



# Linn County Community Wildfire Protection Plan

**Prepared for Linn County  
by ECONorthwest**

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# Executive Summary

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This plan describes Linn County's risk from wildfires as well as the specific steps that it will take to reduce that risk now and in the future. It is a Community Wildfire Protection Plan (CWPP), a collaborative effort to reduce the potential for future loss of life and property resulting from wildfire.

## WHY DEVELOP A MITIGATION PLAN?

Wildfire hazard mitigation is a system for permanently reducing or alleviating the losses of life, property, and injuries resulting from wildfire through long and short-term strategies. The plan and the strategies in it recognize that it is impossible to predict exactly when a wildfire will occur, or the extent to which it will affect Linn County's communities. However, with careful planning and collaboration among public agencies, private sector organizations, and citizens throughout the County, it is possible to minimize the losses that can result from Wildland Urban Interface (WUI) fire events.

This CWPP is intended to assist Linn County in reducing its risk from WUI wildfire hazards by identifying resources, information, and strategies for risk reduction. It will also help to guide and coordinate mitigation activities throughout the County.

## HOW IS THE PLAN ORGANIZED?

The Linn County Community Wildfire Protection Plan follows the guidelines established by HFRA (Healthy Forest Restoration Act, 2003) and has the following components:

- **Section 1: Introduction.** Describes the purpose and process of Linn County's CWPP
- **Section 2: Community Profile.** Determines the boundaries of the Plan's implementation and describes the communities that fall within that boundary in terms of their relative risk and preparedness for a wildfire event. Discusses the conditions for community participation and outreach.
- **Section 3: Risk Assessment.** Ranks communities at risk for wildfire in Linn County and provides a series of maps that pinpoint areas of Extreme, High, Moderate, and Low risk in Linn County's Wildland Urban Interface.
- **Section 4: Community Outreach.** Details the process by which community participation and input was gathered through FireWise workshops and agency surveys. Establishes the basis for future collaborative efforts.

- **Section 5: Action Plan.** Sets forth the five Goals of Linn County’s CWPP, and establishes Action Items that will further the County toward it’s wildfire mitigation Goals. Each action is assigned to a participating agency. The Action Items are set forth in detail in an attachment to the Plan.
- **Section 6: Implementation and Maintenance.** Discusses the future of Linn County’s CWPP and offers suggestions for keeping the Plan a “living”, relevant, and up-to-date document that can be utilized throughout the County for years to come.

## WHO PARTICIPATED IN DEVELOPING THE PLAN?

Linn County’s Community Wildfire Protection Plan is the result of the collaborative efforts of the following agencies:

- Oregon Department of Forestry
- Bureau of Land Management, Salem Office
- Linn County Planning and Building Department
- Linn County Fire Defense Board
- Willamette National Forest and Bureau of Land Management, Eugene Office
- Linn County Emergency Services

In addition, the CWPP draws upon the input and feedback provided by members of the public and other stakeholders who participated in a FireWise workshop.

## WHAT IS THE PLAN’S MISSION?

The mission of the Linn County CWPP aligns with the mission for the Linn County Natural Hazard Mitigation Plan. The mission is:

*To reduce the impact of natural hazards on the community through planning, communication, coordination and partnership development.*

## WHAT ARE THE PLAN GOALS?

The participants in this collaborative process identified five County-wide goals that could be effectively addressed by a CWPP. These goals are the product of input from community members through the FireWise workshop, and are also coordinated with the County’s Natural Hazard Mitigation Plan.

- **Goal #1:** Enhance wildfire response capabilities
- **Goal #2:** Increase stakeholder knowledge about wildfire risk through education and outreach

- **Goal #3:** Encourage the treatment of structural ignitability
- **Goal #4:** Prioritize fuel reduction projects
- **Goal #5:** Increase opportunities for collaboration and coordination to implement wildfire projects.

## HOW ARE THE ACTION ITEMS ORGANIZED?

Each goal has been assigned action items that were agreed upon through the collaborative process. Action items have been grouped according to the goal which they are meant to support. Each item has been assigned to a participating agency for continuing oversight and “ownership”. In addition, the committee has suggested potential partners in carrying out the action. Partnerships can be formed with a variety of agencies, entities, and organizations, and have been split into two basic groups: Internal and External Partners.

- Internal Partners are organizations that have been involved with the construction of the County’s CWPP. The Bureau of Land Management might serve as an internal partner to the Oregon Department of Forestry in the implementation of action item 4.3, for example.
- External Partners are organizations, agencies, and companies that can provide support in implementing the action items through various activities. An example might be the help of insurance or real estate agencies in disseminating information about maintaining defensible space around a person’s property.

Below is the Linn County Community Wildfire Protection Plan Action Item Matrix. This matrix allows for a quick overview of each goal and it’s corresponding action items. These items can be updated as needed by participating agencies.

# Linn County Community Wildfire Protection Plan Action Item Matrix

Goals	Action Item:			
<b>GOAL 1: Enhance wildfire response capabilities</b>				
		Time Line	Lead Organization	Internal/External Partners
	<b>Action 1.1</b> Assess and address deficiencies in equipment and resources available for wildland fire fighting for rural fire departments.	Ongoing	Fire Defense Board	Roads Department, Emergency Management, Power Companies, Hospitals, and Private Contractors, ODF
	<b>Action 1.2</b> Inventory alternative firefighting water sources in Wildland Urban Interface, including helicopter dip sites	1-2 years	Oregon Department of Forestry	Rural Fire Protection Districts, United States Forest Service, Small Woodlands Association, and Oregon Civil Air Patrol, Industrial land owners, Water Master
	<b>Action 1.3</b> Improve addressing and visibility in rural areas	3-5 years	Linn County Sheriff - Dispatch and the Fire Defense Board	Building Department, Fire Defense Board, Linn County GIS
	<b>Action 1.4</b> Enhance interoperable communications by addressing communication deficiencies	3-5 years	Linn County Sheriff - Dispatch	Rural Fire Protection Districts, Oregon Department of Forestry
	<b>Action 1.5</b> Develop evacuation plans and procedures for high-risk WUI areas	Ongoing	County Emergency Management	Roads Department, Linn County GIS, Oregon Department of Forestry, US Forest Service
	<b>Action 1.6</b> Augment volunteer fire fighter training to improve response capabilities, especially in rural fire districts	Ongoing	Linn County Fire Training Council	Emergency Management
	<b>Action 1.7</b> Seek funding to build a smaller secondary substation on the east side of the Harrisburg District	3-5 years	Harrisburg Rural Fire Protection District	Linn County Emergency Management

**GOAL 2: Protect life, the built environment and natural systems through County policies, procedures and services**

	Time Line	Lead Organization	Internal/External Partners
<b>Action 2.1</b> Collaborate with developers/builders, fire protection agencies, and relevant County agencies to collect and distribute educational materials regarding fire-resistant construction materials, fire code standards for access, water supply, fuel breaks and fire-resistant vegetation in the wildland interface/forest designated areas	Ongoing	Planning Department	Oregon Department of Forestry, Office of State Fire Marshal, County Planning and Building, Insurance Companies, Banks, Community Emergency Response Teams, Neighborhood Watch Groups, Senior Citizen Groups, OSU extension
<b>Action 2.2</b> Work with local nurseries and the extension service's Master Gardeners program to promote firewise landscaping	1-3 years	Oregon State University Extension Service	Linn County Fairgrounds, Oregon Gardens Nursery, Master Gardeners, Oregon Nursery Association, Oregon Department of Forestry, 4-H Clubs, Boy Scouts, High School Forestry Clubs
<b>Action 2.3</b> Continue to educate the public about campfire safety	Ongoing	US Forest Service, Bureau of Land Management, Oregon Department of Forestry	County Sheriff, Rural Fire Protection Districts, Oregon State Police, Sporting Goods Stores
<b>Action 2.4</b> Continue supporting and expanding the Smokey Bear Fire Prevention Programs in schools	Ongoing	US Forest Service, ODF	Oregon State Parks, School Districts
<b>Action 2.5</b> Integrate wildfire hazards and safety programs into educational curriculum	Ongoing	Fire Defense Board	Office of State Fire Marshal, School Districts, Colleges
<b>Action 2.6</b> Create an "Extreme Home Make-over" contest to highlight the need for firewise landscaping	1-3 years	Linn County Planning, Oregon Department of Forestry	Media, Hardware and supply stores

**GOAL 3: Encourage the treatment of structural ignitability**

	Time Line	Lead Organization	Internal/External Partners
<b>Action 3.1</b> Identify incentives for improving maintenance of fire breaks and reducing hazardous vegetation	Ongoing	Oregon Department of Forestry	Fire Defense Board, Insurance Agencies, Small Woodlands Association, Industrial land owners
<b>Action 3.2</b> Work with insurance providers to improve their criteria to adequately represent level of structural fire protection in residential structures, especially in high-risk areas.	Ongoing	State Insurance Commissioner's Office	Fire Districts, Office of State Fire Marshal, Insurance Companies, Oregon Department of Forestry
<b>Action 3.3</b> Enhance structural protection in structurally unprotected areas and comply with the Governor's policy in unprotected areas to be eligible for conflagration resources.	Ongoing	Linn County Planning	Fire Districts, Land Owners
<b>Action 3.4</b> Complete the fire structural risk assessments in Brownsville, Lebanon, and Sweet Home fire districts, and utilize this as a model program for other Linn County fire districts	1-3 years	Fire Defense Board, Oregon Department of Forestry	Retired professionals, Universities, Neighborhood Associations, CERT Teams, Watershed Councils
<b>Action 3.5</b> Develop processes and standards for the implementation of Oregon Senate Bill 360: Oregon Forestland Urban Interface Fire Protection Act	1-3 years	County Planning and Building	Board of County Commissioners, Oregon Department of Forestry, Bureau of Land Management, US Forest Service

**GOAL 4: Prioritize fuel reduction projects**

	Time Line	Lead Organization	Internal/External Partners
<b>Action 4.1</b> Incorporate, maintain, and update Linn County's Wildland-Urban Interface Risk Assessment and GIS data elements, and develop and maintain an inventory of potential fuels reduction projects in high-risk areas, silvicultural prescriptions, and list of prioritized fuel projects	Ongoing	ODF, Linn County Planning, and Linn County GIS	US Forest Service, Bureau of Land Management, United States Forest Service
<b>Action 4.2</b> Develop educational materials designed to educate property owners about the benefits of sustained fuel reduction efforts	Ongoing	Fire Defense Board	Linn County Planning, Linn County Sheriff, Oregon Department of Forestry, Bureau of Land Management, United States Forest Service, Oregon State University Extension Service, 4-H programs, Boy Scouts, Neighborhood Watch Programs, Small Woodland Association
<b>Action 4.3</b> Develop a resource guide to assist private landowners on how to complete risk assessments and determine appropriate fuel reduction strategies	1-3 years	Oregon Department of Forestry	Fire Defense Board, Oregon State University Master Woodland Manager Program, Association of Oregon Loggers, Society of American Foresters
<b>Action 4.4</b> Identify opportunities to assist vulnerable populations (i.e., elderly, disabled, etc.) who request assistance in creating defensible space around homes and communities	1-3 years	Oregon Department of Forestry	Fire Defense Board, Linn County Planning, Oregon State University Extension Service, Northwest Youth Corps, social services organizations
<b>Action 4.5</b> Explore and promote opportunities for small diameter biomass utilization and marketing	1-3 years	CWPP Committee	Linn County Planning, Oregon State University Extension Service, Small Woodlands Association, Bureau of Land Management, US Forest Service, Association of Oregon Loggers
<b>Action 4.6</b> Explore the development of a Linn County Fuels Management Cooperative through the Small Woodland Association for sustaining fuels management within the WUI	1-3 years	Fire Defense Board, Oregon Department of Forestry	Small Woodlands Association, Bureau of Land Management, US Forest Service, Association of Oregon Loggers
<b>Action 4.7</b> Work with forestland managers and watershed managers to protect water quality in high risk areas while reducing wildfire hazards	1-3 years	ODF	Oregon Department of Forestry, Watershed Councils, Soil and Water Conservation District, US Forest Service, Private Timber Companies, Department of Environmental Quality, Bureau of Land Management
<b>Action 4.8</b> Work with County Roads Department and ODOT to reduce hazardous vegetation in Right of Ways to enhance access and create fuel breaks, and to keep County/access roads large enough for fire vehicle passage.	Ongoing	County Roads Department	Linn County Planning, Oregon Department of Forestry, Bureau of Land Management, US Forest Service
<b>Action 4.9</b> Support creation of fire buffers around agricultural land	Ongoing	Linn County Planning	Fire Defense Board, Cities, Rural Fire Protection Districts, Oregon Department of Forestry, Department of Agriculture

**GOAL 5: Increase opportunities for collaboration and coordination to implement wildfire projects**

	Time Line	Lead Organization	Internal/External Partners
<p><b>Action 5.1</b> Create and formalize a CWPP Advisory Committee to oversee implementation, identify and coordinate funding opportunities, and sustain the Linn County Community Wildfire Protection Plan</p>	1 year	County Commission, County Planning and Building	Committee representatives
<p><b>Action 5.2</b> Establish a sub-committee or a Fire Prevention Cooperative to coordinate and sustain effective countywide public education and outreach activities</p>	1-3 years	CWPP Advisory Committee, Fire Defense Board	Oregon State University Extension Service, Soil and Water Conservation District, Keep Oregon Green



## PLAN ADOPTION & IMPLEMENTATION

The Healthy Forest Restoration Act requires that the Linn County Board of Commissioners, the Linn County Fire Defense Board, and the Oregon Department of Forestry all agree to the final contents of the County's CWPP. The Plan will be adopted by resolution by the Board of Commissioners, and acknowledged by the Fire Defense Board and the Oregon Department of Forestry in order to meet HFRA and FEMA requirements. Because of the non-regulatory nature of the CWPP, the relevance and effectiveness of the Plan will rely upon the implementation efforts of each of the agencies and organizations involved.

The Plan's Advisory Committee (the Committee) will oversee implementation efforts, identify and coordinate funding, and serve as a centralized resource for wildfire risk reduction efforts for all of Linn County. As such, the Advisory Committee will prioritize and recommend funding for projects, document the successes and lessons learned from those projects, and evaluate and update the CWPP as needed.

Many of the action items set out in the CWPP address the issue of continuing support for wildfire risk mitigation projects. By actively pursuing funding for projects, staying informed and in contact with one another, and updating the CWPP regularly so that it remains a "living" document, the partner organizations have committed to continuing their involvement. Because the CWPP will be integrated into the wildfire annex of the Linn County Natural Hazard Mitigation Plan, the CWPP will be completely updated on a five-year basis, along with the rest of the County's Natural Hazards Plan.

Additional semi-annual meetings will serve as an opportunity for the committee to determine which action items to prioritize for implementation, to suggest additional action items that may have been missed, and to prioritize potential mitigation projects through a four-step prioritization process. The annual meetings will provide an opportunity to focus the committee's efforts on Risk Assessment data and new findings, determining ways to encourage continued public involvement, and document actions accomplished during the year.



# Introduction

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The Linn County Community Wildfire Protection Plan (CWPP) identifies strategies and priorities for the protection of life, property, and infrastructure in Linn County and its Wildland Urban Interface (WUI). The CWPP is a shared plan administered jointly by the Linn County Board of Commissioners, the Oregon Department of Forestry, the Linn County Fire Defense Board, and the US Forest Service and Bureau of Land Management; the contents of this plan were mutually agreed upon by all five entities.

This section of the CWPP introduces the important elements of the plan. It has the following parts:

- **Plan purpose** describes why Linn County needs a CWPP and how the document will help to reduce wildfire risk in the County now and into the future.
- **Planning process and methods** describes how the plan was created.
- **Plan organization** describes each of the sections in the remainder of the plan.

## PLAN PURPOSE

As human development continues to spread into agricultural and forestlands, the risk of Wildland Urban Interface fire escalates. Linn County's diverse geography, population, and land ownership patterns create challenges to reducing the County's risk of wildfire. At the same time, these are important County assets that should be protected from wildfire.

The CWPP is an action plan for reducing risk that depends upon people and collaborative partnerships to carry it forward. It updates and builds upon the wildfire section of Linn County's Natural Hazard Mitigation Plan to provide a more detailed description of wildfire risk and to outline agreed-upon risk reduction activities. The purpose of the CWPP is to provide the following:

- A foundation for communication, coordination and collaboration among agencies and the public in Linn County to reduce risk of wildfire
- An assessment and map of the Wildland Urban Interface (WUI) in Linn County
- Identification and prioritization of areas for hazardous fuel reduction projects
- A set of recommended actions homeowners and local communities can take to reduce the ignitability of their buildings and structures
- A framework to support the development of local community fire plans within the County

The plan also provides assistance in meeting federal and state planning requirements and qualifying for assistance programs.

## WHY DEVELOP A COMMUNITY WILDFIRE PROTECTION PLAN?

The development of structures in and near forestlands exposes greater numbers of people and property to wildfire hazard. In 2002, one of the worst fire seasons in recent history, wildfires burned nearly seven million acres and 2,000 buildings across the United States. In 2003, wildfires destroyed 4,090 homes, primarily in California.<sup>1</sup>

According to the Oregon State Natural Hazards Mitigation Plan, “over 41 million acres of forest and rangeland in Oregon are susceptible to wildfire.”<sup>2</sup> The Wildland Urban Interface—the area where human development mixes with forestland—is growing in many Oregon communities. According to the State Natural Hazards Risk Assessment, Linn County has a high probability of and moderate vulnerability to WUI fire.<sup>3</sup> The risk assessment in this document supports that assessment.

The destruction caused by fire in recent seasons illustrates that fire response and emergency management efforts alone are not enough to prevent losses. Reducing a community’s risk to wildfire is a shared responsibility that requires the participation of federal, state, and local government agencies, the private sector, and citizens. Ultimately, however, risk reduction strategies are most effective when organized at the local level. Through community-based fire planning, it is possible to address the specific values and needs of a local community and to build citizen awareness of the dangers of living in a fire prone area.

The dramatic losses during the 2002 and 2003 fire seasons increased public awareness of wildfire risk and contributed to the Federal government’s adoption of the National Fire Plan and the Healthy Forests Restoration Act of 2003 (HFRA). This legislation encourages improved intergovernmental collaboration and increased partnerships between public and private entities to implement vegetative fuel reduction projects and activities aimed at reducing structural ignitibility in at-risk communities. HFRA also encourages local communities to create their own strategies for wildfire mitigation through development of a Community Wildfire Protection Plan.

Linn County recognizes that reducing the potential impacts of Wildland Urban Interface fire requires a proactive approach that reaches across jurisdictional boundaries, public and private lands, and the diverse geographic regions of the County. The development of a Community Wildfire Protection Plan creates an opportunity to encourage communication between agencies and stakeholders, identify and prioritize community values, assess wildfire risk areas, and increase education and awareness of communities and homeowners.

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<sup>1</sup> National Interagency Fire Center. 2005. <<http://www.nifc.gov>>.

<sup>2</sup> Community Service Center. 2003. *Wildfire Chapter: State of Oregon Natural Hazard Mitigation Plan*. State Natural Hazard Mitigation Plan. <<http://www.deq.state.or.us/aq/docs/neap/appendixD.pdf>>

<sup>3</sup> Community Service Center. 2003. *Region 3: Mid/Southern Willamette Valley Hazards Assessment*. State Natural Hazard Mitigation Plan. <[http://csc.uoregon.edu/PDR\\_website/projects/state/snhra/snha\\_pdf/](http://csc.uoregon.edu/PDR_website/projects/state/snhra/snha_pdf/)>.

