

Yakima County, Washington

Community Wildfire Protection Plan



Cottonwood 2 Fire – June 2014

Approved by:

Yakima County Board of Commissioners

July 2015

Acknowledgements

This Community Wildfire Protection Plan represents the efforts and cooperation of a number of organizations and agencies working together to improve preparedness for wildfire events while reducing factors of risk.



To obtain copies of this plan contact:

Yakima County Fire Marshal's Office
 128 North 2nd Street
 Yakima, Washington 98901
 509-574-2300

Or by accessing the Washington Department of Natural Resources webpage at:

http://www.dnr.wa.gov/RecreationEducation/Topics/PreventionInformation/Pages/rp_burn_countymitigation_plans.aspx

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Foreword

The process of developing a Community Wildfire Protection Plan (CWPP) can help a community clarify and refine its priorities for the protection of life, property, and critical infrastructure in the wildland–urban interface on both public and private land. It also can lead community members through valuable discussions regarding management options and implications for the surrounding land base. Local fire service organizations help define issues that may place the county, communities, and/or individual homes at risk. Through the collaboration process, the CWPP steering committee discusses potential solutions, funding opportunities, and regulatory concerns and documents their resulting recommendations in the CWPP. The CWPP planning process also incorporates an element for public outreach. Public involvement in the development of the document not only facilitates public input and recommendations, but also provides an educational opportunity through interaction of local wildfire specialists and an interested public.

The idea for community-based forest planning and prioritization is neither novel nor new. However, the incentive for communities to engage in comprehensive forest planning and prioritization was given new and unprecedented impetus with the enactment of the Healthy Forests Restoration Act (HFRA) in 2003. This landmark legislation includes the first meaningful statutory incentives for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. In order for a community to take full advantage of this new opportunity, it must first prepare a Community Wildfire Protection Plan (CWPP).

A countywide CWPP steering committee generally makes project recommendations based on the issue causing the wildfire risk, rather than focusing on individual landowners or organizations. Thus, projects are mapped and evaluated without regard for property boundaries, ownership, or current management. Once the CWPP is approved by the Board of Yakima County Commissioner's and the State Forester, the steering committee will begin further refining proposed project boundaries, feasibility, and public outreach as well as seeking funding opportunities.

The Yakima County Community Wildfire Protection Plan expands on the wildfire chapter of the 2009 Yakima County Multi-Jurisdictional Hazards Mitigation Plan. This project was funded by Yakima County and the Bureau of Land Management.

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Chapter 1

Overview of this Plan and its Development

Wildfire events occur almost annually in Yakima County; thus, programs and projects that mitigate the impacts of this hazard are a benefit to the local residents, property, infrastructure, and the economy. As a result of the growing concern regarding wildfire risk and momentum generated by the Yakima Valley Fire Adapted Communities Coalition (YVFACC), the Bureau of Land Management (BLM) initiated the update of the 2008 Yakima County Community Wildfire Protection Plan (CWPP) by contracting with Northwest Management, Inc. to conduct an in-depth risk assessment for the hazards of wildland fire in Yakima County. Yakima County provided additional funding to leverage the risk assessment into a complete CWPP update. The CWPP steering committee was a subset of the Yakima Valley Fire Adapted Communities Coalition membership and other interested stakeholders.

This Community Wildfire Protection Plan (CWPP) for Yakima County, Washington, is the result of analyses, professional collaboration, and assessments of wildfire risks and other factors focused on reducing wildfire threats to people, structures, infrastructure, and unique ecosystems in Yakima County. Agencies and organizations that participated in the planning process included:

- Bureau of Land Management
- Yakima County Fire Marshal's Office
- Yakima County Office of Emergency Management
- The Nature Conservancy
- Washington Department of Natural Resources
- Highway 410/12 CWPP Participants
- U.S. Fish and Wildlife Service
- South Yakima Conservation District
- North Yakima Conservation District
- U.S. Forest Service
- Yakima County Fire Districts
- Yakama Nation
- Washington Department of Fish and Wildlife
- U.S. Bureau of Reclamation
- Senator Cantwell's Office
- South Central Washington Resource Conservation and Development Council
- Northwest Management, Inc.
- Local Landowners

Goals and Guiding Principles

Planning Philosophy and Goals

While meeting the needs of local citizens and recognizing the significance wildfire can have to the regional economy, the plan utilizes the best and most appropriate science from all partners as well as local and regional knowledge about wildfire risks and fire behavior. The goals of the planning process include integration with the National Fire Plan, the Healthy Forests Restoration Act, the Disaster Mitigation Act, and the National Cohesive Wildland Fire Management Strategy, all of which promote local collaborative processes. Goals for restoring resilient landscapes, improving wildland fire response, and creating fire adapted communities must work within the bounds of local budgets, personnel, and equipment. The efforts and success of the Yakima County CWPP hinges on the funding and expertise of the local fire management districts and agencies as well as the cooperative efforts of landowners.

Mission Statement

To engage Yakima County residents, communities, businesses, non-profits, and local, tribal, state, and federal governments to empower each other to prepare for wildfire through:

- community engagement and development awareness of community *roles* in preparing for wildfire,
- effective administration of wildfire hazard mitigation grant programs that leverage additional resources for implementation,
- hazard risk assessments,
- and strategic, efficient, and effective fuels treatments.

To empower local communities and citizens to pursue and implement projects that protect people, property, and infrastructure from wildland fire without diminishing the private property rights of land/asset owners within Yakima County.

Vision Statement

Our combined focus on preparedness through education by engagement, training, planning, and implementation will provide for the protection of people, structures, infrastructure, livestock, state and federally-listed species, and unique ecosystems that contribute to our way of life and the growth and sustainability of the local and regional economy. It is critical that this process supports the continuation and development of strong partnerships; empowers each person to take responsibility for their role in their community to prepare before, during and after wildfire; and encourages new approaches to living with fire that protect community values and reduce identified threats, and costs.

Goals

1. Engage citizens in the unique challenges of wildfire preparedness in Yakima County using the tools and guiding principles set forth by the Fire Adapted Communities Learning Network.
2. Seek out, encourage, and empower local community leaders in the wildfire preparedness roles of business, fire response, homeowners, land managers, and local government at multiple scales across Yakima County.

3. Determine areas at risk to wildfire and establish/prioritize mitigation projects, without regard to ownership, and recommend both conventional and alternative treatment methods to protect people, homes, infrastructure, state and federal listed species, and natural resources throughout Yakima County.
4. Improve the ability of the fire departments to provide emergency fire response for the residents of Yakima County through improved resources and training.
5. Through strategic planning, develop and implement policies or protection measures that deter further unmitigated development in high fire risk areas.
6. Implement vegetation management and other types of projects that promote the natural fire regime appropriate to the location for the benefit of the ecosystem and to lessen the risk of uncharacteristic wildland fire occurrences.
7. Collaborate with all participants in the Yakima Valley Fire Adapted Communities Coalition in order to integrate the visions and goals of each entity involved with fire protection and/or management for greater good of the Yakima Valley.
8. Recognize the existing community wildfire protection plans in order to inform the Yakima County Community Wildfire Protection Plan, empower local leadership, and help leverage resources and opportunities to achieve shared goals without reducing the autonomy of the individual community or its purpose.
9. Provide direction through specific wildland fire prevention or protection action items to all members of the community to encourage individual responsibility including residents and homeowners, fire and emergency responders, forest and land managers, civic and community leaders, and designers and developers.

National Cohesive Strategy

In 2009 Congress passed a bill asking the Department of Interior and the Department of Agriculture to produce a national cohesive strategy for wildland fire management. The strategy recognized several alarming trends including a rapid escalation of extreme fire behavior, increased risk to responders, home and property losses, higher costs, and increased threats to communities and landscapes. The National Cohesive Strategy centers on three goals and associated challenges to managing the wildland fire situation in the United States:

1. *Restoring and maintaining resilient landscapes.* There is a need to restore ecosystem health and consider this issue at regional and sub-regional scales.

Goal: Landscapes across all jurisdictions are resilient to fire related disturbances in accordance with management objectives.
2. *Creating fire adapted communities (FAC).* Fire managers need options and opportunities for engaging communities and working with them to reduce the wildfire threat.

Goal: Human populations and infrastructure can withstand a wildfire without loss of life and property.
3. *Responding to wildfires.* There is a need to recognize differing missions of local, state, tribal, and federal agencies and commit to collaborate moving forward.

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

Elements of the National Cohesive Strategy are already visible in Washington State and in Yakima County. In September of 2013, the South Central Washington Resource Conservation and Development Council (RC&D) received funding through the National Associations of RC&D Councils and the International Code Council to hold a statewide workshop to promote the FAC framework, highlight the National Cohesive Strategy, and spark collaboration amongst entities in diverse roles surrounding wildfire issues. The workshop motivated several communities to begin creating or revising their community wildfire protection plans and implementing FAC actions.

One regional strategy under the FAC umbrella was to expand the FAC learning networks through funding of workshops and peer learning opportunities. The Chumstick Wildfire Stewardship Coalition is a pilot under this program in Leavenworth. TNC's Eastside Forest Program office in Yakima works with the Chumstick and obtained seed money to promote FAC in the Yakima area. This included funding for a workshop, development of outreach materials, and support for revision of the Hwy 410/12 CWPP. TNC worked with the County Fire Marshal's Office, the RC&D, USFWS, and the BLM to bring together the wildfire community in Yakima County on January 30th, 2014. The agenda covered national policy changes, FAC, and a discussion of challenges and opportunities in the County around wildfire issues. Outcomes of the day included the creation of a countywide coalition to move projects forward and momentum toward revision of the countywide CWPP.

Additional State and Federal CWPP Guidelines

This Community Wildfire Protection Plan includes compatibility with FEMA requirements for a Hazard Mitigation Plan, while also adhering to the guidelines proposed in the National Fire Plan, and the Healthy Forests Restoration Act (2003). This Community Wildfire Protection Plan has been prepared in compliance with:

- The National Fire Plan: A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan (December 2006).
- Healthy Forests Restoration Act (2003).
- The Federal Emergency Management Agency's Region 10 guidelines for a Local Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a fire mitigation plan chapter of a Multi-Hazard Mitigation Plan.
- National Association of State Foresters – guidance on identification and prioritizing of treatments between communities (2003).

The objective of combining these complementary guidelines is to facilitate an integrated wildland fire risk assessment, identify pre-hazard mitigation activities, and prioritize activities and efforts to achieve the protection of people, structures, the environment, and significant infrastructure in Yakima County while facilitating new opportunities for pre-disaster mitigation funding and cooperation.

Additional information detailing the state and federal guidelines used in the development of the Yakima County Community Wildfire Protection Plan is included in Appendix 5.

Integration with other Local Planning Documents

During development of this Community Wildfire Protection Plan, several planning and management documents were reviewed in order to avoid conflicting goals and objectives. Existing programs and policies were reviewed in order to identify those that may weaken or enhance the mitigation objectives outlined in this document. The following sections identify and briefly describe some of the existing Yakima County planning documents and ordinances considered during development of this plan.

Yakima County Multi-Jurisdictional Hazards Mitigation Plan

As a requirement to receive certain types of federal non-emergency disaster assistance, including funding for hazard mitigation projects, Yakima County and the cities and towns of Grandview, Granger, Harrah, Mabton, Moxee, Naches, Selah, Sunnyside, Tieton, Toppenish, Union Gap, Wapato, Yakima, and Zillah are required to develop and maintain an up-to-date local hazard mitigation plan. The jointly developed Yakima County Multi-Jurisdictional Hazards Mitigation Plan was approved by FEMA in 2009 and contains multiple short and long term action items that directly or indirectly support the goals and guiding principles of the CWPP.

Plan 2015: A Blueprint for Yakima County Progress

The Plan 2015 is the guiding document that establishes the vision for growth and development in Yakima County. The CWPP will “dove-tail” with the County’s Plan 2015 during its development and implementation to ensure that the goals and objectives of each are integrated. This planning effort is intended to be compatible with the goals and objectives of the Plan 2015.

2009 Yakima County Community Wildfire Protection Plan

The 2009 version of the Yakima County CWPP was used as the basis for the 2014 CWPP Update. Much of the background information, risk evaluation, and action items were integrated into the Update. However, the updated CWPP incorporates new data, mapping, and analysis tools and utilizes a more refined framework for the presentation of material. Furthermore, the 2014 CWPP includes a larger cross-section of stakeholders and public input due to the recent efforts of the Yakima Valley Fire Adapted Communities Coalition.

Highways 410 and 12 Community Wildfire Protection Plan

In 2005, the Highways 410 and 12 CWPP was completed by a group of local landowners and fire experts. The Highways 410 and 12 CWPP area covers approximately 284,712 acres and lies west of the city of Yakima and the town of Naches. The goals of the Highways 410 and 12 CWPP are:

- Improve prevention and suppression
- Reduce hazardous fuels
- Restore fire adapted ecosystems
- Promote community assistance
- Recognize and adhere to environmental laws and policies
- Tier to existing and approved emergency response plans within Yakima County

The Highways 410 and 12 CWPP provides a great example to other communities within the County for community-level fire planning. Because of its scale, the plan is more specific and detailed than a county-level plan.

The Highways 410 and 12 CWPP will be referenced throughout this document and should be referred to for finer-scale planning in that portion of the County. By recognizing that the Highways 410 and 12 CWPP area occurs within the larger Yakima County CWPP planning area, the YVFACC hopes to help the Highways 410 and 12 CWPP participants leverage available resources to help accomplish their specific goals while also addressing broader or landscape scale issues in the context of coordinated Countywide planning.

Cowychee Mountain Community Wildfire Protection Plan

The Cowychee Mountain CWPP was completed in 2012 by a Core Group of stakeholders surrounding the Cowiche Mountain area of Yakima County. While other CWPPs tend to focus on the wildfire threat to communities associated with forested habitats, the Cowychee Mountain CWPP focuses on the shrub-steppe/rangeland zone. The goals of the Core Group include:

- Create a safer environment for the public and firefighting responders
- Recognize that the focus is shrub-steppe vegetation; thus, the CWPP will use shrub-steppe ecological principles to define fuel reduction priorities
- Outreach across boundaries and jurisdiction by sharing land management principles that will include potential fuel reduction through restoration and best management practices
- Create opportunities for training, education, and available resources for fire agencies

As with the Highways 410 and 12 CWPP, the Cowychee Mountain CWPP will be referenced throughout this document and should be referred to for finer-scale planning in that portion of the County. By recognizing that the Cowychee Mountain CWPP area occurs within the larger Yakima County CWPP planning area, the YVFACC hopes to help the Cowychee Mountain Core Group leverage available resources to help accomplish their specific goals while also addressing broader or landscape scale issues in the context of coordinated Countywide planning.

Yakama Wildland Fire Prevention Plan

The Yakama Bureau of Indian Affairs Agency has operated a Fire Management Program for over 20 years through annual preparedness funding. The purpose of the Wildland Fire Prevention Plan is to define the Prevention Strategy contained in the Wildland Fire Management Plan for the Yakama Reservation.

As a large landowner and stakeholder in Yakima County, the Yakama Nation plays an important role in wildfire prevention with its partners, including the Washington Department of Natural Resources (DNR), local fire districts and departments, the U.S. Forest Service, the U.S. Fish and Wildlife Service, and the Washington State Fire Marshal. The objectives of the Tribe's Prevention Plan focus on firefighter safety, fire detection and suppression, and prevention efforts. The Yakima County CWPP will dovetail with the Tribe's efforts and help leverage resources that may be mutually beneficial.

Chapter 2

Documenting the Planning Process

Documentation of the planning process, including public involvement, is necessary to meet FEMA's DMA 2000 requirements (44CFR§201.4(c)(1) and §201.6(c)(1)). This section includes a description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how all of the involved agencies participated.

Description of the Planning Process

The Yakima County Community Wildfire Protection Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Chapter 1 of this document. The planning process included five distinct phases which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 4 completed throughout the process):

1. **Collection of Data** about the extent and periodicity of the wildfire hazard in and around Yakima County.
2. **Field Observations and Estimations** about risks, location of structures and infrastructure relative to risk areas, access, and potential treatments.
3. **Mapping** of data relevant to pre-wildfire mitigation and treatments, structures, resource values, infrastructure, risk assessments, and related data.
4. **Facilitation of Public Involvement** from the formation of the steering committee to news releases, public meetings, public review of draft documents, and acknowledgement of the final plan by the signatory representatives.
5. **Analysis and Drafting of the Report** to integrate the results of the planning process, provide ample review and integration of committee and public input, and signing of the final document.

The Planning Team

Northwest Management, Inc. facilitated the Community Wildfire Protection Plan meetings. Stakeholders involved in the meetings included representatives from local communities, fire protection districts, federal and state agencies, the Yakama Nation, and local organizations with an interest in the County's fire safety.

The planning philosophy employed in this project included the open and free sharing of information with interested parties. Information from federal, state, tribal, and local agencies was integrated into the database of knowledge used in this project. Meetings with the committee were held throughout the planning process to facilitate a sharing of information between participants. When the public meetings were held, many of the committee members were in attendance and shared their support, experiences, and interpretations of the results.

Multi-Jurisdictional Participation

44 CFR §201.6(a)(3) calls for multi-jurisdictional planning in the development of Hazard Mitigation Plans which impact multiple jurisdictions. In addition to the participation of federal

and state agencies, interested parties, and other organizations, the following local jurisdictions were actively involved in the development of this Community Wildfire Protection Plan:

- Yakima County
- Yakama Nation
- South Yakima Conservation District
- North Yakima Conservation District
- Yakima County Fire Districts

These jurisdictions were represented on the steering committee and in public meetings either directly or through their servicing fire department or district. They participated in the development of hazard profiles, risk assessments, and mitigation measures. The steering committee meetings were the primary venue for authenticating the planning record. However, additional input was gathered from each jurisdiction in the following ways:

- Steering committee leadership visits to local group meetings where planning updates were provided and information was exchanged.
- One-on-one visits between the steering committee leadership and representatives of the participating jurisdictions (e.g. meetings with county commissioners, city councilors and mayor, fire district commissioners, and community leaders).
- Written correspondence between the steering committee leadership and each jurisdiction updating the participating representatives on the planning process, making requests for information, and facilitating feedback.

Like other areas of Washington and the United States, Yakima County's human resources have many demands placed on them in terms of time and availability. In Yakima County, some elected officials do not serve in a full-time capacity; some of them have other employment and serve the community through a convention of public service. Recognizing this and other time constraints, many of the jurisdictions decided to identify a representative to cooperate on the steering committee and then report back to the remainder of their organization on the process and serve as a conduit between the steering committee and the jurisdiction.

Steering Committee Meetings

The following people participated in steering committee meetings, volunteered time, or responded to elements of the Yakima County Community Wildfire Protection Plan’s preparation.

NAME	ORGANIZATION
• Joe Weeks	Washington DNR
• Pam Brown.....	Highways 410 and 12 CWPP
• Karen Freshwater	Highways 410 and 12 CWPP
• Julie Conley	U.S. Fish and Wildlife Service
• Jakki MacLean	Yakima County Fire Marshal’s Office
• Ron Rutherford	Yakima County Fire Marshal’s Office
• Landon Schilperoort.....	South Yakima Conservation District
• Paul Jenkins	Landowner
• R. Allen Walker	Yakima County Fire District No. 5
• Gary R. Peters	Yakama Bureau of Indian Affairs
• Reese Lolley.....	The Nature Conservancy
• Thomas Skinner	U.S. Fish and Wildlife Service
• Mike Solheim.....	Bureau of Land Management
• Richard Parrish.....	Bureau of Land Management
• Ross Huffman	Washington Department of Fish and Wildlife
• Jacob Gear.....	U.S. Fish and Wildlife Service
• Chris Pedersen	Yakima County Fire Marshal’s Office
• Mike Tobin.....	North Yakima Conservation District
• Beau Clark	U.S. Forest Service
• Frank Freshwater	Highways 410 and 12 CWPP
• Jason Emhoff	U.S. Forest Service
• Karen Berg.....	Tapash Sustainable Forest Collaborative
• Andrea Ely	Yakima County Fire Marshal’s Office
• Jim Hall.....	Yakima County Emergency Management
• Jeff Bouschor	U.S. Forest Service
• Erik Ellis	Bureau of Land Management
• Chuck Wytko	Washington DNR
• Jodi Leingang.....	U.S. Forest Service
• Brandon Lewis.....	U.S. Fish and Wildlife Service
• Jonathan Brooks.....	U.S. Bureau of Reclamation
• Scott Chambers	Washington DNR
• David Reeploeg.....	Senator Cantwell’s Office
• Dan Mansfield.....	Yakima County Fire District No. 3
• Tera King	Northwest Management, Inc.
• Vaiden Bloch	Northwest Management, Inc.

- Scott KlinePublic
- Ryan Anderson.....South Central Washington RC&D
- Al Crouch.....Bureau of Land Management
- Cindi Confer Morris.....Washington Department of Fish and Wildlife
- Tony Andrews.....Yakima County Fire Marshal’s Office
- Scott MillerYakima County Office of Emergency Management
- Mike RielYakima County Fire District #4

Meeting Minutes

Committee meetings were scheduled and held from February 2014 through January 2015. These meetings served to facilitate the sharing of information and to lay the groundwork for the Yakima County CWPP. Northwest Management, Inc. as well as other steering committee leadership attended the meetings to provide the group with regular updates on the progress of the document and gather additional information and input needed to complete the Plan.

Steering committee meeting minutes are included in Appendix 2.

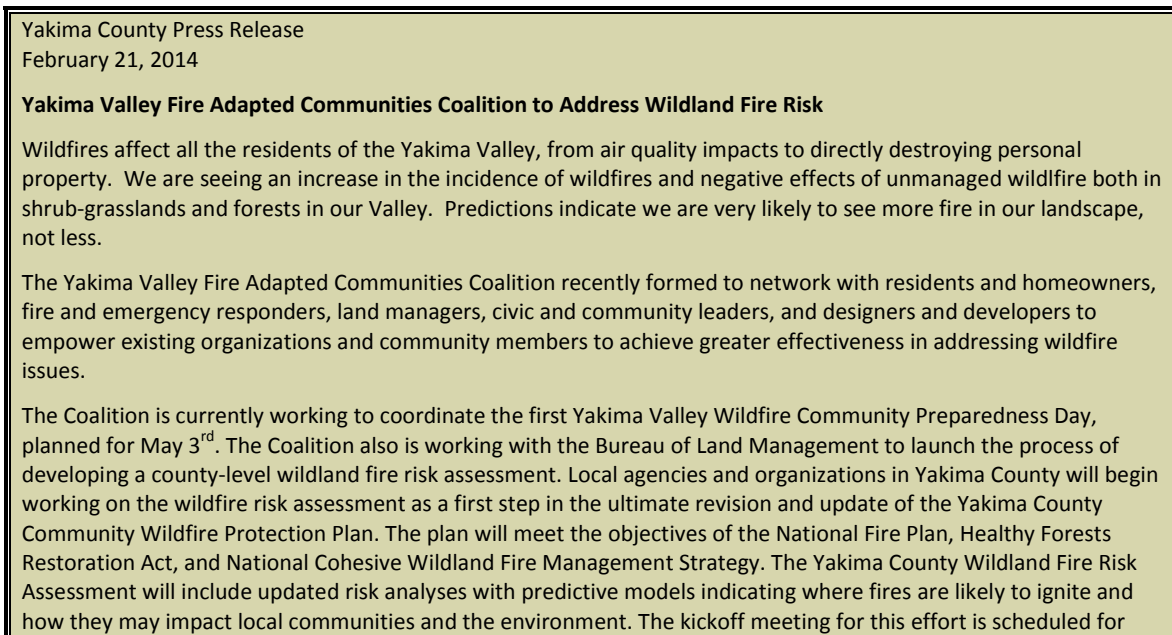
Public Involvement

Public involvement was made a priority from the inception of the project. There were a number of ways that public involvement was sought and facilitated. The objective is to encourage members of the public to provide information and seek an active role in protecting their own homes and businesses.

News Releases

Under the auspices of the steering committee, periodic press releases were submitted to the various news outlets that serve the Yakima County including the Yakima Herald, the Wenatchee World, and the Yakima Valley Business Times.

Figure 2.1. Press Release, February 2014.



February 27th and will be the first of several monthly meetings. The plan will include specified actions that will improve our individual and collective ability to be prepared before, during and after wildfires in our Valley.

Northwest Management, Inc. has been retained by the Bureau of Land Management to facilitate meetings, conduct field inspections and interviews, develop vulnerability assessments, and collaborate with the Coalition to delineate fire prevention and mitigation projects. The Yakima Valley Fire Adapted Communities Coalition includes representatives from local fire districts, Yakima County, Washington Department of Natural Resources, Forest Service, Bureau of Land Management, Yakama Nation, The Nature Conservancy, concerned citizens, and others.

The intent of the project is to conduct an assessment of wildland fire risk in Yakima County and the local communities, then make mitigation recommendations that will not only help prevent wildfire ignitions from occurring, but will also guide decision-makers towards creating a more fire-adapted Yakima County and provide for public wildfire education. Some of the goals of this project are to improve awareness of wildland fire issues locally, identify high fire risk areas and develop strategies to reduce this risk, and improve accessibility of funding assistance to achieve these goals.

The Coalition will be conducting public meetings to discuss preliminary findings and to seek public involvement in the planning process in the spring of 2014. A notice of the dates and locations of these meetings will be posted in local news outlets. For more information on the Yakima Valley Fire Adapted Communities Coalition and how to get involved contact Jakki Maclean, Yakima County Fire Marshal, at (509) 574-2378 or Reese Lolley, The Nature Conservancy, at 509-248-6697.

Public Meetings

Rather than conduct CWPP-specific public meetings, the steering committee decided to partner with the Yakima Valley Fire and Injury Prevention Association to construct and staff a booth at the Central Washington State Fair, which takes place annually in Yakima. The Fair ran from September 19th-28th, 2014 and attracted well over 300,000 attendees. In addition to the prevention messages of the Association, information was available to the public regarding the wildfire risk in Yakima County, planned fuels reduction and other projects, and details on how to comment on the draft Yakima County CWPP. In addition, several members of the steering committee helped staff the booth in order to answer questions about the CWPP and wildland fire preparedness.

Documented Review Process

The opportunity to review and comment on this plan has been provided through a number of avenues for the committee members as well as members of the general public.

During regularly scheduled committee meetings in 2014, the committee met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document.

The first draft of the document was prepared in August of 2014 and presented to the steering committee for a full review. The committee was given two months to provide comments to the plan.

Public Comment Period

A public comment period was conducted from November 19th thru December 17th, 2014 to allow members of the general public an opportunity to view the full draft plan and submit comments and any other input to the committee for consideration. A press release was submitted to news outlets announcing the comment period, the locations of the CWPP for review, and instructions on how to submit comments. Hardcopy drafts were printed and made available at the Yakima County Office of Emergency Management, the Grandview Library, the Toppenish Library, and

the Naches Ranger Station. An electronic version of the draft CWPP was made available on Northwest Management Inc.'s website.

Figure 2.2. Press Release #2 – Public Comment Period, November 2014.

Yakima County Community Wildfire Protection Plan Available for Public Review

The Yakima County Community Wildfire Protection Plan has been completed in draft form and is available to the public for review and comment at the locations listed below. Electronic copies may be viewed in pdf format at <http://www.consulting-foresters.com/?id=clients>. The public review phase of the planning process will be open from November 19th – December 17th, 2014.

<p>Yakima County Fire Marshal's Office 128 North 2nd Street Yakima, Washington 98901</p>	<p>Grandview Library 500 West Main Street Grandview, WA 98930</p>
<p>Naches Ranger District 10237 Highway 12 Naches, WA 98937</p>	<p>Toppenish Library 1 South Elm Toppenish, WA 98948</p>

The intention of the project is to conduct an assessment of wildland fire risk in Yakima County and the local communities, then make mitigation recommendations that will not only help prevent wildfire ignitions from occurring, but will also guide decision-makers towards creating a more fire-resilient Yakima County and provide for greater public wildfire involvement, education, and level of preparedness. Some of the goals of this project are to improve awareness and engagement in wildland fire issues locally, identify high fire risk areas and develop strategies to reduce this risk, and improve accessibility of funding assistance to achieve these goals.

The Yakima County CWPP includes a risk analysis at the community level with predictive models for where wildfires are likely to occur. This Plan will enable Yakima County and its communities to be eligible for grant dollars to implement the projects and mitigation actions identified by the committee. Although not regulatory, the CWPP will provide valuable information as we plan for the future.

The CWPP is being developed by a committee of city and county elected officials and departments, local and state emergency response representatives, land managers, conservation districts, and others. Comments on the CWPP must be submitted to the attention of Tera King, Northwest Management, Inc. at king@nmi2.com or mailed to Northwest Management, Inc., PO Box 9748, Moscow, Idaho 83843 by close of business on December 17th, 2014. For more information on the Yakima County CWPP update process, contact Jakki Maclean, Yakima County Fire Marshal, at 508-574-2378.

Continued Public Involvement

Yakima County is dedicated to involving the public directly in review and updates of the Community Wildfire Protection Plan. The Yakima County Commissioners, working through the CWPP steering committee, are responsible for review and update of the Plan as recommended in chapter 6 of this document.

The public will have the opportunity to provide feedback annually at an open meeting of the steering committee. The Plan also includes the address and phone number of Yakima County Fire Marshal's Office, who is responsible for keeping track of public comments on the Plan.

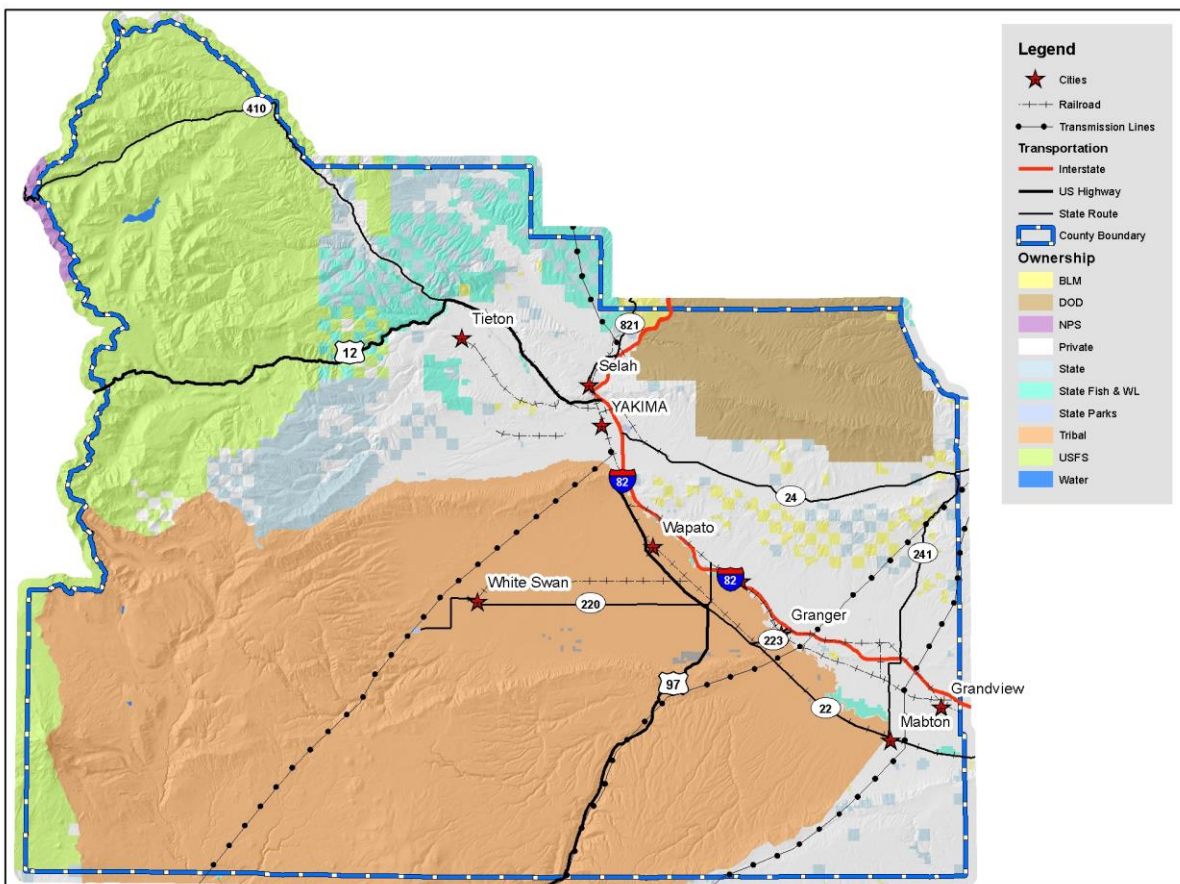
A public meeting will also be held as part of each annual evaluation or when deemed necessary by the steering committee. The meetings will provide the public a forum for which they can express its concerns, opinions, or ideas about the Plan. The County Fire Marshal's Office will be responsible for facilitating and publicizing the annual public meetings and maintaining public involvement through the webpage and various print and online media outlets.

