Caves
See Caving/Cave Dependent Recreation and Recreation Climbing sections for effects and limitations to caves.

Cumulative Effects

Areas of Critical Environmental Concern

Powell Buttes ACEC/RNA
Potential cumulative effects could arise with the development of a resort on private land to the west of the ACEC/RNA. Activities on or near the resort could lead to additional human use of the ACEC/RNA. If lands such as the Wogman exchange are acquired, additional access to BLM-administered lands may be provided, resulting in increased visitation to the ACEC/RNA.

Land Uses

Livestock Grazing

Summary

This section outlines the effects anticipated on the grazing management program for each of the alternatives. 4-16, below, summarizes the changes in the total animal unit months (AUMs) available in the planning area for the current situation, and for each alternative. The numbers shown are for authorized AUMs, which average 81 percent of active preference AUMs. Average is based on 1990, 1995, and 2000, compared to current situation active preference. For allotment specific information on active preference AUMs for the No Action Alternative (Alternative 1), see Appendix G.

The current situation shows only AUMs authorized for allotments where permits are currently held by a permittee. For the other alternatives, the figure also shows estimated authorized use assuming that the BLM issues permits for all forage made available by plan direction, which sometimes includes vacant allotments and parcels outside of current allotments. See assumptions section, below, for further discussion on authorized use versus active preference.

Note that Table 4-15 shows AUM disposition for Alternative 7 assuming that applicable grazing permits are relinquished. At present, only some of these permits have been relinquished (identified in Appendix G as “vacant” allotments). The “close or RFA” category is a manager discretion category.

Table 4-15: Authorized use (AUMs) in planning area available for livestock grazing (open), closed, or placed in Reserve Forage Allotment status.

	Current situation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Open	18,342	25,816	25,747	25,747	23,471	13,286	24,308	21,310
RFA	NA	NA	NA	NA	NA	NA	NA	1,998
Close or RFA	NA	NA	NA	NA	NA	NA	NA	1,781
Additional closed	NA	NA	NA	NA	NA	NA	NA	690

The above mentioned changes in areas available for grazing will affect the relative amounts of acres falling into low, moderate or high conflict or demand, as described in detail in the assumptions and analysis sections, below.

Reduced AUMs mean permittees must reduce herd size, lease other pasture and/or decrease the amount of time they graze livestock on public land. Table 4-16 shows the estimated effects the alternatives would have on the local economy. The definitions of full and limited flexibility appear in the assumptions section, below.

Assumptions

This section describes three sets of assumptions upon which the effects on the livestock grazing program are based. The first assumptions concern where the potential for conflict is greatest (and demand the least), and how these affect grazing permittees (as well as other public land users and adjacent private landowners). The second are those regarding how forage reductions directed by the various alternatives will affect grazing permittees, and how this in turn will affect the local economy. The third is other general assumptions. The assumptions section also includes a discussion of the models or formulas used to estimate conflict and demand, and a discussion of missing or incomplete information.

Conflict/Demand
The Common to All Alternatives objective for livestock grazing program management includes reducing conflicts. In the grazing section of this plan, conflict is defined as the problems that tend to increase as human uses in and adjacent to grazing allotments increase. These problems include stray livestock on busy roads and private land resulting from cut fences, inadequate fence maintenance, and failure to close gates. The more conflicts, the higher the management costs for both the permittee and the BLM, and the lower the satisfaction of the user and adjacent landowner. There is a corresponding drop in livestock operator demand for an allotment when the conflicts are high.

In Alternatives 1, 2, and 3, the assumption is made that existing and/or common to Alternatives 2-7 guidance will adequately solve conflicts, and that grazing permittees, recreationists, and other public land users and adjacent private landowners can make adjustments as needed to lessen conflicts. In Alternatives 4-7, the assumption is that Common to Alternatives 2-7 guidance does not go far enough in solving conflicts, and in some areas the preferred solution is to discontinue livestock grazing.

In Alternative 7, the definition of conflict is expanded to include an ecological conflict criterion. This criterion does not replace existing guidance (Standards for Rangeland Health, etc.), which adequately direct monitoring and assessment of ecological factors. Instead, it provides a quick estimate of the potential for ecological conflicts with livestock grazing and provides a way for BLM decision makers to integrate potential social, economic and ecological criteria when making decisions about livestock grazing use in an area.

Table 4-16: Change (percent) in cattle/calf sales in relation to total for Crook and Deschutes Counties, assuming permittees have full or limited flexibility to utilize other forage sources

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Full flexibility	Baseline	- 0.01	- 0.01	- 0.39	- 2.11	- 0.25	- 0.76
Limited flexibility	Baseline	- 0.05	- 0.05	- 1.58	- 8.44	- 1.02	- 3.04

Effects of the various alternatives can be assessed by comparing the relative amount of acres with Low, Moderate, or High potential for conflict or demand. Models are used in this analysis to estimate which allotments have the highest potential for conflict. The estimates are then used to make decisions about where conflicts might be high enough to warrant modification or discontinuance of grazing. The models used in this analysis to estimate conflict and demand are described in detail in Chapter 2.

Forage availability changes

The alternatives present a range of solutions for reducing conflict, some of which involve making some allotments unavailable for livestock grazing. Grazing reductions are temporary, for the life of the plan only, and would be re-evaluated at the next planning cycle.

One assumption is that closing an area to grazing is one way to reduce conflicts. In Alternative 7, some allotments are placed in Reserve Forage Allotment status, which is also assumed to reduce conflicts, as the allotment is not likely to be grazed as frequently as before. Also, grazing can be shifted from a higher conflict area to an RFA, which has the potential to reduce conflict and increase permittee flexibility to deal with forage losses.

Permittees respond to loss of public AUMs by increasing productivity on base properties, purchasing or leasing alternate pasture, buying hay and feeding on owned or leased land, or by selling all or a portion of their herd. Permittee's options are more flexible when they have a larger ratio of owned/leased pasture versus public land, when there is leasable pasture nearby and/or the permittee can easily/cheaply haul animals to new pasture, when there are few seasonal restrictions on public and private land they graze, or when they ranch as a "hobby" and can afford the increased costs of alternate pasture/feed sources.

The economic analysis estimates the range of effects under both full-flexibility and limited flexibility scenarios. Neither scenario represents all permittees, and actual effects will be dependent on the private business decisions made by individual permittees based on their individual circumstances.

A permittee's ability to withstand AUM losses depends on his reliance on federal forage. Reliance is high when permittee's private land acreage is low, or his ability to haul livestock to alternate pastures is low. For the planning area, these conditions are usually met, meaning reliance is high. Most permittees in the planning area have little private land, probably generally 160 -1,000 acres. They run few livestock (most have less than 50 head), so they are unlikely to be able to bear the cost of shipping livestock to other available pasture.

We do not know the permittees' dependence on federal forage, so we do not know how AUM losses would affect individual permittee's overall grazing operation. A high dependence would make it more likely that AUM losses would cause the permittee to cease grazing altogether, perhaps even selling his private property if the only income came from livestock grazing. A permittee with low dependence on federal forage could more easily absorb AUM losses with no change to his overall grazing operation.

Most Alternative 7 forage reductions would not take place unless the grazing permittee voluntarily relinquishes his/her permit. This is assumed to reduce effects on the individual permittee, though the impact on the local economy would be the same as if the closure were forced.

Authorized use was used to compare alternatives because it more accurately reflects use than does active preference. Active preference is generally the maximum available on a specific permit, while authorized use is the forage actually applied for and used.

Authorized AUMs for the current situation are displayed but B/LP RMP direction is used for comparison with UDRMP alternatives. This is because the amount of vacant and unallocated AUMs in the current situation is not necessarily typical, since the BLM has deferred requests for permits for these parcels pending completion of the UDRMP. For analysis purposes, B/LP direction is assumed to more accurately reflect baseline conditions of the No Action Alternative.

The No Action Alternative (Alternative 1) assumes that demand exists for currently available but unallotted AUMs, and permits will be issued following completion of the RMP, consistent with existing management direction.

The action alternatives are compared to the No Action Alternative to display the differences in future outcomes by alternative relative to the projected outcome under continued implementation of existing management direction.

The economic analysis uses the 1998-2002 average cattle/calves inventory for Deschutes and Crook Counties (Jefferson and Klamath represent small portions of the planning area and are not included in this number), less calves inventory of about 40 percent (to be consistent with BLM, which counts each cow-calf pair as one AUM). This is 49,484 AUMs, of which the BLM current authorized use of 18,342 represents 3.09 percent. The average length of the grazing season was assumed to be three months. Historic records indicate the 1998-2002 average value of cattle and calf sales in Crook and Deschutes Counties was $25,991,000 (Oregon State University Extension Service, Oregon Agricultural Information Network, 2003, http://ludwig.arec/edu/oain/).

Effects of the various alternatives can be assessed by comparing estimated authorized use across the alternatives, displayed above in Table 4 - 16, calculating how the AUM changes relate to cow/calf sales, and putting these changes in perspective with the total cow/calf sales in the local economy.

Other Assumptions

Since this plan does not propose changes in livestock grazing intensity or season of use, and existing guidance (Standards for Rangeland Health, Clean Water Act, others) direct BLM to assess and change management to address problems, the ecological effects of livestock grazing are generally not reviewed in this plan. The Standards for Rangeland Health provide a system to monitor and assess and make changes (see further discussion in Common to All Alternatives guidance). A study (Rowe *et al.*., 2001) in a rapidly developing area in Colorado examined the factors influencing ranchers who graze on public land to sell their base property (private land to which the grazing privileges are attached). "Since ranch land is often the primary target for subdivision, ranchers play an important role in this pattern of land use change," say the authors. A rancher's decision to sell is affected by changes in federal grazing policy, local land-use planning efforts, and development of surrounding land. Changes in zoning and development can raise property values, increase taxes, and require more frequent checks of gates, fences, and livestock. But the decision is also influenced by non-economic factors, say the authors. "Ranchers continue to ranch despite financial difficulties. They stay because of...sense of place, attractiveness of lifestyle, family values, and tradition."

Incomplete or unavailable data

In some cases, constructing a new fence to discontinue livestock grazing in an area of potential "conflicts" might not be consistent with other management objectives. In these cases it might be necessary to close the entire pasture to livestock grazing, affecting more acres/AUMs/permittees than shown in the present analysis. Site-specific analysis would be necessary to determine if the larger closure areas were justified.

The effect of limiting livestock use after vegetation/soil disturbances is unknown. The location of disturbances and the site-specific conditions are not known, thus the exact limitations are unknown, and therefore, the effects are unknown.

The AUM reductions for Alternatives 2-6 would be implemented two years from publication of the FEIS, or immediately upon approval of the RMP for those permittees who waive their rights to 2-year notice (43 CFR 4110.4-2). The AUM reductions in Alternative 7 would be implemented immediately upon approval of the RMP for "vacant" allotments in the "close" category, and upon voluntary permit relinquishment for other allotments in the "close" category. Allotments would be placed in RFA status immediately upon approval of the RMP for "vacant" allotments in the "RFA" category, and upon voluntary permit relinquishment for other allotments in the "RFA" category. "Vacant" allotments in the "Close or RFA" or "Open or RFA" categories would be closed or placed in RFA status, respectively, immediately upon approval of the RMP. Other allotments in these two categories would be closed, placed in RFA status, or left open at the time the permits were relinquished, following decision-maker review of the issues for the particular allotment.

As conditions such as county zoning, open/closed range, and special status species habitat change over the life of the RMP, the outcome of Alternatives 4, 5, 6 and 7 would change, placing more allotments into close or RFA status. It is not clear where or how fast conditions will change, so we have not predicted how these changes will affect the outcome.

Analysis of the Alternatives

Common to All Alternatives
Under all alternatives, livestock grazing would continue to be allowed in the planning area, with authorized use expected to be at least 72 percent of current authorized use, or at least 50 percent of Alternative 1 direction. In all alternatives, allotment monitoring, evaluation, and rangeland health assessments (and subsequent site-specific analysis) may result in changes in forage allocation and season of livestock use, and construction of new fences, pipeline, and other range developments to meet allotment and other resource goals and objectives. All areas currently closed to grazing would stay closed in all alternatives.

Effectiveness of mitigation
Existing guidance directs BLM to modify livestock grazing where it prevents meeting any of the Standards for Rangeland Health.

Alternative 1
Livestock grazing would continue on 388,823 acres, with 25,816 AUMs. No permittees would be affected by AUM reductions, as there would be no reductions other than those occurring as a result of Common to All Actions.

Direct
Livestock grazing would continue to be authorized on 388,823 acres in the planning area, providing an estimated annual authorized use of 25,816 AUMs.

Indirect
Alternative 1 is the baseline to which other alternatives are compared. Note that Alternative 1, the No Action Alternative, is not the same as the current situation. Alternative 1 represents an estimated increase of 7,474 AUMs authorized use from the current situation, and a corresponding increase in livestock sales of 1.26 to 5.03 percent. Estimated sales of cattle and calves under Alternative 1 direction would increase by $327,000 to $1,308,549 from the current situation. This would increase the size of the

livestock industry within the planning area, especially in the La Pine area where the unalloted areas are located. In this alternative, BLM-administered forage would provide for just over four percent of local cow/calf sales.

There would be fewer authorized AUMs in all action alternatives than in Alternative 1.

Total management costs (BLM and grazing permittee) to patrol and/or repair fences would be greatest in Alternatives 1, 2, and 3, and least in Alternative 5.

Common to Alternatives 2-7
Livestock grazing would continue on 228,685 to 388,271 acres, with 13,286 to 25,747 AUMs. One to fifty permittees would be affected by AUM reductions, and there would be a 0.01 to 8.44 percent reduction in local cow/calf sales. Conflicts between livestock grazing and other uses would vary by alternative, from approximately the same level as in Alternative 1 in Alternatives 2 and 3, to reduced levels in Alternatives 4, 5, 6, and 7.

