
Socioeconomics

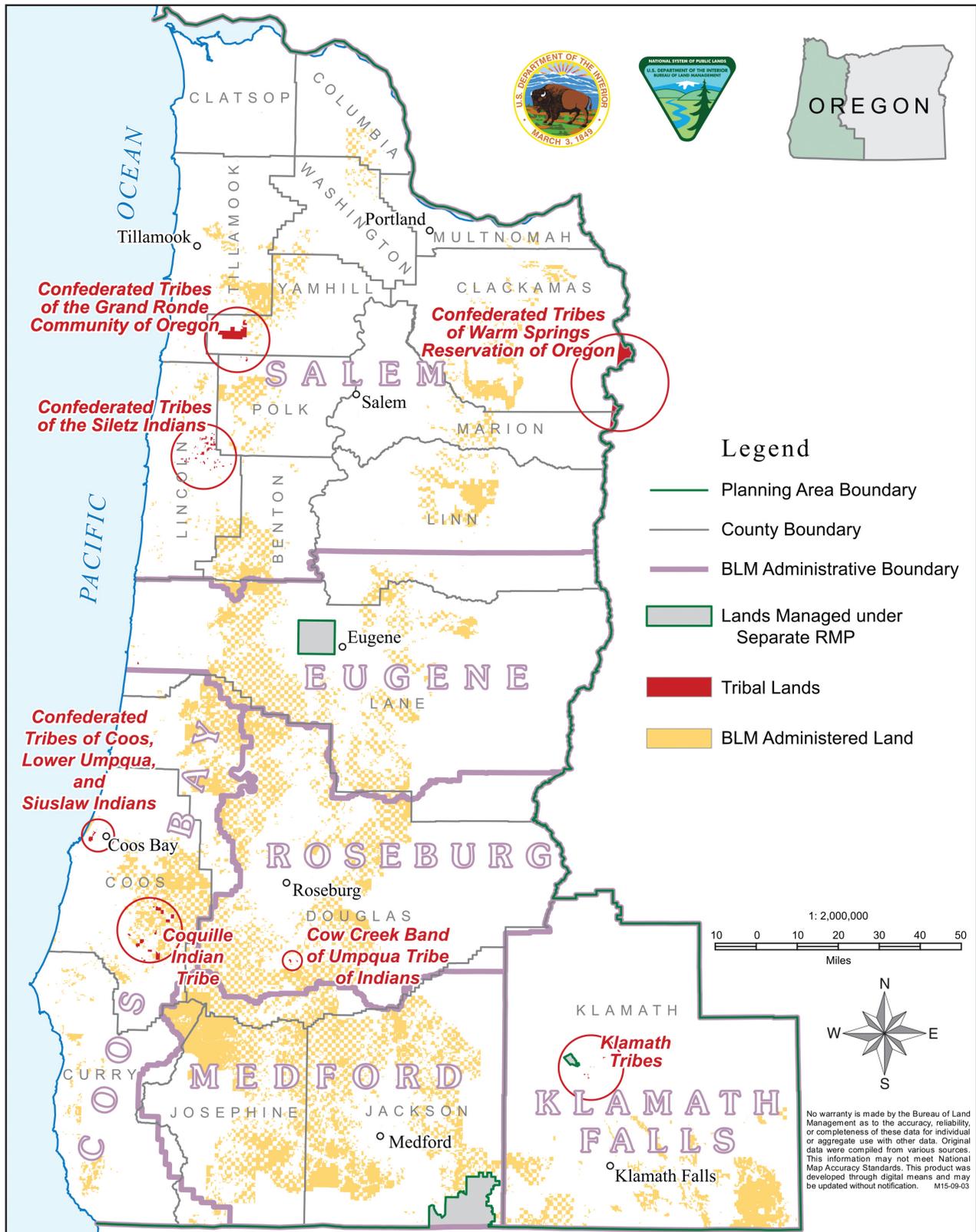
Background

The analysis of socioeconomic resources has two broad emphases: economic growth and stability; and social capacity and resiliency. To address these topics, the BLM assessed the value of goods and services derived from BLM-administered lands, economic activity in the planning area, county payments, economic stability, the capacity and resiliency of communities, and environmental justice. This section also describes the cost to the BLM to implement the alternatives and the Proposed RMP.

This section also presents an analysis of the cumulative effects on economic activity of past, present, and reasonably foreseeable future actions, including both land management on BLM-administered lands and non-BLM-administered lands, presenting the effects of alternatives and the Proposed RMP in relation to the broader economic context in western Oregon.

Geography and Population

The planning area contains 19 counties in western Oregon. For several BLM districts, the district boundaries are generally consistent with county boundaries, with most of the area of each county in one BLM district. The planning area also contains the lands of seven federally recognized Indian Tribes (**Map 3-5**).



Map 3-5: Counties, BLM Administrative Boundaries, and Tribal Lands within the Planning Area

As of 2012, the planning area's population was approximately 3.4 million or 88 percent of the State's total population (**Table 3-141**). The population of the 12 counties in the BLM's Salem District is almost 2.5 million, almost 75 percent of the planning area population. All of the counties in the planning area have experienced some level of population growth from 1990–2000 and from 2000–2012. However, only four counties' growth rates have been higher than the State of Oregon since 2000 (12 percent): Linn, Polk, Washington, and Yamhill. All of these are in the BLM's Salem District. Several counties have experienced very little recent growth (less than 2,600 people). These tend to be the more geographically isolated parts of the planning area: Clatsop, Tillamook, and Lincoln counties in the northwest; Curry and Coos counties in the southwest; and Klamath County in the southeast.

Table 3-141. Planning area population, 1990–2012

Geography	Population				Population Change, 1990–2012		Population Change, 2000–2012	
	1990	2000	2010	2012	Number	Percent	Number	Percent
Oregon	2,842,321	3,421,399	3,831,074	3,836,628	994,307	35%	415,229	12%
Planning Area	2,535,122	3,033,622	3,387,980	3,393,160	858,038	34%	359,538	12%
Benton County	70,811	78,153	85,579	85,501	14,690	21%	7,348	9%
Clackamas County	278,850	338,391	375,992	377,206	98,356	35%	38,815	11%
Clatsop County	33,301	35,630	37,039	37,068	3,767	11%	1,438	4%
Columbia County	37,557	43,560	49,351	49,317	11,760	31%	5,757	13%
Coos County	60,273	62,779	63,043	62,937	2,664	4%	158	0.3%
Curry County	19,327	21,137	22,364	22,344	3,017	16%	1,207	6%
Douglas County	94,649	100,399	107,667	107,391	12,742	13%	6,992	7%
Jackson County	146,389	181,269	203,206	203,613	57,224	39%	22,344	12%
Josephine County	62,649	75,726	82,713	82,636	19,987	32%	6,910	9%
Klamath County	57,702	63,775	66,380	66,350	8,648	15%	2,575	4%
Lane County	282,912	322,959	351,715	351,794	68,882	24%	28,835	9%
Lincoln County	38,889	44,479	46,034	45,992	7,103	18%	1,513	3%
Linn County	91,227	103,069	116,672	116,871	25,644	28%	13,802	13%
Marion County	228,483	284,834	315,335	315,391	86,908	38%	30,557	11%
Multnomah County	583,887	660,486	735,334	737,110	153,223	26%	76,624	12%
Polk County	49,541	62,380	75,403	75,448	25,907	52%	13,068	21%
Tillamook County	21,570	24,262	25,250	25,254	3,684	17%	992	4%
Washington County	311,554	445,342	529,710	531,818	220,264	71%	86,476	19%
Yamhill County	65,551	84,992	99,193	99,119	33,568	51%	14,127	17%
<i>Lands of Federally Recognized Tribes Within the Planning Area</i>								
Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians of Oregon (Coos County)	4	25	47	24	20	500%	-1	-4%
Confederated Tribes of Grand Ronde Community of Oregon (Yamhill County)	57	55	434	473	416	730%	418	760%
Confederated Tribes of Warm Springs Reservation of Oregon	3,076	3,314	4,012	3,960	884	29%	646	19%
Coquille Tribe of Oregon (Coos County)	See note	258	323	297	See note		39	15%
Confederated Tribes of the Siletz Reservation (Lincoln and Polk Counties)	5	308	506	476	471	9420%	168	55%
Cow Creek Band of Umpqua Indians of Oregon (Douglas County)	58	22	104	21	-37	-64%	-1	-5%
Klamath Tribes, Oregon (Klamath County)	See note	29	26	17	See note		-12	-41%

Notes:

In 1990, the Coquille Tribe and the Klamath Tribes did not have a legally established land base. The 1990 Census gives data for a Tribal Designated Statistical Area (TDSA) that is a much larger area than the 2012 Reservation and Off-Reservation Trust Lands with approximately 5,500 American Indian and Alaska Native persons in the Coquille TDSA and approximately 1,850 in the Klamath TDSA

The County totals include the populations of lands of federally recognized tribes, but the table shows them separately for clarification

Sources:

U.S. Census Bureau; 1990 Census of Population and Housing Public Law 94-171 Data Age by Race and Hispanic Origin, (Official), <http://censtats.census.gov/cgi-bin/pl94/pl94data.pl> (accessed September 17, 2014)

U.S. Census Bureau; 2000 Census of Population and Housing Summary File 1

U.S. Census Bureau; American Community Survey, 2010 Census Restricting Data, Table DP05; American FactFinder; <http://factfinder2.census.gov>; (July 2014)

U.S. Census Bureau; American Community Survey, 2012 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701; American FactFinder; <http://factfinder2.census.gov>; (July 2014)

The lands of seven federally recognized Indian Tribes range in size from a few dozen acres (i.e., the reservation and off-reservation lands for the Coos/Lower Umpqua/Siuslaw Tribes) to more than 18,000 acres (the Warm Springs reservation is nearly 650,000 acres; of which approximately 18,000 acres are within the planning area).

Some of the Tribal lands had large population percentage increases between 1990 and 2012, but this is because the base population in 1990 was very low, or, in the cases of the Coquille Tribe and the Klamath Tribes, because the land base had not yet been established. **Table 3-141** includes only the population living on Tribal lands and not the entire Tribal membership population, which may be considerably larger.

Projected Growth

Since 1950, Oregon's population has increased at a faster pace than the U.S. population as a whole. Between 1950 and 2010 Oregon's population increased by 150 percent, whereas the United States' population increased by 104 percent. The 2007–2009 recession hit Oregon harder than many other states, reducing net migration and slowing Oregon's population growth. As of 2012, Oregon's growth rate was below the national growth rate. However, Oregon's growth rate is expected to rise higher than the U.S. growth rate (Vaidya 2012).

Between 2010 and 2030, the State's Office of Economic Analysis projects that the population of the planning area will be approximately 4.2 million, an increase of approximately 832,000. The State projects that approximately 80 percent of this increase will be in the twelve counties in the BLM's Salem District (State of Oregon 2012). The State does not currently prepare population projections for geographies below the county level, such as cities.

Distressed Areas

The State of Oregon Business Development Department conducts economic assessments to determine which counties, cities, communities, or other geographic areas qualify as 'distressed.'

Pursuant to Oregon Administrative Rules (OAR) 123-024-0031, the Department defines 'distressed' areas based on indicators that take into account unemployment rates, per capita personal income, change in average covered payroll per worker over 3 years and change in the county's weighted average employment change over 2 years. As of March 2014, the Department identifies as distressed 24 of Oregon's 36 counties (and all geographic areas within a designated county). Of the 19 planning area counties, the Department identifies 14 as distressed, and only Benton, Clackamas, Multnomah, Washington and Yamhill Counties are not identified as distressed (Business Oregon 2014, contains the listing and the methodology).

Within the non-distressed counties, the Department has identified the following cities and places as distressed:

Benton:	Albany, Alpine CDP, ⁸⁸ Alsea CDP
Clackamas:	Barlow, Estacada, Johnson City, Molalla, Oregon City, Sandy
Multnomah:	Fairview, Gresham, Troutdale, Wood Village
Washington:	Cornelius, Forest Grove
Yamhill:	Amity, Carlton, Dayton, Lafayette, McMinnville, Sheridan, Willamina

⁸⁸ Census Designated Places (CDPs) are settled concentrations of population that identifiable by name but are not legally incorporated under the laws of the state in which they are located. State and local officials and the Census Bureau delineate CDPs cooperatively.

Of these 22 cities and places, all but six meet the minority or income criteria for environmental justice. Socioeconomic Issue 6 – Environmental Justice contains more information.

In 2012, the Oregon Secretary of State identified eight counties, all in the planning area, whose financial condition may indicate a higher risk of distress than other counties: Coos, Curry, Douglas, Jackson, Josephine, Klamath, Lane, and Polk (Oregon Secretary of State 2012). In 2014, the Secretary of State added Columbia and Linn counties to the list, and took Klamath County off (Oregon Secretary of State 2014).

Issue 1

How would the alternatives affect the supply, demand, and value of goods and services derived from BLM-administered lands?

Key Points

- BLM-administered lands provide a wide variety of market and non-market goods and services to the planning area such as timber, recreation, carbon storage, minerals, and source water protection.
- The annual harvest value of timber, compared to \$23 million in 2012, would increase under all alternatives (first decadal average), from \$37 million under Alternative D to \$135 million under Alternative C. The Proposed RMP would increase harvest value to \$51 million.
- The revenue BLM receives from other commodity uses of land, including permits for special forest products, livestock grazing, energy production, and mineral extraction would remain largely unchanged under the alternatives and the Proposed RMP, with one exception: under Alternative D, the BLM would cease to authorize any livestock grazing within the decision area, and the value would go to \$0.
- Using non-market valuation techniques (social cost of carbon), the annual value of net carbon storage would increase under all alternatives from a current average of \$85 million per year in 2012, except Alternative C. The smallest increase would occur in the No Action alternative (\$118 million) and the largest increase would occur in Alternative D (\$216 million). Under the Proposed RMP, the value of net carbon storage would increase to \$159 million. Under Alternative C, the value of net carbon storage would decrease to \$43 million.
- Other goods and services provided by the BLM-administered lands in the planning area currently provide economic value through increased property values associated with scenic views and through cultural and spiritual values. Data are currently unavailable to quantify the current value or expected change in value of these resources under the alternatives and the Proposed RMP.
- BLM-administered lands provide over \$200 million in value to recreation participants annually, and this number will increase based on trends in preferences and demographics.
- Outdoor recreation visits would increase based on trends as well as response to increased quality and quantity of Recreation Management Areas under Alternatives C and D and the Proposed RMP.
- Compared to the alternatives, the Proposed RMP provides the largest increase in access to recreation opportunities, including developing sites close to where people live and providing recreation types that are particularly scarce for that region.
- Using non-market valuation techniques (net willingness to pay) the analysis estimates the 2012 value of recreation on BLM-administered lands at \$223 million. Based on a phased recreation development timeline of 50 years, the value of recreation by the end of the first decade (2023) would range from \$243 million under Alternative A to \$278 million under Alternative D. Under

the Proposed RMP, the value of recreation in 2023 under a 50 year phased timeline would be \$271 million in 2023. Assuming a 20-year phase-in period rather than a 50-year period, the value of recreation in 2023 would range from \$230 to \$331 million, with the Proposed RMP value at \$311 million.

- Over a 50-year period, the total net present value of recreation would range from a low of \$5.1–\$5.4 billion for Alternative A (based on 20- and 50-year phased development timelines respectively) to a high of \$8.1–\$6.9 billion for Alternative D. The Proposed RMP would have a range of total net present value for recreation of \$6.7 to \$7.6 billion.

Summary of Notable Changes from the Draft RMP/EIS

The BLM has—

- Added analysis to estimate increasing participation in and associated value of recreation resulting from change in the supply of recreation opportunities on BLM-administered lands;
- Revised the net carbon storage analysis with updated values of the social cost of carbon based on new values released by the Interagency Working Group on the Social Cost of Carbon (IWG 2015), and included a more detailed discussion of uncertainty in these estimates;
- Revised the scenic amenities discussion to reflect a clearer definition of the Visual Resource Management methodology used to analyze the effects on visual resources; and
- Revised data to reflect revisions in underlying data on sustainable energy production, livestock grazing, minerals, and net carbon storage.

Summary of Analytical Methods

This analysis describes the socioeconomic contribution of the goods and services derived from BLM-administered lands in western Oregon under the alternatives and the Proposed RMP. **Table 3-142** shows the categories of goods and services included in this analysis. These goods and services fall into two categories: those that are sold or traded in markets, for which the BLM or others earn revenue from their use or extraction (market goods and services); and those that are consumed or otherwise enjoyed without direct payment, but for which value may materialize in indirect ways in the economy (non-market goods and services).

Table 3-142. Goods and services derived from BLM-administered lands in western Oregon

Goods and Services	Method of Valuation	
	Market	Non-Market
Timber	X	
Recreation and Visitation		X
Special Forest Products	X	X
Sustainable Energy Production	X	
Livestock Grazing	X	
Minerals	X	
Net Carbon Storage		X
Source Water Protection		X
Biodiversity and Sensitive Species		X
Scenic Amenities		X
Cultural Meaning		X

Source: USDI BLM 2014

The BLM’s management activities affect the supply of the goods and services that BLM-administered lands provide, in terms of both quality and quantity. These changes in the supply interact with current and expected future demand for each good or service, leading to changes in economic value. The analysis expresses the value of each good or service in terms of market prices (e.g., stumpage prices) or in non-market values, as indicated in **Table 3-142**. The analysis assesses the value of goods and services not traded in markets using measures of willingness to pay, derived using scientifically validated and professionally accepted techniques outlined in official BLM guidance for estimating non-market values (USDI BLM 2013a). These non-market valuation techniques result in monetary estimates for non-market goods and services.

Non-market values may be compared to market-based values in some but not in all circumstances. Market and non-market values are comparable insofar as they both reflect changes in society’s overall economic well-being. However, they are not comparable in how they contribute to the fiscal status of the economy. The analysis of these impacts, such as to jobs and earnings, is located in Issue 2. By definition, market values are associated with monetary transactions that have real financial impacts in communities. Non-market values reflect the importance people place on goods and services for which they do not have to pay real money. They also estimate likely payments if market conditions did exist, such as if the BLM charged people what they would be willing to pay to use outdoor recreation resources. People’s interactions with these non-market goods and services (e.g., participating in a mountain biking trip) may produce financial impacts traceable in the economy (some of which are included in the analysis in Issue 2), but these impacts likely do not reflect the entire value associated with the good or service.

Several comments on the Draft RMP/EIS reflected the belief that non-market resources do contribute to economic well-being in planning area communities, by retaining residents, attracting new residents including retirees and entrepreneurs who bring human and financial capital, and through other mechanisms. These beliefs have been supported by research showing how scenic amenities, open space, healthy watersheds, public lands and protected areas, and other non-market resources contribute to local economic development (e.g., Rasker *et al.* 2013).

The BLM-administered lands in the planning area provide all of the goods and services listed in **Table 3-142** within the scope of current and proposed management activities. Market and non-market goods and

services are not necessarily mutually exclusive and, in many cases, are complementary. That is, the lands can supply multiple goods and services at the same time. For example, recreational uses and timber harvest are not mutually exclusive; many types of recreation take place on lands managed also for timber harvest.

General Methodology for Estimating Supply, Demand, and Value

In this analysis, the BLM describes the past and current condition of each good and service, and incorporated the following information—

- Supply of the good or service, in terms of both quantity and quality
- Demand for the good or service
- Market price and value or non-market value of the good or service

In determining value, the BLM considered both use and non-use values of goods and services. Use values arise from the extraction or consumption of a resource and are typically (though not always) revealed through market transactions. Market activity does not typically reflect non-use values associated with BLM-administered lands, so market prices are not available to reveal their value. In these cases, the BLM relied on non-market techniques to estimate or describe economic value.

This methodology is consistent with Federal guidelines for conducting economic analyses (USDI BLM 2005, 2013a, 2013b, CEQ 2013, EPA 2010). The Planning Criteria provides more detailed information on analytical assumptions, methods and techniques, and geographic and temporal scales, which is incorporated here by reference (USDI BLM 2014, pp. 130–134).

This analysis reports all values in 2012 dollars unless otherwise noted.

The supply description of each good or service relies on information from BLM resource programs; other sections in this chapter contain much of this information. To streamline the discussion, this section summarizes that information and refers to the appropriate section for more detail.

Other sources of supply for forest-based goods and services exist in Oregon besides those available from BLM-administered lands in the planning area. For example, the forestland on BLM-administered lands in the planning area (approximately 2.4 million acres) accounts for approximately 8 percent of total forestland in Oregon, or approximately 30.5 million acres (Oregon Department of Forestry, no date). The BLM-administered lands in the planning area includes approximately 13 percent of the total number of acres in western Oregon in designated Wild and Scenic River areas and approximately 4 percent of designated Wilderness (The Nature Conservancy and Wild Salmon Center 2012).

The demand assessment for each good or service relies on information from the BLM, the U.S. Forest Service, and economic and related literature, such as journal articles and professional reports. The types of information that describe demand vary by good or service, but generally includes user counts, permit counts, goods produced, patterns of use, and other evidence from people who directly or indirectly interact with the good or service.

Methodology for Estimating Market Values

The analysis reports both fair market values, as revealed by market prices, and BLM revenue, as data are available. The BLM collects revenue from the harvest or use of many of the goods and services in **Table 3-142**. Revenue is an indication of the value of the good or service, but may not capture the full market value of the good or service, for the following reasons:

- The BLM permit or sale price (and thus collected revenue) is set below market value.

- The BLM does not collect revenue for all goods or services harvested or used in a particular category, in some cases legitimately, and in other cases because illicit harvest occurs.

The value assessment of each good or service relied on information from the BLM regarding permit and market prices, and, where BLM data does not reflect market prices, the assessment relied on external information about commodity prices. The data sources and methods of valuation of each market-based good or service are described in more detail below.

Methodology for Estimating Non-market Values

The BLM assessed the economic importance of some goods and services using non-market values (see **Table 3-142**). As the name implies, non-market goods and services are not traded in markets. As a result, it is not possible to calculate how BLM actions could affect the values of these goods and services using market prices. Instead, when sufficient data are available, the analysis used non-market values to estimate their economic importance. If data were not available to estimate a dollar value, the analysis relied on other information to describe their economic importance, without monetary quantification. The BLM (USDI BLM 2013a) describes non-market values and methods of incorporating them in socioeconomic analyses for resource management plans.

Two broad categories of non-market values exist: use values and non-use or passive use values. People enjoy use values when they make use of the environment, such as through fishing, hunting, boating, or bird watching. Unlike other use values (e.g., from the production of commodities), these activities are usually not captured through market transactions. Non-use values reflect value derived in a manner other than directly interacting with natural resources. Existence value is a type of non-use value that describes the value that society places on the existence of a species, place, or habitat. For example, people may be willing to pay to protect an area with wilderness characteristics, even though they have no plans to visit the area (King and Mazzotta 2000).

In this analysis, the BLM did not attempt to estimate values for non-market goods and services on BLM-administered lands directly. Instead, the analysis relied on unit values from studies of similar goods and services, and applied the unit values as appropriate for goods and services on BLM-administered lands. This technique, known as benefit transfer, provides a method for valuing non-market goods and services when data or resources are limited (EPA 2010).

Where data describing the amount or unit value of goods and services were not available, the analysis used several types of information to indicate economic importance qualitatively:

- Values of similar goods and services studied elsewhere
- Surveys of people's preferences and actions
- Values of substitute goods and services
- Descriptive evidence of the importance of a good or service to society

Valuation Methodologies for Specific Goods and Services

Timber

Analysis of the economic value of timber harvested on BLM-administered lands involved the input of economic and forestry data and modeling. The BLM developed data sets describing the costs of the various logging techniques and other costs associated with timber sales based on current data. Stumpage prices provided the basis for the timber revenue estimates. These prices rely on the long-term trend for timber prices in western Oregon. **Appendix P** contains more detail regarding the price projection methodology. The BLM developed a timber harvest model within the Woodstock software platform to

project harvest volumes by grade, species type, district, and other parameters for the alternatives and the Proposed RMP, including the No Action alternative. The model outputs, all in 2012 dollars, provide detail on the harvest volumes, costs, and revenues in 10-year blocks.

The BLM also developed a model to project the effects of changes in BLM harvests on private timber producers in the western Oregon timber market.

Recreation and Visitation

The assessment of the economic value of recreation on BLM-administered lands in the planning area required consideration of the BLM's recreation management under the alternatives and the Proposed RMP, the overall supply of recreation resources in the planning area, the user population and participation rates, and how changes in supply could address scarcities that would increase usage and benefit. The BLM's Recreation Management Information System (RMIS) provides estimates of visitor-days and numbers of participants by activity and district. These are combined with estimates of economic value associated with visitor-days in terms of consumer surplus (benefits net of costs to the participant) (Loomis 2005).

Increased recreation opportunities would not necessarily result in proportionate increases in participation and visitor-days. The BLM currently provides approximately one-third of all public land within an hour's driving distance of the major population centers. If the BLM-administered areas near such communities were improved to provide more and better recreation opportunities, the additional demand could be substantial. Because of population growth and increasing interest in outdoor recreation, participation numbers and visitation are both expected to increase over time (see the Recreation section of this chapter).

In order to estimate changes in the number of outdoor recreation visitor-days in the planning area as a result of changes in Recreation Management Area (RMA) acreage, the BLM developed a time use model based on Bureau of Labor Statistics and the U.S. Census Bureau's American Time Use Survey (U.S. Department of Labor, Bureau of Labor Statistics 2015). The model provides a measure of the elasticity, or responsiveness, of outdoor recreation demand to changes in the available and accessible supply of outdoor recreation acreage. The BLM developed estimates of how demand would change in terms of time spent participating in outdoor recreation with changes in RMA acreage. The model data suggest that a 100 percent increase in total RMA acreage would lead to a 17 percent increase in outdoor recreation activity. In economic terms, this reflects an inelastic, or relatively low, demand response with respect to RMA supply. Elasticity incorporates current supply and demand when estimating future demand response. The visitation change results were based upon applying the 17 percent elasticity estimate to each district or office outdoor recreation activity, baseline RMA acreage, and RMA acreage for the alternatives and the Proposed RMP. See **Appendix P** for more details on the data, model, and results.

For the purposes of this analysis, the BLM assumed that the full implementation of actual increases in recreation opportunities resulting from increases in RMA acreage would not occur immediately upon adoption of the RMPs, particularly where alternatives include the development of new RMAs, facilities, or uses. There is considerable uncertainty about the rate of increase in recreation opportunities that would result from increased RMA acreage. For example, where increased recreation opportunities would depend on development of new campgrounds, new trail systems, or other recreational facilities and developments, substantial increases in recreation opportunities would likely take decades. The BLM based this assumption on past BLM experience with planning, analyzing, and developing recreation facilities and developments.

For the purpose of this analysis, the BLM considered two scenarios: (1) increases in recreation opportunities associated with increased RMA acreage phased in over 20 years (complete at 20 years) and (2) increases in recreation opportunities associated with increased RMA acreage phased in over 50 years (complete at 50 years).⁸⁹ For these analyses, the BLM assumed a linear incremental increase from current levels to final alternative and Proposed RMP levels at 20- and 50-year periods. Conceptually, for the 50-year phasing, 1/50th of increase in recreation opportunities would be implemented in the first year, with full implementation in the 50th year. For Scenario 1, the median level of recreation opportunities would be implemented in the 10th or 11th year of the analysis period, while for Scenario 2, the median level of recreation opportunities would be implemented in the 20th or 21st year. This analysis generally compared the effects on the economic value of recreation that would occur in 2018 along the trajectories to full implementation in 20 years or 50 years (**Figure 3-136**). Consequently, for the purposes of modeling, the BLM assumed all districts would see equal timing of increases in recreation opportunities over each scenario timeframe. The BLM also assumed that visitation response and associated valuation estimates would be proportional and consistent over each phasing timeframe.

Actual implementation of increased recreation opportunities within RMAs would be at the discretion of BLM managers and would not be expected to occur at a constant rate over time or at similar rates across districts. The BLM has conducted this analysis under these dual-scenarios to present a range of plausible implementation rates for comparison. If the BLM were to fully implement the increases in recreation opportunities under Alternatives C or D, or the Proposed RMP in less than 20 years, the economic benefits associated with recreation management in 2018 would be greater than those described in this analysis.

The recreation opportunities associated with new RMAs provide the capacity for increased and improved outdoor recreation and consequent economic value. The specific types and quantities of improvements are not defined at this time. For this analysis, the BLM applied RMA acreage as a proxy for recreation opportunities, so that as RMA acreage increases, so do recreation opportunities in a proportionate manner. Scaling from current outdoor recreation visitation, this assumes similar types and proportions of opportunities to existing BLM-administered recreation opportunities. To the extent that new RMAs would provide higher quality opportunities, opportunities in greater demand, or more accessible opportunities, the resulting value would be greater.

In addition, the BLM analyzed spatial data on the BLM's own recreation areas, their attributes, and other public recreation opportunities, as well as census data on population and outdoor recreation participation rates. In this way, the BLM identified the nearby populations that use BLM recreation resources and how recreation opportunities on BLM-administered lands relate to other opportunities. Source information included estimates for total outdoor recreation activity in western Oregon using survey data from Oregon's Statewide Comprehensive Outdoor Recreation Plan. This analysis (ECONorthwest 2015) qualitatively informed this section of the Proposed RMP/Final EIS but did not directly factor into the quantitative estimates of use and economic value that would result under the alternatives and the Proposed RMP.

The BLM considered all these data and calculated consumer surplus values, which represent the net economic benefit to a participant in recreation activity after deducting market-based costs associated with the activity. Consumer surplus values are non-market values. They do not represent dollars exchanged, but, rather, the amount of net benefit beyond expenditures for the activity (e.g., fuel, equipment, meals, and lodging) that represent additional willingness to pay.

⁸⁹ The No Action alternative and Alternative B involve no change in RMA acreage, so do not involve phasing of an increase in recreation opportunities over time.

To compare the alternatives and Proposed RMP regarding accessibility and local recreation scarcities, the BLM used the acreage of RMAs designated under the alternatives and the Proposed RMP. The BLM compared the overall and district-level change in total RMA acreage. The BLM then identified the change in RMA acreage within 30-minute and 60-minute driving distances of 12 study communities⁹⁰ in western Oregon. Recognizing that quality, accessibility, and congestion all contribute to variation in demand for recreation opportunities and resulting value, the BLM compared the changes in accessible RMA acreage as a proportion of total current recreation-oriented acreage. The BLM also considered how these proportional changes in recreation acreage correspond to existing conditions and estimates of recreation value from BLM-administered lands.

The BLM applied projections for growth and composition of outdoor recreation participation over the next 50 years to outdoor recreation to incorporate long-term trends as well. As part of the 2010 revision of the Resources Planning Act Assessment, the U.S. Forest Service developed national projections of participation for 17 outdoor recreation activities through 2060 (Bowker *et al.* 2012). These projections take into account various scenarios of climate change (based on the Intergovernmental Panel on Climate Change (IPCC) scenarios), population and income growth, and land use change. The BLM applied these projections to each of the relevant BLM recreation categories, using the base scenario (A1B, corresponding to mid-range population growth and the highest average personal and household income level of the 3 IPCC scenarios). These participation trends are consistent with those observed over the last few decades in Oregon (e.g., Hall *et al.* 2009). This analysis assumed that the outdoor recreation participation trends through 2060 would extend through 2062.

Across the recreation analyses and presentation of results, the BLM uses three separate measures of outdoor recreation activity. ‘Visits’ are individual trips for an outdoor recreation activity, regardless of the length of time. ‘Visitor-days’ are summation of visits to 12-hour units. Consumer surplus estimates are based on these 12-hour visitor-day measures. ‘Participants’ are a count of the number of individuals who participate in outdoor recreation activity, and might involve several visits per year.

The BLM does not directly track residence location of outdoor recreation participants, but the U.S. Forest Service does. The BLM applied local, non-local, and non-primary breakdowns of participants from the nearest national forest. Locals refer to participants claiming to have traveled 50 miles or less from home to the U.S. Forest Service recreation interview location (White 2013, USDA FS 2013). Non-primary refers to visits that are secondary to other travel purposes. All outdoor recreation participation time is included in the benefit estimates in Issue 1, but recreation expenditures for visits that are secondary to other travel purposes are not included in market impacts under Issue 2 (White 2014, USDA FS 2014a).

Special Forest Products

This analysis focused on special forest products from forested areas. Non-forested areas may produce goods akin to these forest products that have value (e.g., sagebrush). However, the BLM assumed in this analysis that non-forested areas would remain non-forested under the alternatives and the Proposed RMP, so there would be no change in the supply or value of these goods.

The Forest Management section in this chapter describes the supply of special forest products in terms of acreage suitable for the production of Category I and Category II species.⁹¹ Category I species thrive in

⁹⁰ The BLM selected 12 population centers within the planning area to serve as study communities, achieving a wide spatial coverage and capturing a majority of the area’s population. These communities include Coos Bay, Corvallis, Eugene, Grants Pass, McMinnville, Medford, Newberg, Portland, Roseburg, Salem, Sandy, and Tillamook.

⁹¹ These categories are not a formal designation but simply a way to characterize similar special forest products for ease of analysis.

disturbed forest conditions, and Category II species rely on undisturbed forest conditions. This section reports acreages for two areas: the coastal/north areas (Coos Bay, Eugene, and Salem Districts) and the interior/south areas (the Klamath Falls Field Office, and the Medford and Roseburg Districts).

The analysis describes the demand for special forest products using data derived from the BLM harvest database, reviews of the literature, and interviews with BLM district staff. The harvest database reports quantity of special forest products collected by species, number of permits issued, and revenue collected. The analysis relied on interviews with BLM district staff and other experts to understand the harvest database and better understand patterns of use and markets for special forest products.

The analysis reports both market prices and BLM revenue to describe value of special forest products. The harvest database reports BLM-collected revenue for special forest products. The analysis supplemented this information with information from the literature on market prices for special forest products. The literature indicates that BLM prices for special forest products are often below fair market value, so the analysis provides data for market values of special forest products when available.

Sustainable Energy Production

The BLM estimated the supply of sustainable energy resources within the decision area based on information provided in the Sustainable Energy section of this chapter. The analysis describes the demand for sustainable energy using information from government reports and professional literature, as well as information from the BLM database on special forest products. Two categories of special forest products reported in the database are relevant for sustainable energy production: biomass and fuelwood. Information on the value of biomass energy production came from revenue data collected by the BLM and from data from the U.S. Energy Information Administration.

Livestock Grazing

The BLM estimated the supply of livestock grazing within the decision area based on information provided in the Livestock Grazing section in this chapter. The analysis describes the demand for livestock grazing using information about the utilization of available livestock grazing allotments. Information on the value of livestock grazing came from Federal livestock grazing fees and from market prices for private and State livestock grazing fees and forage.

Minerals

The BLM estimated the supply of salable mineral material within the decision area for the affected environment and effects analyses based on information provided in the Minerals section in this chapter. The economic analysis described the current demand for salable mineral material disposal using information from a BLM database of mineral material sales. The analysis relied on data included in the database about the value of each sale. The BLM sells mineral materials at fair market value, so the analysis did not incorporate additional information about the market value of salable mineral materials. In this analysis, the BLM assumed that demand would not change from current conditions and that the BLM would continue to sell mineral materials at fair market value.

Carbon Storage

The BLM estimated carbon storage and emissions in the Climate Change section in this chapter. The carbon storage reported in that section is ‘net carbon storage’ representing carbon stored less carbon emitted through wildfire, prescribed burning, decomposition, and through the lifecycle of wood products.

Other sources of emissions (e.g., enteric fermentation) are minor and are discussed in Issue 2 of the Climate Change section.

In this economic analysis, the BLM calculated the annual amount and value of net carbon storage based on the information presented in the Climate Change section. To estimate value, the analysis used values developed by the U.S. Interagency Working Group (IWG) on Social Cost of Carbon (SCC). Estimating the SCC is complex, incorporating data from a variety of models and systems in climate science, ecology, and economics projected decades into the future. Each piece of data involves uncertainties, which the IWG discusses at length in Technical Support Documentation reports (IWG 2010, 2013, 2015). Examples of factors resulting in uncertainty in the IWG's SCC result include incomplete treatment of damages, and incomplete treatment of adaptation and technological change. The IWG discusses these uncertainties in detail in the first Technical Support Document (IWG 2010), which is incorporated here by reference.

The IWG provides several estimates of SCC that are dependent on three variables:

- The year emissions are expected to occur
- The discount rate (2.5 percent, 3 percent, and 5 percent)
- The estimated severity of future damages

The IWG estimates consider two scenarios of damage. The 'Average' case reflects the average costs across climate models and socioeconomic scenarios. The '95th percentile' case reflects higher than average damages that might occur, but that have a probability of future occurrence of 5 percent.

To estimate the value of the stored carbon on BLM-administered lands in 2012 for the affected environment, the analysis used the IWG estimates for emissions in year 2015, a 3 percent discount rate, and both the average and 95th percentile cases. According to the IWG, the estimated social cost per metric ton of carbon dioxide emitted in 2015 in 2007 dollars is \$36 (average) and \$105 (95th percentile case). These dollar values apply to carbon dioxide (CO₂), but net stored carbon is estimated in terms of tons of carbon (C). The BLM analysis converted dollars per metric ton of CO₂ to dollars per metric ton of C using a conversion factor of 3.67. The BLM converted dollar values to 2012 dollars using the Gross Domestic Product (GDP) deflator. The final per ton values multiplied by metric tons of net stored carbon are about \$143 (average) and \$417 (95th percentile case). The analysis presents both estimates to illustrate the uncertainty about the SCC due to uncertainty of the damage caused by carbon emissions. However, they do not represent the full range of possible SCC estimates that would be based on other discount rates or cost assumptions. Of the two estimates presented, the BLM considers the 'Average' scenario to be more likely.

To estimate the value of the effects of the alternatives and the Proposed RMP on net stored carbon, the analysis used a similar procedure. Using the results of the effects analysis presented in Issue 1 of the Climate Change section of this chapter, the economic analysis calculated the marginal change in stored carbon between 2013 and 2023 and between 2013 and 2063 by alternative and the Proposed RMP. The estimated social cost per metric ton of CO₂ for emissions in year 2017 (the midpoint of the first decade) is \$38 (average) and \$112 (95th percentile) in 2007 dollars. These values were converted to dollars per metric ton of C and to 2012 dollars as described above, and were applied to the marginal change in net stored carbon over the first decade. After conversions to dollars per metric ton of C and to 2012 dollars, the estimated social cost per metric ton of C in year 2017 is about \$152 (average) and \$445 (95th percentile). The estimated value of the marginal change over the 50-year period of analysis was calculated using the social cost per metric ton for emissions in year 2050 (the last year for which SCC is calculated by the IWG). Applying the 2050 SCC value to carbon storage in year 2063 approximates its value in that year, but may underestimate it somewhat. The estimated social cost per metric ton of CO₂ for emissions in year 2050 is \$69 (average) and \$212 (95th percentile case) in 2007 dollars. After conversions to dollars

per metric ton of C and to 2012 dollars, the estimated social cost per metric ton of C in year 2050 is about \$274 (average) and \$841 (95th percentile case).

Source Water Protection

The BLM estimated the supply of land that produces water potentially used for drinking water in the Analysis of the Management Situation (USDI BLM 2013). The economic analysis describes the current demand for source water protection using information derived from agreements between the BLM and State and local governments, and spatial information developed by the Wild Salmon Center and the Nature Conservancy. Qualitative information on the value of source water came from the professional literature. In this economic analysis, the BLM assumed that the quantity and quality of the supply of water available for drinking would not change from current conditions and necessarily would meet all State and Federal drinking water standards. The Hydrology section in this chapter contains more information on effects on water quantity and quality.

Biodiversity and Sensitive Species

The BLM estimated the current conditions and effects on forest structure and threatened and endangered species in Forest Management, Fisheries, Wildlife, and Rare Plants and Fungi sections in this chapter. The economic analysis describes the demand and value for biodiversity and sensitive species using information derived from the professional literature, and laws and regulations governing environmental protection. Although the professional literature includes some quantitative estimates of willingness to pay for protection of species and their habitat, insufficient information is available at the scale of analysis to produce quantitative estimates of the specific economic value or changes in value that would result from the Proposed RMP or alternatives.

Scenic Amenities

The BLM estimated the supply of scenic amenities within the planning area based on information provided in the Visual Resource Management section in this chapter. The economic analysis derived changes in supply under each alternative and the Proposed RMP based on the number of acres where the Visual Resource Management (VRM) class designation would not be commensurate with the landscape's scenic value, as described within the Visual Resource Inventory (VRI) classification, thereby reducing the level of visual protection (VRM class) that is more customary of areas with higher scenic values (i.e., where management activities would allow changes to the landscape that are characteristic of more disturbance, lowering the quality rating and resulting in a downgraded VRI class assignment). The analysis describes the demand for scenic amenities and their value using information from professional, peer-reviewed literature. Although the professional literature includes quantitative information on the relationship between scenic amenities and property values, insufficient information is available at the scale of analysis to produce quantitative estimates of the specific economic value or changes in value that would result from the alternatives or the Proposed RMP.

Cultural Resources

The BLM estimated the supply of cultural resources within the decision area based on information provided in the Cultural Resources section in this chapter. The economic analysis describes demand for and value of cultural resources based on laws and regulations governing archaeological sites and cultural artifacts and descriptions of non-physical elements of cultural importance based on the framework for cultural meaning outlined in the United Nations' Millennium Ecosystem Assessment (Sarukhán and Whyte 2005). Insufficient information is available at the scale of analysis to produce quantitative

estimates of the economic value or changes in value associated with changes in cultural resources by alternative and the Proposed RMP.

Affected Environment

Timber

Supply

Western Oregon continues to be a national leader in the production of timber and timber products. The Timber and Socioeconomic sections of the Analysis of the Management Situation (USDI BLM 2013c, pp. 2-98 – 2-99, 2-120 – 2-128), and the Forest Management section in this chapter provide information on the overall market supply and conditions. The past 50 years have seen dramatic changes in timber harvest for western Oregon, particularly from Federal lands including BLM-administered lands. **Figure 3-126** and **Figure 3-127** show the declines and fluctuations in both volume and prices over the past 50 years. These changes provide the context for assessing the economic consequences of possible changes in timber management on BLM-administered lands.

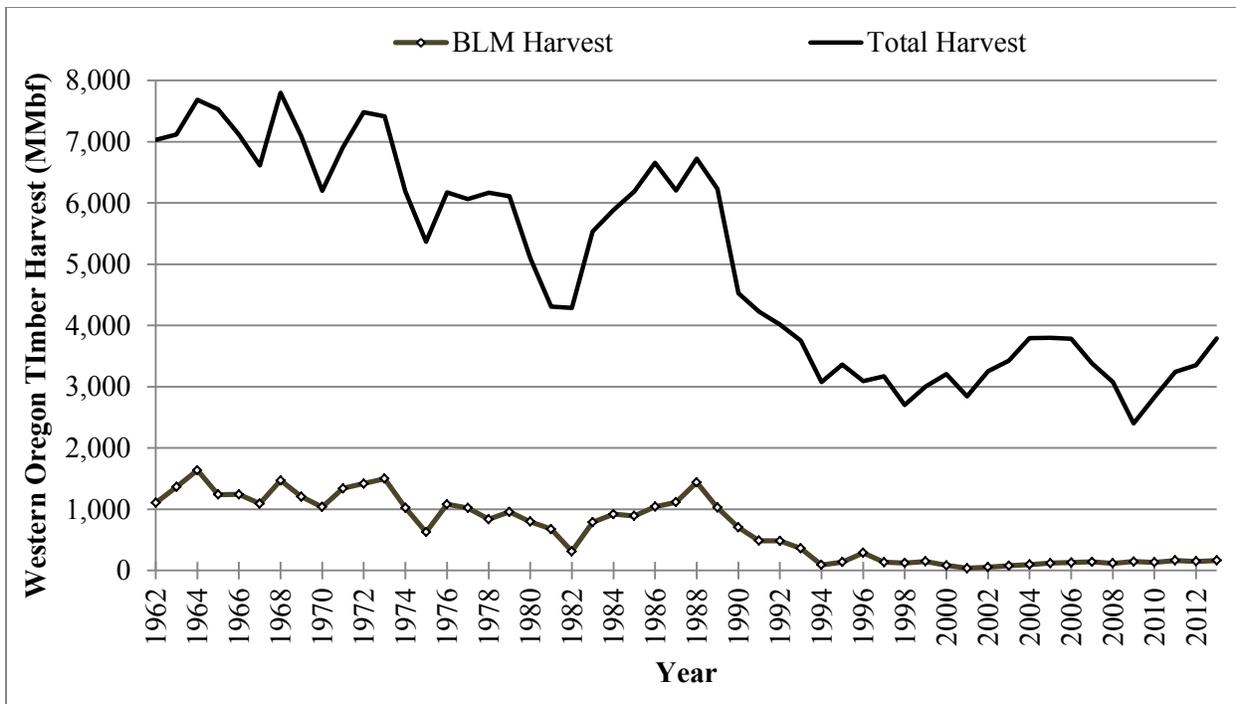


Figure 3-126. Western Oregon historical timber harvest, BLM and total
 Source: Zhou and Warren 2012

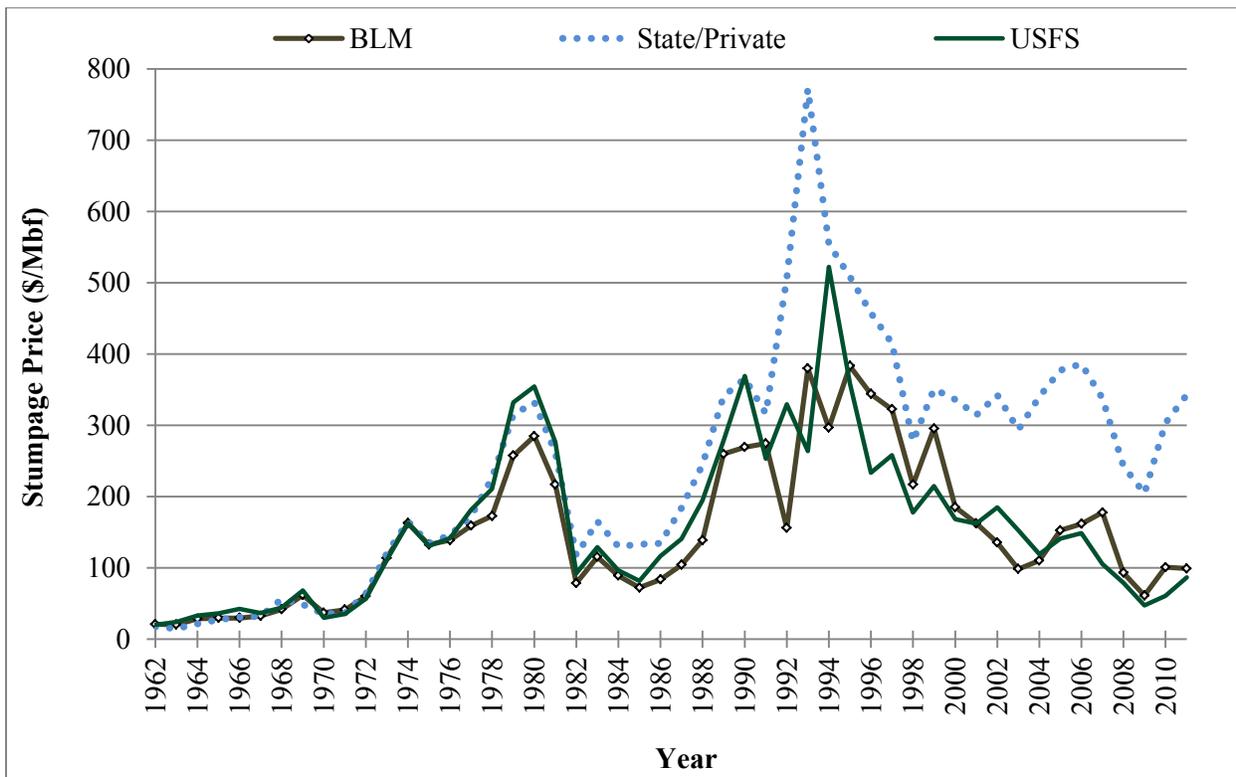


Figure 3-127. Western Oregon historical stumpage prices, BLM and State/private
 Source: Zhou and Warren 2012

Figure 3-126 shows both the declines in total harvest in western Oregon, starting first on private timberlands in the early 1970s and BLM-administered lands in the early 1990s. In the early 1960s, about 20 percent of western Oregon’s timber harvest occurred on BLM-administered lands; this had dropped to an average of 7 percent between 2008 and 2012. The nearly 85 percent drop in harvest on BLM-administered lands mirrors a similar drop on U.S. Forest Service lands following the implementation of the 1994 Northwest Forest Plan. **Figure 3-127** shows stumpage prices representing private stumpage markets.⁹² The declines in stumpage prices of timber from BLM-administered lands reflect the higher logging costs and lower value log mixes associated with the predominance of thinning harvest, rather than regeneration harvest, under current implementation (see the Forest Management section in this chapter).

Federal lands (including BLM-administered lands and U.S. Forest Service lands) in western Oregon make up 61 percent of all timberland acreage, but have 73 percent of the growing stock in terms of volume (OFRI 2012). This suggests that, on average, Federal lands have more volume per acre than all timberlands in western Oregon. See the Forest Management section for detail on the BLM’s forest inventory conditions.

Demand

Figure 3-126 and **Figure 3-127** show how historical timber production and regional price trends tend to fluctuate with overall economic conditions, as, for example, prices and harvest levels declined during the 2007–2009 recession, repeating patterns of past recessions.

Stumpage prices paid or bid for timber offered for harvest provide an indication of demand for BLM timber in western Oregon. **Figure 3-126**, in spite of the variability, shows an almost flat trend in real (inflation-adjusted) stumpage prices in western Oregon over the 50-year period of 1962–2011. The overall trend since 1962 is a 0.23 percent increase per year, which this analysis uses as the most appropriate representation of future prices (Haynes *et al.* 2007, Haynes 2008). The regional market includes other private and public timber producers, with private supply particularly dominating (77 percent for the past 5 years). Since the end of the 2007–2009 recession, State, Forest Service, BLM, and private harvests are increasing, as prices recover towards the long-term trend. Prices for public harvests have been rising (**Figure 3-127**).

Demand for BLM timber supply is a function of a variety of factors associated with both the final demand for timber products, as well as competition with other supply sources. Potential timber buyers compare the species composition, timber quality, accessibility, and other harvest cost differences when comparing Federal, State, local, and private timber sources. Federal timber sales have restrictions prohibiting foreign export, which potentially reduces demand, particularly when foreign markets such as Asia are strong.

