Lincoln County, Oregon

Community Wildfire Protection Plan

Adopted by the Lincoln County Board of Commissioners
June 2010

South Stott Fire, Lincoln County, Oregon 2007

This plan was developed by the Lincoln County Community Wildfire Protection Plan committee in cooperation with the Lincoln County Fire Defense Board and Northwest Management, Inc. (Tel: 208-883-4488).
Acknowledgments

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

Lincoln County
Fire Defense Board

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

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

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

The **Lincoln County Community Wildfire Protection Plan** was developed in 2009-10 by the Lincoln County Fire Defense Board, the Oregon Department of Forestry, and the Lincoln County Department of Planning and Development with project facilitation and support provided by Northwest Management, Inc. of Moscow, Idaho. Funding for the project was provided by the Board of County Commissioners for Lincoln County from the Secure Rural Schools Title III program and by the Oregon Department of Forestry from a National Fire Plan grant. This Community Wildfire Protection Plan will be reviewed annually and updated at least every five years starting from the year of adoption.

The Community Wildfire Protection Plan expands on the wildfire chapter of the Lincoln County Multi-Jurisdictional Natural Hazards Mitigation Plan, which was approved by FEMA in 2009. Although published as a separate document, the Community Wildfire Protection Plan will be considered a supplement to the wildfire chapter of the Natural Hazards Mitigation Plan.
Chapter 1

Overview of this Plan and its Development

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

- Lincoln County Fire Defense Board
  - Yachats Rural Fire Protection District
  - North Lincoln Fire and Rescue District #1
  - Siletz Rural Fire Protection District
  - Central Oregon Coast Fire and Rescue District
  - Depoe Bay Rural Fire Protection District
  - Seal Rock Rural Fire Protection District
  - Toledo Volunteer Fire Department
  - Toledo Rural Fire Protection District
  - Newport Rural Fire Protection District
  - Newport Fire Department

- Lincoln County Commissioners and County Departments
  - Planning and Development
  - Sheriff’s Office
  - Emergency Management

- City of Newport
- City of Lincoln City
- Oregon Department of Forestry
- Oregon State Fire Marshal’s Office
- Siuslaw National Forest
- Confederated Tribes of Siletz Indians
- Lincoln County Oregon State University Extension
- Forest Capital Partners
- Plum Creek Timber
- Northwest Management, Inc.

The Lincoln County Department of Planning and Development solicited competitive bids from companies to lead the assessment and writing of the Lincoln County Community Wildfire Protection Plan. Northwest Management, Inc. was selected to provide this service to the county. Northwest Management, Inc. (NMI) is a professional natural resources consulting firm located in Moscow, Idaho. The Project Co-Managers from Northwest Management, Inc. were Mr. Vaiden Bloch and Mrs. Tera R. King.
Goals and Guiding Principles

Planning Philosophy and Goals
The goals of the planning process include integration with the National Fire Plan, the Healthy Forests Restoration Act, and the Disaster Mitigation Act. The plan utilizes the best and most appropriate science from all partners as well as local and regional knowledge about wildfire risks and fire behavior, while meeting the needs of local citizens and recognizing the significance wildfire can have to the regional economy.

The Community Wildfire Protection Plan builds on and supplements the wildfire chapter of the Lincoln County Multi-Jurisdictional Natural Hazards Mitigation Plan (2009) and upon adoption shall be incorporated as an element the Natural Hazards Mitigation Plan.

Mission Statement
Make Lincoln County residents, businesses, and resources less vulnerable to the negative effects of wildland fires.

Vision Statement
Promote awareness of the countywide wildland fire hazard and propose workable solutions to reduce the wildfire potential.

Goals
1. Identify and map Wildland Urban Interface (WUI) boundaries
2. Identify and evaluate hazardous fuel conditions with an emphasis near communities adjacent to forest lands, prioritize areas for hazardous fuel reduction treatments, and recommend the types and methods of treatment to protect the communities
3. Prioritize the protection of people, structures, infrastructure, natural resources, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy
4. To reduce the area of WUI land burned and losses experienced because of wildfires where these fires threaten communities in the wildland-urban interface
5. Evaluate regulatory measures such as building codes and road standards specifically targeted to reduce the wildland fire potential and reduce the potential for loss of life and property
6. Educate communities about the unique challenges of wildfire in the wildland-urban interface
7. To provide a plan that balances private property rights of landowners in Lincoln County with personal safety and responsibility.
8. Improve fire agency awareness of wildland fire threats, vulnerabilities, and mitigation opportunities or options
9. Address structural ignitability and recommend measures that homeowners and communities can take to reduce the ignitability of structures
10. Recommend additional strategies for private, state, and federal lands to reduce hazardous fuel conditions and lessen the life safety and property damage risks from wildfires
11. Improve county and local fire agency eligibility for funding assistance (National Fire Plan, Healthy Forest Restoration Act, FEMA, and other sources) to reduce wildfire hazards, prepare residents for wildfire situations, and enhance fire agency response capabilities.

12. Provide opportunities for meaningful discussions among community members and local, state, and federal government representatives regarding their priorities for local fire protection and forest management.

13. Develop an inventory and regular maintenance schedule for both public and private infrastructural components.

14. Meet or exceed the requirements of the National Fire Plan and FEMA for a county level Community Wildfire Protection Plan.

15. Identify areas of inadequate fire protection, such as gaps in district coverage, and develop solutions.

United States Government Accountability Office (GAO)

Since 1984, wildland fires have burned an average of more than 850 homes each year in the United States, and, because more people are moving into fire-prone areas bordering wildlands, the number of homes at risk is likely to grow. The primary responsibility for ensuring that preventative steps are taken to protect homes lies with homeowners. Although losses from fires made up only 2 percent of all insured catastrophic losses from 1983 to 2002, fires can result in billions of dollars in damages.

GAO was asked to assess, among other issues, (1) measures that can help protect structures from wildland fires, (2) factors affecting use of protective measures, and (3) the role technology plays in improving firefighting agencies’ ability to communicate during wildland fires.

The two most effective measures for protecting structures from wildland fires are: (1) creating and maintaining a buffer, called defensible space, from 30 to 100 feet wide around a structure, where vegetation and other flammable objects are reduced or eliminated; and (2) using fire-resistant roofs and vents. In addition to roofs and vents, other technologies – such as fire-resistant windows and building materials, chemical agents, sprinklers, and geographic information systems mapping – can help in protecting structures and communities, but they play a secondary role.

Although protective measures are available, many property owners have not adopted them because of the time or expense involved, competing concerns such as aesthetics or privacy, misperceptions about wildland fire risks, and lack of awareness of their shared responsibility for fire protection. Federal, state, and local governments, as well as other organizations, are attempting to increase property owners’ use of protective measures through education, direct monetary assistance, and laws requiring such measures. In addition, some insurance companies have begun to direct property owners in high risk areas to take protective steps.¹

State and Federal CWPP Guidelines

This Community Wildfire Protection Plan will include compatibility with FEMA requirements for a Local Hazard Mitigation Plan, while also adhering to the guidelines proposed in the National Fire Plan, and the Healthy Forests Restoration Act (2004). This Community Wildfire Protection Plan has been prepared in compliance with:

- The Federal Emergency Management Agency’s Region X guidelines for a Local Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a wildfire mitigation plan chapter of a Local Hazard Mitigation Plan.

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

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

Integration with Other Local Planning Documents

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

Lincoln County Multi-Jurisdictional Natural Hazards Mitigation Plan (2009)²

The Lincoln County Multi-Jurisdictional Natural Hazards Mitigation Plan (NHMP) covers each of the major natural hazards that pose risks to the County. The primary objectives of the Plan are to protect life and property, preserve natural areas and features, coordinate and enhance emergency services, enhance and promote public education, and promote partnerships and coordination to improve implementation. The NHMP is a planning document, not a regulatory document.

The NHMP meets FEMA’s planning requirements for a Local Hazard Mitigation Plan by addressing hazards, vulnerability and risk. Hazard means the frequency and severity of disaster

² Lincoln County. Lincoln County Multi-Jurisdiction Natural Hazards Mitigation Plan. Lincoln County Department of Planning and Development. Newport, Oregon. March 2009.
events. Vulnerability means the value, importance, and fragility of buildings and infrastructure. Risk means the threat to people, buildings and infrastructure, taking into account the probabilities of disaster events. Adoption of a mitigation plan is required for communities to remain eligible for future FEMA mitigation grant funds.

The Lincoln County CWPP effectively accomplishes all short-term action items outlined in the NHMP and establishes strategies to implement the Plan’s ongoing action items. Actions items for mitigating wildland fire issues as presented in the NHMP Action Item Matrix can be found in Appendix 5.

**Lincoln County Code – Timber Conservation Zone (2009)**

Section 1.1375 of the Lincoln County Code provides specifications for the Siting and Fire Protection Standards for Dwellings. The Code says that the risks associated with wildfire hazards affecting the dwelling shall be minimized. The division or commission may impose conditions on any dwelling approval which are deemed necessary to ensure conformance with the standards. Specifications include the use of fire retardant roofs, slope limitations, fire breaks, yard dimensions, and spark arresters on chimneys. There are additional specifications for dwellings that are not located within a fire protection district. Regarding roads, the Code specifies minimum widths, surface construction, bridges, clearance, turnarounds, turnouts, and grade.

This section of the Lincoln County Code is consistent with the recommendations made in this document.

**Oregon Department of Forestry – West Oregon District Mobilization Plan**

The purpose of the West Oregon District Mobilization Plan is to provide critical information necessary to direct activities for wildfire and other emergencies. The Mobilization Plan details the District’s critical information including: lists of personnel, vehicle inventories, provides standard report forms, outlines the District’s fire operations plan, lists cooperators, and inventories available equipment and other resources. The plan also covers the District’s emergency and support services, details their radio operations, provides an extended attack plan, and discusses the District’s procedures for dealing with other incidents that may arise during a fire event. The district mobilization plan is updated annually before the start of the fire season.

The Lincoln County CWPP planning committee supports the West Oregon District’s efforts to develop formal documentation in advance of fire events to help coordinate their response as well as the response of other fire service organizations that may be providing assistance.

**Forest Capital Partners Northwest Oregon Fire Plan (2009)**

The policy of Forest Capital Partners is to take immediate suppression action on any fire which threatens or occurs on their ownership. Forest Capital Partners’ personnel will cooperate fully with other landowners, rural fire districts, and State protection districts in forest fire suppression activities. The Fire Plan details the company’s contact information, available resources, contractor resources, support services, and other prominent landowners near their properties.

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Confederated Tribes of Siletz Indians Fire Mobilization Plan (2009)\(^4\)

The Confederated Tribes of Siletz Indians places a maximum emphasis on safety, the promotion of fire prevention and suppression of all fires occurring on or adjacent to their operations and timberlands. The Tribe’s 2009 Fire Mobilization Plan details their contact information, general prevention actions, and fire readiness. The Plan also contains maps and other graphical information useful for wildland fire planning.

Oregon Forestland-Urban Interface Fire Protection Act of 1997

The Oregon Forestland-Urban Interface Fire Protection Act of 1997 (often referred to as Senate Bill 360) enlists the aid of property owners toward the goal of turning fire-vulnerable urban and suburban properties into less volatile zones where firefighters may more safely and effectively defend homes from wildfires. In counties that have adopted Senate Bill 360, the law requires property owners in identified forestland-urban interface areas to reduce excess vegetation, which may fuel a fire, around structures and along driveways. In some cases, it is also necessary to create fuel breaks along property lines and roadsides.

While Senate Bill 360 has not yet been implemented in Lincoln County, the intent of the legislation is to identify a forestland-urban interface committee in each county that will classify forestland-urban areas. This process is undertaken separately and independently of the CWPP, and the CWPP process and mapping products are not intended for use in the SB 360 process. The forestland-urban interface committee should be composed of five members -- three appointed by the county, one by the state fire marshal and one by the state forester. The process of identifying forestland-urban interface areas follows steps and definitions described in Oregon Administrative Rules 629-044-1005 through 629-044-0145. Briefly, the identification criteria include:

- Lands within the county that are also inside an Oregon Department of Forestry protection district.
- Lands that meet the state’s definition of “forestland.”
- Lands that meet the definition of “suburban” or “urban;” in some cases, “rural” lands may be included within a forestland-urban interface area for the purpose of maintaining meaningful, contiguous boundaries.
- Lots that are developed, that are 10 acres in size or smaller, and which are grouped with other lots with similar characteristics in a minimum density of four structures per 40 acres.

Once forestland-urban interface areas are identified, the forestland-urban interface committee applies fire-risk classifications to the areas. The classifications range from “low” to “extreme,” and the classification is used by a property owner to determine the size of a fuel break that needs to be established around a structure.

After the forestland-urban interface committee completes its draft identification and classification maps, a public hearing is held to formally exhibit the committee’s findings and hear testimony. The maps are finalized by the committee after the hearing, and the findings are filed with the county clerk and the Oregon Board of Forestry. At that point, the Oregon

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Department of Forestry assumes administrative responsibility and notifies the owners of properties within the county's forestland-urban interface areas. Property owners have two years after receiving their letter of notification to comply with the fuel-reduction standards described in OAR 629-044-1050 through 629-044-1085. A committee convenes every five years to review the forestland-urban interface classifications.

**Lincoln County Forestland Classification**

ODF’s forestland classification system originated with passage of the Forest Land Classification Act by the 1937 Oregon Legislature. Classification of lands as “forestland” essentially determined where ODF’s protection responsibilities were. By the 1950’s, the system had been adopted statewide with significant regional variation in interpretation and application.

Today, the wildfire protection environment, social and ecological systems, land uses, values and overall attitudes are much different. The population has increased and greater numbers of people are living within traditional forestlands with their fire prone fuels. This Wildland-Urban Interface (WUI) covers significantly larger portions of the forest protection district than in the past, and includes thousands of private dwellings. Consequently, many of the conditions pertaining to the original forestland classification system no longer apply, and ODF’s fire protection program has escalated in complexity and costs.

ODF reviewed the statutes, rules and policies that make up its forestland classification system. Review goals were to update the classification system to reflect current conditions, and identify ways to improve the efficiency and consistency of its application and administration. One of the outcomes of this policy review was to emphasize the establishment of county committees which will re-examine forestland classifications of all lands in the state, including Lincoln County lands within ODF’s West Oregon Protection District.

Oregon Revised Statute (ORS) 526, the West Oregon District of ODF, and the Lincoln County Commissioners authorized formation of such a committee in the spring of 2008. The committee chose the name Lincoln County Forestland Classification Committee (LCFCC). It is examining all lands within ODF’s West Oregon Forest Protection District in Lincoln County and classifying lands as "forestland" or "not forestland" according to fire risk potential, vegetation type (fire fuel), community structure, and proximity to other forestland. It is hoped that the committee's efforts will help resolve issues pertaining to ODF’s fire suppression role on public and private forestlands within the District. This work should be completed in 2010.

**Oregon’s Statewide Planning Goals and Guidelines**

Since 1973, Oregon has maintained a strong statewide program for land use planning. The foundation of that program is a set of 19 Statewide Planning Goals developed by the Oregon Department of Land Conservation and Development. The goals express the state’s policies on land use and on related topics, such as citizen involvement, housing, and natural resources. Oregon’s statewide goals are achieved through local comprehensive planning. State law requires each city and county to adopt a comprehensive plan and the zoning and land-division ordinances needed to put the plan into effect.

Goals 2, 3, 4, 5, 6, 7, and 14 apply directly to many of the issues discussed in this Community Wildfire Protection Plan.
Goal 2: Land Use Planning
To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.

Goal 3: Agricultural Land
Agricultural lands shall be preserved and maintained for farm use, consistent with existing and future needs for agricultural products, forest and open space and with the state’s agricultural land use policy expressed in ORS 215.243 and 215.700.

Goal 4: Forest Lands
To conserve forest lands by maintaining the forest land base and to protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of forest tree species as the leading use on forest land consistent with sound management of soil, air, water, and fish and wildlife resources and to provide for recreational opportunities and agriculture.

Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces
To protect natural resources and conserve scenic and historic areas and open spaces. Local governments shall adopt programs that will protect natural resources and conserve scenic, historic, and open space resources for present and future generations. These resources promote a healthy environment and natural landscape that contributes to Oregon’s livability.

Goal 6: Air, Water and Land Resources Quality
To maintain and improve the quality of the air, water and land resources of the state. All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not exceed carrying capacity of such resources, considering long range needs; degrade such resources; or threaten the availability of such resources.

Goal 7: Areas Subject to Natural Hazards
To protect people and property from natural hazards. Local governments shall adopt comprehensive plans to reduce risk to people and property from natural hazards. Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides, earthquakes and related hazards, tsunamis, coastal erosion, and wildfires. Local governments may identify and plan for other natural hazards.

Goal 14: Urbanization
To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

The Emergency Operations Plan (EOP) provides a framework for coordinated response and recovery activities during any type or size of emergency situation involving Tribal members or assets. The plan also provides specific information on direction, control, and escalation to guide the Tribe when receiving response assistance in support of all phases of an emergency. The EOP compliments the Oregon Emergency Operations Plan and the National Response Plan. It also identifies all Emergency Support Functions (ESF) and critical tasks needed to support a wide range of response activities.

The objectives of the plan are to:

- Provide procedures and criteria for requesting and allocating essential resources to support overall emergency operations;
- Integrate multiagency and regional coordination into emergency operations through implementation of the Incident Command System (ICS)/National Incident Management System (NIMS);
- Establish clear lines of authority and succession during any type of emergency;
- Define roles and responsibilities spanning various departments, agencies, divisions, and management levels supporting critical functions;
- Outline clear guidelines and procedures for ensuring consistent and timely release of emergency public information; and
- Provide strategic and tactical procedures to support the primary responsibilities of CTSI during all phases of an emergency.

Confederated Tribes of Siletz Indians Multi-Hazard Mitigation Plan - 2009

The purpose of the Confederated Tribes of the Siletz Indians (CTSI) Multi-Hazard Mitigation Plan (MHMP) is to guide current and future efforts to effectively and efficiently mitigate natural hazards on all CTSI Reservation lands, in coordination with other jurisdictions as appropriate, to mitigate and respond to natural hazards that are generated off the reservation lands, and tribally owned fee lands, or that cross these boundaries.

The Confederated Tribes of Siletz Indians finds that natural hazards on the Tribal lands have a direct, serious, and substantial effect on the political integrity, economic security, health, and welfare of the Tribal lands, its members, and all persons present on Tribal lands. Further, the CTSI finds that those activities that potentially increase the frequency or severity of damages from natural hazards, if left unaddressed, could cause such damages. Accordingly, the CTSI Human Resources Department (HR), Natural Resources Department (NR) and the Planning Department helped develop this MHMP for the Siletz Tribe.

The goals of the CTSI MHMP are to:

1. Increase Tribal and community members knowledge of natural hazards;
2. Reduce the threats to public health and safety posed by natural hazards;
3. Reduce structural damages caused by natural hazards;
4. Reduce the environmental impacts of natural hazards, mitigation actions, and future development activities;
5. Increase the effectiveness of mitigation actions; and
6. Reduce the long term costs resulting from natural hazards and their mitigation.

**Lincoln County, Oregon Emergency Operations Plan - 2008**

The purpose of the Lincoln County Emergency Operations Plan (EOP) is to provide a framework for coordinated response and recovery activities during any type or size of emergency situation. The plan also provides specific information on direction and control with guidance for all first responders and governmental agencies on strategic and tactical procedures in support of all phases of an emergency. The EOP complements the State of Oregon Emergency Management Plan (EMP), the National Response Plan (NRP), and draft National Response Framework (NRF). It also identifies the Oregon State Support Functions (SSF) and Lincoln County Emergency Support Functions (ESF) and critical tasks needed to support a wide range of response activities.

The objectives of the plan are to:

- Provide strategic and tactical procedures to support the primary responsibilities of Lincoln County during all phases of an emergency;
- Integrate multi-agency, regional, and, if applicable, tribal coordination into emergency operations through implementation of the Incident Command System/National Incident Management System (ICS/NIMS);
- Establish clear lines of authority and succession during any type of emergency;
- Define roles and responsibilities spanning various departments, agencies, divisions, and levels of management in support of critical functions;
- Outline clear guidelines and procedures for ensuring consistent and timely release of emergency public information; and
- Provide procedures and criteria for requesting and allocating essential resources to support overall emergency operations.
Chapter 2

Documenting the Planning Process

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

Description of the Planning Process

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

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

The Planning Team

Leading the planning effort from Lincoln County was Jessica Bondy representing the Lincoln County Department of Planning and Development and representatives from each of the Lincoln County Fire Districts as well as the state and federal land management agencies. The Fire Defense Board is currently chaired by Don Baker, North Lincoln Fire and Rescue District #1 Chief, and is made up of all the local fire service organizations as well as interested federal and state agencies, county departments, and emergency management and response organizations. Northwest Management Project Co-Managers were Vaiden Bloch, M.S., B.S. and Tera R. King, B.S.