In February of 2007, Linn County began to work collaboratively with fire protection districts and federal and state agencies to develop a Community Wildfire Protection Plan. The planning process was designed to result in a plan that meets the funding eligibility requirements of the National Fire Plan, the HFRA of 2003, and the Pre-Disaster Mitigation Program of the Federal Emergency Management Agency.

The Linn County CWPP focuses on achieving and exceeding the three minimum requirements for Community Wildfire Protection Plans described by the HFRA:

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

## WHAT AREA WILL THE CWPP AFFECT?

The Linn County Natural Hazard Mitigation Plan defines wildfire as an uncontrolled burning of wildlands (forest, brush, or grassland). Although fire is a natural part of forest and grassland ecosystems in Linn County, wildfire can pose a significant risk to life and property in Wildland Urban Interface (WUI) areas. The WUI is the “borderlands” at the edges of urban development, where homes and other structures are built into a forested or natural landscape. If left unchecked, fires in these areas can threaten lives and property.

Over 900,000 acres, or nearly 65% of Linn County, is forested.<sup>4</sup> These forested lands play a critical role in the economic, environmental, and social vitality of the County. Wildfire poses a serious threat to economic activity, recreation, life, and property in forested areas. Thirty-five percent of Linn County’s population resides outside of cities. Wildfire poses a threat to rural communities, rural residential areas, and other rural home sites located throughout the County.

Linn County’s climate is characterized by warm dry summers. During the summer fire season, the danger of fire in the County’s forests and grasslands increases as vegetation dries and increases the potential for fire ignition and spread. The forest lands in eastern Linn County are subject to small to moderate

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<sup>4</sup> Linn County Comprehensive Plan, LCC 905.200(C), pp. 905-6

fires annually, but the increase in ladder fuels—in other words, places where grasses and shrubs act the first rung of the ‘ladder,’ smaller trees and outbuildings create the next rung, and the tree canopy creates the top rung--coupled with the increase in potential ignition sources from WUI development results in the potential for larger, more devastating wildfires.

The Linn County CWPP identifies risk reduction activities and takes into consideration the County’s diverse geography, population, and land management authorities. The plan identifies general areas with high wildfire risk and provides a framework of technical support and guidance that can assist local communities in developing and refining their own Community Wildfire Protection Plans and risk assessments. The CWPP does not have authority over incorporated communities within the County, but seeks to develop strategies for sharing information and resources between the County and local communities.

## **PLANNING PROCESS AND METHODS**

Linn County hired ECONorthwest to design and implement the Linn County CWPP planning process based upon the requirements of the HFRA, the Pre-Disaster Mitigation program, and the guidelines in the *Preparing a Community Wildfire Protection Plan*<sup>5</sup> handbook.

The planning process for the Linn County CWPP reflects the collaborative emphasis required by HFRA (Healthy Forests Restoration Act): in developing this plan, the County’s stakeholders came together to address a problem by identifying common goals and gaining consensus on potential solutions. A collaborative plan recognizes that the implementation process is more successful when it draws on a broad base of resources. This process ensures that the final document reflects the community’s highest priorities and that the plan can be implemented to effectively reduce risk.

There were six steps in the County’s planning process, described in detail below.

### **STEP I. CONVENE STEERING COMMITTEE AND ENGAGE FEDERAL PARTNERS**

Linn County Planning & Building Department convened a steering committee to oversee and guide the development of the Linn County CWPP. The steering committee is a collaborative group responsible for making decisions and agreeing upon the final contents of the plan. The members of the steering committee included representatives of the following agencies:

- Oregon Department of Forestry

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<sup>5</sup> National Association of Foresters, Western Governors Association, National Association of Counties, and Society of American Foresters. 2004. *Preparing a Community Wildfire Protection Plan*. <<http://www.stateforesters.org/pubs/cwpphandbook.pdf>>.

- Bureau of Land Management, Salem Office
- Linn County Planning and Building Department
- Linn County Fire Defense Board
- Willamette National Forest and Bureau of Land Management, Eugene Office
- Linn County Emergency Services

## **STEP II. RESEARCH EXISTING WILDFIRE RESOURCES, PLANS, AND POLICIES**

Background research was conducted prior to beginning the planning process for the Linn County CWPP. ECONorthwest reviewed existing federal, state, and local policies and plans related to wildfire planning, protection, or mitigation, as well as recent community wildfire plans from across the nation. Other background information included recent research by the U.S. Forest Service and other literature on Wildland Urban Interface fire prevention.

## **STEP III. ENGAGE INTERESTED PARTIES AND STAKEHOLDERS**

The steering committee used a five-tiered process to engage stakeholders in the development of the Linn County CWPP:

1. **Fire district survey** - A scoping survey was administered to all Linn County fire districts and the Oregon Department of Forestry. The survey tool helped focus the efforts of the project team to streamline the planning process. Information gathered by the survey was used to:
  - Assess fire agency capacity and needs
  - Identify critical issues to be addressed in the plan
  - Inventory existing prevention and education resources
  - Identify a history of wildfire occurrence and district responses
  - Identify wildfire risk factors in each district
  - Gather preliminary actions for wildfire mitigation
2. **Project website** – A project website was developed to provide current information about wildfire prevention including defensible space around homes and fire resistant vegetation for landscaping. The website describes the purpose and content of the CWPP for a general audience and highlights current project events. The site also allows the public to provide input, identify wildfire issues, and suggest mitigation actions throughout the planning process.
3. **Stakeholder interviews** - ECONorthwest conducted phone interviews with key stakeholders to gain information about important issues, concerns, and current activities related to the Linn County CWPP

objectives of collaboration, prioritization of fuel reduction projects, and treatment of structural ignitability.

4. **FireWise workshop** - Oregon Department of Forestry and Linn County Planning Department invited stakeholders such as agency staff, planners, developers, realtors, insurers, utility providers, and non-profit organizations to attend a FireWise Communities workshop. The workshop sought stakeholder participation in identifying obstacles and opportunities to reducing wildfire risk in Linn County.

## **STEP IV. DEVELOP A COMMUNITY BASE MAP AND WILDFIRE RISK ASSESSMENT:**

Linn County's risk assessment identifies communities at risk and establishes preliminary designation of the County's Wildland Urban Interface (WUI) zone. To do this, Linn County acquired and evaluated community data—including electronic mapping data compatible with geographic information systems software and the results of the surveys and interviews described earlier; reviewed the data; created a risk assessment model and analysis methodology; conducted the analysis; verified the results with wildfire professionals and with field visits to on-the-ground locations in the WUI; and produced final maps of the area and analysis outputs.

ECO used the study maps to develop a draft risk assessment that identifies major risk factors and describes the history of wildfire occurrences.

## **STEP V. DEVELOP AN ACTION PLAN AND PROJECT PRIORITIZATION METHOD:**

The findings from the wildfire risk assessment and the input from stakeholders were used to create an action plan for the Linn County CWPP. The action plan identifies the goals, objectives, and action items for carrying out wildfire risk reduction strategies in the County. The action plan also establishes roles and responsibilities, funding, and timetables for implementing action items.

Based on the risk assessment and other factors, the steering committee developed a process for prioritizing community hazard reduction projects. Hazard reduction projects must be prioritized to ensure that mitigation funding is used efficiently and effectively.

## **STEP VI. FINALIZE COMMUNITY WILDFIRE PROTECTION PLAN:**

ECONorthwest presented a draft CWPP to the steering committee on September 12, 2007 for review and comment. The steering committee-approved document was presented to the Linn County Board of County Commissioners on **XXX** and was adopted by resolution.

The following entities approved the final document, pursuant to the HFRA:

1. Linn County Board of Commissioners
2. Linn County Fire Defense Board
3. Oregon Department of Forestry

## PLAN ORGANIZATION

The remainder of the Linn County CWPP is organized into the following sections and appendices:

- **Section 2: Linn County Community profile** presents information on Linn County's demographic make-up and serves as the basis for identifying wildfire vulnerability.
- **Section 3: Risk assessment** presents the findings from the Linn County Wildfire Risk Assessment, including the methods used to develop the assessment, limitations, ideas for long-term assessment updates and maintenance, and key findings.
- **Section 4: Community outreach and collaboration** presents the findings from the three outreach efforts, which include the rural fire protection district survey, stakeholder interviews, the FireWise Workshop, and stakeholder workshop. The section concludes with a summary of the key issues identified through these community outreach efforts.
- **Section 5: Action plan** describes the framework and methods used to develop the goals, objectives, and action items that make up the Action Plan.
- **Section 6: Plan implementation and maintenance** describes the methods for implementing the Action Plan, the process for prioritizing projects, and a schedule for updating and maintaining the plan.
- *Appendix A: Action Item Worksheets* describes in a worksheet, the key issues addressed, ideas for implementation, coordination and partner organizations, timeline, and plan goals addressed.
- *Appendix B: Implementation and maintenance documentation* documents the agendas, meeting minutes, and other outcomes of the CWPP Advisory Committee meetings.
- *Appendix C: Risk Assessment methods* documents the process used to develop the Risk Assessment maps and conclusions.
- *Appendix D: Fuel treatment types for Linn County* describes and analyzes potential fuel treatment types available for use in Linn County.
- *Appendix E: Stakeholder interview summary* describes the purpose, methods and findings of stakeholder interviews.
- *Appendix F: Firewise Workshop summary* describes the purpose, methods and findings of the FireWise workshop.
- *Appendix G: Wildfire Resources* documents existing wildfire resources.
- *Appendix H: Glossary of Terms* provides definitions of terms used throughout the Linn County CWPP.



# Linn County Community Profile

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## Section 2

A community profile is an important part of the Community Wildfire Protection Plan, because it describes the amount and type of land, the characteristics of the population, and the built infrastructure that is at risk from wildfire events. Linn County's diverse geography, population, and land ownership patterns create challenges to reducing the County's risk of wildfire, but also represent key County assets that should be protected from wildfire. This section describes some of the characteristics of Linn County that contribute to its wildfire vulnerability.

Linn County's Natural Hazard Mitigation Plan contains a detailed community profile. This section of the CWPP updates the community profile as it relates to wildfire, and describes the amount and location of land at risk, the population growth expected in that land, and the resources that could be affected by wildfires.

This section provides an overview of the community's wildfire characteristics. It has the following parts:

- **Community and Wildland Urban Interface area description** describes Linn County's forest characteristics
- **Wildfire history** describes the previous occurrences of wildfire in Linn County
- **Linn County communities at risk** describes the communities in the County identified as being particularly at risk to wildland fire
- **Current wildfire protection framework** describes the wildfire protection roles and responsibilities of the various agencies in Linn County
- **Existing plans and policies** describes the plans and policies that Linn County already has in place that will assist in addressing wildfire risk

## COMMUNITY AND WILDLAND URBAN INTERFACE AREA DESCRIPTION

### FOREST CHARACTERISTICS

Historic wildfire regimes helped to shape the forest landscape of Linn County. Natural cycles of fire disturbance influence all facets of ecosystem dynamics, from structure and composition to wildlife habitat and nutrient cycling. Fire suppression, timber harvesting, the introduction of exotic species, and other human factors have disturbed natural fire cycles. West of the Cascade Mountains,

fire frequency and severity depend upon environmental variables, such as temperature, moisture, ignitions, and broad, fire-driving winds.<sup>6</sup>

Linn County is composed of two distinct ecoregions with differing vegetative, geographic, and fire regime characteristics.<sup>7</sup> These ecoregions are described below:

- Willamette Valley: The Valley landforms include floodplains and terraces that are interlaced with surrounding rolling hills. The natural vegetation includes Cottonwood, Alder, Oregon Ash, and Big Leaf Maple. Douglas Fir and Western Red Cedar occur in moister areas. The Valley has lower precipitation, warmer temperatures, and fire regimes of higher frequency and lower severity than the adjacent Cascade Range.
- Western Cascades: This ecoregion is characterized by ridge crests at similar elevations, separated by steep valleys. The natural vegetation consists of forests of Douglas Fir and Western Hemlock at lower elevations and Silver Fir and Mountain Hemlock at higher elevations.

Throughout Linn County, Douglas Fir and Western Hemlock are the predominant forest types.<sup>8</sup> Fire regimes in moist Douglas-fir habitat types are mixed, ranging from low to moderate severity surface fires at relatively frequent intervals (7 to 20 years) to severe crown fires at long intervals (50 to 400 years).<sup>9</sup> Significant annual precipitation and low occurrence of lightning throughout much of Linn County contribute to a low probability of natural fire ignitions in many areas. However, once ignited, the high vegetative fuel loads are vulnerable to catastrophic fires - those that “burn more intensely than the natural or historical range of variability, thereby fundamentally changing the ecosystem, destroying communities and/or rare or threatened species/habitat, or causing unacceptable erosion.”<sup>10</sup>

## WILDFIRE HISTORY

Wildfire plays a critical ecological role in many ecosystems across the country, including those in Linn County. Native Americans annually burned large areas of the Willamette Valley and coastal valleys to help maintain grasslands and

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<sup>6</sup> Pacific Northwest Research Station, and the USDA Forest Service. 2002. When the Forest Burns: Making Sense of Fire History West of the Cascades. *Science Findings* (46).

<sup>7</sup> Loy, William et al. 2001. *Atlas of Oregon*.

<sup>8</sup> Ibid

<sup>9</sup> USDA Forest Service. 2004. *Healthy Forests Pacific Northwest – Fire & Ecosystems in the Pacific Northwest*. <[www.fs.fed.us/r6/colville/hfi/ecosystems/index.shtml](http://www.fs.fed.us/r6/colville/hfi/ecosystems/index.shtml)>.

<sup>10</sup> National Fire Plan. 2001. *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-Year Strategy*.

savannahs.<sup>11</sup> Forest fires were relatively infrequent, although their size and severity were often great.

The disruption of natural fire cycles over the last century has created dangerous vegetative fuel loads and forests vulnerable to catastrophic wildfires. Logging came to the region in the early twentieth century, and, combined with fire, changed the landscape of the western Cascades.<sup>12</sup> During and after World War II, an emphasis on better wildland fire suppression and fire prevention dramatically reduced damage caused by wildfires. More people moved into suburban areas during this same period, increasing the size of the Wildland Urban Interface and the number of homes and businesses within it.<sup>13</sup> Oregon Department of Forestry statistics indicate that the trend in the number of wildfires is decreasing, but the number of acres and structures burned by the remaining fires is growing.<sup>14</sup>

In 2006, the Santiam Unit of the Oregon Department of Forestry recorded a total of 16 fires, which burned only 9.73 acres. The main cause of these fires was debris burning. In that same time period in the Sweet Home Unit, a total of 51 fires burned 1,181 acres. Lightning was the greatest cause of fire within the Sweet Home Unit. The largest single fire was the Middle Fork Fire, which burned 1,070 acres in September of 2006.

## **CURRENT WILDFIRE PROTECTION FRAMEWORK**

Several agencies share responsibility for fire protection in Linn County; these roles are described in the Linn County Emergency Operations Plan.

In addition to response capabilities, many fire agencies in Linn County play a role in education and outreach. The Oregon State Fire Marshal provides technical assistance to rural fire protection districts and unprotected areas in the Wildland Urban Interface. The Oregon Department of Forestry has received funding through National Fire Plan grants for fuel reduction projects and community-level fire protection plans. Table 2-1 portrays the current wildfire protection framework for Linn County, including the roles and responsibilities of federal, state, and local fire protection agencies

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<sup>11</sup> Oregon Department of Forestry. 2001. *Northwest Oregon State Forests Management Plan: Final Plan*.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> State of Oregon. 2003. *Emergency Management Plan, Natural Hazards Mitigation Plan*.

**Table 2-1. Current wildfire protection framework**

Federal	State	Municipal	County
<p><b>US Forest Service (USFS) and Bureau of Land Management (BLM)</b></p> <p>Manages the majority of Linn County’s 552,000 acres of FCM zoned forestlands.</p> <p>USFS participates in first response and co-op agreements with Oregon Department of Forestry.</p> <p>BLM contracts with Oregon Department of Forestry for wildland protection on lands within ODF district boundaries.</p>	<p><b>Oregon Department of Forestry</b></p> <p>Provides wildland protection on 578,000 acres in Linn County on state owned and state protected lands within district boundaries (includes BLM lands).</p> <p>Contracts with private landowners to provide wildland fire protection outside of district boundaries.</p> <p>Participates in first-response agreements with all adjoining counties and in co-op agreements with USFS.</p> <p>Provides protection by contract to BLM lands within district boundaries.</p> <p>Promotes education, outreach, and prevention activities.</p> <p><b>Oregon State Fire Marshal</b></p> <p>Provides technical assistance to local fire departments and unprotected areas.</p> <p>Promotes education and outreach in the Wildland Urban Interface.</p> <p>Adopted the Oregon Fire Service Mobilization Plan.</p>	<p><b>City Fire Departments</b></p> <p>Provide structural fire protection within city limits.</p> <p>The cities of Albany, Brownsville, Stayton, Sweet Home, Tangent, Lebanon, and Harrisburg provide fire services inside their own city limits, and in some cases in the surrounding unincorporated areas.</p>	<p><b>Rural Fire Districts</b></p> <p>5 Rural Fire Districts within Linn County (Lyons, Scio, Jefferson, Mill City, and Halsey-Shedd).</p> <p>Provide structural fire protection within district boundaries throughout the county.</p> <p><b>Linn County Fire Defense Board</b></p> <p>Manages mutual aid agreements among the 5 rural fire protection agencies and the 7 municipal fire agencies in the County and Oregon Department of Forestry.</p> <p>Focuses on the operational side of fire response.</p>

## EXISTING PLANS AND POLICIES

The CWPP is non-regulatory in nature, meaning that it does not set forth any new policy. The plan does provide (1) a foundation for increased communication, coordination and collaboration among agencies and the public in Linn County, (2) identification and prioritization of areas for hazardous fuel reduction projects and other mitigation activities, and (3) assistance meeting federal and state planning requirements and qualifying for assistance programs. The CWPP works in conjunction with other County plans and programs including but not limited to the Natural Hazards Mitigation Plan, the Comprehensive Plan, and the Emergency Operations Plan. These plans are briefly described below:

- **Linn County Natural Hazards Mitigation Plan** was adopted in 2006 and was intended to assist Linn County in reducing its risk from natural hazards by identifying resources, information, partnerships, and strategies for addressing risk. The plan is designed to meet the requirements for mitigation planning as set forth in the Disaster Mitigation Act of 2000. The CWPP will serve as the wildfire annex for the County's Natural Hazards Mitigation Plan.
- **Linn County Comprehensive Plan** serves to address a wide range of concerns such as the best use of air, land and water resources, as well as the delivery of public services. The comprehensive plan changes when the needs and desires of the public change, when development occurs at a different rate than predicted, and when corrections or revisions are needed. It contains an element that specifically addresses natural hazards, as required by Oregon's State Land Use Planning Goal 7. The plan is reviewed and updated three years after its initial adoption. The Linn County Comprehensive Plan was last updated in May 2004.
- **Linn County Emergency Operations Plan** is maintained by the Linn County Sheriff's Department. The EOP was last updated in 1997. The purpose of the Emergency Operations Plan is to provide a central location that describes in detail all necessary components of support and procedure in an emergency situation. The EOP maintains and updates emergency services systems to prevent or reduce the impact of injuries in the case of an emergency.