A wide array of final market goods and services incorporate timber products; consequently, overall timber demand trends strongly with overall economic conditions. New housing starts are a particularly important component of this broad economic demand. In 2008, of the \$6 billion in total wood product sales for the state of Oregon as a whole, \$2.8 billion came from pulp and paper, \$1.5 billion came from sawmills (lumber), followed by plywood, veneers, and other boards (OFRI 2012).

Value

At the BLM district level, harvests have increased in real value since 2012, although price per Mbf has generally declined since 2000 (**Figure 3-128** and **Figure 3-129** and **Table 3-143**). Year-to-year value at

⁹² The stumpage price series shown is for western Oregon Department of Forestry sales and, like all Federal sales, is limited to domestic markets only.

the district level fluctuates as volume varies, within the overall context of generally increasing harvest volumes and total value for BLM-administered lands in western Oregon as a whole since 2001. For example, the Coos Bay District saw the largest overall timber harvest volume and value in 2007, while typically, it is in the bottom half of districts by these measures in other years since 2000. Between 2009 and 2014, the Salem District had the largest timber volume and value, both in total and per Mbf. The Klamath Falls Field Office consistently had the lowest timber harvest volume and value, except for 2007 when Medford was lower. The average value per Mbf for all western Oregon districts over the period 2000 to 2014 was \$148. The overall western Oregon BLM harvest value over that period was \$322 million.

A wide array of local and non-local supply and demand forces contribute to observed market prices for timber. While short-term conditions for supply in the U.S. and elsewhere, as well as final market demand for timber and timber products, can fluctuate somewhat widely, the long-term trends are relatively consistent. For the purposes of this long-term planning process, the BLM applied long-term price projections as detailed in **Appendix P**. The BLM did not include short-term analyses of potential market conditions based on current events or economic conditions in any price projections.

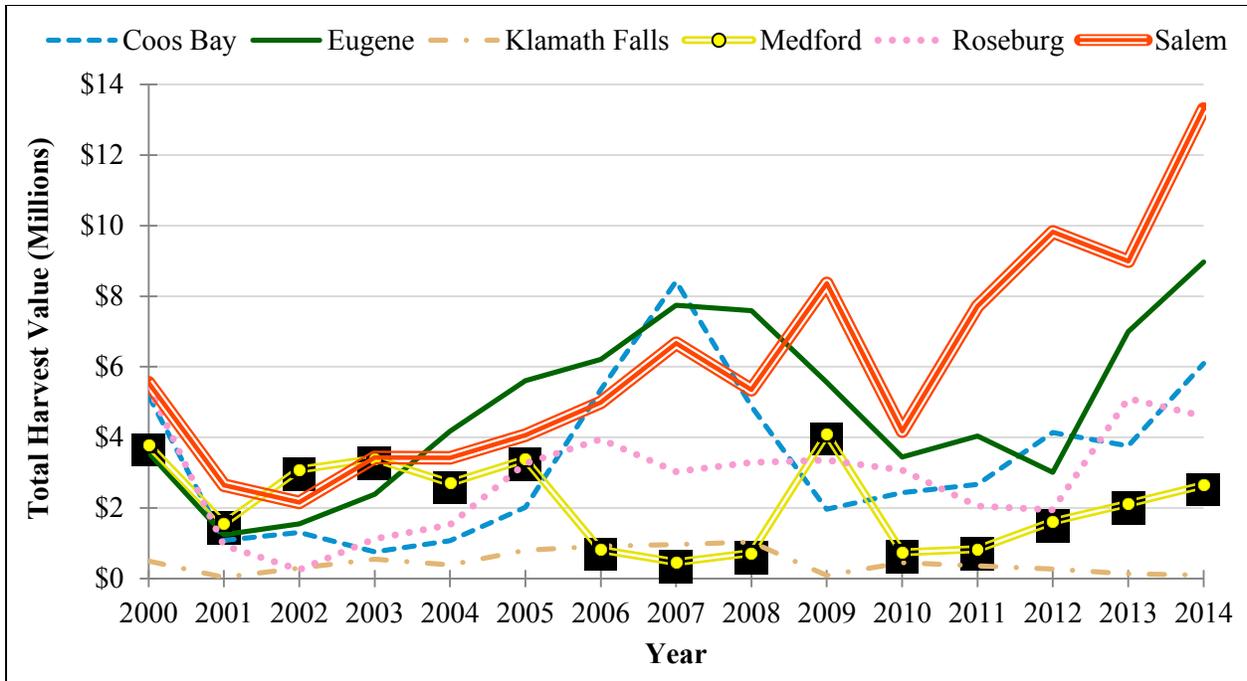


Figure 3-128. Total harvest value by BLM district, 2000–2014

Notes: All data are in 2012 dollars. Harvest data reflect the value and volume of wood removed from approved contracts during a calendar year, and correspond to sales that were offered and approved within the previous 1–36 months.

Source: USDI BLM 2014h

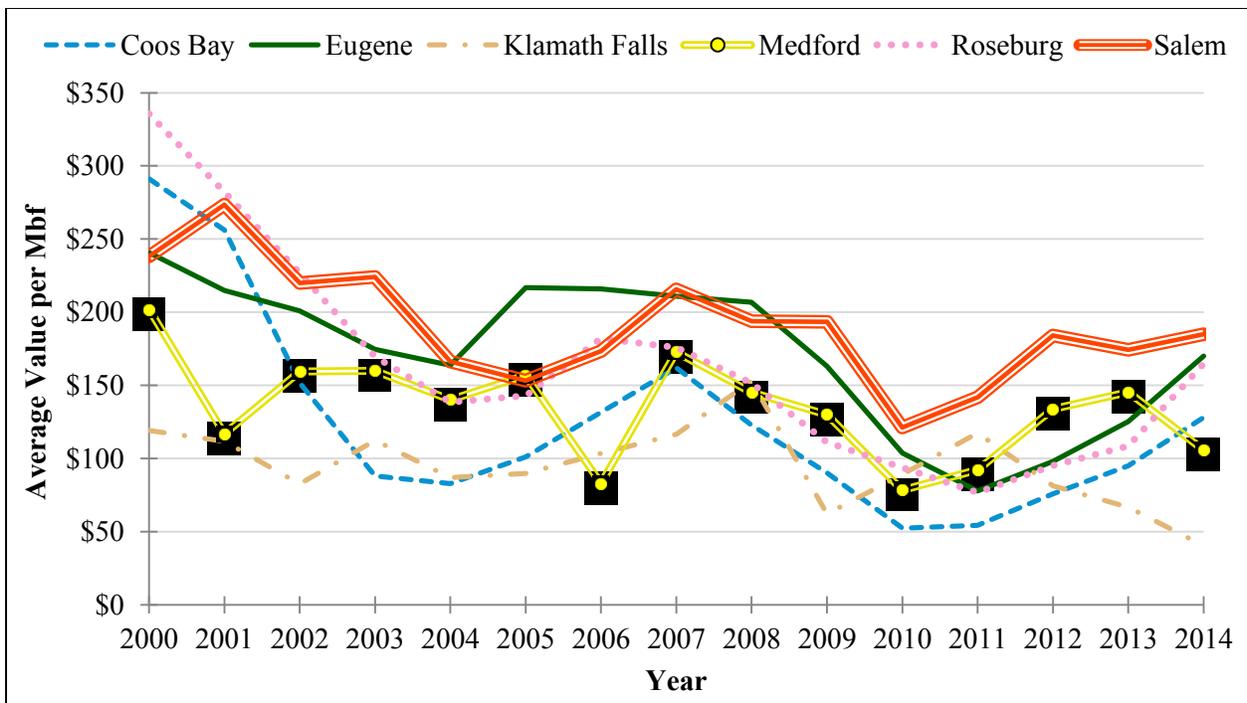


Figure 3-129. Average value per Mbf harvested by BLM district, 2000–2014

Notes: All figures are in 2012 dollars. Harvest data reflect the value and volume of wood removed from approved contracts during a calendar year, and correspond to sales that were offered and approved within the previous 1–36 months.

Source: USDI BLM 2014h

Table 3-143. Historical timber sale values and volumes, western Oregon BLM Districts, 2000–2014

District/ Field Office	Harvest Metric	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
Coos Bay	Harvest Value (Millions)	\$6.6	\$1.4	\$1.6	\$0.9	\$1.3	\$2.3	\$6.0	\$9.2	\$5.2	\$2.1	\$2.5	\$2.7	\$4.1	\$3.7	\$6.0	\$55.6
	MMbf Harvested	22.7	5.3	10.6	10.4	15.3	22.9	45.5	56.8	42.1	23.0	48.4	50.0	54.5	39.1	46.7	493.3
	Value/Mbf (Dollars)	\$291	\$256	\$152	\$88	\$83	\$101	\$132	\$162	\$123	\$90	\$52	\$54	\$76	\$95	\$128	\$113
Eugene	Harvest Value (Millions)	\$4.5	\$1.6	\$1.9	\$2.9	\$4.9	\$6.4	\$6.9	\$8.5	\$8.0	\$5.9	\$3.6	\$4.1	\$3.0	\$6.9	\$8.8	\$78.0
	MMbf Harvested	18.9	7.2	9.5	16.6	30.1	29.7	32.2	40.1	38.9	36.1	34.6	52.9	30.6	55.2	51.7	484.3
	Value/Mbf (Dollars)	\$241	\$215	\$201	\$175	\$164	\$217	\$216	\$211	\$207	\$163	\$104	\$78	\$98	\$125	\$170	\$161
Klamath Falls	Harvest Value (Millions)	\$0.6	\$0.0	\$0.4	\$0.7	\$0.5	\$0.9	\$1.0	\$1.1	\$1.1	\$0.1	\$0.5	\$0.4	\$0.3	\$0.1	\$0.1	\$7.7
	MMbf Harvested	5.3	0.4	4.4	5.9	5.3	10.2	10.0	9.0	7.2	1.6	5.2	3.1	3.3	2.0	2.5	75.3
	Value/Mbf (Dollars)	\$119	\$112	\$83	\$112	\$87	\$90	\$104	\$117	\$153	\$62	\$89	\$117	\$81	\$67	\$40	\$102
Medford	Harvest Value (Millions)	\$4.8	\$2.0	\$3.8	\$4.1	\$3.2	\$3.9	\$0.9	\$0.5	\$0.8	\$4.3	\$0.8	\$0.9	\$1.6	\$2.1	\$2.6	\$36.2
	MMbf Harvested	23.9	16.7	23.9	25.7	22.8	24.8	11.0	2.9	5.3	33.3	9.9	9.2	12.1	14.5	24.6	260.5
	Value/Mbf (Dollars)	\$202	\$117	\$160	\$160	\$140	\$157	\$83	\$173	\$145	\$130	\$78	\$92	\$134	\$145	\$106	\$139
Roseburg	Harvest Value (Millions)	\$6.9	\$1.2	\$0.3	\$1.4	\$1.8	\$3.7	\$4.4	\$3.3	\$3.5	\$3.6	\$3.2	\$2.1	\$1.9	\$5.0	\$4.5	\$46.9
	MMbf Harvested	20.6	4.2	1.4	8.1	13.0	26.2	24.3	18.8	23.0	32.0	34.2	27.3	20.4	46.5	27.4	327.3
	Value/Mbf (Dollars)	\$336	\$282	\$227	\$170	\$138	\$143	\$182	\$176	\$151	\$111	\$94	\$77	\$95	\$109	\$165	\$143
Salem	Harvest Value (Millions)	\$7.1	\$3.3	\$2.7	\$4.2	\$4.0	\$4.7	\$5.6	\$7.3	\$5.7	\$8.9	\$4.4	\$7.9	\$9.8	\$8.9	\$13.0	\$97.3
	MMbf Harvested	29.7	12.1	12.1	18.5	24.3	30.5	32.2	33.7	29.2	45.8	35.9	55.4	53.3	51.0	70.6	534.5
	Value/Mbf (Dollars)	\$238	\$273	\$220	\$224	\$166	\$153	\$173	\$216	\$194	\$193	\$121	\$142	\$184	\$174	\$185	\$182
Totals	Harvest Value (Millions)	\$30.6	\$9.4	\$10.7	\$14.1	\$15.7	\$22.0	\$24.9	\$29.8	\$24.2	\$24.8	\$14.9	\$18.0	\$20.8	\$26.8	\$35.0	\$321.7
	MMbf Harvested	121.0	45.9	61.8	85.1	110.8	144.3	155.2	161.3	145.7	171.9	168.3	197.9	174.3	208.2	223.4	2,175.1
	Value/Mbf (Dollars)	\$253	\$205	\$172	\$166	\$142	\$152	\$160	\$185	\$166	\$144	\$89	\$91	\$119	\$129	\$157	\$148

Note: All data are in 2012 dollars. Harvest data reflect the value and volume of wood removed from approved contracts during a calendar year, and correspond to sales that were offered and approved within the previous 1-36 months. 2014 data are preliminary and subject to change.

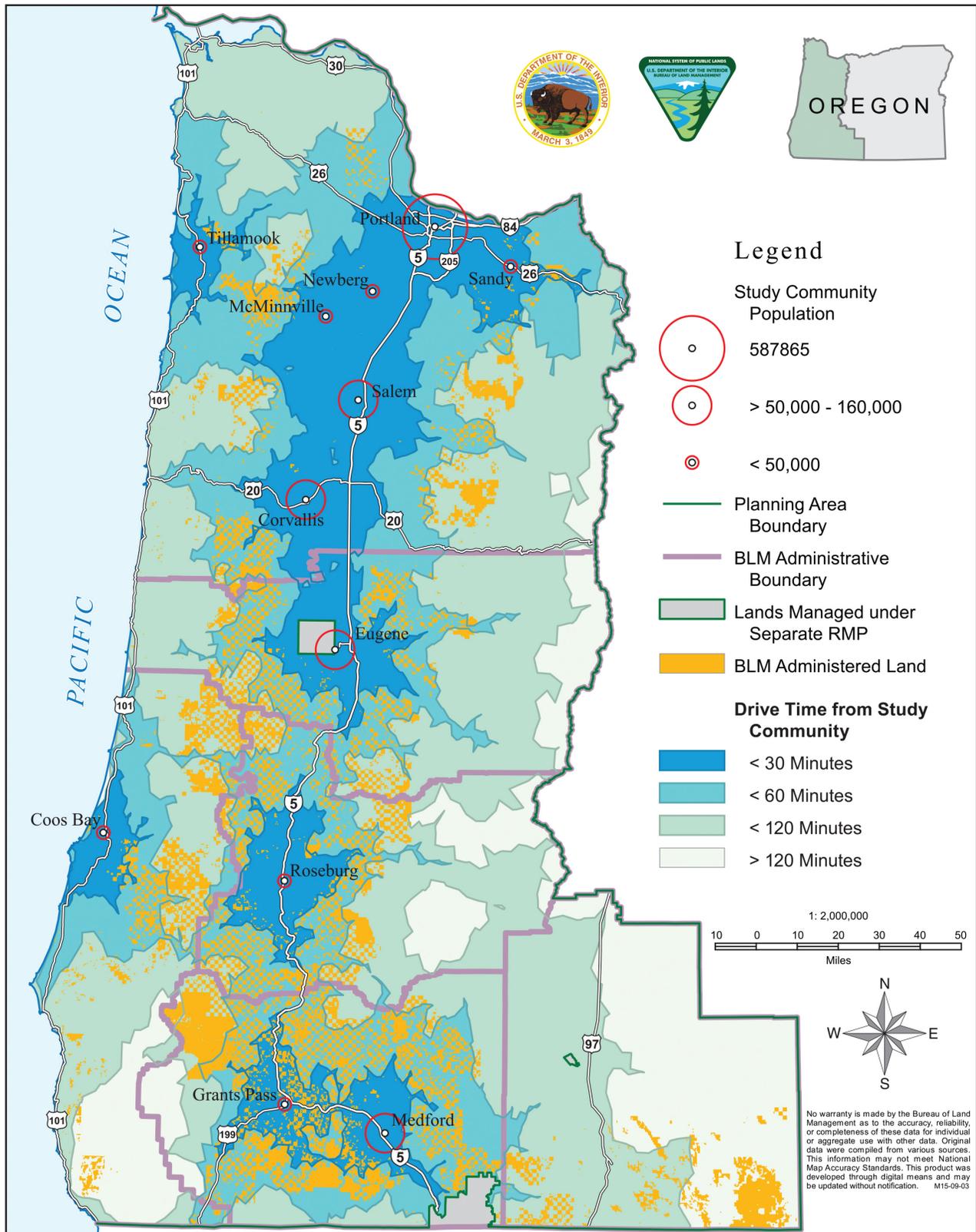
Source: USDI BLM 2014h

Recreation and Visitation

Supply

Sites managed for outdoor recreation are concentrated primarily on federally owned lands. These sites can be costly to establish and maintain, and include costs of forgoing other revenue generating uses. However, they can add substantial social value. Individuals who visit these sites directly benefit from access to recreation and nearby businesses are affected by increased expenditures due to visitation.

The BLM is a major provider of outdoor recreation opportunities throughout western Oregon. The BLM administers approximately 50 percent of all public land within 30-minute driving distance of the 12 largest communities in western Oregon, and 34 percent within 60-minute driving distance (**Map 3-6**). The U.S. Forest Service, National Park Service, Oregon Parks and Recreation Department, Oregon Department of Forestry, and a variety of local agencies and private entities provide a wide variety of outdoor recreation opportunities for residents and visitors. Participation on BLM-administered lands in western Oregon numbered approximately 10.8 million participants in 2013, with wildlife/nature viewing, scenic driving, camping and picnicking, non-motorized trail use, and hunting all experiencing over a million participants (see **Table 3-132** in Recreation). The recreation section of the Analysis of the Management Situation (USDI BLM 2013, pp. 2-72 – 2-82) describes the current conditions and trends for recreation facilities and user numbers in the planning area. **Table 3-144** provides an approximation of current acreage under recreation management, totaling approximately 164,000 acres.



Map 3-6: Travel Times from Major Communities in Relation to BLM-Administered Lands
Sources: Portland State University; U.S. Census 2014

Table 3-144. Current managed recreation acreage of BLM-administered lands

District/ Field Office	Current Managed Recreation (Acres)
Coos Bay	6,614
Eugene	20,511
Klamath Falls	69,470
Medford	32,065
Roseburg	6,984
Salem	28,648
Totals	164,292

Notes: Under the No Action alternative, all BLM-administered lands in the decision area are allocated to RMAs, and the management of RMAs described in the 1995 RMPs differs from current definitions and policy. Alternative B represents an approximate continuation of the current recreation management, but consistent with current definitions and policy for RMAs. Source: BLM Recreation Management Area data, estimates prepared for Alternative B.

Demand

The BLM projects overall participation levels to increase; reaching 16.5 million participants annually by 2060 (see the Recreation section in this chapter).

Population centers and surrounding access tend to be the primary factors for demand for outdoor recreation opportunities. Researchers consider site attributes and travel costs, including time, to be the primary factors for variation in demand from one site to another, and for decisions between recreation and other forms of leisure (Loomis and Walsh 1997). Western Oregon is recognized nationally and globally for providing excellent outdoor recreation opportunities, with extensive forests, rivers, and mountains that include access, facilities, and trails throughout. The northern Willamette Valley is the most heavily populated portion of the region, dominated by the Portland metro area (see **Figure 3-140** in Recreation). Recreation opportunities within proximity to these population centers experience the most demand, and consequently have the potential to provide the most value, when they provide the types of outdoor recreation of interest. Some of the highest participation levels for trail use on BLM-administered lands are within these proximities.

Extending the analysis of travel distances and BLM-administered lands to the 12 study communities in western Oregon increases the coverage of BLM-administered lands within 60 minutes of travel. Proximities to study communities tend to correspond to BLM-administered lands with high recreation use (**Map 3-6**). While access is often quite difficult through rugged and mountainous areas, 45 percent of western Oregon is accessible within a 60-minute drive time from one of the 12 study communities, and 56 percent of the BLM-administered lands within this region fall within the 60-minute travel proximity. When considering the overall ownership shares of public lands within these travel proximities, the U.S. Forest Service is the largest landowner, at 48 percent, followed by the BLM at 34 percent (**Table 3-145**).

Table 3-145. Public land ownership shares in 60-minute driving distances from study communities

Community	Other Ownership (Percent)	Local Government (Percent)	State of Oregon (Percent)	BLM (Percent)	U.S. Fish and Wildlife Service (Percent)	Forest Service (Percent)
Coos Bay	3%	-	39%	46%	1%	12%
Corvallis	10%	4%	21%	49%	4%	12%
Eugene	2%	1%	4%	35%	1%	58%
Grants Pass	-	-	2%	80%	-	18%
McMinnville	5%	5%	38%	19%	3%	30%
Medford	-	-	1%	46%	-	53%
Newberg	1%	8%	58%	29%	4%	1%
Portland	-	3%	30%	5%	1%	61%
Roseburg	-	-	1%	47%	-	52%
Salem	1%	2%	7%	12%	2%	76%
Sandy	1%	3%	2%	6%	2%	85%
Tillamook	3%	4%	53%	12%	-	27%
Totals (Percent)	1%	2%	14%	34%	1%	48%
Totals (Acres)	86,571	128,766	914,736	2,315,100	72,480	3,223,677

Value

The most commonly used measure of value associated with outdoor recreation activity is consumer surplus,⁹³ which represents the net benefit to the participant after deducting market-based costs associated with the activity (e.g., equipment, transportation, and access fees). Consumer surplus is used to demonstrate the value, expressed in monetary terms, that participants experience but do not have to pay for. Consumer surplus values do not represent dollars exchanged, but, rather, the amount of net benefit beyond expenditures that represent additional willingness to pay. Expenditures on items such as equipment and transportation, while not directly representing value of the recreation site and activity itself, do reflect value to the recreation consumer. Issue 2 describes the effects of recreation expenditures on jobs and earnings.

The U.S. Forest Service (Loomis 2005) provides regional estimates by recreation type for the net value (consumer surplus; **Table 3-146**). These estimates derive from a meta-analysis of individual studies to estimate average recreation consumer surplus by recreation type and region. These data represent the average amount participants would pay beyond their total costs for the activity. Therefore, roughly half of participants would receive less consumer surplus, and half would receive more. The ranges for values reflect differing estimates from different contexts. The ranges also demonstrate that differing conditions for recreation opportunities can have very different values to users. Some of the factors that might contribute to variation in value for an activity is the site and facility quality, the attractiveness of the physical characteristics, and the accessibility (travel time). Several factors drive variation in net benefit between individuals, including people's differing preferences for amount and type of outdoor recreation

⁹³ Consumer surplus is the commonly used measure of value for recreation activity, because while equipment and travel expenses are determined in markets, recreation sites and access are not typically priced according to market forces.

activity. Participants can experience a range of values across participation visits themselves, with typically some level of diminishing returns with increased number of visits, up to the point where a participant decides not to make one more visit. Again, these data represent an average of all visit values.

Table 3-146. Net economic benefit (consumer surplus) by activity, per user day (2012 dollars)

Activity	Minimum Benefit (Dollars)	Mean Benefit (Dollars)	Maximum Benefit (Dollars)
Camping and Picnicking	\$9-\$18	\$76-\$123	\$169-\$265
Driving for Pleasure (Along Designated BLM Roadways)	\$6	\$24	\$72
Fishing	\$5	\$52	\$122
Hunting (Big Game, Upland Game, and Migratory Game Birds)	\$7	\$54	\$132
Motorized Boating	\$15	\$32	\$76
Motorized Off-highway Vehicle Travel	\$48	\$48	\$48
Non-motorized Boating	\$30	\$33	\$35
Non-motorized Travel (Hiking, Biking, and Horseback Riding)	\$0-\$37	\$21-\$62	\$21-\$153
Non-motorized Winter Activities	\$57	\$57	\$57
Snowmobile and other Motorized Winter Activities	\$13	\$43	\$147
Specialized Non-motorized Activities and Events	\$2	\$38	\$148
Swimming and Other Water-based Activities	\$7	\$32	\$70
Wildlife Viewing, Interpretation, and Nature Study	\$8	\$86	\$411

Notes:

- All net economic benefit (consumer surplus) values reported in 2012 dollars. Consumer surplus value does not represent actual financial transaction, but rather value experienced by the participant.
- Activity categories from RMIS reports were aggregated to match the BLM reporting categories shown above. These underlying categories were cross-referenced with corresponding categories from Loomis (2005). Consumer surplus values associated with ‘general recreation’ were applied those activities without representative values.
- ‘Camping and Picnicking’ used values associated with ‘Camping’ and ‘Picnicking’
- ‘Driving for Pleasure (Along Designated BLM Roadways)’ used values associated with ‘Sightseeing’
- ‘Fishing’ used values associated with ‘Fishing’
- ‘Hunting (Big Game, Upland Game, and Migratory Game Birds)’ used values associated with ‘Hunting’
- ‘Motorized Boating’ used values associated with ‘Motorboating’
- ‘Motorized Off-highway Vehicle Travel’ used values associated with ‘Off-road vehicle driving’
- ‘Non-motorized Boating’ used values associated with ‘Floatboating/rafting/canoeing’
- ‘Non-motorized Travel (Hiking, Biking, and Horseback Riding)’ used values associated with ‘Backpacking’, ‘Hiking’, ‘Horseback Riding’, and ‘Mountain biking’
- ‘Non-motorized Winter Activities’ used values associated with ‘Cross-country Skiing’
- ‘Snowmobile and other Motorized Winter Activities’ used values associated with ‘Snowmobiling’. ‘Specialized Non-motorized Activities and Events’ used values associated with ‘General Recreation’. These values therefore also represent a general recreation value that can be applied with specific type of activity is not identified.
- ‘Swimming and Other Water-based Activities’ used values associated with ‘Swimming’
- ‘Wildlife Viewing, Interpretation, and Nature Study’ used values associated with ‘Sightseeing’ and ‘Wildlife Viewing’

Source: Loomis 2005

The most common outdoor recreation activities, requiring the least equipment or specialized skill, have the largest participation numbers, and, based on the values in **Table 3-146**, provide the greatest total net benefit (e.g., Camping and Picnicking, and Wildlife Viewing, Interpretation, and Nature Study). Outdoor recreation participants in 2013 on BLM-administered lands numbered approximately 10.8 million participants. Note that visitor-days are fewer than the number of participants because visitor-days are summed across users to full 12 hours of recreation activity. Therefore, if an individual’s recreation visit participation time is less than 12 hours, the data combine it with time from another participant. Based on

the data in **Table 3-146** and **Table 3-147**, and using the average (mean) value, recreation activity contributed approximately \$223 million in net economic benefit gains to residents of and visitors to western Oregon. **Table 3-147** shows 3.2 million visitor-days in 2013, which corresponds to 5.3 million total visits, demonstrating the general proportion of visits to visitor-days for outdoor recreation on BLM-administered lands.

Table 3-147. Total 2013 visitor-days, by activity, to all western Oregon BLM districts, and net benefit estimates (i.e., consumer surplus) (2012 dollars)

Activity	Visitor-days (Number)	Participants (Number)	Total Net Benefit (Consumer Surplus) (Thousands of 2012 dollars)
Camping and Picnicking	938,290	1,273,349	\$111,728
Driving for Pleasure (Along Designated BLM Roadways)	376,562	1,959,729	\$9,020
Fishing	181,746	598,420	\$9,528
Hunting (Big Game, Upland Game, and Migratory Game Birds)	485,911	1,063,709	\$26,122
Motorized Boating	41,843	97,622	\$1,332
Motorized Off-highway Vehicle Travel	272,792	826,256	\$13,014
Non-motorized Boating	74,580	224,876	\$2,454
Non-motorized Travel (Hiking, Biking, and Horseback Riding)	243,325	1,211,201	\$9,558
Non-motorized Winter Activities	14,723	50,444	\$842
Snowmobile and other Motorized Winter Activities	1,896	6,903	\$81
Specialized Non-motorized Activities and Events	111,012	458,870	\$4,244
Swimming and Other Water-based Activities	106,537	424,376	\$3,436
Wildlife Viewing, Interpretation, and Nature Study	385,596	2,564,574	\$31,512
Totals	3,234,813	10,760,329	\$222,872

Notes: Activity categories provided in the BLM RMIS reports were cross-referenced with corresponding categories from Loomis 2005. Consumer surplus values associated with 'general recreation' were applied those activities without representative values. A visitor-day represents 12 visitor hours at a site or area. So, for example, 12 one-hour visits equate to one visitor-day. As a result, there are more participants than visitor-days. Participants include both local and non-local people.
Sources: Loomis 2005 and 2013, and USDI BLM 2014f

Table 3-148 shows the breakdown by BLM district. The Salem and Eugene Districts have the highest visitor-day counts and, consequently, the highest recreation values.

Table 3-148. Total 2013 visitor-days, by BLM district, and annual net benefit estimates (i.e., consumer surplus) (2012 dollars)

District/ Field Office	Visitor-days (Number)	Total Net Benefit (Consumer Surplus) (Thousands of 2012 dollars) (Mean)
Coos Bay	272,757	\$23,858
Eugene	914,175	\$59,122
Klamath Falls	48,099	\$3,243
Medford	462,463	\$28,914
Roseburg	303,727	\$20,681
Salem	1,233,592	\$87,055
Totals	3,234,813	\$222,872

Source: Loomis 2005 and 2013 and USDI BLM 2014f, applying activity-specific use of consumer surplus values

Special Forest Products

Supply

Special forest products include all non-timber products harvested or collected from BLM-administered lands in western Oregon. The BLM classifies these products into two broad categories. Category I products, such as Christmas trees, huckleberries, beargrass, pine cones, and some mushrooms (e.g., morels) grow in areas of disturbance. Timber harvesting, commercial thinning, and prescribed burning, create the types of disturbed conditions in which these products grow. Category II products, such as ferns, wild ginger, mosses, and some mushrooms (e.g., chanterelles), grow in undisturbed areas. **Table 3-149** identifies the special forest products found on BLM-administered lands for which the BLM issues permits, and the applicable category.

Table 3-149. Special Forest Products: permits, minimum prices, market values, and revenue to BLM (CY 2012 for all districts)

Special Forest Product	Category	Unit of Measure	Quantity Harvested	Permits (Number)	BLM Minimum Price per Unit	Market Price (Low)	Market Price (High)	BLM Revenue	Market Value (Low)	Market Value (High)
Boughs	2	Pounds	182,075	70	\$0.03	\$0.19	\$0.71	\$5,700	\$34,600	\$129,300
Burls & Misc.	2	Pounds	3,600	7	\$0.05	\$1.94	\$2.91	\$200	\$7,000	\$10,500
Christmas Trees	1	Count	581	818	\$3.00	\$16.94	\$16.94	\$4,500	\$9,800	\$9,800
Edibles & Medicinals	1, 2	Pounds	17,400	31	\$0.05	\$2.46	\$3.24	\$900	\$42,800	\$56,400
Floral & Greenery	1, 2	Pounds	1,192,125	1,467	\$0.05	\$2.52	\$4.40	\$82,200	\$3,004,200	\$5,245,400
Mosses	2	Pounds	1,000	1	\$0.10	\$2.51	\$3.77	\$100	\$2,500	\$3,800
Mushrooms	1 (Morels) 2 (Chanterelles)	Pounds	315,138	1,621	\$0.10	\$2.70	\$125.40	\$48,500	\$850,900	\$39,518,300
Seeds & Seed Cones	1 (Pine) 2 (Hemlock)	Bushels	1,000	3	\$0.20-\$0.25	\$0.42	\$3.05	\$100	\$400	\$3,100
Transplants & Ornamentals	1, 2	Count	650	11	\$1.00-\$10.00	\$0.02	\$18.24	\$400	< \$100	\$11,900
Totals		-	-	4,029	-	-	-	\$238,200	\$3,952,200	\$44,988,300

Note: All revenue and market values rounded to the nearest hundred

Sources: Barnard 2014, Blatner and Alexander 1998, USDI BLM 2014, Draffan 2006, Muir *et al.* 2006, Pacific Northwest Christmas Tree Association 2014, USDI BLM Salem 2011, Schlosser and Blatner 1997, Schlosser and Blatner 1995, Thomas and Schumann 1993

Under current conditions, in the coastal/north region of the decision area, approximately 111,300 acres (11 percent) of stands on BLM-administered lands support Category I (disturbance-associated) products and 864,600 acres (89 percent) of stands on BLM-administered lands support Category II (disturbance-averse) products. In the interior/south region of the decision area, approximately 195,300 acres (16 percent) of forest on BLM-administered lands support Category I products and 992,000 acres (84 percent) of forest on BLM-administered lands support Category II products in the interior/south area. The Forest Management section in this chapter describes the distribution of Category I and Category II special forest products in more detail.

Demand

All the BLM districts in the planning area report harvests of non-timber forest products. The BLM manages the collection of these products via a permit system, issuing permits to both commercial collectors and for personal use. Districts report that people seeking permits to harvest are primarily local, and many are immigrants or non-English speakers. However, the BLM does not systematically collect information about the origin or other characteristics of people who receive permits.

Table 3-149 shows the quantity harvested of the special forest products for issued permits, for all products except biomass and wood products, which are addressed in other sections of Issue 1. The data reflect demand for these products, especially floral and greenery and mushrooms, but they likely underestimate the demand for several reasons:

- In some cases, there is a limit or cap on the number of permits issued or on the quantity of goods harvested. For such goods, demand would be greater than indicated by quantity harvested.
- Permittees may inaccurately report quantity harvested, resulting in these numbers under- or overestimating demand, though the tendency is likely toward underestimation.

Some harvest may take place without a permit (illegal trespass), so that demand is not captured in BLM data. BLM law enforcement reports that trespass does occur (Babcock 2014, personal communication). In 2012, the Roseburg District issued the most permits (1,440), followed by the Eugene (1,152), Coos Bay (980), Medford (241), and Salem (122) Districts, and the Klamath Field Office (94).

Value

Table 3-149 also shows the BLM's minimum price list for permitted special forest products, and a range of market values found in the literature (see table sources). Some districts price special forest products higher on a per-unit basis than the BLM's minimum price, though most districts reported using the minimum prices for most products.

Researchers with the U.S. Forest Service conducted the most thorough research on the market for special forest products in the Pacific Northwest in the 1980s and 1990s. These studies estimated that annual permitted harvest values across these markets totaled to \$400 million for the Pacific Northwest annually (Schlosser *et al.* 1992). Later researchers noted, "There is very little information about year-to-year prices for products within the different industries [for various special forest products], so although large general trends can be discussed, specific prices and industry trends are not well understood" (Blatner and Alexander 1998). This research also suggests high levels of unpermitted use, and corresponding greater actual value harvested. Schlosser and Blatner (1997) estimated Christmas greens contributing approximately \$128.5 million in product sales in the region in 1989, while edible mushrooms contributed \$41.1 million in product sales.

Table 3-149 shows the revenue the BLM received from permit sales for the special forest products in 2012, and the value of each type of special forest product based on the range of market values. BLM revenue was highest in the Eugene district (\$78,500), followed by the Roseburg (\$60,300), Coos Bay

(\$44,300), Medford (\$29,200), and Salem (\$22,300) Districts, and the Klamath Falls Field Office (\$3,500).

As **Table 3-149** shows, special forest products in each grouping may contain species that thrive in either Category I or Category II lands. For example, some mushrooms, such as morels, grow best in disturbed areas, while others, such as chanterelles, require undisturbed land to flourish. The BLM collects some data on the type of mushroom harvested, but for about 80 percent of the permit records related to mushrooms, the species is unspecified. This data insufficiency makes it difficult to determine the distribution of value between Category I and Category II lands for species that are in both categories.

Sustainable Energy Production

Supply

The potential sustainable sources of energy from BLM-administered lands in the planning area include biomass, geothermal, solar, and wind. The Sustainable Energy section of the Analysis of the Management Situation (USDI BLM 2013, pp. 2-117 – 2-120) discusses in more detail the background and potential for development of each on BLM-administered lands in western Oregon. As of 2014, there were no geothermal, solar, or wind developments on BLM-administered lands in the planning area, though, the U.S. Department of the Interior has identified one site with the potential for generating energy from geothermal resources.

BLM-administered lands in western Oregon generate several types of biomass, including slash, lumber and paper byproducts (e.g., pulp), firewood, and scrap and salvaged wood. The source of biomass the BLM is most likely to offer for energy production is slash from logging (see the Sustainable Energy section in this chapter). Thus, the quantity of biomass available for energy production each year is derived from the volume of timber harvests. According to the Sustainable Energy section, almost 153,000 bone dry tons of biomass from slash were available based on 2012 harvest levels. Supplies of other sources of biomass, such as firewood, are also available to produce additional energy.

Demand

Although BLM-administered lands in western Oregon provide some areas suitable for wind production, there is currently no demand for developing these areas, because their proximity to transmission capacity and centers of demand make development too costly under today's economic conditions (Peter Broussard, BLM, personal communication, 2013). Currently, demand for generating energy via geothermal resources is limited by technology and a lack of infrastructure to convey energy to population centers. There is no current demand for solar energy in the decision area based on current solar generation technology.

Markets for biomass fuel are close in proximity to the production areas, but other Federal, State, and private sources supply these markets. State and Federal mandates that require energy companies and communities to invest in renewable energy resources are driving investors to consider the energy resources available on BLM-administered lands, including those in western Oregon (USDI BLM 2014c). The BLM is actively working with communities and companies in western Oregon to develop information, infrastructure, and other resources to better-utilize biomass for renewable energy production (USDI BLM 2006 and 2010). Several co-generation facilities exist in western Oregon that utilize biomass to produce electricity, most commonly associated with existing sawmills. Industrial landowners and other partners are exploring opportunities for installing new generation capacity at existing sawmills, and building small-scale generation and heating projects for institutional facilities, such as schools (USDI BLM 2006).

Utilization of biomass (using sold amounts as a proxy for utilization, and utilization to represent demand) from BLM-administered lands in the planning area has varied over the last few years, ranging from almost 70,000 green tons in 2010 to less than 10,000 green tons since 2011. Incentives provided through the American Recovery and Reinvestment Act of 2009 likely contributed to the peak in 2010. In 2012, among the district/field offices in the planning area, only the Klamath Falls Field Office reported production of biomass materials totaling 3,000 bone dry tons. All six districts reported issuing permits for fuel wood, amounting to 5,578 green tons produced. Assuming 40 percent moisture content, this equals 3,347 bone dry tons. Thus, the total quantity of biomass utilized in 2012 was 6,347 bone dry tons.

Value

In 2012, the BLM received \$1,500 in revenue from selling a permit for 3,000 bone dry tons of biomass. This equates to \$0.50 per bone dry ton or about \$0.03 per million BTUs. This transaction occurred in the jurisdiction of the Klamath Falls Field Office. The BLM also granted permits for the procurement of about 5,600 green tons of fuel wood across all six districts, and received in exchange about \$30,700 in revenue. Assuming that the average moisture content of the biomass is 40 percent, this equates to about \$9 per bone dry ton or about \$0.5 to \$0.6 per million BTUs. In total, BLM earned about \$32,200 in revenue from all sources of biomass burned for energy in 2012. Data are unavailable to quantify the amount or value of biomass from BLM-administered lands that industrial landowners and paper mills utilized to produce energy.

Livestock Grazing

Supply

Only the Coos Bay District, Klamath Falls Field Office, and Medford District administer livestock grazing in the decision area. The Livestock Grazing section in this chapter provides detail on the current and historic supply of livestock grazing resources. In 2012, the decision area had approximately 23,000 active animal unit months (AUMs; **Table 3-150**).

Table 3-150. Livestock grazing, number of permittees, forage, market value, and BLM revenue, 2012

District/ Field Office	Supply	Indications of Demand		Indications of Value		
	Active Use (AUMs) ^{*,†}	Permittees (Number)	Billed AUMs ^{*,‡}	Market Value Based on Private Forage Price (\$16.80/AUM)	Market Value Based on State Forage Price (\$8.48/AUM)	BLM Revenue Based on Federal Livestock Grazing Fee (\$1.35/AUM)
Coos Bay	120	4	23	\$386	\$195	\$31
Eugene	-	-	-	-	-	-
Klamath Falls	13,210	63	8,474	\$142,363	\$71,860	\$11,440
Medford	10,255	43	6,878	\$115,550	\$58,325	\$9,285
Roseburg	-	-	-	-	-	-
Salem	-	-	-	-	-	-
Totals[§]	23,585	63	15,375	\$258,300	\$130,380	\$20,756

* An animal unit month (AUM) is the amount of forage required to sustain one cow and her calf, one horse, or five sheep or goats for a month on lands in western Oregon. Active Use is a measure of the amount of available forage designated for livestock grazing in a given year

† Active Use is used in this section to describe the supply of livestock grazing land provided by BLM-administered lands. Not all of this land is actually used for livestock grazing, even though livestock grazing is allowed by regulation

‡ A billed AUM is the amount of forage actually used for livestock grazing, and is the unit used to calculate revenue to the BLM.

§ Totals may not sum due to rounding

Sources: Livestock Grazing section of this chapter, USDI BLM Data: Allotments Use Summary for Billing Year 2012 by Districts, USDI BLM 2014b, USDI BLM 2014e

Demand

Demand for livestock grazing permits is from private landowners in the vicinity of and adjacent to BLM-administered rangelands, whose property the BLM has recognized as having preference for the use of public livestock grazing privileges. Public rangelands are made available for livestock grazing through a system of permits and leases tied to particular areas (allotments) and quantities of forage. In 2012, there were 110 permittees leasing or permitted to graze on BLM allotments in the management area (**Table 3-150**). These 110 permittees billed the BLM for the use of 16,333 AUMs of forage.

Value

The Federal government sets the Federal livestock grazing fee annually, which applies to BLM- and U.S. Forest Service-administered lands in the 16 western states. The fee is adjusted based on a formula set by Congress in the Public Rangelands Improvement Act of 1978 and modified by subsequent presidential Executive orders. While the fee takes into account market factors, such as production costs and beef prices, the price is not set in an open market, so may not reflect the actual value of the right to graze animals on BLM-administered lands.

The Federal livestock grazing fee in 2012 was \$1.35 (USDI BLM 2013, USDI BLM 2014d). By law, the fee cannot fall below \$1.35 per AUM, and cannot increase or decrease more than 25 percent year-over-year (Vincent 2012). Since 2004, the fee has ranged from \$1.35 to \$1.79. The BLM collected approximately \$21,000 in revenue for the AUMs within the decision area in 2012 (**Table 3-150**).

Disputes persist about the extent to which Federal livestock grazing fees actually reflect ‘fair market value’ (USDI BLM 2013). The average price of private forage on land in the western United States in

2011 was \$16.80 per AUM (USDI BLM 2013). The livestock grazing fee on State trust lands in Oregon in 2012 was \$8.48 per AUM (Oregon Department of State Lands 2012). At these prices, the value of livestock grazing would have ranged from about \$130,000 to \$258,000. However, the value of an AUM on BLM-administered lands may not compare directly to livestock grazing fees for private land, because private livestock grazing fees may include other services that enhance its value, such as fencing and water infrastructure that BLM allotments do not provide. State livestock grazing fees may provide a better comparison, although differences in proximity, density of forage, and herd security between State trust and BLM-administered lands may still factor into a lower average value associated with using BLM-administered lands for livestock grazing.

Rangeland provides a broad range of goods and services. See the recreation and biodiversity subsections of this issue for discussion of the value of other goods and services associated with rangeland.

Minerals

Supply

BLM-administered lands include approximately 2.5 million acres that could provide mineral resources to the public. These lands include salable, locatable, and leasable mineral resources.

- **Salable Minerals**—The primary salable mineral resources associated with BLM-administered lands in western Oregon are sand, gravel, and crushed stone, referred to collectively as ‘mineral material.’
- **Locatable Minerals**—Locatable minerals in western Oregon include precious metals (e.g., gold, silver, nickel, mercury, and uranium), nonmetallic minerals (e.g., fluorspar and gemstones), and uncommon variety minerals (e.g., certain limestone and silica).
- **Leasable Minerals**—Leasable minerals in western Oregon include oil, gas, coalbed natural gas, coal, and geothermal energy.

Those interested in mineral development have access to a large majority of BLM-administered lands in the planning area. Currently, approximately 13 percent, or 319,000 acres, of BLM-administered lands are closed to salable mineral material disposal, and approximately 4 percent, or 98,400 acres, are withdrawn from locatable mineral entry. The decision area would remain open to leasable mineral development under all alternatives and the proposed RMP except where legislation has already closed lands. The Minerals section of this chapter provides more detail on the supply of mineral resources.

Demand

Demand for minerals on BLM-administered lands comes from several sources: commercial (e.g., industrial landowners), governmental agencies utilizing materials for government projects with free use permits, and individuals looking for mineral resources (mostly locatable minerals) primarily for personal use or enjoyment. All these types of demand have the potential to generate economic benefits. This section focuses on demand from larger-scale mineral production. There are no current leases for oil, gas, or coal on BLM-administered lands in western Oregon, and limited activity related to locatable minerals. The BLM does not collect information about the quantity of locatable minerals removed from mining claims.

There are over 1,000 developed quarries for salable mineral materials on BLM-administered lands in western Oregon. In 2012, producers removed approximately 35,555 cubic yards of mineral material from these quarries, primarily crushed and specialty stone. Approximately 85 percent was from the Roseburg District (**Table 3-151**). Between 2005 and 2012, producers removed on average about 25,000 cubic yards in the Eugene, Medford, and Roseburg Districts. The most common uses for these minerals are road construction and resurfacing, and building other surfaces for use during logging operations. Recreation

facilities (e.g., boat ramps) and conservation activities (e.g., stream improvements) use some material. The relatively close proximity of the source of salable mineral materials to roads, logging units, and recreation areas on BLM-administered lands helps reduce costs of associated activities.

Table 3-151. Salable mineral materials, market value, and revenue, 2012

District/ Field Office	Mineral Material Removed from BLM-administered Lands (Cubic Yards)	Market Value and Revenue to BLM (Dollars)
Coos Bay	-	-
Eugene	27	\$188
Klamath Falls	-	-
Medford	5,285	\$3,584
Roseburg	30,243	\$15,141
Salem	-	-
Totals	35,555	\$15,328

There were 1,045 active mining claims for locatable minerals on BLM-administered lands in western Oregon in 2013, an increase of 25 percent since 2005 (USDI BLM 2013). Most of the increase is in the Medford District, where claims increased by 200, or about 30 percent.

Value

Federal law authorizes the BLM to sell salable mineral materials at fair market value. Prices for mineral material are set by district rate sheets, or by appraisal for larger or specialized quantities. The price per cubic yard in 2012 ranged from \$0.50 to \$10.00 per cubic yard. The Eugene and Roseburg Districts charged \$0.50 per cubic yard for most sales, while the Medford District charged \$3.00 per cubic yard for most sales. The market value to the BLM in 2012 was approximately \$15,300 (**Table 3-151**). The value of locatable minerals would also be based on their market value. However, the BLM does not collect information on production from these claims.

The value of recreational mining, where people participate for the experience as much or more than the prospect of earning income, is partially captured in the Recreation section of Issue 1. The BLM does not explicitly track user days for recreational mining, but some of these users are likely captured in the data for other recreational activities (e.g., hiking and public motorized travel activities).

Carbon Storage

Supply

The Climate Change section in this chapter describes the current conditions regarding climate change and carbon storage for the decision area. Forests in the decision area as a whole are a sink for carbon, fixing more carbon above- and below-ground than they emit. The BLM-administered lands in the planning area store an estimated 366 teragrams of Carbon (Tg C) (1 teragram is equivalent to 1 million metric tons). The carbon density (the amount of carbon per acre) varies by district with the Klamath Fall Field Office having the lowest density and the Eugene District the highest. Each year the net amount of carbon stored in forests changes, with some released through fire, decay, and other processes, and some fixed through growth. In 2012, the forests in the decision area fixed and stored a net total of about 769,000 metric tons of carbon.

Demand

Across the world, many individuals, businesses, and governments recognize a need to address climate change through greenhouse gas mitigation and adaptation, to avoid costs associated with climate change now and in the future. Some markets exist where greenhouse gas producers pay dollars for so-called ‘carbon offsets’ or ‘carbon credits.’ However, there is no active trading market in western Oregon, and the BLM does not participate in these markets. Among individuals and groups, demand exists to maintain existing carbon sinks and increase opportunities for carbon storage in western Oregon, but a funding mechanism to achieve this does not exist.

Value

Absent a market for carbon, this analysis addresses the value of carbon storage from a social perspective, where the value of carbon storage is derived from non-market valuation techniques such as avoided cost and avoided risk. The social cost of carbon (SCC) is an estimate of the anticipated future damages from greenhouse gas emissions. According to the Interagency Working Group convened by the Council of Economic Advisers and the Office of Management and Budget to analyze the social cost of carbon, SCC “is intended to include (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services due to climate change” (Interagency Working Group on Social Cost of Carbon, United States Government 2013). The Interagency Working Group most recently revised the estimates of the SCC in 2015.

Combining the BLM estimates of the amount of carbon stored in forests in the decision area with the most recent average SCC estimates at the 3 percent discount rate, yields a value of carbon stored annually by forests in the decision area of approximately \$85 million (**Table 3-152**). Using estimates that reflect higher risk of damage—the 95th percentile—yields a value of about \$247 million.

Table 3-152. Quantity of total carbon stored on BLM-administered lands, estimated annual carbon stored, and estimated value (2012 dollars)

District/ Field Office	Stock of Stored Carbon (Million Metric Tons)	Estimated Annual Carbon Storage (Million Metric Tons)*	Value of Estimated Annual Stored Carbon (Millions)	
			Average [†]	95 th Percentile [†]
Coos Bay	59.61	0.15	\$21	\$62
Eugene	59.65	0.15	\$21	\$62
Klamath Falls	8.71	0.01	\$1	\$3
Medford	93.94	0.02	\$2	\$6
Roseburg	63.63	0.06	\$9	\$25
Salem	75.71	0.21	\$31	\$89
Totals[‡]	361.25	0.59	\$85	\$247

* Estimated Annual Carbon Storage based on calculated per-year carbon storage for total carbon stored over the first decade of analysis (2013 to 2023).

† Values are based on 2015 SCC estimates converted from per metric ton of carbon dioxide (CO₂) to per metric ton of carbon (C) and converted to 2012 dollars, as described in the methodology at the beginning of this section. Both the average and 95th percentile scenarios reflect a 3 percent discount rate.

‡ Totals throughout this analysis do not include carbon stored in harvested wood products. These carbon amounts are reported in the Climate Change section.

Source: USDI BLM and Interagency Working Group on Social Cost of Carbon 2015

Source Water Protection

Supply

The BLM-administered lands in western Oregon capture, filter, and convey water that people in communities across western Oregon drink. There are approximately 20,400 miles of streams and rivers and 218,000 acres of lakes, ponds, and wetlands on BLM-administered lands (USDI BLM 2013). In 2011, the BLM and the Oregon Department of Environmental Quality (ODEQ) signed a memorandum of understanding that documents the efforts that both agencies will take for “managing and controlling point and nonpoint source water pollution from BLM-managed lands in the State of Oregon” (ODEQ and USDI BLM 2014, p. 1). Specific to the BLM’s resource management plans, the memorandum of understanding states that RMPs will identify and include best management practices (BMPs) to control non-point sources of pollution, to the “maximum extent practicable” (ODEQ, no date, p. 1; ODEQ 2014). The Hydrology section in this chapter discusses the quantity and quality of water produced from the planning area.