Chapter 3

Yakima County Characteristics

Yakima County is located in south-central Washington. The County boundary defines the planning area, which includes multiple cities, towns, communities, roadways, and railroads. The largest municipal area is Yakima, which is also the County seat. Overall, the County is highly rural and contains a large amount of agricultural land, particularly fruit farms and vineyards. Approximately 38% of the County is made up of Yakama Nation land, 28% is private, 18% is USFS land, 6% is Yakima Training Center land, 5% is WADNR land, and the remainder is made up of land managed by the BLM, the U.S. Fish and Wildlife Service (USFWS), and a number of state agencies (Figure 3.1). Other communities in the County include Naches, Granger, Moxee, Tappico, Toppenish, Wapato, Sunnyside, Harrah, Tieton, Union Gap, Grandview, Selah, Zillah, Mabton, and White Swan.

Figure 3.1. Land Ownership in Yakima County.



Yakima County is named after the Yakama tribe of Native Americans, which now make up the Confederated Tribes and Bands of the Yakama Indian Nation (Yakama Nation). The Yakama Nation has nearly 10,000 enrolled members living in Washington. Their lands, along the Yakima River, cover an area of approximately 1.3 million acres. Today the nation is governed by the Yakama Tribal Council, which consists of representatives of 14 tribes and bands.

The County is best known for the Yakima Valley, a top agricultural growing region of the U.S. that produces many fruit crops, including apples, berries, peaches, pears, cherries, and melons. Many vegetables are also produced, including peppers, corn, and beans. The Yakima Valley is also home to a burgeoning wine industry that has benefitted from the Yakima Valley soil, which resembles conditions found in wine growing regions of France. Over fifty wineries dot the Yakima Valley, covering more than 11,000 acres. The region is also one of the largest producers of hops and apples in the U.S.¹

Description

The city of Yakima is located in the Upper Valley of Yakima County. The County is geographically divided by Ahtanum Ridge and Rattlesnake Ridge into two regions: the Upper (northern) and Lower (southern) valleys. The primary irrigation source for the Yakima Valley is the Yakima River, which runs through Yakima from its source at Lake Keechelus in the Cascade Range to the Columbia River at Richland. The Naches River forms the northern border of the city.

The County is bordered on the west by wilderness areas: the Norse Peak Wilderness and Pierce County to the northwest, the William O. Douglas Wilderness/Snoqualmie National Forest/Goat Rocks Wilderness and Lewis County to the central west, and the Cascade Mountain Range/Mount Adams Wilderness and Skamania County to the southwest. Kittitas County borders the County to the north and the counties share the 327,000 acre Joint Base Lewis McChord Yakima Training Center. Benton County borders the County to the east and Klickitat County to the south. The Yakama Indian Reservation comprises 1,271,918 acres in the southern portion of the County and extending into Klickitat County.

The main transportation corridors through the planning area are Interstate 82, which crosses the County from its northern boundary to its southeast boundary, and U.S. Highway 12 (Highway12), which crosses from the County's western boundary to the center of the County at Yakima. U.S. Route 97 extends from Interstate 82 at Union Gap south to the southern boundary. Interstate 82 extends north into neighboring Kittitas County, where it intersects with Interstate 90 that runs between Seattle and Ellensburg.²

Geography and Climate

Yakima County lies within the Columbia basin province and the eastern edge of the Southern Cascades. The Columbia Basin consists of Miocene Columbia River Basalt Group rocks while the portion of the Cascade mountain range in Yakima consists primarily of Cenozoic and volcanic rocks and associated deposits. The Yakima Valley landscape was shaped by the folding of the basalt flows to form a series of five east-to-west trending anticlinal (upfolds of rock) ridges called the Umptanum, Yakima, and Ahtanum/Rattlesnake Ridges; Cleman Mountain; and the Horse Heaven Hills. Between the ridges are basin valleys that are tributary to the Yakima

¹ North Yakima Conservation District. *Yakima County Community Wildfire Protection Plan*. Yakima, Washington. June 2009.

² Yakima County Public Services Planning Division. *Plan 2015: A Blueprint for Yakima County Progress*. Yakima, Washington. Available at http://www.yakimacounty.us/planning/Documents/Plan%202015_Vol%201_final03_15_11.pdf. Updated December 2007. Accessed April 2014.

Valley. These extensive valleys include the Wenas, Naches, Moxee, and Ahtanum Valleys. The valleys are primarily used for irrigated crops while the ridges are used for rangeland.

Yakima County encompasses an area of approximately 4,312 square miles (11,168 km²) with elevations ranging from approximately 393 feet (120 m) to just over 12,286 feet (3,745 m). The highest point in the County is Mount Adams at 12,277 feet (3,742 m) above mean sea level in the southwestern corner. The County’s mountainous western topography gives way to semiarid foothills and sagebrush steppe in the central and southern portions. The Yakima River cuts through the center of the County, draining into the Columbia River in Benton County.

Sheltered from western Washington’s typically heavy rainfall by the Cascade Range, the Yakima Valley boasts an annual average of 300 days of sunshine and just 8 inches (200 mm) of precipitation, about half of which is measurable snowfall. The average length of the growing season is 195 days. The driest and hottest months are July through October. The greatest precipitation occurs as snowfall from November through January, which is also the period with the lowest temperatures. The mean annual maximum temperature is 63°F (17°C) and the mean annual low is 37°F (3°C). The mean annual high for precipitation is 14 inches (360mm) with a low of 3 inches (75 mm).^{3,4,5}

Population and Demographics

The 2010 Census established the Yakima County population at 243,231, which is up from 222,581 in 2000. Table 3.1 shows historical changes in population in Yakima County.

1960	1970	1980	1990	2000	2010
145,112	144,971	172,508	188,823	222,581	243,231

Up until the 1980’s Yakima County’s population characteristics were fairly static with small incremental changes. Since the 1980’s Yakima County’s population has seen an increase in growth and a shift in population demographics that has significant implications on land use planning. USA.com reports that Yakima County’s population growth rate between 2000 and 2010 was 9.28%, which is about the same at the national rate⁶.

The 2010 Census reported that ethnicity in Yakima County is comprised of 63.7% white (of which, 45% are persons of Hispanic or Latino Origin), 4.4% American Indian and Alaska Native, 1% African American, 1.1% Asian, .1% Native Hawaiian and Other Pacific Islander, 26.1% Some Other Race, and 3.7% people reporting two or more races. Approximately 50% of

³ North Yakima Conservation District. *Yakima County Community Wildfire Protection Plan*. Yakima, Washington. June 2009.

⁴ Yakima County Public Services Planning Division. *Plan 2015: A Blueprint for Yakima County Progress*. Yakima, Washington. Available at http://www.yakimacounty.us/planning/Documents/Plan%202015_Vol%201_final03_15_11.pdf. Updated December 2007. Accessed April 2014.

⁵ Washington Department of Natural Resources. “Geology of Washington: Southern Cascades”. Available at <http://www.dnr.wa.gov/ResearchScience/Topics/GeologyofWashington/Pages/scascade.aspx>. Accessed April 2014.

⁶ World Media Group, LLC. USA.com. Available at <http://www.usa.com/yakima-county-wa-population-and-races.htm>. Accessed April 2014.

residents are male. There are 80,592 occupied housing units (63.2% homeownership rate) in Yakima County.⁷

Land Ownership⁸

United States Forest Service - The northwestern portion of Yakima County encompasses the Naches Ranger District of the Okanogan-Wenatchee National Forest. The Naches Ranger District encompasses approximately 518,000 acres of forest land extending from the crest of the Cascades east towards the town of Naches.

Yakama Nation - The southern portion of the County is made up predominantly of Yakama Nation lands. The Reservation covers an area of approximately 1.3 million acres in Yakima and Klickitat counties. Bordering the reservation, the Yakima River flows southward from the Cascade Mountains to the Columbia River. Along the river there is a pass, a gap in Ahtanum Ridge called Union Gap. The Toppenish Basin is shaped like a scoop that is open to the east. The higher sides of the scoop are Ahtanum Ridge to the North, Toppenish ridge to the south, and the Lost Horse Plateau to the west. Located along the eastern slopes of the Cascade Mountain Range, the Yakama Nation forest consists of 600,000 acres of timbered lands. The Yakama Nation has numerous enterprises that contribute to the economy of the Reservation as well as Yakima County including Yakama Forest Products, Legends Casino, Yakama Nation Cultural Center, Yakama Nation Resort and RV Park, and Yakama Power.

U.S Fish and Wildlife Service – The U.S. Fish and Wildlife Service manages the Toppenish National Wildlife Refuge, which consists of 2,104.9 acres of land within Yakima County. The Refuge is comprised of thirteen distinct tracts of land. These tracts are located in the bottom lands of the Toppenish Creek drainage.

Joint Base Lewis McChord Yakima Training Center - The Department of Defense Joint Base Lewis McChord Yakima Training Center (JBLMYTC) is located in the northeast corner of the County and covers 327,000 acres of land, most of which consists of shrub-steppe, making it one of the largest areas of shrub-steppe habitat remaining in Washington. The terrain is undulating and dominated by three east-west parallel ridges, which are part of the Yakima Fold Belt near the western edge of the Columbia River Plateau. The JBLMYTC is one of the top employers in the County, therefore having a large impact on the local economy.

Washington Department of Natural Resources – The Washington DNR’s mission is to provide leadership and expertise to ensure environmental protection, public safety, perpetual funding for schools and communities, and a rich quality of life. They manage roughly 5.6 million acres of forest, range, agricultural, aquatic, and commercial lands for the people of Washington. These lands generate more than \$200 million per year, much of which supports public schools, state institutions, and county services. The Washington DNR manages parcels of land in the north-central portion of the County as well as the areas bordering U.S. Forest Service lands on the western edge of the County. The DNR also owns numerous scattered sections that create a checkerboard with private and BLM land, particularly in eastern Yakima County. The DNR plays an intrinsic part in fire and fuels management in the County, as well as statewide.

⁷ US Census Bureau. State & County QuickFacts. Available online at <http://quickfacts.census.gov/qfd/states/53/53077.html>. Accessed April 2014.

⁸ North Yakima Conservation District. *Yakima County Community Wildfire Protection Plan*. Yakima, Washington. June 2009.

Washington Department of Fish and Wildlife - Much of the Washington Department of Fish and Wildlife (DFW) land is intermixed with DNR lands in the north-central portion of the County, encompassing State Wildlife Areas around the Nile and Wenas areas, but they also manage many other scattered parcels throughout the County including some near Byron Lakes and Mabton. Washington DFW’s mission is to preserve, protect, and perpetuate fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities. Yakima County is part of DFW’s South Central Region, which offers more than 400,000 acres of department-owned land, all of which is open for public recreation.

Bureau of Land Management - The BLM manages small pieces of land in the eastern portion of the County and in the area north of Selah in addition to several scattered sections that create a checkerboard with private and State ownerships.

Table 3.2. Land Ownership Categories in Yakima County.

Entity	Acres	Percent of Total Area
National Park Service	351	0%
State Parks	464	0%
U.S. Fish and Wildlife Service	2,105	0%
Water	2,502	0%
Bureau of Land Management	28,468	1%
Washington Department of Fish and Wildlife	84,826	3%
State of Washington	152,735	6%
Department of Defense	161,529	6%
U.S. Forest Service	505,456	18%
Private	583,407	21%
Yakama Nation	1,239,375	45%
Total	2,761,217.1	100%

Development Trends

Yakima County has a wide range of rural and agricultural land uses that can be grouped into three categories: urban lands, resource lands, and rural lands. Urban growth areas extend from Yakima County’s 14 cities and towns and are characterized by growth patterns that intensively use current infrastructure and land in a way that other uses, such as production of food, will become incompatible. Resource lands are important and necessary to sustain agriculture, forest products, and mineral commodities. Rural lands are areas outside of urban growth areas and resource lands that are characterized by low to moderate densities that can be supported and sustained without urban services.

In the Plan 2015, the rural category seeks to protect the rural character of the County by reducing the incompatible conversion of undeveloped land into sprawling, low-density development and assuring the protection of the natural environment, historic properties, and rural lifestyles. The ways in which rural character will be accommodated will be different than in the past, primarily through encouraging cluster developments, revitalization of the existing rural service centers, and other low impact development that minimizes impacts to resources valued by the

community. This strategy will continue to promote the agricultural uses that are vital to the County's economic base and support the rural aspects of Yakima County⁹.

Natural Resources

Yakima County exhibits a diversity of vegetation and land types from steep, forested terrain in the western portion of the county to vast expanses of shrub-steppe, shrubland, and grasslands throughout the eastern portion. This diverse ecosystem, with a complex array of vegetation, wildlife, and fisheries, has developed with, and adapted to fire as a natural/man-induced disturbance process. For some vegetation types, like the oak woodlands and dry ponderosa pine and Douglas-fir forests, frequent fire return intervals helps limit overcrowding and thereby stress-induced secondary agents. Conversely, some habitat types such as shrub-steppe and high elevation forests are adapted to more infrequent fires. Frequent fires in the shrub-steppe vegetation community are detrimental due to the eventual absence of a viable seed source for native revegetation and the introduction of invasive annuals.

Nearly a century of wildland fire suppression coupled with past land-use practices (primarily agriculture and grazing) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. As a result, some areas of Yakima County have become more susceptible to large-scale, high-intensity fires posing a threat to life, property, and natural resources including wildlife and plant populations. High-intensity, stand-replacing fires have the potential to seriously damage soils, native vegetation, and fish and wildlife populations. The lower elevation shrub-steppe and grasslands of Yakima County are inherently less resilient to fire related disturbances. Many of these areas, particularly the southern aspects, are now dominated by cheatgrass which out-competes other vegetation and creates a continuous fine fuel load that cures quickly and ignites readily. Large fast-moving fires have burned and returned throughout the lower elevations of Yakima and Benton Counties¹⁰. Cheatgrass has proven to be a formidable foe and most efforts to oust it from larger landscapes have failed¹¹. This vegetation state provides few if any ecosystem services. Counter to the logic of forest restoration, restoring resilient landscapes in Wyoming big sagebrush steppe means suppressing fires in an ecosystem that has seen too much fire.

In addition, an increase in the number of large, high-intensity fires throughout the nation's forest and rangelands has resulted in significant safety risks to firefighters and higher costs for fire suppression.

⁹ Yakima County Public Services Planning Division. *Plan 2015: A Blueprint for Yakima County Progress*. Yakima, Washington. Available at http://www.yakimacounty.us/planning/Documents/Plan%202015_Vol%201_final03_15_11.pdf. Updated December 2007. Accessed April 2014.

¹⁰ Bakker, J.D., Dunwiddie, P.W., Hall, S.A., Evans, J.R., Davies, G.M., and E. Dettweiler-Robinson. 2011. Vegetation Impacts of Recurring Fires on Sagebrush Ecosystems in Washington: Implications for Conservation and Rehabilitation. Report to Joint Fire Sciences Program JFSP Project 08-1-5-20. 12/31/2011. Available at http://www.firescience.gov/projects/08-1-5-20/project/08-1-5-20_Davies_et_al_2012_trajectories.pdf.

¹¹ Mack, R. N. 2011. Fifty years of "waging war on cheat grass": Research advances while meaningful control languishes, p.253-265. In: D.M. Richardson (ed.), *Fifty Years of Invasion Ecology: The Legacy of Charles Elton*. 1st edition, West Sussex, UK: Blackwell.

Fish and Wildlife

The upper reaches of the Yakima River and its tributaries are in the moist evergreen forests and alpine areas of the Cascade Mountains. Forests in higher elevation areas typically consist of Douglas-fir, grand fir, western and mountain hemlock, and subalpine fir. The lower elevation forestlands in western Yakima County are dominated by ponderosa pine and Douglas-fir. These dry forests are home to the declining white-headed woodpecker, golden eagles, Rocky Mountain elk, mountain lions and many other wildlife species.¹²

The river valleys of the Yakima Basin create broad floodplains filled with cottonwoods, willows and other deciduous trees. These riparian forests are oases in our arid lowlands, and support a wide range of migratory birds, reptiles and amphibians and other wildlife.¹³

Much of the lower elevation sage steppe in Yakima County has been converted into irrigated agricultural lands. The remaining areas support working ranches; provide critical winter range for elk, deer, and bighorn sheep; and are home to sensitive species. Much of Yakima County's sage and grasslands support rare shrub-steppe wildlife, including one of the two remaining populations of greater sage-grouse in Washington and 30 species in greatest need of conservation action by the Washington State Department of Fish and Wildlife. Frequent large wildfires are removing large areas of sagebrush in South Central Washington faster than it can be replaced. Historically, natural fires occurred in Wyoming big sagebrush communities once every 30 to 100+ years. Today, cheatgrass and other invasive plants provide fuel for fires which in turn promote further weed spread and create favorable conditions for future fires, especially in areas of lower elevation and southerly aspect.¹⁴

Greater Sage-grouse

The presence in Yakima County of the greater sage-grouse renders efforts to restore resilient landscapes all the more urgent yet all the more complicated. Washington State listed the grouse as endangered in 2001 and completed a recovery plan in 2004. The plan identified fire as one of the greatest threats to the grouse. The federal government ruled the grouse a candidate for listing under the Endangered Species Act (ESA) in 2010 and again cited the cycle of invasive species and repeated fires as a prime threat (75 FR 13910). The annual grass/fire cycle precludes the reestablishment of sagebrush and reduces or eliminates native forbs and grasses essential for sage-grouse food and cover. In September of 2015, the U.S. Fish and Wildlife Service will decide whether or not to list the grouse under the ESA. A listing could further restrict military training and agricultural activities in the county. There are two established populations in WA State, one in Douglas County, and the other at JBLMYTC. There are also a handful of birds at Swanson Lakes and in the East Satus on the Yakama Nation Reservation.

The JBLMYTC has a comprehensive fire management plan and holds meetings annually between first responders and environmental and training staff to review the plan's efficacy and

¹² Yakima Basin Fish and Wildlife Recovery Board. "Wildlife Habitats." Yakima, Washington. Available online at <http://www.ybfwrp.org/our-basin/yakima-basin-overview/the-wildlife/>. Accessed July 2014.

¹³ Yakima Basin Fish and Wildlife Recovery Board. "Wildlife Habitats." Yakima, Washington. Available online at <http://www.ybfwrp.org/our-basin/yakima-basin-overview/the-wildlife/>. Accessed July 2014.

¹⁴ South Central Washington Shrub Steppe/Rangeland Partnership. 2010. "Conserve what we have, restore what we can: A Conservation Strategy for the Shrub Steppe/Rangelands of South Central Washington." Yakima, Washington. Available online at <http://www.ybfwrp.org/Assets/Documents/Plans/SageSteppeConservationStrategy.pdf>. Accessed July 2014.

prepare for the coming fire season. The augmentation of human and material resources and the establishment of primary and secondary containment areas around training ranges have greatly reduced the number of fires escaping containment areas. But lightning still ignites fires in unpredictable locations and large portions of the lands adjacent to JBLMYTC and its Sage Grouse Protection Areas are not within the jurisdiction of any fire district.

Maintenance of nesting and brood rearing habitat will always pose a fuel conundrum. The conditions required are a buildup of fuels. Keeping fires small will ensure that at least some habitats in the necessary amounts for each life stage of the grouse remain.¹⁵¹⁶

Restoring resilient landscapes in South Central Washington rangelands requires strategic control of fire followed by active weed control and establishment of competing vegetation. Cost-effective, dependable techniques that can be applied beyond the 10's of acres to non-arable land have yet to prove successful. Even if such restoration was feasible, land management objectives vary across checkerboard ownerships making landscape-scale treatments difficult to plan and implement. Resiliency objectives in Yakima County rangelands should be: 1) have fewer acres burn annually 2) decrease acres dominated by weeds and 3) increase acreage of perennial forage or native grasses. Cooperative agreements between fire services and rangeland owners should be pursued along with landscape design of firebreaks and other strategic fuel reduction actions.

The risk of Greater Sage-grouse habitat loss from wildfire remains great. JBLMYTC and Washington Department of Fish and Wildlife should advise and collaborate with adjacent fire services to ensure that incident commanders and fire line bosses have maps of areas that should be protected if at all possible from burning. JBLMYTC and Washington Department of Fish and Wildlife should continue to provide training resources to districts regarding the value of sage grouse habitat, the difficulty in its restoration, and the consequences of the cheat grass fire cycle, building on past efforts.

Vegetation

The Columbia Basin supports a complex landscape of native steppe and shrub-steppe vegetation composed of; scattered shrubs, typically sagebrush species or bitterbrush with a bunchgrass cover, usually bluebunch wheatgrass, Idaho fescue or needlegrasses, scablands (shallow rocky soils) that support specialized vegetation dominated by stiff sagebrush, one of several bushy buckwheats, and short bunchgrasses, and land largely converted to agricultural use or rangeland dominated by exotic plants or native vegetation tolerant of persistent land use.¹⁷

Cover Type	Acres	Percent of Total Area
Cultivated Crop	58,524	2.1%
Pasture/Hay	146,282	5.3%

¹⁵ Murphy, Tim, et al. 2013. "Trial by Fire: Improving Our Ability to Reduce Wildfire Impacts to Sage-Grouse and Sagebrush Ecosystems Through Accelerated Partner Collaboration." *Rangelands*. Pp 35(3):2-10.

¹⁶ Bureau of Land Management. 2011. Instruction Memorandum No. 2011-138: Sage-grouse Conservation Related to Wildland Fire and Fuels Management. Available online at http://www.blm.gov/pgdata/etc/medialib/blm/wo/Communications_Directorate/public_affairs/sage-grouse_planning/documents.Par.71414.File.dat/im2011-138pak.pdf. Accessed July 2014.

¹⁷ A Riparian Vegetation Classification of the Columbia Basin, Washington. <http://www1.dnr.wa.gov/nhp/refdesk/pubs/columbiarip.pdf> Accessed May, 2013

Table 3.3. Vegetative Cover Types in Yakima County.

Cover Type	Acres	Percent of Total Area
Highly Structured Agriculture	148,121	5.4%
Irrigated Cropland	53,598	1.9%
Non-Irrigated Cropland	34,720	1.3%
Conifer	963,879	34.9%
Conifer-Hardwood	8,662	0.3%
Developed	93,726	3.4%
Exotic Herbaceous	116,685	4.2%
Grassland	323,119	11.7%
Hardwood	17,044	0.6%
Non-vegetated	34,507	1.2%
Riparian	70,042	2.5%
Shrubland	668,470	24.2%
Sparsely Vegetated	23,840	0.9%
Total	2,761,219	100.0%

The County is made up of a range of vegetation communities. The vegetation types can be grouped into seven different eco-regions as classified for the Pacific Northwest Level IV Ecoregions created by the Environmental Protection Agency (EPA): Yakima Folds, Pleistocene Lake Basins, Yakima Plateau and Slopes, Grand Fir Mixed Forest, Cascade Subalpine/Alpine, Cascade Crest Montane Forest, and Western Cascades Montane Highlands. Ecoregion maps and descriptions are available at <http://www.epa.gov/wed/pages/ecoregions.htm>.¹⁸

Hydrology

Average annual precipitation in the Yakima Basin varies from 91 inches annually at Snoqualmie Pass (at the headwaters of the Yakima River in the Cascade Range) to 7.9 inches annually in the city of Yakima. Most of the water in the Yakima River comes from snowmelt and is caught in a series of five reservoirs to ensure a sufficient water supply throughout the irrigation season. Much of the water is diverted for irrigation in the Yakima Valley, but some is recovered through surface and subsurface routes. From 50 to 100% of the water delivered to the lower basin from the Naches River and upper Yakima River is diverted for agriculture during the irrigation season.¹⁹ The United States Department of the Interior’s Bureau of Reclamation (USBR) operation of the Yakima Project greatly influences stream discharge volumes in the Yakima River and some of its tributaries. The USBR delivers water to meet downstream demands, such as irrigation, power production, and instream flow for fish protection. To meet these demands, the USBR releases water from three storage reservoirs in the upper Yakima River watershed: Lake Keechelus, Lake Kachess and Lake Cle Elum.²⁰

¹⁸ United States Environmental Protection Agency, Western Ecology Division. Ecoregion Maps and GIS Resources. Available online at <http://www.epa.gov/wed/pages/ecoregions.htm>. Accessed August 2014.

¹⁹ Washington Department of Ecology. Water Quality Improvement Projects (TMDLs): Yakima River Basin Area. Available online at http://www.ecy.wa.gov/programs/wq/tmdl/yakima_wq/index.html. Accessed October 2014.

²⁰ Washington Department of Ecology. *Upper Yakima River Basin Suspended Sediment, Turbidity, and Organochlorine Pesticide Total Maximum Daily Load Study*. June 2008. Publication No. 09-10-045. Available online at <https://fortress.wa.gov/ecy/publications/publications/0910045.pdf>. Accessed October 2014.

The Bureau of Reclamation and the Washington Department of Ecology along with many local partners has developed and is currently implementing the Yakima Basin Integrated Water Resource Management Plan which is meant to protect, mitigate, and enhance fish and wildlife habitat; provide increased operational flexibility to manage instream flows to meet ecological objectives; and improve the reliability of the water supply for irrigation, municipal supply, and domestic uses. The Integrated Plan includes seven priority elements: fish passage, structural and operational changes, surface water storage, groundwater storage, habitat protection and enhancement, enhanced water conservation, and market-based reallocation.²¹

Air Quality

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority of the U.S. Environmental Protection Agency. The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, the Organization for Air Quality Protection Standards (OAQPS) is responsible for setting the NAAQS standards for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources.²²

Yakima County's air quality is generally considered good, but the County has a history of exceeding federal air quality standards for particulate matter primarily due to wood burning stoves. Once non-attainment areas meet the EPA's health-based air quality standards, they are redesignated as attainment and called maintenance areas. The more heavily populated areas near Yakima are considered maintenance areas for both particulate matter and carbon monoxide.

The topography in Yakima County allows for good transport of air. Small scale temperature inversions that affect air quality are not common. Large scale inversions are common in the fall and can be associated with regional air quality degradation. Impacts to air quality are also associated with pollution flowing with weather patterns through White and Chinook Passes from west-side sources.

Washington Department of Ecology

The Washington Department of Ecology (DOE) Air Quality Program protects public health and the environment from pollutants caused by vehicles, outdoor and indoor burning, and industry. The DOE oversees permitting for non-forested (i.e. agriculture and rangeland) burning. Yakima County falls under the jurisdiction of the local clean air agency, Yakima Regional Clean Air Agency, except for Yakama Nation lands, which are overseen by the Environmental Protection Agency and fall under the Federal Air Rules for Reservations regulations.

²¹ Yakima Basin Integrated Water Resource Management Plan (YBIP). State of Washington, Department of Ecology, Office of Columbia River. Available online at <http://www.ecy.wa.gov/programs/wr/cwp/YBIP.html>. Accessed August 2014.

²² Louks, B. 2001. Air Quality PM 10 Air Quality Monitoring Point Source Emissions; Point site locations of DEQ/EPA Air monitoring locations with Monitoring type and Pollutant. Idaho Department of Environmental Quality. Feb. 2001. As GIS Data set. Boise, Idaho.

Yakima Regional Clean Air Agency

The mission of the Yakima Regional Clean Air Agency is to protect the people and the environment of Yakima County from air pollution. The Yakima Regional Clean Air Agency is committed to achieving and maintaining healthful air quality throughout their jurisdiction. This is accomplished through a comprehensive program of planning, regulation, enforcement, and promotion of the understanding of air quality issues.²³

²³ Yakima Regional Clear Air Agency. 2008. Available at <http://www.yakimacleanair.org/about.htm>. Accessed April 2014.

Chapter 4

Risk and Preparedness Assessments

Wildland Fire Characteristics

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, the topography in which the fire is burning, and the weather and atmospheric conditions during a fire event. At the landscape level, both topography and weather are beyond our control. We are powerless to control winds, temperature, relative humidity, atmospheric instability, slope, aspect, elevation, and landforms. It is beyond our control to alter these conditions, and thus impossible to alter fire behavior through their manipulation. When we attempt to alter how fires burn, we are left with manipulating the third component of the fire environment; fuels which support the fire. By altering fuel loading and fuel continuity across the landscape, we have the best opportunity to control or affect how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their effect on fire behavior.

Weather

Weather conditions contribute significantly to determining fire behavior. Wind, moisture, temperature, and relative humidity ultimately determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain an ignition²⁴. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have a significant effect on fire behavior. Winds fan fires with oxygen, increasing the rate at which fire spreads across the landscape. Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape.

Topography

Fires burning in similar fuel types, will burn differently under varying topographic conditions. Topography alters heat transfer and localized weather conditions, which in turn influences vegetative growth and resulting fuels. Changes in slope and aspect can have significant influences on how fires burn. Generally speaking, north slopes tend to be cooler, wetter, more productive sites. This can lead to heavy fuel accumulations, with high fuel moistures, later curing of fuels, and lower rates of spread. In contrast, south and west slopes tend to receive more direct sun, and thus have the highest temperatures, lowest soil and fuel moistures, and lightest fuels. The combination of light fuels and dry sites leads to fires that typically display the highest rates of spread. These slopes also tend to be on the windward side of mountains. Thus, these slopes tend to be “available to burn” a greater portion of the year.

²⁴NOAA website <http://www.nws.noaa.gov/om/wfire.shtml>. Accessed on July 30, 2012.

Slope also plays a significant role in fire spread, by allowing preheating of fuels upslope of the burning fire. As slope increases, rate of spread and flame lengths tend to increase. Therefore, we can expect the fastest rates of spread on steep, warm south and west slopes with fuels that are exposed to the wind.²⁵

Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and buildings are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content, and continuity and arrangement all have an effect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, “fine” fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease due to a decrease in the surface to volume ratio. Fires in large fuels generally burn at a slower rate, but release much more energy and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.²⁶

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potential development of crown fires. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determines how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected effect small changes in any single component have on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, some of the principles that govern fire behavior have been identified and are recognized.

Wildfire Hazard Assessment

In the 1930s, wildfires consumed an average of 40 to 50 million acres per year in the contiguous United States, according to US Forest Service estimates. By the 1970s, the average acreage burned had been reduced to about 5 million acres per year. Over this time period, fire suppression efforts were dramatically increased and firefighting tactics and equipment became more sophisticated and effective. For the 11 western states, the average acreage burned per year since 1970 has remained relatively constant at about 3.5 million acres per year.

The severity of a fire season can usually be determined in the spring by how much precipitation is received, which in turn determines how much fine fuel growth there is and how long it takes this growth to dry. These factors, combined with annual wind events can drastically increase the

²⁵ Auburn University website https://fp.auburn.edu/fire/topos_effect.htm. Accessed on July 30,2012.