## POLICY FRAMEWORK

The Linn County CWPP addresses the requirements for a Community Wildfire Protection Plan provided in Title III of the Healthy Forests Restoration Act (HFRA), and also meets the guidelines and requirements of other state and federal programs. Table 2-2 briefly describes policies relevant to the creation and implementation of Linn County's CWPP.

**Table 2-2. Policy Framework for Wildland Urban Interface Fire in Oregon**

Policy	Requirements	How the CWPP Addresses Policy
<p><b>Healthy Forests Restoration Act (HFRA):</b> Congress adopted HFRA in 2003 to assist community, state, and federal land managers in the prevention of catastrophic wildfire on public lands through fuels reduction activities. The Act requires that 50% of appropriated fuel treatment funding through HFRA be used in the Wildland Urban Interface protection zone and give priority funding to communities with a Community Wildfire Protection Plan in place.</p>	<ul style="list-style-type: none"> <li>• Collaboration: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.</li> <li>• Prioritized Fuel Reduction: A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.</li> <li>• Treatment of Structural Ignitability: A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.</li> <li>• Three entities must mutually agree to the final contents of a CWPP: the applicable local government; the local fire departments; and the state entity responsible for forest management.</li> </ul>	<ul style="list-style-type: none"> <li>• The CWPP was collaboratively developed by a steering committee representing local, state, and federal agencies. The plan conducted outreach activities to gain input from public and private stakeholders.</li> <li>• The CWPP includes an assessment of wildfire risk in Linn County and a process for prioritizing fuel reduction projects. The plan also includes a table identifying appropriate fuel treatment methods for Linn County.</li> <li>• The CWPP recommends actions for promoting risk reduction activities on private and public lands in Linn County.</li> <li>• The Linn County Board of Commissioners, the Linn County Fire Defense Board, and the Oregon Department of Forestry approved the Linn County CWPP.</li> </ul>
<p><b>National Fire Plan 10-Year Comprehensive Strategy:</b> The National Fire Plan was developed in 2000, following a landmark wildfire season, to actively respond to severe wildfires and their impacts on communities, while ensuring sufficient firefighting capacity for the future.</p>	<p>The National Fire Plan addresses five key points:</p> <ol style="list-style-type: none"> <li>1. Firefighting,</li> <li>2. Rehabilitation,</li> <li>3. Hazardous Fuels Reduction,</li> <li>4. Community Assistance, and</li> <li>5. Accountability.</li> </ol>	<ul style="list-style-type: none"> <li>• The CWPP will aid in effectively implementing National Fire Plan goals by providing a collaborative framework for reducing wildfire risk to communities in Linn County.</li> <li>• The advisory committee responsible for coordinating the CWPP will also serve as the local coordinating body for National Fire Plan projects.</li> </ul>

Policy	Requirements	How the CWPP Addresses Policy
<p><b>Disaster Mitigation Act of 2000:</b> The Act emphasizes mitigation planning and establishes a pre-disaster hazard mitigation program.</p>	<p>Requires state and local governments to have an approved natural hazard mitigation plan in place to qualify for post-disaster Hazard Mitigation Grant Program funds.</p>	<p>The CWPP will serve as the Wildfire Annex for the Linn County Natural Hazard Mitigation Plan adopted in 2006.</p>
<p><b>Oregon Statewide Land Use Goal 7 Areas Subject to Natural Hazards:</b> Goal 7 requires local governments to adopt measures in their comprehensive plans to reduce risk to people and property from natural hazards.</p>	<p>The Goal Requires that local governments complete and Federal and state land managers coordinate natural hazard inventories, and local land managers alter land use designations to minimize risk to people and property from natural hazards.</p>	<p>The CWPP includes a wildfire risk assessment for Linn County, which may be used as new wildfire hazard inventory information in the Linn County Comprehensive Plan.</p>
<p><b>Oregon Forestland Dwelling Units Statute, ORS 215.730:</b> The statute provides criteria for approving dwellings located on lands zoned for forest and mixed agriculture/forest use.</p>	<p>The Statute directs county governments to require, as a condition of approval, that single family dwellings on lands zoned as forestland meet requirements for construction materials, fuel breaks, water supply, and location in fire protection districts.</p>	<p>The Linn County Code and Comprehensive Plan currently meet requirements of the state statute for dwellings on lands zoned as forestlands.</p>
<p><b>Oregon Forestland-Urban Interface Fire Protection Act of 1997 (Senate Bill 360):</b> Promotes the creation of a comprehensive Wildland Urban Interface fire protection system in Oregon.</p>	<p>The Act contains provisions for county governing bodies to:</p> <ol style="list-style-type: none"> <li>1. Establish a forestland-urban interface classification committee</li> <li>2. Establish a forestland-urban interface criteria and classification program</li> <li>3. Encourage landowner forestland-urban interface fire mitigation actions</li> </ol>	<p>The advisory committee convened to coordinate the CWPP may also serve as the forestland-urban interface classification committee.</p> <p>The CWPP includes a risk assessment and maps that designates a Wildland Urban Interface in Linn County that may be used in the criteria and classification program required by Senate Bill 360.</p> <p>The CWPP identifies actions to promote landowner education and outreach strategies for the treatment of structural ignitability.</p>

## SUMMARY

As human development continues to spread into forestlands, the risk of Wildland Urban Interface fire escalates. Linn County's diverse geography, population, and land ownership patterns create further challenges to reducing the County's risk of wildfire. Many entities and programs aimed at wildfire risk

response, reduction, and education exist, but efforts to share resources and information are limited. The risk assessment and action plan of the Linn County CWPP create opportunities to improve collaboration, enhance wildfire mitigation efforts, and reduce the County's overall risk of wildfire.

# Risk Assessment

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Wildfire risk to forest lands and homes is inseparable. Forest fires can endanger and burn homes, while fires that start as structural fires can spread to the forest. One of the core elements of the Linn County CWPP is the risk assessment, which describes the risk and potential losses to life, property, and natural resources from wildfire based on best available science and data. Its purpose is to identify and implement the most effective strategies for preventing losses from fire. The assessment is organized into the following parts:

- **Purpose and methods** provides an overview of the goals and objectives of the analysis and briefly describes the methods used to evaluate wildfire risks in Linn County. Detailed methodology notes are included in *Appendix C: Risk Assessment Methods*.
- **Risk assessment findings** presents the findings of the risk analysis, which are broken into five assessment areas and displayed in a series of map panels. Communities at-risk and areas of concern within each assessment area are identified.

## PURPOSE AND METHODS

This assessment broadly identifies communities and areas within Linn County that are at risk. Information gathered through this assessment is intended to help emergency managers and fire-fighting professionals prioritize areas of concern for further analysis and mitigation activities.

The purpose of the assessment is to:

1. Determine the potential risk of interface fires for Linn County communities through a collaborative effort that incorporates local, on-the-ground knowledge with the best available data and geographic analysis.
2. Establish a community base map and identify and create digital data layers that describe Linn County's risk, as described later in this section.
3. Begin to identify areas that require more refined analysis, and conduct neighborhood assessments.
4. Provide insight for the prioritization of hazardous fuel treatment projects.
5. Meet the guidelines described by the Oregon Department of Forestry for completing a risk assessment.

## ASSESSMENT APPROACH

Several communities across the nation have completed, or are currently engaged in, wildfire planning efforts. In the process, they have developed numerous models in an attempt to understand the risks posed by Wildland Urban

Interface fires. The assessment techniques used in these models differ widely in both content and detail of analysis. For the Linn County Wildfire Risk Assessment, the steering committee elected to follow the broad assessment process outlined in the guidance document, *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities*<sup>15</sup>.

This handbook, developed through a partnership of national and regional agencies, contains recommendations and guidelines that conform closely to requirements of the Healthy Forest Restoration Act of 2003. The handbook broadly outlines an assessment framework and identifies key risk factors communities should evaluate within their plans. Under this framework, individual communities have considerable autonomy to choose assessment methods that are appropriate to the scale of the community.

To evaluate the Wildland Urban Interface fire risks within Linn County, the risk assessment team adopted methods based on a model developed by the Oregon Department of Forestry (ODF) entitled *Identifying and Assessment of Communities at Risk in Oregon*.<sup>16</sup> The methodology originally assessed wildfire hazards at the statewide level for use in the Oregon Natural Hazards Mitigation Plan. However, the process and data sets used in the methodology enable a tiered approach that is appropriate at several scales: including county, city, or neighborhood-level assessments.

## HOW THE LINN COUNTY ASSESSMENT EVALUATES RISK

This assessment evaluates Wildland Urban Interface fire risk by analyzing five key data “layers” of wildfire information, as suggested in the ODF methodology described above. These layers are:

- **Risk:** the potential and frequency with which wildfire ignitions might occur, based on historic fires, foreseeable conditions, the density of homes within the WUI boundary, and other factors
- **Hazard:** the natural conditions—vegetative fuels, weather, topographic features—that may contribute to and affect the behavior of wildfire
- **Protection capability:** the community’s ability to plan and prepare for, as well as respond to and suppress, structural and wildland fires
- **Values protected:** a measure of the people, property, and essential infrastructure that may suffer losses in a wildfire event
- **Structural vulnerability:** a measure of the capacity of structures in the County’s Wildland Urban Interface areas to resist wildfires if they occur, based on an assessment recently completed by the Oregon Department of Forestry

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<sup>15</sup> National Association of Foresters, Western Governors Association, National Association of Counties, and Society of American Foresters. 2004. *Preparing a Community Wildfire Protection Plan*. <<http://www.stateforesters.org/pubs/cwpphandbook.pdf>>

<sup>16</sup> Oregon Department of Forestry. 2004. *Identifying and Assessment of Communities at Risk in Oregon*. <<http://egov.oregon.gov/ODF/FIRE/docs/WildfireRiskAssessment.pdf>>.

Each of these layers is developed by compiling and analyzing one or more related factors that can lead to, aggravate, or mitigate a wildland urban-interface fire. The ODF methodology assigns a point value to each layer, and provides a process for determining total risk based on the relative weight of each layer and the sum of the point values across all layers.

These data layers are analyzed and displayed using a type of computer mapping software known as a Geographic Information System, or GIS, to arrive at a composite risk score. GIS is an extremely helpful tool for evaluating wildfire risk. This assessment uses GIS to perform a number of spatial analyses and to manage, store, and display wildfire information. The output of this analysis is a series of map layers, each layer displaying a separate yet interconnected piece of wildfire risk information. Through comparison and analysis of these layers, this assessment indicates areas that express **extreme, high, moderate, and low** potential risk of experiencing a Wildland Urban Interface fire.

Linn County maintains much of the data necessary for this type of analysis, but this information was supplemented with data from Oregon Department of Forestry, the U.S. Census, the U.S. Geological Survey, and data from field surveys.

In addition to GIS analysis, this assessment relies heavily on input provided by federal, state, and local fire protection professionals. Local fire district representatives are familiar with the threats within their protection areas. Mapping and documenting the areas at risk identified by these professionals, and comparing this information with data gathered through GIS analysis, creates a more accurate understanding of wildfire risk and provides a rough method of truth-checking the GIS outputs.

Mike Price of Entrada Inc., San Juan, together with other members of the ECONorthwest team, conducted most of the research for the risk assessment. In addition to GIS analysis, they interviewed representatives from the Linn County Fire Defense Board, the Oregon Department of Forestry, the Bureau of Land Management, and the US Forest Service. Input and assistance from these agencies helped direct and shape the assessment process. Detailed methods and data used within the assessment can be found in Appendix C.

## ASSESSMENT FINDINGS

The first five maps at the end of this section provide the layers that together define Linn County's risk and vulnerability to wildfires—risk, hazards, protection capabilities, values protected, and structural vulnerability. The final map shows how these layers come together to show the areas that are most vulnerable to wildfire. These six maps are the key output of this risk assessment.

### MAP 1: RISK

*Risk* is defined broadly as the likelihood that a fire will occur in a given geographic location. *Historic fire occurrence* and *ignition risk* are the two

components of risk that are measured to determine a rating associated with this category.

## **HISTORIC FIRE OCCURRENCE**

The key component of risk is historic fire occurrence. Data to measure historic fires was available from ODF; the dataset provided geographic information about the location of fire origins rather than fire extent.

Between 1996-2005, many fires have originated in areas in or near the Wildland Urban Interface zone. Cities that have had numerous nearby wildfires are those located where agricultural land meets land with high levels of vulnerable fuel-types, including Sweet Home, Sodaville, Waterloo, Mill City and Gates. Fires have also traditionally occurred near Green Peter and Foster Reservoirs, where a high human presence is likely.

## **IGNITION RISK**

Another component of the risk category is ignition risk. Broadly, ignition risk quantifies the potential sources of ignition for fires in interface areas. In this risk assessment, the density of homes in interface areas is an important component of ignition risk. Higher density areas have a higher ignition risk. The Albany, Lebanon and Sweet Home areas pose the greatest ignition risk in the County.

Other factors also contribute to ignition risk. These might include the presence of transmission power lines, power substations, active logging, construction, dispersed camping, fireworks, woodcutting, target shooting, arson, railroad, etc. These factors are gridded, counted, and scored to add to the point total associated with the broad category of risk. Fire risks from other factors are highest in more densely developed interface areas. Risk is also greater near Foster and Green Peter Reservoirs where camping and recreation sites are situated.

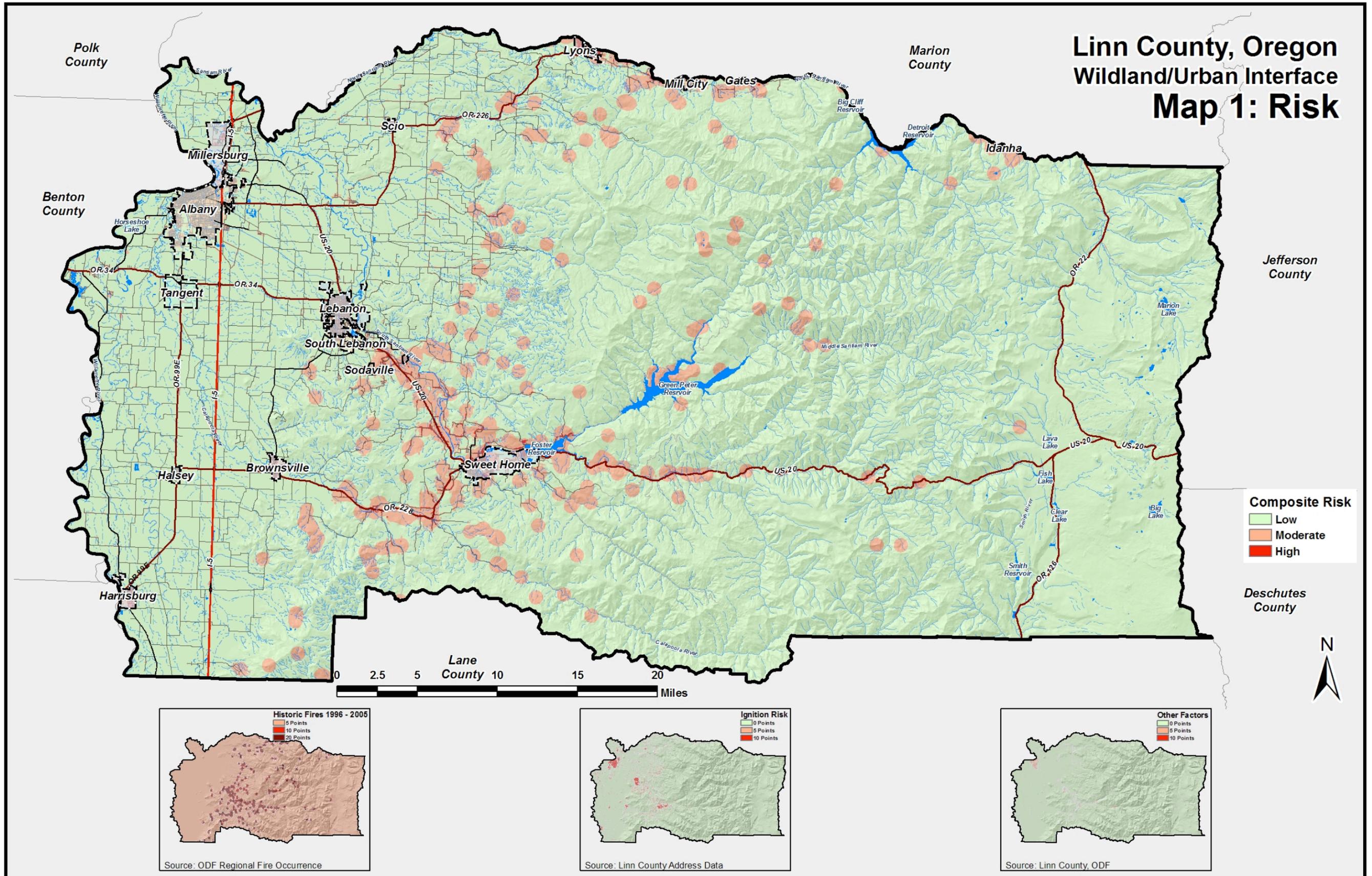
Ignition risk in forested and sparsely or undeveloped areas varies with the time of year. The ignition risk in these regions can be high from June through October, and is usually low from November through May each year.

## **CONCLUSIONS AND RECOMMENDATIONS**

The map shows that the majority of the County has a low risk, with some pockets of moderate risk along Highway 20 and at recreation areas and historic sites in the Cascade Mountains. Ignition risk is highest in areas surrounding Lebanon, Sweet Home, Brownsville, and in the North Santiam River canyon. There are no areas of high risk.

Some types of information could improve the County's understanding of risk in the future. More detailed data about historical fires that describes fire cause, point of origin, fire perimeter, and post-fire restoration could refine this assessment's conclusions regarding level of risk, and help the County plan risk-reduction activities.

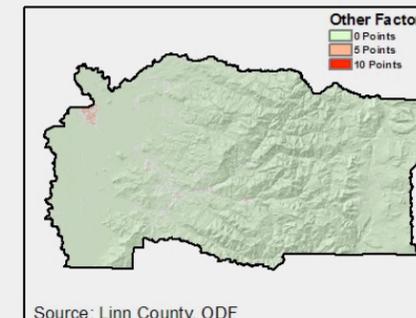
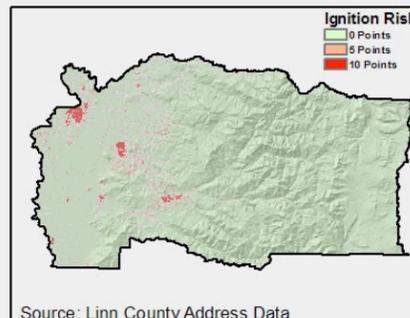
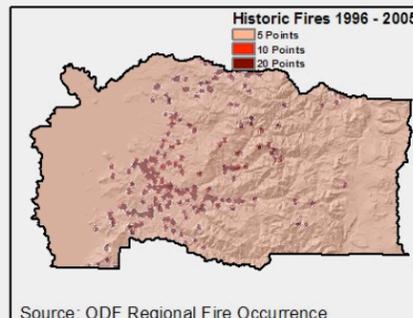
# Linn County, Oregon Wildland/Urban Interface Map 1: Risk



**Composite Risk**

- Low
- Moderate
- High

Deschutes County





## MAP 2: HAZARD

*Hazard* can be broadly defined as the physical aspects of Linn County's landscape that adversely affect wildfire suppression efforts. Hazard is one of the most important categories of risk. The components of hazard that are quantified here are *weather*, *elevation*, *topography*, and *fuel*.