Direct
The action alternatives provide for additional protection for a portion of the historic canals in the Cline Buttes area, resulting in livestock grazing being excluded from about 550 acres in one allotment (Whiskey Still, #5079). Other areas would be closed to livestock grazing to reduce conflicts, but the amount would vary by alternative from zero acres to thousands of acres. Considering both the historic canal closures and the closures to reduce conflicts, the action alternatives would provide 69 to 12,530 fewer authorized AUMs than Alternative 1.

Indirect
In all action alternatives, there would be a method for estimating potential for conflict in allotments between livestock grazing and other uses. This would enable the BLM to better prioritize its response to problems.

The road proposed for Alternatives 2 - 7 (slightly shorter in Alternative 3) would mean greater gate/fence patrol and repair needs (costs).

The seasonal use restriction in allotments containing ACECs designated for Peck's milkvetch would reduce permittee flexibility in dealing with other restrictions or forage reductions.

Alternative 2
Livestock grazing would continue on 388,271 acres, with 25,747 AUMs. One permittee would be affected by AUM reductions, and there would be a very minor reduction in local cow/calf sales. Expected conflicts between livestock grazing and other uses would be similar to those expected in Alternatives 1 and 3, and more than those expected in Alternative 4, 5, 6, and 7.

Direct
Livestock grazing would continue to be authorized on 388,271 acres in the planning area, providing an estimated annual authorized use of 25,747 AUMs. This represents a less than one percent reduction in AUMs from Alternative 1. The only AUM reduction is the one to protect historic canals, as described in Common to Alternatives 2-7.

Indirect
The AUM reductions in this alternative (and Alternative 3) would be relatively minor, affecting only one permittee and less than one percent of the total AUMs in the planning area.

Total management costs (BLM and grazing permittee) to patrol and/or repair fences would be greatest in Alternatives 1, 2, and 3, and least in Alternative 5.

The effect on local livestock sales would be minimal, a 0.01 to 0.05 percent reduction, depending on permittee flexibility in securing alternate forage sources. An estimated $3,000 to $12,000 in livestock sales would be lost compared to Alternative 1. This reduction is minimal and is unlikely to have measurable effects on the local economy. In this alternative, BLM-administered forage would provide for just over four percent of local cow/calf sales.

Alternative 3
Livestock grazing would continue on 388,271 acres, with 25,747 AUMs. One permittee would be affected by AUM reductions, and there would be a very minor reduction in local cow/calf sales. Expected conflicts between livestock grazing and other uses would be similar to those expected in Alternatives 1 and 3, and more than those expected in Alternative 4, 5, 6, and 7.

Direct
Livestock grazing would continue to be authorized on 388,271 acres in the planning area, providing an estimated annual authorized use of 25,747 AUMs. This represents a less than one percent reduction in AUMs from Alternative 1. The only AUM reduction is the one to protect historic canals, as described in Common to Alternatives 2-7.

Indirect
The AUM reductions in this alternative (as in Alternative 2) would be relatively minor, affecting only one permittee and less than one percent of the total AUMs in the planning area.

Total management costs (BLM and grazing permittee) to patrol and/or repair fences would be greatest in Alternatives 1, 2, and 3, and least in Alternative 5.

The effect on local livestock sales would be minimal, a 0.01 to 0.05 percent reduction, depending on permittee flexibility in securing alternate forage sources. An estimated $3,000 to $12,000 in livestock sales would be lost compared to Alternative 1. This reduction is minimal and is unlikely to have measurable effects on the local economy. In this alternative, BLM-administered forage would provide for just over four percent of local cow/calf sales.

Alternative 4
Livestock grazing would continue on 348,394 acres, with 23,471 AUMs. Twenty permittees would be affected by AUM reductions, and there would be a 0.039 to 1.58 percent reduction in local cow/calf sales. Expected conflicts between livestock grazing and other uses would be less than those expected in Alternatives 1, 2, and 3; more than those expected in Alternative 5, and comparable to those expected in Alternative 6. The expected conflicts would probably be similar to those expected for Alternative 7, but the comparison is difficult because conflict is not defined exactly the same, and it is unknown when or how many permits would be relinquished in Alternative 7.

Direct
Livestock grazing would be discontinued in various allotments to protect historic canals (as mentioned in Common to 2-7), and to reduce conflicts with other uses. Areas where the analysis models (described fully in Chapter 2) indicate conflicts are likely to be high would be closed to grazing, as would areas where the analysis models indicate demand is likely to be low. Livestock grazing would continue to be authorized on 348,394 acres in the planning area, providing an estimated annual authorized use of 23,471 AUMs. This represents a nine percent reduction in AUMs from Alternative 1.

Indirect
About 20 permittees would lose their BLM permits and need to find alternate forage, or reduce their herds.

By discontinuing livestock grazing in allotments that exceed conflict/demand thresholds, the potential for conflicts would be reduced in this alternative (and in Alternatives 5, 6, and 7), compared to the potential for conflicts in Alternatives 1, 2, and 3. This would mean a potential decrease in BLM and grazing permittee management costs. The potential for conflicts that would remain after closures in this alternative is likely to be more than the level remaining in Alternative 5, but less than the level remaining in Alternative 6. The comparison to Alternative 7 is difficult because conflicts are defined slightly differently than in Alternatives 2-6. Fencing areas of high conflict in Alternative 4 would cost the BLM approximately $32,000 (8 miles of fence).

The effect on local livestock sales would be limited, a 0.039 to 1.58 percent reduction depending on permittee flexibility in securing alternate forage sources. An estimated $108,000 to $416,000 in livestock sales would be lost compared to Alternative 1. This reduction would impact the livestock industry but is likely to have minimal effects on the local economy. In this alternative, BLM-administered forage would provide for just less than four percent of local cow/calf sales.

Alternative 5
Livestock grazing would continue on 228,685 acres, with 13,286 AUMs. Fifty permittees would be affected by AUM reductions, and there would be a 2.11 to 8.44 percent reduction in local cow/calf sales. Expected conflicts between livestock grazing and other uses would be less than those expected in all other alternatives.

Direct
Livestock grazing would be discontinued in various allotments to protect historic canals, and to reduce conflicts with other uses. Areas where the analysis models indicate conflicts are likely to be moderate or high would be closed to grazing, as would more urban areas (see definition of urban in Chapter 2) where the analysis models indicate demand is likely to be low. Livestock grazing would continue to be authorized on 228,685 acres in the planning area, providing an estimated annual authorized use of 13,286 AUMs. This represents a 49 percent reduction in AUMs from Alternative 1, the largest reduction of any alternative.

Indirect
About 50 permittees would lose their BLM permits and need to find alternate forage, or reduce their herds.

By discontinuing livestock grazing in allotments that exceed conflict/demand thresholds, the potential for conflicts would be reduced in this alternative (and in Alternatives 4, 6, and 7), compared to the potential for conflicts in Alternatives 1, 2, and 3. This would mean a potential decrease in BLM and grazing permittee management costs. The potential for conflicts that would remain after closures in this alternative is likely to be less than the level remaining in Alternatives 4 and 6. The comparison to Alternative 7 is difficult because conflicts are defined slightly differently than in Alternatives 2-6.

Total management costs (BLM and grazing permittee) to patrol and/or repair fences would be the least in Alternative 5. However, BLM management costs may actually be highest in this alternative, since the BLM would have to take over fence maintenance in some areas formerly maintained by grazing permittees.

The effect on local livestock sales would be minimal, a 2.11 to 8.44 percent reduction depending on permittee flexibility in securing alternate forage sources. An estimated $576000 to $2,221,000 in livestock sales would be lost, compared to Alternative 1. This reduction would affect the livestock industry and is likely to have measurable effects on the local economy. These induced impacts were not quantified. In this alternative, BLM-administered forage would provide for about 2 percent of local cow/calf sales.

Alternative 6
Livestock grazing would continue on 347,522 acres, with 24,308 AUMs. Eight permittees would be affected by AUM reductions, and there would be a 0.25 to 1.02 percent reduction in local cow/calf sales. Expected conflicts between livestock grazing and other uses would be less than those expected in Alternatives 1, 2, and 3; more than those expected in Alternative 5, and comparable to those expected in Alternative 4. The expected conflicts would probably be similar to those expected for Alternative 7, but the comparison is difficult because conflict is not defined exactly the same, and it is unknown when or how many permits would be relinquished in Alternative 7.

Direct
Livestock grazing would be discontinued in various allotments to protect historic canals, and to reduce conflicts with other uses. Allotments in the rural areas (see definition of rural in Chapter 2) where the analysis models indicate demand is likely to be low or moderate would be closed to livestock grazing, to reduce conflicts. Livestock grazing would continue to be authorized on 347,522 acres in the planning area, providing an estimated annual authorized use of 24,308 AUMs. This represents a six percent reduction in AUMs from Alternative 1.

Indirect
About eight permittees would lose their BLM permits and need to find alternate forage, or reduce their herds.

By discontinuing livestock grazing in allotments that exceed conflict/demand thresholds, the potential for conflicts would be reduced in this alternative (and in Alternatives 4, 5, and 7), compared to the potential for conflicts in Alternatives 1, 2, and 3. This would mean a potential decrease in BLM and grazing permittee management costs. The potential for conflicts that would remain after closures in this alternative is likely to be more than the level remaining in Alternatives 4 and 5. The comparison to Alternative 7 is difficult because conflicts are defined slightly differently than in Alternatives 2-6.

The effect on local livestock sales would be minimal, a 0.25 to 1.02 percent reduction depending on permittee flexibility in securing alternate forage sources. An estimated $69,000 to $267,000 in livestock sales would be lost compared to Alternative 1. This reduction would impact the livestock industry but is likely to have minimal effects on the local economy. In this alternative, BLM-administered forage would provide for about four percent of local cow/calf sales.

Alternative 7
Livestock grazing would continue on at least 279,321 acres, with at least 21,310 AUMs. One permittee would be affected by mandatory AUM reductions, and there would be a 0.76 to 3.04 percent reduction in local cow/calf sales. Expected conflicts between livestock grazing and other uses would be less than those expected in Alternatives 1, 2, and 3. The expected conflicts would probably be similar to those expected for Alternatives 4 and 6, but the comparison is difficult because conflict is not defined exactly the same, and it is unknown when or how many permits would be relinquished in Alternative 7.

Direct
Livestock grazing would be discontinued in various allotments to protect historic canals, and to reduce conflicts with other uses. The combination of conflict and demand criteria that would lead to allotment closure in this alternative is described in Chapter 2. Assuming all applicable permits were relinquished, the reduction in AUMs would be between three and eight percent. Assuming no new permits were relinquished other than those already in "vacant" status, the reduction would be between .06 and three percent. The first number assumes all allotments in the "close or RFA" category would be placed in RFA status; the second assumes they would all be closed. An additional

eight percent of the AUMs would be placed in RFA status (also assuming permit relinquishment). The estimated authorized AUMs in "open" status are 21,310 AUMs on 279,321 acres.

Indirect
Only one permittee would be affected by mandatory AUM reductions. The remaining AUM reductions would be accomplished through voluntary permit relinquishments.

By discontinuing livestock grazing in allotments that exceed conflict/demand thresholds, the potential for conflicts would be reduced in this alternative (and in Alternatives 4, 5, and 6), compared to the potential for conflicts in Alternatives 1, 2, and 3. This would mean a potential decrease in BLM and grazing permittee management costs. The level of potential conflicts that would remain after closures in this alternative varies, depending on whether permittees relinquish permits in the "close" category. The comparison to Alternatives 2-6 is difficult because conflicts are defined slightly differently than in this alternative.

The effect on local livestock sales would be minimal, a 0.76 to 3.04 percent reduction depending on permittee flexibility in securing alternate forage sources. An estimated $207,000 to $799,000 in livestock sales would be lost compared to Alternative 1. This reduction would impact the livestock industry and is likely to have measurable effects on the local economy. These induced impacts were not quantified. In this alternative, BLM-administered forage would provide for 3.6 percent of local cow/calf sales.

Creating RFAs would increase permittee flexibility to withstand short-term AUM reductions, and would provide the BLM with leverage to help rest pastures after wildfire or for other resource reasons.

The voluntary relinquishment for most allotment closures means effects of AUM reductions on individual permittees would be more manageable, because the permittee can choose when (or if) to relinquish his/her permit.

Cumulative effects
Livestock grazing is historically important in the planning area both culturally and economically, although the contribution from BLM managed public land is small relative to total cattle/calf production. On average, grazing permittees in the planning area use BLM managed land for about 20 percent of total feed. However, in several cases, over 90 percent of a permittee's operational forage base consists of federally administered grazing land. Although federally administered land might comprise only a minor portion of a permittee's total forage, it may well be that without that portion the permittee's operation would no longer be viable.

In Oregon, federal permittees use agency forage for 23 percent of total feed (Frewing-Runyon, 1995). Eastern Oregon permittees are less dependent on public forage; the average reliance of eastern Oregon permittees on federal forage (BLM and Forest Service) is 11 percent.

While Oregon's current Statewide Planning Goals and Guidelines manage the transition of land use in the State, future declines in the private agricultural land base are forecast to continue, thereby increasing the importance of remaining federal land resources in the region. Over the next 100 years, it has been projected that total western range lands will probably decrease by 25 to 40 percent (Holechek, 2001).

Authorized use has declined approximately three percent per year on BLM managed land in the planning area over the last decade. Use on the Deschutes and Ochoco national Forests (including the Crooked River National Grassland) has declined about 2.6 percent per year since 1995 (personal communication, Byron Cheney and Don Sargent,

USFS employees). The Draft EIS for the Interior Columbia Basin Ecosystem Management Plan estimated a one percent reduction per year for the basin. The cumulative effect of a continuation of these declines combined with the AUM reductions proposed in some alternatives in the UDRMP may be that more permittees' operations become unprofitable than expected under either scenario alone.