²⁶ Gorte, R. 2009. Congressional Research Service, Wildfire Fuels and Fuel Reduction.

chance a fire start will grow and resist suppression activities. Furthermore, recreational activities are typically occurring throughout the months of July, August, and September. Occasionally, these types of human activities cause an ignition that could spread into populated areas and wildlands.

Past Fires

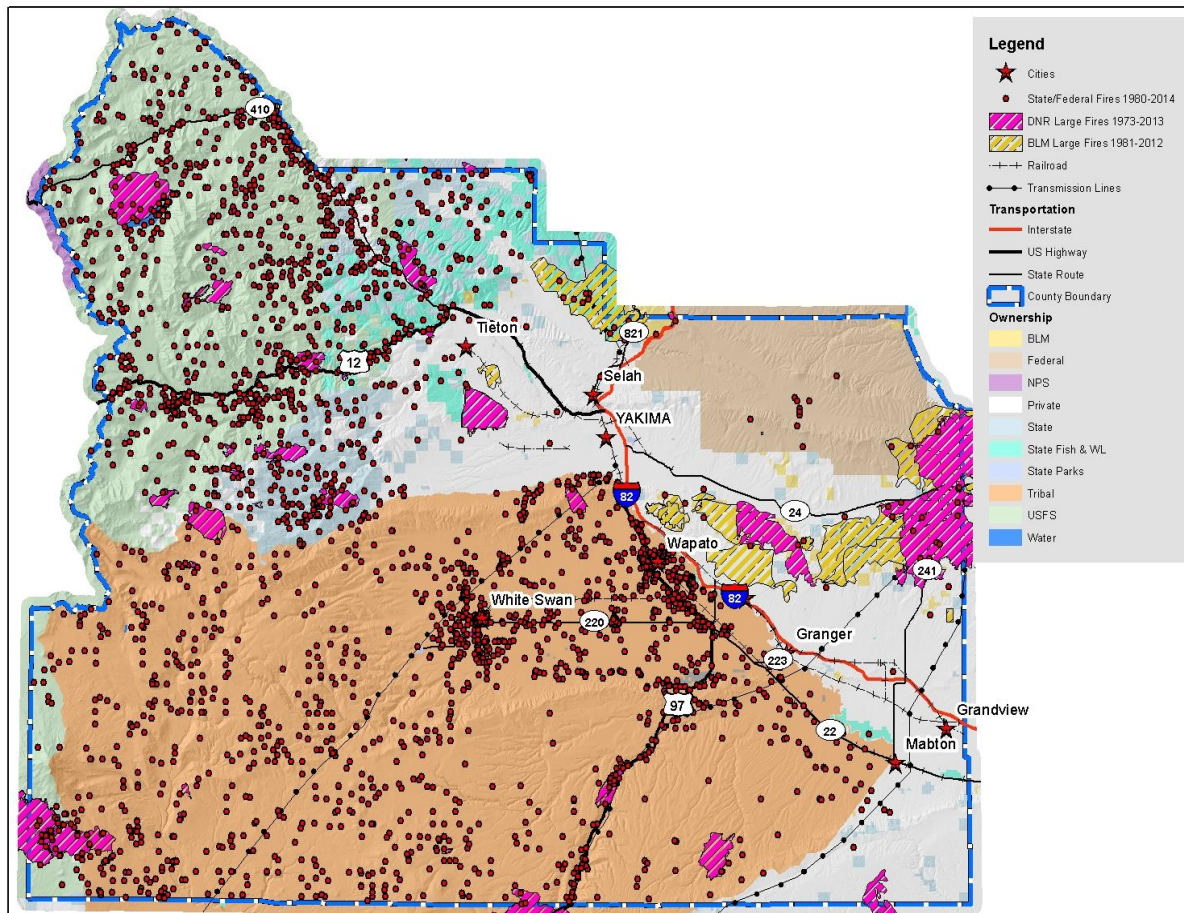
Fire was once an integral function within the majority of ecosystems in south central Washington. The seasonal cycling of fire across most landscapes was as regular as the July, August and September lightning storms plying across central and eastern Washington. Depending on the plant community composition, structural configuration, and buildup of plant biomass, fire resulted from ignitions with varying intensities and extent across the landscape. Shorter return intervals between fire events often resulted in less dramatic changes in plant composition.²⁷ These fires burned from 1 to 47 years apart, with most at 5- to 20-year intervals.²⁸ With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age in a successional pattern.²⁹ Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels.

²⁷ Johnson, C.G. 1998. Vegetation Response after Wildfires in National Forests of Northeastern Oregon. 128 pp.

²⁸ Barrett, J.W. 1979. Silviculture of ponderosa pine in the Pacific Northwest: the state of our knowledge. USDA Forest Service, General Technical Report PNW-97. Pacific Northwest Forest and Range Experiment Station, Portland, OR. 106 p.

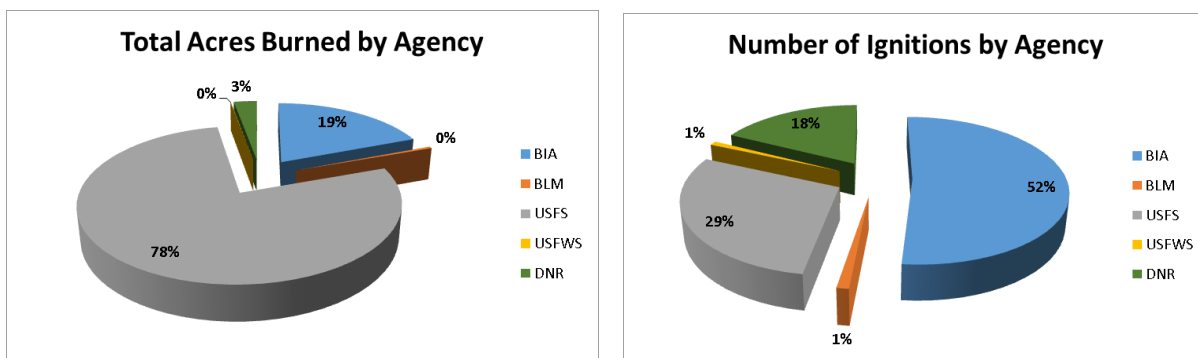
²⁹ Johnson, C.G.; Clausnitzer, R.R.; Mehringer, P.J.; Oliver, C.D. 1994. Biotic and Abiotic Processes of Eastside Ecosystems: the Effects of Management on Plant and Community Ecology, and on Stand and Landscape Vegetation Dynamics. Gen. Tech. Report PNW-GTR-322. USDA-Forest Service. PNW Research Station. Portland, Oregon. 722pp.

Figure 4.1. Ignition and Large Fire History in Yakima County.



The map in Figure 4.1 shows both state and federally reported fires (1980-2014). Fires that are responded to by the local fire protection districts are not always reported; therefore, the map could be misleading by showing that most wildfires occur on federal ownership while in fact a large number of wildland fires occur on private land.

Figure 4.2. Acres Burned and Number of Ignitions by Agency from 1980-2013.



Fire history data for the County was compiled from various state and federal sources, with some overlap depending on which agencies responded to the incident. Figure 4.2 shows the number of acres and number of ignitions by agency, but the reader is cautioned that some fires may have been undocumented and some of the date ranges vary depending on agency.

Wildfire Ignition and Extent Profile

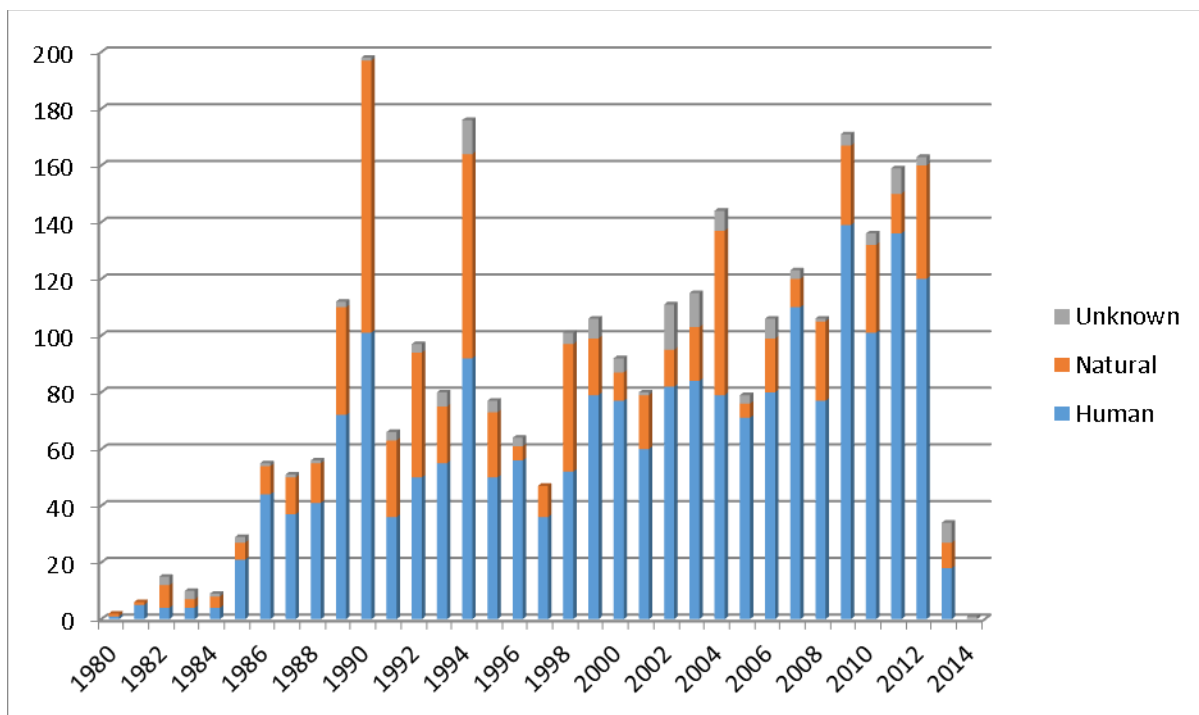
Detailed records of wildfire ignitions and extents from the Washington Department of Natural Resources (DNR) and the Federal Fire Occurrence database³⁰ have been analyzed. In interpreting these data, it is important to keep in mind that the information represents only the fires requiring a state or federal agency response and does not include small fires that were only reported at the district or County level.

Table 4.1. Summary of Cause from State and BLM databases 1980-2012.

General Cause	Number of Ignitions	Percent of Total Ignitions	Acres Burned	Percent of Total Acres
Human-Caused	2,074	70%	711,298	97.7%
Natural Ignition	764	26%	748	0.1%
Unknown	139	5%	16,215	2.2%
Total	2,977	100%	728,261	100%

Ignition trends show a relatively steep upward trend in the number of human caused ignitions annually. The number of natural ignitions has remained constant since the mid-1980's except for a few high lightning years in the early 1990's. The average number of natural ignitions is 22 compared to an average of 61 human caused ignitions annually.

Figure 4.3. Number of Ignitions by Cause and Year.



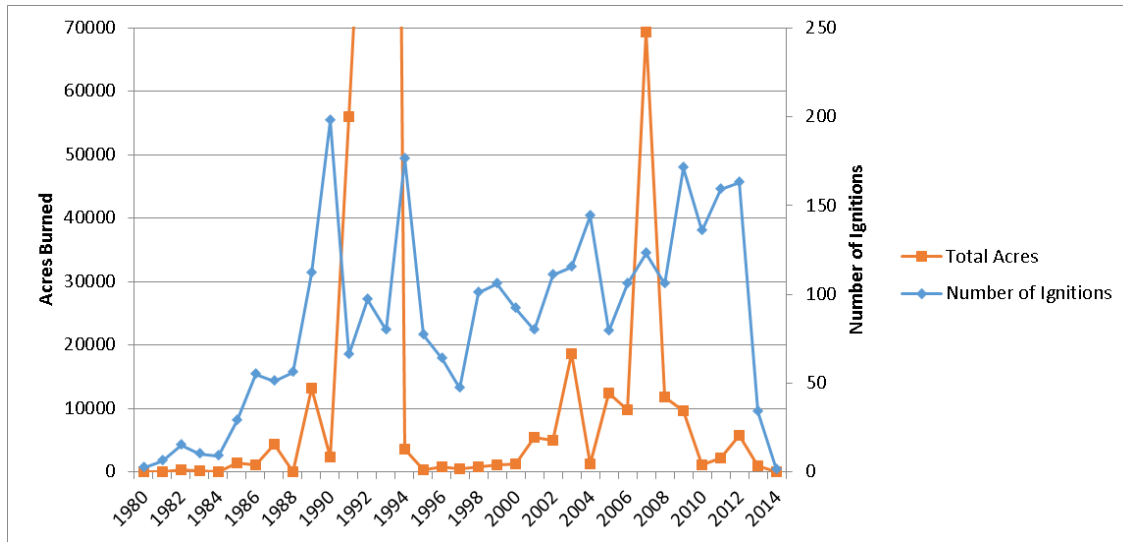
The agencies' combined datasets specific to Yakima County show a clear upward trend in the number of ignitions annually. The trend for total acres is inconclusive due to extremely large fire years in 1992 and 1993, when fires burned 111,518 and 375,986, respectively. The average

³⁰ Federal Fire Occurrence Website. 2013. Department of Interior and United States Geological Survey. Available online at <http://wildfire.cr.usgs.gov/firehistory/about.html>. Accessed July 2014.

number of acres burned annually, excluding the 1992 and 1993 outliers, is approximately 7,300 acres.

It should be noted that a majority of the wildland fires occurring in Yakima County are not reported at the State or Federal level due to successful initial attack efforts by local fire districts.

Figure 4.4. Summary of Yakima County Ignition and Extent Profile.



The data reviewed above provides a general picture regarding the level of wildland-urban interface fire risk within Yakima County. There are several reasons why the fire risk may be even higher than suggested above, especially in developing wildland-urban interface areas.

- 1) Large fires may occur infrequently, but statistically they will occur. One large fire could significantly change the statistics. In other words, 40 years of historical data may be too short to capture large, infrequent wildland fire events. Although the timeline is too short to develop a pattern, this data would suggest that large fires may occur approximately every 15 years.
- 2) The level of fire hazard depends profoundly on weather patterns. A several year drought period would substantially increase the probability of large wildland fires in Yakima County. For smaller vegetation areas, with grass, brush and small trees, a much shorter drought period of a few months or less would substantially increase the fire hazard.
- 3) The level of fire hazard in wildland-urban interface areas is likely significantly higher than for wildland areas as a whole due to the greater risk to life and property. The probability of fires starting in interface areas is much higher than in wildland areas because of the higher population density and increased activities. Many fires in the wildland urban interface are not recorded in agency datasets because the local fire department responded and successfully suppressed the ignition without mutual aid assistance from the state or federal agencies.

National Trends

Across the west, wildfires have been increasing in extent and cost of control. Data summaries for 2003 through 2013 are provided and demonstrate the variability of the frequency and extent of wildfires nationally.

Table 4.2. National Wildfire Statistics.

Statistical Highlights	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of Fires	85,943	77,534	66,753	96,385	85,705	78,979	78,792	71,971	74,126	67,315	47,579
10-year Average ending with indicated year	101,575	100,466	89,859	87,788	80,125	79,918	78,549	76,521	80,465	74,912	74,532
Acres Burned (million acres)	4.9	6.8	8.7	9.9	9.3	5.3	5.9	3.4	8.7	9.2	4.3
10-year Average ending with indicated year (million acres)	4.7	4.9	6.1	6.5	7.0	6.9	6.9	6.5	7.0	7.3	7.1
Structures Burned	5,781	1,095	--	--	--	--	--	788	5,246	4,244	2,135
Estimated Cost of Fire Suppression (Federal agencies only)	\$1.3 billion	\$1.0 billion	\$9.8 million	\$1.93 billion	\$1.84 billion	\$1.85 billion	\$1.24 billion	\$1.13 billion	\$1.73 billion	\$1.9 billion	\$1.7 billion

The National Interagency Fire Center maintains records of fire costs, extent, and related data for the entire nation. Tables 4.2 and 4.3 summarize some of the relevant wildland fire data for the nation and some trends that are likely to continue into the future unless targeted fire mitigation efforts are implemented and maintained. According to these data, the total number of fires is trending downward while the total number of acres burned is trending upward. Since 1980 there has been a significant increase in the number of acres burned.³¹

Table 4.3. Total Fires and Acres 1980 - 2013 Nationally.

Year	Fires	Acres	Year	Fires	Acres
2013	47,579	4,319,546	1996	115,025	6,701,390
2012	67,774	9,326,238	1995	130,019	2,315,730
2011	74,126	8,711,367	1994	114,049	4,724,014
2010	71,971	3,422,724	1993	97,031	2,310,420
2009	78,792	5,921,786	1992	103,830	2,457,665
2008	68,594	4,723,810	1991	116,953	2,237,714
2007	85,822	9,321,326	1990	122,763	5,452,874
2006	96,385	9,873,745	1989	121,714	3,261,732
2005	66,753	8,689,389	1988	154,573	7,398,889
2004	77,534	6,790,692	1987	143,877	4,152,575
2003	85,943	4,918,088	1986	139,980	3,308,133
2002	88,458	6,937,584	1985	133,840	4,434,748
2001	84,079	3,555,138	1984	118,636	2,266,134
2000	122,827	8,422,237	1983	161,649	5,080,553
1999	93,702	5,661,976	1982	174,755	2,382,036
1998	81,043	2,329,709	1981	249,370	4,814,206
1997	89,517	3,672,616	1980	234,892	5,260,825

These statistics are based on end-of-year reports compiled by all wildland fire agencies after each fire season. The agencies include: Bureau of Land Management, Bureau of Indian Affairs, National Park Service, US Fish and Wildlife Service, Forest Service, and all state agencies.

The fire suppression agencies in Yakima County respond to numerous wildland fires each year, but few of those fires grow to a significant size. According to national statistics, only 2% of all

³¹ National Interagency Fire Center. 2008. Available online at <http://www.nifc.gov/>.

wildland fires escape initial attack. However, that 2% accounts for the majority of fire suppression expenditures and threatens lives, properties, and natural resources. Large fires are characterized by a size and complexity that requires special management organizations drawing suppression resources from across the nation. These fires create unique challenges to local communities by their quick development and the scale of their footprint.

Risk Models

Yakima County was analyzed using a variety of models, managed on a Geographic Information System (GIS) system. Physical features of the region including roads, streams, soils, elevation, and remotely sensed images were represented by data layers. Field visits were conducted by specialists from Northwest Management, Inc. and others. Discussions with area residents and local fire suppression professionals augmented field visits and provided insights into forest health issues and treatment options. This information was analyzed and combined to develop an objective assessment of wildland fire risk in the region.

Historic Fire Regime

Historical variability in fire regime is a conservative indicator of ecosystem sustainability, and thus, understanding the natural role of fire in ecosystems is necessary for proper fire management. Fire is one of the dominant processes in terrestrial systems that constrain vegetation patterns, habitats, and ultimately, species composition. Land managers need to understand historical fire regimes, the fire return interval (frequency) and fire severity prior to settlement by Euro-Americans, to be able to define ecologically appropriate goals and objectives for an area. Moreover, managers need spatially explicit knowledge of how historical fire regimes vary across the landscape.

“Natural” fires in Yakima County would have been disproportionately caused by Native Americans. Aboriginal peoples intentionally set fires throughout the region for the purposes of controlling tree and shrub expansion and for the cultivation of select plants. When we describe “natural” in the Range of Natural Variability we are including indigenous peoples as natural disturbance agents and contributors to perceptions of what is “natural”.

A primary goal in ecological restoration is often to return an ecosystem to a previously existing condition that no longer is present at the site, under the assumption that the site’s current condition is somehow degraded or less desirable than the previous condition and needs improvement

Land managers in Yakima County must determine if the past, Native American influenced condition of the County was necessarily healthier, had a higher level of integrity, and was more sustainable than the current condition. In other words, is “restoration” an appropriate course of action? After a prolonged absence, if fire is reintroduced to these ecosystems the result could be damaging. Fuel loads throughout most of the County today are quite high and most of the County is inhabited by people, homes, and infrastructure. The ecosystem was adapted to fire in the past, but is no longer adapted today, especially in light of the human component.

In the absence of intensive Native American burning, a condition has developed where fire could/should not be reintroduced without some significant alteration of the current ecosystem structure. This would also require a significant assessment of social acceptance and financial contribution.

Many ecological assessments are enhanced by the characterization of the historical range of variability which helps managers understand: (1) how the driving ecosystem processes vary from site to site; (2) how these processes affected ecosystems in the past; and (3) how these processes might affect the ecosystems of today and the future. Historical fire regimes are a critical component for characterizing the historical range of variability in fire-adapted ecosystems. Furthermore, understanding ecosystem departures provides the necessary context for managing sustainable ecosystems. Land managers need to understand how ecosystem processes and functions have changed prior to developing strategies to maintain or restore sustainable systems. In addition, the concept of departure is a key factor for assessing risks to ecosystem components. For example, the departure from historical fire regimes may serve as a useful proxy for the potential of severe fire effects from an ecological perspective.

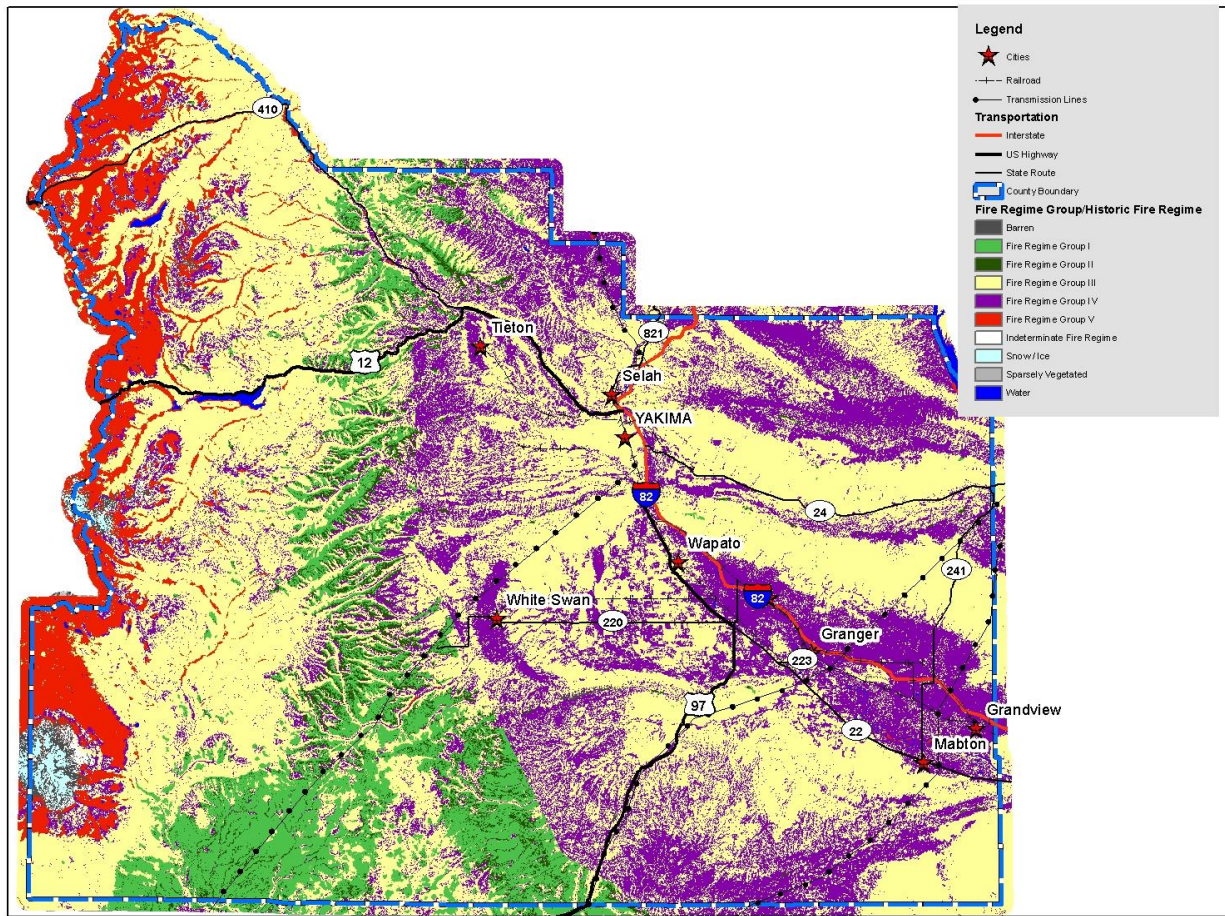
Table 4.4. Historic Fire Regimes in Yakima County.

Historic Fire Regime	Description	Acres	Percent of Total
Fire Regime Group I	<= 35 Year Fire Return Interval, Low and Mixed Severity	253,271	9.2%
Fire Regime Group II	<= 35 Year Fire Return Interval, Replacement Severity	71,879	2.6%
Fire Regime Group III	35 - 200 Year Fire Return Interval, Low and Mixed Severity	1,529,345	55.4%
Fire Regime Group IV	35 - 200 Year Fire Return Interval, Replacement Severity	693,993	25.1%
Fire Regime Group V	> 200 Year Fire Return Interval, Any Severity	169,171	6.1%
Water	Water	8,920	0.3%
Snow/Ice	Snow/Ice	7,841	0.3%
Barren	Barren	17,746	0.6%
Sparsely Vegetated	Sparsely Vegetated	605	0.0%
Indeterminate Fire Regime Characteristics	Indeterminate Fire Regime Characteristics	8,447	0.3%
Total		2,761,219	100%

This model only uses the current vegetation types to determine the historic fire regime. Native Americans reportedly burned throughout the county on a regular basis. The vegetation types were much different pre Euro-American settlement than they are today and believed to be a more shrub steppe-dominated landscape. The Historic Fire Regime model suggests that fires in Yakima County historically burned with mixed severity fires on a longer return interval. The longer time between fires allows fuel to build-up, which can burn very intensely when conditions are dry.

A map depicting the historic fire regime as well as additional explanation of how the historic fire regime data was derived is included in Appendix 1 and 3.

Figure 4.5. Historic Fire Regime for Yakima County.



Vegetation Condition Class

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning.^{32, 33} Coarse scale definitions for historic fire regimes have been developed by Hardy et al³⁴ and Schmidt et al³⁵ and interpreted for fire and fuels management by Hann and Bunnell.

A vegetation condition class (VCC) is a classification of the amount of departure from the historic regime.³⁶ The three classes are based on low (VCC 1), moderate (VCC 2), and high

³² Agee, J. K. *Fire Ecology of the Pacific Northwest forests*. Oregon: Island Press. 1993.

³³ Brown, J. K. "Fire regimes and their relevance to ecosystem management." *Proceedings of Society of American Foresters National Convention*. Society of American Foresters. Washington, D.C. 1995. Pp 171-178.

³⁴ Hardy, C. C., et al. "Spatial data for national fire planning and fuel management." *International Journal of Wildland Fire*. 2001. Pp 353-372.

³⁵ Schmidt, K. M., et al. "Development of coarse scale spatial data for wildland fire and fuel management." General Technical Report, RMRS-GTR-87. U.S. Department of Agriculture, Forest Service. Rocky Mountain Research Station. Fort Collins, Colorado. 2002.

³⁶ Hann, W. J. and D. L. Bunnell. "Fire and land management planning and implementation across multiple scales." *International Journal of Wildland Fire*. 2001. Pp 389-403.

(VCC 3) departure from the central tendency of the natural (historical) regime.^{37,38} The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

An analysis of Vegetation Condition Classes in Yakima County shows that the much of the land in the county that has not been converted to agriculture (16%) is considered moderately (32%) or highly departed (30%) from its historic fire regime and associated vegetation and fuel characteristics. Approximately 18% has a low departure.

Table 4.5. Vegetation Condition Class in Yakima County.

Vegetation Condition Class	Description	Acres	Percent of Total
Vegetation Condition Class I	Low Vegetation Departure	487,968	17.7%
Vegetation Condition Class II	Moderate Vegetation Departure	881,931	31.9%
Vegetation Condition Class III	High Vegetation Departure	821,269	29.7%
Water	Water	8,931	0.3%
Snow/Ice	Snow/Ice	7,832	0.3%
Urban	Urban	93,758	3.4%
Barren	Barren	17,736	0.6%
Sparsely Vegetated	Sparsely Vegetated	609	0.0%
Agriculture	Agriculture	441,185	16.0%
	Total	2,761,219	100.0%

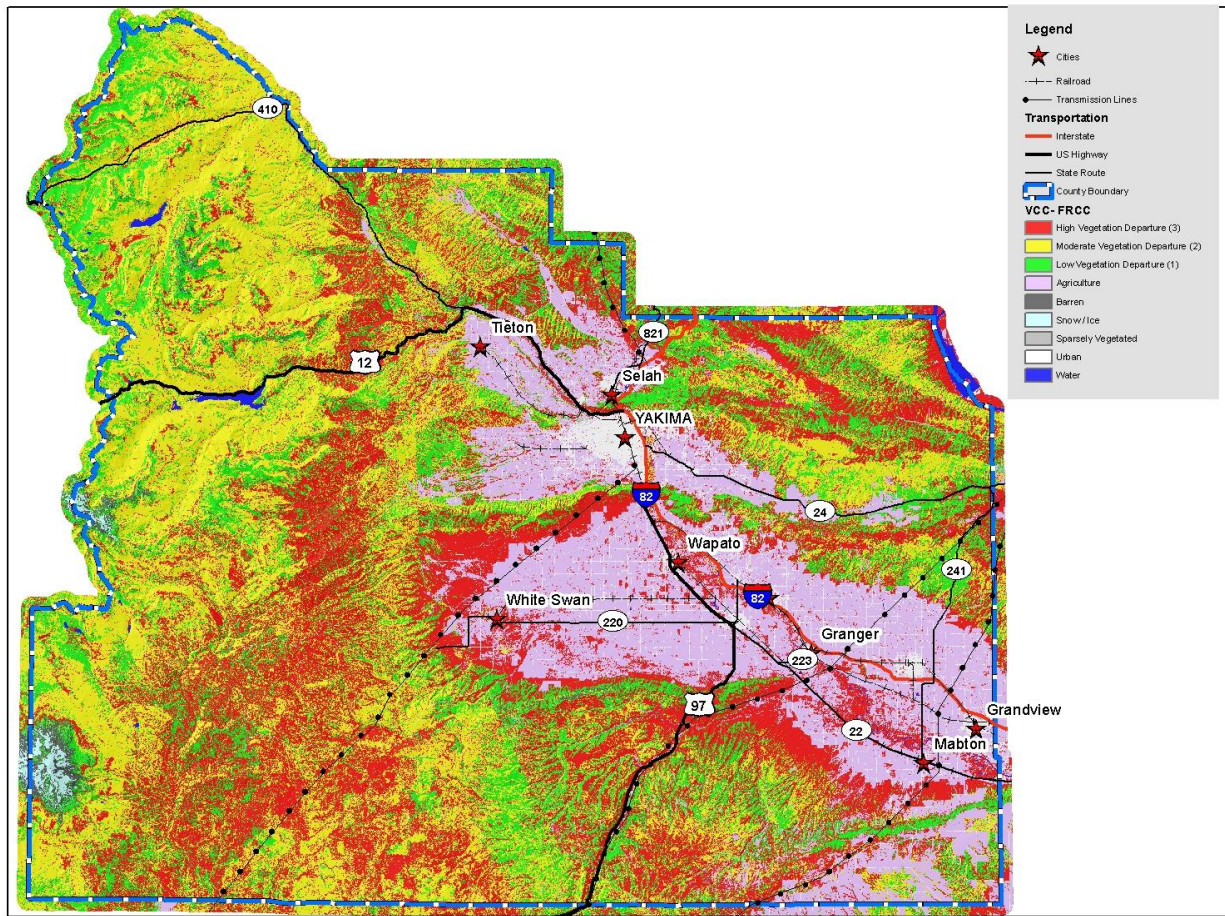
Transitional ecosystems or those on the fringe of development seem to be experiencing the highest degree of departure from their historical range of variability. In low elevation ponderosa pine, oak, and Douglas-fir forests, the departure occurs due to an increase in fire return interval. Fires that at one time occurred relatively frequently, i.e. less than approximately 35 years apart, are less frequent resulting in increased fuel buildup and a transition to more shade tolerant conifer species. In shrub-steppe rangeland communities, the departure from historic range of variability is a result of more frequent fires. This type of ecosystem is adapted to longer fire return intervals (35-200 years), but due to increased ignition potential, cheatgrass invasion, and other factors, fires are occurring on very short return intervals.

