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# Minerals

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## Key Points

- Lands closed to salable mineral material disposal would decrease from 13 percent of the decision area under the No Action alternative to between 9 and 10 percent for the action alternatives and the Proposed RMP. The locations of these closed areas would be more widely dispersed in the action alternatives and the Proposed RMP than in the No Action alternative.
- Under the action alternatives and the Proposed RMP, the BLM would recommend for withdrawal from locatable mineral entry between 6 and 8 percent of the decision area, in addition to the 4 percent already withdrawn.
  - Almost half of lands recommended for withdrawal under the Proposed RMP are ranked as high for mineral occurrence and development. The withdrawal of these lands from locatable mineral entry would curb the development of mineral resources.
- The decision area would remain open to leasable mineral development under various stipulations in the alternatives and the Proposed RMP except where lands are already closed by legislation.

## Summary of Notable Changes from the Draft RMP/EIS

The BLM updated information on mining claims, Notices, and pending or authorized Plans of Operation in the decision area based on recent data and analysis. The analysis of areas closed to salable mineral material disposal and recommended for withdrawal from locatable mineral entry does not present acreage by specific criteria (e.g., ACECs and Recreation Management Areas) because these criteria overlap geographically, creating confusion and errors related to the acreage associated with each specific criterion. Thus, the Proposed RMP/Final EIS identifies the criteria but presents acreage by areas closed to salable mineral material disposal and recommended for withdrawal from locatable mineral entry for the alternatives and the Proposed RMP.

## Background

The BLM oversees the mineral estate on nearly 40 million acres of BLM-administered lands, U.S. Forest Service lands, and other federally administered and Indian Trust lands in Oregon. Within the decision area, the BLM manages approximately 2.5 million acres of Federal surface ownership and an additional 68,700 acres of sub-surface Federal minerals with private surface ownership. **Table 3-94** lists acres by district.

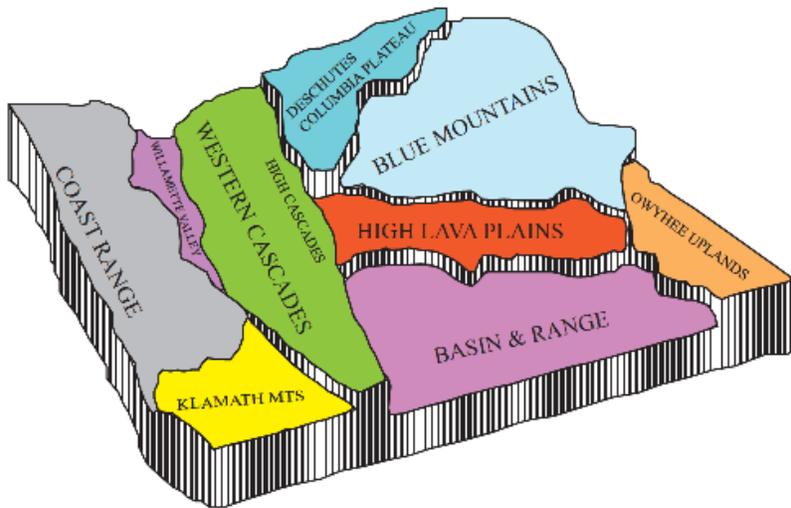
**Table 3-94.** Acres of surface and mineral estate within the decision area

District/ Field Office	Federal Surface and Mineral Estate (Acres)*	Federal Minerals and Private Surface (Acres)*
Coos Bay	329,600	12,200
Eugene	317,400	1,300
Klamath Falls	212,000	21,000
Medford	866,300	4,700
Roseburg	425,600	1,700
Salem	398,100	27,800
<b>Totals</b>	<b>2,549,000</b>	<b>68,700</b>

\* Data from the 2008 Final EIS (USDI BLM 2008) and district-specific information

### Physiography

The planning area contains five geologic physiographic regions: the Coast Range, Willamette Valley, Cascade Mountains (High and Western), Klamath Mountains, and the Basin and Range (**Figure 3-109**).<sup>80</sup> Each region's unique geology influences the mineral occurrences.



**Figure 3-109.** Physiographic regions in Oregon  
(Orr and Orr 2012)

### Mineral Resources of the Planning Area

The Oregon Department of Geology and Mineral Industries (DOGAMI) database (MILO) shows that the vast majority of mineral resources used in Oregon are common rock used in construction and road surfacing (<http://www.oregongeology.org/sub/milo/index.htm>). There are over 5,500 mapped quarry sites throughout the planning area. The MILO database shows 300 occurrences for other mineral commodities such as clay, limestone, pumice, and silica sand throughout the planning area. There are 150 occurrences

<sup>80</sup> These regions are different from the terrestrial physiographic regions described in the FEMAT Report (1993) and illustrated in **Figure 3-187**.

for coal with most sites in coastal areas concentrated around Coos Bay. In addition, the database shows 3,300 metal occurrences with gold, silver, copper, nickel, chromite, and other minerals with nearly all minerals located in southwest Oregon.

### **Coast Range Mineral Resources**

Coal seams occur throughout the Coast Range with the majority in Coos County. In the Coos Bay District, there is a coalbed natural gas area of mutual interest. The Coast Range has potential for oil and gas development. The State's first commercial gas field was located in 1979 near Mist, Oregon in Columbia County. This field has 18 wells, which have produced 65 billion cubic feet of gas. Other economically valuable minerals include beach placers containing gold and platinum in locations from Cape Blanco to Cape Arago.

### **Willamette Valley Mineral Resources**

Deeply weathered basalts with bauxite enriched with aluminum and iron occur in the Willamette Valley with the thickest deposits in Washington and Columbia counties. Limonite localities also occur in Lake Oswego. A 20-mile-wide belt of cinnabar exists in Lane, Douglas, and Jackson Counties, which has been mined for mercury, especially near the southern end of the Willamette Valley.

### **Cascade Mountains Mineral Resources**

Gold and silver have been mined in the Bohemia Mountain region south of Cottage Grove and the Quartzville and Blue River mining districts by McKenzie Bridge. The North Santiam mining district has also historically yielded copper, zinc, lead, silver, and gold. A series of hot springs (in an irregular 12-mile-wide north/south-oriented belt) mark a thermal boundary existing between the High Cascades and Western Cascades. Temperatures of the waters can range between 90 and 190 °F in certain areas. The thermal gradients of the region may represent a large potential source of renewable geothermal energy. More information is available in the Sustainable Energy section of this chapter.