Demand

Approximately 80 percent of Oregonians depend on drinking water from public water systems. These public water systems draw surface water and groundwater from areas designated to protect the quality of drinking water. There are approximately 80 source water watersheds in the planning area, with varying amounts of BLM-administered lands. According to the Atlas of Conservation Values, 73 percent of the BLM-administered lands in western Oregon are in areas the ODEQ identifies as drinking water protection areas (TNC and WSC 2012). The ODEQ and the Oregon Health Authority have identified the source water areas in the State and conducted inventories of sources of contamination (USDI BLM 2013, p. 2-44). Source water areas for many public water systems encompass lands with multiple ownerships and varying forest management policies where BLM-managed lands are often a minority portion of the total watershed. Many BLM-administered lands in these watersheds occupy headwaters locations miles upstream from surface water sources (D. Carpenter, personal communication, 2014).

Value

The economics literature on water-treatment costs includes a growing number of studies that find a relationship between the quality of forest cover in source-water areas, and treatment costs for utilities that source from these areas. These studies conclude that greater and higher quality forest cover helps reduce treatment costs (USDA FS 2000, Freeman *et al.* 2008, Earth Economics 2012, World Resources Institute no date). Utilities manage water systems to address sources of risk to drinking water supplies. To the extent that forest management practices influence the risk of threats to a watershed’s integrity and its ability to provide clean drinking water, those changes would generate benefits or create costs for utilities (USDA FS 2000, Freeman *et al.* 2008, Earth Economics 2012, World Resources Institute no date).

Biodiversity and Sensitive Species

Supply

The BLM-administered lands in western Oregon include habitats and species of biodiversity importance. Important habitats include old-growth forests, wetland and riparian areas, and habitats contained in Areas of Critical Environmental Concern (ACECs). Important species include rare plants and fungi, various species of wildlife, fish, and insects (e.g., northern spotted owl, marbled murrelet, and coho salmon). Twelve ESA-listed plant species exist in the planning area. The BLM documented six of these species on BLM-administered lands in the decision area (USDI BLM 2013, p. 2-66). The Atlas of Conservation Values includes maps of species of concern and critical habitats for ESA-listed species on BLM-

administered lands (The Nature Conservancy and Wild Salmon Center 2012). Wildlife, Rare Plants and Fungi, and Areas of Critical Environmental Concern contain information on the supply or prevalence of specific species. Many of these species are found in ACECs, including Research Natural Areas that contain areas for ecological and environmental studies and preserves of gene pools of typical and endangered plants and animals.

Demand

Markets do not exist for the biodiversity aspects of habitats and species. However, evidence of demand exists elsewhere. Biologically diverse habitats provide biophysical functions that people depend on for survival. Individuals and households express their demand for habitats and species through survey responses. Society as a whole expresses demand through laws protecting ESA-listed species and the habitats they depend on.

The Millennium Ecosystem Assessment describes the importance of biodiversity to the biophysical functions that people depend on:

“Biodiversity—the diversity of genes, populations, species, communities, and ecosystems—underlies all ecosystem processes. Ecological processes interacting with the atmosphere, geosphere, and hydrosphere determine the environment on which organisms, including people, depend. Direct benefits such as food crops, clean water, clean air, and aesthetic pleasures all depend on biodiversity, as does the persistence, stability, and productivity of natural systems” (MEA 2005, p. 79).

The biodiversity within forest- and water-related ecosystems supports a range of fundamental ecosystem services (Pimentel *et al.* 1997, Krieger 2001) that people depend on including:

- Waste disposal
- Soil formation
- Nitrogen fixation
- Bioremediation of chemicals
- Crop and livestock breeding
- Biological control of pests
- Pollination

People and households express their demand for habitats and species through their response to survey questions. The economics literature contains numerous reports and articles in academic journals that describe studies of individual and household willingness to pay to protect habitats and species. Examples include Rubin *et al.* (1991), Hagen *et al.* (1992), Loomis and White (1996), Loomis and González-Cabán (1998), Moskowitz and Talberth (1998), Bulte and Van Kooten (1999), Spies and Duncan (2008), Pascual and Muradian (2010), and Loomis *et al.* (2014). The Value subsection below includes values from a number of these studies.

Society expresses demand for biodiversity and related habitats and species when voters or their elected representatives pass laws protecting threatened or endangered species and the habitats they depend on. For example, when the U.S. Congress passed the Endangered Species Act (ESA) in 1973, it recognized, “... that our rich natural heritage is of esthetic, ecological, educational, recreational, and scientific value to our Nation and its people” (USDI FWS 2013). According to the U.S. Fish and Wildlife Service, the purpose of the act is to, “protect and recover imperiled species and the ecosystems upon which they depend” (USDI FWS 2013). The State of Oregon has laws similar to the ESA and maintains its own list of threatened and endangered species separate from ESA-listed species (Oregon Department of Fish and Wildlife no date).

Value

The BLM identifies important values that areas provide including historic, cultural, or scenic, fish and wildlife resources, and natural processes or systems (USDI BLM 2013c, p. 2-14). Because people rely on these ecosystem services from forestlands, they also have economic value (Pimentel *et al.* 1997, Balmford *et al.* 2002, Farber *et al.* 2002, and, Pascual and Muradian 2010). The economic literature on this topic includes a number of studies that estimate the value of biodiversity and sensitive species in different contexts. Loomis *et al.* (2014) summarized the average values that sample households in the United States place on protecting ESA-listed species, by species group, see **Table 3-153**. In general, the average value takes into account the range of household values from zero to the highest values. Researchers typically apply the average value to all households in a study area.

Table 3-153. Willingness to pay (WTP) values per household, by species

Species Group	Average Annual Willingness To Pay (2012 dollars)*
Birds	\$47
Fish	\$117
Mammals	\$19
Marine Mammals	\$44

* Values updated from 2006 dollars using the GDP deflator
Source: Loomis *et al.* 2014

The literature also includes studies of sample households' average willingness to pay for some, but not all, of the threatened and endangered species present in the planning area (**Table 3-154**), and to protect old-growth habitat (**Table 3-155**).

Table 3-154. Annual willingness to pay (WTP) values per household, by species.

Species	Average Annual Willingness To Pay (2012 dollars [#])
Bald eagle (<i>Haliaeetus leucocephalis</i>)	\$131*
Fender's blue butterfly (<i>Icaricia icarioides fenderi</i>)	Unknown
Fisher (<i>Pekania pennanti</i>)	\$19 [†]
Golden eagle (<i>Aquila chrysaetos canadensis</i>)	\$47 [†]
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	\$47 [†]
Northern spotted owl (<i>Strix occidentalis caurina</i>)	\$68*
Oregon silverspot butterfly (<i>Speyeria zerene hippolyta</i>)	Unknown
Red tree vole (<i>Arborimus longicaudus</i>)	\$18 [‡]
Greater sage-grouse (<i>Centrocercus urophasianus</i>)	\$47 [†]
Steller's sea lion (<i>Eumetopics jubatus</i>)	\$84*
Streaked horned lark (<i>Eremophila alpestris strigata</i>)	\$47 [†]
Taylor's checkerspot butterfly (<i>Euphydras editha taylori</i>)	Unknown
Gray wolf (<i>Canis lupus nubilus</i>)	\$22*
Wolverine (<i>Gulo gulo</i>)	\$201 [§]

* See Martín-López *et al.* 2008, and references therein

† No species-specific studies exist; representative values from Loomis *et al.* 2014 used

‡ White *et al.* 1997; Note that the value reported above was not calculated for the red tree vole, specifically, but for a different vole species.

§ Ericsson *et al.* 2007

|| No studies exist to estimate the WTP for invertebrate species, such as butterflies. However, Diffendorfer *et al.* (2013) calculated that U.S. households value monarch butterflies (*Danaus plexippus*) at approximately \$4.78–\$6.64 billion—a level similar to many endangered vertebrate species.

Values updated from 2006 dollars using the GDP deflator

Table 3-155. Annual willingness to pay (WTP) values per household to protect old-growth habitat.

Source	Average Annual Willingness To Pay (2012 dollars)
Rubin <i>et al.</i> (1991)	\$65
Moskowitz and Talberth (1998)	\$64 – \$192
Loomis <i>et al.</i> (1994)	\$128

The studies that produced the dollar amounts in **Table 3-154** and in **Table 3-155** differ in their location and year conducted, demographic characteristics of study populations, approach, methods, questions asked, and in some cases include values for multiple and overlapping goods or services. Extrapolating these results to an accurate total value for the planning area is not possible given these variables.

Nevertheless, the findings confirm, that, on average, households in the United States value ESA-listed species. For illustrative purposes, the BLM estimated the value of bird species in the planning area using the latest estimates of willingness to pay from Loomis *et al.* (2014). A number of important bird species and their habitats exist in the planning area including eagles, the marbled murrelet, and northern spotted owl. Multiplying the average household willingness to pay estimate for bird species from Loomis *et al.* (2014), \$47 (2012 dollars) by the number of households in the planning area, approximately 1.3 million

(U.S. Bureau of the Census 2014b), yields an estimated value of approximately \$63 million (2012 dollars).

Scenic Amenities

Supply

The BLM categorizes the BLM-administered lands into one of four classes based on the relative value of visual resources. Visual Resource Inventory (VRI) Class I is assigned to those areas where a management decision has been made previously to maintain a natural landscape; these are located on congressionally designated lands, and BLM management actions must not adversely affect them. The other three VRI Classes are assigned based on a combination of scenic quality (i.e., visual appeal, as measured by a variety of factors), public sensitivity (i.e., degree of concern for the resource), and distance to publicly accessible travel routes and observation points. Over half of the BLM-administered lands in the decision area is VRI Class IV, which is the category of lowest visual resource value inventory class. About a quarter of the land (about 553,000 acres) is Class II and another quarter is Class III (about 578,000 acres). It is important to note that land with high scores for scenic quality may be distributed throughout these three classes, depending on the other attributes (sensitivity levels and distance zones) factored into the VRI rating. Approximately 1 percent of land in the decision area is Class I. The Visual Resource Management section of this chapter contains a detailed description of how land is categorized by VRI, and provides a more detailed breakdown of VRI classes throughout the management area.

Demand

People care about scenic amenities for a variety of reasons. Much of the demand for scenic amenities comes when people engage in recreation, on both public and private land. It is difficult to separate the demand for visual experience from the rest of the recreation experience, and the demand for recreation activities, such as motorized and non-motorized travel largely captures the demand for scenic amenities in the decision area. Scenic amenities are also important to people who live or work nearby BLM-administered lands and have views of public property.

Value

This section focuses on the value to private property owners with views of BLM-administered lands. Economic modeling demonstrates what common observation suggests: private property with a good view sells at a premium, compared to property without (Powe *et al.* 1997, Malpezzi 2002). The value of the premium is highly variable, and depends on the larger geographical and social context of the property. Studies have found premiums for views associated with residential properties ranging from statistically insignificant but positive to 1–89 percent of the price of a home (Behrer 2010). Most studies find the premium of a view is comparable to the premium added by a fireplace or a pool. The economic literature suggests that the price premium is more relevant for higher-valued residential properties and property with a primary purpose of recreation. The relationship between the VRI rating of a particular piece of BLM-administered lands and the value of nearby properties is complicated. VRI rating attempts to account for the proximity of private properties with views of BLM-administered lands under the VRI Sensitivity factor for “adjacent land uses.” It is likely that the more distant these properties are away from the BLM, the less refined the data. However, data is not available that document how the scenic views of BLM-administered lands directly contributes to the monetary value of private property. Moreover, a low VRI rating does not necessarily mean that the land is not likely contributing value to private property through views. For example, a private residence may have a highly desirable view that enhances its property value, and that view may be comprised in part of BLM-administered lands, but those lands could

be categorized as VRI Class III or IV due to having combination of average or less scenic quality, moderate to low public sensitivity and its position within the distance zone.

Cultural Meaning

Supply

The BLM-administered lands in the planning area contain over 2,400 cultural resource sites, including sites that are pre-historic, historic, or multi-component (i.e., possessing both historic and pre-historic components). The Cultural Resources and Paleontological Resources section in this chapter provides additional detail on cultural and paleontological resources. The BLM-administered lands also provide intangible cultural services. The Millennium Ecosystem Assessment defines cultural services as including “nonmaterial benefits people obtain through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences” (Sarukhán and White 2005).

Demand

Visitation to specific sites, organized activities on and related to BLM-administered lands, and individual interaction with specific resources demonstrate demand for the cultural resources. Demand also exists among populations who may not visit BLM-administered lands or interact with resources directly, but hold their existence to be important, for example, to maintain their cultural identity.

BLM districts report document many examples of demand for cultural resources. Three of many examples are:

- The Coos Bay District promotes and facilitates access to the Cape Blanco Lighthouse, which is the oldest lighthouse in Oregon. In 2012, 20,000 visitors toured the lighthouse.
- The Roseburg District collaborated with the Umpqua National Forest to conduct a Passport in Time public archaeology project. Other examples of demand include school-age children attending the School Forestry Tour and Creek Week.
- The Salem District, between 1996 and 2012, conducted 392 public education and interpretative programs focusing on cultural resources, which involved 17,833 people.

Nine federally recognized Tribes have lands or interests within the planning area. Tribal members express their demand and value for cultural resources in the ways they use and protect resources that have cultural importance to them. In some cases, uses are consumptive, as when Tribal members collect and consume wild plants as food or medicine. In other cases, uses are non-consumptive, as when accessing a location for ceremonial or sacred purposes. Tribes are also engaged in active management and protection of resources on BLM-administered lands (USDI BLM 2013).

Society also expresses demand for the protection of prehistoric and historic sites and artifacts through the laws and regulations passed to protect them, including the National Historic Preservation Act (which also created a Historic Preservation Fund to survey, document, and protect cultural resources), the Archeological and Historic Preservation Act, the Archeological Resources Protection Act of 1979, and others (USDI National Park Service 2014).

Value

The economics literature includes studies that describe the economic importance of cultural meaning or sense of place. Some studies estimate values based on spending by visitors to cultural sites, other studies estimate the value people place on protecting cultural sites or heritage, even if they never plan to visit these locations. These studies also describe a site’s resources or attributes that contribute to cultural

meaning, such as uniqueness, historical significance, or spiritual meaning (Snyder *et al.* 2003, de la Torre (ed.) 2002, and Dümcke and Gnedovsky 2013). Given the challenges of estimating the economic value of an intangible such as cultural heritage or sense of place, these studies provide insights into the importance people and societies place on these resources, rather than into a precise measure of economic value.

Cultural meaning contributes to the overall economic value of the goods and services from BLM-administered lands, though it is not possible to characterize all aspects of cultural meaning in the monetary language of economics.

The net economic benefit of recreation captures the value of some aspects of cultural meaning, as the cultural importance of an activity may be mixed with its recreational value. For example, family members may visit the Cape Blanco Lighthouse because it is the oldest lighthouse in Oregon, and hike or picnic while there. It is difficult to parse out the value they attribute to their day of recreation versus their interest in the lighthouse; there may be a premium they would place on their experience compared to another destination, but there is no applicable research to determine what this premium is.

Similarly, the value people place on the existence of sensitive species, such as salmon and the northern spotted owl, may be supported or enhanced by the cultural meaning people ascribe to these species. The economic studies underlying the values reported in **Table 3-154** do not parse the cultural aspects of value from other reasons why people ascribe value to the existence of these species.

The non-market values reported elsewhere in this section also do not capture the value of the cultural meaning indigenous people derive from the natural environment. Across the Pacific Northwest, for example, the tribal way of life is intertwined with the ecosystem that supports the many resources Tribes have used for thousands of years. In many cases, the rhythm of life and social organization revolves around the annual life cycle of plants, animals, and fish found on BLM-administered lands. These relationships are impossible—and inappropriate—to capture with a monetary measure, but they are important to these groups' economic well-being. Cultural meaning is perhaps more valuable from an economic perspective than other resources because the resources that have cultural importance are irreplaceable.

Summary

Table 3-156 summarizes the economic value of goods and services reported in the sections above. The first group of goods and services represent those that are valued using market prices, and from which BLM receives revenue. The amount of revenue received in 2012 is shown in the table, along with estimates of market value if BLM revenue is based on a price other than the market price. The second group of goods and services BLM does not earn revenue from directly. Two of these are quantified using non-market methods of valuation: willingness to pay for recreation and the social cost of carbon. The others are not monetized, but likely have economic value as described in the sections above. The quantified estimates in the table represent different metrics for estimating value, including market revenue, consumer surplus and willingness to pay, and avoided costs. The two groups are not strictly comparable and their sum should not be interpreted as a total value. The monetary estimates capture only a part of the total economic value of the goods and services provided by BLM-administered lands because they do not include the value of goods and services that cannot be monetized given available data, such as source water protection, biodiversity, scenic amenities, and cultural meaning.

Table 3-156. Summary of economic value of goods and services derived from BLM-administered lands in western Oregon, 2012

Good or Service	Type of Valuation	Economic Value in 2012
Market-based Goods and Services		
Timber	Market Price, Harvest Value	\$20.8 million
Special Forest Products	BLM Permit Fees, Market Price	BLM Revenue: \$0.24 million; Market Value (Low) \$4 million, Market Value (High) \$45 million
Energy Production	Market Price	\$0.032 million
Livestock Grazing	Congressionally Set Price, Market Price	\$0.022 million Market Value (State) \$0.14 million Market Value (Private) \$0.27 million
Minerals	Market Price	\$0.015 million
Non-market-based Goods and Services		
Recreation	Consumer Surplus, Willingness to Pay	\$223 million
Carbon Storage	Social Cost of Carbon	\$85 million
Source Water Protection	Qualitative	Not Monetized
Biodiversity and Sensitive Species	Qualitative	Not Monetized
Scenic Amenities	Qualitative	Not Monetized
Cultural Meaning	Qualitative	Not Monetized

Environmental Consequences

Timber

Table 3-157 shows the total harvest volumes under the alternatives and the Proposed RMP. The volumes include both the Allowable Sale Quantity (ASQ) and non-ASQ harvest. The total harvest volumes change over time because of changes in the amount of non-ASQ harvest (see the Forest Management section in this chapter for explanation of non-ASQ volume).

Table 3-157. Annual total* BLM harvest volumes (short log scale) over time

Alternative/ Proposed RMP	2023 Harvest Volume (MMbf)	2033 Harvest Volume (MMbf)	2043 Harvest Volume (MMbf)	2053 Harvest Volume (MMbf)	2063 Harvest Volume (MMbf)	2113 Harvest Volume (MMbf)
No Action	399.6	391.6	380.2	364.5	341.2	286.9
Alt. A	248.6	243.7	245.2	244.3	252.2	294.9
Alt. B	331.7	322.9	315.5	302.7	300.9	288.6
Alt. C	555.0	548.7	541.1	532.7	524.4	588.0
Alt. D	180.0	179.8	179.4	178.9	184.5	244.4
PRMP	277.5	270.7	265.1	253.7	252.0	236.1

* Annual totals shown are calculated from decadal averages of modeled harvest volumes

The harvest volumes in **Table 3-157** are derived from the vegetation modeling (**Appendix C**) that also provides several other measures useful in describing value differences among the alternatives and the Proposed RMP and effects on BLM districts. These include gross revenues, costs, and net revenues. Based on these data, the BLM calculated the net worth of the alternatives and the Proposed RMP. As a caution, the gross revenue figures include logging costs and BLM adjustments to sale costs so that they are only a proxy for the actual revenues (harvest value) that the government would receive.

The ten-year average of timber gross revenues would be highest for all periods under Alternative C, and lowest for all time periods under Alternative D (**Figure 3-130** and **Figure 3-131**). Gross revenues would be generally stable across the 10-year periods, although Alternatives A, B, and D would fluctuate similarly while the Proposed RMP and Alternative C would differ rising in the third and fourth decade respectively. For the first decade (2014–2023), total revenues would range from a low of approximately \$843 million under Alternative D to a high of \$2.8 billion under Alternative C (**Table 3-158**). Total gross revenues for the Proposed RMP would be slightly higher than under Alternative A. These variations result from the timing of harvests of high value timber versus low value thinning harvests, and differences in the costs of harvest techniques.

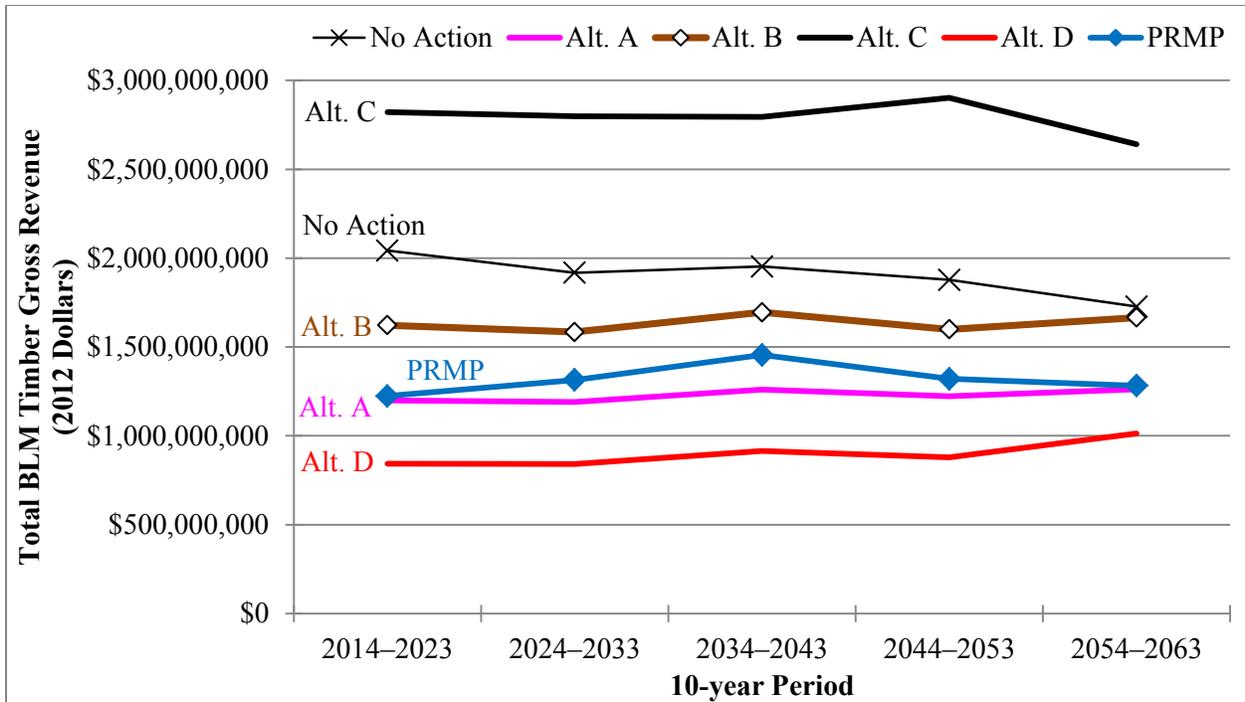


Figure 3-130. Timber gross revenue over time

Note: Year represents last year of 10-year period, and values are the 10-year sum

Source: Based on calculations using the Woodstock Model, 2012 dollars

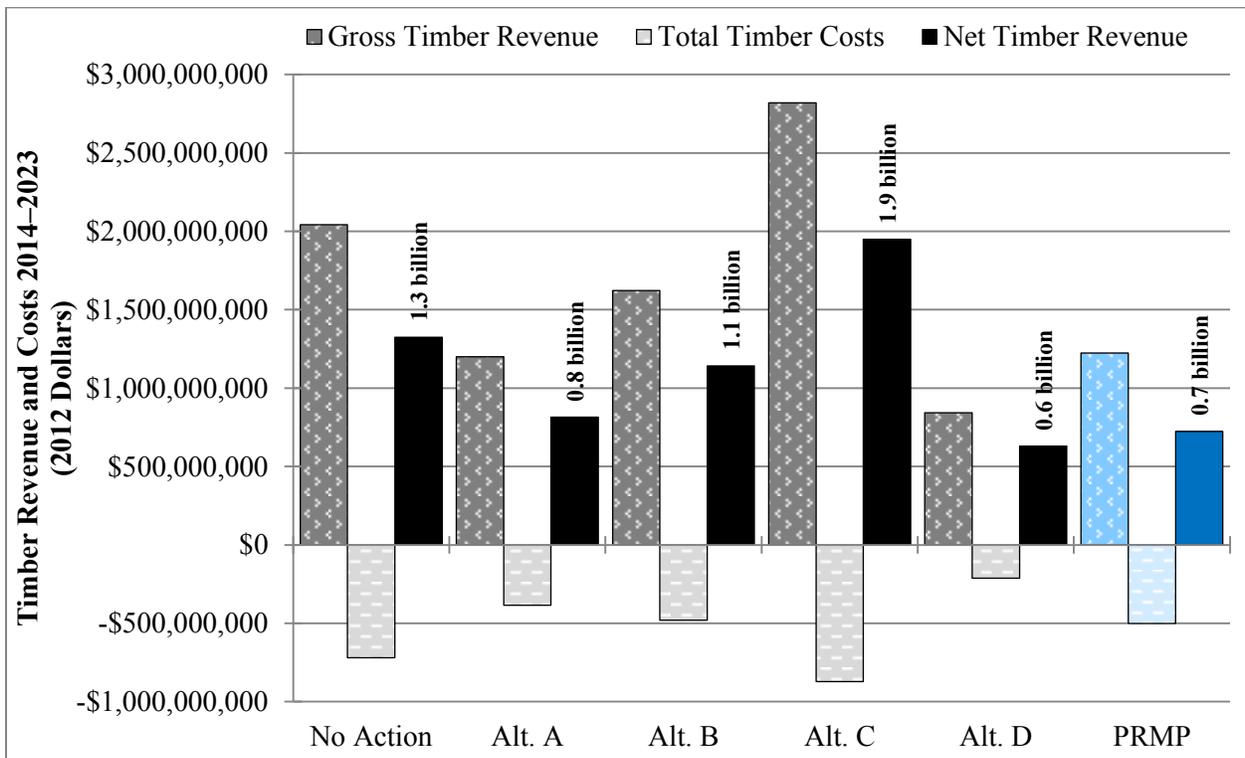


Figure 3-131. Gross revenue, total costs, and net revenue, 2014-2023

Source: Based on calculations using the Woodstock Model, 2012 dollars

Table 3-158. Gross revenue, total costs, and net revenue, 2014–2023 (\$ Millions)

Alternative/ Proposed RMP	District/ Field Office	Gross Revenue Totals 2014–2023 (Millions)	Total Costs 2014–2023 (Millions)	Net Revenue Totals 2014–2023 (Millions)	Net Present Value Over 50 Years 2014–2063 (Millions)
No Action	Coos Bay	\$370	\$125	\$245	\$478
	Eugene	\$426	\$143	\$283	\$591
	Klamath Falls	\$35	\$18	\$17	\$41
	Medford	\$470	\$171	\$299	\$612
	Roseburg	\$396	\$142	\$254	\$522
	Salem	\$345	\$119	\$226	\$458
	Totals	\$2,042	\$718	\$1,324	\$2,701
Alt. A	Coos Bay	\$226	\$84	\$143	\$327
	Eugene	\$285	\$97	\$188	\$437
	Klamath Falls	\$12	\$1	\$11	\$24
	Medford	\$203	\$51	\$152	\$286
	Roseburg	\$144	\$51	\$93	\$182
	Salem	\$330	\$101	\$229	\$498
	Totals	\$1,200	\$385	\$815	\$1,755
Alt. B	Coos Bay	\$236	\$91	\$145	\$307
	Eugene	\$381	\$133	\$248	\$574
	Klamath Falls	\$30	\$4	\$26	\$54
	Medford	\$322	\$36	\$286	\$557
	Roseburg	\$221	\$78	\$142	\$300
	Salem	\$432	\$137	\$295	\$637
	Totals	\$1,622	\$479	\$1,142	\$2,428
Alt. C	Coos Bay	\$533	\$178	\$355	\$724
	Eugene	\$742	\$237	\$505	\$1,150
	Klamath Falls	\$39	\$14	\$25	\$55
	Medford	\$364	\$85	\$279	\$558
	Roseburg	\$480	\$155	\$324	\$647
	Salem	\$662	\$200	\$462	\$1,016
	Totals	\$2,821	\$871	\$1,950	\$4,151
Alt. D	Coos Bay	\$103	\$30	\$73	\$171
	Eugene	\$210	\$45	\$164	\$391
	Klamath Falls	\$20	\$7	\$13	\$29
	Medford	\$155	\$31	\$124	\$227
	Roseburg	\$110	\$31	\$79	\$166
	Salem	\$244	\$68	\$177	\$422
	Totals	\$843	\$212	\$630	\$1,406
PRMP	Coos Bay	\$141	\$57	\$84	\$182
	Eugene	\$327	\$121	\$206	\$505
	Klamath Falls	\$24	\$12	\$12	\$26
	Medford	\$211	\$107	\$104	\$228
	Roseburg	\$179	\$85	\$95	\$206
	Salem	\$341	\$118	\$222	\$539
	Totals	\$1,224	\$501	\$723	\$1,686

Costs and net revenue correspond proportionally to the alternatives and the Proposed RMP. For example, Alternative C would have the highest gross and net revenues, while Alternative D would have the least (**Figure 3-131**). Net revenues for the 2014 to 2023 period would be approximately \$630 million under Alternative D, and approximately \$2 billion under Alternative C. Gross revenue under the Proposed RMP would be approximately \$1.2 billion (i.e., falling between Alternatives A and B).

The discounted net present value of the alternatives and the Proposed RMP for the 50-year period (2014 to 2063) (i.e., the value if all the revenue were realized in 2012) would range from approximately \$1.4 billion under Alternative D to approximately \$4.1 billion under Alternative C (**Table 3-158** and **Figure 3-132**). Under the Proposed RMP, the net present value would be approximately \$1.7 billion. The net present value would be largest for the Salem District under Alternatives A, B, and D, and largest for the Eugene District under Alternative C. The net present value under the Proposed RMP would be largest for the Salem District, followed by the Eugene District.

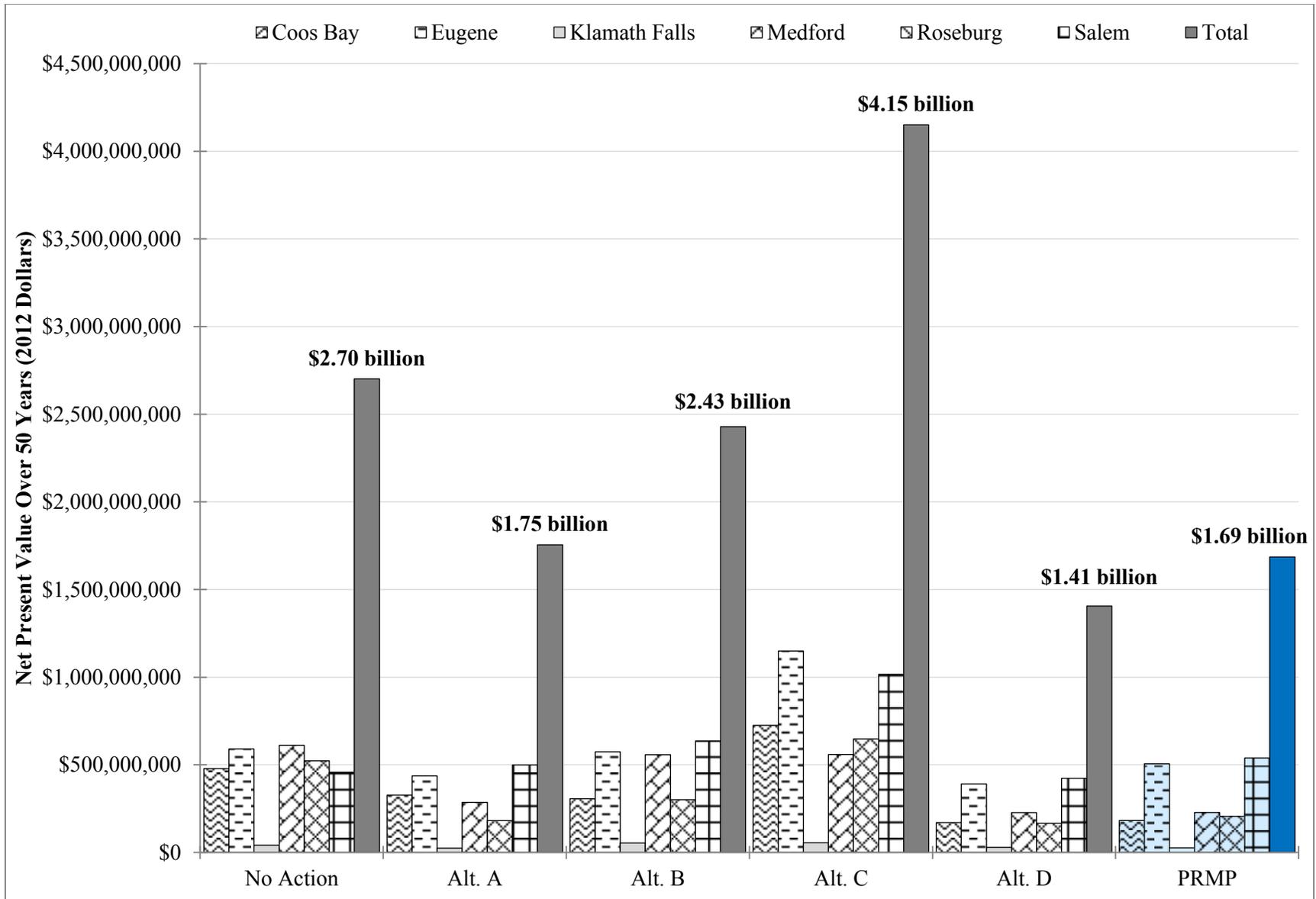


Figure 3-132. Net present value over 50 years (2014–2063) by district
 Note: The values are in base 2012 dollars using a discount rate of 4 percent

The Forest Management section in this chapter details the differences in value of logs harvested in terms of grade over time, by alternative and the Proposed RMP. These differences help explain the differences in net present value among the alternatives and the Proposed RMP. Alternative C would have its highest value harvests early in the timeframe, while Alternative D would have its highest value harvests at the end of the timeframe. The Proposed RMP, like Alternatives B and D, would maintain a higher proportion of higher-grade harvest over time compared to Alternatives A and C. Discounting results in more heavily weighing benefits in the present than in the future.

Logging costs per thousand board feet (Mbf) would vary by district and by alternative and the Proposed RMP (**Figure 3-133**). These costs would change as harvest prescriptions differ and the biggest difference being the extent of thinning versus regeneration harvests. Costs in the Klamath Falls Field Office would be particularly low during the first time period relative to other districts under Alternatives A and B, and more in line with other districts under Alternatives C and D. In contrast, the Coos Bay District would have the highest costs per unit, but would be approximately \$40 lower per Mbf under Alternative D. Across all districts, in the first five decades; Alternatives B and D would have the highest per unit costs; Alternative A would have the lowest. Among the alternatives and the Proposed RMP, Alternative D would have the lowest gross revenues, costs, and net revenues (**Figure 3-133**). Costs per unit would be greater under the Proposed RMP than under the alternatives during the first decade, particularly in the southern districts.

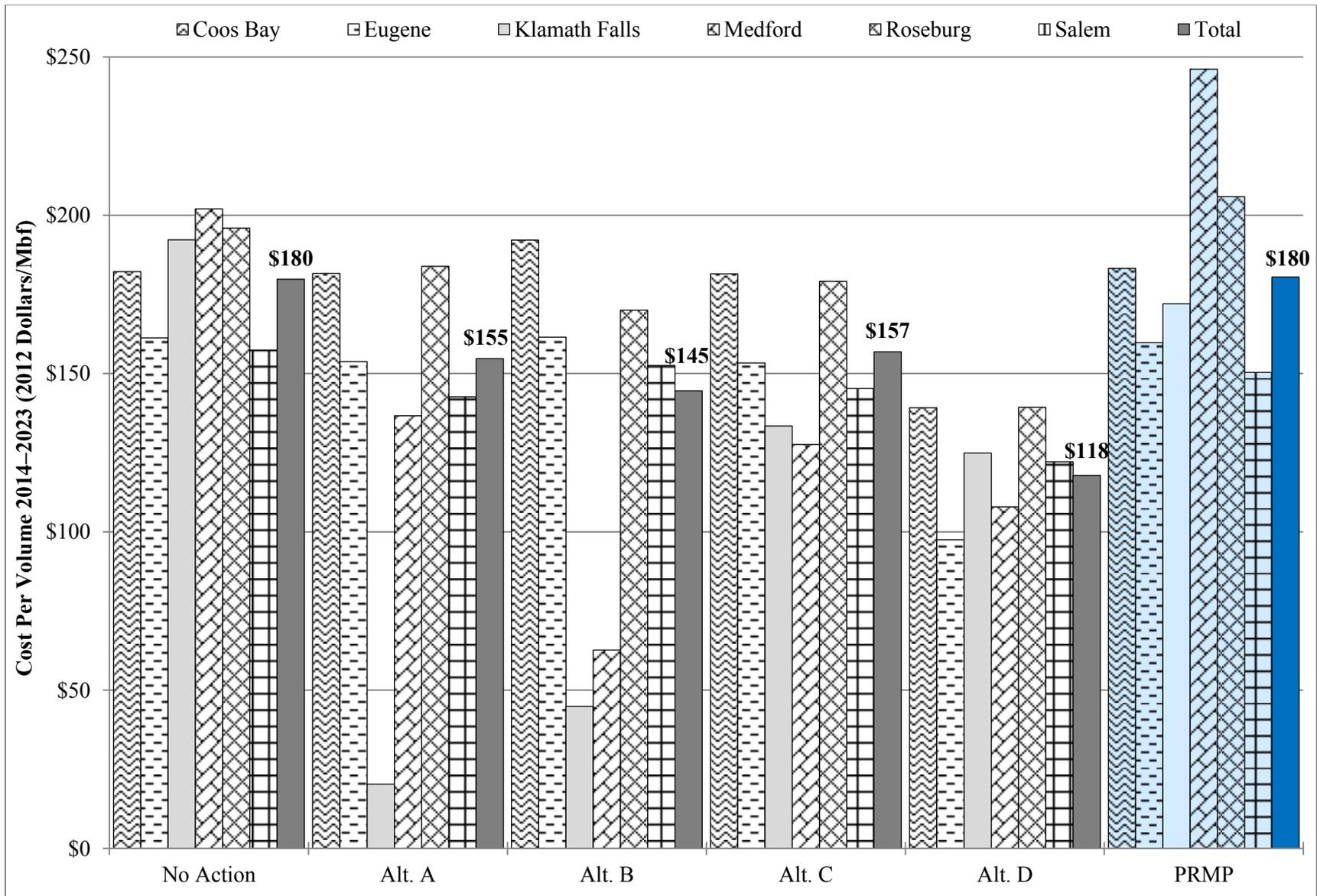


Figure 3-133. Cost per volume by district, 2014–2023 (2012 dollars)

Note: Costs are in short log units

Stumpage prices (the value of standing timber) for the first decade would be lowest for the Klamath Falls Field Office and highest on average for the Medford District (**Figure 3-134**). The Roseburg District would have the highest prices under Alternative C. Alternative C would have the highest overall stumpage prices (\$324/Mbf) averaged across all districts, and the Proposed RMP would have the lowest (\$246/Mbf). The BLM projects that stumpage prices would rise back to their long-term trend levels by 2018 and afterwards rise at their long-term real rate of increase of 0.23 percent (see Value discussion in Affected Environment). Stumpage prices would differ among alternatives and the Proposed RMP and across time as a function of changes in the mix of log grades and average logging costs. Log mixes change over time, both as a function of timber inventory changes and the differences in prescriptions for harvest, such as oldest first and extent of thinning.

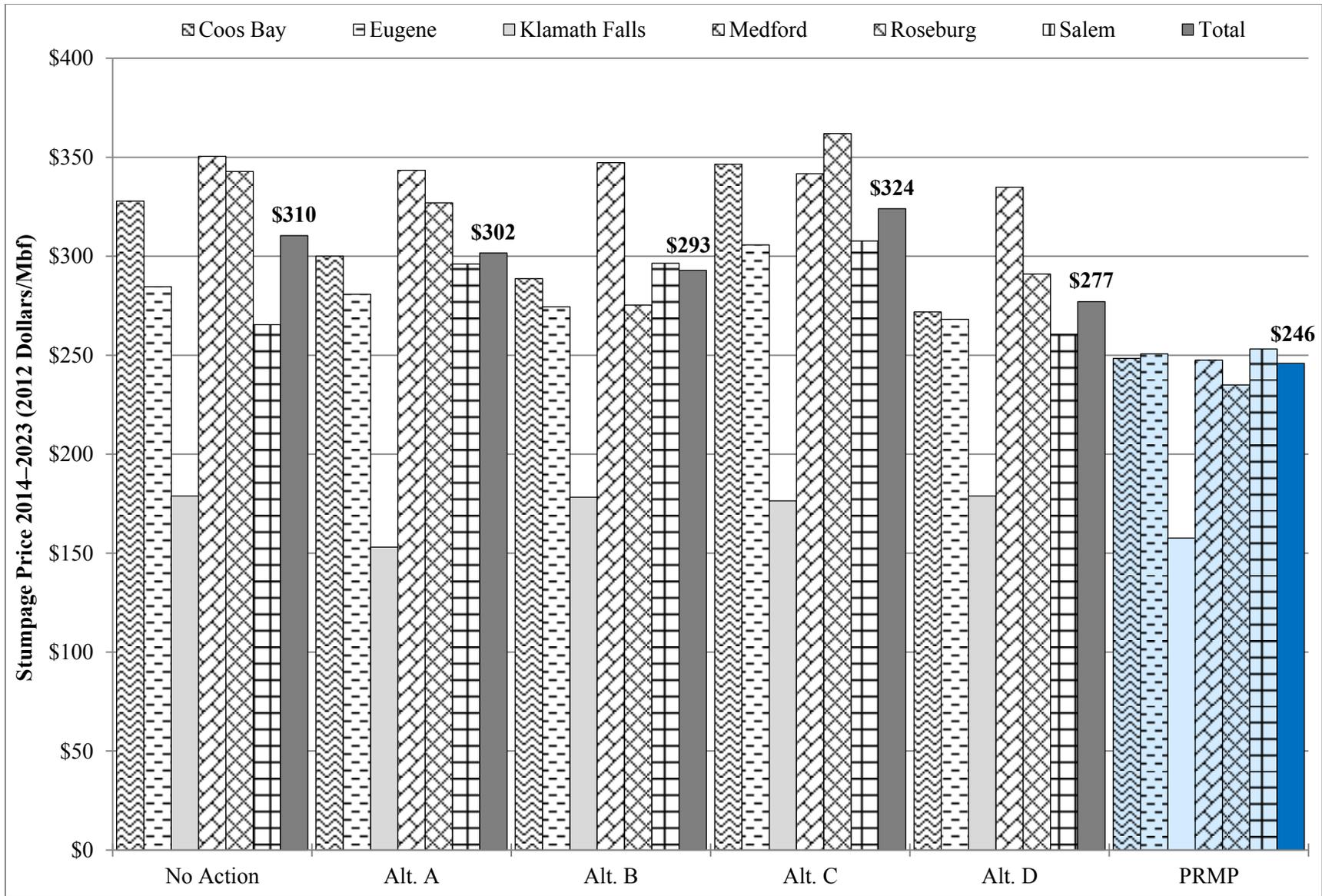


Figure 3-134. Stumpage price by district, 2014–2023 (2012 dollars)

Note: Prices are in short log units

The differences in log grade composition help explain the variation in market value of timber harvests by alternative and the Proposed RMP. Grade 1 contains logs that are generally saw logs or peelers. As such, they represent the highest value log mix and proportional changes in that mix are reflected in differences in stumpage prices both over time and among alternatives and the Proposed RMP (**Table 3-159**). **Table 3-160** shows the differences in proportion of Grade 1 logs by alternative over time. Among the alternatives and the Proposed RMP, Alternative C would have the largest share of Grade 1 logs early in the harvest timeframe, declining to nearly the lowest share by the end of the timeframe. This is reflected in the stumpage price for Alternative C, which would be the highest in the first decade across the alternatives and the Proposed RMP, and would decrease to one of the lowest in 2113. Conversely, Alternative D would have one of the lowest proportions of Grade 1 logs early in the timeframe, and some of the lowest average stumpage prices in the first few decades of the analysis, but would have the highest proportion of Grade 1 timber and stumpage prices at the end of the analysis period.

Table 3-159. Timber stumpage prices over time

Alternative/ Proposed RMP	2023 (Dollars)	2033 (Dollars)	2043 (Dollars)	2053 (Dollars)	2063 (Dollars)	2113 (Dollars)
No Action	\$310.4	\$287.8	\$309.7	\$311.8	\$302.3	\$317.4
Alt. A	\$301.6	\$300.6	\$312.1	\$300.2	\$306.8	\$264.8
Alt. B	\$292.9	\$283.6	\$314.4	\$308.1	\$337.9	\$350.2
Alt. C	\$324.0	\$323.4	\$320.7	\$339.8	\$309.3	\$264.8
Alt. D	\$277.0	\$271.7	\$295.7	\$284.8	\$332.3	\$351.1
PRMP	\$245.9	\$273.7	\$320.4	\$304.8	\$297.2	\$303.4

Table 3-160. Timber Grade 1 proportion over time

Alternative/ Proposed RMP	2023 (Percent)	2033 (Percent)	2043 (Percent)	2053 (Percent)	2063 (Percent)	2113 (Percent)
No Action	24%	16%	16%	12%	10%	14%
Alt. A	15%	14%	6%	8%	8%	1%
Alt. B	18%	10%	6%	6%	12%	18%
Alt. C	21%	19%	12%	9%	9%	2%
Alt. D	13%	12%	7%	8%	18%	21%
PRMP	13%	8%	6%	8%	9%	15%

Log grade explains some of the variation in market value over time and by alternative and the Proposed RMP, but it is not the whole story. Under the Proposed RMP, stumpage prices would be lower during the early decades and would rise relative to the alternatives through 2043. This reflects lower Grade 1 timber and higher logging costs initially, and an increasing value of timber harvests over time. Logging costs do not fluctuate with log grade as dramatically as stumpage prices, but, rather, primarily reflect the different harvest practices by alternative and the Proposed RMP, such as extent of thinning versus regeneration harvest for a site. These trends are important to recognize, but are not adequately captured in the first-decade (2014-2023) analysis reported in **Table 3-158**; this analysis is essentially a snapshot in time. Furthermore, although the net present values shown in the final column of **Table 3-158** reflect the entire period of analysis, they obscure these trends because they diminish the relative importance of later harvest values to earlier harvest values (because value generated in the final decades of analysis is more heavily discounted back to 2012 dollars, compared to value generated in the early decades of analysis).

Table 3-161 shows total harvest values computed as the product of the harvest quantities from **Table 3-157** and the stumpage prices from **Table 3-159**. These represent estimates of returns to the government derived from timber harvested from BLM-administered lands in western Oregon and may be compared to the harvest values in **Table 3-143** particularly the \$20.8 million in 2012. The estimates for the alternatives and the Proposed RMP would be considerably higher than the value in 2012, because both timber harvest volumes and values would be higher under the alternatives and the Proposed RMP than occurred in 2012.

Table 3-161. Total annual average harvest values (millions) for selected decades by the alternatives and the Proposed RMP, 2023–2113 (2012 dollars)

Alternative/ Proposed RMP	2023 (\$ Millions)	2033 (\$ Millions)	2043 (\$ Millions)	2053 (\$ Millions)	2063 (\$ Millions)	2113 (\$ Millions)
No Action	93.0	84.5	88.3	85.2	77.4	68.3
Alt. A	56.2	54.9	57.4	55.0	58.0	58.6
Alt. B	72.9	68.7	74.4	69.9	76.3	75.8
Alt. C	134.9	133.1	130.1	135.8	121.7	116.8
Alt. D	37.4	36.6	39.8	38.2	46.0	64.3
PRMP	51.2	55.6	63.7	58.0	56.2	53.7

Market Impacts of Changes in BLM Harvests

The above discussion of the effects of changes in BLM harvests does not take into account the potential responses of other non-BLM timberland owners.⁹⁴ In the case of increases in BLM harvests, there would be reductions in private harvests as timberland owners adjust their harvest downwards as prices fall. Both of these results could reduce the potential job and revenue expectations from increases in the BLM harvest (as presented under Issue 2 Environmental Effects). For example, the BLM might expect the full employment effects associated with an increase in harvest, but the net change in employment would be reduced by reductions in private harvests. At the same time, expected revenues would be less than expected, as stumpage prices are reduced by the net increase in harvest volumes.

The BLM estimated the expected economic responses to increases in timber supply associated with increases in BLM timber harvests using a model of western Oregon timber markets (**Table 3-162**). Please note that this table is in long log scale, the common log scale in western Oregon. **Appendix P** includes a detailed description of the model. The calculations in the analysis assumed full implementation of timber harvests during the first decade of the alternatives and the Proposed RMP prior to the mid-point of that decade.

⁹⁴ There are four broad types of timberland ownerships: U.S. Forest Service; other public, which in western Oregon includes the BLM, the State of Oregon, and various counties; timber industry; and non-industrial private forests.

Table 3-162. Market effects on other timberland owners by BLM harvest in 2018 (2012 dollars), long log scale

Alternative/ Proposed RMP	BLM Harvest Volume (MMbf)	BLM Harvest Change Relative to 2012 (MMbf)	Stumpage Price (Per Mbf) (Resulting from Alternatives/ Proposed RMP)	Total Western Oregon Harvest (All Producers) (MMbf)	Stumpage Price Difference (Per Mbf), Alternatives/ Proposed RMP vs. 2012 Reference Data	Change in Total Western Oregon Harvest (MMbf) Alternatives/ Proposed RMP vs. 2012	Change in Stumpage Price, Alternatives/ Proposed RMP vs. 2012 (Percent)	Change in Harvest Volume, Total Western Oregon Harvest (Percent)	Estimated Change in Private Harvest (MMbf)*
Reference Data (2012)	144.3	-	\$177.3	3,354.2	-	-	-	-	-
No Action	281.0	136.7	\$168.2	3,453.0	\$-9.1	98.8	-5%	3%	-37.9
Alt. A	172.4	28.1	\$175.4	3,374.5	\$-1.9	20.3	-1%	1%	-7.8
Alt. B	230.2	85.9	\$171.6	3,416.2	\$-5.7	62.1	-3%	2%	-23.8
Alt. C	390.9	246.7	\$160.9	3,532.5	\$-16.4	178.3	-9%	5%	-68.4
Alt. D	123.9	-20.4	\$178.6	3,339.5	\$1.4	-14.7	1%	< -1%	5.6
PRMP	184.6	40.3	\$174.6	3,383.4	\$-2.7	29.1	-2%	1%	-11.2

* BLM harvest change relative to 2012 minus change in total western Oregon harvest

Notes: The price per Mbf is based on actual market prices, see **Table 3-143**. These prices are lower than the stumpage values used in the vegetation modeling, see **Table 3-159** and discussion.