A map depicting Vegetation Condition Class as well as a more in-depth explanation of VCC is presented in Appendices 1 and 3.

³⁷ Hardy, C. C., et al. "Spatial data for national fire planning and fuel management." International Journal of Wildland Fire. 2001. Pp 353-372.

³⁸ Schmidt, K. M., et al. "Development of coarse scale spatial data for wildland fire and fuel management." General Technical Report, RMRS-GTR-87. U.S. Department of Agriculture, Forest Service. Rocky Mountain Research Station. Fort Collins, Colorado. 2002.

Figure 4.6. Vegetation Condition Class.



Yakima County’s Wildland-Urban Interface

The wildland-urban interface (WUI) has gained attention through efforts targeted at wildfire mitigation; however, this analysis technique is also useful when considering other hazards because the concept looks at where people and structures are concentrated in any particular region.

A key component in meeting the underlying need for protection of people and structures is the protection and treatment of hazards in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments or where forest fuels meet urban fuels such as houses. The WUI encompasses not only the interface (areas immediately adjacent to urban development), but also the surrounding vegetation and topography. Reducing the hazard in the wildland-urban interface requires the efforts of federal, state, and local agencies and private individuals.³⁹ “The role of [most] federal agencies in the wildland-urban interface includes wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical experience. Structural fire protection [during a wildfire] in the wildland-urban interface is [largely] the responsibility of Tribal, state, and local

³⁹ Norton, P. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment. Fish and Wildlife Services, Bear Valley Wildlife Refuge. June 20, 2002.

governments”⁴⁰ Property owners share a responsibility to protect their residences and businesses and minimize danger by creating defensible areas around them and taking other measures to minimize the risks to their structures.⁴¹ With treatment, a wildland-urban interface can provide firefighters a defensible area from which to suppress wildland fires or defend communities against other hazard risks. In addition, a wildland-urban interface that is properly treated will be less likely to sustain a crown fire that enters or originates within it.⁴²

By reducing hazardous fuel loads, ladder fuels, and tree densities, and creating new and reinforcing existing defensible space, landowners can protect the wildland-urban interface, the unique ecosystems, and adjacent property owners by:

- Minimizing the potential of high-severity ground or crown fires entering or leaving the area;
- Reducing the potential for firebrands (embers carried by the wind in front of the wildfire) impacting the WUI. Research indicates that flying sparks and embers (firebrands) from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior;⁴³
- Improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

Three wildland-urban interface conditions have been identified (Federal Register 66(3), January 4, 2001) for use in wildfire control efforts. These include the Interface Condition, Intermix Condition, and Occluded Condition. Descriptions of each are as follows:

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation; the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres; and
- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size.

⁴⁰ USFS. 2001. United States Department of Agriculture, Forest Service. Wildland Urban Interface. Web page. Date accessed: 25 September 2001. Accessed at: <http://www.fs.fed.us/r3/sfe/fire/urbanint.html>

⁴¹ USFS. 2001. United States Department of Agriculture, Forest Service. Wildland Urban Interface. Web page. Date accessed: 25 September 2001. Accessed at: <http://www.fs.fed.us/r3/sfe/fire/urbanint.html>

⁴² Norton, P. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment. Fish and Wildlife Services, Bear Valley Wildlife Refuge. June 20, 2002.

⁴³ McCoy, L. K., et all. Cerro Grand Fire Behavior Narrative. 2001.

In addition to these classifications detailed in the Federal Register, Yakima County has included four additional classifications to augment these categories:

- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.
- **High Density Urban Areas** – those areas generally identified by the population density consistent with the location of incorporated cities, however, the boundary is not necessarily set by the location of city boundaries or urban growth boundaries; it is set by very high population densities (more than 7-10 structures per acre).
- **Non-WUI Condition** – a situation where the above definitions do not apply because of a lack of structures in an area or the absence of critical infrastructure. This classification is not considered part of the wildland-urban interface.

In summary, the designation of areas by the Yakima County steering committee includes:

- Interface Condition: WUI
- Intermix Condition: WUI
- Occluded Condition: WUI
- Rural Condition: WUI
- High Density Urban Areas: WUI
- Non-WUI Condition: Not WUI

Yakima County’s wildland urban interface (WUI) is mostly based on population density. Relative population density across the county was estimated using a GIS based kernel density population model that uses object locations to produce, through statistical analysis, concentric rings or areas of consistent density. To graphically identify relative population density across the county, structure locations are used as an estimate of population density. The resulting output identified the extent and level of population density throughout the county.

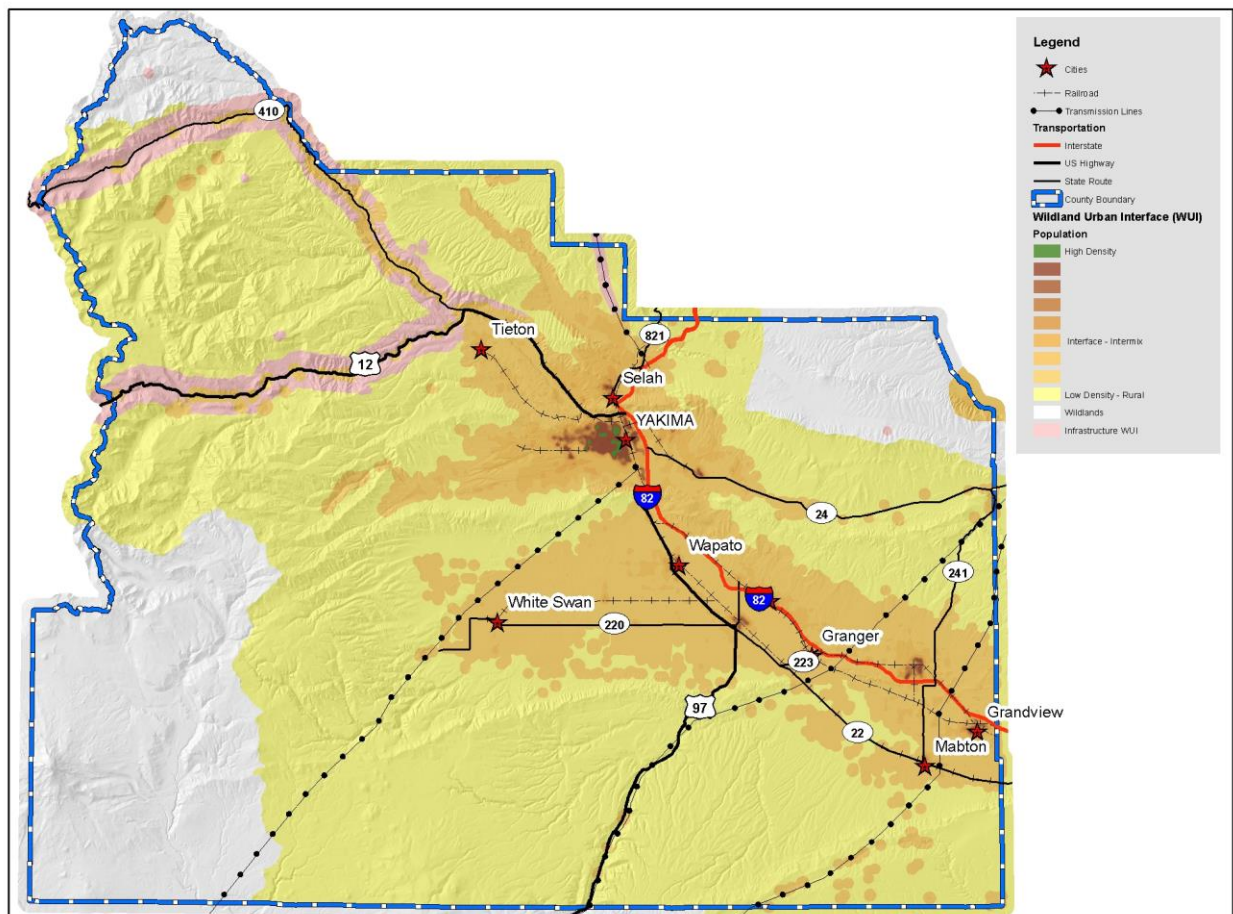
By evaluating structure density in this way, WUI areas can be identified on maps by using mathematical formulae and population density indexes. The resulting population density indexes create concentric circles showing high density areas, interface, and intermix condition WUI, as well as rural condition WUI (as defined above). This portion of the analysis allows us to “see” where the highest concentrations of structures are located in reference to relatively high risk landscapes, limiting infrastructure, and other points of concern.

Once the population density modeling was completed, the steering committee agreed that the outer perimeter of WUI’s rural condition should be modified by expanding or contracting the boundary to a ridgeline or other topographic feature for two reasons; 1) to provide a clear boundary for the purposes of WUI-based project development and 2) to provide consideration for realistic suppression and control lines.

The WUI, as defined here, is unbiased and consistent and most importantly – it addresses all of the county, not just federally identified communities at risk. It is a planning tool showing where homes and businesses are located and the density of those structures leading to identified WUI categories. It can be determined again in the future, using the same criteria, to show how the WUI has changed in response to increasing population densities. It uses a repeatable and reliable analysis process that is unbiased.

The Healthy Forests Restoration Act makes a clear designation that the location of the WUI is at the determination of the county or reservation when a formal and adopted Community Wildfire Protection Plan is in place. It further states that the federal agencies are obligated to use this WUI designation for all Healthy Forests Restoration Act purposes. The Yakima County Community Wildfire Protection Plan steering committee evaluated a variety of different approaches to determining the WUI for the county and selected this approach and has adopted it for these purposes. In addition to a formal WUI map for use with the federal agencies, it is hoped that it will serve as a planning tool for the county, state, and federal agencies, and local fire protection districts. A map depicting the Yakima County WUI is also included in Appendix 1.

Figure 4.7. Wildland Urban Interface in Yakima County, Washington.



Potential WUI Treatments

The definition and mapping of the WUI is the creation of a planning tool to identify where structures, people, and infrastructure are located in reference to each other. This analysis tool does not include a component of fuels risk. There are a number of reasons to map and analyze these two components separately (population density vs. fire risk analysis). Primary among these reasons is the fact that population growth often occurs independent from changes in fire risk, fuel loading, and infrastructure development. Thus, making the definition of the WUI dependent on all of them would eliminate populated places with a perceived low level of fire risk

today, which may in a year become an area at high risk due to forest health issues or other concerns.

By examining these two tools separately, we can evaluate these layers of information to see where the combination of population density overlays areas of high current relative fire risk and then implement mitigation actions to reduce the fuels, improve readiness, directly address factors of structural ignitability, improve initial attack success, mitigate resistance to control factors, or (more often) a combination of many approaches.

It should not be assumed that just because an area is identified as being within the WUI, that it will therefore receive treatments because of this identification alone. Nor should it be implicit that all WUI treatments will be the application of the same prescription. Instead, each location targeted for treatments must be evaluated on its own merits: factors of structural ignitability, access, resistance to control, population density, resources and capabilities of firefighting personnel, and other site specific factors.

It should also not be assumed that WUI designation on national or state forest lands automatically equates to a treatment area. The U.S. Forest Service, BLM, and Washington DNR are still obligated to manage lands under their control according to the standards and guides listed in their respective forest or resource management plans (or other management plans). The adopted forest plan has legal precedence over the WUI designation until such a time as the forest plan is revised to reflect updated priorities.

Most treatments may begin with a home evaluation, and the implicit factors of structural ignitability (roofing, siding, deck materials) and vegetation within the treatment area of the structure. However, treatments in the low population areas of rural lands (mapped as yellow) may look closely at access (two ways in and out) and communications through means other than land-based telephones. On the other hand, a subdivision with densely packed homes (mapped as brown – interface areas) surrounded by forests and dense underbrush, may receive more time and effort implementing fuels treatments beyond the immediate home site to reduce the probability of a crown fire threatening the subdivision.

Relative Threat Level Mapping

Yakima County recognizes that certain regions of the County have unique risk factors that increase their vulnerability to wildland fire. In an effort to demonstrate these risk factors, the steering committee developed a threat level model analyzing various risk factors on a scale relative to Yakima County specifically. The Steering Committee ranked threats relative to their potential impact to life, property, infrastructure, and unique ecosystems.

Risk Categories

Based on analysis of the various modeling tools, existing historical information, and local knowledge, a preliminary assessment of potentially high wildfire risk areas was completed. Risk categories included in the final analysis were slope, aspect, precipitation, fuel models, rate of spread, fire intensity, and location of the wildland urban interface.

Environmental Factors

Environmental Factors such as slope, aspect, and precipitation all can have an enormous impact on the intensity of a wildfire. Therefore, areas with steep slopes, dry aspects, or lesser amounts of precipitation, relative to Yakima County, were given higher threat rankings.

Non-native or High Fire Risk Vegetation

Fuel type, or vegetation, plays an important role in determining wildland fire danger. All fuel types can and will burn under the right conditions; however, some fuel types pose more danger than others due to the intensity at which they burn, the horizontal and vertical continuity of burnable material, and firefighters' ability to modify the fuel complex in front of an approaching wildfire.

Vegetation types that are conducive to high rates of spread, lead to increased wildfire severity, or represent a fuel type capable of altering natural fire regimes were given a higher threat level rating. For Yakima County, lands identified as CRP fields or dominated by an introduced grass (i.e. cheatgrass) were given the highest threat ranking due to the potential impact fires in these fuel types can have on ecological function of native and unique ecosystems. Grass-shrub and prairie grass fuel models were also ranked high due to the potential impacts and safety issues from high rates of spread and close proximity to communities. Timber fuel models were also given relatively high rankings due to the potential long-term ecological (water quality, soil, weeds, etc.), social (air quality, recreation, etc.), and economic impacts (forest products, tourism, etc.) from high severity fires on the communities and surrounding landscape.

High Risk Fire Behavior

Due to the heavy fuel loads in places, much of the County could experience extreme wildfire behavior characteristics that result in very intense, stand replacing severity fires. On the other hand, much of the agriculture/grassland area will likely experience rapid rates of spread, particularly under the influence of wind. Areas with a high potential for extreme fire behavior based on Fire Behavior Analysis Tool modeling and local knowledge were given a higher threat level rating.

One of the factors contributing to potentially dangerous fire behavior is the preheating of fuels on steep slopes ahead of the flame front. Typically, fires spread very rapidly uphill, particularly in grass fuel types. Hot gases rise in front of the fire along the slope face preheating the upslope

vegetation and moving a grass fire up to four times faster with flames twice as long as a fire on level ground. This preheating of fuels, or radiant heat, is capable of igniting combustible materials from distances of 100 feet or more.⁴⁴

Wildland Urban Interface

Using the county-developed Wildland Urban Interface designation, areas categorized as intermix or interface conditions were given the highest threat level ranking due to the potential impacts to people, structures, and infrastructure.

Field Assessments

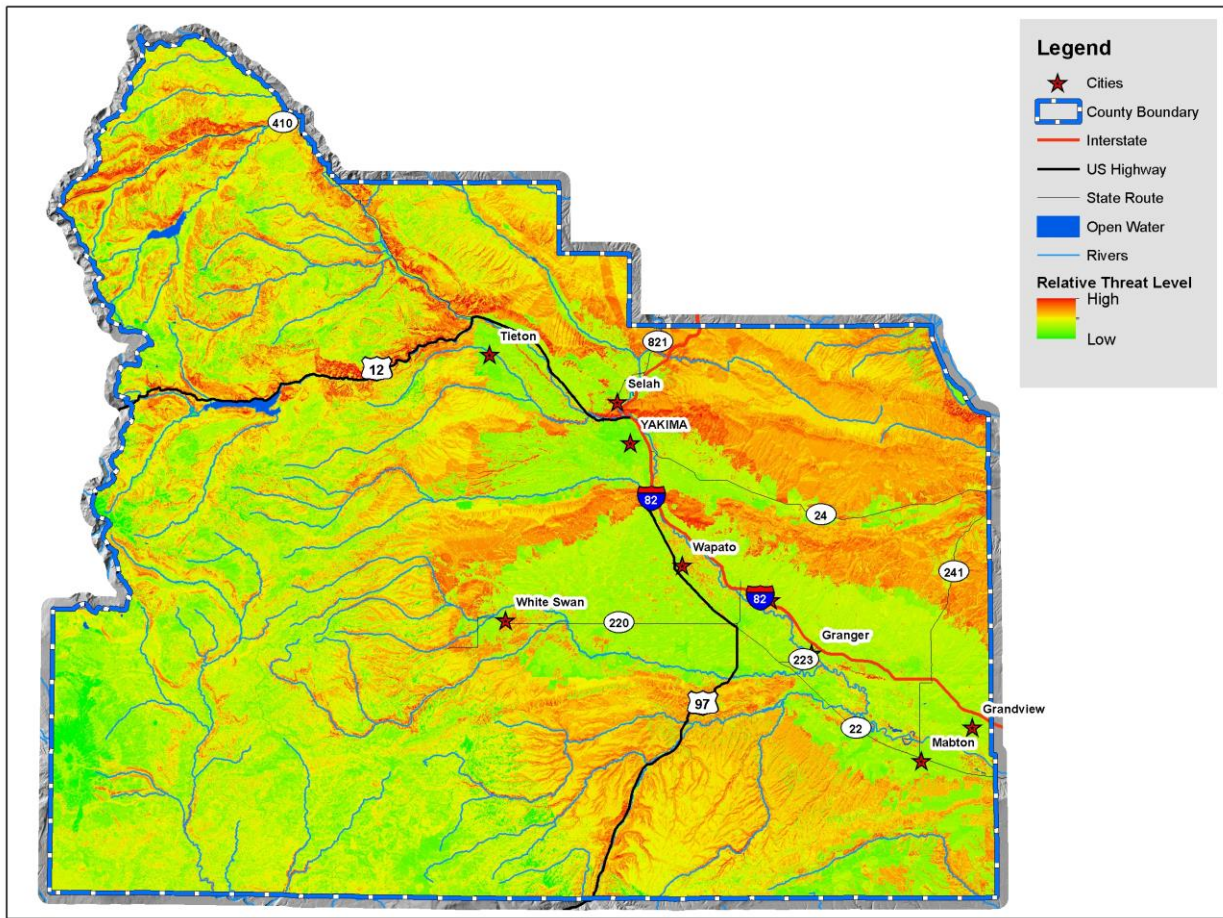
Based on the preliminary review of the risk categories, high risk areas were identified and mapped. Field assessments of these areas were conducted in June 2014 and included a guided tour of the Highway 410 area, Goose Prairie, and Bumping Lake. Fire control and mitigation specialists conducted thorough field assessments to evaluate the accuracy of the models and other data, assess the extent of risk and hazardous fuels, and develop specific hazardous fuels treatment project plans. Additionally, experts from the local fire protection districts, the Bureau of Land Management, U.S. Forest Service, and the Washington DNR were consulted in order to address specific areas of concern and document local wildfire suppression operational tactics.

Determination of Relative Threat Level

The various categories, or layers, were ranked based on their potential for impact to life, property, infrastructure, and unique ecosystems in Yakima County. The ranked layers were then analyzed in a geographical information system to produce a cumulative effects map based on the rankings. Each data layer was developed, ranked, and converted to a raster format using ArcGIS 9.3. The data layers were then analyzed in ArcGIS using the Spatial Analyst extension to calculate the cumulative effects of the various threats. This process sums the ranked overlaid values geographically to produce the final map layer. The ranked values were then color coded to show areas of highest threat (red) to lowest threat (green) relative to Yakima County. A map showing the identified Yakima County Relative Threat Level is also included in Appendix 1.

⁴⁴ “Wildfires and Schools”. 2008. National Clearinghouse for Educational Facilities. National Institute of Building Sciences. Available online at <http://www.ncef.org/pubs/wildfires.pdf>.

Figure 4.8. Yakima County Relative Threat Level Map.



Overview of Fire Protection System

Emergency response in Yakima and Benton Counties, despite the complexity of jurisdictions, is highly effective and most agencies report satisfaction with mutual aid arrangements. Coordinated response in the Northwest, Washington State, and Yakima County has evolved with past experiences to become a sophisticated organization of separate local, state, tribal, and federal entities coordinating and sharing resources to meet the challenge of delivering appropriate resources required for each fire incident. Documentation of all of these individual relationships is beyond the scope of this document, but general frameworks are provided with the [Master Cooperative Agreement](#) and the [State Mobilization Plan](#).

A majority of the populated areas in the County have a municipal or local fire protection district that covers both structural and wildland fire response. Yakima County is served by 7 municipal departments and 11 fire protection districts.

In Yakima County, the responsibility for managing and responding to wildfire varies according to land ownership. Resources available for initial attack on fire starts include the city fire departments, County fire districts, the U.S. Forest Service, BLM, Yakama Nation, the Washington DNR, and the JBLMYTC. Interagency coordination for federal and state resources is provided by the Central Washington Interagency Communications Center, located in

Wenatchee. Yakima County dispatch is made up of a lower and upper valley dispatch. Yakama Nation and the BIA have their own dispatch.

In addition to all State lands, including Department of Fish and Wildlife ownerships, the Washington DNR is responsible for wildland fire protection on privately-owned forested parcels. Due to the shortfall of DNR resources in Yakima County, the DNR maintains cooperative agreements with multiple fire protection districts to provide initial attack for the first 12 hours of the operational period.

The U.S. Forest Service, U.S. Fish and Wildlife Service, and BLM provide wildland fire protection, including initial attack, on their respective ownerships and participate in mutual aid agreements with the other agencies and local fire protection districts. Both the federal and state agencies are able to mobilize additional personnel, equipment, aircraft, and logistical support if necessary. However, depending on regional availability and other circumstances, delays in the arrival of additional suppression resources may be several hours to days.

Local fire districts use their own staff, equipment, and other resources to the best of their abilities for initial attack and often send resources to assist on fires outside the County during large events. While this system provides a support network regionally, the drawback is that fewer resources are available to each district or department's respective constituents. Also, during large events in other areas, it is likely that additional support will be limited or not readily available for local ignitions.

The JBLMYTC provides structural and wildland fire protection at the Yakima Training Center and has a full suite of resources at its disposal including aerial support. YTC participates in coordination meetings with adjoining fire districts on an annual basis and has mutual aid agreements with surrounding jurisdictions. If a mutual aid request is made, YTC will send a command officer and a brush truck. Aerial resources at YTC are not authorized to respond to fires not directly threatening Training Center. If a fire is threatening YTC, they will deploy all resources.

Figure 4.9. Fire Protection Responsibility.

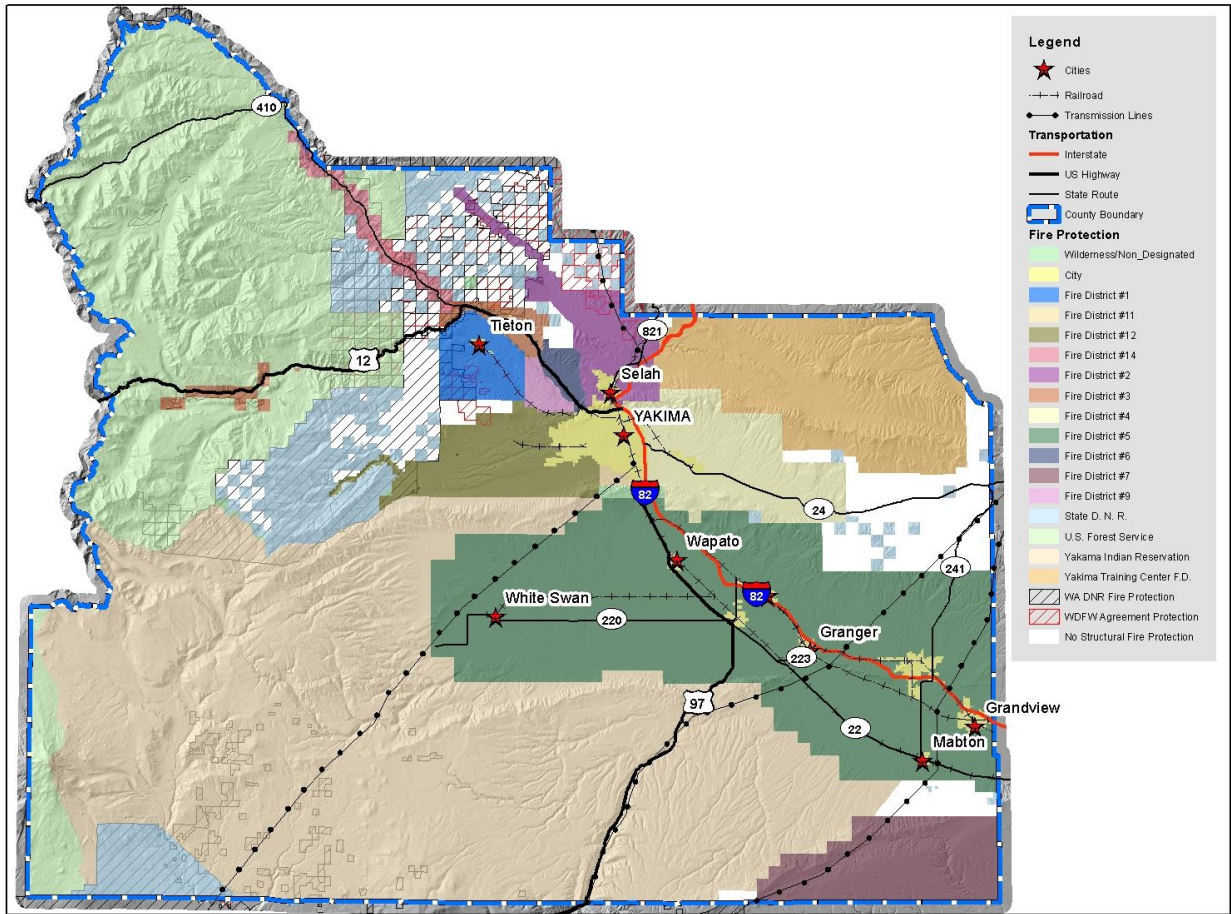


Table 4.6. Current Fire Protection Framework.

Federal Response	State Response	County Response	Municipal Response
<p>Federal fire response agencies are:</p> <p style="text-align: center;">U.S. Forest Service BLM Bureau of Indian Affairs U.S. Fish and Wildlife Service JBLMYTC Yakama Nation</p> <p>-Federal agencies are responsible for first response on federal lands</p> <p>-U.S. Forest Service, BLM, Bureau of Indian Affairs, and U.S. Fish and Wildlife Service participate in first response and co-op agreements with the Washington DNR</p>	<p>State fire response agencies are:</p> <p style="text-align: center;">Washington DNR Washington Department of Fish and Wildlife</p> <p>- DNR provides wildland fire protection on 151,160 acres of state lands; forestlands are first priority followed by shrub-steppe</p> <p>- DNR contracts with county fire departments/districts to provide wildland fire protection outside of district boundaries</p> <p>- DNR participates with first-response agreements with adjoining counties and in co-op agreements with U.S. Forest Service</p> <p>-DNR has mutual aid agreements with fire districts</p> <p>-DNR protects Washington Department of Fish and Wildlife ownerships through an internal agreement.</p>	<p>County fire response agencies are:</p> <p style="text-align: center;">Fire Protection Districts Office of Emergency Management\ Fire Marshal’s Office</p> <p>-11 fire protection districts</p> <p>- Provide structural fire protection within district boundaries and mutual aid to other Yakima County Fire Districts</p> <p>- Participate in DNR first response agreements to provide protection on state lands or private forest lands under DNR fire protection</p> <p>-Yakima County Office of Emergency Management coordinates and facilitates resources to minimize the impacts of fire emergencies and disasters on people, property, economy, and the environment.</p> <p>-The Yakima County Fire Marshal’s Office participates in fire investigations.</p>	<p>Municipal fire response agencies are:</p> <p style="text-align: center;">City fire departments</p> <p>- Provide structural fire protection within city limits</p> <p>-Small communities without fire departments contract with rural fire districts for emergency protection</p>

Local Fire Department and District Summaries

The firefighting resources and capabilities information provided in this section is a summary of information provided by the fire chiefs or representatives of the wildland firefighting agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. These synopses indicate their perceptions and information summaries.

Appendix 4 contains contact information and a complete available resource list for each of the following fire service organizations.

Fire District #1 (Coviche)

Chief: Sam Glanzer

Telephone: 509-678-4563

Email: highlandfire1@centurytel.net

Address: 51 Coviche City Road/PO Box 177, Coviche, WA 98923

Areas of Concern:

The District has recognized the following areas as being a priority for protection or as having significant wildland fire risk.

Unique Ecosystems

Structures

Infrastructure

- Hazardous Fuels and Defensible Space Concerns: Pioneer Way, northern edge of district

Cooperative Agreements: The Tieton Fire Department has been annexed into Fire District #1.

Fire District #2 (Selah)

Chief: Gary Hanna

Telephone: 509-698-7310

Address: 206 W Fremont Ave, Selah, WA 98942

Areas of Concern:

The District has recognized the following areas as being a priority for protection or as having significant wildland fire risk.

Unique Ecosystems

Structures

Infrastructure

- Hazardous Fuels and Defensible Space Concerns: Wenas (north of creek), Lookout Point Road, Collins Road, South Wenas Road, Box Canyon Road, Conrad Road
- Prescribed Fire Concerns: Selah (fires resulting from YTC training activities)

Cooperative Agreements: Yakima County Fire District #2 provides services to the community of Selah jointly with the Selah Fire Department.

Fire District #3 (Naches)

Chief: Daniel Mansfield

Telephone: 509-653-2380

Email: nachesfd@yahoo.com

Address: PO Box 24 or 102 Naches Avenue, Naches, Washington 98937

District Summary:

Yakima County Fire District #3 encompasses the valley floor to the ridge tops of the Naches Valley with its east end beginning at State Highway 12 milepost 193.5 and extending west to milepost 159. The section of the District from the interchange with Highway 410 west to the Upper Tieton Road is not contiguous. The District in this area limited to only where structures exist. The District includes all of the camps and cabin groups located around Rimrock Lake and Clear Lake.

The fire district is staffed by volunteer firefighters. There is one station located in the town of Naches with a fleet of eight apparatus consisting of 2 structural engines, 1 brush, 1 tender, 1 rescue/brush, 1 transport capable rescue, and 2 command vehicles.

There are typically approximately 250 - 300 calls for service per year within the Fire District. Approximately 80% of our calls are medical in nature consisting of motor vehicle accidents, ill/injured people, climbing falls, and water rescue. The remainder of the incidents are fire-related from automatic alarms to wildland fires or structure fires.

Issues of Concern:

Residential Growth: Individual developments continue to increase the number of occupied structures in the urban interface areas. These buildings represent an increase upon the demand for services from the Fire District and pose an increased risk to the safety of the residents and suppression forces when fire conditions require resources to be deployed.

Communications: The topography of the White Pass area makes communication with 9-1-1 Center/Dispatch difficult in some areas. Coverage with cellular phone is intermittent with some carriers and nonexistent with others making it difficult for those without access to a “land line” telephone to report a fire.

Burn Permit Regulations: Yakima Clean Air Authority regulates the issuance of both residential and agricultural burn permits in Yakima County. Residential permits are allowed between March 15 and October 15.

Other: As a volunteer-staffed fire service, it has become increasingly difficult to recruit and retain firefighters because of all the requirements placed on them and also all of the other volunteer opportunities in the community.

Areas of Concern:

The District has recognized the following areas as being a priority for protection or as having significant wildland fire risk.