### **Klamath Mountains Mineral Resources**

The Klamath Mountains has substantial mineral resources due to its geologic diversity. Mineralization is primarily attributed to tectonic plate evolution and secondarily to later plutonic intrusion. This area has historically produced gold, silver, copper, nickel, and chromite along with other minerals. Most of these minerals are closely associated with ophiolites and plutons in the areas of Ashland, Gold Hill, and Grants Pass. As much as 75 percent of the gold produced from this area has come from placers deposits. Copper was historically mined from the Josephine ophiolite near Grants Pass. Nickel was historically mined from weathered ophiolites near the town of Riddle and chromite was mined from ophiolites throughout the Klamath Mountains. Chromite-rich beach sands derived from the Klamath Mountains can be found on the southern Oregon coast.

### **Basin and Range Mineral Resources**

Historically, uranium, mercury, and borax have been produced in this area. Diatomite occurs near the Sprague River. This region has a thin crust with numerous faults and high heat flow, which creates an increased possibility for geothermal resources. More information is available in the Sustainable Energy section of this chapter.

## Issue 1

*How would the alternatives affect salable mineral material disposal?*

### Summary of Analytical Methods

The BLM evaluated how the acreage proposed for closure to salable mineral material disposal under each alternative and the Proposed RMP would affect potential future development of this resource. Under each action alternative and the Proposed RMP, the BLM would close District-Designated Reserve – Lands Managed for their Wilderness Characteristics, eligible Wild and Scenic River segments, some Areas of Critical Environmental Concern (ACECs), and some Recreation Management Areas (RMAs) to salable mineral material disposal. Upon the completion of this RMP revision, the BLM would display the areas closed to salable mineral material disposal on map(s) accompanying the approved RMP.

The BLM evaluated data supplied by LR2000,<sup>81</sup> by each district, and from the Oregon Department of Geology and Mineral Industries to determine the location of mineral material sites, which are primarily rock quarries in the decision area. The BLM determined that this data could not be utilized to predict the location of future mineral material sites. The BLM did not complete reasonably foreseeable development scenarios and Mineral Potential Reports for salable mineral materials for this Proposed EIS/Final EIS. All estimates are based on broad-scaled “trends” review, which presents professional opinion rather than a methodological approach.

The Planning Criteria, which the BLM incorporates here by reference (USDI BLM 2014, p.104), provides more detailed information on analytical assumptions, methods and techniques, and geographic and temporal scales.

### Background

Salable mineral materials include common variety quarry rock used in construction and road surfacing as well as sand and gravel, clay, and volcanic pumice and cinders. Regulations found in 43 CFR 3600 – Mineral Materials Disposal, guide the exploration, development, and disposal of mineral material resources and the protection of resources and the environment. The disposal of mineral materials includes direct sales to the public at fair market value, and issuing free-use permits to government entities or non-profit organizations. Disposal of these mineral materials is at the discretion of the BLM.

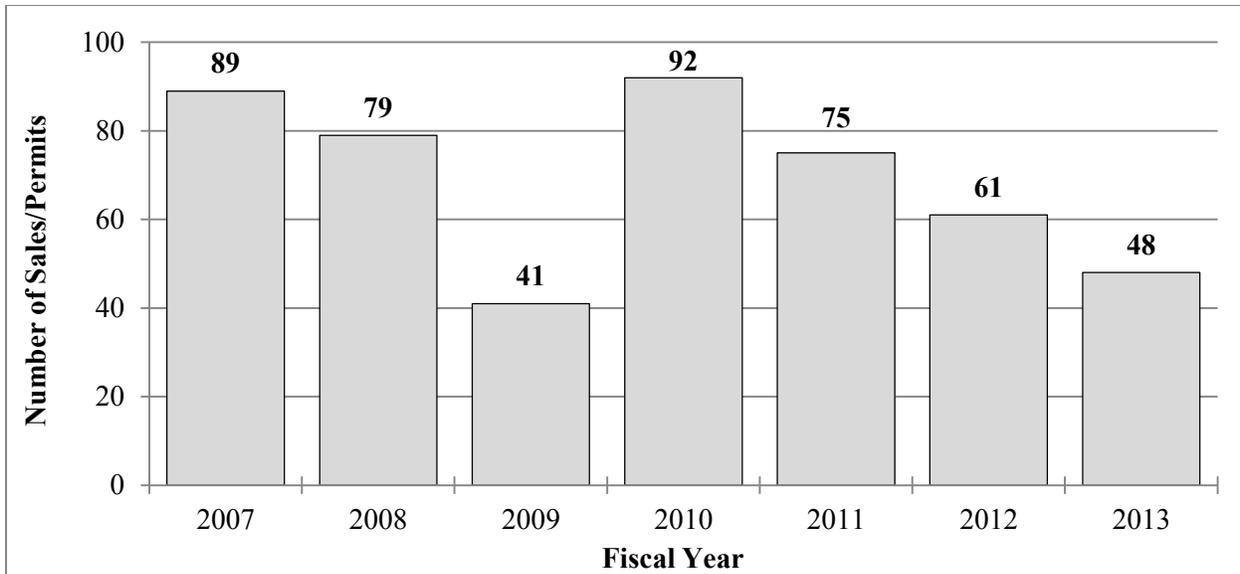
The primary salable mineral material in the decision area is quarry rock. The BLM, private companies, and local governments use the majority of this quarry rock for road surfacing. Other uses of quarry rock include rock material for fish enhancement projects, jetties, boat ramps, and reclamation projects. The BLM also disposes sand, gravel, soil, fill material, clay, volcanic pumice and cinders, and specialty stone through open sales and free use permits.