The model expresses volumes and prices in long log scale. In short log scale, the changes in BLM harvests and prices are as shown in **Table 3-163**.

Table 3-163. Harvests and prices in short log scale

Alternative/ Proposed RMP	Harvest (MMbf)	Price (Dollars Per Mbf)*
No Action	399.6	\$118.3
Alt. A	248.6	\$121.7
Alt. B	331.7	\$119.1
Alt. C	555.0	\$113.3
Alt. D	180.0	\$123.0
PRMP	277.5	\$114.8

* Prices are in 2012 dollars and converted from long to short log scale using a conversion factor of 1.435

Under the alternatives and the Proposed RMP (other than Alternative D), the BLM harvest would increase relative to 2012 levels, between 28 and 247 MMbf. This upward shift in the supply curve would lead to lower stumpage prices (between 1–9 percent) and reductions in private harvests (between approximately 8 and 68 MMbf), as timberland owners adjust their harvest downwards as prices fall. For example, under the Proposed RMP, stumpage prices would fall by \$2.70 (2012 dollars) per thousand board feet (2 percent), while the total western Oregon harvest would expand by approximately 29 MMbf (1 percent), as private timberland owners would reduce their harvest by approximately 11.2 MMbf. Both of these effects would reduce the potential expectations for an increase in BLM harvest. The BLM considered this likely market reduction effect in the economic activity analysis (jobs and earnings) below in Issue 2.

These results illustrate the extent that private timberland owners respond to changes in stumpage prices associated with the increased changes in BLM harvest flows. The drop in stumpage prices may also lead to lower expectations about timber as a capital asset among private timberland owners and reduced market incentives for practices that contribute to sustained yield management.

Markets are constantly changing, and once a change is introduced in one region, timberland owners, producers, and consumers in other regions all react to those changes, reducing the impacts in the first region as production changes in other regions. Analysis of the time dimension of these market impacts suggest that they diminish over the following decade, so that market adjustments are only prevalent in the first two decades of any projections.⁹⁵

Recreation and Visitation

The alternatives and the Proposed RMP define differences in areas designated and developed for recreation purposes, in some cases targeted at one or more specific activities such as mountain biking or OHV use. Variation in total acreage in Recreation Management Areas (RMAs) would be substantial, as Alternative A in total would have approximately 12 percent of the area under Alternative B⁹⁶ (Table 3-164). Alternative C would be approximately 2.5 times the area of Alternative B, and Alternative D would be 4 times Alternative B. The Proposed RMP RMA acreages would fall between Alternatives C and D and would be approximately 3 times the area of Alternative B. Acreages in the individual districts would follow these area-wide orderings by alternative and Proposed RMP, although, while the Klamath Falls Field Office would have the most acreage under Alternative B, Medford would have the most acreage among all other alternatives and the Proposed RMP. The Recreation and Visitor Services section contains more detail on the differences in the RMAs.

Table 3-164. BLM Recreation Management Area acres

District/ Field Office	No Action* (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	PRMP (Acres)
Coos Bay	6,614	468	6,614	15,258	21,358	23,542
Eugene	20,511	104	20,511	24,212	34,968	24,139
Klamath Falls	69,470	612	69,470	97,293	216,135	92,643
Medford	32,065	17,199	32,065	181,992	267,404	244,815
Roseburg	6,984	167	6,984	41,496	42,915	20,895
Salem	28,648	1,515	28,648	56,566	84,371	85,008
Totals	164,292	20,065	164,292	416,817	667,151	491,042

* Under the No Action alternative, all BLM-administered lands in the decision area are allocated to RMAs, and the management of RMAs described in the 1995 RMPs differs from current definitions and policy. Alternative B represents an approximate continuation of the current recreation management, but consistent with current definitions and policy for RMAs.

Note: Acreages include all RMAs, both Special and Extensive.

⁹⁵ For examples of this diminishing price effect of changes in harvest, see Table 41 in Haynes *et al.* 2007. The USDA FS 2005 RPA timber assessment update. Gen. Tech. Rep. PNW-GTR-699. Portland. OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 212 p.

⁹⁶ Under the No Action alternative, all BLM-administered lands in the decision area are allocated to RMAs, and the management of RMAs described in the 1995 RMPs differs from current definitions and policy. Alternative B represents an approximate continuation of the current recreation management, but consistent with current definitions and policy for RMAs. Therefore, the economic benefits of RMA management under Alternative B best approximates the economic benefits under the No Action alternative.

An important differentiator among the alternatives and the Proposed RMP is designation of some RMAs for exclusion of particular recreation activities, for example, excluding activities such as public motorized vehicle use that might disrupt other activities such as hiking. Alternative A would result in the least acres and Alternative D would result in the most acres closed for various recreation activities (**Table 3-165**). The Proposed RMP would result in the second-most acres closed for various recreation activities. The closures identify areas that would be designated for more rustic and natural recreation opportunities. The primary activities targeted for closures would be recreational target shooting, followed by OHV use. Closure acreages generally correspond proportionally to RMA total acreages by alternative and the Proposed RMP. By increasing the quality of specific activities of high demand in specific areas, the BLM can create conditions that lead to increased quantity and quality and consequent value of outdoor recreation activity at specific RMAs. The response would be context specific, based on demand and substitute opportunities.

Table 3-165. Recreation opportunities, acres restricted (activity excluded) within the RMAs

Exclusion Type	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	PRMP (Acres)
Total RMA acres	164,292	20,065	164,292	416,817	667,151	491,042
Equestrian Use	8,828	1,048	8,828	49,414	63,620	31,102
Hiking	1,511*	-	1,511*	25,144 (2,924*)	41,907 (2,924*)	1,157*
Mountain Bicycling	13,814	1,248	13,814	57,490	75,402	84,907
Off-Highway Vehicle Use	49,969	17,517	49,969	87,261	105,474	38,313
Overnight Camping	18,006	829	18,006	60,205	66,611	32,389
Recreational Target Shooting	41,681	18,236	41,681	66,407	135,464	164,752

* These acres of the total shown for restricted hiking acres would have seasonal restrictions applied to the trail systems. All other acre restrictions would prohibit or otherwise condition hiking year-round.

Note: This table uses the acres in Alternative B as the best approximation for the No Action alternative.

Both acreage and trail mileage are important characteristic for recreation areas. The RMAs do not specifically define trail miles, but extrapolating from available trail miles per acre of RMA under current conditions allows an approximation of the number of trail miles that would be available under the alternatives and the Proposed RMP. Currently, there are approximately 395 miles of identified trail miles on BLM-administered lands in western Oregon. This mileage could increase to approximately 1,400 miles under Alternative C, or to 2,000 miles under Alternative D. Under the Proposed RMP, there would be approximately 1,700 miles, which is more than 4 times the current trail mileage. (**Table 3-166**). Some RMAs would be more conducive to higher or lesser trail densities.

Table 3-166. Potential trail miles in RMAs

District/ Field Office	No Action (Miles)	Alt. A (Miles)	Alt. B (Miles)	Alt. C (Miles)	Alt. D (Miles)	PRMP (Miles)
Coos Bay	35	2	35	81	114	125
Eugene	46	-	46	54	78	54
Klamath Falls	29	-	29	42	92	40
Medford	146	79	146	831	1,221	1,103
Roseburg	39	1	39	230	238	116
Salem	100	5	100	197	294	296
Totals	395	88	395	1,435	2,037	1,734

Note: This table uses the acres in Alternative B as the best approximation for the No Action alternative.

Source: USDI BLM, estimated from trail densities by district.

Demand for recreation determines the value for the recreation designations by alternative and the Proposed RMP. That is, if there is no demand, there is no participation and use, and therefore there is no recreation value. Demand for outdoor recreation, as discussed earlier, relates particularly to individual preferences, proximity, and accessibility. Recreation opportunities that are close to population centers experience the most participants and visitor-days, and consequently the most value, all else equal. While many factors can lead to variation in value of a visitor-day, the number of visitor-days is the primary factor the BLM utilizes to estimate the economic value of recreation areas. Accessibility and congestion are two fundamental factors that, when they improve, will improve the quality and therefore value of a visitor-day. Focusing on elements of RMA designation that are close to communities, thereby increasing the availability and accessibility of recreation opportunities while reducing congestion provides the most fundamental basis for estimating increases in value. The increase in value can manifest as both higher value for visits that would have occurred anyway, as well as increased visitor-days. Focusing on opportunities close to communities provides the strongest basis for estimating increases in value, and therefore, potentially, an underestimate by not including visitation outside of those community proximities.

When considering the RMA acreages under the alternatives and the Proposed RMP in terms of proximity to the 12 study communities in western Oregon, the overall acreage accessible within 30-minute and 60-minute driving distances under each alternative and the Proposed RMP track with their overall RMA acreage (**Table 3-167**). Moving out from 30-minute to 60-minute driving distances increases the accessible recreation area by more than double, and increases to 5- or 6-fold under Alternatives B, C, and D, and the Proposed RMP. The Proposed RMP would increase the RMA acreage within 30-minute driving distances more than any alternative, and would increase the RMA acreage within 60-minute driving distances more than any alternative except Alternative D. While all districts would see increased RMA acreage with increased total RMA acreage progressively from Alternative A through D, the communities of Grants Pass and Medford would experience the highest increase in accessible RMA acreage under Alternatives C and D and the Proposed RMP (**Figure 3-135**).

Table 3-167. RMA acreage by driving distance from population centers in western Oregon*

Drive-Time	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	PRMP (Acres)
30-Minute	12,473	5,849	12,473	52,232	56,814	61,125
60-Minute	60,893	13,070	60,893	252,005	311,855	267,776

* Major population centers include Coos Bay, Corvallis, Eugene, Grants Pass, McMinnville, Medford, Newberg, Portland, Roseburg, Salem, Sandy, and Tillamook.

Note: The table uses Alternative B as the best approximation for the No Action alternative.

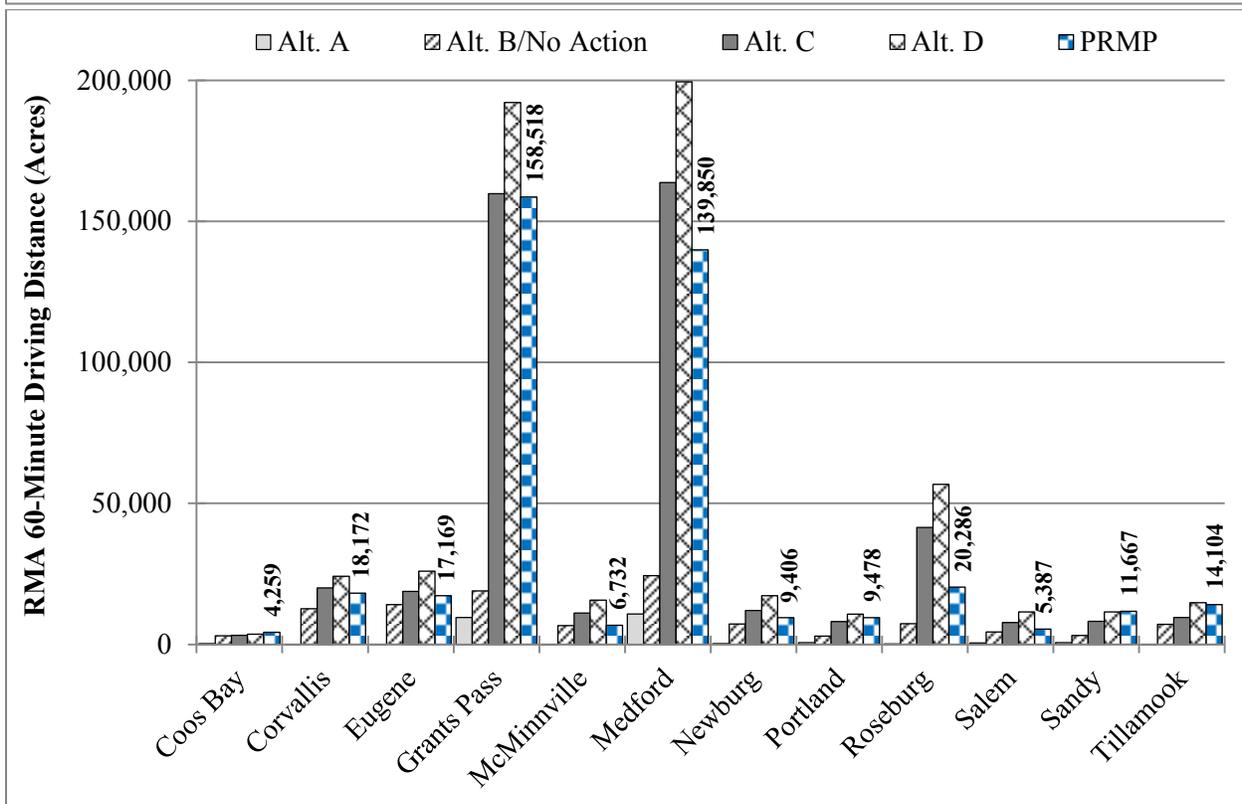
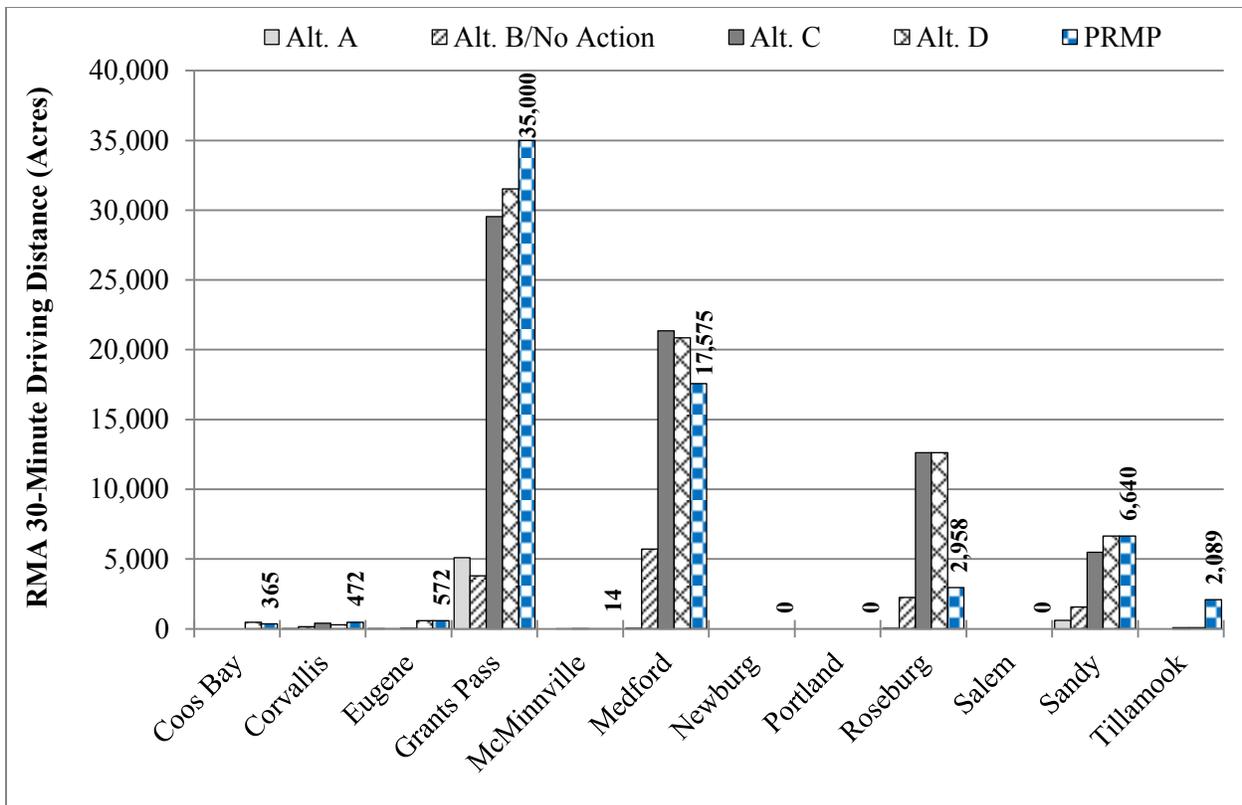


Figure 3-135. RMA acreage by driving distance of western population centers, 30 and 60 minutes

The increases in RMA acreage would elicit increased visitation according to the demand responsive measures applying the elasticity estimate described in Analytical Methods and in **Appendix P**. Furthermore, the increased visitation would be phased in for the alternatives and the Proposed RMP with substantial increases in RMA acreage with the phased-in increase in recreation opportunities described in Analytical Methods. This increase in demand over time would be in addition to increased demand based on forecast trends and population growth described under Affected Environment.

Table 3-140 in the Recreation and Visitor Services section in this chapter and **Table P-4** in **Appendix P** provide estimates for outdoor recreation visits under the alternatives and the Proposed RMP.

Applying the RMA acreage, historical visitation rates, the demand response model results, and the long-term trends in visitation, the BLM estimated alternative-specific and district-specific visitation for locals and non-locals under the alternatives and the Proposed RMP. **Figure 3-136** shows the estimated changes in visitation under the alternatives and the Proposed RMP over the 20-year and 50-year planning timeframes. Recreational use would increase most quickly under the 20-year implementation scenarios (dotted lines versus solid lines), and would be highest under Alternative D and lowest under Alternative A. **Figure 3-137** shows the final breakdown of visits in 2062 upon full implementation of increases in recreation opportunities associated with increased RMA acreage by district and separated between local and non-local participants, as well as non-primary visits. As noted under Analytical Methods, non-primary visits are visits associated with some other primary activity and consequently not included in market impact estimates under Issue 2. Under the Proposed RMP, the Medford District would experience the most visits, followed by the Salem District. Visits in the Medford District would be particularly dominated by local residents in comparison to other districts.

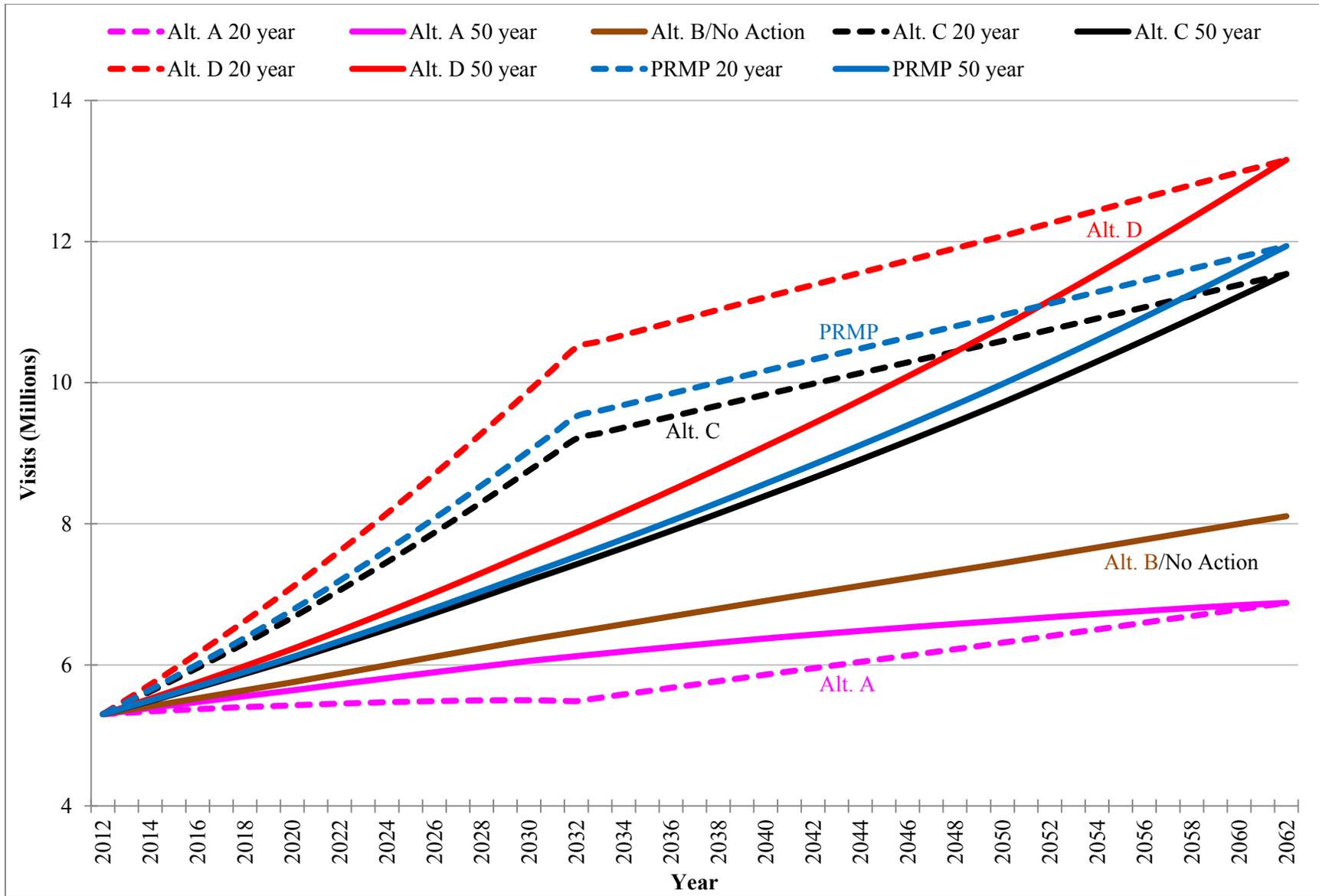


Figure 3-136. Outdoor recreation visits over phasing timeframes

Note: Figure assumes implementation of increased recreation opportunities and associated demand response over 20–50 year timeframes

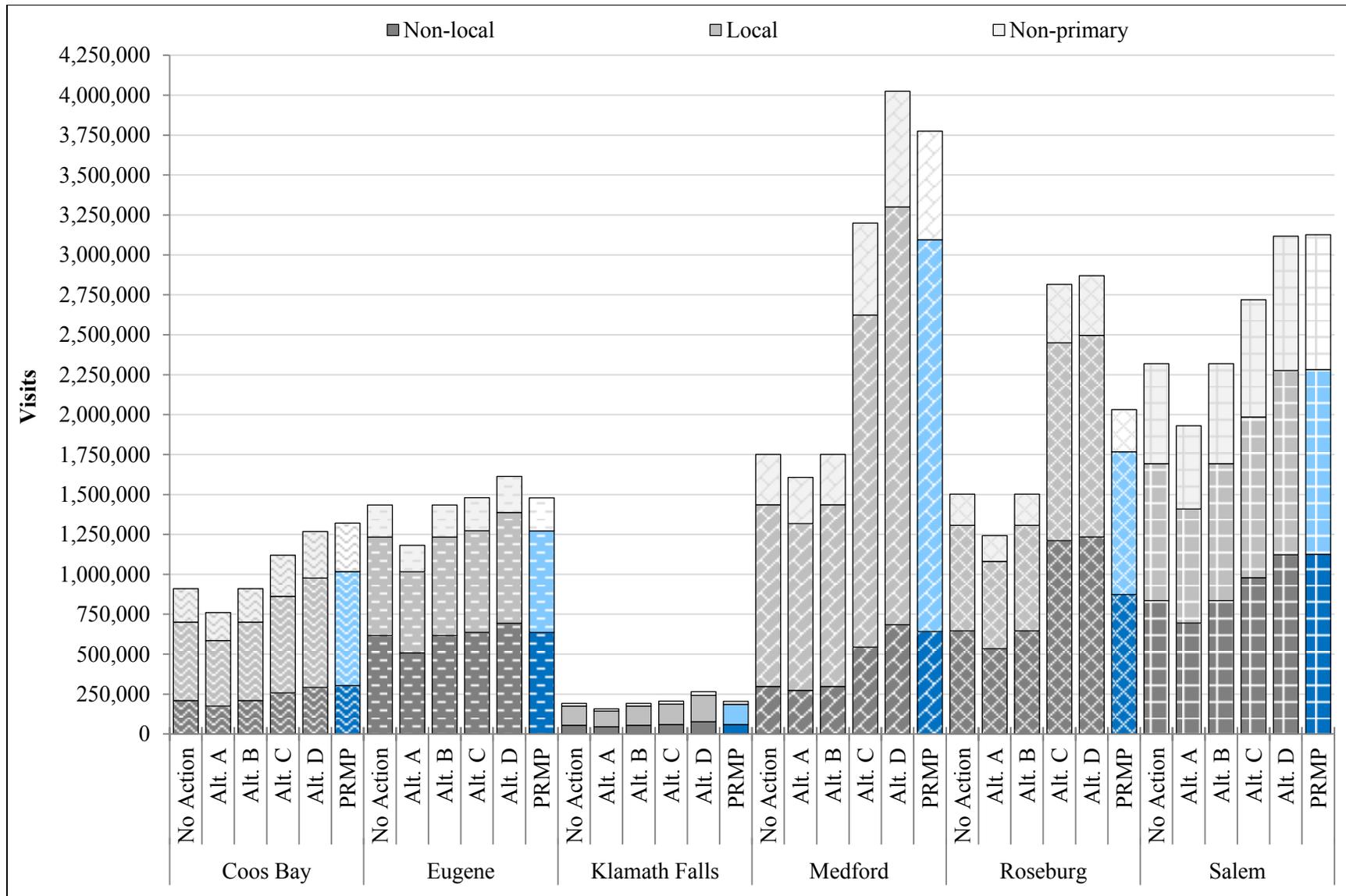


Figure 3-137. Outdoor recreation visits at end of phasing timeframes

Note: The figure assumes completed implementation of new RMA acreage and associated demand response over the 20- or 50-year timeframes.

The BLM applied the forecasted future increases in activity-specific participation based on trends and demand response to changes in RMA acreage through the year 2062. The increases in the number of visits would proportionally increase the total value of visits. Applying the mean activity-specific consumer surplus values from **Table 3-146**, the BLM estimated the value to recreation participants under the alternatives and the Proposed RMP in **Table 3-168**. Summing the annual values discounted at 4 percent starting in 2014 for 50 years results in over \$5 billion in consumer surplus value under Alternative B, and up to over \$8 billion under Alternative D (**Table 3-168**). Under the Proposed RMP and the phasing assumptions, total consumer surplus in 2023 would range from \$271 to \$311 million. The faster the BLM would increase recreation opportunities associated with increased RMA acreage, the greater the would be the economic value provided by BLM-administered lands in terms of outdoor recreation in 2023 under Alternatives C and D and the Proposed RMP.

Table 3-168. Consumer surplus value projections, 2023 and net present value 2013–2062 (millions of 2012 dollars)

Activity	No Action	Alt. A		Alt. B	Alt. C		Alt. D		PRMP	
	Baseline (Millions)	20-year (Millions)	50-year (Millions)	Baseline (Millions)	20-year (Millions)	50-year (Millions)	20-year (Millions)	50-year (Millions)	20-year (Millions)	50-year (Millions)
Camping and Picnicking	\$125.1	\$115.1	\$121.6	\$125.1	\$152.9	\$134.8	\$166.0	\$139.4	\$156.1	\$135.9
Wildlife Viewing, Interpretation, and Nature Study	\$35.3	\$32.5	\$34.3	\$35.3	\$43.1	\$38.0	\$46.8	\$39.3	\$44.0	\$38.3
Hunting (Big Game, Upland Game, and Migratory Game Birds)	\$29.2	\$26.9	\$28.4	\$29.2	\$35.7	\$31.5	\$38.8	\$32.6	\$36.5	\$31.8
Motorized Off-Highway Vehicle Travel	\$14.6	\$13.4	\$14.2	\$14.6	\$17.8	\$15.7	\$19.3	\$16.2	\$18.2	\$15.8
Non-motorized Travel (Hiking, Biking, and Horseback Riding)	\$10.7	\$9.8	\$10.4	\$10.7	\$13.1	\$11.5	\$14.2	\$11.9	\$13.4	\$11.6
Fishing	\$10.7	\$9.8	\$10.4	\$10.7	\$13.0	\$11.5	\$14.2	\$11.9	\$13.3	\$11.6
Driving for Pleasure (Along Designated BLM Roadways)	\$10.1	\$9.3	\$9.8	\$10.1	\$12.3	\$10.9	\$13.4	\$11.3	\$12.6	\$11.0
Specialized Non-motorized Activities and Events	\$4.8	\$4.4	\$4.6	\$4.8	\$5.8	\$5.1	\$6.3	\$5.3	\$5.9	\$5.2
Swimming and Other Water-Based Activities	\$3.8	\$3.5	\$3.7	\$3.8	\$4.7	\$4.1	\$5.1	\$4.3	\$4.8	\$4.2
Non-motorized Boating	\$2.7	\$2.5	\$2.7	\$2.7	\$3.4	\$3.0	\$3.6	\$3.1	\$3.4	\$3.0
Motorized Boating	\$1.5	\$1.4	\$1.4	\$1.5	\$1.8	\$1.6	\$2.0	\$1.7	\$1.9	\$1.6
Non-motorized Winter Activities	\$0.9	\$0.9	\$0.9	\$0.9	\$1.2	\$1.0	\$1.3	\$1.1	\$1.2	\$1.0
Snowmobile and other Motorized Winter Activities	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
Total Value in 2023 (undiscounted)	\$249.5	\$229.7	\$242.6	\$249.5	\$305.0	\$268.9	\$331.2	\$278.1	\$311.4	\$271.2
2013–2062 (cumulative, 50-year net present value)*	\$5,707.0	\$5,115.3	\$5,401.7	\$5,707.0	\$7,361.4	\$6,560.7	\$8,141.5	\$6,963.2	\$7,552.6	\$6,659.3

* Four percent discount rate; the No Action alternative and Alternative B involve no change in RMA acreage, so do not involve phasing of RMA acreage over time
Sources: Table 3-147; Table 3-126 in Recreation

Special Forest Products

Land area suitable for the production of Category I (disturbance-associated) and Category II (disturbance-averse) special forest products would vary by alternative and the Proposed RMP and over time. In both the coastal/north and interior/south regions, across the alternatives and the Proposed RMP, the acres suitable for the production of Category I goods would not exceed one-quarter of the total acreage in the decision area, whereas at least three-quarters of the acres in the decision area would support production of Category II goods. Over time and across the alternatives and the Proposed RMP, the acreage suitable for Category I products would peak from 2033 to 2053 and diminish after 2063. Alternative A would provide the fewest acres suitable for the production of Category I products and would have the least variation over time in both the coastal/north and the interior/south regions. In the coastal/north region, Alternative C would provide the most land suitable for Category I harvests. In the interior/south areas, Alternative B would provide the most harvestable land for Category I products. The Proposed RMP would provide between 12 percent (coastal/north) and 17 percent (interior/south) of acres available for Category I products in the first decade, peaking at between 14 percent (coastal/north) and 23 percent (interior/south) of acres in 2043, which would be more than Alternative A but less than Alternative D. See the Forest Management section in this chapter for a detailed presentation of the effects of the alternatives and the Proposed RMP on special forest products.

As the acres of land suitable for the production of Category I and Category II products shift by alternative and the Proposed RMP, the supply of each type of special forest product would change. Decreases in Category I acres would translate to increases in Category II acres, resulting in an increase in the supply of special forest products that thrive in undisturbed landscapes and a decrease in those that grow in disturbed landscapes. This has the potential to affect the marginal value of products in both categories, especially where there would be large changes in supply.

Both Category I and Category II lands include some higher value and some lower value products. Mushrooms, floral and greenery, and Christmas trees are the groupings of products that people harvest in the largest quantity and, thus, produce the most revenue for the BLM. Category I and Category II landscapes both supply floral, greenery, and mushrooms, whereas only Category I lands supply Christmas trees. Based on the BLM's available data, it is not possible to quantify how changes in the acres suitable for the production of Category I and Category 2 goods would affect the overall value of special forest products produced by BLM-administered lands in western Oregon. However, even Alternatives B and Sub-alternative C, which would have the highest conversion of land from disturbed to undisturbed characteristics, would result in relatively small changes and would likely have a small effect on the overall supply, and thus the value, of each category of special forest product in the decision area.

Sustainable Energy Production

Energy production from solar and geothermal resources would not vary across the alternatives and the Proposed RMP, for two reasons: (1) the alternatives and the Proposed RMP would only modestly impact the availability of any of these resources for development, and (2) the development of these resources is constrained not by supply but by lack of demand related to market conditions, and limited infrastructure and conveyance capacity to population centers. The Sustainable Energy section in this chapter discusses these limitations in more detail. The supply of BLM-administered lands available for granting a right-of-way for wind development and transmission corridors would decrease across the alternatives and the Proposed RMP (although alternatives and the Proposed RMP would decrease the acres excluded for development, they would increase the acres in avoidance areas). Alternative D would have the largest decrease and Alternative A the least. If demand for these resources aligns with the characteristics of the supply on BLM-administered lands in the future, these restrictions would limit the potential economic value of this resource.

The supply of biomass would vary across the alternatives and the Proposed RMP, so the potential for energy production from biomass would also vary. Biomass production is a direct function of timber harvest, so the alternatives with greater timber harvest would produce greater amounts of biomass. Alternative C would produce the most biomass. Alternative D would produce the least amount of biomass. The Proposed RMP would yield more biomass than Alternatives A and D, but less than the No Action alternative or Alternatives B and C.

The value of biomass depends on demand. Under today's market conditions, woody biomass is not cost competitive with fossil fuels (White 2010). This may change as technology evolves, fossil fuel prices increase, and infrastructure develops to utilize woody biomass close to where it is produced. If these developments occur, the value of woody biomass from BLM-administered lands would increase.

Livestock Grazing

The value of livestock grazing would not change under the alternatives or the Proposed RMP, except under Alternative D, which would eliminate livestock grazing. The No Action alternative, Alternatives A, B, and C, and the Proposed RMP would have no impacts on billed AUMs relative to current conditions, and would have no impact on BLM revenues from livestock grazing, so that the BLM would continue to receive about \$22,000 per year from livestock grazing fees. Alternative D, which would have no livestock grazing, would reduce active and billed AUMs to zero, and, consequently, would reduce BLM revenues from livestock grazing to zero.

Minerals

As of 2012, mineral revenues to the BLM were minor (approximately \$15,000) and would not change under the alternatives and the Proposed RMP. Under the alternatives and the Proposed RMP, the acres closed to salable mineral material disposal would decrease slightly relative to current conditions, leading to more land open to entry. Approximately 13 percent of BLM-administered lands are currently closed to salable mineral material disposal. The Proposed RMP would decrease closed land by about 12 percent, compared to 9–10 percent under the action alternatives. The acres that would be closed under the alternatives and the Proposed RMP would be small relative to the acres open to production, and the areas that would be closed are not suitable for quarry development. The closure of these areas under the alternatives and the Proposed RMP would not appreciably affect the quantity or value of salable mineral materials derived from BLM-administered lands.

All the alternatives and the Proposed RMP would recommend a decrease in the acreage open to locatable mineral entry.⁹⁷ Currently, 4 percent of BLM-administered lands in the planning area are withdrawn from this type of mineral exploration and development. The Proposed RMP and Alternative D would lead to the most land withdrawn from locatable mineral entry, at 12 percent of BLM-administered lands. The other action alternatives would result in approximately 10 percent of land withdrawn from locatable mineral entry. The withdrawal of these areas under the alternatives and the Proposed RMP would not appreciably affect the quantity or value of locatable minerals derived from BLM-administered lands.

⁹⁷ As explained in the Minerals section of this chapter, the BLM identified by alternative and the Proposed RMP the acres of land recommended for withdrawal from locatable mineral entry. The BLM assumed that areas recommended for withdrawal from locatable mineral entry under each alternative and the Proposed RMP to be withdrawn for the purposes of this analysis. The BLM would make recommendations for withdrawals, which vary by the action alternatives and the Proposed RMP, but adoption of the RMP would not actually withdraw lands from locatable mineral entry, because the BLM does not have the authority to withdraw lands from locatable mineral entry. Congress can designate withdrawals from locatable mineral entry, or the BLM can begin a withdrawal process for a decision signed by the Secretary of Interior.

None of the alternatives or the Proposed RMP would affect the acres of BLM-administered lands open to leasable mineral entry.

Carbon Storage

Table 3-169 shows the marginal change in net carbon storage and value for the alternatives and the Proposed RMP for the first decade of the analysis (2013–2022) and for the entire period of analysis (2013–2063). The amount of stored carbon, and value of stored carbon, would increase across the alternatives and the Proposed RMP in the first decade and over 50 years. Relative to the No Action alternative, Alternatives A, B, and D, and the Proposed RMP would all increase the amount of carbon stored in the first decade. Alternative C would store less carbon relative to the No Action Alternative. By 2063, the differences would become more pronounced, with most carbon stored and the highest value under Alternative D. Alternative C would store the least amount and have the lowest value. The Proposed RMP would store an amount higher than the No Action alternative, but less than Alternatives A and D.

Table 3-169. Value of carbon storage, 2012 dollars

Alternative/ Proposed RMP	Marginal Change in Stored Carbon 2013–2022 (MMT)*	Value of Stored Carbon 2013–2022		Marginal Change in Stored Carbon 2013–2063 (MMT)*	Value of Stored Carbon 2013–2063	
		SCC [†] Average 3% (Millions)	SCC [†] 95 th Percentile 3% (Millions)		SCC [†] Average 3% (Millions)	SCC [†] 95 th Percentile 3% (Millions)
No Action	7.69	\$1,172	\$3,423	99.81	\$27,319	\$83,942
Alt. A	10.91	\$1,662	\$4,856	117.10	\$32,051	\$98,483
Alt. B	9.98	\$1,520	\$4,442	111.13	\$30,417	\$93,462
Alt. C	2.84	\$433	\$1,264	73.58	\$20,139	\$61,882
Alt. D	14.2	\$2,163	\$6,320	134.11	\$36,707	\$112,789
PRMP	10.46	\$1,593	\$4,656	115.62	\$31,646	\$97,238

* MMT - Million metric tons

† SCC - Social cost of carbon

Sources: Carbon storage amounts come from the Climate Change section. Values are from Interagency Working Group on the Social Cost of Carbon (2015), using estimates from 2017 for the first period and 2050 for the 50-year period, a 3 percent discount rate, and adjusted to 2012 dollars. For more detail on these calculations, see the Methods section.

Emissions from activities included in the alternatives but not incorporated into the net carbon storage number (e.g., biomass combustion, mineral production, and livestock grazing) would further offset net carbon storage, though the amount of these emissions is small compared to the emissions that are already reflected in the net carbon storage values reported above. Emissions from all sources would be highest under Alternative C and lowest under Alternative D. Emissions under the Proposed RMP would be higher than Alternative D and lower than the No Action alternative and Alternatives B and C in all decades and lower than Alternative A in some decades (see the Climate Change section in this chapter). Therefore, the net carbon storage and associated value would be highest under Alternative D and lowest under Alternative C.

Source Water Protection

The BLM would continue protecting the value of source water in the planning area across all alternatives and the Proposed RMP. The alternatives and the Proposed RMP would maintain current water-quality conditions primarily by relying on the natural filtration and temperature-control services provided by the

Riparian Reserve that would surround streams and other water bodies, and by employing best management practices (BMPs,). The Riparian Reserve would shade streams, prevent temperature increases, and minimize or prevent sediment runoff from harvest activities. In addition, BLM would employ preventative BMPs along forest roads and in harvest areas. These preventative measures would minimize forest-management risks affecting drinking water and treatment costs, and would maintain ODEQ's water quality criteria and standards. In addition, the BLM would continue working with local watershed associations and community water supply agencies to minimize the potential impacts of activities on BLM-administered lands, such as timber sales, on water supplies.

Biodiversity and Sensitive Species

To the extent that an alternative or the Proposed RMP would degrade the quality of, or reduce the supply of, habitats or populations of sensitive species, it would negatively affect resources that households in the region and the United States value. Conversely, the alternatives or the Proposed RMP that would protect the quality of, or increase the supply of habitats or populations, would protect or positively affect resources that households' value.

Alternatives A and C would result in less increase in the acreage of structurally-complex forests than other forests, and thus would support less of an increase from current levels of biodiversity resources and values. Alternatives B and D would yield an increase in structurally-complex forests compared to Alternatives A and C. The Proposed RMP would yield a level similar to Alternative B. See the Forest Management section in this chapter for more information on these differences. Data are unavailable to estimate the magnitude of the change in economic value these changes in forest complexity would have.

- The action alternatives and the Proposed RMP would increase the potential for habitat loss for the Oregon silverspot butterfly, compared to the No Action alternative. The action alternatives and the Proposed RMP would degrade or negatively affect a resource that households' likely value given available research. However, effects to Oregon silverspot butterflies themselves would not be reasonably foreseeable, because this habitat is likely unoccupied. Furthermore, habitat for this species on BLM-administered lands constitutes less than 1 percent of the habitat in the planning area, limiting any potential economic effect.
- The alternatives and the Proposed RMP, including the No Action alternative, would sustain populations of bald and golden eagles and increase habitat in 50 years. This would protect the economic values associated with these populations.
- The No Action alternative would lead to the continued loss of habitat for the fisher, while the actions alternatives and the Proposed RMP would increase fisher habitat in 50 years. Thus, the No Action alternative would diminish the well-being of people who care about the fisher. Data are not available to quantify the extent to which households would be willing to pay to protect the fisher or its habitat. The action alternatives and the Proposed RMP would result in an increase in fisher habitat over time and their associated values.
- The No Action alternative and Alternative D would identify and protect all marbled murrelet sites. Alternatives A, B, and C, and the Proposed RMP would slightly reduce nesting habitat for the marbled murrelet (by less than 1–8 percent) in the first decade, but, by the second decade, the amount of high quality nesting habitat would surpass current amounts and would continue increasing in the later decades. Thus, the alternatives and the Proposed RMP would protect values associated with marbled murrelet over the long-term.
- Under the alternatives and the Proposed RMP, the BLM would increase the amount of northern spotted owl habitat over time. Such actions would help protect the values that households place on this resource.

Riparian Reserve that would surround streams and other water bodies, and by employing best management practices (BMPs, **Appendix J**). The Riparian Reserve would shade streams, prevent temperature increases, and minimize or prevent sediment runoff from harvest activities. In addition, BLM would employ preventative BMPs along forest roads and in harvest areas. These preventative measures would minimize forest-management risks affecting drinking water and treatment costs, and would maintain ODEQ's water quality criteria and standards. In addition, the BLM would continue working with local watershed associations and community water supply agencies to minimize the potential impacts of activities on BLM-administered lands, such as timber sales, on water supplies.

Biodiversity and Sensitive Species

To the extent that an alternative or the Proposed RMP would degrade the quality of, or reduce the supply of, habitats or populations of sensitive species, it would negatively affect resources that households in the region and the United States value. Conversely, the alternatives or the Proposed RMP that would protect the quality of, or increase the supply of habitats or populations, would protect or positively affect resources that households' value.

Alternatives A and C would result in less increase in the acreage of structurally-complex forests than other forests, and thus would support less of an increase from current levels of biodiversity resources and values. Alternatives B and D would yield an increase in structurally-complex forests compared to Alternatives A and C. The Proposed RMP would yield a level similar to Alternative B. See the Forest Management section in this chapter for more information on these differences. Data are unavailable to estimate the magnitude of the change in economic value these changes in forest complexity would have.

- The action alternatives and the Proposed RMP would increase the potential for habitat loss for the Oregon silverspot butterfly, compared to the No Action alternative. The action alternatives and the Proposed RMP would degrade or negatively affect a resource that households' likely value given available research. However, effects to Oregon silverspot butterflies themselves would not be reasonably foreseeable, because this habitat is likely unoccupied. Furthermore, habitat for this species on BLM-administered lands constitutes less than 1 percent of the habitat in the planning area, limiting any potential economic effect.
- The alternatives and the Proposed RMP, including the No Action alternative, would sustain populations of bald and golden eagles and increase habitat in 50 years. This would protect the economic values associated with these populations.
- The No Action alternative would lead to the continued loss of habitat for the fisher, while the actions alternatives and the Proposed RMP would increase fisher habitat in 50 years. Thus, the No Action alternative would diminish the well-being of people who care about the fisher. Data are not available to quantify the extent to which households would be willing to pay to protect the fisher or its habitat. The action alternatives and the Proposed RMP would result in an increase in fisher habitat over time and their associated values.
- The No Action alternative and Alternative D would identify and protect all marbled murrelet sites. Alternatives A, B, and C, and the Proposed RMP would slightly reduce nesting habitat for the marbled murrelet (by less than 1–8 percent) in the first decade, but, by the second decade, the amount of high quality nesting habitat would surpass current amounts and would continue increasing in the later decades. Thus, the alternatives and the Proposed RMP would protect values associated with marbled murrelet over the long-term.
- Under the alternatives and the Proposed RMP, the BLM would increase the amount of northern spotted owl habitat over time. Such actions would help protect the values that households place on this resource.

- Under all alternatives and the Proposed RMP, the BLM would increase habitat for red tree voles within the North Oregon Coast population. However, under Alternatives A and C, management actions could lead to loss of existing occupied habitat. It is unclear how this would affect population levels and potential for further listing under the ESA, and thus the values that households place on protecting the red tree vole. The No Action Alternative and Alternatives B and D, would protect existing occupied habitat and protect values associated with the red tree vole. The Proposed RMP would protect existing occupied habitat and protect values associated with the red tree vole north of Highway 20, but could lead to loss of existing occupied habitat south of Highway 20. As with Alternatives A and C, it is unclear how this loss under the Proposed RMP would affect population levels and potential for further listing under the ESA, and thus the values that households place on protecting the red tree vole.
- None of the alternatives or the Proposed RMP would have any measurable effects on populations or habitats of sage-grouse, gray wolf, streaked horned lark, wolverine, Taylor's checkerspot butterfly, Fender's blue butterfly, or Steller's sea lion or their value.

Scenic Amenities

The total acres in each Visual Resource Management class would vary across alternatives the Proposed RMP. As acres shift from lower Visual Resource Inventory (VRI) classes to higher Visual Resource Management (VRM) classes (i.e., become more disturbed), there would likely be a general decrease in visual value on those acres and the potential for reductions in the value associated with scenic amenities, such as decreases in property values, would increase. The potential change in economic value would be largest in areas adjacent or within view of residences, businesses, and communities where the visual quality would decrease from an undisturbed to a disturbed quality. Visual resource quality would likely decline over time under all alternatives and the Proposed RMP, as the BLM would manage a substantial acreage of BLM-administered lands at a higher VRM class than the VRI class at which the acreage was inventoried. Alternative D would manage the most acres (80 percent) under VRM classes with commensurate or lower levels of change permitted than their VRI classes, and would result in declines that would be substantially less than the other alternatives the Proposed RMP. The No Action alternative would manage the second-most acres (77 percent) and Alternatives B and C would manage the fewest acres (60 percent under each) consistent with their VRI classes, with Alternative A and the Proposed RMP managing only slightly fewer (61 percent). Changes in economic value of property would only occur where actual changes in the scenic quality of the landscape occur, and would be most pronounced immediately following the change. Reductions in value likely would diminish over time.

Cultural Meaning

Cultural and Paleontological Resources section analyzes the potential of each alternative the Proposed RMP to affect adversely cultural and paleontological resources. However, the great majority of potential adverse impacts would be prevented through pre-disturbance surveys. Alternatives A and D would have the lowest potential to result in potential adverse impacts to cultural and paleontological resources because they would allow the fewest acres of the type of ground-disturbing activity most likely to disturb cultural and paleontological resources. The Proposed RMP would have the next-lowest potential to result in adverse impacts. Alternatives B and C would have the greatest potential adverse impacts. Such impacts could potentially reduce the supply or quality of cultural resources, and possibly harm resources that people and societies hold important and would prefer to protect their continued existence. Pre-disturbance surveys and subsequent protection of sites would protect the economic values that people and societies place on these resources.

In addition to disturbing cultural resources, the alternatives the Proposed RMP would also affect levels of culturally important biological resources, as discussed above in Special Forest Products and Biodiversity

and Sensitive Species. As the alternatives the Proposed RMP reduce the supply of these resources, the loss would affect the well-being of people who hold them important, whether or not they interact directly with them. As described above, the alternatives the Proposed RMP would affect each type of biological resource differently. A particular alternative or the Proposed RMP has the potential to reduce the supply of some cultural resources while at the same time increasing the supply of others. These effects would have varying impacts on individuals' experience of sense of place, spiritual enrichment, and cognitive development. At the broad landscape scale of this analysis, it is not possible to determine or estimate with meaningful accuracy the overall effects on the value of cultural meaning under the different alternatives and the Proposed RMP.

Summary

Table 3-170 summarizes the effects of the alternatives and the Proposed RMP on the value of goods and services that BLM-administered lands in western Oregon supply. The first group of goods and services represent those that are valued using market prices, and from which BLM receives revenue. The table includes changes in market value and BLM revenue (as available) for each alternative and the Proposed RMP. The goods and services in the second group do not provide direct revenue to the BLM. Of these, two are quantified using non-market methods of valuation; willingness to pay in the case of recreation and, for carbon, its social cost. The other goods and services are not monetized, but likely have economic value as described in the sections above. Changes in the non-market value are shown for each of the alternatives. For goods and services where data limited the analysis of the monetary value of the effect, the table shows the expected direction of change in value under each alternative and the Proposed RMP.