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

44 CFR §201.6(a)(3) calls for multi-jurisdictional planning in the development of Hazard Mitigation Plans which impact multiple jurisdictions. This Community Wildfire Protection Plan impacts the following jurisdictions:

- Lincoln County
- City of Depoe Bay
- City of Lincoln City
- City of Newport
- City of Siletz
- City of Toledo
- City of Waldport
- City of Yachats
- Unincorporated communities of Lincoln County
- Depoe Bay Rural Fire Protection District
- Yachats Rural Fire Protection District
- North Lincoln Fire and Rescue District #1
- Siletz Rural Fire Protection District
- Newport Fire Department & Rural Fire Protection District
- Seal Rock Rural Fire Protection District
- Toledo Volunteer Fire Department and Rural Fire Protection District
- Central Oregon Coast Fire and Rescue District
- Oregon Department of Forestry

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

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

Like other areas of Oregon and the United States, Lincoln County’s human resources have many demands placed on them in terms of time and availability. A few of the elected officials (county commissioners and city mayors) do not serve in a full-time capacity; some of them have other employment and serve the community through a convention of community service. Recognizing this and other time constraints, many of the jurisdictions decided to identify a representative to cooperate on the planning committee and then report back to the remainder of their organization on the process and serve as a conduit between the planning committee and the jurisdiction.
Planning Committee Meetings

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

<table>
<thead>
<tr>
<th>NAME</th>
<th>ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blake McKinley</td>
<td>Oregon Department of Forestry</td>
</tr>
<tr>
<td>Curtis Landers</td>
<td>Lincoln County Sheriff’s Office and Emergency Manager</td>
</tr>
<tr>
<td>Dave Edwards</td>
<td>Siletz Rural Fire Protection District</td>
</tr>
<tr>
<td>Derek Clawson</td>
<td>Central Coast Fire Department</td>
</tr>
<tr>
<td>Don Baker</td>
<td>North Lincoln Fire and Rescue District #1</td>
</tr>
<tr>
<td>Doug Kerr</td>
<td>North Lincoln Fire and Rescue District #1</td>
</tr>
<tr>
<td>Frankie Petrick</td>
<td>Yachats Rural Fire Protection District</td>
</tr>
<tr>
<td>Gary Davey</td>
<td>Lincoln County Sheriff’s Office</td>
</tr>
<tr>
<td>George Ciosiar</td>
<td>Oregon State Fire Marshal’s Office</td>
</tr>
<tr>
<td>Hank Walling</td>
<td>Depoe Bay Rural Fire Protection District</td>
</tr>
<tr>
<td>Jen Warren</td>
<td>Oregon Department of Forestry</td>
</tr>
<tr>
<td>Jason Hayzlett</td>
<td>Oregon Department of Forestry</td>
</tr>
<tr>
<td>Jessica Bondy</td>
<td>Lincoln County Department of Planning and Development</td>
</tr>
<tr>
<td>Jim Reeb</td>
<td>Oregon State University Extension</td>
</tr>
<tr>
<td>John Withers</td>
<td>City of Lincoln City Emergency Planning</td>
</tr>
<tr>
<td>Joshua Williams</td>
<td>Depoe Bay Rural Fire Protection District</td>
</tr>
<tr>
<td>Kyle Williams</td>
<td>Oregon Department of Forestry</td>
</tr>
<tr>
<td>Mari Kramer</td>
<td>Confederated Tribes of the Siletz Indians</td>
</tr>
<tr>
<td>Matt Roby</td>
<td>Oregon Department of Forestry</td>
</tr>
<tr>
<td>Meredith Savage</td>
<td>City of Newport</td>
</tr>
<tr>
<td>Neal Bond</td>
<td>Oregon Department of Forestry</td>
</tr>
<tr>
<td>Mike Totey</td>
<td>Oregon Department of Forestry</td>
</tr>
<tr>
<td>Rick Crook</td>
<td>Newport Fire Department and Rural Fire Protection District</td>
</tr>
<tr>
<td>Peter Benjamin</td>
<td>Seal Rock Rural Fire Protection District</td>
</tr>
<tr>
<td>Steve Gravelle</td>
<td>Plum Creek Timber</td>
</tr>
<tr>
<td>Tara Devenport</td>
<td>Siuslaw National Forest</td>
</tr>
<tr>
<td>Tera R. King</td>
<td>Northwest Management, Inc.</td>
</tr>
<tr>
<td>Walt Shields</td>
<td>Forest Capital Partners</td>
</tr>
<tr>
<td>Will Ewing</td>
<td>Toledo Fire Department and Rural Fire Protection District</td>
</tr>
<tr>
<td>Vaiden Bloch</td>
<td>Northwest Management, Inc.</td>
</tr>
</tbody>
</table>

Committee Meeting Minutes

The planning committee began monthly meetings in August of 2009. These meetings served to facilitate the sharing of information and to lay the groundwork for the Lincoln County CWPP. Planning committee meeting minutes are included in Appendix 2.

Public Involvement

Public involvement was made a priority from the inception of the project. There were a number of ways that public involvement was sought and facilitated. In some cases, this led to members...
of the public providing information and seeking an active role in protecting their own homes and businesses, while in other cases it led to the public becoming more aware of the process without becoming directly involved in the planning.

**News Releases**

Under the auspices of the Lincoln County planning committee, news releases were submitted to the *Newsguard*, the *South Lincoln County News*, the *Oregon Coast Today*, the *News-Times*, the *Pacific Skinny*, the *Oregonian*, the *Corvallis Gazette*, the *Beach Connection*, the *Depoe Bay Beacon*, KORC, KPPT, KCUP, KSHL, KLCC, KNPT, and KBCH. Informative flyers were also distributed around town and to local offices within the communities by the committee members.

**Figure 2.1. Press release sent on August 28th, 2009.**

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**Public Meetings**

Public meetings were scheduled in several of the communities in Lincoln County during the hazard assessment phase of the planning process to share information on the planning process, obtain input on the details of the hazard assessments, and discuss potential mitigation treatments.
Attendees at the public meetings were asked to give their impressions of the accuracy of the information generated and provide their opinions of potential treatments.

The initial schedule of public meetings in Lincoln County included 5 locations. According to attendance records, there were two people at the Newport meeting, three people at the Yachats meeting, twelve at the Lincoln County Commissioners meeting, one at the Eddyville meeting, and five at the Lincoln City meeting. They were attended by a number of individuals on the committee and from the general public. The public meeting announcement sent to the local newspapers, local citizen participation organizations, county departments, fire district representatives, and distributed by committee members is included below in Figure 2.2.
Figure 2.2. Public meeting flyer.

Lincoln County, Oregon

Community Wildfire Protection Plan

Public Meetings!

October 19th - Newport City Council Chambers (169 SW Coast Hwy) at 6pm
October 20th - Yachats Commons Multi-Purpose Room (441 Hwy 101 N) at 6pm
October 21st - Lincoln County Commissioners Chambers (225 W Olive St) at 9:30 am
October 21st - Eddyville Charter School (#1 Eddyville School Road) at 6pm
October 22nd - North Lincoln Fire & Rescue, Taft Station (4520 SE Hwy 101) at 6pm

These public meetings will address the Community Wildfire Protection Plan being developed for Lincoln County. Public input is being sought to better understand the vulnerability of County residents, businesses, and resources to wildfire. The purpose of this plan is to promote awareness of the countywide wildland fire hazard and propose workable solutions to reduce the wildfire risk.

The planning committee is working on:
- Mapping the Wildland Urban Interface in Lincoln County
- Improving public awareness and educating the public about wildfire risk
- Evaluating strategies for landowners to lessen wildfire potential
- Developing inventories of public and private infrastructure
- Addressing areas of inadequate fire protection
- Recommending risk mitigation projects

These meetings are open to the public and will include slideshow presentations by wildfire specialists and local personnel working to develop the plan.

Learn about the assessments of wildfire risk and the wildland urban interface of Lincoln County. Discuss YOUR priorities for how our community can best mitigate these risks.

Please attend and participate!

The planning committee would like to provide the opportunity for meaningful discussions among community members and local, state, and federal government representatives regarding their priorities for local fire protection and forest management.

For more information on the Community Wildfire Protection Plan project, contact Jessica Bondy, Lincoln County Department of Planning and Development, at 541-265-4192 or Tera King with Northwest Management, Inc. at 208-883-4486 ext 133.
Documented Review Process

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

During regularly scheduled committee meetings in 2009, the committee met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document. During the public meetings, attendees observed map analyses and photographic collections, discussed general findings from the community assessments, and made recommendations on potential project areas.

The first draft of the document was prepared after the public meetings and presented to the committee on October 22nd, 2009 for a full committee review. The draft document was released for public review on March 8th, 2010. The public review period remained open until April 2nd, 2010.

Continued Public Involvement

Lincoln County is dedicated to involving the public directly in review and updates of this Community Wildfire Protection Plan. The Lincoln County Commissioners, working through the Department of Planning and Development and the Fire Defense Board, are responsible for review and update of the plan as recommended in chapter 5 of this document.

The public will have the opportunity to provide feedback about the Plan at any time. Copies of the Plan will be available at the Lincoln County Department of Planning and Development office and on the Lincoln County website. Contact information for the project coordinator is listed on the Acknowledgements page.

A public meeting will also be held as part of each formal plan review or when deemed necessary by the planning committee. The meetings will provide the public a forum in which they can express concerns, opinions, or ideas about the Plan. The Lincoln County Department of Planning and Development will publicize the public meetings and maintain public involvement through the county’s webpage and newspapers.
Chapter 3

Lincoln County Characteristics

Lincoln County, Oregon is located on the central coast of Oregon. Nearly the entire county is dominated by coniferous forestlands including public lands held by the State, the Forest Service, and the Bureau of Land Management as well as a significant portion in private, tribal, or industrial ownership. There are several small communities within the interior forested areas; however, this part of the county is very rural. The western edge of the county contains the majority of the population in several coastal communities.

Lincoln County has a land area of 992 square miles and approximately 60 miles of coastline. The county includes seven incorporated cities: Depoe Bay, Lincoln City, Newport, Siletz, Toledo, Waldport, and Yachats. Newport is the county’s largest incorporated city with a population of 10,555.

Geography and Climate

Adapted from the Lincoln County Natural Hazards Mitigation Plan 2009.

The principle landforms of Lincoln County are: the Coast Range mountains; rivers, streams, and associated floodplain alluvium; estuaries and associated tidal wetlands; headlands, ocean beaches, marine terraces, and coastal freshwater lakes.

Many perennial streams are dispersed throughout the Coast Range in Lincoln County. Nearly all of the year-round streams flow directly into the Pacific Ocean, the exception being a small area of the County’s northeast corner, which flows into the Willamette River system. The major rivers ranked by size of watershed are: the Alsea, Siletz, Yaquina, Salmon, and Yachats.

The estuaries and associated tidal wetlands of Lincoln County vary in size and character from the Yaquina estuary (largest), to the Alsea, Siletz, Salmon and Yachats (smallest). Other minor estuaries include Depoe Bay, Big Creek, and Beaver Creek.

Headlands composed of erosion resistant materials are found along the coastline of Lincoln County. These major landmarks are among the features first described by explorers searching for the “Northwest Passage.” Headlands in Lincoln County include Cape Foulweather, Yaquina Head, and Cape Perpetua. Between these headlands lay beaches and elevated marine sedimentary terraces upon which the greatest percentage of the County’s population is located.

Several freshwater lakes and marshes are present along Lincoln County’s coast. Devils Lake, adjacent to Lincoln City, is the largest of the coastal lakes with an approximate surface area of one square mile. It is the focus of considerable residential and recreational activity.

The climate of Lincoln County is characterized by wet winters, relatively dry summers, and mild temperatures throughout the year. Winter storms, bearing wet marine air from the North Pacific regions, reach the coast moving from southwest to northeast. These bring heavy rains during the months of October through March. Areas of Lincoln County are known to get as much as 200 inches of annual precipitation which can lead to flooding. Marine high pressure systems are

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5 Lincoln County. Lincoln County Multi-Jurisdiction Natural Hazards Mitigation Plan. Lincoln County Department of Planning and Development. Newport, Oregon. March 2009.
characteristic of the summer months and create northwesterly winds. Of far less frequency are the high pressure systems that move from the interior to the ocean. These systems generally come from the east/northeast, and bring clear, dry, and either warm or cold weather depending on the season.

**Population and Demographics**

*Adapted from the Lincoln County Natural Hazards Mitigation Plan 2009.*

Lincoln County has grown in population from 44,479 in 2000 to 46,199 in 2006, a change of 3.9%. The Oregon Office of Economic Analysis projects Lincoln County’s population to grow at a fairly consistent rate from 2000 to 2040 as shown in Table 3.1.

**Table 3.1. Lincoln County Projected Population 2000-2040.**

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lincoln County</td>
<td>44,600</td>
<td>45,000</td>
<td>45,365</td>
<td>46,945</td>
<td>48,776</td>
<td>50,379</td>
<td>52,039</td>
<td>53,710</td>
<td>55,364</td>
<td>57,247</td>
</tr>
</tbody>
</table>

In 2006, the population was 92.1% White, 0.5% African American, 3.3% Native American and Alaska Native, 1.0% Asian, and 0.2% Pacific Islander. A total of 2.9% identified with two or more races and 6.7% were of Hispanic or Latino descent.

In 2006, the 18 and younger age group represented 19.4% of the County’s population while the 65 and over age group represented 19.0%. In 2004 Lincoln County’s Median household income was $34,175 compared to the state average of $42,568. The percentage of persons below the poverty line in Lincoln County was 15.3% as compared with the state average of 12.9%.

In 1998, there were between 2.5 and 3.0 million tourists who visited Lincoln County. These visitors were split roughly equally between overnight guests and day-trippers. Overnight guests stayed an average of 2.9 nights in the County.

**Employment and Economics**

The county’s economy is based in tourism, commercial fishing, and forestry and wood products. Nearly one third of the workforce is employed in the tourism industry. The Confederated Tribes of Siletz Indian’s Chinook Winds Casino in Lincoln City remains Lincoln County’s largest employer. Newport’s Yaquina Bay is home to one of the west coast’s largest and most active commercial fishing fleets. In 1998, Newport was ranked 11th among all ports in the United States in seafood landings with 118 million pounds of landed fish. Crab and salmon fisheries have had record catches in recent years. Lincoln County ranks tenth in the state in timber harvests even though a third of the County’s forests are federally owned.

Newport is a center for marine and oceanographic research, anchored by Oregon State University’s Hatfield Marine Science Center (HMSC). In addition to the University’s research and education facilities, several state and federal agencies involved in marine research and management have a sizable presence at the HMSC complex in South Beach south of Newport.

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*Lincoln County. Lincoln County Multi-Jurisdiction Natural Hazards Mitigation Plan. Lincoln County Department of Planning and Development. Newport, Oregon. March 2009.*
Land Ownership and Development

Lincoln County is designated as a rural county by the Oregon Economic Development Department. Thirty-five percent (216,000 acres) of the county is publicly owned, while sixty-five percent (417,880 acres) is privately owned. Most of the county is made up of timber land.

<table>
<thead>
<tr>
<th>Land Owner</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Industrial Forest</td>
<td>44%</td>
</tr>
<tr>
<td>U.S. Forest Service</td>
<td>27%</td>
</tr>
<tr>
<td>Private Non-forest</td>
<td>20%</td>
</tr>
<tr>
<td>Bureau of Land Management</td>
<td>3%</td>
</tr>
<tr>
<td>Oregon Department of Forestry</td>
<td>3%</td>
</tr>
<tr>
<td>Confederated Tribes of the Siletz</td>
<td>1%</td>
</tr>
<tr>
<td>Coast Guard</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Fish and Wildlife Service</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Local Government</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Oregon Parks and Recreation</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Private Non-Industrial Forest</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>State of Oregon</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Undetermined</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Water</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

Urban areas exist predominately along the coastline and have grown along with coastal tourism. Smaller rural communities and rural residential areas coincide with agricultural areas which exist along major rivers.

Natural Resources

Lincoln County is a diverse ecosystem with a complex array of vegetation, wildlife, and fisheries that have developed with, and adapted to fire as a natural disturbance process. Nearly a century of wildland fire suppression coupled with past land-use practices (primarily timber harvesting and agriculture) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. As a result, some forests in Lincoln County have become more susceptible to large-scale, high-intensity fires posing a threat to life, property, and natural resources including wildlife and plant populations. High-intensity, stand-replacing fires have the potential to seriously damage soils, native vegetation, and fish and wildlife populations. In addition, an increase in the number of large, high-intensity fires throughout the nation’s forest and rangelands has resulted in significant safety risks to firefighters and higher costs for fire suppression (House of Representatives, Committee on Agriculture, Washington, DC, 1997).

Vegetation in Lincoln County is a mix of forestland, riparian, and agricultural ecosystems. An evaluation of satellite imagery of the region provides some insight to the composition of the vegetation of the area. Douglas-fir/western hemlock/western red cedar forest is currently the most represented cover type in Lincoln County at 50% of the total land base followed by agriculture at 34%, mixed conifer/mixed deciduous forest at 6%, and urban at 3%.
Table 3.3. Vegetative Cover Types in Lincoln County.

<table>
<thead>
<tr>
<th>Cover</th>
<th>Acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Douglas-fir-Western hemlock-western red cedar forest</td>
<td>260,718</td>
<td>41%</td>
</tr>
<tr>
<td>Mixed conifer/mixed deciduous forest</td>
<td>180,072</td>
<td>28%</td>
</tr>
<tr>
<td>Grass-shrub-sapling or Regenerating young forest</td>
<td>101,798</td>
<td>16%</td>
</tr>
<tr>
<td>Sitka spruce-western hemlock maritime forest</td>
<td>60,057</td>
<td>9%</td>
</tr>
<tr>
<td>Urban</td>
<td>14,956</td>
<td>2%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>7,107</td>
<td>1%</td>
</tr>
<tr>
<td>Red alder forest</td>
<td>5,808</td>
<td>1%</td>
</tr>
<tr>
<td>Open water</td>
<td>4,033</td>
<td>1%</td>
</tr>
<tr>
<td>NWI palustrine shrubland</td>
<td>953</td>
<td>&lt;1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>635,502</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Hydrology

Adapted from the Mid Coast Agricultural Water Quality Management Area Plan 2009.⁷

The Alsea, Salmon, Siletz, Siuslaw, Yachats, and Yaquina rivers are typical coastal streams, with their principal headwaters in the Coast Range. They flow down steep gradients until the lower reaches, where they flatten and meander through relatively narrow valleys. Each river has a broad, shallow bay at its mouth, and most have silted estuaries with tidewater extending inland. Many estuaries and coastal wetlands have been modified for agricultural production, municipal use, and other purposes. Modifications include dikes and levees, drainage ditches, and tide gates. Most of the soils in the area are formed from sedimentary rock. They are highly productive timber soils, fairly unstable, and prone to landslides. Other soils are derived from igneous rock formations. Along streams and rivers in their lower reaches, most soils formed from alluvial deposits.

Most of the surface water supply in this area is provided by rainfall. Only a small portion of surface water is supplied by snowmelt. As a result, there is a great deal of variability in annual flows, with flows in the winter greatly exceeding summer flows. Because of the fine-grained and relatively impermeable rock formations in the Mid Coast, groundwater supplies are generally low. Sand dunes and alluvial deposits yield the most groundwater.

Consumptive uses of water include irrigation, industrial, domestic and municipal use. Non-consumptive uses include recreation, fish and wildlife habitat, and hydropower.

A number of species in Lincoln County depend on aquatic habitats. Anadromous fish include Chinook salmon, Coho salmon, chum salmon, steelhead, sea run cutthroat trout, shad, smelt, and Pacific lamprey. Spawning and rearing grounds for these fish are found throughout the Mid Coast Area. Oregon Coastal Coho were listed as threatened under the Endangered Species Act on May 12, 2008. Other aquatic vertebrates in the area include beaver, wood duck, hooded and common merganser, speckled dace, sculpin, Pacific tree frog, red-legged frog, western pond turtle, and Pacific giant salamander. Non-native aquatic species include nutria and bullfrog. Migratory waterfowl and shorebirds are seasonally abundant throughout the area as well.

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Terrestrial species include mountain lion, black bear, Roosevelt elk, blacktailed deer, coyote, several birds of prey, and a variety of resident and neotropical migratory songbirds. Several of these species are of tremendous importance to the function of terrestrial or aquatic ecosystems, and significantly affect nutrient cycling, type and quality of habitats, populations of other species, and other factors.

While water quality in the Management Area is generally good, the 2004/2006 303(d) list identified forty-nine stream segments that did not meet state standards for temperature. Several lakes within the area did not meet state standards for aquatic weeds or algae. Segments of the Alsea River, Salmon River, Yaquina River, and Siuslaw River were placed on the list because of low dissolved oxygen levels. Several segments in the Siuslaw watershed and Elk Creek in the Yaquina watershed were placed on the 303(d) list for sedimentation. Segments within the Alsea Subbasin, Siletz/Yaquina subbasin, and Siuslaw subbasin were listed for bacteria.

There are many potential causes for the water quality problems identified in the area, including runoff from forest and agricultural lands, runoff from roads, erosion from streambanks and roadsides, waste disposal sites, discharges from waste water treatment plants, leaking septic systems, application of waste water on agricultural lands, and erosion from home building and development. Rerouting of runoff via road building, construction, and land surfacing (such as parking areas) can lead to excessive erosion or pollutant transport. Increased heat input due to vegetation removal, seasonal flow reduction, changes in channel shape, and floodplain alteration are also potential sources of water quality impairments.