### Affected Environment

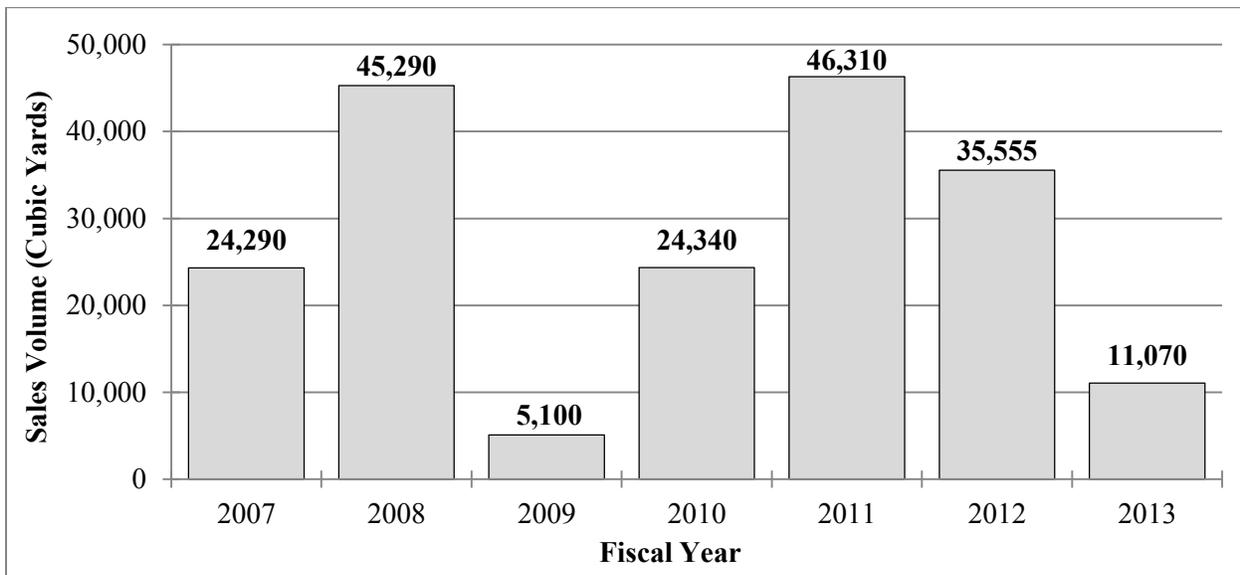
The use of mineral materials is dependent on demand by the BLM, private companies, local governments, and the public. **Figure 3-110** and **Figure 3-111** display the number of sales across the decision area and the mineral material production by cubic yard for the years 2007–2013 (LR2000).

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<sup>81</sup> LR2000 is a BLM database containing information about minerals.



**Figure 3-110.** Number of sales or permits for mineral material by year in the decision area

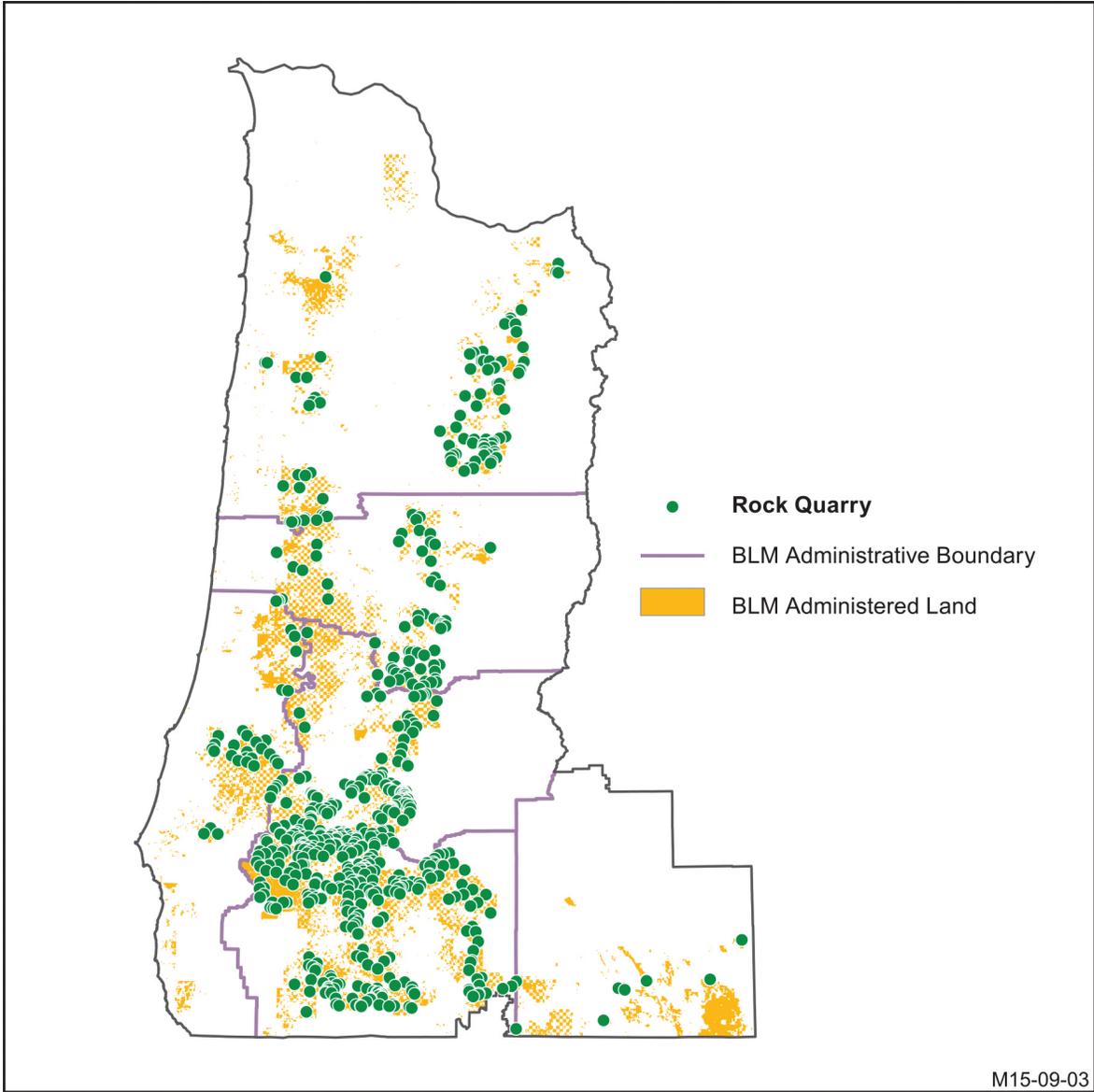


**Figure 3-111.** Sales volume of mineral material produced by years 2007–2013 in the decision area

This mineral material disposal data from 2007 to 2013 includes 192 small sales of less than 5 cubic yards each. These sales account for 40 percent of the total mineral material sales, but constitute a small fraction of the total volume of mineral material sold. These small sales are from the Medford District and represent public purchases from designated rock quarries for home landscaping projects.

There are 681 developed quarry sites in the decision area, based on the BLM inventory of existing rock quarry sites. **Figure 3-112** illustrates the spatial distribution of existing quarry sites in the decision area. The majority of these sites are hard rock quarries, though a limited number of sites produce pumice, sand, gravel, or dimension stone. Many of these sites were developed before the 1990s and have been in use intermittently. The footprint—or area of disturbance—of quarry sites is variable and ranges

approximately from 0.01 to 5 acres. A typical quarry is less than 0.5 acre in size. The BLM estimates that that approximately 25–33 percent of rock quarries are near depletion, with a few thousand cubic yards of rock remaining at each site. At some quarries, continued removal would require expansion of the existing footprint.