Table 3-170. Summary of effects on economic value of goods and services derived from BLM-administered lands in Western Oregon

Good/Service	Type of Valuation	Economic Value in 2012 (Millions)	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP	
Market-based Goods and Services									
Timber	Market Price, Harvest Value	\$20.8	\$93.0	\$56.2	\$72.9	\$134.9	\$37.4	\$51.2	
			Average per year 2013 – 2022 (Millions)						
Special Forest Products	BLM Permit Fees, Market Price	BLM Revenue: \$0.24; Market Value Low \$4, High \$45	Changes in supply of lands suitable for the production of Category I and Category II species produce relatively small changes and would likely have a small effect on the overall supply, and thus the value, of each category of special forest products in the planning area.						
Energy Production	Market Price	\$0.032	Value of energy production across all alternatives and the Proposed RMP limited by lack of demand; Supply of biomass would increase; Supply of land available for wind/ROW development would decrease						
Livestock Grazing	Congressionally Set Price, Market Price	BLM Revenue: \$0.022; Market Value (State) \$0.14, (Private) \$0.27	No change in value of livestock grazing				No livestock grazing would reduce value to \$0.	No change in value of livestock grazing	
Minerals	Market Price	\$0.015 million	Small change in acres available for quarry development would not likely be large enough to change quantity or value of minerals produced; No change in value of locatable or leasable minerals						
Non-market-based Goods and Services									
Recreation	Consumer Surplus, Willingness to Pay	\$223	\$249.5	\$242.6	\$249.5 (Baseline)	\$268.9	\$278.1	\$271.2	
			Annual value in 2023 Based on 50-year recreation implementation timeline						
Carbon Storage	Social Cost of Carbon	\$85	\$117.5	\$166.2	\$152.0	\$43.27	\$216.3	\$159.35	
			Average per year 2013–2022 (Millions)						
Source Water Protection	Qualitative	Not Monetized	No change under any alternative or the Proposed RMP						
Biodiversity and Sensitive Species	Qualitative	Not Monetized	-	Economic values associated with species generally protected or enhanced in the long run					
Cultural Meaning	Qualitative	Not Monetized	Value of cultural sites and artifacts protected across all alternatives and the Proposed RMP; overall effect on cultural meaning impossible to assess at the present scale of analysis						
Scenic Amenities	Qualitative	Not Monetized	513,215 (23%)	960,984 (39%)	986,431 (40%)	986,783 (40%)	493,825 (20%)	976,601 (39%)	
			Number of acres potentially managed for lower visual quality than currently inventoried						

Issue 2

How would the alternatives affect economic activity in the planning area derived from BLM-administered lands?

Key Points

- The BLM contributes economically to all parts of the planning area, triggered by the production and use of commodities such as timber and other forest products, personal and commercial use of BLM-administered lands, expenditures for personnel, materials, and services, and Federal payments to State and local governments. These contributions trigger effects that find their way into virtually every industry of the local economy.
- In 2012, BLM management contributed 7,900 jobs and \$355 million in earnings to the planning area, which is about 0.4 percent of the total jobs and earnings. Under the alternatives and the Proposed RMP, these contributions would range from a low of 7,100 jobs and \$310 million in earnings (Alternative D) to a high of 12,200 jobs and \$573 million in earnings (Alternative C). Under the Proposed RMP, contributions would be 8,500 jobs and \$330 million in earnings.
- BLM management contributes the largest share of local area employment and earnings in the Roseburg and Coos Bay Districts (from 2.9 percent to 3.1 percent in 2012). Under Alternatives A, B, and D, and the Proposed RMP, these districts would experience losses in the BLM-based share of jobs by 2018.

Summary of Notable Changes from the Draft RMP/EIS

The BLM updated information on net changes to harvest on private timberlands as a market response to changes in BLM harvest. Generally, this update resulted in modest changes to the number of jobs and earnings attributable to the timber program. The BLM also revised the calculation of employment and earning effects of recreation management based on estimates of recreation visits by alternative and the Proposed RMP. The BLM added discussion of the uncertainty surrounding the implementation rate of BLM recreation management and its effect on employment and earnings.

Summary of Analytical Methods

The BLM developed two sets of economic models to portray economic conditions in the planning area and to estimate the contributions or effects of BLM management. The first set included seven multi-county models organized around BLM districts to estimate the effects of BLM resource programs and expenditures. The BLM delineated all district model areas, which often cover multiple counties, based on the economic connections to resource processing, visitor spending, and agency expenditures rather than on the acreage of BLM-administered lands. Except for the Salem District, a single model represents each district. The Salem District covers a very large and economically diverse portion of northwestern Oregon, and therefore required two distinct models to separate economic effects occurring in the urban Portland area from those occurring in more rural areas (i.e., the counties either inside or outside the Portland Metropolitan Statistical Area (MSA), OMB 2013). District model areas include the following counties:

- Coos Bay Coos, Curry
- Eugene Lane
- Klamath Falls Klamath
- Medford Jackson, Josephine
- Roseburg Douglas
- Salem-Other Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook
- Salem-Portland MSA Clackamas, Columbia, Multnomah, Washington, Yamhill

The second set of model areas aligns with individual counties to capture best the local effects triggered by local government spending of Federal payments. Both sets of models covered the entire planning area. Planning area effects are the sum of BLM district models or individual county models that cover the same geographic area. All models built and run for the analysis utilized the IMPLAN® modeling system (MIG, Inc. 2013), which include proprietary data sets. Employment and earnings results from both sets of models includes the sum of all direct effects triggered by spending or production, plus supply chain (indirect) effects in supporting industries and other (induced) effects from industry employees spending payrolls.

Public and private data for 2012, the most recent year for which all economic data were available, provided the foundation for all economic models. In addition to proprietary IMPLAN® data sets, the district models use public and private forest and wood products industries data provided by the Oregon Forest Resources Institute (OFRI 2012). The BLM customized both the district and county models with State and local government employment data publically available from the Oregon Employment Department (OED 2014). All models included information on employment, earnings, production levels, organizational spending, and prices.

Following conventions established by the Bureau of Labor Statistics and Bureau of Economic Analysis, the BLM defined employment for purposes of this analysis as the average number of full-time and part-time jobs reported monthly over an entire year. Earnings includes total payroll cost of employees, including such payments as wages, salaries, bonuses, health insurance and other benefits, retirement contributions, and payroll taxes. Given lags in data availability, jobs and earnings in 2012 (expressed in 2012 dollars) represent current conditions in the planning area.

The BLM's management of public lands triggers economic effects in three ways: output production from resource management programs, agency expenditures, and Federal payments to local governments. Program outputs include timber harvest, special forest products, recreation (including wildlife- and fish-based), minerals, and livestock grazing. Program expenditures include all operational expenses (personnel, facilities, and overhead) plus resource-specific expenses to accomplish such activities as watershed restoration, fuels reduction, and transportation management. Federal payments include all funds received by counties, such as payments in lieu of taxes (PILT), mineral royalties, and O&C payments or their replacement (i.e., payments authorized by the Secure Rural Schools and Community Self-Determination Act, as amended).

The BLM estimated economic contributions from resource outputs based on the availability of both BLM records and either production or spending data. BLM records and research data abound for timber, forage, minerals, and recreation use of public lands. BLM data are insufficient at this time to make economic contribution estimates for most non-timber special forest products, but are available for timber special forest products. Although the BLM collects information on permits for non-timber special forest products, sufficient data on quantities and values are not available. Research and agency reporting continue to improve in efforts to close these data gaps. Records of BLM agency expenditures and of Federal payments to local governments provided a sound basis for estimating the local contributions triggered by Federal and local government spending.

The BLM provided resource program outputs and agency expenditures for the models. The Oregon Department of Forestry and the U.S. Forest Service (Gale *et al.* 2012, ODF 2014, Zhou 2013) provided geographic data on 2012 harvest and processing locations that yielded log flows for the analysis. The Department of the Interior (USDI 2014) and the Association of O&C Counties (AOCC 2014) provided data on Federal payments. Each O&C County, through the cooperation of the Association of O&C Counties (AOCC 2014), provided representative spending patterns of Federal payments. The U.S. Forest

Service (White 2014, USDA FS 2014a) provided spending patterns by recreationists on BLM-administered lands.

The economic effects described in this section reflect the effects of Federal payments to counties, as they would be under the formula established in the O&C Act. This is because of the uncertainty over the future of payments under the Secure Rural Schools (SRS) and Self-Determination Act (see the discussion in Issue 3, County Payments).

In addition to comparing the projected impacts of alternatives and the Proposed RMP in 2018, the effects tables also display current conditions as of 2012. To facilitate a comparison between current conditions and 2018 on an equal basis, for the effects analysis the BLM modified the effects of the actual payments to counties in 2012 (as shown in the Affected Environment section) to reflect the effects of the payments as they would have been under the O&C Act. The relevant columns in the environmental effects tables are labeled 'Current Modified.' For example, in 2012, the actual effect of all BLM-based Federal payments was 699 jobs (**Table 3-180**). The modified current effect would have been 198 jobs (**Table 3-181**).

The BLM assumed, for purposes of this part of the analysis, that the State forecasts of employment and population capture the effects of BLM management under the No Action alternative (i.e., the 1995 RMPs as written).

The timber program shows anticipated effects of BLM timber harvested and processed in western Oregon. The total effects of each alternative and the Proposed RMP include all direct employment and earnings in the forest products industry plus supply chain (indirect) effects in supporting industries and other (induced) effects from industry payrolls.

The Planning Criteria provides more detailed information on analytical assumptions, methods and techniques, and geographic and temporal scales, which is incorporated here by reference (USDI BLM 2014, pp. 135–137).

Affected Environment

Area Employment and Earnings

The Analysis of the Management Situation for the RMPs for Western Oregon summarizes historic and trend data for employment, unemployment, and earnings in the planning area, (USDI BLM 2013, pp. 104–108). When the BLM published the Analysis of the Management Situation, the most recent year available for these data was 2011. Data for 2012 are now available and used throughout this section to represent current conditions.

Table 3-171 shows current total employment and earnings for each of the model areas. **Appendix P** includes tables with employment and earnings by industry.

Table 3-171. Total employment and earnings by district model area, 2012 (jobs, millions of 2012 dollars)

Industry	District Model Area Name and Counties							Planning Area Totals	Oregon Totals
	Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA		
	Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill		
Employment (Jobs)	40,276	186,049	31,881	145,525	46,527	359,408	1,147,490	1,957,157	2,221,563
Earnings (Millions of 2012 dollars)	\$1,507.7	\$7,733.7	\$1,198.0	\$5,604.1	\$1,789.7	\$15,111.7	\$65,067.0	\$98,012.0	\$108,412.3

Sources: MIG, Inc. 2013; Oregon Forest Resources Institute 2012 (Forest Products industries within greater Agriculture and Manufacturing throughout planning area)

Since 2001, total employment in the planning area has grown by 7.2 percent. However, since 2007, which was the peak of economic activity before the 2007–2009 recession, employment is down by 3.3 percent. Generally, throughout the planning area, district model areas show positive employment growth since 2001, ranging from 2.7 percent in the Coos Bay area to 9.8 percent in the Salem-Portland MSA area. Klamath Falls (-2.7 percent) and Roseburg (-3.9 percent) are still down from their 2001 levels. All model areas are down from their peak in 2007, ranging from the deepest low in Roseburg (-10.7 percent) to a very modest low in Salem-Portland MSA (-0.1 percent).

The two Salem District model areas account for 1.5 million jobs, or two-thirds of all employment in the planning area. At 1.1 million jobs in the Salem-Portland MSA model area and 0.4 million in the Salem-Other (non-MSA counties) area, these two are the largest economies in the planning area. The largest 2 industries in the two Salem District model areas, Health and Social Services and Governments, supply 238,000 jobs, or 21 percent of total employment in the Salem-Portland MSA area, and 112,000 jobs, or 31 percent in non-MSA counties. The next largest industries, Retail Trade and Manufacturing, each provide over 100,000 jobs or 9 percent in the Salem-Portland MSA area. In non-MSA counties, these same two industries account for nearly 38,000 jobs (11 percent) and 26,000 jobs (7 percent), respectively. Manufacturing, Governments, Health and Social Services, and Professional Services account for 48 percent (\$31 billion) of all earnings within the Portland-MSA. Among the non-MSA counties, Governments, Health and Social Services, Manufacturing, and Retail Trade tally over \$8.5 billion, or 55 percent, of all earnings. Total payrolls in these two model areas provide over 80 percent of all earnings in the planning area.

The five BLM District model areas from Eugene south have a pattern that is similar to the non-MSA counties within the Salem District. The top four sectors for employment are Governments, Health & Social Services, and Retail Trade followed by Manufacturing. Only in the Klamath Falls model area does a different industry—Agriculture rather than Manufacturing—make it into the top four. Earnings follow the employment pattern in all five model areas. Earnings by public sector employees lead in all areas except Eugene, where Health and Social Services payrolls are the largest in the area and exceed government payrolls by 2 percent. Retail Trade exhibits the lowest earnings of the top four industries, except in the Medford area where Manufacturing trails Retail Trade.

The recreation industry is well represented throughout western Oregon. While recreation participants spend money in many retail and service sectors, the BLM uses only two sectors in this analysis as an indicator of the visitor services or recreation industry: Arts, Entertainment & Recreation Services, and Accommodation & Food Services. These two sectors are especially aligned with both visitors from out of the area (e.g., accommodations) as well as local residents who engage in recreation (e.g., recreation services, and food services). These two sectors account for over 187,000 jobs (10 percent) and \$4.1 billion of earnings (4 percent) throughout the planning area. The two Salem District model areas supply three-quarters of all jobs and 80 percent of all payrolls in these sectors within the planning area. In the central and southern model areas, Medford and Eugene stand out with over 16,000 jobs each (9 percent and 11 percent, respectively) and from \$300 to \$342 million in payrolls (4 percent and 5 percent, respectively).

Since 2001, visitor service or recreation industry employment in the planning area has grown by 19.8 percent. Since 2007, planning area employment in this industry is up by 2.4 percent. Generally, throughout the planning area, district model areas show positive growth since 2001, ranging from 9.0 percent in the Coos Bay area to 26.5 percent in the Salem-Portland MSA area. Two areas are still down from their 2001 levels—Klamath Falls (-3.3 percent) and Roseburg (-2.8 percent). All model areas but one are down from their peak in 2007, ranging from the deepest low in Klamath Falls (-14.8 percent) to a very modest low in Eugene (-0.2 percent). The sole model area with growth in this industry is Salem-Portland MSA with 6.8 percent.

The forest products industry is important throughout the planning area and of particular interest for public land resource management in western Oregon. **Table 3-172** and **Table 3-173** provide employment and earnings information for detailed sectors within the broader forest products industry. In both of the Salem model areas, Support Activities for Agriculture and Forestry is the largest employer within the forest products industry. This detailed sector includes private firms that provide services such as estimating timber volume, fighting forest fires, controlling forest pests, and planting seedlings for reforestation. It also includes firms that support agricultural production through planting crops, cultivating services, and vineyard cultivation. Firms that provide only forestry support could not be statistically separated from those that provide agricultural support. As a whole, this sector provides nearly 11,000 jobs (0.7 percent) and \$295 million in earnings (0.4 percent) across both model areas.

Table 3-172. Forest products industry employment by detailed sector by district model area, 2012 (jobs)

Detailed Sector North American Industry Classification System (NAICS)		District Model Area Name and Counties							Planning Area Totals
		Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA	
Description	Code	Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill	
Forestry & Logging	113	965	1,000	361	632	1,021	2,283	1,917	8,292
Support Activities for Agriculture & Forestry	115	625	683	255	1,548	334	6,180	4,481	14,106
Wood Products Manufacturing	321	1,112	3,251	1,363	1,863	2,578	2,502	2,869	15,538
Sawmills & Wood Preservation	3211	432	1,120	D	100	863	1,105	1,007	D
Veneer, Plywood, Reconstituted & Engineered Wood Products	3212	583	1,510	D	903	1,127	290	54	D
Other Wood Products	3219	97	621	D	860	588	1,107	1,808	D
Paper Manufacturing	322	-	403	-	25	-	2,385	1,720	4,533
Pulp, Paper & Paperboard Mills	3221	-	383	-	-	-	1,843	845	3,071
Converted Paper Products Manufacturing	3222	-	20	-	25	-	542	875	1,462
Totals		2,702	5,337	1,979	4,068	3,933	13,350	10,987	42,469

D = Disclosure restricted because of confidentiality

Note: Table does not include trucking of logs and lumber because it is (1) not identifiable by NAICS and (2) less than 14 percent of the entire trucking industry (OFRI 2012; MIG, Inc. 2013)

Sources: Oregon Forest Resources Institute 2012; MIG, Inc. 2013 (NAICS 115 only)

Table 3-173. Forest products industry earnings by detailed sector by district model area, 2012 (millions of 2012 dollars)

Detailed Sector North American Industry Classification System (NAICS)		District Model Area Name and Counties							Planning Area Totals
		Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA	
Description	Code	Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill	
Forestry & Logging	113	\$64.9	\$79.8	\$33.0	\$52.5	\$54.2	\$212.4	\$157.6	\$654.4
Support Activities for Agriculture & Forestry	115	\$11.0	\$18.5	\$9.7	\$48.0	\$10.1	\$162.1	\$132.6	\$392.0
Wood Products Manufacturing	321	\$76.1	\$221.5	\$108.2	\$108.2	\$169.9	\$153.2	\$154.1	\$991.1
Sawmills & Wood Preservation	3211	\$27.3	\$82.4	D	\$6.2	\$61.9	\$71.8	\$52.9	D
Veneer, Plywood, Reconstituted & Engineered Wood Products	3212	\$44.6	\$118.4	D	\$77.2	\$97.1	\$44.2	\$18.7	D
Other Wood Products	3219	\$4.2	\$20.7	D	\$24.8	\$10.9	\$37.3	\$82.5	D
Paper Manufacturing	322	-	\$48.5	-	\$2.2	-	\$239.4	\$136.5	\$426.7
Pulp, Paper & Paperboard Mills	3221	-	\$47.4	-	-	-	\$197.9	\$74.3	\$319.6
Converted Paper Products Manufacturing	3222	-	\$1.2	-	\$2.2	-	\$41.5	\$62.2	\$107.1
Totals		\$152	\$368	\$151	\$211	\$234	\$767	\$581	\$2,464

D = Disclosure restricted because of confidentiality

Note: Table does not include trucking of logs and lumber because it is (1) not identifiable by NAICS and (2) less than 14 percent of the entire trucking industry (OFRI 2012; MIG, Inc. 2013)

Sources: Oregon Forest Resources Institute 2012; MIG, Inc. 2013 (NAICS 115 only)

The entire forest products industry in the Salem District includes all types of wood fiber harvesting and processing. In terms of employment, the forest products industry supplies over 24,000 jobs, with payrolls exceeding \$1.3 billion (about 2 percent of total jobs and earnings). In the areas south of the Salem District, Forestry & Logging, Sawmills & Wood Preservation, and Veneer, Plywood, Reconstituted & Engineered Wood Products are the three major elements of the forest products industry. In addition, the Eugene area has several firms that manufacture pulp and paper products. South of the Salem District, total forest products industry employment ranges from a low of about 2,000 in the Klamath Falls area (6 percent of area total) to a high of 5,300 in the Eugene area (3 percent of area total). Similarly, earnings range from \$151 million in the Klamath Falls area (13 percent of area total) to a high of \$368 million in the Eugene area (5 percent of area total).

Table 3-174, below, displays the share of employment and earnings by both timber-related and recreation-related industries to total employment and earnings in each BLM district model area. One or both of these industries are particularly important to four model areas: Roseburg, Coos Bay, Medford, and Klamath Falls. The recreation-related industry is strongest in Coos Bay and Medford, where employment sums to 11 percent of area jobs and payrolls sum to over 5 percent of area earnings. The timber-related industry is most robust in Roseburg, Coos Bay, and Klamath Falls, where employment ranges from 6.2 to 8.5 percent of all area jobs and payrolls range from 10.1 to 13.1 percent of all earnings.

Table 3-174. Employment and earnings in timber- and recreation-related industries as a share of total employment and earnings by district model area, 2012

Resource-Related Industry		District Model Area Name and Counties							Planning Area Totals
		Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA	
		Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill	
Employment	Timber-Related* (Forest Products)	6.7%	2.9%	6.2%	2.8%	8.5%	3.7%	1.0%	2.2%
	Recreation-Related† (Arts, Entertainment & Recreation; Accommodations & Food Services)	11.0%	9.4%	10.0%	11.1%	7.9%	9.9%	9.3%	9.6%
Earnings	Timber-Related† (Forest Products)	10.1%	4.8%	12.6%	3.8%	13.1%	5.1%	0.9%	2.5%
	Recreation-Related‡ (Arts, Entertainment & Recreation; Accommodations & Food Services)	5.5%	4.4%	4.5%	5.3%	4.0%	4.5%	4.0%	4.2%

* Percentages calculated by dividing total employment in **Table 3-172** for each geographic area by total employment in **Table 3-171** for the same geographic area.

† Percentages calculated by dividing total earnings in **Table 3-173** for each geographic area by total earnings in **Table 3-171** for the same geographic area.

‡ Percentages calculated by dividing recreation-related industry total for each geographic area (selected geographic areas in text, others in project record) by comparable total in (**Table 3-173**) for the same geographic area.

A shrinking of the wood products manufacturing industry has been evident in the planning area since 2001. The industry contracted by -39.3 percent between 2001 and 2012. Since 2007, when many Oregon industries were at peak employment, planning area employment in this industry is down by -31.8 percent. All district model areas show negative growth since 2001, ranging from -43.9 percent in the Salem-Other area to -16.5 percent in the Coos Bay area. All areas except Coos Bay show negative growth at greater than -30 percent. No model area experienced a peak of industry employment in 2007. Statewide, employment in this industry is down by -33.6 percent since 2007 and -40.8 percent since 2001.

There are large differences between compensation for timber-related jobs compared to recreation-related jobs in western Oregon. The average forest products industry jobholder earns approximately \$58,000 while the average recreation-based employee earns approximately \$22,000, roughly a third of timber-related industries (**Table 3-173** and tables in **Appendix P**). Note that recreation includes two industries: Arts, Entertainment & Recreation Services, and Accommodation & Food Services).

Contributions by BLM Management to Local Economies

Through its management of Oregon & California (O&C), Coos Bay Wagon Road (CBWR), and other public lands, the BLM contributes economically to all parts of the planning area, triggered by—

- The production and use of basic commodities, such as timber, forage, minerals, and other forest products derived from BLM-administered lands,
- Personal and commercial use of BLM-administered lands, such as for recreation, solitude, education, and reflection,
- Local agency expenditures for personnel, materials, and services, and
- Federal payments to state and local governments, such as payments made under the Secure Rural Schools and Community Self-Determination Act and Payments in Lieu of Taxes Act, that are also spent on personnel, materials, and services.

The presentation of BLM contributions differs from the preceding presentation of area industry totals in **Table 3-170** through **Table 3-174**. **Table 3-175** through **Table 3-180** illustrate the various dimensions of BLM contributions in 2012, including the sum of direct, indirect, and induced effects that BLM contributions trigger as they ripple throughout each model area. Direct effects are those in industries either processing BLM resource outputs (e.g., sawmills) or selling goods and services to public land users (e.g., outfitter and guide services) and to government agencies using Federal funds (e.g., office supplies). Indirect effects are those in local supply chains that support local firms producing direct goods and services. Finally, induced effects are those triggered by workers in either direct or indirect firms who spend a portion of their paycheck locally. Thus, the BLM contributions trigger effects that find their way into virtually every industry of the local economy.

Table 3-175. Total employment and earnings contribution of BLM programs to district model areas, 2012

Program		District Model Area Name and Counties							Planning Area Totals
		Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA	
		Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill	
Employment (Jobs)	Recreation	276	527	60	425	507	133	854	2782
	Livestock Grazing	-	-	55	40	-	-	-	95
	Timber	710	480	40	340	488	432	407	2,897
	Minerals	-	3	-	1	2	-	-	6
	Agency Expenditures	192	259	71	454	176	271	-	1423
	Payments to States/Counties	70	93	19	236	189	55	36	699
	Totals	1,249	1,363	245	1,496	1,362	891	1,297	7,904
	Share of Total Employment in Area*	3.1%	0.7%	0.8%	1.0%	2.9%	0.2%	0.1%	0.4%
Earnings (Millions of 2012 Dollars)	Recreation	\$7.0	\$16.2	\$1.6	\$12.2	\$13.6	\$3.8	\$32.8	\$87.2
	Livestock Grazing	-	-	\$0.8	\$0.6	-	-	-	\$1.4
	Timber	\$33.3	\$23.2	\$1.9	\$15.8	\$23.5	\$21.3	\$22.8	\$141.7
	Minerals	-	\$0.2	-	< \$0.1	\$0.1	-	-	\$0.3
	Agency Expenditures	\$13.1	\$15.2	\$4.2	\$27.2	\$12.0	\$17.4	-	\$89.1
	Payments to States/Counties	\$3.4	\$5.9	\$0.9	\$10.2	\$9.6	\$3.3	\$2.2	\$35.5
	Totals	\$56.8	\$60.7	\$9.4	\$66.0	\$58.9	\$45.9	\$57.8	\$355.3
	Share of Total Earnings in Area†	3.8%	0.8%	0.8%	1.2%	3.3%	0.3%	0.1%	0.4%

* Percentages calculated by dividing total employment in this table for each geographic area by total employment in **Table 3-171** for the same geographic area.

† Percentages calculated by dividing total earnings in this table for each geographic area by total earnings in **Table 3-171** for the same geographic area.

Note: Totals may not add due to rounding

Table 3-176. Total employment contribution of BLM timber programs to forest products industry by district model area, 2012 (jobs)

Detailed Sector North American Industry Classification System (NAICS)		District Model Area Name and Counties							Planning Area Totals
		Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA	
Description	Code	Coos	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill	
Forestry & Logging	113	140	71	9	48	88	78	43	477
Support Activities for Agriculture & Forestry	115	93	47	6	32	59	47	34	317
Wood Products Manufacturing	321	131	81	6	59	133	56	51	518
Sawmills & Wood Preservation	3211	111	56	4	40	72	50	46	379
Veneer, Plywood, Reconstituted & Engineered Wood Products	3212	20	20	1	6	10	5	4	66
Other Wood Products	3219	< 1	5	1	13	51	1	2	73
Paper Manufacturing	322	< 1	13	< 1	< 1	< 1	15	13	41
Pulp, Paper & Paperboard Mills	3221	< 1	13	< 1	< 1	< 1	15	13	41
Converted Paper Products Manufacturing	3222	-	< 1	-	< 1	-	< 1	< 1	< 1
Totals		363	212	21	139	280	196	142	1,354
Share of Forest Products Industry in Area *		13.4%	4.0%	1.0%	3.4%	7.1%	1.5%	1.3%	3.2%
Share of Total Employment in Area †		0.9%	0.1%	0.1%	0.1%	0.6%	0.1%	< 0.1%	0.1%

* Percentages calculated by dividing total employment in this table for each geographic area by total employment in **Table 3-172** for the same geographic area.

† Percentages calculated by dividing total employment in this table for each geographic area by total employment in **Table 3-171** for the same geographic area.

Note: Totals may not add due to rounding

Table 3-177. Total earnings contribution of BLM timber programs to forest products industry by district model area, 2012 (millions of 2012 dollars)

Detailed Sector North American Industry Classification System (NAICS)		District Model Area Name and Counties							Planning Area Totals
		Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA	
Description	Code	Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill	
Forestry & Logging	113	\$9.8	\$4.9	\$0.6	\$3.4	\$6.2	\$5.5	\$3.1	\$33.5
Support Activities for Agriculture & Forestry	115	\$3.7	\$1.9	\$0.2	\$1.3	\$2.4	\$1.9	\$1.4	\$12.7
Wood Products Manufacturing	321	\$7.3	\$4.5	\$0.3	\$3.3	\$7.4	\$3.1	\$2.8	\$28.7
Sawmills & Wood Preservation	3211	\$6.1	\$3.1	\$0.2	\$2.2	\$4.0	\$2.8	\$2.5	\$20.8
Veneer, Plywood, Reconstituted & Engineered Wood Products	3212	\$1.1	\$1.1	-	\$0.4	\$0.6	\$0.3	\$0.2	\$3.8
Other Wood Products	3219	<\$0.1	\$0.3	\$0.1	\$0.7	\$2.9	\$0.1	\$0.1	\$4.1
Paper Manufacturing	322	<\$0.1	\$1.2	<\$0.1	<\$0.1	<\$0.1	\$1.3	\$1.2	\$3.8
Pulp, Paper & Paperboard Mills	3221	<\$0.1	\$1.2	<\$0.1	<\$0.1	<\$0.1	\$1.3	\$1.2	\$3.8
Converted Paper Products Manufacturing	3222	-	<\$0.1	-	<\$0.1	-	<\$0.1	<\$0.1	<\$0.1
Totals		\$20.8	\$12.5	\$1.2	\$7.9	\$16.0	\$11.8	\$8.5	\$78.7
Share of Forest Products Industry in Area*		13.7%	3.4%	0.8%	3.8%	6.8%	1.5%	1.5%	3.2%
Share of Total Employment in Area†		1.4%	0.2%	0.1%	0.1%	0.9%	0.1%	<0.1%	0.1%

* Percentages calculated by dividing total earnings in this table for each geographic area by total earnings in **Table 3-173** for the same geographic area.

† Percentages calculated by dividing total earnings in this table for each geographic area by total earnings in **Table 3-171** for the same geographic area.

Note: Totals may not add due to rounding

Table 3-178. Total employment and earnings contribution of BLM recreation programs to recreation-related industries by district model area, 2012

Industry		District Model Area Name and Counties							Planning Area Totals
		Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA	
		Coos	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill	
Employment (Jobs, Percent)	Arts, Entertainment & Recreation Services	72	87	12	81	92	38	115	498
	Accommodation & Food Services	135	225	29	165	201	72	340	1,167
	Totals	206	312	41	245	293	111	455	1,664
	Share of Recreation-related Industry in Area*	4.6%	1.8%	1.3%	1.5%	8.0%	0.3%	0.4%	0.9%
	Share of Total Employment in Area†	0.5%	0.2%	0.1%	0.2%	0.6%	<0.1%	<0.1%	0.1%
Earnings (Millions of 2012 dollars, Percent)	Arts, Entertainment & Recreation Services	\$1.6	\$2.6	\$0.3	\$2.0	\$2.5	\$1.3	\$3.6	\$13.9
	Accommodation & Food Services	\$2.8	\$4.8	\$0.6	\$3.4	\$4.1	\$1.5	\$9.1	\$26.3
	Totals	\$4.4	\$7.5	\$0.8	\$5.4	\$6.6	\$2.8	\$12.7	\$40.2
	Share of Recreation-related Industry in Area*	5.3%	2.2%	1.6%	1.8%	9.3%	0.4%	0.5%	1.0%
	Share of Total Employment in Area†	0.3%	0.1%	0.1%	0.1%	0.4%	<0.1%	<0.1%	<0.1%

* Percentages calculated by dividing table total for each geographic area by comparable total employment or total earnings in **Table 3-172** for the same geographic area.

Note: Totals may not add due to rounding.

† Percentages calculated by dividing table total for each geographic area by recreation-related industry total for the same geographic area (selected geographic areas in text, others in project record).

Table 3-179. Total employment and earnings in O&C counties generated by BLM-based Federal payments, 2012 (jobs, millions of 2012 dollars)

County	Secure Rural Schools Program*							
	Title I and III				Title II		Total	
	County Government		Private Sector		Private Sector		County-wide	
	Jobs	Earnings	Jobs	Earnings	Jobs	Earnings	Jobs	Earnings
Benton	6	\$0.5	3	\$0.1	1	\$0.1	10	\$0.6
Clackamas	8	\$0.7	5	\$0.2	3	\$0.1	15	\$0.9
Columbia	6	\$0.5	2	\$0.1	2	<\$0.1	10	\$0.6
Coos	31	\$1.6	9	\$0.3	4	\$0.1	44	\$2.1
Curry	15	\$0.9	5	\$0.1	3	\$0.1	23	\$1.1
Douglas	133	\$7.4	41	\$1.4	12	\$0.7	185	\$9.4
Jackson	86	\$3.1	30	\$1.1	26	\$0.8	141	\$4.9
Josephine	56	\$4.0	24	\$0.8	11	\$0.4	91	\$5.2
Klamath	11	\$0.6	5	\$0.2	2	\$0.1	17	\$0.8
Lane	50	\$4.4	29	\$1.0	14	\$0.4	92	\$5.8
Lincoln	1	\$0.1	1	<\$0.1	-	<\$0.1	2	\$0.1
Linn	11	\$0.9	4	\$0.1	2	\$0.1	17	\$1.1
Marion	4	\$0.3	2	\$0.1	1	<\$0.1	8	\$0.5
Multnomah	2	\$0.1	1	\$0.1	1	<\$0.1	4	\$0.2
Polk	7	\$0.5	2	\$0.1	2	\$0.1	12	\$0.7
Tillamook	2	\$0.2	1	<\$0.1	1	<\$0.1	4	\$0.2
Washington	1	\$0.1	1	<\$0.1	1	<\$0.1	2	\$0.1
Yamhill	3	\$0.2	1	<\$0.1	-	<\$0.1	4	\$0.2
Totals	434	\$26.1	163	\$5.6	85	\$3.0	682	\$34.8

* Based upon Secure Rural Schools program payments received and spent by local governments in calendar year 2012
 Note: Clatsop County is not included on the table. Included within the larger economic analysis area, Clatsop County has a small amount of BLM-administered lands, but does not have O&C or CBWR lands. Consequently, BLM-based Federal payments to Clatsop County are very small and generate a positive, but very minor effect on the county economy.

Table 3-180. Total employment and earnings in O&C counties generated by BLM-based Federal payments, 2012 (jobs, millions of 2012 dollars)

County	PILT Program* (BLM Acreage Only)						All BLM-based Federal Payments			
	County Government		Private Sector		County-wide		County-wide Jobs		County-wide Earnings	
	Jobs	Earnings	Jobs	Earnings	Jobs	Earnings	Total	Share of County Total [†]	Total	Share of County Total [†]
Benton	-	-	-	-	-	-	10	<0.1%	\$0.6	<0.1%
Clackamas	-	-	-	-	-	-	16	<0.1%	\$0.9	<0.1%
Columbia	-	-	-	-	-	-	10	0.1%	\$0.6	0.1%
Coos	2	\$0.1	1	-	3	\$0.1	47	0.2%	\$2.2	0.2%
Curry	-	-	-	-	-	-	24	0.2%	\$1.2	0.3%
Douglas	3	\$0.2	1	-	4	\$0.2	189	0.4%	\$9.6	0.5%
Jackson	3	\$0.1	1	-	4	\$0.1	145	0.1%	\$5.0	0.1%
Josephine	-	-	-	-	-	-	91	0.3%	\$5.2	0.4%
Klamath	1	\$0.1	-	-	2	\$0.1	19	0.1%	\$0.9	0.1%
Lane	1	\$0.1	1	-	2	\$0.1	93	0.1%	\$5.9	0.1%
Lincoln	-	-	-	-	-	-	2	<0.1%	\$0.1	<0.1%
Linn	-	-	-	-	-	-	18	<0.1%	\$1.1	0.1%
Marion	-	-	-	-	-	-	8	<0.1%	\$0.5	<0.1%
Multnomah	-	-	-	-	-	-	4	<0.1%	\$0.2	<0.1%
Polk	1	\$0.1	-	-	1	\$0.1	13	0.1%	\$0.7	0.1%
Tillamook	-	-	-	-	-	-	4	<0.1%	\$0.2	0.1%
Washington	-	-	-	-	-	-	3	<0.1%	\$0.2	<0.1%
Yamhill	-	-	-	-	-	-	4	<0.1%	\$0.2	<0.1%
Totals	13	\$0.7	5	\$0.2	17	\$0.9	699	<0.1%	\$35.7	<0.1%

* Based upon payments in lieu of taxes (PILT) received and spent by local governments in calendar year 2012

† Percentages calculated by dividing table total for each county by comparable total employment or total earnings for the same county (provided in project record).

Notes: Clatsop County is not included on the table. Included within the larger economic analysis area, Clatsop County has a small amount of BLM-administered lands, but does not have O&C or CBWR lands. Consequently, BLM-based Federal payments to Clatsop County are very small and generate a positive, but very minor effect on the county economy.

Economic contributions of BLM programs and payments total 7,900 jobs and over \$350 million of earnings across the entire planning area. Total employment contributions range from a low of 240 jobs and \$9.4 million of earnings in the Klamath Falls area (0.8 percent of area totals for each) to a high of 1,500 jobs and over \$66 million of earnings in the Medford area (1.0 percent and 1.2 percent of area totals, respectively). Employment contributions from the timber program exceed all other programs in the planning area as a whole and in two of the model areas, Salem-Other and Coos Bay. Like employment, earnings contributions from the timber program exceed all other programs in the planning area and in the same model areas noted above, but also in the Eugene and Roseburg areas.

Expenditures by recreation participants on BLM-administered lands provide the largest employment contributions in the Salem-Portland MSA, Eugene, and Roseburg areas. In the Salem-Portland MSA, recreation-based jobs are approximately double those triggered by timber harvest and processing. In the Eugene area, recreation-based jobs exceed timber-based jobs by about 10 percent. In the Roseburg area,

these jobs exceed timber-based jobs by about 4 percent. Expenditures by the BLM provide the largest employment and earnings contributions in the Medford and Klamath Falls areas. Jobs triggered through spending by recreation participants exceed those triggered through either BLM or local government spending in all model areas, except Medford and Klamath Falls where they are slightly smaller than contributions triggered by agency spending.

As a share of total area employment and earnings, BLM contributions as a whole range from lows of less than 1 percent in the Salem, Eugene, and Klamath Falls areas to highs of about 3 percent in the Roseburg and Coos Bay areas. Contributions in the Medford area are about 1 percent. While all contributions to local economies are important, economists often consider those that approach 5 percent of the total economy—as is the case for Roseburg and Coos Bay—as central to the economic well-being of an area.

The use and management of BLM-administered lands trigger direct, indirect, and induced effects touching every industry as they work their way throughout the local economies. Across the entire planning area, BLM management of public lands mostly affects Agriculture, Governments, Accommodation & Food Services, and Manufacturing. BLM management affects Agriculture more than other industries because of logging and forestry support sectors, but also because personal spending by worker households, regardless of the industry they work in, affects the agriculture industry. BLM payrolls and local government payrolls funded by Federal payments primarily affect the Governments sector. Recreation spending and personal spending by workers and their households affect Accommodations & Food Services. Finally, the forest products industry has a primary effect on Manufacturing. The leading industries for earnings are consistent with those for employment, with one exception; low wages and salaries in Accommodations & Food Services make this industry generally rank last among the top four industries across the planning area and in each of the model areas, whereas it ranks third in the top four for jobs. **Appendix P** contains detailed tables showing employment and earnings across all industries.

Table 3-176 and **Table 3-177** provide a more detailed look at BLM contributions to the forest products industry. Because the BLM harvest in 2012 yielded neither very large nor very small logs, the sawmill and logging sectors see most of the direct contributions, rather than the Veneer & Plywood sectors. Sawmill & Logging account for 63 percent of all industry employment and 69 percent of all earnings. Other than Klamath Falls, every area shows total employment in these two sectors ranging from 85–250 jobs and \$5.4–\$16.0 million in payroll. The largest employment and earnings contributions for the forest products industry occur in the Coos Bay and Roseburg model areas. BLM harvest contributes 3.2 percent of employment and earnings to the entire industry across the planning area, but it is especially vital to Coos Bay and Roseburg. In Coos Bay, 13 percent of industry jobs and payrolls depend on BLM harvest and in the Roseburg area, the share is 7 percent. These large shares demonstrate the important role that BLM timber harvest plays in these two areas of southern Oregon.

Table 3-178 provides detail into BLM contributions to two recreation-related industries in western Oregon (Arts, Entertainment & Recreation Services, and Accommodation & Food Services). While the BLM-related contribution to these sectors is primarily affected by recreation participant spending, other BLM activities contribute as well. Across the planning area, spending by recreation visitors, as well as spending by local households receiving earnings from BLM-based economic activities, results in over 1,600 jobs and \$40 million of earnings in these two recreation-related sectors. The Salem-Portland MSA area led all areas with over 450 jobs and \$12.7 million in payrolls in these sectors, followed by the Eugene, Roseburg, Medford, Coos Bay, Salem-Other, and Klamath Falls areas. BLM-administered lands in the planning area account for about 1 percent of all jobs and earnings in these two recreation-related industries. The contribution is particularly important in the Roseburg area where BLM-administered lands contribute 8.0 percent of industry jobs and 9.3 percent of industry earnings. In Coos Bay, the contribution is 4.6 percent of industry jobs and 5.3 percent of industry earnings. Contributions to the Roseburg and

Coos Bay areas range from 0.3 to 0.6 percent. As a share of the total planning area, BLM-administered lands contribute about 0.1 percent of all jobs and less than 0.1 percent of all earnings.

Federal Payments

Federal payments are an important contributor to local governments, providing funds for a variety of public services. Local government spending of Federal payments to employ personnel and purchase materials and services generates jobs and income. Eighteen counties in Oregon contain either O&C or CBWR lands, and therefore receive Federal payments under the Secure Rural Schools and Self-Determination Act (as amended). Each of these counties also receives Federal payments under the Payment in Lieu of Taxes Act. Socioeconomics Issue 3 discusses Federal payments to local governments and their contribution to public services funding. **Table 3-179** and **Table 3-180** identify the contribution of Secure Rural Schools (SRS) and Payment in Lieu of Taxes (PILT) payments to each of the 18 counties' economies.

Table 3-179 and **Table 3-180** estimate the contribution of BLM-based payments spent in 2012 that support both public and private sector payrolls. County governments spend SRS Title I and III payments directly; they have full discretion in the use of these funds, often using them for public safety and related services. Title II payments are directed by local resource advisory committees for resource-improvement projects on public lands in the area. In 2012, SRS payments contributed over 680 jobs and nearly \$35 million in earnings to local economies throughout the planning area. Douglas and Jackson Counties have the largest employment effect with well over 100 jobs, followed by Lane and Josephine with over 90 each. Because each local government sets its own employment compensation rates, county rankings by earnings differ somewhat from those by employment. In terms of total county government payroll, Douglas County leads all counties, followed by Lane, Josephine, and Jackson Counties. PILT payments are typically much smaller than SRS payments, and thus generate smaller contributions to local economies. Across all of western Oregon, PILT payments provide 17 jobs and \$0.9 million of earnings. All BLM-based Federal payments combined contribute nearly 700 jobs and \$35.7 million in earnings across the entire planning area. As a share of total employment and earnings, these estimates accounted for under 0.1 percent for the entire planning area and for each district model area.

Environmental Consequences

This section describes the employment and earnings effects of the No Action alternative, action alternatives, and the Proposed RMP. Changes in timber harvest, recreation visits, and BLM expenditures are the primary influences on projected future BLM-based employment and earnings in local economies in the planning area. There would be modest to no changes in mineral revenues across alternatives and the Proposed RMP, and the contribution of the livestock grazing program to BLM-based employment and earnings is much smaller than other programs, as shown in **Table 3-175**. Data in the tables in this section show effects for the year 2018—the mid-point of the first decade in the Woodstock vegetation modeling (**Appendix C**)—as an appropriate point for comparison of economic effects among alternatives and the Proposed RMP.

Table 3-181 shows economic effects by alternative and the Proposed RMP for the entire planning area by BLM program, timber-related industry, and recreation-related industry. With respect to total effects (i.e., direct, indirect, and induced), the alternatives and the Proposed RMP, except for Alternative D would result in an increase in jobs and earnings compared to 2012 figures based on Current-Modified.⁹⁸ The difference across alternatives and the Proposed RMP is substantial, ranging from 7,100 jobs and \$310 million in earnings under Alternative D up to 12,200 jobs and \$573 million in earnings in Alternative C. The Proposed RMP would generate about 8,500 jobs and \$330 million in earnings. The timber program

⁹⁸ Current-Modified, i.e., payments to counties as they would have been under the O&C Act; see explanation in Summary of Analytical Methods.

would account for the highest shares of jobs and earnings under the No Action alternative and Alternatives A, B, and C (from 30 to 50 percent). Recreation would account for the highest shares of jobs under Alternative D (44 percent), but a smaller share of earnings (31 percent) compared with the timber program. Under the Proposed RMP, timber would account for the highest share of jobs at 39 percent and the highest share of earnings at 50 percent.⁹⁹ Timber shares would be highest under Alternative C, with 50 percent of all jobs and 52 percent of earnings, a 110 percent increase over Current-Modified. Recreation shares would be the lowest under Alternative C, with 25 percent of jobs and 17 percent of earnings, and the highest under Alternative D with 44 percent of jobs and 31 percent of earnings.

⁹⁹ Percentages may be calculated from the tables. For example $3,111 \div 7,083 = 44$ percent; $\$97.0 \div \$309.5 \text{ million} = 31$ percent.

Table 3-181. Total employment and earnings in the planning area

Program/ Industry	Employment (Jobs)							Earnings (Millions of 2012 Constant* \$)						
	2012	2018						2012	2018					
	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP
BLM Program														
Recreation	2,782	2,962	2,915	2,962	3,062	3,111	3,071	\$87.2	\$92.8	\$91.3	\$92.8	\$95.5	\$97.0	\$96.0
Livestock Grazing	95	95	95	95	95	-	95	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$0.0	\$1.4
Timber	2,897	4,720	3,127	3,989	6,093	2,477	3,366	\$141.8	\$227.7	\$153.2	\$194.5	\$296.4	\$122.1	\$165.1
Minerals	6	6	6	6	6	6	6	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.2
Agency Expenditures	1,423	1,860	1,458	1,677	2,253	1,285	1,732	\$89.1	\$115.5	\$90.5	\$104.2	\$140.8	\$79.3	\$52.9
Federal Payments to Counties [†]	198	508	307	398	736	204	279	\$10.5	\$26.9	\$16.3	\$21.1	\$39.0	\$10.8	\$14.8
Totals	7,403	10,152	7,909	9,127	12,245	7,083	8,549	\$330.1	\$464.5	\$352.9	\$414.1	\$573.4	\$309.5	\$330.4
Timber-related Industries														
Forestry, Logging, & Support Activities	795	1,130	775	972	1,496	615	851	\$46.3	\$65.8	\$45.1	\$56.5	\$87.0	\$35.8	\$49.5
Wood Products Manufacturing	518	959	555	738	1,179	421	561	\$28.7	\$53.2	\$30.7	\$40.9	\$65.3	\$23.3	\$31.1
Paper Manufacturing	41	66	65	75	113	57	79	\$3.7	\$6.1	\$5.9	\$6.9	\$10.4	\$5.2	\$7.2
Totals	1,354	2,155	1,395	1,784	2,788	1,093	1,491	\$78.7	\$125.0	\$81.8	\$104.2	\$162.7	\$64.3	\$87.8
Recreation-related Industries														
Arts, Entertainment & Recreation Services	495	604	529	574	679	527	559	\$13.9	\$18.6	\$14.0	\$17.3	\$24.8	\$18.8	\$19.5
Accommodation & Food Services	1,150	1,260	1,207	1,244	1,328	1,260	1,262	\$26.0	\$28.3	\$23.5	\$28.0	\$37.5	\$40.4	\$37.6
Totals	1,645	1,864	1,736	1,818	2,006	1,788	1,821	\$39.9	\$46.8	\$37.5	\$45.2	\$62.4	\$59.2	\$57.0

* Earnings in 2018 are expressed in 2012 dollars with unchanging or constant purchasing power.

† Federal payments include only those that would be paid under the O&C formula. Current has been modified as if O&C payments had been made in lieu of SRS payments.

Note: Totals may not add due to rounding

Change in total timber volume (including both ASQ and non-ASQ volume) is the most influential factor affecting economic consequences of the timber program under the different alternatives and the Proposed RMP, but composition of log sizes is also important. Logs of 24” or more (peeler logs) generate about three times more direct employment than smaller sawlogs. Logs less than 8” (roundwood) generate the least direct employment. Across the decision area, harvests in 2012 (243 MMbf) were 96 percent sawlogs with only 3 percent peeler logs and 1 percent roundwood. Under the No Action alternative (400 MMbf) and Alternatives A (249 MMbf), B (332 MMbf), and C (555 MMbf), harvests would have more volume than current, but peeler logs would account for 15–24 percent of total harvest. Roundwood would be steady across these alternatives at 13–14 percent of total volume. Given harvest volumes that would be greater than current and a mix of log sizes that would generate more employment than current, these alternatives show greater positive job and income effects. Under Alternative D (180 MMbf) harvest volumes would be less than current, but they would include a mix similar to the other alternatives. Under the Proposed RMP (278 MMbf), harvest volumes would be greater than current, with peeler logs accounting for 13 percent of total harvest.

As the BLM timber harvest would change, market forces would prompt private timberland owners to adjust their harvest volumes. The BLM anticipates that in 2018, private timberland owners would either increase their harvests modestly (8.2 MMbf short log under Alternative D) or decrease their harvests in varying amounts (-54 MMbf short log under the No Action alternative, -11 MMbf short log under Alternative A, -34 MMbf short log under Alternative B, -97 MMbf short log under Alternative C, and -17 MMbf short log under the Proposed RMP). See the discussion of market consequences in Socioeconomics Issue 1. The employment and earnings effects shown in **Table 3-181** incorporate these market implications.

The BLM’s projections of recreation visits in 2018 vary from 5.6 million visits under Alternative A to 6.0 million visits under Alternative D. Visitation under the Proposed RMP is anticipated to reach 5.9 million visits in 2018. Under the alternatives and the Proposed RMP, except Alternative D, the BLM recreation program would remain the second largest generator of jobs among all BLM-based effects. Under Alternative D, recreation would rank first among programs, with over 3,100 jobs.

Employment and earnings estimates for the recreation program shown in **Table 3-181** are based on a 50-year implementation period for carrying out changes in the recreation management described for the alternatives and the Proposed RMP. Unlike a changing timber program, for which the BLM has many years of experience of shifting implementation to match objectives or targets, the agency would not be able to implement quickly the management necessary to increase recreation opportunities, even assuming full funding and staffing. In addition, substantially increasing recreation opportunities would require the development of new recreation facilities and new infrastructure to support specific targeted activities. Based on empirical evidence of past BLM recreation management, it would take substantially more than a decade from adoption of a new RMP to increase the recreation opportunities to new levels considered in several of the alternatives and the Proposed RMP. Given the uncertainties around the potential rate of increase in recreation management, the BLM assumed a 50-year implementation period to estimate the values in **Table 3-181**. However, it may be possible to implement new recreation management direction in a shorter time period. If the implementation rate were 20 years, for example, recreation visitation would increase much more quickly (except under Alternative A).

Under a 20-year recreation management implementation scenario, employment in the planning area by 2018 generated by visitor spending would increase over those shown in **Table 3-181** by 200–250 jobs under Alternative C and under the Proposed RMP, and by over 300 jobs under Alternative D. The Medford District would capture a large share of the additional jobs under these alternatives, ranging from 60–100 workers. The Roseburg District would see an additional 80 jobs under Alternatives C and D compared with those shown in **Table 3-181**. Increases in other districts would be more modest. There

would be no change to the estimates in **Table 3-181** under the No Action alternative or Alternative B, and an 80-job decrease for the entire planning area under Alternative A, because visitation would not grow as quickly.

Across all alternatives and the Proposed RMP, BLM expenditures would continue to be an important generator of jobs and income across the planning area (**Table 3-181**). Jobs resulting from this spending would range from about 1,300 under Alternative D to more than 2,200 under Alternative C. Employment effects under Alternative A would be similar to Current-Modified, while those under the No Action alternative, Alternative B, and the Proposed RMP would be 250–400 jobs greater than Current-Modified. The timber program would be the primary determinant of BLM budgets in this part of the analysis. The timber program budget would vary depending on the mix of timber activities by district. For the purpose of this analysis, the BLM assumed that non-timber portions of BLM district budgets would be unchanged from current across all alternatives and the Proposed RMP. See Socioeconomics Issue 7 for additional details.