Other water quality concerns exist in the Mid Coast Area in addition to 303(d) listed problems. In several water bodies, lead from fishing lures has become a water quality concern. Lead inputs have been estimated as high as forty pounds per river or stream mile per week in heavily fished areas of Lake Creek in the Siuslaw watershed. Some of the lead can dissolve and become bound in organic materials, eventually forming a fine layer on the creek bottom. Further investigation is underway to determine whether, if a disturbance stirs up the creek bottom, organic-bound lead can again become bio-available. Oil and fuel spills or improperly disposed petroleum products around farm buildings are a water quality concern, especially because of the high rainfall in the area and likelihood of runoff to water bodies.

Recent monitoring has identified both bacteria and dissolved oxygen problems that the DEQ indicates may lead to future listings on the 303(d) list for North and South Fork Beaver Creek in the Alsea subbasin. This important salmon stream has had dissolved oxygen values down to 1 mg/liter, which is not adequate to support aquatic life. The dissolved oxygen standard, in the area, ranges from a high of 11 mg/liter for water bodies identified as salmon spawning to a low of 8mg/liter for supporting coldwater aquatic life and 6.5 mg/liter in the estuaries.

**Air Quality**

The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides.

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The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, the Organization for Air Quality Protection Standards (OAQPS) is responsible for setting the NAAQS standards for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources.\(^9\)

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in Oregon are governed by a combination of factors. Large-scale influences include latitude, altitude, prevailing hemispheric wind patterns, and mountain barriers. At a smaller scale, topography and vegetation cover also affect air movement patterns. Locally adverse conditions can result from occasional wildland fires in the summer and fall, and prescribed fire and agricultural burning in the spring and fall.

Due principally to local wind patterns, air quality in Lincoln County is generally good, rarely falling below Oregon Department of Environmental Quality (DEQ) pollution standards. Emissions from motor vehicles are the primary and most persistent cause of the degradation of local air and noise quality. Occasional intrusions of smoke from field and slash burning and the use of wood stoves also occur. In Lincoln City, backyard burning has been banned due to smoke complaints. This is also an issue in several other communities.

**Oregon State Smoke Management Plan**

Under the federal Clean Air Act and state implementing laws, the Oregon Department of Forestry Fire Program is responsible for regulating forestland slash burning in the state. Controlled burning after timber harvest reduces residual fuel hazards and prepares the site for replanting by releasing nutrients and removing competing vegetation. In spring and fall, meteorologists monitor weather conditions as they coordinate hundreds of burning requests from private and public forest landowners. ODF’s implementation of the Oregon Smoke Management Plan seeks to enable landowners to manage their forests and safely reduce fire hazards while maintaining air quality in populated areas.

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Chapter 4

Risk and Preparedness Assessments

Wildland Fire Characteristics

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

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

Weather

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

Topography

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

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

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

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

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

Wildfire Hazards

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

The severity of a fire season can usually be determined in the spring by how much precipitation is received, which in turn determines how much fine fuel growth there is and how long it takes this growth to dry. These factors, combined with the annual easterly wind events typically in September and October, drastically increase the chance a fire start will grow and resist suppression activities. Furthermore, the occurrence of debris burning also increases in the fall.

History of Major Fires

Major historical fires in Oregon dating from the mid-19th century include the 1865 Silverton Fire and the 1849 Siletz Fire, which consumed 988,000 and 800,000 acres of wildland, respectively. In the 20th century four major fires occurred between 1933 and 1945, with each fire consuming between 180,000 and 240,000 acres. In 1987, the Silver Fire, burned 97,000 acres. Recent major fires include the 2002 Biscuit Fire that burned nearly 500,000 total acres (with about 471,000
acres in Oregon and nearly 29,000 acres in California) and the 2003 B&B Complex fire that burned 90,769 acres.

In recorded history, there have only been a few major fires in or threatening land in Lincoln County: the Siletz Fire (1849), the Yaquina Fire (1853), the Tillamook Burn (1933-1951), the Big Creek Fire (1936), the Shady Lane Fire (1987), and the Rockhouse Creek Fire (1987). The following narratives describe some of these fire events.

**The Tillamook Burn**

One spark on a hot August afternoon in 1933 changed people’s lives, the landscape, and the future of what is known today as the Tillamook State Forest. A series of devastating wildfires transformed the original forest into a virtual wasteland, but one of the world’s largest reforestation projects has returned the area to a sea of green.

The Tillamook Burn became the collective name for a series of large fires that began in 1933 and struck at six-year intervals through 1951, burning a combined total of 355,000 acres. The fires had profound environmental, economic and social repercussions for the coastal counties of northwest Oregon. The logging industry, a mainstay of local economies, ground to a halt. Some species of wildlife native to the area were decimated due to habitat loss while other wildlife populations exploded. Rivers were choked with sediment and debris. Seed cones—the genetic blueprint for a new forest—were annihilated by fire.

In the years since the fires, foresters, professional tree planters and volunteers have worked painstakingly to reestablish the forest and its many resources. Oregon voters passed a constitutional amendment in 1948 authorizing $12 million in bonds to rehabilitate the land. The long reforestation project began in 1949. Helicopters were used for the first time for large-scale aerial seeding. On the ground, forestry crews, prison inmates and school groups planted trees by hand. In total, helping hands planted 72 million seedlings, giving the burned-over landscape a new start.

The Tillamook Burn was officially renamed the Tillamook State Forest by Oregon Governor Tom McCall on July 18, 1973. Today the area is covered with young trees, but the charred trunks left by the old burn still testify to the fragility of the forest resources and the ever-present need to be careful with fire.

**1987 Fire Season**

The fire season of 1987 started three weeks earlier than normal, lasted longer than any season on record, and resulted in fires in California and Oregon that were historic in both magnitude and duration.

It was the third season in a row of below normal rainfall. By early May conditions were like July, and the first large fire of the year broke out in Linn County. The Calapooia Fire burned 1,800 acres.

A lightning storm the week of July 15 started several fires in southwest Oregon. An fire on Bland Mountain took the lives of two loggers and burned 10,000 acres.

On August 30 a more extensive dry lightning storm ignited hundreds of fires in California and southern Oregon. More than 600 fires started in southern Oregon from 1,600 lightning strikes recorded in a 12-hour period. Hot, dry weather allowed the fires to spread, often combining with
adjacent fires. Temperature inversions slowed the firefighting efforts and spread a layer of smoke over southern Oregon and northern California. The extent of the firefighting effort in the two states put a severe strain on the resources available for firefighting in the entire country.

Fires in southern Oregon burned across 183,000 acres of forestland; fourteen of the 1,500 fires contained more than 1,500 acres each; and elsewhere in Oregon 11,000 more acres burned during the same period. Almost 3,000 people were evacuated and 1,100 homes were threatened. Most of the fires were under control by the end of October. It was the most massive firefighting effort in the nation’s history.

Just as the fires down south seemed to be under control, the West Oregon District began to have problems of its own. Just after noon on Friday, October 9th, a fire started in timber and brush at a logging site eight miles south of Dallas. Fanned by some strong northeast winds, the Shady Lane Fire grew to more than 500 acres within hours, forcing the evacuation of 150 people. Three hundred firefighters were mobilized, including a State Forestry project fire team, crews from local timber industry and rural fire departments, and even a crew from Virginia. A fire camp was set up at the Polk County fairgrounds. Despite the work of retardant planes and helicopter water drops, by the end of the day on Friday the fire had burned 1,000 acres, jumped roads and firebreaks, and come within 2 miles of the town of Pedee.

A unified command group was established by the ODF, the rural fire departments in Polk County and the Polk County Sheriff’s office. The site was declared a potential for disaster, making the fire eligible for federal financial assistance.

By Saturday evening the fire was declared contained and all the evacuees were allowed to return home. The Shady Lane Fire had burned 1,140 acres, caused $280,000 in damages, and suppression costs totaled more than $400,000.

Following the Shady Lane Fire and several other fires on the west side of Oregon in the same period, the State Fire Marshal issued a ban on all open burning. Six new fires a day were being reported in Oregon.

On the night of Sunday, October 18th, fire crews from the Dallas Unit were called to investigate a fire near the Dallas watershed. By the time they arrived at the fire, trees were crowning out in the dark and by morning the fire had grown to 400 acres. Retardant drops began at daybreak, but strong northeast winds increased the Rockhouse Creek Fire to 1,000 acres by noon. Another statewide ODF fire team arrived, camping once again at the Polk County Fairgrounds.

On October 20th, the Deputy State Forester announced that ODF was closing down 10.3 million acres of state-protected forestlands west of the Cascades due to the extreme fire emergency, lack of rainfall, and unseasonably high temperatures. Any entry into the forest was by permit only. A closure of this type hadn’t been ordered since 1967.

The fire burned through the Dallas watershed, jumped the reservoir, and was spotting a mile ahead of itself by Monday night. A portion of the Black Rock Experimental State Forest was burned and two camps and 24 homes in the community of Black Rock were evacuated. The blaze continued to burn for a week, causing more than $5 million worth of damage and burning more than 5,000 acres. Suppression costs totaled $2.6 million. Efforts by the Polk County Soil Conservation Service began immediately to reseed ground cover on the steep terrain in the watershed in order to slow siltation in the nearby reservoir.
These two fires were the largest ever experienced in the West Oregon District. It was also the first time the District had hosted a statewide fire team. The 1987 fire season was costly as well as long. Unbudgeted suppression costs in Oregon climbed to more than $31 million.

**Wildfire Ignition Profile**

In interpreting these data, it is important to keep in mind that this information is for Oregon Department of Forestry (ODF) protected lands only, and does not include all fires in areas covered only by local fire departments or areas where federal agencies (specifically the U.S. Forest Service) have fire suppression responsibility. The Oregon State Fire Marshal’s Office does maintain a database of fires reported by local fire departments; however, due to differences in reporting schemes, this data does not accurately reflect wildland fire occurrences in Lincoln County.

Using data on past fire extents and fire ignition compiled by the ODF, the occurrence of wildland fires in the region of Lincoln County has been evaluated. The ODF database of wildfire ignitions used in this analysis includes ignition and extent data from 1999 through 2009 within their jurisdiction. An analysis of the ODF reported wildfire ignitions in Lincoln County reveals that during this period approximately 458 acres burned as a result of 133 ignitions, which results in an average of 3.4 acres burned per fire.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Acres Burned</th>
<th>Percent</th>
<th>Number of Ignitions</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arson</td>
<td>&lt;1</td>
<td>&lt;1%</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Debris Burning</td>
<td>409</td>
<td>89%</td>
<td>39</td>
<td>29%</td>
</tr>
<tr>
<td>Equipment Use</td>
<td>5</td>
<td>1%</td>
<td>15</td>
<td>11%</td>
</tr>
<tr>
<td>Lightning</td>
<td>3</td>
<td>1%</td>
<td>6</td>
<td>5%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>&lt;1</td>
<td>&lt;1%</td>
<td>10</td>
<td>8%</td>
</tr>
<tr>
<td>Railroad</td>
<td>&lt;1</td>
<td>&lt;1%</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Recreationist</td>
<td>34</td>
<td>7%</td>
<td>47</td>
<td>35%</td>
</tr>
<tr>
<td>Smoking</td>
<td>4</td>
<td>1%</td>
<td>12</td>
<td>9%</td>
</tr>
<tr>
<td>Under Investigation</td>
<td>&lt;1</td>
<td>&lt;1%</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>458</strong></td>
<td><strong>100%</strong></td>
<td><strong>133</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Within the Oregon Department of Forestry’s protection area 99% of the fires during this period were human-caused with the majority of the ignitions caused by recreationalists and debris burning. Debris burning resulted in, by far, the most acres burned. Most of the fires caused by debris burning limited to one acre or less; however, debris burning caused a 90 acre fire in 2002, a 34 acre fire in 2003, and 130 acre fire in 2005. To assist with reducing these types of fires, members of the Lincoln County Fire Defense Board have imposed a burn ban during ODF’s closed fire season each summer. This has helped considerably in reducing fire starts not just within the ODF protection area, but also in local fire agency boundaries.
Ideally, historical fire data would be used to estimate the annual probability for fires in the wildland-urban interface areas of Lincoln County. However, current data does not appear adequate to make credible calculations because the data for local, state, and federal responsibility areas are not reported by the same criteria. Nevertheless, the data reviewed above provide a general picture of the level of wildland-urban interface fire risk for Lincoln County overall. There are several reasons why the fire risk may be higher than suggested above, especially in developing wildland-urban interface areas.

1) Large fires may occur infrequently, but statistically they will occur. One large fire could significantly change the statistics. In other words, 10 years of historical data may be too short to capture large, infrequent wildland fire events.

2) The level of fire hazard depends profoundly on weather patterns. A several year drought period would substantially increase the probability of large wildland fires in Lincoln County. For smaller vegetation areas, with grass, brush and small trees, a much shorter drought period of a few months or less would substantially increase the fire hazard.

3) The level of fire hazard in wildland-urban interface areas is likely significantly higher than for wildland areas as a whole due to the greater risk to life and property. The probability of fires starting in interface areas is much higher than in wildland areas because of the much higher population density. Most wildland or interface fires have human sources of ignition. Thus, the probability of a given acre burning is probably higher in interface areas than for the wildland areas of Lincoln County as a whole.

There have been several very large fires (greater than 200,000 acres burned) within or threatening land in Lincoln County since the mid-1800s; however, there is very little actual data available on these fires. The ODF has been recording fire occurrences in Lincoln County since
1967; however, due to fire suppression activities there have been only 4 individual fires totaling more than 100 acres in the last 42 years. The total number of ignitions recorded annually since 1967 is increasing overall. Furthermore, the ODF database would suggest that the number of ignitions peaks approximately every 5 years as shown in Figure 4.2.

**Figure 4.2. Wildfire Ignitions within ODF Protection Area 1970-2005.**

**Wildfire Extent Profile**

Across the west, wildfires have been increasing in extent and cost of control. Data summaries for 2000 through 2006 are provided and demonstrate the variability of the frequency and extent of wildfires nationally.
Table 4.2. National Fire Season Summaries.

<table>
<thead>
<tr>
<th>Statistical Highlights</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Fires</td>
<td>122,827</td>
<td>84,079</td>
<td>88,458</td>
<td>85,943</td>
<td>77,534</td>
<td>66,753</td>
<td>96,385</td>
</tr>
<tr>
<td>10-year Average ending with indicated year</td>
<td>106,393</td>
<td>106,400</td>
<td>103,112</td>
<td>101,575</td>
<td>100,466</td>
<td>89,859</td>
<td>87,788</td>
</tr>
<tr>
<td>Acres Burned</td>
<td>8,422,237</td>
<td>3,555,138</td>
<td>6,937,584</td>
<td>4,918,088</td>
<td>6,790,692</td>
<td>8,689,389</td>
<td>9,873,745</td>
</tr>
<tr>
<td>10-year Average ending with indicated year</td>
<td>3,786,411</td>
<td>4,083,347</td>
<td>4,215,089</td>
<td>4,663,081</td>
<td>4,923,848</td>
<td>6,158,985</td>
<td>6,511,469</td>
</tr>
<tr>
<td>Structures Burned</td>
<td>861</td>
<td>731</td>
<td>2,381</td>
<td>5,781</td>
<td>1,095</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Estimated Cost of Fire Suppression (Federal agencies only)</td>
<td>$1.3 billion</td>
<td>$917 million</td>
<td>$1.6 billion</td>
<td>$1.3 billion</td>
<td>$890 million</td>
<td>$876 million</td>
<td>--</td>
</tr>
</tbody>
</table>

The National Interagency Fire Center\(^\text{10}\) maintains records of fire costs, extent, and related data for the entire nation. Tables 4.2 and 4.3 summarize some of the relevant wildland fire data for the nation and some trends that are likely to continue into the future unless targeted fire mitigation efforts are implemented and maintained. According to these data, the total number of fires is trending downward while the total number of acres burned is trending upward. Since 2000 there has been a significant increase in the number of acres burned.

Table 4.3. Total Fires and Acres 1980 - 2008 Nationally.

<table>
<thead>
<tr>
<th>Year</th>
<th>Fires</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>68,594</td>
<td>4,723,810</td>
</tr>
<tr>
<td>2007</td>
<td>85,822</td>
<td>9,321,326</td>
</tr>
<tr>
<td>2006</td>
<td>96,385</td>
<td>9,873,745</td>
</tr>
<tr>
<td>2005</td>
<td>66,753</td>
<td>8,689,389</td>
</tr>
<tr>
<td>2004</td>
<td>77,534</td>
<td>6,790,692</td>
</tr>
<tr>
<td>2003</td>
<td>85,943</td>
<td>4,918,088</td>
</tr>
<tr>
<td>2002</td>
<td>88,458</td>
<td>6,937,584</td>
</tr>
<tr>
<td>2001</td>
<td>84,079</td>
<td>3,555,138</td>
</tr>
<tr>
<td>2000</td>
<td>122,827</td>
<td>8,422,237</td>
</tr>
<tr>
<td>1999</td>
<td>93,702</td>
<td>5,661,976</td>
</tr>
<tr>
<td>1998</td>
<td>81,043</td>
<td>2,329,709</td>
</tr>
<tr>
<td>1997</td>
<td>89,517</td>
<td>3,672,616</td>
</tr>
<tr>
<td>1996</td>
<td>115,025</td>
<td>6,701,390</td>
</tr>
<tr>
<td>1995</td>
<td>130,019</td>
<td>2,315,730</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Fires</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>114,049</td>
<td>4,724,014</td>
</tr>
<tr>
<td>1993</td>
<td>97,031</td>
<td>2,310,420</td>
</tr>
<tr>
<td>1992</td>
<td>103,830</td>
<td>2,457,665</td>
</tr>
<tr>
<td>1991</td>
<td>116,953</td>
<td>2,237,714</td>
</tr>
<tr>
<td>1990</td>
<td>122,763</td>
<td>5,452,874</td>
</tr>
<tr>
<td>1989</td>
<td>121,714</td>
<td>3,261,732</td>
</tr>
<tr>
<td>1988</td>
<td>154,573</td>
<td>7,398,889</td>
</tr>
<tr>
<td>1987</td>
<td>143,877</td>
<td>4,152,575</td>
</tr>
<tr>
<td>1986</td>
<td>139,980</td>
<td>3,308,133</td>
</tr>
<tr>
<td>1985</td>
<td>133,840</td>
<td>4,434,748</td>
</tr>
<tr>
<td>1984</td>
<td>118,636</td>
<td>2,266,134</td>
</tr>
<tr>
<td>1983</td>
<td>161,649</td>
<td>5,080,553</td>
</tr>
<tr>
<td>1982</td>
<td>174,755</td>
<td>2,382,036</td>
</tr>
<tr>
<td>1981</td>
<td>249,370</td>
<td>4,814,206</td>
</tr>
<tr>
<td>1980</td>
<td>234,892</td>
<td>5,260,825</td>
</tr>
</tbody>
</table>

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

Table 4.1 and Figure 4.3 show the extent of wildfires by acreage burned per year within ODF protection areas in Lincoln County. The fire suppression agencies in Lincoln County respond to numerous wildland fires each year, but few of those fires grow to a significant size. According to national statistics, only 2% of all wildland fires escape initial attack. However, that 2% accounts for the majority of fire suppression expenditures and threatens lives, properties, and natural resources. These large fires are characterized by a size and complexity that require special management organizations drawing suppression resources from across the nation. These fires create unique challenges to local communities by their quick development and the scale of their footprint.

Lincoln County has not directly experienced a significant wildfire event in the last 50 years; however, this does not mean that the county is at low risk. In fact, many of the fire professionals in Lincoln County believe the question is not “if” there will be a large fire in this area; it is “when.” The last big fire event near Lincoln County was the Tillamook Burn from 1933 to 1951, which burned a combined total of 355,000 acres in the counties of Washington, Yamhill, and Tillamook north of Lincoln County. Additionally, the Big Creek Fire burned about 10,000 acres just northeast of the community of Yachats on the north side of the Yachats River in 1936. The Big Creek Fire occurred during the same firestorm that destroyed the town of Bandon in Coos County. In four hours, nearly 500 structures were consumed and 13 people were killed when Bandon was destroyed by wildland fire on September 26th, 1936. If Lincoln County experienced a fire event similar to any of these large fires today, it would have a much more severe impact on the present community. It is important that regional planners as well as local residents understand what has happened in the past in order to be more effective in the future when preparing for the inevitable.
Figure 4.3. 1936 Big Creek Fire Spread Map.
A study published in 2007 by Headwaters Economics showed that of the 11 western states, Oregon has the largest area of undeveloped, forested private land bordering fire-prone public lands and is ranked third in the amount of forested land where homes have already been built next to public lands. Additionally, Oregon has 6,000 square miles of forested private land that borders public lands, of which 90% has not been developed\(^\text{11}\). However, under Oregon’s existing statewide land use regulations, only a very small portion of undeveloped lands adjacent to public lands are available for development, unlike other western states. Nevertheless, Oregon law is under constant pressure from development interests, and a change in the regulatory framework could lead to an increase in residential development adjacent to public lands.

According to Headwaters Economics, only 14% of forested private land adjacent to public land in the west is currently developed for residential use. Based on current growth trends, there is tremendous potential for future development on the remaining 86%. Given the skyrocketing cost of fighting wildfires in recent years (on average $1.3 billion each year between 2000-2005), this potential development would create an unmanageable financial burden for taxpayers. If homes were built in 50% of the forested areas where private land borders public land, annual firefighting costs could range from $2.3 billion to $4.3 billion per year. By way of comparison, the U.S. Forest Service's total annual budget is approximately $4.5 billion.