### WEATHER

*Weather* is measured as the number of days per fire season that forest fuels are capable of producing a significant fire event. The risk score is defined in Oregon's state statutes<sup>17</sup> based on data developed by ODF following an analysis of daily wildfire danger rating indices in each regulated area of use. All of Linn County's forested areas fall into Area 2, which scores 20 points out of 40 possible for weather. As Map 2 shows, non-forested areas are not scored.

Linn County contains several Remote Automated Weather Station (RAWS) sites, at Brush Creek, Yellowstone, and Stayton, as well as stations located nearby the County that are used as backup.

### TOPOGRAPHY

For the purposes of this risk assessment, there are three elements associated with *topography* as a risk category: elevation, slope, and aspect. All of these affect the intensity and rate of spread of a wildfire.

- *Elevation* affects the type of vegetation and length of the season, as well as the prevailing weather patterns and rainfall. Risk is highest in areas of lower elevation. The western portion of the County, which is made up largely of low-lying forest and agriculture land has the highest risk of an elevation related fire event.
- *Slope* is measured by percent; higher points are assigned to steeper (higher percentage) slopes. In Linn County, interface areas with steep slopes are located near Green Peter and Detroit Reservoirs in the mid-to-eastern portion of the County. These forested lands are also the most mountainous.
- *Aspect* is most simply defined as the direction of exposure. Slopes that face south, southeast, and southwest, are more exposed to the sun, which affects the type of vegetation that grows as well as the speed with which water transpires from that vegetation and the ground during the fire season. Aspect-related risk is distributed throughout the entire County. However, it is greatest in mountainous areas, where a larger portion of land is facing south due to steep slopes.

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<sup>17</sup> OAR 629-044-0230

## VEGETATION/FUEL

*Vegetation* is the primary factor affecting the intensity of the fire. The quantity of undergrowth, presence of ladder fuels (which contribute to the more-difficult-to-contain crown fires), and other vegetative characteristics all contribute greatly to fire behavior. To measure vegetative fuels, this analysis used satellite imagery of Linn County's forested areas.

Another critical component measured in this analysis is the potential for *crown fire*. Crown fires occur when fires spread to the tops of trees and spread through the canopy. On a windy day, a crown fire can spread extremely quickly and be very difficult to contain. The type of vegetation present is critical to determining the likelihood that a crown fire could occur. Crown fire potential is mapped as moderate throughout central and eastern Linn County

For this analysis, the Oregon statewide fuel model was used to classify fuel types, and point totals were assigned based on State legislation.<sup>18</sup> Much of the eastern portion of the County has moderate to high risk from the presence of vegetative fuels. Only agricultural lands in the western portion of the County have low fire risk due to vegetative fuel.

## CONCLUSIONS AND RECOMMENDATIONS

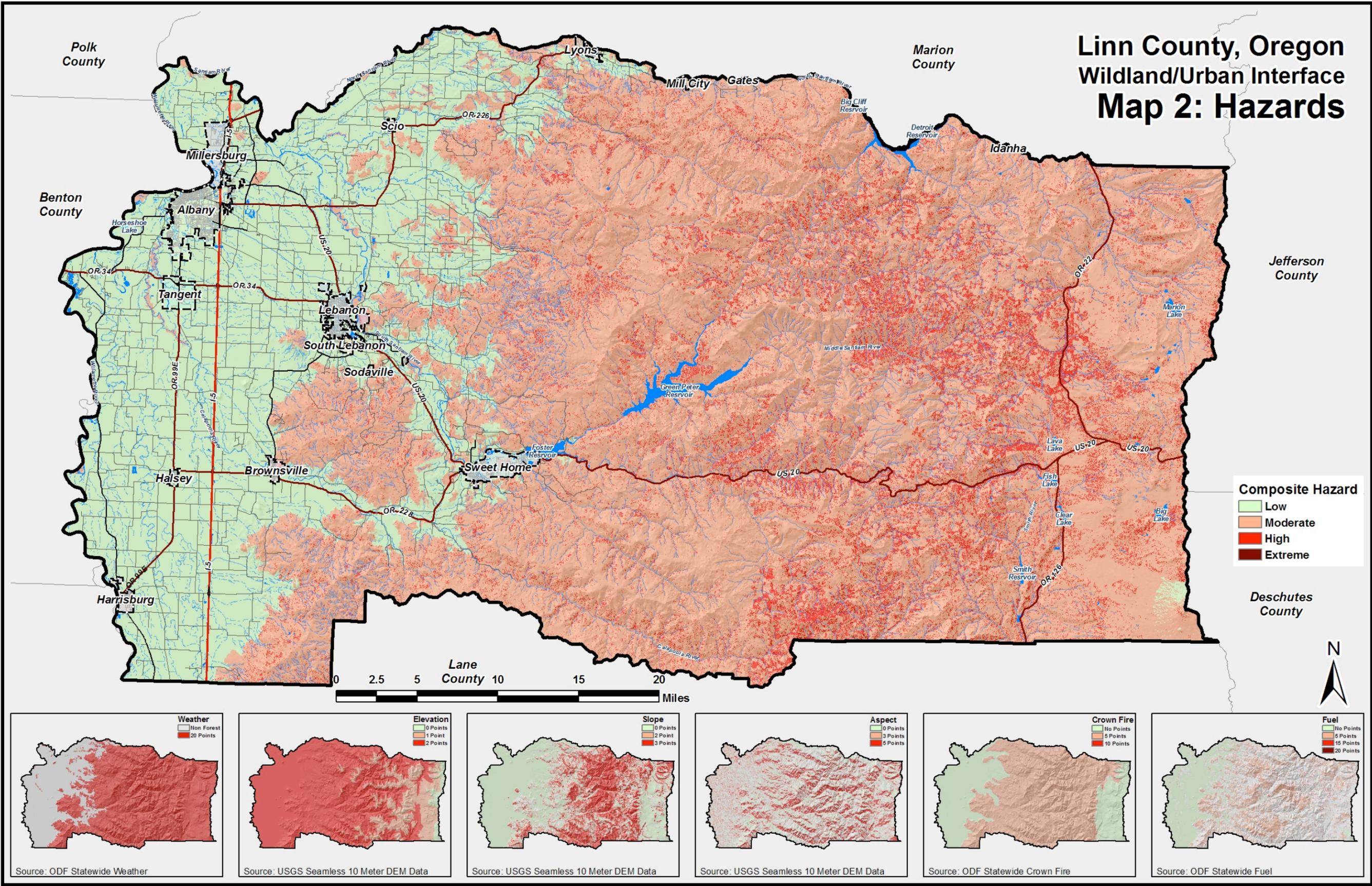
Map 2 shows that the hazard of wildfire occurrence is moderate to high in most of the forested areas in Linn County, with pockets of highest hazard along Highway 22.

Future risk assessment updates could improve the analysis of wildfire hazard with more detailed weather and vegetation data. This data may be especially appropriate to gather in areas of highest risk and vulnerability, to assure that the most appropriate mitigation, preparation, and response actions are taken.

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<sup>18</sup> Oregon Forestland Urban Interface Fire Protection Act of 1997 (often referred to as Senate Bill 360)

# Linn County, Oregon Wildland/Urban Interface Map 2: Hazards





## MAP 3: PROTECTION CAPABILITY

The *protection capability* map shows the boundaries of all fire districts in the County, the location of fire stations, and an assessment of the ability of those fire districts to respond to wildfires that occur within their boundaries. To determine protection capability, this risk assessment measures two components: *protection* and *preparedness*.

### PROTECTION

To measure protection, this assessment used GIS software to model response times from each fire station to all areas within the district boundary, and then assigned a risk rating based on those response times. More specifically, it assigns the following ratings:

- No risk to areas where organized structural response is available in less than 10 minutes
- Low risk to areas inside a fire district, but where structural response will require more than 10 minutes
- Moderate risk to areas where no structural protection is available, and wildland response requires less than 20 minutes
- High risk to areas without structural protection that require more than 20 minutes for wildland response

The map shows that the Linn County road network provides reasonable access to most structures in the County, for both emergency ingress and evacuation, but that most of the County remains at high risk from a protection standpoint. Not surprisingly, more densely developed and agriculture lands in the western portion of the County are at low risk. Forested and mountainous regions in central and eastern Linn County have low protection and are at greater risk.

### PREPAREDNESS

Another important component of protection capabilities is *preparedness*, or a measure of the efforts that the community has taken to prepare for potential wildfire events. Risk is mitigated in areas with agency efforts, a community fire plan and organized stakeholder groups. While preparedness is important, it carries less weight in the ODF methodology than protection.

While forested and mountainous regions in central and eastern Linn County have low to zero preparedness and are at greater risk from wildfires, they also have lower population levels.

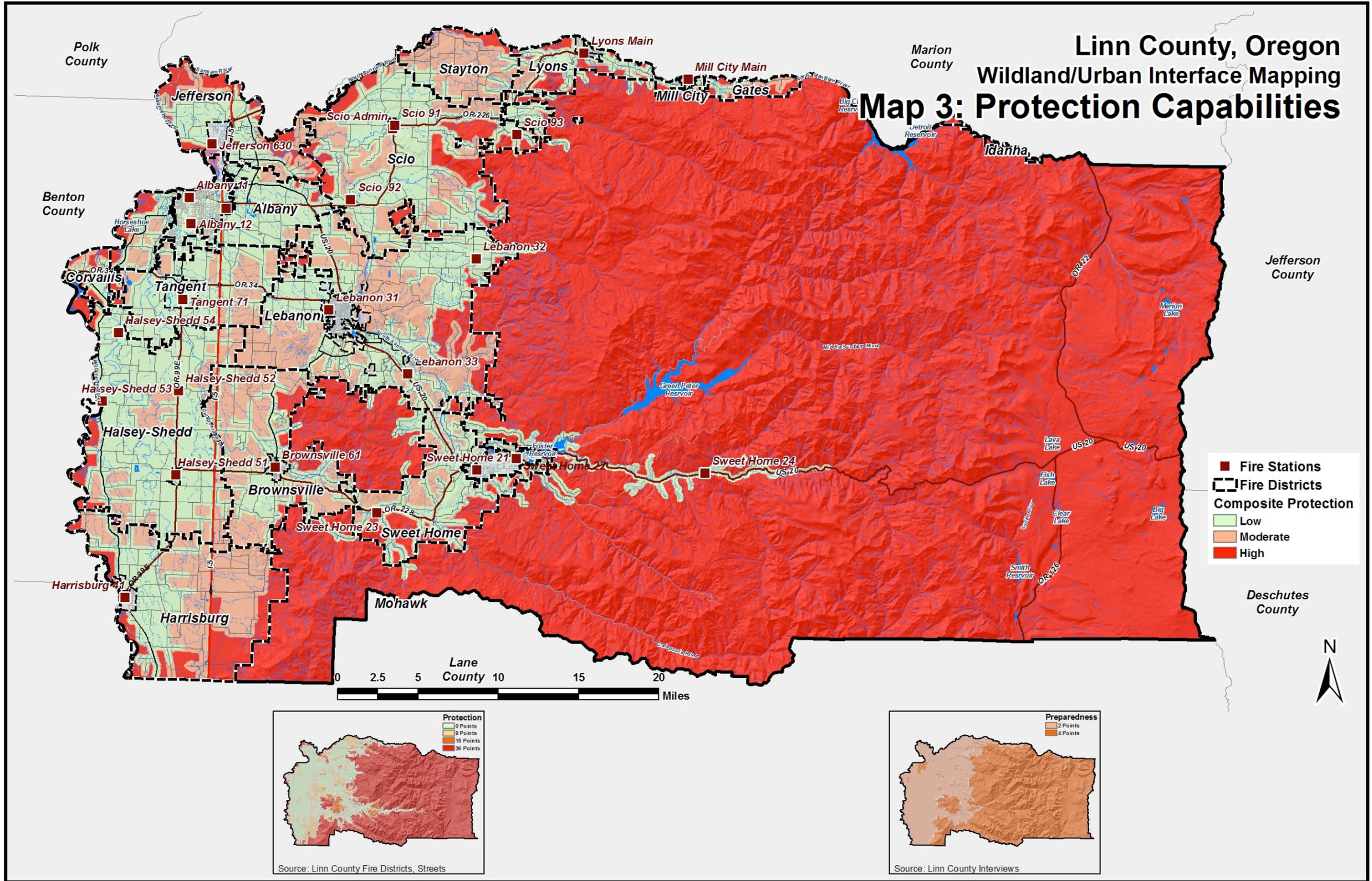
## CONCLUSIONS AND RECOMMENDATIONS

In all of eastern Linn County, there is high wildfire risk resulting from the combination of long response times and low levels of preparedness. On the western side of the Cascades, risk is generally moderate to low, with pockets of high risk around Brownsville and Sweet Home, and along the western border of the County. These areas are generally difficult to reach because of the structure of their road networks.

This assessment did not take into consideration the need to evacuate the more vulnerable populations in Linn County: the elderly, poor, or non-English speaking residents who many not have the physical or financial resources for preparedness and evacuation activities. Especially for the areas that are at the greatest risk from wildfire, this will be an important consideration in the future. In addition, the response time assessment only includes an assessment of travel time to a fire and not the time to assemble fire fighters. The majority of fire districts are primarily staffed by volunteers who may work in other communities during the day. In the interviews, fire fighting agencies indicated that one of the greatest barriers to effective fire fighting was availability of personnel due to the district's volunteer structure.

Linn County, Oregon  
Wildland/Urban Interface Mapping

**Map 3: Protection Capabilities**





## MAP 4: VALUES PROTECTED

To measure *values protected*, this risk assessment considers the density of homes in the County's interface areas as well as the public infrastructure that makes the County function.

### HOME DENSITY

*Home density* creates greater wildfire risk because it increases the dollar value of property and the number of lives in the path of wildfires. To measure home density, this assessment used address point data and GIS software to determine how many homes were present in each 10 acre grid in the interface area. The ODF methodology assigns the following risk ratings to home density measures:

- 0 to 1 home per 10 acres: low risk
- 1 to 5 homes per 10 acres: moderate risk
- More than 5 homes per 10 acres: high risk

The map shows that the risk incurred from home density is greatest in the areas surrounding Albany, Lebanon, and Sweet Home.

### COMMUNITY INFRASTRUCTURE

In addition to the private property values modeled in measures of home density, this assessment considers the value of the public and *community infrastructure* that could be affected by wildfires. This includes airstrips, fire stations, hospitals, parks, police stations, roads, railroads, schools, electrical transmission stations, and other assets.

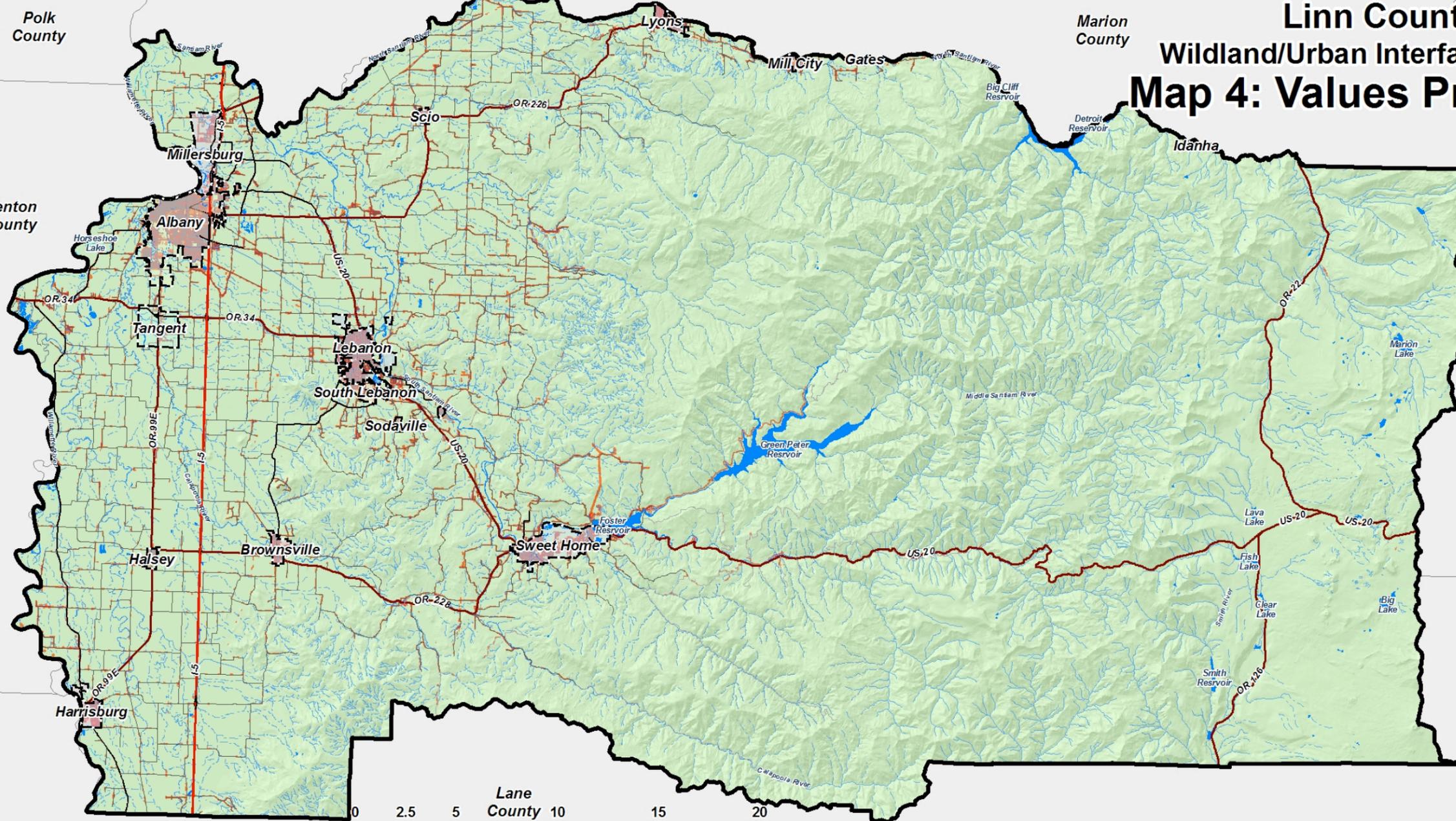
Not surprisingly, the highest value community infrastructure is located in the western portion of the County nearest to population centers.

### CONCLUSIONS AND RECOMMENDATIONS

The values protected map shows that the most important public and private assets are concentrated in the areas nearest to population centers: Albany, Lebanon, and Sweet Home, and along the 1-5 corridor. These also are the areas that have the greatest protection capability (see Map 3).