Payments to counties under the formula in the O&C Act would generate about 200 jobs under Alternative D. Under Alternative C, payments would generate over 700 jobs, and, under the other alternatives or the Proposed RMP, from 300 to 500 jobs. Alternative D would result in very similar numbers of jobs as those generated under Current-Modified. Payment-based employment would be about 280 jobs under the Proposed RMP. Earnings would follow the pattern of jobs, ranging from about \$11 million under Alternative D to \$39 million under Alternative C. Under the Proposed RMP, earnings based on O&C payments would be about \$15 million in 2018.

Employment in timber-related industries would range from about 1,100 jobs under Alternative D to 2,800 jobs under Alternative C. Job counts under the alternatives and the Proposed RMP, except Alternative D, would increase compared to Current-Modified. Timber-related jobs under the Proposed RMP would be about 140 more than Current-Modified. Forestry, Logging, & Support Activities would continue to see the largest number of workers among timber-related industries.

Recreation-related industries include Arts, Entertainment & Recreation Services as well as Accommodation & Food Services. Typically, while these industries are aligned with spending by recreation participants, all BLM programs, not just recreation, affect economic effects in these industries. For example, local ranchers who earn a living by running livestock on BLM-administered lands may spend a portion of their income in the food service industry. Nonetheless, these industries offer a good indicator of recreation-based effects. Because wages in these industries are typically low, total earnings triggered by BLM management range from a low of 38 percent of those triggered by timber harvest under Alternative C and the No Action alternative to a high of 92 percent under Alternative D. Earnings in recreation-related industries under the Proposed RMP would be about \$57 million, or 65 percent of those triggered by timber harvest.

Table 3-182 shows total job and labor income effects by BLM district model area and by alternative and the Proposed RMP. Except for the Medford District, Alternative C would have the largest employment and earnings increases across all district model areas and for the planning area as a whole. In the Medford District, the No Action alternative would have the largest employment and earnings increases. For the entire planning area, Alternative C's employment and earnings effects would be 20 percent greater than the No Action alternative, the next largest. Alternative C would be 65 percent larger than Current-Modified (12,245 versus 7,403 jobs). Alternative D would trigger smaller effects, a reduction from Current-Modified by 4 percent. Under the Proposed RMP, employment would rank third or fourth among all alternatives for all district model areas except Coos Bay, where the Proposed RMP would rank fifth. Earnings under the Proposed RMP would rank fifth or sixth for all district model areas except Salem-Portland MSA and Salem-Other, where the Proposed RMP would rank third.

Table 3-182. BLM-based total employment and earnings by district model area

District Model Area	Employment (Jobs)							Earnings (Millions of 2012 Constant* \$)						
	2012	2018						2012	2018					
	Current-Modified [†]	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP	Current-Modified [†]	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP
Coos Bay	1,198	1,196	883	933	1,564	641	726	\$54.4	\$53.6	\$37.9	\$40.8	\$72.4	\$25.6	\$25.5
Eugene	1,297	2,226	1,764	2,115	3,160	1,524	1,963	\$56.6	\$103.8	\$79.5	\$97.0	\$150.4	\$67.6	\$76.7
Klamath Falls	231	283	224	277	305	197	268	\$8.7	\$11.1	\$8.3	\$10.9	\$12.5	\$8.9	\$7.5
Medford	1,326	2,688	1,753	2,199	2,473	1,586	2,081	\$58.6	\$124.0	\$79.5	\$101.3	\$113.4	\$71.0	\$71.9
Roseburg	1,225	1,672	1,100	1,314	2,008	1,062	1,257	\$51.8	\$74.0	\$45.2	\$56.4	\$91.1	\$41.4	\$43.3
Salem-Other	851	845	874	928	1,240	765	896	\$43.5	\$44.1	\$44.5	\$47.2	\$65.4	\$37.8	\$45.4
Salem-Portland MSA	1,275	1,241	1,312	1,360	1,494	1,309	1,358	\$56.5	\$53.9	\$58.0	\$60.5	\$68.3	\$57.3	\$60.0
Planning Area Totals	7,403	10,152	7,909	9,127	12,245	7,083	8,549	\$330.1	\$464.5	\$352.9	\$414.1	\$573.4	\$309.5	\$330.4

* Earnings in 2018 are expressed in 2012 dollars with unchanging or constant purchasing power

† Current has been modified as if O&C payments had been made in lieu of SRS payments. PILT payments are excluded

Note: Totals may not add due to rounding

The Eugene and Medford Districts would experience the largest effects across all alternatives and the Proposed RMP. Distribution of timber harvest and recreation visits across the areas primarily accounts for these large effects.

Table 3-183 provides a more detailed view of selected timber- and recreation-related industries by district model area. Coos Bay ranked first for economic effects of processing BLM timber in timber-related industries in 2012 (363 jobs and \$20.8 million in earnings), but would rank anywhere from third to sixth behind other model areas in 2018 under the alternatives and the Proposed RMP. The Medford area would lead all areas in 2018 under the No Action alternative, but the Eugene area would lead all areas in 2018 under the action alternatives and the Proposed RMP. In all cases, the Klamath Falls area would experience the smallest economic effects. The same relationship among areas holds for employment as well as earnings.

Table 3-183. BLM-based total employment and earnings in timber-related* industries and recreation-related² industries by district model area

Metric	Employment (Jobs)							Earnings (Millions of 2012 Constant [‡] \$)							
Year	2012	2018						2012	2018						
Alternative/ Proposed RMP	Current- Modified [§]	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP	Current- Modified [§]	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP	
Timber-related* Industries	District Model Area														
	Coos Bay	363	351	228	231	489	118	143	\$20.8	\$20.1	\$13.1	\$13.2	\$28.0	\$6.8	\$8.2
	Eugene	212	503	383	505	881	288	433	\$12.5	\$29.9	\$22.8	\$30.0	\$52.3	\$17.2	\$25.9
	Klamath Falls	21	39	13	32	38	26	29	\$1.2	\$2.2	\$0.7	\$1.9	\$2.2	\$1.5	\$1.7
	Medford	139	560	243	377	406	191	303	\$7.9	\$31.9	\$13.8	\$21.5	\$23.1	\$10.9	\$17.3
	Roseburg	280	442	185	263	505	154	231	\$16.0	\$25.1	\$10.5	\$15.0	\$28.7	\$8.8	\$13.1
	Salem-Other	196	156	204	225	280	187	211	\$11.8	\$9.6	\$12.5	\$13.8	\$17.2	\$11.5	\$13.1
	Salem-Portland MSA	142	104	139	150	188	129	141	\$8.5	\$6.2	\$8.3	\$9.0	\$11.3	\$7.8	\$8.5
Planning Area Totals	1,354	2,155	1,395	1,784	2,788	1,093	1,491	\$78.7	\$125.0	\$81.8	\$104.2	\$162.7	\$64.3	\$87.8	
Recreation-related [†] Industries	District Model Area														
	Coos Bay	204	214	198	203	231	194	200	\$4.4	\$4.5	\$3.6	\$4.2	\$5.8	\$5.1	\$5.4
	Eugene	309	373	344	367	415	331	347	\$7.4	\$9.7	\$7.7	\$9.6	\$12.1	\$9.0	\$9.3
	Klamath Falls	40	45	41	45	45	43	42	\$0.8	\$0.9	\$0.7	\$0.9	\$1.0	\$1.1	\$0.9
	Medford	239	320	272	295	328	297	311	\$5.3	\$8.2	\$5.9	\$7.1	\$10.9	\$11.3	\$11.3
	Roseburg	289	321	294	307	364	325	309	\$6.5	\$7.5	\$5.6	\$6.9	\$12.9	\$11.7	\$8.7
	Salem-Other	109	113	113	117	133	110	117	\$2.8	\$2.8	\$2.7	\$3.1	\$3.8	\$3.4	\$3.6
	Salem-Portland MSA	454	478	474	484	490	488	494	\$12.7	\$13.2	\$11.3	\$13.5	\$15.9	\$17.7	\$17.8
Planning Area Totals	1,645	1,864	1,736	1,818	2,006	1,788	1,821	\$39.9	\$46.8	\$37.5	\$45.2	\$62.4	\$59.2	\$57.0	

* Timber-related industries include Forestry, Logging & Support Activities; Wood Products Manufacturing; and Paper Manufacturing.

† Recreation-related industries include Arts, Entertainment & Recreation Services and Accommodation & Food Services. Totals include local resident spending whose earnings may be associated with non-recreation BLM programs.

‡ Earnings in 2018 are expressed in 2012 dollars with unchanging or constant purchasing power.

§ Current has been modified as if O&C payments had been made in lieu of SRS payments. PILT payments are excluded.

Note: Totals may not add due to rounding

By virtue of large recreation participant numbers, the Salem-Portland MSA area would continue to have the largest economic effects of any of the model areas from recreation-related industries, regardless of the alternative and the Proposed RMP. The Klamath Falls area would continue to experience the smallest effect. As noted above, total earnings in recreation-related industries triggered by BLM management are substantially smaller than those triggered by the BLM's timber harvest. Only in the Salem-Portland MSA would recreation-related earnings exceed timber-related earnings. Under the Proposed RMP and a 50-year implementation rate for recreation, all district areas would see increases in recreation-related jobs and earnings compared with Current-Modified, but increases would be more substantial for Medford, Eugene, and the Salem-Portland MSA areas.

Appendix P includes tables showing detailed economic effects by district model area and by alternative and the Proposed RMP.

Effects of Alternatives in Relation to the Broader Economic Context in Western Oregon

In the future, social and economic change in the planning area will result from the combined actions of many individuals, businesses, governments, and other organizations. A vast number of decisions made by thousands of individuals, businesses, and governments over the next decade will affect growth and change in population and employment with consequences for housing and transportation. For economic effect purposes, it is impossible to account for and project the effect of all such decisions separately. However, standard projections of population and employment that carry forward the economic momentum observed in current conditions and trends are a measure of how the economy is likely to develop, given known or reasonably foreseeable development. This section of the effects analysis takes such an approach by using an interpolation of employment in 2018 based on county-level forecasts by the Oregon Employment Department (Krumenauer and Turner 2014). These projections account for reasonably foreseeable levels of economic growth and enable an analysis that considers the cumulative effects of the alternatives and the Proposed RMP in the context of the broader western Oregon economy.

The BLM assumed, for purposes of this part of the analysis, that the State forecasts capture the effects of BLM management under the No Action alternative (i.e., the 1995 RMPs as written)¹⁰⁰ but do not capture the effects of Alternatives A–D or the Proposed RMP.

According to the State's projections, the planning area as a whole will experience 8.5 percent growth in employment between 2012 and 2018 (**Table 3-184**). The State attributes this growth to continuing recovery from the 2007–2009 recession, particularly for the construction industry; a growing health care sector, due in part to an aging population; and the need for replacement workers due to baby boomer retirements. However, growth will vary substantially among the district areas. Jobs in the Portland-MSA and Eugene areas will increase by over 9 percent, Salem-Other, Roseburg, and Medford by about 8 percent, and Klamath Falls by 6.6 percent. Forecasts for the Coos Bay area indicate job losses of over 7,000 jobs, a decrease of 17.5 percent in the 6-year period.

¹⁰⁰ The administrative vehicles for offering timber have become more diverse in recent years. These vehicles, such as permits and stewardship sale contracts, are used to offer an increasing share of total timber volume.

Table 3-184. Current and projected total employment by district model area (average annual jobs, percent)

District Model Area	Area Total Employment (Average Annual Jobs)		BLM-based Total Employment (Average Annual Jobs)						BLM-based Share of Area Total Employment (Percent)					
	2012	2018	2018						2018					
	Current	Projected*	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP
			<i>Incremental Change from No Action</i>											
Coos Bay	40,276	33,235	1,196	-314	-263	367	-556	-470	3.6%	2.7%	2.8%	4.7%	1.9%	2.2%
Eugene	186,049	203,072	2,226	-461	-110	934	-701	-263	1.1%	0.9%	1.0%	1.6%	0.8%	1.0%
Klamath Falls	31,881	33,997	283	-60	-6	22	-86	-15	0.8%	0.7%	0.8%	0.9%	0.6%	0.8%
Medford	145,525	156,964	2,688	-935	-489	-215	-1,102	-607	1.7%	1.1%	1.4%	1.6%	1.0%	1.3%
Roseburg	46,527	50,422	1,672	-572	-358	336	-610	-415	3.3%	2.2%	2.6%	4.0%	2.1%	2.5%
Salem-Other	359,408	388,098	845	29	83	395	-80	51	0.2%	0.2%	0.2%	0.3%	0.2%	0.2%
Salem-Portland MSA	1,147,490	1,258,230	1,241	70	119	253	68	117	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Planning Area Totals	1,957,157	2,124,018	10,152	-2,242	-1,025	2,093	-3,068	-1,602	0.5%	0.4%	0.4%	0.6%	0.3%	0.4%

* BLM estimates based on total employment projections by Oregon Employment Department (Krumenauer and Turner 2014)
 Note: Totals may not add due to rounding

Under the No Action alternative, BLM-based contributions to the planning area in 2018 would account for 0.5 percent of all employment (10,152 divided by 2,124,018). The share of employment by district area would range from 0.1 percent to 0.3 percent in the Salem district areas to over 4 percent in the Roseburg and Coos Bay areas.

Table 3-184 shows how the action alternatives and the Proposed RMP would affect total employment compared to the No Action alternative. Under Alternative A, BLM-based employment would drop by 2,200 jobs compared to the No Action alternative. Most of the reduction would occur in the Medford area, followed by drops in Roseburg, Eugene, and Coos Bay areas. In contrast, the two Salem areas combined would experience very modest increases in jobs (about 100). Under Alternative B, declines in BLM-based employment would still occur, but would be moderated somewhat compared with Alternative A (i.e., a loss of approximately 1,000 jobs). The Medford, Roseburg, and Coos Bay areas would see the largest reductions, while the two Salem district models would see greater increases compared with Alternative A. Under Alternative C, employment would increase compared to the No Action alternative in aggregate across the planning area and in each model area except Medford, which would see a loss of approximately 220 jobs. Compared with the No Action alternative, Alternative C would offer the only gains (or least reductions for Medford) of any of the action alternatives or the Proposed RMP. In contrast, Alternative D would prompt the most reductions of BLM-based jobs. Compared with the No Action alternative, Alternative D would reduce employment across the planning area by approximately 3,100 jobs, a third of which would occur in the Medford area. Roseburg, Eugene, and Coos Bay would all experience reductions of 550–700 jobs. Under the Proposed RMP, the net number of job losses would be 1,600 compared with the No Action alternative. The Medford, Roseburg, and Coos Bay areas would see the largest reductions, while the Salem District areas as a whole would experience an increase of approximately 170.

The number of jobs affected is an important consideration, but the share of BLM-based employment to total employment puts such changes in context. Under the alternatives and the Proposed RMP, the Salem and Klamath Falls areas retain a small share of total area BLM-based employment (less than 1 percent). In the Eugene and Medford areas, BLM-based employment would range from 0.8 percent to 1.7 percent of total area employment. Thus, while the Medford area is vulnerable to some of the largest changes in BLM-based jobs, the employment is not a large share of area employment.

BLM-based jobs changes would have the largest effects in the Coos Bay and Roseburg areas. Under Alternatives A, B, and D, the Coos Bay area would not only experience a relatively large job loss across the economy (7,000 jobs from 2012–2018, or 17 percent of 2012 employment), but BLM-based jobs could accentuate job losses by another 600 jobs. Under the Proposed RMP losses would be 500 jobs. Under the No Action alternative, BLM-based jobs in Coos Bay would account for 3.6 percent of all jobs, but that share would drop in half to 1.9 percent under Alternative D, and to 2.2 percent under the Proposed RMP. Alternative C would increase the share to 4.7 percent.

Effects in the Roseburg area would not be as severe as those in the Coos Bay area. Job reductions in the Roseburg area under Alternatives A, B, and D would reduce BLM-based shares from 3.3 percent under No Action to 2.2 percent, 2.6 percent, and 2.1 percent, respectively. Under the Proposed RMP, BLM-based shares would be about 2.5 percent. State projections show Roseburg area employment increasing by 4,000 jobs over the next 6 years, and thus any reductions in BLM-based employment would moderate projected increases. Under Alternative C, BLM-based employment in Roseburg would increase to 3.8 percent of total employment.

Issue 3

What would be the effect of alternatives on payments distributed to counties from activities on BLM-administered lands?

Key Points

- There is uncertainty regarding the source and amounts of future payments to counties from activities on BLM-administered lands. Congress has not authorized payments under the Secure Rural Schools and Community Self-Determination Act (SRS) beyond 2016.
- SRS payments to counties totaled \$38 million in 2012. Had payments in 2012 been based on the O&C Act formula, they would have been \$12 million. Under the alternatives and the Proposed RMP, assuming payments were based on the formula in the O&C Act, payments in 2018 would range from a low of \$19 million under Alternative D, to a high of \$67 million under Alternative C. The Proposed RMP would result in payments of \$26 million.

Summary of Notable Changes from the Draft RMP/EIS

The BLM updated the information on Secure Rural Schools payments and added discussion of the payments to counties for services provided in response to activities on BLM-administered lands.

Background

To compensate counties for foregone property tax payments on the O&C lands owned by the Federal Government, Congress passed the Oregon and California Lands Act of 1937, which mandated that the counties receive a percentage of the receipts from the timber harvested and sold from the O&C acres. Congress amended the 1937 Act in 1956 and again in 1976. Currently, counties receive 50 percent of the stumpage value of commercial timber harvested and sold from the O&C acres. Of the remaining 50 percent, the Federal Government spends 25 percent in the counties to help maintain and develop the O&C acres, and the remaining 25 percent goes to the U.S. Treasury.

According to the O&C Act, counties can use their O&C payments at their discretion and do so by providing county services mandated by the State of Oregon (Johnson 2009; USDI BLM 2014b). These services include sheriff's patrols, regulating and financing county and local roads, solid waste disposal, education, circuit courts, a county assessor, and a district attorney (Johnson 2009, includes a complete list of mandated county services).

The O&C payment formula remained largely unchanged until the early 1990s. In response to declining timber harvests and payments to counties in the 1980s, Congressional budget appropriations for 1991, 1992, and 1993 included a 'floor' payment equivalent to the average of payments from 1986 through 1990 (USDI BLM 2014b). In the Omnibus Budget Reconciliation Act of 1993 (OBRA), Congress included a safety-net payment also based on the average of payments for 1986 through 1990. In 1994, counties received 85 percent of this amount. In 1995 through 1999, payments to counties declined by 3 percent each year. The OBRA effectively decoupled payments to counties from current timber harvests on BLM-administered lands. Congress repealed the OBRA and passed the SRS in 2000. Like the OBRA, the SRS based payments to counties on an average of harvests from previous years. The 2000 SRS used the three highest harvest years between 1986 and 1990. Initially set to expire in 2006, Congress continued reauthorizing the program on an annual basis (Adams and Gaid 2008). Congress passed a 1-year reauthorization of the SRS program on October 2, 2013, at 95 percent of the 2012 amount (USDA FS 2014). In April 2015, Congress reauthorized the SRS program for 2 years, with funding at 95 percent of funding for the previous year, as described above under Analytical Methods (USDA FS 2015). Counties

use the SRS payments in the same way they used O&C payments—to pay for state mandated services including public safety, county roads, and education (Tuchmann and Davis 2013).

As described below under Affected Environment, payments to counties have declined substantially since 2003. Counties have dealt with these declines in different ways. Some tried funding vital services such as public safety by passing property tax levies. Others considered sales taxes or outsourcing services such as libraries and public health. Some have also reduced staff, or limited or ended services. A sampling of reports describing the financial hardships and challenges that some of the O&C counties currently face include: Mortenson 2012a, Mortenson 2012b, Zheng 2013a, Zheng 2013b, and Mapes 2014a. As noted above (Socioeconomics Background), in 2012, the Oregon Secretary of State identified a total of eight counties, all in the planning area, whose financial condition may indicate a higher risk of distress than other counties.

The Governor’s Task Force on Federal Forest Payment and County Services (Governor’s Task Force, 2009) noted the concerns for counties of ending of the SRS program:

“Many of these hard hit counties looked beyond deep reductions in services and the depletion of their reserves to the likelihood of an unprecedented and unmanageable fiscal crisis within two to four years after the cessation of Federal forest payments. Only a belated reauthorization of these payments by the Federal Government in October 2008 averted a crisis which, compounded by the effects of the current recession, could have forced the collapse of as many as nine ‘crisis counties’ over the next several years” (Governor’s Task Force 2009, p. 4).

The Task Force concluded that county governments and residents had limited ability to make up the lost Federal payments. For example, the Task Force estimated that increasing property taxes and adding taxes such as a lodging tax and real estate transfer tax—if enacted by voters—would only recover between 8 to 24 percent of lost Federal payments (Governor’s Task Force 2009).

The inability of some O&C counties to provide public safety services in the face of declining Federal payments is a major concern for county and State officials. Josephine County released dozens of inmates in 2012 because of budget cuts. In early 2014, Polk County announced it would no longer provide 24-hour sheriff patrols because of budget reductions. Residents in these and other O&C counties rejected public-safety tax measures over the previous years (Templeton 2013, Mapes 2013b, Zheng 2013a). In response to these developments, the Oregon Legislature passed a bill that would allow the governor to impose certain taxes, but only with the approval of county officials. These taxes would fund public safety services. Under the bill, the State would match the taxes paid by county residents (Mapes 2013a, 2013b).

The BLM and the U.S. Forest Service provide additional background information on the history of payments to counties from activities on Federal lands (USDA FS 2015, USDI BLM 2015).

Summary of Analytical Methods

The Federal Government makes, or has made, five types of payments to counties based on BLM-administered lands in the planning area:

- Secure Rural Schools (SRS) payments
- O&C Act formula derived payments
- Payments in lieu of taxes (PILT)
- Coos Bay Wagon Road-based payments (these only occur in Coos and Douglas counties)
- Payments by districts to counties for services provided in response to activities on BLM-administered lands

Secure Rural Schools

The O&C counties face an uncertain future regarding payments through the Secure Rural Schools and Community Self-Determination Act (USDI BLM 2014b). On April 16, 2015, Congress reauthorized the Secure Rural Schools and Community Self-Determination Act as a part of the Medicare Access and CHIP Reauthorization Act of 2015, and extended SRS payments for two years (Pub. L. 114-10). Section 524 would retain the annual decrease in the full funding amount currently provided in Section 3(11)(C) of the SRS Act, which provides that for FY 2012 and each fiscal year thereafter, the full funding amount shall be 95 percent of the full funding amount for the preceding fiscal year. Accordingly, the full funding amount for FY 2014 (FY 2015 payment year) would be 95 percent of the amount for FY 2013, and the full funding amount for FY 2015 (FY 2016 payment year) would be 95 percent of the amount for FY 2014 (USDA FS 2015; USDI BLM 2015). Given the uncertainty of SRS payments beyond 2016, the BLM assumed, for the purpose of analyzing the potential effects of the alternatives and the Proposed RMP, that the distribution formula in the 1937 O&C Act, as amended, will determine future payments (USDI BLM 2015). The potential for county payments to change due to future legislation is unrelated to the BLM's alternatives and the Proposed RMP. Comparing alternatives and the Proposed RMP using payments derived under the formula in the O&C Act illustrates how the alternatives and the Proposed RMP could affect payments if they were based on harvest amounts.

O&C Act Formula Derived Payments

The distribution formula in the O&C Act contains three key components:

- Volume (in MMbf) of commercial timber harvested from O&C lands
- Stumpage price (per MMbf) of this harvest
- Each county's proportion of the total assessed value of all O&C lands as they were in 1915 (See **Table 3-187** for each county's proportion)

Under the O&C Act, counties share 50 percent of the commercial stumpage value (commercial harvest volume times stumpage price), and the other 50 percent goes to the Federal Government. The Federal Government spends one-half of the amount, or 25 percent of the total receipts, in the counties to help maintain and develop O&C lands (Babcock 2014, USDI BLM 2015).

The BLM based its analysis of the effects of alternatives and the Proposed RMP on payments to counties on the results of the vegetation model, which estimates the future volume and stumpage value of commercial timber harvests on BLM-administered lands. To estimate the effect of the alternatives and the Proposed RMP on payments to counties, the BLM distributed 50 percent of the estimated commercial stumpage value using each county's proportion of the total assessed value for all O&C lands.

Payments In Lieu Of Taxes

The Federal Government makes payments in lieu of taxes (PILT) to counties to help offset the lost tax revenue from Federal ownership of land within the counties (DOI 2014). PILT payments to O&C counties totaled approximately \$3.8 million in 2012 and \$5.1 million in 2013 (DOI 2014). These figures represent approximately 10 percent of SRS payments to O&C counties in 2012, and approximately 13 percent in 2013 (USDI BLM 2014c). PILT payments derive from a complex formula that makes projecting future payments challenging. A recent report by the Congressional Research Service describes this issue:

“The authorized level of PILT payments is calculated under a complex formula. No precise dollar figure can be given in advance for each year’s PILT authorized level. Five factors affect the

calculation of a payment to a given county: the number of acres eligible for PILT payments, the county's population, payments in prior years from other specified Federal land payment programs, state laws directing payments to a particular government purpose, and the Consumer Price Index as calculated by the Bureau of Labor Statistics" (Corn 2014, Summary).

As an example of the complexity, one of the provisions in the PILT formula is subtracting certain Federal payments made the prior year from the current year's PILT payment. This provision, however, does not currently apply to all Federal payments tied to O&C lands. For example, the PILT does not require offsetting prior years SRS payments when calculating PILT payments for lands administered by the BLM (Corn 2014). The percentage of total Federal acres eligible for PILT payments attributed to BLM-administered acres in the O&C counties varies from approximately 5 percent for Multnomah County, to approximately 97 percent for Polk County (USDI 2014). Even though SRS payments derived from BLM-administered O&C acres are exempt from PILT calculations, payments tied to other Federal acres in these counties are not.

Given the complexity of the PILT formula and the challenges of estimating future offsetting Federal payments, the BLM did not include PILT payments in its analysis of the effects of the alternatives and the Proposed RMP on payments to counties.

Coos Bay Wagon Road Lands

Similar to PILT, the complexity and uncertainty around Coos Bay Wagon Road (CBWR)-based payments make it impossible for the BLM to project credibly the specific payments from these lands over time at the scale of this western Oregon planning effort. Rather than direct payments of timber receipts according to the O&C Act formula, the 1939 Coos Bay Wagon Road Act created an in-lieu of tax payment program for the CBWR lands. The CBWR lands occur only in Coos and Douglas Counties. Under this payment program, the BLM collects receipts for timber sold from the Coos Bay Wagon Road lands and uses them to pay in-lieu of taxes an amount based on the established method of taxation used in the State of Oregon for other lands of similar character in the state. Currently, Oregon utilizes a Forest Land Class method for forestland taxation and assigns maximum assessment values based on state-established productivity classes. The Oregon Department of Revenue publishes the assessment values annually. The Coos and Douglas County tax assessors also establish tax rates on an annual basis. The tax rate established by the county assessors is the tax rate paid on the Oregon-established taxable value for the CBWR lands.

The CBWR-based payments depend not only on the receipts for timber sold from CBWR lands, but also on assessment values and tax rates which would change over time. In 2013, CBWR payments totaled approximately \$337,635 (USDI BLM 2014g). It is likely that the relative amount of these CBWR-based payments will generally follow the revenues to the counties derived from the O&C lands.

District Payments to Counties by BLM Districts

Activities on BLM-administered lands can create demand for county services. The BLM districts contract with local jurisdictions (counties and cities) to provide services such as noxious weed control, refuse removal, road maintenance and decommissioning, campground maintenance, habitat restoration, trail maintenance, law enforcement patrol, and emergency services. Comprehensive data of the cost to county governments of providing services on BLM-administered lands is lacking, and, further, payments for such services by BLM district is highly variable from year to year, depending on funding or special project needs. For these reasons, estimating the effects of the alternatives and the Proposed RMP on these agreements and payments would be highly speculative. Therefore, this effects analysis does not include BLM contracting payments to local governments for specific services.

Effects Analysis

The BLM's analysis of the effects of alternatives and the Proposed RMP on payments to counties used the outputs from the vegetation model that describes how alternatives and the Proposed RMP would affect harvest volumes and stumpage prices. The vegetation model produces data on total harvest volume, but county payments use commercial sales volume, a subset of total harvest volume. The BLM estimated commercial sales volume at 75 percent of total harvest volume, based on data from the actual 2012 harvest.

Likewise, the vegetation model provides stumpage prices per thousand board feet measured in long logs, while payments to the U.S. Treasury and O&C counties use thousand board feet of short logs. The BLM converted those prices to short log basis and then subtracted costs per thousand board feet for road maintenance, slash management, and other actions that support timber harvests. The vegetation model produces all price outputs in 2012 dollars. This facilitates comparisons of prices and stumpage values across alternatives and the Proposed RMP, and time. For example, the model estimates stumpage prices in 2018 for the No Action alternative of \$310.41 per thousand board feet. Even though the estimate represents a stumpage price in 2018, the dollar values are in 2012 dollars. That is, the price estimates do not include an inflation factor for estimates at different years in the future.

The BLM calculated stumpage values by multiplying harvest volumes by stumpage prices, and calculated payments to counties in 2018 and in 2028 (mid-points of the first two decades) using the O&C payment formula described above. The BLM assumed that the distribution formula among the counties would remain as it was in 2012.

The BLM selected these two periods because they provide estimated payments up to 14 years in the future that allow comparisons with what payments would have been in 2012. Estimating the amounts and sources of county payments beyond these years would be overly speculative.

Affected Environment

Table 3-185 shows the recent historical trend in SRS payments. From a high of approximately \$117 million in FY 2007, payments declined to approximately \$38 million in FY 2012, an approximately 68 percent decline.

Table 3-185. SRS payments to counties, 2003–2012

County	FY 2012 SRS Distributions (Dollars)	FY 2010 SRS Distributions (Dollars)	FY 2007 SRS Distributions (Dollars)	FY 2003 SRS Distributions (Dollars)
Benton	\$771,004	\$2,381,408	\$3,255,508	\$3,116,768
Clackamas	\$1,057,665	\$4,703,493	\$6,429,918	\$6,155,895
Columbia	\$712,608	\$1,745,801	\$2,386,600	\$2,284,891
Coos	\$2,333,965	\$5,626,088	\$7,691,152	\$7,363,379
Curry	\$1,442,516	\$3,093,288	\$4,228,685	\$4,048,471
Douglas	\$10,719,614	\$21,342,441	\$29,176,221	\$27,932,820
Jackson	\$5,455,997	\$13,279,952	\$18,154,381	\$17,380,697
Josephine	\$5,512,586	\$10,237,513	\$13,995,209	\$13,398,776
Klamath	\$1,073,616	\$1,983,094	\$2,710,992	\$2,595,458
Lane	\$5,247,157	\$12,940,962	\$17,690,964	\$16,937,029
Lincoln	\$127,952	\$305,091	\$417,076	\$399,301
Linn	\$1,237,384	\$2,237,337	\$3,058,556	\$2,928,209
Marion	\$518,109	\$1,237,315	\$1,691,474	\$1,619,389
Multnomah	\$248,900	\$923,749	\$1,262,813	\$1,208,996
Polk	\$898,016	\$1,830,549	\$2,502,455	\$2,395,808
Tillamook	\$220,123	\$474,587	\$648,785	\$621,135
Washington	\$142,145	\$533,910	\$729,883	\$698,777
Yamhill	\$272,785	\$610,183	\$834,152	\$798,603
Totals	\$37,992,142	\$85,486,761	\$116,864,821	\$111,884,403

Source: USDI BLM 2014g

Not all counties rely on SRS payments to the same extent. **Table 3-186** shows FY 2012 SRS payments and payments as a percentage of total county revenues and of each county’s general or discretionary fund. Of the counties in the planning area, Coos, Curry, Douglas, and Josephine Counties rely most heavily on Federal payments as measured by percentage of their total county revenues. However, expressing payments as a percentage of *total* county revenue does not demonstrate the importance of Federal payments to some of the counties. This is because Federal payments are part of the counties’ discretionary or general fund, which is a subset of total county funds. **Table 3-186** shows that for the four counties cited above, Federal payments account for between 25 and 82 percent of general fund revenues.

Table 3-186. SRS payments and county revenues

County	FY 2012 SRS Distribution (Dollars)	SRS Payment as a Percent of County Revenues	SRS Payment as a Percent of General Fund
Benton	\$771,004	0.8%	3.4%
Clackamas	\$1,057,665	0.3%	0.8%
Columbia	\$712,608	1.4%	2.4%
Coos	\$2,333,965	11.0%	82.3%
Curry	\$1,442,516	8.9%	25.5%
Douglas	\$10,719,614	11.4%	69.9%
Jackson	\$5,455,997	1.7%	9.0%
Josephine	\$5,512,586	8.1%	59.0%
Klamath	\$1,073,616	1.8%	8.4%
Lane	\$5,247,157	2.2%	6.8%
Lincoln	\$127,952	0.1%	0.4%
Linn	\$1,237,384	1.5%	4.9%
Marion	\$518,109	0.2%	0.7%
Multnomah	\$248,900	-	0.1%
Polk	\$898,016	1.8%	5.4%
Tillamook	\$220,123	0.6%	1.5%
Washington	\$142,145	-	0.1%
Yamhill	\$272,785	0.5%	1.0%
Totals	\$37,992,142	-	-

Source: USDI BLM 2014g; County budget data available at each county's website

As described above under Analytical Methods, the BLM estimated the impacts of the alternatives and the Proposed RMP on county payments using the formula in the O&C Act, as amended. As the starting point for this analysis, the BLM calculated what the counties would have received in 2012 if payments had been based on the O&C Act. **Table 3-187** shows the 2012 SRS payments that counties received (\$38.0 million) and the 2012 payments the counties would have received based on the O&C Act formula (approximately \$11.7 million). The total 2012 O&C payment would have been approximately 31 percent of the SRS payment (\$11.7 million divided by \$38.0 million). Each county would have received an amount based on its percent of the total assessed value of all O&C lands, as shown in the table. For example, Benton County would have received \$328,733 based on 2.81 percent of \$11,698,670.

Table 3-187. County payments in 2012, actual payments, and payments based on O&C Act formula

County	2012 SRS Payment Actual (Dollars)	2012 Payment, Under O&C Act Formula (Dollars)	Total O&C Lands Payment (Percent)
Benton	\$771,004	\$328,733	2.81%
Clackamas	\$1,057,665	\$649,276	5.55%
Columbia	\$712,608	\$240,993	2.06%
Coos	\$2,333,965	\$690,222	5.90%
Curry	\$1,442,516	\$427,001	3.65%
Douglas	\$10,719,614	\$2,930,517	25.05%
Jackson	\$5,455,997	\$1,833,182	15.67%
Josephine	\$5,512,586	\$1,413,199	12.08%
Klamath	\$1,073,616	\$273,749	2.34%
Lane	\$5,247,157	\$1,786,387	15.27%
Lincoln	\$127,952	\$42,115	0.36%
Linn	\$1,237,384	\$308,845	2.64%
Marion	\$518,109	\$170,801	1.46%
Multnomah	\$248,900	\$127,516	1.09%
Polk	\$898,016	\$252,691	2.16%
Tillamook	\$220,123	\$65,513	0.56%
Washington	\$142,145	\$73,702	0.63%
Yamhill	\$272,785	\$84,230	0.72%
Totals	\$37,992,142	\$11,698,670	100.00%

Sources: USDI BLM 2014g; Babcock 2014; Output from vegetation model

Environmental Consequences

Table 3-188 shows commercial harvest volumes, stumpage price, stumpage value, and total payment to O&C counties based on 50 percent of stumpage value, by alternative and the Proposed RMP for 2018 and for 2028. **Table 3-189** shows the breakdown by county for each alternative and the Proposed RMP.

Table 3-188. Total payments to O&C counties in 2018 and 2028

Year	Commercial Harvest Volume (Thousand Board Feet, Short Log)*	Stumpage Price per Thousand Board Feet Short Log, (2012 Dollars)	Stumpage Value (Harvest Volume × Stumpage Price), (2012 Dollars)	Area-wide Payments to O&C Counties, (2012 Dollars)
No Action				
2018	299,667	\$310.41	\$93,018,783	\$46,509,392
2028	293,698	\$287.81	\$84,529,383	\$42,264,692
Alt. A				
2018	186,461	\$301.59	\$56,234,740	\$28,117,370
2028	182,762	\$300.64	\$54,946,390	\$27,473,195
Alt. B				
2018	248,744	\$292.91	\$72,859,670	\$36,429,835
2028	242,196	\$283.63	\$68,694,703	\$34,347,352
Alt. C				
2018	416,244	\$324.04	\$134,880,041	\$67,440,021
2028	411,550	\$323.42	\$133,101,547	\$66,550,773
Alt. D				
2018	135,034	\$277.02	\$37,407,288	\$18,703,644
2028	134,881	\$271.69	\$36,646,367	\$18,323,183
PRMP				
2018	208,136	\$245.94	\$51,187,903	\$25,593,951
2028	202,995	\$273.68	\$55,556,162	\$27,778,081

* The vegetation model produces data on total harvest volume, but county payments use commercial sales volume, a subset of total harvest volume. The BLM estimated commercial sales volume at 75 percent of total harvest volume, based on data from the actual 2012 harvest.

Source: USDI BLM, based on results of vegetation model and O&C payments formula

Table 3-189. Payments to O&C Counties by alternative and the Proposed RMP for 2018 and 2028 (2012 dollars)

County	2012 Payment, Under O&C Act Formula (Dollars)	Analysis Year	No Action (Dollars)	Alt. A (Dollars)	Alt. B (Dollars)	Alt. C (Dollars)	Alt. D (Dollars)	PRMP (Dollars)
Benton	\$328,733	2018	\$1,306,914	\$790,098	\$1,023,678	\$1,895,065	\$525,572	\$719,190
		2028	\$1,187,638	\$771,997	\$965,161	\$1,870,077	\$514,881	\$780,564
Clackamas	\$649,276	2018	\$2,581,271	\$1,560,514	\$2,021,856	\$3,742,921	\$1,038,052	\$1,420,464
		2028	\$2,345,690	\$1,524,762	\$1,906,278	\$3,693,568	\$1,016,937	\$1,541,684
Columbia	\$240,993	2018	\$958,093	\$579,218	\$750,455	\$1,389,264	\$385,295	\$527,235
		2028	\$870,653	\$565,948	\$707,555	\$1,370,946	\$377,458	\$572,228
Coos	\$690,222	2018	\$2,744,054	\$1,658,925	\$2,149,360	\$3,978,961	\$1,103,515	\$1,510,043
		2028	\$2,493,617	\$1,620,918	\$2,026,494	\$3,926,496	\$1,081,068	\$1,638,907
Curry	\$427,001	2018	\$1,697,593	\$1,026,284	\$1,329,689	\$2,461,561	\$682,683	\$934,179
		2028	\$1,542,661	\$1,002,772	\$1,253,678	\$2,429,103	\$668,796	\$1,013,900
Douglas	\$2,930,517	2018	\$11,650,603	\$7,043,401	\$9,125,674	\$16,893,725	\$4,685,263	\$6,411,285
		2028	\$10,587,305	\$6,882,035	\$8,604,012	\$16,670,969	\$4,589,957	\$6,958,409
Jackson	\$1,833,182	2018	\$7,288,022	\$4,405,992	\$5,708,555	\$10,567,851	\$2,930,861	\$4,010,572
		2028	\$6,622,877	\$4,305,050	\$5,382,230	\$10,428,506	\$2,871,243	\$4,352,825
Josephine	\$1,413,199	2018	\$5,618,335	\$3,396,578	\$4,400,724	\$8,146,754	\$2,259,400	\$3,091,749
		2028	\$5,105,575	\$3,318,762	\$4,149,160	\$8,039,333	\$2,213,441	\$3,355,592
Klamath	\$273,749	2018	\$1,088,320	\$657,946	\$852,458	\$1,578,096	\$437,665	\$598,898
		2028	\$988,994	\$642,873	\$803,728	\$1,557,288	\$428,762	\$650,007
Lane	\$1,786,387	2018	\$7,101,984	\$4,293,522	\$5,562,836	\$10,298,091	\$2,856,046	\$3,908,196
		2028	\$6,453,818	\$4,195,157	\$5,244,841	\$10,162,303	\$2,797,950	\$4,241,713
Lincoln	\$42,115	2018	\$167,434	\$101,223	\$131,147	\$242,784	\$67,333	\$92,138
		2028	\$152,153	\$98,904	\$123,650	\$239,583	\$65,963	\$100,001
Linn	\$308,845	2018	\$1,227,848	\$742,299	\$961,748	\$1,780,417	\$493,776	\$675,680
		2028	\$1,115,788	\$725,292	\$906,770	\$1,756,940	\$483,732	\$733,341
Marion	\$170,801	2018	\$679,037	\$410,514	\$531,876	\$984,624	\$273,073	\$373,672
		2028	\$617,064	\$401,109	\$501,471	\$971,641	\$267,518	\$405,560
Multnomah	\$127,516	2018	\$506,952	\$306,479	\$397,085	\$735,096	\$203,870	\$278,974
		2028	\$460,685	\$299,458	\$374,386	\$725,403	\$199,723	\$302,781
Polk	\$252,691	2018	\$1,004,603	\$607,335	\$786,884	\$1,456,704	\$403,999	\$552,829
		2028	\$912,917	\$593,421	\$741,903	\$1,437,497	\$395,781	\$600,007
Tillamook	\$65,513	2018	\$260,453	\$157,457	\$204,007	\$377,664	\$104,740	\$143,326
		2028	\$236,682	\$153,850	\$192,345	\$372,684	\$102,610	\$155,557
Washington	\$73,702	2018	\$293,009	\$177,139	\$229,508	\$424,872	\$117,833	\$161,242
		2028	\$266,268	\$173,081	\$216,388	\$419,270	\$115,436	\$175,002
Yamhill	\$84,230	2018	\$334,868	\$202,445	\$262,295	\$485,568	\$134,666	\$184,276
		2028	\$304,306	\$197,807	\$247,301	\$479,166	\$131,927	\$200,002
Totals	\$11,698,670	2018	\$46,509,392	\$28,117,370	\$36,429,835	\$67,440,021	\$18,703,644	\$25,593,951
		2028	\$42,264,692	\$27,473,195	\$34,347,352	\$66,550,773	\$18,323,183	\$27,778,081

Source: USDI BLM, based on results of vegetation model and O&C payments formula

The total payment in 2012 under the O&C Act formula would have been approximately \$11.7 million. Under all the alternatives and the Proposed RMP, payments to counties in 2018 and in 2028 would exceed this amount. Payments under Alternative C would be the highest, approximately \$67 million in 2018. Payments under Alternative D would be the lowest among the alternatives, at approximately \$18.7 million, but would still be 60 percent above what the 2012 payment would have been. Payments under the Proposed RMP would be approximately \$25.6 million in 2018, or over twice what the payment in 2012 would have been if it were calculated using the formula in the O&C Act.

Unlike the Proposed RMP, payments under all alternatives would be slightly lower (from 2–9 percent) in 2028 compared to 2018, reflecting lower non-ASQ-based timber revenues in the second decade. Payments under the Proposed RMP would increase between these two decades in response to higher timber revenues driven by increasing harvests of larger diameter timber (see Issue 1 above). **Table 3-189** shows the distribution of total O&C payments to each county, by alternative and the Proposed RMP, for 2018 and 2028, along with estimated O&C payments in 2012, had county payments been based on the O&C formula that year.

Payments to individual counties under all alternatives and the Proposed RMP would exceed what the counties would have received in 2012; though the payments would be less than they received in some earlier years under the SRS payments (see **Table 3-185**). The difference in payments would be substantial for many counties. For example, Polk County would have received approximately \$253,000 in 2012 under the O&C formula but would receive approximately \$404,000 in 2018 under Alternative D and approximately \$1.5 million under Alternative C (in 2012 dollars); these figures would be the high and low payments to Polk County that year. Polk County would receive approximately \$553,000 in 2018 under the Proposed RMP (**Table 3-189**). See the discussion of the earnings and employment effects of these payments in Issue 2.

Issue 4

How would the alternatives contribute to economic stability in the planning area?

Key Points

- Over the long-term (1969–2007), timber-based industries nationally exhibited low or negative growth rates with high volatility compared with the United States economy as a whole, indicating that these industries tend to be inherently volatile.
- Increases in timber industry activity in the planning area would bring potential for additional exposure to greater economic instability. Recreation-related industries are relatively stable compared with timber-related industries.

Summary of Notable Changes from the Draft RMP/EIS

The BLM incorporated estimates of recreation visits by alternative and the Proposed RMP. Based on this updated information, the BLM updated the discussion of the long-term implications on stability of a changing BLM recreation program together with the timber program.

Summary of Analytical Methods

Growth and stability are classic goals of economic development. Historic growth rates of employment and earnings offer an indication of economic growth in the planning area, while the volatility of these rates offer insights into the economic stability of both communities (geographic areas) and industries (business groups). Long-term growth rates express fundamental economic shifts or trends for geographic areas and industries. Issue 2 discusses short-term trends that may not represent fundamental economic shifts. This analysis does not address seasonal volatility within each year, but only long-term volatility over many years.

This issue presents an analysis of the cumulative effects on economic stability of past, present, and reasonably foreseeable future actions expressed in domestic and international markets, including land management on both BLM-administered lands and non-BLM-administered lands.

For the purposes of this issue, geographic areas are the same BLM district model areas defined under Issue 2 for which historic economic data exist and which function as economic units. Industries are business groups defined by the Bureau of Economic Analysis for which the same historic economic data exist (BEA 2014).

Using historic data from the Bureau of Economic Analysis (BEA 2014), the BLM estimated the magnitude and volatility of growth rates for all employment and earnings—inclusive of all industries—in all seven economic model areas within the planning area. The BLM also estimated comparable rates for those industries that BLM management of timber and recreation most affects. Other resources the BLM manages have very small effects, as shown in the contribution analysis (See Issue 2). Employment comprises all wage and salary workers. Earnings include total payroll compensation for the same workers.

Growth rates are an average of year-over-year changes covering six national business cycles (1969 to 2007), the longest period for which complete data are available. The coefficient of variation of these annual growth rates indicates volatility; this is a generally accepted metric in the finance and economic disciplines. Stability is the inverse of volatility. Thus, highly volatile growth rates indicate long-term instability, while modest to low volatility growth rates indicate long-term stability.

The BLM computed growth rates for resource-related industries nationally rather than for the planning area alone in order to understand the inherent and historic volatility of resource-based industries,

independent of public land management policies and budgets. Observing characteristics of these industries nationally minimizes the influence that past public land policies in western Oregon may have had on local resource industry behavior. While industries in western Oregon may differ from their national counterparts with regard to historic volatility, the BLM assumes that national industry characteristics provide a reasonable metric for assessing local industries when analyzing the effects of the alternatives and the Proposed RMP. Characterizing the effects of the alternatives and the Proposed RMP on long-term economic stability requires reasoned assumptions about both reasonably foreseeable resource outcomes and probable industry responses (see USDI BLM 2008, p. 59). To the extent that these analytical assumptions are weak or incorrect (e.g., if local industries differ from national counterparts; if future effects of these industries on volatility differ from historic volatility), the effects described in this analysis would differ.

To provide a common reference point, the BLM calculated growth rates and volatility for the United States economy as a whole over the same period. The BLM then indexed growth rates and volatility for both BLM district model areas and national industries to the United States economy. Thus, an index greater than 1.00 indicates higher growth rates or volatility compared with the United States economy, an index less than 1.00 indicates lower growth rates or volatility, and an index of 1.00 indicates a match with the United States economy.

Affected Environment

Table 3-190 presents long-term growth rates and their volatility for employment and earnings for the United States as a whole, for the seven model areas in western Oregon, and for selected resource-related industries nationally. Timber-related industries include Forest & Wood Products (logging and primary wood manufacturing) and Paper Manufacturing (pulp, paperboard, and related paper or container industries). Recreation-related industries include Arts, Entertainment & Recreation Services (excluding museums, zoos, historical sites, and nature parks); Accommodations; and Eating & Drinking Places.

Table 3-190. Growth and volatility of employment and earnings by geographic area and selected resource-related industries over six United States business cycles, 1969–2007

Geographic Area or Resource-related Industry	Employment (Jobs)			Earnings (2012 Dollars)		
	Growth Rate		Growth Volatility	Growth Rate		Growth Volatility
	Average Annual (Percent)	Indexed to U.S.	Indexed to U.S.	Average Annual (Percent)	Indexed to U.S.	Indexed to U.S.
Geographic Area						
United States	1.82%	1.00	1.00	2.97%	1.00	1.00
BLM District Model Area						
Coos Bay	1.33%	0.73	2.86	1.55%	0.52	3.72
Eugene	2.42%	1.33	1.61	3.01%	1.01	1.83
Klamath Falls	1.19%	0.66	2.80	1.82%	0.61	2.88
Medford	3.28%	1.80	1.07	3.95%	1.33	1.42
Roseburg	1.81%	1.00	2.16	2.16%	0.73	2.99
Salem-Other	2.43%	1.34	1.18	3.32%	1.12	1.37
Salem-Portland MSA	2.57%	1.41	1.15	3.71%	1.25	1.15
U.S. Industry						
Timber-related						
Forest & Wood Products Industries	0.42%	0.23	15.50	1.36%	0.46	6.15
Paper Manufacturing	-0.91%	-0.50	3.77	0.74%	0.25	5.14
Recreation-related						
Arts, Entertainment & Recreation Services	3.85%	2.12	0.85	5.41%	1.82	1.12
Accommodations	2.24%	1.23	1.59	3.50%	1.18	1.56
Eating & Drinking Places	3.64%	2.00	0.83	3.63%	1.22	0.96

Note: Employment includes all wage and salary workers. Earnings include total payroll compensation for the same workers. Data were available and adjusted for inflation over six U.S. business cycles spanning 38 years.
Source: Bureau of Economic Analysis (2014)

Table 3-190 shows that between 1969 and 2007 (six business cycles), United States employment grew at an average annual rate of 1.8 percent, while earnings grew at 2.97 percent (net of inflation). As a rule, earnings growth that exceeds employment growth suggests increases in employee productivity over the long term.