**Figure 4.4. Acres burned in ODF Protection Areas 1988-2007.**

![A total of 147 acres burned in 2005.](image)

Table 4.3 highlights how significant of a problem escaped fires resulting from debris burning is for Lincoln County. Debris burning accounts for 89% of the total acres burned and 29% of the number of ignitions in Lincoln County since 1999.

Wildfire Hazard Assessment

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

Historic Fire Regime

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

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Percent</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 35 Year Fire Return Interval, Low and Mixed</td>
<td>&lt;1%</td>
<td>23</td>
</tr>
<tr>
<td>Severity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;= 35 Year Fire Return Interval, Replacement</td>
<td>1%</td>
<td>5,288</td>
</tr>
<tr>
<td>Severity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 - 200 Year Fire Return Interval, Low and Mixed</td>
<td>8%</td>
<td>48,248</td>
</tr>
<tr>
<td>Severity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 - 200 Year Fire Return Interval, Replacement</td>
<td>12%</td>
<td>77,333</td>
</tr>
<tr>
<td>Severity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 200 Year Fire Return Interval, Any Severity</td>
<td>76%</td>
<td>481,986</td>
</tr>
<tr>
<td>Water</td>
<td>2%</td>
<td>10,478</td>
</tr>
<tr>
<td>Snow / Ice</td>
<td>&lt;1%</td>
<td>1</td>
</tr>
<tr>
<td>Barren</td>
<td>&lt;1%</td>
<td>1,636</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>635,502</td>
</tr>
</tbody>
</table>

The table above shows the amount of acreage in each defined fire regime in Lincoln County. The historic fire regime model in Lincoln County shows that nearly the entire county has very long fire return interval (200+ years). Large fires are not expected to occur often; however, when they do occur, fires will tend to burn very intensely and be difficult to suppress. There is a high
likelihood that fires in Lincoln County will be forest stand replacing. The transition zone between the valley bottoms and forestlands on the east side of the Coast Range historically experienced low and mixed severity fires; however, the return interval is more frequent ranging from 35 to 200 years.

A map of Historic Fire Regimes in Lincoln County is included in Appendix 1 and an explanation of how the data were derived is included in Appendix 3.

**Fire Regime Condition Class**

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

A fire regime condition class (FRCC) is a classification of the amount of departure from the historic regime. The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime. The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

An analysis of Fire Regime Condition Classes in Lincoln County shows that a significant portion of the county is either moderately departed (44%) or severely departed (12%) from its natural fire regime and associated vegetation and fuel characteristics. In most scenarios, the more departed an area is from its natural fire regime, the higher the wildfire potential; however, this is not true 100% of the time.

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Condition Class 1</td>
<td>257,385</td>
<td>41%</td>
</tr>
<tr>
<td>2 Condition Class 2</td>
<td>277,456</td>
<td>44%</td>
</tr>
<tr>
<td>3 Condition Class 3</td>
<td>73,789</td>
<td>12%</td>
</tr>
<tr>
<td>5 Water</td>
<td>10,478</td>
<td>2%</td>
</tr>
</tbody>
</table>

Table 4.5. Assessment of Current Condition Class in Lincoln County.

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Snow/Ice</td>
<td>1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>7 Urban</td>
<td>8,512</td>
<td>1%</td>
</tr>
<tr>
<td>8 Barren</td>
<td>1,636</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>9 Agriculture</td>
<td>6,244</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>635,502</td>
<td>100%</td>
</tr>
</tbody>
</table>

Much of the forestland areas on the east side of the Coast Range in Lincoln County are in Condition Class II due to successful fire suppression efforts over the past 100 years. The greatest departure from the natural fire regime occurs in the northeast corner of the County. It is unclear why this area is more severely departed; however, it is most likely a flaw in the data. Forestlands along the western front of the Coast Range have not experienced a significant departure from the historical range of variability.

A map depicting Fire Regime and Condition Class is included in Appendix 1 and a more in-depth explanation of FRCC is presented in the Appendix 3.

**Lincoln County’s Wildland-Urban Interface**

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

A key component in meeting the underlying need for protection of people and structures is the protection and treatment of hazards in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments or where forest fuels meet urban fuels such as houses. The WUI encompasses not only the interface (areas immediately adjacent to urban development), but also the surrounding vegetation and topography. Reducing the hazard in the wildland-urban interface requires the efforts of federal, state, and local agencies and private individuals.19 “The role of [most] federal agencies in the wildland-urban interface includes wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical experience. Structural fire protection [during a wildfire] in the wildland-urban interface is [largely] the responsibility of Tribal, state, and local governments”.20 The role of the federal agencies in Lincoln County is and will be much more limited. Property owners share a responsibility to protect their residences and businesses and minimize danger by creating defensible areas around them and taking other measures to minimize the risks to their structures.21 With treatment, a wildland-urban interface can provide firefighters a defensible area from which to suppress wildland fires or defend communities against other hazard risks.


addition, a wildland-urban interface that is properly treated will be less likely to sustain a crown fire that enters or originates within it. 22 By reducing hazardous fuel loads, ladder fuels, and tree densities, and creating new and reinforcing existing defensible space, landowners can protect the wildland-urban interface, the biological resources of the management area, and adjacent property owners by:

- minimizing the potential of high-severity ground or crown fires entering or leaving the area;
- reducing the potential for firebrands (embers carried by the wind in front of the wildfire) impacting the WUI. Research indicates that flying sparks and embers (firebrands) from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior;23
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

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

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;

- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation; the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres; and

- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size.

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

- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.

- **High Density Urban Areas** – those areas generally identified by the population density consistent with the location of incorporated cities, however, the boundary is not

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necessarily set by the location of city boundaries or urban growth boundaries; it is set by very high population densities (more than 7-10 structures per acre).

- **Infrastructure Area WUI** – those locations where critical and identified infrastructure is located outside of populated regions and may include high tension power line corridors, critical escape or primary access corridors, municipal watersheds, areas immediately adjacent to facilities in the wildland such as radio repeater towers.

- **Non-WUI Condition** – a situation where the above definitions do not apply because of a lack of structures in an area or the absence of critical infrastructure. This classification is not considered part of the wildland-urban interface.

In summary, the designation of areas by the Lincoln County planning committee includes:

- Interface Condition: WUI
- Intermix Condition: WUI
- Occluded Condition: WUI
- Rural Condition: WUI
- Infrastructure Areas: WUI
- High Density Urban Areas: WUI
- Non-WUI Condition: Not WUI, but present in Lincoln County

Lincoln County’s wildland-urban interface (WUI) is based on population density. Relative population density across the county was estimated using a GIS based kernel density population model that uses object locations to produce, through statistical analysis, concentric rings or areas of consistent density. To graphically identify relative population density across the county, structure locations are used as an estimate of population density. Lincoln County’s GIS department produced a “Buildings” data layer that was used for structure location. This layer was updated and verified using the current parcel master listing then converted into a point location data file for input into the kernel density model. The resulting output identified the extent and level of population density throughout the county. Based on committee review and discussion, the output was adjusted to include areas of significant infrastructure and to incorporate gaps along important transportation routes. The updated and revised population density model output was adopted as the WUI for Lincoln County, Oregon.

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

The WUI, as defined here, is unbiased and consistent, allows for edge matching with other counties, and most importantly – it addresses all of the county, not just federally identified communities at risk. It is a planning tool showing where homes and businesses are located and the density of those structures leading to identified WUI categories. It can be determined again in the future, using the same criteria, to show how the WUI has changed in response to increasing population densities. It uses a repeatable and reliable analysis process that is unbiased.
The Healthy Forests Restoration Act makes a clear designation that the location of the WUI is at the determination of the county or reservation when a formal and adopted Community Wildfire Protection Plan is in place. It further states that the federal agencies are obligated to use this WUI designation for all Healthy Forests Restoration Act purposes. The Lincoln County Community Wildfire Protection Plan planning committee evaluated a variety of different approaches to determining the WUI for the county and selected this approach and has adopted it for these purposes. In addition to a formal WUI map for use with the federal agencies, it is hoped that it will serve as a planning tool for the county, the Oregon Department of Forestry, and local fire districts.
Figure 4.5. Wildland-Urban Interface Map in Lincoln County, Oregon.
Potential WUI Treatments

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

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

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

It should also not be assumed that WUI designation on national or state forest lands automatically equates to a treatment area. The Forest Service, Bureau of Land Management, and Oregon Department of Forestry are still obligated to manage lands under their control according to the standards and guides listed in their respective forest plans and laws. The adopted forest plan has legal precedence over the WUI designation until such a time as the forest plan is revised to reflect updated priorities.

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

Lincoln County Conditions

The Oregon Coast Range, bounded by the Pacific Ocean and the Willamette Valley, supports some of the most dense and productive forests in North America. This region is generally low elevation, with ridge systems usually 1,000 to 2,000 feet. The influence of the Pacific Ocean causes these forests to be warm and often highly productive compared to the Cascade Range and central Oregon forests. In the summer, humid maritime air creates a moisture gradient from the coastal western hemlock-Sitka spruce zone with periodic fog extending 2.5 to 6 miles inland, through Douglas-fir-western hemlock forests in the central zone, to the drier interior valley foothill zone of the Douglas-fir, bigleaf maple, and Oregon oak. In the Coast Range, high leaf areas give rise to large amounts of fine, live fuels. The relative warmth and moisture also leads
to higher decomposition rates of dead fuels. Prolonged, dry east winds appear to play an
important role in curing and drying live fuels. With continued drought, live fuels become dry
enough to be a significant heat source instead of a heat sink when burning. Under these
conditions, fires can be very intense, especially when fanned by warm, dry east and north winds.

Very large fires were the main disturbance agents of the Oregon Coast Range. These historic
fires often burned more than 100,000 acres in a single year creating large patches that dominated
the structure of the natural Coast Range landscape. Estimates of mean fire intervals in this
region average in the range of 200 years with the largest intervals represented by the coastal
western hemlock-Sitka spruce zone. However, once a fire occurred, the same area could reburn
at short intervals. Some portions of the Tillamook Burn burned four times in 19 years.

Land use changes including timber management, development, and fire suppression have
replaced large fires as the agent of change and renewal in the coastal forest. Under the present
disturbance regime, harvest rotations in managed forests have been about 45-60 years on private
land and 60-70 years on government lands managed for timber.

Young Coast Range forest may be more susceptible to fire than older forests because they
revegetate rapidly to dense stands of shrubs and trees with large amounts of fine, interwoven
foliage close to the ground. In contrast, pole and mature stands often have canopies elevated
from surface fuels with gaps in the canopy.24

Areas subject to wildland-urban interface fires have very different fire hazard characteristics.
The defining characteristic of the wildland-urban interface area is that structures are built in areas
with essentially continuous (and often high) vegetative fuel loads. In other words, structures are
built in areas subject to wildland fires. When wildland fires occur in such areas, they tend to
spread quickly and structures in these areas may, unfortunately, become little more than
additional fuel sources for wildland fires. The siting of homes has also changed over time.
Historically pioneering families built their homes in lowlands, close to water and the fields they
intended to work. In the last 30 years or so, rural homes have increasingly been built in locations
chosen because of the view or other amenities. Thus, many newer homes are in locations more
difficult to defend against wildland fires.

Fire risk to structures and occupants in wildland-urban interface areas is high due to high
vegetative fuel loads and limited fire suppression resources compared to urban or suburban areas.
Homes in wildland-urban interface areas are most commonly on wells rather than on municipal
water supplies, which limits the availability of water for fire suppression. Less availability of
water resources makes it more likely that a small wildland fire or a single structure fire will
spread before it can be extinguished.

Fire suppression often depends on two important factors: availability of fire suppression
resources and access. Fire suppression resources include firefighting personnel, equipment and
apparatus as well as water and chemical fire suppressants. The greater the availability of fire
suppression resources, the more likely it is that a given fire will be contained quickly. Fire
suppression also depends on access. Fires in remote areas without ground access are more
difficult to fight and thus harder to contain than are fires in roaded areas. Access and effective
response is partially a function of land management objectives. Lands managed for natural

conditions where roads have not been built or the existing roads have been obliterated tend to have a much poorer fire suppression response than commercial forestlands where road systems are maintained.

In many areas of Lincoln County, narrow winding roads, dead end driveways, and inadequate bridges impede access by firefighting apparatus. As with water supplies, the lower availability of firefighting personnel and apparatus and longer response times increase the probability that a small wildland fire or a single structure fire will spread.

Developments in wildland-urban interface areas often face high fire risk because of the combination of high fire hazard (high vegetative fuel loads) and limited fire suppression capabilities. Unfortunately, occupants in many wildland-urban interface areas also face high life safety risk, especially from large fires that may spread quickly. Life safety risk in interface areas is often exacerbated by limited numbers of roads (in the worst case only one access road) that are often narrow and winding and subject to blockage by a wildland fire.

Life safety risk in interface areas is also often increased by homeowners’ reluctance to evacuate homes quickly. Instead, homeowners often try to protect their homes with whatever fire suppression resources are available. Without proper training and preparedness, such efforts generally have very little effectiveness. Unfortunately, homeowners who delay evacuation often place their lives in jeopardy.

Developments in rural wildland-urban interface areas face a range of risk factors. Developments that have all or most of the following attributes are at the highest level of risk:

1) Location in or surrounded by heavy fuel loads with a high degree of continuity (i.e. few significant firebreaks). Risk may be particularly high if the fuel load is grass, brush, and smaller trees subject to low moisture levels in short duration drought periods.

2) Steep slopes, which cause fires to spread more rapidly.

3) Limited fire suppression capacity including limited water supply capacity for fire suppression purposes, limited firefighting personnel and apparatus, and typically long response times for fire alarms.

4) Limited access for firefighting apparatus and limited evacuation routes for residents at risk.

5) Construction of structures to less than fully fire-safe practices,

6) Lack of maintenance of firebreaks and defensible zones around structures.

Overall, the threat of wildland fire appears moderate for Lincoln County, in large part because of the typically high levels of rainfall. However, for portions of Lincoln County, depending on conditions in specific developments in wildland-urban interface areas, the threat may be moderate to high, especially during periods of drought.

**Overall Mitigation Activities**

There are many actions that will help improve safety in a particular area; there are also many mitigation activities that can apply to all residents and all fuel types. General mitigation activities that apply to all of Lincoln County are discussed below while area-specific mitigation activities are discussed within the strategic planning area assessments.
**Prevention.** The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective and can take many forms. Traditional “Smokey Bear” type campaigns that spread the message passively through signage can be effective. Interpretive signs that remind folks of the dangers of careless use of fireworks, burning when windy, and leaving unattended campfires can also be effective.

Active prevention techniques can involve mass media, radio, and the local newspapers. Fire districts in Lincoln County have contributed to the reduction in human-caused ignitions by printing a weekly “run blotter,” similar to a police blotter, in the paper. The blotter briefly describes the fire response calls for the week and is followed by a “tip of the week” to reduce the threat from wildland and structure fires. The federal government and the Oregon Department of Forestry have been champions of prevention, and could provide ideas for such tips. When fire conditions are high, brief public service messages could warn of the hazards of misuse of fire or any other ignition sources.

**Limiting Use.** Areas within the ODF Protection District boundary are also subject to Public Use Restrictions, referred to as “Regulated Use”, during fire season in an attempt to limit, or manage use of activities known to cause fires. The countywide ban on debris or “backyard” burning established by the Lincoln County Fire Defense Board during the fire season is another example of actions specifically taken to prevent wildfires.

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

**Evacuation.** Development of community evacuation plans is necessary and critical to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape routes would reduce chaos and escape times for fleeing residents. Community safety zones should also be established in the event safe evacuation is impossible and ‘sheltering in place’ becomes the better option. Efforts should be made to educate homeowners through existing homeowners associations or citizen participation organizations.

**Access.** Also of vital importance is the accessibility of homes to emergency apparatus. The fate of a home will often be determined by homeowner actions prior to the event. A few simple guidelines such as widening or pruning along driveways and creating a turnaround area for large vehicles, can greatly enhance home survivability.

**Facility Maintenance.** Recreational facilities near communities or in the surrounding forests such as parks or natural areas should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape-resistant fire rings and barbeque pits should be installed and maintained. In some cases, restricting campfires during dry periods may be necessary. Surface
fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting pre-commercial thinning, pruning and limbing, and possibly controlled burns.

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

**Development Standards.** Furthermore, county policies can be revised to provide for more fire conscious techniques such as using fire resistant construction materials; improved road, driveway, and bridge standard, establishment of permanent water resources, and adoption of a WUI building code.

**Other Mitigation.** Other actions to reduce fire hazards are thinning and pruning timbered areas, creating a fire resistant buffer along roads and power line corridors, and strictly enforcing fire-use regulations. Ensuring that areas beneath power lines have been cleared of potential high risk fuels and making sure that the buffer between the surrounding forest lands is wide enough to adequately protect the poles as well as the lines is imperative.

**Overview of Fire Protection System**

Oregon has a Fire Service Mobilization Plan developed by the Oregon State Fire Marshal’s Office and approved by the State Fire Defense Board as mandated by The Emergency Conflagration Act (ORS 476.501 to 476.610). The Plan provides an organized structure and operating guidelines for rapid deployment of Oregon’s fire service forces under a common command structure. The plan establishes operating procedures for emergencies beyond the capabilities of the local fire service resources.

Mutual aid agreements are made with nearby districts and the Oregon Department of Forestry to supplement resources of a fire agency or district during a time of critical need. Mutual aid is given only when equipment and resources are available.

Oregon has a common communication channel for fire services’ use during multiple-agency responder incidents. This system is called Fire NET. It utilizes a system of 23 mountain-top microwave base stations and a master control console to form a radio and telephone access communication network throughout the state.

Lincoln County has a 911 Emergency Communication System in place to link citizens with emergency response agencies. The system receives telephone requests for fire, medical or police services and dispatches those calls through a computer aided dispatch system to the appropriate agencies for response. Referenced in this arrangement is a rural addressing system that identifies home locations by address. Rural address numbers are displayed at the entrance to most home sites along access routes to assist in emergency response.

Fire agency personnel are often the first responders during emergencies. In addition to structural fire protection, they are called on during wildland fires, floods, landslides, and other events. The following is a summary of the agencies in Lincoln County and their resources and capabilities. A map of the Lincoln County fire districts and department boundaries is presented in Appendix I.
Statewide Fire Resource Mobilization

The Office of the Oregon State Fire Marshal assists and supports the Oregon fire services during major emergency operations through the Emergency Conflagration Act (ORS 476.510). The Conflagration Act was developed in 1940 as a civil defense measure and can be invoked only by the Governor. Under the Act, local firefighting forces will be mobilized when the State Fire Marshal believes that a fire is causing, or may cause, undue jeopardy to life and/or property and the Act is invoked by the Governor. State funding for use of the resources is provided when the Act is invoked.

The Emergency Conflagration Act required the State Fire Marshal to prepare a plan for the most practical utilization of the state’s firefighting resources in time of grave fire emergency. The resulting plan, called the Oregon Fire Service Mobilization Plan provides the organizational structure and operating guidelines for mobilization and direction of fire service forces, promotes effective communication among the fire service agencies, coordinates the efforts of the participating agencies through use of a common command structure and common terminology, and ensures prompt, accurate, and equitable apportionment of fiscal responsibility for fire suppression or other emergency response activity.

The Fire Service Mobilization Plan may be used separately from the Conflagration Act to mobilize local structural fire agencies for any emergency situation exceeding local mutual aid resources. However, reimbursement for responding resources is assured only when the Governor invokes the Conflagration Act.

Local Fire Department and District Summaries

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

Appendix 4 contains contact information for each of the following fire service organizations.
Central Oregon Coast Fire and Rescue District

District Summary: The Central Oregon Coast Fire and Rescue District (COCFRD) has three-fire stations located in the Alsea River corridor. The main station is in Waldport at 145 Alsea Hwy, the second station is in Tidewater, and the third station is on Highway 34 at milepost 20.3.

COCFRD responds to emergency calls involving fire, surf and water rescue, medical emergencies and motor vehicle crashes, to name just a few. The ambulance serves an area from Ona-Beach south to Big Creek on Highway 101 and up the Alsea Highway 27 miles to the county line (300 sq. miles). In 2008, COCFRD responded to 1,017 calls.

Issues of Concern: Residential growth continues further and further up the Highway 34 corridor. This is the main area for concern as it applies to the wildland urban interface. Coastal areas, in general, continue to see exponential growth and little is being considered to fund the additional fire protection that is needed.

South Lincoln County is one of the poorest regions in Lincoln County for clear, consistent radio communications. The Highway 34 corridor is in need of additional repeaters as well.

Burn permits and regulating them is probably the biggest issue the District has. COCFRD simply does not have the resources to manage 300-400 permits per year. The District is consistently responding to burn complaints.

Cooperative Agreements: COCFRD depends very heavily on automatic and mutual aid from neighboring fire districts. The District also has working agreements with all emergency services in the county as well as the federal and state agencies.
Depoe Bay Rural Fire Protection District

District Summary: The District consists of a unique thirteen square mile area of the Central Oregon Coastline including the coastal communities of Siletz Keys, Salishan, Gleneden Beach, Lincoln Beach, Boiler Bay, Depoe Bay, Miroco, and Otter Rock. The District contains rocky ocean cliffs along Oregon’s Highway 101, moderate density vacation and condominium complexes, residential and commercial construction, and rugged undeveloped terrain with only logging roads for access. Of particular note are four multi-story commercial structures which house large tourist populations during most months of the year.