Some of the permittees affected by AUM reductions (one is affected in Alternatives 2, 3, and 7; 20 in Alternative 4; 50 in Alternative 5; 8 in Alternative 6) may not have enough remaining forage (public and/or private) to continue livestock grazing, and may decide to sell their base properties. If this were to occur, given local trends the property might be converted from rangeland to low density residential use, potentially increasing conflicts for remaining public land livestock grazing use in the area. As conflicts increase, additional allotments would meet conflict/demand criteria for grazing discontinuance.

In recent years, there have been steady decreases in the supply of private grazing lands in the region as rapid population growth, resort and other residential development have reduced or fragmented the existing land resources, making grazing less attractive or cost-effective. According to some analysts, for every acre directly lost to development, another three to ten acres may be lost from the ranching base due to fragmentation (Liffman, Huntsinger and Forero, 2000).

Conclusions
Alternative 1 (closely followed by Alternatives 2 and 3) results in the largest number of acres and AUMs remaining available for livestock grazing, while Alternative 5 results in the lowest, about 49 percent less than Alternative 1.

The contribution to local livestock sales is correspondingly greatest in Alternative 1 (about 4 percent), and least in Alternative 5 (about 2 percent). The effect of forage reductions on individual permittees would be lowest in Alternatives 1, 2, 3, and 7, and highest in Alternative 5 (50 permittees). These effects on individual permittees are unknown, but in some cases the result would be that the permittees cease ranching and sell their base properties.

Conflicts between livestock grazing and other uses on public and adjacent private land are less likely in Alternative 5, which has the fewest acres open to grazing. Alternatives 4, 6, and 7 are likely to have conflict levels somewhat higher than those expected for Alternative 5, but lower than those expected for the other alternatives.

Minerals

Summary

Due to data gaps and uncertainties related to the timing, amount, and location of mining operations, a quantitative effects analysis is not possible for any of the alternatives. However, the general direct, indirect, and cumulative effects resulting from land allocations open to mining and land allocations designated as avoidance and exclusion areas can be identified. Mining that may occur on land open to those uses would cause indirect effects including but not limited to noise, dust, asphalt batching odor, ground disturbance, erosion, the spread of noxious weeds, and truck traffic. These indirect effects will likely cause some degree of conflict with residents, recreational users, natural resources, and cumulatively add to the past, present, and future effects caused by other land uses and activities.

Exclusion areas, avoidance areas, and other restrictions may add costs to the mining industry and add cumulatively to other present and future restrictions. Most of the avoidance and exclusion areas occur where the potential for occurrence is moderate for geothermal resources and low for fossil fuels and locatable minerals. Thus, the effects of

the restrictions and land allocations with respect to locatable mineral entry and mineral leasing are expected to be minimal. Moreover, historical use patterns suggest that the overall potential for development of leasable and locatable minerals during the life of this plan is low; the environmental and social effects of developing these mineral types are not expected to be notable. Most of the effects related to mining are expected to be associated with mineral material sales as suggested by historical use and forecasted demand. In some alternatives, potential sites identified by ODOT as having large reserves of high quality rock are restricted or unavailable and could lead to increased construction costs.

It is important to note that the following comparison of the alternatives with respect to acres available to mining does not necessarily reflect a comparison of how much mining will occur. There is no direct correlation between the number of acres available for mining and the amount of mining that would take place. What matters is where the economical high quality rock deposits are in relation to exclusion and avoidance areas, not how many acres are available. Therefore, it is possible for an alternative with relatively few acres available for mining to result in more mining on public lands than another alternative with more acres available. However, it is not possible to quantify the effects of mining from each alternative because the locations of all economical high quality rock deposits and how they are distributed across the planning area are not known.

Assumptions

The area available for locatable and leasable minerals is common to all alternatives and no less than 75 percent of the planning area is available for mineral materials sales in any alternative. At least some known mineral material deposits identified by ODOT (1998) are available in each alternative. It is therefore assumed that the reasonably foreseeable development scenarios for locatable, leasable and saleable minerals in the planning area are the same under all alternatives. More detailed assumptions and mineral development scenarios are provided in Appendix I.

Locatable Minerals
Historically, mining of locatable minerals in the planning area has been sporadic with minor exploration and production of mercury and diatomite. Past exploration and development of mercury deposits from the 1920s to the 1950s in the southeastern part of the planning area resulted in small trenches, adits and shafts, each typically disturbing less than an acre. Future exploration and production would probably result in similar scales of ground disturbance unless a large deposit is discovered. Little or no exploration or developments of mercury deposits are expected to occur during the life of this plan. Diatomite was historically produced from private lands east of Terrebonne and was mined by the open pit method. If diatomite is discovered and produced from adjacent BLM-administered lands, up to several hundred acres of ground disturbance could result. However, such large-scale developments of diatomite are not expected during the life of this plan.

There are currently 26 unpatented mining claims and 4 millsite claims within the planning area and two notices have been filed under the BLM Surface Management Regulations (43 CFR 3809). Based on historic trends, it is assumed that 5-10 additional mining claims will be filed within the planning area in the next 20 years. Notice-level exploratory operations on any existing or future claim may disturb up to 5 acres of ground and plan level operations may disturb more than 5 acres. It is assumed that 2-3 notice-level and 1-2 plan-level operations will occur during the life of this plan.

Leasable Minerals

Oil and Gas

Based on the history of past drilling and the low to moderate potential for oil and gas, exploration will probably continue to be sporadic. During the life of this plan, 1-2 exploratory wells for oil and gas are expected to be drilled in the eastern part of the planning area where the potential is moderate. The success rate of finding oil or gas is predicted to be no greater than 10 percent based on the average exploratory well success rate in the U.S. Each exploratory well site is expected to disturb up to 6 acres including new access roads and will be occupied for less than 12 months during the drilling, testing, and abandonment phases. It is not expected that any development of oil or gas fields will occur during the life of this plan. However, for economically viable development to occur, a gas field would need to have at least 50-60 billion cubic feet (BCF), corresponding to an area of at least 200 acres. Such a field would require 5 producing wells (including the discovery well) and require 30 to 60 miles of pipeline with a 30-ft width of ground disturbance.

Geothermal Power Plant Development

It is likely that the geothermal anomaly at Powell Buttes will be explored further during the life of this plan. A study by Brown and others (1980) indicated a potential for boiling temperature fluids at depths of approximately 1000 meters. However, the presence of an economically viable geothermal system has not been proven. According to Brown and others (1980), further geophysical (gravity, magnetic, and electrical) surveys and the drilling of 20 150-meter gradient-stratigraphy holes on the both sides of the buttes to further define the thermal anomaly. Moreover, several 1000-meter holes would be required to directly test for elevated temperatures with usable fluids. The development of a power plant in the Powell Buttes area is not expected to occur during the life off this plan. However, if a 24-megawatt power plant were to be developed, 5-7 production wells and 1-2 injection wells would be drilled with a ground disturbance of 2-6 acres per well. The power plant facilities would involve 5-10 acres and pipelines and power lines would disturb 3-6 acres. In total, up to about 75 acres could be disturbed by the entire operation. Owing to the predominance of private lands in the Powell Buttes area, it is not known how much development would affect BLM-administered lands if development were to occur.

Direct use of Geothermal Energy

Geothermal resources have many direct use applications including space heating and cooling of residences, businesses and green houses, and applications in aquiculture, industry, and therapeutic bathing. The surface disturbance could range from a few acres for a single well and some greenhouses to tens of acres for larger agricultural or aquacultural developments.

Salable Minerals

It is assumed that the demand for mineral materials will continue to increase in conjunction with the population growth in Central Oregon. The mineral material supply from existing private and public sources in the planning area appears to exceed the foreseeable demand over the next 20 years. However, based on the distribution of public and private ownership, ODOT is not able to consistently offer a public mineral material source for its construction projects in order to increase bidder competition (ODOT, 1998). Owing to the existing supply and the distribution of ODOT's prospective mineral material sites across the planning area, it is assumed that 3-4 new mineral material sites will be developed in the next 20 years. Approximately 15-20 acres of ground disturbance would occur to accommodate each mine, including rock crushing operations, truck turn-around areas, and aggregate stockpile areas. Moderate to heavy traffic could occur on up to 5 miles of non-paved access roads during periods of site utilization. Up to 1 mile of new access road may be constructed to each site. The cumulative effect of new mineral material sites is expected to be up to 60 acres of ground disturbance and up to 3 miles of new access road.

Incomplete/Unavailable Information

There are gaps in the data that limit the extent and scope of the effects analysis:

- Although common variety mineral materials occur just about everywhere, economically viable high quality rock deposits suitable for asphalt are relatively scarce. It is also likely that not all economically viable mineral material deposits are known.
- Oil, gas, and geothermal exploration of the planning area has been minimal so the potential for development is unknown.
- The geothermal investigation conducted at Powell Buttes by Brown and others (1980) is incomplete and inconclusive. More work is necessary to determine the economic viability of this site and the potential for development.
- The future locations of mineral operations are not known due to unknown locations of undiscovered deposits and uncertain future demand, technology, and energy and metal prices.
- There is some uncertainty with known undeveloped mineral material deposits (identified by ODOT) because development is contingent upon approval by the BLM.

These data gaps do not allow for quantitative analysis of the effects. When lands are withdrawn, closed, or restricted to mining practices, known and undiscovered economically viable mineral deposits may become unavailable or uneconomic due to the restrictions over the 10-20 year life of this plan. In cases where undiscovered mineral deposits are present, the specific effects of closing or restricting areas are unknown. The effects of allocating lands as open for mineral development also cannot be quantified due to the uncertainty of when, where, or how many mining operations will take place.

Analysis of the Alternatives

Common to All Alternatives

The following decisions in the B/LP RMP will be carried forward:
- 396,185 and 366,640 acres will continue to be available for locatable mineral development and mineral leasing respectively.
- The no surface occupancy stipulation for fluid mineral leasing on the 4,073-acre Peck's Milkvetch ACEC, the 510-acre Powell Butte RNA, and the 609-acre Horse Ridge RNA and on 16,480 acres around Prineville Reservoir will continue.
- The withdrawal of the Horse Ridge RNA from mineral entry under the 1872 mining laws will be carried forward.

The direct and indirect effects of each alternative will primarily result from public land allocations available for mining, allocations where mining is restricted, and allocations where land is closed to or withdrawn from mineral entry. Since the alternatives vary by the number of acres in each of the allocation categories, the types of effects are the same for each alternative. Therefore, the effects may vary only in magnitude with each alternative depending on where important mineral deposits are in relation to the land allocations.

The social, economic, and environmental effects of each alternative with respect to mining are difficult to quantify due to the uncertainties of the industry. Each alternative specifies only those lands available and not available for mineral entry but does not authorize any specific mining operation. Therefore, the number and locations of future mineral material pits, drilling sites, and other mining developments are generally not known, though a few potential mineral material sites have been identified by the Oregon Department of Transportation (ODOT). Also not foreseeable are what other mineral materials may become popular for decorative use or become industrially important. Likewise, the interest in mineral leasing and locatable mineral development cannot

be foreseen due to changing technologies, dynamic energy prices, metal values, and demand.

The direct effect of designating lands for mining uses is the availability of those lands for filing mining claims and applications for mineral materials and mineral leasing. The approval of mining operations would lead to indirect effects including but not limited to ground disturbance, dust, noise, asphalt batching odor, erosion, the spread of noxious weeds, and/or permanent removal of mineral resources would occur and may cause varying degrees of conflicts with recreation, residents, and/or natural resources. Mining in the La Pine area may expose groundwater to evaporation and contamination due to the shallow water table. Developed mineral material sites are often used for target shooting and OHV riding, resulting in increased amounts of litter, noise, and dust, and may cause further conflicts between recreation and mining. Ground-disturbing effects would primarily be confined to mining sites whereas the dust, noise, and asphalt odor could have adverse effects on adjacent public and private lands up to a few miles away. These effects are less likely to occur in avoidance areas such as ACECs, RNAs, and WSAs and in areas with other restrictions to mitigate conflicts with other land uses and management objectives.

Mineral material development under sales and free use contracts is expected to continue as the most important mineral use within the planning area owing to the expanding population and the corresponding demand for aggregate materials. The direct effect of restrictions and closures imposed on mineral material mining is that some known and unknown economically viable mineral material sources would be unavailable for development. Depending on the location, restrictions and closures could restrict or make some sites unavailable and may have the indirect effect of requiring the ODOT and other users of mineral materials to utilize alternative sources to meet demand. Hence, ground disturbance, dust, and noise could occur elsewhere on private, state, county, Forest Service, or other BLM lands within the planning area and up to about 30 miles outside of the planning area boundary. Aggregate from alternative sources may have lower quality and/or longer haul distances. Longer haul distances would increase fuel consumption, emissions, and the probability for accidents. Mineral materials from BLM-administered lands are provided to ODOT free of charge so the aggregate cost would be affected if privately owned sources are used as alternatives. Moreover, ODOT typically receives fewer bids on construction projects when a public source of material materials is not available, resulting in higher construction costs due to limited bidder competition (ODOT 1998). Thus, aggregate end-product longevity, construction timetables, road maintenance costs, taxpayer benefit and/or bidder profitability may be indirectly affected by the restrictions and closures. Because the income for local bidders and public funds from state and federal sources are involved, the economy may be indirectly affected at all levels, most notably at the local level.

The direct effect of restrictions on mineral leasing and locatable mineral entry is the potential unavailability of some of these resources or the increased difficulty in mining them. This may have an indirect effect on exploration and development costs, mineral commodity production, and profitability and thus may have indirect effects on the local economy. However, most of the avoidance and exclusion areas occur in the west half of the planning area where there is a moderate potential for the occurrence of geothermal resources and a low potential for fossil fuels and locatable minerals. Owing to these factors and the low historical development and production of leasable and locatable minerals in the planning area, the adverse effects of these restrictions are not expected to be notable.

