wildfire Ready Neighbors is a collaboration between WA DNR, FPDs, conservation districts, and community organizations to help everyone in Washington prepare for wildfires. The initiative provides homeowners, renters, and private landowners with access to local experts and free resources to reduce wildfire risk in their communities.

Wildfire Ready Neighbors is a year-round program backed by local outreach in each county to sign up as many neighbors as possible and help everyone take action to prepare their properties and reduce wildfire risk in their community.

The ask to individuals is simple – get your free Wildfire Ready Plan. Each resident who signs up at *WildfireReady.com* or *ListosParaIncendios.com* (Spanish language site) receives a tailored action plan based on survey results about their individual property. Participants can also request a Wildfire Ready Home Visit or Forest Health Consultation if they want additional in-person support.

Currently, only some Wildfire Ready Neighbors resources are available statewide. Residents of Asotin County can sign up online and get their Wildfire Ready Plan. Local partners can also access online training and tools for conducting Wildfire Ready Home Visits or Forest Health Consultations. Fully launching the Wildfire Ready Neighbors program in Asotin County would provide additional in-person support and resources county-wide.

Social Media

Social media is a powerful tool when used properly to connect with audiences. FEMA has a Wildfire and Outdoor Fire Safety Social Media Toolkit that is a great starting place for FPDs to begin gaining an audience with their constituents and sharing important fire safety information. Put Fire to Work highlights programs and organizations that successfully engage audiences around wildland fire and prescribed burning. CalFire's Ready for Wildfire campaign is active and collaboratively created to engage and encourage people to take action on wildfire preparedness.

Collaboration

Responsible Parties: WA DNR, ACCD, WRCD, FPDs, and the CWPP Core Team.

Collaboration with landowners, community members, local governments, business owners, and other partners is the best way to ensure recommendations from this plan translate to on-the-ground action. Some organizations may be able to offer incentives to homeowners, others have expertise and capacity to mitigate wildfire risk, and others have authority to enforce changes. A holistic approach to fire adaptation is only possible through compromise, mutual respect, and collaboration around shared goals.

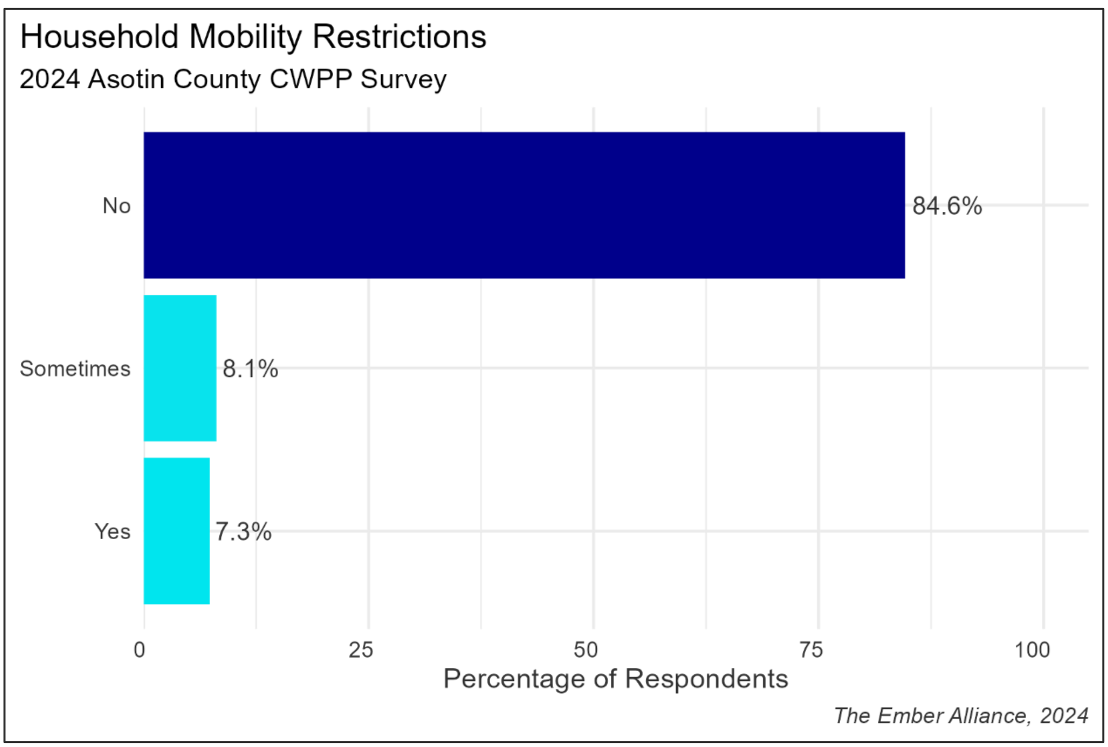
Numerous partners were engaged in the development of this CWPP and offered input on the recommendations and priorities for Asotin County. It is recommended that ACCD and partner organizations continue meetings with land management partners in the County to provide accountability on projects, continue to participate in cross-boundary mitigation programs, and support the Wildfire Ready Neighbors and Firewise USA® program growth.

3.e. Special Considerations for Vulnerable Populations

Social factors influence how impacted an individual or a community may be in the event of wildfire. So-called social vulnerability results from a lack of access to resources that can include infrastructure, social support, health, and financial means (Cutter et al., 2003). While Asotin County at large may be well prepared for wildfire after engaging in this CWPP planning process, there is potential for some people to fall through the cracks or struggle to engage in necessary mitigation and preparation work, which makes them more at risk in the event of a fire.

Poverty, racial and ethnic discrimination, age, and physical ability are frequently factors that are associated with social stratification and result in resource inequity (Crowley, 2020; Cutter et al., 2003; Davies et al., 2018; Emrich et al., 2020; Hewitt, 2013; Ojerio et al., 2008). Thus, it is important to consider how to ensure that all community members can participate in the wildfire preparedness actions outlined in this CWPP. The Census Bureau estimates Asotin County's median household income is between $57,679 and $69,769. To qualify in as "low income" in Washington, the estimate must be less than $71,914 and, at a County level, Asotin County meets this criterion. Asotin County is also identified as "disadvantaged" by the Climate and Economic Justice Screening Tool (Council in Environmental Quality 2022).

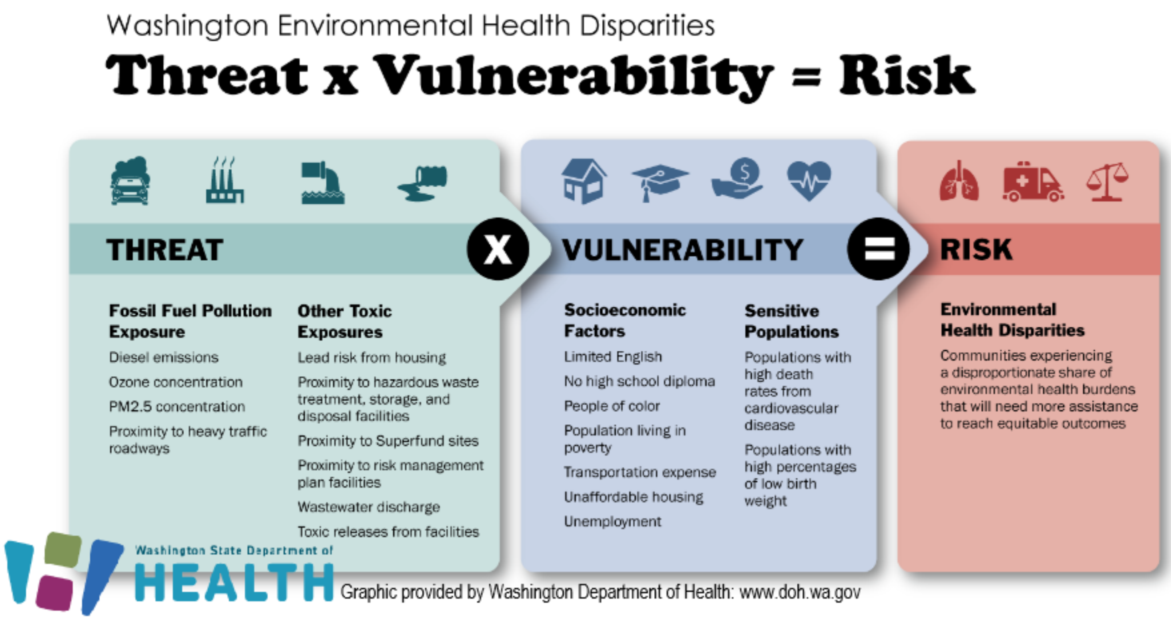
The vulnerable populations present in Asotin County are people over the age of 65 (23.8%), people with disabilities (18.5%), and people living in poverty (16.1%). While these vulnerabilities have the highest incidence in the area, it is important to note that people from other vulnerable groups, including families in poverty and people living in mobile homes, are present in small numbers and would benefit from community support for wildfire preparation. Language barrier is not likely a significant issue in the area currently (USFS, 2021a).



*Percentage of respondents to the CWPP survey that have household mobility restrictions. See **Appendix C** for a full summary of survey findings.*

Communities identified by the [Washington State Department of Health Environmental Disparities Map] will be thoughtfully engaged in order to include necessary accommodations for high-risk communities within this CWPP. These groups include:

- Age: >65+ Communities
- Transportation Restricted Communities
- Mobile Home Communities
- Population with a Disability
- Population Living in Poverty



Pre-fire

Another major barrier for vulnerable populations is the ability to do the work recommended in this plan. People who may be impacted by this include those in lower income brackets or fixed incomes who don't have the resources to harden their homes, those who rent their homes and cannot make modifications without permission, and those with physical disabilities or impairments that keep them from doing the physical labor often involved in preparation and mitigation actions themselves. Mutual aid programs bring community members together to complete mitigation work on behalf of the community by sharing the resources and skills they have available. For example, some may be able to perform physical labor, others can provide writing expertise to procure grants, while still others can offer meeting spaces and food.

To truly reduce the economic barrier at a community level, community leaders must design programs that are accessible for all income brackets. For example, providing mitigation services such as a community chipping program that is free for residents who fall within lower income brackets can encourage those residents to mitigate their properties when they may have otherwise found it inaccessible. Similarly, volunteer days and mutual aid can help those who are not physically able to engage in pre-fire protection of their home by connecting physically able community members with them to help do home hardening work. These volunteer opportunities and mutual aid arrangements can be organized formally or informally by anyone in the community.

During a Fire

During a fire, a major concern for elders is safe and expedient evacuation. Death tolls from historic wildfires are disproportionately comprised of people over 65 (Palaiologou et al., 2019). Many folks who lost their lives in the

2018 Camp Fire of Paradise, California were mobility limited and needed assistance evacuating. Others were isolated either physically or socially and were unaware of evacuation needs (Garner et al., 2020). Neighborhoods and individuals should identify members of their community who may need additional help evacuating or receiving evacuation notice and ensure they have a plan to help those folks in an evacuation. Since cell service is limited in parts of Asotin County and evacuation orders may not be given door-to-door, it is especially important for neighbors who do receive emergency communications to pass them on to those who do not.

Post-fire

Following a fire, households are often solely responsible for their own recovery. While challenging for everyone, this is a particular issue for those without equal access to the social aid that is available like FEMA recovery funds, information on the internet, and claims for insurance (Laska and Morrow, 2006; Méndez et al., 2020). Groups impacted by this can include older adults, undocumented persons, and those who speak English as a second language or not at all.

While planning for post-fire is less of a focus of this CWPP, it is worth mentioning that community ties are as important after a fire as they are in trying to reduce the impact of potential fire. Communities that consider who will need the most assistance after a fire ahead of time are better able to get those folks the help they need quickly.

3.f. Funding Opportunities

There are many funding opportunities from federal, state, and local agencies as well as non-profits to assist in forest health and wildfire mitigation projects. These funds can increase capacity but cannot cover all the costs of fire mitigation needed within the county. Residents and partners must put forth funds and time to complete this work.

Below is a non-comprehensive list of grants and funding opportunities available as of 2024.

Opportunities from Local and State Agencies in Washington

- **Financial Assistance for Wildfire Resilience and Forest Health** from WA DNR provides financial assistance for non-industrial forestland owners.
- **Firewise USA® Site Micro Grant** from WA DNR encourages neighbors to work together and take action to reduce wildfire risks through implementation of mitigation strategies identified in Firewise USA® site Action Plans.
- **Wildland Urban Interface Grant Program (Western States)** is a competitive grant program for fuels treatment, education, and mitigation planning on non-federal lands using federal funds through the National Fire Plan through the State and Private Forestry Branch.

Funding from Federal Agencies

- **American the Beautiful Challenge** consolidates funding from multiple federal agencies and the private sector to enable applicants to develop and implement large-scale projects that address shared funder priorities and span public, private, and Tribal lands.
- **Assistance to Firefighters Grants Program** grants fund critically needed resources to equip and train emergency personnel, enhance efficiencies and support community resilience.
- **Community Wildfire Assistance Program (CWAP)** from BLM supports activities such as hazardous fuels reduction, thinning, chipping, outreach, and education on non-federal lands.
- **Community Wildfire Defense Grants (CWDG)** are funded annually through the National Forest Service and help communities take action on implementation projects from their local CWPP.
- The Forest Health and Wildfire Resilience Program from the Asotin County Conservation District offers free technical advice, Home Ignition Zone Assessments, and financial assistance to implement fuel-mitigation, forest health, rangeland restoration, and agricultural or riparian conservation projects.
- **Building Resilient Infrastructure and Communities (BRIC) grant program** supports states, local communities, Tribes, and territories as they undertake large-sale projects to reduce or eliminate risk and damage from future natural hazards. Homeowners, business operators, and non-profit organizations cannot apply directly to FEMA, but they can be included in sub-applications submitted by an eligible sub-applicant (local governments, Tribal governments, and state agencies).
- **Hazard Mitigation Assistance Grants Program (HMGP)** provides funding to state, local, Tribal, and territorial governments so they can rebuild in a way that reduces, or mitigates, future disaster losses in their communities. This grant funding is available after a presidentially declared disaster.
- **Landscape Scale Restoration Competitive Grant Program** supports high impact projects that promote collaborative, science-based restoration of priority forest landscapes, leverage public and private resources, and advance priorities identified in a State Forest Action Plan or other restoration strategy.
- **Environmental Quality Incentives Program (EQIP)** from the Natural Resources Conservation Service can support private landowners and Tribes conducting forest management, prescribed burning, or prescribed grazing to reduce fire risk.
- **Wood Innovations Grants** help address critical issues like climate change and sustain local economies through the Infrastructure Assistance Program.

Opportunities from Non-Governmental Organizations

- Coalitions and Collaboratives, Inc. manages the **Action, Implementation, and Mitigation Program (AIM)** to increase local capacity and support wildfire risk reduction activities in high-risk communities. AIM provides direct support to place-based wildfire mitigation organizations with funding, on-site engagement, technical expertise, mentoring, and training to help high-risk communities achieve their wildfire adaptation goals.
- **WAFAC** is a peer learning network that supports local action, connects people to resources, facilitates results, and informs & influences on-the-ground projects to help Washington better live with wildfire.
- **GreenLatinos** manages the Trees in Your Community Grant which, in conjunction with the USFS, represents historically underrepresented communities with 100% of the benefits of Inflation Reduction Act (IRA) funding through this program flowing to communities in need.

Capacity for Fire Protection Districts

- **Staffing for Adequate Fire and Emergency Response Grants (SAFER)** from FEMA directly fund fire departments and volunteer firefighter organizations to help increase their capacity.
- **Assistance to Firefighters Grants (AFG)** from FEMA help firefighters and other first responders obtain critical resources necessary for protecting the public and emergency personnel from fire and related hazards.
- **Fire Prevention & Safety (FP&S) Grants** from FEMA support projects that enhance the safety of the public and firefighters from fire and related hazards, such as carrying out fire prevention education and training, fire code enforcement, fire/arson investigation, firefighter safety and health programming, strategic national projects, prevention efforts, and research and development.

4. Landscape-Scale Implementation Recommendations

4.a. Fuel Treatments and Ecological Restoration

Objectives and Benefits

Fuel treatments are a land management tool for reducing wildfire hazard by decreasing the amount and altering the distribution of wildland fuels. Common goals of fuel treatments are to reduce the risk of active or passive crown fires, reduce fire intensity, and reduce the potential for fire growth. This is achieved by reducing the continuity and height of grasses, planting less flammable plants, removing trees, increasing the distance between tree crowns, shrub and brush control, pruning low branches to increase the distance between surface fuels and tree crowns, and removing downed trees and other dead vegetation (Agee and Skinner, 2005). Methods can include grazing, broadcast prescribed burning, tree thinning, pruning, pile burning, biochar, patch cutting, chipping, and fuel mastication.

"Given the right conditions, wildlands will inevitably burn. It is a misconception to think that treating fuels can 'fire-proof' important areas... Fuel treatments in wildlands should focus on creating conditions in which fire can occur without devastating consequences, rather than on creating conditions conducive to fire suppression" (Reinhardt et al. 2008).

Ecological restoration is the process of assisting the recovery of an ecosystem that has been damaged, degraded, or destroyed (SER, 2004). Many forests and grasslands in the western United States have been damaged, degraded, or destroyed because of changes to their historical fire regimes following Euro-American colonization, changing climate conditions such as prolonged drought, and development in the WUI.

In some cases, fuel treatments can achieve both ecological objectives and wildfire risk reduction. For example, grazing, prescribed broadcast burning, and reseeding with native plants can restore grassland conditions, reduce the cover of invasive weeds, and lower the risk for rapid fire growth. Low-tech stream restoration can increase the ability of riparian areas to capture sediment after a wildfire, increase fuel moisture, and create natural fuel breaks that slow the spread of wildfire. Restoration treatments in dry-mixed conifer and ponderosa pine forests that create mosaic conditions of tree groups and open meadows tend to achieve both fuel treatment and ecological restoration objectives.

However, fuel treatments and ecological restoration are not synonymous. A treatment that creates a forest with widely, evenly spaced trees could serve as an effective fuel treatment but would not achieve ecological objectives in other forest types. Mowing grasslands to reduce fuel load might reduce potential flame lengths but will not restore grassland ecosystems without also conducting regular prescribed burns and seeding with native species.

Strategically located, high-quality fuel treatments can create tactical options for fire suppression (Jolley, 2018; Plucinski, 2019; Reinhardt et al., 2008). Fuel treatments along trails, ridgelines, and other features can allow firefighters opportunities to use direct or indirect suppression techniques to contain fire spread. A comprehensive list of recommendations from all sections of this document can be found in the **Implementation Plan and the Future of the CWPP** section.

Land management agencies and community groups in and around Asotin County are actively reducing wildland fuels (see **Figure 2.g.1** for a map of previous fuel treatments). Based on responses to the CWPP survey, many residents in Asotin County are supportive of fuel treatments and engaged in work to mitigate wildfire risk on their properties (**Figure 4.a.1**):

- 90% of respondents believe their community is at risk from wildfire.
- 80% of respondents agree that landowners are responsible for wildfire mitigation.
- 83% of respondents would change landscaping or remove trees to reduce wildfire hazard.
- 93% of respondents support prescribed (controlled) burning to reduce wildfire risk.

- 87% of respondents agree that trees should be removed along roads to enhance the safety of roads for evacuation.
- 83% of respondents support local government in establishing wildfire mitigation ordinances.

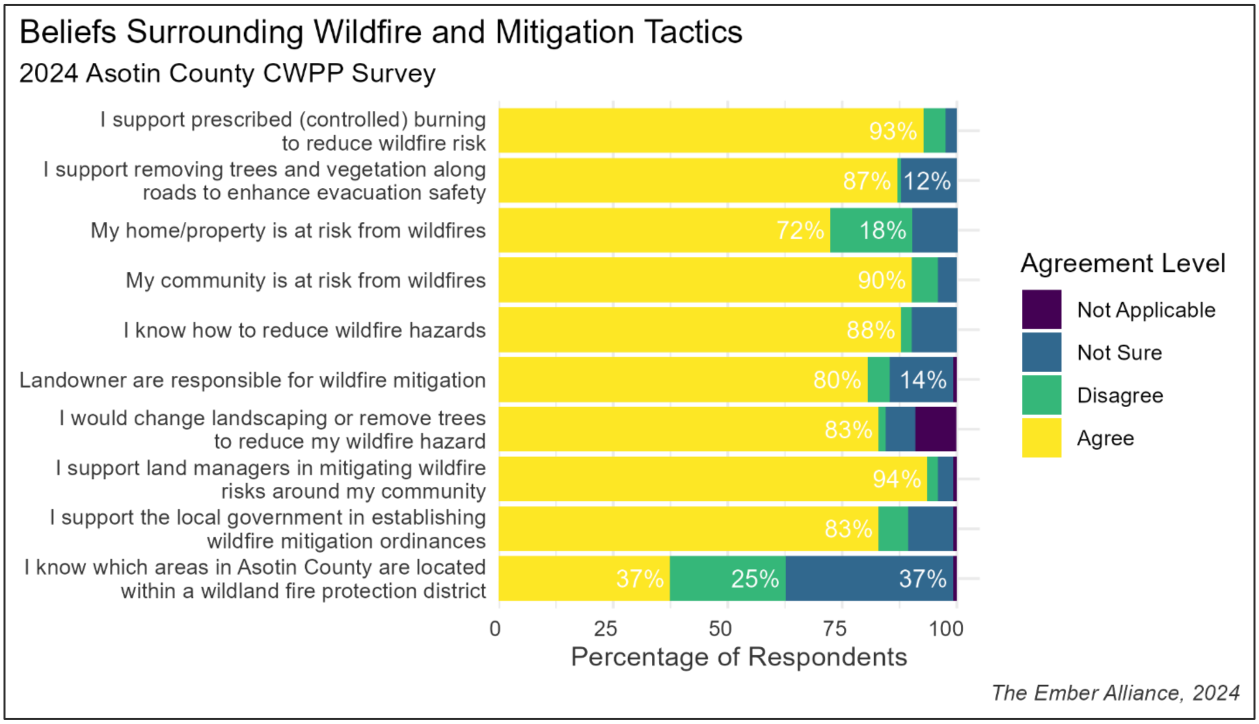


Figure 4.a.1. *Asotin County CWPP Survey responses on resident beliefs about wildfire risk, mitigation, and tactics. In general, this shows significant support for a variety of wildfire mitigation tactics.*

Treatment Types Covered in the CWPP

This CWPP covers fuel treatments in the extended zone, stand-level fuel treatments, and roadside fuel treatments, each with their own objectives and benefits.

Fuel Treatment Category	**Primary Objectives and Benefits**
Defensible space in the extended zone (30-100 feet away from the home, addressed in ***Section 3.c*** *of this document. Immediate and intermediate zones are addressed in* ***Section 3.a****)*	Reduce surface fuels, reduce tree density, and increase the distance between surface and canopy fuels. Lessen fire behavior as it approaches structures and increase their chance of standing strong during a wildfire. Increase safety and access for wildland firefighters. Increase the visibility of structures from roadways to assist wildland firefighters with locating and accessing your home. Coordinate with partners when the extended zones overlap neighboring properties to address shared risk. Linked defensible space creates safer conditions and better tactical opportunities for firefighters. Defensible space projects that span ownership boundaries are better candidates for grant funding due to their strategic value.
Stand-level ecological restoration/fuel treatments	Reduce surface fuels, reduce tree density, and increase the distance between surface and canopy fuels.

	Restore ecological conditions to create more fire-resilient ecosystems. Reduce the likelihood of high-intensity, fast-moving wildfires near communities. Create tactical opportunities for fire suppression, such as fuelbreaks.
Roadside fuel treatments	Dramatically reduce or eliminate surface and canopy fuels. Reduce the likelihood of non-survivable conditions along roadways during wildfires. Create tactical opportunities for fire suppression and for proactive fire management through the management of potential operational delineations. Increase the visibility of structures from roadways to assist wildland firefighters.

Methods Used to Conduct Fuel Treatments and Restore Ecosystems

Mechanical Treatments

Trees can be removed manually or mechanically, with the most suitable method depending on slope, road access, cost, and potential damage to soil. Use of mechanical equipment is often infeasible on slopes greater than 35% (Hunter et al., 2007). Although, many land managers within northeast Oregon and southeast Washington are moving forward with the use of tethered logging systems to treat steep slopes. Feasibility of these systems may be increasing as land managers and loggers get accustomed to use. Alternatively, handcrews with chainsaws can operate on steeper slopes but can be less efficient than mechanical thinning. Sometimes the only option for tree removal on steep, inaccessible slopes is expensive helicopter logging.

A feller-buncher is a common piece of equipment used for mechanical treatments. Photo credit: Oregon Department of Forestry.

Thinning operations often increase surface fuel loads and can fail to achieve fire mitigation objectives if fuels created by the harvest activities (also known as slash) are not addressed (Agee and Skinner, 2005). See **Approaches to Slash Management** for options to mitigate surface fuel loads created by fuel management.

Broadcast Prescribed Burning

Broadcast prescribed burning (also called broadcast burning, prescribed fire, or controlled fire) is defined as wildland fire originating from a planned ignition in accordance with applicable laws, policies, and regulations to meet specific objectives. It is often the most effective method to mitigate wildfire risk and create healthy conditions in a variety of grassland, shrubland, and forest ecosystems (Paysen et al., 2000; Stephens et al., 2009). This method has unique impacts on vegetation, soils, and wildlife habitat that cannot be replicated by mechanical treatments alone (McIver et al., 2013). Prescribed burning mimics naturally occurring wildfire, can treat hundreds of acres at a time, removes surface fuel, and is relatively cost-effective (Hartsough et al., 2008; Hunter et al., 2007).

Prescribed burns can reduce property damage during wildfires because they are so effective at reducing fuel loads (Loomis et al., 2019). Broadcast prescribed burning can be used following mechanical treatments to magnify treatment impacts. Thinning and burning treatments tend to achieve fuel reduction objectives and modify fire behavior to a greater extent than thinning alone (Fulé et al., 2012; Prichard et al., 2020). Regular spring burning can also help restore grassland ecosystems by controlling non-native grasses such as smooth brome (Willson and

Prescribed burning can remove surface and ladder fuels and restore ecological processes to frequent-fire ecosystems. Firefighters who plan and implement burns must hold rigorous certifications set by NWCG. Photo credit: The Ember Alliance.

Stubbendieck, 1997). Many native grass species stay green into the summer, unlike cheatgrass and smooth brome, making them less receptive to wildfire (Miller, 2006).

WA DNR and USFS have successfully completed numerous large-scale broadcast prescribed burns in Asotin County. Alteration to fuels accomplished by the 4,200 acres of prescribed burning on the Umatilla National Forest in 2014-2015 likely contributed to the ability of firefighters to stop the northward spread of the 2024 Cougar Creek Fire (**Figure 4.a.2**). The Umatilla National Forest 2021 Fire Season and Long-Term Restoration StoryMap also exemplifies the long-term benefits of treatments during unprecedented fire seasons.

Broadcast prescribed burning is challenging in the WUI due to diverse fuel types, proximity to homes, risk of visibility impairments on roads from smoke, health impacts of smoke, and political and social concerns. However, with proper planning and implementation, qualified firefighters can safely conduct prescribed burns, even in the WUI (Hunter et al., 2007). Life safety is always a top consideration when developing and conducting prescribed burns. Less than 1% of prescribed burns escape containment lines, and most of these are rapidly suppressed (Weir et al., 2019). The wildland fire community soberly reviews prescribed burn escapes to produce lessons learned and make improvements (Dether, 2005).

Broadcast burning is carefully regulated by WA DNR through the Prescribed Fire Program and Certified Burner Program. Firefighters who plan and conduct prescribed burns are highly qualified under national standards set forth by NWCG.

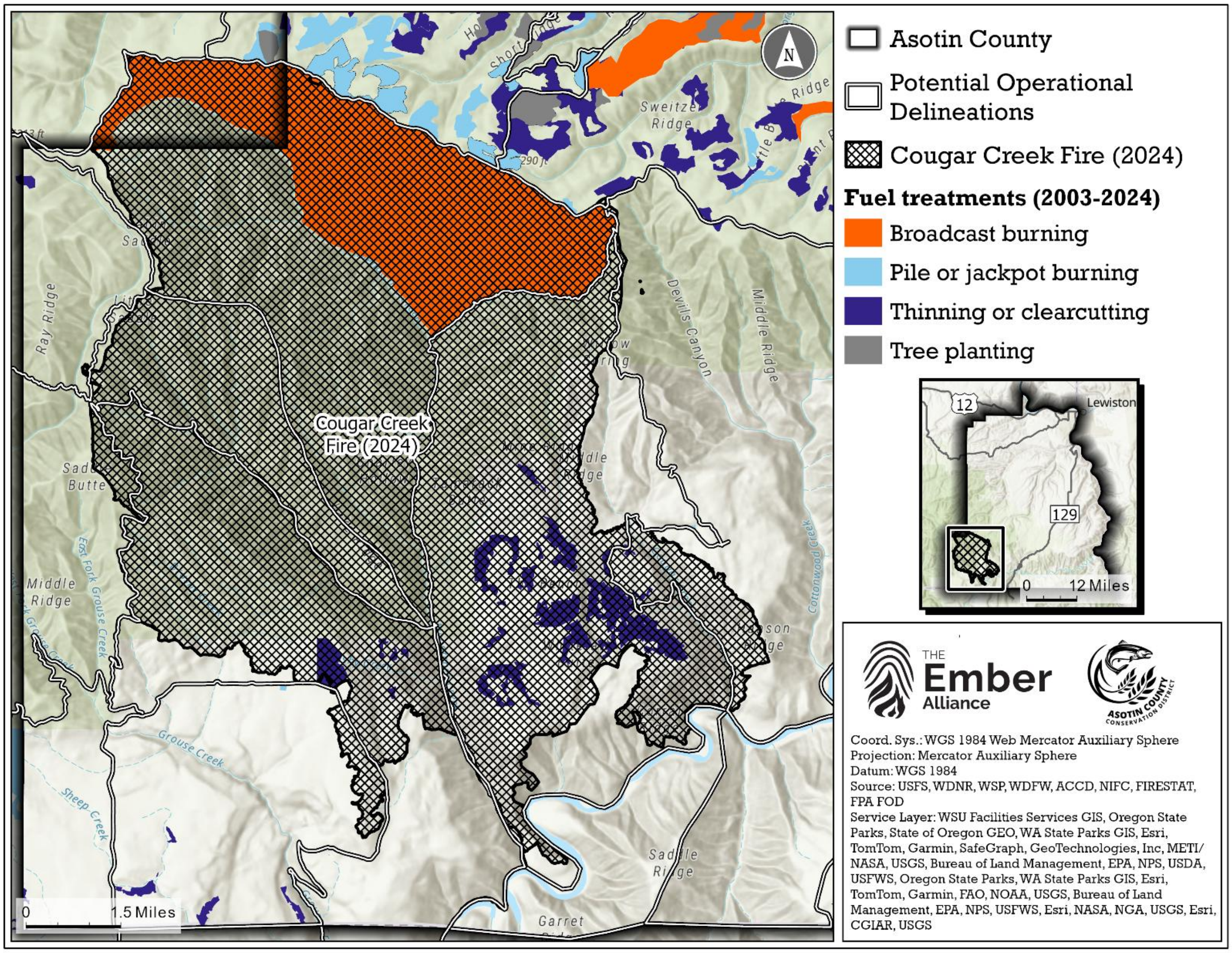
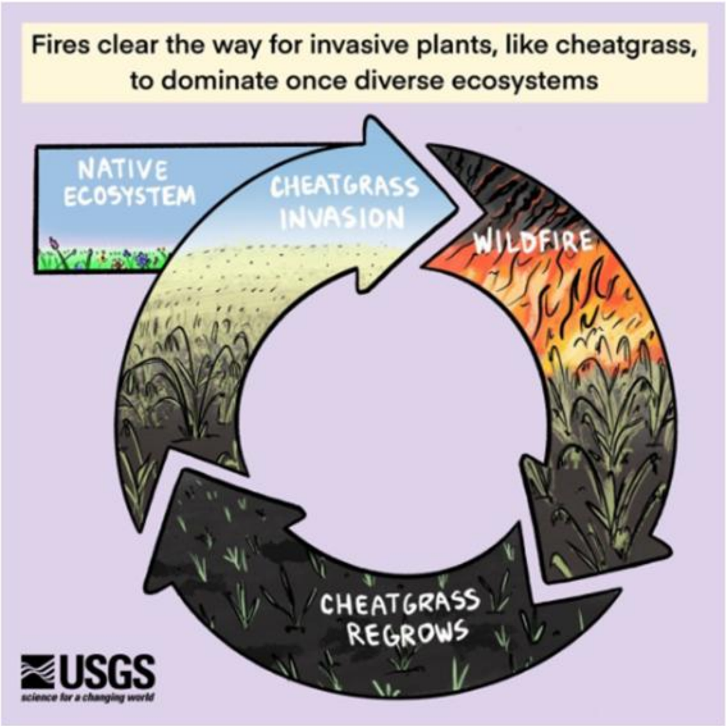


Figure 4.a.2. *Alteration to fuels accomplished by the 4,200 acres of prescribed burning on the Umatilla National Forest in 2014-2015 likely contributed to the ability of firefighters to stop the northward spread of the 2024 Cougar Creek Fire.*

Targeted Grazing

Targeted grazing for wildfire uses livestock (usually cattle or goats) to eat large strips of flammable vegetation down to stubble-height to reduce fine fuels, fuel loads, and fuel bed continuity. An effective grazing regime can decrease the probability, rate of spread, and severity of wildfires. When used in the right place, at the right intensity, for the right amount of time, grazing can be a sustainable and feasible alternative to mowing or prescribed burning.



Fire clears the way for invasive annual grasses, like cheatgrass, to dominate once diverse ecosystems in Northwest rangelands. Credit: Ben Slyngstad, USGS

Well-planned and flexible grazing strategies can help to meet a variety of rangeland and fire-management goals. While other options for creating fuel breaks can be cost prohibitive or difficult to maintain over time, researchers with the USDA Agricultural Research Service found that, "cattle can create and maintain protective fuel breaks with lower financial costs than mechanical methods. Additionally, a targeted grazing program has the potential to mutually benefit rangeland resources and ranching operations by presenting the rancher with the opportunity to reduce or eliminate the need to feed hay or stored forages in the early spring" (Clark, 2024).

The spread of invasive annual grasses and weeds are some of the main contributors to increased fire size and frequency in the Western United States. Cheatgrass (*Bromus tectorum*) and medusahead (*Taeniatherum caput-medusae*) are two of the most common invasive annual grasses in Asotin County. Annual grasses grow rapidly in spring and die early in summer, covering rangelands in dry vegetation and a continuous fuel-bed which can easily ignite and spread wildfire rapidly. Areas with invasive annual grasses burn 2 to 4 times more frequently than areas that are not dominated by annual grasses (Bradley et al., 2018; Smith et al., 2022).

By using livestock to create fuel breaks in these swaths of invasive annual grasses, rangeland managers could help to prevent more wildfires from turning into megafires (Clark, 2024).

When considering grazing as a method of wildfire fuel reduction, the following site-specific factors should be considered to determine if grazing is the best option for a specific location:

- Strategic location with potential to protect resources like infrastructure or fragile habitat.
- Safe and effective location for grazing, consider species-specific livestock needs (forage needs, water availability, fencing, access, toxic plant sensitivities, etc.).
- Grazing regime (timing, frequency, intensity) must be tailored to avoid negative effects on desirable plants and other sensitive ecological features and mitigate for potential ecological impacts. Adequate residue must be retained after grazing rotation to protect natural resources, prevent soil erosion, improve water quality, and maintain wildlife habitat.
- Targeted grazing should be located an area that has a high likelihood of experiencing wildfire.
- Feasibility considerations of grazing as a management tool. Analyze costs entailed in improving and maintaining infrastructure to support grazing (fencing, water, transport, etc.).
- Part of an integrated management system with other conservation practices such as: noxious weed management, WUI fuel reduction treatments, rangeland seeding, sage-steppe habitat restoration, climate-smart agriculture, soil enhancements, riparian restoration, and replanting with less flammable vegetation.

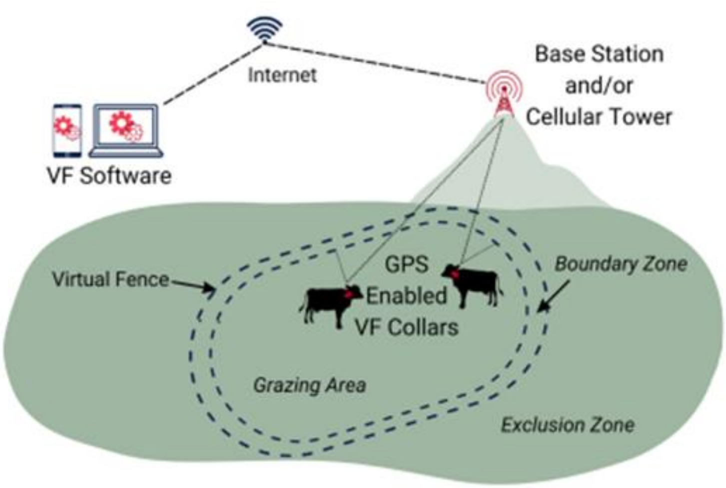


Illustration of a virtual fencing system. Source: Antaya et al. (2024), The University of Arizona Cooperative

Virtual Fencing

Virtual fencing, a relatively new technology, allows ranchers to control livestock distribution and grazing timing in rangeland landscapes using GPS signals and reception towers in lieu of physical fences (Antaya et al., 2024). Virtual fencing can be used to contain animals within a desired area, exclude them from undesired areas (like waterways or sensitive sites), or move them across the landscape without the need for physical fences. Physical fences are a major investment in livestock management and are often limited by factors such as topography, costs of construction and maintenance, and conflicts with other resources like wildlife movements. Virtual fencing can make grazing more accessible and feasible for fuel reduction treatments, more adaptive to variable climate conditions, and helps mitigate potential adverse effects to other natural resources (Campbell et al., 2021).

Livestock are fitted with special collars that communicate with GPS to physical towers to form a virtual fence set by the rancher or land manager. Fence lines can be easily changed using mobile devices or computers. When the livestock reaches the limit of the virtual fence, a series of loud "beeps" will emit from the collar. If livestock travels beyond the boundaries of the virtual fence, they receive a small shock (milder than if the cow were to touch a traditional electric fence) (Muminov et al., 2016). Cattle have demonstrated the ability and tendency to rapidly learn the virtual fencing cues, eventually responding to the audio cue alone (Goliński et al., 2023). Several studies have documented success with sheep and goats as well (Eftang et al., 2022; Marini et al., 2020).

Because virtual fencing can help rangeland managers become more adaptive to variable conditions, it could help managers to mitigate the future impacts of climate change as they unfold in real time. As wildfire continues to impact Asotin County, it is likely that more physical fences will burn, increasing the costs of returning livestock to burned areas. Virtual fencing allows ranchers and rangeland managers to reestablish boundaries more quickly for livestock in post-fire environments to interrupt the cycle of annual grasses, or to keep livestock away from recently burned areas to protect sensitive soils.

Primary benefits to virtual fencing are ecological, economical, and sustainable. Several successful studies have proven the effectiveness and functionality of virtual fencing for livestock in Washington State, but this technology is not currently used in Asotin County. To support natural resources conservation, the purchase and installation of virtual fence infrastructure (such as base-stations or reception towers) could be supplemented by public agencies and conservancy partners to minimize prohibitive up-front costs of virtual fencing and expand the accessibility of this technology in Asotin County.

Virtual Fencing Benefits and Challenges	
Benefits:	**Challenges:**
Environmental Benefits: Can be used to protect sensitive areas like waterways by restricting animal access or initiate targeted grazing to increase wildfire resilience in critical areas. Wildlife movement and migration benefits.	**Technology Availability:** Emerging technology, untested use in Asotin County, Reliable GPS signal required for accurate boundary detection.
Dynamic and Integrated: Can be used as part of conservation management plans to modulate climate change impacts, improve soil health, control noxious weed infestations, improve wildfire resilience, and increase carbon sequestration in soils.	**Initial Costs:** Upfront cost of supporting infrastructure can be prohibitive (tower installation, mobile technology devices, etc.).
Flexible and Adaptable: Allows for rapid adjustments to grazing areas based on pasture conditions, weather, and animal needs. Can be used to restrict livestock access, or increase it, depending on landscape conditions.	**Collar Installation and Maintenance:** Collars must be fitted to livestock; some collars require battery replacements annually.
Improved Grazing Management: Enables rotational grazing practices to optimize pasture utilization and rangeland health, provides alternative or supplemental forage for livestock. Protects and preserves working lands in rural communities.	**Animal Training:** Animals need time to learn the system and associate the warning signals with the virtual fence.
Reduced Labor and Maintenance: Eliminates costs of physical fence installation and maintenance, especially after wildfire events. Improved operational feasibility for livestock producers in Asotin County.	**Terrain and Topography:** Steep slopes or dense vegetation can impact signal reception and effectiveness.

Fuel Treatment Effectiveness

The effectiveness of fuel treatments is influenced by a variety of factors, including the intensity, quality, and extent of treatments, location of treatments, maintenance of treatments, weather conditions and fire behavior, and actions of firefighters (**Figure 4.a.3**). Treatments that fail to remove enough trees or significantly reduce the amount of fuel on the ground can be ineffective during wildfires. However, high-quality and strategically-placed fuel treatments can alter fire behavior and serve as effective tactical features for firefighters, as was observed during the 2024 Cougar Creek Fire (**Figure 4.a.2**).

Fuel treatments are not intended to stop wildfires on their own. They are considered effective when they alter wildfire behavior by slowing the rate of spread, bringing the fire from the canopy to surface fuels, or reducing the intensity of the fire. These changes in behavior can provide critical time or space for resident egress or can alter fire behavior enough to enable firefighters to engage the fire. The percentage of fuelbreaks that have effectively stopped actual wildfires is between 22-47% in forests (Gannon et al., 2023; Syphard et al., 2011) and 46-71% in sagebrush ecosystems (Weise et al., 2023). A review of fuel treatment effectiveness found that "a fuel treatment can only be as effective as the suppression that goes along with it"—less than 1% of wildfires are stopped by a fuelbreak alone and in insolation of suppression activities (McDaniel, 2023; page 3).

Fuel treatments are more effective under moderate fire weather conditions than extreme weather conditions, and most effective when firefighters are present to use the fuel treatment as a control feature (Gannon et al., 2023; Jain et al., 2021; Reinhardt et al., 2008; Syphard et al., 2011; Weise et al., 2023). Uncontrollable factors will always play a role in home loss during extreme wildfires, such as embercast from burning vegetation and structures. Minute-to-minute shifts in wind directions, unexpected wind gusts, and extreme fire behavior and growth that overwhelm suppression efforts can result in home loss not explained by mitigation efforts prior to the fire.

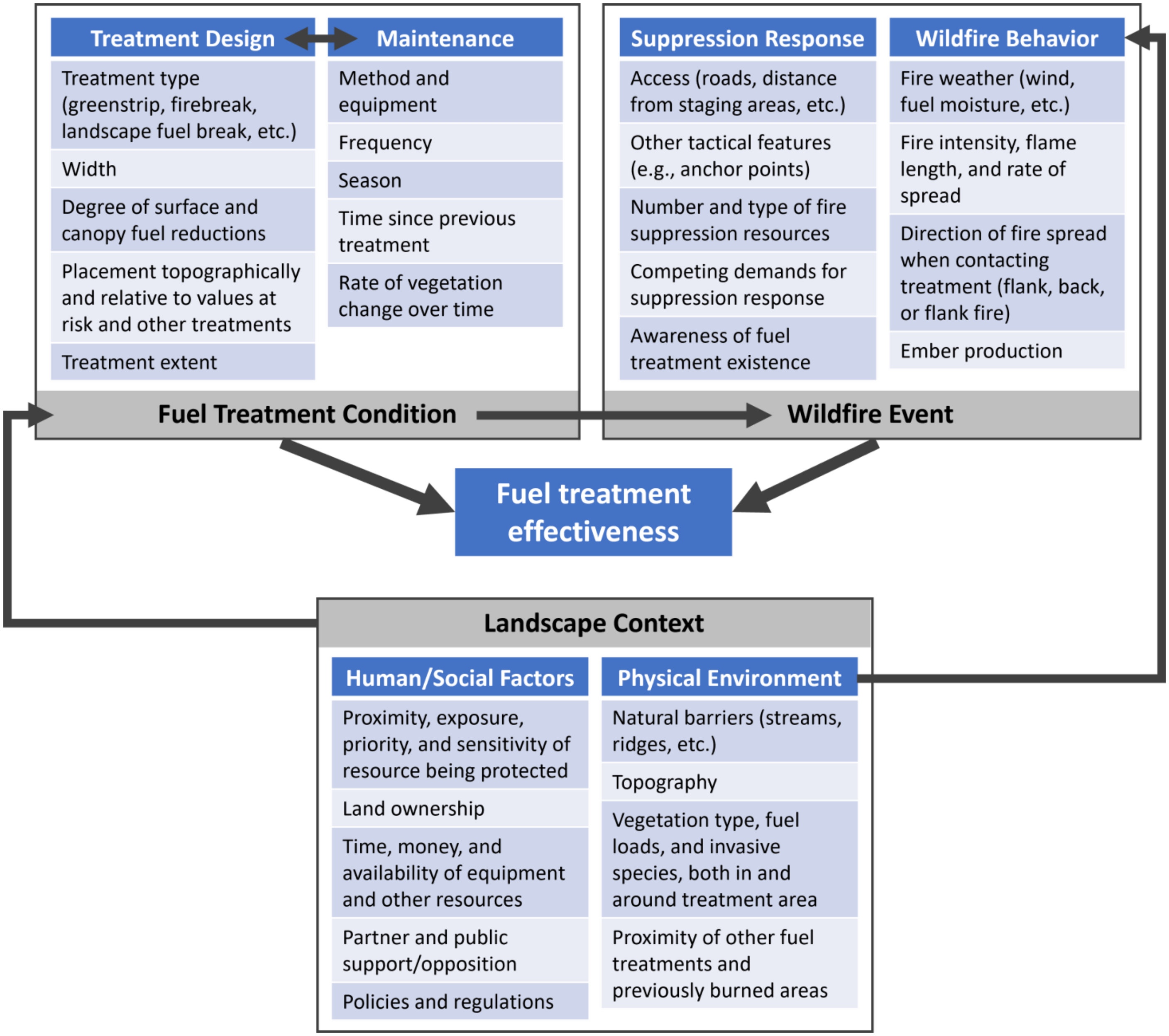


Figure 4.a.3. *The effectiveness of fuel treatments at altering wildfire behavior is influenced by numerous factors related to landscape context, fuel treatment specifications, and conditions during a wildfire event. Figure modified by The Ember Alliance based on (Jain et al., 2021; Trauernicht and Kunz, 2019)*

4.b. Recommendations for Roadside Fuel Treatments

Treatments along roadways require a dramatic reduction of fuels to create safer and survivable conditions. This includes removing most trees adjacent to the roadway, limbing remaining trees, and regularly mowing grass and shrubs (**Figure 4.b.1**). Treatments along roadways are often called shaded fuelbreaks (Dennis, 2005). Fuel treatments along roadways and other potential control lines can enable fire suppression and proactive management of fire on the landscape. The WA DNR is using strategic treatments along roadways and other potential control lines to enable fire suppression (Hersey and Barros, 2022).

The width of an effective roadside fuel treatment (distance to the left and right of a road) is dependent on slope. There is limited science-based guidance on the ideal width of effective roadside fuel treatments, but this is an ongoing line of research by TEA and the U.S. Forest Service Rocky Mountain Research Station. The WA DNR's publication, "The role of shaded fuel breaks in support of Washington's 20-year forest health strategic plan" states that shaded fuel breaks typically range from 100 to 400 feet in width (Hersey and Barros, 2022). Widely cited guidance from the Colorado State Forest Service recommends that treatments extend 150 or more feet off the downhill side of the road and up to 150 feet off the uphill side. Wider treatments are necessary on the downhill side on steeper slopes due to the exacerbating effect of slope on fire intensity when fires travel uphill (**Table 4.b.1**) (Dennis, 2005). Under the 2021 Infrastructure Investment and Jobs Act, the U.S. Forest Service has special authority to establish fuel breaks with a total width of 1,000-feet in strategic locations, including along roads on Federal land (Pub. L. 117-58, div. D, title VIII, §40806, 135 Stat. 1110, 16 USC 6592b).

Important aspects of roadside fuel treatments include:

- Clearing all limbs overhanging the road to create at least 13.5 feet of vertical clearance to facilitate engine access.
- Clearing all trees alongside the road to create at least 20 feet of horizontal clearance to facilitate engine access.
- Removing trees to create at least 10 feet crown spacing between remaining trees or clumps within the roadside treatment projects specified in **Priority Project Areas for Asotin County** in order to reduce the intensity of wildfire if a fire were to approach the road.
- Removing all dead or dying trees that could fall across the road and block traffic.
- Removing shrubs under trees and conifer regeneration to reduce the chance of wildfires transitioning from the surface into treetops.
- Mowing tall grasses adjacent to the road to reduce the intensity of wildfire if a fire were to approach the road.
- Removing slash from the site following fuel treatments. Slash left behind can burn with high intensity during a wildfire and make conditions unsafe for residents and firefighters.
- Considering improvements to the road, such as widening the road, road grading, filling potholes, and creating pullovers to increase access and safety for firefighters and residents.
- Establishing or increasing the width of rock aprons along high-use roads to reduce the chance of ignitions from vehicles.

Some residents find roadside fuel treatments aesthetically displeasing because of the removal of so many trees, but these treatments are vital for increasing the safety of residents and firefighters in this community. Roadside treatments must dramatically reduce fuel loads to effectively reduce the risk of non-survivable conditions developing along evacuation routes during wildfires. A variety of conditions along roadways exists across Asotin County, see **Table 4.b.2** for examples of this variation of conditions and suggestions for improvement.

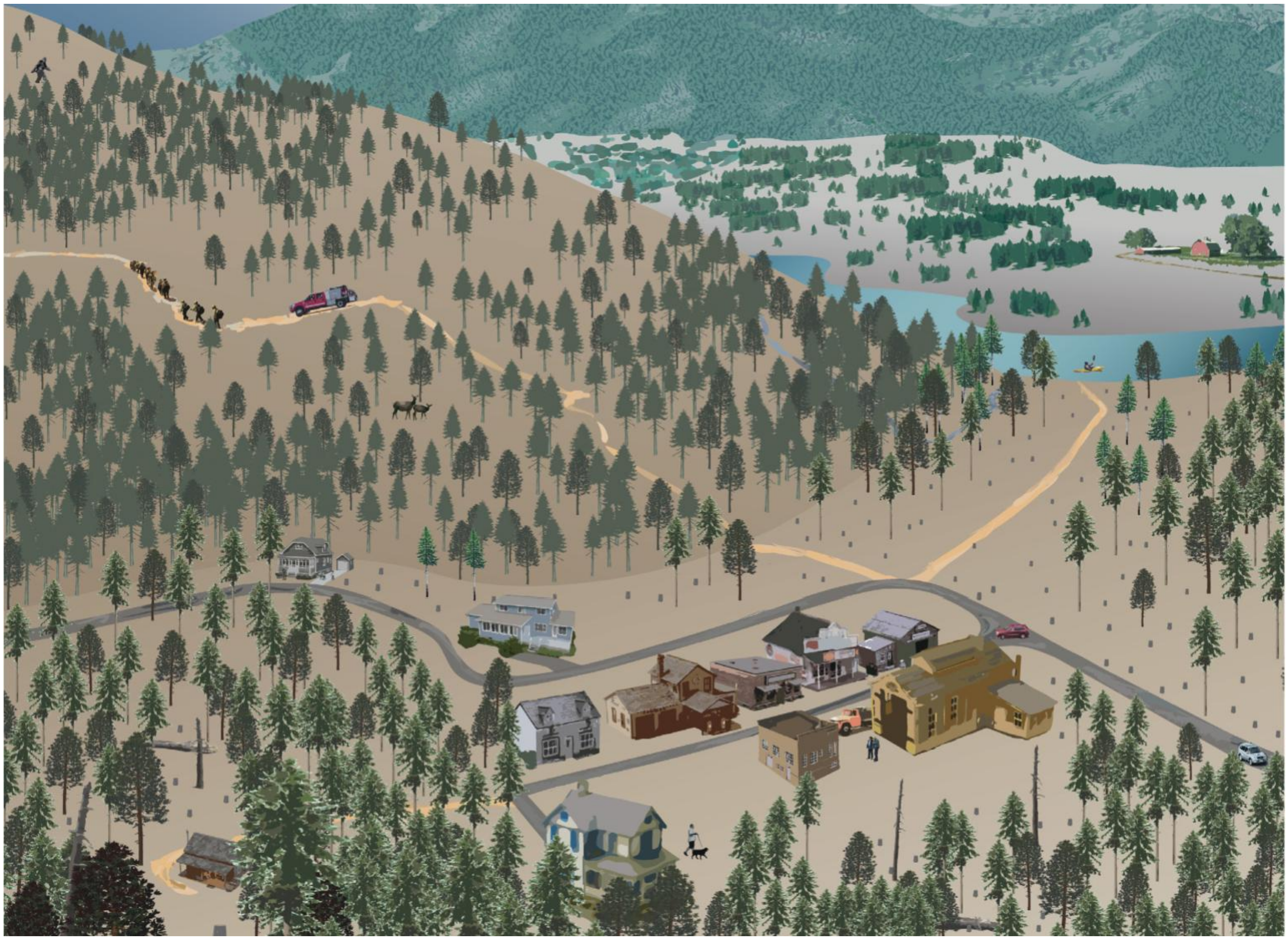


Figure 4.b.1. *Fuel breaks along roadsides can enhance the ability of firefighters to use roads as potential control lines for fire suppression and proactive management of fire on the landscape. Source: WA DNR (Hersey and Barros, 2022).*

Table 4.b.1 *Minimum fuel treatment width uphill and downhill from roads depends on the slope along the roadway[1]. Recommendations from the Colorado State Forest Service (Dennis, 2005).*

Percent slope (%)	Downhill distance (feet)	Uphill distance (feet)	Total fuel treatment width (feet)
0	150	150	300
10	165	140	305
20	180	130	310
30	195	120	315
40	210	110	320
50	225	100	325
60	240	100	340

[1]Measurements are from the toe of the road fill for downhill distances and above the road cut for uphill distances. Distances are measured parallel to flat ground, not along the slope.

Table 4.b.2. Examples of conditions occurring along roadways in Asotin County and suggestions for improvement. Photo credit: The Ember Alliance.

Roadway example	Suggestions for improvement
	• Create a shaded fuelbreak along the road. • Trim limbs that are hanging into or over the roadway. • Remove dead or dying trees that could fall on powerlines or fall across the road. • Remove trees on the inside of the turns and switchbacks to improve visibility. • Create regular pullouts and turnaround locations for engines along this narrow road.
	• Some excellent work has been done along this road already because the trees have no low limbs and there are no tall grasses or shrubs under the trees. • Tree spacing should be increased to 10-feet between tree crowns to reduce the risk of crown fire were they to transition from the surface in other locations with ladder fuels and then travel from treetop-to-treetop up to the road. • Create regular pullouts and turnaround locations for engines.
	• Remove trees so there is at least 20 feet of horizontal clearance for engine access. • Trim limbs that are hanging over the roadway to create vertical clearance of at least 13.5 feet. • Remove trees to create at least 10-foot crown spacing. • Remove trees on the inside of the turns and switchbacks to improve visibility. • Create regular pullouts and turnaround locations for engines along this narrow road. • Tie roadside work into defensible space projects around structures.

	• Deciduous trees along riparian areas tend to have higher moisture contents and are less likely to ignite, except after periods of prolonged drought. Intensive thinning is not as important in these areas. • Remove some of the trees on the inside of the turns and switchbacks to improve visibility. • Trim limbs that are hanging over the roadway. • Create regular pullouts and turnaround locations for engines.
	• This roadway is generally not in need of improvement. • Mow tall grasses adjacent to the road to reduce the intensity of wildfire if a fire were to approach the road. • Increase the width of the rock apron at the base of the steep hillside to reduce the chance of ignitions from vehicles.
	• Trim limbs that are hanging over the roadway. • Create regular pullouts and turnaround locations for engines. • Remove some of the trees and shrubs on the inside of the turns and switchbacks to improve visibility. • Increase the width of the rock apron at the base of the steep hillside to reduce the chance of ignitions from vehicles. • Mow tall grasses where they abut the road.

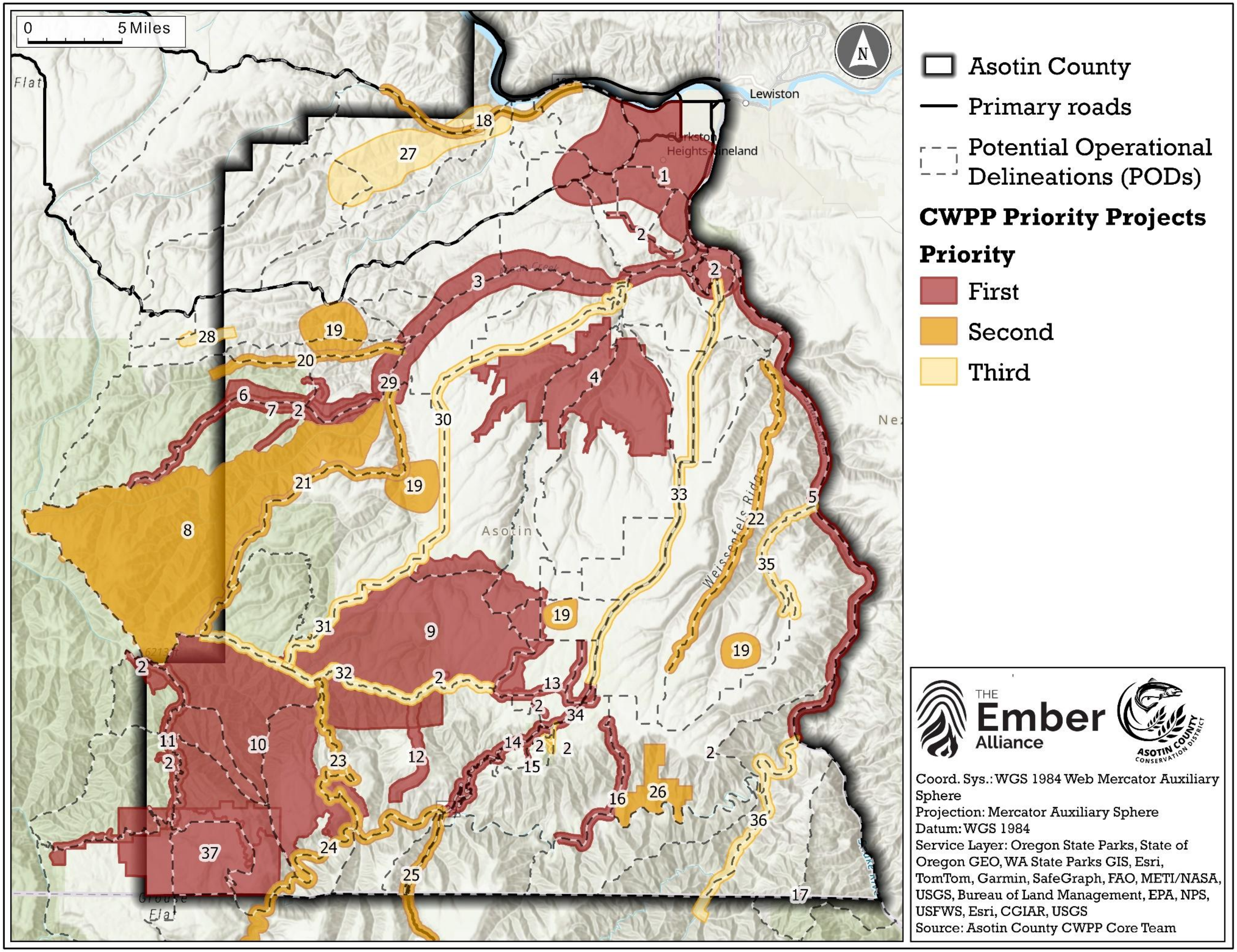
4.c. Priority Project Areas for Asotin County

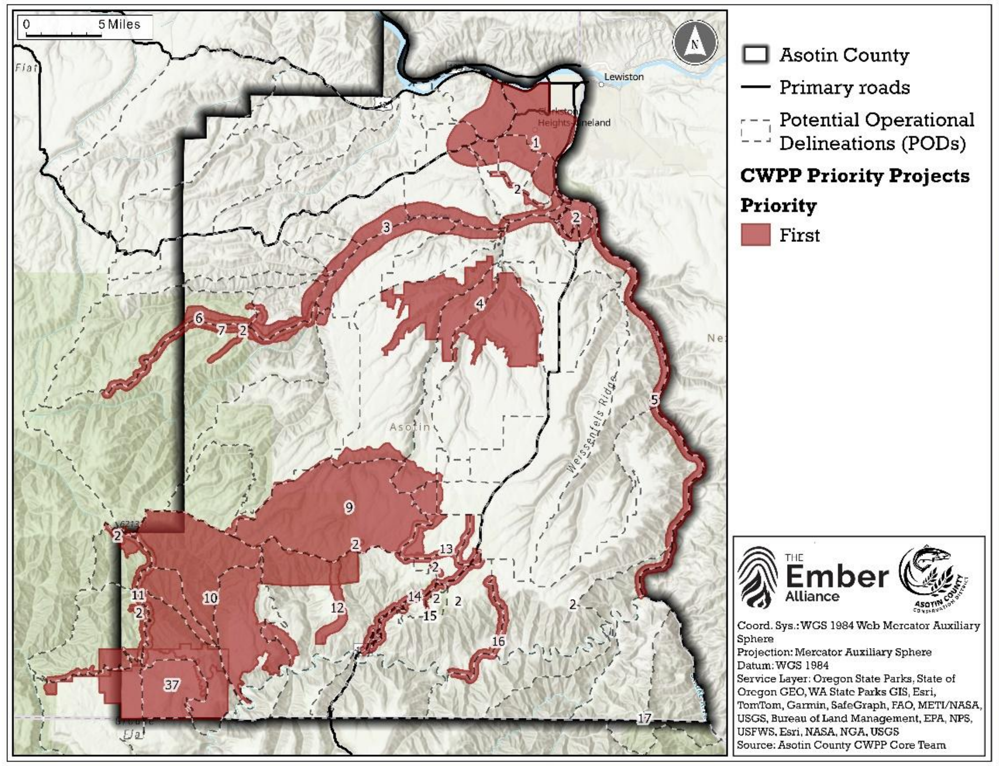
Altering potential wildfire behavior and restoring ecological conditions requires a landscape-scale approach to treatments across ownership boundaries. We located and prioritized project areas for fuel treatments within and around Asotin County to be implemented in the next 5 years (**Figure 4.c.1**). These treatments fall into the following categories: road safety and accessibility, enhanced suppression response, fire risk reduction, ecological restoration, and highly valued resources and assets protection and access. Many of these project areas cross ownership boundaries and require community-wide commitment, coordination, and collaboration among private landowners, public land managers, and forestry professionals to create successful outcomes.