**Figure 3-112.** Developed quarry sites in the decision area from 2014 district inventories

The BLM does not have a complete inventory of potential rock quarry sites in the decision area. The BLM locates rock quarries based on the suitability of the available rock to meet required specifications. However, access, proximity to area of use, and environmental considerations are also important factors in determining quarry development.

**Table 3-95** shows the number of rock quarry sites in the decision area as of 2014 based on district inventories.

**Table 3-95.** Rock quarry sites in the decision area

District/ Field Office	Quarry Sites
Coos Bay	31
Eugene	87
Klamath Falls	13
Medford	250
Roseburg	203
Salem	97
<b>Total</b>	<b>681</b>

All of the salable activity previously described takes place on BLM-administered lands that are open to salable mineral material disposal. **Table 3-96** provides a breakdown by district of the acres of BLM-administered lands that are currently closed to salable mineral material disposal. Closed non-discretionary lands, which total 31,530 acres, would remain closed under the alternatives and the Proposed RMP. The Salem District has the most lands closed to discretionary salable mineral material disposal and Roseburg the least.

**Table 3-96.** Acres of lands currently closed to salable mineral material disposal (i.e., the No Action alternative)

District/ Field Office	Closed Non-discretionary*† (Acres)	Closed Discretionary*† (Acres)	Totals (Acres)
Coos Bay	600	14,700	<b>15,300</b>
Eugene	100	9,100	<b>9,200</b>
Klamath Falls	300	14,500	<b>14,800</b>
Medford	24,600	20,800	<b>45,400</b>
Roseburg	30	8,400	<b>8,430</b>
Salem	5,900	220,400	<b>226,300</b>
<b>Totals</b>	<b>31,530</b>	<b>287,900</b>	<b>319,430</b>

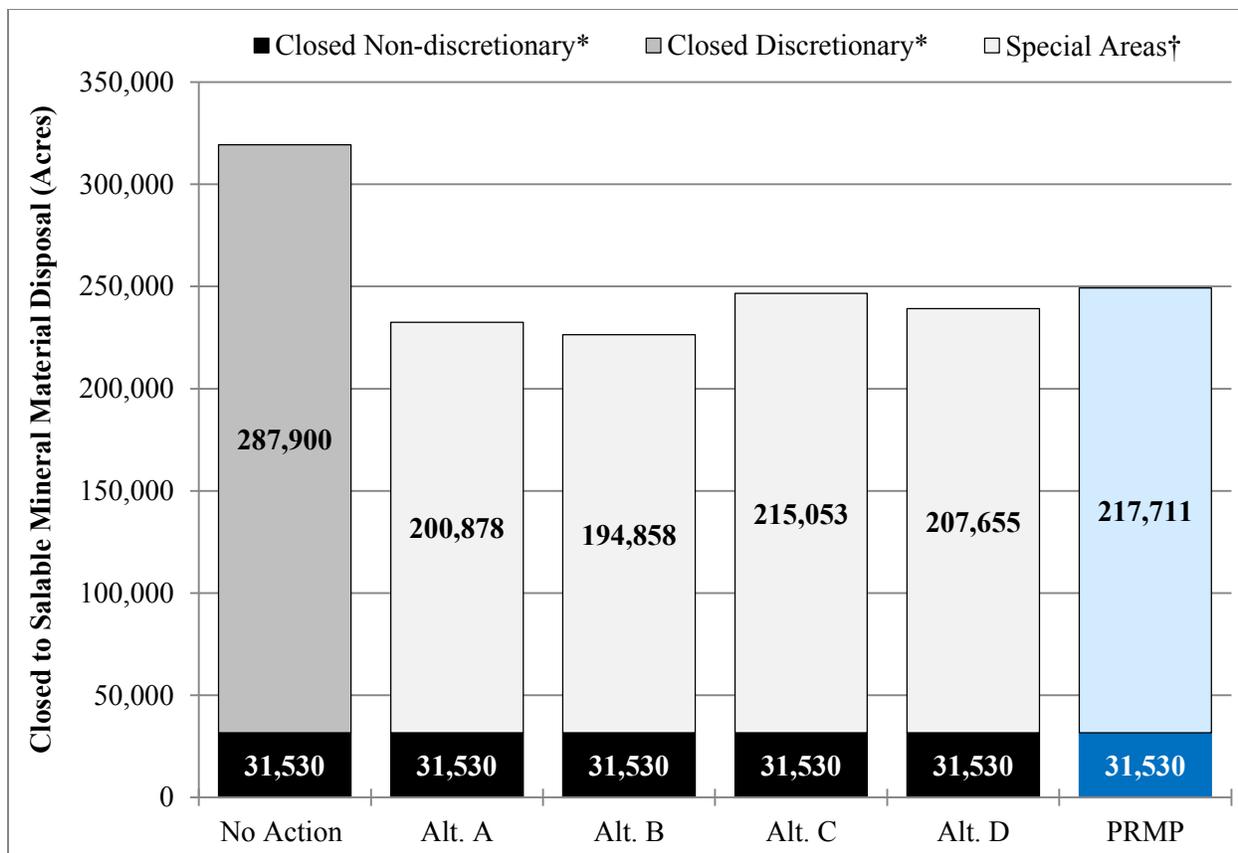
\* Legal mandates establish non-discretionary closures while a discretionary closure is the result of an agency management decision.

† Data from the 2008 Final EIS (USDI BLM 2008)

See **Appendix M** for more information regarding trends in salable mineral material developments.

## **Environmental Consequences**

**Figure 3-113** and **Table 3-97** list acres that the BLM would close to salable mineral material disposal for the alternatives and the Proposed RMP.



**Figure 3-113.** Acres closed to salable mineral material disposal in the decision area

\* Legal mandates establish non-discretionary closures while a discretionary closure is the result of an agency management decision.

† ACECs, RMAs, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible Wild and Scenic Rivers

**Table 3-97.** Acres closed to salable mineral material disposal in the decision area

Land Category	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP
Closed Discretionary* under the 1995 RMPs (Acres)	287,900					
Closed Discretionary* under the 1995 RMPs (Percent)	12%					
Special Areas† (Acres)		200,878	194,858	215,053	207,655	217,711
Special Areas† (Percent)		8%	8%	9%	9%	9%
Closed Non-discretionary* (Acres)	31,530					
Closed Non-discretionary* (Percent)	1%					
<b>Totals (Acres)</b>	<b>319,430</b>	<b>232,408</b>	<b>226,388.09</b>	<b>246,583.1</b>	<b>239,185.1</b>	<b>249,241</b>
<b>Totals (Percent)</b>	<b>13%</b>	<b>9%</b>	<b>9%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>

\* Legal mandates establish non-discretionary closures while a discretionary closure is the result of an agency management decision.