Alternative 1

The physical effects related to the development of mineral material sites would potentially occur within 396,185 acres open to that use. This alternative has the largest allocation of land open to mineral material sales. Within these open lands, the 29,545-

acre Badlands WSA and the 191-acre Wagon Roads ACEC are designated as avoidance areas. There is no buffer around residentially zoned areas or designated recreation sites, so mining operations have the highest potential for effects on residents and recreational users. Under this alternative, none of the sites proposed by ODOT occur on lands closed to mineral material sales or on lands with restrictions for this use.

Common to Alternatives 2-7
The 29,545-acre Badlands WSA, the 844-acre Tumalo Canals ACEC, and the 16,731-acre ½-mile buffer around the roads in Wagon Roads ACEC are closed to mineral material sales. The unavailability of mineral resources in the Badlands WSA and the Wagon Roads ACEC is assumed to have a minimal economic effect because there are no known high quality mineral material deposits in those areas. However, in the Tumalo Canals ACEC, ODOT identified a locality with high quality aggregate rock with an estimated reserve of over 1 million cubic yards. If comparable alternative source(s) are not found, there could be some effects on the costs, longevity and taxpayer benefit of road construction and maintenance projects in and around the Cline Buttes area. These effects are unknown because the quality and reserves of some other prospective sites in the Cline Buttes area have not been thoroughly evaluated.

On public lands adjacent to residentially zoned areas and/or designated recreation areas, the development of mineral material sites has the potential for adverse effects on residents and recreationists. However, the effects would be somewhat less than those of Alternative 1 owing to the 1/8-mile minimum buffer closed to mineral material sales around residentially zoned areas and designated recreation sites. The buffer around existing residentially zoned areas comprises 14,659 acres.

Alternative 2
The physical effects related to the development mineral material sites would potentially occur within 334,893 acres open to that use. Alternative 2 is the least restrictive of the action alternatives by designating the largest number of acres as open to mineral material sales and having the least number of acres with restrictions. There are no avoidance or exclusion areas specific to this alternative.

This alternative designates the smallest possible buffer (1/8 mile) of the action alternatives around residentially zoned areas and designated recreation sites. Thus, mining has a relatively high potential to adversely affect residents and recreational users under this alternative.

Alternative 3
The physical effects related to the development of mineral material sites would potentially occur within 332,774 acres open to that use. This alternative allocates the same number of acres open to mineral material sales as Alternative 6, but has more acres with restrictions. Within these open lands, the 31,011-acre Juniper Woodlands ACEC and the 4,200-acre Alfalfa Market Road ACEC are designated as avoidance areas. The 2,119-acre Smith Rock ACEC is an exclusion area. No known economic high quality mineral material sites are known within the Alfalfa Market Road or Smith Rock ACECs so the effects of these designations are likely to be minor. However, the Juniper Woodlands ACEC covers much of the Cline Buttes area identified by ODOT (1999) as being highly favorable for mineral material development. The restrictions in this ACEC may require ODOT to utilize alternative sources and there could be some effects on the costs, longevity, and taxpayer benefit of road construction and maintenance projects in and around the Cline Buttes area.

Mining would have the same effects on residents and recreational users as in Alternative 2 due to the 1/8-mile buffer around residentially zoned areas and designated recreation sites.

Alternative 4
The physical effects related to the development of mineral material sites would potentially occur within 321,466 acres open to that use. This alternative has the second least number of acres open to mineral material sales. Within these open lands, the 4,200-acre Alfalfa Market Road ACEC, the 6,756-acre Juniper Woodlands ACEC and the 16,257-acre sage grouse ACEC are designated as avoidance areas. No known mineral material sites occur in these areas so the effects on the mining industry are likely to be small.

The effects of mining operations to recreational users would be minimal due to the ½-mile buffer closed to mineral material sales around designated recreation areas. Adverse effects from mining on residents would be moderate as compared to Alternatives 2 and 3 because of the ¼ mile buffer zone designation around residentially zoned areas. The buffer around existing residentially zoned areas comprises 28,086 acres.

This alternative requires operators to use alternative sources of mineral materials when available within 30 miles of the construction site instead of opening up new sources on BLM-managed land. Due to this requirement, the effects on the costs, longevity, and taxpayer benefit of road construction and maintenance projects planning area wide are likely to be greatest under this alternative.

Alternative 5
The physical effects related to the development of mineral material sites would potentially occur within 297,493 acres open to that use. This alternative is the most restrictive of all alternatives by allocating the least number of acres open to mineral material sales and having the second highest number of acres with restrictions. Within these open lands, the 15,217-acre Peck's Milkvetch ACEC is designated as an avoidance area. This ACEC covers the southwest part of the Cline Buttes area identified by ODOT (1999) as being highly favorable for mineral material development. The restrictions in this ACEC may require ODOT to utilize alternative sources and there could be some effects on the costs, longevity, and taxpayer benefit of road construction and maintenance projects in and around the Cline Buttes area. However, much less of the Cline Buttes area falls under avoidance area designation under this alternative than in Alternative 3.

Adverse effects from mining on residents would be minimal because of the 52,059-acre ½-mile buffer closed to mineral material development around residentially zoned areas. Mining would have relatively minor effects on recreation in parts of the planning area defined as "urban" and potentially larger effects in areas defined as "rural" due to buffer zones of ½ and 1/8 mile respectively.

Alternative 6
The physical effects related to the development of mineral material sites would potentially occur within 332,774 acres open to that use. This alternative allocates the same number of acres open to mineral material sales and has the same ACECs with exclusion area designation as Alternative 3 and has the same ACECs with avoidance area designation as Alternative 5.

Mining would have the same effects on residents as in Alternatives 2 and 3 because of the 1/8-mile buffer closed to mineral material development around residential areas. However, mining would have relatively minor effects on recreation in parts of the planning area defined as "rural" and potentially larger effects in areas defined as "urban" due to buffer zones of ½ and 1/8 mile respectively.

Alternative 7
This alternative is identical to Alternative 6 with respect to mineral material sales except for avoidance areas. The Peck's Milkvetch ACEC is 14,227 acres under this alternative and is 1660 acres smaller than that of Alternative 6.

Cumulative Effects
Site-specific and/or quantitative analyses of cumulative effects are not possible due to the uncertainty of when and where mining operations will be authorized within lands open to that use. However, the cumulative effects of land allocations open to mining can be discussed in general terms.

The allocation of lands open for mineral uses is likely to lead to at least a few mining operations during the life of this plan. The effects of mining including but not limited to ground disturbance, erosion, dust, noise, truck traffic, the spread of noxious weeds and/or conflicts with residents, recreation and natural resources would add to similar effects resulting from other uses of adjacent lands. Other past, present, and future uses that would contribute cumulatively to some or all of the effects of mining operations include but are not limited to grazing, utility corridor construction and maintenance, rights of ways, motorized use (including OHV), recreation, adjacent private land uses and other mining operations.

The reclamation requirements and the designation of avoidance and exclusion areas in this plan will cumulatively add to present and future restrictions on mining. This plan carries forward and adds to the restrictions enacted by the B/LP RMP (1989) and adds to the standard environmental restrictions and requirements listed in the Code of Federal Regulations. Future decisions may add further requirements and/or restrictions on mining in the planning area.

Conclusions
The issues addressed in this plan are similar the issues faced by land use planners and the aggregate mining industry nationwide. Across the U.S., rapid urbanization of the landscape has resulted in more demand for mineral materials while leaving less space for mining and other uses such as agriculture and recreation (Langer, 2002; Arbogast *et al.*, 2000). Many important mineral material sites conveniently located within close proximity to population centers have been made inaccessible by suburban development (Kesler, 1994). Moreover, people want affordable housing, driveways, bridges, and well-maintained roads and highways yet many oppose the development of aggregate mines, especially in close proximity to where they live. These factors coupled with environmental concerns have made permits increasingly difficult to obtain for aggregate mining (Arbogast, *et al.*, 2000). Cities across the U.S. are facing shortages and/or inflated costs of aggregate due to increased haul distance. In some parts of the U.S., land-based sources of aggregate are no longer available and the continental shelf is being dredged to meet the demand for aggregate materials (Kessler, 1994). Although the communities of Upper Deschutes planning area may face increased costs due to restrictions and the unavailability of some sites on BLM-administered lands, there appears to be enough mineral materials from public and private sources to meet the foreseeable future demand.

Although some known and unknown mineral material deposits fall within avoidance oar exclusion areas or fall under other restrictions, there are adequate public and private aggregate reserves to meet the expected demand over the next 20 years. According to DOGAMI (1995) forecasting models, Deschutes County is expected to consume 2.4 million cubic yards of aggregate for all uses including road construction and maintenance between 2001 and 2020. The estimated reserves from existing aggregate sites identified by ODOT (1999) as having "good" to "excellent" quality or as meeting ODOT specifications add up to 22.4 million cubic yards. This figure excludes at least 13 other sites for which the reserves and/or quality are not available. Given that the known estimated reserves are 9.3 times larger than the expected 20-year demand for Deschutes County and that most of the population centers are in Deschutes County, it is assumed the reserves are adequate to meet the demand throughout the entire planning area for the life of the plan.

There are areas with moderate to high potential for the occurrence of geothermal energy, oil and gas, and locatable minerals. However, based on historical mining exploration and production, notable development of locatable and leasable minerals within the planning area is not expected to occur in the next 10-20 years. Thus, the effects of the restrictions in the alternatives on the mining and energy industries are not expected to be notable. Similarly, the environmental and social effects from the development of these resources are not expected to be important.

Effects and Effectiveness of Mitigation Measures
Mining effects on residents and recreational users, such as dust, asphalt batching odor, and noise are mitigated by buffer zones surrounding residentially zoned areas and designated recreation sites. Mineral material sites are not allowed within the buffer zones. The effectiveness of the buffer zones varies by alternative because the width of the buffer zones varies between 0 and ½ miles through the alternatives. Thus, the difference in effectiveness between the buffer zones would only apply to mines located less than or equal to ½-mile from residentially zoned areas or designated recreation sites. For example, the noise intensity heard by a person ½ mile from a mine would be four times less than that heard by a person ¼ mile away and sixteen times less than that heard by a person 1/8 mile away. The effectiveness of the buffer zones is also affected by wind direction. Buffer zones located upwind from a residential or recreation area will be less effective at mitigating dust and asphalt batching odor than buffer zones located downwind.

In Alternatives 2-7, mining-related dust and noise from mineral material sites is mitigated by stipulations prohibiting mining activities on legal holidays and restrictions on the hours of operation and hours when blasting is allowed. Assuming operator compliance, mining operations including blasting and truck traffic will not affect residents and recreational users at night, early in the morning, or on legal holidays.

The effects of mining-related truck traffic on residents and recreational users are mitigated in alternatives that allow no more than a moderate conflict with residents and/or recreation. Under low or moderate conflict scenarios, mining-related truck traffic may not cross-designated recreation trails or use roads that feed from BLM-administered lands into residentially zoned areas. These mitigation measures would notably reduce the exposure of residents and recreational users to mining-related traffic on and from BLM-administered lands.

All alternatives require ground-disturbances resulting from the mining of locatable minerals and mineral leasing to be reclaimed. Alternatives 2-7 extend the reclamation requirements to common variety mineral materials (saleable minerals). The success and effectiveness of reclamation is site-specific and depends on factors such as geology, geochemistry of waste rock, topography, funding from reclamation bonds, operator compliance, and the type, size, and scale of operations. No reclamation effort can mitigate 100 percent of the ground-disturbing effects of mining. However, reclamation can substantially reduce the visual and environmental effects resulting from a mining operation. Because the location and condition of future mining sites under this plan are unknown, the true effectiveness of the reclamation requirements cannot be determined.

All of the mitigation measures act to reduce mining conflicts with residents, recreation, and natural resources. Thus, these measures will either have positive effects or lessen the adverse effects of mining on other land uses and values. In contrast, the mining industry will have less BLM-administered land available for mining and will face more obligations to protect special values and reduce conflicts (see Table 4-17 for acres available to mineral entry by alternative).

Table 4-17. Acres available to mineral entry by alternative.

Indicator	Alt 1 (acres)	Alt 2 (acres)	Alt 3 (acres)	Alt 4 (acres)	Alt 5 (acres)	Alt 6 (acres)	Alt 7 (acres)
Locatable Minerals							
Open to locatable mineral entry	**403,910**	**403,910**	**403,910**	**403,910**	**403,910**	**403,910**	**403,910**
Avoidance Areas	**34,319**	**51,216**	**88,546**	**78,429**	**62,360**	**64,479**	**61,370**
Mineral Leasing							
Open to mineral leasing	**374,365**	**374,365**	**374,365**	**374,365**	**374,365**	**374,365**	**374,365**
No Surface Occupancy	**21,254**	**38,151**	**75,481**	**65,364**	**49,295**	**51,414**	**48,305**
Avoidance Areas	**4,774**	**21,671**	**59,001**	**48,884**	**21,671**	**34,934**	**31,825**
Mineral Sales							
Open to mineral sales	**403,910**	**342,108**	**339,989**	**328,681**	**304,708**	**339,989**	**342,108**
Avoidance Areas	**34,319**	**4,073**	**39,284**	**31,286**	**15,217**	**15,217**	**14,227**

Rockhounding

Summary

The direct effect of the allocation of lands open to rockhounding is the availability of petrified wood and semiprecious gemstones on those lands for collection. Indirect effects including the permanent removal of rock materials, ground disturbance, damage to vegetation, contributions to the spread of noxious weeds, off-road motorized use, human waste and littering would likely occur. However, these effects cannot be quantified owing to the lack of data on use levels and the potential for rockhounding in areas not known to the BLM. Because the popular and heavily used rockhounding localities are available in all alternatives, the environmental effects from this use are expected to the same through all alternatives.

Acreages available for rockhounding by alternative are shown in Table 4-18. Alternative 1 has the most acreage available for rockhounding and designates 5 collecting sites (Map 13 in the Brothers/La Pine RMP, 1989). Alternative 3 has the least number of acres available and Alternatives 2-7 designate 4 rockhounding sites (Maps S-20 – S-28). The rockhounding sites that are de-designated in Alternatives 2-7 are not being closed to rock collecting; they will no longer be managed as rockhounding recreation sites. Moreover, the various special management areas that are closed to rockhounding through the alternatives generally do not have any rock materials of rockhounding significance. Because the important rock material deposits of rockhounding interest are available in all alternatives, the environmental effects from this use are expected to be essentially the same through all alternatives.