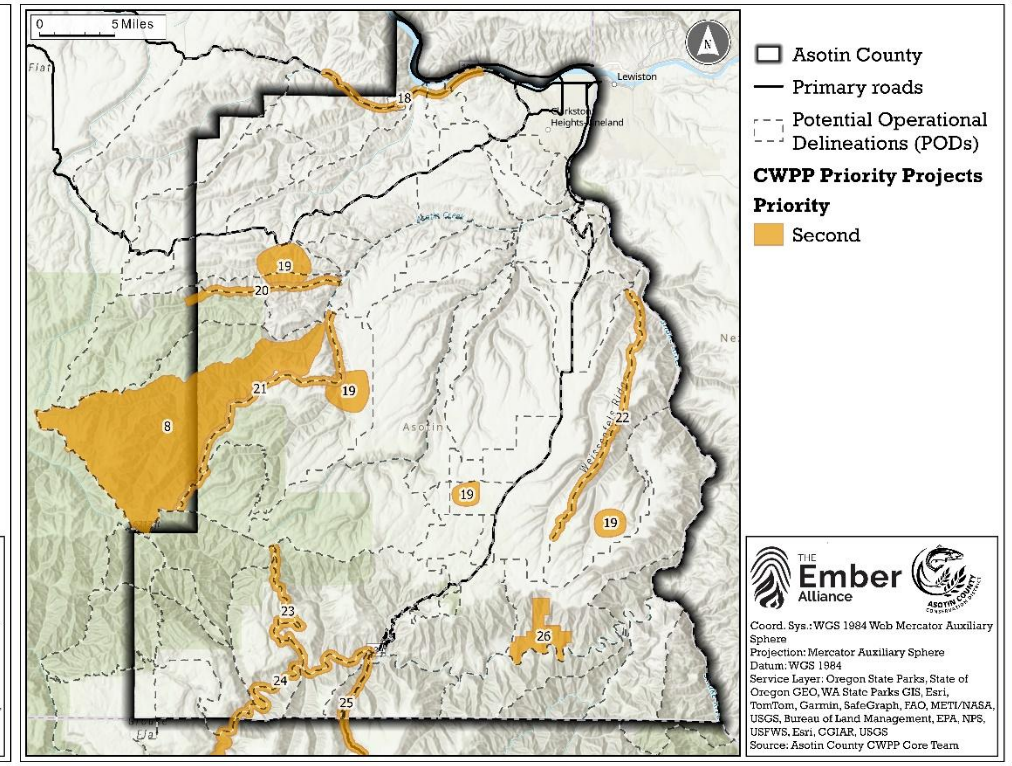
Project areas were identified through partner collaboration. These decisions were made by representatives from the Asotin County DEM, ACFD1, BMFD1, WA DNR, USFS, ACCD, Asotin County Noxious Weed Control Board, WSP, WDFW, NRCS, Clearwater Power Company, and Avista Utilities.

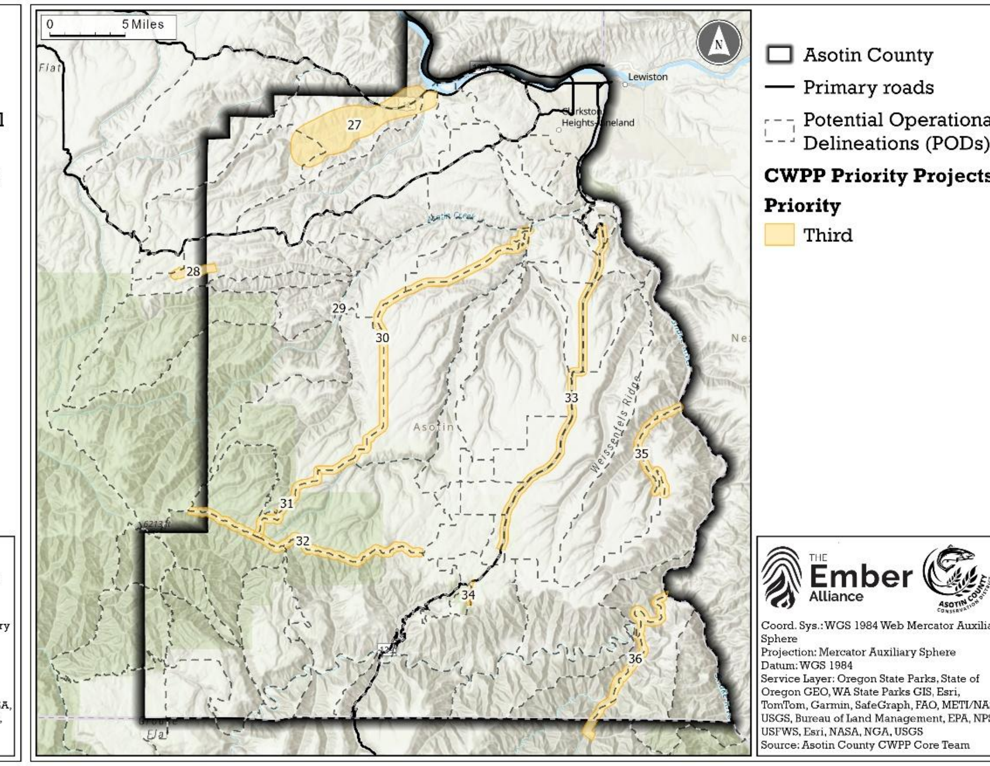
Partners came together in October 2024 and compared maps showing modelled wildfire behavior, burn probability, post-fire sediment delivery, roadway safety, infrastructure and values at risk of wildfire, potential operational delineations (PODs), land ownership, ember cast, and past fires and fuel treatments. In groups, the partners delineated potential projects areas and collaboratively identified priorities. In November 2024, the Core Team refined these project areas, created goals, and decided on leaders and timelines (see **Appendix B** for methodology). The table below describes the area of each CWPP priority project areas, objectives and methods, project leads, strategic alignment, and relative priority.

The CWPP priority projects focus on high-priority locations to address in the next 5 years, but this prioritization does not discourage ecological restoration and fuel mitigation in other areas. If multiple neighbors work together to mitigate fire risk across ownership boundaries, it could attract funding and increase the priority and effectiveness of treating those areas. Land managers, county administrators, and residents should reevaluate fire risks and reprioritize projects as conditions change over time.


0 5 Miles
N
Lewiston
Clarkston
Heights Lineland
Asotin
Weissenfels Ridge
Asotin County
Primary roads
Potential Operational Delineations (PODs)
CWPP Priority Projects
Priority
First
Second
Third
THE Ember Alliance
ASOTIN COUNTY CONSERVATION DISTRICT
Coord. Sys.: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
Service Layer: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, CGIAR, USGS
Source: Asotin County CWPP Core Team







<table>
<tr><td>Project ID: 1</td><td>Priority: First</td><td colspan="2">Project type: Fire risk reduction</td></tr>
<tr><td colspan="4">Location: Clarkston Heights, City of Asotin, and portions of Clarkston Rural, Peola Prairie, and Asotin Rural Zones</td></tr>
<tr><td colspan="4">Project leads: ACCD, Asotin County Noxious Weed Board, FPDs, WA DNR</td></tr>
<tr><td colspan="4">Strategic partners: Private landowners, City of Asotin, City of Clarkston, Asotin County</td></tr>
<tr><td>Objectives</td><td>Methods</td><td>Wildfire risk</td><td>Strategic alignment</td></tr>
<tr><td>Fuel reduction projects and landscape treatments to reduce the potential for wildfires to ignite and spread into developed areas.

Intensive effort to mitigate invasive weeds to reduce wildfire risk.

Public outreach and education for community wildfire resilience techniques and programs.</td><td>Create and implement programs to provide incentives for homeowners to dispose of fire-hazards and yard waste around their properties.

Increase funding and capacity to implement integrated noxious weed management treatments in high-risk areas of WUI, including incentives for landowners, targeted/prescribed livestock grazing programs, and aerial and/or hand application of herbicide to reduce annual wildfire fuel loading.

Secure funding to increase capacity for public outreach, workshops, and community education for: wildfire hazard mitigation techniques, invasive weed management, home ignition zone assessment and mitigation, Fire Adapted Communities programs, Wildfire Ready Neighbors program, Firewise USA® programs, and ecological restoration programs that increase community and ecosystem wildfire resilience.</td><td>Potential for human-caused ignitions and rapid rates of fire spread into developed areas.

The area has an elevated burn probability and could experience high to very high losses from wildfire according to the PNW QWRA.</td><td>Clarkston Heights-Vineland is #13 on DNR's top 25 places most likely to be exposed to wildland fire in "Washington State Wildland Fire Protection 10-year Strategic Plan", and populated portions of Asotin County, WA, have a higher risk than 90.6% of counties in the nation according to the U.S. Forest Service Wildfire Risk to Communities analysis. Asotin County is identified as "disadvantaged" in the Climate and Economic Justice Screening Tool.

Area was a priority project in the 2008 CWPP.</td></tr>
</table>

Project ID: 2	Priority: First	Project type: HVRA protection and access	
Location: Communication towers/repeaters and access roads across the county			
Project leads: Depends on tower licensees (USFS, WA DNR, Asotin County DEM, Whitman County, Inland Cellular, City of Clarkston, and/or Washington RSA)			
Strategic partners: Clearwater Power Company, Avista Utility Company, Bonneville Power Administration			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Remove fuels around communication towers and along access roads. Add secondary power source, such as a backup generator. Consider installing wildfire detection cameras in strategic locations.	Mitigation of wildfire fuels in strategic areas to protect critical communications infrastructure during wildland fire events. Methods may include thinning, pruning, mowing, and grazing. Seek funding to purchase and install back-up power generator infrastructure for critical communications towers. Secure funding to purchase and install wildfire detection cameras to be co-located with strategic communication towers.	Area around towers could experience damaging radiant heat, ember cast, and/or rapid rates of fire spread, depending on location.	Aligned with the 2022 Clearwater Power Company Wildfire Mitigation Plan.

Project ID: 3	Priority: First	Project type: Ecological restoration	
Location: Asotin Creek and surrounding area			
Project leads: ACCD, WDFW, USFS, NRCS, WA DNR			
Strategic partners: Asotin County Building and Planning Department, Snake River Salmon Recovery Board, private landowners, livestock producers, Idaho Wild Sheep Foundation, Idaho Department of Fish and Game, Nez Perce Tribe			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Restoration of wildfire resilient ecosystems in critical watersheds to protect/enhance water quality, restore wildfire-resilient rangelands, and reduce potential post-fire effects of flooding and sedimentation downstream in the City of Asotin. Improve habitat for wildlife and salmonids and protect and restore native riparian, prairie, and sage-steppe habitat.	Use an "ecosystem approach" to apply integrated management techniques which increase the health and wildfire resilience of the entire watershed. Seek increased funding to implement rangeland restoration programs that include invasive weed management (aerial and hand-application of herbicides), targeted/prescribed grazing programs to support rangeland wildfire fuel reductions, rangeland seeding of wildfire-resilient species, and soil enhancements. Build upon multiple riparian and stream habitat restoration projects throughout this watershed to restore natural stream processes and floodplain interaction, increase water quality, slow water velocity, increase sediment retention, and restore critical salmonid habitat, and enhanced ecosystem resilience. Projects could include in-stream habitat restoration, fish passage improvements, riparian planting and enhancement, and upland vegetation planting. Expand funding and capacity to implement forest health and fuel reduction treatments on public and private lands to increase community and ecosystem wildfire resilience in the headwaters of critical salmonid watersheds.	The area has an elevated burn probability and potential for rapid rates of fire spread Portions of the area could experience moderate to high losses from wildfire according to the PNW QWRA and elevated post-fire sedimentation based on the CWPP analysis. The 2021 Asotin County Multi-Hazard Mitigation Plan identified the potential for post-fire flooding effects in the City of Asotin, and most of the structures in the FEMA-identified floodplain for Asotin County are located along Asotin Creek.	Portions of Asotin Creek were identified as a management priority for watershed restoration in the 2018 Asotin County Conceptual Restoration Plan. Asotin Creek is listed as a Major Spawning Area for ESA listed steelhead and flows directly into Snake River. Asotin Creek Road is a POD boundary. Aligned with the 2011 Snake River Salmon Recovery Plan for Southeastern Washington, Hells Canyon Bighorn Sheep Initiative, the WDFW 2019 Blue Mountains Wildlife Areas Management Plan (Asotin Creek Unit), WA DNR 20-year Eastern Washington Forest Health Plan, and 2021 Asotin County Multi-Hazard Mitigation Plan. Area was a priority project in the 2008 CWPP.

<table>
<tr><td>Project ID: 4</td><td>Priority: First</td><td colspan="2">Project type: Ecological restoration</td></tr>
<tr><td colspan="4">Location: WDFW Public Lands—George Creek Unit of Blue Mountains Wildlife Area</td></tr>
<tr><td colspan="4">Project leads: WDFW, ACCD</td></tr>
<tr><td colspan="4">Strategic partners: WA DNR, BLM, livestock producers, private landowners</td></tr>
<tr><td>Objectives</td><td>Methods</td><td>Wildfire risk</td><td>Strategic alignment</td></tr>
<tr><td>Increase wildfire resilience and wildlife habitat quantity and quality throughout the George Creek Unit of the Blue Mountains Wildlife Area through implementation of integrated management practices which restore ecosystem health and reduce wildfire risks in sage-steppe, rangeland, and critical riparian habitats.</td><td>Increase funding and capacity of agency to implement ecosystem-approach for integrated invasive weed management throughout the George Creek Wildlife area including aerial and hand application of herbicide, prescribed grazing, shrub-steppe core-habitat restoration, rangeland seeding, and planting of wildfire resilient species.

Assess benefits and feasibility of a pilot program to integrate emerging virtual-fencing technology for prescribed/targeted livestock grazing best management practices as a long-term technique for annual wildfire fuel reduction and invasive weed management.

Support working lands and rural communities with strategically targeted investments, technical assistance, and conservation incentives.

Expand riparian restoration, enhancement, and preservation programs to maintain or increase streamside vegetation and riparian cover, improve water quality, increase sediment retention, improve in-stream flow-conditions, and restore critical salmonid habitat. Projects could include in-stream habitat restoration, fish passage improvements, riparian planting and enhancement, and upland vegetation planting.

Projects should build upon previous work, such as the 2024 WDFW partnership with ACCD and Bonneville Power Administration to complete stream restoration projects for Steelhead recovery in Kelly Creek and the 2023 ACCD partnership to monitor rangeland and shrubland steppe habitat baseline conditions.</td><td>The area has an elevated burn probability and potential for rapid rates of fire spread. Portions of the area could experience high losses from wildfire according to the PNW QWRA and elevated post-fire sedimentation based on the CWPP analysis.</td><td>Meyers Ridge Road is a secondary evacuation route, and the area includes two POD boundaries.

Pintler Creek, George Creek, and Kelly Creek were identified as low to high priority for management in the 2018 Asotin County Watershed Assessment.

Aligned with the 2011 Snake River Salmon Recovery Plan for Southeastern Washington, WDFW 2019 Blue Mountains Wildlife Areas Management Plan (George Creek Unit), Washington Shrub-Steppe Restoration and Resiliency Initiative (priority xeric habitat core and growth opportunity areas in George Creek Wildlife Unit), and Asotin County Voluntary Stewardship Program (critical shrub-steppe wildlife habitat).</td></tr>
</table>

<table>
<tr><td>Project ID: 5</td><td>Priority: First</td><td colspan="2">Project type: Road safety/accessibility</td></tr>
<tr><td colspan="4">Location: Snake River Road</td></tr>
<tr><td colspan="4">Project leads: WSDOT, Asotin County Noxious Weed Board, Asotin County DEM</td></tr>
<tr><td colspan="4">Strategic partners: Asotin County Road Department, private landowners and residents, ACCD, Oregon Roads Authority</td></tr>
<tr><td>Objectives</td><td>Methods</td><td>Wildfire risk</td><td>Strategic alignment</td></tr>
<tr><td>Create safer conditions for firefighters and evacuees.

Reduce potential for ignitions originating from vehicles traveling the road to and from recreational areas (chains dragging, driving over dry vegetation, etc.).

Maintain the use of road as a potential control line (currently low suppression difficulty index).</td><td>Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Annual invasive weed management to remove or treat hazardous wildfire fuels along roadsides prior to fire season. Increase rock apron along road and in pullouts to reduce potential for ignitions from vehicles. Targeted public outreach, signage, and education to prevent or reduce potential for human-caused wildfire ignitions.

Coordinate with Oregon Roads Authorities to request and support Joseph Creek Road improvements to support emergency evacuations across the Oregon border.</td><td>Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. The area could experience elevated post-fire sedimentation based on the CWPP analysis.

This area is not located within a fire protection district.</td><td>Snake River Road is a secondary evacuation route and POD boundary, and it was a 2008 CWPP priority roadside project area.

Private landowners and residents: Some of the treatments within Public Roadway Right Of Way, but treatment effectiveness will be dependent upon resident participation in roadside fuels reduction and mitigation.</td></tr>
</table>

Project ID: 6	Priority: First	Project type: Ecological restoration	
Location: Lick Creek and surrounding area			
Project leads: USFS, WDFW, ACCD, Asotin County Noxious Weed Board			
Strategic partners: WA DNR, Rocky Mountain Elk Foundation, Snake River Salmon Recovery Board, private landowners, livestock producers, Idaho Wild Sheep Foundation, Idaho Department of Fish and Game, Nez Perce Tribe			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Post-fire ecosystem restoration and reforestation treatments in the 2021 Lick Creek Fire burned area. Restore and enhance upland and riparian habitat to increase wildfire resilience, improve water quality, reduce sedimentation from post-fire erosion, and improve stream conditions for salmonids.	Riparian restoration and enhancement projects to maintain or increase streamside vegetation, reduce water temperatures, increase sediment retention, improve in-stream flow-conditions, and restore critical salmonid habitat damaged by the 2021 Lick Creek Fire. Projects could include in-stream habitat restoration, fish passage improvements, riparian planting and enhancement, and upland vegetation planting. Intensive invasive weed management (aerial and hand-application of herbicide) and upland rangeland seeding of wildfire resilient species to restore rangeland health, increase soil health, reduce future wildfire risks, and reduce potential post-fire soil-erosion.	Much of the area was burned by the 2021 Lick Creek Fire (80,412 total acres burned). Invasive annual weed colonization in burned areas create an elevated wildfire-risk. The area could experience ember cast, rapid rates of fire spread, and elevated post-fire sedimentation based on the CWPP analysis.	Stream reach identified as important for conservation in the 2018 Asotin County Watershed Assessment. Aligned with the USFS Blue Mountains Forest Plan, 2021 Lick Creek Wildfire Reforestation and Hazard Mitigation Plan, and the 2019 WDFW Blue Mountains Wildlife Areas Management Plan (goal of conducting fish passage projects along Lick Creek). Washington Shrub-Steppe Restoration and Resiliency Initiative (priority xeric habitat core and growth opportunity areas in George Creek Wildlife Unit), and Asotin County Voluntary Stewardship Program (critical shrub-steppe wildlife habitat).

Project ID: 7	Priority: First	Project type: Road safety/accessibility	
Location: Lick Creek Road (western portion is Forest Service Road 41)			
Project leads: USFS, WDFW			
Strategic partner: WA DNR			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of this road as a potential control line (currently moderate-low suppression difficulty index).	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Some areas could experience high benefits from prescribed fire according to the PNW QWRA.	Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. The area could experience elevated post-fire sedimentation based on the CWPP analysis.	Lick Creek Road is a secondary evacuation route and POD boundary.

Project ID: 8	Priority: Second	Project type: Ecological restoration	
Location: North Fork Asotin Creek Watershed			
Project leads: USFS, WDFW			
Strategic partners: ACCD, WA DNR			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Restoration and enhancement of critical habitat for fish, beaver, big game, and upland birds in North Fork Asotin Creek. Increase the ability of the watershed to store sediment. Mitigate invasive weeds in the Lick Creek burned area.	Riparian restoration and enhancement projects to maintain or increase streamside vegetation, improve water quality, reduce water temperatures, increase sediment retention, improve in-stream flow-conditions, and restore critical salmonid habitat damaged by the 2021 Lick Creek Fire. Projects could include in-stream habitat restoration, fish passage improvements, riparian planting and enhancement, and upland vegetation planting. Intensive invasive weed management (aerial and hand-application of herbicide, prescribed burning, and grazing) and rangeland seeding of wildfire resilient species to restore rangeland health, reduce future wildfire risks, and reduce post-fire soil-erosion. Some areas could experience high benefits from prescribed fire according to the PNW QWRA.	Much of the area was burned by the 2021 Lick Creek Fire (80,412 total acres burned). Invasive annual weed colonization in burned areas create an elevated wildfire-risk. The western part of the watershed could experience very high to extreme fire behavior and high to very high losses from wildfire according to the PNW QWRA.	High-priority watershed in WA DNR 20-year Eastern Washington Forest Health Plan. The area falls in the "Asotin Planning Area" scheduled for the 2026 project cycle for the WA DNR. Stream reaches are high priority for conservation status in the 2018 Asotin County Watershed Assessment. Also aligned with the Snake River Salmon Recovery Board, 2012 Asotin Intensively Monitored Watershed long-term research, and the WDFW 2019 Blue Mountains Wildlife Areas Management Plan. Work can be strategically tied into previous fuels mitigation and ecological restoration projects conducted in the watershed.

Project ID: 9	Priority: First	Project type: Ecological restoration	
Location: Upper George Creek Watershed			
Leads: USFS, WA DNR, NRCS, WDFW, Tribal leaders			
Strategic partners: ACCD, private landowners			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Riparian forest-health restoration, enhancement, and forest health and fuel-reduction treatments in the forests surrounding the headwaters of George Creek watershed to increase wildfire resilience, reduce potential for post-fire sedimentation, and protect critical salmonid habitat.	Strategic forest health and fuel-reduction treatments including thinning, prescribed burning, slash treatments, and targeted grazing to remove hazardous fuels and restore wildfire resilience in the upper watershed of George Creek and to protect water quality down-stream. Some areas could experience high benefits from prescribed fire according to the PNW QWRA. Maintain and increase cover of riparian forest and streamside vegetation to improve water quality, increase sediment retention, increase water storage, and increase the fuel-moisture content. Projects could include in-stream habitat restoration, fish passage improvements, riparian planting and enhancement, and upland vegetation planting. Increased wildfire resilience of watershed will reduce potential for post-fire sedimentation. Coordinate with Nez Perce, Colville Confederate, and Umatilla Tribes to protect and enhance cultural values in usual and accustomed land Strategically tie projects into previous fuels mitigation and ecological restoration projects conducted in the watershed.	Most of the watershed has the potential for very high to extreme fire behavior, an elevated burn probability, and high to very high losses from wildfire according to the PNW QWRA. The area could experience elevated post-fire sedimentation based on the CWPP analysis.	High-priority watershed in WA DNR 20-year Eastern Washington Forest Health Plan. Streams in the watershed are conservation priorities in the 2018 Asotin County Watershed Assessment.

Project ID: 10	Priority: First	Project type: Ecological restoration	
Location: Cougar Creek Fire burned area and surrounding landscape			
Project leads: USFS, WA DNR, WDFW, NRCS			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Restore forest wildfire resilience conditions in unburned areas in and around the 2024 Cougar Creek Fire. Reduce post-fire sedimentation. Mitigate invasive weed colonization. Promote cross-boundary management for ecosystem resilience and recovery.	Thinning and prescribed burning to restore forest resilience in unburned patches. Some areas could experience high benefits from prescribed fire according to the PNW QWRA. Intensive invasive weed management (aerial and hand-application of herbicide, targeted grazing, etc.) and seeding of wildfire resilient species to restore rangeland health, reduce future wildfire risks, and reduce post-fire soil-erosion. Strategically tie projects into previous fuels mitigation and ecological restoration projects conducted in the watershed.	The area was burned by the 2024 Cougar Creek Fire. Unburned areas have a potential for extreme fire behavior. Areas that burned with high severity have an elevated potential for post-fire sedimentation.	Project area encompasses the Wenatchee Grouse Project, which was being planned as a cross-boundary project with the USFS, WDFW, WA DNR, and NRCS prior to the 2024 Cougar Creek Fire.

Project ID: 11	Priority: First	Project type: Road safety/accessibility	
Location: Pomeroy Grouse Road (Forest Service Road 40)			
Project leads: USFS, WA DNR			
Strategic partner: Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Improve the ability to use this road as a potential control line (currently high suppression difficulty index).	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Improve road conditions (e.g., widening the road, road grading, filling potholes, building pullovers).	Portions of the area were burned by the 2024 Cougar Creek Fire. Prior to the fire, portions of the road were potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. The area has an elevated burn probability, could experience high to very high losses from wildfire according to the PNW QWRA, and could experience elevated post-fire sedimentation based on the CWPP analysis.	Pomeroy Grouse Road is a POD boundary.

Project ID: 12	Priority: First	Project type: Road safety/accessibility	
Location: Mallory Ridge, including section of Forest Service Road 4304140			
Project leads: USFS, WA DNR			
Strategic partners: Asotin County DEM, Asotin County Roads Department			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters. Increase accessibility of the narrow 2-track to fire engines to improve the use of this road and ridgeline as a potential control line (currently moderate-low suppression difficulty index).	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Improve road conditions (e.g., widening the road, road grading, filling potholes, building pullovers).	Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. The area could experience elevated post-fire sedimentation based on the CWPP analysis.	Mallory Ridge Road is a POD boundary.

Project ID: 13	Priority: First	Project type: Road safety/accessibility	
Location: Anatone Community - East Mountain Road, West Mountain Road, Smyth Road			
Project leads: WA DNR, ACCD, NRCS, USFS, Asotin County DEM, Asotin County Building and Planning Department			
Strategic partners: Private landowners, local contractors, BMFD1, ACFD1			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of roads as potential control lines (currently low suppression difficulty index). Improve forest health and restore wildfire resilience of areas surrounding Anatone community. Public outreach and education, community wildfire resilience programs.	Strategic forest health and fuel-reduction treatments in the Anatone area including thinning, pruning, slash disposal, hazard tree removal, fuel breaks, and prescribed burning to restore wildfire resilient forest conditions, increase safety for firefighters and evacuees, and reduce the potential for catastrophic wildfire near developed areas. Intensive treatments focused on private and public lands and forests adjacent to primary evacuation routes, infrastructure, and POD boundaries to maximize community safety benefits. Increase funding and capacity to implement integrated management treatments in high-risk areas of WUI, including incentives for: forest health and fuel-reduction treatments, home and infrastructure wildfire risk reduction activities, community wildfire resilience program participation, implementation of targeted/prescribed livestock grazing programs, and aerial and/or hand application of herbicide to reduce annual wildfire fuel loading. Secure funding to increase capacity for public outreach, workshops, and community education for: wildfire hazard mitigation techniques, wildfire prevention, invasive weed management, home ignition zone assessment and mitigation, Fire Adapted Communities programs, Wildfire Ready Neighbors program, Firewise USA® programs, and ecological restoration programs that increase community and ecosystem wildfire resilience. Increased signage for reflective address markers and evacuation routes.	Roads could experience evacuation congestion, and portions of the roads are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. The area has an elevated burn probability and could experience high to very high losses from wildfire according to the PNW QWRA. Anatone has a higher wildfire risk to homes than 96% of communities in the nation (U.S. Forest Service, Wildfire Risk to Communities, 2024).	East Mountain, West Mountain, and Smyth Roads are primary evacuation routes and POD boundaries, and they were a 2008 CWPP priority roadside project area. Work can be strategically tied into previous fuels mitigation and ecological restoration projects conducted in the area. WA DNR 20-year Eastern Washington Forest Health Plan: Eastern WA Priority landscape, and 2021 Asotin County Multi-Hazard Mitigation Plan.

Project ID: 14	Priority: First	Project type: Road safety/accessibility and ecological restoration	
Location: State Route 129 (Rattlesnake Grade area) and Rattlesnake Creek			
Project leads: WSDOT, WSP, WA DNR, ACCD, NRCS			
Strategic partners: Asotin County Road Department, Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Improve the ability to use this road as a potential control line (currently moderate suppression difficulty index). Restore instream habitat and enhance floodplain conditions.	Intensive forest health and fuel-reduction treatments along the Rattlesnake Grade area of State Route 129. Methods include thinning, pruning, slash disposal, hazard tree removal, fuel breaks, and prescribed burning to restore wildfire resilient forest conditions, increase safety for firefighters and evacuees, and reduce the potential for catastrophic wildfire near developed areas. Effective treatment will require cooperation from private, commercial, and state partners who own or manage land adjacent to this primary evacuation route. Maintain and increase cover of riparian forest and streamside vegetation along Rattlesnake Creek to improve water quality, increase sediment retention, increase water storage, and increase the fuel-moisture content. Methods include in-stream habitat restoration projects, riparian planting and enhancement projects, and upland planting projects. Increased wildfire resilience of watershed will reduce potential for post-fire sedimentation.	Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, rapid rates of fire spread, and abundant dead/dying trees lining the road. Portions of area could experience high to very high losses from wildfire according to the PNW QWRA, and the area could experience elevated post-fire sedimentation based on the CWPP analysis.	State Route 129 is a primary evacuation route and POD boundary, and it was a 2008 CWPP priority roadside project area

Project ID: 15	Priority: First	Project type: Road safety/accessibility	
Location: Fields Spring State Park			
Project lead: WSP			
Strategic partner: WA DNR			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of this road as a potential control line (currently moderate-low suppression difficulty index).	Maintenance treatments to reduce roadside wildfire fuels, with special attention to reductions in ladder and surface fuels and removal of hazard trees near road. Methods can include thinning, pruning, mowing, and grazing. Strategically tie projects into previous fuels mitigation projects conducted in the park.	Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread.	The road in Fields Spring State Park is a POD boundary, and it is important for evacuating recreators in the case of a wildfire emergency. Washington Public Lands Access

Project ID: 16	Priority: First	Project type: Road safety/accessibility	
Location: Shumaker Grade Road			
Project leads: BLM, WDFW, WA DNR			
Strategic partners: Private landowners, livestock producers			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Increase accessibility of the road to fire engines to improve the use of this road as a potential control line (currently moderate-low suppression difficulty index).	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Intensive invasive weed management (aerial and hand-application of herbicide) and rangeland seeding of wildfire resilient species to restore rangeland health, reduce future wildfire risks, and reduce post-fire soil-erosion.	The area could experience rapid rates of fire spread and ember cast, and the area could experience elevated post-fire sedimentation based on the CWPP analysis.	Portions of Shumaker Creek and Grande Ronde River are low to moderate priority from the 2021 Lower Grande Ronde Basin Geomorphic Assessment. Shumaker Grade Road is a POD boundary. WDFW Recreation Access: Schumaker Wildlife Area Unit of Chief Joseph Wildlife Area, Schumaker Grade Boat Launch.

Project ID: 17	Priority: First	Project type: Enhanced suppression response	
Location: Mount Wilson			
Project leads: WDFW, Asotin County DEM			
Strategic partners: BLM, BMFD1, WA DNR			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Increase ability of emergency responders and partners to effectively communicate during wildfires and other incidents.	Install a radio repeater with a backup power source. Explore benefits of installing a wildfire detection camera on the tower. Maintain low fuel conditions around the tower and along the access road using mowing, thinning, and limbing.	The area could experience damaging radiant heat, ember cast, and rapid rates of fire spread.	Goal 10.2 of the WA DNR 2019 Washington State Wildland Fire Protection 10-year Strategic Plan is to enhance communication during wildland fires.

Project ID: 18	Priority: Second	Project type: Road safety/accessibility	
Location: U.S. Route 12			
Project leads: WSDOT, ACFD1			
Strategic partners: Asotin County Road Department, Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Maintain the use of road as a potential control line (currently low suppression difficulty index). Reduce potential for ignitions from vehicles.	Reduce roadside wildfire fuels by mowing and intensive invasive weed management (aerial and hand-application of herbicide) and rangeland seeding of wildfire resilient species to restore rangeland health, reduce future wildfire risks, and reduce post-fire soil-erosion. Increase rock apron along road and in pullouts to reduce potential for ignitions from vehicles.	The area could experience rapid rates of fire spread, ember cast, and high to very high losses from wildfire according to the PNW QWRA.	U.S. 12 is a primary evacuation route and POD boundary, and it was a 2008 CWPP priority roadside project area

Project ID: 19	Priority: Second	Project type: Enhanced suppression response	
Location: Various locations across the county			
Project leads: WA DNR, USFS, BMFD1, ACCD			
Strategic partners: Asotin County DEM, private landowners			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Increase water availability and access for suppression efforts.	Assess the need, feasibility and potential for development of alternative water sources to support wildfire suppression in strategic locations with insufficient water availability. Options include enlarging sediment basis, enhancing existing wetlands, installing water-storage infrastructure, establishing dedicated well-sites, or engineering multi-use ponds that can be used for emergency dipping/drafting as well as wildlife habitat.	Additional water sources will be developed in areas with higher risk of high-severity or fast-moving wildfires and where water access is currently limited.	

Project ID: 20	Priority: Second	Project type: Road safety/accessibility and ecological restoration	
Location: Charley Creek Road (private road) and Charley Creek			
Project leads: USFS, WDFW, WA DNR, ACCD			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Increase accessibility of the road to fire engines to improve the use of this road as a potential control line (currently high suppression difficulty index). Restore instream habitat and enhance floodplain conditions.	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Improve road conditions (e.g., widening the road, road grading, filling potholes, building pullovers). Maintain and increase cover of riparian forest and streamside vegetation to improve water quality, increase sediment retention, increase water storage, and increase the fuel-moisture content. Methods include in-stream habitat restoration projects, riparian planting and enhancement projects, and upland planting projects. Increased wildfire resilience of watershed will reduce potential for post-fire sedimentation.	Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, rapid rates of fire spread. Portions of the area could experience high to very high losses from wildfire according to the PNW QWRA, and the area could experience elevated post-fire sedimentation based on the CWPP analysis.	Charley Creek Road falls along two POD boundaries. Charley Creek is a high priority stream from the 2018 Asotin County Watershed Assessment.

Project ID: 21	Priority: Second	Project type: Road safety/accessibility	
Location: South Fork Road and Smoothing Iron Road (including portion of Forest Service Road 44)			
Project leads: USFS, WDFW			
Strategic partner: WA DNR			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of road as a potential control line (currently low to moderate-low suppression difficulty index).	Maintenance treatments to reduce roadside wildfire fuels, with special attention to reductions in ladder and surface fuels and removal of hazard trees near road. Methods can include thinning, pruning, mowing, and grazing. Strategically tie projects into previous fuels mitigation projects conducted along the road.	Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. The area could experience elevated post-fire sedimentation based on the CWPP analysis.	South Fork and Smoothing Iron Roads are secondary evacuation routes and POD boundaries.

Project ID: 22	Priority: Second	Project type: Road safety/accessibility	
Location: Weissenfels Ridge Road			
Project lead: Asotin County Road Department			
Strategic partner: Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Increase accessibility of the road to fire engines to improve the use of this road as a potential control line (currently low suppression difficulty index).	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Improve road conditions (e.g., widening the road, road grading, filling potholes, building pullovers).	Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. Portions of area have high burn probability and could experience high to very high losses from wildfire according to the PNW QWRA, and the area could experience elevated post-fire sedimentation based on the CWPP analysis.	Weissenfels Ridge Road is a secondary evacuation route and POD boundary.

Project ID: 23	Priority: Second	Project type: Road safety/accessibility	
Location: Cougar Creek Road and Hansen Ridge Road			
Project leads: USFS, WDFW			
Strategic partners: WA DNR, private landowners			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters. Increase accessibility of the narrow 2-track to fire engines to improve the use of this road and ridgeline as a potential control line (currently moderate-low SDI). Mitigate impacts of Cougar Creek Fire along road.	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Strategically tie projects into previous fuels mitigation projects conducted along the road. Improve road conditions (e.g., widening the road, road grading, filling potholes, building pullovers).	Portions of the area were burned by the 2024 Cougar Creek Fire and could experience elevated post-fire sedimentation. Prior to the fire, portions of the road were potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread.	Cougar Creek Road and Hansen Ridge Road are a POD boundary.

Project ID: 24	Priority: Second	Project type: Road safety/accessibility and ecological restoration	
Location: Grande Ronde Road and Grande Ronde River			
Project leads: BLM, WDFW, Asotin County Road Department, ACCD			
Strategic partner: Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of this road as a potential control line (currently low to moderate-low suppression difficulty index). Restore and enhance stream and riparian conditions.	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Improve road conditions (e.g., widening the road, road grading, filling potholes, building pullovers). Maintain and increase cover of riparian forest and streamside vegetation to improve water quality, increase sediment retention, increase water storage, and increase the fuel-moisture content. Methods include in-stream habitat restoration projects, riparian planting and enhancement projects, and upland planting projects. Increased wildfire resilience of watershed will reduce potential for post-fire sedimentation.	North-facing, steep slopes with dense vegetation could experience very high to extreme fire behavior. The area could receive elevated post-fire sedimentation originating in the area burned by the 2024 Cougar Creek Fire.	Grande Ronde Road is a POD boundary and primary evacuation route. Portions of Grande Ronde River are moderate to high priority from the 2021 Lower Grande Ronde Basin Geomorphic Assessment, and portions of area are in moderate-priority watershed in WA DNR 20-year Eastern Washington Forest Health Plan.

Project ID: 25	Priority: Second	Project type: Road safety/accessibility and ecological restoration	
Location: State Route 129 and Buford Creek			
Project leads: WDSOT, Oregon DOT, ACCD			
Strategic partners: Asotin County Road Department, Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of this road as a potential control line (currently moderate-low suppression difficulty index). Restore and enhance stream and riparian conditions.	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Maintain and increase cover of riparian forest and streamside vegetation to improve water quality, increase sediment retention, increase water storage, and increase the fuel-moisture content. Methods include in-stream habitat restoration projects, riparian planting and enhancement projects, and upland planting projects. Increased wildfire resilience of watershed will reduce potential for post-fire sedimentation.	Steep slopes with dense vegetation could experience very high to extreme fire behavior and high to very high losses from wildfire according to the PNW QWRA. The area could experience elevated post-fire sedimentation based on the CWPP analysis.	State Route 129 is a POD boundary and primary evacuation route. Portions of Buford Creek are moderate to high priority from the 2021 Lower Grande Ronde Basin Geomorphic Assessment.

Project ID: 26	Priority: Second	Project type: Ecological restoration	
Location: Shumaker Unit of Blue Mountains Wildlife Area			
Project leads: WDFW, ACCD			
Strategic partners: WA DNR, BLM, livestock producers, private landowners			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Mitigate invasive weeds to reduce wildfire risk. Restore native prairie ecosystems, improve wildlife habitat, and improve rangeland conditions.	Intensive invasive weed management (aerial and hand-application of herbicide), targeted grazing, and rangeland seeding of wildfire resilient species to restore rangeland health, reduce future wildfire risks, and reduce post-fire soil-erosion. Assess benefits and feasibility of a pilot program to integrate emerging satellite technology for prescribed/targeted livestock grazing best management practices as a long-term technique for annual wildfire fuel reduction and invasive weed management. Support working lands and rural communities with strategically targeted investments, technical assistance, and conservation incentives.	The area could experience ember cast, rapid rates of fire spread. and elevated post-fire sedimentation based on the CWPP analysis.	Project is aligned with the WDFW 2019 Blue Mountains Wildlife Areas Management Plan.

Project ID: 27	Priority: Third	Project type: Ecological restoration	
Location: Pow Wah Kee and Alpowa Creeks			
Project leads: BLM, ACCD			
Strategic partner: Private landowners			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Restore and increase resiliency of upland sage steppe ecosystems. Improve habitat for fish and improve water quality and quantity and the ability of this area to trap sediment.	Use an "ecosystem approach" to apply integrated management techniques which increase the health and wildfire resilience of the entire watershed. Seek increased funding to implement rangeland restoration programs that include invasive weed management (aerial and hand-application of herbicides), targeted/prescribed grazing programs to support rangeland wildfire fuel reductions, rangeland seeding of wildfire-resilient species, and soil enhancements. Expand riparian restoration, enhancement, and preservation programs to maintain or increase streamside vegetation and riparian cover, improve water quality, increase sediment retention, improve in-stream flow-conditions, and restore critical salmonid habitat. Projects could include in-stream habitat restoration, fish passage improvements, riparian planting and enhancement, and upland vegetation planting.	Abundant invasive weeds in rangelands increase wildfire risk and fire return interval. The area could experience ember cast and rapid rates of fire spread.	Portions of Pow Wah Kee Creek are a low priority and portions of Alpowa Creek are a moderate priority from the 2018 Asotin County Watershed Assessment. Portions of area were a priority project in the 2008 CWPP.

<table>
<tr><td>Project ID: 28</td><td>Priority: Third</td><td colspan="2">Project type: Road safety/accessibility</td></tr>
<tr><td colspan="4">Location: Fitzgerald Road (private road)</td></tr>
<tr><td colspan="4">Project leads: FPDs</td></tr>
<tr><td colspan="4">Strategic partners: Asotin County Road Department, Asotin County DEM, private landowners</td></tr>
<tr><td>Objectives</td><td>Methods</td><td>Wildfire risk</td><td>Strategic alignment</td></tr>
<tr><td>Create safer conditions for firefighters and evacuees. Increase accessibility of the road to fire engines.</td><td>Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road.
Strategically tie projects into previous fuels mitigation projects conducted in the area.
Improve road conditions (e.g., widening the road, road grading, filling potholes, building pullovers).</td><td>Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. Portions of the area have an elevated burn probability and could experience elevated post-fire sedimentation based on the CWPP analysis.</td><td></td></tr>
</table>

<table>
<tr><td>Project ID: 29</td><td>Priority: Third</td><td colspan="2">Project type: Fire risk reduction</td></tr>
<tr><td colspan="4">Location: WDFW Public Gun Range</td></tr>
<tr><td colspan="4">Project lead: WDFW</td></tr>
<tr><td colspan="4">Strategic partners: Recreators at the gun range, FPDs</td></tr>
<tr><td>Objectives</td><td>Methods</td><td>Wildfire risk</td><td>Strategic alignment</td></tr>
<tr><td>Reduce potential for ignitions from recreators at the gun range. Clear vegetation to reduce the likelihood of ignitions and fire spread.</td><td>Clear flammable vegetation annually by thinning, pruning, brush removal, invasive weed control and mowing to reduce potential for accidental ignitions from WDFW Public Gun Range.
Maintain and update educational signs about fire prevention and site-closures due to wildfire risk.</td><td>The area could experience damaging radiant heat, ember cast, rapid rates of fire spread, and elevated post-fire sedimentation based on the CWPP analysis.</td><td></td></tr>
</table>

<table>
<tr><td>Project ID: 30</td><td>Priority: Third</td><td colspan="2">Project type: Road safety/accessibility</td></tr>
<tr><td colspan="4">Location: Cloverland Road</td></tr>
<tr><td colspan="4">Project lead: Asotin County Road Department</td></tr>
<tr><td colspan="4">Strategic partner: Asotin County DEM</td></tr>
<tr><td>Objectives</td><td>Methods</td><td>Wildfire risk</td><td>Strategic alignment</td></tr>
<tr><td>Maintain the use of road as a potential control line (currently low suppression difficulty index). Reduce potential for ignitions from vehicles.</td><td>Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road.
Implement an annual invasive weed management plan to remove or treat hazardous wildfire fuels along roadsides prior to fire season.</td><td>The area could experience ember cast and rapid rates of fire spread. The area has an elevated burn probability and could experience high to very high losses from wildfire according to the PNW QWRA.</td><td>Cloverland Road is a primary evacuation route and POD boundary.</td></tr>
</table>

<table>
<tr><td>Project ID: 31</td><td>Priority: Third</td><td colspan="2">Project type: Road safety/accessibility</td></tr>
<tr><td colspan="4">Location: Cloverland Road (Forest Service Road 43)</td></tr>
<tr><td colspan="4">Project lead: USFS</td></tr>
<tr><td>Objectives</td><td>Methods</td><td>Wildfire risk</td><td>Strategic alignment</td></tr>
<tr><td>Create safer conditions for firefighters and evacuees. Maintain the use of road as a potential control line (currently low suppression difficulty index).
Reduce potential for ignitions from vehicles.</td><td>Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Strategically tie roadside work into defensible space creation and into previous fuels mitigation projects conducted along the road.
Increase rock apron along road and in pullouts to reduce potential for ignitions from vehicles.
Implement an annual invasive weed management plan to remove or treat hazardous wildfire fuels along roadsides prior to fire season.</td><td>Portions of the area were burned by the 2024 Cougar Creek Fire. Prior to the fire, portions of the road were potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. Portions of the area have an elevated burn probability and could experience elevated post-fire sedimentation based on the CWPP analysis.</td><td>Cloverland Road is a primary evacuation route and POD boundary.</td></tr>
</table>

Project ID: 32	**Priority:** Third	**Project type:** Road safety/accessibility	
Location: Cloverland Road (Forest Service Road 43), Wenatchee-Big Butte Road (Forest Service Road 43), and West Mountain Road			
Project lead: USFS			
Strategic partners: Asotin County Road Department, Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of road as a potential control line (currently low suppression difficulty index). Mitigate impacts of the Cougar Creek Fire along the roadway.	Maintenance treatments to reduce roadside wildfire fuels, with special attention to reductions in ladder and surface fuels and removal of hazard trees near road. Methods can include thinning, pruning, mowing, and grazing. Strategically tie projects into previous fuels mitigation projects conducted along the road. Improve road conditions (e.g., widening the road, road grading, filling potholes, building pullovers).	Portions of the area were burned by the 2024 Cougar Creek Fire. Prior to the fire, portions of the road were potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. Portions of the area have an elevated burn probability and could experience elevated post-fire sedimentation based on the CWPP analysis.	Cloverland, Wenatchee-Big Butte, and West Mountain Roads are primary/secondary evacuation routes and POD boundaries.

Project ID: 33	**Priority:** Third	**Project type:** Road safety/accessibility	
Location: State Route 129			
Project lead: WSDOT			
Strategic partners: Asotin County Road Department, Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Maintain the use of this road as a potential control line (currently low suppression difficulty index). Reduce potential for ignitions from vehicles.	Reduce roadside wildfire fuels by mowing and intensive invasive weed management (aerial and hand-application of herbicide) and rangeland seeding of wildfire resilient species to restore rangeland health, reduce future wildfire risks, and reduce post-fire soil-erosion. Increase rock apron along road and in pullouts to reduce potential for ignitions from vehicles.	The area could experience rapid rates of fire spread. The area has an elevated burn probability and could experience high to very high losses from wildfire according to the PNW QWRA.	State Route 129 is a primary evacuation route and POD boundary, and it was a 2008 CWPP priority roadside project area.

Project ID: 34	**Priority:** Third	**Project type:** Road safety/accessibility	
Location: Fields Spring State Park			
Project lead: WSP			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of this road as a potential control line (currently low suppression difficulty index).	Maintenance treatments to reduce roadside wildfire fuels, with special attention to reductions in ladder and surface fuels and removal of hazard trees near road. Methods can include thinning, pruning, mowing, and grazing. Strategically tie projects into previous fuels mitigation projects conducted in the park.	Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. Portions of area could experience high to very high losses from wildfire according to the PNW QWRA, and the area could experience elevated post-fire sedimentation based on the CWPP analysis.	The road in Fields Spring State Park is a POD boundary, and it is important for evacuating recreators in the case of a wildfire emergency.

Project ID: 35	**Priority:** Third	**Project type:** Road safety/accessibility	
Location: Montgomery Ridge Road, Sherry Grade Road, and Couse Creek Road			
Project lead: Asotin County Road Department			
Strategic partners: Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of this road as a potential control line (currently low suppression difficulty index).	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road.	Portions of the road are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. The area could experience elevated post-fire sedimentation based on the CWPP analysis.	Montgomery Ridge, Sherry Grade, and Couse Creek Roads are a POD boundary.

Project ID: 36	Priority: Third	Project type: Road safety/accessibility and ecological restoration	
Location: Joseph Creek Road and Joseph Creek			
Project lead: WDSOT, Oregon DOT, BLM, WDFW, ACCD			
Strategic partners: Asotin County Road Department, Asotin County DEM			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Maintain the use of this road as a potential control line (currently moderate-low suppression difficulty index). Restore and enhance stream and riparian conditions to increase wildfire resilience and protect critical salmonid habitat.	Reduce roadside wildfire fuels by thinning, pruning, mowing, or grazing, and removal of hazard trees near road. Maintain and increase cover of riparian forest and streamside vegetation to improve water quality, increase sediment retention, increase water storage, and increase the fuel-moisture content. Methods include in-stream habitat restoration projects, riparian planting and enhancement projects, and upland planting projects. Increased wildfire resilience of watershed will reduce potential for post-fire sedimentation.	The area could experience ember cast and rapid rates of fire spread. The area could experience elevated post-fire sedimentation based on the CWPP analysis.	Joseph Creek Road is a primary evacuation route and POD boundary, and it was a 2008 CWPP priority roadside project area. Portions of Joseph Creek are low to high priority from the 2021 Lower Grande Ronde Basin Geomorphic Assessment.

Project ID: 37	Priority: First	Project type: Road safety/accessibility and ecological restoration	
Location: Grouse Flats public and private land			
Project lead: WA DNR, ACCD, NRCS, USFS, Asotin County DEM, Asotin County Building and Planning Department			
Strategic partners: Private landowners, local contractors			
Objectives	**Methods**	**Wildfire risk**	**Strategic alignment**
Create safer conditions for firefighters and evacuees. Improve the use of ridgelines as potential control lines (currently moderate suppression difficulty index). Increase the likelihood of homes standing strong against wildfire. Restore ecosystem conditions to increase fire resilience.	Strategic forest health and fuel-reduction treatments in the Grouse Flats area including thinning, pruning, slash disposal, hazard tree removal, fuel breaks, and prescribed burning to restore wildfire resilient forest conditions, increase safety for firefighters and evacuees, and reduce the potential for catastrophic wildfire near developed areas. Intensive treatments focused on private and public lands and forests adjacent to primary evacuation routes, infrastructure, and POD boundaries to maximize community safety benefits. Increase funding and capacity to implement integrated management treatments in high-risk areas of WUI, including incentives for: forest health and fuel-reduction treatments, home and infrastructure wildfire risk reduction activities, community wildfire resilience program participation, implementation of targeted/prescribed livestock grazing programs, and aerial and/or hand application of herbicide to reduce annual wildfire fuel loading. Secure funding to increase capacity for public outreach, workshops, and community education for: wildfire hazard mitigation techniques, wildfire prevention, invasive weed management, home ignition zone assessment and mitigation, Fire Adapted Communities programs, Wildfire Ready Neighbors program, Firewise USA® programs, and ecological restoration programs that increase community and ecosystem wildfire resilience. Increased signage for reflective address markers and evacuation routes.	Roads could experience evacuation congestion, and portions of the roads are potentially non-survivable due to elevated radiant heat, ember cast, and rapid rates of fire spread. The area has an elevated burn probability, could experience high losses from wildfire according to the PNW QWRA, and the area could experience elevated post-fire sedimentation based on the CWPP analysis.	Grouse Creek Road and Grouse Flat Road are primary evacuation routes. Ridgelines in area are POD boundaries. Work can be strategically tied into previous fuels mitigation and ecological restoration projects conducted in the area. Watersheds in the area are a moderate priority in the WA DNR 20-year Eastern Washington Forest Health Plan: Eastern WA Priority landscape. Private land in this area is strategically important for WA DNR fuels treatment grants.

4.d. Watershed Protection for Wildfire-Prone Areas

Relevant CWPP Priority Project IDs: 3, 4, 6, 8, 9, 10, 14, 20, 24, 25, 27, and 36 (see project area map and descriptions in **Section 4.d. Watershed Protection for Wildfire-Prone Areas**)

Water quality, quantity, and availability are not just important for salmonids and other endangered species, but also important for down-stream communities who rely on clean water and/or are in danger of large flood events. Wildfires often create barren hillsides and canyons which may result in extensive soil erosion, flooding, sedimentation, and landslides that affect the entire watershed down-stream. Most of Asotin County streams have their headwaters located in the upland forests, which means that disturbance at the top of a watershed can create havoc for landowners at the bottom of the watershed. The City of Asotin sits at the mouth of Asotin Creek where it meets the Snake River, so strategic restoration of the watershed can reduce risks and potential impacts of flood events to this community.

Proactive planning and activities to mitigate impacts of wildfires and post-fire sediment and debris flows are key components of becoming a fire-adapted community. Climate change makes immediate action even more imperative as the future is likely to include more frequent large, high-intensity wildfires and extreme rainfall events.

Restoration and enhancement of riparian areas in priority watershed locations will enhance riparian complexity, reconnect floodplains identified as "sediment sink" areas, and increase water storage in the ecosystem. The creation and enhancement of riparian vegetation buffers and long-term maintenance of buffers along priority streams will initiate ecosystem resiliency, create cold-water refugia, preserve critical wildlife habitat, and enhance water quality and quantity benefits pre-and-post wildfire events.

The ACCD is already deploying low-tech, process-based restoration (LTPBR) approaches to improve stream health (see the National Forest Foundation LTPBR blog post for an overview of these approaches). Wood structures such as beaver dam analogs (BDAs) and post-assisted log structures (PALS) are potentially low-cost structures that can provide numerous benefits in small tributaries. BDAs and PALS both help store sediment and promote aggradation, which raises the water table, supports nutrient exchange, and promotes aquifer recharge. Increasing moisture retention in riparian areas throughout the summer can reduce the flammability of streamside vegetation and serve as a natura fuel break.

Post-assisted log structures can increase the ability of streams to capture sediment and increase the resilience of riparian areas to wildfire. Photo credit: ACCD.

Asotin County has completed extensive watershed assessments and prioritized stream-restoration projects in areas that are most critical to watershed health. Assessments include the 2018 Asotin County Watershed Assessment, 2021 Lower Grande Ronde Basin Geomorphic Assessment, and post-fire sediment assessment completed for the 2025 CWPP. Several of the CWPP priority projects are directed at stream-restoration to increase ecosystem resilience to wildfire and reduce potential post-fire effects.

Recommended Action

The 2018 Asotin County Watershed Assessment encourages project planners to "Explore alternative restoration strategies and integrate planning and restoration across agencies to increase effectiveness and reduce restoration costs. Alternative strategies could include forest thinning combined with wood additions to nearby streams, grazing strategies to control weeds, reduce fire risk, and stimulate riparian growth, and relocation of beavers to increase floodplain connection and groundwater recharge." The plan recommends the following restoration strategies for priority locations in the County:

- Protect upper reaches and continue implementation of conservation and best management actions in the uplands to reduce sediment delivery to streams. Actions include direct seeding, enrolling land in the conservation reserve program, removing terraces that direct flows off fields, and construction of sediment ponds.
- Reconnect habitats by removing barriers to fish passage and remove or set back levees to reconnect floodplains, side-channels, or flood channels.
- Restore long-term processes such as riparian function, sediment routing, and nutrient cycling. Actions include removing levees and riprap to allow the river to access historic floodplain, and promoting overbank flow by making the channel more complex, and adding structural elements like rock and wood.
- Restore short-term processes by adding large woody debris to increase instream habitat complexity and promote overbank flow.
- Explore alternative restoration strategies and integrate planning and restoration across agencies to increase effectiveness and reduce restoration costs. Alternative strategies could include forest thinning combined with wood additions to nearby streams, grazing strategies to control weeds, reduce fire risk, and stimulate riparian growth, and relocation of beavers to increase floodplain connection and groundwater recharge.

Additional recommendations to prepare for post-fire impacts:

- Conduct fuels treatments in strategic locations to reduce wildfire severity and extent, decrease the likelihood that hydrophobic soils (soil that repels water) form, and reduce the loss of roots, vegetation, and plant litter that hold soil in place (Gannon et al., 2019; Jones et al., 2017a). Reduced fire severity can therefore reduce the potential for flooding and sediment transport in some cases. See **Section 4.c** for priority project locations, methods, and roles/responsibilities.
- Engage with WA DNRs Post-Fire Recovery Program, a program that works at all levels of the disaster recovery cycle. Funding is intended to support post-fire recovery activities that stabilize and prevent unacceptable degradation to natural and cultural resources and minimize threats to life and property resulting from the effects of a wildfire, as well as long-term efforts to increase the resilience of the landscape and communities against future disturbance.
- Continue ongoing collaboration with the Okanogan County Long Term Recovery Group (OCLTRG) to prepare emergency managers to rapidly undertake post-fire emergency response and mitigation measures. Pre-planning can help emergency managers identify points of contact with organizations that need to be involved in post-fire recovery efforts. Pre-planning can also help managers understand tradeoffs of different mitigation approaches (e.g., applying straw mulch, applying seed mixes, and building water barriers) to determine which might be more appropriate in different areas given burn severity, soil texture, topography, values at risk, and available resources. See Robichaud and Ashmun (2013) for a scientific review of the relative effectiveness of different post-fire mitigation measure.
- Work with WSDOT and Asotin County Road Department to improve and maintain culverts, drainage features, and roadways in areas with elevated risk of post-fire sedimentation and debris flows. Proactive measures to improve infrastructure can reduce the potential for severe road damage in the future.
- Inform residents in areas with an elevated risk of post-fire sedimentation about proactive measures they can take to prepare for post-fire effects, including (1) working with insurance agents to determine their need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5)

installing terraces or slope drains that could protect their home but without altering drainage patterns that could worsen conditions for their neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. After the Fire Washington is a useful resource for information on how to prepare for and mitigate post-fire impacts.

A comprehensive list of recommendations from all sections of this document can be found in the **Implementation Plan and the Future of the CWPP** section.

Priority Areas

In addition to the project areas outlined in section **4.c. Priority Project Areas for Asotin County**, the following areas were prioritized in previous assessments for Asotin County (**Figure 4.d.1**).