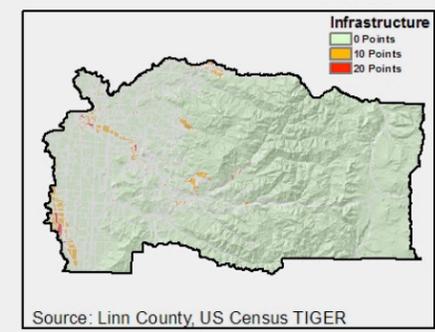
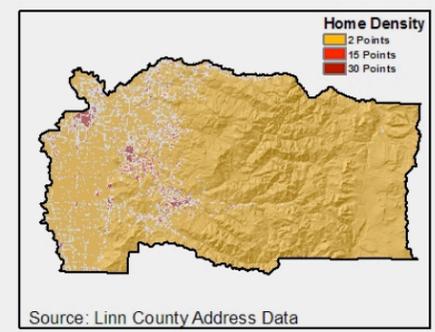


# Linn County, Oregon Wildland/Urban Interface Mapping Map 4: Values Protected



**Composite Values**

- Low
- Moderate
- High





## MAP 5: STRUCTURAL VULNERABILITY

The final category that contributes to total risk and vulnerability is *structural vulnerability*, or a measure of the likelihood that structures will be destroyed by wildfire. While risk, hazard, and protection capabilities together account for 90% of the likelihood that a wildfire event will threaten life and property, factors controlled by interface landowners account for 90% of the likelihood that a wildfire will destroy structures.<sup>19</sup> The risk is highest where flammable roofing and building materials have traditionally been used. Other factors included in this assessment are defensible space, building setbacks and separation of adjacent homes.

ODF staff are conducting field assessments of interface properties in their district (South Cascade Sweet Home) to assess the characteristics of those properties that increase or mitigate their wildfire risk. While these data are not available in all of Linn County, they are a very valuable component of this risk assessment as they serve as an indicator of structural vulnerability throughout the County. They show that, among the homes and structures assessed, most have a moderate vulnerability to wildfire, and some have a high vulnerability.

## CONCLUSIONS AND RECOMMENDATIONS

Fire related events related to these risks are highest in the interface areas with high structural vulnerability: Sweet Home, Sodaville, and Waterloo. The issue of structural vulnerability was raised by nearly all the fire fighting agencies interviewed as one of the greatest wildfire threats the County faces. It will be important for ODF to maintain the database that they have developed that contributed to this assessment, and, if possible, to assess and map structures in the North Cascade Santiam District. If other districts are interested in conducting a similar assessment, they should use the same methodology so that data will be consistent for a County-wide assessment.

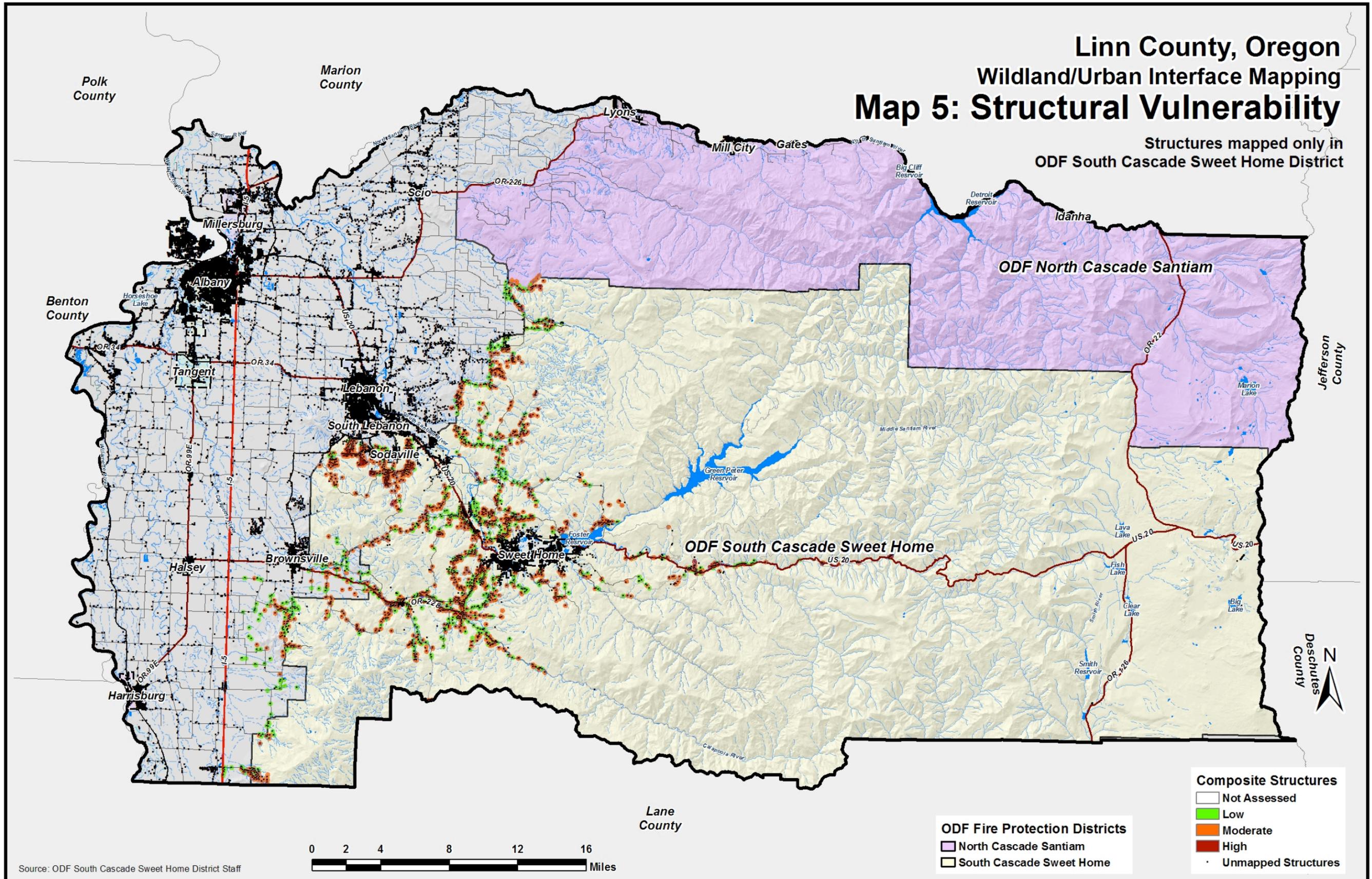
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<sup>19</sup> Oregon Department of Forestry. 2004. *Identifying and Assessment of Communities at Risk in Oregon*. <<http://egov.oregon.gov/ODF/FIRE/docs/WildfireRiskAssessment.pdf>>.



# Linn County, Oregon Wildland/Urban Interface Mapping Map 5: Structural Vulnerability

Structures mapped only in  
ODF South Cascade Sweet Home District





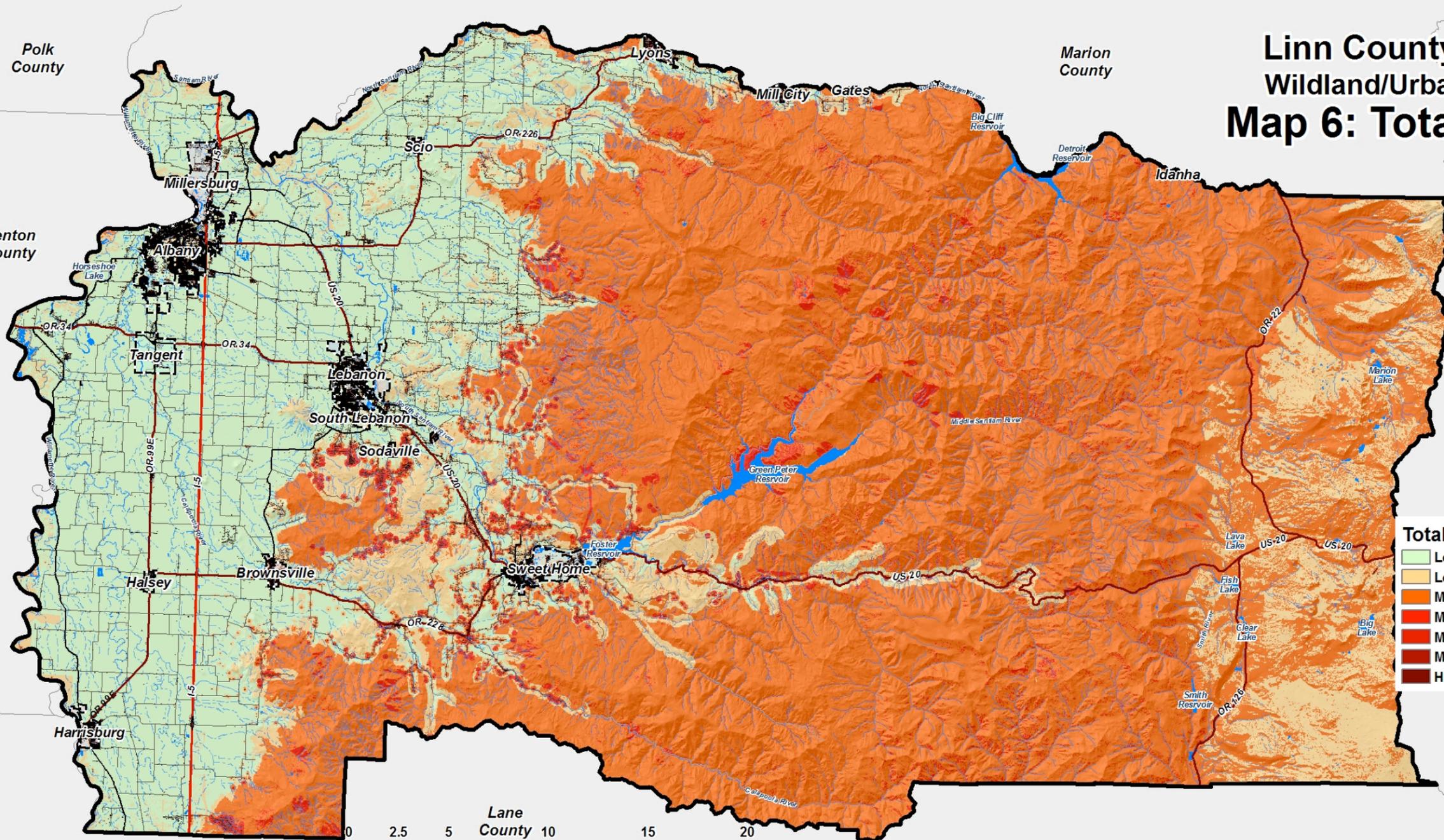
## **MAP 6: TOTAL VULNERABILITY**

The final map combines the risk scores from the previous maps (risk, hazards, protection capabilities, values protected, and structural vulnerability) to provide a combined risk and vulnerability assessment for Linn County. It weights the various components of risk based on the criteria outlined in the ODF methodology: risk, 13%; hazard, 26%; protection capability, 13%; values at risk, 17%; structural vulnerability, 30%.

Most of the County is moderately vulnerable to wildfires. The areas of highest risk are in the interface areas around Sweet Home, the Sodaville area, to the northeast of Brownsville, and around Green Peter Reservoir. The foothills of the cascades have some areas of high vulnerability. These are areas that require more careful planning and targeted outreach and education efforts.

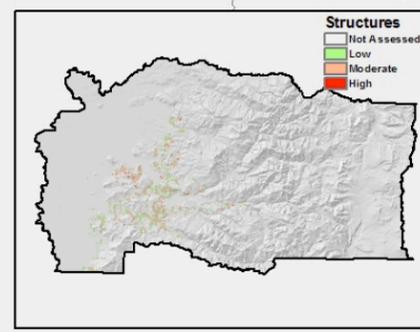
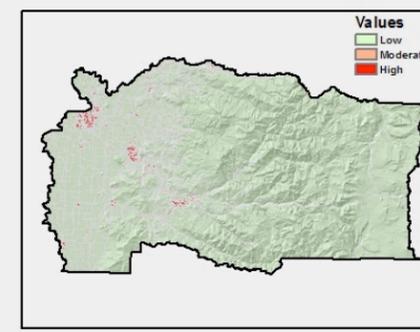
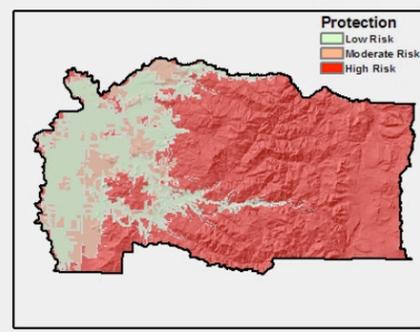
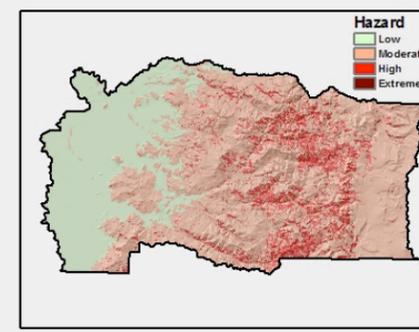
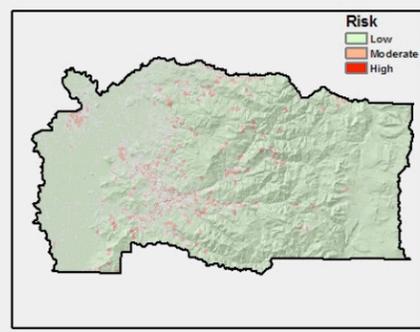


# Linn County, Oregon Wildland/Urban Interface Map 6: Total Score



**Total Score, Detail**

Low, 0 - 50 Points
Low, 50 - 76 Points
Moderate, 76 - 100 Points
Moderate, 100 - 125 Points
Moderate, 125 - 150 Points
Moderate, 150 - 173 Points
High, Over 173 Points





# LINN COUNTY COMMUNITIES AT RISK FOR WILDFIRE

To help states and counties identify at-risk communities within their borders, various state and federal agencies collaborated to update a nationwide list called “Communities in the Vicinity of Federal Lands at Risk from Wildfire”.<sup>x</sup> To identify at-risk communities, state agencies use a process created by a national interagency group; it describes the factors associated with at-risk communities.<sup>xi</sup> The updated list of at-risk communities across the country was published in the Federal Register on August 17, 2001. The at-risk communities within Linn County, as identified by the Federal Register, include the following:

- Albany
- Brownsville
- Clear Lake Resort
- Crowfoot
- Gates
- Harrisburg
- Idanha
- Lebanon
- Lyons
- Marion Forks
- Mill City
- Scio
- Sweet Home East
- Sweet Home West

Another list of Oregon Communities at Risk, published by the ODF in April 2006 lists Albany, Brownsville, Corvallis, Gates, Halsey, Harrisburg, Idanha, Detroit, Jefferson, Lebanon, Lyons, Mill City, Millersburg, Scio, Sodaville, Stayton, Sweet Home, Tangent, and Waterloo as communities at risk.

This risk assessment begins with the Federal Register and ODF lists above, and then based on the results of the analysis described in this section, refines the list to create a localized risk assessment that can assist with prioritizing projects for implementation.

As is evident in Map 6 above, none of the communities in Linn County are at high risk from wildfire, but many of them have a moderate to moderate/high risk. This risk assessment finds that the communities below are at risk, and that mitigation projects near them should be prioritized:

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<sup>x</sup> Ibid

<sup>xi</sup> Linn County Planning and Building Department. 2005. Linn County Natural Hazard Mitigation Plan.

**Communities at risk based on localized data assessment:**

Albany	Marion Forks
Brownsville	Mill City
Clear Lake Resort	New Idanha
Crowfoot	Scio
Gates	Sweet Home East and West
Harrisburg	Waterloo
Lebanon	Sodaville
Lyons	Various home clusters and subdivisions in the WUI

The other rural residential areas in Linn County that may be subject to wildfire hazards because of their location in forested areas or on steep dry slopes. Examples of such rural residential areas include: Bartel's Canyon Estates, Cascadia, Middle Ridge, Mountain Home Drive, Mt. Tom/Wildwood Estates, Northernwood Drive, Powell Hills, Rodger's Mountain, Washburn Heights, the Upper Calapooia, and others.<sup>xii</sup>

# Community Outreach and Collaboration

## Section 4

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A key function of community fire planning is the meaningful discussion it promotes among community members. A plan that accurately reflects the community's interests and priorities will have greater legitimacy and success in implementing recommendations.

This section outlines the outreach strategy used to engage interested parties in the CWPP development process as well as the findings of the outreach efforts. It has the following parts:

- **Stakeholder interviews** describes the findings from a series of stakeholder interviews conducted with Rural Fire Protection Districts and State and Federal agencies in Linn County
- **FireWise community workshop** describes the purpose, methods, and findings of the community workshop

## STAKEHOLDER INTERVIEWS

### PURPOSE

The purpose of this section is to highlight the findings of a series of stakeholder interviews conducted with the Rural Fire Protection Districts in Linn County as well as the Oregon Department of Forestry, the Linn County representative from the Office of the State Fire Marshal, the Bureau of Land Management, and the United States Forest Service. The interviews were conducted to gather background information on the Community Wildfire Protection Plan process and provide insight on potential mitigation measures. What follows is a summary of the discussions from those interviews; they reflect the perceptions of the fire protection stakeholders.

### METHODS

ECONorthwest developed and distributed a survey to Linn County's Rural Fire Protection Districts (RFPD) in April 2007. A similar survey was developed for the Oregon Department of Forestry, Office of the State Fire Marshal, Bureau of Land Management, and US Forest Service.

ECO staff followed up with representatives from each of the RFPDs and agencies and gathered their survey responses via telephone interviews. Each district or agency was asked a series of questions that addressed the following:

- History of wildfire occurrence and response
- Wildfire risk factors

- Capacity and needs
- Prevention and education resources
- Ideas for mitigation.

This section will present and discuss District responses first, and then address State and Federal agency responses.

## RURAL FIRE PROTECTION DISTRICT RESPONSES

The following Rural Fire Protection Districts responded the survey: Brownsville, Sweet Home, Halsey, Albany, Jefferson, Scio, Lebanon, Mill City, Tangent, Stayton, Harrisburg, and Lyons. Table 4-1 highlights key issues that Rural Fire Protection Districts identified during the interview process.

**Table 4-1. Rural Fire Protection District Findings**

	Brownsville	Sweet Home	Halsey	Albany	Jefferson	Scio	Lebanon	Mill City	Tangent	Stayton	Harrisburg	Lyons
Historical WUI Fires	•	•				•	•	•		•		
Primary Response Issues Identified												
Personnel	•	•				•		•		•	•	
Non-Wildland Fires			•						•			
Access				•			•				•	
Communications					•							
Conducted Fuel Reduction			•					•		•	•	
Conducted Structural Ignitability	•		•				•	•		•	•	
Primary Structural Ignitability Issues Identified												
Defensible Space	•	•		•	•		•			•	•	
Access	•	•					•	•				
Construction Methods				•						•	•	
Unprotected Areas Outside District	•					•		•		•		
Fire Evacuation Plans in Place				•								
Fire Assistance Agreements in Place	•	•	•	•	•	•	•	•	•	•	•	
Conducted Education & Outreach	•	•	•		•		•	•	•	•	•	

## HISTORY OF WILDFIRE OCCURRENCE AND RESPONSE

When asked if any wildfires had occurred within the Wildland Urban Interface, responses varied based on district's location within the County. RFPDs located on the east side of the County reported having multiple events over several years, but only two of the fires mentioned threatened structures. Several districts indicated that they had had small fires that had the potential to grow out of control and threaten structures, but that those fires were brought under control. RFPDs located on the west side of the County indicated that they didn't have true WUI areas, but did have grass fires that had impacted traffic on Interstate 5.