Unique Ecosystems

Structures

Infrastructure

- Hazardous Fuels and Defensible Space Concerns: Lewis Road

Cooperative Agreements: Yakima County Fire District #3 has cooperative agreements with Washington DNR, Washington DFW, and the U.S. Forest Service. YCFD#3 also participates in a Yakima County-wide Mutual Aid Agreement and participates in the Statewide Fire Mobilization Plan. Fire District #3 provides services for the Naches Fire Department

District Needs/Wish List: The Fire District is currently exploring how to meet ongoing and future needs that include the development of additional water sources that are readily accessible to fire apparatus, fuel and fire risk reduction projects – including an active FireWise Community program - and recruiting and retention of volunteer firefighters.



Fire District #4 (East Valley)

Chief: Michael J. Riel

Telephone: 509-457-8615

Address: 2003 Beaudry Road, Yakima, Washington 98901

District Summary:

The East Valley Fire Department serves the residents of Terrace Heights, Moxee, and includes the area's east of the Yakima River from ridge-top to ridge-top. The District is bordered on the west by the cities of Yakima and Union Gap and on the north by the city of Selah and the Yakima Training Center. The District's east border is milepost 19 on State Route 24 and its southern border is Fire District #5, the Lower Valley Fire Department.

There are 4 stations covering 17,500 citizens in an area of 125 square miles. Additionally, Yakima County Fire District 4 also covers State Route 24 to the Yakima County line for medical emergencies, which is funded by EMS Levy Funds.

East Valley is a combination department of paid on-call and paid members. All members are required to maintain high levels of training and proficiency including NWCG Wildland Firefighter 2 and Annual Wildland Refresher Training.

In 2013, the East Valley Fire Department hired three additional full-time career firefighters (3 more positions planned for 2014) and began 24 hours per day, seven days per week coverage. Engine Company staff began working 48/96 hour shifts (2 days on, 4 days off). These improvements allowed for more consistent and reliable initial response capability.

The East Valley Fire Department continues to rely on its paid, on-call response personnel commitments and efforts for providing services. These staffing changes will reinforce the current coverage, significantly improve response times, and will fill any gaps that could occur with increasing call volumes.

Issues of Concern:

Residential Growth: The District's wildland prevention efforts have included pre-fire planning in urban interface homes located on the north and south ends of the district. The pre-fire assessments have included utilization of a rating system in an effort to evaluate structural protection needs. The District has recently moved to an additional program, Active 911, which displays on an aerial map view allowing a structure/property to be

color-coded to easily identify its potential threat rating and mitigation needs. The Fire District is currently in the process of updating those ratings and adding in new properties.

Areas of Concern:

The District has recognized the following areas as being a priority for protection or as having significant wildland fire risk.

Unique Ecosystems	Structures	Infrastructure
<ul style="list-style-type: none"> - Sportsman State Park - North Ridge from Selah Gap to the Yakima Training Center - South Ridge (Union Gap to Konnowac Pass) - Western boundary of the District 	<ul style="list-style-type: none"> - Hazardous Fuels and Defensible Space Concerns: adjacent to Yakima River, Hillcrest Drive, Upper Hillcrest, Kristi Lane, Coyote Creek Road, Megan Lane, Summerset Drive, Konnowac Pass Road, south end of District, Dyke Road, Marsh Road, Hartford Road, Rest Haven Road, Terrace Heights (North Ridge) 	<ul style="list-style-type: none"> - Roza Canal

Cooperative Agreements: Fire District 4, as well as districts throughout the county, relies on mutual aid during significant events. This is accomplished in a pre-determined Task Force procedure that dispatches mutual aid resources from multiple agencies.

The city of Moxee has been annexed into Fire District #4.



Fire District #5 (Lower Valley)
Chief: Brian Vogel
 Telephone: 509-829-5111
 Web site: ycfd5.org
 Address: P.O. Box 447, Zillah, WA 98953

District Summary:

On June 11, 1947 Yakima County Fire District No. 5 was formed following a vote of the people in the lower Yakima Valley. Beginning at approximately 400 square miles and growing to approximately 750 square miles of protected land today, Fire District 5 remains the largest fire district in Washington. Today, 180 dedicated volunteer fire fighters and 19 career personnel of Yakima County Fire District No. 5 protect approximately 45,000 rural residents from White Swan to Grandview. Owning over one hundred pieces of apparatus, the District provides a wide array of services to the public including, wildfire and structure fire protection, Basic Life Support, (BLS) medical services, and injury prevention.

Issues of Concern:

Residential Growth: The lower Yakima County is away from the hustle and bustle of Yakima, the county seat, but close enough to enjoy the benefits of the city. Over half of the district is on the Yakama Reservation where history and small town charm creates a weekend destination for many people that do not reside in the Fire District, whether it be historical visitation to Fort Simcoe State Park, Yakama Nation Heritage Center and museum, Legends Casino, or to enjoy our the bounties of the agriculture in the district

from wine tasting to apples and vegetables. Although the possibility for population growth may be slow, tourism is on the rise with more pressure being put on the services of the Fire District.

Communications: Yakima County Fire District 5 provides dispatch services to nine emergency departments beside themselves. Because of the large land mass and a distance of 45 miles between communities in the district, it is always a challenge to cover the outlying areas with emergency communications. Fire District 5 maintains three radio repeater locations with the intent to cover as much as the district that is possible with current funding and infrastructure.

Burn Permit Regulations: Fire permitting is done through Yakama Nation Fire Management and Yakima County Clean Air.

Areas of Concern:

The District has recognized the following areas as being a priority for protection or as having significant wildland fire risk.

Unique Ecosystems	Structures	Infrastructure
<ul style="list-style-type: none"> - Toppenish Wildlife Refuge - Byron Ponds wetland area - Mool Mool Spring 	<ul style="list-style-type: none"> - Hazardous Fuels and Defensible Space Concerns: Byron, white Swan, Medicine Valley Road, Towtnuk Road, Hawk Road, Simcoe Creek Road, North Fork Simcoe Creek, Agency Creek - Prescribed Fire Concerns: Wapato, Parker, & Toppenish - Limited Access Concerns: Holmason Road, northwest corner of District 	<ul style="list-style-type: none"> - Irrigation Canals

Cooperative Agreements: The District has mutual aid agreements with all of the fire departments in the County and response agreements with Bureau of Land Management, Yakama Nation, and Bureau of Indian Affairs. The District is also a party to the County-wide Mutual Aid Agreement and participates in the Statewide Fire Mobilization Plan. The District works closely with the U.S. Fish and Wildlife Service along with the Washington Department of Fish and Wildlife. The district contracts fire protection for the Town of Harrah, Fort Simcoe Job Corp, and Fort Simcoe State Parks.

District Needs/Wish List: As fire personnel in the volunteer ranks continue to dwindle and budget is not there for career firefighters, the District is always striving to have the most modern equipment possible for its dedicated firefighters to respond with. This includes the need to continually evaluate the response tactics which will reduce heavy personnel needs and personnel time on the fire. The District’s dozer is such a tool where the district firefighter’s burn off of a secure dozer control line and then one experienced operator can fight fire with a front monitor from inside the cab before getting out to finish mop-up. This reduces both time and labor needs. Since the district has 700 square miles to cover, 1 dozer is often not enough. To be successful an additional Dozer with transport would be on the District’s wish list. Also, with water supplies short at times, tenders are always premium to have and on the District’s list. Our tenders double as suppression units on wildfires and water tenders on structure fires. Specialized tools for fuel

treatment in the District combined with the District’s prevention program is always at the short end of the budget process and always in need.

Fire District #6 (Gleed)

Chief: James Kohl

Telephone: 509-966-5060

Address: 81 Gleed Road, Yakima, WA 98901

Areas of Concern:

The District has recognized the following areas as being a priority for protection or as having significant wildland fire risk.

Unique Ecosystems

Structures

Infrastructure

- Hazardous Fuels and Defensible Space Concerns: south of Highway 12, Mitchell Drive

Fire District #7 (Glade)

Chief: Rhon Raschko

Telephone: 509-894-4034

Email: YakimaFire7@yahoo.com

Address: PO Box 49, Bickleton, WA 98935

District Summary:

Yakima County Fire District #7 comprises the remote areas between Mabton, Bickleton, and Alderdale. The Fire District operates under the name of “Yakima Fire #7/Glade” and is staffed predominantly by volunteer firefighters. There is one fire station on Ridge Road and one station on Alderdale Road. The Fire District operates a variety of brush trucks and tenders.

There are approximately 5-10 calls for service per year within the Fire District. While few of them are for brush fires, the topography and fuel content represents a significant potential hazard during the dry season each year.

Issues of Concern:

Communications: The topography and infrastructure of Yakima County Fire #7 create numerous areas where radio communication between the 9-1-1 Center and emergency responders is difficult or impossible. Commercial cell phone service is not available in many areas, making it difficult for those without access to a “land line” telephone to report a fire. In addition, there are no mass media outlets located within our District; thus, the dissemination of emergency messages to the public (such as evacuation routes or “shelter in place” instructions) is very difficult.

Burn Permit Regulations: Yakima County Fire #7 follows the guidelines implemented by the Yakima County Clean Air Authority, which *do not* work for our unique District.

Other: As a volunteer-staffed fire service, the community’s demographics impact the ability to recruit and retain firefighters. As the population ages, willing and able volunteers become an increasingly scarce resource.

Cooperative Agreements: Yakima County Fire District #7 has Mutual Aid agreements with ALL neighboring Districts.

District Needs/Wish List: The Fire District is planning to purchase much needed radios for better communications and to improve firefighter safety. In the mid-term, the District would like to replace/update our water tender and one brush truck 770.

Fire District #9 (Naches Heights)

Chief: Chris O’Dell

Telephone: 509-965-7292

Address: 5000 Naches Heights Road/PO Box 298, Cowiche, WA 98923

Areas of Concern:

The District has recognized the following areas as being a priority for protection or as having significant wildland fire risk.

Unique Ecosystems

Structures

Infrastructure

- Hazardous Fuels and Defensible Space Concerns: South Naches Road, south of Naches Road, South Fork Cowiche Creek

Fire District #10 (Fruitvale)

Chief: Dave Willson

Telephone: 509-575-6060

401 N Front Street, Yakima, WA 98901

District Summary:

The Yakima Fire Department provides fire and emergency services to Yakima County Fire District #10.



Fire District #12 (West Valley)

Chief: Dave Leitch

Telephone: 509-966-3111

e-Mail: dleitch@westvalleyfire.com

Address: 10000 Zier Road, Yakima WA 98908

District Summary:

Yakima County Fire District 12, or West Valley Fire Department, covers 90 square miles west of the City of Yakima. Common-named small communities of Harwood, Tampico, Wiley City, and Ahtanum are located in the District’s response area. The District’s southern border is shared with the Yakama Nation and the west border is shared with the Washington Department of

Natural Resources. A large area of Wildland Urban Interface exists on the southern, western, and northern borders. Heavy fire occurrence occurs in the forested areas of the Ahtanum State Forest.

Suburban and rural development gives way to the extensive irrigated agriculture lands which is predominantly fruit trees. The lands transition to shrub steppe and timber with checker boarded ownership of private and state lands. The exception is that the entire southern edge is managed by the Yakama Nation/BIA.

There are approximately 750 calls for service in the District annually. The response is made up of career and on-call, part time firefighters. There are four fire stations strategically located throughout the District housing structural fire engines, water tenders, wildland engines, medical rescues, a rehabilitation bus, air truck, ATV's, and snow machines. The inter-mix of structures, shrub steppe, timber, scrub oak, and a large state recreational area creates abundant opportunities for significant hazards and risks associated with human behavior.

Issues of Concern:

Residential Growth: A common issue in most fire district's like District 12 is the growth of residential structures in the remote and forested areas often by individual and families that believe city-level services are available at their rural homes. Fire districts are not financially situated to provide the personnel or equipment needed to mitigate large wildfires or protect homes and people without assistance.

Communications: The District utilizes a radio repeater site for tactical communications due to the terrain and vast area of coverage. This system is outside of the normal county radio systems used for paging and alerting of incidents. Commercial cellular service is nonexistent in many of the western edge locations. The 911 dispatch center is not capable of reverse 911, which would advise residents of the need to evacuate and possible shelter locations.

Burn Permit Regulations: Open burning regulations are not part of the Fire District's governance. Washington DNR has a burn ban in effect during the dry summer months. County government can issue burn regulations and bans as needed when fire resources are drawn critically low or when burning conditions are at a critical level.

Other: Water supply in rural and remote areas are nonexistent and a hindrance to fire suppression efforts. Incipient fires during initial attack often grow larger due to the lack of suppression water and sufficient firefighter response. The area lacks rivers, streams, ponds, and lakes sufficient to use air resources efficiently. Many locations along the Ahtanum corridor do not provide for alternative access routes. Safety zones in these areas are rare and not advisable for large groups of people.

The district's firefighting force uses the NWCG Red Card certification process. Training and supervision are commiserative to the expected skill sets needed to respond to wildfires in different fuel types and environments.

Areas of Concern:

The District has recognized the following areas as being a priority for protection or as having significant wildland fire risk.

Unique Ecosystems

Structures

Infrastructure

- Hazardous Fuels and Defensible Space Concerns: Summitview Road, South and North Fork Ahtanum, Tampico Park Road, Ahtanum North Fork Road, South Ahtanum Road, Ahtanum Road, Ahtanum Creek, Songbird Lane
- Limited Access Concerns: South 40th Avenue

Cooperative Agreements: Yakima County Fire District 12 is a member of the Yakima County Fire Chief’s Mutual Aid Agreement Plan. Several adjacent departments respond under an Automatic Aid Agreement. Inter-Local Agreements are also in place with the Yakama BIA, Washington DNR, U.S. Forest Service, and the State Fire Mobilization Plan.

District Needs/Wish List: The Fire District is constantly looking for ways to improve the safety of its firefighters and the response to those in need as well as ways to prevent future incidents. Financial support from patrons, grants, or matching funds is used to augment the current budget. Firefighter training, suppression equipment, and water storage and delivery are some of the top priorities as we see more growth and expansion into the urban interface areas.

Fire District #14 (Nile)



Chief: Steve Smith
 Telephone: 509-658-2212
 Email: stevemary8961@yahoo.com
 Address: 14550 State Route 410, Naches, WA 98937

District Summary:

The District is responsible for handling all fire, emergency medical services, and rescue calls within a 200 square mile area. The District covers both sides of State Route 410 extending from the intersection with US Highway 12 and westward for 21 miles to just east of the Bumping Lake Road. The District medical service area includes significant response to the Wenatchee National Forest and DNR lands bordering the District. Current population of full time residents is 1,386. The population increases significantly during recreation seasons with visits by those who are hunting, fishing, camping, snowmobiling, skiing, etc.

Issues of Concern:

Residential Growth: More new construction of homes in the District is encroaching into wildland/timber areas that at times can be difficult to access safely by fire apparatus.

Communications: Radio communications can be affected by our mountainous area, hills, and valleys. Two repeaters are used in our response area.

Burn Permit Regulations: Burn permits are obtained through county-approved vendors for landowners. Yakima County Clean Air Authority, DNR, and Forest Service implement burn bands during the year.

Areas of Concern:

The District has recognized the following areas as being a priority for protection or as having significant wildland fire risk.

Unique Ecosystems

Structures

Infrastructure

- Hazardous Fuels and Defensible Space Concerns: Goose Prairie, Bumping Lake, Highway 410, Cliffdell

Cooperative Agreements: The District has an agreement for mutual aid with both the DNR and the U.S. Forest Service. There are also mutual aid agreements with all Yakima County Fire Districts.

District Needs/Wish List: The District's #1 priority is to build a new fire station to meet the needs of the District. Training for the District firefighters is ongoing and a priority. Helping educate home owners to mitigate fire risk is important as well. Volunteer recruitment and training for those recruits is needed as well.



Washington Department of Natural Resources

Chief: Dave Brown, Alpine District Fire Management Officer

Telephone: 509-925-0942

Email: dave.brown@dnr.wa.gov

Address: 713 Bowers Road, Ellensburg, Washington 98926

District Summary: The Washington Department of Natural Resources (DNR) is the largest on-call fire department in the State with 1,200 permanent and temporary employees that fight fire on more than 12 million acres of private and state-owned forest lands. The DNR's fire protection and safety equipment requirements help local Fire Protection Districts respond to wildfires. The DNR also works with the National Weather Service to provide the fire weather forecasts and fire precaution levels that firefighters, landowners, forest industry rely on.

The Washington DNR maintains a statewide fire support system of which the Southeast Region of the DNR supports Yakima County with resources to educate the public on fire risks and resources to suppress fires on private and state lands that are under various "patrol assessment" structures.

Staffing:

- 1 NRS-2 fulltime fire staff, Supervisor (Unit Fire Manger, working title)
- 1 NRS-1 fulltime fire staff, Ahtanum Crew Superintendent
- 1 9-month Permanent w/seasonal layoff, Ahtanum Crew Foreman
- 3 Seasonal Squad Bosses, Ahtanum
- 15 Seasonal Fire Fighters, Ahtanum
- 4 Seasonal Engine Leaders, Engines
- 6 Seasonal Fire Fighters, Engines

Issues of Concern:

Residential Growth: Residential growth is a growing concern as it presses on the outskirts of what has been the wildland urban interface in the county. Pressure from new residents creates a number of issues requiring cooperation with the County Fire Marshall's Office and local fire districts including assessment of new risks, education of residents, and expansion strategies on how best to employ resources to protect personnel, residents, property, and fire resources.

One aspect of public outreach is the Washington DNR's Landowner Assistance Program, which assists in educational opportunities from community level Firewise seminars to one on one assessments of individual properties.

Communications: Washington DNR maintains numerous communications sites throughout the state providing communications with department resources as well as other agencies. The Southeast Region maintains and coordinates communications through the Central Washington Incident Command Center.

Burn Permit Regulations: The Washington DNR maintains burning regulations throughout the State in conjunction with the Washington Department of Ecology. The DNR will issue burning permits on all silvicultural burns and will issue any burn bans, if necessary, on lands regulated by the DNR.

Other: The Washington DNR conducts a number of Firewise meetings with various communities throughout the year as well as assists communities in planning and writing of Firewise plans or Community Wildfire Protection Plans (CWPPs).

Cooperative Agreements in Yakima County: The Washington DNR maintains a number of mutual aid agreements with fire districts within Yakima County as well as with the U.S. Forest Service.

District Needs/Wish List: The Washington DNR wants to maintain a safe environment when it responds to fire events. In the past few years, DNR has expanded the Department's resources for assisting landowners in developing defensible space alternatives in an effort to promote the Fire Adaptive Communities concepts.



Bureau of Land Management

Spokane District Mission Statement: The mission of the Spokane District is to share our unique capability and interest in sustaining the full diversity of natural and cultural landscapes across Washington State and invite their discovery and use. This includes protecting the natural resources, such as water for fish and wildlife; preserving environmental and cultural values on the lands they manage; providing for multiple uses, that include some commercial activities; and enhancing opportunities for safe and enjoyable outdoor recreation. The Spokane District also assesses energy and mineral resources and works to ensure that their development is in the best interest of the public. Another major responsibility is to ensure consideration of Tribal interests and administration the Department of Interior's trust responsibilities for American Indian Reservation communities.

District Summary: Up through the 1970's, BLM's policy was to divest ownership of all federal public (BLM) lands in the state of Washington. But in 1980, at the height of the Sage Brush Rebellion (a social movement to give control over federal lands to the states and local authorities), Washington voted to have the public lands remain under federal ownership and

management. In the 1980 general election, the state put a measure on the ballot asking voters if the state constitution should “be amended to provide that the state no longer disclaim all rights to unappropriated federal public lands.” Approximately 60% of the people and the majority in every county voted no, signaling to BLM that there was strong support for continued federal management of the public lands in the state.

In response to this vote, the Director of BLM approved a proposal by the District to begin a process of consolidating the scattered BLM lands around the state. Today the Spokane District BLM manages over 425,000 acres across eastern Washington for multiple uses, providing wildfire protection, suppression, support, and training for the BLM managed lands and other federal/state/county agencies.

The Spokane District Fire Management Program currently consists of two type six wildland engines (300 gallons) with two full time Engine Captains, four engine crew members, one ten person hand crew, one Fuels Technician, Seasonal Dispatcher, Assistant Fire Management Officer (AFMO), and a Fire Management Officer (FMO). The hand crew is stationed in Spokane at the District office and the engines in Wenatchee at the field office. There are approximately 16 other specialist (staff) from across the district that assist the Fire Management Program in wildland and/or prescribed fire efforts. With the District's scattered ownership pattern, the engines are usually on scene after initial attack forces have arrived. Our engines and personnel are available for off District and out of state fire assignments that aide in support, training, and experience.

Cooperative Agreements: The Spokane District BLM has Coop agreements with the Colville National Forest, US Fish and Wildlife Service, WA DNR, Spokane County FDs #3, 4, 9, 10, Spokane Valley FD, Benton County FD #1, Chelan County FDs #1, 6, Douglas FDs #2, 4, 5, 15, Franklin County FD #5, Grant County FD #5, Lincoln County FDs #1, 7, and Yakima County FDs #4, 5.

Joint Base Lewis McChord Yakima Training Center

Chief: Rick Seward

Aerial resources at JBLMYTC will not respond off Base unless the fire threatens JBLMYTC. Aerial resources are only available to local fire districts through the state mobilization process.

JBLMYTC has extensive firefighting resources including mutual aid agreements with surrounding fire departments and federal and state agencies, but large portions of the lands adjacent to JBLMYTC are not within the jurisdiction of any fire district. There are approximately 23,000 acres to the West mostly in Kittitas County that are non-forested (and hence not covered by state department of natural resources) and not within the jurisdiction of a county or municipal fire protection district. A larger area to the southeast in Yakima and Benton Counties includes approximately 85,000 acres. A 2009 wildfire burned 40,000 acres in this zone causing one death, destroying several structures, and removing large areas of sagebrush cover. The expansion of rural residences here increases potential threats to life and property, the complexity of fire suppression efforts, and the wildfire threat to sage-grouse and their habitat. Cross-boundary fire prevention and suppression efforts are imperative in these areas.

U.S. Forest Service

District Summary: The Okanogan-Wenatchee National Forests (OWF) cover nearly 4 million acres of forested lands on the eastern slopes of the Cascade Mountains. National Forest lands span from the Canadian border south to the Yakima Indian Reservation and from the Cascade crest east to the Columbia River on the Wenatchee National Forest and to the Okanogan County line on the Okanogan National Forest. The OWF has 7 Ranger Districts. There are approximately 900 red carded Forest Service employees that participate directly in fire suppression or support fire suppression activities.

U.S. Fish and Wildlife Service

District Summary: The mission of the National Wildlife Refuge System is to preserve a national network of lands and waters for the conservation and management of fish, wildlife and plant resources of the United States for the benefit of present and future generations.

The Mid-Columbia River NWRC lies in the heart of the Columbia Basin with must Refuge lands in close proximity to the Columbia River (hence the name). The Complex is comprised of 8 Refuges and 1 National Monument covering over 265,000 acres: Columbia NWR, Hanford Reach National Monument/Saddle Mountain NWR, McNary NWR, Umatilla NWR, Cold Springs NWR, McKay NWR, Conboy NWR and Toppenish NWR.

The Mid-Columbia River NWRC shares common ecological elements between the different refuges. Vegetation, wildlife and wildland fuels are generally very similar between the refuges with the exception of Conboy NWR.

The Mid-Columbia River NWRC fire program serves the 8 refuges (Columbia NWR, Toppenish NWR, Cold Springs NWR, McKay NWR, Umatilla NWR, McNary NWR, Hanford NWR and Conboy NWR). The Mid-Columbia River NWRC consists of one Type 4 Engine (800 gallons), one Type 5 Engine (500 gallons), one Type 6 Engine (300 gallons), and one Type 3 Fire Boat. The staffing consists of a Fire Management Officer (FMO), an Assistant Fire Management Officer (AFMO), 2 Fire Operations Specialist (FOS), 3 Engine Captains and a seasonal staff of 9. One FOS and Type 5 Engine is stationed at Columbia NWR in Othello, WA, along with 3 seasonal firefighters. The rest of the staff (FMO, AFMO, FOS and 6 seasonals) is stationed at McNary NWR. The complex responds to an average of 70 fires a year and burns approximately 1000 – 2000 acres a year in both mechanical and prescribed fire treatment.

Cooperative Agreements: The Mid-Columbia River NWRC has a cooperative agreement with Hanford Fire Department and pending memoranda of understanding with Yakima County Fire District #5 and Yakama Fire Management.

Fire Protection Issues by Role

The following sections provide a brief overview of the many difficult issues currently challenging Yakima County in providing wildland fire safety to citizens. These issues were discussed at length both during the committee process and at several of the public meetings. In most cases, the committee has developed action items (Chapter 6) that are intended to begin the process of effectively mitigating these issues.

Residents and Homeowners

Public Wildfire Awareness

As the potential fire risk in the wildland-urban interface continues to increase, it is clear that fire service organizations cannot be solely responsible for protection of lives, structures, infrastructure, ecosystems, and all of the intrinsic values that go along with living in rural areas. Public awareness of the wildland fire risks as well as homeowner accountability for the risk on their own property is paramount to protection of all the resources in the wildland-urban interface.

Fire and Emergency Responders

Rural Fire Protection

People moving from mainland urban areas to the more rural parts of Yakima County, frequently have high expectations for structural fire protection services. Often, new residents do not realize that the services provided are not the same as in an urban area. The diversity and amount of equipment and the number of personnel can be substantially limited in rural areas. Fire protection may rely more on the landowner's personal initiative to take measures to protect his or her property. Furthermore, subdivisions on steep slopes and the greater number of homes exceeding 3,000 square feet are also factors challenging fire service organizations. In the future, public education and awareness may play a greater role in rural or interface areas. Great improvements in fire protection techniques are being made to adapt to large, rapidly spreading fires that threaten large numbers of homes in interface areas.

Pre-planning in High Risk Areas

Although conducting home, community, and road defensible space projects is a very effective way to reduce the fire risk to communities in Yakima County, recommended projects cannot all occur immediately and many will take several years to complete. Thus, developing pre-planning guidelines specifying which and how local fire agencies and departments will respond to specific areas is very beneficial. These response plans should include assessments of the structures, topography, fuels, available evacuation routes, available resources, response times, communications, water resource availability, and any other factors specific to an area. Community-based CWPPs such as the Highways 410 and 12 and Cowychee Mountain CWPP often contain pre-planning information useful to fire managers. All of these plans should be available to the local fire departments as well as dispatch personnel.

Volunteer Fire Personnel

The fire departments of today are struggling to recruit and retain firefighters. The trend for several years, in many volunteer fire departments, is that membership has continued to decrease. This can be attributed to several reasons including the need for two wage earners in a house hold to support their family, lack of desire from today's generation, and the tremendous amount of time spent in training to satisfy the ever-increasing regulations from state and federal agencies. Whether it be job and family commitments combined with hobbies or competition with other volunteer organizations, it comes down to the fact there is very little time left for being a volunteer firefighter. This is exacerbated by the added stress of emergencies and inherent

dangers of the job, not to mention that our society is generally less appreciative of the commitment and sacrifices made by volunteer firefighters.

Today's fire departments, career and volunteer, find themselves in a position where there is an increased demand for their services, but are confronted with increasing operational costs and overall less revenue. In the rural setting where revenue is limited and volunteers are limited, this can add up to a fire service that is stretched very thin.

Leadership Turnover

A critical issue for Yakima County is the sheer turnover in leadership in various land management and fire response entities. As with any organization or business, building relationships and trust among staff and colleagues takes time. Leadership turnover is also prevalent among most state and federal land management agencies as promotions within the agencies generally require staff to relocate. This problem has been noted by numerous collaborative groups working on natural resource issues. Forestry and other natural resource-based professions are also suffering from an aging demographic as fewer young people enter the field.

Civic and Community Leaders

No Man's Land

One challenge for firefighters in Yakima County is the presence of non-jurisdictional lands, or no man's land, particularly on rangelands where swift initial attack is essential to preventing rapid fire spread. In Yakima County there are approximately 81,000 acres of such land outside of the Yakama Nation Reservation. Most of these acres are adjacent to over 147,000 such acres in Benton County where fires regularly cross county lines. The presence of non-jurisdictional areas can lead to delayed response, jurisdictional confusion, disorientation, and lack of coordination that puts residents and firefighters in great danger. This issue remains a source of tension between residents and fire emergency responders in Yakima County.

Designers and Developers

Urban and Suburban Growth

One challenge Yakima County faces is the large number of houses in the urban/rural fringe. Since the 1970s, a segment of Washington's growing population has expanded further into traditional rural or resource lands. The "interface" between urban and suburban areas and the resource lands created by this expansion has produced a significant increase in threats to life and property from fires and has pushed existing fire protection systems beyond original or current design or capability. This growth has also increased pressure on native ecosystems and the associated plant and animal life as habitats are fragmented or removed.

Forest and Land Managers

Protection of the Greater Sage-grouse Habitat

Joint Base Lewis-McChord Yakima Training Center, the Yakama Nation, Bureau of Land Management, Natural Resource Conservation Service, U.S. Fish and Wildlife Service, and Washington Department of Fish and Wildlife are all working to recover and reestablish the greater sage-grouse in Yakima County. Washington State listed the grouse as endangered in 2001 and completed a recovery plan in 2004. The plan identified fire as one of the greatest threats to the grouse. The federal government ruled the grouse a candidate for listing under the Endangered Species Act (ESA) in 2010 and again cited the cycle of invasive species and repeated fires as a prime threat (75 FR 13910). The annual grass/fire cycle precludes the reestablishment of sagebrush and reduces or eliminates native forbs and grasses essential for sage-grouse food and cover. The risk of Greater Sage-grouse habitat loss from wildfire remains great. There are two established populations in Washington, one in Douglas County, and the other at JBLMYTC. There are also a handful of birds at Swanson Lakes and in the East Satus on the Yakama Nation Reservation. Keeping wildfires as small as possible in sage-grouse habitat areas is of mutual interest between land managers and emergency responders. Maintenance of nesting and brood rearing habitat will always pose a fuel conundrum because the conditions required are a buildup of fuels. However, keeping fires small will ensure that at least some habitats in the necessary amounts for each life stage of the grouse remain.

Washington State Smoke Management Plan

The DNR, DOE, U.S. Forest Service, National Park Service (NPS), Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), participating Indian nations, military installations (DOD), and small and large forest landowners have worked together to deal with the effect of outdoor burning on air. Protection of public health and preservation of the natural attractions of the state are high priorities and can be accomplished along with a limited, but necessary, outdoor burning program.

The Washington State Smoke Management Plan pertains to DNR-regulated silvicultural outdoor burning only and does not include agricultural outdoor burning or outdoor burning that occurs on improved property. Although the portion of total outdoor burning covered by the Smoke Management Plan is less than 10 percent of the total air pollution in Washington, it remains a significant and visible source.

The purpose of the Washington State Smoke Management Plan is to coordinate and facilitate the statewide regulation of prescribed outdoor burning on lands protected by the DNR and on unimproved, federally-managed forest lands and participating tribal lands. The plan is designed to meet the requirements of the Washington Clean Air Act.

The plan provides regulatory direction, operating procedures, and advisory information regarding the management of smoke and fuels on the forest lands of Washington State. It applies to all persons, landowners, companies, state and federal land management agencies, and others who do outdoor burning in Washington State on lands where the DNR provides fire protection, or where such burning occurs on federally-managed, unimproved forest lands and tribal lands of participating Indian nations in the state.