From the 2018 Asotin County Watershed Assessment:

- Main-stem of Asotin Creek
- North Fork Asotin Creek
- South Fork Asotin Creek
- Charley Creek
- George Creek
- Tenmile Creek
- Couse Creek
- Alpowa Creek
- Pintler Creek

From the 2021 Lower Grande Ronde Basin Geomorphic Assessment:

- Main-stem of the Grande Ronde River
- Cottonwood Creek
- Menatchee Creek
- Schumaker Creek
- West Branch Rattlesnake Creek
- Joseph Creek
- Buford Creek

Additional priorities from the CWPP post-fire assessments (see Appendix B):

- Lick Creek after the 2021 Lick Creek Fire
- Cougar Creek after the 2024 Cougar Creek Fire

Preparing for Post-Fire Impacts

Proactive planning and activities to mitigate impacts of wildfires and post-fire sediment and debris flows are key components of becoming a fire-adapted community. Climate change makes immediate action even more imperative as the future is likely to include more frequent large, high-intensity wildfires and extreme rainfall events. See **Appendix B** for results of the CWPP post-fire sediment delivery analysis.

2021 Silcott Fire: Flooding observed on June 3, 2022, in areas impacted by the 2021 Silcott Fire. A severe rain and hailstorm accelerated runoff in the burned region, leading to significant water flow across the landscape and inundation of local infrastructure.

2021 Lick Creek Fire: Dust storms captured following the Lick Creek Fire. The protective top layer of soil is burned during a wildfire, leaving large areas susceptible to wind erosion. Dust picked up by the wind can impact ecosystems and air quality for extended periods and across large distances outside of the burn area.

2021 Silcott Fire: Eroded ground captured on June 7, 2022, following intense flooding in the aftermath of the Silcott Fire burn area. The exposed soil and lack of vegetation contributed to accelerated erosion, reshaping the terrain and affecting water quality due to sediment dispersion.

Recommendations include:

- Fuels treatments in strategic locations can reduce wildfire severity and extent, decrease the likelihood that hydrophobic soils (soil that repels water) form, and reduce the loss of roots, vegetation, and plant litter that hold soil in place (Gannon et al., 2019; Jones et al., 2017a). Reduced fire severity can therefore reduce the potential for flooding and sediment transport in some cases. The analysis of post-fire sediment delivery presented in **Appendix B** was used to inform fuel treatment prioritization (see **Section 4.c**).
- Engagement with WA DNRs Post-Fire Recovery Program, a program that works at all levels of the disaster recovery cycle. Funding is intended to support post-fire recovery activities that stabilize and prevent unacceptable degradation to natural and cultural resources and minimize threats to life and property resulting from the effects of a wildfire, as well as long-term efforts to increase the resilience of the landscape and communities against future disturbance.
- Ongoing collaboration with the Okanogan County Long Term Recovery Group (OCLTRG) to prepare emergency managers to rapidly undertake post-fire emergency response and mitigation measures. Pre-planning can help emergency managers identify points of contact with organizations that need to be

involved in post-fire recovery efforts. Pre-planning can also help managers understand tradeoffs of different mitigation approaches (e.g., applying straw mulch, applying seed mixes, and building water barriers) to determine which might be more appropriate in different areas given burn severity, soil texture, topography, values at risk, and available resources. See Robichaud and Ashmun (2013) for a scientific review of the relative effectiveness of different post-fire mitigation measure.

- Undertake low-tech, process-based restoration (LTPBR) to improve stream health. Rivers and stream channels that can dissipate flood waters and store sediment have high floodplain connectivity, contain features that can slow the velocity of water and sediment (e.g., boulders, beaver dams, and large pieces of wood), and are lined with abundant riparian vegetation. Building artificial beaver dams, building rock erosion control structures (also known as Zeedyk structures), and encouraging beaver activity in strategic locations can decrease the velocity of downstream flows and trap sediment. See this blog post from the National Forest Foundation for more information on LTPBR.
- Conserve and restore stream-side vegetation, like willows and cottonwoods, to reduce soil erosion, moderate floods, and potentially slow down the spread of wildfire due to elevated fuel moisture.
- Work with WSDOT and Asotin County Road Department to improve and maintain culverts, drainage features, and roadways in areas with elevated risk of post-fire sedimentation and debris flows. Proactive measures to improve infrastructure can reduce the potential for severe road damage in the future.
- Residents in areas with an elevated risk of post-fire sedimentation are encouraged to take proactive measures to prepare for post-fire effects, including (1) working with your insurance agent to determine your need for flood insurance in your homeowner's policy, (2) elevating and anchoring electrical panels, propane tanks, wiring, appliance, and heating systems, (3) securing important documents in waterproof deposit boxes, (4) ensuring sump pumps are working and have battery-operated backup power sources, (5) installing terraces or slope drains that could protect your home but without altering drainage patterns that could worsen conditions for your neighbors, and (6) consulting a forester to discuss pre-fire fuel mitigation options to reduce fire severity and reduce the potential for damaging post-fire sediment delivery and debris flows. Visit After the Fire Washington for more information on how to prepare for and mitigate post-fire impacts.

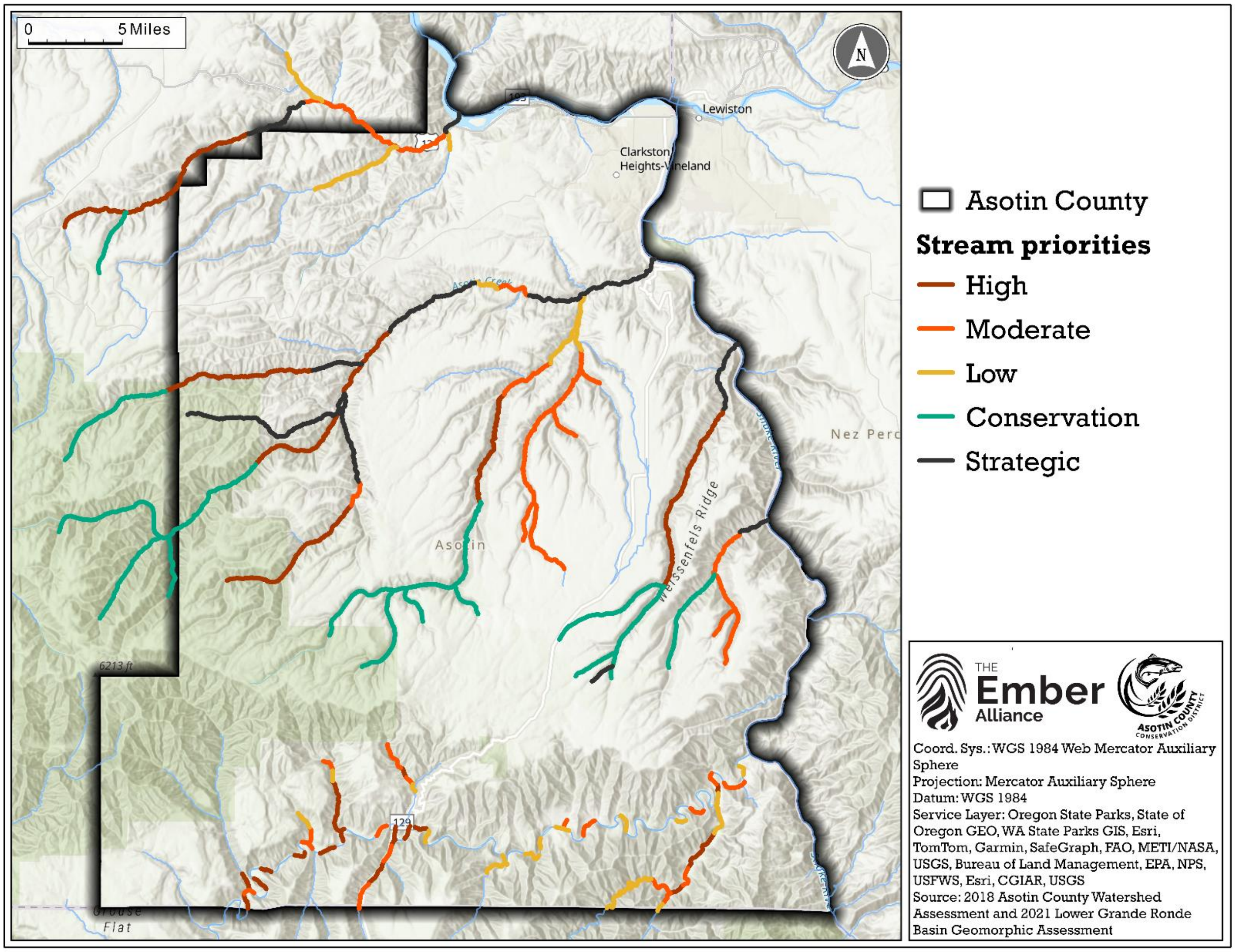


Figure 4.d.1. Priority project locations from the 2018 Asotin County Watershed Assessment and 2021 Lower Grande Ronde Basin Geomorphic Assessment.

4.e. Logistics of Fuel Treatments

Roles and Responsibilities

Landowners are responsible for fuel mitigation on their own lands, including along their private driveways. Residents must initiate and follow through on this work, but that does not mean they must do it alone. For assistance in planning and implementing fuel treatments, contact ACCD or WA DNR.

The responsibility for conducting roadside fuel treatments depends on the location of the road. The USFS, WA DNR, WSDOT, and WDFW are responsible for maintaining roads on their properties. Landowners are responsible for treatments along their private driveways. Treatments along country roads need to be coordinated with Asotin County Road Department. Cooperation from private property owners is necessary for effective roadside fuel treatments; roadside easements are rarely wide enough to satisfy the recommended minimum of 150 feet treatment depth on each side of roads. Tree cutting with a chainsaw and other forestry equipment should be done by experienced and certified individuals. Washington State University provides a list of local forest agriculture contractors on their website.

Numerous organizations are taking responsibility to manage the land they administer and mitigate wildfire risk (**Figure 2.g.1**). ACCD has engaged in stream restoration to create riparian areas more resilient to post-fire sedimentation and promote riparian vegetation that can serve as a natural fuel break. WA DNR and USFS conduct prescribed burns and thinning projects to promote ecological restoration and mitigation wildfire risk. WSP has removed trees along roads and around infrastructure on Fields Spring State Park. Clearwater Power Company developed a wildfire mitigation plan in 2022, and Avista also engages in projects to protect utility infrastructure and reduce the potential for ignitions.

Treatment Costs

The cost of fuel treatment depends on management objectives, treatment specifications, slope, accessibility, and treatment method (e.g., mechanical thinning, hand thinning, or prescribed burning). Follow-up treatments are generally less expensive than the initial entry and help maintain the efficacy of the original treatment investment.

Since fuel treatments are expensive, it is important to conduct strategic, well-designed, landscape-scale treatments to increase the likelihood that fuel treatments modify fire behavior, save lives, and restore ecosystems. Fuel treatments can reduce property damages by making wildfires less damaging and easier to control; this is especially true for prescribed burning, which is often cheaper and more effective at altering forest fuel loads than mechanical thinning alone (Fulé et al., 2012; Loomis et al., 2019; Prichard et al., 2020). Proactive management of forests can also reduce the cost of rehabilitating watersheds when wildfires are followed by large rainstorms and result in massive erosion (Jones et al., 2017b). Fuel treatments can also reduce suppression costs due to the increased efficiency of firefighting (Loomis et al., 2019).

Longevity of Fuel Treatment Benefits

Benefits of fuel treatments are not permanent and decrease overtime, with treatment "lifespan" depending on forest type, topography, rates of seedling regeneration (which is often influenced by precipitation), and the number of trees removed during treatments. Many forests require more than one phase of treatment to reduce fuels and restore ecosystem structure. Some areas might require mechanical tree removal followed by prescribed burning, and then a maintenance treatment with tree removal and/or prescribed burning 10 to 20 years later. With a single pulse of tree regeneration, the risk of torching returns to near pre-treatment levels within 10 to 35 years in ponderosa pine forests (Tinkham et al., 2016).

Approaches to Slash Management

Forest management operations often initially increase surface fuel loads by leaving slash in the project area, which can fail to achieve fire mitigation objectives if fuels created by the harvest activities (also known as slash) are not addressed (Agee and Skinner, 2005). Slash can include small trees, limbs, bark, and treetops. Slash management is a critical step in the forest management process. It is unwise, ineffective, and even dangerous to conduct poor-quality fuel treatments that fail to reduce canopy fuels, result in increased surface fuel loads, and do not receive maintenance treatments. Such treatments can lead to a false sense of security among residents and fire suppression personnel (Dennis, 2005), and they divert limited funds away from more effective, strategic projects.

Leaving untreated slash within roadside fuel treatments is particularly counterproductive. The risk of active crown fire might be lower after a thinning operation, but untreated slash in fuel treatments can burn at high intensities and endanger the lives of residents stuck on roadways during a wildfire. Slash is easier and cheaper to manage along roadways due to access, and roads can serve as highly effective holding features for controlled burning of grass in the spring and fall, and pile burning in the winter.

Methods for managing slash come with different benefits and challenges (**Table 4.e.1.** Many methods are available to remove slash created by forest thinning, each with their own benefits and challenges.). For example, lop-and-scatter and mastication do not remove surface fuels from the site, they only rearrange them. It can take a decade or more for slash to decompose to a point where it no longer poses a significant fire hazard. Broadcast prescribed burning is most effective at removing surface fuels, but requires extensive planning and expertise to conduct properly, and may not be appropriate until slash is removed or piled and burned.

Slash removal in this part of Washington is quite difficult due to limited biomass and timber industries. Recommendations to improve slash management options for Asotin County are provided in **Section 3.c** of this CWPP.

Asotin County and partners should work together to develop a slash management strategy for the area. This can and should include a combination of the following slash management techniques.

Broadcast Prescribed Burning

Broadcast prescribed burning is often the most effective method to reduce surface, ladder, and canopy fuel loads. Broadcast burning can be safely and successfully conducted with proper planning and implementation by qualified firefighters. Broadcast burning is carefully regulated by WA DNR through the Burn Portal as well as the Prescribed Fire Program and Certified Burner Program. Firefighters who plan and conduct prescribed burns are highly qualified under national standards set forth by the National Wildfire Coordinating Group.

Challenges with broadcast burning can include public concerns about risk from flames, embers, and smoke. There are often limited opportunities to conduct burns under appropriate fire weather conditions, and firefighters are often on wildfire assignments and unavailable to conduct burns.

Pile Burning

Pile burning can be the best and sometimes only option for slash removal in steep, inaccessible areas, and incomplete slash management can leave an area just as at risk as an unmitigated area. Pile burning is different from broadcast burning; the overall complexity of pile burn operations is lower because fire activity is limited to discrete piles, and piles can be burned when snow covers the ground.

Pile burning can be a safe and effective method to consume slash created by thinning operations Photo credit: The Ember Alliance.

Burning piles can produce embers, but the risk of these embers igniting spot fires or structures is low. Piles are typically burned on days with snowpack, high fuel moistures, and low to moderate wind speeds. Embers from burn piles travel shorter distances than embers from passive and active crown fires because the burning material is closer to the ground (Evans and Wright, 2017).

Challenges with pile burning can include public concerns about risk from flames, embers, and smoke. There are often limited opportunities to conduct pile burns because of requirements for snowpack and atmospheric ventilation. Intense heat from pile burning can sterilize soils and result in slow recovery of plants. Mitigation measures, such as raking the burnt soil and seeding with native plants, are sometimes warranted after pile burning if the soil was completely sterilized by extreme heat or if invasive species are prevalent in the area (Miller, 2015).

It is critical to properly construct piles either by hand or with machines and to burn them as soon as conditions allow (see regulations from the WA DNR through the Certified Burner Program). Unburnt slash piles can become a hazard during wildfires, especially if loose logs catch fire and roll down slopes. Burning older piles is less effective and does not consume as much material because piles become compact and lose fine fuels over time (Wright et al., 2019).as much material because piles become compact and lose fine fuels over time (Wright et al., 2019).

Air Curtain Burners and Biochar

Air curtain burners are machines that burn woody material cleanly in contained space. They typically consist of a box or trench into which slash is loaded and ignited. A strong fan blows a curtain of air down and over the burning material in a way that keeps oxygen flowing through the fire and keeps smoke from escaping from the top. Carbon from the smoke is filtered out of the air and kept inside the box.

Air curtain burners can efficiently and safely consume fuels with less emissions than pile burning. Photo: The Ember Alliance.

Air curtain burners can be an acceptable form of slash removal where there is no social license for pile or broadcast burning. They produce significantly less smoke than open burns and can be placed in accessible locations in the WUI.

Air curtain burners can be used under a much wider range of conditions and locations than pile burning or broadcast burning. Air curtain burners can burn more kinds of slash than pile burning, including green wood, lumber, and general yard waste. Burning material is contained and can be extinguished with relative ease.

Challenges with air curtain burners include their substantial upfront cost, the need for professional operators, and permitting. They also come with effort to haul slash from treatment areas to the site of the air curtain burner. Nutrients are permanently removed from the treatment site, but they can be returned to the ground in the location of the burner if ash is removed and spread out.

Biochar is an emerging technology that builds off the air-curtain burner method. It uses the same process of "pyrolysis" to incinerate excessive slash and woody debris generated by forest activities, but actually uses the charcoal generated. A large Biochar kiln can process tons of woody debris daily and produce very little smoke emissions due to the intensity of the burn inside the kiln and the rapid sequestration of carbon. Depending on the conversion method, charcoal retains about 50 to 80 percent of the carbon from the raw biomass (Becker, 2021).

The fine charcoal produced is known as “biochar” and is highly regarded as a soil amendment in agriculture or gardening.

When applied in the right places, at the right times, and in the right amounts, Biochar produced by slash processing could be used as part of integrated management on surrounding lands. Recent research on Biochar as soil supplements show an increase in soil health and carbon sequestration, enhanced agricultural viability and increased crop yields, improved rangeland productivity, and increase the moisture content of soils (Aller et al., 2023; Becker, 2021).

Biochar kilns can be manufactured or purchased in small sizes for personal use or small-scale projects and have been used with success in Asotin County. For landscape-scale treatments of slash and woody debris, the logistics of biochar production become more challenging. Many large-scale biochar units are highly effective, but stationary, and require additional transport of slash materials to the stationary site. Recent technological developments commissioned by the United States Forest Service include a new mobile “Char-Boss” biochar unit. The CharBoss is a self-contained, completely assembled above-ground air curtain burner with a refractory lined burn container and internal system to create biochar from the waste materials and can be trailered into areas of fuel reductions to process the slash on-site. biochar production is currently regulated by the Washington Department of Ecology Air Quality Division.

Asotin County does not currently have access to biochar infrastructure but would benefit from a shared mobile unit which could be operated by multiple agencies or wildfire resilience partners to achieve landscape-level fuel reductions and support soil enhancements and agricultural viability of surrounding lands.

Biochar units can help mitigate wildland fuels and produce biochar that can improve soil health. Photo credit: U.S. Biochar Initiative.

Community Slash Piles

Community slash piles allow residents to immediately reduce fuel loads on their property, and they eliminate the need for residents to burn or chip their own material. However, it can be challenging for residents to haul material from their properties to the slash pile. Establishing a community slash pile and providing a program that will pick up the slash material and bring it to the slash disposal site can also reduce barriers for residents to complete mitigation work thoroughly.

The success of community slash piles is dependent on consistent management of the pile. If large slash piles are left in the community, they can pose a fire risk. Community slash piles also come with a cost for management and maintenance, but the cost is spread across all residents and therefore lower than if individual residents were to create and burn their own slash piles.

Lop-and-Scatter

Lopping involves cutting limbs, branches, treetops, smaller-diameter trees, or other woody plant residue into shorter lengths. Scattering involves spreading slash, so it lies evenly and close to the ground. The lop-and-scatter approach reduces the height of slash relative to untreated slash, therefore increasing the distance between surface and canopy fuels (but not as effectively as broadcast prescribed burning or pile burning).

Lop-and-scatter can contribute to more intense fire behavior by not addressing increased surface fuel loads created by thinning (Agee and Skinner, 2005; Hunter et al., 2007). **Lop-and-scatter should not be utilized in the immediate, intermediate, and extended zones or along roadways** because this method does not remove surface fuels from the site, it just rearranges them. Lop-and-scatter is better suited to areas with low slash accumulations and for stand-scale fuel treatment areas far away from homes.

Mastication or Chipping

Mastication involves using machines like a tow-behind chipper or a hydro-ax to grind up standing saplings and shrubs and cut slash into medium-sized chips. Chipping involves processing slash through a mechanical chipper to break material into small chips. Mastication and chipping reduce fire intensity and rates of spread by increasing the distance between surface and canopy fuels and suppressing the regrowth of grasses (Kreye et al., 2014).

However, unless material is hauled away after treatment, fuels are just rearranged, not reduced. Smoldering fires in masticated and chipped fuels can be difficult to suppress, produce abundant smoke, kill tree roots, and lead to spot fires if high winds reignite masticated fuels and blow them across containment lines (Kreye et al., 2014). Additionally, fuels left behind in mastication and chipping treatments are deeper and more compact than natural fuels (Kreye et al., 2014). Thus, they can impede plant regeneration, particularly when the depth of masticated and chipped fuels exceeds 4 inches (Jain et al., 2018).

Neighborhood chipping programs are cost-effective ways for communities to gain access to chippers without individuals paying for the unit and service each time they need it. Many communities create chipping programs where a chipper can be brought to anyone's property and chip the material there for them to spread across their land again. Asotin County and partner organizations should explore hosting chipping events and programs for residents as cost-effective slash management option and expand them as the need arises. **Programs like this can be funded through WA DNR Community Resilience.**

Hauling Material Offsite

Cut trees can be loaded on trucks and removed completely from the site, thereby immediately reducing fuel loads on the site. The destinations of removed trees are mills to be turned into boards or firewood, yard waste disposal sites to be composted and turned into garden soil or mulch, or the landfill (a free wood waste disposal program is available at the Asotin County Regional Landfil).

Hauling material offsite can be expensive and labor intensive. There is a limited biomass and timber industry in Asotin, so material often costs more to transport than it is worth. Needles, bark, and small branches are often left behind, which means surface fuel loads can be greater after treatment than before. Hauling material outside the community can also spread non-native insects.

Utilizing Material for Firewood

Wood leftover from thinning operations can be used as firewood. Firewood needs to be "seasoned" before use, which involves splitting the wood into usable logs and drying it for 6-18 months. Homeowners can often manage preparing firewood themselves, so it can be an alternative way to manage some material from mitigation work. Utilizing material for firewood can relocate surface fuels from one site to another, but it increases fuel loads near a home until burned. **Firewood must be stored at least 30 feet away from structures and on flat ground; otherwise, it can create hazardous conditions during a wildfire.**

If firewood is used locally, it reduces the chances of introducing non-native insects and diseases to the ecosystem that cause outbreaks and damage forest health. Transporting firewood outside the community is not recommended if there are insects like mountain pine beetles and emerald ash borer in the area.

Table 4.e.1. Many methods are available to remove slash created by forest thinning, each with their own benefits and challenges.

Method	Removes surface fuel from site	Restores ecosystem functions	Retains nutrients on the site	Expertise required to conduct	Effort to conduct	Relative cost/acre	Total time to plan and conduct
Broadcast prescribed burning	✓	✓	✓	Very high	Very high	$$$	Months to years
Pile burning on site	✓		✓	Moderate	Moderate to high	$$	Weeks to months
Community slash pile	✓			Low to moderate	Moderate	$$	Ongoing
Lop-and-scatter			✓	Low to moderate	Moderate	$ - $$	Weeks to months
Mastication or chipping	(✓)		✓	High	Moderate to high	$$$	Weeks to months
Hauling material away	✓			Low to moderate	High	$$ - $$$	Weeks to months
Utilizing material for firewood	(✓)			Low	Low to moderate	$	Days to weeks

Note: Mastication and chipping only remove surface fuel from the site if material is hauled away after treatment. Utilizing material for firewood can relocate surface fuels from one site to another but increase fuel loads near a home until burned.

5. Implementation Plan and the Future of the CWPP

Below are strategic actions for residents, FPDs, the CWPP Core Team, and other community groups, public land managers, county, state, and federal agencies, and non-profit conservation groups to accomplish immediately or in the mid- or long-term (see definitions below). Some activities have low financial cost but require a fundamental shift in attitudes and behavior to prioritize wildfire risk mitigation. Other actions are more substantial and require commitment and collaboration across the community to pool resources, apply for grants, and make incremental steps toward meaningful change. Many of these recommendations are aspirational and will require expanded capacity and funding, as well as patience and hard work from community members and leaders to make lasting changes.

Priority for these recommendations was determined collaboratively and reflects relative priority at the time this CWPP was written. This prioritization does not encourage recommendations to be conducted in any specific order nor does it discourage action that is not explicitly covered in this CWPP. Land managers, county administrators, and residents should reevaluate fire risks and reprioritize recommendations as conditions change over time.

5.a. Implementation Phases

Immediate action	• Partners should start working on this project within 2025. • Has the highest potential for immediate return-on-investment. • Can be funded within the current capacity of Core Team member organizations and partner organizations with some supplemental funding from grants available in the next 12-18 months. • Can occur with little to no expansion of the current Core Team member organization staff and partner organizations. • Can capitalize on current relationships with emergency response partners, land management agencies, and non-profit organizations.
Short-term action	• Partners should start working on this project by 2027. • Requires moderate expansion of financial and implementation capacity of Core Team member organizations and partner organizations. • Requires new cooperative relationships with emergency response partners, land management agencies, and non-profit organizations. • Requires greater level of coordination among partners. • Requires greater level of community discussion and decision making.
Mid-term action	• Partners should start working on this project by 2029. • Requires multi-year planning and funding. • Requires extensive grant funding. • Requires substantial expansion of financial and implementation capacity of Core Team member organizations and partner organizations. • Requires substantial coordination among partners. • Requires substantial community discussion and decision making.

5.b. Implementation Recommendations

Recommendation	Goals	Responsibility	Implementation Phase	Priority
Fire Adapted Communities				
Form a CWPP Implementation Committee	Coordinate collaborative action to accomplish CWPP projects and recommendations. Keep action items relevant to the organizations involved, help problem-solve when roadblocks arise, and prepare for the update in ~5 years.	CWPP Core Team	Immediate action	First
Home Hardening	See **Section 3.a**	Residents	Immediate action	First
Mitigate the immediate zone	See **Section 3.a**	Residents	Immediate action	First
Mitigate the intermediate zone	See **Section 3.a**	Residents	Immediate action	First
Engage in annual maintenance of your HIZ	See **Section 3.a**	Residents	Immediate action	First
Continue and expand capacity of local experts to provide free HIZ and wildfire risk assessments	Secure and increase capacity for continuing services of free assessments for residents and businesses.	Asotin County DEM, WA DNR, ACCD	Immediate action	First
Expand capacity of financial assistance programs for defensible space	Enable and expand capacity of financial assistance programs to complete home defensible space treatments, community defensible space treatments, and maintenance of defensible space treatments.	Asotin County DEM, WA DNR, ACCD, ACFD1	Immediate action	First
Identify Slash Solutions	Investigate establishing a community slash pile, slash or yard waste collection services, and a bio-char strategy.	ACFD1, Asotin County DEM, Asotin County Public Works, ACCD	Immediate action	First
Sign up for emergency notification through Hyper-Reach	Consider signing up for notifications from neighboring counties if you live near the border of Asotin County.	Residents	Immediate action	First
Engage in evacuation pre-Planning	Develop pre-determined evacuation zones, trigger points, and plans for post-evacuation sheltering.	Asotin County DEM	Immediate action	First

Develop a family evacuation plan and go-bags	Plans should include considerations of pets and livestock if applicable. Cooperate with neighbors to develop plans for evacuating children who may be home alone or residents with mobility impairments or other special needs.	Residents	Immediate action	First
Utilize technology for evacuation preparedness	Improve evacuation preparedness through technology (e.g., Ladris modeling software, portable Starlink Wi-Fi units for incident command posts, etc.).	Asotin County DEM	Immediate action	First
Engage social service organizations to target low income or underserved populations	Ensure CWPP equitably engages socially vulnerable populations pre-, during, and post-fire.	CWPP Core Team	Immediate action	First
Develop strategy and educational campaign around power and utilities	Encourage and support utility companies to continue defensible space management. Create and maintain defensible space plans for critical infrastructure. Encourage implementation of hazardous fuels reduction projects around critical infrastructure sites. Spread awareness about utility limitations, red-flag power outage policy, and preparedness for rolling blackouts.	Asotin County Planning Department, local utility companies (Avista, Clearwater Power, local contractors, etc.)	Immediate action	First
Develop educational campaign around fire restrictions	Spread awareness through informational materials regarding fire restrictions, burn-bans, and burn permits. Provide education regarding potential ignition sources (lawn mowers, chainsaws, trailer-chains, etc.) and increase public awareness during outreach events.	County Commissioners, Asotin County DEM, WA DNR	Immediate action	First
Incorporate the 2025 CWPP Update into the Asotin County Multi Hazard Mitigation Plan	Update the Asotin County Multi Hazard Mitigation Plan to incorporate the goals and projects outlined in this plan.	Asotin County DEM	Immediate action	First
Update policy for International Building Codes	Bring International Building Codes and International Fire Codes up to date to address substandard construction practices and access issues outside the incorporated city limits.	County Commissioners	Immediate action	First
Hire a full-time Fire Marshall	Hire full-time Asotin County Fire Marshall to assist the County in enforcing existing fire codes and lead development of projects and priorities resulting from this CWPP process.	County Commissioners	Immediate action	First

Expand firework policy	Increase firework ban-areas as needed, designate and/or support safe “firework areas” within protected communities, limit firework utilization to specific times, and restrict the use of aerial fireworks to "safe zones".	County Commissioners, Asotin County DEM	Immediate action	First
Continue and expand youth and adult wildfire educational programs	Expand education to include wildfire science, wildfire prevention, and wildfire mitigation techniques. Include safety and evacuation requirements during wildfire suppression. Use existing educational program materials and staffing to continue educational programs for youth and develop an outreach strategy to increase high-school and adult education opportunities.	WA DNR, state and private forestry offices, BLM, USFS, local school districts, ACCD, local utility companies, local NGOs, Asotin County FPDs and FDs, Cities of Clarkston and Asotin	Immediate action	First
Identify and inventory limiting roads, travel surfaces, bridges, and infrastructure for first responder access and evacuations	Prioritize critical restricting roads (weight restrictions, travel surfaces, bridges, cattle guards, etc.) which may restrict first responder ingress and egress or community evacuations.	Asotin County DEM, Asotin County Public Works, ACFD1, BMFD1, City of Asotin FD, City of Clarkston FD, WSDOT	Immediate action	First
Launch the WDNR Wildfire Ready Neighbors program in Asotin County	Make the WDNR Wildfire Ready Neighbors program fully available in Asotin County.	WA DNR	Short-term action	First
Participate in WA DNR's Wildfire Ready Neighbors program	Asotin County residents can take advantage of certain offerings in this program online like getting personalized wildfire ready plan.	Residents	Short-term action	First
Mitigate the extended zone	See **Section 3.a**	Residents	Short-term action	First
Create linked defensible space	Collaborate with neighbors with overlapping HIZ to create safer conditions and better tactical opportunities for wildland firefighters.	Residents	Short-term action	First
Collaborate with neighbors to become a Firewise USA site	Work within your neighborhood to meet a voluntary set of requirements that can help get you funding for mitigation action.	Residents	Short-term action	Second

Form a local mitigation group	Start a mitigation group in your zone to help educate your community about the benefits of defensible space and home hardening. Work with organizations to host a mitigation event in your neighborhood. Seek guidance from ACCD or WA DNR Community Resilience.	Residents	Short-term action	Second
Promote natural resources conservation through public information campaigns	Create and implement a public information campaign to include short-videos and publications promoting natural resources conservation as it aligns with ecosystem and community wildfire resilience.	ACCD, WA DNR, Asotin County Noxious Weed Board	Short-term action	Second
Update County building codes	Require more HIZ mitigation / home hardening for new homes and remodels. Require future development of utilities to have underground powerlines, or other protected power sources.	Asotin County Building and Planning Department, Asotin County DEM	Short-term action	Second
Post updated evacuation signage around the County	Increase evacuation preparedness with signs along the primary and secondary evacuation routes.	Asotin County DEM, Asotin County Roads Department, WSDOT	Short-term action	Second
Develop guidelines or regulations for new and existing residents within the WUI	Adopt local guidelines or regulations regarding the development of new rural subdivisions within the WUI and encourage Firewise programs, HIZ assessments, and education for homeowners and contractors.	Asotin County Building Department	Short-term action	Second
Provide animal and livestock evacuation Info	Provide education on where residents can get information on animal evacuations.	Asotin County DEM, ACFD1, CWPP Outreach Team	Mid-term action	First
Complete fuel reduction projects and landscape treatments in Clarkston Heights, City of Asotin, and portions of Clarkston Rural, Peola Prairie, and Asotin Rural Zones (Project ID:1)	See **Section 4.c**	ACCD, Asotin County Noxious Weed Board, NRCS, WA DNR	Mid-term action	First
Complete mitigation work and improvements related to communication towers / repeaters and access roads across the county (Project ID: 2)	See **Section 4.c**	Depends on tower licensees (See Section 4.c)	Mid-term action	First

Conduct public outreach and education on alternative landscape recommendations for wildfire adapted communities	Encourage and educate residents on fire-resistant plants and landscaping to reduce wildfire hazards in the HIZ.	ACCD, NRCS, Washington State University Master Gardeners	Mid-term action	Second
Develop a plan for vegetation in open pastures in the WUI	Adopt guidelines or ordinances for management of vegetation in open lots or pastures within the WUI. Develop a plan for enforcement of fuels management and required maintenance for firebreaks and vegetation management projects.	County Commissioners	Mid-term action	Second
Conduct HIZ Tours	Organize community-wide home hardening and defensible space tours to demonstrate effective mitigation practices.	Residents, WA DNR, ACCD	Mid-term action	Third
Safe & Effective Fire Response				
Establish annual "Asotin County Wildfire Practitioners" meeting	Engage and encourage local fire districts and departments, land management agencies, emergency management agencies and organizations, and natural resource managers to support continued collaboration between agencies.	CWPP Implementation Team	Immediate action	First
Install visible, reflective address and street signs	Install visible, reflective address and street signs. Address signs can be obtained from the Asotin County Building Department.	Residents	Immediate action	First
Establish county-wide policy for reflective signage	Increase signage on homes, roads, and fire-access lanes.	Residents, Asotin County Building Department, Asotin County DEM	Immediate action	First
Make personal water resources accessible for firefighters	See **Section 3.a**	Residents	Immediate action	First
Develop a communication interoperability plan	Improve communication between firefighting agencies/organizations and landowners.	Asotin County DEM	Immediate action	First
Install additional fire detection cameras in strategic locations to enable faster response in remote areas	Reduce the time between a fire start and initial attack by first responders through a remote camera installed in strategic areas.	WA DNR, Asotin County DEM	Immediate action	First

Regular inventory of safety equipment and personal protective equipment for all fire districts	Ensure equipment is tracked and replaced as needed.	WA DNR, ACFD1, BMFD1, City of Asotin FD, City of Clarkston FD	Immediate action	First
Maintain and improve reverse 911 system	Continue working with Washington State to maintain and enhance the reverse 911 system.	Asotin County DEM	Immediate action	First
Install weather stations across the County	Increase the number and distribution of weather stations throughout Asotin County to provide residents and first responders with accurate real-time weather conditions and associated hazards.	ACCD, NRCS, Farm Services Agency	Immediate action	First
Expand programs providing financial assistance, grants, and technical assistance to landowners for wildfire resiliency	Increase funding and capacity to incentivize participation in fuel reduction, fuel breaks, forest health, rangeland health, noxious weed control, and conservation planning at a community level, and reduce financial barriers to treatments that increase community wildfire resilience.	ACCD, WA DNR, NRCS, Farm Services Agency, USFS	Immediate action	First
Maintain and enhance state and federal firefighting programs and resources in the County	Support the Asotin County Emergency Manager position.	Asotin County DEM	Immediate action	Second
Support your local Fire Departments and Fire Protection Districts	Attend events, volunteer, and donate to support the critical services provided for structure and wildland fire.	Residents	Short-term action	First
Increase fire protection in unprotected areas of the County	Support local efforts to expand and create fire protection services in currently unprotected areas.	County Commissioners, Asotin County DEM, residents	Short-term action	First
Expand volunteer firefighting programs	Recruit and retain volunteer firefighters, increase awareness of benefits of fire protection districts and fire departments, make training more available.	ACFD1, BMFD1, City of Asotin FD, City of Clarkston FD	Short-term action	First
Improve driveway access for firefighters	See **Section 3.a**	Residents	Short-term action	First
Improve gate access for firefighters	Ensure all locked gates can be opened by emergency personnel when necessary.	Residents, FPDs	Short-term action	First
Post signs for any limitations to firefighter access	Post the load limit at any private bridges or culverts private property.	Residents	Short-term action	First

Identify and inventory first-responder access easements, access right of way, and emergency access lanes in Clarkston, Asotin, and Anatone		Asotin County Public Works, WSDOT, ACFD1, BMFD1, City of Asotin FD, City of Clarkston FD	Short-term action	First
Open additional ACFD1 substation	Expand capacity with a new facility and basic equipment.	ACFD1	Short-term action	First
Install fire danger signs along travel corridors	Increase awareness of potential dangers in Anatone, Cloverland, Snake River Corridor, and at the entrance and exit of Asotin County.	Asotin County DEM, Asotin County Roads Department	Short-term action	Second
Install remotely activated warning signs along the Snake River Corridor to alert watercraft of aerial wildfire suppression activities	Signage and alerts for watercraft and vehicle corridors near Snake River waterways when fire-fighting air support is using river areas to dip water for wildfire suppression. Increase informational signage at local boat launches.	Asotin County DEM, WSDOT	Short-term action	Second
Develop relationships for firefighter training	Increase capabilities of firefighters through training opportunities with local higher education institutions.	ACFPD1, BMFD1, City of Asotin FD, City of Clarkston FD	Short-term action	Second
Open additional Clarkston Fire Department station	Expand capacity with a new facility and basic equipment.	City of Clarkston FD	Mid-term action	First
Create safer conditions for firefighters and evacuees on Snake River Road; Reduce potential for ignitions from chains dragging; Maintain the use of road as a potential control line (Project ID: 5)	See **Section 4.c**	WSDOT, Asotin County Noxious Weed Board, Asotin County DEM	Mid-term action	First
Create safer conditions for firefighters and evacuees on Lick Creek Road; Maintain the use of this road as a potential control line (Project ID: 7)	See **Section 4.c**	USFS, WDFW	Mid-term action	First

Create safer conditions for firefighters and evacuees on Pomeroy Grouse Road; Improve the ability to use this road as a potential control line (Project ID: 11)	See **Section 4.c**	USFS, WA DNR	Mid-term action	First
Create safer conditions for firefighters on Mallory Ridge; Improve the ability to use this ridgeline as a potential control line (Project ID: 12)	See **Section 4.c**	USFS, WA DNR	Mid-term action	First
Create safer conditions for firefighters and evacuees on East Mountain Road, West Mountain Road, and Smyth Road; Maintain the use of roads as potential control lines (Project ID: 13)	See **Section 4.c**	WA DNR, ACCD, NRCS, USFS, Asotin County DEM, Asotin County Building and Planning Department	Mid-term action	First
Create safer conditions for firefighters and evacuees on State Route 129 (Rattlesnake Grade area); Improve the ability to use this road as a potential control line; Restore instream habitat and enhance floodplain conditions in Rattlesnake Creek (Project ID: 14)	See **Section 4.c**	WSDOT, WSP, WA DNR, ACCD, NRCS	Mid-term action	First
Create safer conditions for firefighters and evacuees in Field Springs State Park; Maintain the use of this road as a potential control line (Project ID: 15)	See **Section 4.c**	WSP	Mid-term action	First

Create safer conditions for firefighters and evacuees on Shumaker Grade Road; Improve the ability to use this road as a potential control line (Project ID: 16)	See **Section 4.c**	Asotin County Roads Department, BLM, WDFW, WA DNR	Mid-term action	First
Increase ability of emergency responders and partners to effectively communicate during wildfires and other incidents (Project ID: 17)	See **Section 4.c**	WDFW, Asotin County DEM	Mid-term action	First
Maintain the use of U.S. Route 12 as a potential control line; Reduce potential for ignitions from vehicles (Project ID:18)	See **Section 4.c**	WSDOT, ACFD1	Mid-term action	Second
Increase water availability and access for suppression efforts across the County (Project ID: 19)	See **Section 4.c**	WA DNR, USFS, BMFD1, ACCD	Mid-term action	Second
Inventory of water sources available for wildfire suppression.	Identify areas of water deficiency and determine solutions based on site limitations and capabilities.	WA DNR, FPDs, Asotin County DEM, Asotin County Public Utility District	Mid-term action	Second
Create safer conditions for firefighters and evacuees on Charley Creek Road; Improve the use of this road as a potential control line; Restore instream habitat and enhance floodplain conditions in Charley Creek (Project ID: 20)	See **Section 4.c**	USFS, WDFW, WA DNR, ACCD	Mid-term action	Second

Create safer conditions for firefighters and evacuees on South Fork Road and Smoothing Iron Road; Maintain the use of roads as potential control lines (Project ID: 21)	See **Section 4.c**	USFS, WDFW	Mid-term action	Second
Create safer conditions for firefighters and evacuees on Weissenfels Ridge Road; Improve the use of this road as a potential control line (Project ID: 22)	See **Section 4.c**	Asotin County Road Department	Mid-term action	Second
Create safer conditions for firefighters on Cougar Creek Road and Hansen Ridge Road; Improve the use of this road and ridgeline as a potential control line; Mitigate impacts of Cougar Creek Fire along road (Project ID: 23)	See **Section 4.c**	USFS, WDFW	Mid-term action	Second
Create safer conditions for firefighters and evacuees on Grande Ronde Road; Maintain the use of this road as a potential control line; Restore and enhance stream and riparian conditions (Project ID: 24)	See **Section 4.c**	BLM, WDFW, Asotin County Road Department, ACCD	Mid-term action	Second
Create safer conditions for firefighters and evacuees on State Route 129 and Buford Creek; Restore and enhance stream and riparian conditions in Buford Creek (Project ID: 25)	See **Section 4.c**	WDSOT, Oregon DOT, ACCD	Mid-term action	Second

Create safer conditions for firefighters and evacuees on Fitzgerald Road (Project ID: 28)	See **Section 4.c**	FPDs	Mid-term action	Third
Reduce potential for ignitions from recreators at the WDFW public gun range (Project ID: 29)	See **Section 4.c**	WDFW	Mid-term action	Third
Maintain the use of Cloverland Road as a potential control line (Project ID: 30)	See **Section 4.c**	Asotin County Road Department	Mid-term action	Third
Create safer conditions for firefighters and evacuees on Cloverland Road (Forest Service Road 43); Maintain the use of road as a potential control line; Reduce potential for ignitions from vehicles (Project ID: 31)	See **Section 4.c**	USFS	Mid-term action	Third
Create safer conditions for firefighters and evacuees on Location: Cloverland Road, Wenatchee-Big Butte Road, and West Mountain Road; Maintain the use of roads as potential control lines; Mitigate impacts of the Cougar Creek Fire along the roadway (Project ID: 32)	See **Section 4.c**	USFS	Mid-term action	Third
Maintain the use of State Route 129 as a potential control line; Reduce potential for ignitions from vehicles (Project ID: 33)	See **Section 4.c**	WSDOT	Mid-term action	Third

Create safer conditions for firefighters and evacuees in Field Springs State Park; Maintain the use of this road as a potential control line (Project ID: 34)	See **Section 4.c**	WSP	Mid-term action	Third
Create safer conditions for firefighters and evacuees on Montgomery Ridge Road, Sherry Grade Road, and Couse Creek Road; Maintain the use of roads as potential control lines (Project ID: 35)	See **Section 4.c**	Asotin County Road Department	Mid-term action	Third
Create safer conditions for firefighters and evacuees on Joseph Creek Road; Maintain the use of this road as a potential control line; Restore and enhance stream and riparian conditions in Joseph Creek (Project ID: 36)	See **Section 4.c**	WDSOT, Oregon DOT, BLM, WDFW, ACCD	Mid-term action	Third
Restore and Maintain Landscapes				
Expand and maintain public programs providing financial assistance, grants, education, and technical assistance to landowners for wildfire resiliency	Encourage individuals and communities to implement conservation and hazard mitigation projects which enhance ecosystem wildfire resiliency through financial incentives and technical assistance.	ACCD, WA DNR, NRCS, WDFW	Immediate action	First
Intensive Noxious Weed Management through integrated management techniques	Increase capacity of Noxious Weed Board to provide technical and financial assistance to Asotin County residents for weed control. Prioritize areas with extreme wildfire hazards, extreme soil erosion hazards, and areas considered most likely to convey wildfire rapidly. Promote sustainable integrated management approaches including cultural, mechanical, and pesticide usage.	ACCD, WA DNR, NRCS, WDFW	Immediate action	First

Continue and expand watershed conservation programs	Increased capacity to continue and expand activities that facilitate the restoration and conservation of watersheds identified as critical to endangered species or as drinking water for the community. Focus on stream restoration, riparian vegetation, sensitive wildlife species, flood modulation, and watershed health.	ACCD, WA DNR, NRCS, WDFW	Immediate action	First
Support working lands in Asotin County	Support local commercial livestock producers, farmers, and timber producers in sustainable management activities that increase wildfire resilience and ecosystem health while supporting our local economy.	Asotin County Farm Services Agency, NRCS, USDA, ACCD, WSU	Immediate action	First
Enhance rangeland and shrub-steppe restoration to preserve sustainable livestock grazing on working lands, and increase wildfire resiliency	Enhance, maintain, and rehabilitate public and private rangelands through integrated management including sustainable livestock grazing regimes, rangeland seeding of desirable grass and forbs, noxious weed control, and prescribed burning.	NRCS, Asotin County Farm Services Agency, WDFW, USFS, Asotin County Noxious Weed Board, ACCD	Immediate action	Second
Pilot bio-char program for slash disposal	Pilot program in Asotin County for mobile bio-char treatment of residual woody debris and slash materials generated through fuel reductions and forest health treatments.	ACCD, USFS, NRCS, WA DNR	Short-term action	Second
Pilot program for virtual livestock management technology	Implement pilot program to evaluate feasibility and functionality of virtual fencing technology in Asotin County to deploy sustainable livestock grazing as an annual fuel reduction technique.	ACCD, NRCS, Asotin County Farm Services Agency	Mid-term action	First
Implement prescribed burn treatments across the County	Explore applicability and feasibility of prescribed burn treatments as fuel-reduction treatments in Asotin County. Partner with local tribal leaders for planning and implementation of prescribed burning programs, communities, or consortiums.	Nez Perce Tribe, DNR, USFS, WDFW	Mid-term action	First

Restore wildfire resilient ecosystems in critical watersheds (Project ID: 3)	See **Section 4.c**	ACCD, WDFW, USFS, NRCS	Mid-term action	First
Increase wildfire resilience and wildlife habitat quantity and quality throughout the George Creek Unit of the Blue Mountains Wildlife Area (Project ID: 4)	See **Section 4.c**	WDFW, ACCD	Mid-term action	First
Post-fire ecosystem restoration and reforestation treatments in the 2021 Lick Creek Fire burned area. (Project ID: 6)	See **Section 4.c**	USFS, WDFW, ACCD, Asotin County Noxious Weed Board	Mid-term action	First
Riparian forest-health restoration, enhancement, and fuel-reduction treatments targeting headwaters of George Creek watershed (Project ID: 9)	See **Section 4.c**	USFS, DNR, NRCS, WDFW, Tribal leaders	Mid-term action	First
Restore forest wildfire resilience conditions in unburned areas in and around the 2024 Cougar Creek Fire (Project ID: 10)	See **Section 4.c**	USFS, WA DNR, WDFW, NRCS	Mid-term action	First
Restoration and enhancement of critical habitat for fish, beaver, big game, and upland birds in North Fork Asotin Creek Watershed (Project ID: 8)	See **Section 4.c**	USFS, WDFW	Mid-term action	Second

Mitigate invasive weeds to reduce wildfire risk; Restore native prairie ecosystems in Shumaker Unit of Blue Mountains Wildlife Area (Project ID: 26)	See **Section 4.c**	WDFW, ACCD	Mid-term action	Second
Restore and increase resiliency of upland sage steppe ecosystems; Improve habitat for fish and improve water quality and quantity in Pow Wah Kee and Alpowa Creeks (Project ID: 27)	See **Section 4.c**	BLM, ACCD	Mid-term action	Second
Create safer conditions for firefighters and evacuees on Joseph Creek Road; Maintain the use of this road as a potential control line; Restore and enhance stream and riparian conditions in Joseph Creek (Project ID: 36)	See **Section 4.c**	WDSOT, Oregon DOT, BLM, WDFW, ACCD	Mid-term action	Third
Post-fire Recovery				
Implement WA DNR's Post-Fire Recovery Program	Prepare for post-fire effects and mitigate degradation post-fire.	WA DNR	Immediate action	First
Prepare short-term and long-term recovery plans for agricultural crop lands, rangelands, forests, and watersheds	Establish collaboration between agencies in post-fire planning, order of operations, and individual agency responsibilities. Cereal crops and dryland crops burned should be high priority for rapid treatment due to increased risks of soil erosion post-wildfire.	NRCS, Asotin County Farm Services Agency, ACCD, WA DNR, USFS, WDFW	Immediate action	First
Take individual measures to prepare for post-fire impacts	See **Section 4.d**	Residents	Short-term action	First
Establish clear emergency grazing resources	Prepare for livestock emergency forage needs in the event of a wildfire.	Asotin County Farm Services Agency, NRCS, USDA	Short-term action	Second

Improve and maintain roadway features to reduce flood damage	Improve and maintain culverts, drainage features, and roadways in areas with elevated risk of post-fire sedimentation and debris flows. Take proactive measures to improve infrastructure and reduce the potential for severe road damage in the future.	WSDOT, Asotin County Roads Department, USACE, Asotin County DEM, Department of Ecology	Mid-term action	First
Undertake low-tech, process-based restoration (LTPBR) to improve stream health	Conduct in-stream habitat treatments and riparian enhancements in critical watersheds to increase wildfire resilience, modulate effects of high-flow runoff events, and to protect water quality in a post-fire landscape.	ACCD, NRCS	Mid-term action	First
Establish post-fire intake process and form	Identify intake form that captures data needed to access funding quickly. Collaborate with agencies in advance to create intake forms that suit everyone's needs.	WA DNR, Asotin County Farm Services Agency, NRCS, ACCD	Mid-term action	Second

5.c. CWPP as a Living Document

CWPPs are a guide and a plan for action. They should be revisited and reviewed annually, at minimum, by the CWPP Core Team. Check off and take note of goals as they are accomplished and celebrate treatment successes, outreach events, new partnerships, and other accomplishments. Keep track of the work that happens between updates, take pictures, and collect implementation ideas for the next update.

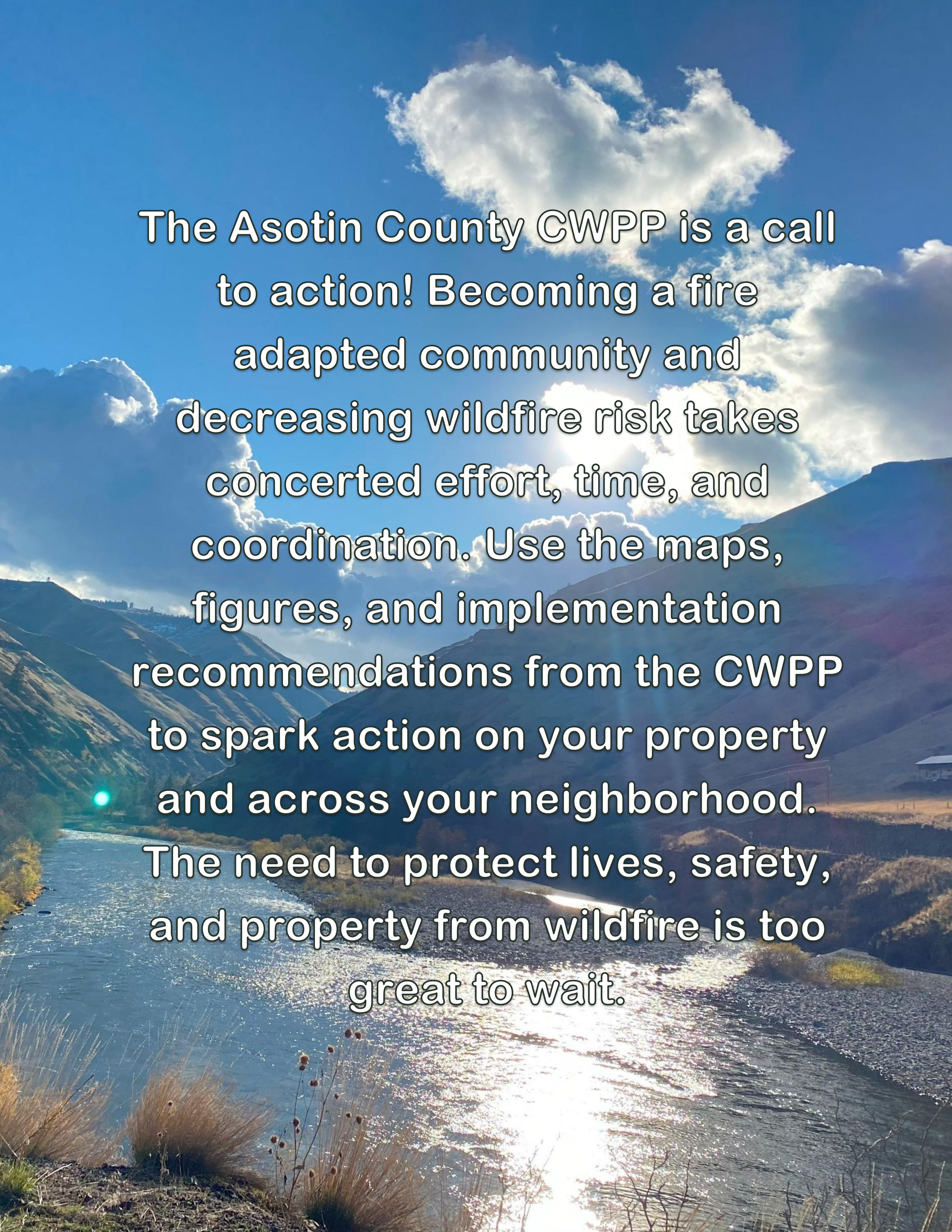
The WA DNR suggests CWPPs be updated on a regular basis. It is recommended to update them every 5 years, at minimum. CWPPs greater than 10 years old are outdated and can exclude communities from successfully applying for competitive funding opportunities.

The update to this plan can either be a preface to this document or a new document that integrates with this one. The update to this plan must include:

- A description of progress made since the CWPP was created.
- A description of demographic changes in the community and other important infrastructure changes.
- Identification of new risks in the community.
- Updated risk analysis if major changes have happened between revisions.
- Updated and prioritized projects for the community with maps and descriptions

The suggested review process involves:

- Reviewing the existing CWPP.
- Engaging partners that have a vested interest in the plan.
- Hosting collaborative meetings.
- Documenting completed projects and demographic and landscape changes.
- Developing updated wildfire risk reduction priorities.
- Updating maps (priority project areas and fuel treatment history maps should be updated during each CWPP update. Risk assessments and other maps should be updated if they no longer accurately represent the risk in the area, or when they are more than 10 years old).
- Distributing updated drafts to key partners for review and input prior to final approval.
- Finalizing with required signatures.



The Asotin County CWPP is a call to action! Becoming a fire adapted community and decreasing wildfire risk takes concerted effort, time, and coordination. Use the maps, figures, and implementation recommendations from the CWPP to spark action on your property and across your neighborhood. The need to protect lives, safety, and property from wildfire is too great to wait.

6. Glossary

Active crown fire: Fire in which a solid flame develops in the crowns of trees and advances from tree crown to tree crown independently of surface fire spread (NWCG, 2018b).

Broadcast prescribed burning (aka, prescribed burn, controlled burn): A wildland fire originating from a planned ignition in accordance with applicable laws, policies, and regulations to meet specific objectives (NWCG, 2018b).

Canopy fuels: The stratum of fuels containing the crowns of the tallest vegetation (living or dead), usually above 20 feet (NWCG, 2018b).

Canopy: The more or less continuous cover of branches and foliage formed collectively by adjacent tree crowns (USFS, 2021b).

Chain: Chains are commonly used in forestry and fire management as a measure of distance. 1 chain is equivalent to 66 feet. Chains were used for measurements in the initial public land survey of the U.S. in the mid-1800s.

Community Wildfire Protection Plan (CWPP): A plan developed in the collaborative framework established by the Wildland Fire Leadership Council and agreed to by state, Tribal, and local governments, local fire departments, other partners, and federal land management agencies in the vicinity of the planning area. CWPPs identify and prioritize areas for hazardous fuel reduction treatments, recommend the types and methods of treatment on Federal and non-Federal land that will protect one or more at-risk communities and essential infrastructure, and recommend measures to reduce structural ignitability throughout the at-risk community. A CWPP may address issues such as wildfire response, hazard mitigation, community preparedness, and structure protection (NWCG, 2018b).

Convection: A type of heat transfer that occurs when a fluid, such as air or a liquid, is heated and travels away from the source, carrying heat along with it. Air around and above a wildfire expands as it is heated, causing it to become less dense and rise into a hot convection column. Cooler air flows in to replace the rising gases, and in some cases, this inflow of air creates local winds that further fan the flames. Hot convective gases move up slope and dry out fuels ahead of the flaming front, lowering their ignition temperature and increasing their susceptibility to ignition and fire spread. Homes located at the top of a slope can become preheated by convective heat transfer. Convection columns from wildfires carry sparks and embers aloft.

Crown (aka, tree crown): Upper part of a tree, including the branches and foliage (USFS, 2021b).

Debris flow: A fast-moving landslide made up of a mixture of water-saturated rock, soil, and debris with a consistency similar to wet cement.

Defensible space: The area around a building where vegetation, debris, and other types of combustible fuels have been treated, cleared, or reduced to slow the spread of fire and reduce exposure to radiant heat and direct flame. It is encouraged that residents develop defensible space so that during a wildfire their home can stand alone without relying upon limited firefighter resources due to the great reduction in hazards they have undertaken. WA DNR Wildfire Ready Neighbors and NFPA Firewise USA® define three zones around a structure: the immediate zone as 0 to 5 feet from the home, the intermediate zone as 5 to 30 feet from the home, and the extended zone as 30 to 100 feet from the home. **It is important to acknowledge these distances are specific for flat ground. Aggressive topography can double the distance of each zone.**

Direct attack: Any treatment applied directly to burning fuel such as wetting, smothering, or chemically quenching the fire or by physically separating the burning from unburned fuel (NWCG, 2018b).

Ecological restoration: The process of assisting the recovery of an ecosystem that has been damaged, degraded, or destroyed (SER, 2004). In ponderosa pine and dry mixed-conifer forests, ecological restoration involves transforming dense forests into a mosaic of single trees, clumps of trees, and meadows similar to historic forests that were maintained by wildfires and very resilient to them (Addington et al., 2018).

Ember: Small, hot, and carbonaceous particles. The term "firebrand" is also used to connote a small, hot, and carbonaceous particle that is airborne and carried for some distance in an airstream (Johnston, 2018).

Ember cast: The process of embers/firebrands/flaming sparks being transported downwind beyond the main fire and starting new spot fires and/or igniting structures. Short-range ember cast is when embers are carried by surface winds and long-range ember cast is when embers are carried high into the convection column and fall out downwind beyond the main fire. The number of embers reaching an area decreases exponentially with distance traveled, and the likelihood of structure ignition increases with the number of embers landing on receptive fuels (Caton et al., 2016).

Erosion: Detachment and transport of soil and rock due to gravity, water, or wind.

Fire adapted community (FAC): A human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire (NWCG, 2018b). There is not a checklist or one silver bullet to become a FAC; there are many strategic actions and tools that should be used together to reduce shared risk. Risk mitigation is the responsibility of everyone who lives and works in the community—residents, community groups, fire protection districts, agency partners, non-governmental organizations, etc. Fire adaptation is an ongoing process of collaborative action to identify risk, mitigate it, and maintain the work overtime.

Fire behavior: The manner in which a fire reacts to the influences of fuel, weather, and topography. Characteristics of fire behavior include rate of spread, fire intensity, fire severity, and fire behavior category (NWCG, 2018b).

Fire history: A general term referring to the historic fire occurrence in a specific geographic area (NWCG, 2018b).

Fire intensity (aka, fireline intensity): (1) The product of the available heat of combustion per unit of ground and the rate of spread of the fire, interpreted as the heat released per unit of time for each unit length of fire edge, or (2) the rate of heat release per unit time per unit length of fire front (NWCG, 2018b).