Districts were asked to indicate how many wildfires they typically respond to in a given year. Responses ranged from only 1-2 fires per year to up to 40-60 fires. All the districts indicated that they typically respond in a mutual aid capacity at least once a year, with one district responding on up to 20 mutual aid events.

RFPDs were asked to identify the primary issues the district faces for effective wildfire response. Many of the districts identified several issues. By far, issues related to personnel were mentioned the most.

The following were provided as primary issues:

- Getting volunteer fire fighters during the work week
- Protecting farms and smoke issues on the interstate
- Interface areas in North Albany with steep slope issues
- Communication system not linked with rest of County
- Training volunteers
- Distances necessary to travel within district
- Personnel
- Field and industrial fires spreading to fields
- Development standards in the WUI
- Defensible space

## **WILDFIRE RISK FACTORS**

Each district was asked to identify the most vulnerable areas within their district. These responses were specific to each of the districts and can be found in the district specific write-ups in appendix E. Districts were also asked if there were areas that are likely to become more vulnerable in the future either due to development or lack of wildland fire protection. For the most part, districts indicated that the areas identified as being vulnerable were the areas prone to become more and more vulnerable as more development takes place.

Districts were asked to indicate whether or not they had engaged in any fuel reduction efforts in the past. Very few of the districts indicated that they had implemented fuel reduction projects in the past. For the most part, districts indicated that their primary activities had been focused on education around structural ignitability rather than fuel reduction. Brownsville, Lebanon, Mill City, and Harrisburg had all implemented projects to reduce the structural ignitability of homes in their district. In 2002, several districts partnered with ODF to complete 'Knock and Talks' with homeowners to discuss wildfire issues and potential mitigation measures the homeowners could take to reduce their risk.

RFPD were asked to identify any issues they face related to response times. The majority of districts indicated that the availability of volunteer staff, especially during the day, was the biggest issue around response times. In addition, some districts mentioned that some private industrial land owners having locked gates posed a barrier to quicker response times.

Districts were asked to identify the primary issues their district faces in terms of structural ignitability. By far, most districts that indicated that they had structural ignitability issues mentioned that a lack of defensible space was the

biggest issue. A second issue that was raised often was lack of access because of narrow, steep driveways.

## **CAPACITY AND NEED**

RFPDs were asked whether or not they felt that the district had an adequate number of fire fighters. Only one district indicated that they had enough staff resources. Several districts mentioned that they might have adequate resources depending on the time of day because a majority of their volunteers work outside the community. Districts in Linn County have varying numbers of full time and volunteer fire fighters. Staff range from 1 to 65 full time employees, and 0 to 60 volunteers. Almost all of the districts indicated that they felt they had the capacity to apply for grants to implement wildfire mitigation projects, however, they also indicated that they lacked the people to implement those projects if funded.

Districts were asked to list the fire fighting apparatus that is currently available and what apparatus they would like to add to their fleets. Those results can be found in the district summaries located at the end of this appendix.

All the RFPDs indicated that they had some sort of fire assistance agreements with other districts or state agencies. For the most part, these agreements are in the form of mutual aid. Districts that have overlapping boundaries with Oregon Department of Forestry also have assistance agreements with that agency. In addition, the Halsey district has an agreement in place with the Oregon Department of Fish and Wildlife for areas along the Willamette River.

## **PREVENTION AND EDUCATION RESOURCES**

RFPDs were asked whether or not they had participated in education and outreach activities related to wildfire issues. All of the districts on the extreme east side of the County have participated with the Oregon Department of Forestry to educate homeowners on structural ignitability issues and potential hazard mitigation activities. Most districts also indicated that they have a variety of information in the form of fliers and brochures that are always available to residents. When asked about what future education and outreach campaigns the districts would like to see, the majority indicated that something around defensible space, access, and construction materials would be beneficial.

## **IDEAS FOR MITIGATION**

Districts were asked what type of fuel reduction and structural ignitability projects they would like to see implemented in interface areas. Overall, most of the projects mentioned would be classified as structural ignitability projects. The ideas for projects included:

- Making chippers available for fuel reduction
- More homeowner education and outreach
- Working with developers on fire resistant materials and vegetation

- Use of inmate work crews to do fuel reduction
- Legislation, zoning, and ordinances to ban cedar shake roofs
- Fuel reduction programs to help elderly residents who might not be able to do the physical labor themselves
- Improved construction and design standards in wildland areas

## STATE AND FEDERAL AGENCY RESPONSES

The following state and federal agencies were interviewed: Office of State Fire Marshal (OSFM), Oregon Department of Forestry (ODF), United States Forest Service (USFS), and the Bureau of Land Management (BLM). In addition to responding to questions about wildfire risk factors, capacity and needs, prevention and education resources, and ideas for mitigation, these agencies also addressed the following issues:

- Agency roles and responsibilities
- Wildfire response
- Wildfire vulnerability
- Fuels reduction efforts
- Structural Ignitability

Table 4-2 highlights key issues that the agencies identified in the interview process.

**Table 4-2. State and Federal agency findings**

	OSFM	ODF	USFS	BLM
Primary Response Issues Identified				
Access	N/A	•	•	•
Resources			•	
Conducted Fuel Reduction		•	•	•
Conducted Structural Ignitability	•	•	•	
Primary Structural Ignitability Issues Identified				
Defensible Space		•	•	
Access	•			
Homeowner Education				•
Fire Assistance Agreements in Place		•	•	•
Conducted Education & Outreach	•	•	•	•

## AGENCY ROLES & RESPONSIBILITIES

State and federal agencies were asked to describe their roles in wildfire response, planning or protection activities. Their responses are summarized below.

- The Office of the State Fire Marshal oversees the Conflagration Act. When there is a wildfire in the interface that exceeds local capacity,

OSFM is asked to invoke the Act. The request goes to the Governor to declare a Conflagration, which provides resources from across the state. OSFM doesn't provide direct response to wildfires. On the planning side, they also manage the State Fire Defense Board, made up of the heads of all the County Fire Defense Boards. The State Fire Defense Board is the manager of the state's mobilization plan. Local plans are written to dovetail with state plan.

- The Oregon Department of Forestry provides fire protection for private land owners and also is the contracted fire fighting organization for the BLM. Landowners pay an assessment to ODF for fire protection. ODF is active in fuels management. They typically provide fuel reduction recommendations to land owners through the fire assistance program. Landowners are responsible for implementing measures.
- The United State Forest Service is responsible for the protection of the national forest, not private lands. USFS has mutual aid agreements with locals to protect private lands, but these agreements are only valid for 24 hours. In the preseason USFS works with partners on pre-attack planning, (i.e., designating helispots). USFS doesn't take the lead in planning processes like CWPP processes, but are there to participate and facilitate.
- The Bureau of Land Management contracts with ODF for fire protection activities. If ODF needs additional assistance, BLM can provide some staff resources. BLM manages the Northwest Oregon Fire Management Plan, which covers response activities and cooperation between wildfire partners.

## **WILDFIRE RESPONSE**

The agencies cited the following points when asked to discuss their their concerns regarding wildfire response.

- Accessibility and concerns with future of ability to slash burn. With current efforts to end grass seed burning, see that slash burning is probably next to go. Without the ability to burn slash, it creates greater risk because of the build up of fuels
- Lack of resources and poor access
- Lack of defensible space
- Privately owned bridges with no weight ratings
- Communication with ODF is good, but don't have all the frequencies for locals

## **WILDFIRE VULNERABILITY**

Different agencies had some differing views on the factors that contribute to community vulnerability. There was greater consistency, however, in response to questions about geographic areas that are more vulnerable, including a concern about the valley floor, and regarding specific communities located within Linn County:

- The OSFM identified that they are concerned about interface areas on the periphery of valley floor where ODF and RFPDs overlap. Also isolate islands of interface like in Albany where there is a subdivision on a butte that has wildlands, but no ODF responsibility. It is solely in Albany's response area.
- ODF identified the following areas of concern: Washburn Heights, Mt. Tom, new development on NE end of Brownsville, Middle Ridge, Sodaville, Knox Butte (Albany, not ODF), Ridgeway Butte (proposed in Lebanon). All of these areas were also identified by the local protection districts as well.
- USFS identified the following areas of concern: Marion Forks, Hwy 20 corridor between Linn/Deschutes County border and Sweet Home, and Quartzville (upper end only, have mutual aid for lower).
- BLM identified the following areas of concern: urban interface areas closer to the valley floor and those high value areas.

Agencies were then asked to identify those areas that are likely to become more vulnerable in the future. The areas/issues of concern include:

- Periphery of valley floors as more people move out into steeper slopes.
- There is a growing concern in many areas because Linn County is a relatively inexpensive place to live, so growth demand will most likely continue. Also, the number of measure 37 claims currently filed in the County may lead to a large number of new subdivisions in potential wildland areas.
- Sweet Home is becoming a bedroom community for Albany and Eugene and is the gateway to the cascades. Future growth there may encroach on wildlands.
- Areas around Foster Reservoir.
- Another big concern is timber companies selling off land to developers because the land is worth more in real estate than it is in timber.
- Mostly private forested lands that are protected by ODF. Logging operations create risk.
- Private industrial landowners who don't clean up slash after thinning operations.

## **FUEL REDUCTION EFFORTS**

Agencies identified their fuel reduction efforts and programs:

- OSFM has not been directly involved in fuel reduction, but has staff that provides training to Rural Fire Protection Districts to write wildland related grants.
- ODF frequently works with landowners to assist in fuel reduction on privately-owned forest lands through National Fire Plan grants. The agency also participates indirectly in fuels reduction by loaning equipment to homeowners in the WUI.

- USFS conducts brush disposal after timber sales to clean up logging slash by collecting and burning slash piles.
- BLM does fuels reduction in association with timber sales.

## **STRUCTURAL IGNITABILITY**

By building to specific standards, creating defensible space by clearing brush and dry wood, and updating homes to reflect new standards, homeowners can help to mitigate potential risk to their homes and other structures on their properties. Projects the State and Federal agencies are or have been involved in include:

- OSFM works with the Building Codes Division to ensure that building codes reflect adequate wildfire mitigation measures.
- ODF through the Fire Defense Board and mutual aid agreements provides brochures to Planning departments on construction standards for wildfire including access issues. ODF utilized an NFP grant to educate landowners on what they can do to mitigate fire hazard. ODF has completed 3,000 home assessments using Trimble GPS units.
- Both the USFS and BLM typically engage in structural ignitability projects, but have not completed any in Linn County.

The main concerns regarding ignitable structures were:

- All agencies identified both defensible space and fire fighter access as primary issues when dealing with wildfire.
- Landowner awareness was also listed as an issue.

## **WILDFIRE RESPONSE**

Issues that State and Federal agencies highlighted:

- As population continues to rise, more people will require evacuation, making it harder get in to fight fires.
- Private homeowners with locked or security gates also create an issue, however, state law gives [RFPDs] permission to go through any locked areas, this just takes time. Industrial forest owners have typically given ODF keys to their gates, but when RFPD respond on mutual aid, they don't have these keys.
- For the USFS, response times in general are long. On federal lands, budgets are decreasing for road maintenance which means access is reduced and slower response times are being seen.
- Marion Forks is an issue because it is somewhat isolated from the rest of the County and isn't in a RFPD.

## **CAPACITY AND NEEDS**

The State and Federal agencies were asked to identify any fire assistance agreements they may have in place. The Oregon Department of Forestry indicated

that they have County-wide agreements in place in Linn and Benton Counties and with the BLM. They also have a “closest forces” and a “reciprocal agreement” with the US Forest Service. The USFS has a “mutual aid” agreement with the state.

Agencies were asked to identify the most important need they face for effective wildfire response, and/or mitigation. The following are their responses:

- The State Fire Marshal indicated the issue for the rural fire protection districts is identifying what the real hazard is and what the actual problems are so that their response plans can focus activities around education and mitigation in those problem areas.
- ODF indicated that the issue is public education on how to make structures survive. ODF is not paid to protect structures. They also indicated that it is important to maintain good relationships with partners – local and federal fire agencies. They have good working relationships now and are constantly interfacing. Need to keep up those relationships in the future as well. Another issue is the ever changing command staff and the need for all partners to be knowledgeable about roles and connections. CWPP is also an opportunity for County Commissioners to make wildfire issues a priority and pass that along to County departments like GIS and planning.
- The USFS can’t do fuels treatments like they would want to. USFS gets money for fuel treatment from national analysis, where this forest doesn’t rank especially high. They rely on fuel reduction after timber sales, which aren’t always the most at risk areas.
- The BLM indicated that they haven’t had very many fires on lands in their jurisdiction, but when they do issues do come up. This particular district hasn’t had any major fires in 15 years, but the potential is there. Sometimes there are differences of opinion between what is best for the natural resources (BLM) and what is best for fire fighting (ODF).

## **PREVENTION AND EDUCATION RESOURCES**

Each of the State and Federal agencies are involved in education and outreach programs at some level. While some may be implementing the programs, others play a supporting role:

- OSFM support local education and outreach programs by providing materials and training.
- ODF typically provides information on structural ignitability, including efforts during Fire Awareness Week with Lebanon Fire for Fireman Safety Day. They have displays on defensible space and National Fire Plan brochures. In 2002, ODF received the National Fire Plan grant. The grant allowed ODF and the Harrisburg RFPD to go door to door in Mt. Tom to educate homeowners on structural ignitability.

- The USFS works with the State to do education and outreach in Sweet Home, Albany, and Lebanon. They also administer the Smokey (the Bear) School program focusing on kids and the proper use of matches. Other education efforts includes signage in the forest. The USFS's prevention officer is interested in expanding their program to Salem, Albany, and Corvallis in an effort to educate National Forest visitors about fire before they visit the forest.

## **IDEAS FOR MITIGATION**

Each of the agencies provided suggestions that, if implemented, could reduce wildfire risk in the WUI. More detailed actions are described later in this plan; the following is a brief overview.

- Develop educational programs on defensible space and access.
- Complete fire assessments in stands to identify potential fuel reduction strategies and to educate landowners on what to do with fuels and the threat from neighboring landowners.
- Increase partnership efforts among local, State, and Federal entities to complete fuel reduction projects on adjacent lands and to create fuel breaks.
- Clear roads that have slash piles to create access and create fuel breaks to protect private landowners.
- Undertake defensible space education specifically in the Marion Forks area, which does not fall within the jurisdiction of any fire protection district.
- Complete home assessments and identify areas where lack of water supply could hamper a fire repression efforts.
- Strengthen wildfire related codes.
- Undertake fuel reduction efforts through the marketing of small diameter biomass.

## **FIREWISE COMMUNITIES WORKSHOP**

The National Wildland Urban Interface Fire Protection Program developed FireWise Communities Workshops in 2000 to address the Wildland Urban Interface fire problem at a community level. The workshops have three main goals:

1. Improve safety in the Wildland Urban Interface by identifying opportunities to share responsibility
2. Create and nurture local partnerships for improved decisions in communities
3. Encourage the integration of FireWise concepts into community and disaster mitigation planning

These goals are consistent with the collaborative emphasis of legislation guiding the CWPP planning process. Workshop participants worked in small groups to evaluate interactive scenarios designed to assess and reduce the wildfire risk of a fictional community.

## **PURPOSE**

ECONorthwest and the Oregon Department of Forestry conducted a FireWise Communities Workshop on June 7<sup>th</sup>, 2007 at the Linn County Fair and Expo Center. The workshop included an educational element to assist participants in identifying wildfire-related issues in their communities. Through this exercise, ECO obtained feedback regarding the public's priorities for wildfire protection in Linn County. The results of the workshop will assist the County and fire districts in developing local priorities for project implementation.

Participants in the workshop included representatives of federal and state fire and forestry agencies, rural fire protection districts, local planning and emergency management departments, utility providers, the private forestry industry, the real estate industry, watershed councils, and elected officials, among others. For more information about the FireWise Workshop see *Appendix F: FireWise Workshop Summary*.

## **METHODS**

Prior to the workshop, stakeholders had been asked to identify major areas of concern regarding wildfire in Linn County. They identified the following five areas:

- Emergency response
- Education and outreach
- Structural ignitability
- Fuel reduction
- Collaboration, coordination, and implementation

During the workshop, facilitators asked participants to group their suggestions and concerns under these five categories, using a worksheet created and provided by ECONorthwest. Participants were given an opportunity to review and comment on the wildfire mitigation strategies already identified through the stakeholder interviews and survey. The small groups were asked to discuss each strategy, identify ideas for implementation, designate a lead agency, and brainstorm potential partners that could assist in implementation.

The participants discussed their ideas in small groups and shared these results with the entire group at the end of the workshop. ECONorthwest analyzed the worksheets to develop a more refined list of mitigation strategies, including new actions identified by participants.

## **FINDINGS**

### **EMERGENCY RESPONSE**

Improving efficiency in wildfire response efforts is essential in protecting the residents and property in Linn County from potentially devastating wildland fires. Workshop participants were asked to identify issues regarding emergency response and comment on the mitigation strategies developed through the stakeholder interviews and survey. The primary issues regarding emergency response are summarized below.

- There are deficiencies in resources available for wildland fire fighting.
- Water supply is limited in some of the County's more vulnerable areas.
- Water sources often improperly maintained for firefighting purposes.
- Rural addressing needs to be improved.
- There are interoperable communication issues between structural and wildland fire protection agencies.
- Many WUI areas have dead-end roads and only one ingress/egress route.
- Most of the rural fire protection districts are staffed mainly by volunteers, and need assistance in training for wildfire response.
- A smaller secondary substation on the east side of the Harrisburg District is needed.

### **EDUCATION AND OUTREACH**

Enhancing wildfire education and outreach is arguably one of the most important outcomes of the CWPP. Workshop participants were asked to identify issues regarding education and outreach and comment on the mitigation strategies developed through the stakeholder interviews and survey. The primary issues regarding education and outreach are summarized below.

- Though educational materials exist, there has not been a comprehensive and coordinated effort for distributing materials.
- Public education about development in areas subject to wildfires is needed.
- Campfires are an issue in dispersed camping areas and backyards (rather than in campgrounds).
- The Smokey Bear Fire Prevention Programs in schools are effective and should continue.
- Many fire districts need additional staff and resources to assist in fire prevention.

- Involving the media in a contest could improve visibility for the FireWise landscaping program and encourage neighbors to follow the examples of those in the community who are taking action on their properties.

## **TREATMENT OF STRUCTURAL IGNITABILITY**

A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures. Workshop participants were asked to identify issues regarding structural ignitability and comment on the mitigation strategies developed through the stakeholder interviews and survey. The primary issues regarding structural ignitability are summarized below:

- The criteria insurance providers use to assess fire insurance eligibility and premiums does not accurately portray the true fire hazard.
- There are many homes in structurally unprotected areas.
- County driveway and road standards do not match the International Building Code and the County does not require re-inspection after the development is complete. Fire departments do not inspect driveways in terms of the County standards.
- County GIS needs to be familiar with the risk assessment maps to ensure that the data can be updated.
- There is a lack of structural ignitability data.
- Processes and standards for the implementation of SB 360 need to be developed.

## **PRIORITIZED FUEL REDUCTION**

A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure. Participants were asked to identify issues regarding fuels reduction and comment on the mitigation strategies developed through the stakeholder interviews and survey. Participant's responses are summarized below:

- Fuel reduction efforts on the part of fire protection agencies should be coordinated.
- Education about risks and rewards of fuel reduction is needed.
- Homeowners need assistance with determining appropriate fuel reduction strategies.
- Funding for creating and sustaining fuels reduction projects is needed.
- Elderly or disabled homeowners need assistance in doing the physical labor associated with fuel reduction.
- Biomass utilization and marketing could be a method for paying for fuel reduction efforts.