Among BLM district model areas, the Salem-Portland MSA, Salem-Other (non-MSA counties), and Eugene areas had similar growth rates for employment and earnings. All of these areas exceeded the national growth rate by up to 40 percent for employment and up to 25 percent for earnings. For example, the Salem-Portland area's average annual employment growth rate was 2.6 percent, 41 percent higher than the average annual rate for the United States of 1.8 percent. However, these areas also exceeded national volatility of employment and earnings growth by 15–80 percent, which indicates instability. Growth rates in the southern half of the planning area mostly lagged behind the United States. The Klamath Falls area had the lowest growth rates of any model area (1.2 percent). In addition, Klamath

Falls' volatility of employment (2.80 percent) and earnings growth (2.88 percent) greatly exceeded those of United States economy. The Coos Bay area's volatility was also very high.

High volatility, or instability, is typically characteristic of commodity-based economies (Carter *et al.* 2011). The Medford area is an exception to the general pattern for southwestern Oregon. This area experienced the highest employment and earnings growth rates in western Oregon accompanied by modest to high stability. Growth and stability in the Medford area may result from its position as a strong regional service center coupled with a well-balanced economy.

National industries related to timber and recreation demonstrate a wide range of growth and volatility characteristics. Over six United States business cycles, the Forest and Wood Products Industries have grown slowly, and have shown a very high level of volatility (or instability). These commodity-based industries are subject to the highs and lows of business cycles not only in the United States, but also internationally. Employment volatility has been 15 times higher and earnings volatility 6 times higher than the United States economy. Paper Manufacturing has shown a negative growth rate for employment coupled with a very modest positive rate for earnings. This disparity suggests strong improvements in productivity driven by technology advances. Volatility for both employment and earnings is high in Paper Manufacturing, but not as high as in the Forest and Wood Products Industries.

Recreation-related industries exhibit a mix of growth rates and volatility. The Arts, Entertainment & Recreation Services industry has shown strong employment and earnings growth rates coupled with stability over the six business cycles. The same pattern holds true for employment in the Eating & Drinking Places industry, but earnings lag behind. Employment and earnings in the Accommodations industry has grown somewhat faster than the United States, but with volatility that is roughly 50 percent higher than the United States economy.

Environmental Consequences

Under the alternatives and the Proposed RMP, some resource-related industries may increase in employment and earnings while others decrease. If industries increase that exhibit historic instability, they may inject greater economic instability into their host communities. Conversely, if industries increase that exhibit historic stability, their greater presence may add economic stability to host communities.

As discussed under Issue 2, both timber and recreation programs would vary by alternative and the Proposed RMP. Recreation visitation across the planning area could increase up to 25 percent (Alternative D) with a 20-year implementation rate or 13 percent (Alternative D) with a 50-year implementation rate by 2018. The slowest rate of increase would be about 2 percent under the No Action alternative with a 20-year implementation rate. Timber harvest could increase by 130 percent (Alternative C) or decrease by 25 percent (Alternative D) by 2018. Under the Proposed RMP, timber harvest would increase by 14 percent. Changes in either the timber program or recreation program could have stability effects in their host communities.

Because this issue considers a long-term perspective of economic stability, the BLM considers timber harvest levels over 50 years. However, as described in the Forest Management section of this chapter, total harvests under the alternatives and the Proposed RMP do not vary more than 15 percent in any year compared to average harvest levels in the first decade, and all change in harvest levels over time are driven by non-ASQ harvest, such as restoration thinning in the reserves. Furthermore, the alternatives and the Proposed RMP would maintain its relative rank among all other alternatives in terms of total timber harvest through 50-years. Said differently, Alternative C would have the largest harvest at every point in the planning period, followed by the No Action Alternative, Alternative B, the Proposed RMP,

Alternative A, and Alternative D. The alternatives and the Proposed RMP, except Alternative D, would result in timber harvest volumes exceeding current (2012) levels.

The BLM projects that recreation visitation across the planning area would more than double under Alternatives C and D, and the Proposed RMP by 2063, the end of the 50-year planning period. Both BLM management and demographic characteristics combine to create a range of recreation increases, but, for a given implementation rate, Alternative D would always show the largest increases. Following Alternative D, the long-term ranking would be consistent, that is, the Proposed RMP would show the second largest increases, followed by Alternative C, Alternative B, the No Action alternative, and Alternative A. No alternative would show a decrease of recreation visits at any time during the analysis period.

Because the timber industry has a long, national history of high volatility, alternatives and the Proposed RMP with harvest volumes that exceed current levels are likely to introduce greater instability into local economies, based on past business cycles. The expansion of existing timber-based corporations or the addition of new ones would bring additional jobs and earnings to the planning area, but could make the whole planning area more vulnerable to large fluctuations inherent in domestic and international timber markets. Alternative C, with the largest harvest volumes, would have the greatest effect on jobs and earnings, but also the greatest potential for increased economic instability. The No Action alternative, Alternative B, Alternative A, and the Proposed RMP, based on their lower harvest volumes compared to Alternative C, would have comparatively lesser effects on jobs and earnings and lower potential for increased economic instability. With harvest volumes below current levels on BLM-administered lands, Alternative D would show job and earnings reductions, but may moderate existing economic instabilities across the planning area.

Because the historic volatility index of timber-related industries exceeds the index for every model area, each model area that would show increases in timber industry activity over current (**Table 3-183**) would bring additional exposure to greater economic instability. There would be greater potential for instability in the Eugene and Medford areas for the alternatives and the Proposed RMP, in both Salem areas under Alternatives B and C, in the Roseburg area under the No Action alternative and Alternative C, in the Klamath Falls area under the No Action alternative and Alternatives B and C, and in the Coos Bay area under Alternative C only. Under the Proposed RMP, exposure to greater economic instability would occur in the Medford and Eugene areas.

Recreation-related industries are relatively stable compared with timber-related industries. Growth in the three recreation sectors¹⁰¹ would bring additional economic stability in the long run. Growth in visitation would result in expansion for all three industries across the planning area and in each model area. Growth would be projected for the planning area under the alternatives and the Proposed RMP. Arts, Entertainment & Recreation Services and Eating & Drinking Places both have volatility indexes that are smaller than any model area, and thus would bring increased stability under the alternatives and the Proposed RMP. Accommodations, with an industry index higher than the Medford and both Salem model areas, would bring a small amount of instability under the alternatives and the Proposed RMP.

Under some alternatives or the Proposed RMP, more volatile timber-based and less volatile recreation-based influences may offset to some degree. For example, Alternative C would have the highest harvests and high visitation compared with the No Action alternative, which could result in some stability offsets. Under the Proposed RMP, lower harvests and high visitation compared with No Action could result in increased stability overall. Under Alternative D, with the lowest harvests and highest visitation compared with the No Action alternative, stability is likely to be the greatest. Because recreation visitation increases would be modest under the No Action alternative and Alternative B, timber would be a stronger influence

¹⁰¹ Arts, Entertainment & Recreation Services; Accommodations; and Eating & Drinking Places

on economic stability in the long run. Under Alternative A, neither timber nor recreation would greatly influence stability.

Greater economic stability alone, whether achieved through the moderation of historically volatile industries or an increase in historically stable industries, does not guarantee an increase in the economic well-being of an area. Industrial specialization can be beneficial to an area, though it may subject the area to greater volatility at the same time. Growth and stability are both important—though sometimes competing concepts—in a portfolio of economic growth and development considerations.

Issue 5

How would the alternatives affect the capacity and resiliency of different types of communities in the planning area?

Key Points

- Currently, cities in the northern part of the planning area generally have higher capacity and resiliency (ability to face changes and meet needs) compared to cities in the southern part of the planning area. Larger cities tend to have higher capacity and resiliency.
- Alternatives B and C would, overall, make the strongest contributions to community capacity and resiliency, with positive benefits to nearly all communities. Alternative D would have the smallest effect on community capacity and resiliency. The Proposed RMP would make strong contributions to community capacity and resiliency to communities in the Eugene and Medford areas. The Proposed RMP would negatively affect community capacity and resiliency in the Coos Bay area.

Summary of Analytical Methods

This analysis focuses on the potential effects of the alternatives and the Proposed RMP on selected communities of place in the planning area, specifically on small and mid-size cities and tribal communities. The BLM conducted many of the socioeconomic analyses in this section at an appropriate county or district level, but recognized that this scale can mask differences among smaller communities within these broad areas, or fail to show how county-level impacts can affect communities.

Communities in Land Use Planning

The BLM uses a variety of social science information in land use planning. The BLM Land Use Planning Handbook (USDI BLM 2005) states that social science information can include the economic, political, cultural, and social structure of communities, regions, and the Nation as a whole; social values, beliefs, and attitudes; how people interact with the landscape; and sense-of-place issues.

While the other socioeconomic analyses focus more on the economic effects, this analysis focuses on the social effects of the alternatives and the Proposed RMP on communities.

Communities exist at a variety of scales but are commonly one of two types: communities of interest, unified by a common interest, or communities of place, unified by a common geography. To analyze the effects of the alternatives and the Proposed RMP on communities in western Oregon, the BLM considered analyzing the effects on communities of interest. However, due the practical difficulties of comprehensively identifying such communities and analyzing how the alternatives and the Proposed RMP would affect them, the BLM decided instead to focus on communities of place. Further, because much of the socioeconomic analysis is at the county level, the BLM opted to gain a different perspective

on the potential effects of the alternatives and the Proposed RMP by analyzing communities at the sub-county level.

A ‘community of place’ is a distinct geographic area within which residents or Tribal members would generally associate themselves with a single location. For purposes of this analysis, this location is an incorporated city or Tribal land.¹⁰²

Incorporated cities comprise approximately 70 percent of the population of the planning area, justifying special consideration in the socioeconomic analysis. In addition, there are seven federally recognized Tribes with land in the planning area. This analysis includes them as separate communities of place, as the United States acknowledges them as sovereign nations with inherent powers of self-government.

A unique feature of the analytical approach to this issue was 1- to 2-hour telephone interviews with representatives of the governments of approximately 15 communities. This gave community representatives the opportunity to tell their stories and provided insights into the social values, beliefs, and attitudes of their communities, thereby supplementing the statistical data the BLM collected regarding capacity and resiliency.

Capacity and Resiliency

Social scientists commonly use the terms ‘capacity’ and ‘resiliency’ when researching and analyzing communities. Resiliency in particular is a term used increasingly frequently with respect to communities’ responses to natural disasters such as hurricanes and to other changes such as climate or major economic change.

Many communities in western Oregon have experienced large socioeconomic changes, particularly since the listing of the northern spotted owl, the subsequent injunction barring timber harvest in northern spotted owl habitat, and the adoption of Northwest Forest Plan in 1994. As part of the Northwest Forest Plan monitoring program, the U.S. Forest Service has been leading socioeconomic monitoring to answer the question: What is the status and trend of socioeconomic well-being? (Grinspoon *et al.* in press) (**Appendix V**). In light of this ongoing monitoring and the potential effects of the updated RMPs for Western Oregon on communities, the BLM analyzed the potential socioeconomic effects of the alternatives and the Proposed RMP through the lenses of capacity and resiliency, which are measures of a community’s ability to face change.

There are different definitions of capacity and resiliency though they tend to have common elements. This analysis uses the following definitions:

- Community Capacity: a community’s ability to face changes; respond to external and internal stresses, create and take advantage of opportunities, and meet its needs
- Community Resiliency: a community’s ability to adapt to change over time

There is some overlap between the two concepts and the presentation of results does not attempt to draw a fine line between them.

Community Selection

There are 161 cities (incorporated places) in the planning area. The BLM decided to exclude 27 very small cities (populations below 500) and very large cities (populations over 40,000) from the group for analysis, bringing the number to 134. The exclusions were for the following reasons:

¹⁰² Many people live in unincorporated communities. The Bureau of the Census recognizes these areas as Census Designated Places (CDPs). However, while census data are available for CDPs, they do not have local elected or appointed officials who can speak for them, and this analysis does not include them.

- Very small cities represent a very small share of the planning area population (less than 1 percent), and information and interviews could be difficult to obtain.
- Large cities tend to mirror or contribute substantially to the socioeconomic characteristics of the counties in which they are located. Other analytical questions are focused on counties, so that including large cities would be duplicative and reduce the desired focus on communities below the county level.

Analyzing all 134 cities, including personal interviews, would have been impractical. The BLM decided that a 10 percent sample of the 134 cities (i.e., approximately 13 cities) plus the Tribes would sufficiently represent the entire group, to enable an analysis sufficient to assess effects on community capacity and resiliency. The BLM stratified (weighted) the sample so that it would be representative of the diverse geography of the planning area.¹⁰³ The stratification was such that: (1) there were at least one or two cities from each BLM district; (2) there would be at least three rural cities from the Salem District;¹⁰⁴ and (3) Klamath Falls would be the representative city for the Klamath Falls Field Office.¹⁰⁵ Within these stratification rules, the BLM selected 13 cities at random from the group of 134 cities¹⁰⁶ (**Table 3-191** and **Map 3-7**). **Appendix P** shows all 134 cities in the sample group. The Planning Criteria document (USDI BLM 2014) contains a description of the selection methodology in detail, and is incorporated here by reference (USDI BLM 2014, pp. 140–148).

¹⁰³ Stratification was necessary because approximately 89 of the 134 cities (66 percent) are in the Salem District, and a random sample would likely have resulted in 8 or 9 of the 13 cities coming from the Salem District, which would not be representative of the diverse geography of the planning area.

¹⁰⁴ There are many urban cities in the Portland metropolitan area that, if sampled, would reveal little regarding the potential impacts of the alternatives and the Proposed RMP.

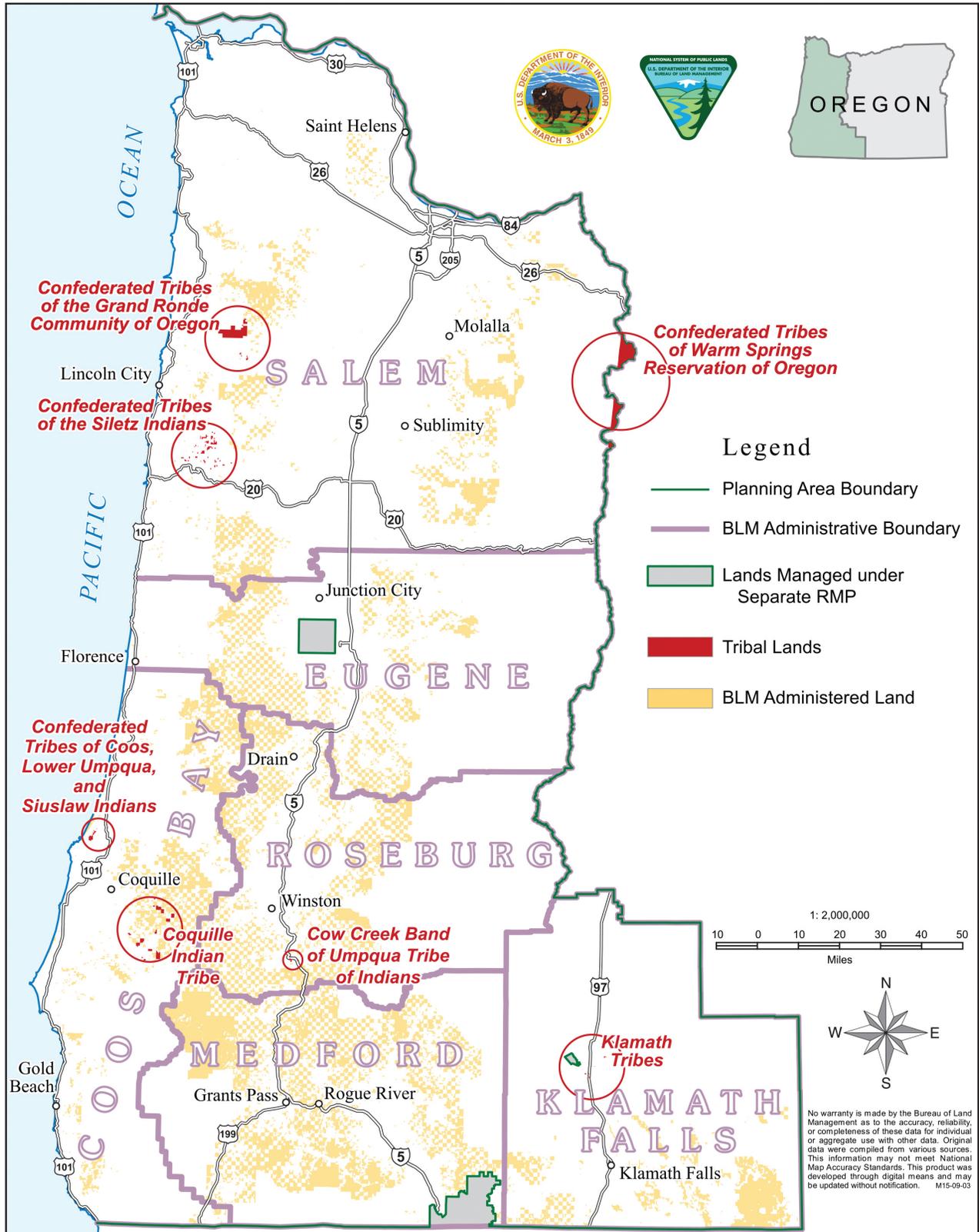
¹⁰⁵ The Klamath Falls Field Office has 4 cities, and 3 of them are small with populations under 850.

¹⁰⁶ To make the selections, the BLM used the random number function in Microsoft's Excel program.

Table 3-191. Selected communities (cities and Tribes) for analysis of capacity and resiliency

Selected Communities	County	District/Field Office
City		
Coquille	Coos	Coos Bay
Drain	Douglas	Roseburg
Gold Beach	Curry	Coos Bay
Florence	Lane	Eugene
Grants Pass	Josephine	Medford
Junction City	Lane	Eugene
Klamath Falls	Klamath	Klamath Falls
Lincoln City	Lincoln	Salem
Molalla	Clackamas	Salem
Rogue River	Jackson	Medford
St. Helens	Columbia	Salem
Sublimity	Marion	Salem
Winston	Douglas	Roseburg
Tribe		
Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians	Coos	Coos Bay
Coquille Indian Tribe	Coos	Coos Bay
Cow Creek Band of Umpqua Tribe of Indians	Douglas	Roseburg
Confederated Tribes of the Grand Ronde Community of Oregon	Yamhill	Salem
Confederated Tribes of Warm Springs Reservation of Oregon	Clackamas and Marion	Salem
Klamath Tribes	Klamath	Klamath Falls
Confederated Tribes of the Siletz Indians	Lincoln and Polk	Salem

Note: While data for Tribes used census data for land owned by the Tribes, the analysis also considered Tribal members not living on Tribal-owned land



Map 3-7: Selected Communities (Cities and Tribes) used for the Analysis of Capacity and Resiliency

Data and Information about Communities

The BLM collected data and information about the selected communities from three sources: (1) publicly available data sources, primarily the U.S. Bureau of Census American Community Survey; (2) internet sites, primarily the official websites of the selected communities; and (3) interviews with community representatives.

Data Baseline

The publicly available data sources provided a data baseline for assessing potential impacts from the alternatives and the Proposed RMP. The BLM created the baseline from data on 13 metrics (measures) of capacity and resiliency including population, housing, jobs, unemployment, wages, income, health insurance, education, recreation, and assessable base. They are largely consistent with the metrics identified in **Table 37** of the Planning Criteria (**Appendix P**). The metrics chosen are among a large number of accepted potential metrics that exist (e.g., Jepson and Colburn 2013). The BLM selected the metrics in consultation with the Socioeconomic Working Group of the Cooperating Agency Advisory Group (see Chapter 4), based on their relevance to the capacity/resiliency question, availability of data across the communities, and analytic efficiency. The BLM summed each community's scores for all 13 metrics and expressed the totals as a percentage of the total theoretical maximum score; a higher percentage meant a higher level of capacity and resiliency.

The BLM recognized 4 capacity and resiliency categories based on the data score spread: high (over 65 percent), medium (60–64 percent), low (50–59 percent), and very low (less than 50 percent). The BLM assigned the communities to one of the categories based on its baseline score. Because of data limitations for the Tribes (see next section), the BLM did not assign the Tribes to a category.

Data Limitations

Most data have limitations, and the data in this analysis are no exception. First, most of the data for this analysis are from the American Community Survey, which the Bureau of Census derives from a sample of American households. They provide more detailed socioeconomic data than the decennial census, but the data have 'margins of error' (degrees of confidence, or reliability), and these tend to be greater for smaller communities because their sample sizes are smaller. Some communities commented on this during the interviews, and the BLM invited them to provide supplementary data.

The data are particularly unreliable for the Tribes, some of whom have very small populations living on tribal lands. The Tribes commented on this during the interviews, and they preferred to discuss the entire Tribal membership, not just the population living on Tribal lands.

Additionally, the way the metrics were selected and applied may incorrectly 'favor' one community over another, giving it a higher score. In other words, had the BLM selected different metrics, a different score might have been the result. Further, some metrics are arguably more important to capacity and resiliency than others are, whereas the calculations treat the metrics equally without weighting.

The BLM acknowledges these data limitations but believes that use of a relatively large number of metrics (i.e., 13 for the cities and 12 for the Tribes) mitigates the limitations and produces results that are useful and informative, especially when reviewed in conjunction with the interviews (see next section).

Interviews with City and Tribal Representatives

The BLM conducted interviews with city and tribal representatives in order to supplement the baseline data with representatives' personal experiences, perspectives, perceptions, and insights, and to help tell each community's 'story' in relation to the RMP revision. The BLM developed brief, introductory geographic and economic profiles of the selected communities to have some familiarity with the communities prior to the interviews. **Appendix P** contains these profiles.

The BLM contacted each of the selected communities' governments by phone and letter, inviting their participation. **Appendix P** contains copies of the letters. Of the 13 cities, 11 participated in an interview, 1 provided written responses to questions, and 1 declined to participate. Of the seven Tribes, two participated in an interview. The interviews typically lasted 60–90 minutes.

Each community government could decide who it wanted to participate. City representatives included city managers/administrators, mayors, county commissioners, and members of advisory boards. Tribal representatives included Tribal chairpersons, executive directors, and other staff. The interview conversations ranged widely but focused on the following questions:

- How do you view your community's 'capacity,' that is your community's ability to face changes, respond to external and internal stresses, create and take advantage of opportunities, and meet its needs?
- How do you view your community's 'resiliency,' that is your community's ability to adapt to change over time?
- How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?
- Have changes in the BLM's resource management over time affected your community? In what ways?
- Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?

Note that the while many of the interviewees were community leaders, they spoke as individuals from the communities and not as official representatives of the communities. Thus, while the BLM takes their views as representative of the communities, it recognizes that the communities did not formally endorse the opinions expressed and that diversity of opinion in each community is likely.

Final Adjusted Capacity and Resiliency Categories

The interviews provided valuable insights into the communities. Following each interview, the BLM summarized the interview and sent it to the interview participants for comment. **Appendix P** contains all 14 interviews/written responses.

Based on what the interviews revealed about the communities and including insights that supplemented or put into perspective the baseline data, the BLM adjusted some of the communities' final assigned capacity and resiliency categories. This last step was qualitative and grounded in the interviews as documented.

Tribal Statement

The Tribes requested the following statement be included, given the data limitations described above, and the difficulty of using these data in an analysis of capacity and resiliency of the Tribes in the planning area. The Cooperating Agency Advisory Group's Tribal Working Group developed the following statement:

There are varying acreages of O& C lands located within the ancestral homelands of the seven western Oregon Tribes. Management of these lands has a direct impact on the cultural interests, traditional lifeways, and economic wellbeing of Tribal members.

As defined above, capacity and resiliency from a social sciences perspective is a measure of a community's or group of people's ability to respond to certain events such as natural disasters, major economic change, external and internal stresses and to take advantage of opportunities to meet

needs. However, it must be well communicated and understood that when applying a measure of capacity and resiliency to Tribes, that meaning may appropriately be interpreted differently.

Census data and the developed metrics used in this analysis become problematic when assessing Tribal capacity and resiliency. Oregon Tribes which had their federal status terminated in the 1950s and then were restored to federal recognition in the 1980s do not have a single reservation where all Tribal members live. The Congressional Acts restoring these Tribes established multiple county service areas where the Tribes have historical and cultural interests and where many Tribal members reside. These county service areas also have legal meaning for Tribal members to receive governmental services. The census data and metrics when applied to counties and cities focuses on a specific geographic location and the population living in this area. Using this same approach for the identified Tribal reservations is inaccurate because the focus for Tribes is a distinct group of people with special legal status living in multiple county locations. Applying the developed metrics to only Tribal members living on the specified reservation and in the respective county location gives conclusions which most likely are not reflective of the total Tribal population.

In respect to historic resiliency, Tribes have demonstrated perseverance and resiliency to the highest degree. Tribes have endured over two hundred years of devastation following the European occupation of native lands in North America. Tribes have also adapted to adverse actions, laws and policies of the United States government. Tribal people are still here, and in many cases, thriving – preserving culture, raising families, executing government functions, and significantly contributing to native and non-native people and their communities. Given that, it becomes clear that resiliency takes on a unique meaning when applied to Tribes.

For Tribes and their members there is also a culture dimension when determining capacity and resiliency. Those with strong ties to Tribal culture and active in traditional lifeways may have a very robust sense of capacity and resiliency which is not reflected by the non-Tribal analytical model used in this analysis.

Effects Analysis

The regional scale of the decision area and the geographical breadth of the potential effects are such that it is not possible to analyze with useful precision how the alternatives and the Proposed RMP would affect one specific local community versus another. Instead, the analysis assumed that effects to regions and counties would affect the local communities within those regions and counties, and either increase or decrease local community capacity depending on the different effects.

The capacity and resiliency effects analysis applied the environmental effects outputs from Issues 2 and 3 to the local communities as identified in the final adjusted capacity and resiliency categories. The key outputs from these issues were economic activity (jobs) and county payments. The analysis assumed that the communities in the categories were generally representative of the communities in the BLM district economic areas that the Issue 2 analysis modeled.

Affected Environment

Capacity and Resiliency Baseline

Table 3-192 presents the baseline data. Column 2 of the table shows the comparison (reference) number used in applying the metric. For example, for the first metric, ‘Population size compared to city average in sample’, the comparison number is 7,264, which is the average population size of the 13 cities in the sample (or in the case of the Tribes, the 7 Tribes). Column 3 explains how the data should be interpreted,

that is, what the purpose of the metric is, and what it expresses about capacity or resiliency. Column 4 explains how the scoring works. For example, in the case of the first metric, a city with a population 150 percent higher than 7,264 gets a score of 5 (e.g., St. Helens, which has a population of 12,807), whereas a city with a population between 125 percent and 75 percent of 7,264 has a score of 3 (e.g., Lincoln City, which has a population of 7,926). This differential reflects the fact that, other things being equal, places with greater population tend to have higher resilience (Harris *et al.* 2000).

Table 3-192. Capacity and resiliency metrics

1 Capacity/Resiliency Metric	2 Comparison (Reference) Number	3 Interpretation	4 Metric Application Method; City data compared to reference number. Scores range from 5 to 1. (5=higher capacity, 1=lower capacity)	5 Cities and Scores. Scores range from 5 to 1. (5=higher capacity, 1=lower capacity)												
				Coquille	Drain	Florence	Gold Beach	Grants Pass	Junction City	Klamath Falls	Lincoln City	Molalla	Rogue River	St. Helens City	Sublimity	Winston
Population size compared to city average in sample	7,264	Higher population ⇒ more capacity	150%=5, 150%-125%=4, 125%-75%=3, 75%-50%=2, 50%=1	2	1	3	1	5	2	5	3	3	1	5	1	3
Population change compared to State change rate (2000 to 2012)	12%	Greater increase in population ⇒ more resiliency	150%=5, 150%-125%=4, 125%-75%=3, 75%-50%=2, 50%=1	1	3	4	5	5	4	2	2	5	5	5	5	4
Population in 20-64 age cohort compared to State	61%	Greater population in this 'working' cohort ⇒ more capacity	150%=5, 150%-125%=4, 125%-100%=3, 100%-75%=2, 75%=1	3	2	2	3	2	3	4	3	3	2	4	2	3
Percent of housing that is owner occupied compared to State rate	63%	Higher share of owner occupied housing generally associated with resiliency	150%=5, 150%-115%=4, 115%-85%=3, 95%-75%=2, 75%=1	2	3	3	3	2	2	2	2	3	2	2	3	2
Unemployment rate compared to State	7%	A lower unemployment rate ⇒ more capacity	150%=1, 150%-115%=2, 115%-85%=3, 85%-55%=4, 55%=5	5	2	5	4	3	3	3	3	3	4	2	5	3
Jobs Sector Distribution Concentration Compared to the State (1)	0	A distribution closer to the State's ⇒ more resiliency	200%=1, 200%-175%=2, 175%-100%=3, 100%-0%=4, 0%=5	1	1	3	2	4	3	3	1	3	4	4	4	3
Percent of jobs paying over \$3,333 per month compared to State	37%	A greater share of higher paying jobs ⇒ more capacity	125%=5, 125%-100%=4, 100%-75%=3, 75%-50%=2, 50%=1	3	2	2	2	2	3	2	1	2	2	2	2	4
Median household income compared to State	50,036	Higher household incomes ⇒ more capacity	150%=5, 150%-100%=4, 100%-75%=3, 75%-50%=2, 0%=1	3	2	2	4	5	2	2	2	5	2	4	5	2
Percent of population in poverty compared to State	15%	A smaller poverty population ⇒ more capacity	150%=1, 150%-135%=2, 135%-100%=3, 100%-50%=4, 50%=5	5	4	4	4	2	2	1	3	4	3	3	5	1
Percent of population with health insurance compared to State	84%	A higher share of the population with insurance ⇒ more capacity	125%=5, 125%-100%=4, 100%-75%=3, 75%-50%=2, 50%=1	3	3	3	3	4	3	3	3	3	3	3	4	4
Percent of population with a 4 year degree compared to State	20%	A higher share of the population with a degree ⇒ more capacity	>150%=5, 150%-125%=4, 125%-100%=3, <100%=1	1	1	1	1	1	1	1	1	1	1	1	5	1
Assessed Property Value Per Capita (dollars) compared to the city average in sample	75,099	Higher property value ⇒ higher tax base and more capacity	125%=5, 125%-100%=4, 100%-75%=3, 75%-50%=2, 50%=1	2	2	5	4	4	3	3	5	3	3	3	3	2
Acres of outdoor recreation land (per 1,000 population) compared to the State as a whole	8,605	More recreation land generally associated with more capacity	125%=5, 125%-100%=4, 100%-50%=3, 50%-25%=2, 50%=1	2	5	2	5	3	2	5	2	1	2	1	1	5
Totals				33	30	38	41	42	33	36	31	39	33	39	45	37
Comparison with Maximum Total of 65				51%	46%	58%	63%	65%	51%	55%	48%	60%	51%	60%	69%	57%

Notes and sources: See Tribes scores table

1 Capacity/ Resiliency Metric	2 Comparison Number	3 Interpretation	4 Metric Application Method Scores range from 5 to 1	Tribes and Scores						
				Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians	Confederated Tribes of the Grand Ronde	Confederated Tribes of the Siletz Indians	Confederated Tribes of Warm Springs Reservation of Oregon	Coquille Indian Tribe	Cow Creek Band of Umpqua Tribe of Indians	Klamath Tribes
Population compared to tribal average in sample	753	Higher population = more capacity	150%=5, 150%-125%=4, 125%-75%=3, 75%-50%=2, 50%=1	1	2	2	5	1	1	1
Population change compared to State change rate (2000 to 2012)	12%	Greater increase in population = more resiliency	200%=5, 200%-150%=4, 150%-100%=3, 100%-50%=2, 50%=1	1	5	5	4	3	1	5
Population in 20-64 age cohort compared to State	61%	Greater population in this "working" cohort = more capacity	150%=5, 150%-125%=4, 125%-90%=3, 90%-70%=2, 70%=1	2	3	2	3	2	3	1
Percent of housing that is owner occupied compared to State rate	57%	Higher share of owner occupied housing generally associated with resiliency	125%=5, 125%-100%=4, 100%-75%=3, 75%-50%=2, 50%=1	1	1	3	4	1	5	2
Unemployment rate compared to State	7%	A lower unemployment rate = more capacity	198%=1, 198%-125%=2, 125%-75%=3, 75%-50%=4, 50%=5	1	1	2	1	3	5	3
Jobs Sector Distribution Concentration Compared to the State (1)	0	A distribution closer to the State's = more resiliency	200%=1, 200%-100%=2, 100%-75%=3, 75%-0%=4, 0%=5	4	1	3	1	4	4	2
Percent of jobs paying over \$3,333 per month compared to State	37%	A greater share of higher paying jobs = more capacity	150%=5, 150%-125%=4, 125%-75%=3, 75%-50%=2, 50%=1	2	3	2	2	2	3	2
Median household income compared to State	50,036	Higher household incomes = more capacity	150%=5, 150%-125%=4, 125%-75%=3, 75%-50%=2, 50%=1	2	2	3	3	3	2	1
Percent of population in poverty compared to State	15%	A smaller poverty population = more capacity	200%=1, 200%-120%=2, 120%-75%=3, 75%-50%=4, 50%=5	2	2	1	2	2		4
Percent of population with health insurance compared to State	84%	A higher share of the population with insurance = more capacity	105%=5, 105%-85%=4, 85%-78%=3, 78%-20%=2, 20%=1	5	4	3	2	3	3	4
Percent of population with a 4 year degree compared to State	20%	A higher share of the population with a degree = more capacity	100%=5, 100%-50%=4, 50%-25%=3, 25%-15%=2, 15%=1	1	2	2	2	2	3	5
Acres of outdoor recreation land (per thousand population) compared to the State as a whole	8,605	More recreation land generally associated with more capacity	150%=5, 150%-125%=4, 125%-45%=3, 45%-15%=2, 15%=1	3	5	3	1	3	5	5
Totals				24	31	31	30	29	35	35
Comparison with Maximum Total of 60				40%	52%	52%	50%	48%	58%	58%

Notes: (1) A measure of difference in the distribution of jobs by sector in a 5-mile radius of the community compared to the distribution of jobs for the State. A lower number means a smaller difference in distribution and is generally healthier, (i.e., closer to the distribution for the State as a whole). Assessed Value Per Capita metric not applicable for Tribal lands; no property tax is levied.

Sources:

Environmental Resources Management (ERM) based on:

U.S. Census Bureau; American Community Survey, 2012 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701; generated by Joan Huston; using American FactFinder; <http://factfinder2.census.gov/>; (May 2014).

U.S. Census Bureau; American Community Survey, 2009 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701; generated by Joan Huston; using American FactFinder; <http://factfinder2.census.gov/>; (May 2014).

U.S. Census Bureau; Census 2000, Summary File 1, Table DP05; generated by Joan Huston; using American FactFinder; <http://factfinder2.census.gov/>; (May 2014).

U.S. Census Bureau. 2013. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. <http://onthemap.ces.census.gov/>, generated by Clive Graham July 3, 2014.

Assessed Property Value derived from individual County Assessors Offices Summary of Assessment and Tax Rolls

Oregon Parks and Recreation Department. 2011. Oregon Statewide Outdoor Recreation Resource/Facility Bulletin Final Report. A Component of the 2013–2017 Oregon-Statewide Comprehensive Outdoor Recreation Plan.

The scores for each metric range from 5 (higher capacity) to 1 (lower capacity). The theoretical maximum score for a city is 65 (13 metrics times 5). For the Tribes, the maximum is 60, because their dataset used only 12 metrics (the ‘assessed value per capita’ is not applicable to Tribal lands). **Appendix P** includes the raw data for the metrics.

At the bottom of **Table 3-192** are the combined total scores for all 13 metrics for each city and Tribe and a comparison of the total to the theoretical maximum score, expressed as a percentage. For example, Drain’s total score from all 13 metrics is 30, which is 46 percent of 65.

Interview Summary and Conclusions

Capacity

The community representatives had different perceptions of their capacity, depending on their circumstances and situations. Many of the interviewees felt that their communities are very challenged by today’s economic environment; they do not feel they have recovered from the 2007–2009 recession. Examples include Coquille, the Coquille Indian Tribe, Gold Beach, Klamath Falls, Rogue River, and Winston. These communities tended to fall into two groups: those whose representatives regard the community as timber-dependent and those whose representatives regard their economies as heavily reliant on the tourism sector, which tends to be seasonal and dependent on the broader economy.

Few, if any community representatives admitted to having an excess of capacity. Indeed, almost every community representative spoke of community financial stresses, especially in light of Oregon’s citizen-driven tax cap initiatives that limit cities’ ability to raise revenue. Many community representatives spoke of the impact of the reductions in timber payments to the counties, which have resulted in the counties reducing or cutting off funds to the cities.

On the other hand, several community representatives spoke of their strong human capacity, which is the willingness and eagerness of their residents to pitch in to benefit and support community life, especially in hard times. Examples include Coquille and Junction City. One counter case is St. Helens, whose representatives cited a loss of social cohesion, as they estimated 75 percent of the City’s labor force now commutes to jobs in Portland and Hillsboro.

Resiliency

Community representatives had a range of perceptions regarding their resiliency. Some representatives felt their communities are at a ‘tipping point’ or crossroads with respect to their survival as communities with the capacity to meet their needs and obligations fully. The Grants Pass representatives used this actual ‘tipping point’ phrase, but others expressed similar feelings, including those from Coquille, the Coquille Indian Tribe, Drain, Gold Beach, Klamath Falls, Rogue River, and Winston.

These representatives feel their communities have low resiliency. To a varying extent, they see their communities as victims of a combined set of circumstances that has hit them hard:

- Decline of the timber industry and the resulting loss of ‘family wage’ jobs (the jobs that have replaced timber-related jobs pay less)
- Decline in payments to counties that have resulted in reductions in pass through funds to cities
- A broader economy that, for some, has not recovered from the 2007–2009 recession
- Lack of economic options. This varies by community but particularly affects geographically more isolated communities (Coquille Indian Tribe, Gold Beach, Klamath Falls) and smaller, timber-dependent communities, where the ebbs and flows in timber-related employment have major direct and ripple impacts on the community (Coquille, Drain, Rogue River, Winston). The

Coquille representative, for example, estimated that 30–50 percent of all jobs are at the City’s one remaining mill.

- Broad political-economic shifts that favor Oregon’s larger cities and metropolitan areas at the expense of western Oregon’s rural areas. Smaller communities’ representatives feel that they just cannot compete.
- Some community representatives feel that decision-making and related lawsuits, especially at the Federal level, are unbalanced; they overly favor environmental interests and considerations compared to local economic interests, (e.g., Drain, Klamath Falls, and Sublimity). Some representatives feel that what they perceive as overly protective environmental regulations deny them the tools to adapt economically.
- Demographic shifts, especially loss of school age children (Coquille, Drain, Rogue River, Winston), which is the result of the loss of jobs that support families, and, in some communities, an aging population.

Representatives of both coastal communities (e.g., Florence and Gold Beach) and some interior communities (e.g., Klamath Falls and Rogue River) described their communities as experiencing influxes of retirees.¹⁰⁷ Further, the general feeling among these representatives was that their retirees are not particularly beneficial fiscally or economically, unlike for communities that attract retirees that are more affluent.

Some community representatives (Coquille, Gold Beach, and Klamath Falls) described divisions among their residents in reaction to these circumstances. They described some groups as seeing the potential for a timber-based economy to come back, while others think that it is not coming back and that their communities need to adapt to the ‘new normal.’ The representatives pointed out that these divisions make it difficult to set future-oriented community policy.

Most of the community representatives described their efforts to adapt to their new situation, notwithstanding the challenges described above, as follows:

- Some communities have been able to ‘move on’ by diversifying their economies (e.g., Junction City and Sublimity).
- Others are trying to diversify their economies (e.g., Coquille Indian Tribe, Florence, Grand Ronde, Grants Pass, and Klamath Falls).
- Several smaller community representatives described how challenging it is for them to diversify (e.g., Coquille, Gold Beach, Klamath Falls, and Rogue River).
- Other community representatives said they were less tied to the natural-resource economy in the first place (e.g., Lincoln City).
- Two of the communities, St. Helens and Molalla, are near the Portland and Salem metropolitan areas, and their representatives pointed out that much of their labor forces now commute to these areas.

BLM Influences on Capacity and Resiliency

The interior communities in the southern part of the planning area (i.e., Coquille Indian Tribe, Drain, Grants Pass, Rogue River, and Winston) tended to perceive more direct effects from the BLM compared to the other communities. However, nearly all the communities feel that BLM affects them in two ways: BLM’s management impacts on the broader economy, and its impacts on the counties, which they feel ripple through to the communities. The Grants Pass interviewees said that cities were “joined at the hip” with the counties. The Coquille Indian Tribe interviewees spoke of the BLM’s impact on the Tribe in

¹⁰⁷ The BLM speculates that the lower cost of living in smaller communities may attract some retirees, though some communities also cited Oregon’s high quality of life.

three ways: direct effects on the Coos County economy, indirect economic effects on the Tribal members who are spread across five counties, and direct effects on the Tribe due to its legal mandate to manage its forest consistent with BLM's management practices. The Tribe specifically wants to decouple management of the Coquille Forest from BLM management practices.

With respect to the BLM's impacts, the way the BLM manages timber is by far the number one issue of concern among the communities. The primary concern is economic. The community representatives share a common view that the BLM is party to a worldview that no longer allows for economic use of a (timber) resource that is abundant and renewable. In their view, the BLM is not managing the resource for the benefit of local communities, and, in consequence, they experience the effects of millions of dollars of potential income that are lost every year. A few of the communities (Drain, Sublimity) referred to the O&C Act of 1937 in making these points.

In this view, expressed most strongly by representatives of the more timber-dependent communities, the loss of income has hurt them economically and fiscally. The economic effects described by these representatives include the loss of family wage jobs, and the high poverty rates and demographic changes (fewer families with school age children, more elderly and retirees) that they see as resulting in communities failing to sustain local business and community activity. They also described reductions in services the counties provide (sheriff, courts, libraries, jail, health and social services, and juvenile services) and reductions in pass-through funds from the counties (for street repairs and upgrades). Several representatives (i.e., Coquille, Coquille Indian Tribe, Grand Ronde, and Winston) spoke of the negative impacts from cuts in funding for schools that affect their residents and Tribal members.

Fire is another major management issue for the communities, including the perceived lack of timber management that some interviewees believe has led to increases in fires. The Grants Pass representatives felt very strongly about this, citing large fires in 2013 (such as the 75,000-acre Big Windy Fire) that effectively shut down the city, causing economic losses, heat, human health effects, and negative reputational impacts. From the community representatives' perspectives, the cost of fighting forest fires is huge, affecting State budgets and subsequently affecting counties and cities as the State directs resources away from other priorities.

Several representatives (i.e., Coquille, Grants Pass, Klamath Falls, Rogue River, Sublimity, and Winston) felt that fewer managers and loggers in the forest and the steep decline in harvest since the 1990s have resulted in forests that are overgrown and more susceptible to damaging fires. They add that reduced or blocked access due to lack of management makes fighting the fires more difficult.

A few of the communities (i.e., Coquille, Florence, Gold Beach, Rogue River, and Winston) mentioned nearby BLM-managed recreation or had management concerns for specific sites. However, representatives of most communities did not describe BLM-provided recreation as a major factor affecting their community, and only a few places (e.g., Grants Pass) perceive it as important to local economies. A few communities cited lack of access and increasingly reduced access to the forest as reducing or limiting recreational activity, including hunting. The Grand Ronde representative specifically expressed disappointment over declining opportunities to hunt deer and elk, fewer openings and meadows due to lack of active management.

Some communities spoke of the BLM's role in supporting both local, resident-based recreation and the region's broader efforts to attract visitors (Gold Beach, Klamath Falls, and Lincoln City). However, some expressed the view that recreation/tourism were poor substitutes for local, resource-based jobs that provide family-wage salaries.

Representatives did not mention BLM management of other resources, such as livestock grazing, minerals, fisheries, or cultural resources as factors affecting communities, except in site-specific circumstances. The Tribes expressed a broader interest in these management practices, since their interests range over multiple counties.

Capacity and Resiliency Summary

The total scores from the capacity and resiliency data baseline are close, but there are differences. For example, the total percentage point spread was 23 points among the cities and 18 points among the Tribes (**Table 3-193**). While strong data trends are a little difficult to discern, with the data from some metrics at variance with other data, it is possible to make the following overall observations:

- Cities in the northern part of the planning area generally have higher capacity and resiliency scores.
- Cities in the southern part of the planning area generally have lower capacity and resiliency scores.
- Grants Pass is a notable exception, its higher score driven by population, income, and employment metrics.
- Cities on the coast generally have lower capacity and resiliency scores. Gold Beach is a notable exception, its higher score driven by population, income, and recreation metrics.
- While there were few larger cities in the sample (only 3 of 13 are > 10,000 population), they tended to have higher scores, though Klamath Falls had a lower score.
- Data limitations and historical/cultural considerations make it difficult to assign capacity and resiliency scores to the Tribes.

Table 3-193. Capacity and resiliency data summary

1	2	3
Capacity and Resiliency Category	Percent of Maximum Data Score	Category Based on Data Score Alone
High	> 65%	Grants Pass Sublimity
Medium	60–64%	Gold Beach Molalla St. Helens
Low	50–59%	Coquille Florence Junction City Klamath Falls Rogue River Winston
Very Low	< 50%	Drain Lincoln City

Note: Due to data limitations the table does not include the scores of the tribes (see Analytical Methods).

There are no hard and fast rules to distinguish between different levels of capacity and resiliency, but distinguishing among communities is useful for assessing the impacts of the alternatives and the Proposed RMP. **Table 3-193** recognizes four capacity and resiliency categories based on the data score spread:

high, medium, low, and very low. See the categories and ranges in columns 1 and 2 and assignments in column 3.¹⁰⁸

Figure 3-138 shows the final assignments including adjustments to the scores in **Table 3-193** based on the insights from the interviews. The figure includes overlapping categories recognizing that capacity and resiliency are concepts that encompass a wide range of contributory factors on which communities may be variously stronger or weaker.

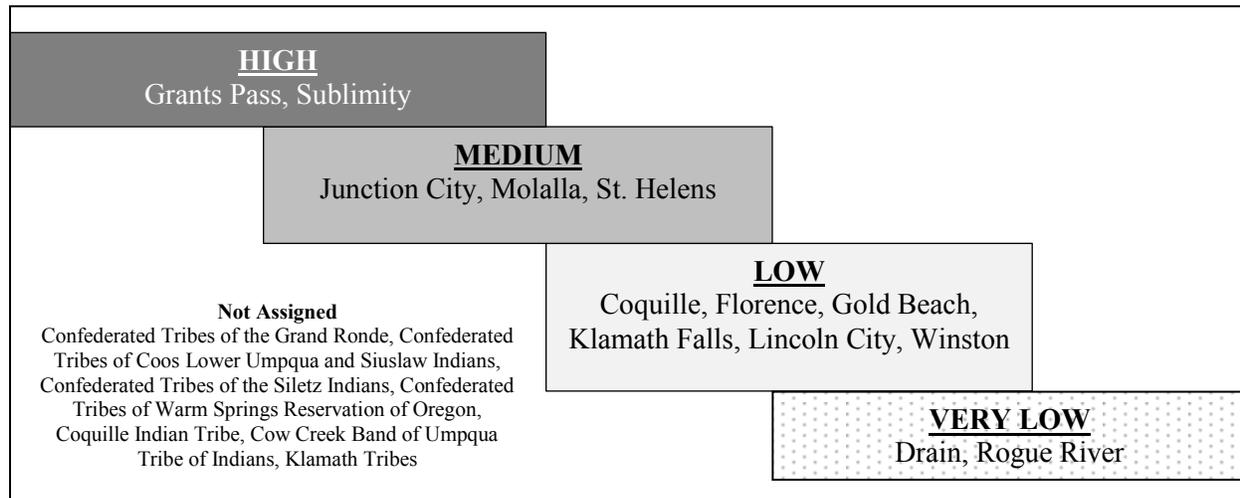


Figure 3-138. Capacity and resiliency affected environment summary

Environmental Consequences

To assess effects on community capacity and resiliency, the analysis focuses on: (1) effects on local economies, especially jobs and the associated earnings that result in spending in the communities; and (2) effects on county payments that affect the services the counties provide in communities, and in some cases, funds that counties pass through to communities.

Employment

Under the No Action alternative and under Alternative C, BLM-based employment (i.e., the number of jobs resulting from BLM activities and programs), would increase in every BLM district model area (**Table 3-193**). This job growth would increase capacity and resiliency in local communities across the planning area. **Table 3-194** shows change in BLM-based employment by district model area. **Table 3-195** shows the effects of this change on the 13 selected cities.

¹⁰⁸ This grouping of communities based on resiliency scores is consistent with other analyses of the effects of public land management, for example: Harris *et al.* 2000, op. cit.

Table 3-194. Change in BLM-based employment for district model areas

District Model Area	Jobs in 2012* (Number)	No Action (Percent Change)	Alt. A (Percent Change)	Alt. B (Percent Change)	Alt. C (Percent Change)	Alt. D (Percent Change)	PRMP (Percent Change)	Number of Communities by Capacity-Resiliency Category†
Coos Bay	1,198	< -1%	-26%	-22%	31%	-46%	-39%	Low - 2
Eugene	1,297	72%	36%	63%	144%	18%	51%	Medium - 1, Low - 1
Klamath Falls	231	23%	-3%	20%	32%	-15%	16%	Low - 1
Medford	1,326	103%	32%	66%	87%	20%	57%	High -1, Very Low - 1
Roseburg	1,225	36%	-10%	7%	64%	-13%	3%	Low -1, Very Low -1
Salem-Other	851	-1%	3%	9%	46%	-10%	5%	Low - 1
Salem-Portland MSA	1,275	-3%	3%	7%	17%	3%	7%	High - 1, Medium - 2
Totals	7,403	37%	7%	23%	65%	-7%	15%	

* Jobs in 2012 are the ‘Current-Modified’ jobs from **Table 3-182**.

† Number of Communities by Capacity-Resiliency Category is from **Table 3-193**.

Notes: Cells with green shading mean an increase in the number of jobs compared to current. Light green (6% to 20% increase), medium green (21% to 50% increase), dark green (> 51% increase). Bold red numbers with pink shading mean a 20 percent or greater decrease in the number of jobs. Bold red numbers with no shading mean a decrease in the number of jobs of less than 20 percent.

Source: BLM, based on employment modeling in Issue 2

Table 3-195. Effects of change in BLM-based employment by community

Community	Capacity Resiliency Category	District/Field Office	County	No Action (Effect)	Alt. A (Effect)	Alt. B (Effect)	Alt. C (Effect)	Alt. D (Effect)	PRMP (Effect)
Grants Pass	High	Medford	Josephine	+++	++	+++	+++	+	+++
Sublimity	High	Salem	Marion			+	++	-	
Junction City	Medium	Eugene	Lane	+++	++	+++	+++	+	+++
Molalla	Medium	Salem	Clackamas			+	+		+
St. Helens	Medium	Salem	Columbia			+	+		+
Coquille	Low	Coos Bay	Coos		--	--	++	--	--
Florence	Low	Eugene	Lane	+++	++	+++	+++	+	+++
Gold Beach	Low	Coos Bay	Curry		--	--	++	--	--
Klamath Falls	Low	Klamath Falls	Klamath	++		+	++	-	+
Lincoln City	Low	Salem	Lincoln			+	++	-	
Winston	Low	Roseburg	Douglas	++	-	+	+++	-	
Drain	Very Low	Roseburg	Douglas	++	-	+	+++	-	
Rogue River	Very Low	Medford	Jackson	+++	++	+++	+++	+	+++

Notes: All symbology refers to change in BLM-based employment in relation to ‘Current-Modified’ jobs from **Table 3-182**.