Fire regime: Description of the patterns of fire occurrences, frequency, size, and severity in a specific geographic area or ecosystem. A fire regime is a generalization based on fire histories at individual sites. Fire regimes can often be described as cycles because some parts of the histories usually get repeated, and the repetitions can be counted and measured, such as fire return interval (NWCG, 2018b).

Fire severity. Degree to which a site has been altered or disrupted by fire; loosely, a product of fire intensity and residence time (NWCG, 2018b). Fire severity is determined by visually inspecting or measuring the effects that wildfire has on soil, plants, fuel, and watersheds. Fire severity is often classified as low-severity (less than 20% of overstory trees killed) and high severity (more than 70% of overstory trees kills). Moderate-severity or intermediate fire severity falls between these two extremes (Agee, 1996). Specific cutoffs for fire severity classifications differ among researchers. For example, Sheriff et al. (2014) define high-severity fires as those killing more than 80% of overstory trees.

Fire weather conditions: Weather conditions that influence fire ignition, behavior, and suppression, for example, wind speed, wind direction, temperature, relative humidity, and fuel moisture (NWCG, 2018b).

Firebreak: A natural or constructed barrier where all vegetation and organic matter have been removed down to bare mineral soil. Firebreaks are used to stop or slow wildfires or to provide a control line from which to work (Bennett et al., 2010; NWCG, 2018b).

Fireline: (1) The part of a containment or control line that is scraped or dug to mineral soil, or (2) the area within or adjacent to the perimeter of an uncontrolled wildfire of any size in which action is being taken to control fire (NWCG, 2018b).

Flame length: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface). Flame length is measured on an angle when the flames are tilted due to effects of wind and slope. Flame length is an indicator of fire intensity (NWCG, 2018b).

FlamMap: A fire analysis desktop application that can simulate potential fire behavior and spread under constant environmental conditions (weather and fuel moisture) (Finney, 2006). FlamMap is one of the most common models used by land managers to assist with fuel treatment prioritization, and it is often used by fire behavior analysts during wildfire incidents.

Fuel model: A stylized set of fuel bed characteristics used as input for a variety of wildfire modeling applications to predict fire behavior (Scott and Burgan, 2005).

Fuel reduction: Manipulation, combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage from wildfires and resistance to control (NWCG, 2018b).

Fuelbreak: A natural or manmade change in fuel characteristics that affects fire behavior so that fires burning into them can be more readily controlled. Fuelbreaks differ from firebreaks due to the continued presence of vegetation and organic soil. Trees in shaded fuelbreaks are thinned and pruned to reduce the fire potential but enough trees are retained to make a less favorable microclimate for surface fires (NWCG, 2018b).

Fuels mitigation/management: The act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire, in support of land management objectives (NWCG, 2018b).

Fuels: Any combustible material, most notably vegetation in the context of wildfires, but also including petroleum-based products, homes, and other man-made materials that might combust during a wildfire in the wildland-urban interface. Wildland fuels are described as 1-, 10-, 100-, and 1000-hour fuels. One-hour fuels are dead vegetation less than 0.25 inch in diameter (e.g., dead grass), ten-hour fuels are dead vegetation 0.25 inch to 1 inch in diameter (e.g., leaf litter and pine needles), one hundred-hour fuels are dead vegetation 1 inch to 3 inches in diameter (e.g., fine branches), and one thousand-hour fuels are dead vegetation 3 inches to 8 inches in diameter (e.g., large branches). Fuels with larger diameters have a smaller surface area to volume ratio and take more time to dry out or become wetter as relative humidity in the air changes (NWCG, 2018b).

Handcrews: A number of individuals that have been organized and trained and are supervised principally for operational assignments on an incident (NWCG, 2018b).

Handline: Fireline constructed with hand tools (NWCG, 2018b).

Hazards: Any real or potential condition that can cause injury, illness, or death of personnel, or damage to, or loss of equipment or property (NWCG, 2018b).

Highly valued resources and assets (also known as values at risk): Aspects of a community or natural area considered valuable by an individual or community that could be negatively impacted by a wildfire or wildfire operations. These values can vary by community and include diverse characteristics such as homes, specific structures, water supply, power grids, natural and cultural resources, community infrastructure, and other economic, environmental, and social values (NWCG, 2018b).

Home hardening: Steps taken to improve the chance of a home and other structures withstanding ignition by radiant and convective heat and direct contact with flames or embers. Home hardening involves reducing structure ignitability by changing building materials, installation techniques, and structural characteristics of a home (California Fire Safe Council, 2020). A home can never be made fireproof, but home hardening practices in conjunction with creating defensible space increases the chance that a home will stand strong during a wildfire.

Home ignition zone (HIZ): The characteristics of a home and its immediate surroundings within 100 feet of structures. Conditions in the HIZ principally determine home ignition potential from radiant heat, convective heat, and ember cast (NWCG, 2018b). WA DNR Wildfire Ready Neighbors and NFPA Firewise USA® define three zones around a structure: the immediate zone as 0 to 5 feet from the home, the intermediate zone as 5 to 30 feet from the home, and the extended zone as 30 to 100 feet from the home. **It is important to acknowledge these distances are specific for flat ground. Aggressive topography can double the distance of each zone.**

Ignition-resistant building materials: Materials that resist ignition or sustained flaming combustion. Materials designated ignition-resistant have passed a standard test that evaluates flame spread on the material (Quarles, 2019; Quarles and Pohl, 2018).

Incident Response Pocket Guide (IRPG): Document that establishes standards for wildland fire incident response. The guide provides critical information on operational engagement, risk management, all hazard response, and aviation management. It provides a collection of best practices that have evolved over time within the wildland fire service (NWCG, 2018a).

Indirect attack A method of suppression in which the control line is located some considerable distance away from the fire's active edge. Generally done in the case of a fast-spreading or high-intensity fire and to utilize natural or constructed firebreaks or fuelbreaks and favorable breaks in the topography. The intervening fuel is usually backfired; but occasionally the main fire is allowed to burn to the line, depending on conditions (NWCG, 2018b).

Ladder fuels: Fuels that provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees with relative ease. Ladder fuels help initiate torching and crowning and assure the continuation of crowning. Ladder fuels can include small trees, brush, and lower limbs of large trees (NWCG, 2018b).

Lop-and-scatter: Cutting (lopping) branches, tops, and unwanted boles into shorter lengths and spreading that debris evenly over the ground such that resultant logging debris will lie close to the ground (NWCG, 2018b).

Mastication: A slash management technique that involves using a machine to grind, chop, or shred vegetation into small pieces that then become surface fuel (Jain et al., 2018).

Mitigation actions: Actions that are implemented to reduce or eliminate (mitigate) risks to persons, property, or natural resources. These actions can be undertaken before and during a wildfire. Actions before a fire include fuel treatments, vegetation modification in the home ignition zone, and structural changes to increase the chance a structure will stand strong during a wildfire (aka, home hardening). Mitigation actions during a wildfire include mechanical and physical tasks, specific fire applications, and limited suppression actions, such as constructing firelines and creating "black lines" through the use of controlled burnouts to limit fire spread and behavior (NWCG, 2018b).

Mosaic landscape: A heterogeneous area composed of different communities or a cluster of different ecosystems that are similar in function and origin in the landscape. It consists of 'patches' arranged in a 'matrix', where the patches are the different ecosystems and the matrix is how they are arranged over the land (Hansson et al., 1995).

National Wildfire Coordinating Group (NWCG): An operational group established in 1976 through a Memorandum of Understanding between the U.S. Department of Agriculture and Department of the Interior to coordinate programs of the participating agencies to avoid wasteful duplication and to provide a means of constructively working together. NWCG provides a formalized system and agreed upon standards of training, equipment, aircraft, suppression priorities, and other operational areas. More information about NWCG is available online at: https://www.nwcg.gov/.

Noncombustible building materials: Material of which no part will ignite or burn when subjected to fire or heat, even after exposure to moisture or the effects of age. Materials designated noncombustible have passed a standard test (Quarles, 2019; Quarles and Pohl, 2018).

Non-survivable road: Portions of roads adjacent to areas with predicted flame lengths greater than 8 feet under severe fire weather conditions. Potentially non-survivable flame lengths start at 8 feet according to the Haul Chart, which is a standard tool used by firefighters to relate flame lengths to tactical decisions (NWCG, 2019). Drivers stopped or trapped on these roadways would have a lower chance of surviving radiant heat from fires of this intensity. Non-survivable conditions are more common along roads that are lined with thick forests, particularly with trees that have limbs all the way to the ground and/or abundant saplings and seedlings.

Overstory: Layer of foliage in a forest canopy, particularly tall mature trees that rise above the shorter immature understory trees (USFS, 2021b).

Passive crown fire: Fire that arises when surface fire ignites the crowns of trees or groups of trees (aka, torching). Torching trees reinforce the rate of spread, but passive crown fires travel along with surface fires (NWCG, 2018b).

Pile burning: Piling slash resulting from logging or fuel management activities into manageable piles that are subsequently burned during safe and approved burning conditions (NWCG, 2018b).

Potential operational delineations (PODs): PODs are topographic areas bounded by features suitable for fire control (e.g., ridgetops and roads) that can be used for proactive wildfire decision making and tactical operations during wildfire events. PODs can serve as management units for proactive ecological restoration and wildfire risk mitigation, as well as for cross-boundary and collaborative land and fire management planning (Thompson et al., 2022).

Quantitative wildfire risk assessment: Analyses that utilize fire behavior modeling, expert opinion, and community values to characterize the predicted benefits and threats from fire on several, often overlapping, values across your landscape. This information can be used to plan fuel treatments, pre-plan suppression response, design fire effects monitoring programs, and other related management activities on a landscape while accounting for the predicted benefits and threats from fire and the relative importance of different landscape values (Interagency Fuel Treatment Decision Support System).

Radiation: A method of heat transfer by short-wavelength energy through air (aka, infrared radiation). Surfaces that absorb radiant heat warm up and radiate additional short-wavelength energy themselves. Radiant heat is what you feel when sitting in front of a fireplace. Radiant heat preheats and dries fuels adjacent to the fire, which initiates combustion by lowering the fuel's ignition temperature. The amount of radiant heat received by fuels increases as the fire front approaches. Radiant heat is a major concern for the safety of wildland firefighters and can ignite homes without direct flame contact.

Rate of spread: The relative activity of a fire in extending its horizontal dimensions. It is expressed as rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Rate of spread is usually expressed in chains or acres per hour for a specific period in the fire's history (NWCG, 2018b).

Risk: (1) The chance of fires starting as determined by the presence and activity of causative agents (e.g., lightning), (2) a chance of suffering harm or loss, or (3) a causative agent (NWCG, 2018b).

Roadside fuel treatment: A natural or manmade change in fuel characteristics along a roadway that affects fire behavior so that fires burning into them can be more readily controlled, survivable conditions with shorter flame lengths are more likely during a wildfire, and firefighter access is enhanced (NWCG, 2018b).

Safety zones: An area cleared of flammable materials used by firefighters for escape in the event the line is outflanked or spot fires outside the control line render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand, allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuelbreaks; they are greatly enlarged areas that can be used with relative safety by firefighters without the use of a fire shelter (NWCG, 2018b).

Sediment delivery: Movement of soil into streams. Rates of sediment delivery are less than rates of erosion. Variation in topography and other barriers can stop the downhill movement of soil before it enters a stream.

Shaded fuelbreak: Fuel treatments in timbered areas where the trees on the break are thinned and pruned to reduce fire potential yet enough trees are retained to make a less favorable microclimate for surface fires (NWCG, 2018b).

Slash: Debris resulting from natural events such as wind, fire, or snow breakage or from human activities such as road construction, logging, pruning, thinning, or brush cutting. Slash includes logs, bark, branches, stumps, treetops, and broken understory trees or brush (NWCG, 2018b).

Smoldering combustion: The combined processes of dehydration, pyrolysis, solid oxidation, and scattered flaming combustion and glowing combustion, which occur after the flaming combustion phase of a fire; often characterized by large amounts of smoke consisting mainly of tars (NWCG, 2018b).

Spot fire: Fire ignited outside the perimeter of the main fire by an ember (NWCG, 2018b). Spot fires are particularly concerning because they can form a new flaming front, move in unanticipated directions, trap firefighters between two fires, and require additional firefighting resources to control.

Spotting: Behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire (NWCG, 2018b).

Stand: An area of forest that possesses sufficient uniformity in species composition, age, size, structural configuration, and spatial arrangement to be distinguishable from adjacent areas (USFS, 2021b).

Structure protection: The protection of homes or other structures from an active wildland fire (NWCG, 2018b).

Structure triage: The process of inspecting and classifying structures according to their defensibility or non-defensibility, based on fire behavior, location, construction, and adjacent fuels. Structure triage involves a rapid assessment of a dwelling and its immediate surroundings to determine its potential to escape damage by an approaching wildland fire. Triage factors include the fuels and vegetation in the yard and adjacent to the structure, roof environment, decking and siding materials, prevailing winds, topography, etc. (NWCG, 2018b). There are four categories used during structure triage: (1) defensible – prep and hold, (2) defensible – stand alone, (3) non-defensible – prep and leave, and (4) non-defensible – rescue drive-by. The most important feature differentiating defensible and non-defensible structures is the presence of an adequate safety zone for firefighters (NWCG 2018a). Firefighters conduct structure triage and identify defensible homes during wildfire incidents. Categorization of homes is not pre-determined; triage decisions depend on fire behavior and wind speed due to their influence on the size of safety zones needed to keep firefighters safer.

Suppression: The work and activity used to extinguish or limit wildland fire spread (NWCG, 2018b).

Surface fire: Fire that burns fuels on the ground, which include dead branches, leaves, and low vegetation (NWCG, 2018b).

Surface fuels: Fuels lying on or near the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants (NWCG, 2018b).

Torching: The burning of the foliage of a single tree or a small group of trees from the bottom up. Torching is the type of fire behavior that occurs during passive crown fires and can initiate active crown fires if tree canopies are close to each other (NWCG, 2018b).

Watershed (aka, drainage basin or catchment): An area of land where all precipitation falling in that area drains to the same location in a creek, stream, or river. Smaller watersheds come together to create basins that drain into bays and oceans (NOAA, 2021).

Wildfire-resistant building materials: A general term used to describe a material and design feature that can reduce the vulnerability of a building to ignition from wind-blown embers or other wildfire exposures (Quarles, 2019; Quarles and Pohl, 2018).

Wildland-urban interface (WUI): Any area where the built environment meets wildfire-prone areas—places where wildland fire can move between natural vegetation and the built environment and result in negative impacts on the community (Mowry and Johnston, 2018). For the purpose of this CWPP, the WUI boundary includes almost all of the developed areas of Asotin County (the zones) and the surrounding landscape that could transmit wildland fire into the developed areas and important evacuation routes (**Figure 2.c.2**). Strategic wildfire mitigation across the WUI can increase the safety of residents and wildland firefighters and reduce the chances of home loss.

7. References

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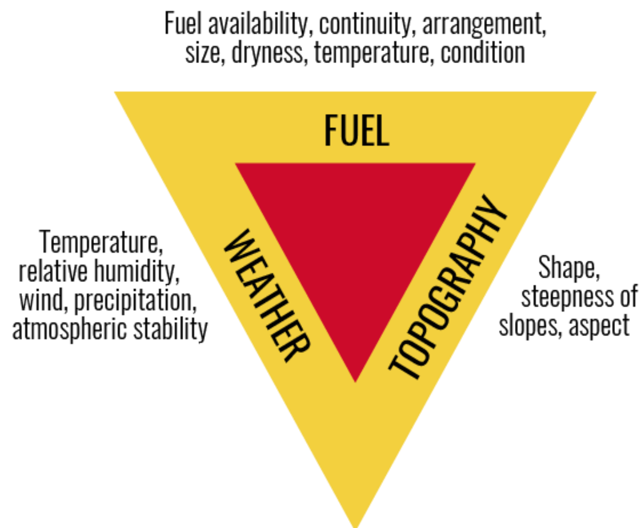
Appendix A. Introduction to Wildfire Behavior and Terminology

Fire Behavior Triangle



Complex interactions among wildland fuels, weather, and topography determine how wildfires behave and spread. These three factors make up the sides of the fire behavior triangle, and they are the variables that wildland firefighters pay attention to when assessing potential wildfire behavior during an incident (NWCG, 2019).

Fuels

Fuels include live vegetation such as trees, shrubs, and grasses, dead vegetation like pine needles and cured grass, and materials like houses, sheds, fences, trash piles, and combustible chemicals.

Grasses and pine needles are known as "flashy" fuels because they easily combust and burn the fastest of all fuel types. If you think of a campfire, flashy fuels are the kindling that you use to start the fire. Flashy fuels dry out faster than other fuel types when relative humidity drops or when exposed to radiant and convective heat[8]. Fires in grassy fuel types can spread quickly across large areas, and fire behavior can change rapidly with changes in weather conditions.

Dead branches on the surface dry out slower than flashy fuels, release more radiant heat when they burn, and take longer to completely combust. The rate of spread is fast to moderate through shrublands depending on their moisture content, and long flame lengths can preclude direct attack by firefighters. Shrubs and small trees can also act as ladder fuels that carry fire from the ground up into the tree canopy.

Dead trees (aka, snags) and large downed logs are called "heavy fuels," and they take the longest to dry out when relative humidity drops and when exposed to radiant and convective heat. Heavy fuels release tremendous radiant heat when they burn, and they take longer to completely combust, just like a log on a campfire. Fire spread through a forest is slower than in a grassland or shrubland, but forest fires release more heat and can be extremely difficult and unsafe for firefighters to suppress. An abundance of dead trees killed by drought, insects, or disease can exacerbate fire behavior, particularly when dead trees still have dry, red needles (Moriarty et al., 2019; Parsons et al., 2014).

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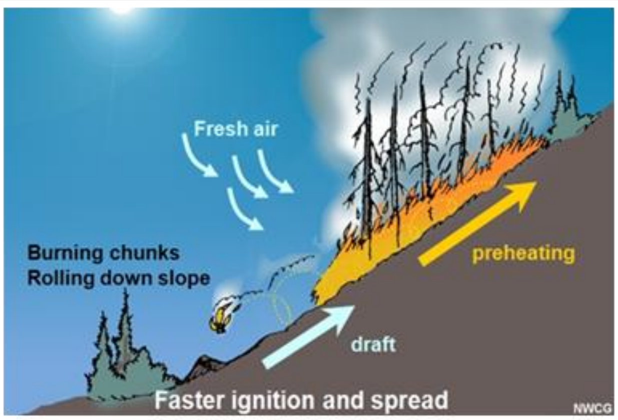
[8] Radiant heat transfer occurs by short-wavelength energy traveling through air. Radiant heat is what you feel when sitting in front of a fire. Radiant heat preheats and dries fuels adjacent to a wildfire, which initiates combustion by lowering the fuel's ignition temperature. Convective heat transfer occurs when air is heated, travels away from the source, and carries heat along with it. Convective heat is what you would feel if you put your hand in the air above an open flame. Air around and above a wildfire expands as it is heated, causing it to become less dense and rise into a hot convection column. Cooler air flows in to replace the rising gases, and in some cases, this inflow of air creates local winds that further fan the flames. Hot convective gases move up slope and dry out fuels ahead of the flaming front, lowering their ignition temperature and increasing their susceptibility to ignition and fire spread.

Topography

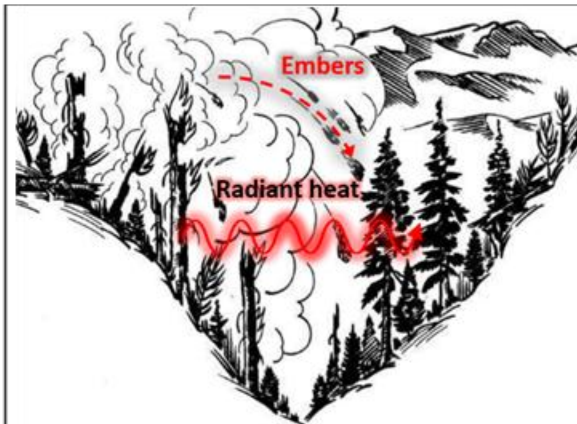
Topography (slope and aspect) influences fire intensity, speed, and spread. In the northern hemisphere, north-facing slopes experience less sun exposure during the day, resulting in higher fuel moisture. Tree density is often higher on north-facing slopes due to higher soil moisture. South-facing slopes experience more sun exposure and higher temperatures and are often covered in grasses and shrubs. The hotter and drier conditions on south-facing slopes mean fuels are drier and more susceptible to combustion, and the prevalence of flashy fuels results in fast rates of fire spread.

Fires burn more quickly up steep slopes due to radiant and convective heating. Fuels are brought into closer proximity with the progressing fire, causing them to dry out, preheat, and become more receptive to ignition, thereby increasing rates of spread. Steep slopes also increase the risk of burning material rolling and igniting unburnt fuels below.

Narrow canyons can experience increased combustion because radiant heat from a fire burning on one side of the canyon can heat fuel on the other side of the canyon. Embers can easily travel from one side of a canyon to the other. Topography also influences wind behavior and can make fire spread unpredictable. Wildfires burning through steep and rugged topography are harder to control due to reduced access for firefighters and more unpredictable and extreme fire behavior.



Slope increases fire spread through radiant and convective heating (source: NWCG).



Fires can easily cross narrow canyons (source: U.S. Forest Service).

Weather

Weather conditions impacting fire behavior include temperature, relative humidity, precipitation, wind speed, and wind direction. The National Weather Service uses a system called a Red Flag Warning to indicate local weather conditions that can combine to produce increased risk of fire danger and behavior. Red Flag Warning days indicate an increased risk of extreme fire behavior due to a combination of hot temperatures, very low humidity, dry fuels, strong winds, and the presence of thunderstorms.

Direct sunlight and hot temperatures impact how ready fuels are to ignite. Warm air preheats fuels and brings them closer to their ignition point. When relative humidity is low, the dry air can absorb moisture from fuels, especially flashy fuels, making them more susceptible to ignition. Long periods of dry weather can dehydrate heavier fuels, including downed logs, increasing the risk of wildfires in areas with heavy fuel loads.

RED FLAG CRITERIA

Red Flag Warnings issued by the National Weather Service indicate that warm temperatures, very low humidity, and strong or erratic winds are expected to result in elevated fire danger.

Asotin County falls within the Spokane Forecast Office, which has two options for Red Flag criteria:

Option 1	Option 2
Relative humidity <= 15% Wind gusts >= 25 mph Dry fuels	Widely scattered dry thunderstorms Dry fuels

Wind influences fire behavior by drying out fuels (think how quickly your lips dry out in windy weather), increasing the amount of oxygen feeding the fuel, preheating vegetation through convective heat, and carrying embers more than a mile ahead of an active fire. Complex topography, such as chutes, saddles, and draws, can funnel winds in unpredictable directions, increasing wind speeds and resulting in erratic fire behavior.

Categories of Fire Behavior

Weather, topography, and fuels influence fire behavior, and fire behavior in turn influences the tactical options available for wildland firefighters and the risks posed to lives and property. Three general categories of fire behavior are described throughout this CWPP: surface fire, passive crown fire, and active crown fire.

- **Surface fire –** Fire that burns fuels on the ground, which include dead branches, leaves, and low vegetation. Surface fires can be addressed with direct attack using handcrews when flame lengths are less than four feet and with equipment when flame lengths are less than eight feet. Surface fires can emit significant radiant heat, which can ignite nearby vegetation and homes.
- **Passive crown fire –** Fire that arises when a surface fire ignites the crowns of trees or groups of trees (aka, torching). Torching trees reinforce the rate of spread, but passive crown fires travel along with surface fires. Firefighters can sometimes address passive crown fires with an indirect attack, such as dropping water or retardant out of aircraft or digging fireline at a safe distance from the flaming front. The likelihood of passive crown fire increases when trees have low limbs and when smaller trees and shrubs grow below tall trees and act as ladder fuels. Radiant heat and ember production from passive crown fires can threaten homes during wildfires.
- **Active crown fire –** Fire in which a solid flame develops in the crowns of trees and advances from tree crown to tree crown independently of surface fire spread. Crown fires are very difficult to contain, even with the use of aircraft dropping fire retardant, due to long flame lengths and the tremendous release of radiant energy. The likelihood of active crown fires increases when trees have interlocking canopies. Radiant heat and ember production from active crown fires can threaten homes during wildfires.

Passive and active crown fires can result in short- and long-range ember production that can create spot fires and ignite homes. Spot fires are particularly concerning because they can form a new flaming front, move in unanticipated directions, trap firefighters between two fires, and require additional firefighting resources to control. Crown fires are generally undesirable in the wildland-urban interface (WUI) because of the risk to lives and property; however, passive and active crown fires are part of the natural fire regime for some forest types and result in habitat for plant and animal species that require recently disturbed conditions (Keane et al., 2008; Pausas and Parr, 2018). Historically, passive and active crown fires occurred in some lodgepole pine forests and higher-elevation ponderosa pine and mixed-conifer forests on north-facing slopes (Reilly et al., 2021; Romme, 1982).

Wildfire Threats to Homes

Homes built mid-slope and at the top of steep slopes and within ravines and draws are at greater risk of convective heat from wildfires. A wildfire could rapidly spread up this steep slope and threaten the home above. Photo credit: The Ember Alliance

Wildfires can ignite homes through several pathways: radiant heat, convective heat, and direct contact with flames or embers. The ability for radiant heat to ignite a home is based on the properties of the structure (i.e., wood, metal, or brick siding), the temperature of the flame, the ambient air temperature, and the distance from the flame (Caton et al., 2016). Ignition from convective heat is more likely for homes built along steep slopes and in ravines and draws. For flames to ignite a structure, they must directly contact the building long enough to cause ignition. Flames from a stack of firewood near a home could cause ignition to the home, but flames that quickly burn through grassy fuels are less likely to ignite the home (although the potential still exists). Fires can also travel between structures along fuel pathways such as a fence or row of shrubs connecting a shed and a home (Maranghides et al., 2022). Some housing materials can burn hotter than the surrounding vegetation, thereby exacerbating wildfire intensity and initiating home-to-home ignition (Mell et al., 2010).

Homes can be destroyed during wildfires even if surrounding vegetation has not burned. During many wildland fires, 50 to 90% of homes ignite due to embers rather than radiant heat or direct flame (Gropp, 2019; Johnston, 2018). Embers can ignite structures when they land on roofs, enter homes through exposed eaves, or get under wooden decks. Embers can also ignite nearby vegetation and other combustible fuels, which can subsequently ignite a home via radiant heating or direct flame contact. Burning homes can release embers that land on and ignite nearby structures, causing destructive home-to-home ignitions. Structural characteristics of a home can increase its exposure to embers and risk of combustion, such as wood shingle roofs and unenclosed eaves and vents (Hakes et al., 2017; Syphard and Keeley, 2019). Embers can also penetrate homes if windows are destroyed by radiant or convective heat.

Resources for More Information on Fire Behavior

- Introduction to Fire Behavior from the National Wildfire Coordinating Group (9:57 minute video)
- The Fire Triangle from the National Wildfire Coordinating Group (7:26 minute video)
- Understanding Fire Behavior in the Wildland/Urban Interface from the National Fire Protection Association (20:51 minute video)
- Understanding Fire from California State University (website)
- S-190 Introduction to Wildland Fire Behavior Course Materials from the National Wildfire Coordinating Group (PowerPoints, handouts, and videos)

Appendix B. Community Risk Assessment and Modeling Methodology

Fire Behavior Analysis

Interpretations and Limitations

Fire behavior models have been rigorously developed and tested based on over 40 years of experimental and observational research (Sullivan, 2009). Fire behavior models allow us to identify areas that could experience high-severity wildfires and pose a risk to lives, property, and other values at risk.

Fire behavior analyses are useful for assessing relative risk across the entire County and are not intended to assess specific fire behavior in the vicinity of individual homes. It is not feasible to predict every combination of fire weather conditions, ignition locations, and suppression activities that might occur during a wildfire. Uncertainty regarding where a wildfire might ignite and how it will behave is inevitable until one is actually occurring. Even then, fire behavior can be erratic and unpredictable.

Important Considerations about Fire Behavior Predictions

Fire behavior models can provide reasonable estimates of relative wildfire behavior across a landscape. However, wildfire behavior is complex, and models are a simplification of reality. Models also struggle to capture impacts of structures on wildfire spread and home-to-home ignitions. It is recommended to use the fire behavior analyses within this document to understand relative risk at a landscape scale, and not as an indication of a single property's risk.

Exceptionally hot, dry, and windy conditions are increasingly common due to climate change and could result in even more extreme fire behavior across Asotin County than predicted by this analysis.

The 2025 CWPP for Asotin County utilizes the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment (2023 PNW QWRA) analyses facilitated and managed by Oregon State University in close partnership with Pyrologix, Washington Department of Natural Resources, U.S. Forest Service, and Bureau of Land Management (McEvoy et al., 2023). The 2023 PNW QWRA is an objective, science-based risk assessment used to support risk management and proactive wildfire planning and management, including CWPPs, across Oregon and Washington. The assessment uses state-of-the art fire behavior modeling conducted by Pyrologix LLC with the large-fire simulator (FSim) (Finney et al., 2011) and WildEST (Scott, 2020), which deploys a command-line version of FlamMap (Finney, 2006).

Fire behavior models like FSim and WildEST do not include structures as a fuel type. Structures like homes, sheds, fences, and other buildings are absolutely a source of fuel during wildland fires and can produce massive amounts of embers that contribute to home-to-home ignitions (Maranghides et al., 2022). FSim and WildEST cannot account for fine-scale variation in surface fuel loads, defensible space created by individual homeowners, and the ignitability of building materials, nor are these data available at the scale of individual homes across an entire fire protection district. In the absence of this information and a deeper quantitative understanding of interactions between structures and wildland vegetation during a wildfire, fire behavior cannot be modeled for areas dominated by homes in the same fashion as areas dominated by grassland, shrubland, or forest vegetation. For this reason, The Ember Alliance conducted a separate analysis to predict potential exposure of homes to radiant heat and ember cast (see section below). Maps of fire behavior predictions include areas indicated as "unburnable / not modeled". Parking lots, roadways, bodies of water, and barren areas are considered unburnable; areas dominated by homes and buildings were classified as "not modeled" because fire behavior models do not include structures as a fuel type (Scott and Burgan, 2005).

Modeling Specifications

Fire behavior models require information on topography and fuel loads across the area of interest and fire weather conditions. For the 2023 PNW QWRA, Pyrologix, LLC mapped fuel conditions across Oregon and Washington representative of the 2022 fire season. They organized a workshop with dozens of wildland fire professionals to review and improve fuel data available from LANDFIRE. They modified fuel characteristics in areas that had experienced recent wildfires and fuel treatments to approximate post-disturbance conditions. Pyrologix, LLC developed custom fuel models to allow fire to propagate through agricultural and developed areas where experts thought fire spread was possible in these land use types. Fuel models are a stylized set of fuel bed characteristics used as input for a variety of wildfire modeling applications to predict fire behavior (Scott and Burgan, 2005). See additional details on development of fuel data for the 2023 PNW QWRA in McEvoy et al. (2023).

Fuel types are highly variable across Asotin, with grasses, shrubs, and agricultural fuel models dominating in the northeastern two-thirds of the county, and timber understory and timber litter in the southwestern corner (**Figure B.1**). The 2023 PNW QWRA was completed prior to the 2024 Cougar Creek Fire, which burned 24,000 acres in Asotin County, so post-fire conditions were not reflected in the analysis. The QWRA also made assumptions about post-fire conditions in the areas burned by the 2021 Lick Creek and Silcott Fires that do not adequately account for the regrowth of invasive annual grasses that can exacerbate wildfire behavior. All maps of fire behavior predictions in the CWPP include an overlay of recent wildfire history to indicate areas where model output might diverge from current conditions.

Pyrologix, LLC modeled fire behavior in WildEST and FSim under 10,000 simulated fire seasons for 23 fire occurrence areas across Washington and Oregon. Fire occurrence areas were delineated based on historic fire occurrence and observed fire weather characteristics. Asotin County was bisected by two fire occurrence areas (FOA 418 and 419), meaning different weather conditions were used to model fire behavior in the northern two-thirds of the county than the southern one-third. For each day of the 10,000 simulated fire seasons, FSim selects plausible weather scenarios based on historic data. A wildfire ignition is simulated if the energy release component (ERC) exceeds the 80th percentile of historic ERC values. Therefore, output from FSim represents potential fire behavior under high to extreme fire weather conditions. See additional details on fire weather conditions for the 2023 PNW QWRA in McEvoy et al. (2023).

The Ember Alliance also conducted fire behavior analyses in FlamMap using the same topographic and fuel inputs as the 2023 PNW QWRA to estimate rate of spread and model potential fire perimeters. Potential wildfire behavior was modeled under extreme (97th percentile) fire weather conditions based on observations collected at the Alder Remote Automated Weather Station west of Asotin County (station ID 453803) between June 15 – October 15, 2014-2024 (**Table B.1**). Historic observations were analyzed using FireFamilyPlus (Bradshaw and McCormick, 2000). 97th percentile conditions are extremely hot, dry days—days that would qualify for Red Flag Warnings and could result in large-fire growth, such as weather conditions on July 15, 2024, during the Cougar Creek Fire. Exceptionally hot, dry, and windy conditions are increasingly common due to climate change and could result in even more extreme fire behavior across Asotin County than predicted by this analysis.

FlamMap offers two methods for calculating crown fire initiation and spread: the Scott and Reinhardt method and the Finney method. The Ember Alliance used the Scott and Reinhardt method as this method resulted in predictions of crown fire occurrence more consistent with expectations and has been found more reliable than the Finney method (Scott, 2006). Fire spread was modeled with FlamMap's "minimum travel time" algorithm to predict fire growth between cells and account for fire spread through spotting. Fire growth for 10 hours was modeled for ignitions scattered across the landscape assuming the absence of firefighter suppression and control measures. See **Table B.2** for minimum travel time specifications used by The Ember Alliance.

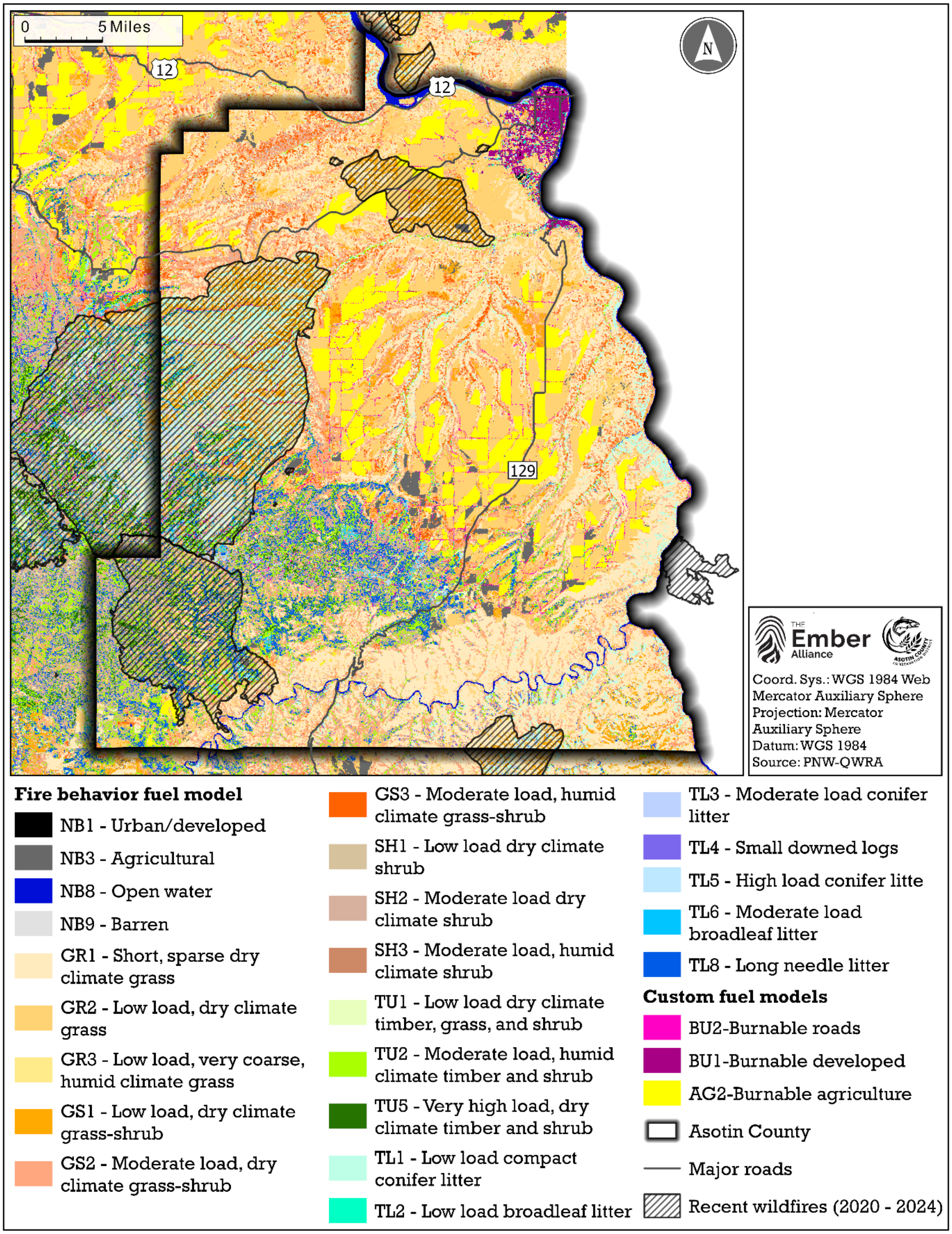


Figure B.1. *Fire behavior fuel models are an important input for making fire behavior predictions. See (Scott and Burgan, 2005) for a description of each fuel model and (McEvoy et al., 2023) for methods used to map surface fuels for the 2023 PNW QWRA. Source: 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

Table B.1. *Fire weather conditions utilized for fire behavior modeling are based on weather observations from the Alder Remote Automatic Weather Station west of Asotin County (station ID 453803) between June 15-October 15, 2014-2024 and fuel moisture predictions from FireFamilyPlus. Weather conditions on July 15, 2024, during the Cougar Creek Fire are presented for comparison.*

Variable	Extreme fire weather (97th percentile)	Cougar Creek Fire (for comparison)
Wind direction	225° (west)	
20-foot wind speed[1]	17 mph	Gusts up to 12 mph
Fuel moisture[2]		
1-hour fuels	4%	4%
10-hour fuels	5%	6%
100-hour fuels	7%	6%
1,000-hour fuels	8%	9%
Live woody	30%	
Live herbaceous	60%	
Foliar moisture content	90%	

[1]20-foot wind speeds are approximately 5 times faster than winds at ground level in fully sheltered fuels; vegetation and friction slow down windspeeds closer to ground level (NWCG, 2021).

[2]One-hour fuels are dead vegetation less than 0.25 inch in diameter (e.g., pine needles), ten-hour fuels are dead vegetation 0.25 inch to 1 inch in diameter, one hundred-hour fuels are dead vegetation 1 inch to 3 inches in diameter (e.g., fine branches), and one thousand-hour fuels are dead vegetation 3 inches to 8 inches in diameter (e.g., large branches). Fuels with larger diameters have a smaller surface area to volume ratio and take more time to dry out or become more hydrated as relative humidity in the air changes.

Table B.2. *Model specifications used for fire behavior analyses with FlamMap for the 2024 Asotin County CWPP.*

Model specification	Value
Crown fire calculation method	Scott/Reinhardt (2001)
Wind options	Gridded winds
Wind grid resolution	150 meters
Resolution of calculations	30 meters
Maximum simulation time	600 minutes (10 hours)
Minimum travel paths	500 meters
Spot probability	0.2
Spotting delay	5 minutes
Lateral search depth	6 meters
Vertical search depth	4 meters

Predicted Fire Behavior

Conditional Flame Length

Flame length is the distance measured from the average flame tip to the middle of the flaming zone at the base of the fire. Flame length is measured at an angle when the flames are tilted due to effects of wind and slope (see image at right). Flame length is an indicator of fire intensity—the amount of energy released by a fire.

Conditional flame length from the 2023 PNW QWRA is the average flame length experienced at a location across all simulated wildfires that reached that location. Conditional flame length is calculated by multiplying the conditional probability of flame lengths falling in each of six fire intensity levels (0-2 feet, 2-4 feet, 4-6 feet, 6-8 feet, 8-12 feet, and >12 feet) by the midpoint flame length for each class. For the flame length class of >12 feet, a flame length midpoint of 100 feet was used to represent torching trees. **Figure B.2** shows conditional flame lengths across Asotin County.

Conditional Probability of Flame Lengths Exceeding 8 Feet

Conditional probability of flame lengths exceeding 8 feet is the probability that flame lengths exceed the threshold beyond which firefighters can safely engage with a wildfire at the flaming front (**Table B.3**). Conditional probability of flame lengths exceeding 8 feet in Asotin County was determined by adding together the conditional probability for the 8-12 feet and >12 feet fire intensity levels from the 2023 PNW QWRA (**Figure B.3**).

Most Likely Fire Type

Each location on the landscape is described by the most likely type of fire behavior it could experience based on all simulated wildfires that reached that location. Fire types for the 2023 PNW QWRA are surface fire (no forest canopy present), underburn (surface fire where forest canopy is present), low-grade passive crown fire (0-25% crown fraction burned), mid-grade passive crown fire (>25-60% crown fraction burned), high-grade passive crown fire (>60-90% crown fraction burned), and active crown fire (>90%). WildEST produces a probability of each type of fire occurring at a given location, and The Ember Alliance determined the type of fire with the greatest probability of occurring at each location in Asotin County using output from the 2023 PNW QWRA (**Figure B.4**).

Rate of Spread

The rate of spread is the speed with which a fire is moving away from the site of origin (head fire). Rates of spread are faster on steep slopes, when wind speeds are greater and aligned with the direction of spread, and in fine, flashy fuels like continuous, dry grass. Ember Alliance modeled rate of spread under extreme weather conditions using FLamMap and fuels and topographic data from the 2023 PNW QWRA.

Under hot, dry, and windy weather, 70% of Asotin could experience rapid rates of spread that quickly outpace the ability of initial firefighting resources to suppress (**Figure B.5**). Rates of spread can be high to extreme in grasslands and shrublands in Asotin County, particularly on steep slopes. Therefore, even residents living in areas with few to no trees can be at risk from wildfires.

Fire Behavior Class

Wildland firefighters pay attention to current and expected fire behavior when making tactical decisions. Fire behavior classes are based on flame length, rate of spread, and crown fire activity and are utilized by firefighters to guide tactical decisions following the Haul Chart (**Table B.3**). The Ember Alliance combined estimates of flame length and fire type from the 2023 PNW QWRA and rate of spread estimates from FlamMap to produce a map of fire behavior class across Asotin County (**Figure B.6**).

Under hot, dry, and windy weather, 15% percent of Asotin County could experience high to extreme fire behavior, including ember production that ignites additional fires away from the main fire and the movement of high-intensity fire from treetop to treetop. Such fires are extremely challenging if not impossible to control until winds die down and fuel moisture increases. High-intensity wildfires and active crown fires are most likely in the southwestern part of Asotin County.

Table B.3. *The Haul Chart and tactical interpretations. The Haul Chart is a tool used by firefighters for relating fire behavior to tactical decision-making (NWCG, 2019).*

Fire behavior class	Flame length (feet)	Rate of spread (chains/hr)*	Tactical interpretation
Very low, smoldering	<1	0-2	Fire is not spreading and has limited flames. Fire can be attacked at the head or flanks by persons using handtools. Handline will hold the fire.
Low, creeping, spreading	1-4	2-5	Fire can be attacked at the head or flanks by persons using handtools. Handline should hold the fire.
Moderate, running	4-8	5-20	Fires are too intense for direct attack at the head of the fire by persons using handtools. Handline cannot be relied on to hold the fire. Equipment such as dozers, engines, and retardant aircraft may be effective.
High, torching and spotting	8-11	20-50	Fires present serious control problems with torching, crowning, and spotting. Control efforts at the head of the fire are probably ineffective.
Very high, active crown fire	11-25	50-150	Crowning, spotting, and major fire runs are expected. Control efforts at the head of the fire are ineffective.
Extreme and erratic	>25	>150	Extreme intensity, turbulent fire, and chaotic spread. Escape to safety should be considered.

**Note:* 1 chain = 66 feet. Chains are commonly used in forestry and fire management as a measure of distance. 1 chain/hour = 1.1 feet/minute.

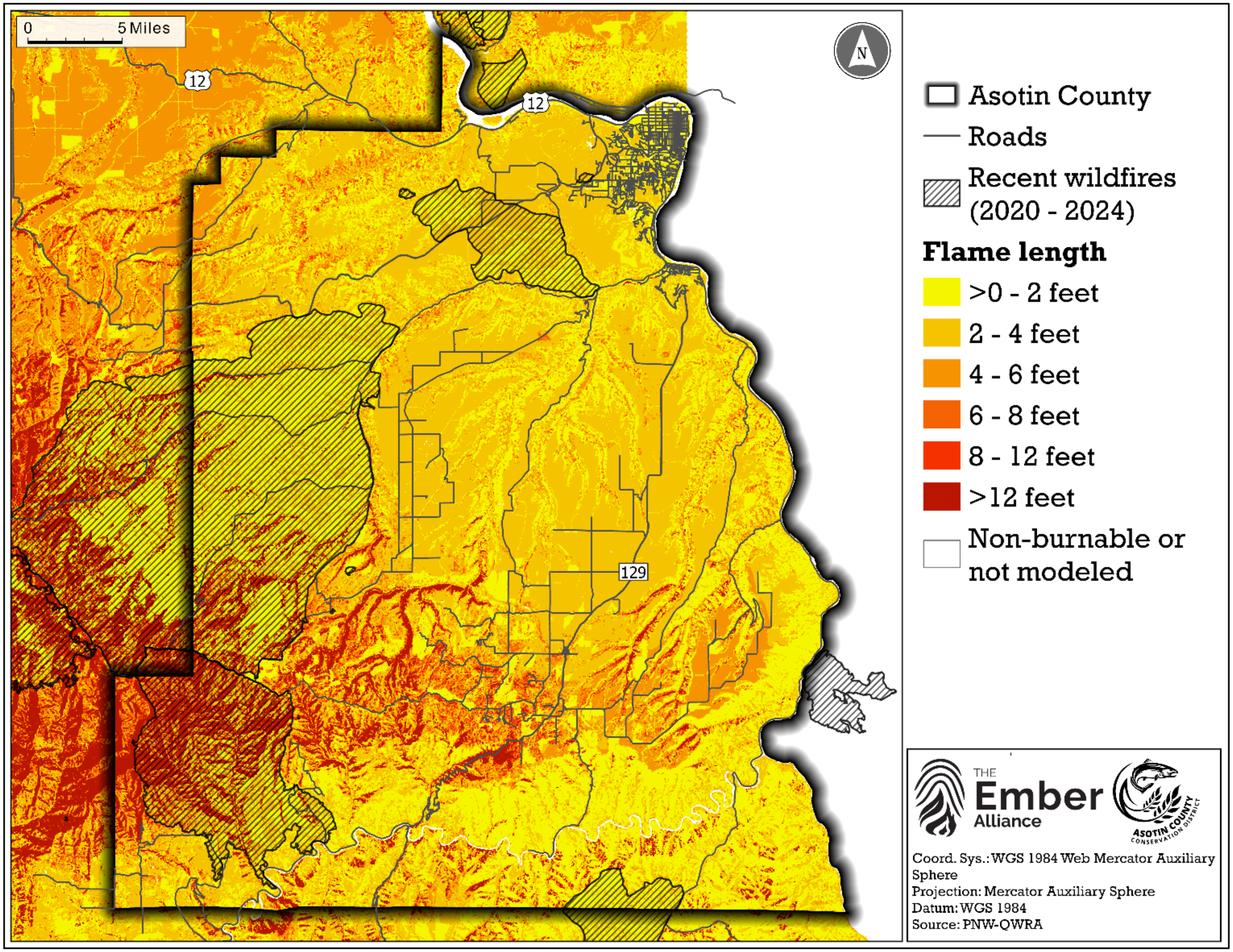


*Figure B.2. Conditional flame lengths in Asotin County under high to extreme fire weather conditions, categorized by the Haul Chart (***Table B.1***). Source: 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

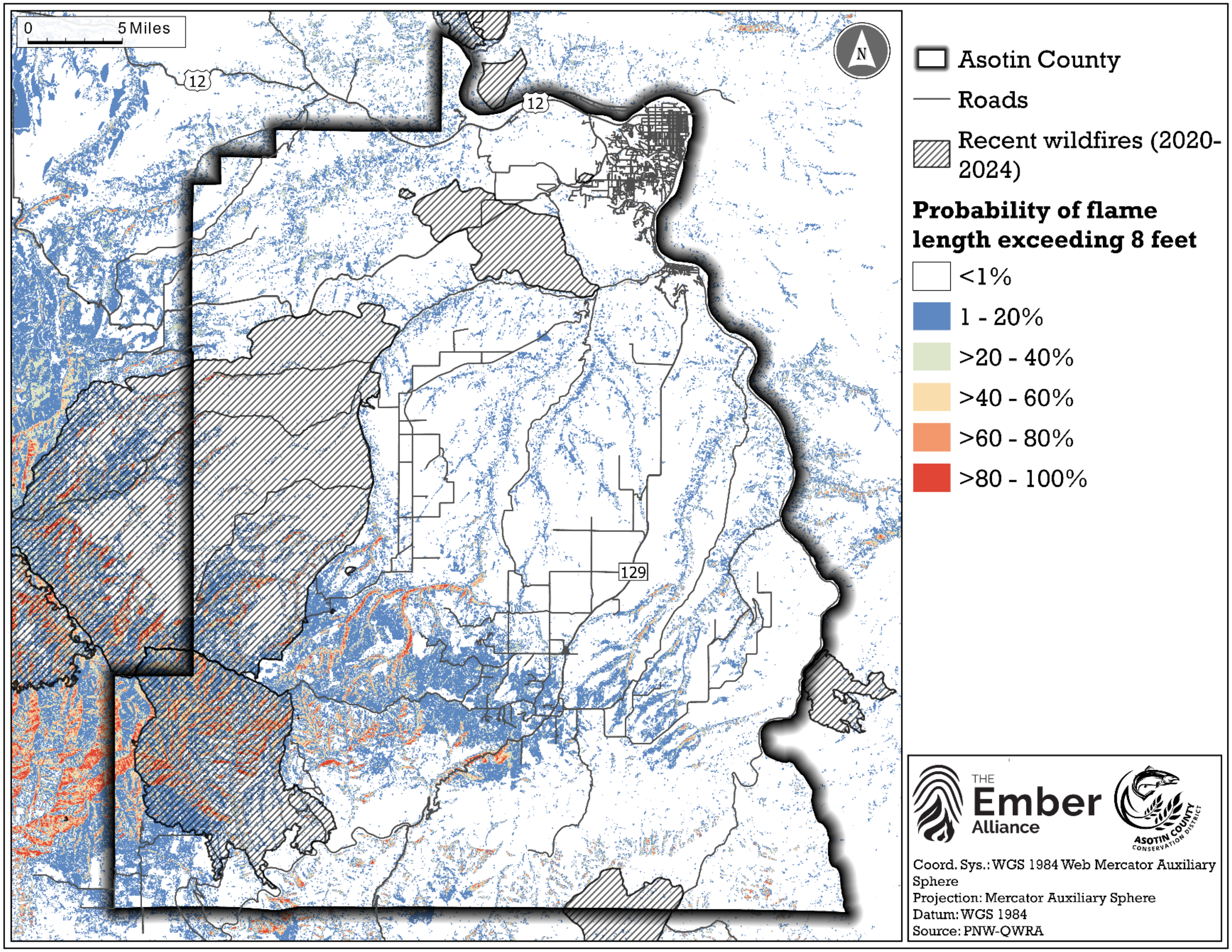


Figure B.3. *Conditional probability of flame lengths exceeding 8 feet in Asotin County under high to extreme fire weather conditions. Firefighters can no longer safely engage with a wildfire at the flaming front when flame lengths exceed 8 feet (**Table B.3**). Source: 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

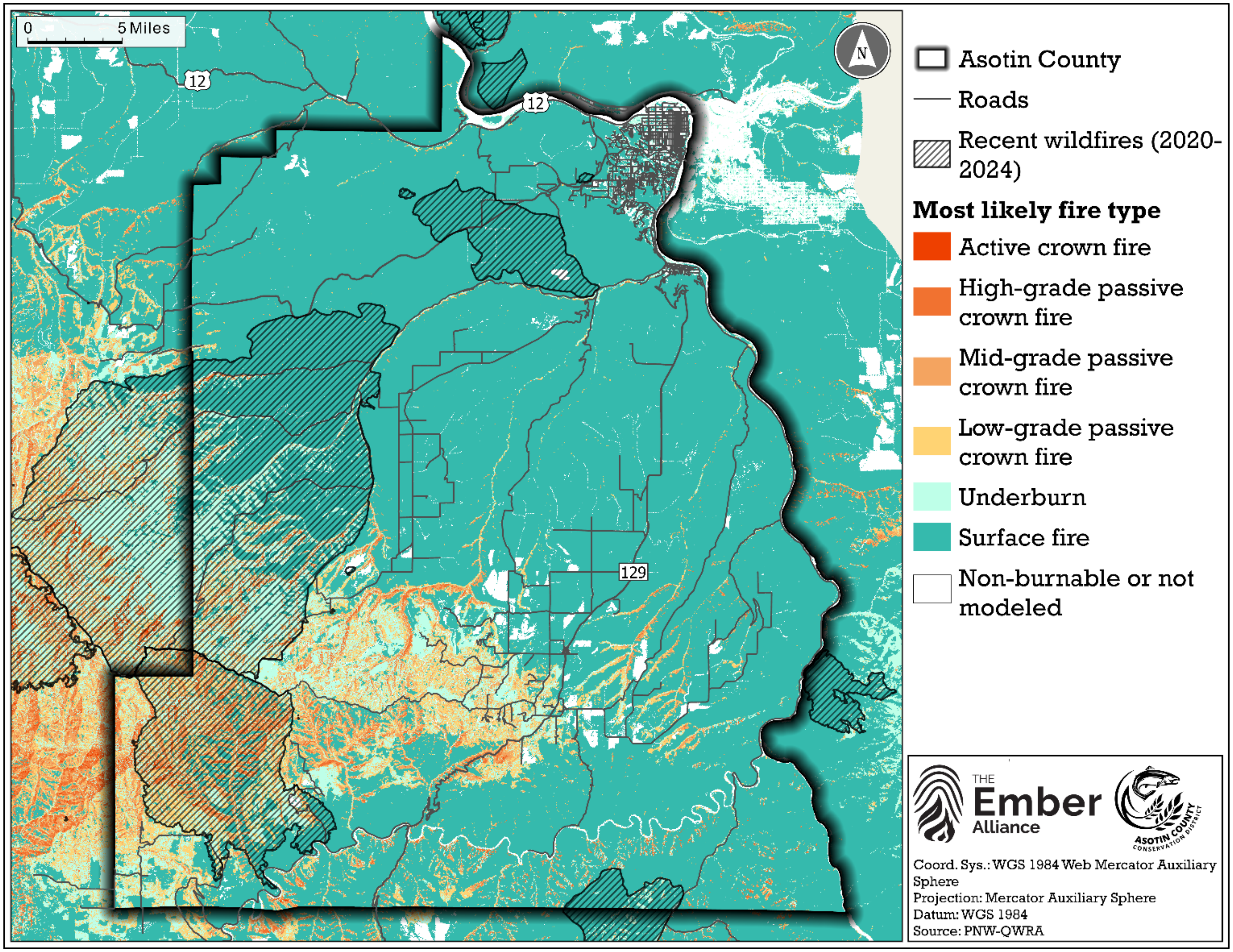


Figure B.4. *Most likely fire type across Asotin County under high to extreme fire weather conditions. Source: 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

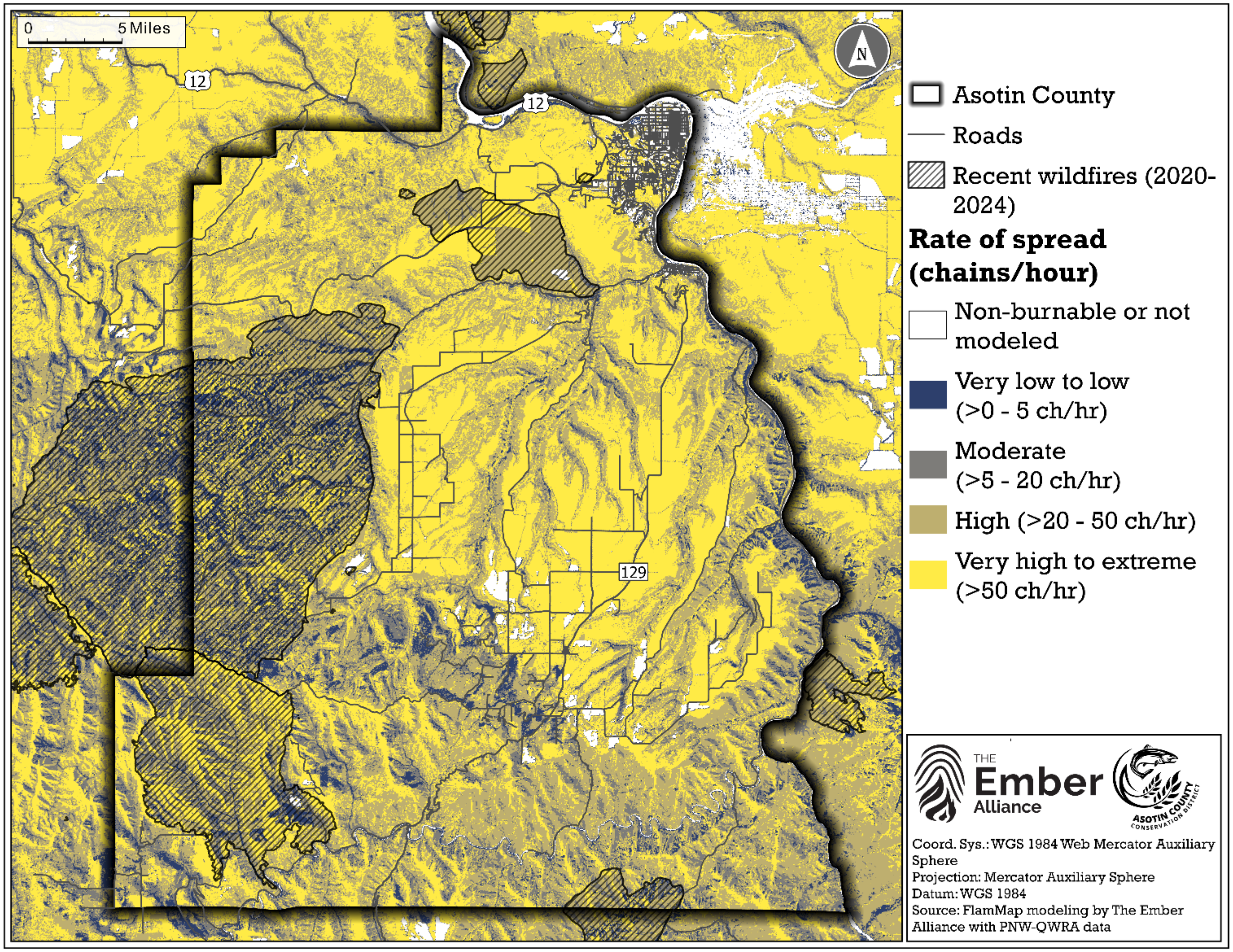


Figure B.5. *Rate of spread (chains/hour) in Asotin County under extreme fire weather conditions, categorized by the Haul Chart (**Table B.1**). Chains are commonly used in forestry and fire management as a measure of distance. 1 chain = 66 feet. 1 chain/hour = 1.1 feet/minute. Source: Analysis by The Ember Alliance using data from the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

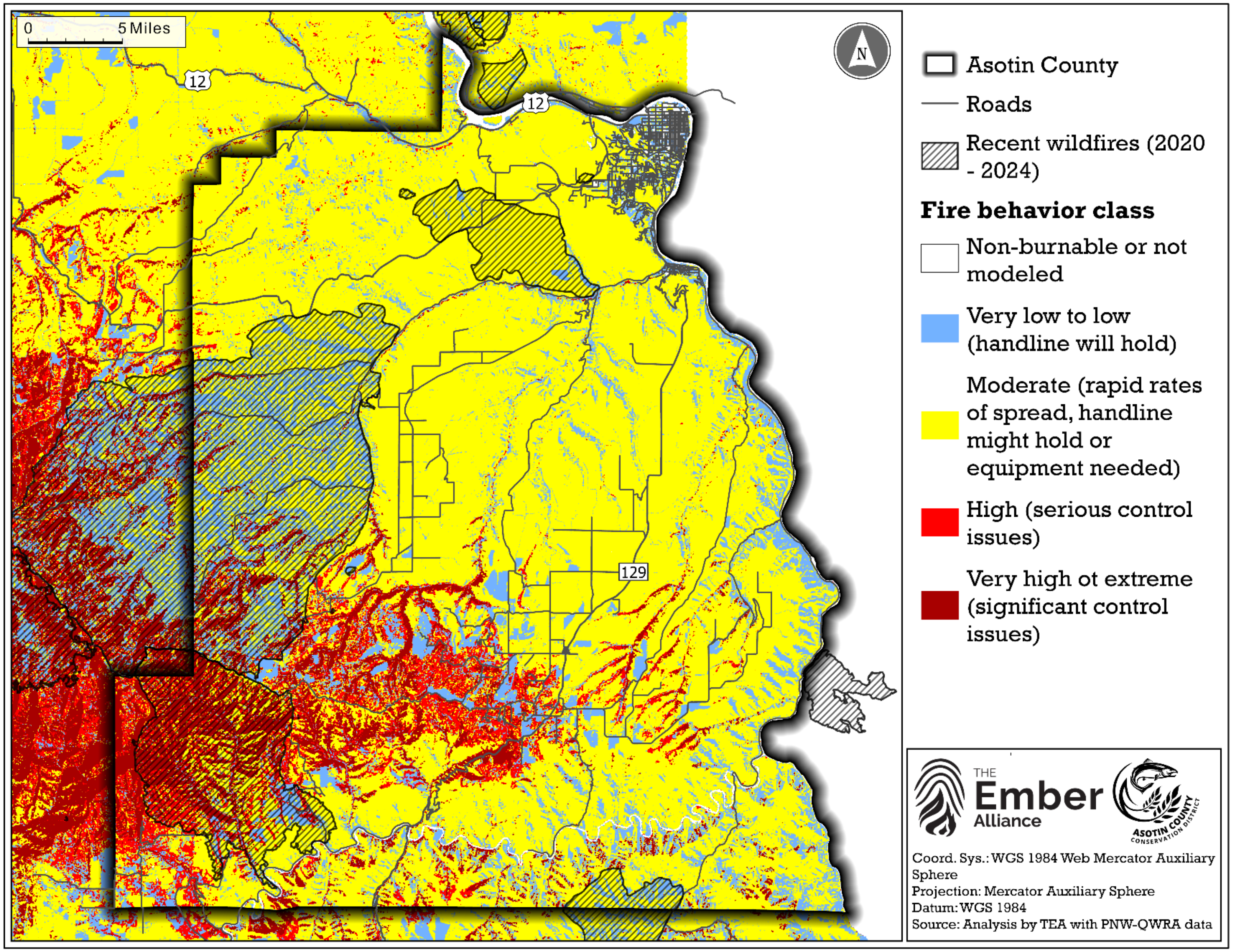


Figure B.6. *Under hot, dry, and windy weather, 15% percent of the Asotin County could experience high to extreme fire behavior and 70% could experience rapid rates of spread that quickly outpace the ability of initial firefighting resources to suppress. Fire behavior classes come from the Haul Chart (**Table B.1**). Source: Analysis by The Ember Alliance using data from the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

Burn Probability

Burn probability is the annual likelihood of wildfire at a given location. Fuels, topography, and wind affect burn probability by dictating how fire spreads across the landscape. Modelers for the 2023 PNW QWRA divided the number of fire perimeters that burned each location by the total number of simulated fires from FSim to determine the burn probability. The Ember Alliance calculated normalized burn probability by dividing all burn probabilities by the maximum burn probability in the area in and around Asotin County to produce values ranging from 0 to 1.