- Homeowners need incentives and resources for continuing fuels reduction efforts.
- Slash piles located close to roads could hinder evacuation, and would serve to promote the spread of fire from one side of the road to the other.
- Homeowners need resources for assessing and addressing fuels management.
- Agricultural lands need to be protected from wildfires.

## **COLLABORATION**

A CWPP must be collaboratively developed using a process that involves local and state government representatives, in consultation with federal agencies and other interested parties. Participants were asked to identify issues regarding structural ignitability and comment on the mitigation strategies developed through the stakeholder interviews and survey . Participant's responses are summarized below:

- Formalizing an Advisory Committee will assist in implementing the Linn County Community Wildfire Protection Plan.
- A sub-committee or Fire Prevention Cooperative is needed to coordinate and sustain effective countywide public education and outreach activities.

## **CONCLUSION**

The results of the workshop were threefold. First, the mock planning exercise gave participants the perspective and motivation to identify and resolve potential wildfire-related issues for their community. This group of educated stakeholders can be catalysts for community action. Second, it provided a forum for fostering partnerships among stakeholders that have a vested interest in reducing wildfire hazards. These relationships will serve as the foundation for coordinated implementation of the CWPP. And finally, the discussion and review of the action items included in the CWPP results in a comprehensive action plan that will guide Linn County in reducing the threat of potentially devastating wildfires.

# Action Plan

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The action plan section of this document details the goals and action items that guide the implementation of the Linn County Community Wildfire Protection Plan. The goals and action items are vital components of the CWPP and serve as a roadmap for plan implementation. It has the following parts:

- **Action plan framework** describes the overall framework for the Linn County CWPP
- **Action plan methods** describes how the mission, goals and objectives were developed
- **Plan mission** describes the mission statement of the Linn County CWPP
- **Plan goals** describes goals of the Linn County CWPP
- **Plan action items** describes wildfire mitigation strategies identified through the Linn County CWPP planning process
- **Action plan matrix** documents the action items in relation to the plan goals

## ACTION PLAN FRAMEWORK

This section provides information on the process used to develop the goals, objectives, and action items in the Linn County CWPP. It also presents the Action Plan matrix, which is the overall framework for wildfire mitigation strategies. The framework consists of three parts—Mission, Goals, and Action Items:

- **The mission statement** is a philosophical or value statement that answers the question “Why develop a plan?” In short, the mission states the purpose and defines the primary function of the County’s Community Wildfire Protection Plan. The mission is an action-oriented statement of the plan’s reason to exist. It is broad enough that it need not change unless the community environment changes.
- **Goals** are intended to represent the general ends toward which the Linn County CWPP is directed. Goals identify how the area intends to work toward mitigating the risk of Wildland Urban Interface fire. They do not specify how Linn County is to achieve a given level of performance. The goals are guiding principles for the specific recommendations outlined in the action items.
- **Action items** are detailed recommendations for activities that local departments, citizens and others could engage in to reduce Wildland Urban Interface fire risk.

## ACTION PLAN METHODS

The Action Plan was developed through an analysis of the issues identified in the risk assessment, Rural Fire Protection District interviews, and the FireWise Workshop, as well as through background research on the Wildland Urban Interface and a review of other Community Wildfire Protection Plans. The mission and goals for the Linn County CWPP were taken from the existing Linn County Natural Hazard Mitigation Plan, approved in March 2006.

The Steering Committee reviewed and approved mission, goals, and action items on September 12, 2007. Committee members and the agencies they represent were assigned responsibility for the implementation of individual action items.

## PLAN MISSION

The mission of the Linn County CWPP aligns with the mission for the Linn County Natural Hazard Mitigation Plan. The mission is :

*To reduce the impact of natural hazards on the community through planning, communication, coordination and partnership development.*

## PLAN GOALS

Plan goals help to guide the direction of future activities aimed at reducing risk and preventing losses from wildfire. The goals listed here serve as the guiding principles for agencies and organizations as they begin implementing action items. The Linn County CWPP goals are based on the concepts presented during the FireWise Community Workshop.

- **Goal #1:** Enhance wildfire response capabilities
- **Goal #2:** Increase stakeholder knowledge about wildfire risk through education and outreach
- **Goal #3:** Encourage the treatment of structural ignitability
- **Goal #4:** Prioritize fuel reduction projects
- **Goal #5:** Increase opportunities for collaboration and coordination to implement wildfire projects.

## PLAN ACTION ITEMS

The plan identifies action items developed through various plan inputs and data collection and research. CWPP activities may be eligible for funding through state and federal grant programs, including the National Fire Plan or Pre-Disaster Mitigation.

To facilitate implementation, each action item is described in a worksheet, Table 5.1, which includes information on key issues addressed, ideas for

implementation, coordinating and partner organizations, timeline, and plan goals addressed.

## **KEY ISSUES ADDRESSED**

Each action item includes a list of the key issues that the activity will address. Action items should be fact based and tied directly to issues or needs identified through the planning process. Action items can be developed from a number of sources, including input from participants in the planning process, noted deficiencies in local capabilities, or issues identified through the risk assessment.

## **IDEAS FOR IMPLEMENTATION**

Each action item includes ideas for implementation and potential resources. This information offers a transition from theory to practice. The ideas for implementation serve as a starting point for this plan. This component is dynamic in nature, as some ideas may be not feasible and new ideas may be added during the plan maintenance process. (For more information on how this plan will be implemented and evaluated, refer to Section 5 of the CWPP).

Action items are suggestions about how to implement plan goals. These include elements such as collaboration with relevant organizations, grant programs, tax incentives, human resources, education and outreach, research, and physical manipulation of buildings and infrastructure. A list of potential resources outlines which organization or agency would be most qualified and capable of performing the implementation strategy. Potential resources often include utility companies, non-profits, schools, and other community organizations.

## **COORDINATING ORGANIZATION**

The coordinating organization is the organization that is willing and able to organize resources, find appropriate funding, and oversee activity implementation, monitoring, and evaluation.

## **INTERNAL PARTNERS**

Internal partners are members of the CWPP advisory committee and may be able to assist in the implementation of action items by providing relevant resources to the coordinating organization.

## **EXTERNAL PARTNERS**

External partner organizations can assist the coordinating organization in implementing the action items in various ways. Partners may include local, regional, state, or federal agencies, as well as local and regional public and private sector entities. The internal and external partner organizations listed in the CWPP are potential partners recommended by the project steering committee, but were not necessarily contacted during the development of the plan. The coordinating

organization should contact the identified partner organizations to see if they are capable of and willing to participate. This initial contact also provides an opportunity to gain a commitment of time and/or resources toward completion of the action items.

## **TIMELINE**

Action items include both short and long-term activities. Each action item contains an estimated timeline for implementation. Short-term action items are activities that may be implemented with existing resources and authorities within one to two years. Long-term action items may require new or additional resources and/or authorities, and may take from one to five years to implement.

## **ACTION PLAN MATRIX**

The Action Plan matrix portrays the overall framework and links between the goals, objectives and action items of the Linn County CWPP. The matrix is modeled after one developed by the National Committee on Wildland Urban Interface Fire. The matrix links the action items to the three HFRA requirements that they address: collaboration, prioritized fuel reduction, and treatment of structural ignitability. Each action item has a corresponding action item worksheet describing the project, identifying the rationale for the project, potential ideas for implementation, and assigning coordinating and supporting organizations. These action item forms are located in Appendix A: Action Item Worksheets.

## Linn County Community Wildfire Protection Plan Action Item Matrix

Goals	Action Item:			
<b>GOAL 1: Enhance wildfire response capabilities</b>				
		Time Line	Lead Organization	Internal/External Partners
	<b>Action 1.1</b> Assess and address deficiencies in equipment and resources available for wildland fire fighting for rural fire departments.	Ongoing	Fire Defense Board	Roads Department, Emergency Management, Power Companies, Hospitals, and Private Contractors, ODF
	<b>Action 1.2</b> Inventory alternative firefighting water sources in Wildland Urban Interface, including helicopter dip sites	1-2 years	Oregon Department of Forestry	Rural Fire Protection Districts, United States Forest Service, Small Woodlands Association, and Oregon Civil Air Patrol, Industrial land owners, Water Master
	<b>Action 1.3</b> Improve addressing and visibility in rural areas	3-5 years	Linn County Sheriff - Dispatch and the Fire Defense Board	Building Department, Fire Defense Board, Linn County GIS
	<b>Action 1.4</b> Enhance interoperable communications by addressing communication deficiencies	3-5 years	Linn County Sheriff - Dispatch	Rural Fire Protection Districts, Oregon Department of Forestry
	<b>Action 1.5</b> Develop evacuation plans and procedures for high-risk WUI areas	Ongoing	County Emergency Management	Roads Department, Linn County GIS, Oregon Department of Forestry, US Forest Service
	<b>Action 1.6</b> Augment volunteer fire fighter training to improve response capabilities, especially in rural fire districts	Ongoing	Linn County Fire Training Council	Emergency Management
	<b>Action 1.7</b> Seek funding to build a smaller secondary substation on the east side of the Harrisburg District	3-5 years	Harrisburg Rural Fire Protection District	Linn County Emergency Management

**GOAL 2: Protect life, the built environment and natural systems through County policies, procedures and services**

	Time Line	Lead Organization	Internal/External Partners
<b>Action 2.1</b> Collaborate with developers/builders, fire protection agencies, and relevant County agencies to collect and distribute educational materials regarding fire-resistant construction materials, fire code standards for access, water supply, fuel breaks and fire-resistant vegetation in the wildland interface/forest designated areas	Ongoing	Planning Department	Oregon Department of Forestry, Office of State Fire Marshal, County Planning and Building, Insurance Companies, Banks, Community Emergency Response Teams, Neighborhood Watch Groups, Senior Citizen Groups, OSU extension
<b>Action 2.2</b> Work with local nurseries and the extension service's Master Gardeners program to promote firewise landscaping	1-3 years	Oregon State University Extension Service	Linn County Fairgrounds, Oregon Gardens Nursery, Master Gardeners, Oregon Nursery Association, Oregon Department of Forestry, 4-H Clubs, Boy Scouts, High School Forestry Clubs
<b>Action 2.3</b> Continue to educate the public about campfire safety	Ongoing	US Forest Service, Bureau of Land Management, Oregon Department of Forestry	County Sheriff, Rural Fire Protection Districts, Oregon State Police, Sporting Goods Stores
<b>Action 2.4</b> Continue supporting and expanding the Smokey Bear Fire Prevention Programs in schools	Ongoing	US Forest Service, ODF	Oregon State Parks, School Districts
<b>Action 2.5</b> Integrate wildfire hazards and safety programs into educational curriculum	Ongoing	Fire Defense Board	Office of State Fire Marshal, School Districts, Colleges
<b>Action 2.6</b> Create an "Extreme Home Make-over" contest to highlight the need for firewise landscaping	1-3 years	Linn County Planning, Oregon Department of Forestry	Media, Hardware and supply stores

**GOAL 3: Encourage the treatment of structural ignitability**

	Time Line	Lead Organization	Internal/External Partners
<b>Action 3.1</b> Identify incentives for improving maintenance of fire breaks and reducing hazardous vegetation	Ongoing	Oregon Department of Forestry	Fire Defense Board, Insurance Agencies, Small Woodlands Association, Industrial land owners
<b>Action 3.2</b> Work with insurance providers to improve their criteria to adequately represent level of structural fire protection in residential structures, especially in high-risk areas.	Ongoing	State Insurance Commissioner's Office	Fire Districts, Office of State Fire Marshal, Insurance Companies, Oregon Department of Forestry
<b>Action 3.3</b> Enhance structural protection in structurally unprotected areas and comply with the Governor's policy in unprotected areas to be eligible for conflagration resources.	Ongoing	Linn County Planning	Fire Districts, Land Owners
<b>Action 3.4</b> Complete the fire structural risk assessments in Brownsville, Lebanon, and Sweet Home fire districts, and utilize this as a model program for other Linn County fire districts	1-3 years	Fire Defense Board, Oregon Department of Forestry	Retired professionals, Universities, Neighborhood Associations, CERT Teams, Watershed Councils
<b>Action 3.5</b> Develop processes and standards for the implementation of Oregon Senate Bill 360: Oregon Forestland Urban Interface Fire Protection Act	1-3 years	County Planning and Building	Board of County Commissioners, Oregon Department of Forestry, Bureau of Land Management, US Forest Service

**GOAL 4: Prioritize fuel reduction projects**

	Time Line	Lead Organization	Internal/External Partners
<b>Action 4.1</b> Incorporate, maintain, and update Linn County's Wildland-Urban Interface Risk Assessment and GIS data elements, and develop and maintain an inventory of potential fuels reduction projects in high-risk areas, silvicultural prescriptions, and list of prioritized fuel projects	Ongoing	ODF, Linn County Planning, and Linn County GIS	US Forest Service, Bureau of Land Management, United States Forest Service
<b>Action 4.2</b> Develop educational materials designed to educate property owners about the benefits of sustained fuel reduction efforts	Ongoing	Fire Defense Board	Linn County Planning, Linn County Sheriff, Oregon Department of Forestry, Bureau of Land Management, United States Forest Service, Oregon State University Extension Service, 4-H programs, Boy Scouts, Neighborhood Watch Programs, Small Woodland Association
<b>Action 4.3</b> Develop a resource guide to assist private landowners on how to complete risk assessments and determine appropriate fuel reduction strategies	1-3 years	Oregon Department of Forestry	Fire Defense Board, Oregon State University Master Woodland Manager Program, Association of Oregon Loggers, Society of American Foresters
<b>Action 4.4</b> Identify opportunities to assist vulnerable populations (i.e., elderly, disabled, etc.) who request assistance in creating defensible space around homes and communities	1-3 years	Oregon Department of Forestry	Fire Defense Board, Linn County Planning, Oregon State University Extension Service, Northwest Youth Corps, social services organizations
<b>Action 4.5</b> Explore and promote opportunities for small diameter biomass utilization and marketing	1-3 years	CWPP Committee	Linn County Planning, Oregon State University Extension Service, Small Woodlands Association, Bureau of Land Management, US Forest Service, Association of Oregon Loggers
<b>Action 4.6</b> Explore the development of a Linn County Fuels Management Cooperative through the Small Woodland Association for sustaining fuels management within the WUI	1-3 years	Fire Defense Board, Oregon Department of Forestry	Small Woodlands Association, Bureau of Land Management, US Forest Service, Association of Oregon Loggers
<b>Action 4.7</b> Work with forestland managers and watershed managers to protect water quality in high risk areas while reducing wildfire hazards	1-3 years	ODF	Oregon Department of Forestry, Watershed Councils, Soil and Water Conservation District, US Forest Service, Private Timber Companies, Department of Environmental Quality, Bureau of Land Management
<b>Action 4.8</b> Work with County Roads Department and ODOT to reduce hazardous vegetation in Right of Ways to enhance access and create fuel breaks, and to keep County/access roads large enough for fire vehicle passage.	Ongoing	County Roads Department	Linn County Planning, Oregon Department of Forestry, Bureau of Land Management, US Forest Service
<b>Action 4.9</b> Support creation of fire buffers around agricultural land	Ongoing	Linn County Planning	Fire Defense Board, Cities, Rural Fire Protection Districts, Oregon Department of Forestry, Department of Agriculture

**GOAL 5: Increase opportunities for collaboration and coordination to implement wildfire projects**

	Time Line	Lead Organization	Internal/External Partners
<p><b>Action 5.1</b> Create and formalize a CWPP Advisory Committee to oversee implementation, identify and coordinate funding opportunities, and sustain the Linn County Community Wildfire Protection Plan</p>	1 year	County Commission, County Planning and Building	Committee representatives
<p><b>Action 5.2</b> Establish a sub-committee or a Fire Prevention Cooperative to coordinate and sustain effective countywide public education and outreach activities</p>	1-3 years	CWPP Advisory Committee, Fire Defense Board	Oregon State University Extension Service, Soil and Water Conservation District, Keep Oregon Green

# Plan Implementation and Maintenance

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The plan implementation and maintenance section of this document details the formal process that will ensure that the Linn County Community Wildfire Protection Plan (CWPP) remains a relevant document and that the actions in it are implemented. This section provides the foundation for the formation of the Linn County's CWPP Advisory Committee, referred to as *the Committee*.

This section of the CWPP outlines the methods by which the Linn County CWPP will be implemented, maintained, and updated. It has the following parts:

- **Plan implementation** describes how the Linn County will be implemented and includes a discussion of the plan's convener, advisory committee, and committee membership;
- **Plan maintenance** describes how the plan will be maintained and updated and includes a discussion on the annual and semi-annual meetings as well as the project prioritization process; and
- **Five-year review of plan** describes the methods in which the plan will be updated on a 5 year basis.

## PLAN IMPLEMENTATION

It is critical that Linn County have a "living document" that is consistently updated to reflect current needs and priorities. The plan's format allows the Committee to review and update sections as new data becomes available. New data can be easily incorporated, resulting in a Community Wildfire Protection Plan that remains current and relevant to Linn County and to all the CWPP partners. The benefits of a current and relevant CWPP include:

- Allowing communities to identify local priorities and shape management decisions affecting public lands around them
- Building community partnerships and collaboration between fire districts, fire departments, local/state/federal governments, and private landowners
- Identifying a variety of funding sources and opportunities available to communities
- Facilitating fuels reduction and forest health treatments across landscapes, in accordance with the goals of the Healthy Forest Restoration Act (HFRA) and Healthy Forests Initiative

The Healthy Forest Restoration Act (HFRA) requires that three entities must mutually agree on the final contents of a CWPP:

- Linn County Board of Commissioners
- Linn County Fire Defense Board

- Oregon Department of Forestry

The Linn County CWPP is a shared plan and was developed and implemented based upon a collaborative process. The plan will be adopted by resolution by the Linn County Board of Commissioners and acknowledged by the Linn County Fire Defense Board and Oregon Department of Forestry in order to meet HFRA and Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation requirements. The effectiveness of the Linn County non-regulatory CWPP will be contingent upon the implementation of the plan and action items identified therein. The action items provide a framework for building and sustaining partnerships to support wildfire risk reduction projects.

## **CONVENER**

The Linn County Planning and Building Department will serve as the convener and will oversee the plan's implementation and maintenance. The Department will chair the CWPP advisory committee and fulfill the chair's responsibilities. This entity will be responsible for calling meetings to order at scheduled times or when issues arise, (e.g., when funding becomes available or following a major wildfire event).

The convener's key roles are:

- Coordinate Committee meeting dates, times, locations, agendas, and member notification
- Document outcomes of Committee meetings in Appendix B: Implementation and Maintenance Documentation
- Serve as a communication conduit between the Committee and key plan stakeholders, (e.g., monthly meetings of the Fire Defense Board)
- Identify emergency management related funding sources for wildfire mitigation projects
- Serve as gatekeeper to the project prioritization process
- Use the Linn County Wildland Urban Interface Risk Assessment as a tool for prioritizing proposed fuel reduction projects.