+ = minor benefit (6% to 20% increase);

++ = moderate benefit (21% to 50% increase);

+++ = strong benefit (> 51% increase);

-- = minor negative impact (6% to 20% decrease);

--- = moderate negative impact (21% to 50% decrease);

---- = strong negative impact (> 51% decrease).

Blank cell indicates little or no effect (+5% to -5% change).

Under the No Action alternative, the highest percentage employment increases would be in the Medford, and Eugene model areas followed by the Roseburg area. This would benefit communities across all capacity and resiliency categories in these districts (such as Grants Pass, Florence, and Winston) but would have little or no effect on communities in other areas, including several communities with low capacity and resiliency such as Coquille and Gold Beach.

Under Alternative C, the highest percentage increases would be in the Medford, Eugene, Roseburg, and Salem-Other areas. These districts all have communities with medium, low, and very low capacity and resiliency. However, as shown in **Table 3-195**, all communities would see moderate or strong benefits under this alternative.

Alternatives A, B, and D would have mixed effects, increasing or decreasing community capacity and resiliency in different geographies (**Table 3-194**). Under Alternative A, the Coos Bay, Roseburg, and the Klamath Falls model areas would see job losses. These districts contain communities with low or very low capacity and resiliency including Coquille, Gold Beach, Winston, and Drain. The Eugene and Medford areas would see the highest job increases under Alternative A, but these areas have more of a mix of higher and lower capacity/resiliency communities compared to the areas that would see job losses.

Under Alternative B, only the Coos Bay model area would lose jobs. This would have negative economic effects on the area's low capacity/resiliency communities, such as Gold Beach and Coquille. The other areas, especially Eugene and Medford, would see job increases and the communities within these areas, such as Grants Pass and Roque River, would see modest to strong benefits.

Under Alternative D, all model areas except Salem-Portland MSA, Eugene, and Medford would see job losses. The highest percentage losses would be in the Coos Bay area, with moderate to high losses in the Klamath Falls and Roseburg areas, which contain low and very low capacity/resiliency communities.

Under the Proposed RMP/Final EIS, the highest percentage increases would be in the Medford and Eugene model areas, though these increases would be lower than the increases under some of the other alternatives. The Klamath Falls area would see a modest increase (16 percent), though its 2012 jobs base is low (231 per **Table 3-195**). The Coos Bay area would see large job losses. As noted above, the Coos Bay area contains communities such as Coquille and Gold Beach with low capacity and resiliency.

County Payments

For purposes of the effects analysis, the BLM assumed that the Federal Government would make payments to counties using the formula in the O&C Act (see Socioeconomics Issue 3). Under the distribution formula, the counties in the Medford, Roseburg, and Salem Districts would receive 73 percent of the total payments (**Table 3-196**).

Table 3-196. Shares of county payments by BLM district

District/ Field Office	Sum of County Payments (Percent)
Coos Bay	10%
Eugene	15%
Klamath Falls	2%
Medford	28%
Roseburg	25%
Salem	20%

Source: **Table 3-187**

Table 3-197 shows what the payments would be in 2018 by district using the payments to counties data and the distribution formula from **Table 3-187** and **Table 3-189**. **Table 3-198** shows the potential effects of these payments on the 13 selected cities.

Table 3-197. County payments in 2018 (2012 dollars)

District/ Field Office	2012 Payment Under O&C Act Formula* (Dollars)	No Action (Dollars)	Alt. A (Dollars)	Alt. B (Dollars)	Alt. C (Dollars)	Alt. D (Dollars)	PRMP (Dollars)
Coos Bay	\$1,117,223	\$4,441,647	\$2,685,209	\$3,479,049	\$6,440,522	\$1,786,198	\$2,444,222
Eugene	\$1,786,387	\$7,101,984	\$4,293,522	\$5,562,836	\$10,298,091	\$2,856,046	\$3,908,196
Klamath Falls	\$273,749	\$1,088,320	\$657,946	\$852,458	\$1,578,096	\$437,665	\$598,898
Medford	\$3,246,381	\$12,906,356	\$7,802,570	\$10,109,279	\$18,714,606	\$5,190,261	\$7,102,322
Roseburg	\$2,930,517	\$11,650,603	\$7,043,401	\$9,125,674	\$16,893,725	\$4,685,263	6,411,285
Salem	\$2,344,415	\$9,320,482	\$5,634,721	\$7,300,539	\$13,514,980	\$3,748,210	\$5,129,028
Totals	\$11,698,672	\$46,509,392	\$28,117,370	\$36,429,835	\$67,440,021	\$18,703,644	\$25,593,951

* Estimated O&C payments in 2012, had county payments been based on the O&C formula that year (see discussion in Issue 3)

Table 3-198. Potential effects of county payments by community

Community	Capacity Resiliency Category	County	Share of County Payments to Each County* (Percent)	No Action (Effect)	Alt. A (Effect)	Alt. B (Effect)	Alt. C (Effect)	Alt. D (Effect)	PRMP (Effect)
Grants Pass	High	Josephine	12.1%	+++	+	++	+++	+	+
Sublimity	High	Marion	1.5%	+			+		
Junction City	Medium	Lane	15.3%	+++	++	++	+++	+	++
Molalla	Medium	Clackamas	5.6%	+	+	+	++		+
St. Helens	Medium	Columbia	2.1%	+		+	+		
Coquille	Low	Coos	5.9%	++	+	+	++		+
Florence	Low	Lane	15.3%	+++	++	++	+++	+	++
Gold Beach	Low	Curry	3.7%	+	+	+	++		+
Klamath Falls	Low	Klamath	2.3%	+		+	++		
Lincoln City	Low	Lincoln	0.4%			+			
Winston	Low	Douglas	25.1%	+++	+++	+++	+++	+	++
Drain	Very Low	Douglas	25.1%	+++	+++	+++	+++	+	++
Rogue River	Very Low	Jackson	15.7%	+++	++	++	+++	+	++

* Under the O&C Act distribution formula; see **Table 3-187**

+ = small benefit (\$0.5 million to \$2.0 million);

++ = moderate benefit (\$2.0 million to \$4.0 million);

+++ = strong benefit (>\$4.0 million).

Note: A blank cell indicates little or no effect (<\$0.5 million).

Payments to counties would increase under the alternatives and the Proposed RMP, relative to what the payments would have been in 2012 under the O&C Act formula, though the payments to counties would be less than they received in some earlier years under the SRS payments. Driven by timber harvest volumes, payments would be highest under Alternative C, followed by the No Action alternative. Payments under the Proposed RMP would be approximately \$25.6 million in 2018. See the discussion in Issue 3.

Relative to current population, the formula generally benefits the counties within districts with smaller populations. For example, counties in the Salem District, with approximately 74 percent of the planning area population, receive approximately 20 percent of the payments. This would limit beneficial effects to lower capacity resiliency communities in the Salem District such as Lincoln City. The counties in the Roseburg District (almost exclusively Douglas County), with approximately 3 percent of the planning area population, receives 25 percent. As noted under methods, the BLM assumed continuation of the current distribution formula.

The payments would benefit the counties in districts with low capacity/resiliency communities especially in the Coos Bay, Medford, Roseburg, and Eugene Districts. Examples would include Coquille, Drain, Florence, and Winston. The Klamath Falls Field Office would see some benefits, but since Klamath County receives only 2 percent of total receipts, the benefits would be small.

Under the alternatives and the Proposed RMP except Alternative C, BLM-based employment, and, as a consequence, earnings, would fall in some model areas (**Table 3-195**). In several cases, the loss of total

BLM-based earnings would be greater than the earnings from the county payments.¹⁰⁹ Payments to counties are a different kind of economic input and not directly comparable to worker earnings. However, the economic impact of earnings losses to communities with low capacity and resiliency would be substantial.

Earnings losses would exceed payments to counties under Alternatives B and D and the Proposed RMP. Under the No Action alternative and Alternative A, payments to counties would exceed earnings losses, except in the Coos Bay District under Alternative A.

Issue 6

Would the alternatives result in environmental justice impacts (disproportionally high and adverse effects on minority, low-income, or Tribal populations or communities)?

Key Points

- Employment effects to low-income populations in Coos and Curry Counties would be disproportionately negative under Alternatives A, B, and D, and the Proposed RMP. Under Alternative D, employment effects in Douglas and Klamath Counties would also be disproportionately negative. Low-income communities and Tribes in these counties would be vulnerable to these disproportionately negative effects.

Summary of Analytical Methods

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (1994) requires analyses of Federal actions to address human health and environmental conditions in minority and low-income communities, and to ensure that disproportionately high and adverse human health or environmental effects on these communities are identified and addressed.

Environmental justice refers to the “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (EPA 2007). In the context of the RMPs for Western Oregon, a potential environmental justice population is one that could experience disproportionately high and adverse human health or environmental effects from the implementation of an RMP.

To identify potential environmental justice populations, the BLM collected the most recently available population and income data for populations in the following 284 geographies in the planning area:

- 19 counties
- 161 incorporated places (i.e., cities)¹¹⁰
- 97 census-designated places (CDPs)¹¹¹
- 7 federally recognized Tribes with reservation and off-reservation trust land

¹⁰⁹ For example, under the Proposed RMP, the Coos Bay District would see a net loss in worker earnings of approximately \$28.9 million (\$54.4 million minus \$25.5 million = \$28.9 million - **Table 3-182**), but payments to Coos and Curry Counties would be \$2.4 million (**Table 3-197**).

¹¹⁰ Three of these 161 places, Bonanza, Butte Falls, and Waterloo are towns not cities, but for simplicity of presentation this analysis counts them as cities.

¹¹¹ Census Designated Places are settled concentrations of population that identifiable by name but are not legally incorporated under the laws of the state in which they are located. State and local officials and the Census Bureau delineate CDPs cooperatively.

The BLM also collected data for the State of Oregon. The State data serve as the reference for determining which local geographies contain potential environmental justice populations.

The BLM collected the population and income data from the American Community Survey. The American Community Survey is an ongoing survey by the U.S. Census Bureau that provides data every year, and provides more recent and more detailed data, compared to the decennial census. The American Community Survey gets data from a sample of the population. As a result, the data have statistical margins of error. The margins of error vary across the geography sampled with the data from smaller places generally having greater margins of error than larger places.¹¹² In addition, the American Community Survey compiles data from multiple years; the data in this analysis are from 2009–2012.

To identify potential environmental justice populations, the BLM used the following criteria, based on guidance from the Council on Environmental Quality for addressing environmental justice (CEQ 1997):

1. Geographies where the minority or Hispanic population exceeds 50 percent of the total population
2. Geographies where the minority or Hispanic population is “meaningfully greater” than the statewide minority or Hispanic population percentage. This analysis defines meaningfully greater as a minority or Hispanic population percentage that is 25 percent or higher than the statewide percentage.
3. Geographies where the percentage of the population in poverty is meaningfully greater than the statewide percentage. This analysis defines meaningfully greater as a poverty population percentage that is 25 percent or higher than the statewide percentage.
4. Geographies where the percentage of the population with low income is meaningfully greater than the statewide percentage

Minority populations include individuals that belong to one or more of the following races: African-American, American Indian, Alaska Native, Asian, Native Hawaiian, other Pacific Islander, Other race, or Multiple Races. For this analysis, the BLM summed the separate minority populations to calculate a total minority population for each geography. Minority individuals also include those identifying as Hispanic or Latino, regardless of race, and the BLM conducted a separate Hispanic or Latino population analysis.¹¹³

The population in poverty criterion uses data from the American Community Survey that identifies persons as below poverty level if that individual’s income, or family’s total income, is below a pre-defined threshold (U.S. Census Bureau 2014a).¹¹⁴ This analysis defines low-income as the percentage of the households whose income is 50 percent or less than the state median household income. For criteria 2, 3, and 4 above, this analysis defines ‘meaningfully greater’ as a population percentage that is 25 percent, or more, higher than the statewide percentage.

The scale of the decision area and the geographical breadth of the potential impacts are such that it is not possible to analyze with useful precision how the alternatives or the Proposed RMP would affect one specific geography below the county level, such as a city or CDP versus another. Instead, the analysis assumed that positive or negative effects to regions and counties would have similar effects on the local geographies within those regions and counties.

¹¹² See the U.S. Census Bureau website (<http://www.census.gov>) for more information about the American Community Survey, sampling, and margin of error.

¹¹³ The U.S. Census Bureau defines race (e.g. African-American and Asian) separately from ethnicity (Hispanic or Non-Hispanic).

¹¹⁴ Each person or family is assigned one out of 48 possible poverty thresholds that vary by size of the family and ages of the members. For example, the 2013 threshold for a family of 4 with 2 children under 18 was \$23,624.

The first step in the effects analysis was to identify any negative effects that would result from implementation of the alternatives or the Proposed RMP, and then to assess whether they would fall disproportionately on minority or low-income populations. Views of what constitutes a negative or positive impact vary depending on different perspectives and values, but this analysis assumed that increases in BLM-based employment, and the increase in earnings that would result, would be positive impacts, and that decreases in employment would be negative. Similarly, this analysis assumed that increases in payments to counties would be a positive impact, and decreases in payments to counties would be negative. The effects analysis section addresses these two types of effects on identified environmental justice populations.

The alternatives and the Proposed RMP could affect environmental justice populations in other ways. For example, dependence on a resource or use, such as access to recreation or to livestock grazing, that the Proposed RMP or alternatives would allocate or manage differently could lead to positive or negative impacts. However, such impacts would not likely result in disproportionately high and adverse effects, and the locally specific data necessary to assess such impacts at a landscape level are beyond the scope of this analysis.

The Planning Criteria provide additional detail regarding the Analytical Methods (USDI BLM 2014 pp. 149–151).

Background

Table 3-199 presents racial minority and Hispanic data for the counties in the planning area for 2000 and 2012. As of 2012, the minority population of the planning area as a whole was approximately 520,000 or 17 percent of the total population, slightly higher than the minority percentage for the State of Oregon (15 percent). Since 2000, when the planning area's minority population was 14 percent, the minority population has increased by 26 percent, though 4 counties, all in the Salem District, had minority growth rate increases above 40 percent (i.e., Linn, Polk, Washington, and Yamhill).

Table 3-199. Racial minority and Hispanic population change, 2000–2012

Geography	2012				2000				Change 2000 to 2012			
	All Minorities		Hispanic		All Minorities		Hispanic		All Minorities		Hispanic	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Oregon	563,921	15%	449,888	12%	459,776	13%	275,314	8%	104,145	23%	174,574	46%
Planning Area	519,755	17%	387,563	11%	411,827	14%	234,876	8%	107,928	26%	152,687	65%
Benton Co.	10,104	12%	5,486	6%	8,475	11%	3,645	5%	1,629	19%	1,841	38%
Clackamas Co.	38,017	10%	29,137	8%	29,539	9%	16,744	5%	8,478	29%	12,393	56%
Clatsop Co.	3,110	8%	2,820	8%	2,445	7%	1,597	4%	665	27%	1,223	70%
Columbia Co.	3,405	7%	2,035	4%	2,430	6%	1,093	3%	975	40%	942	64%
Coos Co.	5,937	9%	3,456	5%	5,039	8%	2,133	3%	898	18%	1,323	62%
Curry Co.	1,686	8%	1,258	6%	1,503	7%	761	4%	183	12%	497	56%
Douglas Co.	7,261	7%	5,042	5%	6,165	6%	3,283	3%	1,096	18%	1,759	44%
Jackson Co.	16,334	8%	21,894	11%	15,144	8%	12,126	7%	1,190	8%	9,768	61%
Josephine Co.	4,969	6%	5,274	6%	4,623	6%	3,229	4%	346	7%	2,045	50%
Klamath Co.	7,945	12%	6,990	11%	8,080	13%	4,961	8%	-135	-2%	2,029	35%
Lane Co.	37,680	11%	26,125	7%	30,231	9%	14,874	5%	7,449	25%	11,251	61%
Lincoln Co.	5,326	12%	3,662	8%	4,187	9%	2,119	5%	1,139	27%	1,543	67%
Linn Co.	9,901	8%	9,097	8%	7,010	7%	4,514	4%	2,891	41%	4,583	78%
Marion Co.	61,715	20%	76,429	24%	52,365	18%	48,714	17%	9,350	18%	27,715	42%
Multnomah Co.	158,601	22%	79,791	11%	137,661	21%	49,607	8%	20,940	15%	30,184	44%
Polk Co.	9,316	12%	9,122	12%	6,741	11%	5,480	9%	2,575	38%	3,642	38%
Tillamook Co.	1,838	7%	2,262	9%	1,490	6%	1,244	5%	348	23%	1,018	75%
Washington Co.	122,803	23%	83,085	16%	79,335	18%	49,735	11%	43,468	55%	33,350	40%
Yamhill Co.	13,807	14%	14,598	15%	9,364	11%	9,017	11%	4,443	47%	5,581	39%

Notes: Hispanic status is considered separately from racial identification.

Sources:

U.S. Census Bureau. 2014. American Community Survey, Profile of General Demographic Characteristics: 2000 Census 2000 Summary File 1 (SF 1), Table DP-1. American FactFinder, <http://factfinder2.census.gov>, (Sept 2014)

U.S. Census Bureau. 2014. American Community Survey, 2012 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701. American FactFinder, <http://factfinder2.census.gov>, (July 2014)

The Hispanic population share of the planning area population was 11 percent in 2012, which was very close to the percentage for the State as a whole (12 percent). Since 2000, the planning area’s Hispanic population increased by 65 percent. Nearly two-thirds of this increase was in three counties: Marion, Multnomah, and Washington.

The median household income in the planning area as whole in 2012 was \$51,197, a little higher than the statewide median of \$50,036 (**Table 3-200**). Household income varies considerably across the planning area. The lowest median incomes (below \$40,000) are in the southwest, in Coos, Curry, and Josephine Counties, and the highest (above \$55,000) in the north, in Clackamas, Columbia, and Washington Counties. Between 2000 and 2012, the median household income increased in all counties in the planning area. For the planning area as whole, the increase of \$8,955 was slightly lower than for the State of Oregon.

Table 3-200. Poverty population and median household income, 2000 and 2012

Geography	2000		2012		Change 2000 to 2012	
	Population in Poverty	Median Household Income	Population in Poverty	Median Household Income	Population in Poverty	Median Household Income
Oregon	388,740	\$40,916	584,059	\$50,036	195,319	\$9,120
Planning Area	341,468	\$42,242	515,861	\$51,197	174,393	\$8,955
Benton Co.	10,665	\$41,897	17,418	\$48,635	6,753	\$6,738
Clackamas Co.	21,969	\$52,080	36,265	\$63,951	14,296	\$11,871
Clatsop Co.	4,625	\$36,301	5,725	\$44,330	1,100	\$8,029
Columbia Co.	3,910	\$45,797	6,797	\$55,358	2,887	\$9,561
Coos Co.	9,257	\$31,542	10,661	\$37,853	1,404	\$6,311
Curry Co.	2,554	\$30,117	3,048	\$38,401	494	\$8,284
Douglas Co.	12,999	\$33,223	18,777	\$40,096	5,778	\$6,873
Jackson Co.	22,269	\$36,461	33,346	\$43,664	11,077	\$7,203
Josephine Co.	11,193	\$31,229	16,301	\$36,699	5,108	\$5,470
Klamath Co.	10,515	\$31,537	12,143	\$41,066	1,628	\$9,529
Lane Co.	45,423	\$36,942	64,705	\$42,628	19,282	\$5,686
Lincoln Co.	6,084	\$32,769	7,262	\$41,996	1,178	\$9,227
Linn Co.	11,618	\$37,518	19,237	\$47,129	7,619	\$9,611
Marion Co.	37,104	\$40,314	55,223	\$46,654	18,119	\$6,340
Multnomah Co.	81,711	\$41,278	123,434	\$51,582	41,723	\$10,304
Polk Co.	6,943	\$42,311	10,788	\$52,365	3,845	\$10,054
Tillamook Co.	2,718	\$34,269	4,197	\$41,869	1,479	\$7,600
Washington Co.	32,575	\$52,122	57,466	\$64,375	24,891	\$12,253
Yamhill Co.	7,336	\$44,111	13,068	\$53,950	5,732	\$9,839

Sources:

U.S. Census Bureau. 2014. American Community Survey, Profile of Selected Economic Characteristics: 2000 Census 2000 Summary File 3 (SF 3), Table DP-3. American FactFinder, <http://factfinder2.census.gov>, (Sept 2014)

U.S. Census Bureau. 2014. American Community Survey, 2012 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701. American FactFinder, <http://factfinder2.census.gov>, (July 2014)

Affected Environment

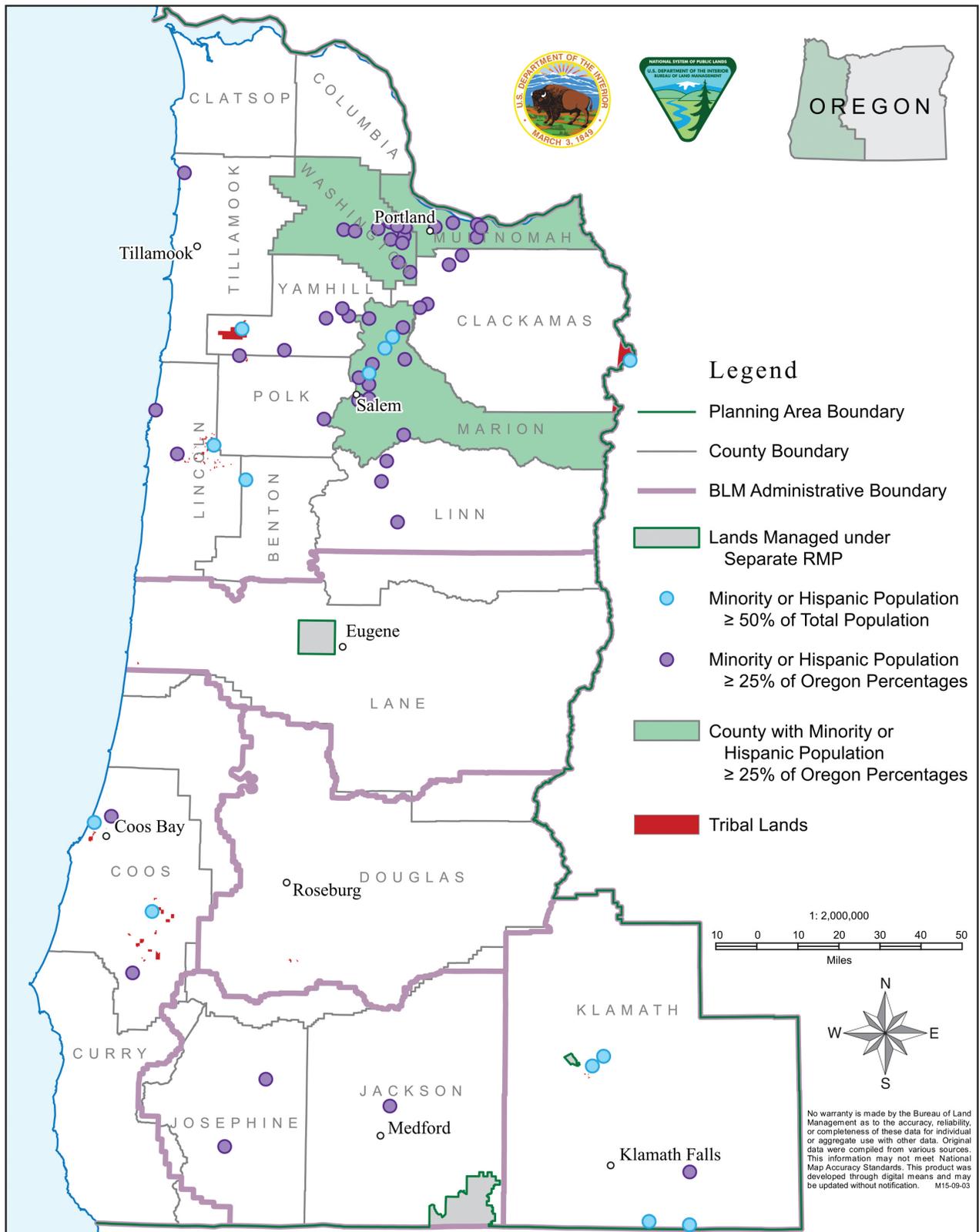
Minority Populations

Table 3-201 summarizes the data for minority populations in the planning area. **Map 3-8** shows their locations. **Appendix P** contains the data for all the minority population geographies in the planning area.

Table 3-201. Summary of minority populations meeting environmental justice criteria

Geography	Number of Geographies					
	50 Percent Criterion	Additional Meaningfully Greater Criterion	Total, Both Criteria			
Counties	-	3	3			
Cities	5	29	34			
CDPs	2	19	21			
Tribes	6	-	6			
Totals	13	51	64			
Population	Population					
	Total	Minority	Total	Minority	Total	Minority
Counties			1,584,319	343,119	1,584,319	343,119
Cities	28,637	16,718	86,766	21,028	115,403	37,746
CDPs	261	146	15,286	4,457	15,547	4,603
Tribes	5,247	4,647			5,247	4,647
Totals	34,145	21,511	1,686,371	368,604	1,720,516	390,115

Notes: Population numbers for cities and CDPs do not include those cities in Marion, Multnomah, and Washington Counties.
Sources: BLM staff compiled from: U.S. Census Bureau, American Community Survey, 2012, 2011, 2010, 2009. **Appendix P** contains more detailed source descriptions.



Map 3-8: Minority Populations and Counties within the Planning Area

Note: BLM administrative boundaries, counties, and Tribal lands are shown for reference.

50 Percent Criterion

Thirteen geographies meet the 50 percent criterion, (i.e., the racial minority or Hispanic population exceeds 50 percent of the total population). In total, these 13 geographies contain approximately 34,100 people, or approximately 1 percent of the total population of the planning area.

None of the 19 counties as a whole meets the 50 percent criterion.

Six of the seven Tribal land areas meet the criterion. The only Tribe not meeting the criterion is the Cow Creek Band of Umpqua Tribe of Indians. Note that the data for the Tribes have limitations. First, as noted in the Summary of Analytical Methods for Issue 5, the American Community Survey uses data derived from a sample of the population, and is not a 100 percent count. These data are subject to sampling error, and, in addition, some of the Tribes have very small populations (e.g., less than 30 persons) living on Tribal lands, thereby compounding the potential for error.

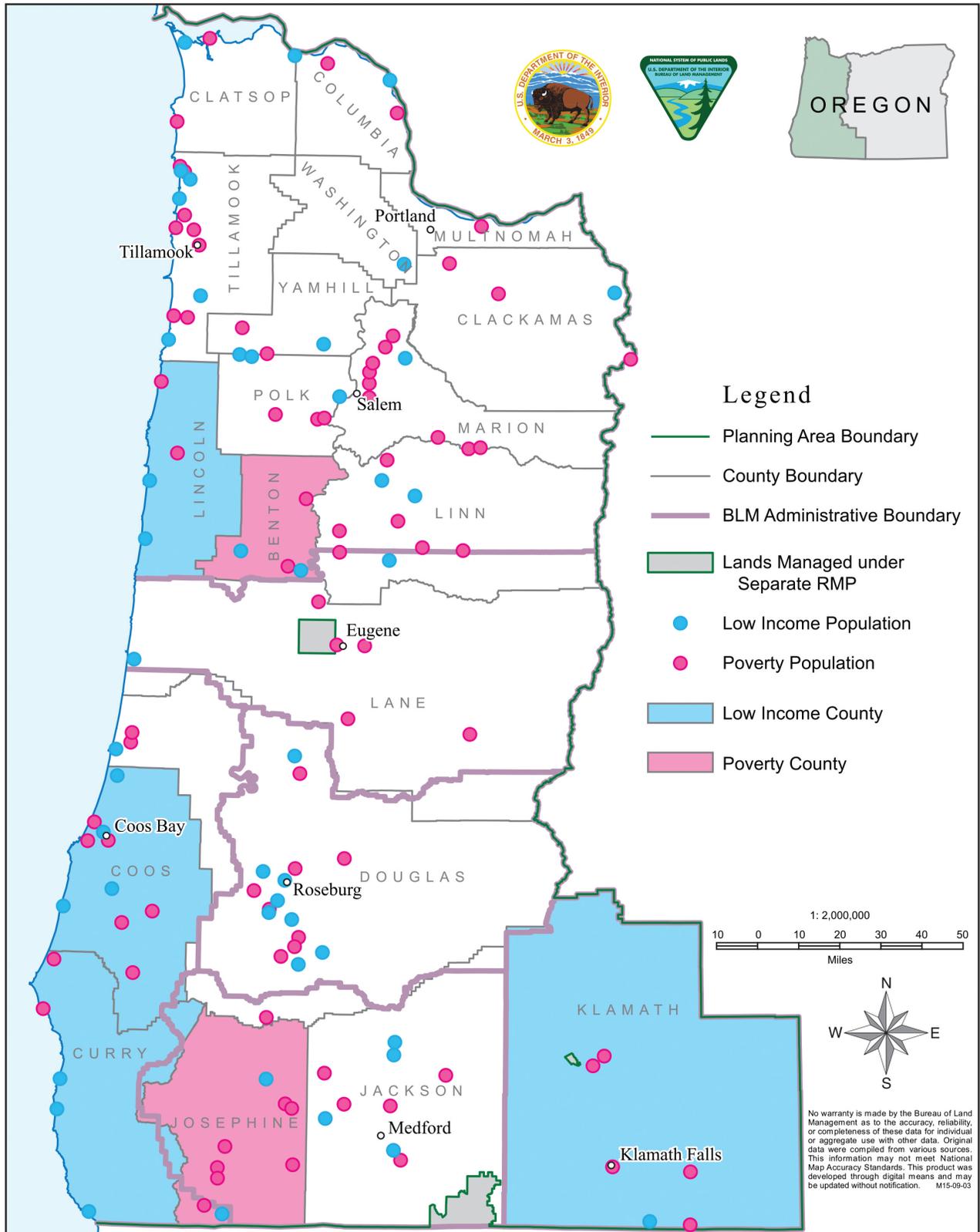
In particular, with respect to the Cow Creek Band of Umpqua Tribe of Indians, this potential for error is further compounded by the fact that the most recent available American Community Survey data was from 2009. In addition, the population on reservation and off-reservation trust land is not the entire Tribal membership. The U.S. Census Bureau does not collect data for the entirety of a Tribe's members. Some of the Tribes commented on this as part of the capacity/resiliency analysis, expressing concerns specifically with the lack of accuracy of the American Community Survey information as representative of their Tribal populations. Tribes were unable, however, to provide the BLM with population data that more accurately presented their members. As such, the BLM used this American Community Survey information, but acknowledges the uncertainties and inaccuracies in the analysis.

Seven other geographies meet the criterion: Summit CDP in Benton County; Chiloquin, Malin, and Merrill City in Klamath County; and Gervais, Woodburn, and Labish Village CDP in Marion County. Of these, five meet the criterion based on their Hispanic populations, and three meet the criterion based on their non-Hispanic minority populations.¹¹⁵

Meaningfully Greater Criterion

Fifty-one geographies, in addition to the 13 above, meet the meaningfully greater criterion, (i.e., the minority or Hispanic population is 25 percent or higher than the statewide percentages). The statewide percentages are 15 percent minority and 12 percent Hispanic. These geographies include 3 counties, 29 cities, and 19 CDPs. The three counties are Marion, Multnomah, and Washington (**Table 3-201** and **Map 3-9**).

¹¹⁵ Labish Village in Marion County meets the criterion based on both its Hispanic and non-Hispanic minority populations.



Map 3-9: Low Income and Poverty Populations and Counties within the Planning Area

Note: BLM administrative boundaries, county boundaries, and Tribal lands are shown for reference.

Of the 48 cities and CDPs with meaningfully greater populations, 42 are in the Salem District, mostly along the I-5 corridor between Salem and Portland, and in the Portland metropolitan area itself.

Total, Both Criteria

In total, 64 geographies meet one or both of the criteria. These geographies contain approximately 1.72 million people, or approximately 50 percent of the total population of the planning area (approximately 3.4 million). Of the 1.72 million, approximately 390,000 are minority persons and approximately 199,000 are Hispanic (some of whom could also be non-Hispanic minority persons, such as Black Hispanics). The City of Portland, with a 22 percent minority population, accounts for approximately 586,000 of the 1.72 million, or 34 percent.

Low-income Populations

Table 3-202 presents data for low-income populations in the planning area as of 2012. **Map 3-9** shows their locations. **Appendix P** contains the data for all the low-income population geographies in the planning area.

Table 3-202. Summary of low-income populations meeting environmental justice criteria

Geography	Number of Geographies		
	Poverty	Additional Low-Income	Totals
Counties	2	4	6
Cities	45	18	63
CDPs	31	16	47
Tribes	5	1	6
Totals	83	39	122
	Population		
Counties	33,719	17,249	50,968
Cities	84,977	7,688	92,665
CDPS	15,903	630	16,533
Tribes	1,281	5	1,286
Totals	135,880	25,571	161,451

Note: To avoid double counting, the populations for additional low-income geographies exclude the populations counted as poverty.

Sources: BLM staff compiled from: U.S. Census Bureau, American Community Survey, 2012, 2011, 2010, 2009. **Appendix P** contains more detailed source descriptions.

Poverty Criterion

A total of 83 geographies meet the poverty criterion, (i.e., the percentage of residents in poverty is 25 percent or higher than the statewide percentage, which is 15 percent). These geographies comprise 2 counties (Benton and Josephine), 45 cities, 31 CDPs, and 5 of the Tribes. The total population of these 83 geographies is approximately 992,000 (29 percent of the planning area population). The number of people in poverty within the 83 geographies is approximately 136,000.

The poverty populations are scattered throughout the planning area and can be found in every county and BLM district (**Map 3-9**).

Low-income Criterion

Thirty-nine geographies meet the low-income criterion, i.e., the percentage of residents with income 50 percent or less than the state median household income is 25 percent or higher than the statewide percentage, which is 24 percent.

These geographies are all in addition to the 83 geographies meeting the poverty criterion, and include 4 counties, 18 cities, 16 CDPs, and 1 Tribe. The four counties are Coos, Curry, Klamath, and Lincoln. The number of additional people with low income within these 39 geographies is approximately 25,600.

Environmental Consequences

Minority Populations

The Affected Environment section identified three counties (Washington, Multnomah, and Marion) that meet the environmental justice criteria because of their minority populations; these 3 counties also contain 31 of the 55 minority cities and CDPs that meet environmental justice criteria. Altogether, the Salem District contained 43 of the 55 minority cities and CDPs plus 3 of the 7 Tribal land areas. The other 12 minority populations are scattered across the Klamath Falls Field Office, and the Coos Bay and Medford Districts.

To assess whether the alternatives or the Proposed RMP would disproportionately affect minority communities negatively, the BLM assessed whether any of the alternatives or the Proposed RMP would lead to disproportionately fewer BLM-based jobs in the Salem model area or lower payments to counties in the Salem District compared to the other districts.

The Salem model areas would gain in employment under Alternatives A, B, and C and under the Proposed RMP, so the impacts on employment would be beneficial (**Table 3-194**). Under the No Action Alternative, the Salem model areas would be the only area with job losses, though the losses would be modest (3 percent in the Portland MSA model area and 1 percent in the Salem-Other (more rural) model area. Under Alternative D, employment would increase in the Portland MSA area but decrease by three percent in the Salem-Other area (**Table 3-194**). However, the decrease in employment under Alternative D would be higher in the other three model areas that would experience decreases in BLM-related employment (-13 percent in the Roseburg area, -46 percent in the Coos Bay area, and -15 percent in the Klamath Falls area). Therefore, there would be no disproportionately negative effects on employment in minority counties. However, minority populations in the Coos Bay area could experience negative effects related to jobs under the Proposed RMP.

The BLM also assessed whether there would be any disproportionately negative effects on minority populations due to changes in payments to counties under the Proposed RMP or alternatives. Under the alternatives and the Proposed RMP, every county would receive higher payments under the O&C Act formula in both 2018 and 2028 than they would have received in 2012 under the O&C Act-based formula (**Table 3-189**). Therefore, there would be no disproportionately negative impacts because of changes in county payments.

Low-income Populations

The Affected Environment section identified 116 geographies that meet the low-income environmental justice criteria: 6 counties, 110 cities or CDPs, and 6 Tribes. Unlike the minority populations, which are concentrated in three counties, the low-income analysis showed that low-income populations are spread

out more widely across the planning area, making the analysis of potential effects more complex (see **Map 3-8** and **Map 3-9**).

BLM-based total employment would increase in 2018 under the alternatives and the Proposed RMP compared to 2012. However, some of the alternatives and the Proposed RMP would result in reductions in BLM-based employment in some model areas (**Table 3-194**). Three areas would experience the largest decreases (13–46 percent): Coos Bay, the Klamath Falls, and Roseburg areas. Under Alternatives A and D, employment would decrease in all three areas. Under the No Action alternative and under Alternative B, employment would decrease in the Coos Bay area only. Under the Proposed RMP, the Coos Bay area would experience a large decrease employment (-39% or approximately 500 jobs), but employment effects would be positive in all other areas.

The counties within Coos Bay District, the Klamath Falls Field Office, and Roseburg District are Coos, Curry, Klamath, and Douglas Counties. Three of these counties meet the low-income environmental justice criteria, and the fourth (Douglas) is within 1 percent of the low-income threshold, and contains 14 cities or CDPs meeting the low-income environmental justice criteria.¹¹⁶ In total, four of the six low-income counties in the planning area are in this southern part of the planning area.¹¹⁷

The BLM concludes that employment effects in Coos and Curry Counties would be disproportionately negative under Alternatives A, B and D, and the Proposed RMP, with greater negative effects under Alternative D and the Proposed RMP. Under Alternative D, employment effects in Douglas and Klamath Counties would also be disproportionately negative. Low-income cities, CDPs and Tribes in these counties would also be vulnerable to these disproportionately negative effects.

Under the alternatives and the Proposed RMP, every county would receive higher payments under the O&C Act formula in both 2018 and 2028 than they would have received in 2012 (**Table 3-189**). Therefore, there would be no disproportionately negative impacts because of changes in county payments. However, the BLM notes that under the alternatives and the Proposed RMP (except Alternative C), employment and earnings would fall in some model areas, and the loss of total BLM-based earnings would in many cases be greater than the earnings from the county payments (see the discussion of county payments in Issue 5).

A key issue for the counties is how any increased payments would compare to payments under Secure Rural Schools (SRS) funding (**Table 3-185**, **Table 3-186**, and **Table 3-187**). Coos, Curry, Douglas, and Josephine Counties are the counties most dependent on the SRS funding based on the high percentages of their general funds that the SRS payments represent (25 percent to 82 percent, **Table 3-186**). Three of these counties are low-income and Douglas County is within 1 percent of the low-income threshold. The State of Oregon Business Development Department considers all four counties as distressed (see the Background section).

The future of the SRS program and distributions to counties are outside the control of the BLM and cannot be assessed in the analysis of the alternatives and the Proposed RMP. Nevertheless, the BLM notes that decreases in SRS funding since 2003 have disproportionately negatively affected these four counties (**Table 3-185**), and three of these counties would experience employment losses under some of the alternatives which could exacerbate their distressed financial condition. Under the Proposed RMP, only Coos and Curry Counties would experience employment losses.

¹¹⁶ Of the 14, 3 are in western Douglas County in the Coos Bay District.

¹¹⁷ The fourth is Josephine County (adjacent to Curry and Douglas Counties), which meets the criteria for a poverty county.

Mitigation of Environmental Justice Impacts

The BLM Land Use Planning Handbook (USDI BLM 2005) specifies how to address disproportionately high and adverse environmental justice impacts associated with the proposed action—

With the cooperation of the partners, affected minority populations, low-income communities, and Tribes, adopt and implement creative measures to eliminate, minimize, and/or correct identified Environmental Justice impacts (Appendix D, p. 12).

One option for addressing the impacts to Coos and Curry Counties is avoidance. The Draft RMP/EIS explored two alternatives (Alternative C and the No Action alternative) that would avoid the identified environmental justice impacts; however, these alternatives would not meet the purpose and need as well as the Proposed RMP. For example, the purpose of contributing to the conservation and recovery of the marbled murrelet restricts the BLM's ability to manage its land in ways that would generate more jobs in Coos and Curry Counties.

There is also scientific uncertainty associated with prediction of socioeconomic effects because social and economic systems are very dynamic rather than static. People and communities can respond to change in a number of ways. That is why the Draft RMP/EIS included an analysis of community resiliency; some communities and populations are better equipped to react to change or proactively create it. Yet even considering resiliency as a mediating variable, it is difficult to predict the effects of BLM plan implementation because many variables apart from BLM management have greater effects on employment and earnings and low-income populations in the affected counties. These variables include changes in national, state, regional, and local demographics, economies, and policies. See also the discussion of Economic Conditions in the Analysis of the Management Situation (USDI BLM 2013, pp. 2-100 – 2-110).

Public comments received on the Draft RMP/EIS also reflected a difference in beliefs regarding the nature and type of environmental justice impacts expected under the alternatives. Some commenters believed that alternatives having higher levels of timber harvest, despite having higher direct and indirect levels of employment and income, pose a cost in terms of lower property values, lower amenity values, and lower attractiveness to current and potential future residents.

Therefore, it is difficult to propose specific mitigation at this time. The BLM would monitor environmental justice effects as the RMP as implemented. The BLM will already be measuring the level and type of timber harvest, payments to counties, and changes in resource conditions. However, these measurements will not tell the BLM how low-income populations are being affected, so that a supplemental, targeted monitoring effort would be required. This monitoring, developed collaboratively with the cooperators and others, would identify and track appropriate indicators of social and economic conditions. The U.S. Forest Service's experience monitoring the socioeconomic effects of the NWFP suggest that it is difficult to link community effects to plan changes using only published information (Grinspoon and Phillips 2011; Grinspoon *et al.* in press). Therefore, the BLM would conduct primary research, such as focus groups or interviews with community residents, leaders, and others, to supplement and interpret the secondary data.

The results of the monitoring would allow the BLM and its partners to identify environmental justice impacts that have not been mitigated through the RMPs as implemented or by other means, pointing the way toward potential mitigation actions. The BLM would not allocate a specified amount of money toward mitigation of environmental justice impacts at this time, but would be committed to the monitoring effort, an open discussion of the results, and addressing environmental justice effects that can be attributed to actions taken under the Proposed RMP.

Issue 7

What would be the cost to the BLM to implement the alternatives?

Key Point

- The alternatives and the Proposed RMP (except for Alternative D) would result in an increase in the BLM's budget compared to the current budget. The Proposed RMP would result in a 6 percent increase in BLM's budget in the middle of the first decade compared to the current budget.

Summary of Notable Changes from the Draft RMP/EIS

The BLM refined the cost per Mbf of timber volume from the \$200 per Mbf average in the Draft RMP/EIS to a cost per Mbf that is unique to each district and the timber management activities for future costs under each alternative and the Proposed RMP. The BLM recalculated the costs for the No Action alternative and the action alternatives based on these refined cost values. This recalculation altered the estimates of costs by district, but did not alter the total costs across the decision area by alternative.

Summary of Analytical Methods

The BLM compiled budget information for FY 2012 for each of the five BLM districts in the planning area and for the Klamath Falls Field Office. The budget data did not include the administrative cost of the BLM's Oregon State Office, because the State Office budget would not be affected by the RMPs. The budget data also did not include the fire program, because the fire budget can fluctuate widely from year to year, depending on the extent and scale of wildfires.

The BLM estimated the portions of the districts' budgets that are attributable to the timber program under current conditions, based on 2012 timber harvest volumes and an average timber volume cost of \$200 per Mbf, a figure the State Office uses for budget estimates. This figure includes all of the work associated with preparing, offering, and administering timber sales. It includes work done by members of a timber sale interdisciplinary team, National Environmental Policy Act compliance work, overhead, etc.

To estimate the potential cost to the BLM to implement the alternatives and the Proposed RMP, the BLM applied a cost per Mbf that is unique to each district and the timber management activities under each alternative and the Proposed RMP. In order to account for the variation in harvest volume yield per acre and produce more accurate estimates of relative timber program costs by district, the BLM proportionally increased or decreased the estimated per Mbf costs by district relative to the weighted average Mbf per acre produced for each alternative and the Proposed RMP, while maintaining the overall average cost of \$200 per Mbf. Cost per Mbf ranged from a low of \$95 for the Salem District under Alternative D to a high of \$362 for the Klamath Falls Field Office under Alternative A (**Table 3-203**).

Table 3-203. Estimated timber program costs per Mbf of timber volume

District/ Field Office	No Action (Dollars/ Mbf)	Alt. A (Dollars/ Mbf)	Alt. B (Dollars/ Mbf)	Alt. C (Dollars/ Mbf)	Alt. D (Dollars/ Mbf)	PRMP (Dollars/ Mbf)
Coos Bay	\$172	\$171	\$219	\$186	\$233	\$203
Eugene	\$219	\$142	\$148	\$148	\$188	\$136
Klamath Falls	\$172	\$362	\$305	\$310	\$284	\$315
Medford	\$218	\$333	\$319	\$331	\$316	\$318
Roseburg	\$182	\$291	\$257	\$241	\$283	\$265
Salem	\$204	\$155	\$124	\$170	\$96	\$138

The BLM estimated budgets based on projected harvests for the average of the first decade. The BLM added this figure to the non-timber portion of the budget, which the BLM assumed would remain unchanged between alternatives and the Proposed RMP, consistent with the analytical assumptions set forth in the Planning Criteria. The total of the timber and non-timber portion of the budget resulted in a total BLM budget by alternative and the Proposed RMP. The BLM expressed all dollar figures in constant 2012 dollars.

Note that as a landscape-level planning effort, none of the alternatives or the Proposed RMP prescribe project-level or site-specific activities on BLM-administered lands. Further, the BLM's selection of an alternative or the Proposed RMP does not authorize funding to any specific project or activity nor does it directly tie into the agency's budget as appropriated annually through the Federal budget process. Consequently, the effects analysis does not cover non-timber resources, even though these resources do have associated management costs.

Affected Environment

The BLM's budget for the 6 districts in the planning area totaled approximately \$109.2 million in FY 2012, including labor and non-labor costs. The labor costs cover approximately 780 employees across all 6 districts (**Table 3-204**). The Medford office, which has the largest number of employees, accounts for approximately 30 percent of the total area-wide budget. Non-labor costs include items such as rent, transportation, and supplies, but the largest single component is contracts to non-BLM entities for a variety of services on BLM-administered lands.

Table 3-204. BLM budget by district, FY 2012

District/ Field Office	Employees (FTE)	Expenditures		Totals (\$ Millions)	Programmatic Breakdown	
		Labor (\$ Millions)	Non-Labor (\$ Millions)		Timber (\$ Millions)	Non-Timber (\$ Millions)
Coos Bay	109	\$9.1	\$8.0	\$17.1	\$14.2	\$2.9
Eugene	130	\$10.4	\$7.5	\$18.0	\$7.2	\$10.8
Klamath Falls	41	\$2.9	\$3.0	\$5.9	\$0.9	\$5.0
Medford	231	\$17.7	\$15.5	\$33.2	\$4.7	\$28.5
Roseburg	117	\$9.4	\$4.1	\$13.5	\$9.0	\$4.5
Salem	150	\$12.3	\$9.2	\$21.6	\$12.4	\$9.1
Totals	778	\$61.9	\$47.3	\$109.2	\$48.5	\$60.7
Totals (Percent)		57%	43%		44%	56%

Management of the BLM’s timber program in FY 2012 accounted for an estimated \$48.5 million, or 44 percent, of the total \$109.2 million budget. The remaining 56 percent covered all other programs, such as recreation, mining, fisheries, and livestock grazing.

Environmental Consequences

Table 3-205 and Table 3-206 show the estimated effects on the BLM’s staff and budget under the alternatives and the Proposed RMP and the percent change compared to current conditions. The alternatives and the Proposed RMP (except for Alternative D) would result in an increase in the BLM’s budget compared to the current budget (i.e., approximately \$109.2 million). Alternative C, with its higher projected timber harvests compared to current, would require the highest budget, approximately \$171.7 million, a 57 percent increase compared to the budget under current conditions (FY 2012). The No Action alternative would result in a 29 percent increase compared to current. Alternative D, with the lower projected timber harvests would require a lower budget, approximately 11 percent below current. The Proposed RMP would result in a budget that is about 6 percent higher than current.

Table 3-205. BLM employees by district; current condition and the average of the first decade

District/ Field Office	Current (FTE)	No Action (FTE)	Alt. A (FTE)	Alt. B (FTE)	Alt. C (FTE)	Alt. D (FTE)	PRMP (FTE)
Coos Bay	109	93	68	85	134	51	58
Eugene	130	218	142	166	243	140	150
Klamath Falls	41	45	43	50	56	45	48
Medford	231	326	285	326	349	261	310
Roseburg	117	152	110	142	221	94	132
Salem	150	174	141	141	230	101	137
Totals	778	1,008	789	911	1,234	692	835
Percent Change from Current		30%	1%	17%	59%	-11%	7%

Table 3-206. BLM budget by district; current condition and the average of the first decade

District/ Field Office	Current (\$ Millions)	No Action (\$ Millions)	Alt. A (\$ Millions)	Alt. B (\$ Millions)	Alt. C (\$ Millions)	Alt. D (\$ Millions)	PRMP (\$ Millions)
Coos Bay	\$17.1	\$14.6	\$10.7	\$13.2	\$20.9	\$8.0	\$9.0
Eugene	\$18.0	\$30.2	\$19.7	\$23.0	\$33.7	\$19.4	\$20.7
Klamath Falls	\$5.9	\$6.4	\$6.1	\$7.1	\$8.0	\$6.4	\$6.9
Medford	\$33.2	\$46.9	\$41.0	\$46.9	\$50.2	\$37.6	\$44.6
Roseburg	\$13.5	\$17.7	\$12.7	\$16.5	\$25.7	\$10.9	\$15.3
Salem	\$21.6	\$25.0	\$20.2	\$20.2	\$33.0	\$14.4	\$19.7
Totals	\$109.2	\$140.6	\$110.4	\$127.0	\$171.4	\$96.7	\$116.2
Percent Change from Current		29%	1%	16%	57%	-11%	6%

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