Most of Asotin County has high to very high probability relative to the state of Washington according to the 2023 PNW QWRA (**Figure B.7**). High burn probabilities occur in much of Asotin County due to the potential for rapid rates of fire spread across expansive grasslands and in areas with steep, complex terrain. Very high burn probabilities were predicted for areas that burned in the 2024 Cougar Creek Fire. Lower burn probabilities are predicted for the area burned by the 2021 Lick Creek Fire, but the extensive colonization of invasive, annual grasses could actually increase the likelihood of wildfire in the burned area.

Expected Net Value Change

Expected net value change (eNVC) is a quantitative assessment of wildfire risk to highly valued resources and assets (HVRAs) at each location of a landscape based on potential fire intensity, likelihood of wildfire, and the exposure, relative importance, and sensitivity of values at risk to different types of fire behavior. Expected net value change is positive where the overall impact of wildfire is expected to benefit HVRAs present at a location, and eNVC is negative where the overall impact is expected to degrade HVRAs. Expected net value change is calculated by multiplying flame length probability for each flame length class by the potential impact of each flame length class on each HVRA (positive or negative impact) by the relative importance of each HVRA by the burn probability at each location.

Various subject matter experts from different universities, state agencies, and federal agencies collaboratively identified which HVRAs to include in the 2023 PNW QWRA, selected the relative importance of HVRAs, and defined the sensitivity of each HVRA to different types of fire behavior (also known as response functions). Categories of HVRAs were people and property (35% relative importance), drinking water (18%), infrastructure (16%), timber (12%), ecological integrity (11%), wildlife habitat (7%), agriculture (1%), and recreation infrastructure (<1%). Maps of and response functions for HVRAs are provided throughout McEvoy et al. (2023), and appendix A of McEvoy et al. (2023) lists sub-HVRAs.

According to the 2023 PNW QWRA, wildfire and/or broadcast prescribe burning could benefit portions of Asotin County by restoring ecological conditions and reducing fuel loads. Beneficial fire is more likely in areas without homes and where expected fire behavior is moderate (**Figure B.8**).

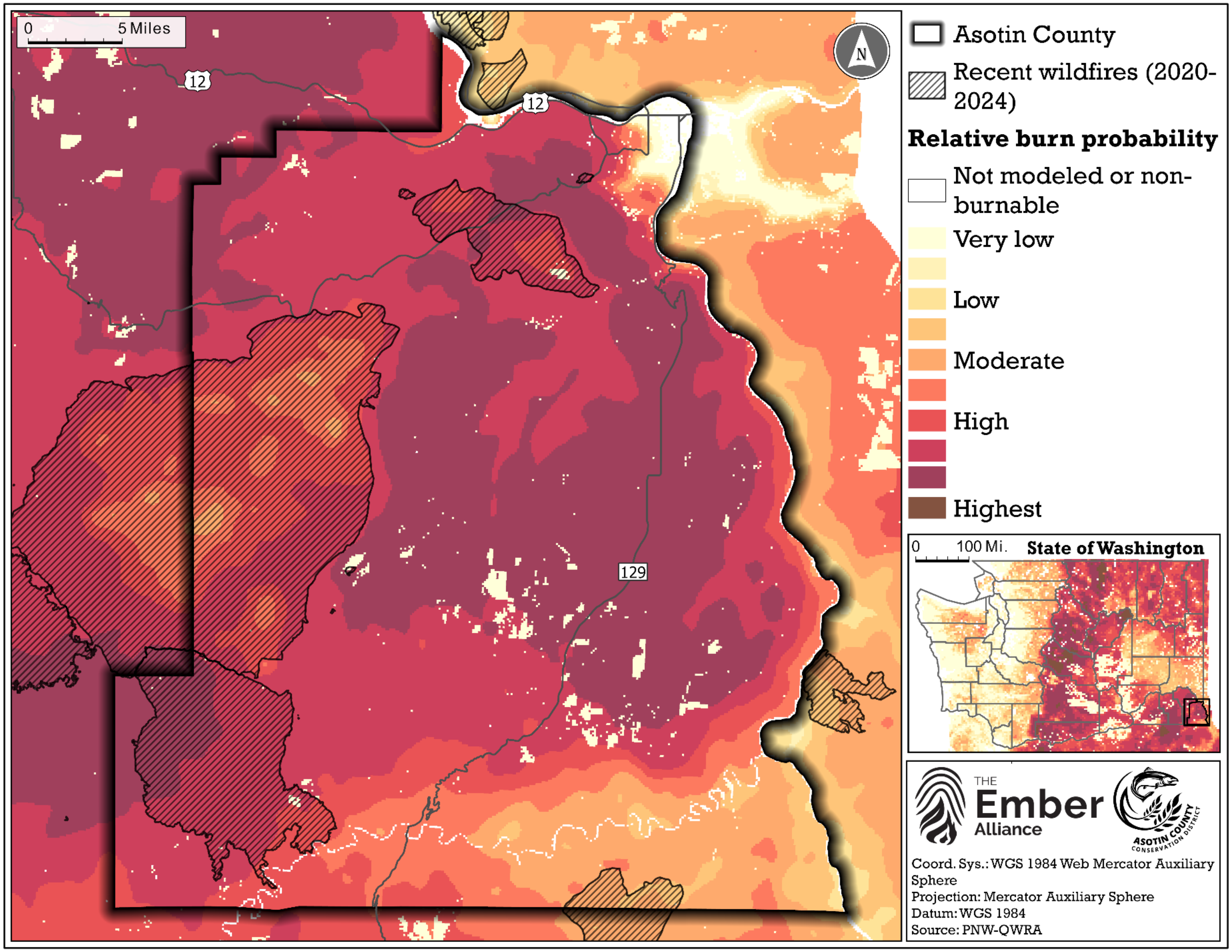


Figure B.7. *Most of Asotin County has high to very high burn probability relative to the state of Washington. Source: 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

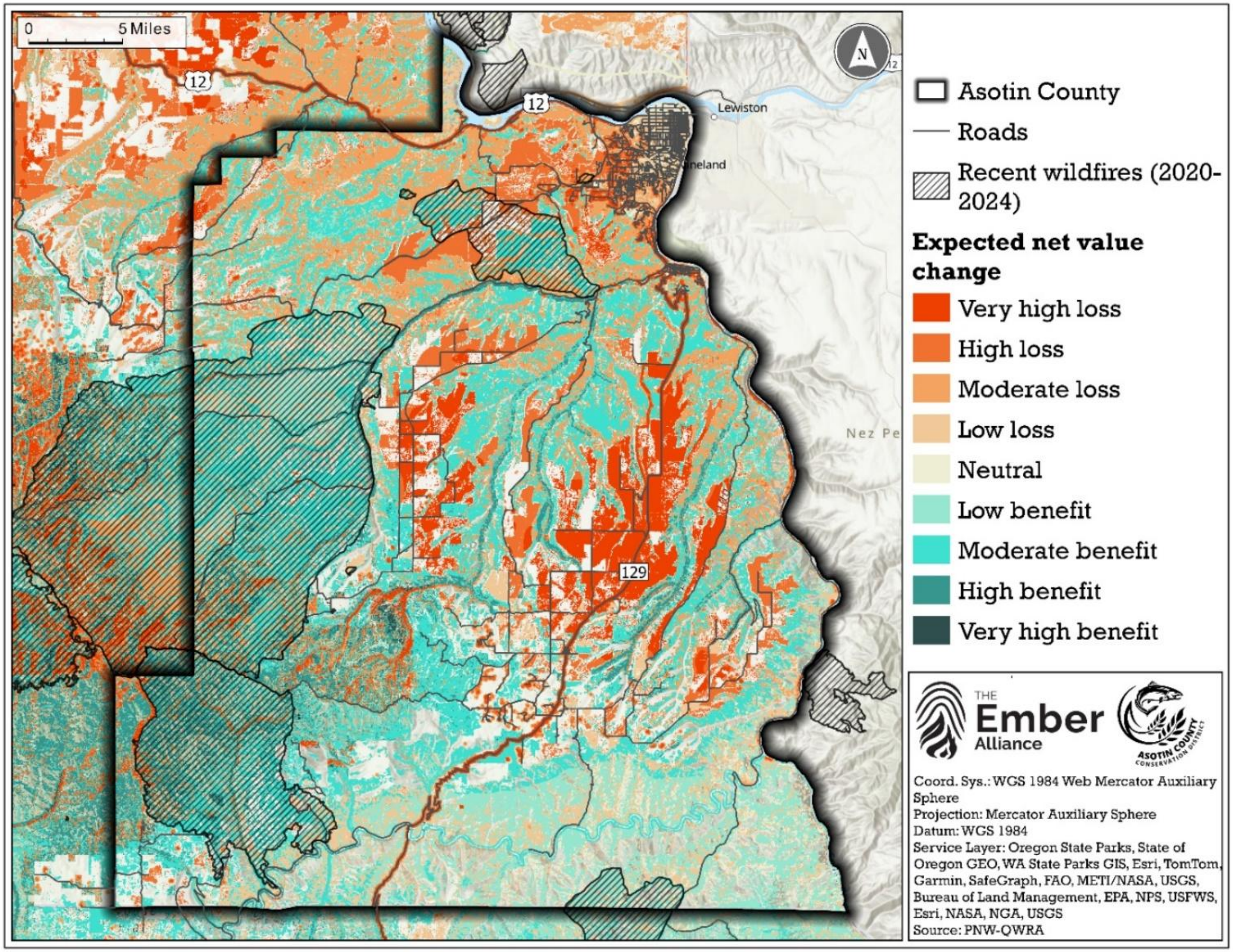


Figure B.8. *Based on an analysis of expected net value change, wildfire and/or broadcast prescribed burning could benefit portions of Asotin County by restoring ecological conditions and reducing fuel loads. Source: 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

Predicted Radiant Heat and Ember Cast Exposure

The Ember Alliance assessed the risk that radiant heat and long-range ember cast pose to structures. Radiant heat from burning vegetation can ignite nearby homes, and embers emitted from burning vegetation or other homes can travel long distances and ignite vegetation and homes away from the main fire. This analysis is useful for comparing relative exposure across the entire county and not for evaluating absolute risk to individual homes. Fire behavior outputs from the 2023 PNW QWRA cannot account for defensible space, the fire resistance of materials used in home construction, and other fine-scale variation in fuel loads that contribute to the ignition potential of individual homes.

Embers can ignite homes even when the flaming front of a wildfire is far away. See Section 3.a. Mitigate the Home Ignition Zone for tangible and relatively simple steps you can take to harden your home against embers. Mitigation practices, such as removing pine needles from gutters and installing covers over vents, can make ignition less likely and make it easier for firefighters to defend your property.

Ember production and transport and their ability to ignite recipient fuels are guided by complex processes structure (Caton et al., 2016), so The Ember Alliance utilized research by Beverly et al., (2010) and Caggiano et al., (2020) for simplified predictions of exposure to flame impingement, radiant heating, and long-range ember cast. Exposure is based on distance from long flame lengths and torching trees assuming:

- Wildfires with high to very high rates of spread can outpace the ability of firefighters to suppress the fire and result in flames impinging directly on structures. High to very high rates of spread are >20 chains/hour according to the Haul Chart (**Table B.3**).
- Radiant heat can ignite homes when extreme fire behavior (flame lengths > 8 feet) occurs within 33 yards (30 meters) of structures. Areas with conditional flame lengths of >8 feet (**Figure B.2**) and areas with conditional probability of >1% of flame lengths exceeding 8 feet (**Figure B.3**) were included in these predictions. Research summarized by (Abo El Ezz et al., 2022) suggest that 75% of structures are destroyed when exposed to >8-foot flame lengths during actual wildfires.
- Long-range embers can reach homes within 930 yards (850 meters) of mid-grade passive crown fire, high-grade passive crown fire, or active crown fires (**Figure B.4**). (Caggiano et al., 2020) found that a vast majority (95%) of home losses during WUI fires occurred within 100 meters of wildland vegetation, but homes were lost as far as 850 meters from the flaming front.

Almost 20% of homes in Asotin County in the WUI planning and prevention area could be exposed to rapid rates of spread, 10% of homes to radiant heat, and 17% of homes to embers (**Figure B.9**). The percentage of homes potentially exposed to embers is as high as 95% in the Anatone Forestland zone, 80% in the Montgomery Ridge zone, and 75% in the Grouse Flats/Mountain View zone. Exposure to radiant heat and embers is lower in the eastern portion of Asotin County due to the prevalence of grassland fuel types, which tend to support lower flame lengths and result in fewer embers produced. However, homes in the grasslands could be ignited by flame impingement when rapidly growing wildfires outpace the ability of firefighters to suppress the fire.

Most structures in Asotin County in the WUI planning and prevention area (85% of structures) have overlapping home ignition zones (HIZ; 0-100 feet from structures) with at least one neighboring structure (**Figure B.10**). This creates the opportunity for home-to-home ignitions, especially if homes are not mitigated or hardened (Syphard et al., 2012). The Clarkston Heights and City of Asotin zones have the greatest potential for structure-to-structure spread due to higher structure densities. This analysis utilized the location of all structures, including outbuildings, garages, and other secondary structures, and not just the location of primary addresses. Secondary structures also need to be hardened to reduce the likelihood of ignition and fire spread to primary structures (Maranghides et al., 2022).

Fuel treatments within the Asotin County WUI planning and prevention area and mitigation around the HIZs for all structures can reduce the exposure of homes to radiant heat and short-range ember cast. All structures should be built and upgraded with ignition-resistant materials to reduce the ability of embers to penetrate the building.

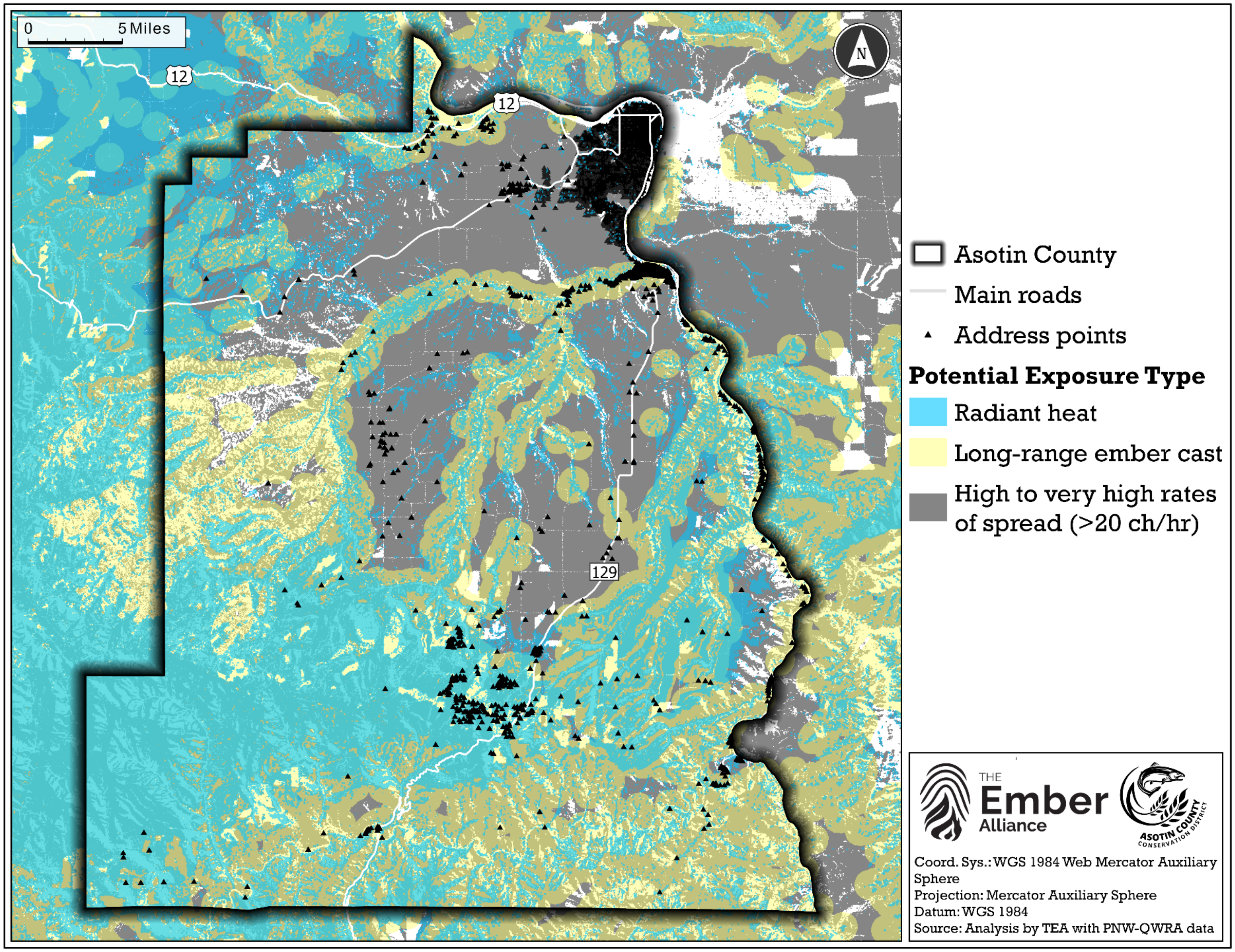


Figure B.9. *Predicted exposure to radiant heat, long-range ember cast, and high to very high rates of spread under high to extreme fire weather conditions in Asotin County. Source: Analysis by The Ember Alliance using data from the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

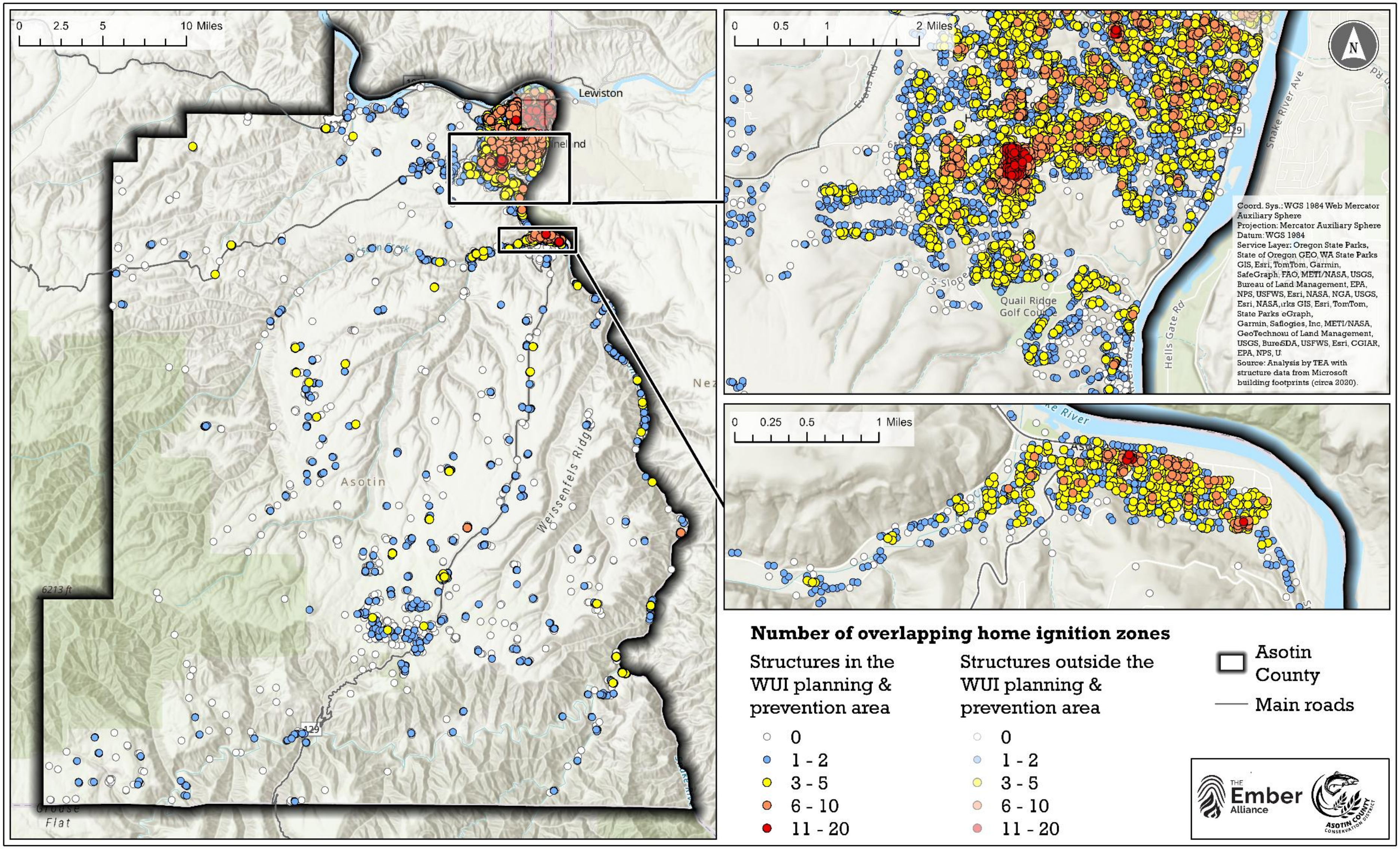


Figure B.10. *85% of structures in the Asotin County WUI planning and prevention area have overlapping home ignition zones (HIZs; 0-100 feet from structures). Structures with overlapping HIZs are at greater risk of structure-to-structure ignitions from radiant heat and ember cast (Syphard et al., 2012). Analysis by The Ember Alliance using structure data from Microsoft building footprints (circa 2020).*

Exposure of Highly Valued Resources and Assets

The Ember Alliance identified highly valued resources and assets (HVRAs) in areas that could experience damaging radiant heat and/or long-range ember cast to inform project prioritization for the CWPP (**Table B.4**; **Figure B.11**). Based on this analysis and expert opinion, one of the first-priority projects for the 2025 Asotin County CWPP is mitigation around communication towers (see **Section 4.c Priority Project Areas for Asotin County**). The analysis was shared with the U.S. Forest Service, WA DNR, and WSP to help guide mitigation actions around their infrastructure. All communication towers, recreational areas, historic structures, ranger stations, and lookout towers on the Umatilla National Forest and Field Sprints State Park could be exposed to radiant heat and ember cast. Exposure of water and utility infrastructure was shared with the Asotin CWPP Core Team, which included a representative from Asotin County Department of Emergency Management, but locations were redacted from public-facing maps for security purposes.

Keep in mind that fire behavior analyses from the 2023 PNW QWRA at the scale of 0.2 acres (30 x 30 meters), and input fuel data is developed via extrapolation of aerial imagery and satellite data. **Site-level assessments are vital to verify exposure of HVRAs and develop specific plans for mitigation.**

Table B.4. *Highly valued resources and assets (HVRAs) with potential exposure to radiant heat and/or embers. Source: Analysis by The Ember Alliance using data from the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment.*

HVRA category and sub-category	Name / location	Potential exposure
Vulnerable populations		
Mobile home park	City of Asotin	Embers
School	Asotin - Anatone Elementary School	Embers
School	Asotin - Anatone High School	Embers
School	Asotin - Anatone Middle School	Embers
Communication infrastructure		
Cell tower	Licensee: Washington RSA Limited Partnership	Embers
Cell tower	Licensees: Washington RSA Limited Partnership and RCC Minnesota, LLC	Embers
FM and land-mobile transmission tower	Licensee: City of Clarkston	Embers
Radio repeater	Licensee: U.S. Forest Service	Embers
Cell tower	Licensee: RCC Minnesota, LLC	Radiant heat
Cell tower	Licensee: Washington RSA Limited Partnership	Radiant heat
Cell tower	Licensee: Washington RSA Limited Partnership	Radiant heat and embers
Cell tower with fire detection camera	Licensees: Inland Cellular and WA DNR	Radiant heat and embers
Land-mobile transmission tower	Licensee: Asotin County	Radiant heat and embers
Land-mobile transmission tower	Licensees: Asotin County and Asotin School District	Radiant heat and embers
Radio repeater and land-mobile transmission tower	Licensees: WA DNR and Asotin County	Radiant heat and embers

HVRA category and sub-category	Name / location	Potential exposure
Land-mobile transmission tower	Licensees: WA DNR, Asotin County, and Whitman County	Radiant heat and embers
Radio repeater	Licensee: U.S. Forest Service	Radiant heat and embers
Radio repeater	Licensee: U.S. Forest Service	Radiant heat and embers
Radio repeater	Licensee: U.S. Forest Service	Radiant heat and embers
Land-mobile transmission tower		Radiant heat and embers
Radio repeater	Saddle Butte Repeater	Radiant heat and embers
Radio repeater, TV, FM, and mobile transmission tower	Diamond Peak Repeater	Radiant heat and embers
Safety and security		
Fire station	Asotin Fire Department	Embers
Government building	Asotin County Courthouse	Embers
Law enforcement	Asotin County Sheriff's Office	Embers
Ranger station	WDFW working ranch	Radiant heat
Government building	Clearwater Guard Station	Radiant heat and embers
Lookout	Big Butte Lookout Tower and historic structures	Radiant heat and embers
Lookout	Clearwater Lookout	Radiant heat and embers
Ranger station	Wenatchee Guard Station and historic structures	Radiant heat and embers
Ranger station	Field Spring State Park Field Office	Radiant heat and embers
Landmarks and recreation		
Cabin / campground	Chief Timothy Park	Embers
Fairgrounds	Asotin County Fairgrounds	Embers
Historic site	Delores Barn	Embers
Historic site	Farmhouse and other historic structures	Embers
Historic site	Rimmelspacher Farmstead	Embers
Historic site	Full Gospel Church	Embers
Historic site	Indian Timothy Memorial Bridge	Embers
Other recreation	WDFW public gun range	Embers
Cabin / campground	Misery Spring Campground	Radiant heat and embers
Cabin / campground	Cabin Saddle Campground	Radiant heat and embers
Cabin / campground	Wickiup Campground	Radiant heat and embers
Cabin / campground	Boundary Campground	Radiant heat and embers
Cabin / campground	Alder Thicket Campground	Radiant heat and embers

HVRA category and sub-category	Name / location	Potential exposure
Cabin / campground	Teal Spring Campground	Radiant heat and embers
Cabin / campground	Big Spring Campground	Radiant heat and embers
Cabin / campground	Spruce Spring Campground	Radiant heat and embers
Cabin / campground	Misery Warming Cabin	Radiant heat and embers
Historic site	Floch, Benjamin Homestead	Radiant heat and embers
Historic site	Wenatchee Guard Station barn	Radiant heat and embers
Historic site	Lick Creek Cow Camp Bunkhouse and Cookhouse	Radiant heat and embers
Historic site	Grande Ronde River Bridge	Radiant heat and embers
Historic site	Ray Ridge Viewpoint	Radiant heat and embers
Other recreation	Cloverland Sno-Park	Radiant heat and embers
Other recreation	Indian Tom Corral	Radiant heat and embers
Other recreation	Little Butte Corral	Radiant heat and embers
Trailhead	Wenatchee Trailhead	Radiant heat and embers
Trailhead	Kelly Camp Trailhead	Radiant heat and embers
Trailhead	Saddle Spring Trailhead	Radiant heat and embers
Trailhead	Buffalo Eddy Trailhead	Radiant heat and embers
Other assets		
Airport	Snake River	Embers
Cemetery	Asotin City Cemetery	Embers
Weather station	Alder Ridge RAWS	Embers
Airport	Kiwi Airport	Radiant heat
Cemetery	Vineland Cemetery	Radiant heat
Cemetery	Anatone Cemetery	Radiant heat
Weather station	Snow Springs SNOTEL	Radiant heat and embers
Weather station	Sourdough Gulch SNOTEL	Radiant heat and embers

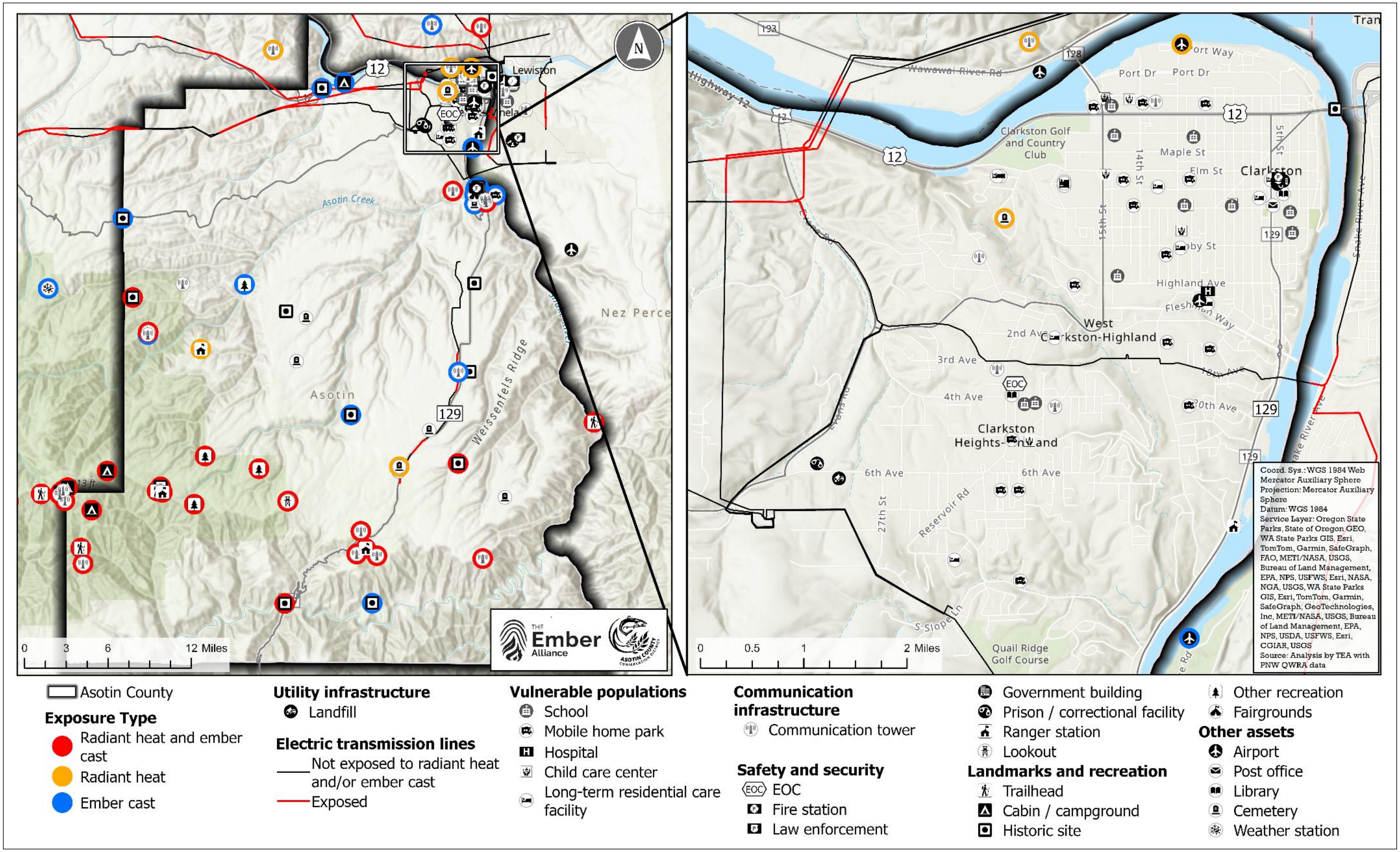


Figure B.11. *Predicted exposure of highly valued resources and assets (HVRAs) in and around Asotin County to radiant heat and/or ember cast. Source: Analysis by The Ember Alliance using data from the 2023 Pacific Northwest Quantitative Wildfire Risk Assessment. See* ***Figure 2.a.3*** *for source credits for locations of HVRAs.*

Roadway Survivability

The Ember Alliance utilized fire behavior predictions to identify road segments that could experience non-survivable conditions during a wildfire (**Figure B.12**). Roadway data came from Asotin County, the U.S. Forest Service, and WSP. "Non-survivable roadways" were defined as portions of roads adjacent to areas with conditional flame lengths greater than 8 feet (**Figure B.2**) or areas with conditional probability of >5% of flame lengths exceeding 8 feet (**Figure B.3**). Maximum conditional flame length was identified in 60 m x 60 m areas along all roads.

Drivers stopped or trapped on potentially non-survivable roadways could have a lower chance of survival due to radiant heat emitted from fires of this intensity. This assumption is based on the Haul Chart, which is a standard tool used by firefighters to relate flame lengths to tactical decisions (**Table B.3**). Direct attack of a flaming front is no longer feasible once flame lengths exceed about 8 feet due to the intensity of heat output (NWCG, 2019). Flames greater than 8 feet could also make roads impassable and cut residents off from egress routes. Non-survivable conditions are more common along roads lined by thick forests with abundant ladder fuels, such as trees with low limbs and saplings and tall shrubs beneath overstory trees.

Under high to extreme fire weather conditions, almost 12% of the roads in the Asotin County WUI planning and prevention area could experience non-survivable conditions (**Figure B.12**). About 14% of roads are potentially non-survivable in the Mongomery Ridge zone, 35% of roads are in the Anatone Forestland zone, and over 50% of roads in the Umatilla Public Forestland zone. Most roads on Field Springs State Park could potentially experience non-survivable conditions.

Some non-survivable road segments across Asotin County are part of primary or secondary evacuation routes (**Figure 3.a.9**), including portions of Peola Road and Lick Creek Road west of Asotin County, Asotin Creek Road, Smoothing Iron Road, Cloverland Road, Wenatchee-Big Butte Road, Couse Creek Road, Grouse Creek Road, Grouse Flat Road, and State Route 129 near Field Springs State Park. These areas are a high priority for roadside fuel mitigation to create safer conditions for residents, visitors, fire fighters, and other first responders. See priority roadside project areas for the 2025 Asotin County CWPP in **Section 4.c. Priority Project Areas for Asotin County.**

Mitigation actions along sections of road with high risk for non-survivable conditions during a wildfire can increase the chances of survival for residents stranded in their vehicles during a wildfire and decrease the chance that roadways become impassable due to flames. Evacuation preparedness is paramount for all residents of Asotin County.

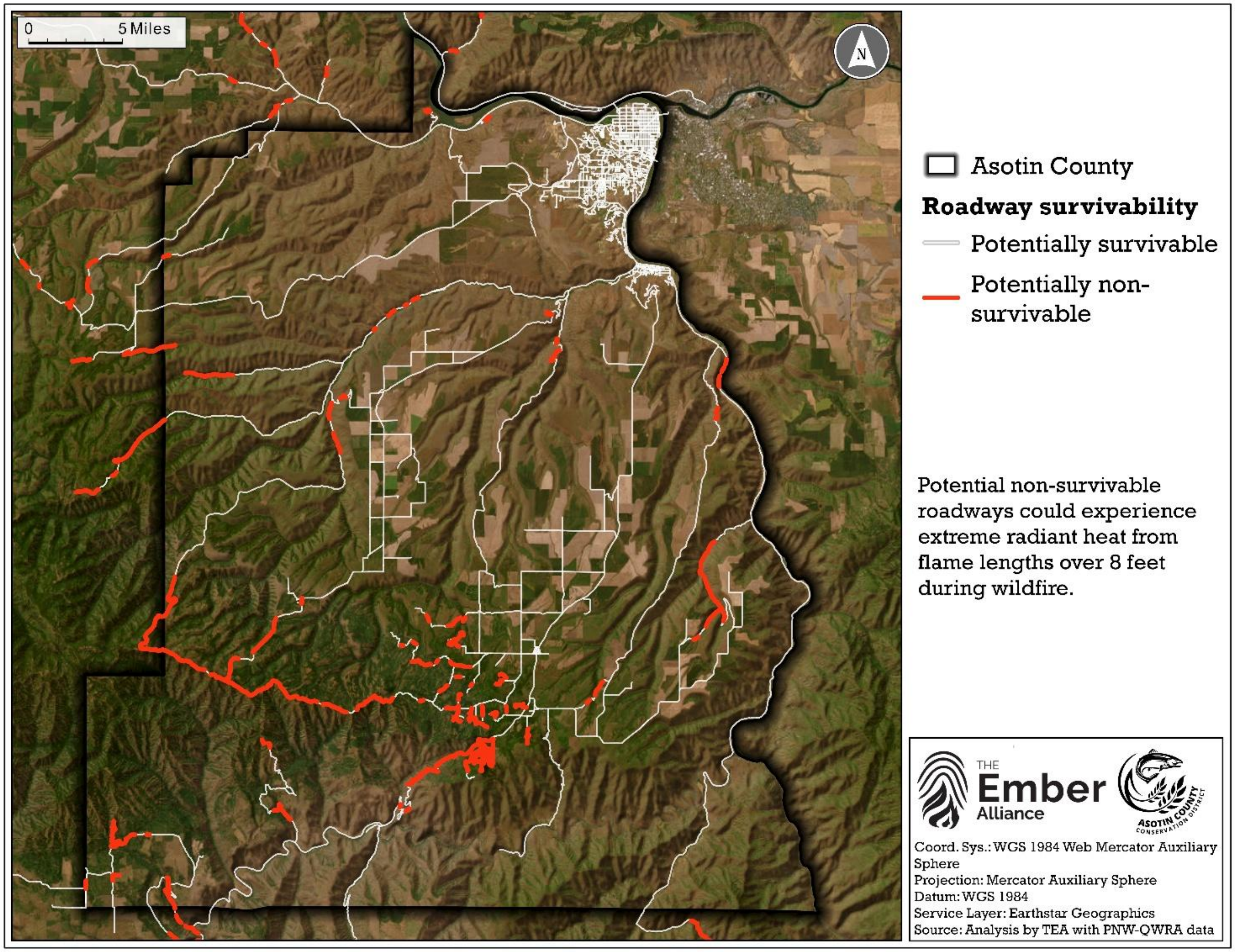


Figure B.12. *Almost 12% of roads in the Asotin County WUI planning and prevention area could experience potentially non-survivable conditions (>8-foot flame lengths) while a fire is actively burning over them. Source: Analysis by The Ember Alliance with data from the 2022 Pacific Northwest Quantitative Wildfire Risk Assessment.*

Defining the WUI Planning and Prevention Area

Delineating the wildland-urban interface (WUI) is a critical component of CWPPs in compliance with the Healthy Forest Restoration Act (HFRA) of 2003. Communities can extend the WUI boundary into adjacent areas that pose a wildfire threat to their community, which can serve as a strategic location for wildland firefighting, and that are adjacent to evacuation routes for the community (HFRA 4 U.S.C. §101.16). Strategic wildfire mitigation across the WUI can increase the safety of residents and wildland firefighters and reduce the chances of home loss.

WA DNR guidance for CWPPs permits CWPP groups to collaboratively develop a WUI planning and prevention map that differs from the WA DNR WUI map. The purpose of a WUI planning and prevention map to guide fuel reduction projects and fire prevention planning and is NOT tied to state building codes. Information gathered while developing the WUI planning and prevention map for Asotin County might aid in future efforts by the WA DNR to incorporate local insights into regulatory WUI maps.[9]

The WUI planning and prevention area for the Asotin County CWPP includes populated areas and the surrounding landscape that could transmit wildland fire towards homes, evacuation routes, and other highly valued resources and assets. The Asotin County CWPP Core Team and The Ember Alliance evaluated the location of structures, evacuation routes, the WA DNR WUI delineation for populated areas, potential operational delineations (PODs) from the U.S. Forest Service, priority watersheds from the WA DNR 20-year Eastern Washington Forest Health Plan, potential fire behavior, WUI from the 2008 Asotin County CWPP, and the WUI planning and prevention area for the Wallowa County CWPP. The Wenaha-Tucannon Wilderness was excluded from the WUI planning and prevention area. The Wilderness is separated from populated portions of the county by POD boundaries that could be treated to protect the community. It is unlikely that the U.S. Forest Service would consider fuel treatments in the Wilderness itself.

The final WUI planning and prevention area includes all of Asotin County outside of the City of Clarkston and PODs where wildfires within those boundaries could threaten highly valued resources and assets in Asotin County **(Figure B.13**). Practically all areas in the WUI planning and prevention area could be exposed to radiant heat, long-range ember cast, or high to very high rates of fire spread (**Figure B.14**). The interspersal of flammable wildland vegetation with dense neighborhoods in Clarkston Heights creates an opportunity for wildfires to transition into urban conflagration that spread from home-to-home. Strategic and high-quality fuel mitigation work along POD boundaries that define the WUI planning and prevention area for Asotin County could reduce the exposure of structures and other highly valued resources and assets across the county.

The current WA DNR WUI map includes the City of Clarkston and excludes portions of Clarkston Heights due to methodological differences between the approach used for this CWPP and that used by the WA DNR. Although the City of Clarkston is close to large areas of flammable wildland vegetation as the crow flies, this vegetation is north of the city and completely separated by the Snake River, which would prevent fire spread into the city. Although embers could blow across the Snake River under certain conditions, it is unlikely that a sufficient density of embers would be emitted from burning grasses and shrubs and travel across the wide river to cause structure ignitions in the City of Clarkston. The Asotin County Core Team recommends that future WUI maps developed by

[9] WA DNR developed a WUI map to guide enforcement of building code in areas of the wildland-urban interface per Chapter 51-55 Washington Administrative Code (WAC): State Building Code Adoption and Amendment of the 2021 Edition of the Wildland-Urban Interface Code. However, Engrossed Senate Bill 6120 was signed by Governor Jay Inslee on March 15, 2024, which requires the WA DNR to create new maps based on hazard and risk in cooperation with local jurisdictions. The State Building Code Council passed an emergency rule to delay the WUI code implementation at their Council Meeting on March 15, 2024. The WA DNR has no set timeline for completing the statewide hazard map but hope to be done by June 30, 2026. Future efforts by the WA DNR to define the WUI will include more input by local agencies and fire districts. In the meantime, the statewide WUI map that is described in a Storymap posted by the WA DNR on May 30, 2024, is not being used for building code enforcement. Section 4, part 4 of Engrossed Senate Bill 6120 specifies that "Counties, cities, and towns may continue to use locally adopted wildfire risk maps until completion of a statewide wildfire hazard map and base-level wildfire risk map for each county of the state per RCW 43.30.580."

the WA DNR exclude the City of Clarkston but include Clarkston Heights to align with the Asotin County WUI planning and prevention map (**Figure B.15**).

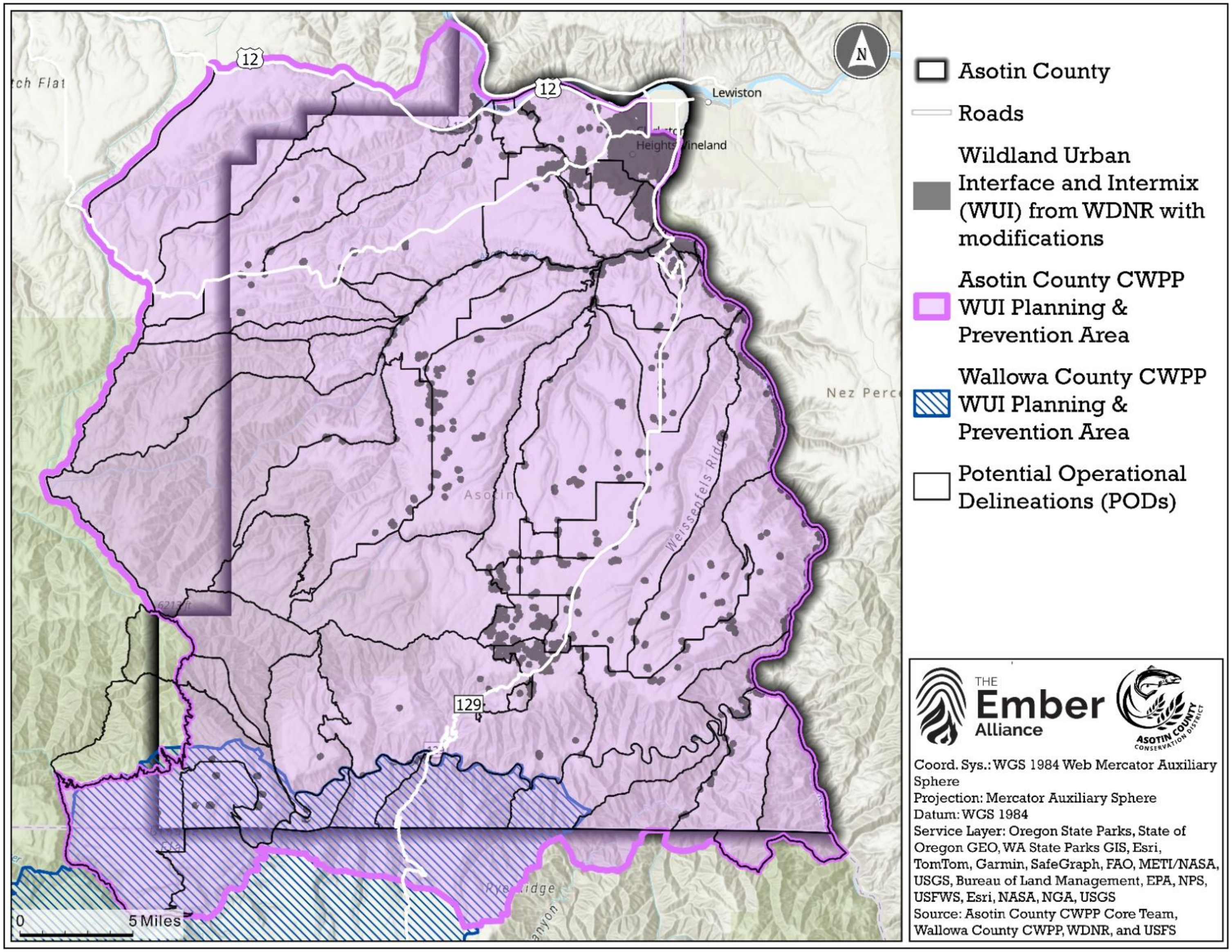


Figure B.13. *All residents outside of the City of Clarkston live in the wildland-urban interface (WUI) planning and prevention area for the 2025 Asotin County CWPP. These residents are exposed to elevated wildfire risk. The WUI planning and prevention area includes populated areas and the surrounding landscape that could transmit wildland fire towards homes, evacuation routes, and other highly valued resources and assets. Sources: Asotin County CWPP Core Team, Wallowa County CWPP, Washington Department of Natural Resources, and the U.S. Forest Service.*

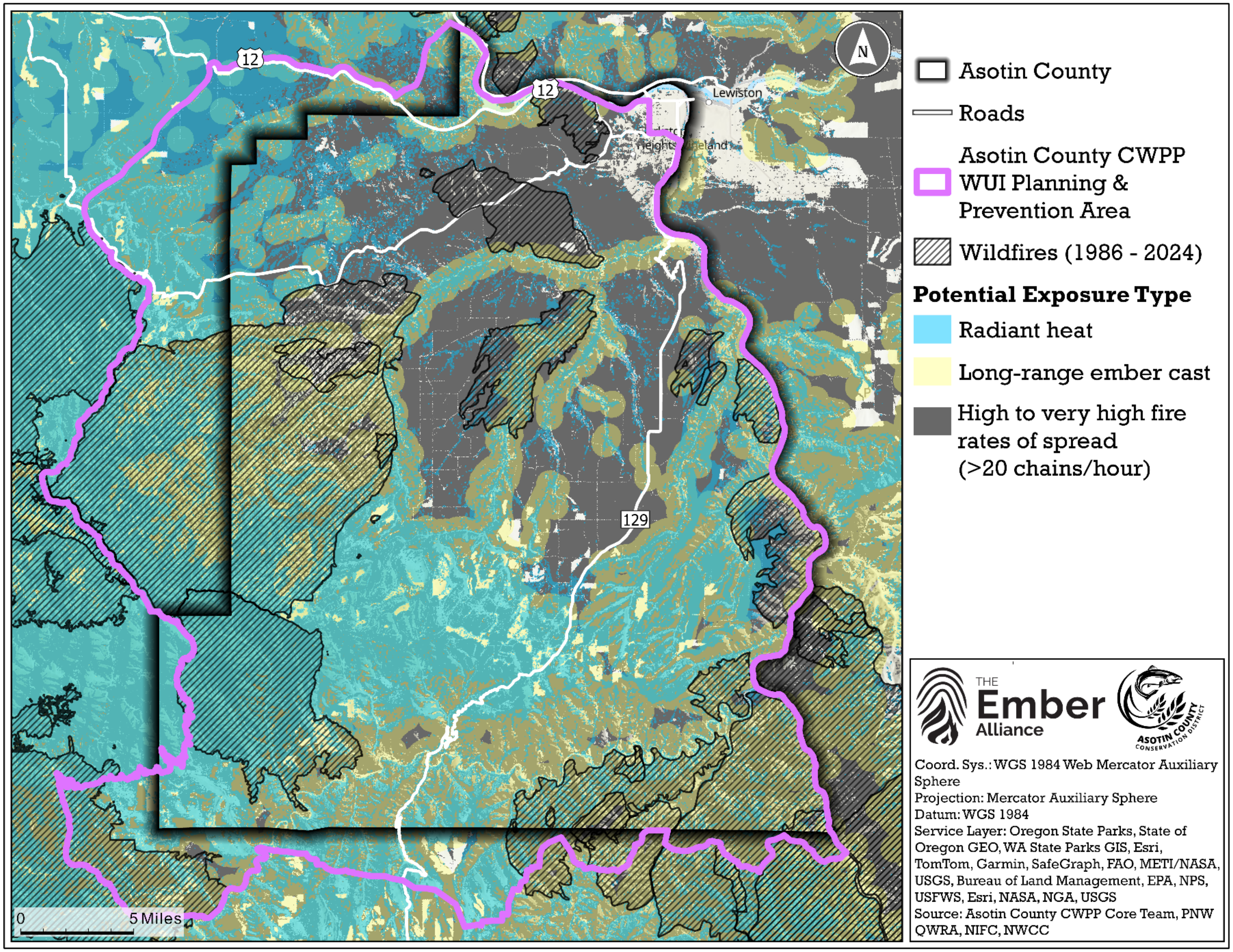


Figure B.14. *Practically all areas in the WUI planning and prevention area could be exposed to radiant heat, long-range ember cast, or high to very high rates of fire spread. Sources: Asotin County CWPP Core Team and analysis by The Ember Alliance using data from the Pacific Northwest Quantitative Wildfire Risk Assessment. Fire perimeters from NIFC and NWCC.*

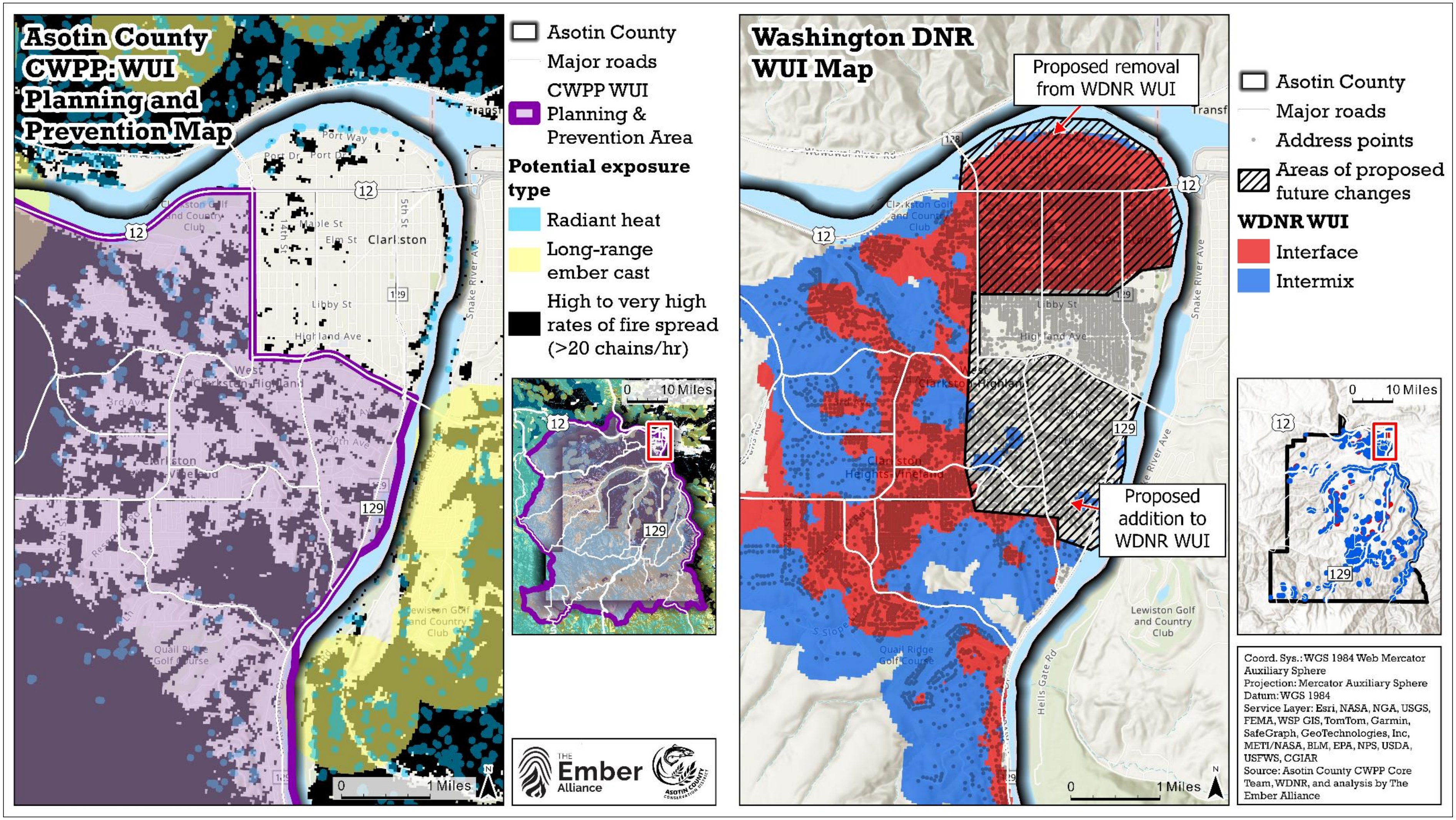


Figure B.15. The Asotin County Core Team recommends that future WUI maps developed by the WA DNR exclude the City of Clarkston but include Clarkston Heights to align with the Asotin County WUI planning and prevention map. Sources: Asotin County CWPP Core Team, analysis by The Ember Alliance using data from the Pacific Northwest Quantitative Wildfire Risk Assessment and the Washington Department of Natural Resources.

Post-Fire Sediment Delivery

Background

Impacts of wildfires do not end once the flames are extinguished. Intense rainfall events can result in flash floods, erosion, sediment delivery and debris flows the first few years following a wildfire (Neary et al., 2005). Wildfires kill vegetation that anchor soil in place and intercept rainfall, and they consume surface litter and organic matter that serve as a sponge absorbing rainfall and slowing the overland movement of water. Extreme heating from wildfires can break apart clumps of soil, known as aggregates, thereby reducing the stability of the soil and its ability to absorb water and resist erosion. Wildfires occasionally result in hydrophobic soils that repel water and exacerbate post-fire erosion, but water-repelling conditions diminish rapidly after a wildfire, in the matter of months to a few years (Binkley, 2020). Research suggests that post-fire sediment delivery is related to the loss of surface cover to a greater degree than to the formation of hydrophobic soils (Larsen et al., 2009).

Erosion and sedimentation are natural processes that shape streams, transport soil and nutrients across a landscape and create diversity in streams and riparian habitats. However, extreme post-fire sediment delivery and debris flows can damage and destroy homes, community assets, infrastructure, fisheries, water quality, and riparian vegetation. Homes, community assets, and infrastructure in Asotin County could be threatened by post-fire flooding sedimentation. Watersheds that intersect Asotin County provide drinking water to thousands of residents, with major water treatment infrastructure located at the bottom of Asotin Creek. Wildfires can significantly impair water quality, impact water infrastructure, and threaten the delivery of clean drinking water to tens of thousands of residents (**Figure B.16**) (Mack et al., 2022).

Emergency response, mitigation measures, and sediment removal after major flood events carry a hefty price tag—sometimes within the magnitude of wildfire suppression costs. Costs are borne by federal agencies, state agencies, municipalities, water providers, homeowners, insurers, and other parties.

Residents of Asotin County are not strangers to post-fire sedimentation and debris flows. The complex topography of steep valleys, gulches, and river corridors results in 62% of Asotin County having high to extreme susceptibility to landslides, and the County has experienced several landslides in the past several decades (**Figure B.17**).