† ACECs, RMAs, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible Wild and Scenic Rivers

The action alternatives and the Proposed RMP would open more land to salable mineral material disposal than the No Action alternative. Under the No Action alternative, 13 percent of the decision area is closed to salable mineral material disposal with the majority in the Salem District (**Table 3-96**). Under the action alternatives and the Proposed RMP, the BLM would reduce the total acres closed to salable mineral material disposal to between 9 and 10 percent of the decision area (**Table 3-97**). Because of uncertainties with regard to opportunities for salable mineral material disposal on BLM-administered lands, such as location and extent, specific environmental or socioeconomic effects of increasing the acreage of lands available for salable mineral material disposal would be speculative.

Data is not readily available to display spatially the areas closed to salable mineral material disposal under the No Action alternative; therefore, a comparison map is not included in this analysis.

**Appendix F** lists each ACEC and **Appendix O** lists each RMA and each status of open or closed to salable mineral material disposal under the action alternatives and the Proposed RMP.

**Appendix M** contains a review of trends in salable mineral developments.

## **Issue 2**

*How would the alternatives affect acres of land recommended for withdrawal from locatable mineral entry?*

### **Summary of Analytical Methods**

The BLM identified by the alternatives and the Proposed RMP acres of land recommended for withdrawal from locatable mineral entry, subject to valid existing rights (see **Appendix X**). The BLM assumed that areas recommended for withdrawal from locatable mineral entry to be withdrawn for the purposes of this analysis. The BLM would make recommendations for withdrawals, but adoption of the Proposed 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 to be signed by the Secretary of Interior. Any such future withdrawals would affect only new claims and would not alter or affect valid existing claims.

The BLM ranked each ACEC, RMA, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible Wild and Scenic River (WSR) that would be recommended for withdrawal as high, medium, or low, in terms of their potential development for mineral resources. While not a Mineral Potential Report, this ranking is based on geology, mining claim density, historic mines, prospects, and occurrences. This ranking can be used to determine the potential impact to mineral development for each recommended withdrawal. Withdrawing areas ranked as high would be expected to have a greater impact to the possible development of a mineral resource than withdrawing areas ranked as low. The BLM also analyzed the potential impacts on mining claim fee revenue.

While the BLM will not complete a formal mineral potential report for locatable minerals for this RMP revision, prior to an actual withdrawal, the BLM must prepare a mineral potential report for each recommended withdrawal proposal.

The BLM estimated the historic mineral occurrence and development for each ACEC, RMA, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible WSRs that the BLM would recommend for withdrawal from locatable mineral entry under each action alternative and the Proposed RMP. For this evaluation, the BLM relied on the Mineral Resource Map of Oregon (1984) for geology, location of mineral deposits, and mining history, and on LR2000 for the number of claims per quarter section of closed and active mining claims. The rankings vary from high to low in terms of historic mineral occurrence or development.

Under the action alternatives and the Proposed RMP, the BLM would recommend areas such as ACECs, RMAs, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible WSRs for withdrawal from locatable mineral entry because locatable mineral development in such areas would conflict with or preclude management of the special values for which the BLM would designate such areas. If not withdrawn, locatable mineral development under the Mining Law of 1872 could still occur within these areas, which could result in loss of the special values for which the BLM would designate these areas through this RMP revision.

High historic mineral occurrence or development areas include—

- Regions with historic gold mining;
- Areas with laterites and beach placers that contain more than 10 active or closed mining claims;
- Areas with favorable geology for mineral production or potential and also containing more than 10 active or closed mining claims; and
- Areas with more than 30 active or closed mining claims.

Medium historic mineral occurrence or development areas include—

- Areas with favorable geology for mineral production or potential;
- Areas with laterites, beach placers, and no mining claims; and
- Areas with 1–30 active or closed mining claims.

Low historic mineral occurrence or development areas are any areas that do not fall into the high or medium categories.

The Planning Criteria, which the BLM incorporates here by reference (USDI BLM 2014, p.104), provides more detailed information on analytical assumptions, methods and techniques, and geographic and temporal scales.

## **Background**

Locatable minerals include gold, silver, copper, lead, zinc, nickel, and chromite as well as certain nonmetallic minerals determined to be uncommon such as fluor spar and certain varieties of limestone. The Mining Law of 1872 as amended gives citizens the right to prospect, explore, and develop locatable minerals on lands open to mineral entry. BLM regulations in 43 CFR 3000 – Minerals Management: General, 3700 – Multiple Use; Mining, and 3800 – Mining Claims under the General Mining Laws, establish procedures for locating mining claims and the surface management and occupancy of mining claims. Regulations include preventing unnecessary or undue degradation, compliance with Federal and state laws, and operation performance standards. Development of locatable minerals on O&C lands and Coos Bay Wagon Road lands are covered under specific regulations (43 CFR 3821).

A withdrawal from locatable mineral entry removes lands from the location of new mining claims and places certain requirements on existing mining claims for development of the minerals. After lands are withdrawn, the BLM will not approve a Plan of Operations or allow Notices to proceed until the BLM has

prepared a mineral examination report to determine mining claim validity. Cost recovery applies to this process. The action alternatives and the Proposed RMP would make recommendations for withdrawals but would not actually withdraw lands from locatable mineral entry. As explained above in Analytical Methods, the BLM does not have the authority to withdraw lands from locatable mineral entry.

Surface management regulations at 43 CFR 3809.11(c) require a Plan of Operations for any mining operations causing surface disturbance greater than casual use in some special areas, including designated ACECs, areas designated as part of the National Wilderness Preservation System, areas in the National Wild and Scenic Rivers System, and areas designated as *closed* for public motorized access (as defined in 43 CFR 8340.0–5). In addition, the regulations at 43 CFR 3809.11(c)(6) require a Plan of Operations for any mining operations causing surface disturbance greater than casual use in any lands or waters known to contain federally proposed or ESA-listed threatened or endangered species or their proposed or designated critical habitat, unless BLM allows for other action under a formal land-use plan or threatened or endangered species recovery plan.