Issues of Concern: District growth has been slower within the past few years, partially due to poor economic conditions. However, small developments are beginning to spring up, generally within the city of Depoe Bay.

The District uses the Lincoln County communications system and is dispatched through Lincom.

Cooperative Agreements: The Depoe Bay Fire District currently has mutual aid agreements with all fire agencies within the county as well as the Oregon Department of Forestry.
Seal Rock Rural Fire Protection District

District Summary: The Seal Rock RFPD is a small rural all-volunteer district that protects nearly 16 ½ square miles of mostly forest and farm land on the central Oregon coast with fire, non-transport medical and water rescue response. It is governed by a five-person elected Board of Directors. The population of the district numbers around 4,000 year round, but swells to nearly 6,000 during the summer tourist season. The automatic aid area is about 68 square miles with a permanent population approaching 10,000. Seal Rock itself is an unincorporated aggregation of small businesses, including the Seal Rock Post Office, Seal Rock Water District Office and the Seal Rock RFPD Main Station, where there is an engine and a Fastac rescue truck. The other station, the Bayshore Station, is at the south end of the district where there is an engine and a water tender.

Issues of Concern: While there seems to be one or two dozen new homes built each year, overall population growth is very slow. As many as a third to a half of the homes in the district are seasonal or vacation homes. A large proportion of these are rentals.

Landline telephone service is good, including DSL availability in most areas, provided by the Pioneer Telephone Cooperative based in Philomath, OR. Cell coverage is spotty and unlikely to improve soon, as there is some NIMBY resistance to the construction of new cell towers. Radio coverage is pretty good, thanks to multiple repeaters and the ongoing OWIN wireless interoperability project.

Currently, each fire district sets its own timing and degree of permitted restriction while taking into consideration the guidance of the Oregon Department of Forestry, DEQ, Oregon State Fire Marshal and neighboring fire districts. Last year in south Lincoln County, all three fire districts started and stopped burn barrel restrictions on the same dates with the same restrictions. This year the three districts started on slightly different dates and while Seal Rock RFPD permitted burn barrels with permits consistent with last year, Central Oregon Coast Fire and Yachats Fire chose to implement a complete ban on all fires except small warming fires.

Cooperative Agreements: Seal Rock RFPD is a party to an automatic mutual aid agreement with Central Oregon Coast Fire and Rescue District and Yachats Fire District for all structure fires and a mutual aid agreement with them and Newport Rural Fire Protection District for any fire or rescue activity. Seal Rock RFPD resources can also be made available to the Lincoln County Fire Chief and Lincoln County Disaster Management.
Siletz Rural Fire Protection District

**District Summary:** The District encompasses 39 square miles and serves a population of 3,500. The District provides fire, EMS, hazmat, and rescue services to local residents.

The Siletz RFPD has two fire stations; one is located seven miles east of Siletz in the community of Logsden and the second is located within the city of Siletz.

**Cooperative Agreements:** Siletz RFPD has mutual aid agreements with the Oregon Department of Forestry and the other seven fire districts in Lincoln County.
North Lincoln Fire and Rescue District #1

District Summary: The North Lincoln Fire and Rescue District #1 protects Lincoln County along Highway 101 north from Cascade Head, south to the Siletz River, eastward along Highway 18 to the Van Duzer Corridor, and along the Siletz River Highway #229 to milepost 5.5. Included in this area are the communities of Rose Lodge, Otis, Neotsu, roads End, Kernville, Cutler City, Schooner, and Drift Creek.

The District is comprised of 4 career officers and approximately 60 volunteer personnel. The District responds to a diversity of emergency services including fire suppression, medical and technical rescue, water rescue, rope rescue, and hazardous materials incidents. North Lincoln Fire and Rescue also offers a variety of prevention, fire safety education services, and emergency preparedness classes.

Issues of Concern: The current economic downturn has slowed growth; however, residential growth does continue in the area. It seems the urban properties are less and less available, which pushes the buildable properties to the more rural areas of the District and substantially increases the District’s interface concerns. As the economy improves, this problem will only increase.

For the most part, interagency operational communications in the District is manageable for the rare occasions it is needed. In the event of a large incident, interagency communication would become a struggle. The District also lacks a procedure and tested method for alerting the public in the event of a large scale evacuation.

Lincoln City passed an ordinance eliminating all burning within the city limits. The District manages a burn permit program that allows for 3’ x 2’ burn piles or burn barrels. Permits are issued at no charge and are good for a period of 5 years at a single address. The District closes all burning within the District boundaries shortly after the 4th of July until late October.
Newport Fire Department & Newport Rural Fire District

District Summary: The Newport Fire Department provides fire protection, emergency medical response, ARFF responsibilities, and a variety of rescue services to a service area of about 26 square miles. The District includes the City of Newport, which has a population of 9,660. In addition to a mix of urban and rural occupancies, Newport is the center of the county government. The District also includes marinas, a busy fishing fleet, fish processing plants, municipal airport, and nearly 1,500 hotel/motel rooms to support the year-round tourism industry. Newport Rural Fire District has an additional 3,500 residents living in the surrounding forestlands.

Issues of Concern: The District’s primary concerns are areas in the rural district with poor water supply systems, the need for additional public education efforts directly specifically to residents in the wildland urban interface areas, and development of more defensible space in interface areas.

Cooperative Agreements: The Newport Fire Department and Rural Fire District participate in mutual aid agreements with all other fire districts in Lincoln County and has automatic aid agreements with Toledo Fire Department, Depoe Bay Rural Fire Protection District, and Seal Rock Rural Fire Protection District.
Yachats Rural Fire Protection District

District Summary: In March of 1949 the residents of South Lincoln County decided that the time had come for a fire protection district. Thus, Yachats Rural Fire Protection District (YRFPD) was created. YRFPD starts just south of the City of Waldport and continues south to Highway 101 (MP166) as well as east up the Yachats River Valley approximately 10 miles. As of 2009, the District is 14.47 square miles. YRFPD is bordered by the Pacific Ocean to the west and timberland to the east. The main station is located on W 2nd Street in Yachats and was constructed in 1949-1950 with numerous additions over the years. The north station on Corona Court near the city limits of Waldport was constructed in 1964. The District’s newest station, completed in April of 2009, is in the newly annexed Yachats River Valley and is located 7.8 miles up the valley. The worst fires in the District’s history have been the wildland fires of 1934 and 1936.

YRFPD is a very rural district with no industrial base except tourism, limited retail, some agriculture, and limited forestry. US Highway 101, the main north-south coast highway, runs through the District. The City of Yachats (population 650) is located within the District boundaries, but provides no financial support.

YRFPD’s patronage consists of a year-round population of about 4,500 that grows to about 7,500 in the summer months including tourists. The protection base consists of mostly one and two-story, one and two family residences, but also includes several restaurants, retail facilities, 13 motels, and the Angell Job Corps. This facility houses about 150 to 200 youths in dormitory-style housing.

YRFPD operates three pumper, one pumper/tender, two brush trucks, and support vehicles. Our personnel respond to emergency calls involving structure fires, beach fires, wildland fires, surf rescue, motor vehicle crashes, medical emergencies, marine mammal stranding, and other miscellaneous calls. YRFPD provides manpower to staff South Lincoln Ambulance, which is the transporting agency in the area.

Issues of Concern: In the near future, residential growth is expected in a very steep area within the City of Yachats. This area is a classic wildland urban interface with homes surrounded by wildland fuels on steep terrain with limited access. All of the area between Yachats and Waldport has the same wildland urban interface dilemma; improvements are needed to provide better wildfire protection to homes and timberlands.

Dispatch and coordination is provided through Lincoln County Communication Agency (LINCOM). YRFPD has adequate radios in all of its apparatus and is now compliant with current regulations. Every firefighter has portable communication with the dispatch agency. However, the District does have areas in which communication is very sporadic due to terrain and lack of repeaters. This greatly hampers the District’s ability to communicate with other agencies during an incident.
Outside burning is permitted unless the summer burn ban is in effect. Issuing permits and overseeing open burning is a large issue for YRFPD. The potential for problems with open burning continues as population density increases.

Along with many other Fire Districts in Oregon, the smaller industrial base caused by reduced logging and fishing has reduced the number of working-age people available for volunteer firefighter recruits. Tax limitations drastically affect the ability to hire firefighters to supplement the draw down of volunteers.

**Cooperative Agreements:** South Lincoln County receives fire protection services from three small fire districts including YRFPD. All three districts suffer from a reduced volunteer base and rely on automatic mutual aid from each other. In addition, YRFPD has mutual aid agreements with other fire agencies in the county such as Oregon Department of Forestry, Lincoln County Sheriff’s Office, Oregon State Police, US Coast Guard, and US Forest Service.
Toledo Fire Department and Toledo Rural Fire Protection District

District Summary: The Toledo District covers approximately 55 square miles. The boundaries range from the 2.5 mile marker of Highway 20 to the 23 mile marker of Highway 20. Toledo Fire Department and Rural Protection District is an all hazard department who’s mission statement is positively outrageous service. The department will respond to any call for assistance. If the call is not within the scope or experience levels of the department, the staff and volunteers will try their best to arrange a solution through the appropriate entity. Toledo Fire responds to an average of 600 calls per year. The department is staffed mostly by volunteers with three paid staff positions that ensure that the most important aspect of emergency service is well cared for. That aspect is the 38 volunteers doing the bulk of the emergency response. This department has a unique philosophy that brings the word family to mind. The department services roughly 55 square miles via two stations and 11 apparatus.

Issues of Concern: The land use limitations coupled with FEMA floodplain issues have dampened building in the rural areas. It is difficult to find a site that is buildable. Communications are stressed, but the District has taken steps to improve radio communications. The Department manages burning through a permit process and has a good compliance record.
Confederated Tribes of Siletz Indians of Oregon

Summary: The Siletz Tribe owns 9,065 acres of land in Lincoln County, of which 8,537 acres (approx. 4,657 acres fee land, 3,880 acres trust land) is in timberlands, which are managed for timber production and fish and wildlife values. The remaining 528 acres are in or near the cities of Siletz (214 acres), Toledo (72 acres), Depoe Bay (0.10 acre), and Lincoln City (242 acres). The city properties are dedicated to housing, governmental offices and facilities, cemeteries, and businesses, along with the Chinook Winds Casino Resort (casino, hotel, golf course).

Issues of Concern: Continued expansion of Tribal Housing and Administrative sites (new clinic, transitional living center, wellness center, sprung structure gym, elders housing, etc.) in and around Siletz can affect the services provided by the Siletz Valley Fire Department. Additionally, the construction of Tribal Housing in Lincoln City is protected by the North Lincoln Fire and Rescue District.

The Siletz Natural Resource Department maintains a radio communication system for project and fire-related activities. The Tribe also has emergency/disaster satellite communications.

On Trust Land, the Tribe follows the BIA’s regulations for burn plans. On fee land, they follow the ODF’s regulations. The Environmental Protection Agency’s Federal Air Rules for Reservations also apply.

Cooperative Agreements: There is a Master Cooperative Fire Protection Agreement between the Bureau of Indian Affairs, Northwest Regional Office and Oregon Department of Forestry. With this agreement, Oregon Department of Forestry provides fire protection service including prevention, pre-suppression, and suppression for the Confederated Tribes of Siletz Indians federal trust timberlands. The agreement excludes structural fires. On fee forestlands, a fire protection assessment is paid. The Tribe is also a member of the West Oregon Forest Protective Association.
Oregon Department of Forestry – West Oregon District

District Summary: The West Oregon District, which contains 3 unit offices (Philomath, Dallas, Toledo), is one of five districts within the Northwest Oregon Area.

The District provides forest fire prevention, detection, and suppression on approximately 1.1 million acres of forest land in portions of five counties (Benton, Lincoln, Polk, Tillamook, and Yamhill), 285,000 acres of which are in Lincoln County; contributes to a complete and coordinated forest protection system on a local and statewide basis; provides for cooperative work to public and private landowners to supplement the fire protection system; provides for environmental protection on commercial forest land through the administration of the Forest Practices Act; administers assistance programs to private forest landowners through the Private Forests Program; and intensively manages 37,672 acres of State Forest land. The Oregon Department of Forestry does not provide any structural protection.

The District accomplishes this work with a biennial budget of approximately $8 million and employment of 29 permanent and 26 seasonal and temporary employees.

The District is able to cover the majority of the service area with a four repeater radio system: Marys Peak, Euchre Mountain, Hebo Mountain, and Prairie Peak.

The West Oregon District has mutual aid agreements with all seven rural fire protection districts in Lincoln County as well as a closest forces agreement with the Siuslaw National Forest. The District also provide suppression services on forestlands owned by the Bureau of Land Management and the Confederated Tribes of Siletz Indians.
**Siuslaw National Forest**

**Forest Summary:** The Siuslaw National Forest is located along the Oregon Coast from Tillamook to Coos Bay and extends into the Coast Range. It is approximately 630,000 acres and spans 8 different counties. In Lincoln County, there is approximately 172,000 acres of Forest Service land. The forest has two districts, the Central Coast Ranger District and the Hebo Ranger District.

The Siuslaw has a permanent and seasonal fire staff responsible for fire prevention, detection and suppression on all wildland fire ignitions on forest service land. The crews are also responsible for hazard fuel reduction projects, prescribed burning, and ecosystem restoration projects. Fire personnel and equipment are in five locations throughout the Forest (Hebo, Corvallis, Alsea, Waldport, and Mapleton) and are shared as needed across the forest. The Forest’s Mobilization Plan serves to provide information necessary to direct emergency activities and effectively utilize Forest, inter-Forest, Regional, and Cooperative resources to meet fire management needs. It is updated annually and contains detailed information on personnel and available equipment. The Forest works closely with the BLM and Oregon Department of Forestry and has a cooperative agreement for initial attack.
**West Oregon Forest Protective Association**

**Association Summary:** The West Oregon Forest Protective Association (WOFPA) was formed when the former Lincoln County Fire Patrol, Lincoln County Fire Patrol, and Polk County Fire Patrol merged together in 1962. The earlier landowner fire patrol association began forming in the district as early as 1910.

WOFPA’s primary objectives are the protection of forest resources within its area from possible damages caused by the destructive forces of fire and/or other causes as determined by vote of the Board of Directors and the achievement of effective communications with other organizations and agencies to ensure wise policy decision affecting forest protection.

To accomplish this, the WOFPA works with the West Oregon District (ODF) to ensure an adequate budget is prepared to provide for the protection of their members’ lands. The Association maintains a close liaison of public and private landowners and provides feedback to ODF on the protection services they provide.

Currently, the association is comprised of 30 landowner members and 6 affiliate members.
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Chapter 5

Strategic Planning Areas

For assessment purposes, Lincoln County is separated into Strategic Planning Areas (SPA) based on differences in vegetation type and development. SPA 1 is the western side of Lincoln County and includes the coast and inland area within the coastal fog zone. This region is generally the low lying coastal areas and waterways influenced by the wet maritime climate that influences the vegetation growth. Sitka spruce-western hemlock and wind-swept shore pine habitats dominate the forest cover types. Low lying coastal and inland waterways on saturated soils contain mixed conifer and hardwood tree species. Dense shrubs dominate the understory vegetation throughout the area on all undisputed sites. The bulk of Lincoln County’s population lives in the Coastal Zone, with several moderate to high density communities scattered along the shoreline and major estuaries. This planning area encompasses the entire north/south length of Lincoln County extending inland as far east as Siletz and Toledo.

SPA 2 encompasses the eastern side of Lincoln County and contains a widely dispersed rural population and vast expanses of mountainous coastal range forest that is less affected by the maritime fog climate exhibited in the coastal area. This region is mostly industrial forestland on mountainous terrain with steep slopes and widely dissected river valleys. Forest cover type vegetation is predominantly Douglas-fir, western hemlock, and western red cedar with mixed hardwoods throughout most of the area on all slopes and aspects. Depressions and valley bottoms are dominated by a mix of many species of conifers and deciduous trees overtopping a heavy shrub understory. Major communities in SPA 2 include Rose Lodge, Logsdon, Eddyville, Harlan, Tidewater, and Fisher. It is near these communities and along the major highway corridors and river valleys that most of the population resides. This planning area encompasses the entire north-south length of eastern Lincoln County.

A composite map of the Strategic Planning Areas in Lincoln County is included in the Appendix 1.

Strategic Planning Area #1 – Western Lincoln County Coastal Zone

SPA 1 is bordered on the north by Tillamook County, on the south by Lane County and on the east by SPA 2. SPA 1, as with most of Lincoln County, is nearly all forested with development expanding outward from communities and along major access routes, waterways and bottom land, into forested areas. Land ownership in this area is mostly privately held by citizens and timber companies with vast tracts of commercial forest land in the central portion of the SPA. To the north and south the land has a mixed ownership pattern consisting of private parcels, U.S. Forest Service (Siuslaw National Forest), and industrial and non-industrial private forest land owners. On the outskirts of the population centers and in the rural areas, development is in close proximity to wildland fuels. Emergency equipment access into many areas is limited and public complacency about wildfire potential exists due to the absence of recent fires and the very wet climatic conditions that dominate the area.
Wildfire Potential

Oregon has an extensive history of wildfires with some of the largest fires occurring in the coastal range of Lincoln County; however, the frequency of fires is rare due to the wet climate. Overall, the wildfire potential in SPA 1 is moderate to low on an annual basis because of the moist coastal climate that prevails throughout the year. Oregon’s coast is similar to the Mediterranean climate of Western Europe with mild, wet winters and warm, dry summers. Moist fuel conditions are maintained during the summer months by humidity brought on by the consistent onshore flow of fog near the coast and more frequent periods of rainfall at higher elevations to the east in the mountainous areas.

Mild temperatures, fertile soils, and high annual precipitation in this region make it the most productive forestland in the country. Nevertheless, these conditions also create heavy wildland fuel load conditions that can, under the right circumstances, develop into a very destructive wildfire. Wildland fuels are the heavy buildup of natural conifer and deciduous vegetation in an area. Given the proper conditions of sustained drying or a drought year and a significant wind event in conjunction with an ignition source, catastrophic wildfires are very probable in this region.

Development is common on all slopes surrounding the urban communities due to the demand for view property, land prices, and limited availability of land in general. Home site development in many areas attempts to maintain the natural vegetation for aesthetic purposes and to provide privacy, with little attention given to proximity to wildland fuels in the built environment. Evergreen and deciduous trees and shrubs are common landscape vegetation throughout the wooded foothills and in many of the residential areas. This creates a semi-continuous canopy cover producing tree litter accumulations in yards and on roof tops. Seclusion and privacy created by landscaping is highly desirable in dense residential housing areas, which limits opportunities for a defensible space. Under extreme wildfire conditions, residential areas have the potential to carry an advancing fire front fueling the fire with landscape vegetation, litter and ultimately the structures as seen in many of the southern California fires of 2007. Wildfire risk in residential areas has compounded problems created by radiant heat, embers, and the effect of slope and draft.

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Rural subdivisions, farmsteads, and rural home sites often are developed in the woods to provide isolation and privacy. Originally cleared for development, many of these sites are soon overgrown with natural vegetation, which aesthetically is desirable, but provides little home defensible space in the event of a wildfire. Additionally, development is occurring along the main highway corridors, ocean front, and estuaries to the extent allowed by limited availability of zoned land. In nearly all cases, this development is adjacent to or directly in contact with wildland fuels. One of the primary concerns for fire departments is that with more development adjacent to wildland fuels, comes more potential fire danger due to increased ignition sources caused by human activity.

Vast expanses of forestland, coastal woodlands, and beaches provide a wide variety of recreational opportunities. The coastal area of Lincoln County is a popular recreation area experiencing heavy use especially during the summer months. Recreational activities increase the potential for ignition of a wildfire. As more area is accessible, and human use rises, the chance of a human caused wildfire will increase.

**Ingress-Egress**

The primary access in SPA 1 is Highway 101 (Coastal Highway) running north-south along the Pacific Coast, Highway 229 meandering east then south from Kernville to Siletz, Highway 18 running east-west over the coastal range between the Willamette Valley and Lincoln City, Highway 20 running east-west over the coastal range from Corvallis to Newport, and Highway 34 running east-west between Corvallis and Waldport. All of the east-west highways are primary access routes that are heavily traveled through the Coastal Range to the Oregon Coast. There are also a multitude of paved and graveled secondary roads leading between small communities off the main highways. In a wildfire event, the major highways and secondary access routes are adequate to support evacuation provided they are not obstructed. Alternative access is limited in some areas due to the steep terrain and land ownership; however, there are alternate routes provided by the numerous logging and rural county roads leading from the main highways. Coordination with private landowners, particularly industrial timber companies, is needed in order to ensure that these routes are open and maintained for use as an emergency route. These alternative evacuation routes are well known to local residents, but they could lead to confusion for visitors unless the routes are well marked and properly displayed on area maps.

Some residences in the forested area are accessed via unimproved, narrow roads accessible by only small emergency vehicles. These roads generally lack adequate turnout and turn-around areas for emergency vehicles. The inability of emergency resources to safely access structures reduces or may even eliminate suppression response. Roads in newer subdivisions have been designed to accommodate emergency vehicles with either loop roads or cul-de-sacs with wide turning radii and easily negotiable grades for larger emergency equipment.