2021 Silcott Fire: *Flooding observed on June 3, 2022, in areas impacted by the 2021 Silcott Fire. A severe rain and hailstorm accelerated runoff in the burned region, leading to significant water flow across the landscape and inundation of local infrastructure. The exposed soil and lack of vegetation contributed to accelerated erosion, reshaping the terrain and affecting water quality due to sediment dispersion. Photo credit: ACCD.*

2021 Lick Creek Fire: *Dust storms captured following the Lick Creek Fire. The protective top layer of soil is burned during a wildfire, leaving large areas susceptible to wind erosion. Dust picked up by the wind can impact ecosystems and air quality for extended periods and across large distances outside of the burn area. Photo credit: ACCD.*

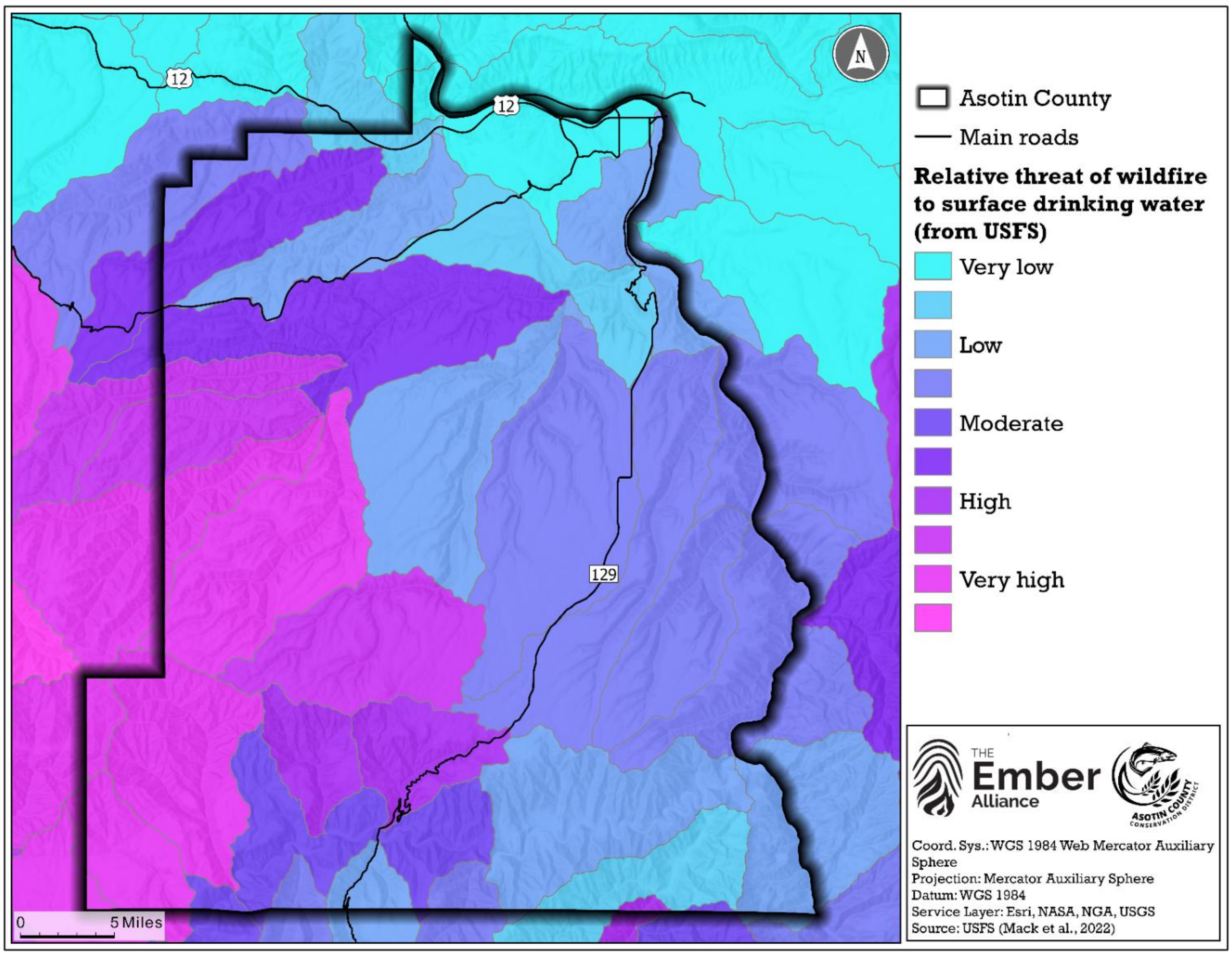


Figure B.16. *Some watersheds in and around Asotin County have a high to very high impact for wildfire to negatively impact surface drinking water used by thousands of residents. Source: U.S. Forest Service Forest-2-Facuets 2.0 analysis (Mack et al., 2022).*

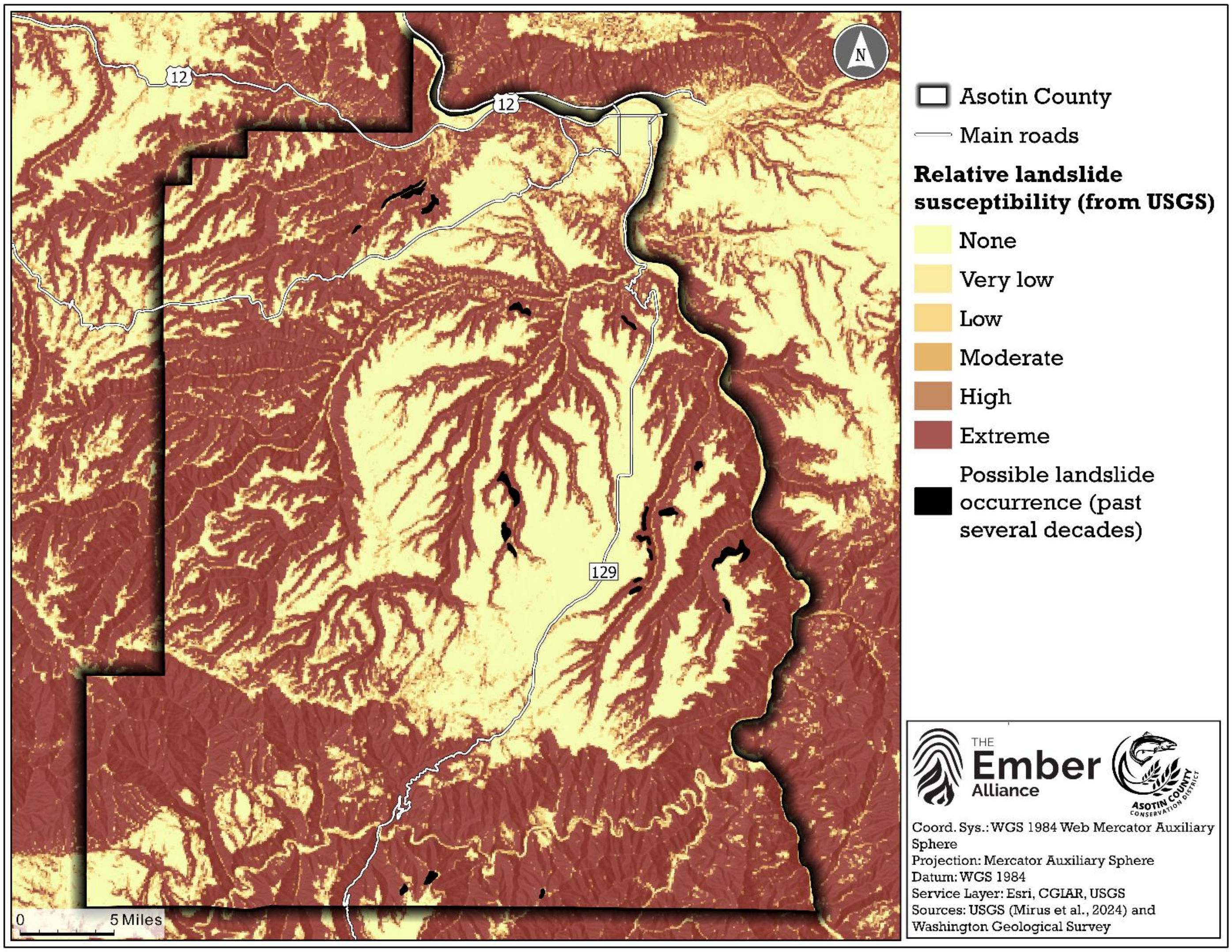
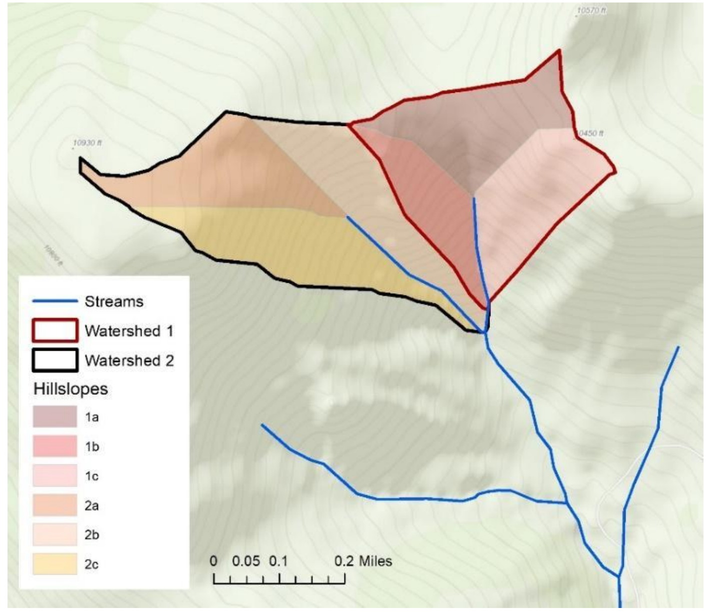


Figure B.17. *The complex topography of steep valleys, gulches, and river corridors results in 62% of Asotin County having high to extreme susceptibility to landslides, and the County has experienced several landslides in the past several decades. Sources: U.S. Geological Survey (Mirus et al., 2024) and Washington Geological Survey.*

Methodology



The Ember Alliance modeled sediment delivery using the Water Erosion Prediction Project (WEPP) version 2.0 following the approaches of Elliot et al. (2016) and Miller et al. (2011). WEPP is a process-based model that predicts runoff and sediment yields from hillslopes and small, unchannelized watersheds (Elliot and Hall, 2010). WEPP models sheet and rill erosion and hydrological processes such as snow accumulation and melt, deep percolation of soil water and subsurface lateral flow under different land uses, climate and hydrologic conditions. WEPP does not model landslides, channel erosion or debris flows. The WEPP model was developed by the U.S. Department of Agriculture Forest Service, Agricultural Research Service, and numerous universities.

This analysis focuses on sedimentation, which is the movement of soil into streams. Rates of sediment delivery are less than rates of erosion. Variation in topography and other barriers can stop the downhill movement of soil before it enters a stream.

Hillslopes were delineated in ArcPro version 3.0.3 using a modified version of the WEPP Hillslope Toolbox, which is based on TOPAZ (Topographic Parameterization Software) from the USDA Agricultural Research Service. Small watersheds can be subdivided into at least three hillslopes—one on each side of a stream or river and one above the headwaters of the watershed (**Figure B.18**). The Ember Alliance modified the original toolbox to be compatible with ArcPro 3.0.3 and to improve model performance.

Hillslopes were delineated with a critical source area (CSA) of 12.4 acres (5 hectares) and a minimum source channel length (MSCL) of 330 feet (100 meters), which are the CSA and MSCL values recommended by Elliot et al. (2016) and Miller et al. (2011). The analysis area included 22,504 hillslopes, ranging from 1 to 224 acres.

The Ember Alliance used the WEPP batch processing spreadsheet available from the USFS to predict erosion from hillslopes within the analysis area. WEPP requires the following inputs: hillslope area, slope profiles for upper and lower portions of hillslopes, soil texture, percentage of soil as rock, vegetation type and/or burn severity, and surface cover (**Figure B.18**).

Soil textures came from the Soil Survey Geographic Database (SSURGO) produced by the USDA Natural Resources Conservation Service (NRCS). The Ember Alliance associated soil textures from SSURGO with WEPP soil texture categories and assigned each soil type a percent rock value based on the NRCS Field Book for Describing and Sampling Soils (Schoeneberger et al., 2013). Soil textures were determined from soil map unit names and/or taxonomic class. The following rules were developed for the purpose of this analysis to address soils that did not have textures indicated by SSURGO:

- Soils with map unit names described as rock outcroppings with no other descriptors were classified as "sandy loam" with 48% rock content.
- Soil complexes that included "rock outcrop" in their map unit name were classified as a soil texture consistent with their taxonomic class with 25% rock content.
- The map unit "Matheny variant-Limekiln variant complex, 60 to 90 percent slopes" had no soil texture information associated with it, and since these areas were adjacent to the "Limekiln variant with very gravelly loam", they were classified as loam with 48% rock content.

Soil data were not available from SSURGO for the Wenaha-Tucannon Wilderness. For the purpose of this analysis, all areas in the Wilderness were classified as "loam" with 15% rock. Almost all soils surrounding the Wilderness were loam with 7-25% rock.

The Ember Alliance associated physiognomic subclasses from the LANDFIRE existing vegetation type dataset with WEPP vegetation types and used percent ground cover estimates for WEPP vegetation types based on default values from the online WEPPcloud Post-Fire Erosion Prediction tool (**Table B.5**). Conditional flame lengths from the 2023 PNW QWRA (**Figure B.2**) were associated with burn severity classes and percent cover values following Elliot et al. (2016) and default values from the online WEPPcloud Post-Fire Erosion Prediction tool (**Table B.6**).

The 2023 PNW QWRA was completed prior to the 2024 Cougar Creek Fire, so the analysis equating conditional flame length to burn severity does not represent actual conditions after the Cougar Creek Fire. The Monitoring Trends in Burn Severity team produced a map of post-fire burn severity for the area of the Cougar Creek Fire (**Figure B.20**), so The Ember Alliance also used WEPP to estimate post-fire sediment delivery for the Cougar Creek Fire.

Sediment delivery was modeled under 50 years of different weather conditions generated by the Rocky Mountain Research Station Climate Generator (Rock:Clime) (Elliot et al., 1999). Weather scenarios were based on historical observations interpolated for Wallowa, OR. There were no climate parameters available for Asotin County in Rock:Clime. According to the Asotin County CWPP Core Team, storms that impact Asotin County often come out of the south, so the Rock:Clime climate parameters for Wallowa, OR were used instead of parameters for Pomeroy, WA. Based on simulated climate scenarios from Rock:Clime, average annual precipitation (rainfall and snowfall) was 17 inches, and annual precipitation under 1-in-50-year conditions was 31 inches.

Weather scenarios did not incorporate the potential for altered rainfall intensity with climate change. Climate change is likely to make large, high-intensity wildfires and extreme rainfall events more likely and therefore could result in greater sediment delivery than predicted here (Touma et al., 2022). However, spatial patterns in relative sediment delivery across the analysis area are likely to stay the same; topography and soil texture will not change for centuries to millennia, and dominant vegetation types are unlikely to change in the coming decades.

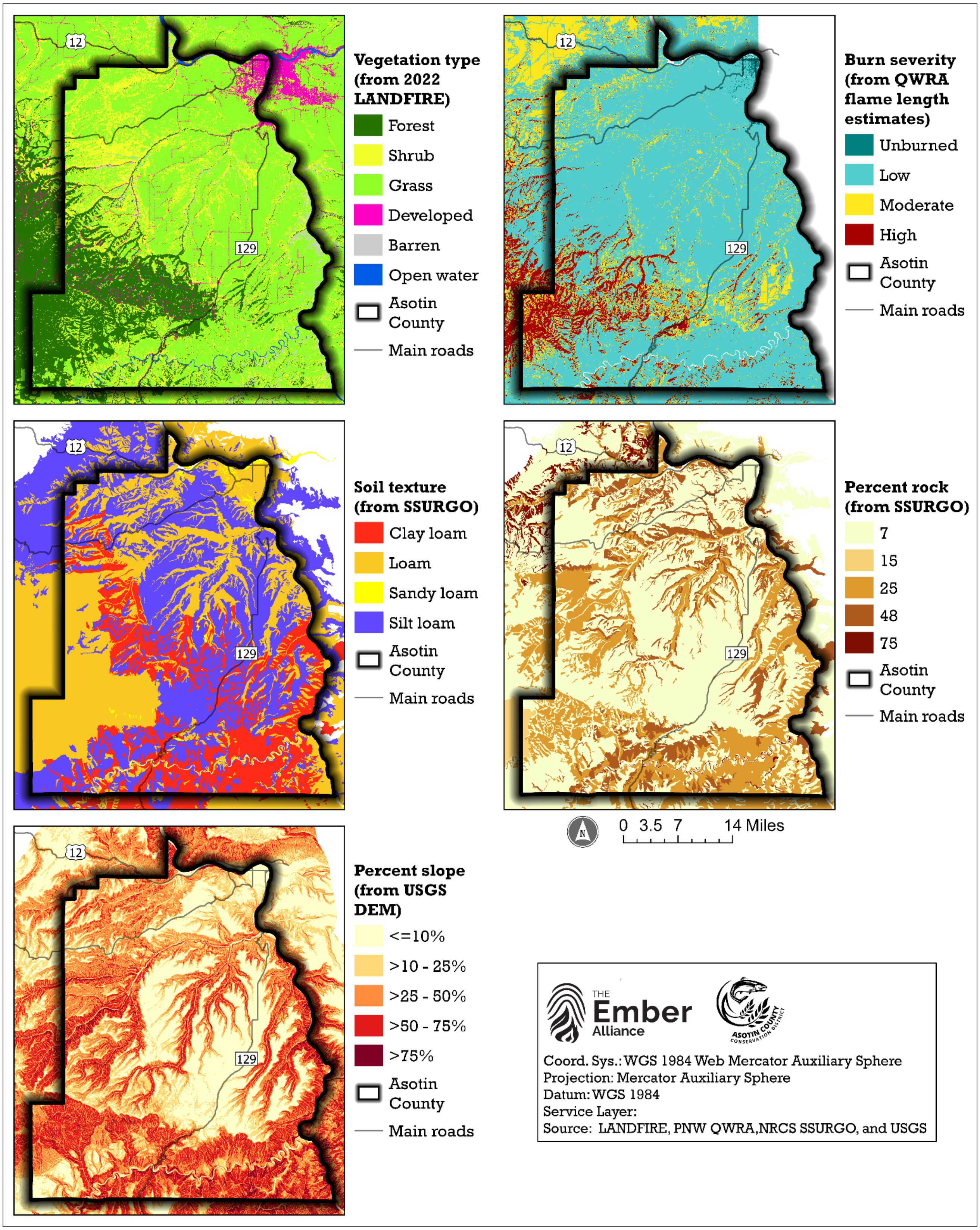


Figure B.19. *Inputs used for predicting sediment delivery with WEPP. Sources: Vegetation from LANDFIRE for the year 2022, burn severity derived from conditional flame lengths from the 2023 PNW QWRA, soil texture and percent rock from the USDA Natural Resources Conservation Service's Soil Survey Geographic Database (SSURGO), and percent slope from the U.S. Geological Survey.*

Table B.5. *Association of LANDFIRE existing vegetation type (EVT) physiognomic subclasses with WEPP vegetation type and percent ground cover. Percent cover for each WEPP vegetation type are default values from the online WEPPcloud Post-Fire Erosion Prediction tool.*

LANDFIRE EVT physiognomic subclasses	WEPP vegetation type	Percent cover
Deciduous open tree canopy Evergreen open tree canopy Evergreen closed tree canopy Evergreen sparse tree canopy Mixed evergreen-deciduous open tree canopy	20-year-old forest	90
Deciduous shrubland Evergreen dwarf-shrubland Evergreen shrubland Mixed evergreen-deciduous shrubland	Shrubs	70
Annual graminoid/forb Perennial graminoid Perennial graminoid grassland Perennial graminoid steppe	Tall grass	70
Open water	Open water*	50
Developed	Developed*	50
Sparsely vegetated	Barren*	50

* WEPP does not have a category for water, developed, or barren, so short grass was used but with a lower percent cover.

Table B.6. *Relationship between predicted flame length, burn severity and percent cover following Elliot and others (2016) and default values from the online WEPPcloud Post-Fire Erosion Prediction tool.*

Burn severity	Predicted flame length (ft)	Percent ground cover (%)
Unburned	0 ft	Variable, see **Table B.5**
Low	>0 to 4	60
Moderate[1]	>4 to 8.2	45
High	>8.2	15

[1] WEPP does not have a cover category for moderate severity fire, so low-severity fire was used with the ground cover value indicated above.

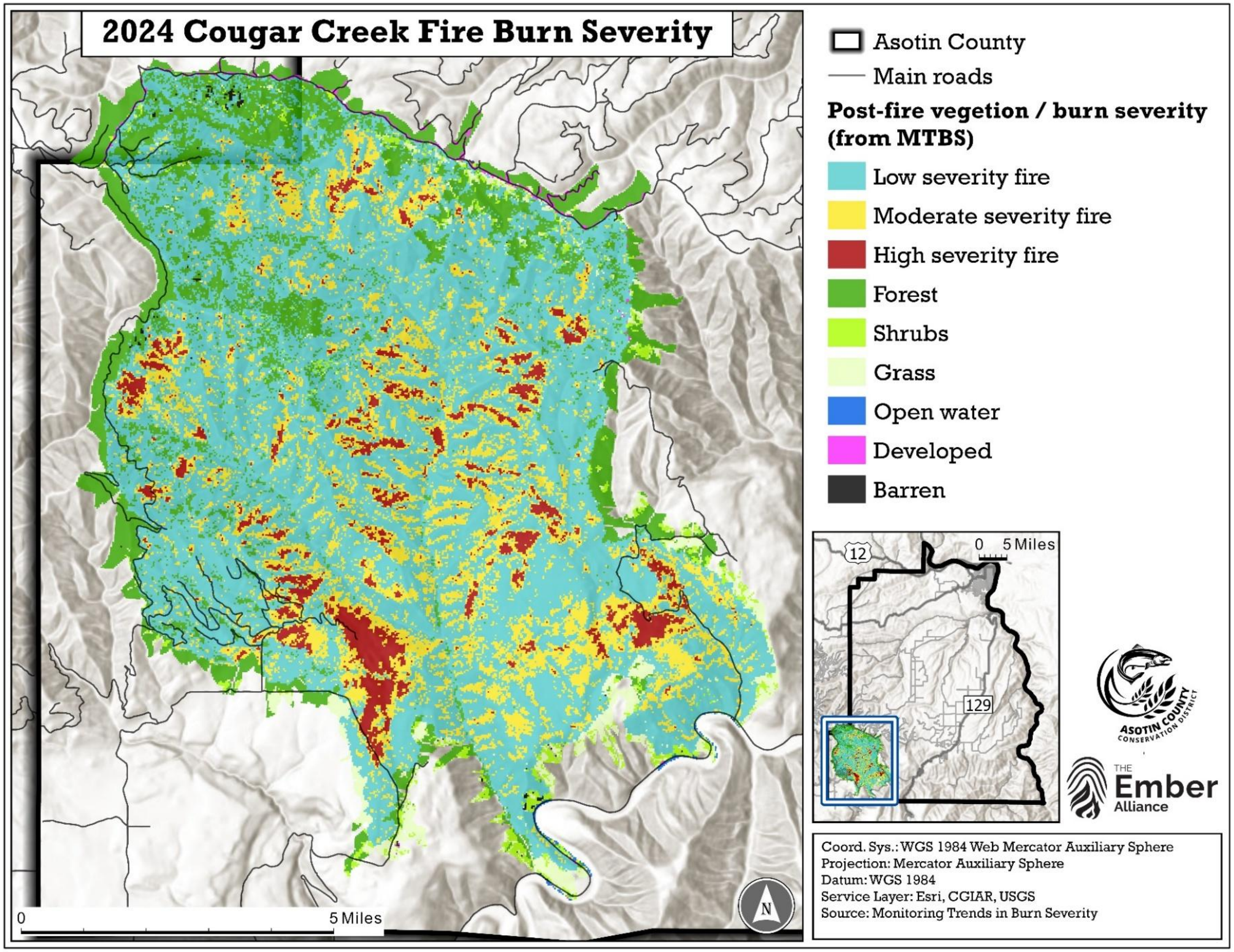


Figure B.20. *Burn severity for the 2024 Cougar Creek Fire based on aerial imagery and on-the-ground assessments. Source: [Monitoring Trends in Burn Severity](#).*

Predicted Post-Fire Sediment Delivery

This assessment quantified the potential for destructive sediment delivery following a wildfire using the Water Erosion Prediction Project (WEPP) and identified highly valued resources and assets that could experience increased post-fire sediment. The purpose was to help residents, managers, and partners in Asotin County plan for and mitigate post-fire impacts and to inform priority recommendations for fuel treatments to mitigate wildfire and post-fire impacts. Recommendations for post-fire preparedness, mitigation, and response are provided in **Section 4.d. Watershed Protection for Wildfire-Prone Areas.**

The probability of sediment delivery (the likelihood that any amount of sediment is deposited after rainfall events) could be up to 22 times greater the first year following wildfire in parts of Asotin County compared to current, unburned conditions (**Table B.7**). On average, the probability of sediment delivery is 4 times greater than the first year following wildfire compared to current, unburned conditions. The southwestern portion of Asotin has the greatest potential for post-fire sediment delivery due to the greater potential for extreme fire behavior and steep slopes. Areas along the Grande Ronde River corridor are also susceptible to post-fire sediment delivery due to extreme slopes (**Figure B.21**). Burn probabilities are higher in the southwestern portion of Asotin, so steep slopes in the southwest are more likely to burn and result in post-fire sedimentation.

The magnitude of sediment delivery (the per-acre amount of sediment that could be dislodged from hills and transported into streams during intense rainstorms each year) could be on average 310 times greater than current, unburned conditions if 1-in-50-year storms followed a wildfire (**Table B.7**). Under current, unburned conditions, per-acre sediment delivery rates were less than 2.5 tons/acre/year for 99% of hillslopes, even with 1-in-50-year precipitation. These values fall within observed erosion rates for undisturbed watersheds in the western United States (0 to 2.5 tons/acre/year) (Neary et al., 2005). Post-fire, per-acre sediment delivery exceeded 2.5 tons/acre/year for 8% of hillslopes in the analysis area under 1-in-50-year precipitation. The highest per-acre sediment delivery rate at the hillslope-scale was 13.0 tons/acre/year (**Figure B.16**). Many of the river corridors and valleys across Asotin County have the potential for an elevated magnitude of post-fire sediment delivery (**Figure B.21**).

The analysis presented in **Figure B.21** and **Table B.7** is based on fire behavior predictions from the 2023 PNW QWRA, which was completed prior to the 2024 Cougar Creek Fire. Actual burn severity from the 2024 Cougar Creek Fire was lower than predictions based on conditional flame length from the 2023 PNW QWRA (**Figure B.20** vs **Figure B.19**). Although winds were high during the Cougar Creek Fire and resulted in rapid rates of spread and high flame lengths on steep slopes, much of the timbered area encountered by the fire had relatively high fuel moistures that moderated fire behavior and resulted in numerous unburned patches within the burned area. These areas have the potential to burn again, and if fuel moistures are low at the time of future fires, the prediction of high fire severity in southwestern Asotin County shown in **Figure B.19** could come to pass.

Based on the actual burn severity map for the 2024 Cougar Creek Fire produced by the Monitoring Trends in Burn Severity (MTBS) team, predicted post-fire sediment delivery is relatively low across much of the burned area (**Figure B.22**). Areas with the greatest likelihood and magnitude of post-fire sediment delivery are along Bushy Creek and West Fork Menatchee Creek, which flow into Menatchee Creek, and along Cougar Creek.

Table B.7. *Hillslope-scale predictions in Asotin County of the likelihood of sediment delivery across 50 years of random weather simulations and the magnitude of sediment delivery under unburned conditions and the first year following wildfire for average and 1-in-50-year weather conditions. For comparison, sediment yields are typically 0-2.5 tons/acre/year in undisturbed watersheds across the western United States (Neary et al., 2005).*

	Average weather		1-in-50-year weather	
	Average	**Range**	**Average**	**Range**
Probability of sediment delivery				
Unburned (%)	3	0 – 16	N/A	N/A
1-year post-fire (%)	11	0 – 44	N/A	N/A
Ratio (post-fire: unburned)	4	1 – 22	N/A	N/A
Total sediment (tons/year)				
Unburned (tons/year)	0	0 – 12.2	3.4	0 – 306.8
1-year post-fire (tons/year)	0.7	0 – 50.4	18.4	0 – 1,314.3
Ratio (post-fire: unburned)	5	1 – 140	94	1 – 18,084
Per-acre sediment				
Unburned (tons/acre/year)	0	0 – 0.1	0.1	0 – 3.6
1-year post-fire (tons/acre/year)	0	0 – 0.7	0.8	0 – 13.0
Ratio (post-fire: unburned)	5	1 – 139	310	1 – 171,300

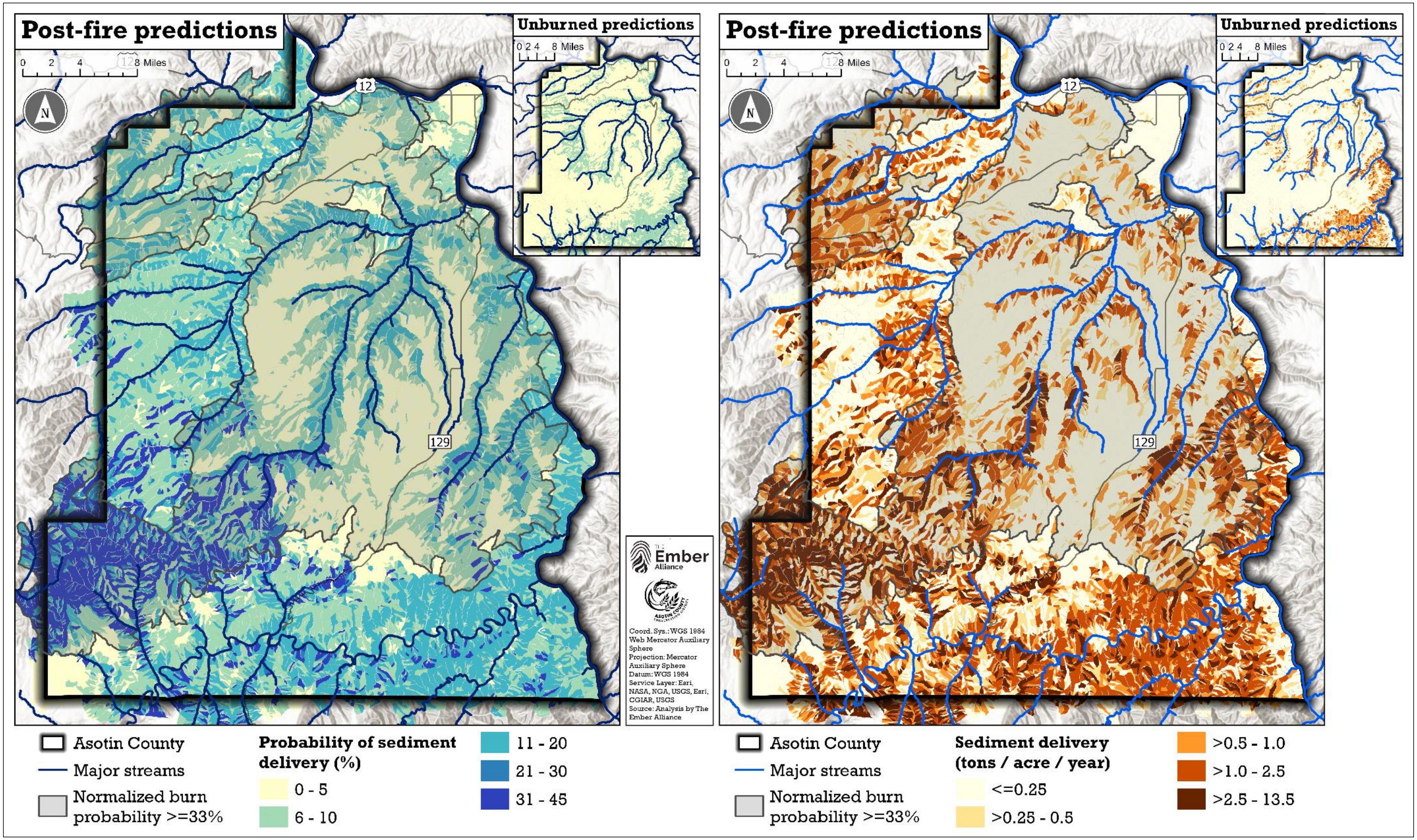


Figure B.21. *Predicted probability of sediment delivery (the percentage of 50 simulated weather scenarios that resulted in sediment delivery >0 tons/acre) and the magnitude of sediment delivery (tons/acre/year) for the first year following wildfire vs under current, unburned conditions. Sediment delivery predictions were modeled with 1-in-50-year weather conditions. Shaded areas have elevated normalized burn probabilities and are therefore likelier to experience wildfire. Source: Analysis by The Ember Alliance.*

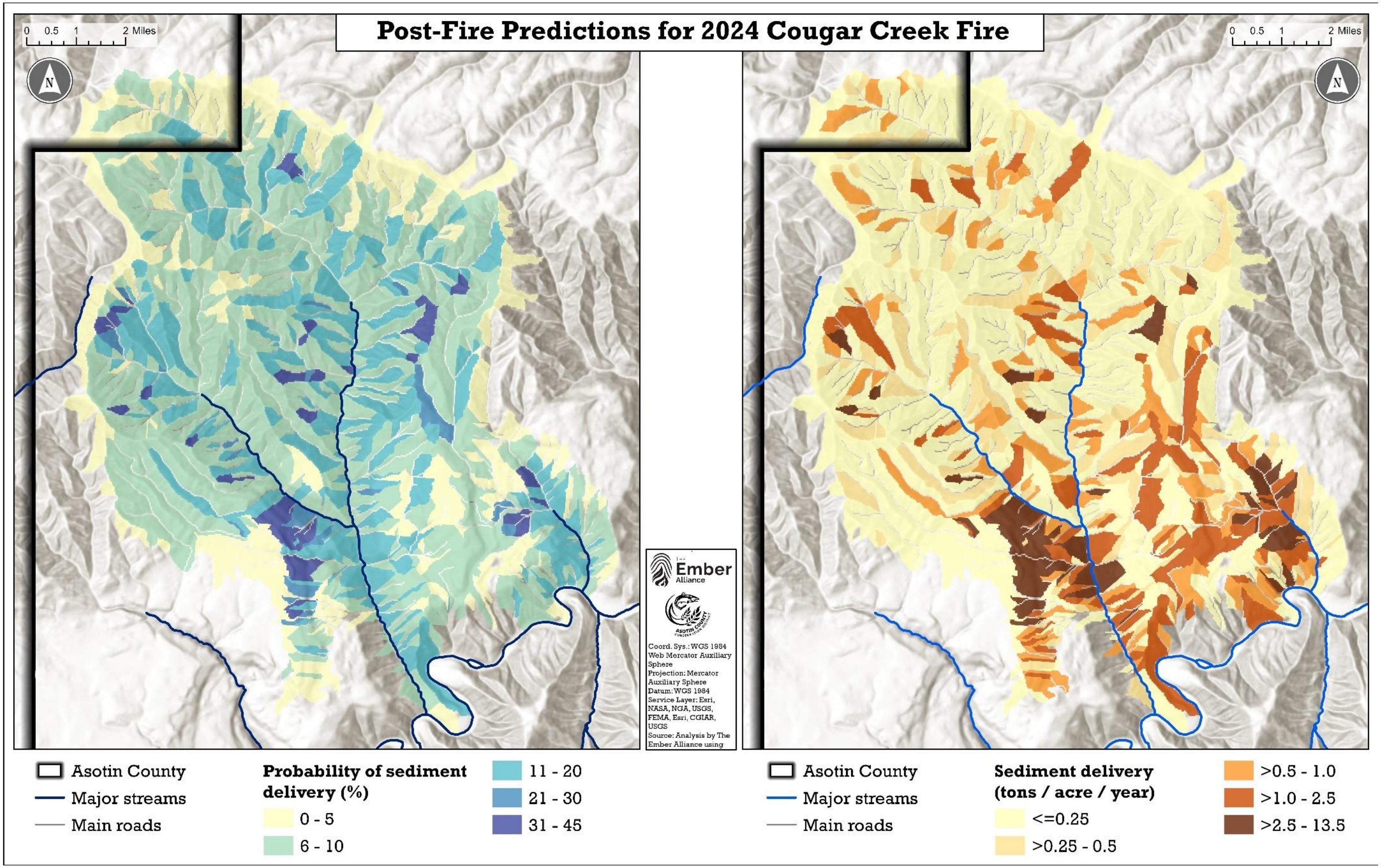


Figure B.22. *Post-fire sediment delivery predicted for the 2024 Cougar Creek burned area based on actual burn severity reported by the Monitoring in Burn Severity team. Source: Analysis by The Ember Alliance.*

Potential Post-Fire Impacts

About 200 addresses in Asotin County occur in mid-slope or at the base of hillslopes with an elevated potential for damaging post-fire sediment delivery. These addresses occur primarily along the Snake River Corridor, Grande Ronde River, Joseph Creek, and Asotin Creek (**Figure B.23**). Water infrastructure for the City of Asotin could become inundated with sediment entering Asotin Creek were a high-severity wildfire to burn watersheds that flow into Asotin Creek. Several historic sites and recreation areas are also at risk of damaging post-fire sediment delivery. Residents should review recommendations in **Section 4.d. Preparing for Post-Fire Impacts** for tips to increase their preparedness for post-fire impacts.

About 160 miles of roadways could be impacted across the county due to their location mid-slope or at the base of hillslopes with an elevated potential for damaging post-fire sediment delivery, including 100 miles at-risk roadways that fall along primary or secondary evacuation routes (**Figure B.23**; **Table B.8**). This analysis only included roadways on Field Springs State Park and the Umatilla National Forest that fell within POD boundaries or were primary or secondary evacuation routes. About 10 miles of electric transmission line in north Asotin County could be impacted by post-fire sediment along Pow Wah Kee Creek. Emergency responders and planners should refer to recommendations in **Section 4.d. Preparing for Post-Fire Impacts** for recommendations to plan and prepare for post-fire impacts across the community.

Elevated post-fire sediment delivery is possible along about 530 miles of named streams in Asotin County, including portions of most major streams, and about 670 miles of unnamed tributaries and ephemeral streams (**Figure B.23**; **Table B.9**). All streams with priority projects from the 2018 Asotin County Watershed Assessment and 2021 Lower Grande Ronde Basin Geomorphic Assessment have portions that could experience elevated post-fire sediment, except for Stember Creek and Middle Branch North Fork, which both fell outside the analysis area. Downstream segments of streams were considered exposed if upstream portions were exposed to elevated post-fire sediment delivery, regardless of predicted post-fire sediment delivery along downstream segments.

Erosion and sedimentation are natural processes that shape streams, transport soil and nutrients across a landscape and create diversity in streams and riparian habitats. However, too much sediment can also damage riparian habitat and kill fish. Many of the priority projects identified in the 2025 Asotin County CWPP are aimed at restoring ecological conditions along streams to improve their fire-resilience and ability to trap sediment after a wildfire. See **Section 4.d Watershed Protection for Wildfire-Prone Areas** for more information on watershed protection in wildfire-prone areas.

Table B.8. *Length of roadways that could be exposed to post-fire sediment delivery in Asotin County. Table includes named roadways with >2.0 miles exposed to post-fire sediment delivery by descending total length of exposed segments. Roadways in bold with an asterisk (*) are primary or secondary evacuation routes.*

Roadway name	Length (miles)
State Route 129*	18.5
Snake River Road*	16.4
Grande Ronde Road*	13.9
Pomeroy Grouse Road	7.9
Shumaker Grade Road*	7.5
Joseph Creek Road*	7.1
Lick Creek Road*	7.0
Grouse Flat Road*	5.8
South Boundary Road	5.1
Charlie Creek Road (private)	5.0
Cougar Creek Road	4.7

Roadway name	Length (miles)
U.S. 12*	4.7
Sherry Grade Road*	4.7
South Fork Road*	4.2
Asotin Creek Road*	4.0
Lickfork Road*	4.0
Smoothing Iron Road*	3.6
Grouse Creek Road*	3.1
Couse Creek Road*	3.1
Cloverland Road*	3.0
Hansen Ridge Road	2.5
Fitzgerald Road (private)	2.5

Table B.9. *Length of streams that could be exposed to post-fire sediment delivery in Asotin County. Table includes named streams with >2.0 miles exposed to post-fire sediment delivery by descending total length of exposed segments. Streams in bold with an asterisk (*) were identified for priority action in the [2018 Asotin County Watershed Assessment]() and [2021 Lower Grande Ronde Basin Geomorphic Assessment]() (**Figure 4.d.1**). Stream locations and names from the USGS National Hydrography Dataset.*

Stream name	Length (miles)
Grande Ronde River*	60.6
George Creek*	33.2
Tenmile Creek*	24.7
Asotin Creek*	22.2
South Fork Asotin Creek*	21.2
Pintler Creek*	18.8
Alpowa Creek*	17.5
Pow Wah Kee Creek*	17.1
Menatchee Creek*	17.0
Page Creek	16.9
Snake River	16.4
Couse Creek*	14.8
Joseph Creek*	14.6
North Fork Asotin Creek*	14.1
Charley Creek*	13.7
Lick Creek*	12.9
Cottonwood Creek*	11.5
Saddle Creek	9.5
Dark Canyon Creek	9.1
Rattlesnake Creek	8.7
South Fork North Fork Asotin Creek	8.1
Kelly Creek*	7.8
Grouse Creek	7.7
West Fork Menatchee Creek	7.3
East Bear Creek	7.3

Stream name	Length (miles)
Rockpile Creek	6.9
East Fork First Creek	6.7
Medicine Creek	6.6
Cougar Creek*	6.6
Brushy Creek	6.5
Buford Creek*	6.4
Shumaker Creek*	5.4
Deer Creek*	5.0
West Branch Rattlesnake Creek*	5.0
Indian Tom Creek	4.4
West Bear Creek	4.2
Mill Creek*	4.2
Shovel Creek	4.2
East Fork Cottonwood Creek	4.2
Myers Creek	4.1
East Fork Grouse Creek	4.1
Dry Fork Lick Creek	4.0
West Fork Grouse Creek	3.5
Slippery Creek	3.4
Sheep Creek	3.4
Horse Creek	3.3
Birch Creek	3.1
Ranger Creek	2.4
Bear Creek	2.4
West Fork Myers Creek	2.3

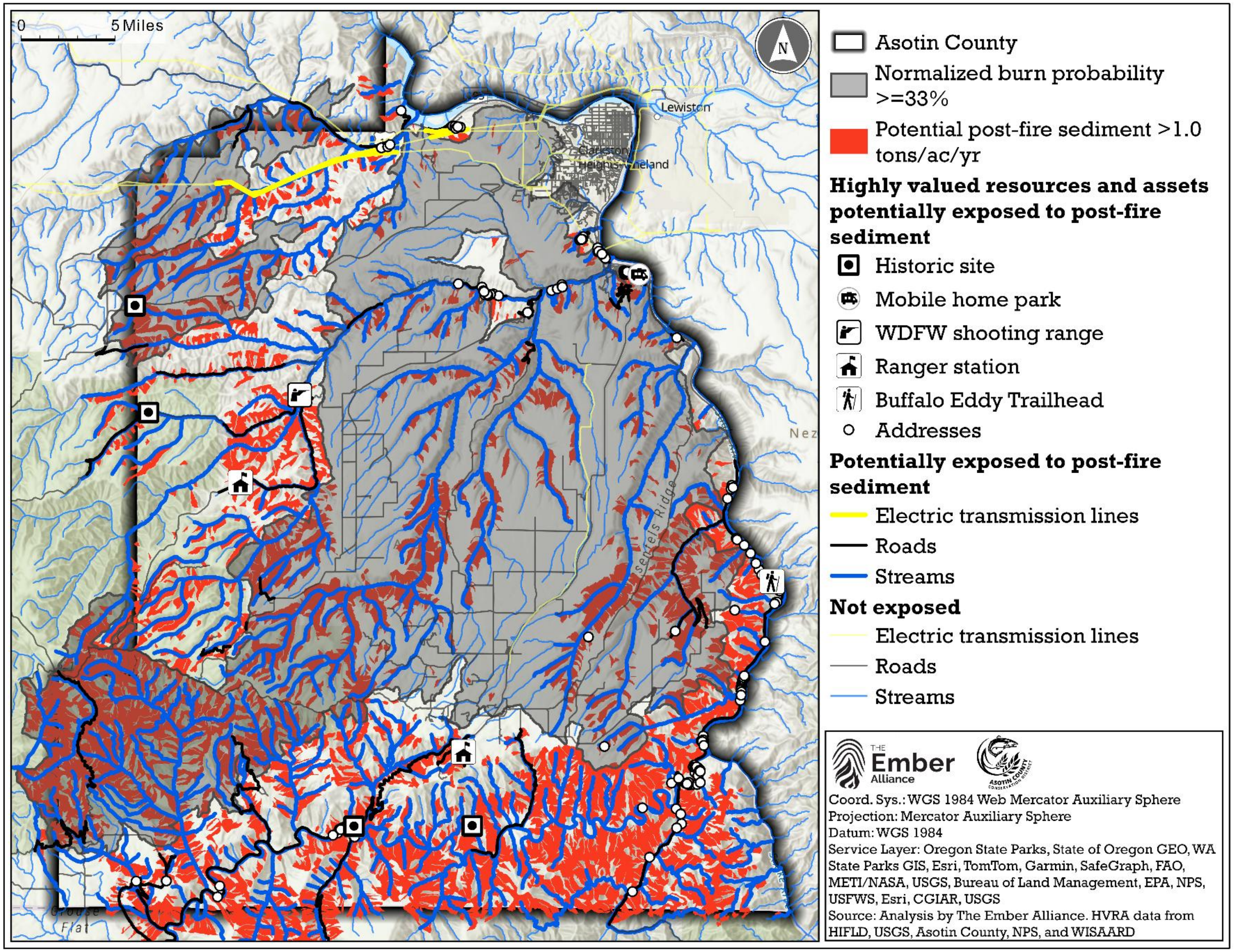


Figure B.23. *Several homes and other highly valued resources and assets in Asotin County could experience damaging post-fire sedimentation, including segments of several major roads and electric transmission lines. Many streams that provide surface drinking water and important wildlife habitat could also be impacted. However, some degree of sediment delivery after a wildfire can be beneficial to fish habitat. Shaded areas have elevated normalized burn probabilities and are therefore likelier to experience wildfire. Source: Analysis by The Ember Alliance.*

Climate Change Assessment

Climate change has a measurable impact on fire intensity, frequency, and size, and these impacts are likely to continue over the coming decades (Parks et al., 2016). Fire behavior modeling for this CWPP utilizes weather data from 2014-2022 and does not include future weather predictions. To explore the potential for exacerbated fire weather conditions in the future, The Ember Alliance used the Climate Toolbox's future boxplots and future time series tools (Hegewisch et al., 2021). These tools model climate scenarios for the next 50-100 years using two representative concentration pathways (RCP) that assume different levels of global greenhouse gas emissions The RCP 4.5 scenario assumes that greenhouse gas emissions stabilize before the year 2100, peaking around 2040, and the RCP 8.5 scenario assumes that greenhouse gas emissions are not curtailed by 2100 (IPCC, 2014).

Three variables were selected for this assessment: maximum temperatures in the summer (June, July, and August), the number of days with very high fire danger, and vapor pressure deficit (VPD) in the summer. The Climate Toolbox defines very high fire danger as days with 100-hour fuel moisture below the 10th percentile fuel moisture from 1971-2000. VPD is a meaningful measurement of moisture stress experienced by plants, more so than relative humidity because VPD is independent of temperature. High values of VPD indicate that the air can draw more moisture out of leaves while they photosynthesize, resulting in drier fuels. Higher values of VPD are strongly related to summers with a greater number of acres burned in the western U.S. (Seager et al., 2015).

The models predict that maximum summer temperatures in Asotin County could increase by 3.5-4.8° Fahrenheit by 2050, going from 81.8°F in 2005 to 85.3-86.6°F in 2050 (**Figure B.16**). Asotin County could experience 11-15 more days per year with very high fire danger**,** and average summer VPD could increase from 1.6 to 2.1 kilopascal (kPa) (**Figure B.17**). Drier fuels in the summer have a greater potential to carry large wildfires; an increase in summer VPD from 1.6 to 2.1 kPa is related to a 125 fold increase in annual area burned in forested parts of the western U.S. (Seager et al., 2015).

Fire behavior may be even more extreme, frequent, and extensive in the coming decades in Asotin County. Mitigating actions in the coming years, including fuel treatments, defensible space around homes, and structure hardening, are critical to protecting life safety of residents and enhance community resiliency into the future.

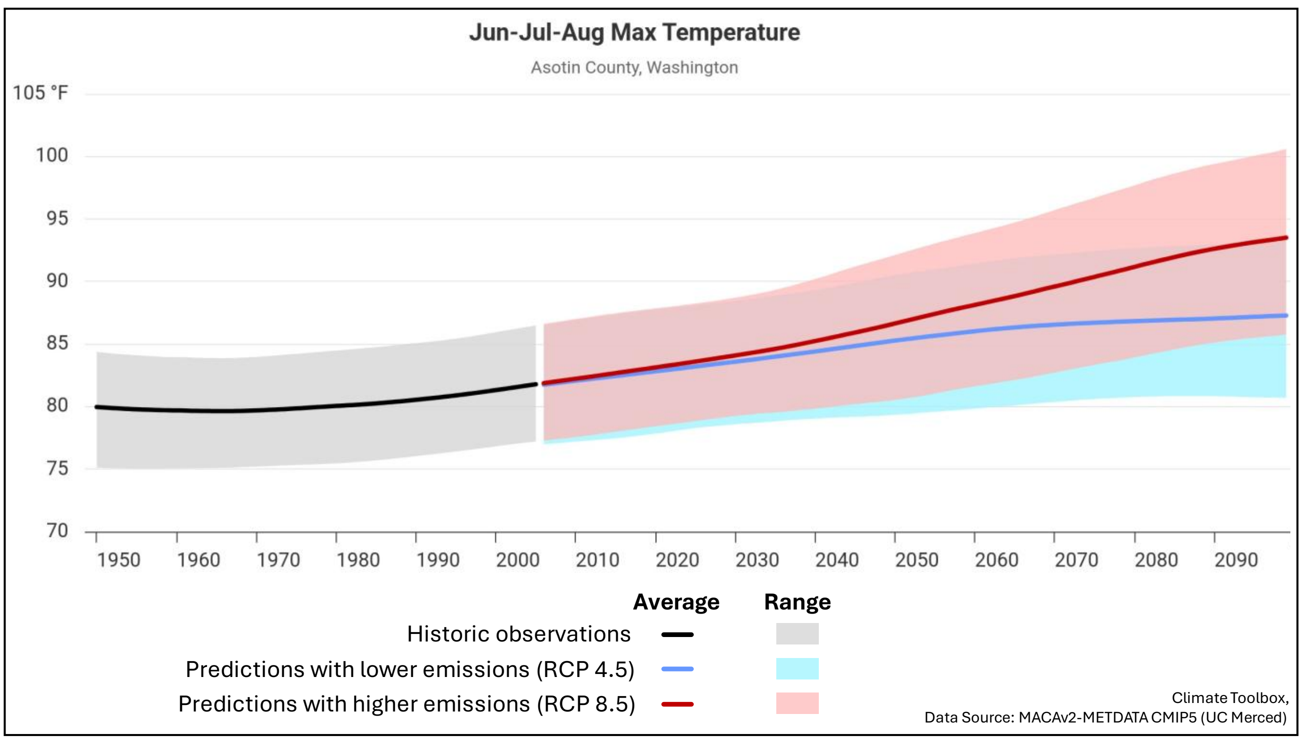


Figure B.24. *Predicted maximum summer temperature in Asotin County under lower and higher greenhouse gas emission scenarios. Source: Climate Toolbox (Hegewisch et al., 2021).*

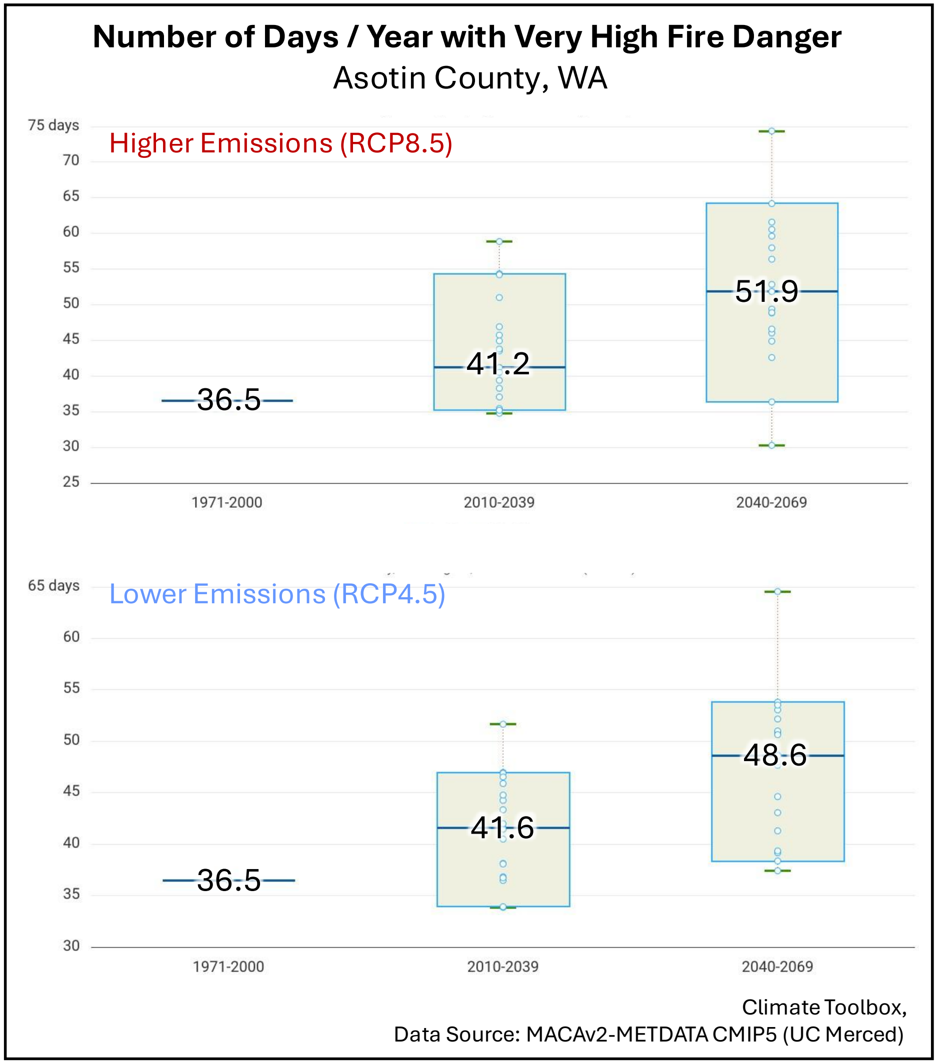


Figure B.25. *Predicted number of days with very high fire danger (left) and average summer vapor pressure deficit (right) in Asotin County under lower and higher greenhouse gas emission scenarios. Source: Climate Toolbox (Hegewisch et al., 2021). Boxplots show 5th percentile, median, and 97th percentile predictions. Numbers indicate median values. Whiskers show minimum and maximum predictions. Dots represent individual predictions from different climate models.*

Zone Relative Risk Assessment

CWPP Zones

The Ember Alliance and Asotin County CWPP Core Team compared the ***relative*** risk that wildfires pose to life and property in 19 plan zones across Asotin County (**Figure B.18**). Zones are areas with shared fire risk where residents can organize and support each other to effectively mitigate hazardous fuels across the zone. Zone boundaries were developed by considering clusters of addresses, connectivity of roads, topographic features, land parcels, land ownership, and local knowledge of community organization. Amendments were made to boundaries based on local knowledge of the CWPP Core Team.

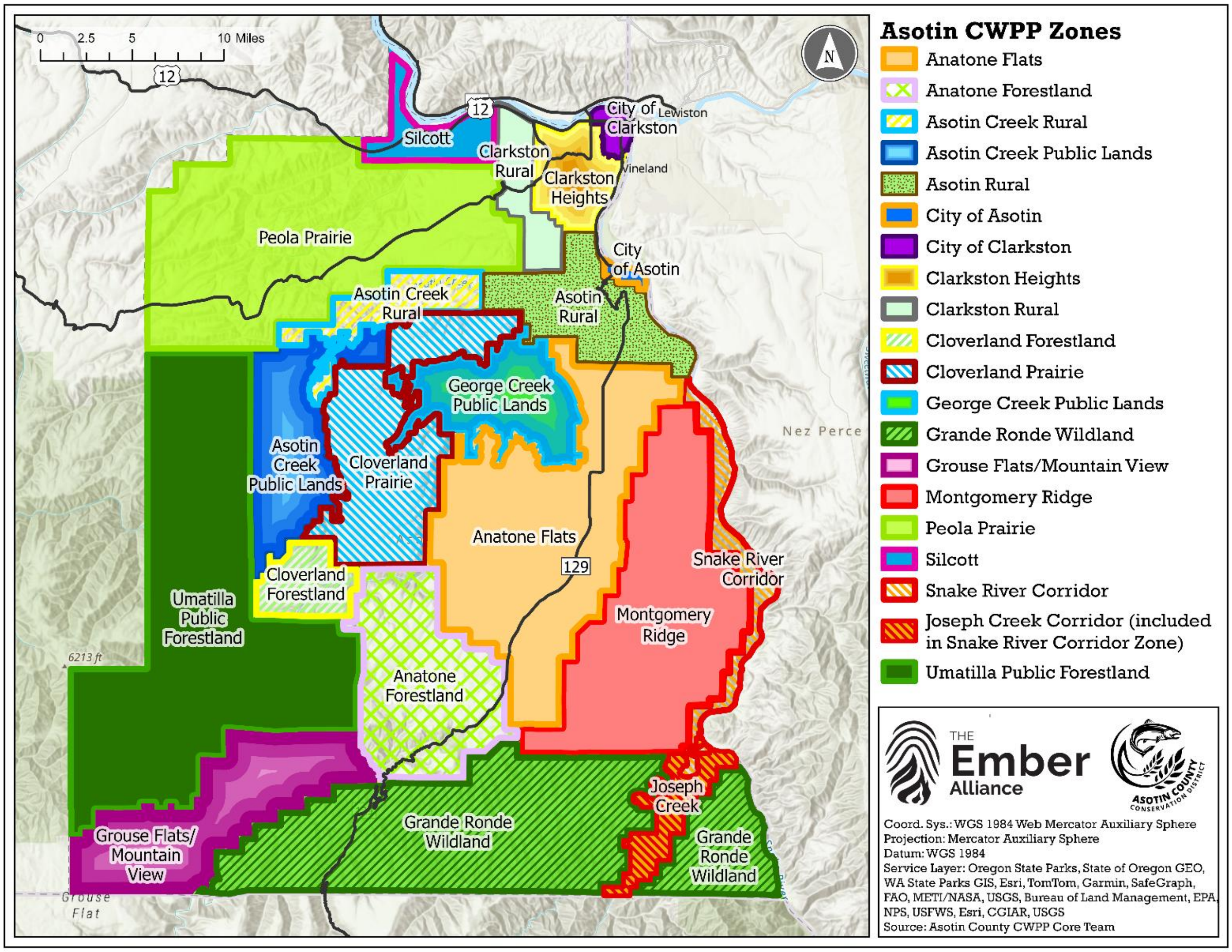


Figure B.26. *CWPP zones in Asotin County. Source: Asotin County CWPP Core Team.*

Risk Rating Approach

An important part of the 2025 Asotin County CWPP was assessing relative risk among zones to help prioritize hazard mitigation and develop priority zone-specific recommendations. Zones receiving a relative rating of "moderate risk" have risk factors that are lower than risk factors in other zones, but they are still areas with wildfire hazards. Relative risk was assessed in five categories: fire risk, fire suppression challenges (e.g., limited hydrant availability and engine access), evacuation challenges, home ignition zone hazards, and post-fire impacts. **The Ember Alliance and CWPP Core Team developed the ratings of relative risk specifically for Asotin**

County, so the assessment is not suitable for comparing this County to other communities in Washington or the United States.

This assessment was based on predictions of fire behavior, radiant heat and ember cast exposure, roadway survivability, evacuation routes, and post-fire analyses, as well as an on-the-ground assessment of each zone. In spring and summer 2024, CWPP Core Team Members and employees of the Asotin County Conservation District drove around Asotin County and evaluated suppression challenges, evacuation challenges, and home ignition zone hazards using a modified version of the NFPA Wildfire Hazard Severity Form Checklist (NFPA 299/1144) developed by The Ember Alliance. The Ember Alliance summarized fire behavior predictions, structure exposure, roadway survivability, and post-fire sediment delivery by zones. The CWPP Core Team provided additional insights into evacuation and suppression challenges.