## **ADVISORY COMMITTEE**

The plan development steering committee will become the advisory committee (the Committee) and will oversee implementation, identify and coordinate funding opportunities and sustain the CWPP. The Committee will act as the coordinating body and serve as a centralized resource for wildfire risk reduction and Wildland Urban Interface issues in Linn County. Additional roles and responsibilities of the committee include:

- Serving as the local evaluation committee for wildfire funding programs such as National Fire Plan grants, Senate Bill 360, and the Pre-Disaster Mitigation program

- Developing and coordinating ad hoc and/or standing subcommittees as needed
- Prioritizing and recommending funding of wildfire risk reduction projects
- Documenting successes and lessons learned
- Evaluating and updating the CWPP in accordance with the prescribed maintenance schedule

## **MEMBERS**

The following organizations were represented and served on the Committee during the development of the CWPP. These groups will continue to be members of the Committee during the implementation and maintenance phases of the CWPP.

- Oregon Department of Forestry
- Bureau of Land Management, Salem Office
- Linn County Planning and Building Department
- Linn County Fire Defense Board
- Willamette National Forest and Bureau of Land Management, Eugene Office
- Linn County Emergency Services

Because of the importance that the CWPP planning process places on collaboration and the fact that wildfire mitigation is a shared responsibility among a number of diverse stakeholders, the Committee may look to expand current membership on the Committee. Potential future committee members may include:

- Calapooia, North Santiam and South Santiam Watershed Councils
- Home Builders Association
- Insurance representatives
- Citizen representatives
- Local elected officials

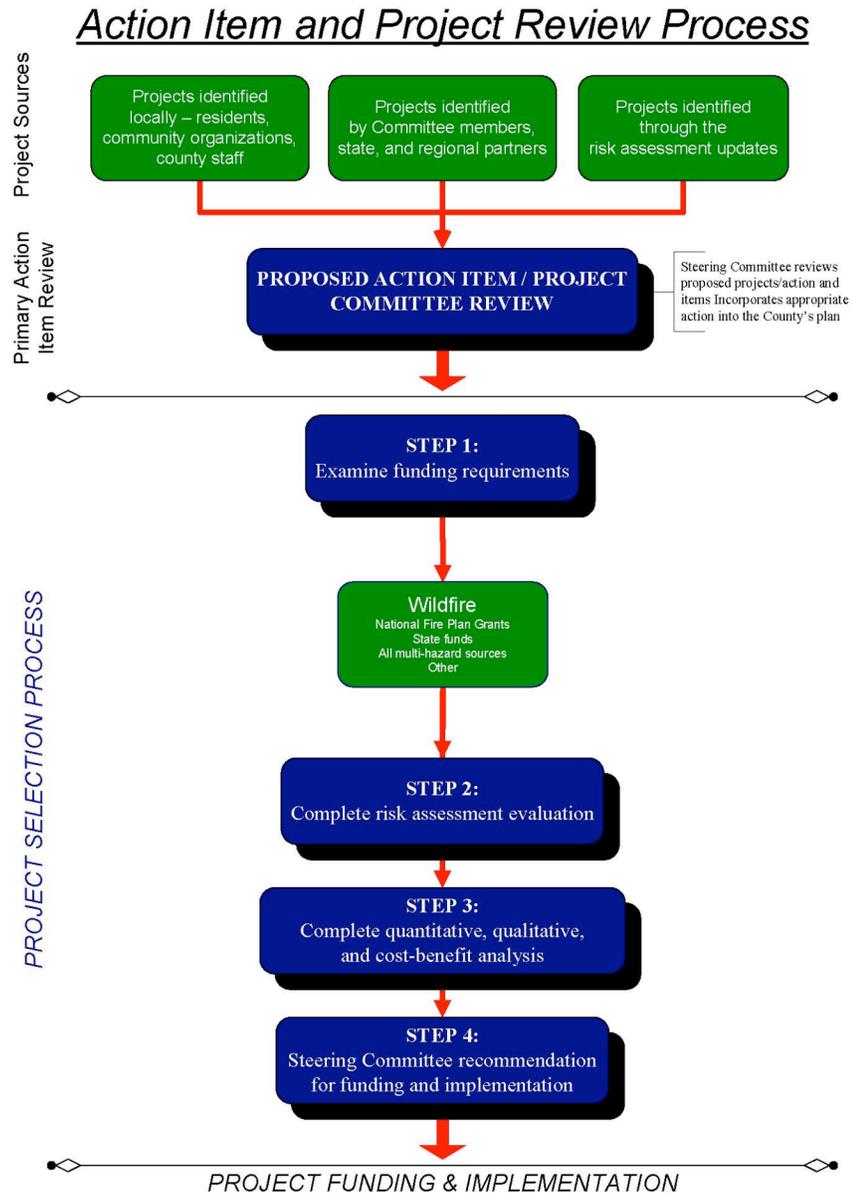
## **PROJECT PRIORITIZATION PROCESS**

The requirements of HFRA state that the CWPP Advisory Committee must establish community hazard reduction priorities to determine the order of project implementation. The CWPP Advisory Committee will support and prioritize wildfire risk reduction projects within Linn County. Hazard reduction projects will be identified; however, the Committee and the County cannot ensure they will be undertaken. Completion of projects will be dependent upon the availability of funding and adequate staffing. Funding to undertake hazard mitigation projects must also provide for administration costs and staff.

The projects that are presented to the CWPP Advisory Committee will often come from a variety of sources; therefore the project prioritization process needs to be flexible. Examples of means by which projects may be identified include: Committee members, local fire districts or professionals, or the Risk Assessment itself. Depending on the potential project's intent and implementation methods, several funding sources may be available and appropriate. Examples of wildfire mitigation funding sources include: National Fire Plan, and Pre-Disaster Mitigation grants.

The subsections that follow detail the specific steps that the Committee will take to prioritize projects. Figure 6-1 provides an overview.

**Figure 6-1. Overview of project prioritization process, Linn County Community Wildfire Protection Plan**



Source: Oregon Natural Hazards Workgroup, 2007

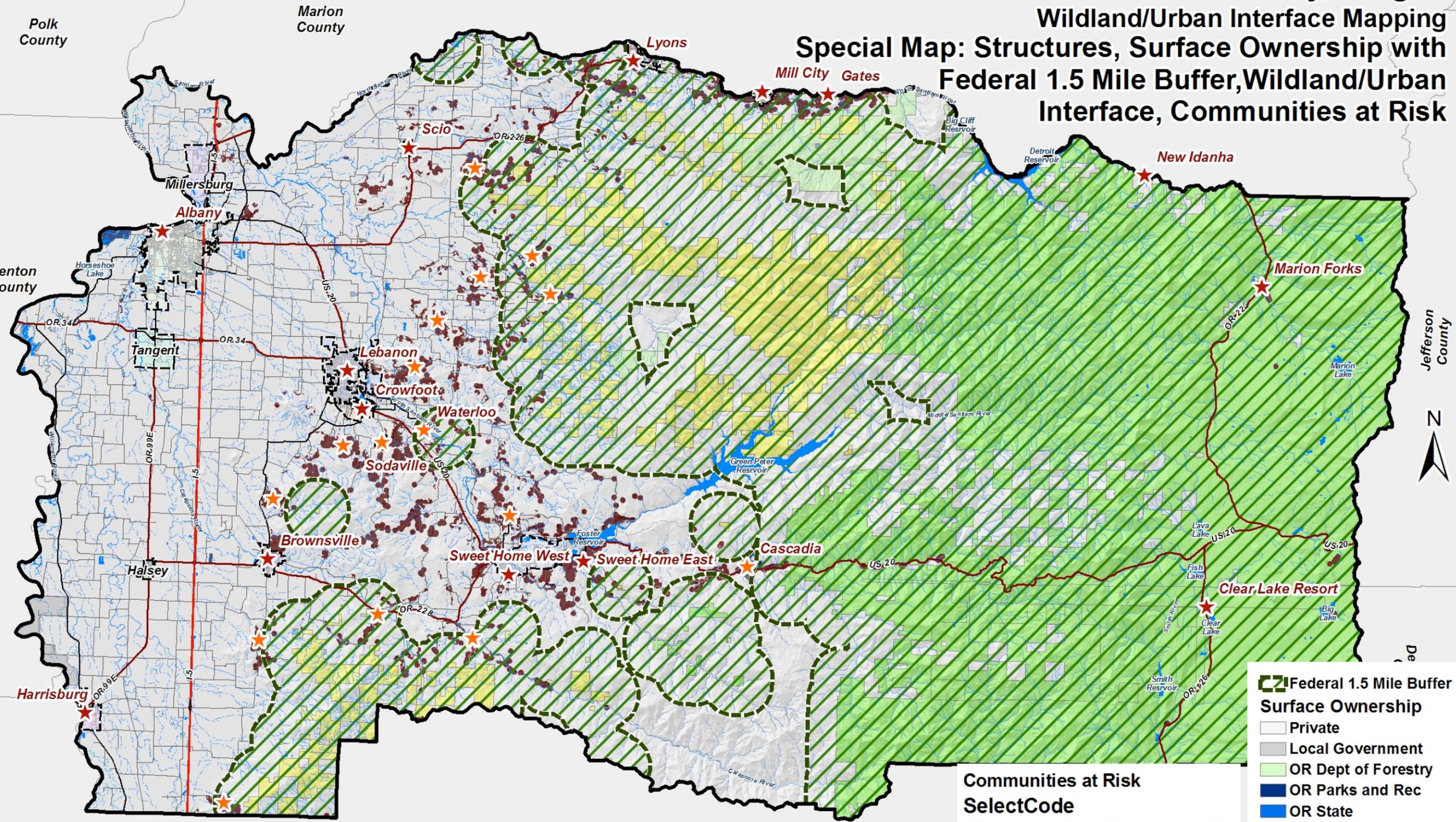
### **STEP 1: EXAMINE FUNDING REQUIREMENTS**

The Steering Committee will identify how best to implement individual actions within the appropriate existing plan, policy, or program. The Committee will examine the selected funding stream's requirements to ensure that the mitigation activity would be eligible through the funding source. The Committee may consult with the funding entity, Oregon Emergency Management, Oregon

Department of Forestry or other appropriate state or regional organizations about the project's eligibility.

The following map may be useful in the federal grant application process. It shows the outputs of the risk assessment in this document (localized communities-at-risk) and the WUI as defined in federal legislation. It also shows surface ownership of land (especially BLM and ODF) to determine which partnerships will be most critical to a successful grant application. The GIS data files produced as part of this planning process are housed at the County, and County GIS staff are trained to produce additional documentation if it is required.

# Linn County, Oregon Wildland/Urban Interface Mapping Special Map: Structures, Surface Ownership with Federal 1.5 Mile Buffer, Wildland/Urban Interface, Communities at Risk



Structures mapped only in ODF  
South Cascade Sweet Home District

Source: ODF South Cascade Sweet Home District Staff



Communities at Risk  
SelectCode

★ Federal Register Community

★ Other Community

Wildland Urban Interface

■ WUI, 40 Ac Definition

■ Federal 1.5 Mile Buffer

Surface Ownership

□ Private

■ Local Government

■ OR Dept of Forestry

■ OR Parks and Rec

■ OR State

■ OR State Lands

■ US BLM

■ US Forest Service

■ US Corps of Engineers



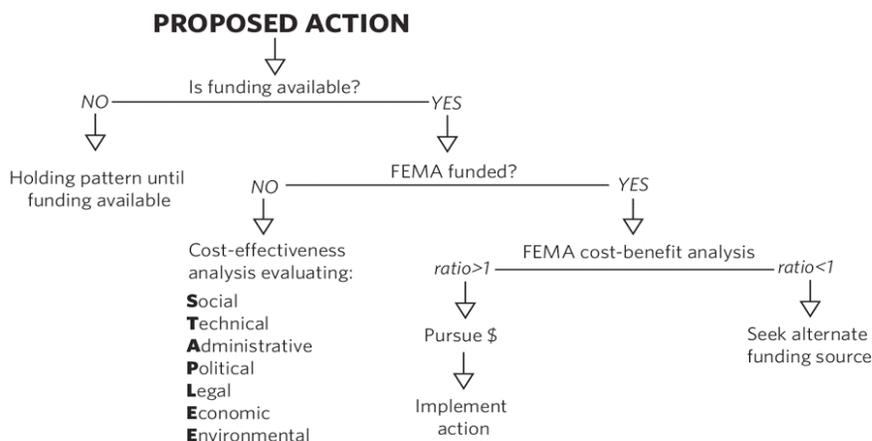
## **STEP 2: COMPLETE RISK ASSESSMENT EVALUATION**

The second step in prioritizing the plan's action items is to examine the wildfire risk associated with the proposed action. The Committee will determine whether or not the plan's risk assessment supports the implementation of the mitigation activity. This determination will be based on the location of the potential activity and the proximity to areas of high wildfire hazard areas, historic hazard occurrence, vulnerable community assets at risk, and the probability of future occurrence documented in the Plan.

## **STEP 3: COMPLETE QUANTITATIVE AND QUALITATIVE ASSESSMENT, AND ECONOMIC ANALYSIS**

The third step is to identify the costs and benefits associated with natural hazard mitigation strategies, measures, or projects. Two categories of analysis that are used in this step are: (1) benefit/cost analysis, and (2) cost-effectiveness analysis. Conducting benefit/cost analysis for a mitigation activity can assist communities in determining whether a project is worth undertaking now, in order to avoid disaster-related damages later. Cost-effectiveness analysis evaluates how best to spend a given amount of money to achieve a specific goal. Determining the economic feasibility of mitigating natural hazards can provide decision makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects. Figure 6-2 shows decision criteria for selecting the method of analysis.

**Figure 6-2. Benefit Cost Process Overview**



Source: Community Service Center’s Oregon Natural Hazards Workgroup at the University of Oregon, 2006.

If the activity requires federal funding for a structural project, the Committee will use a Federal Emergency Management Agency-approved cost-benefit analysis tool to evaluate the appropriateness of the activity. A project must have a benefit/cost ratio of greater than one in order to be eligible for FEMA grant funding.

For non-federally funded or nonstructural projects, a qualitative assessment will be completed to determine the project’s cost effectiveness. The committee will use a multivariable assessment technique called STAPLE/E to prioritize these actions. STAPLE/E stands for Social, Technical, Administrative, Political, Legal, Economic, and Environmental. Assessing projects based upon these seven variables can help define a project’s qualitative cost effectiveness. The STAPLE/E technique has been tailored for use in natural hazard action item prioritization by the Oregon Natural Hazards Workgroup at the University of Oregon’s Community Service Center. See Economic Analysis of Natural Hazard Mitigation Projects Appendix for a description of the STAPLE/E evaluation methodology.

**STEP 4: COMMITTEE RECOMMENDATION**

Based on the steps above, the committee will recommend whether or not the mitigation activity should be moved forward. If the committee decides to move forward with the action, the coordinating organization designated on the action item form will be responsible for taking further action and documenting success upon project completion. The Committee will convene a meeting to review the issues surrounding grant applications and to share knowledge and/or resources. This process will afford greater coordination and less competition for limited

funds. When the Committee selects a project for inclusion in the plan, a letter of support will be signed by all members of the Committee. This letter can be utilized in grant applications to show community support for the mitigation action.

The Committee and the community’s leadership have the option to implement any of the action items at any time, (regardless of the prioritized order). This allows the committee to consider mitigation strategies as new opportunities arise, such as funding for action items that may not be of the highest priority. This methodology is used by the Committee to prioritize the plan’s action items during the annual review and update process.

## PLAN MAINTENANCE

Plan maintenance is a critical component of the CWPP plan. Proper maintenance of the CWPP will ensure that this plan supports the County’s efforts to reduce risk in the Wildland Urban Interface. Linn County and CWPP partners have developed a method to ensure that regular review and updating of the CWPP occurs. The Committee is responsible for maintaining and updating the CWPP through a series of meetings outlined in Table 6-1.

**Table 6-1. Plan Maintenance Meeting Schedule**

<b>Semi-Annual Meeting</b>	<b>Annual Meeting</b>	<b>Five-Year Review</b>
Review Current Actions	Update Risk Assessment Data and Findings	Review plan update questions
Identify New Issues and Needs	Discussion of Methods of Continued Public Involvement	Update plan sections as necessary
Prioritize Potential Projects	Documenting Successes and Lessons Learned	

### SEMI-ANNUAL MEETING

The Committee will meet on a semi-annual basis to:

- Review existing action items to determine ‘ripeness’
- Identify issues that may not have been pinpointed when the plan was developed
- Prioritize potential wildfire mitigation projects

Linn County Planning and Building will be responsible for documenting the outcome of the semi-annual meetings. The process the Committee will use to prioritize all projects, including fuel reduction projects, is detailed in the section below.

### ANNUAL MEETING

The Committee will meet annually to review updates of the Risk Assessment data and findings, get updates on local CWPP planning efforts, discuss methods

of continued public involvement, and document successes and lessons learned based on actions that were accomplished during the past year.

On an annual basis, Linn County Planning and Building will complete the following tasks in an effort to incorporate, maintain, and update Linn County's Wildland Urban Interface Risk Assessment GIS data elements.

- Meet semi-annually with rural fire protection district boards and fire department representatives to update community maps and digitize local data as appropriate to the RFPD and FD needs;
- Update the Risk Assessment GIS data layers on a timely basis as new Oregon Department of Forestry, U.S. Forest Service and Bureau of Land Management studies or assessments become available;
- Integrate local CWPP assessments and mapping, when available, into the Linn County CWPP;
- Update local and regional CWPP websites with information provided by the Linn County Fire Defense Board;
- Support community efforts in the drafting of local CWPPs by providing access to the Risk Assessment GIS data; and
- Assist local community efforts in identifying potential fuels reduction projects and drafting grant applications.

Linn County Planning and Building will be responsible for documenting the outcomes of the annual meetings, as indicated in Appendix B: Implementation and Maintenance Documentation.

## **FIVE-YEAR REVIEW OF PLAN**

Because the CWPP will be integrated into the wildfire annex of the Linn County Natural Hazard Mitigation Plan, complete plan updates will be set at five-year intervals to meet the requirements of the Disaster Mitigation Act of 2000. During these plan updates, the following questions should be asked to determine what actions are necessary to update the plan. Linn County Planning and Building will be responsible for documenting the outcomes of the five-year plan review, using the Appendix B: Implementation and Maintenance Documentation. Table 6-2 provides a list of questions that can be used by the Committee to update the CWPP.

## Table 6-2. Five-year plan review questions

### 5-year Plan Review Questions

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#### *Background Data - Section 1*

Has the wildfire protection framework at the local, state, or federal level changed?  
Have responsibilities of partner agencies changed?  
Has recent fire occurrence been accurately reflected in the plan?

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#### *Risk Assessment Data - Section 2*

Has the wildfire risk across the County changed?  
Have new tools emerged to better evaluate the wildfire hazard?  
Have local communities developed plans and implemented activities that might change the County's overall risk?

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#### *Outreach Data - Section 3*

Are there new players that should be brought to the table?

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#### *Action Plan Data - Section 4*

Do the CWPP goals, objectives and actions address current or expected conditions?  
Have actions been effectively implemented?  
Are there new funding sources available to address the wildfire hazard?  
Are there new actions that should be added to action plan matrix?

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#### *Plan Implementation Data - Section 5*

Are the structures and methods established for implementing the plan still relevant?  
Have there been any lessons learned documented from significant wildfires in other parts of the state that might be applicable to Linn County?  
Has implementation occurred as anticipated?  
What obstacles and challenges have arisen that have prevented or delayed implementation?  
Legal? Financial? Institutional?  
What opportunities have arisen that could accelerate implementation?