Many residences along river corridors or other waterways are accessed via bridges. For the most part, bridges are adequately rated to support emergency vehicles because the roads are also used by logging trucks. In some areas, individual home sites and small developments are accessed by dead-end roads crossing bridges that are not rated or do not have a visible load rating sign. These bridges are a concern for emergency response vehicles. Most often, the local fire service is conscious of an underrated bridge, but homeowners need to understand that underrated bridges will deny access to their property for fire suppression. Unless the residence is close to the main road where a hose lay is possible, their residence may be denied fire protection due to issues pertaining to access.
Infrastructure

Residents within communities and most subdivisions in SPA 1 have access to municipal and private water systems that supply fire hydrants for fire suppression. However, several subdivisions lacking adequate water storage and/or supply have been identified for improvements in the “Mitigation Recommendations” section of this document. Outside developed areas, residences rely on individual or multiple-home well systems. Ponds, rivers, creeks, and developed drafting sites provide additional water sources for fire suppression in emergency situations. Remote forested areas within the SPA generally have established logging roads enabling access for fire suppression equipment. Most of these roads were designed for loaded logging trucks; therefore, they also can accommodate larger fire equipment.

Local public utility lines traveling along roads and highways are exposed to damage from falling trees. Power and phone services throughout Lincoln County are both above and below ground. These utilities may be cut to some areas during a wildfire due to direct damage from flames or danger to firefighters from arcing.

Fire Protection

Structural fire protection on the north side of SPA 1 is provided by North Lincoln Fire and Rescue District #1 and Depoe Bay Rural Fire Protection District. In the central part of the SPA, structural fire protection is provided by Newport Fire District, Newport Rural Fire Protection District, Siletz Rural Fire Protection District, Toledo Fire District, and Toledo Rural Fire Protection District. In the southern portion, structural fire protection is provided by Central Oregon Coast Fire and Rescue, Seal Rock Rural Fire Protection District, and Yachats Rural Fire Protection District. These fire departments provide the first level of emergency response within their respective districts. The Oregon Department of Forestry has jurisdiction for wildfires on all forestland within their jurisdictional boundary including BLM lands, but not on U.S. Forest Service property. The U.S. Forest Service provides wildfire protection on its own lands. ODF and the U.S. Forest service do not provide structural fire protection. Structural fire protection is provided only by the local fire districts. Residents that live outside of a fire protection district may not be covered for structural fire protection, but wildfire protection will be provided on forestland by the ODF. Mutual aid agreements between ODF and the various fire districts supplement wildland fire protection when needed.

Community Assessment

SPA 1 is characterized by a widely spread semi-urban area along the coast and inland waterways and a mostly rural population along the river valleys and major highway corridors. Residents within SPA 1 have a moderate to low risk of experiencing a wildland fire on an annual basis; however, high accumulations of wildland fuels and multiple ignition sources could result in a large, catastrophic wildfire in a dry year. Clearings and fuel breaks such as roadways will disrupt a slow moving wildfire enabling more successful suppression; however, during a rapidly spreading wildfire, evacuation of people and containment of the fire are the highest priorities.

Recreation, agriculture, logging, and ranching activities throughout the area increase the risk of a human-caused wildfire spreading to forested areas. In some areas, increased water rates have reduced the amount of lawn watering around residential areas. Under extreme weather conditions, fires could threaten individual homes, subdivisions, or whole town sites. High winds increase the rate of spread and intensity of fires. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most
homeowners can maintain an adequate defensible space around structures by watering their yards, clearing brush and ladder fuels, and mowing grass and weeds. Residents can also increase their home’s survivability by keeping roofs and gutters free from debris. All residents and visitors should be aware of emergency access routes and the routes should be well marked with signage and recognizable on maps.

**Mitigation Activities**

Mitigation measures needed in forested areas include constructing a defensible space around structures and along access routes, pruning and thinning trees, mowing and removing weeds and other vegetation, removing debris from roofs and gutters, and moving flammable items such as propane tanks and wood piles a safe distance away. Maintaining a clean and green yard around home sites is also an effective fire mitigation measure. Due to the proximity of forestlands to all developed areas in the county, greater effort to increase defensible space around structures or whole subdivisions is necessary to lessen the potential loss of lives and/or property and reduce the spread of wildfire. Additionally, using fire resistant siding, decking, and roofing will help reduce the ignitability of a structure. Many home sites in forested areas have adequate defensible space, but this proactive condition is non-continuous due to neighbors’ lack of education, desire for seclusion, or lack of funding to accomplish treatments. Without education and widespread mitigation treatments, significant loss of life and property is possible.

Many access routes and driveways in this planning area are overgrown with encroaching vegetation, have bridges that are underrated for heavy equipment, are too narrow, or lack adequate turn out/turn around areas. In the event of a wildland fire, it is likely that one or more of the designated escape routes would become impassable. Performing road inventories in high risk areas and documenting or mapping access limitations, such as substandard bridges, will improve emergency response time and identify areas in need of improvement. Roads and rail lines can be made more fire resistant by frequently mowing along the edges to reduce the fuels or planting more fire resistant vegetation in high risk areas.

Designing a plan to help firefighters suppress fires in rural areas would significantly lessen the spread of fire and risk to property owners. Mitigation activities would include clearing vegetation along roadways and around developments, tying fuel breaks into existing natural or manmade barriers, or implementing a prescribed burning program during less risky seasons of the year. Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near rural subdivisions will increase the effectiveness and efficiency of emergency response in a wildfire situation.

**Strategic Planning Area #2 – Eastern Lincoln County**

SPA 2 is bordered on the west by SPA 1, on the north by Tillamook County, on the south by Lane County, and on the east by Polk and Benton Counties. SPA 2, as with most of Lincoln County, is heavily forested with development expanding outward from communities and along major access routes, waterways and bottom land, into forested areas. Most of the land in this SPA is owned by timber companies and/or timberland investors, the Confederated Tribes of the Siletz Indians, and state and federal agencies. A very small portion of the total land area is held by non-industrial private owners. Throughout SPA 2, there are areas of concern regarding development in close proximity to wildland fuels. Within these areas of concern, development is closely incorporated into the surrounding wildland fuel complex. Access into many areas by
emergency equipment is limited and complacency about wildfire potential exists due to the absence of recent fires and the very wet climatic conditions that dominate the region.

**Wildfire Potential**

Oregon has an extensive history of wildfires with some of the largest fires occurring in the coastal range of Lincoln County; however the frequency of fires is rare due to the wet climate. Overall, the wildfire potential in SPA 2 is moderate to low on an annual basis because of the moist climate that prevails throughout the year. Moist soil and fuel conditions are maintained during the summer months from humidity and frequent periods of rainfall at higher elevations. Mild temperatures, fertile soils, and high annual precipitation in this region make it some of the most productive forestland in the country. However, this high productivity creates heavy wildland fuel loads that can, under the right circumstances, develop into a very destructive wildfire. Wildland fuels are the heavy buildup of natural conifer and deciduous vegetation in an area. Given the proper conditions of sustained drying or a drought year and a significant wind event in conjunction with an ignition source, catastrophic wildfires are very probable in this region.

Development occurs primarily near small communities and on gentle terrain along roads and streams. Home site development in most cases maintains the natural vegetation for aesthetic purposes and to provide privacy with little attention given to fire danger. Evergreen and deciduous trees and shrubs are common landscape vegetation in most developed areas. This creates a semi-continuous canopy cover producing tree litter accumulations in yards and on roof tops. Seclusion and privacy created by landscaping is highly desirable in dense residential housing areas, which limits opportunities for a defensible space. Under extreme wildfire conditions, these dense residential areas have the potential to carry an advancing fire front fueling the fire with landscape vegetation, litter, and ultimately structures as seen in many of the southern California fires of 2007. Rural subdivisions, farmsteads, and home sites often are developed in the woods to provide isolation and privacy. Originally cleared for development, many sites are soon overgrown with natural vegetation, which is aesthetically desirable, but provides little wildland fire protection. In nearly all cases, unless well maintained, development is eventually adjacent or directly in contact with wildland

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fuels. One of the primary concerns for fire departments is that with more development adjacent to wildland fuels, comes more potential fire danger due to increased ignition sources caused by human activity.

Vast expanses of forestlands provide recreational opportunities including hunting, fishing, rafting, camping, off-road vehicle use, hiking and biking. The coastal range area of Lincoln County is a popular recreation area experiencing heavy use especially during the summer months. Recreational activities increase the potential for wildfire ignitions. As more area becomes accessible due to development and use rises, the likelihood of a human caused wildfire will increase.

**Ingress-Egress**

Most of the primary access roads in SPA 2 run east-west following the river valleys to the ocean. Primary north-south access roads lie west of SPA 2 along the Oregon Coast. Minor north-south access in SPA 2 is possible via narrow county roads, Forest Service roads, and logging roads. Primary east-west access is provided by Highway 18 over the coastal range between the Willamette Valley and Lincoln City, Highway 20 over the coastal range from Corvallis to Newport, and Highway 34 between Corvallis and Waldport. These routes are well maintained paved highways that are heavily traveled throughout the year. There are also a multitude of paved and graveled secondary roads crossing SPA 2 that provide alternative access. During a wildfire, these primary access routes are adequate to support evacuation provided they are not obstructed. Alternative access is limited in some areas due to the steep terrain, locked gates, and land ownership; however, there are alternate routes provided by the numerous logging and rural county roads leading from the main highways. Coordination with private landowners, particularly industrial timber companies, is needed in order to ensure that these routes are open and maintained for use as an emergency route. These alternative routes are well known to local residents and often are marked on maps, but these routes would most likely result in confusion with visitors unless the routes are well marked and properly displayed on area maps.

Some residences in the forested area are accessed via unimproved, narrow roads accessible by only small emergency vehicles. Some of these roads lack adequate turnout and turn-around areas. The inability of emergency resources to safely access structures reduces or may even eliminate suppression capabilities. Roads in newer subdivisions have been designed to accommodate emergency vehicles with either loop roads or cul-de-sacs with wide turning radii and easily negotiable grades for larger emergency equipment.

Many residences along rivers are accessed via bridges. For the most part, bridges are adequately reinforced to support emergency vehicles since the roads are also used by logging trucks. In some areas, individual home sites and small developments are accessed by dead-end roads that cross bridges that are not rated or do not have visible signage. These bridges are a concern for emergency vehicles. Most likely the local fire services are aware of the underrated bridges, but home owners need to understand that inadequate bridges will deny access to their property for fire suppression. Unless the residence is close to the main road where a feasible hose lay is possible, their residence may be denied fire protection due to issues pertaining to access.

**Infrastructure**

Residents within all towns and most new subdivisions in SPA 2 have access to municipal and private water systems that supply fire hydrants for fire suppression. Outside developed areas, residences rely on individual or multiple-home well systems. Ponds, rivers, creeks, and
developed drafting sites provide additional water sources for fire suppression in emergency situations. Remote forested areas within the planning area generally have established logging roads enabling access for fire suppression equipment. Most of these roads were designed for loaded trucks; therefore, they also can accommodate larger fire apparatus.

Local public utility lines traveling along roads and highways are exposed to damage from falling trees. Power and phone services throughout Lincoln County are both above and below ground. These utilities may be cut to some areas during a wildfire due to direct damage from flames or danger to firefighters from arcing.

**Fire Protection**

Structural fire protection on the north side of SPA 2 is provided by North Lincoln Fire and Rescue District #1. In the central part of the SPA, structural fire protection is provided by Newport Fire District, Newport Rural Fire Protection District, Siletz Rural Fire Protection District, and Toledo Rural Fire Protection District. In the southern part of the SPA, structural fire protection is provided by Central Oregon Coast Fire and Rescue and Yachats Rural Fire Protection District. These fire departments provide the first level of emergency response within their respective districts. The Oregon Department of Forestry has jurisdiction for wildfires on all forest land within their jurisdictional boundary including BLM lands, but not on U.S. Forest Service ownership. The U.S. Forest Service provide wildfire protection on its own lands. ODF and the U.S. Forest Service do not provide structural fire protection. Structural fire protection is provided only by the local fire districts. Residents that live outside of a fire protection district may not be covered for structural fire protection, but wildfire protection/suppression will be provided on forestland by the ODF. Mutual aid agreements between ODF and the fire district supplement wildland fire protection when needed.

**Community Assessment**

SPA 2 is a rural area with development located primarily near small communities, river valleys, and travel corridors. Residents within SPA 2 have a moderate to low risk of experiencing a wildland fire on an annual basis; however, high accumulations of wildland fuels and multiple ignition sources could result in a large, catastrophic wildfire in a dry year. Clearings and fuel breaks will disrupt a slow moving wildfire enabling more successful suppression. During a rapidly spreading wildfire event; however, evacuation of people and containment of the fire are the highest priorities.

Recreation, agriculture, logging, and ranching activities throughout the area increase the risk of a human-caused wildfire spreading to forested areas. Under extremely dry weather conditions, fires could threaten individual homes, subdivisions or a whole town site. High winds increase the rate of spread and intensity of fires. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners can maintain an adequate defensible space around structures by watering their yards, clearing brush and ladder fuels, and mowing grass and weeds. Residents can also increase their home’s survivability by keeping roofs and gutters free of debris. All residents and visitors should be aware of emergency access routes and the routes should be well marked with signage and properly displayed on maps.

**Mitigation Activities**

Mitigation measures needed in forested areas include constructing a defensible space around structures and along access routes, pruning and thinning trees, mowing and removing weeds and
other vegetation, removing debris from roofs and gutters, and moving flammable items such as propane tanks and wood piles a safe distance away. Maintaining a clean and green yard around home sites is also an effective fire mitigation measure. Due to the proximity of forestlands to all developed areas in the county, greater effort to increase defensible space around structures or whole subdivisions is necessary to lessen the loss and spread of a wildfire. Additionally, using fire resistant siding, decking, and roofing will help reduce the ignitability of a structure. Many home sites in the forested area have adequate defensible space, but this proactive condition is not continuous between neighbors due to a lack of awareness, desire for seclusion, or lack of funding to accomplish treatments. Without education and widespread mitigation treatments, significant loss of life and property is possible.

Many access routes and driveways in this planning area are overgrown with encroaching vegetation, have bridges that are underrated for heavy equipment, are too narrow and steep, or lack adequate turn out/turaround areas. In the event of a wildland fire, it is likely that one or more of the designated escape routes would become impassable. Performing road inventories in high risk areas and documenting or mapping access limitations, such as substandard bridges, will improve emergency response time and identify areas in need of improvement. Roads and rail lines can be made more fire resistant by frequently mowing along the edges to reduce the fuels or planting more fire resistant vegetation in high risk areas.

Designing a plan to help firefighters suppress fires in rural areas would significantly lessen the spread of fire and risk to property owners. Mitigation activities would include clearing vegetation along roadways and around developments, tying fuel breaks into existing natural or manmade barriers, or implementing a prescribed burning program during less risky seasons of the year. Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near rural subdivisions will increase the effectiveness and efficiency of emergency response in a wildfire situation.
Fire Protection Issues

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

Urban and Suburban Growth

One challenge Lincoln County faces is the large number of houses in the urban/rural fringe compared to twenty years ago. Since the 1970s, despite statewide regulation of residential development in resource lands, a segment of Oregon's growing population has expanded further into traditional forest or resource lands, primarily along the coast and waterways. The “interface” between urban and suburban areas and the resource lands created by this expansion has produced a significant increase in threats to life and property from fires, and has pushed existing fire protection systems beyond original or current design or capability. Many property owners in the interface are not aware of the problems and threats they face and owners have done very little to manage or offset fire hazards or risks on their own property. Furthermore, human activities increase the incidence of fire ignition and potential damage.

It is one of the goals of this document to help educate the public on the ramifications of living in the wildland-urban interface, including their responsibilities as landowners to reduce the fire risk on their property and to provide safe access to their property for all emergency personnel and equipment. Homeowners building in a high fire risk area must understand how to make their properties more fire resistant using proven firesafe construction and landscaping techniques, and they must have a realistic understanding of the capability of local fire service organizations to defend their property.

Rural Fire Protection

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

Debris Burning

Local debris or backyard burning has been identified as a significant and growing problem as well as the number one cause of wildfires throughout Lincoln County. Not only are some people regularly burning outside of the designated time frame, but escaped debris fires impose a very high fire risk to neighboring properties and residents. A growing portion of local fire department
calls are in response to debris fires or “backyard burning” that either have escaped the landowner’s control or are causing smoke management problems. It is likely that regulating this type of burning will always be a challenge for local authorities and fire departments; however, improved public education regarding the county’s burning regulations and permit system as well as potential risk factors would be beneficial.

**Pre-planning in High Risk Areas**

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

**Road and Bridge Standards**

Fire chiefs throughout Lincoln County have identified home accessibility issues as a primary concern in many of the rural areas in the county. Many private driveways are too narrow and/or too steep and most do not have adequate turnouts, turnaround areas, or alternative escape routes. In addition, many privately-maintained rural access roads have become overgrown by vegetation, effectively restricting safe access, particularly in a wildfire situation. It is the landowner’s responsibility to maintain their private roads and bridges to a standard that allows for safe emergency response.

Inadequate private bridges lacking weight rating signage are also a common problem. Due to the risk of bridge failure and resulting personnel injury and equipment damage, fire and medical service organizations will not cross bridges that may be incapable of handling the weight of emergency response apparatus.

**The Lincoln County Fire Defense Board is currently working with the Oregon State Fire Marshal’s Office to evaluate road and bridge standards throughout Lincoln County.**

**Wildland Fire Specific Building Regulations**

As the trend to build in the wildland-urban interface continues, many counties and communities have begun to develop more stringent wildland-urban interface (WUI) codes for new construction that regulates the use of certain building materials (roofing, siding, vents, decking, etc.) in high fire risk areas. WUI codes regarding road and bridge standards, availability of water resources, proximity of vegetation, and other requirements have been adopted in communities and counties across the United States.

Lincoln County recognizes that there are on-going issues between model uniform fire codes, standard development provisions, and uniform building codes throughout Oregon and the nation. Currently, the template Urban Wildland Interface Building Code being adapted by some jurisdictions in the U.S. conflicts with the Oregon Building Code, which Lincoln County has adopted and currently enforces as the development standard for new construction.
Lincoln County recommends that conflicting standards between the Urban Wildland Interface Building Code and the Oregon Building Code (Lincoln County Code) be resolved at the state level. Lincoln County supports a statewide review, and where appropriate, resolution of conflicts between the Urban Wildland Interface Building Code into the Oregon Building Code. Any changes integrated into the Oregon Building Code will be applicable within the County.

**Ballot Measure 49**

Ballot Measure 37 (2004) would have required governments to pay landowners or forego enforcement when certain land use regulations reduced their property values. Ballot Measure 49, approved by voters in 2007, modified Measure 37 to give landowners with Measure 37 claims the right to build homes in compensation for land use restrictions imposed after they acquired their properties. Claimants may build up to three homes if previously allowed when they acquired their properties; or four to ten homes if they can document reductions in property values that justify additional homes. Restrictions exist on high-value farmlands and forestlands and groundwater restricted lands. Claimants are allowed to transfer homebuilding rights upon sale or transfer of properties. These rights are also extended to surviving spouses. For purposes of the Community Wildfire Protection Plan, certain forest and farm lands, or lands within the Wildland Urban Interface, may be more open to development as a result of Ballot Measure 49. This may lead to additional home-building in rural areas and/or higher wildland fire risk areas.

**Fire Resistant Construction Materials**

Due to the multitude of highly publicized wildland-urban interface fires occurring in the western states, there has been an increased level of research, development, and marketing of more fire-resistant construction materials. Information on high risk materials as well as fire-resistant alternatives can be readily found online or through local fire departments. Outdated subdivision covenants requiring the use of certain high wildfire risk materials need to be revised to allow for the use of fire-resistant materials. In most circumstances, the fire-resistant materials closely resemble the most popular trends in construction materials and do not degrade the aesthetic value of homes.

**Fire Department Funding**

Virtually all the funding for operating a fire service is derived from real estate taxes. A funding problem was introduced with Oregon’s Measure 5 (1990) freezing property tax millage rates, and Measure 47 (1996) and Measure 50 (1997), which limited property tax increases to 3% per year regardless of growth in assessed property value. Thus, with unfettered growth in costs, mandated expenditures and strictly limited revenue growth, the ability of fire service organizations to fulfill their missions and meet public expectations is increasingly compromised.

**Volunteer Firefighter Recruitment**

The rural fire departments in Lincoln County are predominantly dependent on volunteer firefighters. Each district spends a considerable amount of time and resources training and equipping each volunteer, with the hope that they will continue to volunteer their services to the department for at least several years. One problem that all volunteer-based departments
encounter is the diminishing number of new recruits. Concurrent with the rise in population and increase in the number of homes built in high risk areas, the number of capable volunteers has gone down. In particular, many departments have difficulty maintaining volunteers available during regular work day hours (8am to 5pm).

Public Wildfire Awareness

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

Developing a mechanism to increase public awareness regarding wildfire risks and promoting “do it yourself” mitigation actions is a primary goal of the CWPP planning committee as well as many of the individual organizations participating on the committee.