Assumptions

Based on the promotion by individuals, groups, internet sites, rock shops, publications and the media, it is assumed that traditional rockhounding sites on BLM-administered lands within Crook County will remain popular and continue to be used. Sporadic

Table 4-18: Acres available for rockhounding.

Alternative	Acres Available for Rockhounding
1	401,849
2	366,888
3	331,677
4	355,932
5	355,744
6	355,744
7	356,734

collecting of petrified wood, semiprecious gemstones, and other rock materials from smaller isolated deposits is also expected to occur.

The Wagon Road, Tumalo Canals, Alfalfa Market Road, Badlands, and Peck's Milkvetch ACECs and the Horse Ridge and Powell Butte RNAs would be closed to rockhounding. It is assumed based on geology and the historical lack of rockhounding interest that these special management areas generally have few or no rocks of rockhounding significance.

Incomplete/Unavailable Information

Not all of the planning area has been inventoried for rock materials of rockhounding significance; the available data are only from known rockhounding sites. Moreover, there is no data on the frequency of use or the quantity of material collected at known sites. Therefore, the number of locations and the total area affected by rockhounding cannot be quantified.

Analysis of the Alternatives

Common to All Alternatives
The North Ochoco Reservoir, Eagle Rock, and the part of the Fischer Canyon site east of Hwy 27 will continue to be managed for rockhounding uses.

Due to the potential existence of rockhounding sites unknown to the BLM, the potential discovery and subsequent use of new sites in the future, and the lack of data on the frequency of use of known sites, the effects of continuing to allow rockhounding within the planning area cannot be quantified. Therefore, the effects related to rockhounding will be discussed qualitatively.

The direct effect of the allocation of lands open to rockhounding is the availability of petrified wood and semiprecious gemstones on those lands for collection. Indirect effects including the permanent removal of rock materials, ground disturbance, loss of and damage to vegetation, contributions to the spread of noxious weeds, off-road motorized use, human waste and/or littering would likely occur. These effects would most likely occur on and around the three well-known rock hounding sites in the planning area, the Carey Agate Beds, North Ochoco Reservoir, and Eagle Rock sites. However, less important petrified wood and semi-precious gemstones also occur in isolated deposits throughout the planning area east of Powell Butte. Such areas might be impacted to various degrees contingent upon discovery and how popular they become.

The designation of special management areas as exclusion areas with respect to rockhounding would have minimal effects on recreational rock collecting. None of the

three well-known rockhounding sites within the planning area would fall within any exclusion areas under any alternative. Moreover, there are generally few or no materials of rockhounding significance in any of the exclusion areas.

The discontinuance of managing the Fischer Canyon site for rockhounding would lessen the potential for the loss of scientifically important paleontological resources.

Cumulative Effects
The ground-disturbing effects of rockhounding would cumulatively add to similar effects resulting from other past, present, and future land uses and activities. These include but are not limited to ground disturbances from mining operations, grazing, utility corridors, development of rights of ways, adjacent private land uses and developments, and recreation including motorized uses such as OHVs.

Conclusions
The well-known Carey Agate Beds, North Ochoco Reservoir, and Eagle Rock rockhounding sites (Maps S-20, S-21) would probably receive most of the rockhounding use during this planning cycle. These sites have been developed with mechanized equipment and/or explosives at various times in the past when they were held under mining claims. These actions created relatively large ground disturbances from quarry-scale removal of rock. Continued use of these sites by rockhounds with hand tools is not expected to notably add to the existing ground disturbances. Other less known or soon-to-be discovered sites might be impacted with new ground disturbances and the indirect effects described above.

The rock materials of rockhounding interest within the planning area are common throughout the U.S. and the world. Chalcedony is a general term for varieties of cryptocrystalline quartz including agate, onyx, bloodstone, flint, chert, jasper, and petrified wood. All 50 states produce at least some types of chalcedony (USGS, 2002). States with notable localities and types of chalcedony include Alaska, Arizona, California, Colorado, Florida, Idaho, Montana, New Mexico, Oregon, South Dakota, Tennessee, Texas, Washington, Wyoming and Utah. Owing to the overall abundance of chalcedony, the recreational removal of chalcedony materials from BLM-administered lands within the planning area is expected to have a negligible effect on this resource in terms of quantity.

The John Day and Clarno formations (see geology discussion) represent part of the most complete record of Tertiary plant and animal populations in the world and preserve remarkable evidence of North American climate change (Fremd *et al.*, 1994). Petrified wood and botanical fossils from the Clarno and John Day formations are present in various localities not closed to rockhounding. Due to the scientific importance of these formations, the collection of petrified wood and botanical fossils could degrade the scientific value of some localities.

Effects and Effectiveness of Mitigation Measures
There are mitigation measures to minimize damage to the environment, hazards to health and safety, illegal commercial use and excessive personal use. Rock collectors are not allowed to dig in stream channels, undermine trees, dig non-vertical holes so as to create a tunnel or an overhang, or dig holes deeper than four feet. All holes must be filled in by the rock collectors that create them. Up to 50 pounds of rocks may be collected per person per day and not to exceed 500 pounds per year.

The effectiveness of these mitigation measures depends on public awareness, compliance, and enforceability. These factors are not known or predictable so the true effectiveness cannot be determined prior to implementation.

Oregon Military Department Use

Summary

The goal is to provide for the Oregon National Guard's training needs through a land use agreement between the BLM and the Oregon Military Department (OMD), to allow long-term (30-year) use and occupancy of federal public lands in Central Oregon. This is a continuation of long-term use, established in 1942 by the Military, for training purposes. Continuation of long-term use would be subject to periodic review of both the National Guard and BLM's standards and guidelines and review and monitoring of the National Guard's performance in meeting standards and guides.

In all alternatives, the decision to be made is one of lands allocation for military training activities. There are basically three lines of thought with regard to allocating lands for military uses in the planning area. (1) The general location and size currently allotted are working well, only minor changes are needed as in Alternatives 1 and 5. (2) Confine the Military to the smallest training area needed to conduct training activities, dedicating the public lands as a sacrifice area as in Alternatives 3 and 4. (3) Broaden the area permitted for training to maximize the time between training exercises on specific parcels, and partner with the Military to pool resources and rehabilitation funds to assist BLM with its resource responsibilities as in Alternatives 2 and 6.

Table 4-19 compares by alternative the number of acres of BLM-administered lands on which military training would be permitted.

Assumptions

In all alternatives, resource rehabilitation and protection activities in the training area would become more pro-active as new military requirements are initiated.

Development of private lands, including the Pronghorn Destination Resort, is increasing the public use in the western portion of the currently permitted military training area. In Alternative 1, the Military would continue to avoid potential conflicts by concentrating training to the eastern side of the training area.

Alternative 2, as with Alternative 1, would move much of the training away from the western portion of the training area. For training purposes, the North-South long strip alignment would provide for troop movement so that training may continue in stages. This alternative would provide an opportunity to spread training over a broader area, not concentrating uses, providing more time for rehabilitative efforts to be successful.

Table 4 - 19. Amount of BLM-administered land in the planning area dedicated to military training, by alternative.

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Acres	29,744	36,397	21,207	26,194	29,760	55,665	50,600
Percent of currently permitted area	100%	122%	71%	88%	100%	187%	170%
Percent of planning area	7%	9%	5%	6%	7%	14%	13%

In Alternative 3, the same areas would be used more often per year; consequently, the same resources would be integrated into training exercises more often. Rehabilitation efforts would be more intensive, and concentrated in a smaller area. The larger training activities may simply not fit into the smaller area or, if permitted, the modifications necessary may be unacceptable for military purposes.

In Alternative 4, the same areas would be used more often per year; consequently, the same resources would be integrated into training exercises more often. The uses, however, would be less concentrated than in Alternative 3. Alternative 4 would avoid conflicts with Pronghorn Destination Resort through avoidance by not permitting training in the general area. Rehabilitation efforts would be more intensive, and concentrated in a smaller area. The larger training activities would probably have to be modified.

Alternative 5 would reduce conflicts by excluding the area around the Pronghorn Destination Resort. For training purposes, a long North-South strip alignment for troop movement would provide for training in continuous stages, which is a desirable training scenario. Rehabilitation efforts would be at the same levels as Alternatives 1 and 2.

In Alternative 6, the permanent training area is the same as Alternative 2. Alternative 6 would move training away from the western portion of the training area for the reasons cited above in Alternative 1 and 2. For training purposes, a long North-South strip alignment for troop movement will provide for training in continuous stages, which is a desirable training scenario. This alternative would provide an opportunity to spread training over a broader area rather than concentrating use, and could provide more time for rehabilitate efforts to be successful.

The rotational areas would decrease uses in the permanent training areas, spreading uses over putting fewer uses in the resources in the course of a year. Military personnel would have different areas in which to train, improving the training experience. Resource protection, rehabilitation, and improvement funds could be spread over a broader area.

Alternative 7 is the same as Alternative 6 except that training in Area A would not be permitted from the BPA powerline south to Powell Buttes Highway.

Analysis of the Alternatives

Alternative 1
The land allocated for military training is the same as is currently permitted. Development of private lands, including the Pronghorn Destination Resort, is increasing the public use in the western portion of the Military permitted area. The Military will seek to avoid potential conflicts, and would concentrate training to the eastern side of the training area.

Alternative 2
As with Alternative 1, this alternative would move much of the training away from the western portion of the training area. For training purposes, the North-South long strip alignment would provide for troop movement so that training may continue in stages. This alternative would provide an opportunity to spread training over a broader area, not concentrate uses, and provide more time for rehabilitative efforts to be successful. The Military would probably replace the training currently done west of the North Unit Canal to the area north of Highway 126 to avoid conflicts with the subdivisions and destination resorts.

Use of the area north of Highway 126 would begin and increase while use west of the North Unit Canal would diminish. Monitoring and rehabilitation would redistribute in conjunction with the changes in use.

Alternative 3
Military training would be constrained to the least area needed to accomplish the training objectives. Training levels would remain the same, so the same ground would be crossed more times yearly. Rehabilitation would occur continuously over the same area. Rehabilitation may be impaired because there may not be sufficient time between entries for the efforts to be successful; hence, the quality of the resource would be reduced. This may be setting the rehabilitation efforts up for failure over time. In so doing, the permitted area could become a sacrifice area.

In an effort to spare the resource, installation of permanent facilities such as site hardening might be a condition in the lease. Site hardening would involve installation of permanent use facilities, such as bivouac (camping) sites, to replace dispersed uses.

Hardening sites would reduce the area available for other resource uses. For the soldier, knowing the ground and having pre-selected sites would reduce the effectiveness of the training. A complete system of hardened sites reduces the realism of the training.

The larger training activities may simply not fit into the smaller area or, if permitted, the modifications necessary may be unacceptable for military purposes.

Alternative 4
Consequences of Alternative 4 would be similar to Alternative 3 except the uses would be less concentrated than in Alternative 3. The training area west of the North Unit Canal and south of Pronghorn Resort would be little used or unused by the Military because of the close proximity to developments and the lack of access roads including a ready transportation system to the east side training areas. There is no military canal crossing to the west side of the North Unit Canal and no transportation system that complements their training program so training use would decline or stop. Rehabilitation efforts would be more intensive, and concentrated in a smaller area. The larger training activities may be modified.

Alternative 5
Uses would be roughly the same as in Alternative 1 except for the training area on the west side of the North Unit Canal. For the same reasoning as in Alternative 4, training use in this area would decline or stop. For training purposes, a long North-South strip alignment for troop movement would provide for training in continuous stages, which is a desirable training scenario. Rehabilitation efforts would be at the same levels as Alternatives 1 and 2.

Alternative 6
The permanent training area would be the same as Alternative 2 and 5. Alternative 6 would move training away from the western portion of the training area for the reasons cited above in Alternative 1 and 2. For training purposes, a long North-South strip alignment for troop movement would provide for training in continuous stages, which is a desirable training scenario. This alternative would provide an opportunity to spread training over a broader area, reducing concentration of uses, and providing more time for rehabilitate efforts to be successful.

The rotational use of 3 new areas would decrease uses in the permanent training areas, spreading uses over the course of a year. Military personnel would have different areas in which to train, improving the training experience. BLM and the Military estimate that training would occur about 5 to 7 days per year in the rest rotation areas, which would reduce the time training on the traditional area to 9 to 7 days on average.

Resource protection, rehabilitation, and improvement funds could be spread over a broader area. The Military would be able to perform a civil/community service by

assisting BLM in deterring vandalism, restoring native plants and soil condition, and cleaning up dumping on these parcels included a broader area through inclusion of the rotational areas. Funding would be made available for rehabilitation where it would otherwise not be. The concentration of military training on the traditional training area would be reduced.

BLM and the Military speculate that training would occur about 5 to 7 days per year in the rest rotation areas, which would reduce the time training on the traditional area to 7 to 9 days on average.

For the Military, the training experience for the soldier improves when they train in areas where they are unaccustomed to the terrain.

Alternative 7
Same as Alternative 6.

Visual Resources

Summary

Decisions within the scope of the UDRMP that may directly or indirectly affect visual or scenic quality include the allocations, objectives, and guidelines for travel management, managing vegetation, fire and fuels treatment, rights-of-ways and transportation, and wildlife habitat restoration. In general, visual resource impacts are evaluated at a project specific scale by considering the degree of change or contrast created with the characteristic landscape. Activities that cause the most contrast and are the most noticeable to the viewer are generally considered to have the greatest effect on scenic quality. Most of the affects described here are described in terms of potential for effects, because many of the potential activities described below are likely to be implemented during the life of the plan, but are not specifically analyzed or authorized in the UDRMP EIS.