The Smoke Management Plan does not apply to agricultural outdoor burning and open burning as defined by Washington Administrative Code (WAC) 173-425-030 (1) and (2), nor to burning done "by rule" under WAC 332-24 or on non-forested wildlands (e.g., range lands).⁴⁵

Cheatgrass

Fire behavior and fire regimes have been altered due to the proliferation of cheatgrass (*Bromus tectorum*) and other invasive species. Cheatgrass invades disturbed open sites and can dominate an area. Cheatgrass ripens and cures much earlier in the season when compared with native species, thus extending the fire season.⁴⁶ According to some statistical analysis, cheatgrass dominated ranges are about 500 times more likely to burn than a native species dominated rangelands.⁴⁷ Fire return intervals in steppe and shrub-steppe fuel types, pre-European settlement was typically between 32 and 70 years.⁴⁸ In certain Great Basin rangelands, the fire return interval is now less than 5 years on rangelands dominated by cheatgrass.⁴⁹

Forest Health Issues

The Washington State Legislature has established that the state faces serious forest health problems, primarily in eastern Washington, where forest are overcrowded and species composition has been greatly altered compared to historic reference conditions. Insect outbreaks and wildfires are more severe and extensive than would have occurred historically due to the altered structure and composition of eastern Washington forests. Both Yakima and Klickitat Counties have been identified as a "Forest Health Hazard Warning Area" primarily due to pine bark beetle activity. According to the Forest Health Highlights in Washington – 2013 report, the Washington DNR Technical Advisory Committee recommendation is to:

“ . . .to improve the resiliency of dry mixed conifer and ponderosa pine forest is to thin forests, reduce the number of trees to the level the site can support and change the species composition to favor more ponderosa pine and western larch.”⁵⁰

⁴⁵ State of Washington Department of Natural Resources. *Smoke Management Plan*. 1993 (Revised 1998). Available online at http://www.dnr.wa.gov/Publications/rp_burn_smtoc.pdf. Accessed April 2014.

⁴⁶ Pellant, Mike. 1996. Cheatgrass: The Invader That Won the West. Idaho State Office: Bureau of Land Management. 23p.

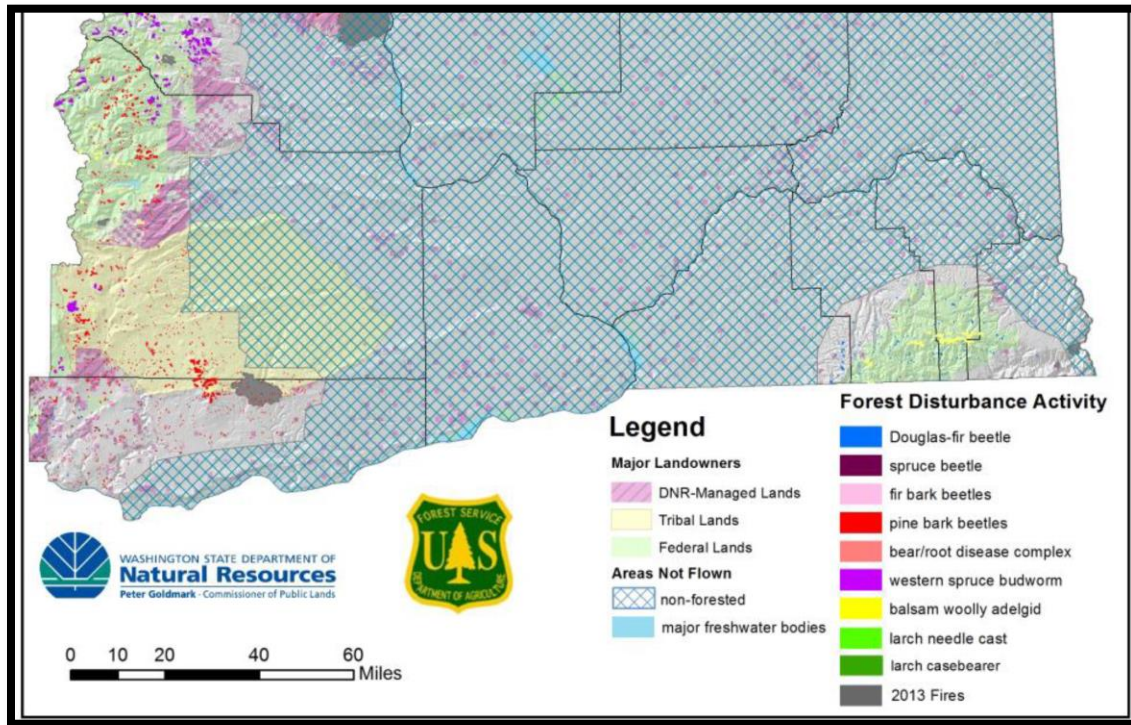
⁴⁷ Platt, K.; Jackman, E.R. 1946. The cheatgrass problem in Oregon. Extension Bull. 668. Corvallis, OR: Oregon State College. 48 p.

⁴⁸ Wright, H.A.; Neuenschwander, L.F.; Britton, C.M. 1979. The role and use of fire in sagebrush and pinyon juniper plant communities: a state-of-the-art review. Gen. Tech. Rep. INT-58. Ogden UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 48 p.

⁴⁹ Pellant, Mike. 1990. Unpublished data on file at: U.S. Department of Interior, Bureau of Land Management, Idaho State Office, Boise, ID.

Dozic, Aleksandar, et al. 2013. Forest Health Highlights in Washington – 2013. Washington DNR and U.S. Department of Agriculture, Forest Service. Available online at http://www.dnr.wa.gov/ResearchScience/Topics/ForestHealthEcology/Pages/rp_foresthealth.aspx.

Figure 4.10. 2013 Forest Disturbance Activity in Eastern Washington.⁵¹



Current Wildfire Mitigation Activities

Fire District Assistance Programs

There are multiple assistance programs available to fire districts in Yakima County through the Washington DNR and other state and federal agencies including Ready Reserve Wildland Fire Training, Wildland Fire Assistance Grants, Rural Fire Assistance Grants, Federal Excess Property Program, etc. The purpose of these programs is to provide local and rural fire districts in Washington State opportunities to establish, develop, improve, and maintain their wildland firefighting capabilities. These programs can make several types of training, equipment, and other assistance more affordable to local fire districts.

North Yakima Conservation District Chipper Program

North Yakima Conservation District, in cooperation with the Highways 410 and 12 CWPP steering committee, has developed a program to assist landowners in the Highway 410 and 12 corridors within Yakima County. The program is designed to reduce wildfire risks in those areas by providing information to landowners on how to reduce wildfire risk on their property and by promoting fuels reduction and creation of defensible space around structures.

The program involves three principal steps and is free to participating landowners.

⁵¹ Dozic, Aleksandar. 2013. Forest disturbance map of Eastern Washington composed from 2013 aerial survey data. Forest Health Highlights in Washington – 2013. Washington DNR. Available online at http://www.dnr.wa.gov/ResearchScience/Topics/ForestHealthEcology/Pages/rp_foresthealth.aspx.

1. Firewise Assessment – assessments are conducted by conservation district staff and are designed to provide landowners with information about specific actions that can be taken to reduce wildfire risk on their property.
2. Vegetation Management – landowners use what they learned during the assessment to remove or prune hazardous vegetation from around their homes or driveways and stack the resulting debris in piles to be chipped.
3. Chipping - the Conservation District hires and schedules a wood chipping crew to chip and dispose of the landowner’s debris piles.

Washington DNR Landowner Assistance Program

The Washington DNR has a Landowner Assistance (LOA) Program that provides small forestland owners with opportunities for both timber and fuels management of their property. The timber management side provides landowners with on-site visits and consultations to guide landowners in the proper management of their property. The fuels management side was developed to help small forest landowners protect their homes from wildfires through the use of homeowner assessments and the fuels reduction project prescriptions. Local foresters provide information to landowners through the assessments on how to reduce those risks and prescribe fuel reduction treatments and techniques to create defensible space around their homes and improve ingress/egress to their homes. The grant-funded LOA office has a 50/50 cost share program in place that provides up to 50% reimbursement to landowners for completion of fuels reduction work on their property.

Fire Adapted Communities (FAC)

“Fire Adapted Communities” are neighborhoods located in wildfire-prone areas that can survive wildfire with little or no assistance from firefighters. During a wildfire, FACs reduce the potential for loss of human life and injury, minimize damage to homes and infrastructure and reduce firefighting costs. This program offers information, promotional materials, and articles that can be customized for a specific area. This program also offers videos and a display system that is available for use at community events, meetings, etc.⁵² The Yakima Valley Fire Adapted Communities Coalition (YVFACC) is a relatively new effort to link homeowners with emergency responders, land managers, and community leaders to come up with better solutions for wildfire issues.⁵³

In the spring of 2014, several members of the YVFACC, including Highways 410 and 12 CWPP representatives and area landowners, Yakima County Fire Marshal’s Office, and local fire districts, participated in their first annual National Community Wildfire Preparedness Day, which took place in the Highway 410 community near Naches, Washington.

⁵² Fire Adapted Communities. Website: www.fireadapted.org. Accessed July 2014.

⁵³ Yakima Herald. February 27, 2014. “Wildfire protection planning meeting today.” Available online at <http://www.yakimaherald.com/news/latestlocalnews/1964432-8/wildfire-protection-planning-meeting-today>.

Figure 4.11. Press for Local Wildfire Preparedness Event.

Marlene's Upper Valley Press
FREE FREE April 4, 2014

FIRST ANNUAL NATIONAL COMMUNITY WILD FIRE PREPAREDNESS DAY

When: Saturday, May 3, 2014 10 AM to 3 PM
Where: Jim Sprick Park- 13680 SR 410

This is a national effort to inform the community on how to make your home and property ready in the event of a Wildland Fire!

From 10 AM to 3 PM the park will be alive with demonstrations, exhibits, information, and activities about how to be prepared for Wildland Fires.

We will have fire equipment, Sparky the Dalmation, equipment and fire trucks from various departments and agencies.

There will be assessment forms available for you to assess your own home and property – how “firewise” are you?

There will be activities for kids and handouts for all....

There is a nice picnic area at the park as well as a playground and a nice paved walking path.....Please come and join us for a fun and information filled Saturday....

The Nile Women’s club will be having a bake sale at the event as well.

READY, SET, GO!
Wildland Fire Action Guide
Saving Lives and Property through Advance Planning

The fire season is now a year-round reality in many areas, requiring firefighters and residents to be on heightened alert for the threat of wildland fire. Each year, wildland fires consume hundreds of homes in the Wildland-Urban Interface (WUI). Studies show that as many as 80 percent of the homes lost to wildland fires could have been saved if their owners had only followed a few simple fire safety practices. In addition, wildland fire-related deaths occur because people wait too long to leave their home.

Your fire department takes every precaution to help protect you and your property from wildland fire. However, the reality is that in a major wildland fire event, there will simply not be enough the resources or firefighters to defend every home.

Successfully prepared for a wildland fire enables you to have personal responsibility for protecting yourself, your family and your property. In the Action Guide, we hope to provide the tools and tasks you need to prepare for a wildland fire threat; have situational awareness when a fire starts; and to act early as directed by local officials.

The Ready, Set, Go! Program works in complementary and collaborative fashion with the Firewise® Communities Program and other existing wildland fire public education efforts. Listing firefighters, it amplifies their messages to individuals to better achieve the common goal of wildland fire preparedness.

Fire-Adapted Communities (FAC) bring together the federal land management agencies with national organizations and state and local interests to stress that with proper community-wide preparation, human population and infrastructure can withstand the devastating effects of a wildland fire. FAC helps to create a collaborative community-wide effort, where all parties, citizens and government, are involved in successfully adapting to their wildland fire challenge. FAC’s website, www.fireadapted.org, provides beneficial resources and information.

Fires, and drought has been a natural occurrence in the wildland. Hills, canyons and forests burned periodically long before homes were built. Wildland fires are fueled by a build-up of dry vegetation and driven by seasonal hot dry winds. They also are extremely dangerous and difficult to control. Many people have been harmed in the wildland-urban interface and interdependent communities understanding the impact a fire may have on their lives. Fire hazard mitigation prepared their homes for a timely evacuation in the event of a wildland fire. It is not a question of if, but when the next major wildland fire will occur. Through advance planning, understanding and preparation, we can all be partners in the wildland fire solution. The top on the following people are designed to create heightened awareness and a safer environment for you, your family and neighbors.

Don, Margaret, Tammy, Randy Andrews, Warren

Thank you to everyone who helped with the donations for Oso. One of the drop off points was Margaret's AppleCart Deli in Naches where more was added from the previous pick-ups. Randy Andrews will be making the trip to Oso for the delivery. Thank you again!

Yakima County Urban-Wildland Interface Code

In 2001, Yakima County adopted the Urban-Wildland Interface Code that sets out regulations to mitigate wildland fire hazards. The CWPP does not replace or alter this code, but supports fire prevention work that seeks to reduce fire hazard and risk to communities in the WUI. The following information is taken from the National Wildfire Programs Database:⁵⁴

Yakima County has adopted an Urban-Wildland Interface Code that sets out regulations to mitigate wildland fire hazards. The Yakima Ordinance is based on the Model IFCI Ordinance for

⁵⁴ National Database of State and Local Wildfire Hazard Mitigation Programs. Website: (<http://www.wildfireprograms.com/index.html>). Accessed May 2014.

the Urban-Wildland Interface Code found in the Urban-Wildland Interface Code 2000 Handbook (IFCI).

The code is also on file at the Yakima County Fire Marshal's Office.

Chapter 5

Community Risk Assessments

Land in Yakima County is owned primarily by the Yakama Nation and private landowners but the State of Washington and the federal government also have significant ownership. Federal lands are managed by the Bureau of Land Management, USFWS, USFS, and the Department of Defense (Joint Base Lewis-McChord). State lands include parcels managed by the Washington Department of Natural Resources and Washington Department of Fish and Wildlife.

Irrigated crop lands are located primarily in the extensive valleys while dryland farming dominates the upland areas. The western edge of the county lies along the eastern slope of the Cascade Mountains and is a transitional area that provides diverse wildlife habitat that ranges from mountainous forestlands to sagebrush steppe. The mild climate, abundance of sunshine and low annual precipitation results in an environment that is potentially very prone to wildland fire. Although much of the native grasslands have been converted for agricultural purposes, there are many areas of native vegetation and fallow farm land that cures early in the summer and remains combustible until winter. If ignited, these areas burn rapidly, potentially threatening people, homes, and other valued resources.

In order to facilitate a mutual understanding of wildfire risks specific to existing fire management planning areas, the landscape-level wildfire risk assessments in the following sections are based on areas where specific fire management strategies are currently being implemented or where similar terrain or fuel types warrant consideration as a planning area for the purposes of a landscape-scale risk assessment. The planning areas considered in this chapter exhibit specific fire behavior, fuel types, suppression challenges, and mitigation recommendations that make them unique from a planning perspective.

Overall Fuels Assessment

The gentle terrain that dominates much of Yakima County facilitates extensive farming and ranching operations. Agricultural fields occasionally serve to fuel a fire after curing; burning in much the same manner as short to tall grassy fuels. Fires in grass and rangeland fuel types tend to burn at relatively moderate intensity with moderate flame lengths, rapid rate of spread, and short-range spotting. Common suppression techniques and resources are generally quite effective in this fuel type. However, history has shown that this fuel type can behave differently under low humidity, high fuel load, and moderate to high wind conditions. Homes and other improvements can be protected if fuels treatments, defensible space, and structural ignition precautionary measures are adopted.

Rangelands with a significant shrub component will have much higher fuel loads with greater spotting potential than grass and agricultural fuels. Although fires in agricultural and rangeland fuels may not present the same control problems as those associated with large, high intensity fires in timber, they can cause significant damage if precautionary measures have not been taken prior to a fire event. Wind driven fires in these fuel types spread rapidly and can be difficult to control. During extreme drought and when pushed by high winds, fires in agricultural and rangeland fuels can exhibit extreme rates of spread, which complicates suppression efforts.

Riparian areas in arid environments often have a higher amount of fuel loading due to the relatively abundant water supply. Vegetation tends to be more abundant and robust in these

areas. Fuel loading often compounds year after year as new growth replaces old growth. Deciduous trees and shrubs are common along waterways and contribute to surface fuel loads as they lose their leaves every year. Riparian areas experience a higher amount of recreation use due to various outdoor opportunities (fishing, camping, swimming, etc.). The increased activity may lead to unusually high ignition frequency.

Woodland fuels are mostly present in the western edge of the county. As you move west the forest transitions from dry deciduous (Oregon White Oak and cottonwood), through dry conifer (ponderosa pine, Yakima-fir), mid-elevation conifer (grand fir, western larch, western hemlock), to high elevation wet conifer (mountain hemlock, pacific silver fir). Wooded areas tend to be on steep terrain intermingled with grass and shrubs providing an abundance of ladder fuels which leads to horizontal and vertical fuel continuity. These factors, combined with arid and windy conditions characteristic of the river valleys in the region, can result in high intensity fires with large flame length and fire brands that may spot long distances. Rates of fire spread tend to be lower than those in the grasslands; however, intensities can escalate dramatically, especially under the effect of slope and wind. Such fires present significant control problems for suppression resources and often results in large wildland fires.

Furthermore, exceptionally hot and dry summers, overcrowding, and unprecedented forest insect infestations are causing forested areas to become more and more susceptible to severe wildfire. These are the consequences of excessive fuel buildup resulting primarily from over 100 years of successful fire suppression activities. These effects are most pronounced in forest types that would have historically undergone frequent low-intensity fire, like much of the lower and mid-elevation forests in Yakima County.

Overall Mitigation Activities

There are many specific actions that will help improve safety in a particular area; however, there are also many potential mitigation activities that apply to all residents and all fuel types. General mitigation activities that apply to all of Yakima County are discussed below while area-specific mitigation activities are discussed within the individual risk assessments.

The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can take many forms. Traditional “Smokey Bear” type campaigns that spread the message passively through signage can be quite effective. Signs that remind people of the dangers of careless use of fireworks, burning when windy and leaving unattended campfires have been effective. Fire danger warning signs posted along access routes remind residents and visitors of the current conditions. It’s impossible to say just how effective such efforts actually are; however, the low costs associated with posting of a few signs is inconsequential compared to the potential cost of fighting a fire.

Burn Permits: Washington State Department of Natural Resources is the primary agency issuing burn permits in forested areas of Yakima County. The Washington DNR burn permits regulate silvicultural burning. Washington Department of Ecology (DOE) and the Yakima Regional Clean Air Agency are the primary agencies issuing burn permits for improved property and agricultural lands. All DOE burn permits are also subject to the fire restrictions issued by Washington DNR & local fire protection districts.

Washington DNR has a general burning period referred to as “Rule Burn” wherein a written burn permit is not required in low to some moderate fire dangers. The timeframes for the Rule Burn

are from October 16th to June 30th. Washington DNR allows for Rule Burns to be ten foot (10') piles of forest, yard, and garden debris. From July 1st to October 15th, if Rule Burns are allowed, they are limited to four foot (4') piles.

Defensible Space: Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Yakima County must be made aware that home defensibility starts with the homeowner. Once a fire has started and is moving toward a structure or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Yakima County should be encouraged to work with local fire departments and fire management agencies within the county to complete individual home site evaluations. Home defensibility steps should be enacted based on the results of these evaluations. Beyond the homes, forest and rangeland management efforts must be considered to protect sensitive species and to slow the approach of a fire that threatens a community.

Evacuation Plans: Development of community evacuation plans is necessary to ensure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape routes would reduce chaos and escape times for fleeing residents. Community safety zones should also be established in the event of compromised evacuations. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

Accessibility: Also of vital importance is the accessibility of the homes to emergency apparatus. If a home cannot be protected safely, firefighting resources will not jeopardize their firefighters to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

Fuels Reduction: Recreational facilities such as campgrounds and boat launches should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape proof fire rings and barbeque pits should be installed and maintained. Surface fuel accumulations in forests and shrubland can be kept to a minimum by periodically conducting pre-commercial thinning, clearing, pruning, and possibly controlled burns. Other actions that would reduce the fire hazard would be creating a fire resistant buffer along roads and power line corridors and strictly enforcing fire-use regulations.

Emergency Response: Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. In most cases, rural fire departments are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response efforts and subsequently reduce the potential for resource loss.

Other Activities: Other specific mitigation activities are likely to include improvement of emergency water supplies, access routes, and management of vegetation along roads and power line right-of-ways. Furthermore, building codes should be reviewed to provide for more fire-

conscious planning and zoning and construction techniques such as using fire resistant siding, roofing, and decking in high risk areas.

Highway 410 and 12 CWPP Risk Assessment

The following is excerpted or summarized from the Highways 410 and 12 Community Wildfire Protection Plan (2005).

The Highway 410 and 12 CWPP area is approximately 284,712 acres and lies west of the City of Yakima and Town of Naches in Yakima and Kittitas Counties, Washington. Areas within the Highway 410 and 12 corridors are defined by watersheds and sub-watersheds. These major drainages and their tributaries include: Tieton River, South Fork Tieton River, North Fork Tieton River, Rimrock Lake, Clear Lake, Naches River, lower Little Naches River, Rattlesnake Creek, Nile Creek, Bumping River, American River, and Bumping Lake.

About 63% (178,893 acres) of the area is federally (USFS) managed. This represents approximately 32% of the entire Naches Ranger District. The character of residential development on private lands within the Highway 410 and 12 corridors is rural in nature. Yakima County tax roles indicate that the CWPP boundary includes 1,320 residences on all land ownerships. Much of the lower elevation areas have already been developed; thus, higher elevations less accessible areas are under more pressure for residential growth.

Besides the rural, unincorporated areas of Yakima and Kittitas Counties, the planning area includes the communities (also unincorporated) of Goose Prairie, Cliffdell, and Rimrock Retreat. In addition to year-around established residences, recreation residences on federal land make up a large component of the dwellings within the CWPP area, accounting for over 500 homes plus organization camps.

The Highway 410 and 12 CWPP encompasses a wide variety of terrain, elevation, aspects, and the varying fuels associated with forest and rangelands. Lower elevations and the eastern end of the planning area is largely shrub/steppe (grasses, bitterbrush, sagebrush). Farther westward and in higher elevations, the forest transitions from dry deciduous (Oregon white oak and cottonwood), through dry conifer (ponderosa pine, Yakima-fir) and mid-elevation conifer (grand fir, western larch, western hemlock), to high elevation wet conifer (mountain hemlock, pacific silver fir).

Goose Prairie – This community is a mix of mostly recreational residences a few full time residents. Goose Prairie is home to Camp Fife, a large Boy Scout camp, typically housing more than 200 scouts and staff members during summer months. Telephone and electrical service are not provided to the area. Goose Prairie is very unique in being a private in-holding completely surrounded by Forest Service administered land. Within 400 feet and on all sides of the boundary of Goose Prairie is the William O. Douglas Wilderness Area. Access is one-way in, one-way out by way of Bumping River Road. Goose Prairie is not within a Fire District and structural protection may not be provided unless by contract with Yakima County Fire Protection District 14 (Nile).

Cliffdell – The community of Cliffdell is comprised mostly of full time residents with a few recreation residences. Access is by way of State Highway 410, coming from Naches and Yakima to the east and Chinook Pass to the west. Whistlin' Jack Lodge is a major tourist attraction within the community, providing cabins, a motel, a restaurant and lounge, and a convenience store with gasoline available. Electrical and telephone services are provided to Cliffdell.

Nile Valley and Highway 410 – This rural area includes the privately-owned lands beginning at the intersection of State Highway 410 and U.S. Highway 12 and extending to the community of Cliffdell. Business interests include Gold Creek Station, Black Bear Resort, The Woodshed/Eagle Rock Resort and other privately owned businesses. Access is provided by Highway 410, the Nile Loop Road, and Old River Road. These roads serve as collectors for numerous arterials and Forest Roads. Growth continues in this area, and housing is being developed at higher elevations. Those being built at mid and upper slopes currently rely on cellular phones (limited coverage) and alternate energy sources such as wind, solar, and generator supplied power. The higher elevation homes are remote and not in a fire district. Services within the community include electricity, telephone, businesses, an organizational camp, a community center/library, Community Park, and a community church.

Rimrock Retreat – The community of Rimrock Retreat is located on U.S. Highway 12 approximately 16 miles west of the Town of Naches. Residents are largely year-around. The community is served by electricity and telephone. Three businesses, all of which are protected by Yakima County Fire District #3, are located in Rimrock Retreat: Trout Lodge Restaurant and Motel, Getaway Sports, and Gameridge Motel.

Highway 12 – This rural area includes the privately-owned lands beginning at the intersection of U.S. Highway 12 and State Highway 410 and extending to approximately mile post 170, two miles west of Rimrock Retreat. Fire District #3 provides protection for these widely scattered, year-round residents.

Recreation Residences – Recreation residences are those in which privately owned cabins are established by lease on Forest Service administered land. The Naches Ranger District has the second highest number of recreation residences of any in the National Forest system. By permit, the structure may not be used as a principal place of residence. Amenities range across the spectrum from no plumbing/electricity/telephone to full service with all of the facilities of a typical family home. As these are on federal land, the land itself is protected by the U.S. Forest Service and the structures are protected by Yakima County Fire Protection Districts 3 (Naches) or 14 (Nile). Recreation residences are located along major travel routes off of U.S. Highway 12, State Highway 410, the Tieton Loop Road, and Bumping River Road. Recreation residences are typically within “Summer Home Groups” of 6-72 lots. A few groups contain only 1-3 lots.

Wildfire Potential

Vegetation within the CWPP boundary (excluding developed agricultural land) transitions from dry shrub/steppe at the lower elevations and at upper elevations of the eastern boundary of the planning area. These areas are dominated by antelope bitterbrush (*Purshia tridentate*), big sagebrush (*Artemisia tridentate*), crested wheatgrass (*Agropyron cristatum*), pinegrass (*Calamagrostis rubescens*), Idaho fescue (*Festuca idahoensis*), and Sandberg bluegrass (*Poa Sandbergii Vasey*). The shrub/steppe as well as the dry forested land has been invaded by the exotic cheatgrass (*Bromus tectorum*).

The driest forest type within the CWPP boundary is that which includes Oregon white oak (*Quercus garryana*). This type is unique in that it is limited within the extent of the Okanogan-Wenatchee National Forest to the lower reaches of the Naches and Tieton watersheds, is the hottest and most droughty of forest types, and marks the lower boundary of woodland and forest. The forest then transitions to ponderosa pine (*Pinus ponderosa*) and Yakima-fir (*Pseudotsuga menziesii*). This is the driest of the conifer forests within the CWPP boundary and will often include antelope bitterbrush, pinegrass, wheatgrasses and fescues, and cheatgrass. While grand

fir (*Abies grandis*) is typically a mid-elevation tree, it occurs on dry sites on the southern portion of the Okanogan-Wenatchee National Forest. As a result of fire suppression, grand fir is a major contributor to the dense, overstocked stands, resulting in high fire susceptibility on dry forest sites. Moving west and gaining in elevation, grand fir, western larch (*Larix occidentalis*), and western hemlock (*Tsuga heterophylla*) are common dominant trees. Lodgepole pine (*Pinus contorta*) is also common in many stands. Upper elevations and the most western portion of the CWPP boundary may include Pacific silver fir (*Abies amabilis*), hemlock (*Tsuga mertensiana*) and possibly subalpine fir (*Abies lasiocarpa*). This forest type is present in the western most of the recreation residences and in the upper elevations of the CWPP boundary. The mature condition of this forest type is closed canopy with abundant ladder fuels and ground fuel loadings. Because of this, fires tend to be a stand-replacing type.

The Highway 410 and 12 corridors CWPP area, like other areas of Yakima County, is prone to severe weather conditions that can support extreme fire behavior. The landscape has many valleys with steep slopes and dense stands dominated by ponderosa pine, which are primarily less than 18 inches in diameter. Many stands have closed canopies and abundant ladder fuels. Continuous, tall underbrush also predominates. Insect infestations of western spruce budworm, mountain pine beetle, and/or fir engraver beetle are becoming more prevalent.

Current fuel profiles reflect a high to moderate fire susceptibility within the forested vegetation types. For purposes of this discussion, susceptibility will be defined as a relative measure of the potential of a fire within a stand, to produce a stand replacement fire on a typical summer day. Included are such factors as vegetation type, crown closure, ladder fuels, vertical arrangement and horizontal continuity of a stand (stand structure), ground fuels, weather, and topography.

Ingress-Egress

Major access is provided within the planning area by U.S. Highway 12 and State Highway 410. County maintained roads, while easily accessed by low-clearance passenger cars, are limited to the Tieton Loop Road off of Highway 12, the Nile Loop Road with arterials off of Highway 410, Old River Road, and the Bumping River Road off of Highway 410. Forest roads are generally rock or native surface and are suitable for high-clearance or off-road vehicles. As development continues at mid and higher elevations, residents and emergency responders alike must be aware that roads accessing these properties may not be accessible by emergency vehicles.

A number of private bridges were repaired over the Naches River following the flood of 1996. Residents have been notified that the fire department will not respond over these bridges unless a certified load limit has been posted on the bridge.

Infrastructure

There are numerous infrastructure components located within the Highway 410 and 12 corridors including U.S. Highway 12, State Highway 410, the North Fork Rattlesnake Creek municipal watershed, Bumping Dam, Pacific Power and Benton Rural Electric Association powerlines, various telephone networks, numerous recreation sites, and the Little Bald, Cleman Mountain, and Bethel Ridge communication towers.

Additional information on specific residential areas and infrastructural values at risk is included in the Highways 410 and 12 CWPP.

Fire Protection

Yakima County Fire Protection District 14 (Nile) is entirely within the Highways 410 and 12 CWPP boundary. Yakima County Fire Protection District 3 (Naches) extends to the Upper Tieton Loop Road within the CWPP boundary, but responds to the western county line for medical emergencies. The emphasis of these departments is to take action for fire suppression, rescue, and emergency medical and hazardous materials emergencies, and to provide fire prevention and education programs for the citizens in the response area. Nile and Naches Fire Departments respond within their districts and outside of district by request. The ability to respond to large wildland fires is limited by equipment and personnel.

The community of Goose Prairie and all recreation residences are outside of any fire district providing structural protection. As such, they do not pay into a tax levy for fire protection. Fire districts are therefore prohibited from responding to these homes as this would constitute gifting of public funds. Some residents have entered into contracts with the nearest fire district to provide structural protection.

The Washington State Department of Natural Resources and USDA Forest Service are the primary wildland firefighting agencies within the CWPP boundary. Through cooperative agreements, either agency is able to mobilize large amounts of personnel, equipment, aircraft, and logistical support. However, the actual number of firefighting resources stationed in the locale is small in relation to the area covered, and the CWPP boundary constitutes only a small portion of the district they must protect. Delays in the arrival of suppression forces of several hours to several days are likely, depending on the availability of these resources. These agencies are not equipped or trained to fight structure fires and do not provide protection of this nature.

Potential Mitigation Activities

Community members have expressed concern about fuel conditions and fire hazard. Of special concern is the current epidemic of western spruce budworm (*Choristoneura occidentalis* Freeman) and the increased fire hazard as a result of dying and dead trees. Treatment and prevention of such epidemics are ideally the same as treatments that would be conducted to reduce hazardous fire conditions, e.g., thinning of shade tolerant, fire susceptible trees species in overstocked dry forest types. Escape routes were also identified as a priority consideration. The Bumping River drainage and the community of Goose Prairie are at extreme risk due to threats associated with increased fire hazard as a result of western spruce budworm epidemic in the drainage, a high incidence of human caused and lightning fires, and a one-way-in, one-way-out escape route on a narrow, winding road.

Communications are difficult along both corridors. Goose Prairie has no phone service. Cellular telephone providers at this time have no plans of installing cellular phone towers in the area, due to low profitability. Community members have identified the installation of cellular towers or other communication systems as a key component to improving fire protection to the residents and wildlands within the CWPP boundary.

The Highways 410 and 12 CWPP has identified a number of evacuation centers, safety zones, command posts, and staging areas that will help direct residents and provide a safe work environment for firefighters in the event of a fire. Many of the residents are aware that emergency response times within this area can be 90 minutes or more, depending on location and time of day; thus preplanning and preparedness are critical. Additionally, the Highways 410 and 12 CWPP steering committee are actively involved with the Washington DNR and Forest

Service in order to help develop fuels reduction projects in adjacent areas that will reduce the wildland fire risks on adjacent state and federal ownerships. Numerous action items and fuels projects are proposed in the current Highways 410 and 12 CWPP, most of which have been incorporated into the Yakima County CWPP planning process.