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Water Resources

Even though water is fairly abundant in Lincoln County, access to this resource for fire suppression is not always available. Several fire districts involved in this planning process indicated the need to develop additional water resources in multiple rural areas. Developing water supply resources such as cisterns, dry hydrants, drafting sites, and/or dipping locations ahead of an incident is considered a force multiplier and can be critical for successful suppression of fires. Pre-developed water resources can be strategically located to cut refilling turnaround times in half or more, which saves valuable time for both structural and wildland fire suppression efforts.

The CWPP planning committee has identified inventorying and mapping of existing water resources as well as the development of new resources as a priority action item in this document.

Evacuation Route Planning

There are several main highways that serve as evacuation and emergency routes in Lincoln County. Additionally, many of the secondary roads in the area often serve this purpose. Due to the rural nature of much of the county and current development patterns, many of the emergency service organizations are also aware of forest routes that may provide an alternative access point into an area or could serve as a potential evacuation route in the event that a primary route is disabled or blocked. These alternative routes are not currently mapped or officially recognized for this purpose; thus, there are no agreements with landowners for their use or maintenance. Often, well-known forest routes are gated by the landowners without notice or not maintained for extended periods. Reliance on these alternative routes should be recognized and agreements should be formed with the appropriated landowners to ensure their availability during emergency events.
The CWPP planning committee has identified and mapped several forest routes that are known to provide alternative access into specific areas. The committee recommends that agreements be formed with the appropriate landowners to ensure these routes are open for this use and maintained periodically.

Figure 5.1. Emergency Access Routes Map.
Homeowner’s Insurance in the WUI

The majority of this section is excerpted from “The Role of Homeowner Insurance in the Wildland/Urban Interface” written by James C. Smalley.28

First, understanding and applying Firewise mitigation on private property is the responsibility of the property owner. A homeowner’s lack of attention to hazardous conditions in a wildfire area (or other hazardous location) should be no one’s responsibility except that homeowner. If the expectancy is that fire fighters will arrive in sufficient time and number with a sufficient quantity of hose, water, and equipment to protect one’s structure when as many as 100 or more structures are burning, the interface resident would be well advised to understand how the management procedures and resources are best deployed during widespread interface fires. The use of fire fighters, who are professionally trained to perform specific duties of suppression and rescue during a wide range of emergencies, should not be expected to run around every house in a subdivision of hundreds of houses moving or removing combustible brooms, lawn furniture, firewood, and other materials that would reduce the ignition potential “just in time” before the flames or firebrands reach the house.

Second, the widespread notion that financial incentives of reduced premiums will encourage interface homeowners to apply Firewise mitigation measures voluntarily is weak. The assumption that premium savings may be the key to encouraging change prove false when, in reality, the savings may be insignificant or even non-existent. As an example of how this assumption is faulty, assume that an insurance company agreed to provide a 50% reduction in the individual fire insurance for replacing an aging wood roof with a new non-combustible one. The fire insurance on the house in question may be as little $80.00 per year, since most of the premium paid by the homeowner covers liability and replacement values of structural components. A new noncombustible roof may cost $6,000. So with a 50% reduction ($40.00 per year), the cost of the new roof will be recovered in a mere 150 years! Therefore, the homeowner finds that the roof will need yet another replacement long before any significant payback on the new roof occurs.

To further illustrate the point, property insurance is based on replacement values of the home (or its parts), and the premiums might actually increase to cover more expensive building materials or assemblies of the roof. Even if the highly anticipated premium reduction were significant enough to encourage structural changes, the increased value of the home would not likely escape the notice of tax assessors and the resulting increase in local property taxes could exceed any premium reduction.

Third, insurance companies may drop or refuse to write policies based on perceived risk. Of this aspect, there are two possibilities. One is that companies may not write policies based on the location of the property. If the company has data to prove its case, they may well succeed in excluding entire areas or portions of areas from their potential coverage. Otherwise, the practice may be looked upon as red-lining, an illegal practice that has historically been used to reduce the insured risk due to socio-economic factors and not actuarial data. The other possibility is that companies may choose not to renew current policies for dwellings within their risk class, as those policies expire. In that case, other insurance companies in a better position to accept more

risk would likely step in to write the policy. What if all the insurance companies in the state decided to discontinue writing homeowner policies in interface areas? In this case, state FAIR plans can offer insurance to the seemingly uninsurable. Even if insurance companies drop coverage because of location of the home (wildfire-prone area, earthquake zone, flood plain, etc.), many states have FAIR (Fair Access to Insurance Regulations) that will provide the homeowner with property insurance, at a much more expensive rate based on the risk and probability of loss. The irony is that the FAIR plans are funded by the insurance companies that have been approved to do business in the state.

For the insurance companies, the numbers and frequency of losses are not big enough to provide valid data for analysis (mathematical probability and loss expectations), especially in large areas in which many properties are insured by many companies. When one company does bear the risk of losing every home in an area, the risks and subsequent losses are shared by all the customers. In some cases, individual premium increases may never be applied or be insignificant (fractions of pennies on each dollar of insurance).

Each insurance company offering coverage must have each product approved by the state’s insurance commission. If a company sought higher premiums for residences in wildfire prone areas (or conversely, lower rates for those who installed mitigation), the process of establishing possible rates and mathematically “testing” those rates (internal process to the company), proposing new individual rates based on zoning, and getting those new rates approved by the state is a daunting process for a savings that may never materialize for the company. In addition, agents and underwriters would be required to perform much more background and inspection work for individual policies, thus writing fewer policies each year. Either case results in financial impacts to the company.

Several states are now making efforts to establish a standard for “actual cash value” and to clarify questions like: Is actual cash value and market value the same amount? What about depreciation of the lost or damaged item? What gets depreciated? Can labor and overhead along with the cost of materials be included? What else might be included? Following precedents established in recent court cases dealing with insurance settlements, several state insurance commissions have begun to hone the definition of “actual cash value” and may require depreciable items to be included in the provisions of policies. The final definition on this issue may mean that the homeowner receives less than anticipated or needed to replace the home and contents.

Once the role of insurance (and how it works) is understood and accepted by interface homeowners, residents, and fire officials, we can begin to focus less on the hope of substantial premium incentives and more on the promise of loss reduction by preventing the ignition of homes in the first place. And, the most effective way to prevent ignition is for the resident to assume their part of managing the wildfire risks around their homes and to join with their neighbors in mitigating community hazards through active Firewise® Communities programs in cooperation with supportive fire agencies.

**Past Land Use**

Residents and policy makers of Lincoln County should recognize certain factors that exist today, that the absence of which would lead to increased risk of wildland fires in Lincoln County. The items listed below should be acknowledged and recognized for their contributions to the reduction of wildland fire risks:
**Forest Management** has a significant impact on the fuel composition and structure in Lincoln County. The forest management programs of the Oregon Department of Forestry and numerous industrial forestland companies in the region have led to some reduction of wildland fuels where they are closest to homes and infrastructure; however, there is significant room for growth in these organizations’ fuels reduction programs. Furthermore, forests are dynamic systems that will never be completely free from risk. Managed stands will need repeated treatments to reduce the risk to acceptable levels in the long term.

**Agriculture** is a considerable component of Lincoln County’s economy. Much of the interface area is made up of a mosaic of agricultural crops and pasturelands. The original conversion of these lands to agriculture from forestland was targeted at the most productive soils and juxtaposition to water. Many of these ecosystems were consequently at some of the highest risk to wildland fires because biomass accumulations increased in these productive landscapes. The result today is that much of the landscape historically prone to frequent fires has been converted to agriculture, which is at a much lower risk than prior to its conversion. The preservation of a viable agricultural economy in Lincoln County is integral to the continued management of wildfire risk in this region.

**Watersheds**

Many of the watersheds in Lincoln County are intensively studied and managed for their water resource both as potable water for residents and for fish and other riparian habitat. In most cases, wildland fire and adaptive forestry are not being considered as an effective tool for managing the watershed resource.

A stand replacing wildland fire within a watershed that is actively supplying potable water to a community or providing critical habitat for fish could be devastating. Watersheds in Lincoln County should be evaluated for their wildland fire potential and resiliency to fire. These areas should be managed in a way that would allow a fire to burn through the vegetation, but not destroy the ecosystem.

The CWPP planning committee has identified the development of wildland-fire specific management plans as action items for several critical watersheds in Lincoln County.
Current Wildfire Mitigation Activities

Oregon Department of Forestry

The Oregon Department of Forestry (ODF) is an active member of the Lincoln County Fire Defense Board and assists local fire departments through mutual aid agreements and by providing wildland firefighting training. Trainees can obtain their wildland fire training documentation and attend extensive workshops combining elements of structural and wildland firefighting, defending homes, and providing operations experience.

ODF has been involved with emergency managers to provide support during non-fire events and, for years, ODF has worked with industrial partners (industrial timber companies) to share equipment in the case of extremely large fires.

Furthermore, ODF implements and enforces an Industrial Fire Precaution Level (IFPL) system for all commercial forestlands. The IFPL is a four level system:

Level 1 - Fire Season is declared. Operators/loggers are required to have firefighting equipment on site; conduct fire watches after completing operations for the day; and take some preventative measures.

Level 2 - Partial “Hootowl” is declared, which requires the shut down of some activities at 1pm.

Level 3 - Partial Shutdown is declared, which restricts some activities and nearly all other activities are curtailed.

Level 4 - General Shutdown is declared, which restricts all activities.

ODF also implements three levels of closures that apply to public and non-industrial activities.

Regulated Use Closure - Regulated use closures do not restrict access, but does restrict certain activities. Affected lands will often be marked with signs along with instructions and prevention reminders. Common restrictions include: smoking, campfires, non-industrial use of chainsaws, use of motor vehicles, and fireworks.

Permit Closure - When fire danger increases, a permit closure may be announced. Permit closures require people, including landowners, to obtain permits before entering designated forest lands.

Absolute Closure - This closure prohibits all use of forested areas within a designated area. All forms of travel and all recreational activities are prohibited during an absolute closure.

Siuslaw National Forest

The Siuslaw National Forest also implements and enforces the IFPL system in coordination with the Oregon Department of Forestry as well as fire restrictions based on fire indices on all land managed by the Forest Service. The Siuslaw National Forest is also involved in fire prevention education programs for school groups and the general public.

Lincoln County Fire Defense Board

The Lincoln County Fire Defense Board is comprised of all the local fire chiefs within the county and also includes ex-officio representatives from the State Fire Marshal’s Office and the
Oregon Department of Forestry. Pursuant to the Oregon Fire Service Mobilization Plan, the Fire Defense Board is charged with the following responsibilities:

- Develop a fire service plan with provisions permitting local departments to respond with mutual aid forces upon request of other local departments in the county.
- Administer the State Fire Mobilization Plan within the county.
- Maintain response procedures for alert, transfer, and dispatch of firefighting equipment and personnel.
- Maintain liaison with other agencies capable of augmenting firefighting resources.
- Maintain inventories of firefighting equipment in the county.
- Develop dispatch plans for mobilization requests and conduct exercises as necessary to ensure efficient operations.
- Develop expedient procedures for providing and dispatching incident command overhead teams and logistical support.
- Hold regular meetings.

The Lincoln County Fire Defense Board meets regularly with representatives from a number of other agencies in the County to coordinate prevention and response activities and issues. Those agencies/individuals include Lincoln County Community Development Department, Lincoln County Sheriff’s Office, and Corvallis Regional 911 Communication Center.

**Oregon State University Extension**

The Lincoln County office of the OSU Extension Service helps reduce the risk of wildfires in Lincoln County by offering a variety of educational programs and materials to Lincoln County citizens. Citizens can access OSU and other publications on such topics as Firewise landscaping, fire prevention, and fuels management via the office in Newport or via their website at [http://extension.oregonstate.edu/lincoln/](http://extension.oregonstate.edu/lincoln/). In addition, OSU Extension provides a free newsletter 6 times per year, which gives additional information, through articles written by OSU Extension agents and others. Issues during the spring and summer usually include articles pertaining to fire on rural properties. OSU volunteer training for its Master Gardener and Master Woodland Manager volunteer programs includes information that volunteers in turn use during their volunteer service activities to show other citizens how to reduce the risk of wildfires.

Under the direction of the OSU Lincoln County Extension Service, a Firewise Board will be appointed to help guide the development and delivery of educational events throughout Lincoln County. The Board will be made up of OSU College of Forestry personnel, Oregon Department of Forestry personnel, rural fire districts personnel, and private landowners. These educational events will result in the following outcomes:

1. A reduced risk of a catastrophic wildfire occurring in Lincoln County,
2. Development of locally relevant materials for use in educating Lincoln County WUI landowners about best management practices for wildfire prevention,
3. Empowered, trained volunteers who can help educate neighbors in their communities about best management practices for reducing the risk of wildfire on their properties, and,
4. A collection of local properties in the WUI zone that can be used as demonstration sites for teaching interface landowners about best management practices for wildfire prevention.

The Lincoln County Firewise Board will ask the Board of Commissioners to designate a Firewise Day in Lincoln County. Educational events and activities will be planned for the Firewise Day. Location, topics, and activities will be determined by the Lincoln County Firewise Board.

Public Education Programs

Many of the county’s fire departments and agencies are actively working on public education and homeowner responsibility by visiting neighborhoods and schools to explain fire hazards to citizens. Often, they hand deliver informative brochures and encourage homeowners to have their driveways clearly marked with their addresses to ensure more rapid and accurate response to calls and better access. The Firewise Communities program is also being utilized to help fire response organizations communicate fire hazards to the public.
Chapter 6

Mitigation Recommendations

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

The land management agencies in Lincoln County, including the Oregon Department of Forestry, are participants in the planning process and have contributed to this plan’s development. Where available, their schedule of land treatments has been considered in the planning process to improve the correlation between their identified planning efforts and the efforts of Lincoln County.

Lincoln County encourages the building of disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project’s design or program.

All risk assessments were made based on the conditions existing during 2009. Therefore, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the county’s resources are not static. It will be necessary to fine-tune this plan’s recommendations regularly to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

Maintenance and Monitoring

As part of the policy of Lincoln County, the Community Wildfire Protection Plan will be reviewed at least annually at special meetings of the planning committee, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. The Lincoln County Department of Planning and Zoning (or other designee of the Lincoln County Commissioners) is responsible for scheduling, publicizing, and leading the review meetings. During these meetings, participating jurisdictions will report on their respective projects and identify needed changes and updates to the existing plan. Maintenance of the plan will be detailed at these meetings, documented, and attached to the formal plan as an amendment. Complete re-evaluation of the plan will be made every five years. The five year review will include updates to the GIS data and mapping, re-evaluation of other Lincoln County planning documents, re-evaluation of wildfire extent and ignition profiles, and revision of community assessments.

Prioritization of Mitigation Activities

The action items recommended in this chapter were prioritized through a group discussion and voting process. The action items in Tables 6.1 – 6.4 are ranked as “High”, “Moderate”, or
“Low” priorities for Lincoln County as a whole. The CWPP committee does not want to restrict funding to only those projects that are high priority because what may be a high priority for a specific community may not be a high priority at the county level. Regardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying criteria is a necessity for a functional mitigation program at the county and community level.

The proposed treatment areas listed in Table 6.5 were sorted by fire district or responsible agency and ranked on a 1, 2, 3 . . . hierarchical scale by the committee. This method results in a set of highest priority project recommendations for each jurisdiction.

**Wildfire Mitigation Recommendations**

As part of the implementation of wildfire mitigation activities in Lincoln County, a variety of management tools may be used. Management tools include but are not limited to the following:

- Homeowner and landowner education
- Policy changes for structures and infrastructure in the wildland-urban interface
- Home site defensible zone through fuels modification
- Community defensible zone through fuels alteration
- Access improvements
- Emergency response enhancements (training, equipment, locating new fire stations, new fire districts, pre-planning)
- Regional land management recommendations for private, state, and federal landowners

Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of all mitigation decisions. Maintaining private property rights will also be a guiding principle in mitigation decision-making, and all planned programs will be voluntary and incentive-based.
Wildfire mitigation efforts must be supported by a set of policies and regulations at the county level that maintain a solid foundation for safety and consistency. The recommendations enumerated here serve that purpose. Because these items are regulatory in nature, they will not necessarily be accompanied by cost estimates. These action items are policy-related and therefore are recommendations to the appropriate elected officials; debate and formulation of alternatives will serve to make these recommendations suitable and appropriate.

### Table 6.1. Recommendations for Policy and Planning-Related Issues.

<table>
<thead>
<tr>
<th>Action Item</th>
<th>Goals Addressed (see page 4-5)</th>
<th>Responsible Organization</th>
<th>Timeline</th>
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<tbody>
<tr>
<td>6.1.a: Incorporate the Lincoln County Community Wildfire Protection Plan as a supplement to the Lincoln County Natural Hazards Mitigation Plan.</td>
<td>CWPP Goal #2, 3, 4, 5, 10, 12, 13</td>
<td>Lead: Lincoln County Planning &amp; Development Support: Lincoln County CWPP Planning Committee</td>
<td>2011</td>
</tr>
<tr>
<td>6.1.b: Continue pre-planning emergency evacuation routes with specifications for varying conditions.</td>
<td>CWPP Goal #2, 3</td>
<td>Lead: Lincoln County Sheriff’s Office Support: Lincoln County Fire Defense Board and Lincoln County Emergency Management</td>
<td>Ongoing</td>
</tr>
<tr>
<td>6.1.c: Proactively support alternative fuels reduction techniques such as, but not limited to, prescribed burning and chipping, as effective tools to reduce hazardous fuels in the WUI within applicable regulations.</td>
<td>CWPP Goal #2, 3, 4, 10</td>
<td>Lead: Lincoln County CWPP Planning Committee Support: Oregon Department of Forestry</td>
<td>2010</td>
</tr>
<tr>
<td>6.1.d: Evaluate the development of a program that will assist landowners with the certification, signage, and maintenance of private bridges and improvements to existing substandard driveways.</td>
<td>CWPP Goal #13</td>
<td>Lead: Lincoln County Fire Defense Board Support: Lincoln County CWPP Planning Committee and Lincoln County Public Works</td>
<td>2010</td>
</tr>
<tr>
<td>6.1.e: Consider establishment of a central location and part-time designated staff for coordination of all tasks associated with this CWPP.</td>
<td>CWPP Goals #5, 6, 13</td>
<td>Lead: Oregon Department of Forestry Support: Lincoln County Fire Defense Board and Lincoln County Emergency Management</td>
<td>2011</td>
</tr>
<tr>
<td>6.1.f: Prepare for wildfire events in high risk areas by developing area-specific “Response Plans” to include participation by all affected jurisdictions and landowners.</td>
<td>CWPP Goal #2, 4, 6, 8, 9, 12</td>
<td>Lead: Lincoln County Fire Service Organizations Support: Oregon Department of Forestry and landowners</td>
<td>Ongoing</td>
</tr>
<tr>
<td>6.1.g: Work with the State of Oregon to review, and where appropriate, resolve conflicting standards in the Urban Wildland Interface Building Code and the Oregon Building Code.</td>
<td>CWPP Goal #4, 5, 10</td>
<td>Lead: Lincoln County Fire Defense Board Support: Lincoln County Department of Planning and Zoning</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
Fire Prevention and Education Efforts

Many of the recommendations in this section involve education and increasing wildfire awareness among Lincoln County residents. These recommendations stem from a variety of factors including items that became obvious during the analysis of discussions at public meetings and observations about choices made by residents living in the wildland-urban interface. Members of the planning committee indicated that the general public had a general lack of awareness of the wildland fire risk and an inability to identify specific risk factors.

<table>
<thead>
<tr>
<th>Action Item</th>
<th>Goals Addressed (see page 4-5)</th>
<th>Responsible Organization</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2.a: Implementation of youth and adult wildfire educational programs.</td>
<td>CWPP Goal #6, 12</td>
<td>Lead: Lincoln County Fire Defense Board</td>
<td>2010</td>
</tr>
<tr>
<td></td>
<td>Committee Priority: Moderate</td>
<td>Support: OSU Extension and Lincoln County CWPP Planning Committee</td>
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</tr>
<tr>
<td>6.2.b: Wildfire risk assessments of homes in the wildland-urban interface.</td>
<td>CWPP Goal #1, 2, 4, 7</td>
<td>Lead: Lincoln County Fire Service Organizations</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Committee Priority: High</td>
<td>Support: Oregon Department of Forestry and volunteers</td>
<td></td>
</tr>
<tr>
<td>6.2.c: Implementation of home site defensible space treatments.</td>
<td>CWPP Goal #2, 4, 7, 9</td>
<td>Lead: Landowners, Homeowner’s Associations, and Lincoln County Fire Service Organizations</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Committee Priority: High</td>
<td>Support: Oregon Department of Forestry</td>
<td></td>
</tr>
<tr>
<td>6.2.d: Implementation of community defensible zone treatments in rural subdivisions or housing clusters.</td>
<td>CWPP Goal #2, 4, 7, 9</td>
<td>Lead: Landowners, Homeowner’s Associations, and Lincoln County Fire Service Organizations</td>
<td>Ongoing</td>
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<td></td>
<td>Committee Priority: High</td>
<td>Support: Oregon Department of Forestry</td>
<td></td>
</tr>
<tr>
<td>6.2.e: Work with area homeowner’s associations to foster a cooperative approach to fire protection and awareness and identify mitigation needs.</td>
<td>CWPP Goal #2, 4, 6, 7, 9, 12</td>
<td>Lead: Landowners, Homeowner’s Associations, and Lincoln County Fire Service Organizations</td>
<td>Ongoing</td>
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<tr>
<td></td>
<td>Committee Priority: High</td>
<td>Support: Oregon Department of Forestry, Lincoln County Emergency Management and Planning &amp; Development, and OSU Extension</td>
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<tr>
<td>Action Item</td>
<td>Goals Addressed (see page 4-5)</td>
<td>Responsible Organization</td>
<td>Timeline</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------</td>
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</tr>
<tr>
<td>6.2.f: Work with OSU Extension to offer Firewise landscaping clinics to assist property owners in maintaining fire-resistant defensible space around structures.</td>
<td>CWPP Goal #4, 6, 9, 12</td>
<td>Lead: OSU Extension and Master Gardeners</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Committee Priority: High</td>
<td>Support: Lincoln County Fire Defense Board</td>
<td></td>
</tr>
<tr>
<td>6.2.g: Distribute Firewise-type educational brochures with building permit applications.</td>
<td>CWPP Goal #2, 4, 6, 9, 12</td>
<td>Lead: Lincoln County Planning &amp; Development</td>
<td>6 months</td>
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<td>Committee Priority: High</td>
<td>Support: Lincoln County Fire Defense Board</td>
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</tr>
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</table>
Infrastructure Enhancements

Critical infrastructure refers to the communications, transportation (road and rail networks), energy transport supply systems (gas and power lines), and water supply that service a region or a surrounding area. All of these components are important to Oregon and to Lincoln County specifically. These networks are, by definition, a part of the wildland-urban interface in the protection of people, structures, infrastructure, and unique ecosystems. Without supporting infrastructure, a community’s structures may be protected, but the economy and way of life lost.