The Proposed RMP, pursuant to 43 CFR 3809.11(c)(6), would create two exceptions to the requirement such that a Plan of Operations is required for any mining activities greater than casual use such as Notice-level operations when the activities are located within lands or waters known to contain federally proposed or ESA-listed threatened or endangered species or their proposed or designated critical habitat. Under the Proposed RMP, an operator would not be required to submit a Plan of Operations for Notice-level activities in the following two situations:

- When pursuant to Section 7 of the ESA, the BLM determines that the notice-level activity will have no effect on federally proposed or listed threatened or endangered species or their proposed or designated critical habitat
- When the BLM has completed consultation to the extent required under section 7(a)(2) of the ESA and the U.S. Fish and Wildlife Service or National Marine Fisheries Service has concurred with the BLM’s finding that the notice-level activity is not likely to adversely affect federally proposed or listed threatened or endangered species or their proposed or designated critical habitat (**Appendix B**)

In contrast, the action alternatives would allow Notice-level mining proposals located in lands or waters known to contain federally proposed or ESA-listed threatened or endangered species or their proposed or designated critical habitat to remain a Notice if the BLM determines that the proposal would have no effect on ESA-listed species or their proposed or designated critical habitat (USDI BLM 2015, p. 923).

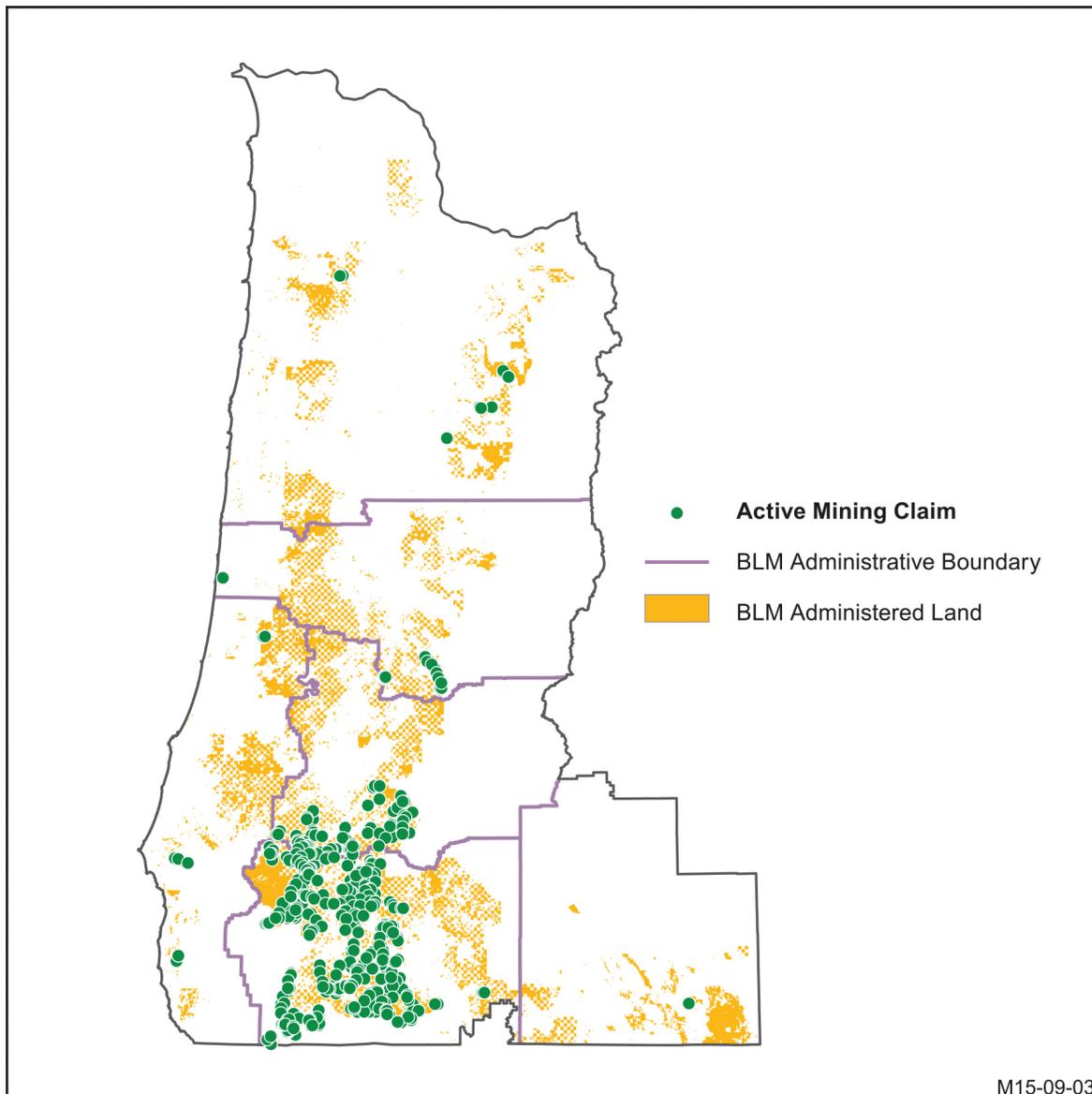
## **Affected Environment**

The planning area contains over 3,300 occurrences of locatable mineral resources and has a long history of mineral development (DOGAMI MILO). BLM mining claim records show that approximately 39,500 claims have been located on public lands in the planning area since the BLM recording requirements began with the passage of the FLPMA. The 1,292 mining claims in the decision area indicate ongoing interest in locatable minerals.

**Table 3-98** lists the number of mining claims, Notices, and pending or authorized Plans of Operation in the decision area by district. **Figure 3-114** illustrates the general locations of mining claims in the decision area.

**Table 3-98.** Mining claims, Notices, and pending or authorized Plans of Operation in the decision area as of 2015

District/ Field Office	Mining Claims	Notices	Plans of Operation- Pending or Authorized
Coos Bay	42	1	-
Eugene	47	1	-
Klamath Falls	1	-	-
Medford	1,039	21	8
Roseburg	149	-	1
Salem	14	1	-
<b>Totals</b>	<b>1,292</b>	<b>24</b>	<b>9</b>



**Figure 3-114.** Mining claims in the decision area in 2015

**Table 3-99** shows by district the 98,400 acres currently withdrawn from locatable mineral entry. These lands would continue to be withdrawn acres under the alternatives and the Proposed RMP.