Cowychee Mountain CWPP Risk Assessment

The following is excerpted or summarized from the Cowychee Mountain Community Wildfire Protection Plan (2012).

The overall planning area encompasses the suburban fringe of Yakima out to the forest zone of the western portion of the county. The CWPP focuses on the shrub steppe and rangelands lying west of Yakima comprising approximately 89,000 acres of land. The character of residential development on private lands within the Cowychee corridors is rural in nature. The Urban Growth Boundary defined jointly by the City of Yakima and Yakima County is westerly from the current incorporated city limits, indicating the ongoing pressure to expand into the shrub-steppe zone. Besides the rural, unincorporated areas of Yakima County, the planning area includes the communities of Cowiche, Tieton, West Valley, Tampico, Naches Heights, and Ahtanum. In addition to year-around established residences and agricultural facilities, recreational residences are distributed throughout the planning area.

Wildfire Potential

The Cowychee Mountain CWPP encompasses a wide variety of terrain, elevation, aspects, and the varying fuels associated with suburban/rural fringe (small orchards, pastures) shrub-steppe, rangelands, and low elevation forest fringe. The eastern boundary of the CWPP separates the relatively developed suburban “ranchette” style acreage and irrigated agriculture from the less developed and larger acreage rangelands. The higher elevations to the west transition from shrublands to dry deciduous forest types (Oregon white oak and cotton-wood), through dry conifer forest types (ponderosa pine, Yakima-fir). There are stream corridors occupying the valley bottoms characterized by mixed riparian deciduous trees and shrubs. An important characteristic of the CWPP area is the prevailing wind direction. Coming largely as west-to-east winds, the shrub-steppe and forest fuels to the west, when ignited, are most likely to be fanned eastward, in the direction of the most concentrated residential zone.

The shrub-steppe habitat in the CWPP planning area can generally be described as continuous expanses of native grasslands made up of a variety of bunch-type grasses (as opposed to continuous turf or sod-type grass), with an intermingling of native shrubs and flowering plants (forbs). The shrub-steppe zone is found in an arid landscape with rainfall ranging from 3 inches at the lowest elevations, up to 18 inches in higher elevations, generally at the gradient where annual moisture can start supporting woodlands.

Prior to the many changes in habitats brought about by intensive management over the last 150 years, the dryer woodlands at the upper edge of the shrub-steppe zone were maintained by frequent, low intensity fire (fires happening every 5-35 years). Although it seems logical that fires in the arid shrub-steppe would be even more frequent, ecologists have discovered that the natural interval for shrub-steppe fire were much less frequent—ranging anywhere from 50 to 240 years. Given this longer period expected between shrub-steppe fires, current conditions are far outside the expected range. Fires ranging from 34,000 to over 160,000 acres have occurred in the shrub-steppe zone of south central Washington every 2 to 4 of the last 15 years.

One of the most pervasive and far-reaching threats to the shrub-steppe habitat is the spread of invasive species, particularly the widespread establishment of exotic annual grasses (such as cheatgrass). Compared to native perennial bunchgrass, cheatgrass creates a continuous cover of fine, highly flammable fuels that dries out early in the summer and remains as a dry fuel source much longer in the fall. As a result, this invasive grass greatly increases a site's fire risk.

In short, sparse, dry climate grass fuel types, grass is generally short, either naturally or by livestock grazing, and may be sparse or discontinuous. This is the least volatile of the naturally occurring (flammable) fuel types within the Cowychee Mountain CWPP area. Even with a 30 mph wind and slope of 60%, firefighters would have little trouble containing a fire utilizing direct attack. Flame lengths are within capabilities of typical direct attack actions and fire spread tends to stay below 50 feet per minute (about ½ mile per hour), regardless of wind speed or slope. Fuel reduction/restoration treatments should focus on protecting and maintaining this ecotype as a naturally occurring fire break.

In low load, dry climate grass fuel types, the primary carrier of fire is grass, though small amounts of fine dead fuel may be present. Shrubs, if present, do not affect fire behavior. The patchy nature of this fuel type make it wind and/or slope dependent to achieve a larger size. In a zero-slope/zero-wind scenario a fire would have a forward rate of spread of only 3 feet per minute, growing to only 3 acres in an hour and making it well within the capabilities of local fire departments. However, this fuel type is very reactive to wind. With a 10 mph wind, fires can grow to nearly 1,000 acres in 1 hour with a forward rate of spread of 225 feet per minute (about 2½ mph). A defensible space of 50 feet or more around structures will greatly assist local fire departments in protection efforts. Fuel reduction/restoration treatments should focus on maintaining the fire behavior characteristics of this type in their current condition.

In moderate load, dry climate grass fuel types, the primary carrier of fire is continuous, dry grass. This fuel type occurs naturally within the Cowychee Mountain CWPP area in small patches, but also represents past burned areas that are now dominated by cheatgrass. This fuel model may over-represent flame lengths for a nearly pure cheatgrass stand, but does a good job representing the rate of spread. Flame length and rate of spread are well represented by stands that are a mix of native bunch grasses and cheatgrass. Fires occurring in this fuel type can quickly exceed 10,000 acres with light to moderate wind or slope. In a more practical point of view, a mid-summer fire will probably exceed the size of the stand before local fire crews are able to respond. A defensible space of more than 120 feet may be desirable for structures bordering this fuel type. Fuel reduction treatments should focus on restoring stands by reducing or eliminating cheatgrass and promoting native bunch grasses and shrubs.

In moderate load, dry climate grass-shrub fuel types, the primary carrier of fire is grass and shrubs combined. Shrubs are 1 to 3 feet high, grass load is moderate. Spread rate is high; flame length is moderate. With a wind of 5 mph and/or moderately steep slopes, fires in this fuel type can quickly exceed the capabilities of handcrews and engines. Structure protection can be successful if home owners have established a defensible space of twenty feet or more. A wind of 10 mph or more, even on flat ground, can push a fire in this fuel type to exceed fire protection capabilities unless a defensible space of 100 feet or more has been established. Fires can spread rapidly and exceed 700 acres on a flat slope with a 10 mph wind. The fire front can be expected to move at approximately 180 feet per minute (about 2 mph). A 20 mph wind can push fires to exceed 2,500 acres in an hour at forward rate of spread of nearly 500 feet per minute (about 6 mph). Fires growing at this rate can quickly exceed the capabilities of local fire departments to protect all homes and structures being threatened.

In moderate load, dry climate shrub fuel types, the primary carrier of fire is woody shrubs and shrub litter. This fuel type has a moderate fuel load, with bunch grasses between shrubs. This is the most volatile of the unaltered fuel types within the Cowychee Mountain CWPP area. It is both wind and slope reactive, and can move quickly into the Very Active and Extreme fire behavior categories. Fire can move moderately fast, with high flame lengths and intensity. With no wind or slope, fires can exceed 100 acres in an hour. A 10 mph wind can push a fire to exceed 3,000 acres in an hour. Flame lengths of 13 feet or more could be expected. These flame lengths will most often require an indirect attack, with holding (suppression) actions taking place from roads or ridgetops. A defensible space of 100 feet or more will assist local fire departments in structure protection. While a problematic fuel type as far as structure protection is concerned, it is also one of the most important and endangered ecosystems within the landscape. Fuel reduction/restoration treatments should focus on isolating this fuel type to provide protection to adjacent homeowners and also to protect the ecotype from wildfire

Infrastructure

The Cowychee CWPP has identified numerous infrastructure values at risk including flood control structures, elk fencing, public facilities, communication towers, and multiple highways and secondary access routes.

Fire Protection

Fire protection within the CWPP boundary is supplied by numerous agencies, each with its own charge, capabilities, and limitations. Cooperative agreements exist that allow all agencies to work together to best protect lives, property, and natural resources. Local county, state, and federal agencies have forged positive working relations.

Yakima County Fire Protection District 12 (West Valley), District 1 (Highland) and District 9 (Naches Heights) are the primary first responders within the CWPP boundary. The emphasis of these departments is to take action for fire suppression, rescue, and emergency medical and hazardous materials emergencies, and to provide fire prevention and education programs for the citizens in the response area. All three Fire Departments respond within their districts and outside of district by request. The ability to respond to large wildland fires is limited by equipment and personnel.

The DNR and USFS are the primary wildland firefighting agencies west of the CWPP boundary. Through co-operative agreements, either agency is able to mobilize large amounts of personnel, equipment, aircraft, and logistical support. However, the actual number of firefighting resources stationed in the locale is small in relation to the area covered and the CWPP boundary constitutes only a small portion of the district they protect. Delays in the arrival of suppression forces of several hours to several days are likely, depending on the availability of these resources. These agencies are not equipped or trained to fight structure fires and do not provide protection of this nature.

Potential Mitigation Activities

The Cowychee Mountain CWPP has identified a number of evacuation routes and centers, safety zones, command posts, and staging areas that will help direct residents and provide a safe work environment for firefighters in the event of a fire.

Water for firefighting is limited within the CWPP boundary in comparison to many areas throughout the western United States, or even in eastern Washington. The area lacks major rivers and lakes that are commonly used as water sources for drafting and for aircraft. The Fire

Districts have inventoried and mapped water sources on lands under their jurisdiction. Fire Districts would benefit from the development of ponds and fire hydrant systems in and along the irrigated lands.

The CWPP members will continue working on the implementation of the action items by hosting defensible space and home protection workshops and by forming a Community Emergency Response Team. Many landowners have become more aware of the risk coming from wildland fires based on large fires within the CWPP planning area. The surrounding Cowiche Mountain landowners have worked with federal and state agencies for post-fire assistance grants, and the Cowiche Canyon Conservancy began working on its lands and with adjacent landowners to initiate restoration activities. The Yakima County Fire Marshall’s office has committed to launching Firewise and other defensible space programs in the area, and the CWPP group plans on seeking additional resources through National Fire Plan Grants and Western States Grants that can provide funding for fuels reduction and prevention and education programs.

Yakama Nation Risk Assessment

The Yakama Nation occupies portions of Yakima, Klickitat, and Lewis Counties in south central Washington State. The Reservation is bounded on the west by the crest of the Cascade Mountains, and on the east by the Yakima River. Ahtanum Creek serves as the northern boundary. A line from Greyback to Satus Pass to the Horse Heaven Hills to where it meets the Yakima River serves as the southern boundary. The Yakama Reservation encompasses 1,377,638 acres.

Land ownership is comprised of tribal trust lands with individual tribal allotments held in trust and fee patent lands intermixed throughout the Reservation’s agricultural and forest areas. Within the agricultural area, a rural setting of ranches and homes characterize an area of checkerboard ownership covering 191,060 acres.

Major population centers on the Reservation and their fire risk:

High	Moderate	Low
Wapato	Fort Simcoe	
White Swan	Medicine Valley	
Yakima River corridor	North/South Ahtanum	
	Pumphouse Road	
	South/West Satus	
	Tulie Road	

Wildfire Potential

The relatively low lying, gentle landscape of the eastern Reservation contrasts sharply with the high elevation, rugged western lands near the Cascade Crest. Between these two extremes are an abundance of different landforms.

The Yakama Reservation can be divided into three major ecotypes as follows.

Forestland. The forestland ecotype is the most varied. These variations are mainly driven by the significant gradients in precipitation and topography. Forest types include oak woodlands, pine, pine-fir, mixed fir, true fir, and subalpine. Correspondingly, all fire regimes are well represented. The forestland is managed predominantly for commercial timber. Forest resource values at risk to wildfire are high. Fuel treatments focus on the pine and pine-fir forest types. These forest types border the rangeland and are typically classified as Fire Regime 1.

Mechanical and prescribed fire treatments are used in combination to restore these areas to more open, and hence more fire resilient, historic conditions.

Rangeland. The rangeland is classified as shrub-steppe composed of sagebrush, its variants, and grasses. Fire Regimes are III (35-100+ years; mixed severity) and IV (35-100+ years; stand replacing). Fuel treatments are limited. Mechanical, chemical, and prescribed fire treatments are used in combination to minimize the spread of invasive species and restore critical lowland shrub-steppe habitat. All areas rising from the valley floor have high potential for rapid fire spread and can quickly grow to excessive size causing a threat beyond the capabilities of fire districts to manage with local resources.

Agricultural. The agricultural zone is predominantly active farmland. It is Fire Regime I (0-35 years; low severity). Rural communities are immediately adjacent or in close proximity to the rangeland and active farm land is intermix with areas of natural vegetation. From a fire protection standpoint, these intermix areas have a high risk to life and property. Fuels treatments in these areas are numerous. Mechanical treatments include disced and mowed fuel breaks around rural residences and developments. Prescribed fire near field burning has also proven to be an effective treatment as most fires result from fireworks or arson.

Ingress-Egress

Interstate 82, a major transportation route, travels the length of the Yakima Valley north of the Yakama Reservation. State Route 97 extends southward to Goldendale and northward to Union Gap while State Route 22 travels eastward to Mabton and northward to Interstate 82 from the Reservation. State Route 220 extends from Toppenish west to White Swan.

Infrastructure

There are several small communities and tribal enterprises within and surrounding the Reservation. U.S. Highway 12/Interstate 82 travels along the Reservation's northern border while U.S. Highway 97, State Highways 22 and 223, and numerous secondary routes provide access throughout the area. There are also powerlines, communication tower sites, rural airstrips, and a complex irrigation system that are critical to the community.

Fire Protection

The Yakama Agency protects 1.2 million acres from uncontrolled fires and may respond to fires in mutual areas in coordination with Yakima County Fire Protection District #5.

The Bureau of Indian Affairs, Portland Office, has entered into cooperative agreements with the U.S. Forest Service's Wenatchee and Gifford Pinchot National Forests, Washington DNR, West Valley Fire (Yakima County Fire District 12), and Yakima County Fire District 5. These agreements provide that an area of one mile depth on either side of mutual boundaries is a common protective zone. They also may provide resources during extreme emergencies and may make available suppression labor and equipment for fires that require extended attack. Fire District resources are available under rental agreements with BIA.

Approximately 360 square miles of the Yakama Reservation is within the protection of Yakima County Fire District 5, which has stations dispersed throughout the area. Occasional assistance is provided by municipalities or Yakama Agency resources when serious threats to life, property, structures, or natural resources exist. Fire suppression on trust land requires coordination with an Agency Resource Advisor.

Potential Mitigation Activities

Fire prevention and education are on-going activities on the Reservation including school programs and exhibits at local community events.

Yakama Fire Prevention has become a member of the Interagency Cross Cascades Prevention Coop as well as the Yakima Valley Fire Adapted Communities Coalition in order to maintain good working relationships with other fire management organizations in the area.

The National Fire Danger Rating System is used on the Reservation. Fire Danger Rating signs are maintained and current information is displayed at entry points into the forest.

A burn permit system has been in place since 2005. The burn permit describes the where, when, who, why, and special measures of the burn. Increased education of burn permits needs to take place and greater awareness of safe burn barrel use will reduce the number of fire use ignitions.

Yakima Training Center Risk Assessment

The following is excerpted or summarized from the Fort Lewis GTA FEIS (2010).

Yakima Training Center at the Joint Base Lewis-McChord provides training support for transient units and organizations by sustaining training lands, range complexes, and support facilities in order to enhance readiness. The installation's customers include not only the Joint Base Lewis-McChord and Army National Guard units, but also Special Operations Command, Marine Corps, Air Force, Navy, and Coast Guard units, plus local and federal Law Enforcement and allied forces from Canada and Japan.

The IWFMP establishes wildfire risks, management goals, and strategies to be used to reduce the risk of fires on the installation and improve YTC's ability to reduce fire losses.

Wildfire Potential

Like much of the lower Columbia River Basin, YTC is characterized by shrub-steppe vegetation. The shrub-dominated overstories typically support species of sagebrush and other shrubs, and the understories support perennial bunchgrasses, such as bluebunch wheatgrass and Sandberg's bluegrass. Shrublands are typically dominated by big sagebrush, with bunchgrasses and annual and perennial forbs in the understory. Grasslands are similar to shrublands, except that the shrub component is greatly reduced or absent, has been eliminated by some type of disturbance (e.g., fire, military training), or is represented by rabbitbrush, which may sprout vigorously after a fire. Dwarf shrublands, typically found in areas with shallow, stony soils, are dominated by Sandberg's bluegrass and a layer of dwarf shrub species including buckwheat and stiff sagebrush.

Wildfire poses a significant threat to the sensitive ecosystems, cultural sites, and training lands of the Army. Army training activities require the use of munitions and weapons systems that often increase the chance of wildfire ignition and may damage important resources.

On YTC, most fires are started by military training activities (both ground-based and from helicopters) including live-fire exercises, use of tracer rounds, explosive ordinance, and some aspects of maneuver training. These fires primarily start on existing ranges in the CIA and dud areas. While most fires are contained in these areas, there is the risk of a fire escaping and burning training areas, as well as areas surrounding the installation.

Wildfires have burned an average of approximately 9,000 acres annually for the past 25 years; however, annual burn acreages are highly variable and have ranged from 50 acres in 1991 to 63,296 acres in 1996 (this figure includes approximately 15,000 acres that burned off-Post). Some areas have been re-burned repeatedly. High fire loss years have occurred in the last 25 years. These include 1984 (27,921 acres), 1987 (28,070 acres, of which approximately 4,011 acres burned off-Post), 1996 and 2003 (34,827 acres, of which 146 acres burned off-Post). Large fire loss years appear to be cyclical; during most years, between 1,500 and 6,000 acres are burned.

Since the large-scale fire in 1996, the cumulative average of burned areas at YTC has declined due to enhancements of fire management policy related to pre-suppression and suppression activities, implementation of a risk assessment, improved suppression resources, and improved personnel training.

According to available data, through 1996, a cumulative average of approximately 11,335 acres burned annually due to fires originating at YTC; from 1997 through 2008, this cumulative average annual acreage decreased to approximately 8,866 acres.

Ingress-Egress

YTC and the nearby City of Yakima, with its surrounding suburban communities, are accessed via I-82, the major north-south interstate freeway in the area. Near the training center, I-82 is a divided freeway and has two travel lanes in each direction.

The primary access is via Firing Center Road (Exit #26), which is the main Access Control Point (ACP) onto the Post. The second access from the Military Road exit (Exit #11) provides an entry point for military convoys; otherwise, it is typically gated and locked. Additionally, access onto YTC is available via E. Pomona Road. However, this access is not used unless freight is brought in by rail. At other times, it remains gated and locked. E. Pomona Road crosses I-82, but does not access the interstate. Another secondary access is from Huntzinger Road on the east side of the Post. If Exit #26 is closed, Exit #29 at E. Selah Road, which runs parallel to I-82 and leads north to Firing Center Road, may be used.

Infrastructure

The Cantonment Area serves as the administrative center for most training activities at YTC, except for range management, which is located at Range Control. Residential areas include permanent bachelor officer quarters. Administrative areas house buildings for offices, headquarters, classrooms, and other administrative functions. Commercial uses are limited to the Post Exchange and restaurant/club uses. Light industrial uses include warehousing, motor pool, and maintenance shops.

Fire Protection

It is YTC's policy to suppress all wildfires on the installation, with the exceptions of those that occur in impact or dud areas and those that occur within the limits of established ranges where prior management actions have been implemented to contain fires, such as pre-burn areas. Fires occurring in impact areas are only suppressed when they threaten to escape the impact area boundary, and are only suppressed via aerial assets. However, ground suppression personnel are allowed to conduct operations along the outer perimeters of impact areas.

YTC has a current mutual aid agreement with all local upper valley fire department jurisdictions and Hanford Fire to assist with wildfire suppression requirements (ground and aerial), as well as

structural fires. With this mutual aid agreement, YTC has more than 13 separate Fire Protection Districts and Municipalities that can be called upon during emergency operations.

Potential Mitigation Activities

YTC has adopted a Fire Risk Management Assessment to evaluate the risk of starting uncontrolled fires from training activities during the fire danger season (May 15 through October 31). This assessment calculates fire risk at YTC based on values assigned to four areas: · fire danger rating, military activity (i.e., the types of munitions and/or pyrotechnic devices intended for use on a given day),·the availability and locations of firefighting assets, and special considerations (e.g., status of pre-burn activities, proximity to sage-grouse habitat, time of day of the proposed training).

In addition, due to the severity and extent of the 1996 fire, YTC has developed a Pre-Incident Plan for the CIA and MPRC. Historically, fires originating in these areas have been extreme, consuming large areas rapidly. The Pre-Incident Plan establishes a fire management boundary along the Umtanum Ridge to the south of the CIA and MPRC and the Columbia River to the east. It prescribes a series of actions to be followed to contain the fire within the pre-determined fire management boundary. This plan also sets forth an annual prescribed burn plan that includes black-lining along improved roads that parallel the south and southeast boundaries of the CIA and an additional north-south route east of the CIA. Annual mechanical maintenance of the ridgeline road extending along Umtanum Ridge is another feature of the Pre-Incident Plan.

YTC conducts annual maintenance of more than 200 miles (322 km) of firebreaks to ensure fuel breaks are strategically located to compartmentalize fires, particularly in areas where fire hazards are high (such as along the CIA boundary) and along the installation boundary. Firebreaks also provide access to remote areas of the installation for suppression teams. In addition, enhancement of the installation's road network has added more than 300 miles of roads that act as firebreaks. Annual maintenance is conducted mechanically and through aerial application of herbicides. Chemical maintenance occurs in the fall (October) or spring (March or April), while mechanical maintenance occurs late spring through late summer.

Firebreak maintenance activities are described in detail in the YTC Firebreak Maintenance Plan. To reduce the risk of wildfires, YTC conducts prescribed burning (or, pre-burning) in areas where fires tend to recur due to training activities and in areas with a potential for fire escape. An annual prescribed burn plan is developed by the YTC Fire Department, DPTMS, and DES to identify areas and priorities for pre-burn implementation. Areas treated with prescribed burning include those in and around targetry and target movers, small impact areas, and other small areas where there is a high probability of ignition and rapid spread or chronic recurrence exists. At YTC, prescribed burns are implemented in late spring through late summer, depending on the objectives of the burn. Early season burns reduce or eliminate fuels for the current fire season; the benefits of late season burns carry over to the following year.

Wenas

The Wenas area is primarily defined by the Wenas Valley extending northwest from Selah in north central Yakima County and includes the southwest-facing slopes of Umtanum Ridge and the northeast-facing slopes of the Cleman Mountains. Much of this area is managed by the Washington DNR in a checkerboard pattern with private landowners.

The narrow Wenas Creek valley from Selah to Wenas Lake has been developed for agricultural purposes with irrigation water from the Lake. The valley upstream from the Lake is very rural with scattered residences extending almost to the County line.

Wildfire Potential

The Wenas Valley and associated foothills are characterized by shrub-steppe vegetation where agricultural or other development hasn't altered the vegetation. The shrub-dominated overstories typically support species of sagebrush and other shrubs, and the understories support perennial bunchgrasses, such as bluebunch wheatgrass and Sandberg's bluegrass. Shrublands are typically dominated by big sagebrush, with bunchgrasses and annual and perennial forbs in the understory. Dwarf shrublands, typically found in areas with shallow, stony soils, are dominated by Sandberg's bluegrass and a layer of dwarf shrub species including buckwheat and stiff sagebrush.

Conifer forest dominated by ponderosa pine becomes more prevalent towards the headwaters of Wenas Creek including Dipping Vat Canyon and Cow Canyon as well as the heavily dissected canyons of Cleman Mountain. The pine and associated grass and shrub understory becomes thicker in draws and at higher elevations as water is more available and eventually transitions to a Douglas-fir forest type at the highest elevations.

Fires in these fuel types would tend to spread very quickly and burn at low to mixed severities. Fire frequency is relatively frequent occurring approximately every 35 years.

Ingress-Egress

The Wenas Valley is accessed by North Wenas Road as well as several other secondary access roads in the developed areas, most of which are paved or graveled. There is limited access to the mid and upper slopes of Umtanum Ridge and Cleman Mountain. Black Canyon Road and North Wenas Road provide access points to the Umtanum Ridge area while most of the canyons on the west side of the Wenas Valley have gravel or dirt access roads.

Infrastructure

The primary infrastructure in the Wenas area is the irrigation network within the valley itself. There are also several rural airstrips.

Fire Protection

Yakima Valley Fire District #2 provides structural and wildland fire protection to the majority of residents and infrastructure within the Wenas Valley and Selah areas. The District's coverage in the Wenas Valley is limited to the residences in the valley bottom.

The Washington DNR provides supplemental wildland fire protection on State land and private forest lands in the surrounding area; however, the Department has limited resources staged in Yakima County and relies on the local fire district for initial attack. Additionally, the DNR does not provide structural protection.

Potential Mitigation Activities

Mitigation measures needed in the agricultural landscape include maintaining a defensible space around structures and access routes that lie adjacent to annual crops and other wildland fuels. Around structures, this includes maintaining a green or plowed space, mowing weeds and other fuels away from outbuildings, pruning and/or thinning larger trees, using fire resistant construction materials, and locating propane tanks, fuel tanks and firewood away from

structures. Roads and driveways accessing rural residents may or may not have adequate road widths and turnouts for firefighting equipment depending on when the residences were constructed. Performing road inventories in high risk areas to document and map their access limitations will improve firefighting response time and identify areas in need of enhancement. Primitive or abandoned roads that provide key access to remote areas should also be maintained in such a way that enables access for emergency equipment so that response times can be minimized. Roads can be made more fire resistant by frequently mowing along the edges or spraying weeds to reduce the fuels. Aggressive initial attack on fires occurring along travel routes will help ensure that these ignitions do not spread to nearby home sites. Maintaining developed drafting sites, increasing access to water from irrigation facilities, and developing other water resources throughout the agricultural landscape will increase the effectiveness and efficiency of emergency response during a wildfire.

East Valley and Rattlesnake Hills

The East Valley area extends from the Yakima River near Yakima along Highway 24 to Moxee and continues eastward. The valley is roughly bounded by Yakima Ridge to the north and Rattlesnake Hills to the south. Much of the valley bottom is currently being cultivated for vineyards and other irrigated crops.

The Yakima Training Center lies directly to the north of this area and encompasses much of Yakima Ridge and associated foothills. The Rattlesnake Hills have several recognizable landforms that can be seen from the East Valley on their north side or the Yakima River valley to the south including Elephant Mountain, Zillah Peak, Eagle Peak, High Top, and Table Top.

Wildfire Potential

Nearly all of this area is characterized by shrub-steppe vegetation where agricultural or other development hasn't altered the vegetation. The shrub-dominated overstories typically support species of sagebrush and other shrubs, and the understories support perennial bunchgrasses, such as bluebunch wheatgrass and Sandberg's bluegrass. Shrublands are typically dominated by big sagebrush, with bunchgrasses and annual and perennial forbs in the understory. Grasslands tend to occur on the north-facing aspects of the Rattlesnake Hills and are similar to shrublands, except that the shrub component is greatly reduced or absent, has been eliminated by some type of disturbance, or is represented by rabbitbrush, which may sprout vigorously after a fire. Dwarf shrublands, typically found in areas with shallow, stony soils, are dominated by Sandberg's bluegrass and a layer of dwarf shrub species including buckwheat and stiff sagebrush. Invasive plants, particularly cheatgrass, are also very predominant through the native shrub-steppe and grassland areas. Invasive plants tend to alter the natural fire regime, which significantly impacts the native ecosystem.

Ignition and fire spread potential is high in this area due to the military activities occurring on the Yakima Training Center installment immediately to the north as well as agricultural activities in East Valley and natural ignitions. The shrub-steppe fuel type and topography would generally support rapidly spreading, but primarily low and mixed severity fires.

Ingress-Egress

The main access route through East Valley is State Highway 24 running east to west. There are also numerous secondary access routes, particularly on the west end surrounding Moxee and

Terrace Heights. Access becomes more limited further east as the valley narrows and farms and residences become more infrequent.

Access to the Rattlesnake Hills is limited to a handful of primitive dirt roads, many of which are gated or posted. There are also numerous OHV routes; however, access is limited due to the checker boarded ownership of private lands, BLM, and Washington DNR.

Infrastructure

Infrastructure in the East Valley and Rattlesnake Hills area consists of numerous private and public structures associated primarily with the communities of Terrace Heights and Moxee, a large irrigation network, Highway 24, and a communications site on Elephant Mountain.

Fire Protection

Yakima Valley Fire District #4 provides structural and wildland fire protection to the majority of residents and infrastructure within the East Valley and Terrace Heights areas from the Yakima River east to the approximate headwaters of the valley near Firewater Canyon. District #4 also covers the north foothills of the Rattlesnake Hills including Elephant Mountain.

Yakima Valley Fire District #5 provides structural and wildland fire protection to much of the Rattlesnake Hills' southern exposure from the Parker area eastward all the way to the County line.

The BLM and DNR provide supplemental wildland fire protection throughout the East Valley and Rattlesnake Hills areas; however, these agencies have limited resources staged in Yakima County and rely on the local fire districts for initial attack. Additionally, these agencies do not provide structural protection. There is a large area between Yakima Ridge and the Rattlesnake Hills on the far eastern edge of the County that is not currently protected by any of the Yakima County fire districts.

Potential Mitigation Activities

Yakima County Fire Districts #4 and #5 provide their constituents with wildland fire prevention information on a regular basis and will continue to do so. Additionally, the South Central Washington Shrub-Steppe/Rangeland Partnership is actively working on the development and implementation of a conservation strategy to conserve and protect the unique native shrub-steppe and rangeland ecosystems in Yakima County. The Partnership is focusing on the following critical threats: fire and invasive species, unsustainable grazing, development and conversion, and protection of the Greater Sage-grouse.

Mitigation measures needed in the agricultural landscape include maintaining a defensible space around structures and access routes that lie adjacent to annual crops and other wildland fuels. Around structures, this includes maintaining a green or plowed space, mowing weeds and other fuels away from outbuildings, pruning and/or thinning larger trees, using fire resistant construction materials, and locating propane tanks, fuel tanks and firewood away from structures. Roads and driveways accessing rural residents may or may not have adequate road widths and turnouts for firefighting equipment depending on when the residences were constructed. Performing road inventories in high risk areas to document and map their access limitations will improve firefighting response time and identify areas in need of enhancement. Primitive or abandoned roads that provide key access to remote areas should also be maintained in such a way that enables access for emergency equipment so that response times can be minimized. Roads can be made more fire resistant by frequently mowing along the edges or

spraying weeds to reduce the fuels. Aggressive initial attack on fires occurring along travel routes will help ensure that these ignitions do not spread to nearby home sites. Designing a plan to help firefighters control fires in CRP lands that lie adjacent to agricultural crops would significantly lessen a fire's potential of escaping to the higher value resource. Mitigation associated with this situation might include installing fuel breaks or plowing a fire resistant buffer zone around fields and along predesigned areas to tie into existing natural or manmade barriers or implementing a prescribed burning program during less risky times of the year.

Maintaining developed drafting sites, increasing access to water from irrigation facilities, and developing other water resources throughout the agricultural landscape will increase the effectiveness and efficiency of emergency response during a wildfire.

Chapter 6

Mitigation Recommendations

Critical to implementation of this Community Wildfire Protection Plan are the identification and implementation of an integrated schedule of action items targeted at achieving a reduction in the number of unplanned human caused ignitions and fires as well as the negative impacts of wildland fires in Yakima County. This section of the plan identifies and prioritizes potential mitigation actions, including treatments that can be implemented in the county to pursue the County's fire management goals. As there are many land management agencies and thousands of private landowners in Yakima County, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of implementation will be accomplished across various ownerships.

The primary land management agencies in Yakima County, specifically the USDI Bureau of Land Management, USDA Forest Service, the State of Washington, and the Yakama Nation are participants in this planning process and have contributed to its development. Where available, their schedule of land treatments have been considered in this planning process to better facilitate a correlation between their identified planning efforts and the efforts of Yakima County.