<table>
<thead>
<tr>
<th>Action Item</th>
<th>Goals Addressed (see page 4-5)</th>
<th>Responsible Organization</th>
<th>Timeline</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3.a: Develop inventory, map, rate, and sign all private bridges and evacuation routes countywide.</td>
<td>CWPP Goal #13</td>
<td>Lead: Lincoln County Emergency Management and Lincoln County GIS Support: Lincoln County Fire Service Organizations and landowners</td>
<td>Ongoing</td>
<td>$25,000</td>
</tr>
<tr>
<td></td>
<td>Committee Priority: High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3.b: Educate the public on emergency evacuation procedures and locations of approved routes.</td>
<td>CWPP Goal #3, 6, 13</td>
<td>Lead: Lincoln County Emergency Management Support: Lincoln County CWPP Planning Committee and Lincoln County Fire Defense Board</td>
<td>Ongoing</td>
<td>$5,000</td>
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<td></td>
<td>Committee Priority: Moderate</td>
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<td></td>
</tr>
<tr>
<td>6.3.c: Continue implementing fuels reduction program along Bonneville Power Administration power line corridor.</td>
<td>CWPP Goal #2, 4</td>
<td>Lead: Bonneville Power Administration Support: Lincoln County Fire Defense Board</td>
<td>Ongoing</td>
<td>$25,000 (per year)</td>
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<tr>
<td></td>
<td>Committee Priority: Low</td>
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<td></td>
</tr>
<tr>
<td>6.3.d: Coordinate with private landowners to ensure the use of key boxes on gates to improve emergency response times.</td>
<td>CWPP Goal #6</td>
<td>Lead: Fire Service Organizations and landowners</td>
<td>Ongoing</td>
<td>$15,000 (per year)</td>
</tr>
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<td></td>
<td>Committee Priority: Moderate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3.e: Map, develop GIS database, and provide signage for onsite water sources such as hydrants, underground storage tanks, and drafting or dipping sites on all ownerships across the county.</td>
<td>CWPP Goal #4, 8, 13</td>
<td>Lead: Lincoln County GIS Support: Lincoln County Fire Defense Board and landowners</td>
<td>Ongoing</td>
<td>$10,000</td>
</tr>
<tr>
<td></td>
<td>Committee Priority: Moderate</td>
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<tr>
<td>Action Item</td>
<td>Goals Addressed (see page 4-5)</td>
<td>Responsible Organization</td>
<td>Timeline</td>
<td>Estimated Cost</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------</td>
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</tr>
</tbody>
</table>
| 6.3.f: Develop wildfire protection-specific management plan, including a fuels reduction program for municipal watersheds and adjacent properties. | CWPP Goal #1, 2, 3, 4, 10, 13 | Lead: Various local watershed councils and landowners  
Support: U.S. Forest Service and Oregon Department of Forestry | 2012 | $20,000 (each) |
| Committee Priority: | Moderate | | | |
| 6.3.g: Establishment and maintenance of access roads to keep up with growth in WUI areas. | CWPP Goal #3, 4, 5, 7, 13 | Lead: Lincoln County Road Department  
Support: Cities and Fire Service Organizations | Ongoing | TBD |
| Committee Priority: | High | | | |
| 6.3.h: Obtain funding for an additional Oregon Department of Forestry repeater for the coastal strip, possibly located on existing infrastructure at the Table Top or Cape Fowlweather communication sites. | CWPP Goal #3, 4, 10, 11, 15 | Lead: Oregon Department of Forestry  
Support: Cities and Fire Service Organizations | Ongoing | $15,000 |
| Committee Priority: | High | | | |
| 6.3.i: Obtain funding for two Automated Smoke Detection Cameras to be mounted on existing structures in the north and south regions of the West Oregon District. | CWPP Goal #3, 4, 10, 11, 15 | Lead: Oregon Department of Forestry  
Support: Landowners | 2012 | $60,000 |
| Committee Priority: | High | | | |
| 6.3.j: Contact and develop agreements with landowners for the use of identified alternative emergency access routes through forested areas. | CWPP Goal #3, 8, 12, 13 | Lead: Lincoln County Emergency Management  
Support: Lincoln County Fire Defense Board and landowners | Ongoing | Annual maintenance costs |
Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland firefighting districts in Lincoln County. All of the needs identified by the districts are in line with increasing the ability to respond to emergencies and are fully supported by the planning committee.

The implementation of each item will rely on either the isolated efforts of the rural fire districts or a concerted effort by the Lincoln County Fire Defense Board to achieve equitable enhancements across all of the districts. Given historic trends, individual departments competing against neighboring departments for grant monies and equipment will not necessarily achieve countywide equity. However, the Oregon Department of Forestry may be an organization uniquely suited to work with all of the districts in Lincoln County and adjacent counties to assist in the prioritization of needs across district and even county lines. Once prioritized, the Lincoln County Fire Defense Board is in a position to assist these districts with identifying, competing for, and obtaining grants and equipment to meet these needs.

<table>
<thead>
<tr>
<th>Action Item</th>
<th>Goals Addressed (see page 4)</th>
<th>Responsible Organization</th>
<th>Timeline</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4.a: Develop additional water resource sites to supplement fire suppression efforts throughout Lincoln County (see Proposed Project map for locations).</td>
<td>CWPP Goal #2, 4, 13</td>
<td>Committee Priority: High</td>
<td>Lead: Lincoln County Fire Defense Board and landowners</td>
<td>2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Support: Fire Service Organizations</td>
<td></td>
</tr>
<tr>
<td>6.4.b: Improve departmental capabilities by establishing a program to increase the retention and recruitment of volunteer firefighters.</td>
<td>CWPP Goal #3, 11</td>
<td>Committee Priority: High</td>
<td>Lead: Lincoln County Fire Service Organizations</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Support: Lincoln County Fire Defense Board</td>
<td></td>
</tr>
<tr>
<td>6.4.c: Update personal protective equipment for all fire districts in Lincoln County.</td>
<td>CWPP Goal #3, 11</td>
<td>Committee Priority: High</td>
<td>Lead: Fire Service Organizations</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Support: Lincoln County Fire Defense Board</td>
<td></td>
</tr>
<tr>
<td>6.4.d: Obtain additional funding for training and necessary training equipment and supplies for all fire districts in Lincoln County.</td>
<td>CWPP Goal #11</td>
<td>Committee Priority: High</td>
<td>Lead: Lincoln County Fire Service Organizations</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Support: Lincoln County Fire Defense Board and Oregon Department of Forestry</td>
<td></td>
</tr>
<tr>
<td>6.4.e: Contact local residents and evaluate annexation of the Thornton Creek area into the Toledo Volunteer Fire Department.</td>
<td>CWPP Goal #15</td>
<td>Committee Priority: Low</td>
<td>Lead: Toledo Volunteer Fire Department</td>
<td>2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Support: Oregon Department of Forestry and local landowners</td>
<td></td>
</tr>
</tbody>
</table>
### Table 6.4. Recommendations for Resource and Capability Enhancements.

<table>
<thead>
<tr>
<th>Action Item</th>
<th>Goals Addressed (see page 4)</th>
<th>Responsible Organization</th>
<th>Timeline</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4.f: Obtain funding to develop a more rigorous wildland fire training program available to all Lincoln County fire service organizations through the Central Oregon Coast Training Officers Association.</td>
<td>CWPP Goal #3, 11</td>
<td>Lead: Central Oregon Coast Training Officers Association and Lincoln County Fire Defense Board</td>
<td>Ongoing</td>
<td>$10,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Committee Priority: High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4.g: Support efforts to obtain funding to construct a new fire station in the eastern region of the Toledo Rural Fire Protection District.</td>
<td>CWPP Goal #2, 4, 13</td>
<td>Lead: Toledo Rural Fire Protection District</td>
<td>2015</td>
<td>$350,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Committee Priority: Moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4.h: Conduct a feasibility study of the Panther Creek private water system to determine and improve fire suppression supply capability, water capacity, recovery, and hydrant distribution.</td>
<td>CWPP Goal #4, 11, 12, 13, 15</td>
<td>Lead: North Lincoln Fire and Rescue District #1</td>
<td>2012</td>
<td>$15,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Committee Priority: Moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4.i: Conduct a feasibility study of the Slick Rock private water system in order to reestablish fire hydrants on the existing domestic water system.</td>
<td>CWPP Goal #4, 11, 12, 13, 15</td>
<td>Lead: North Lincoln Fire and Rescue District #1</td>
<td>2012</td>
<td>$15,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Committee Priority: Moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4.j: Continue to work with the Cascade Head Ranch District Improvement Company to upgrade the water storage capacity for the Cascade Head Ranch development area.</td>
<td>CWPP Goal #4, 11, 12, 13, 15</td>
<td>Lead: Cascade Head Ranch District Improvement Company</td>
<td>2012</td>
<td>$20,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Committee Priority: Moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4.k: Develop a working partnership with the Tillamook County CWPP planning group to address cross-border wildland fire prevention issues.</td>
<td>CWPP Goal #4, 11, 12, 13, 15</td>
<td>Lead: Lincoln County Fire Defense Board</td>
<td>2011</td>
<td>$ -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Committee Priority: High</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Proposed Project Areas

The following project areas were identified by the CWPP planning committee as having multiple factors contributing to the potential wildfire risk to residents, homes, infrastructure, and the ecosystem. Treatments within the project areas will be site specific, but will likely include homeowner education, creation of a wildfire defensible space around structures, fuels reduction, and access corridor improvements. All work on private property will be performed with consent of, and in cooperation with the property owners. Specific site conditions may call for other types of fuels reduction and fire mitigation techniques as well. Defensible space projects may include, but are not limited to commercial or precommercial thinning, pruning, brush removal, chipping, prescribed burning, installation of greenbelts or shaded fuel breaks, and general forest health improvements.

It should be noted that identified project areas have not been field-verified; thus, the boundaries and specific prescriptions for the actual project area may be revised upon further research and development of the project.
<table>
<thead>
<tr>
<th>Id Number</th>
<th>Fire District</th>
<th>Project Name</th>
<th>Project Type</th>
<th># of Acres</th>
<th># of Structures</th>
<th>Priority Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Central Oregon</td>
<td>Eckman Lake</td>
<td>Access Improvement to Water Resource</td>
<td>-</td>
<td>-</td>
<td>4</td>
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<td>2</td>
<td>Central Oregon</td>
<td>USFS 5360 Road</td>
<td>Access Improvement</td>
<td>-</td>
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<td>Central Oregon</td>
<td>Canal Creek Road</td>
<td>Access Improvement</td>
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<td>-</td>
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<td>4</td>
<td>Central Oregon</td>
<td>Five Rivers Road</td>
<td>Access Improvement</td>
<td>-</td>
<td>-</td>
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<tr>
<td>5</td>
<td>Central Oregon</td>
<td>Highway 34, MP 2-21</td>
<td>Develop Water Resource, Defensible Space</td>
<td>1,359</td>
<td>509</td>
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<td>6</td>
<td>Depoe Bay RFPD</td>
<td>Whale Cove</td>
<td>Defensible Space, Access Improvement</td>
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<td>348</td>
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<td>7</td>
<td>Depoe Bay RFPD</td>
<td>Salishan Hills</td>
<td>Access Improvement, Fuels Treatment</td>
<td>207</td>
<td>165</td>
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<td>8</td>
<td>Depoe Bay RFPD</td>
<td>Seagrove Subdivision</td>
<td>Access Improvement, Fuels Treatment</td>
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<td>9</td>
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<td>Inn At Otter Crest</td>
<td>Water System, Defensible Space, Access Improvement</td>
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<td>13</td>
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<td>Three Rocks Road</td>
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<td>Panther Creek</td>
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<td>Slick Rock Road</td>
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<td>**Sitka Center Area</td>
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<td>18</td>
<td>North Lincoln</td>
<td>**Cascade Head Ranch Area</td>
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<td>19</td>
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<td>Otis Station Water Supply</td>
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<td>21</td>
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<td>22</td>
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<td>ODT Pond Improvement</td>
<td>Develop Water Resource</td>
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</table>
## Table 6.5. Proposed Project Areas.

<table>
<thead>
<tr>
<th>Id Number</th>
<th>Fire District</th>
<th>Project Name</th>
<th>Project Type</th>
<th># of Acres</th>
<th># of Structures</th>
<th>Priority Ranking</th>
</tr>
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<tbody>
<tr>
<td>23</td>
<td>ODF Protection</td>
<td>Communication Site S32-T8S-R9W</td>
<td>Access Improvement, Defensible Space</td>
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<tr>
<td>24</td>
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<td>Fisher Water Supply Hydrant</td>
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<td>25</td>
<td>ODF Protection</td>
<td>Harlan Pre-Plan</td>
<td>Develop Pre-Fire Plan</td>
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<td>Olalla Road</td>
<td>Fuels Reduction, Defensible Space</td>
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<td>92</td>
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<td>27</td>
<td>Toledo RFPD</td>
<td>Thornton Creek Road</td>
<td>Access Improvement, Fuels Reduction</td>
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<td>28</td>
<td>Toledo RFPD</td>
<td>Eddyville</td>
<td>New Fire Station</td>
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<td>USFS Protection</td>
<td>Table Mountain</td>
<td>Fuels Reduction</td>
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<td>Yachats RFPD</td>
<td>Highway 101</td>
<td>Defensible Space</td>
<td>3,430</td>
<td>3,301</td>
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</tbody>
</table>

*All Central Oregon Coast access improvement projects will be a joint effort with the Yachats Rural Fire Protection District.

*Projects are located in Tillamook County, but access and fire protection originate in Lincoln County.

The Oregon Department of Forestry, U.S. Fish and Wildlife Service, Bureau of Land Management, Siuslaw National Forest, Confederated Tribes of Siletz Indians, and/or individual fire protection districts may take the lead on implementation of many of these projects; however, project boundaries were purposely drawn without regard to land ownership in order to capture the full breadth of the potential wildland fire risk. Coordination and participation by numerous landowners will be required for the successful implementation of the identified projects.

The top projects in each SPA were given a priority ranking based on the recommendations of committee members.
Figure 6.1. Map of Proposed Projects
Regional Land Management Recommendations

Wildfires will continue to ignite and burn depending on the weather conditions and other factors enumerated earlier. However, active land management that modifies fuels, promotes healthy forestland conditions, and promotes the use of natural resources (consumptive and non-consumptive) will insure that these lands have value to society and the local region. The Oregon Department of Forestry, U.S. Fish and Wildlife Service, U.S. Forest Service, Bureau of Land Management, and industrial forestland owners, private forestland owners, and all agricultural landowners in the region should be encouraged to actively manage their wildland-urban interface lands in a manner consistent with reducing fuels and risks in this zone.

The following sections help identify where some of the land management agencies in Lincoln County have planned, current, or proposed fuel reduction projects. Knowing where agency projects are located can help other agencies prioritize their own fuels reduction projects. Simultaneous fuels reduction projects occurring on adjacent properties is not only encouraged, but this can also help cut down on costs.

Oregon Department of Forestry – West Oregon District

There are no planned fuels reduction activities on ODF managed forestlands, primarily due to the lack of adjacency to developed areas. ODF will be involved with coordination and implementation of other forest fuel reduction where appropriate.

U.S. Forest Service – Siuslaw National Forest

Most of the Siuslaw National Forest’s upcoming project areas in Lincoln County are associated with commercial thinning of plantations. A few project areas have also been identified to receive underburning and/or meadow burning as fuels reduction treatments. Slash from logging operations is typically treated via pile burning either at the landings or along key roads.

Confederated Tribes of Siletz Indians

There are no planned fuels reduction projects other than the reduction of residual fuels associated with logging operations. Logging slash is generally broadcast burned or piled and burned.
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Signature Pages

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

Lincoln County Board of Commissioners

BEFORE THE BOARD OF COMMISSIONERS
FOR LINCOLN COUNTY, OREGON

In the Matter of

Adoption of the Lincoln County Community Wildfire Protection Plan (LCCWPP)

WHEREAS the Lincoln County Board of Commissioners set into motion the development of a Community Wildfire Protection Plan using resources provided under Title III of P.L. 106-393, the Secure Rural Schools and Community Self-Determination Act of 2000 and a National Fire Plan grant for the Oregon Department of Forestry. The Plan was developed in 2009-10 by the Lincoln County Fire Defense Board, the Oregon Department of Forestry and the Lincoln County Department of Planning and Development with project facilitation and support provided by Northwest Management, Inc. and involving collaboration with all the rural fire protection districts in Lincoln County, the Confederated Tribes of Siletz Indians, the Oregon State Fire Marshall’s Office, the BLM and USFS, the OSU Extension Service, Forest Capital Partners and others concerned with wildfire protection and mitigation; and

WHEREAS the planning process included elements of public outreach and education through interaction of property owners, interested members of the public, and local wildfire specialists; and

Whereas the Lincoln County Community Wildfire Protection Planning (LCCWPP) process appropriate integrated elements of the National Fire Plan, the Healthy Forests Restoration Act, the Lincoln County Comprehensive Plan and implementing ordinances, and builds on the multijurisdictional Natural Hazards Mitigation Plan adopted by the County in 2009 that shall be incorporated as an element of that Plan;

RESOLUTION 10-23-06

Page 1 of 2

Office of Lincoln County Legal Counsel
225 West Olive Street, Room 110
Newport, Oregon 97365
(541) 265-4108
NOW, THEREFORE, THE BOARD HEREBY RESOLVES AND ORDERS

THAT:

1. The Lincoln County Community Wildfire Protection Plan (LCCWPP) is adopted this date. By this reference, the LCCWPP is incorporated herein as if fully set forth. The LCCWPP is also hereby incorporated as an element of the Lincoln County Natural Hazards Mitigation Plan.

2. The Board will support and facilitate the LCCWPP implementation as appropriate.

3. A copy of this Resolution be provided to the County Department of Planning and Development, County Emergency Services, Oregon Department of Forestry, the Lincoln County Fire Defense Board and other agency partners and participants in the planning process.

DATED: June 23, 2010

LINCOLN COUNTY BOARD OF COMMISSIONERS

BILL HALL, Chair

TERRY N. THOMPSON, Commissioner

DON LINDLY, Commissioner

RESOLUTION 10-23-606

Office of Lincoln County Legal Counsel
225 West Olive Street, Room 110
Newport, Oregon 97365
(541) 265-4108
Signatures of Participation by Lincoln County Fire Districts and Departments

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed.

By: Wm. Derek Clawson, Chief
Central Oregon Coast Fire and Rescue

Date: 6/17/10

By: Joshua L. Williams, Chief
Depoe Bay Rural Fire Protection District

Date: 6-17-2010

By: Don Lapof, Chief
Seal Rock Rural Fire Protection District

Date

By: Frankie Petrick, Chief
Yachats Rural Fire Protection District

Date: June 17, 2010

By: Rick Crook, Chief
Newport Fire Department and Rural Fire Protection District

Date

By: Will Ewing, Chief
Toledo Fire Department and Rural Fire Protection District

Date: June 17 - 2010

By: Dave Edwards, Chief
Siletz Rural Fire Protection District

Date
Signatures of Participation by other Lincoln County Entities

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed.

By:
Oregon Department of Forestry

By:
Oregon State University Extension Service

By:
General Manager
Confederated Tribes of Siletz Indians

By:
Siuslaw National Forest

By:
Oregon State Fire Marshal’s Office

By:
Tera King, Project Manager
Northwest Management, Inc.

Date
6-7-2010

Date
6/7/10

Date
6/7/10

Date

Date

June 4, 2010
This plan was developed by Northwest Management, Inc. under contract with Lincoln County. Funding for the project was provided by the Board of County Commissioners for Lincoln County and the Oregon Department of Forestry.

**Citation of this work:**