**Table 3-99.** Acres of lands previously withdrawn from locatable mineral entry in the decision area

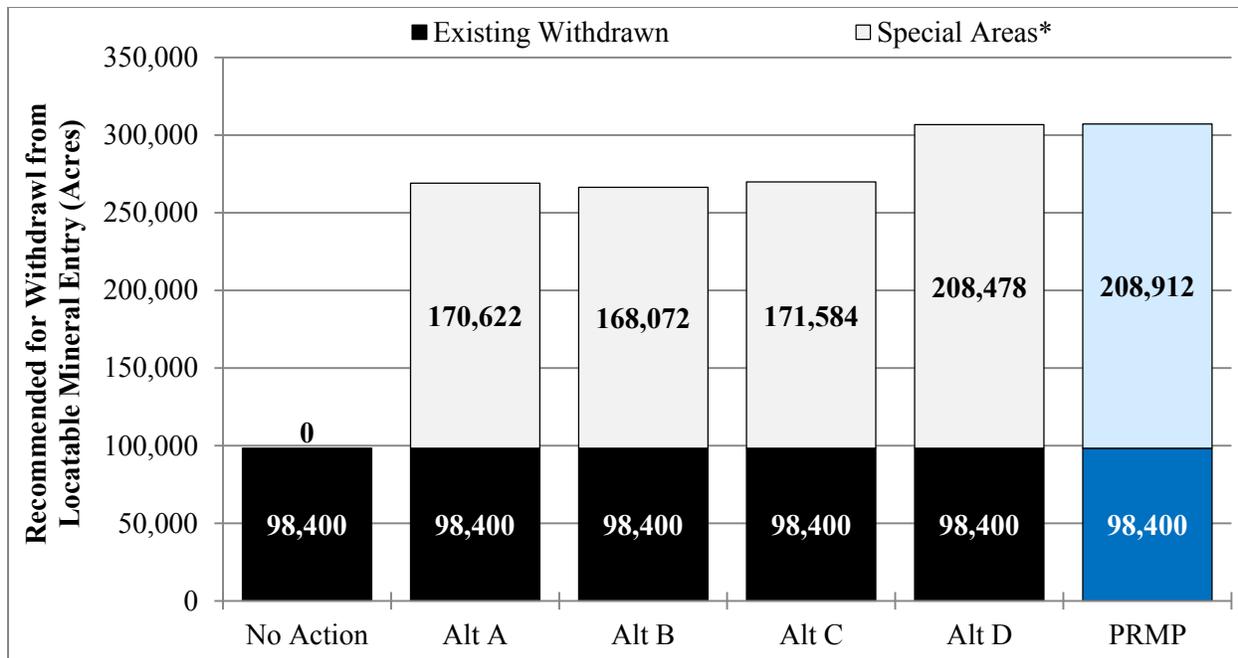
<b>District/ Field Office</b>	<b>Previously Withdrawn From Locatable Minerals (Acres)*</b>
Coos Bay	12,500
Eugene	15,700
Klamath Falls	5,400
Medford	37,600
Roseburg	5,100
Salem	22,100
<b>Total</b>	<b>98,400</b>

\* Data from the 2008 Final EIS (USDI BLM 2008)

See **Appendix M** for a description of the trends in locatable mineral developments and regulations.

## **Environmental Consequences**

**Figure 3-115** and **Table 3-100** illustrate previously withdrawn acres in addition to the acres that the BLM would recommend for withdrawal from locatable mineral entry by alternative and the Proposed RMP for ACECs, RMAs, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible WSRs.



**Figure 3-115.** Acres that the BLM would recommend for withdrawal from locatable mineral entry and previously withdrawn acres in the decision area

\* ACECs, RMAs, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible Wild and Scenic Rivers.

**Table 3-100.** Acres the BLM would recommend for withdrawal from locatable mineral entry and previously withdrawn acres in the decision area

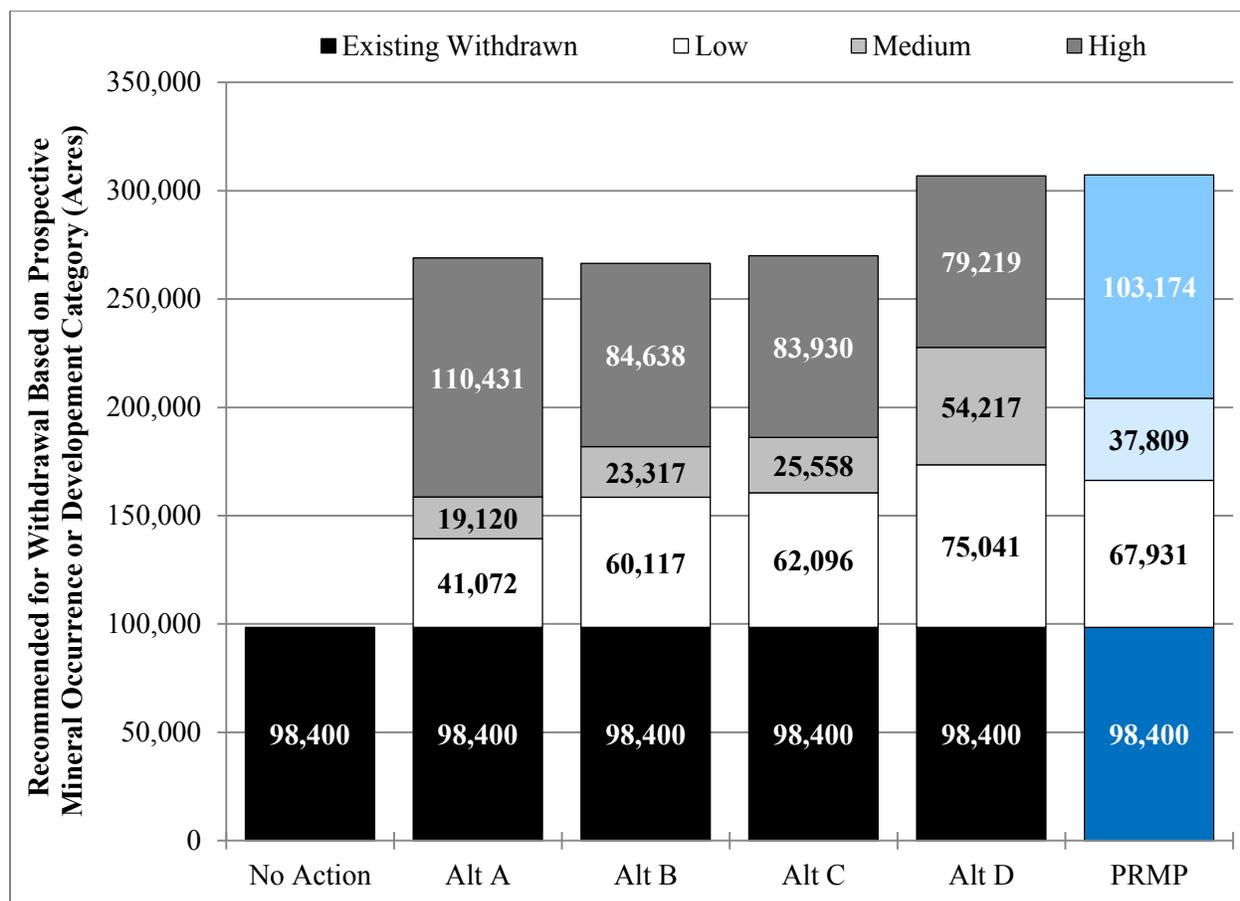
Land Category	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMP
Special Areas* (Acres)		170,622	168,072	171,584	208,478	208,912
Special Areas* (Percent)		6%	6%	6%	8%	8%
Previously Withdrawn (Acres)	98,400					
Previously Withdrawn (Percent)	4%					
<b>Totals (Acres)</b>	<b>98,400</b>	<b>269,022</b>	<b>266,472</b>	<b>269,984</b>	<b>306,878</b>	<b>307,312</b>
<b>Totals (Percent)</b>	<b>4%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>	<b>12%</b>	<b>12%</b>