Assumptions

Some of the basic assumptions used in evaluating visual impacts of the alternatives include:

1. There are different levels of concern about scenic quality depending on the intrinsic qualities of the landscape being viewed, the expectations of the viewer, and the conditions under which the landscape is seen (e.g., the distance of view)
2. High quality scenery, especially that related to natural-appearing landscapes, enhances people's lives and benefits society.
3. Planning area wide, existing scenic quality is a function of visual diversity. The major components of scenic quality are prominence or uniqueness of landforms, presence of water as part of the landscape view, and presence of adjacent scenery (outside BLM jurisdiction) that enhances visual quality. For a more detailed description of the criteria used in developing VRM Classes, see Appendix H, Visual Resource Inventory Process.

Many of the potential effects to scenic quality are based on the assumptions that the recreation goals in the action alternatives (2-7) are implemented, and that visitors to BLM-administered lands, will generally have equal or higher expectations for scenic quality than at present. While the management standards for visual quality (i.e., Visual Resource Management Classes) are the same throughout alternatives 2-7, even when VRM Classes are met during management activities, there will be some impacts to scenic quality, particularly for visitors to, or residents living next to, BLM-administered lands.

These impacts may include changes in vegetative patterns, species type, or residue from vegetative treatment. These changes may reduce scenic quality when seen in the immediate foreground (1/4 mile or less).

An additional assumption is that project specific mitigation to address visual quality concerns over much of the planning area will be in part dependent on the designation of road and trail systems occurring before large scale vegetative treatments (mechanical treatments, thinning, prescribed fire, WUI treatments) are undertaken. Without a clear understanding of the transportation system, it will be unlikely that mitigation can be designed into projects to reduce or avoid both short and long-term visual impacts to viewers on these roads and trails. For the purposes of this analysis, it is assumed that most of the vegetative treatments will occur prior to the final establishment of designated road and trail systems; thus, opportunities for project specific mitigation will be low.

The evaluation of visual impacts of alternatives is also based on the assumption that for many viewers, vegetative conditions that do not represent a historic range of variability will appear more "natural" than managed conditions that mimic natural ecological processes and move toward a historic range of variability. Visitors and residents may view the current, vegetative condition of juniper forest to be the norm. The transition from juniper stands to shrub steppe vegetation, or to a fire influenced vegetative condition, while more in keeping with historic conditions, may be viewed as more unnatural, especially when accompanied by obvious human elements such as stumps, brush piles, etc.

The analysis is also based on the assumption that fuel reduction/fire hazard treatments (WUI treatments) would occur both in Alternative 1 and Alternatives 2-7, at nearly the same level, based on current BLM policy direction.

Given the high growth and development rates throughout much of the planning area, it is assumed that BLM lands will increase in importance as an open space backdrop to a developing area. As stated in the AMS, rural, agricultural, and ranchland plays a role in defining the area's character and providing pastoral, scenic views. However, as the area continues to grow, some of this land will become more densely developed. For the purposes of this analysis, transfer or sale of BLM-administered land and subsequent development is considered a negative effect on the area's visual resources.

Under all action alternatives, the assumption is that management activities will meet VRM Classes, and that opportunities exist to meet ecosystem management goals while avoiding highly apparent contrasts with the characteristic landscape.

For all alternatives, VRM Classes provide a baseline set of management objectives. Regardless of what VRM Class designations are applied, all alternatives provide some meaningful measure to apply BLM's contrast rating methodology to assess impacts to visual resources at a project specific level for all surface-disturbing activities.

The surface disturbing activities that may affect scenic quality in the planning area include vegetation clearing, burning, WUI treatments, road and trail construction, utility line ROW development or upgrades, etc. These impact visual resources by changing vegetative patterns, species composition, change landform shape, texture or color, or introduce non-natural features that provide contrast with the surrounding landscape character.

The severity of an adverse visual effect depends on a variety of factors, including the size of a management action, the location and design of roads and trails, the treatment of residue or slash from vegetative harvests or mechanical treatments, and the overall visibility of disturbed areas.

In some cases, vegetative clearing can improve visual quality by opening pleasing views, or by softening or blending of contrasting vegetative boundaries caused by development or past management practices, particularly on steep slopes or prominent landforms.

Analysis of the Alternatives

Visual Resource Management Classes
Alternative 1 would manage most of the planning area as VRM Class 3 and 4, with the North Millican, Millican Plateau, and Skeleton Fire areas being managed for a relatively low concern for visual quality (VRM Class 4). The area surrounding Prineville Reservoir, BLM-administered lands atop Powell Buttes, and isolated parcels surrounding Prineville would be managed for a higher visual quality standard (VRM Class 2). All alternatives would manage the Badlands and Steelhead Falls WSAs and the Horse Ridge RNA for the greatest emphasis on scenic quality (VRM Class 1).

The major differences in management direction between Alternative 1 and the action alternatives is the movement away from an overall VRM Class 3 applied to the western half of the planning area. While Alternative 1 applies a moderate VRM Class 3 to most BLM-administered lands west of the Powell Butte Highway, Alternatives 2-7 provide a higher scenic quality standard (VRM Class 2) for portions of this area with special characteristics (i.e., buttes that form community backdrops, dry canyons, etc.), while also dropping overall Class 3 rating to a lower standard (VRM Class 4) for most of the flatter portions of this area that are not visible from Key Observation Points.

For the eastern portion of the planning area, the action alternatives raise the scenic quality standard from VRM Class 4 to Class 3 for areas such as the Smith Canyon and West Butte areas, particularly to reflect views from the upgraded Millican/West Butte Road. The viewshed of Prineville Reservoir retains the existing high standard for scenic quality (VRM Class 2), although the action alternatives place this designation only on the viewshed as seen from the reservoir surface, while Alternative 1 places this standard on a much larger area not visible from the reservoir itself.

Table 4 - 20. Shows the general VRM Classes apply to certain areas. The predominant VRM Classes are listed for each area, with the most prevalent Class being listed first.

Indirect Effects

Vegetation and Wildlife Habitat Restoration
Alternative 1 has the least potential impact on visual quality based on vegetative and wildlife habitat restoration. This alternative calls for approximately 71,000 acres (17.5 percent) of the planning area to be treated (thinned, prescribed fire, mechanical treatment) over a 15-year period. In contrast, Alternatives 2, 4, and 5 would more than double this acreage to about 170,000 acres (approximately 40 percent) of the planning area over a 15 year period. While the opportunity to mitigate impacts to scenic resources would be available for moderate to long distance views in most places, there would still be relatively widespread potential for visual impacts for adjacent landowners and public land visitors due to these treatments, because of the introduction of non-natural appearing conditions such as stumps, fallen trees, brush piles, scattered slash, burn piles etc. Alternatives 3, 5, 6 and 7 have the highest potential to cause impact to visual resources, as the treatment acres increase to 230,250 acres (57 percent) of the planning area over a 15-year period. Again, while the opportunity to mitigate VRM Classes for moderate to long-distance views would be available (and in many cases these treatments may increase visual quality through increased diversity or opening up views), there would be impacts to both residents and public land visitors due to the scale of these treatments and the resulting changes from a natural appearing setting to an intensively managed setting when viewed close up. Opportunities for mitigating these impacts are limited due to the lack of final designated road and trail systems throughout most of

Table 4-20. VRM Classes by Geographic Area and Alternative

	Alternative 1	Alternatives 2-7
Badlands WSA	Class 1	VRM Class 1
Bend-Redmond	Class 3	VRM Class 4
Cline Buttes	Class 3	VRM Class 2, 4
Horse Ridge	Class 2,3, 4	VRM Class 2,3,4
La Pine		VRM Class 4,3
Mayfield	Class 3	Class 3
Millican Plateau	Class 4,3,2[1]	Class 4,3,2[1]
North Millican	Class 4,3	Class 3,4
Northwest	Class 3	Class 4
Prineville	Class 2	Class 4
Prineville Reservoir	Class 2,3	Class 2,4,3
Smith Rock	Class 2	Class 2
South Millican	Class 3, 4	Class 4
Steamboat Rock	Class 3,2	Class 4,2
Steelhead Falls WSA	Class 1	Class 1
Horse Ridge ACEC/RNA	Class 1[2]	Class 1[2]

1. Both alternatives place the majority of the area as Class 4, with the Lower Crooked River corridor as Class 2. Alternative 1 identifies the western part of Millican Plateau as Class 3, while Alternatives 2-7 identify the foreground view of Millican/West Butte Road as Class 3 instead.
2. Horse Ridge ACEC/RNA is part of the Horse Ridge geographic area. It is shown separately on this table to illustrate that its VRM Class is common to all alternatives.

the planning area. However, if project planning for vegetative treatments are done at the same time as road and trail planning, there would be greater opportunity to address project specific visual resource concerns.

Roads and trails

Alternative 1 leaves much of the planning area open to cross-country vehicle travel, and does not provide some basis for reduction of road density and braided road/trail networks. In Alternatives 2-7, the movement towards fewer and more highly managed access points, and development of a designated road network would improve visual quality throughout the planning area. Many areas currently have upwards of 50 separate motorized access roads and currently contain extensive road networks of up to 8 or more miles of road per square mile. The change from dense, confusing, and braided road networks to a more managed condition that is somewhat natural appearing would provide an increase in visual quality for all areas, regardless of VRM Class designations. Alternatives 2-7 also provide direction for rehabilitating/restoring hillclimbs in highly visible locations such as Horse Ridge, Cline Buttes and Steamboat Rock.

WUI treatments

WUI treatments would have about the same level of potential effects on visual resources for all alternatives. These impacts would be greatest for public land visitors and adjacent residents who have an immediate, close range view of treated areas. In some cases, the WUI treatments may improve visual quality by opening up views or reducing the contrast between heavily wooded BLM and adjacent private land that is thinned or cleared. The greatest potential for visual effects from WUI treatments would occur in

locations where the thinning/clearing would highlight the linear nature of the BLM/Private boundary, especially when visible on prominent landforms that form community backdrops. These potential impacts are greatest in VRM Class 2 and 3 areas that are highly visible due to prominence of landforms or high degree of recreation use. These areas would include portions of the Smith Rock area, canyon and upper slope portions of Cline Buttes, areas surrounding the Wagon Roads ACEC, Powell Butte, portions of West Butte, and portions of the viewshed of Prineville Reservoir. WUI/vegetation treatments in these areas would be assessed a project level scale to ensure that VRM Classes are met; and in many of these cases, careful project design may minimize the visual effect of these WUI treatments.

In all alternatives, WUI treatments have the potential to significantly affect the visual resources associated with VRM Class 1 areas (i.e., WSAs). In particular, the Steelhead Falls WSA is located in a WUI zone. In this case, it is assumed that the VRM Class 1 standard will be met and WUI treatments in this area may be replaced with hazard reductions on private lands instead.

Land Tenure/Community Expansion lands
Land tenure designation Z-3 and Community Expansion lands are the two planning designations that provide conditions for the most likely sale or disposal of BLM-administered lands. For the alternatives, when the acreage of these two designations are combined, Alternatives 1 and 2 have the highest potential for loss of open space lands through disposal of Z-3 or development of Community Expansion lands (see Table 4-21). Alternatives 3 and 6 have relatively small amounts of BLM land intended for disposal, and the Community Expansion lands for these alternatives have stipulations that require their use as parkland/open space. Alternative 7 retains the same type of stipulation as 3 and 7, but for a smaller area only located along State Highway 97 between Bend and Redmond.

However, the actual disposition of Z-3 lands is based on many variables, and it is unclear how many, if any of these lands would actually be disposed of over the period the UDRMP applies. Most of the Z-3 lands, as well as the Community Expansion lands, are located in areas that do not have high scenic quality; however, they would generally represent a change in character from naturally appearing open space to development if disposed of.

Although Alternatives 3, 5, 6, and 7 provide for the least potential transfer of BLM-administered lands, Alternatives 3, 6, and 7 represent the greatest potential for change in vegetation types and active vegetative treatments (see Vegetation and Wildlife Habitat Restoration, above). The scale of the possible vegetative treatments makes them a greater potential factor in visual quality than the land ownership designations.

Table 4-21. Z-3 and Community Expansion lands (acres) by Alternative.

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Z-3	15,422	12,639	7,456	9,669	7,821	5,107	5,107
Community Expansion	5,617	7,592	3,121	8,512	5,776	5,115	9,889
Total	21,039	20,231	10,577	18,181	13,597	10,222	15,096

Cumulative Impacts
As stated in the assumptions section of this assessment, the population growth and increased development in the planning area will likely both increase the sensitivity of the public regarding visual quality and increase the importance of BLM-administered lands as an open space backdrop to local communities. The increased recreational use of BLM-administered lands through the implementation of the UDRMP will also increase the sensitivity of the public towards the visual quality of BLM-administered lands.

Recreation

Summary/Assumptions

Recreation opportunities on BLM-administered lands are affected by many different factors and decisions in the UDRMP. Plan decisions that directly affect recreation include the recreation allocations made in the plan, including travel management designations, goals and objectives for motorized and non-motorized trail development, and decisions made on how group use and special recreation permits are authorized and managed. Plan decisions on designation of ACECs, transportation management, wildlife habitat management/restoration, may also have a direct affect on recreation opportunities. Other actions proposed in the plan have an important, but indirect effect on recreation opportunities. These indirect effects include designation of most of the planning area as a Special Recreation Management Area (SRMA), use of R&PP Leases to provide recreation opportunities, and plan goals for education, interpretation and partnerships.

The discussion of direct, indirect, and cumulative effects of the various alternatives on recreation opportunities are based on many assumptions concerning BLM's management ability, traditional role as a recreation provider, the availability or capability of other recreation providers in the region, population growth, and demographic changes. The alternatives were developed based partially on the following assumptions, which are also considered in the analysis of effects:

1. Recreation demand will increasingly mirror community needs and organization. Requests for event and commercial recreation permits will increase as more community groups, clubs, and commercial and educational organizations rely on BLM lands that offer easy access on a daily basis.