A rating scale was developed specifically for Asotin County based on the range of values observed across the community (**Table B.12**). The purpose of the assessment is to compare relative hazards within the community and is not suitable for comparing Asotin County to other communities.

Table B.10. *Relative risk rating values for Asotin County. Hazard categories were ranked from moderate to extreme. Several zones received a rating of none/low for sub-categories when conditions in those zones warranted a rating other than moderate, high, or extreme.*

Hazard category	Max. points possible	Percent of total	Range of values in Asotin County	None / Low	Moderate	High	Extreme
A. Fire risk	68	22%	10-57	N/A	10-35	36-46	47-57
B. Fire suppression challenges	75	24%	3-48	N/A	3-23	24-36	37-48
C. Evacuation hazards	62	20%	11-52	N/A	11-24	25-34	35-52
D. Home ignition zone hazards	90	29%	0-66	0	1-35	36-50	51-66
E. Post-fire impacts	20	6%	0-20	0-3	4-11	12-17	18-20
Overall risk	315	100%	76-208	N/A	76-125	125-166	167-208

Relative Risk Rating Form

A. Fire Risk	Points
1. Percent area with high or extreme fire behavior class (**Figure B.6**)	
<1%	0
1-10%	6
>10%	12
2. Average conditional flame length (**Figure B.2**)	
<2 feet	0
2-4 feet	4
>4-8 feet	8
>8 feet	12
3. Percent area with rate of spread >20 chains/hour (**Figure B.5**)	
<30%	0
30-75%	6
>70%	12
4. Mean normalized burn probability (**Figure B.7**)	
<20%	0
20-40%	6
>40%	12
5. Additional risk factors	
Saddles/ravines/chimneys	
None	0
Several	2
Numerous (>2 features)	5
Utilities (gas/electric) placement	
All underground	0
Infrequent overhead powerlines	3
Frequent overhead powerlines	5
Relative frequency of lightning and human-caused ignitions	
Infrequent	0
Moderate	5
High	10
A. Total points possible	**68**

B. Fire Suppression Challenges	Points
1. Covered by an entity responsible for wildfire response	
Yes	0
Might receive protection due to proximity	10
No	20
2. Percentage of homes near hydrants	
>90%	0
50-90%	5
<50%	10
3. Presence of cisterns and draft sites	
Available in most neighborhoods OR not necessary due to hydrants	0
Cisterns or at least one draft site available in some neighborhoods	8
Cisterns or at least one draft site available in few neighborhoods	15
4. Road/driveway accessibility for Type 3 engines (percent of roads/driveways)	
>90%	0
50-90%	8
<50%	15
5. Presence of legible and reflective signs (percent of roads and homes)	
>90%	0
75-90%	5
<75%	10
6. Presence/absence of HazMat	
Absent	0
Present	5
B. Total points possible	**75**

C. Evacuation Capacity	Points
1. Number of lanes in each direction	
At least 1 lane on >90% of roads	0
At least 1 lane on >50-90% of roads	5
Less than 1 lane on >50% of roads	10
2. Overall ease of evacuations due to home density and egress routes	
High ease	0
Moderate ease	5
Difficult	10
Extremely difficult	20
3. Miles of road with non-survivable conditions under high to extreme fire weather conditions (**Figure B.12**)	
<0.5 miles	0
0.5-5 miles	6
≥5 miles	12
4. Cell service coverage	
High	0
Moderate	5
Low	10
5. Presence of livestock that could take multiple trips to evacuate	
Few property (0-1)	0
Some properties (2-5)	5
Many properties (>5)	10
C. Total points possible	**62**

D. Home Ignition Zone Hazards	Points
1. Roof construction material	
Class B or C on <10% of homes	0
Class B or C on 10-50% of homes	8
Class C on >50% of homes	15
2. Percent of homes with combustible or non-ignition resistant siding	
<10%	0
10-50%	3
>50%	5
3. Percent of homes with combustible or non-ignition resistant decking	
<10%	0
10-50%	3
>50%	5
4. Percent of homes with wooden fences within 5 feet of home	
<5%	0
5-25%	2
>25%	5
5. Percent of homes with adequate mitigation in home ignition zone 1	
>90%	0
75-90%	3
50-75%	6
<50%	10
6. Percent of homes with adequate mitigation in home ignition zone 2	
>90%	0
75-90%	3
50-75%	6
<50%	10
7. Percent of homes with conifer hedges in zone 1 or 2	
<5%	0
5-25%	2
>25%	5
8. Percent of homes with additional hazards in zones 1 and 2 (e.g., wood piles, propane tanks, wooden sheds)	
<10%	0
10-50%	2
>50%	5
9. Homes located mid-slope	
No homes	0
Few homes (<25%)	2
Many homes (>25%)	5
10. Homes located on ridgetops	
No homes	0
Few homes (<25%)	2
Many homes (>25%)	5
11. Number of homes exposed to radiant heat and/or embers (**Figure B.9**)	
<10 homes	0
10-30 homes	6
>30 homes	12
12. Average number of structures potentially exposed to ember cast from other structures (homes and secondary structures)	
<3 structures	0
3-10 structures homes	4
>10 structures	8
D. Total points possible	**90**

E. Post-fire impacts	Points
1. Average post-fire sediment rates under 50-year rainfall (tons/acre/year)	
<0.25 tons/acre/year	0
0.25-0.75 tons/acre/year	3
>0.75 tons/acre/year	5
2. Average probability of post-fire sedimentation	
<7.5%	0
7.5-10%	3
>10%	5
3. Percent of area with high to extreme landslide susceptibility (**Figure B.17**)	
<33%	0
33-66%	3
>66%	5
12. Average relative impact of wildfire to surface drinking water (**Figure B.16**)	
<25	0
25-50	3
>50	5
E. Total points possible	**20**

Prioritization of Fuel Treatments

Using analyses from the CWPP wildfire hazard assessment, the Asotin County CWPP Core Team and partners delineated potential projects areas and collaboratively identified priorities on October 31, 2024. In November and December 2024, the Core Team refined these prioritized project areas by creating goals, suggesting methodologies, and determining leads and timelines. These processes resulted in projects recommended in **Section 4.b**.

For the meeting on October 31, 2024, partners met virtually and were broken up into three groups to identify priority projects to protect highly valued resources and assets and roadways and to mitigate wildfire risk and improve ecological conditions at the landscape-scale. Prioritization decisions were made by representatives from the Asotin County Conservation District, Asotin County Noxious Weed Control Board, Asotin County Department of Emergency Management, Fire Protection Districts, Washington Department of Natural Resources, Washington State Parks, U.S. Forest Service, USDA Natural Resource Conservation Service, and Avista Utilities. Layers used to inform treatment locations were as follows:

- Fire behavior class under high to extreme fire weather conditions (**Figure B.6**)
- Burn probability (**Figure B.7**)
- Expected net value change from wildfire (**Figure B.8**)
- Exposure of structures to rapid rates of spread, radiant heat, and ember cast (**Figure B.9**)
- Exposure of highly valued resources and assets (**Figure B.11**)
- Location of evacuation routes (**Figure 3.a.9**)
- Potential roadway survivability (**Figure B.12**)
- Potential suppression difficulty for potential control lines (**Figure B.27**)
- Fire and fuel treatment history (**Figure 2.g.1**)
- Stream priorities for ecological restoration from the 2018 Asotin County Watershed Assessment and 2021 Lower Grande Ronde Basin Geomorphic Assessment (**Figure 4.d.1**)
- Potential for post-fire sedimentation (**Figure B.21**)
- Watershed priority from the WA DNR 20-year forest health plan for eastern Washington (**Figure B.28**)
- Fuel treatment priorities from the 2008 Asotin County CWPP (**Figure B.29**)
- Landownership (**Figure 2.a.2**)

The location of potential operational delineations was an important consideration for treatment identification. According to the USFS, "PODs are spatial units or containers defined by potential control features, such as roads and ridge tops, within which relevant information on forest conditions, ecology, and fire potential can be summarized. PODs combine local fire knowledge with advanced spatial analytics to help managers develop a common understanding of risks, management opportunities, and desired outcomes to determine fire management objectives. The PODs pre-planning framework has been applied on over 40 national forests and counting, often including adjacent landowners and jurisdictions for cross-boundary planning." See the PODs StoryMap from the Rocky Mountain Research Station for more information.

After working independently for an hour, the three groups shared and compared their maps, which showed significant overlaps in top priority locations (**Figure B.30**). The process showed a clear shared goal to prioritize work that protects life safety within the community. Evacuation routes, resident homes, and communication infrastructure were prioritized by most of the groups.

In November and December 2024, the CWPP Core Team refined priority project areas, created goals, and decided on leaders and timelines. There are a total of 37 priority projects (**Figure B.31**), with 17 first-priority projects

(**Figure B.32**), 10 second-priority projects (**Figure B.33**), and 10 third-priority projects (**Figure B.34**). Projects are described in detail in **Section 4.c. Priority Project Areas for Asotin County.**

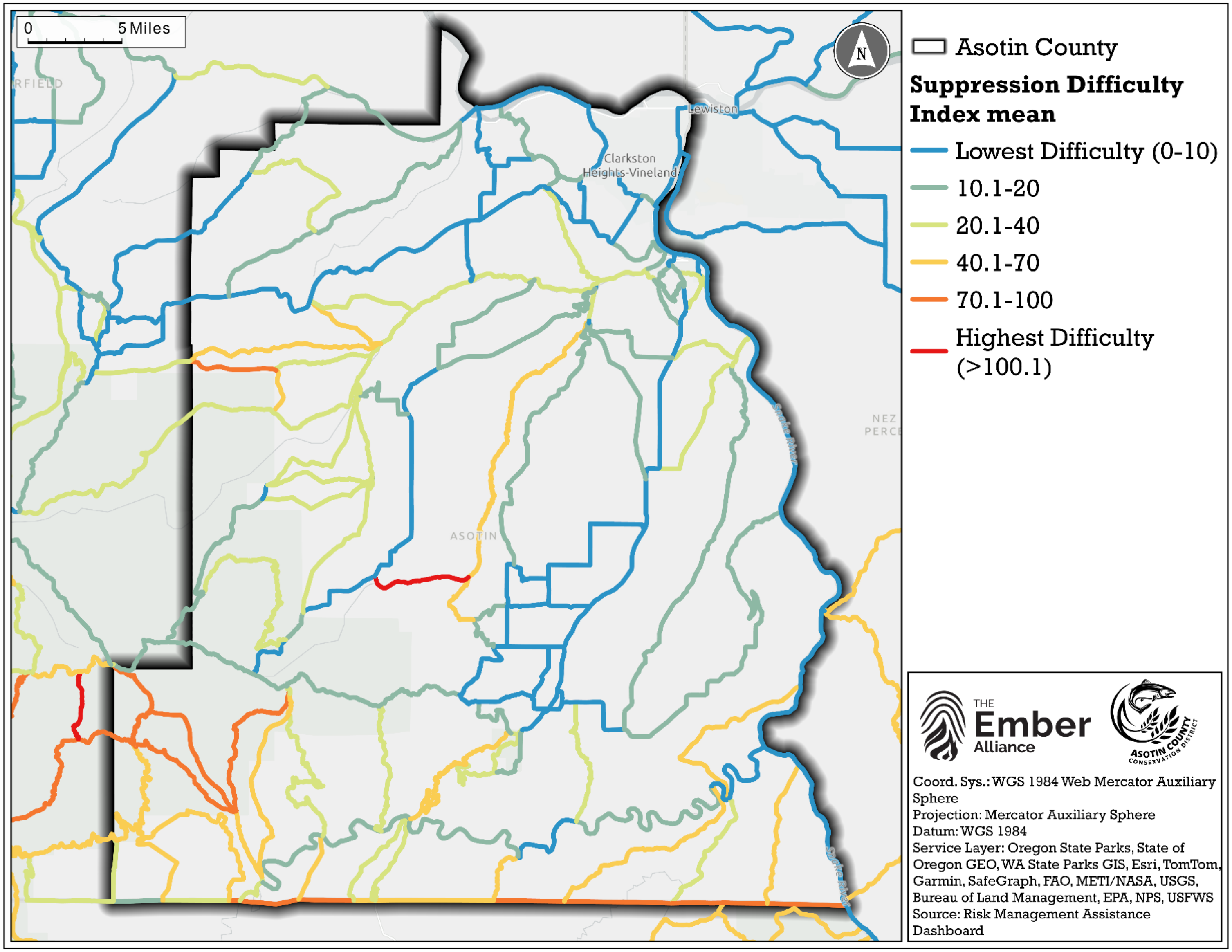


Figure B.27. *Suppression difficulty index for potential control lines identified by the U.S. Forest Service and partners in Asotin County. Suppression difficulty index is a rating of the relative difficulty in performing fire control work and is impacted by topography, fuels, expected fire behavior, firefighter line production rates, and distance from roads and trails. Potential control lines form the boundary of potential operational delineations, which are important features for proactive fuel management and fire suppression. Source: Risk Management Assistance Dashboard.*

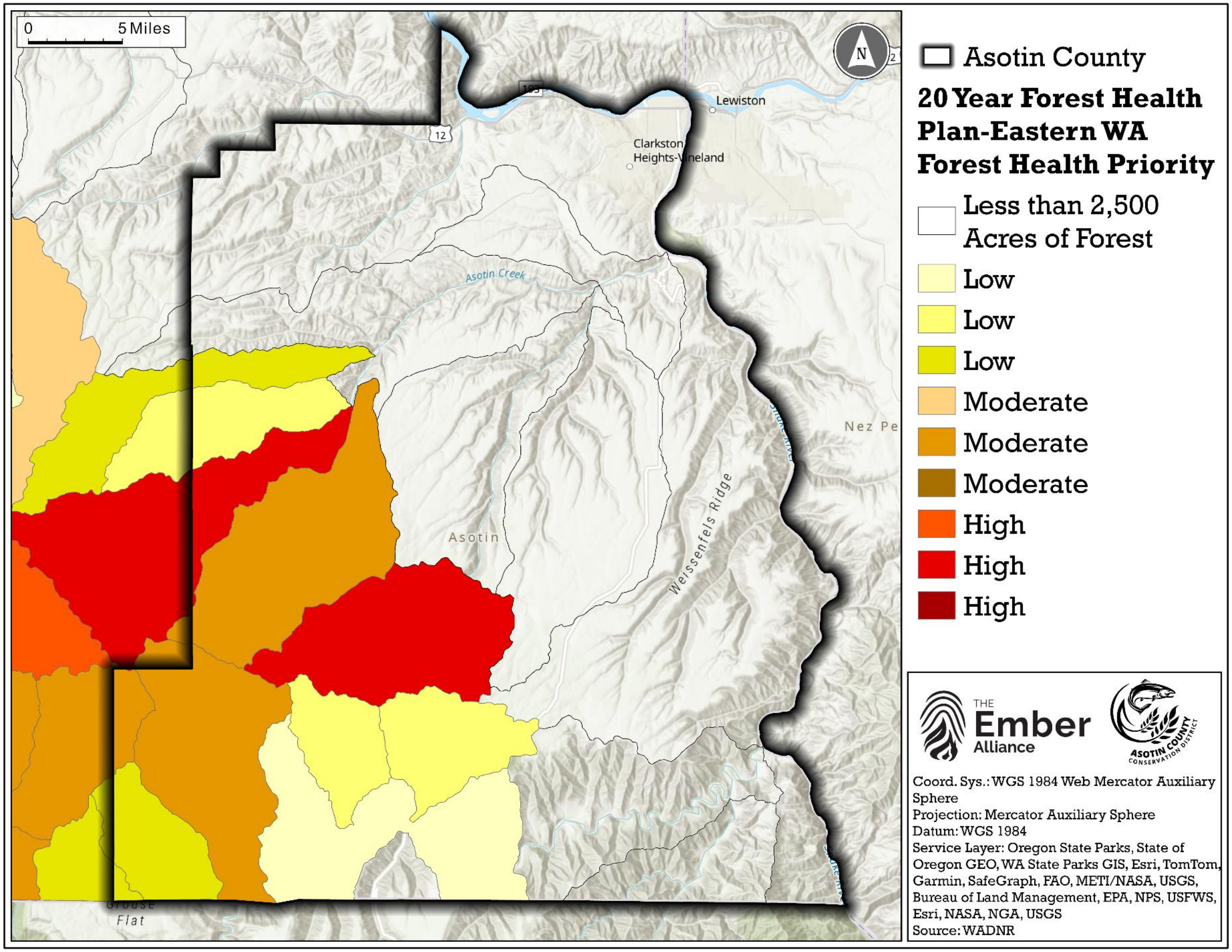


Figure B.28. *Watershed priority from the [WA DNR 20-year forest health plan for eastern Washington](). Priorities reflect an overlap of forest health and wildfire risk with values at risk. Source: Washington Department of Natural Resources.*

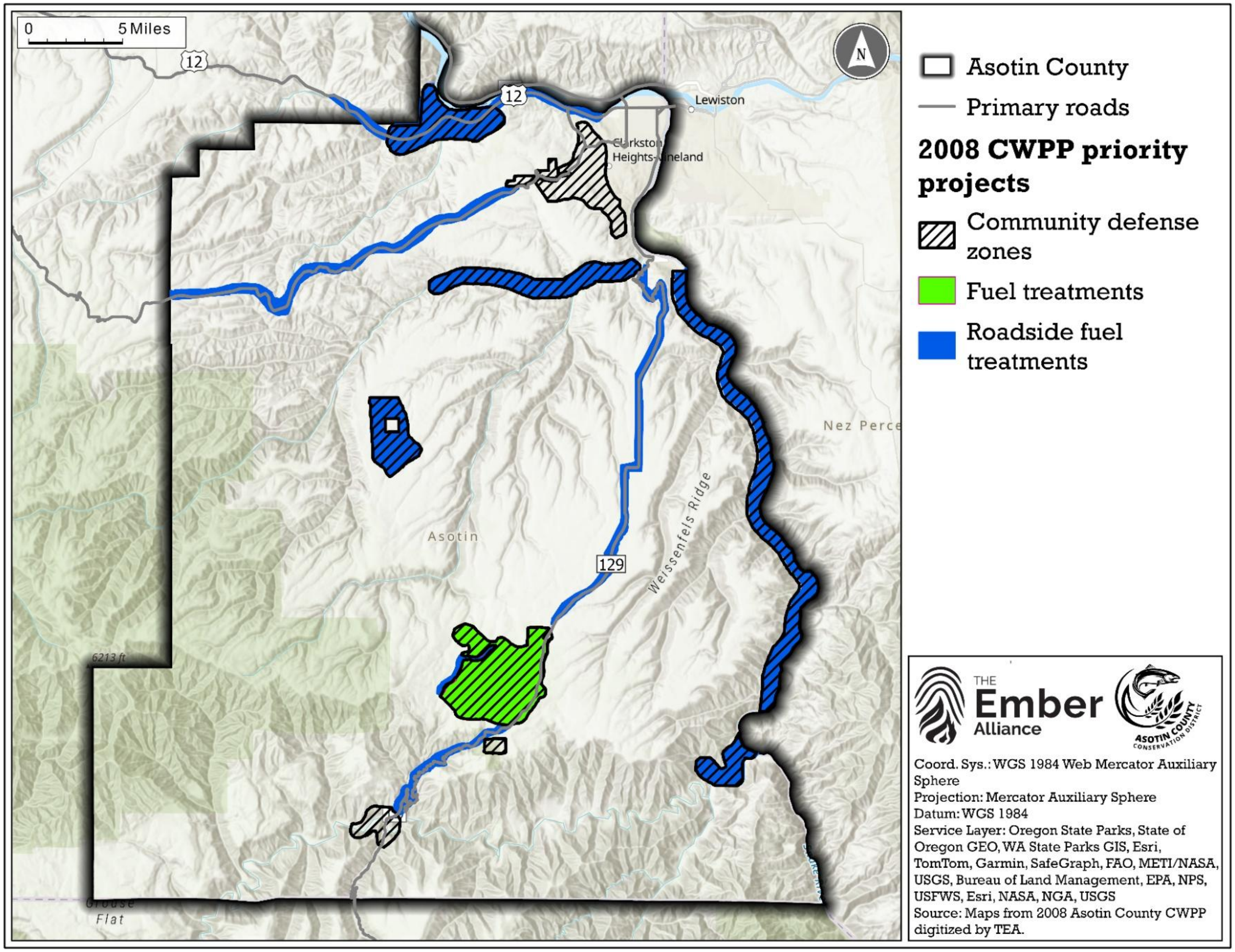


Figure B.29. *Fuel treatment priorities from the [2008 Asotin County CWPP] for roadside fuel treatments, general fuel treatments, home defensible space, and community defensible zones. See the 2008 CWPP for a description of these treatment categories. Source: Maps from the 2008 Asotin County CWPP were digitized by The Ember Alliance.*

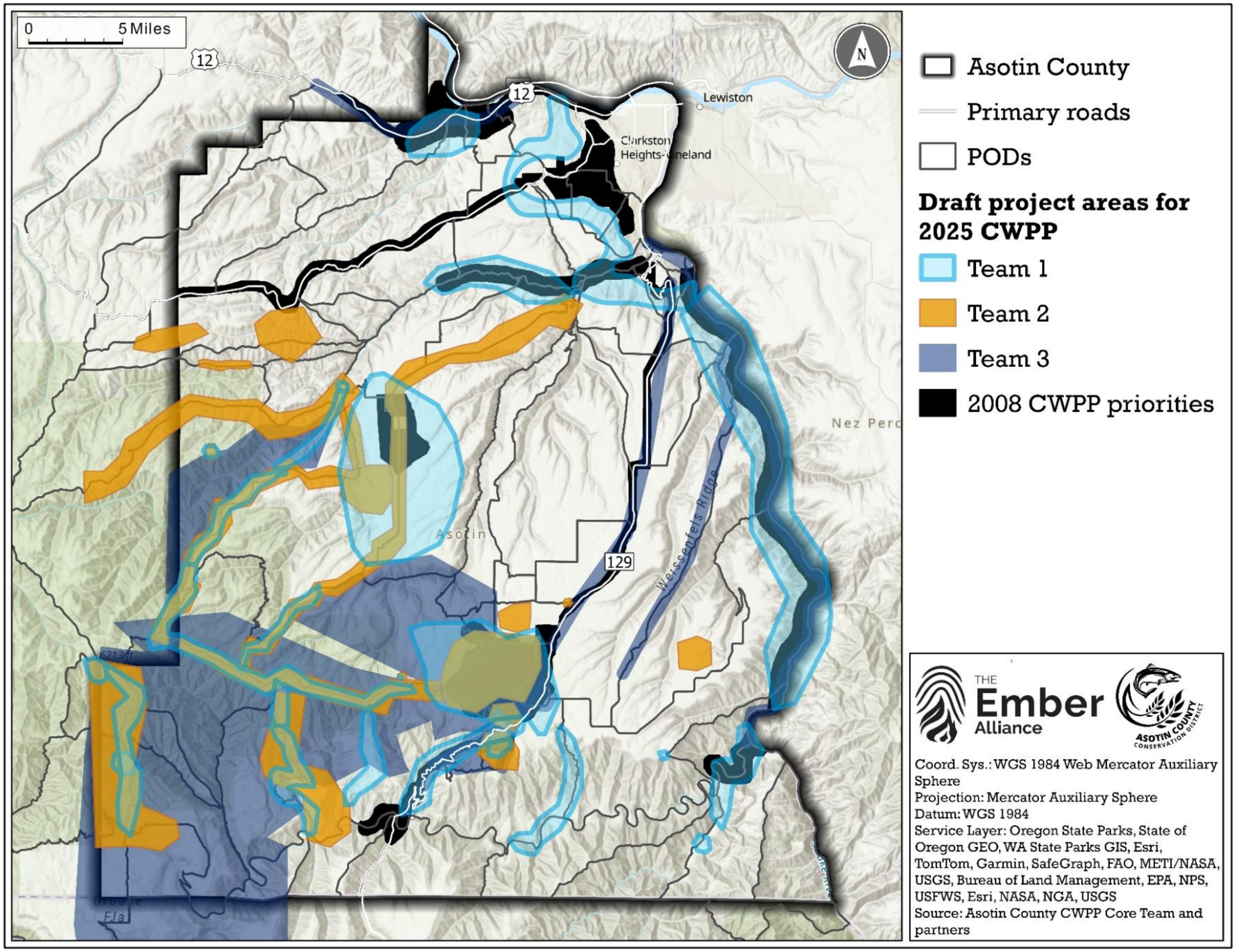


Figure B.30. *Draft treatment areas identified by Asotin County CWPP Core Team Members and partners at a collaborative and interactive meeting on October 31, 2024. In December 2023 and January 2024, the CWPP Core Team refined priority project areas (**Figure B.31**), created goals, and decided on leaders and timelines.*

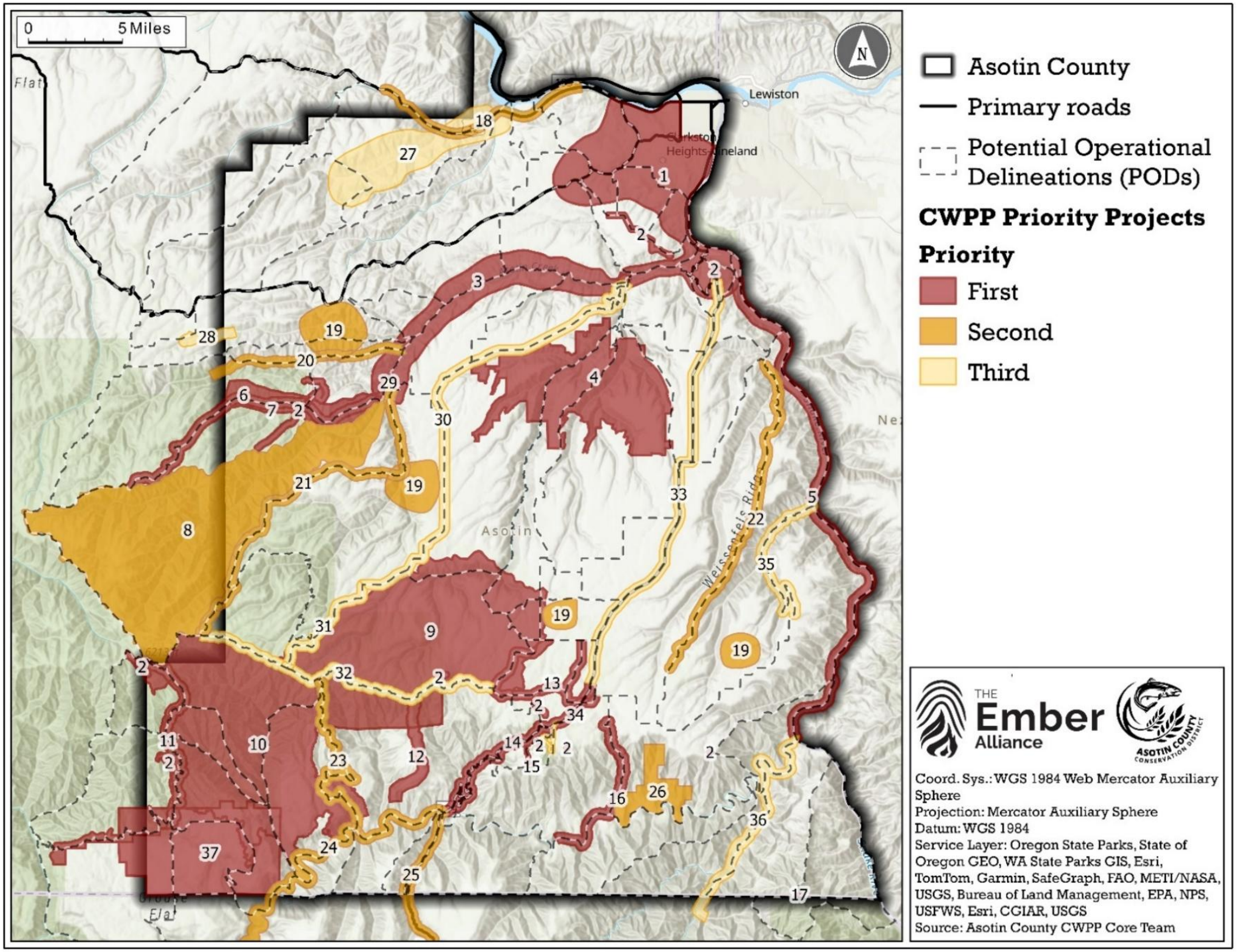


Figure B.31. *Priority projects for the 2025 Asotin County CWPP as identified by the Core Team and partners. Potential operational delineations are important strategic features for proactive fuel management and fire suppression. Numbers correspond to project IDs in the table* ***in Section 4.c. Priority Project Areas for Asotin County*** *that describes project goals, leads, wildfire risk, and strategic alignment.*

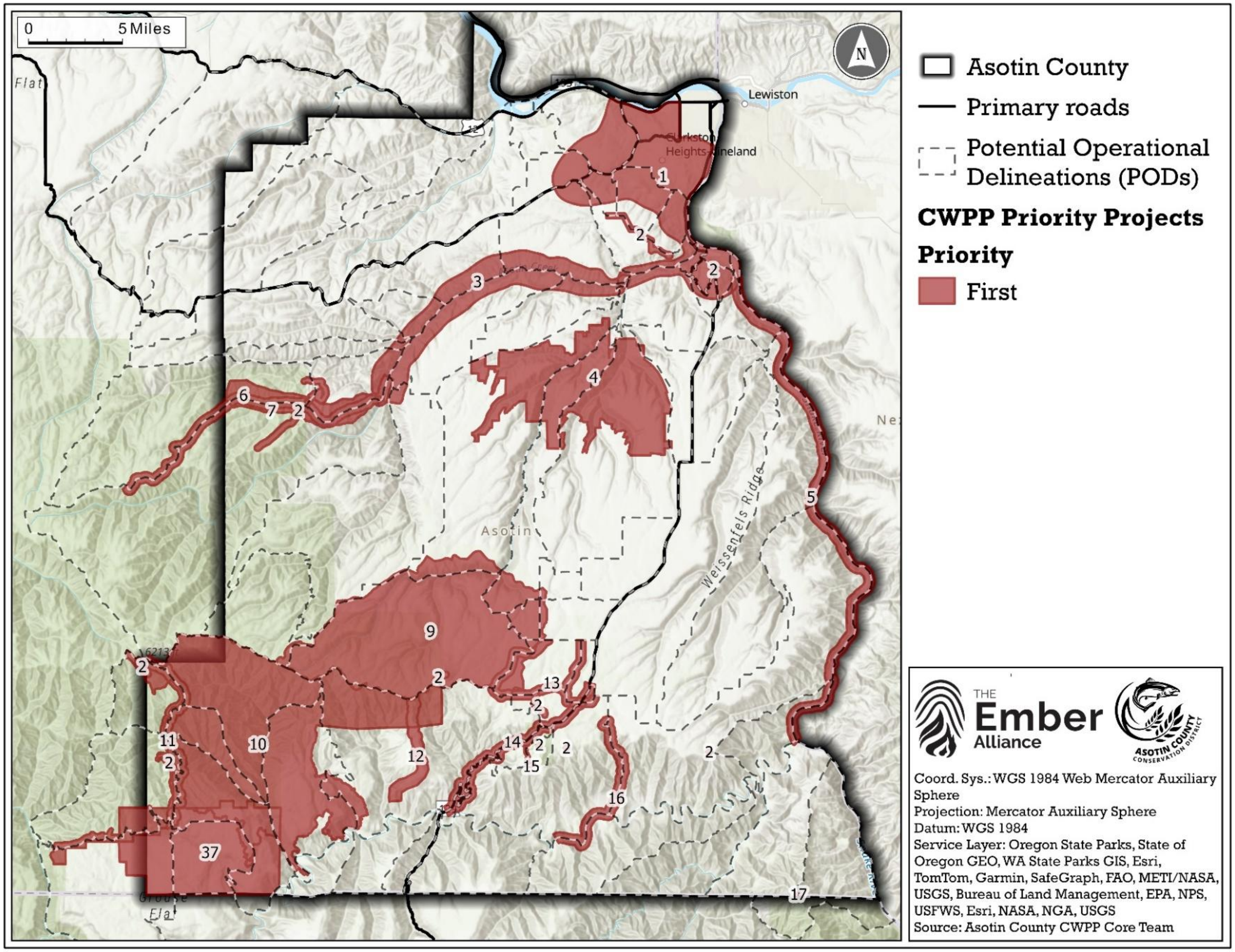


Figure B.32. *First-priority projects for the 2025 Asotin County CWPP as identified by the Core Team and partners. Potential operational delineations are important strategic features for proactive fuel management and fire suppression. Numbers correspond to project IDs in the table* ***in Section 4.c. Priority Project Areas for Asotin County*** *that describes project goals, leads, wildfire risk, and strategic alignment.*

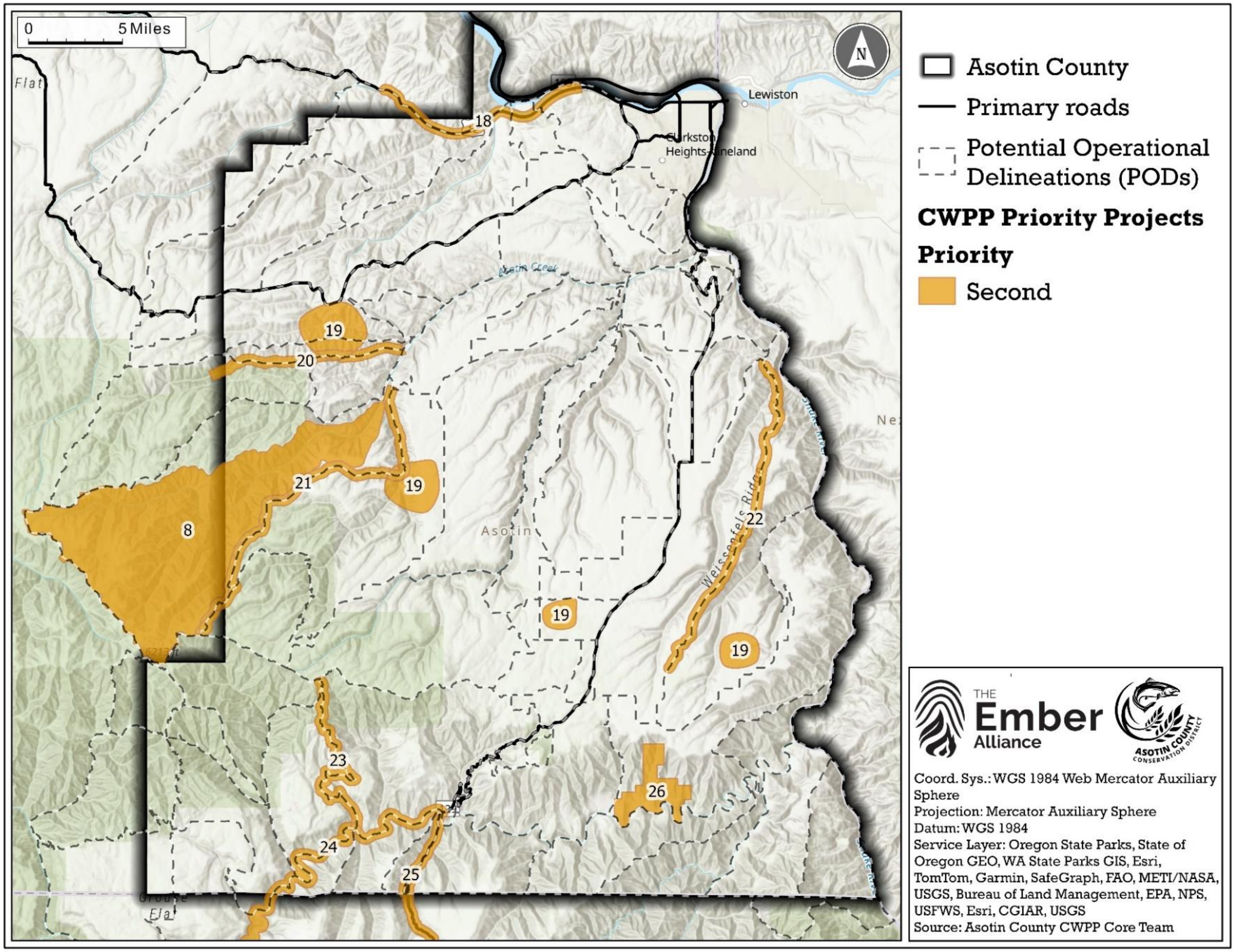


Figure B.33. *Second-priority projects for the 2025 Asotin County CWPP as identified by the Core Team and partners. Potential operational delineations are important strategic features for proactive fuel management and fire suppression. Numbers correspond to project IDs in the table* ***in Section 4.c. Priority Project Areas for Asotin County*** *that describes project goals, leads, wildfire risk, and strategic alignment.*

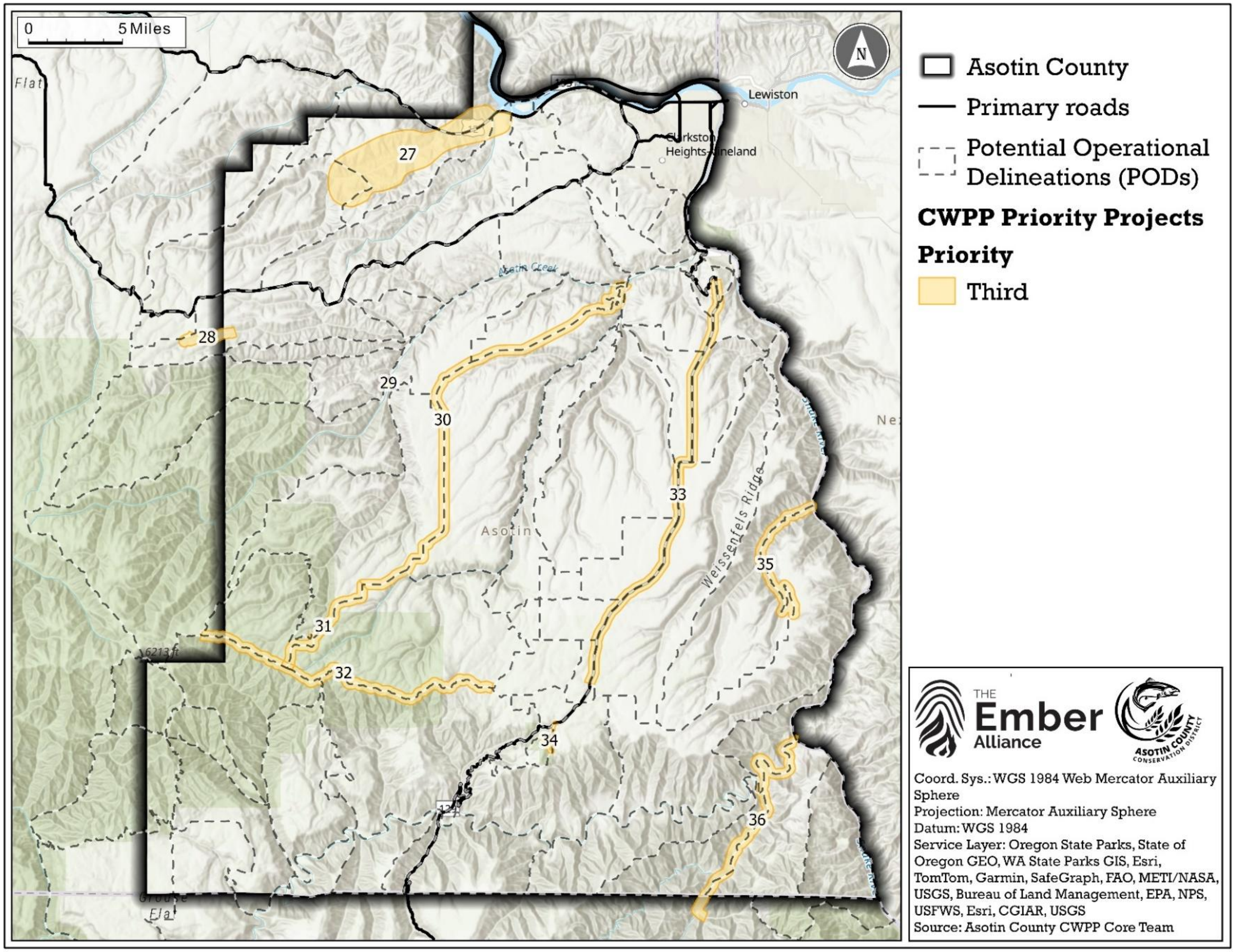


Figure B.34. *Third-priority projects for the 2025 Asotin County CWPP as identified by the Core Team and partners. Potential operational delineations are important strategic features for proactive fuel management and fire suppression. Numbers correspond to project IDs in the table **in Section 4.c. Priority Project Areas for Asotin County** that describes project goals, leads, wildfire risk, and strategic alignment.*

Appendix C. Community Survey Methodology and Results

Survey Methodology

The community survey was developed by the Asotin County CWPP Core Team. The team used Wildfire Research Center (WiRE) and The Ember Alliance (TEA) surveys to develop their own resident survey. The aim of the survey was to provide vital information on the concerns of community members living in a wildfire prone environment and to guide the prioritization of mitigation projects in the district.

The survey was available from March 15 to September 23, 2024 through Google Forms. The Asotin County CWPP Core Team disseminated the survey at the Asotin County Fair, at the Asotin County Conservation District office, at fire district events, at various community events, and through social media. There were 123 respondents, most full-time residents of Asotin County.

TEA summarized the survey data collected by the Asotin County CWPP Core Team. Results and comments from the survey were used to inform the priorities in the CWPP.

Survey Questions and Answers

1. Please read each statement and select the degree to which you agree or disagree with it.

	Agree	Disagree	Not Sure	N/A
My community is at risk from wildfires				
My own home/ property is at risk from wildfires				
I know which areas in Asotin County are located within a wildland fire protection district				
Each landowner is responsible for wildfire mitigation on their land				
I know how to reduce wildfire hazards around my home/ property				
I support the local government in establishing ordinances requiring wildfire mitigation in high-risk areas				
I support land managers in mitigating wildfire risks on public land around my community				
I would consider changing the landscaping around my home and/or removing trees to reduce my wildfire hazards				
I support removing trees and vegetation along roads to enhance the safety of evacuation routes				
I support prescribed (controlled) burning to reduce wildfire risk in open spaces around my community				

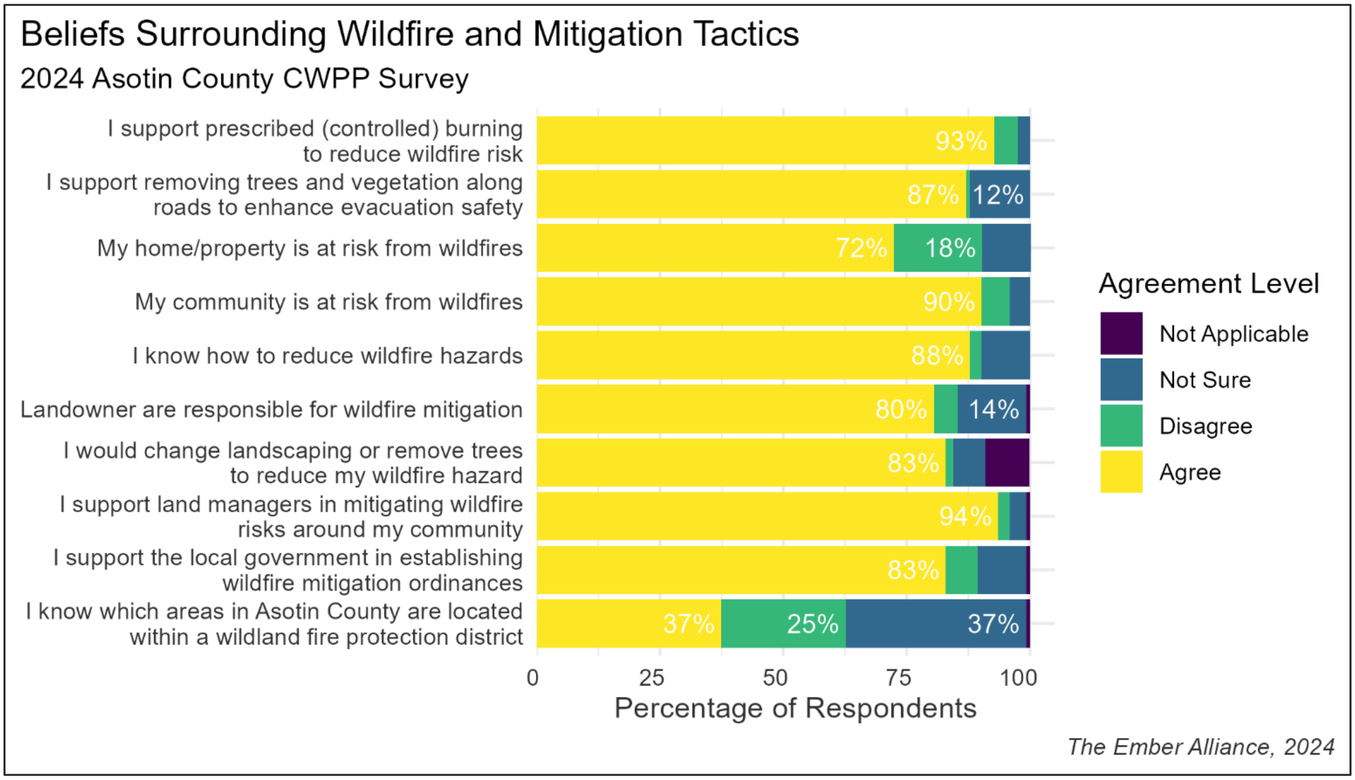


Figure C.1. *Beliefs surrounding wildfire and mitigation tactics of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

2. How concerned are you about the following wildfire related issues?

	Not Concerned	Moderately Concerned	Very Concerned
Damage to my home or property			
Loss of property insurance coverage due to wildfire risks			
Receiving timely information about a wildfire incident and evacuations			
Loss of life or injury to humans, pets, or livestock			
Loss of life or injury to firefighters and first responders			
Frequent electric/utility shutdowns due to wildfire hazards, aka: “rolling blackouts”			
Impacts to the local economy and home values			
Loss of wildlife habitat and scenery due to wildfire damage			
Loss of recreational opportunities			
Loss of agricultural viability			
Wildfire smoke and air quality issues			

Post fire erosion control and flooding			

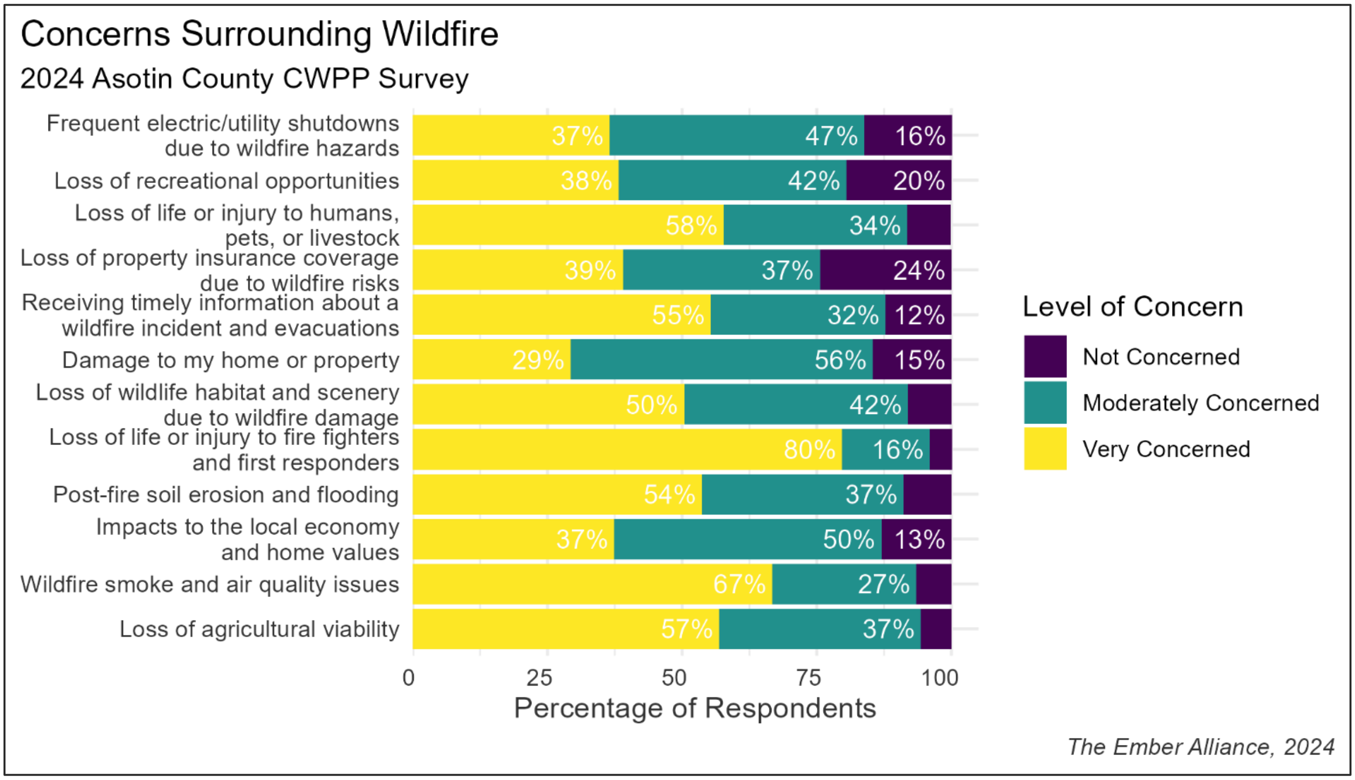


Figure C.2. *Concerns surrounding wildfire of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

3. I have completed the following work to my home/business/property to lessen the risk of wildfire: Check all that apply.

- Creation of a 5 ft. non-flammable buffer around my home (e.g., rock, concrete, pavers)
- Management of noxious weeds and vegetation near my home/property
- Cutting or limbing trees and removal of flammable brush around my home/ property
- Removal of debris (e.g. pine needles) from my gutter, roof, porch, etc.
- Using non-flammable building materials for my home renovations/construction
- Firewood stacks are at least 25’ away from my home
- Installation of metal screens to block embers from entering vents on my home
- Widening my driveway so fire engines can access my property
- Installation of reflective signs for first responders
- Home Wildfire Mitigation Assessment completed by trained personnel
- Other:

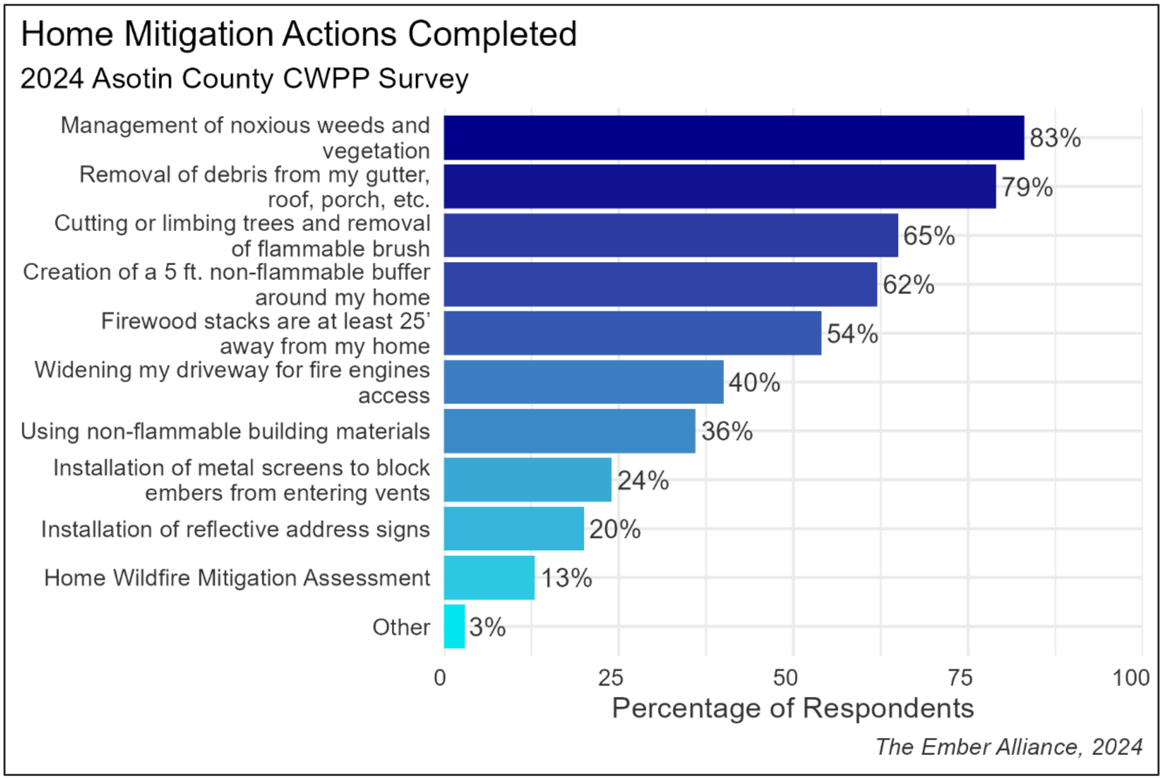


Figure C.3. *Home mitigation actions taken by 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

"Other" responses:

- "Live in apartment complex; landscaping is taken care of (i.e. no fuel risk)"
- "We don't have firewood stacks. No wood burning fireplace"
- "There needs to be a n/a option for this section"
- "Renting current home"

4. What are the obstacles that have stopped you from completing wildfire mitigation? Check all that apply.

   - Lack of knowledge/unsure what to do
   - Lack of time
   - Cost /financial aspect
   - Physical inability to complete the work
   - Unsure who to contact for assistance to complete work
   - No way to dispose of slash (trees, limbs, brush, etc.)
   - Concerns about my privacy and scenery if I remove my trees or bushes
   - Concerns about the aesthetics of wildfire mitigation around my home I am active in wildfire mitigation around my home or property
   - I am active in wildfire mitigation around my home or property
   - Other:

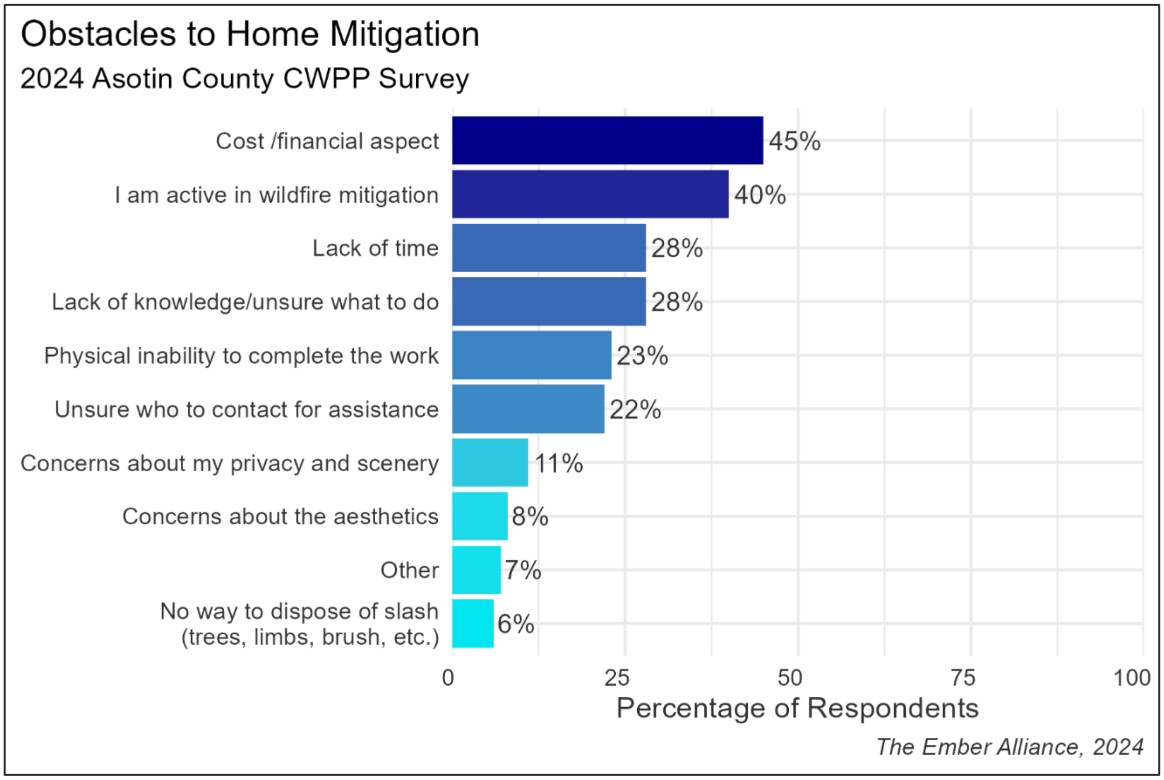


Figure C.4. *Obstacles to mitigation 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

"Other" Responses:

- "Apartment resident"
- "No answer"
- "Neighbors fence and trees are on property lines. Also, noone answers about noxious weed control with thistle spreading in fields/canyon behind our home"
- "The neighbors don't have their property taken care of"
- "We have done what's possible to do to our home and property. The other issues do not apply to us"
- "Just haven't gotten to it yet (reflective house numbers)"
- "Lack of incentive to complete work while on a lease"

5. How much are you willing to spend annually on wildfire mitigation on your property or home?

   - Nothing
   - $1 - $499
   - $500 - $999
   - $1,000 - $2,000
   - $2,000+
   - I am financially unable to spend extra money on wildfire mitigation.