\* ACECs, RMAs, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible Wild and Scenic Rivers

About 4 percent of the 2.5 million acre decision area is currently withdrawn from locatable mineral entry (**Table 3-100**). These acres would remain withdrawn under the alternatives and the Proposed RMP. Under the action alternatives and the Proposed RMP, the BLM would recommend increasing the lands withdrawn from locatable mineral entry; this increase would range from 168,072 acres under Alternative B to 208,912 acres in the Proposed RMP. Alternative D and the Proposed RMP would more than triple the acres of lands withdrawn by recommending the most acres for withdrawal. Given the variances in acreage data because of geographic overlap, there is no appreciable deviation in acreage recommended for withdrawal under Alternative D and the Proposed RMP (**Table 3-100**).

Recommending the withdrawal of an additional 6–8 percent of the decision area would affect the development of locatable mineral resources. To understand the effects of the recommended withdrawals,

the BLM ranked the estimated historic mineral occurrence or development for the acres of land for each ACEC, RMA, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible WSRs that the BLM would recommend for withdrawal under each action alternative and the Proposed RMP. **Figure 3-116** shows this ranking by alternative and the Proposed RMP with the proportion of acres that fall into each mineral ranking category (High, Medium, and Low). Existing withdrawals are not analyzed or ranked, but the acres are included in **Figure 3-116**.



**Figure 3-116.** Acres that the BLM would recommend for withdrawal, with mineral ranking of estimated prospective mineral occurrence or development for each land category (includes previously withdrawn acres)

**Figure 3-116** shows that the alternatives vary in the acreage of lands recommended for withdrawal as High for prospective mineral occurrence or development. Recommendations for withdrawal of lands ranked Medium or Low would have substantially less risk of curbing the development of known and undiscovered mineral resources. Alternative A would recommend for withdrawal of the largest acreage of lands that ranked High (110,431 acres) and Alternative D would recommend for withdrawal of the least acreage of lands that ranked High (79,219 acres). The Proposed RMP would recommend for withdrawal 103,174 acres of lands ranked High, which is approximately half of the total acres recommended for withdrawal. Removal of these High-ranked lands from locatable mineral exploration and development would influence the development of mineral resources. Although Alternative D and the Proposed RMP would recommend the largest acres for withdrawal, Alternative A would have the largest impact on the development of mineral resources, as it would recommend for withdrawal of the largest acreage of High-ranked lands.

**Appendix M** contains the estimated ranking of each ACEC, RMA, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible WSR recommended for withdrawal from locatable mineral entry.

An additional effect that would occur in association with withdrawing additional lands from locatable mineral entry is a potential reduction of revenue collected from public lands through mining claim fees paid to the government. To illustrate how this type of withdrawal would affect fees, LR2000 records list about 3,500 mining claims located in the areas that the BLM would recommend for withdrawal from locatable mineral entry under the action alternatives and the Proposed RMP. Using the current fee structure for mining claim location, this amount represents approximately \$742,000 in revenue paid to the government. In addition to these filing fees, there are mining claim maintenance fees (currently \$140 per year) that in most cases must be paid annually; however these fees are not included in this estimate. While withdrawals would not extinguish existing claims, the public cannot file new claims in lands that are withdrawn from locatable mineral entry, which results in no new fees collected. However, holders of existing claims would still pay maintenance fees as applicable.

### Issues Considered but not Analyzed in Detail

*How would the alternatives affect the acres of land with fluid leasable mineral restrictions of no surface occupancy, conditional surface use, and timing limitations?*

Site-specific stipulations such as no surface occupancy, conditional surface uses, and timing restrictions would be imposed on each lease as necessary to protect other resource values under the alternatives and the Proposed RMP. The BLM is identifying such stipulations for certain areas (**Appendix M**), but as access to fluid resources is not closed, and there are no interests in development, there would be no foreseeable effects of the alternatives and the Proposed RMP regarding mineral leasing of oil, gas, or Coalbed Natural Gas resources. The stipulation of no surface occupancy may affect geothermal resources the most. The Sustainable Energy section in this chapter contains more information.

The action alternatives and the Proposed RMP would impose fluid mineral stipulations on each ACEC, RMA, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible WSR. **Table 3-101** lists the acres for which the BLM would propose stipulations. The No Action alternative contains the most acreage with stipulations, and Alternative A would contain the least. The Proposed RMP would propose stipulations on 246,747 acres. The differences in the action alternatives and the Proposed RMP are due to differing arrangements in each alternative and the Proposed RMP across ACECs, RMAs, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible WSRs. It is important to note that while the No Action alternative acreage includes only acres to which the BLM has applied no surface occupancy stipulations, the action alternatives and the Proposed RMP acreages include all proposed stipulations to include no surface occupancy or conditional surface uses based on resource protection needs (**Appendix M**).

**Table 3-101.** Acres that would have leasable stipulations in the decision area for ACECs, RMAs, District-Designated Reserve – Lands Managed for their Wilderness Characteristics, and eligible WSRs

	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	PRMP (Acres)
Leasable stipulations	692,100*	190,389	211,638	318,915	498,525	246,747

\* The No Action alternative acres include only those acres with no surface occupancy

Acres not included in **Table 3-101** are site-specific stipulations as needed to protect ESA-listed threatened and endangered species and their critical habitats.

The BLM did not complete reasonably foreseeable development scenarios and Mineral Potential Reports for leasable minerals for this Proposed EIS/Final EIS. All estimates are based on a broad-scaled ‘trends’ review, which presents professional opinion rather than a methodological approach.

**Appendix M** includes a review in trends in leasable mineral developments and development guidance.

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