2. All types of recreation use will increase over the length of the planning period. Winter trail use will continue to be a critical demand in the planning area, for both motorized and non-motorized use.

3. BLM will increasingly seek funding from outside sources for development of both motorized and non-motorized trail systems. BLM will increasingly rely on community groups and volunteers to implement management strategies, and this may affect where implementation efforts are concentrated.

4. The long-term success of recreation management goals is dependent upon completion of area-specific recreation plans for many areas such as Millican Valley, Cline Buttes, Steamboat Rock, Mayfield, etc. Without completion of area-specific plans, recreation opportunities in these areas will be limited, the quality of recreation facilities will be low, and user conflicts will likely increase.

5. Implementation of recreation management goals would be done in a phased approach, with some areas receiving further subsequent planning and stronger implementation efforts than others. Some areas will receive little, if any, management attention. BLM staff and resources will be challenged to provide intensive management for many geographic areas simultaneously. Currently, recreation

management emphasis is placed on the Millican Valley OHV area and the Badlands and Steelhead Falls WSAs. Plan direction for intensive management of many other areas will be extremely difficult to implement.

6. BLM will increasingly be placed in a transition role as a recreation provider, with resources oriented toward wildland recreation during a period of increasing demands for highly managed, more developed recreation settings. The demand for R&PP leases of BLM-administered lands to provide for community recreation facilities will increase as the region's population continues to grow.

7. Providing managed access and designated road systems will provide higher quality recreation opportunities; however, this potential increase in quality is dependent on engineering and maintenance levels. Poorly done or inadequate facility design or access management will create additional user created roads as visitors bypass closures or poorly maintained roads/trails to maintain historic access or behaviors.

8. Declining disposable leisure time among those still in the workforce may create and increase demand for recreation activities closer to home.

9. The demand for motorized trail opportunities is particularly dependent on large blocks of land that offer all day riding or weekend long riding opportunities while avoiding crowded conditions. User satisfaction increases with an increase in trail miles and the number of loop opportunities, because it offers the ability for more riders to use the trail system at one time without encountering each other.

10. Although large blocks of land are important for providing motorized trail opportunities, there is also a need for motorized trail opportunities relatively close to urban areas. These areas may need more intensive management than areas further away from urban growth boundaries.

11. Areas that offer topographic variety offer better quality trail use opportunities for the majority of trail users than predominantly flat areas. Areas that offer a variety of vegetation types, with some degree of shade provided by trees, offer better quality trail use opportunities than areas with uniform vegetation and little or no shade. Areas that are unfragmented by paved roads, major subdivisions, railroad lines, or other barriers provide better trail opportunities for most users.

12. The planning area will continue to be a destination for motorized trail use, with many visitors coming from the western portion of the state or from more distant locations to utilize designated trail systems.

13. The designation of identifiable management areas based on public land blocks, major topographic features or major road boundaries will result in more effective plan implementation and public understanding of regulations than boundaries based on indistinct, unrecognizable management boundaries (e.g., section lines).

14. The management of areas with separate trails systems for motorized and non-motorized users will require a higher level of management intensity, and given the lack of recreation resources, will continue to have a high degree of user conflicts and lower quality of recreation experience.

15. The road system in all areas designated as "Limited" will be revised to provide recreational and administrative access. Local roads to be used as part of the designated system will be identified through area-specific planning. Local road closures would generally not be done outside of an overall area-specific planning effort.

16. The need for non-motorized trails will continue to increase, particularly trail opportunities relatively close to urban or residential areas. As the popularity of these areas increases, user conflicts (between and among recreation user groups) will likely result in recreationists either creating new trail opportunities in these areas or moving to less used, more outlying areas.

17. The Badlands and Steelhead Falls WSAs will increase in popularity. Until Congressional decisions are made on wilderness designation for these areas, the interim management policy leaves BLM with little ability to revise or create a well functioning road/trail system in these areas.

18. Alternatives with an increased emphasis on vegetation manipulation, particularly on mechanical vegetation treatments, will likely reduce recreation quality, at least over the short-term, due to changes in visual character or removal of juniper trees, which provide screening and shade, help define trails, etc.

19. Diversity of recreation opportunities is dependent upon the BLM and its partners to provide facilities, services, and active resource and social management. Without active recreation management including specially-designated use areas, designated trails, and public information on road and trail systems, the resulting recreation setting will offer a high degree of freedom of choice, but will also result in limited opportunities for many types of recreation. Without active recreation management, most BLM lands in the urban interface will be defined by a dense network of undesignated, user-created roads and trails, impacted natural and cultural resources, and a degraded social experience unpopular with many legitimate recreation users, even to the point of displacing some users. There is good evidence to show this is already happening in some places within the planning area.

20. The demand for Special Recreation Permits for non-motorized trail use will increase, partially due to development of additional destination resorts adjacent to BLM-administered lands in the planning area.

Analysis of Alternatives

Alternative 1

Special Recreation Area Designations
Alternative 1 treats the planning area as an Extensive Recreation Management Area (ERMA), with relatively few controls or regulations on recreation use, when compared with Alternatives 2-7. No Special Recreation Management areas would be identified and the planning area would not have a specific identity as a high use recreation area. Lacking this identity, the ability to communicate management strategies or garner additional funds to implement the plan would be less than Alternatives 2-7.

Travel Management/Recreation Emphasis Designations
For alternative 1, the majority of the planning area is open year-round to motorized use (approx. 81 percent). Approximately 25 percent of this travel management designation is managed for motorized vehicle use on existing roads and trails, while about 32 percent is managed for vehicle use on designated roads and trails (mainly in the Millican Valley OHV area). Seasonal Closures to motorized use include winter/early spring motorized closures of South Millican and North Millican OHV areas. Most of the planning area is not managed to separate different types of recreational users or provide trail opportunities specifically for non-motorized uses. About 78 percent of the planning area is managed for multiple use (motorized and non-motorized) on the same system of existing or designated roads and trails.

Alternative 1 does allow the greatest degree of user conflicts and conflicts between recreationists and adjacent landowners. Interestingly, the majority of the acreage that is designated Open (i.e., cross-country travel allowed) is located in the most urban and densely developed portions of the planning area (Steamboat Rock, Bend-Redmond, La Pine, and a portion of Cline Buttes). Management of motorized use either by seasonal closures or development of designated route systems is primarily in response to wildlife or other ecosystem needs, not social conflicts.

The Millican Valley OHV trail system is the only recognizable and managed trail system in the planning area. Outside this area, the lack of designated, signed or maintained trails will lead to user creation of trails, user conflicts, resource damage, trespass, and a general lack of knowledge about recreation opportunities on BLM managed lands, particularly for out of area visitors. Approximately 75 percent of the designated trail system acreage in Millican Valley is closed during the winter and early spring months when trail use on BLM lands is most popular – which may result in concentrated use in areas without clearly designated trail systems such as Millican Plateau and Cline Buttes.

Nearly all of the La Pine area is treated as an Extensive Recreation Management Area, with few controls or management of recreation use. With the exception of the Rosland OHV play area, and a small closure area near La Pine State Park, the entire area is designated "Open", with cross-country travel by motorized vehicles allowed. The Rosland OHV play area and surrounding area are managed for motorized use on designated trails and in the play area.

Little, if any, of the planning area receives intensive recreation management resources (an area with motorized and non-motorized uses separated on different road or trail systems). While this means that management costs are relatively low compared to other alternatives, it also means the diversity and quality of recreation opportunities is lower.

Thirteen percent of the planning area is seasonally closed to motorized use, while only 1.6 percent is closed year-round to motorized use.

The recreation characteristics of Alternative 1 are displayed in Table 4-22.

Motorized Use (Roads and Trails)
Alternative 1 allows a high degree of user choice and flexibility for motorized recreation; however, a large portion of the Millican Valley OHV trail system would not be available for motorized trail use during the winter when the use demand is highest. The only other area where a designated trail system is proposed is Cline Buttes, and this alternative offers the highest degree of flexibility for development of a motorized trail system in this area. If the seasonal restrictions are successfully implemented for this alternative, use levels in Cline Buttes may continue to increase at a faster rate than for those alternatives where North Millican is open in the winter (i.e., Alternatives 2, 4, 7 and to some extent, 5). For much of the remainder of the planning area (La Pine, Bend-Redmond, Prineville Reservoir, etc.) the lack of designated roads and trails would provide opportunities for exploration, but no understandable, consistent, and maintained motorized recreation opportunities that can be communicated/promoted to the public.

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 1 provides a high degree of access and user choice, since more the planning area is Open to cross-country travel or travel on existing roads than in any other alternative. No direction would be provided to reduce redundant access points or upgrade parking/trailhead areas outside of the Millican Valley OHV area. The lack of road and access management strategies would likely result in increased road densities and poor recreation opportunities due to dumping, confusing road networks, and general unmanaged appearance of many areas. Motorized access in the Badlands WSA would remain at approximately 7.6 miles of routes open year-round, with an additional 12.9 miles of route available seasonally (See Table 4 - 23).

Table 4-22. Recreation characteristics of the alternatives, in acres (and percent). Most figures rounded to whole numbers.

Recreation Management Emphasis	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 5**	**Alt. 6**	**Alt. 7**
Multiple Use with Shared Facilities	315894(78)	311,975(77)	157,467(39)	269,010(67)	210,730(52)	165,674(41)	153,081(38)
Multiple Use with Separate Facilities	0	0	29,086(7)	0	40,856(10)	31,020(7.7)	27,196(6.7)
Emphasis on Non-Motorized Use	42(0.01)	58,532(15)	65,497(16)	92,081(22.9)	86,214(21)	69,392(17)	87,367(22)
Exclusive Non-motorized use management	11,111(2.7)	25,699(6.4)	81,619(20.3)	24,316(6.0)	54,548(14)	83,804(21)	87,832(22)
Roads Only, low recreation emphasis	75960(19)	5,273(1.3)	67,930(16.8)	15,747(3.9)	9,954(2.5)	51,548(13)	47,428(12)
Non-Recreation Emphasis		1,524(0.4)	1,404(0.3)	1,564(.4)	405(0.1)	1,564(.4)	1,563(.4)
Travel Management Designation	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 5**	**Alt. 6**	**Alt. 7**
Designated Open[1]	153664(38)	0	0	0	0	0	0
Designated Closed	6554(1.6)	20,336(5)	75,960(19)	23,473(5.8)	48,016(11.9)	78,429(20)	91,755(23)
Limited to designated roads only year-round	80517(20)	89,050(22)	111,298(28)	98,333(24)	92,447(23)	68,871(17)	83,230(21)
Limited to designated roads only – closed seasonally	0	396(0.1)	11,329(2.8)	41,015(10)	41,375(10.3)	51,394(13)	49,203(12)
Limited to designated roads + trails year-round	0	282,025(70)	101,937(25)	211,370(52)	154,738(38)	136,583(34)	157,724(39)
Limited to designated roads + trails - closed seasonally	47,146(12)	11,196(2.8)	77,804(19)	24,080(6)	66,426(17)	62,534(16)	17,685(4.4)
Limited to existing roads + trails year-round	95065(24)	0	0	0	0	0	0
Limited to existing roads + trails - closed seasonally	4651(1)	0	0	0	0	0	0
Closed at specified snow depth	15399(3.8)	0	19,847(4.9)	0	0	0	0
Limited to type of vehicle	0	0	0	4,731(1.2)	0	5,191(1.3)	4,868(1.2)
Seasonal Use Restrictions	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 5**	**Alt. 6**	**Alt. 7**
Open Year-Round[2]	329,259(82)	371,074(92)	218,102(54)	314,434(78)	247,185(61)	210,646(52)	245,822(61)
Closed Year-Round	6,554(1.6)	20,336(5)	75,960(19)	23,473(5.8)	48,016(12)	78,429(20)	91,577(23)
Closed December 1 through March 15	0	396(0.1)	0	0	0	0	0
Closed December 1 through March 31	0	11,196(2.8)	5,428(1.3)	11,237(2.8)	11,237(2.8)	5,428(1.3)	5,872(1.4)
Closed December 1 through April 15	4,624(1.1)	0	0	0	0	0	0
Closed December 1 through April 30	33,647(8.3)	0	65,647(16)	32,713(8.1)	0	90,445(22)	42,935(11)
Closed December 1 through July 31	13,525(3.4)	0	17,661(4.4)	0	0	0	17,685(4.4)
Closed December 15 through March 15	0	0	396(0.1)	0	396(0.1)	396(0.1)	396(.09)
Closed January 1 through April 30	0	0	0	21,144(5.2)	48,769(12)	0	0
Closed February 15 to July 31	0	0	0	0	17,657(4.4)	0	0
Closed march 15 to September 15	0	0	0	0	0	17,658(4.4)	0
Closed July 15 to December 15	0	0	0	0	29,742(7.4)	0	0
Snow Closure - Variable Date	15,399(3.8)	0	19,847(4.9)	0	0	0	0

[1] **Open Designation** – BLM designates areas as "Open" for intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country vehicle travel.

[2] **Open Year-round (Seasonal Classification**) – any area that is open to motorized vehicle use year-round either as an open area with cross-country travel permitted; an area limited to designated roads, trails, or both; or an area limited to specific vehicle types.

Table 4 - 23. Badlands WSA Travel Management by Alternative (expressed in miles)

	Alternative						
	1	2	3	4	5	6	7
Motorized routes available Year-round	7.6	23.4	0	0	0	0	0
Motorized routes available seasonally	12.9	0	0	23.4	17.7	0	0
Non-motorized routes available year-round	28.3	25.4	49	25.4	31.1	49	49
Mechanized routes available year-round	49	49	49	49	49	0	49

For all alternatives, the approximately 49 miles of inventoried routes would be available for non-motorized, non-mechanized use year-round. For Alternative 5, motorized routes available seasonally would also be available for game retrieval (as part of a legal hunt) during the closure period.