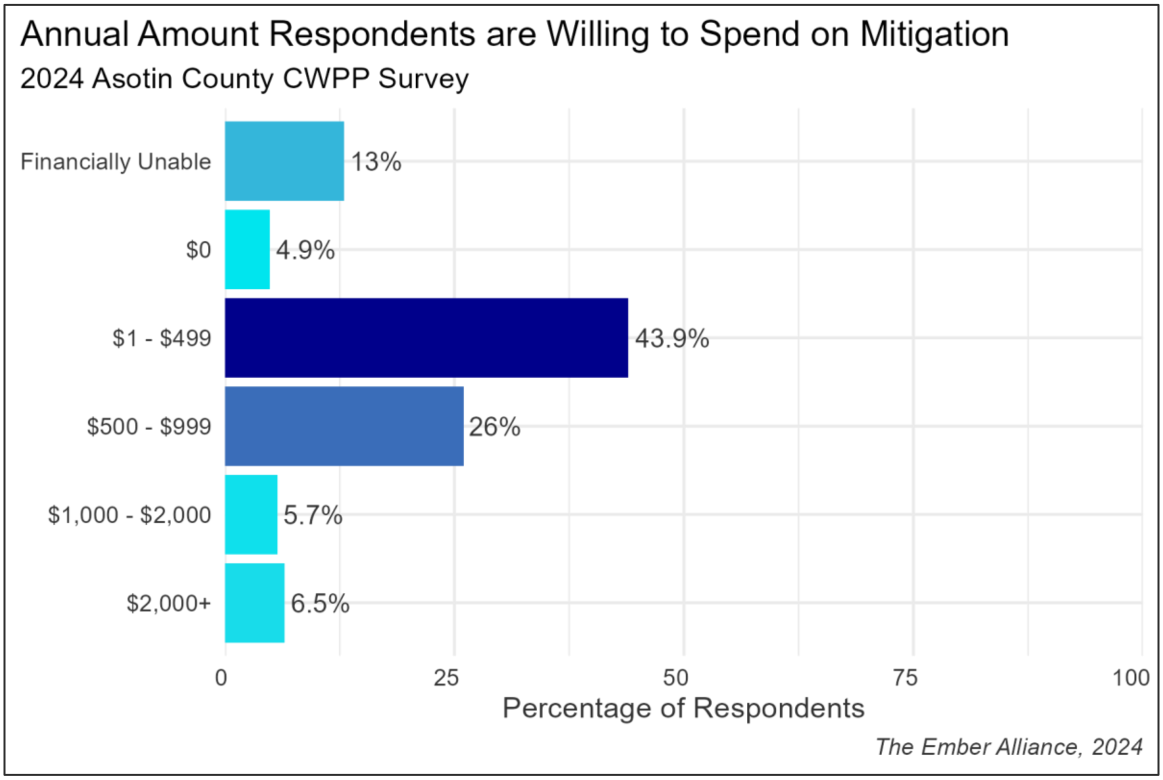


Figure C.5. *Amount 2024 Asotin County CWPP Survey respondents are willing to spend on mitigation (n= 123 individuals).*

6. Which of the following would encourage you to perform wildfire mitigation? Check all that apply.

   - Financial assistance to complete wildfire mitigation activities
   - Free property assessment by a wildfire specialist to identify my wildfire risks
   - Site-specific checklist of priorities and actions I can use to reduce wildfire hazards
   - Wildfire safe landscaping techniques that beautify my home and yard
   - Educational programs or community events for home wildfire mitigation
   - Individual or community recognition for completing wildfire mitigation (i.e.: Firewise USA Community)
   - County or State enforcement of wildfire, building, and/or maintenance codes
   - City or County ordinances regarding wildfire hazard mitigation
   - Incentives from insurance companies for completing wildfire hazard mitigation
   - A list of recommended contractors for hire to complete mitigation work
   - Other:

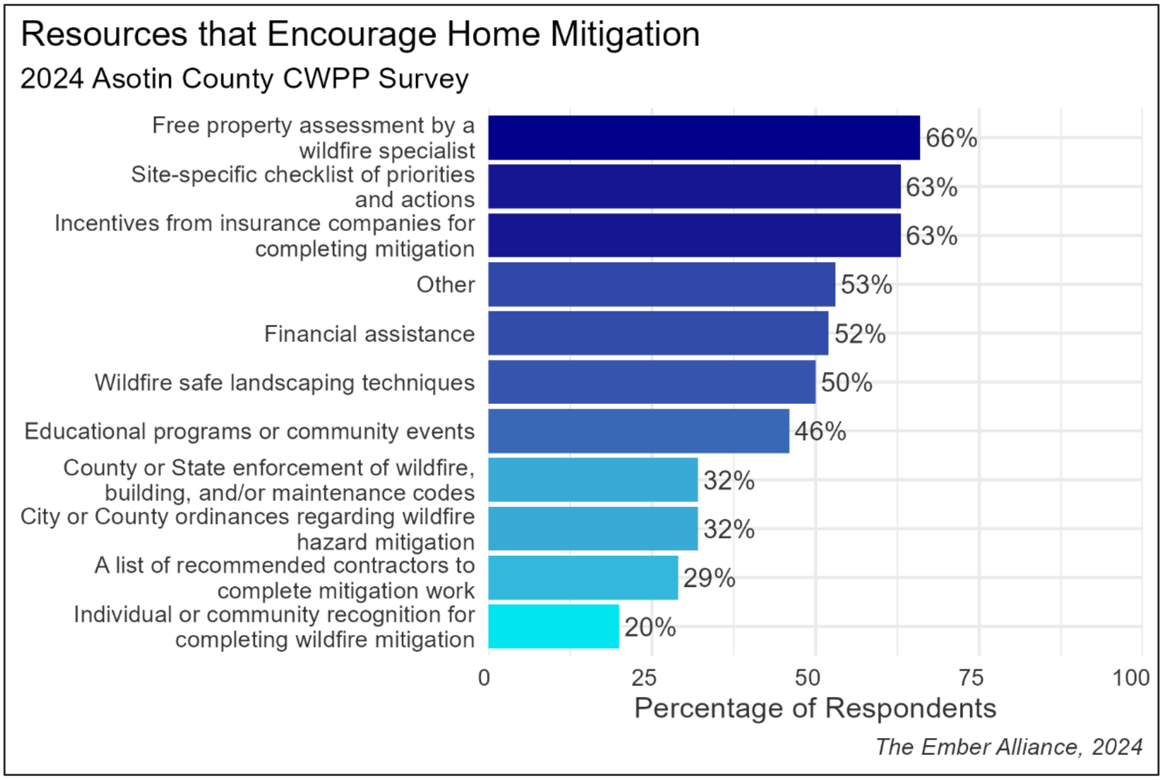


Figure C.6. *Resources that would encourage mitigation action for 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

“Other” answers:

- "No answer"
- "Putting any control in commissioners control is a train wreck. That is what mitigation codes would ultimately be"
- "I rent, but keep weeds down around the place. Was a wildland firefighter for many years"
- "The insurance is the clincher for me"

7. Do you have an evacuation plan and know where to evacuate to?

    - ○ Yes, for my home
    - ○ Yes, for my cabin/recreation property
    - ○ No, I do not have a plan to evacuate

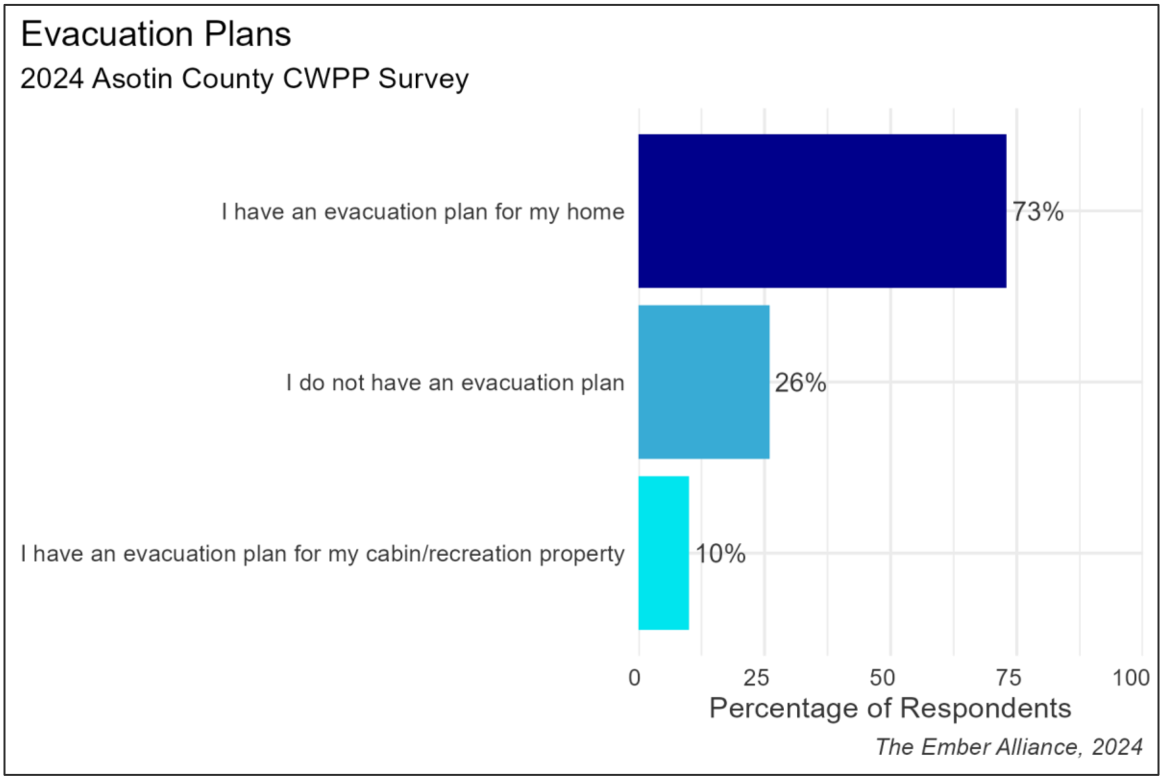


Figure C.7. *Evacuation plans for 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

8. Have you and your family practiced evacuating your home within 15 minutes or less?

   - ○ Yes, for people in my household
   - ○ Yes, for people and pets in my household
   - ○ Yes, for people, pets, and livestock on my property
   - ○ No, I have not practiced evacuating

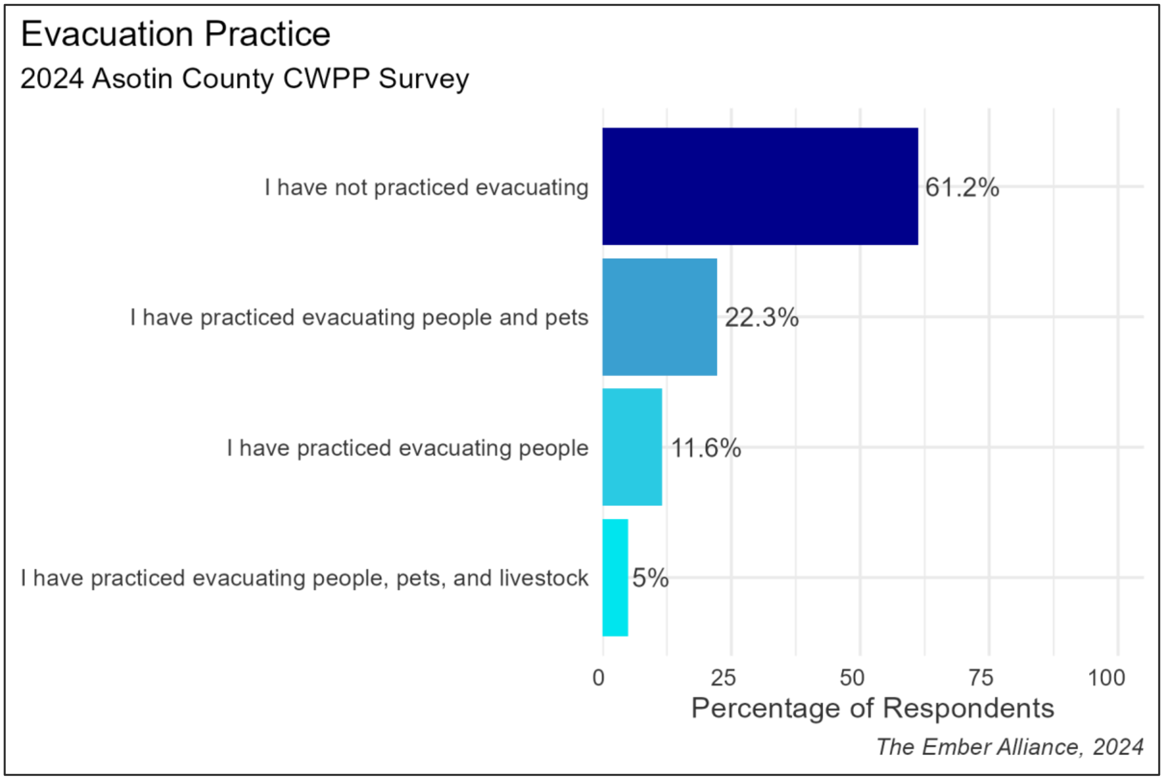


Figure C.8. *Evacuation practice for 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

9. Do you have a plan for evacuating your pets or livestock if you are not at home?

- ○ Yes, I have a plan for evacuating my pets if I am not home
- ○ Yes, I have a plan for evacuating my livestock if I am not home
- ○ Yes, I have a plan for evacuating my pets and livestock if I am not home
- ○ No, I have no plan for evacuating pets or livestock if I am not home
- ○ Not applicable

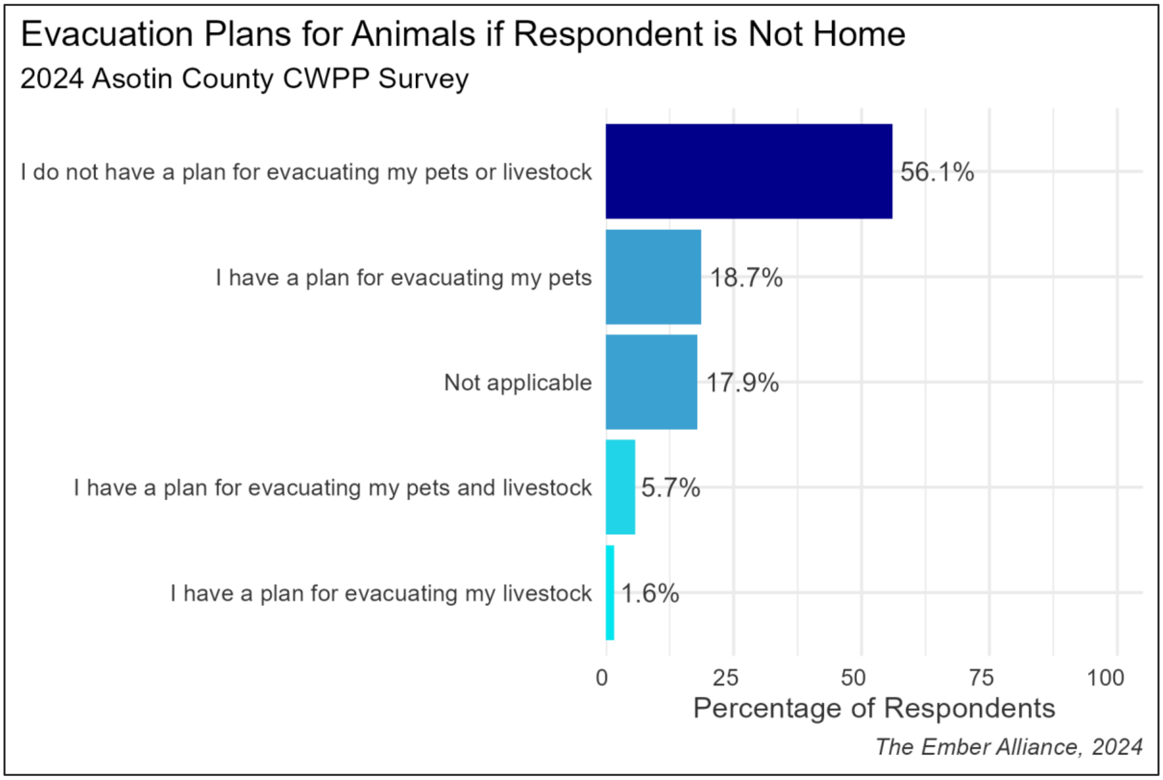


Figure C.9. *Evacuation plans for pets and livestock for 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

10. Have you signed up for the “ASOTIN COUNTY EMERGENCY MANAGEMENT HYPER-REACH" emergency alerts system to receive notifications during wildfire incidents?

    - Yes
    - No
    - I have never heard of this notification program

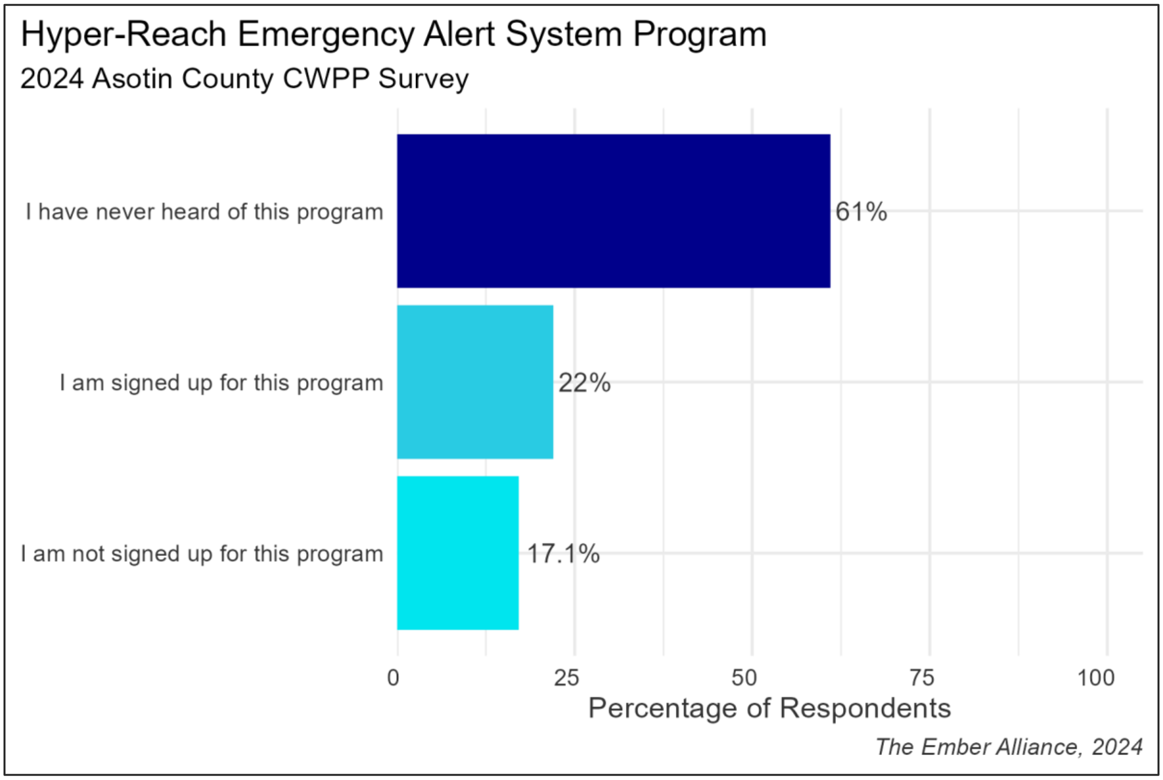


Figure C.10. *Emergency alert signup of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

11. If there were an evacuation in the community because of wildfire, how concerned are you about the following issues?

	Not Concerned	**Moderately Concerned**	**Very Concerned**	**N/A**
I have children that might be home alone				
My neighborhood does not have enough roads to handle evacuation traffic				
I do not know where to go if asked to evacuate				
I might not receive timely information about an evacuation				
I have livestock, and I do not know where to go if asked to evacuate				
Someone in my home has mobility or medical issues that could delay or prevent evacuation				
I am unsure of which personal items to prioritize bringing while evacuating				

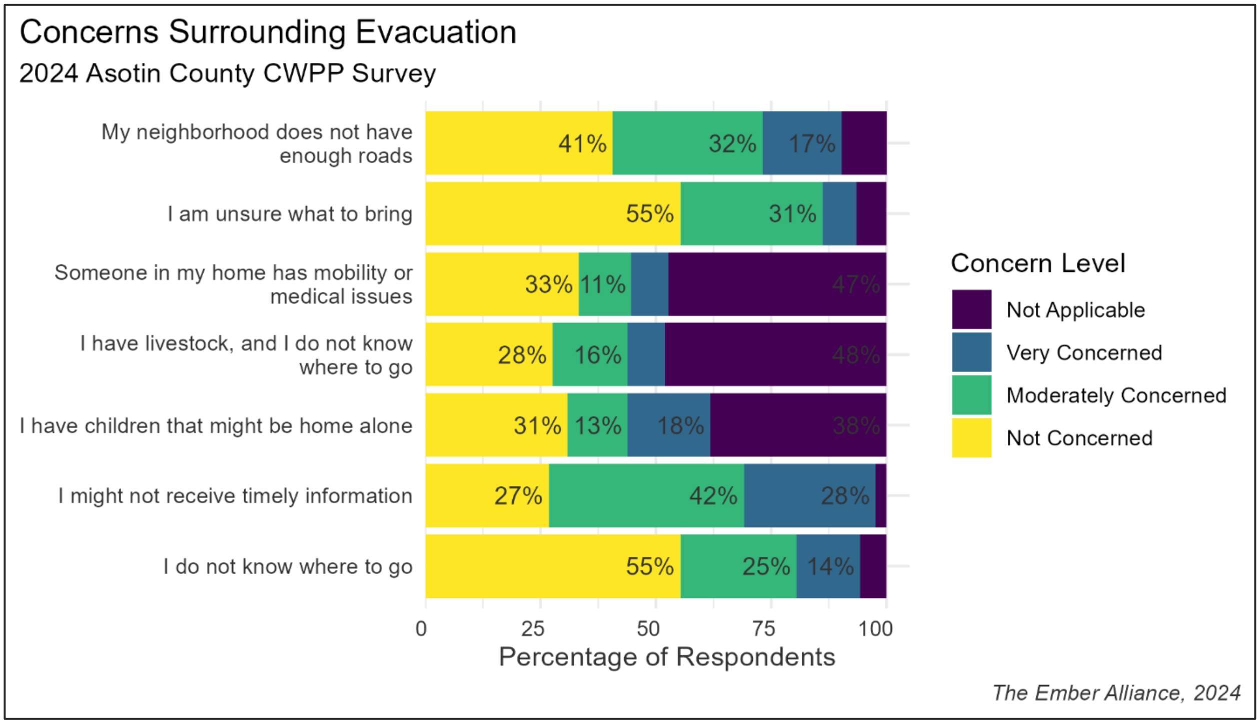


Figure C.11. *Evacuation concerns of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

12. Where have you found or received wildfire information? Check all that apply.

- Local Fire Departments
- Asotin County Emergency Management
- Department of Natural Resources (WA DNR)
- Asotin County Conservation District
- Natural Resources Conservation Service (NRCS)
- U.S. Forest Service
- Social Media
- Local News and/or Radio
- Community Events/Workshops
- Other:

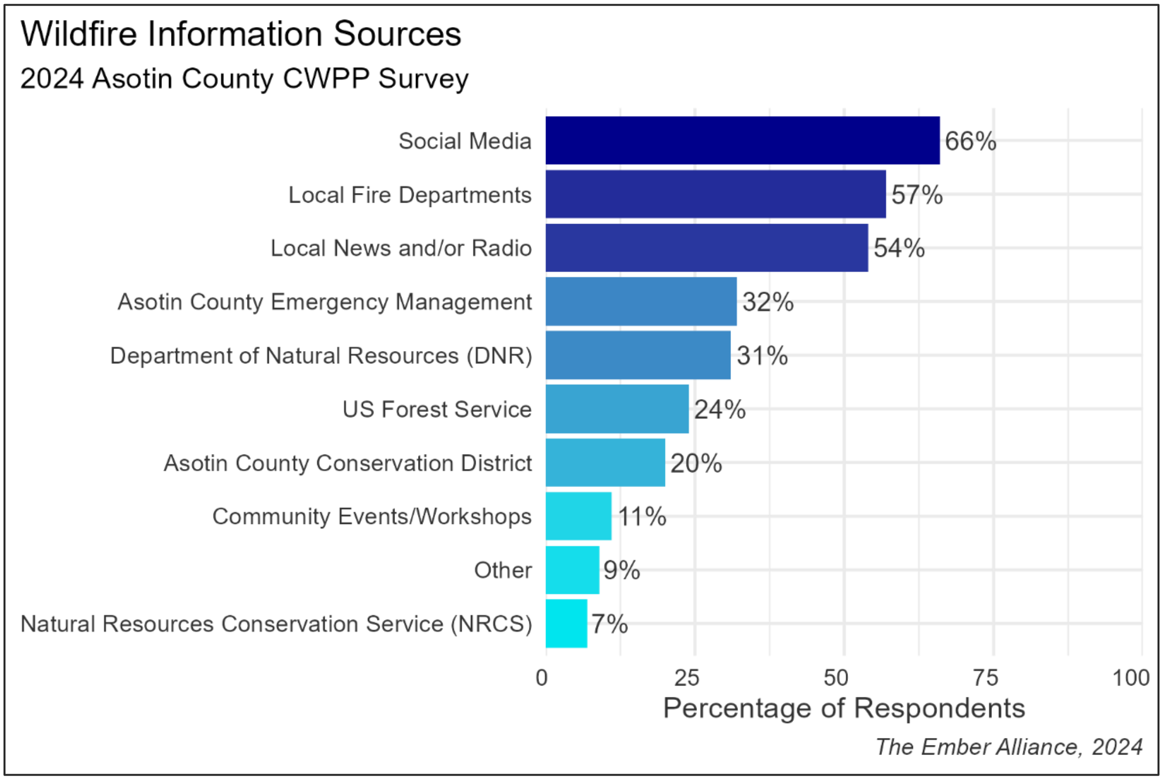


Figure C.12. *Wildfire information sources for 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

"Other" responses:

- "Facebook posts by local residents"
- "None"
- "Active fire fighter"
- "Asotin County master gardeners' course"
- "Google wildfire search"
- "None"
- "Learned at young age through school"
- "Watch duty app"
- "Watch duty app is fastest source I have found"
- "Public Health"

13. Which of the following educational opportunities would you participate in to learn about wildfire risk mitigation and emergency preparedness? Check all that apply.

    - Neighborhood workshops
    - Community workshops
    - Virtual workshops
    - A nationwide program like Firewise USA or Ready, Set, Go!
    - Wildfire mitigation assessment on my property
    - Online articles or videos on wildfire preparedness
    - Paper copies of articles on wildfire preparedness
    - Other:

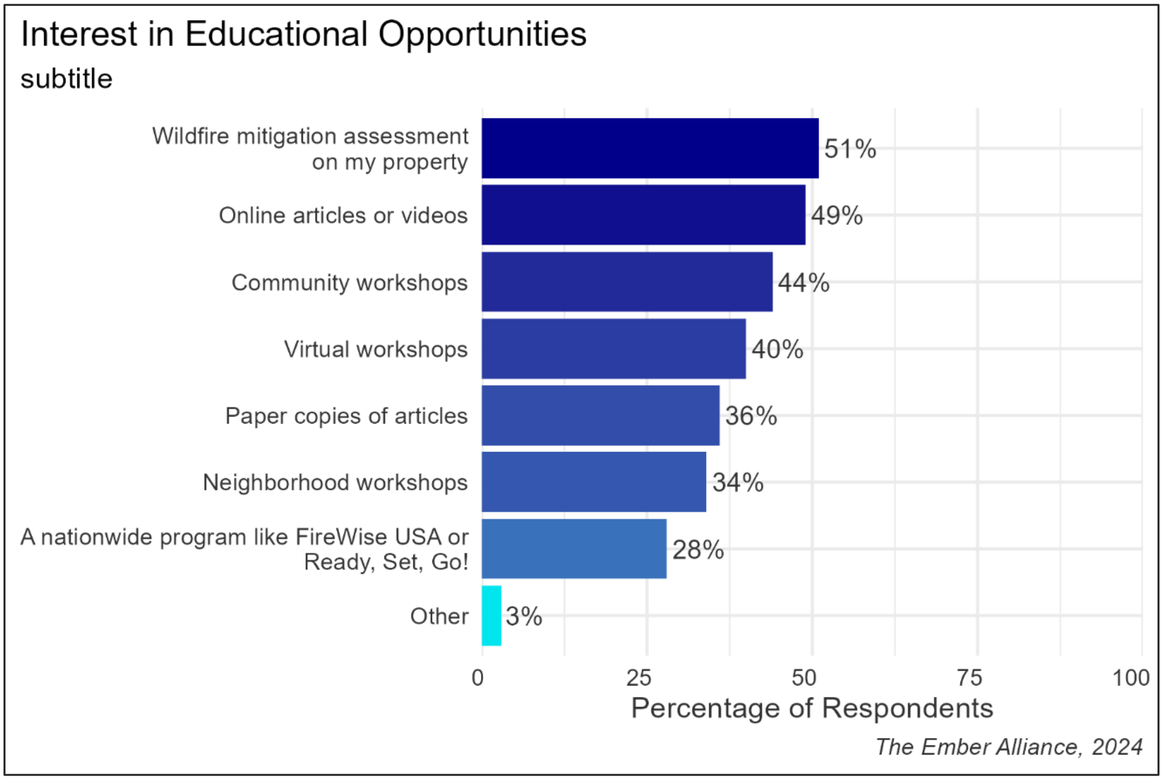


Figure C.13. *Interest in educational opportunities of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

"Other" responses:

- "No answer"
- "None of the above"
- "none"
- "none"

14. What methods are best to communicate with you? Check all that apply.

    - Email
    - Phone
    - Text Message
    - Social Media
    - Postcards or Mailers
    - Local Radio Stations
    - Local News Program
    - Local Newspapers
    - Other:

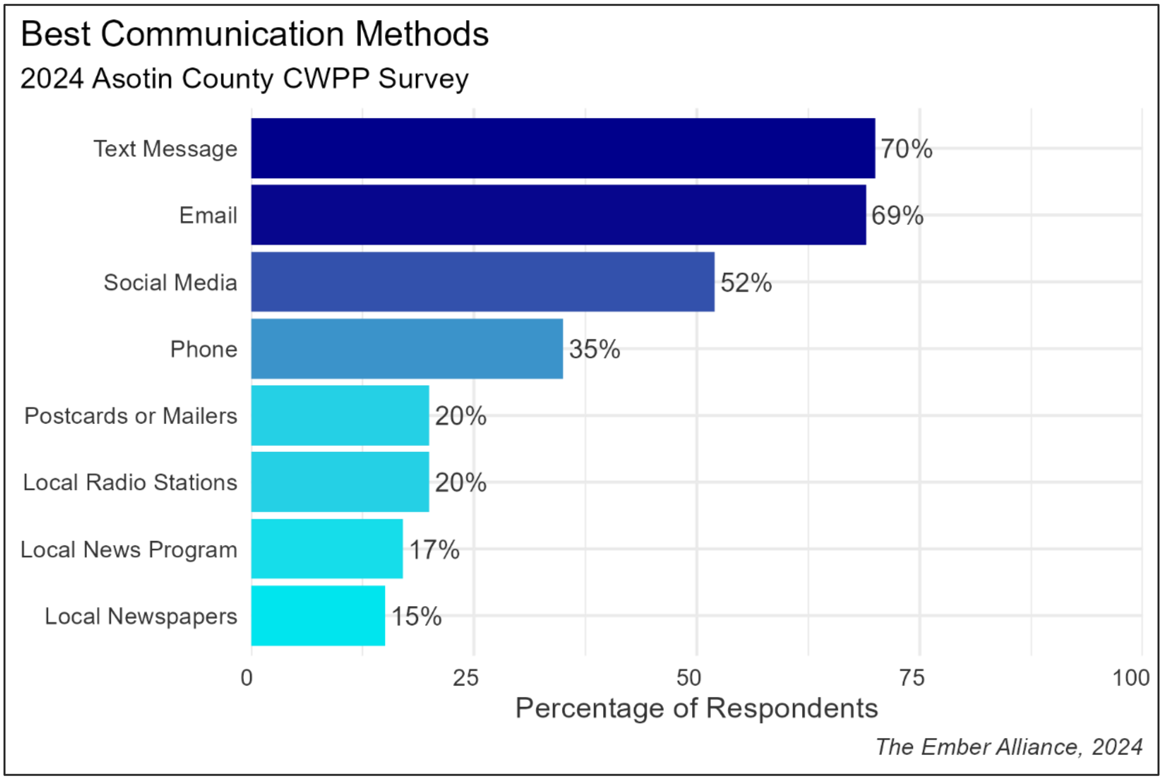


Figure C.14. *Best communication methods for 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

15. What zone do you live in?

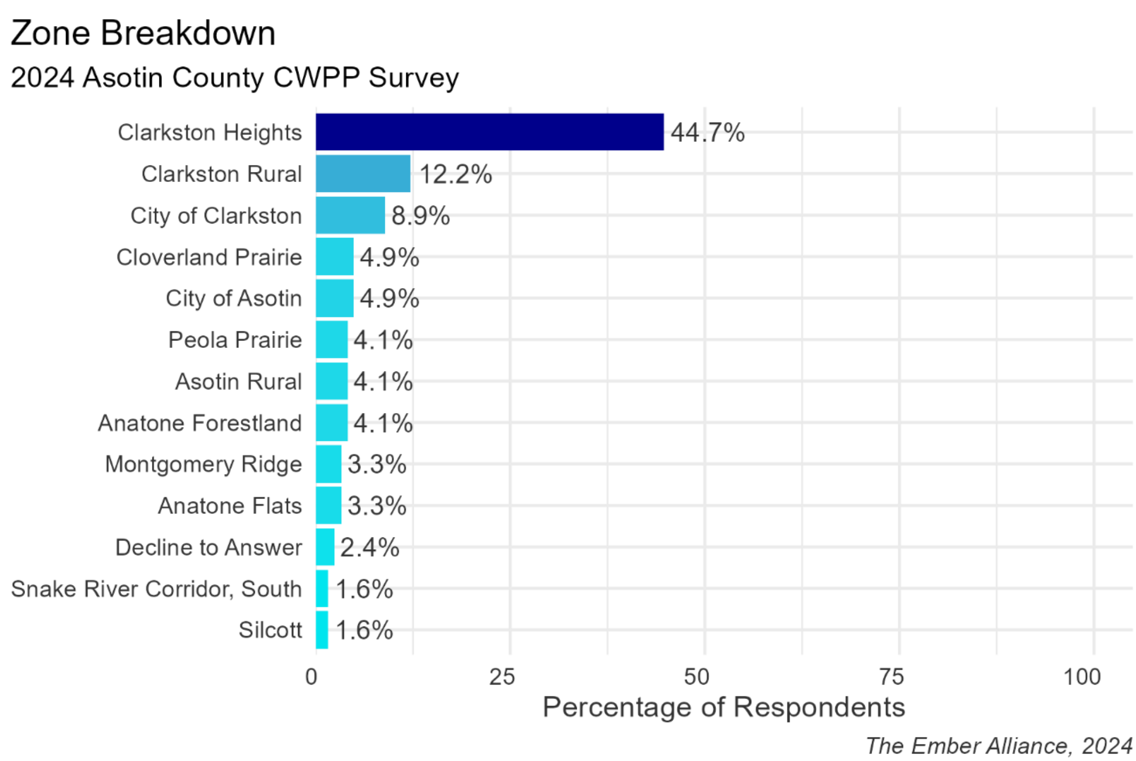


Figure C.15. Zone of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).

16. What is your residency status in Asotin County? Check all that apply.

- ○ Full-time resident
- ○ Part-time or seasonal resident
- ○ Owner of undeveloped land or lot(s) Owner of agricultural land
- ○ Owner of forestland
- ○ Owner of rangeland
- ○ Other:

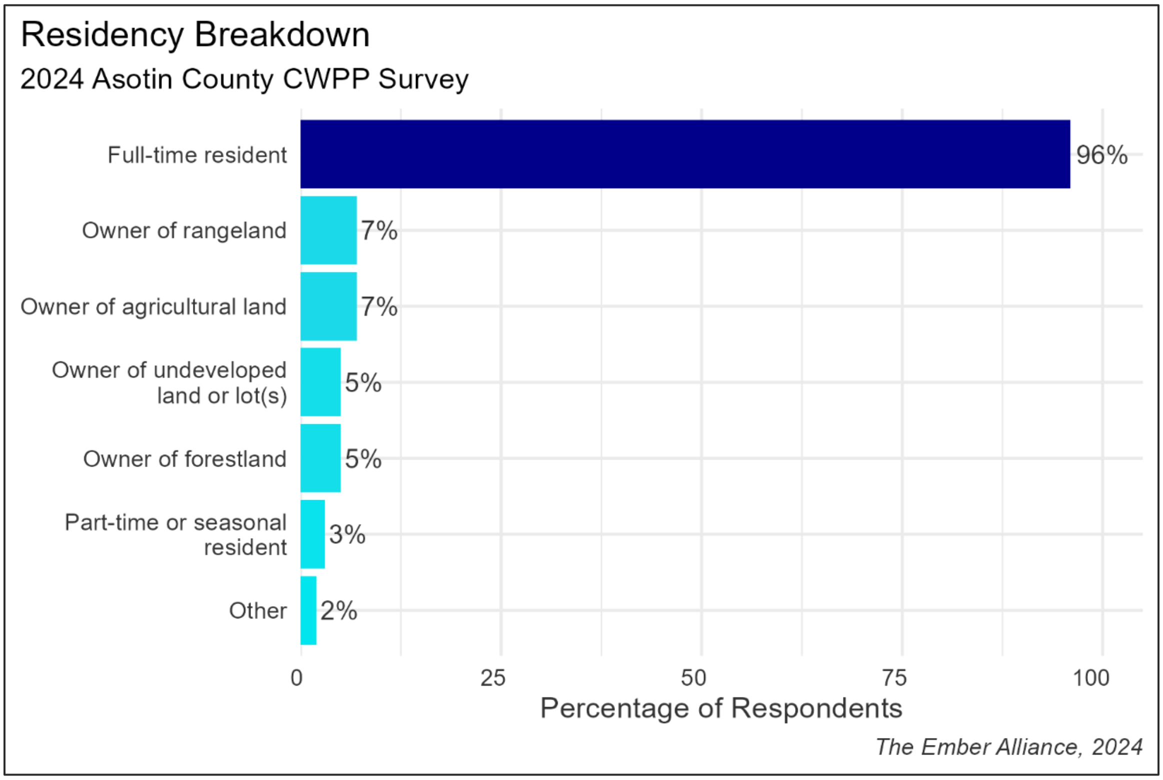


Figure C.16. Residency status of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).

"Other" responses:

- "Working in Asotin County"
- "Adjacent county resident"

17. Please identify your race. Check all that apply.

- ○ American Indian or Alaska Native
- ○ Asian
- ○ Black or African American
- ○ Native Hawaiian or Other Pacific Islander
- ○ Hispanic or Latino
- ○ White
- ○ Prefer not to say
- ○ Other:

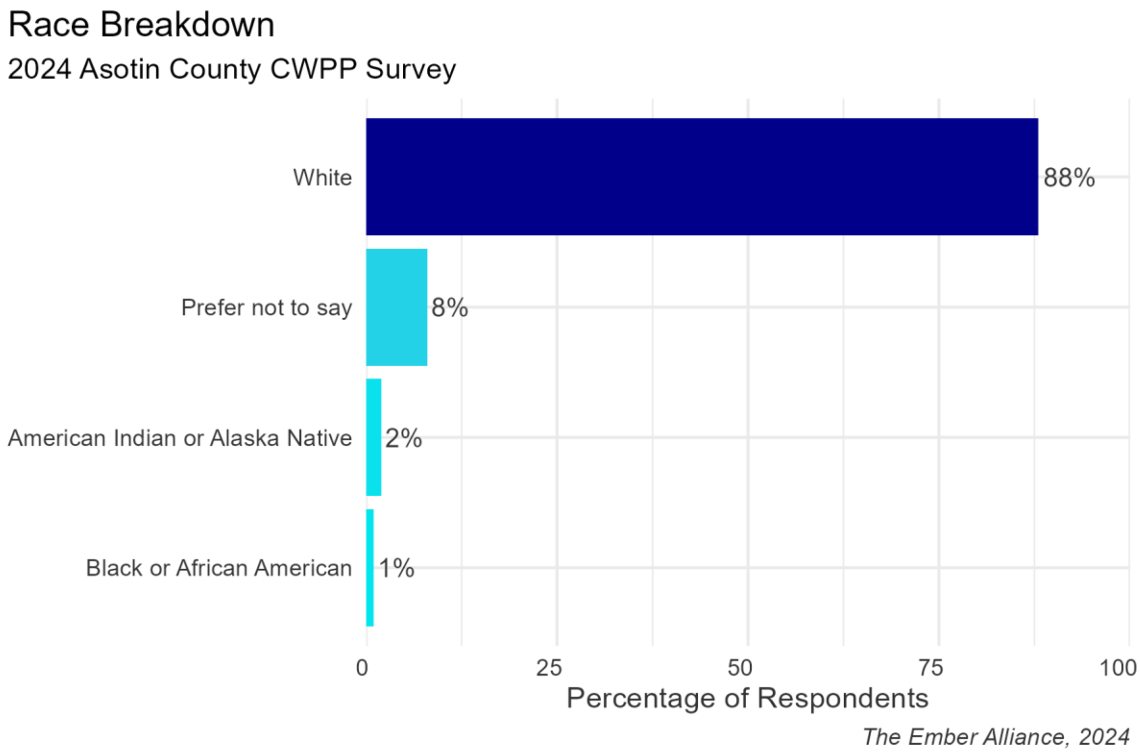


Figure C.17. *Race of 2024 Asotin County CWPP Survey respondents (n= 119 individuals).*

18. What is your age?

- Under 18
- 18-34
- 35-44
- 45-54
- 55-64
- 65 and over

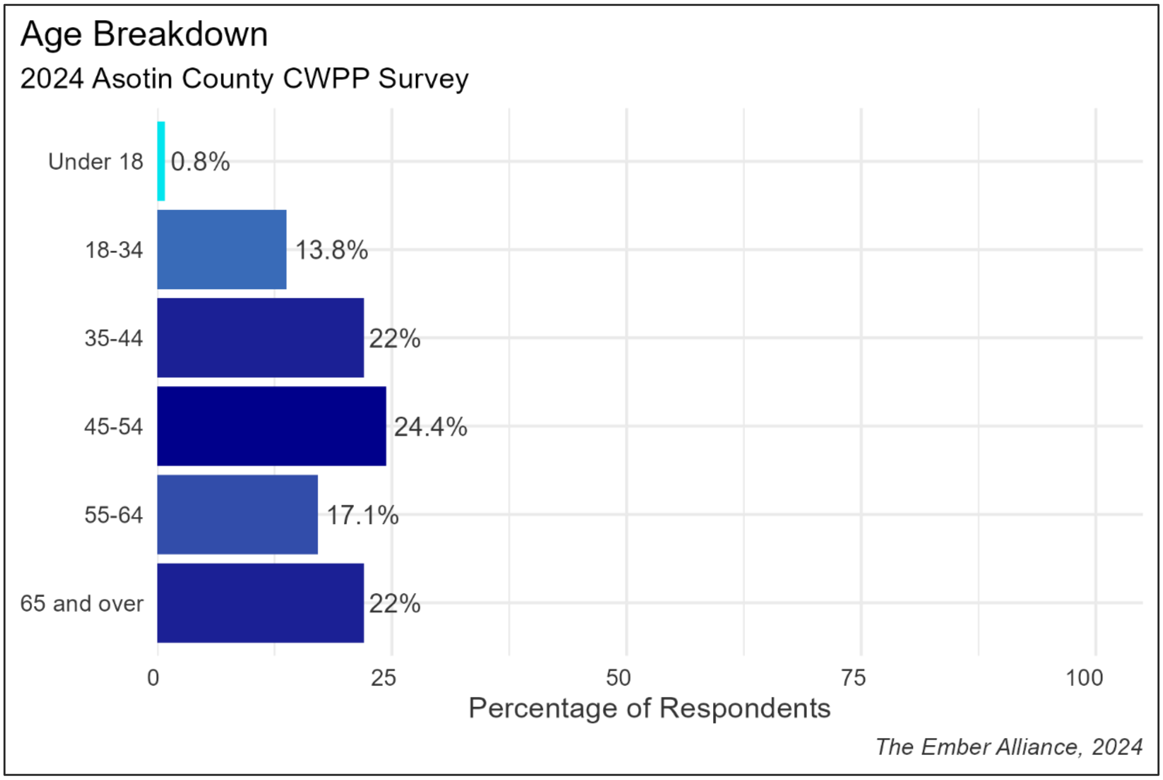


Figure C.18. *Age of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

19. What is your annual household income?

- Less than $20,000
- $20,000 - $49,999
- $50,000 - $74,999
- $75,000 - $99,999
- Over $100,000
- Prefer not to say

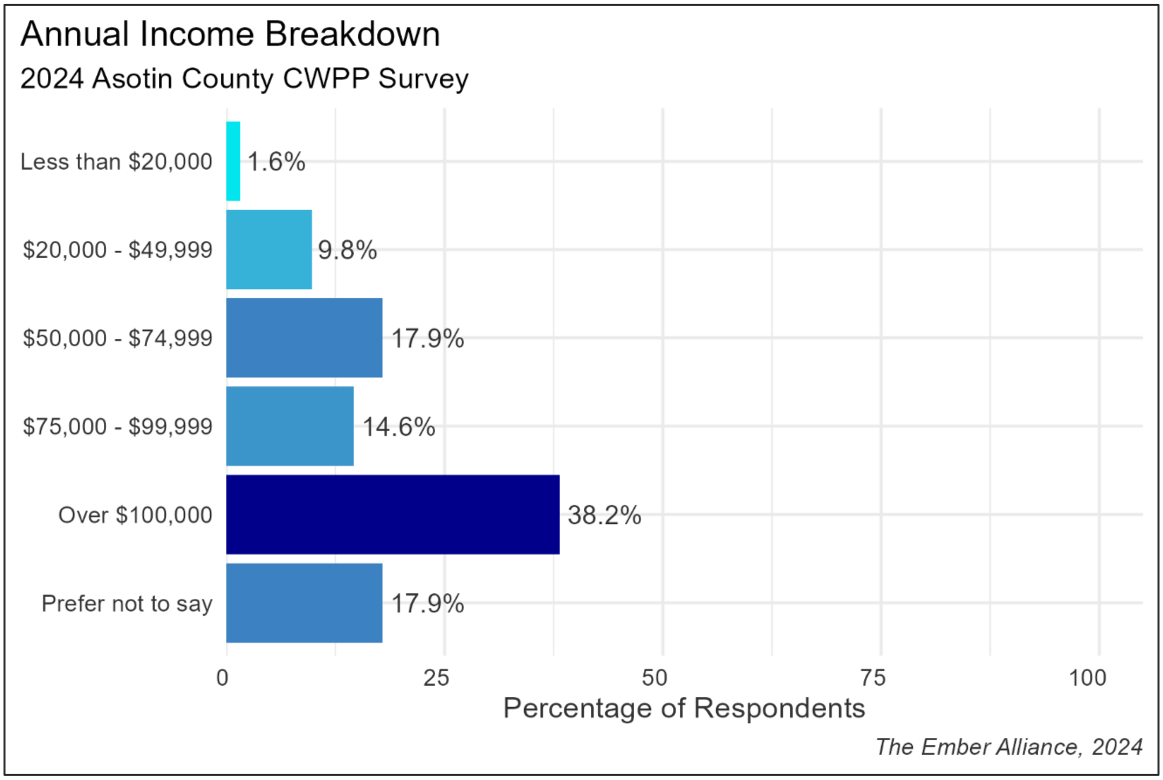


Figure C.19. *Income of 2024 Asotin County CWPP Survey respondents (n= 122 individuals).*

20. Do you have access to reliable transportation?

- ○ Yes, all or most of the time
- ○ Yes, some of the time
- ○ I rely on public transportation
- ○ No, do not have access to reliable transportation

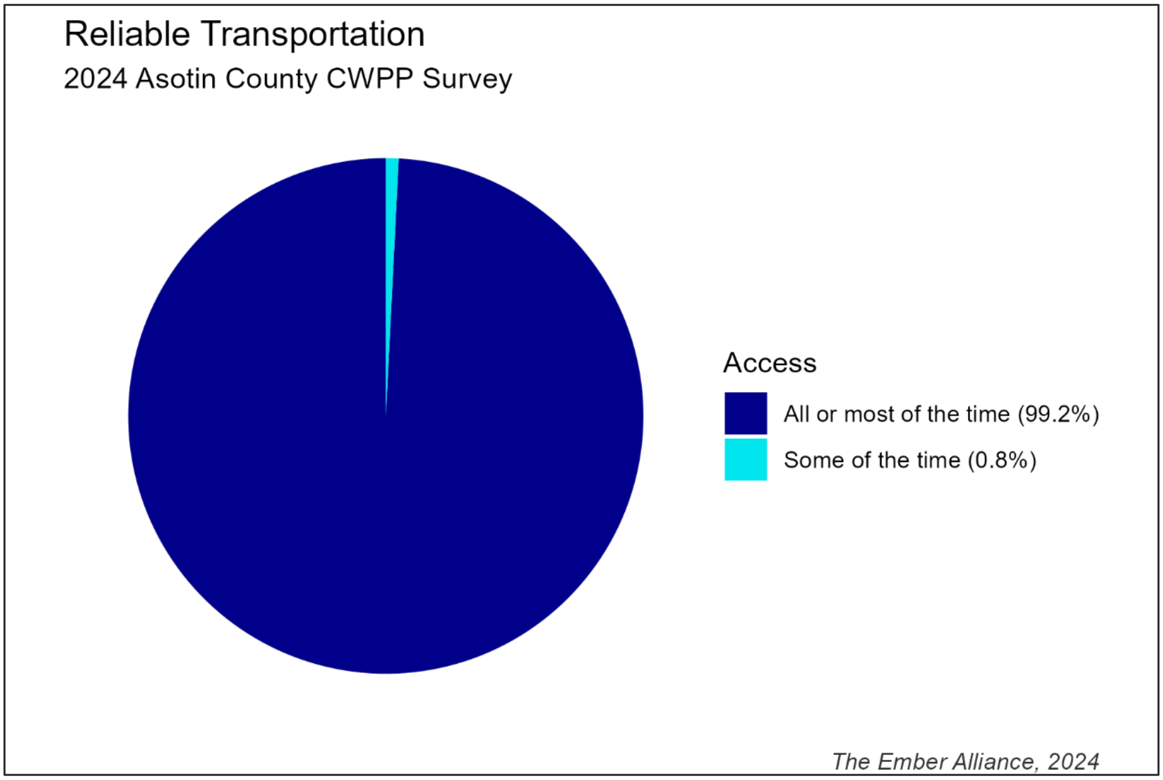


Figure C.20. Reliable transportation of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).

21. Is your home/property located within a mobile home community?

   - Yes
   - No

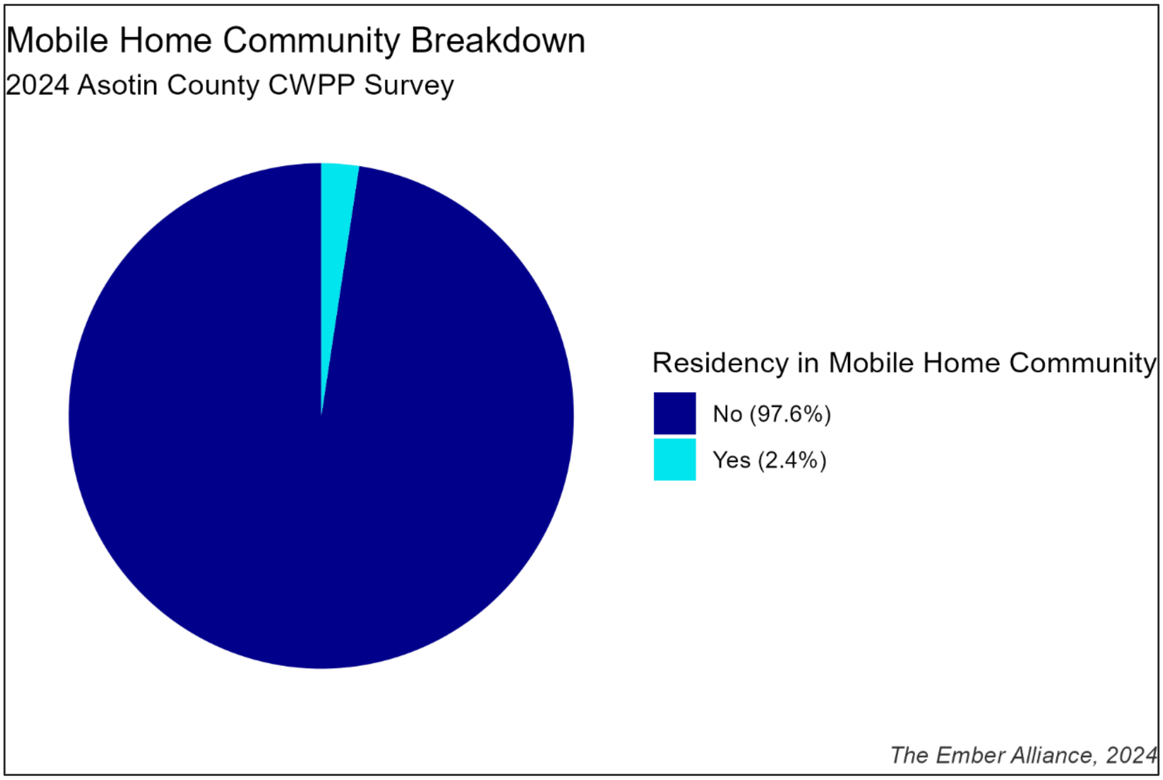


Figure C.21. *Mobile home residency of 2024 Asotin County CWPP Survey respondents (n= 123 individuals).*

22. Does anyone in your household have mobility restrictions or special access needs (for example, a physical disability) which could inhibit or delay an emergency evacuation?

    - ○ Yes
    - ○ No
    - ○ Sometimes

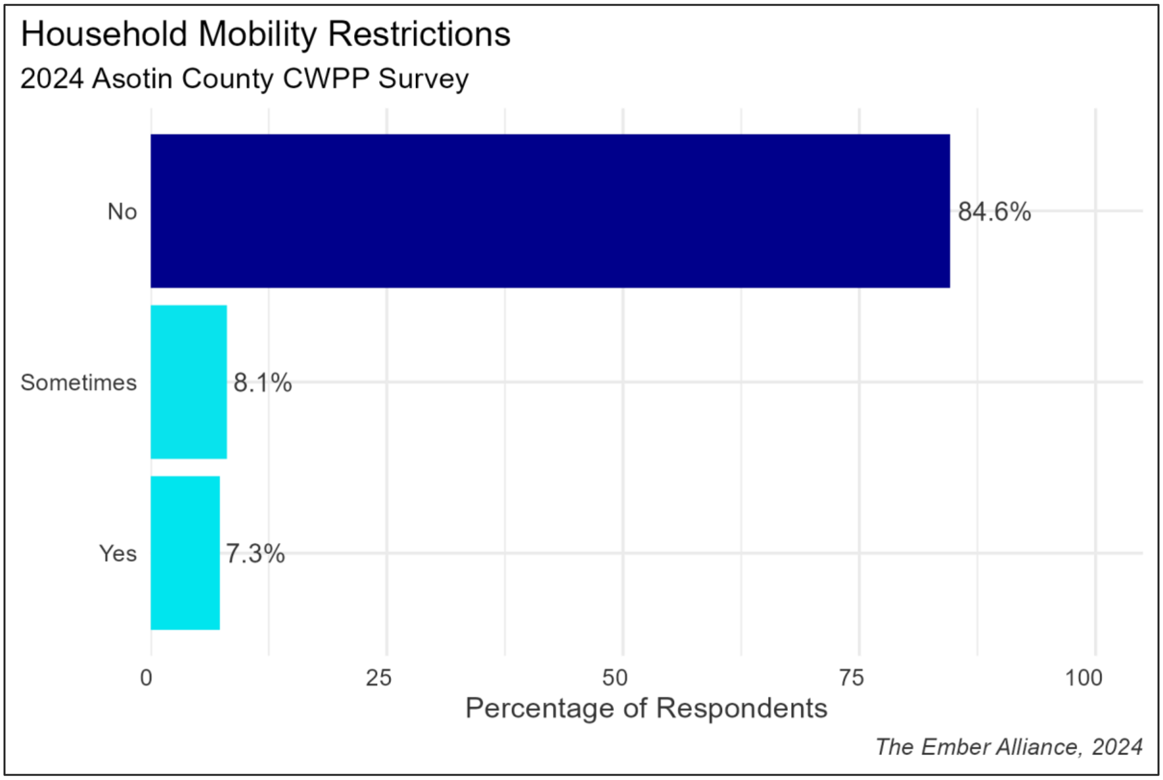


Figure C.22. *Mobility restrictions of 2024 Asotin County CWPP Survey respondent households (n= 123 individuals).*

23. Is your home and/or property located within an Asotin County Fire Protection District?

- ○ Yes
- ○ No
- ○ Not sure

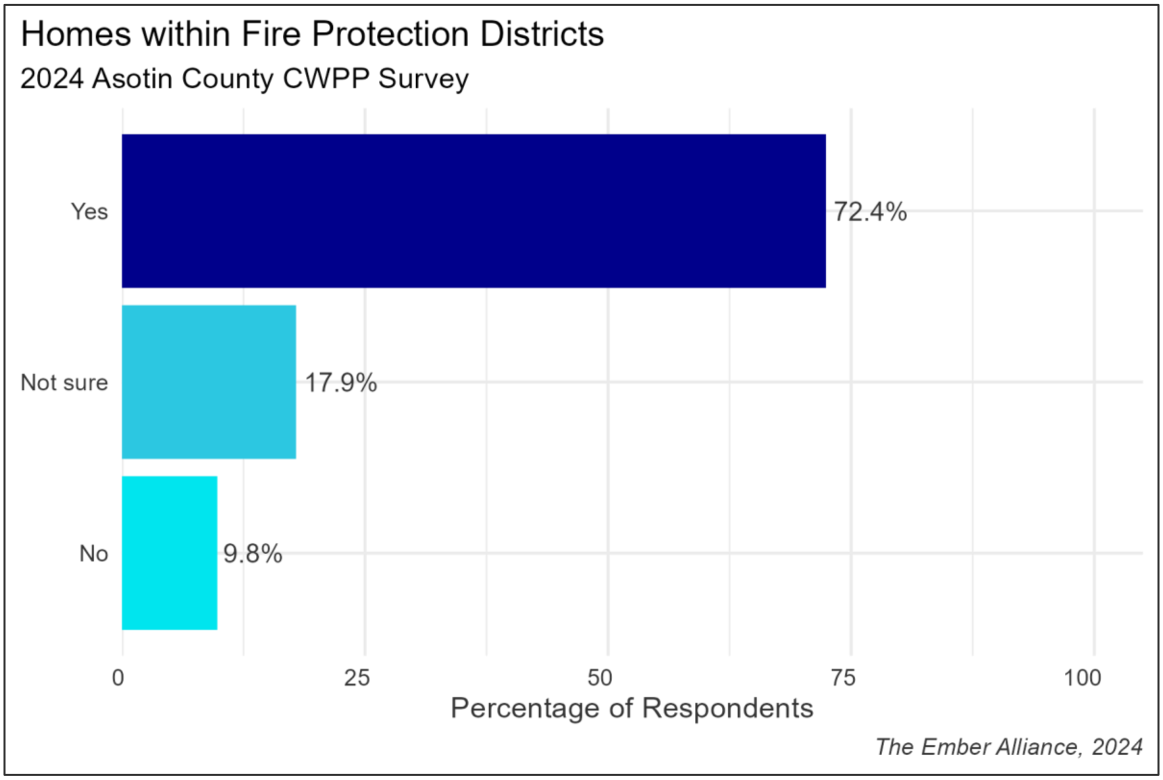


Figure C.23. *Homes located within a Fire Protection District of 2024 Asotin County CWPP Survey respondent (n= 123 individuals).*

24. If your home and/or property is NOT located within an Asotin County Wildland Fire Protection District, would you be interested in joining or forming a Protection District for your community?

- Yes
- No
- Maybe
- Not sure
- Not Applicable

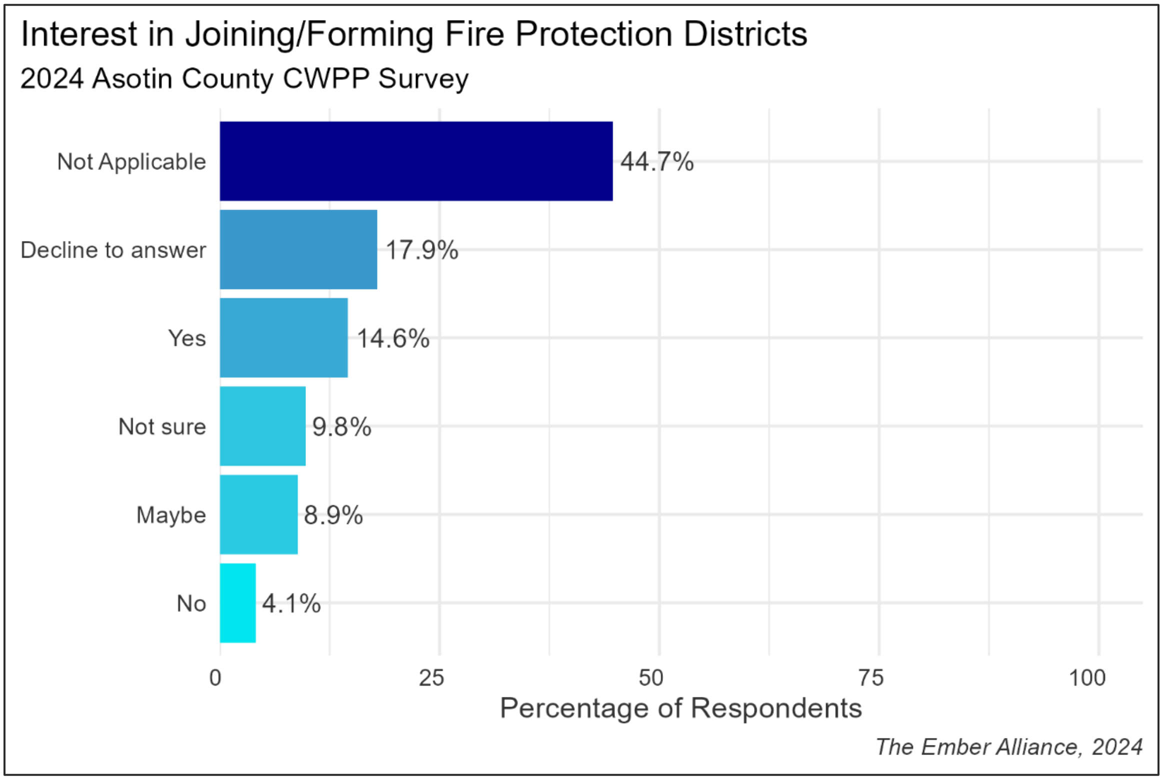


Figure C.24. *Interest in joining/forming a Fire Protection District of 2024 Asotin County CWPP Survey respondent (n= 101 individuals).*