Yakima County encourages the building of disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources; the cost of mitigation is often a small portion of the overall cost of a project's implementation.

All risk assessments were made based on the conditions existing during 2014. Therefore, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the county's resources are not static. It will be necessary to fine-tune this plan's recommendations regularly to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

Maintenance and Monitoring

The Yakima County Commissioners, working through the CWPP Steering Committee will ensure the continued maintenance of the CWPP. The steering committee recommends that the Yakima County CWPP be reviewed at least annually at special meetings of the CWPP Steering Committee, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. Amendments and updates to the plan should be documented and attached to the CWPP. Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following, in keeping with the Disaster Mitigation Act of 2000. The Yakima County Fire Marshal's Office is responsible for working with the CWPP Steering Committee to ensure review meetings are scheduled and changes to the Yakima County CWPP are recorded.

Prioritization of Mitigation Activities

As determined by the CWPP steering committee, the action items recommended in this chapter will be evaluated and prioritized on an annual basis. All of the action items are considered a high priority for Yakima County; thus, the steering committee will work with local partners to

determine how available resources will be allocated to the extent possible. Additionally, individual organizations are encouraged to work through their own means to accomplish as many of the action items as possible and report back to the committee.

The CWPP steering committee does not want to restrict funding to only those projects that are high priority because what may be a high priority for a specific community may not be a high priority at the county level. Regardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying criteria is a necessity for a functional mitigation program at the county and community level.

Residents and Homeowners

Yakima County Fire District’s cannot always protect everyone from wildfire, especially if those homeowners haven’t taken responsibility for ensuring firefighters can safely work in the area. By creating a defensible space around individual homes and communities, reducing hazardous fuels in the surrounding area, and ensuring that access routes will support fire apparatus, homeowners can greatly increase the likelihood that their property will survive a wildland fire event. It is imperative that homeowners work with their neighbors and communities to increase safety and reduce risk for the greater protection of all.

Table 6.1. Action Items for Residents and Homeowners.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
County	6.1.a: Develop defensible space around homes and encourage residents to participate in community awareness and education events.	1, 2, 5	Lead: CWPP Steering Committee Support: Washington DNR and Yakima County Fire Marshal’s Office	Continuous
County	6.1.b: Seek funding to assist homeowners in creating fire resistant homes and community areas.	1, 2, 7, 9	Lead: CWPP Steering Committee Support: Yakima County Conservation Districts and Washington DNR	Continuous
County	6.1.c: Offer hands-on workshops to highlight individual home vulnerabilities and how-to techniques to reduce ignitability of common structural elements and encourage residents to participate.	1, 7, 9	Lead: CWPP Steering Committee Support: Yakima County Fire Districts	Annual
County	6.1.d: Encourage all residents to assess and improve accessibility to their property.	1, 7, 9	Lead: CWPP Steering Committee Support: Yakima County Fire Protection Districts	Continuous
County	6.1.e: Develop a community-level CWPP for each at-risk community that will identify specific firefighting resource projects, fuels reduction projects, public education and outreach projects, and reduction in structural ignitability projects through collaboration with state, federal, tribal, county, and private entities.	1, 2, 3, 6, 8, 9	Lead: CWPP Steering Committee Support: Yakima County Fire Districts and Yakima County Fire Marshal’s Office	As Needed
Cowichee Mountain	6.1.f: Develop community signage plan (i.e. road signs, evacuation routes, etc.).	2, 3	Lead: Support:	Immediate

Table 6.1. Action Items for Residents and Homeowners.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
Cowichee Mountain	6.1.g. Establish a Community Emergency Response Team (CERT).	1, 2, 7, 9	Lead: Support: Yakima County Office of Emergency Management	Immediate
Highways 410 and 12	6.1.h: Improve or establish safety zones at the following locations: a. Bumping Dam/Lakebed b. Rimrock Lakebed c. Flying H Youth Ranch d. Jim Sprick Park e. Tieton State Airstrip	1, 2, 3, 7, 9	Lead: Highway 410 and 12 CWPP Committee Support: Washington DNR and U.S. Forest Service	Immediate
Highways 410 and 12	6.1.i. Encourage adjacent and nearby forestland owners to treat slash and other fuels created by management activities, especially in dry forest types (e.g. Rattlesnake, Little Rattlesnake, Rock Creek, Benton Creek, Gold Creek, Bald Mountain, and Oak Creek).	3, 6, 9	Lead: U.S. Forest Service Support: Washington DNR and North Yakima Conservation District	Continuous
Highways 410 and 12	6.1.j. Through an education network, provide information to residents regarding upcoming vegetation management projects on federal and state lands and encourage them to provide scoping comments supporting fuels reduction and forest health activities as well as slash management.	1, 2, 6, 7,	Lead: Highway 410 and 12 CWPP Committee Support: U.S. Forest Service, Yakima County Fire Districts #3 and #14, and Washington DNR	Continuous
Highways 410 and 12	6.1.k. Encourage state and private landowners to clearly post road identification signs and address numbers.	2, 3	Lead: Yakima County Fire Districts #3 and #14 Support: Yakima County Fire Marshal's Office	Continuous
Highways 410 and 12	6.4.l: Work with Yakima County to develop a communication list with recreational homeowners (secondary residences) in order to share wildfire awareness and prevention information as well as other community-based information.	1, 2, 7, 9	Lead: Highway 410 and 12 CWPP Committee Support: Yakima County Fire Marshal's Office	Immediate
Highways 410 and 12	6.4.m: Develop community signage plan (i.e., evacuation routes, safety zones, maintenance needs, etc.).	2, 3	Lead: Highway 410 and 12 CWPP Committee Support: Yakima County Fire Marshal's Office	Immediate
Highways 410 and 12	6.4.n: Continue to conduct structural and community risk evaluations for the development of defensible space projects.	3, 6, 9	Lead: Highway 410 and 12 CWPP Committee and Yakima County Fire Districts #3 and #14 Support: Washington DNR and North Yakima Conservation District	Continuous

Fire and Emergency Responders

There are a number of resource and capability enhancements identified by the fire and emergency responders in Yakima County. All of the needs identified are in line with increasing the ability to respond to emergencies and are fully supported by the CWPP steering committee.

The implementation of each action item will rely on either the isolated efforts of the rural fire districts or a concerted effort by the County or YVFACC to achieve equitable enhancements across all of the districts. Given historic trends, individual departments competing against neighboring departments for grant monies and equipment will not necessarily achieve countywide equity.

Table 6.2. Action Items for Fire and Emergency Responders.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
County	6.2.a: Develop a program to incorporate Firewise and Fire Adapted Communities into all aspects of the community through education on individual roles and responsibilities for wildland fire prevention and safety.	1, 2, 7	Lead: CWPP Steering Committee Support: Yakima County Fire Districts, Washington DNR, Yakima County Fire Marshal's Office	Annually
County	6.2.b: Target fire education in schools to encourage younger generations to become interested in firefighting. Carry out recruitment drives through open house meetings and mailings.	1, 2, 7	Lead: Yakima County Fire Districts Support:	Bi-annually
County	6.2.c: Provide funding to volunteer fire departments to hire career (paid) staff in Yakima County to help provide coverage when volunteers are unable to respond.	4	Lead: Yakima County Fire Districts Support:	Annually
County	6.2.d: Provide added incentives for volunteer firefighters as well as employers that allow their employees to respond to emergencies during work hours.	2, 4	Lead: Yakima County Fire Districts Support:	Annually
County	6.2.e: Develop and expand community emergency response teams.	2, 4, 7, 8	Lead: Yakima County Fire Marshal's Office Support: Community members	Annually
County	6.2.f: Coordinate and fund monthly ads in local media that maintain consistent and seasonally relevant fire information.	1, 2, 7	Lead: CWPP Steering Committee Support: Yakima County Fire Districts	Annually
County	6.2.g: Develop a homeowner's guide that gives locally relevant and detailed information to help residents be more prepared for wildfire, including a defensible space checklist specific to local structural and wildland fuel considerations.	1, 2, 7	Lead: Yakima County Conservation Districts Support: CWPP Steering Committee	Bi-annually

Table 6.2. Action Items for Fire and Emergency Responders.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
County	6.2.h: Provide support to local teachers to implement and customize youth fire education and preparedness curriculum.	1, 2, 7	Lead: Local schools Support: Yakima County Conservation Districts	Continuous
County	6.2.i: Prepare for wildfire events in high risk areas by conducting home site risk assessments and developing area-specific “Response Plans” to include participation by all affected jurisdictions and landowners.	2, 3, 6, 7, 8	Lead: Washington DNR and Yakima County Conservation Districts Support: Yakima County Fire Protection Districts	As Needed
County	6.2.j: Fund development of materials and presentations to highlight how fire might affect particular groups within the community, such as realtors, farmers, recreation homeowners, and real estate developers	1, 2, 7	Lead: Yakima County Conservation Districts Support: Fire Adapted Communities	Bi-annually
County	6.2.k: Obtain State and Federal funding to develop a fleet of quick response wildfire suppression units to reduce damage to sensitive areas when engaged in fire suppression.	2, 4	Lead: Yakima County Fire Districts Support:	Immediate
County	6.2.l: Secure funding to purchase fuels treatment equipment (e.g. chipper, masticator, etc.) to be shared by local fire districts.	1, 2, 4, 7	Lead: Yakima County Conservation Districts Support: Yakima County Fire Districts and Washington DNR	Immediate
County	6.2.m: Secure funding to purchase personal protective equipment.	4	Lead: Yakima County Fire Districts Support:	Continuous
County	6.2.n: Obtain state and federal funding leveraged through the CWPP for radios, engines, tenders, dozers, and other specialized wildland fire suppression equipment.	4	Lead: Yakima County Fire Protection Districts Support: Yakima County Fire Chief’s Association	Continuous
County	6.2.o: Secure funding to purchase and maintain a Mobile Fire Supply Cache, i.e., portable water tanks, forestry hose, pumps, shovels, water back packs, hose fittings, and nozzles stored in an enclosed trailer.	4	Lead: Yakima County Fire Chief’s Association Support: Yakima County Fire Districts	Continuous

Table 6.2. Action Items for Fire and Emergency Responders.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
County	6.2.p: Construct a new fire station along Highway 410 to aid Yakima County Fire District #14 in providing adequate protection for residents, recreational homeowners, and tourists.	2, 4, 8	Lead: Yakima County Fire District #14 Support: CWPP Steering Committee and district residents	5 years
County	6.2.q: Inventory and map all potential water supplies throughout the County (drafting sites, dipping sites, cisterns, dry hydrants, etc.) and develop a plan to strategically locate new sites where needed.	3, 4, 7	Lead: Yakima County Fire Districts Support:	2 Years
County	6.2.r: Secure funding to purchase portable radio repeater kits.	4	Lead: Yakima County Fire Marshal's Office Support: Yakima County Fire Districts	Immediate
Cowichee Mountain	6.2.s: Work with Yakima County Office of Emergency Management to coordinate information about evacuation centers and routes.	1, 2, 4, 8	Lead: Cowichee Mountain CWPP Committee Support: Yakima County Office of Emergency Management	Continuous
Cowichee Mountain	6.2.t: Integrate new shrub-steppe training modules for annual renewal courses and begin working with Yakima County Fire District #12 as a pilot.	1, 2, 3, 7	Lead: South Central Washington Shrub Steppe/Rangeland Partnership Support: Yakima County Fire District #12	3 Years
Cowichee Mountain	6.3.u: Improve communications in and around White Pass and Rimrock Retreat area through establishment of permanent fixed radio tower on Little Bald.	2, 3, 4	Lead: Yakima County Fire District #3 Support:	3 Years
Cowichee Mountain	6.2.v: Create a map of potential water sources in areas currently lacking the information.	3, 8, 9	Lead: Cowichee Mountain CWPP Committee Support:	2 Years
Cowichee Mountain	6.2.w: Establish a new satellite station in a high risk remote location.	4, 8	Lead: Yakima County Fire District #1, #9, and #12 Support: Cowichee Mountain CWPP Committee	5 Years

Table 6.2. Action Items for Fire and Emergency Responders.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
Highways 410 and 12	6.2.x: Standardize interagency apparatus fittings and nozzles.	4	Lead: Yakima County Fire Districts #3 and #14 Support:	Immediate
Highways 410 and 12	6.2.y: Establish or improve water drafting sites and stand pipes.	3, 8	Lead: Yakima County Fire Districts #3 and #14 Support:	As Needed
Yakama Nation	6.2.z: Implementation of Fire Prevention and Education program.	2, 4, 7,8	Lead: Yakama Fire Management Support:	Continuous
Yakama Nation	6.2.aa: Develop an early warning system on the Yakama Reservation.	1, 4, 7	Lead: Yakama Fire Management Support:	3 Years
Yakama Nation	6.2.bb: Conduct on-site inspections of equipment being used on trust and restricted title lands to reduce the occurrence of equipment-caused fires.	3, 7, 9	Lead: Yakama Nation Department of Natural Resources Support:	Continuous
Yakama Nation	6.2.cc: Increase engine and prevention patrols in high wildfire occurrence areas during periods of high debris burning activity or periods of high fire danger.	3, 4, 7	Lead: Yakama Fire Management Support:	Annually

Civic and Community Leaders

Wildfire mitigation efforts must be supported by a set of policies and regulations, where appropriate, as well as guidelines at the county and community levels that maintain a solid foundation for safety and consistency. They must also be supported by the public infrastructure, economy, and value system. Critical infrastructure refers to the communications, transportation, power lines, and water supply that service a region or a surrounding area. All of these components are important to central Washington and to Yakima County specifically. These networks are, by definition, a part of the wildland urban interface in the protection of people, structures, infrastructure, and unique ecosystems. Without supporting infrastructure, a community’s structures may be protected, but the economy and way of life lost.

Table 6.3. Action Items for Civic and Community Leaders.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
County	6.3.a: Develop pre-emergency communication plans including a Reverse 911 system or phone trees and contact lists.	1, 2, 4, 7	Lead: Yakima County Office of Emergency Management Support: CWPP Steering Committee	Annually
County	6.3.b: Continue to adopt the current edition of the International Urban-Wildland Interface Code and enforce the Yakima County Urban-Wildland Interface Code.	5	Lead: Yakima County Fire Marshal’s Office Support:	Continuous
County	6.3.c: Address fire protection issues in currently unprotected “no man’s land” areas.	3, 5	Lead: Yakima County Fire Marshal’s Office Support:	Ongoing
County	6.3.d: Develop and maintain a central database for fire history on all jurisdictions in the county to aid in future fire response rates and supplement resources for wildfire dispatches in unincorporated areas.	2, 4, 5, 7	Lead: Yakima County Fire Districts Support:	Continuous
County	6.3.e: Work proactively at multiple scales to steer development (energy, new cultivation, infrastructure, residential, etc.) away from unique habitats and wildlife movement corridors. Where development is inevitable, work with partners to ensure the maximum conservation benefit.	1, 5	Lead: South Central Washington Shrub Steppe/Rangelands Partnership Support: Yakima County	Immediate
Cowychee Mountain	6.3.f: Conduct a specific analysis of ingress/egress issues in the Cowychee CWPP planning area for connection to county zoning planning and permitting.	2, 3, 7, 8	Lead: Yakima County Fire Marshal’s Office Support:	3 Years
Highways 410 and 12	6.3.g: Assess if the development of a new fire district or expansion of Fire Protection District #3 and/or #14 is an option for coverage of recreational residences.	2, 4, 8	Lead: Yakima County Fire Districts #3 and #14 Support: Local landowners	Ongoing
Highways 410 and 12	6.3.h: Develop an Evacuation Plan to include evacuation centers, public notification strategy, and safety zones. Tier the Evacuation Plan to the Yakima County Emergency Operations Plan.	2, 7	Lead: Highways 410 and 12 CWPP Committee Support: Yakima County Office of Emergency Management	Immediate
Highways 410 and 12	6.3.i: Improve communication systems within the Highways 410 and 12 CWPP area including the installation of cellular towers, a systematic warning system, an alert warning system, and phone trees.	3, 4, 8	Lead: Highways 410 and 12 CWPP Committee Support:	5 Years

Table 6.3. Action Items for Civic and Community Leaders.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
Yakama Nation	6.3.j: Continued enforcement of burn permits.	1, 2, 4, 7	Lead: Yakama Fire Management Support:	Continuous

Forest and Land Managers

There are many land management issues associated with wildfire that can have lasting effects on natural resources as well as communities and local economy. In addition to the immediate responsibility of wildfire suppression, land managers at all levels; local, state, Tribal, and Federal, must also be aware of and plan for the long-term impacts and implications of wildland fire on the landscape. Undeveloped private and public lands serve many purposes and are highly valued for their ability to provide habitat for animals, recreational and hunting opportunities, timber resources, etc. Wildfire affects each of these values in different ways some of which are very direct such as the loss of timber assets, but some are subtle and take place over long periods of time such as the loss of native seed sources due to repeated burning.

The following action items recommend projects or programs that will help alleviate some of the management issues associated with wildland fire. Specific fuels reduction projects are included in the Proposed Projects section (Table 6.5).

Table 6.4. Action Items for Forest and Land Managers.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
County	6.4.a: Work with private landowners, state and federal agencies, and the Yakama Nation to secure funds for pre-fire control lines in fire prone wildfire areas.	3, 6, 7	Lead: Yakima County Fire Districts Support: BLM and Yakama Nation	Annually
County	6.4.b: Develop a program in cooperation with local private landowners to secure unique habitats from the threat of development and conversion through the use of easements, fee title acquisition, farm bill programs, or other strategies that ensure long-term conservation.	1, 2, 7, 9	Lead: South Central Washington Shrub Steppe/Rangelands Partnership Support: Cowiche Canyon Conservancy	Continuous
County	6.4.c: Develop wash stations for brush trucks at rural fire stations to help prevent weed spread.	3, 6, 9	Lead: Yakima County Fire Districts Support: South Central Washington Shrub Steppe/Rangelands Partnership	Immediate

Table 6.4. Action Items for Forest and Land Managers.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
County	6.4.d: Assist the Yakama Nation with locating resources and building public support for a cost efficient and sustainable long term management program for its shrub steppe/rangelands and associated horse population.	2, 6, 7	Lead: South Central Washington Shrub Steppe/Rangelands Partnership Support: Yakama Nation	Immediate
County	6.4.e: Work with the BLM to develop programmatic direction for the use of National Fire Plan funding and Wyden Authority in shrub-steppe.	2, 7	Lead: South Central Washington Shrub Steppe/Rangelands Partnership Support: BLM	Ongoing
Cowycchee Mountain	6.4.f: Restore resilient shrub-steppe by reducing non-native fuels and re-establishing native plant succession.	3, 6, 7	Lead: South Central Washington Shrub Steppe/Rangeland Partnership Support:	Intermittent
Cowycchee Mountain	6.4.g: Initiate fuel break projects to evaluate best sites for controlling fire. Design planting mix for firelines that are self-maintaining and don't create a new fuel source.	3, 6, 7	Lead: South Central Washington Shrub Steppe/Rangeland Partnership Support: Yakima County Fire District #1, #9, and #12	2 Years
Cowycchee Mountain	6.4.h: Establish firebreaks around intermix and interface WUI areas.	3, 6, 7	Lead: Yakima County Fire District #1, #9, and #12 Support:	Continuous
Cowycchee Mountain	6.4.i: Identify high value shrub-steppe sites for active protection.	3, 6, 7	Lead: South Central Washington Shrub Steppe/Rangeland Partnership Support:	Continuous
Cowycchee Mountain	6.4.j: Re-characterize abandoned orchards as Timber Understory (TY) or Timber/litter in the vegetation database due to areas of standing dead or cut piles of orchard material where irrigation has been removed.	3, 8	Lead: Cowycchee Mountain CWPP Committee Support:	Immediate
Highways 410 and 12	6.4.k: Encourage public land agencies to minimize road closures and prioritize maintenance on roads that provide for efficient firefighting access.	1, 2, 7, 8, 9	Lead: Yakima County Fire Districts #3 and #14 Support: U.S. Forest Service and private landowners	Ongoing
Highways 410 and 12	6.4.l: Expand areas allowing personal use firewood collection in order to reduce timber sale residues and remove dead standing volume in excess of large woody debris recruitment requirements.	3, 6, 7, 8	Lead: U.S. Forest Service Support: private landowners	Immediate

Table 6.4. Action Items for Forest and Land Managers.

Planning Level	Action Item	Goals Addressed (pgs 4-5)	Organization	Timeline
Highways 410 and 12	6.4.m: Establish Bumping River Road as a designated and maintained escape route.	2, 3	Lead: Highways 410 and 12 CWPP Committee Support: Yakima County Fire Districts #3 and #14	Immediate
Yakama Nation	6.4.n: Make an increased effort to provide appropriate information regarding prescribed burning precautions to tribal members, tribal government, other local governments, cooperators, and the general public.	1, 2, 4, 7, 8	Lead: Yakama Fire Management Support: Yakama County Fire District #5	Continuous

Proposed Project Areas

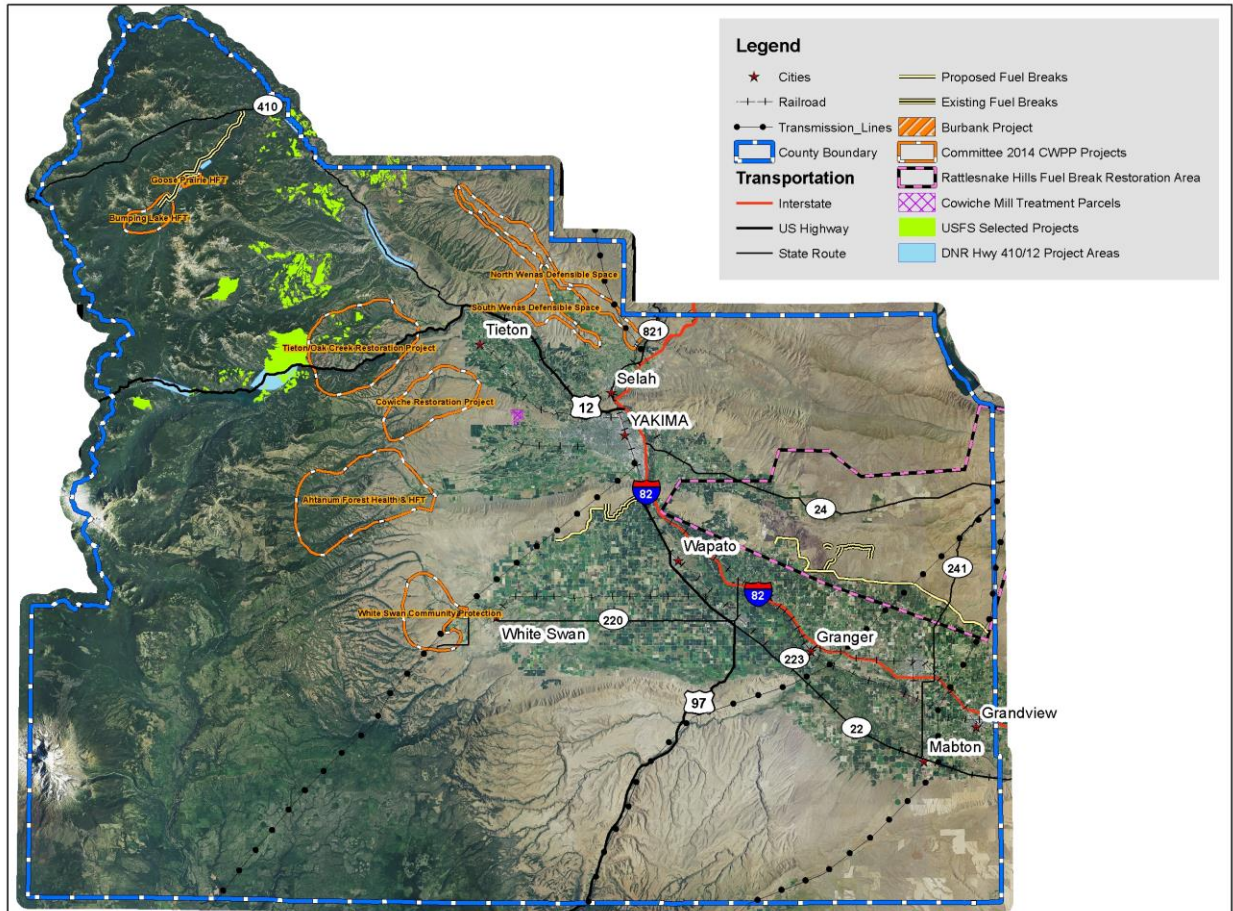
The following project areas were identified by the CWPP steering committee and from citizens' recommendations during the public meetings. These projects typically have multiple factors contributing to the potential wildfire risk for residents and homes, emergency responders, communities, infrastructure, or unique ecosystems. Treatments within the project areas will be site specific, but will likely include homeowner education, creation of a wildfire defensible space around structures, hazardous fuels reduction, forest or rangeland health treatments, restoration projects, and/or access corridor improvements. All work on private property will be performed with consent of, and in cooperation with the property owners. Specific site conditions may call for other types of fuels reduction and fire mitigation techniques as well. Fuels reduction and defensible space projects may include, but are not limited to, commercial or pre-commercial thinning, pruning, brush removal, chipping, prescribed burning, installation of greenbelts or shaded fuel breaks, slash burning, and general forest and range health improvements.

Table 6.5. Proposed 5- Year Fuels Reduction Project Areas.		
Project Name	Project Description	Lead Organization
Tieton/Oak Creek Restoration Project	Forest health restoration treatments.	Partnership Effort
Cowiche Mill Treatments	Rangeland restoration.	Partnership Effort
Burbank Project	Rangeland restoration.	Partnership Effort
Proposed Fuel Breaks	Disc or mow vegetation to create fuel breaks in interface areas.	Yakima County Fire Districts
DNR Hwy 410/12 Projects	Hazardous fuels treatments.	Washington DNR
USFS Projects	Various vegetation management and restoration projects.	USFS
Rattlesnake Hills Fuel Break Restoration Area	Restoration of old fire lines in rangeland areas.	Yakima County Fire Districts
North Wenas Defensible Space	Defensible space projects surrounding structures.	Yakima County Fire Districts
South Wenas Defensible Space	Defensible space projects surrounding structures.	Yakima County Fire Districts
Cowiche Restoration Project	Rangeland and grassland restoration with some forestland treatments.	Partnership Effort
Ahtanum Forest Health and HFT	Forest health restoration treatments and hazardous fuels reduction.	Partnership Effort
White Swan Community Protection	Hazardous fuels treatments in waterways, defensible space around structures, and installation of fuel breaks.	Yakima County Fire Districts
Goose Prairie HFT	Hazardous fuels reduction and defensible space treatments.	US Forest Service and partners
Bumping Lake HFT	Hazardous fuels reduction and defensible space treatments.	US Forest Service and Partners

The Washington Department of Natural Resources, U.S. Forest Service, Bureau of Land Management, conservation districts, and/or individual fire districts may take the lead on implementation of many of these projects; however, project boundaries were purposely drawn

without regard to land ownership in order to capture the full breadth of the potential wildland fire risk. Coordination and participation by numerous landowners will be required for the successful implementation of the identified projects.

Figure 6.1. Map of Proposed Projects.



Chapter 7

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Signature Pages

This Yakima County Community Wildfire Protection Plan has been developed in cooperation and collaboration with representatives of the following organizations and agencies.

Yakima County Commissioners

BOARD OF YAKIMA COUNTY COMMISSIONERS

IN THE MATTER OF ADOPTING)
THE YAKIMA COUNTY COMMUNITY) RESOLUTION 176-2015
WILDFIRE PROTECTION PLAN)

WHEREAS, the National Cohesive Wildland Fire Management Strategy focuses on collaboration among all stakeholders in order to live with wildland fire; and,

WHEREAS, the Healthy Forests Restoration Act promotes the idea of community-based forest planning and prioritization; and,

WHEREAS, the National Fire Plan places a priority on working collaboratively within communities in the wildland urban interface to reduce the risk from large-scale wildfire; and,

WHEREAS, the Federal Emergency Management Agency has directed state and local governments to adopt pre-disaster mitigation programs to reduce the losses resulting from natural disasters; and,

WHEREAS, the Yakima County Community Wildfire Protection Plan serves as a county-wide wildfire protection plan based on the needs of the people involved in the wildland urban interface area; and,

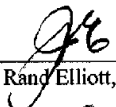
WHEREAS, the Yakima County Community Wildfire Protection Plan addresses issues of wildfire response, hazard mitigation, community preparedness, and structure protection at the county level; and,

WHEREAS, the goals of the Yakima County Community Wildfire Protection Plan are to improve prevention and suppression, reduce hazardous fuels, restore fire adapted ecosystems, promote community assistance, comply with environmental laws and policies, and tier to existing emergency response plans in Yakima County; and,


WHEREAS, it is the intent of Yakima County to partner with Federal, State, and private forest protection agencies, local fire protection districts, and wildland urban interface communities to preserve and enhance the safety, welfare and quality of life to our citizens; now, therefore,

BE IT HEREBY RESOLVED that the Board of County Commissioners of Yakima County, Washington hereby adopts the Yakima County Community Wildfire Protection Plan.

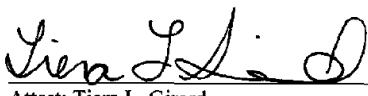
DONE this 28th day of April, 2015




J. Rand Elliott, Chairman



Michael D. Leita, Commissioner




Attest: Tiera L. Girard
Clerk of the Board




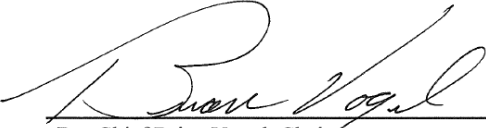
Kevin J. Bouchey, Commissioner
Constituting the Board of County Commissioners
for Yakima County, Washington

Signatures of Participation by Yakima County CWPP Steering Committee Members

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed. These members of the CWPP steering committee formally recommended that this document be adopted by the Yakima County Commissioners.



By: Linda Coates-Markle, Wenatchee Field Office Manager
Bureau of Land Management
Date: 2.10.15



By: Chuck Wytko, Landowner Assistance Program Manager
Washington Department of Natural Resources
Date: 2-10-15



By: Chief Brian Vogel, Chair
Yakima County Fire Chief's Association
Date: 2-19-2015


By: Karen Freshwater, Liaison
Highway 410/12 CWPP Committee
Date:


By: Gail Thornton, Chairman
North Yakima Conservation District
Date: 2-18-15


By: Dirk Van Slageren, Chairman
South Yakima Conservation District
Date: 2/10/15


By: M. Reese Lolley, Eastern WA Forests Program Director
The Nature Conservancy
Date: February 9, 2015

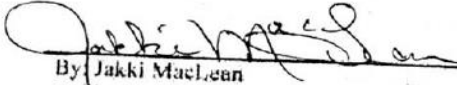

By: KELLY D. LAWRENCE, DISTRICT RANGER
U.S. Forest Service
NACHES RANGER DISTRICT
Date: 2/27/15



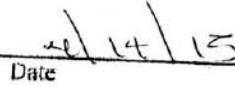
By: Ryan Anderson, Executive Director
South Central Washington RC&D



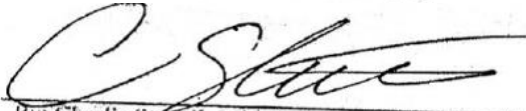
Date



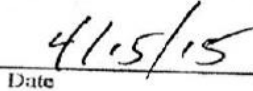
By: Jakki MacLellan
Yakima County Fire Marshal's Office



Date



By: Charlie Stevall, Mid-Columbia River NWRC Project Lead
U.S. Fish and Wildlife Service



Date

By: Aaron Everett, State Forester
Washington Department of Natural Resources

Date

This plan was developed by Northwest Management, Inc. under contract with the Bureau of Land Management and Yakima County.

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