The management of the Northwest Block would be inconsistent with adjacent CRNG travel management policy, which closes adjacent CRNG lands to motorized use during the winter.

Non-Motorized Use (Roads and Trails)
Non-motorized trail use (equestrian use, hiking/running, mountain bike, etc.) opportunities would be limited under this alternative. No specific direction for development of non-motorized trails would exist. The effects on non-motorized trail users would be similar to the effect on motorized trail users – without mapped, understandable, designated trail systems, the ability for many people (particularly infrequent or out of area visitors) to participate in trail use activities on BLM-administered lands would be lower than Alternatives 2-7. In general, user conflicts would continue and possibly increase as more recreationists utilize the same designated or user created trail systems.

Alternative 1 does provide some opportunities for non-motorized trail use in the Steelhead Falls and Badlands WSA, and on designated trails in the Millican Valley OHV area. However, trails in Steelhead Falls WSA are relatively short in length, and are ill-defined and generally not maintained. Under this alternative about 28 miles of routes in the Badlands WSA are available for exclusive non-motorized use year-round. More miles of exclusive non-motorized routes are available when routes 5, 6, and 7 are closed to motor vehicles from December 1 to April 30. The designated trail system in North Millican and South Millican areas are open to non-motorized use, and in the winter/early spring, these trails are available to non-motorized, non-mechanized use exclusively. However, these trails are not designed specifically for non-motorized use. Alternative 1 does close these trails to mountain bikes during the winter/early spring, which represents a fairly large closure area close to Bend. Although this restriction has not been widely enforced or publicized in the past, if it was widely recognized, it may tend to increase use in the adjacent Horse Ridge and Badlands WSA areas, as well as on undesignated trails at Cline Buttes.

Rock Climbing
No specific management would be applied to rockclimbing in the popular use area adjacent to Smith Rock State Park (BLM-administered lands along the Crooked River and crags located north and east of the State Park). In addition, the Sisters Bouldering Area would not be identified or managed specifically for climbing use unlike the action alternatives. Under Alternative 1, Pictograph Cave would be closed to all visitation, eliminating caving and rock climbing activities at this location (See Caving section, below).

Interpretive/Educational Use
With the exception of the existing Wagon Roads ACEC, no areas would be designated or managed specifically for interpretive use.

Caving/Cave Dependent Recreation
In addition to the cave management measures outlined in Common to Alternatives 2-7 below, the following effects to cave-related recreation occur for Alternative 1:

Pictograph Cave would be closed to all visitors. The opportunity for caving would be reduced somewhat on BLM-administered lands, since Pictograph Cave is one of the larger caves located on BLM managed lands. However, there would still be opportunities for caving on BLM-administered land and at the lava tubes on USFS, Deschutes National Forest lands. Opportunities for sport climbing at Pictograph Cave would be eliminated under this alternative.

Special Recreation Permits/Group Uses
Alternative 1 does not place any specific limits on SRPs, either for commercial, competitive, or organized group events. However, the lack of designated roads and trails throughout most of the planning area under this alternative would make authorization of special recreation permits for both motorized and non-motorized use difficult. The one area relatively close to Bend with designated trails (North and South Millican) would be closed to trail dependent events during the winter. The lack of SRP opportunities for trail activities on BLM would shift this use to the USFS managed areas that do not receive heavy snowfall and to BLM lands further east of the planning area. The lack of SRP opportunities would also tend to increase the illegal commercial and group event activities currently taking place on BLM-administered lands. Areas of high interest for these uses, based on past requests (e.g., Badlands WSA, Steelhead Falls WSA, Millican OHV area, and Cline Buttes) would continue to have the following impediments: 1) Interim Management Policy requires an EA for SRP authorizations in the Badlands and Steelhead Falls WSA, and BLM generally lacks sufficient staff to do these EAs, and 2) The North Millican area is closed to events during the winter, when demand is heaviest. Cline Buttes currently does not have a designated trail system or parking/staging areas. In the Cline Buttes area, at least for the short term (3 to 5 years), the processing of trail use permits would be difficult, if not impossible due to the lack of designated trails that have received NEPA clearance.

OMD Use
Due to the large amount of acreage designated Open in Alternative 1, the use of the Bend-Redmond block for motorized trail use may not be as great as other alternatives. However, Alternative 1 does not call for designated road and trail systems in the Bend-Redmond block, so while the recreational use may be relatively low, it is unmanaged and may lead to conflicts between OMD's permitted use and recreational use. Given these two factors, conflicts between OMD use and recreation for Alternative 1 may be fewer than most other alternatives except Alternatives 2 and 3 (which may tend to concentrate more recreation use in the Bend-Redmond block).

Alternative 1 does not provide additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities may have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife
Wildlife management prescriptions in Alternative 1 result in the seasonal closure of the North Millican and South Millican areas, as well as the Badlands WSA. The closure of the North Millican area from December 1 to April 30 restricts the use of approximately 61

miles of designated trails during the period of highest demand for motorized trail use in the planning area. About 48 miles of designated trails remain open in Millican Plateau during this closure, as well as additional trail miles in the portion of Millican Plateau that is limited to existing routes. However, the reduction in overall miles of designated and maintained trails is a negative effect on motorized trail use, particularly for those riders coming from out of area, who do not have the time to discover appropriate and useable trail loops in the unmanaged, undesignated portion of Millican Plateau.

Like other alternatives that seasonally close all or a portion of the North Millican Area (Alternatives 3, 4, 5, and 6), there may be a positive effect on non-motorized recreation, as the designated trail system would be open to this use during the closure period for motorized use. In general, the high use period for non-motorized uses is also during the late fall, winter period. To some extent, the lack of facilities specifically for non-motorized users or lack of trails engineered specifically for their use (e.g., technical single-track for mountain bikes), limits the benefit of this exclusively, non-motorized use period.

The closure period for motorized use in South Millican results in greater effects to motorized recreation, since the trails (about 12 to 14 miles) would be closed for all but 4 months of the year. Generally, three of these months occur during conditions that do not provide quality riding opportunities. The benefit of this closure to non-motorized uses is somewhat limited, as non-motorized use tends to occur more regularly in the areas surrounding the South Millican OHV area (e.g., Horse Ridge).

Several other seasonal closures occur in Alternative 1, including winter closures at the Tumalo block and north of Prineville Reservoir. These areas do not have designated trail systems for any users, and thus may not represent a major effect on existing recreation use. However, these closures have restricted access for non-motorized users since often, no provisions for access around locked gates are made.

Cumulative Effects

The lack of management direction for non-motorized trails, coupled with the region's population growth and increase in development adjacent to BLM-administered lands, would likely lead to an increase in user created non-motorized trails. The existing use of trails on the Deschutes National Forest for mountain biking will increase the demand for trail use on BLM-administered lands that offer fall, winter, and early spring riding opportunities. The lack of management direction for providing designated trails may lead to an increase in user created routes, particularly at locations close to Bend (Cline Buttes, Horse Ridge, and Tumalo blocks).

The demand cited above, coupled with the paving of Millican/West Butte Road that leads to easier public land access, may result in increased use of existing trails, and improvement or development of additional trails for non-motorized use in Millican Valley, particularly in challenging terrain such as at West Butte.

The lack of management direction for developed and managed access points, coupled with the same growth factors, would likely lead to an increase in user created roads and a deterioration of existing road conditions as more people use roads that receive little or no maintenance and chose to create new routes that offer better driving conditions.

Potential increased development at Prineville Reservoir State Park may increase use levels on BLM-administered lands adjacent to State Park and BOR managed lands. Lack of recreation management goals for these lands may result in poor quality recreation opportunities, confusing trail and road access conditions, and lack of coordination between the agencies.

The regulations on rockclimbing, establishment of bolt protected (sport climbing) routes, and bouldering adopted by the USFS in the Road 18 Caves Project EA would, when combined with the closure to all use at Pictograph Cave in Alternative 1, eliminate most opportunities for sport route climbing in caves close to Bend. Some opportunities for bouldering in USFS administered caves would remain. The cumulative effect of USFS and BLM policy would reduce the diversity of climbing opportunities somewhat in Central Oregon.

Conclusions
Alternative 1 provides a limited diversity of recreation opportunities, managing the planning area as an extensive recreation management area with few provisions made for specific recreation settings. With the exception of Cline Buttes, Millican Valley, and both WSAs, recreation use would be self-directed, with little, if any, information or facilities (including designated roads and trails) provided. In general, no provisions would be made to reduce conflicts other than a reactive, case by case response.

Common to Alternatives 2-7

Special Recreation Area Designations
All action alternatives provide a greater identity for the planning area by designating most of the area as a Special Recreation Management Area (SRMA). The SRMA and its different geographic areas are shown in Map 1, UDRMP Planning Area. For all action alternatives, SRMA designation may increase the awareness of the management needs and recreation opportunities in the planning area, and increase the ability for BLM to partner with community groups and other organizations.

Travel Management/Recreation Emphasis Designations
The common themes throughout all action alternatives are a planning area-wide change in travel management from large areas being designated as Open or as Limited to Existing road and/or trails to areas designated as Limited to designated roads and trails where these uses are provided for. This would change the overall management emphasis of BLM lands in the planning area in a fundamental way, removing the emphasis on exploration, user choice, and self-creation of recreation opportunities. In effect, the combination of management decisions in all action alternatives changes the recreation opportunities from those in a an Extensive Recreation Management Area (ERMA – See XX) with a more intensively managed recreation experience, with greater definition of available opportunities, regulations, and different recreation settings.

Alternatives 2-7 place an emphasis on development of road and trail systems that replace the user created or historic system of roads/trails that do not provide loops and often dead-end at private land boundaries. Concurrent with this direction, there is an overall direction to reduce the number of redundant road access points, and provide well placed access points that minimize conflicts with adjacent land owners. All alternatives would close parking areas, trailheads and staging areas to overnight use unless otherwise designated and posted. This measure would help reduce conflicts with adjacent landowners and reduce the amount of illegal occupancy, particularly for alternatives that close areas to motorized vehicle use near communities.

If these travel management/engineering solutions are implemented, some degree of user choice, exploration, and self-reliance would decrease as the entire area moves toward a designated road and trail system. However, there would be some increase in quality and availability as people from out of area or infrequent visitors can utilize mapped, designated and signed transportation systems.

If these travel management/engineering solutions are implemented, there would be a reduction in conflicts in many areas, and likely an increase in recreation quality, as the road system could be designed to provide loops, remove confusing braided road

networks, and avoid dead-end roads and minimize conflicts with adjacent property owners. However, given the amount of acreage identified for designated road and trail systems, it is likely that in the short term, many areas will not undergo specific road and trail planning and will either remain as unmanaged travel networks or have interim systems implemented that do not offer quality recreation experiences due to a lack of quality road/trail facilities/alignments or just an overall shortage of road/trail miles contained in interim systems (which will likely rely heavily on roads versus trails). Areas that do not currently contain designated travel systems, but have a high level of existing motorized recreation use will likely see reductions in motorized trail opportunities over the short-term for all alternatives, until area specific recreation management plans are prepared. Of all the geographic areas in the UDRMP area, the effects to motorized use in Cline Buttes would likely be the greatest.

Motorized Use (Roads and Trails)
See Travel Management section, above, for direction.

Non-Motorized Use (Roads and Trails)
All action alternatives call for an increase in non-motorized trail development. Although the alternatives vary in the amount of acreage devoted to this use, either exclusively or in combination with motorized trail or road use, every action alternative increases the non-motorized trail emphasis from the current situation (i.e., no emphasis). All action alternatives call for BLM to provide travel and access maps, to designate river access points (providing managed, maintained parking areas and trails where legal access exists to rivers, particularly the Middle Deschutes). This measure would reduce effects to river corridors from unmanaged trail use and provide additional opportunities for hiking, wildlife observation, fishing, and other recreation uses. Some additional conflicts with adjacent landowners may occur due to designation and improvement of access points, as some access points may increase in popularity. To mitigate this, the UDRMP does call for locating designated parking areas/trailheads away from private lands to the extent feasible.

All action alternatives identify the North Unit Main Canal as a potential regional trail and direct BLM to work with other agencies and local governments to explore this opportunity where the canal bisects the Bend-Redmond block. This trail could form an important recreation component for the area, serving a Statewide Comprehensive Outdoor Recreation Plan identified need for regional trails, particularly for trail use during the wintertime. However, given the canal's management by BOR, designation of this canal as a regional trail is outside the scope of this plan or BLM's authority.

All action alternatives call for management of the Skeleton Fire/Horse Ridge area specifically for non-motorized trail development. All of the alternatives call for provision of non-motorized trail development around Prineville Reservoir. For all action alternatives, the Dry River Canyon would be managed as a non-motorized trail and the base of the canyon would be managed to provide designated parking and to eliminate the braided road network and user created campsites throughout the area.

All action alternatives identify needs for developed and designated access points, trailheads, etc. and establish goals for providing day use facilities (picnic tables, trash containers, restrooms, at these as necessary). In addition, Alternatives 2-7 close these areas to overnight use, except where specifically designated for such use. Depending on the level to which these facilities are developed, there would be an increase in the diversity and quality of recreation opportunities. In areas where these types of improvements are made, visitors would see a managed area as an entry statement instead of the widespread current condition of braided roads, dumped garbage and abandoned automobiles.

Interpretive Use
All action alternatives would designate several additional areas for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC (or equivalent for alternatives that designate larger ACECs throughout the Cline Buttes block). These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. All action alternatives would close the Redmond Caves parcel to motorized use, and provide conditions that foster interpretive/educational use.

Special Recreation Permits/Group Uses
Although not specifically a Special Recreation/Group Use guideline, if the plan direction for additional designated trails is implemented, there would be an increase in the ability to issue Special Recreation Permits for trail rides and other trail dependent events. A greater diversity of designated trails, particularly in areas of steady use over the past 10 years, would allow for easier review and authorization compared to requests to use non-designated trails.

Over the short-term, all annual special recreation permits for trail use would not be renewed until such use was authorized on designated trails that are part of BLM's transportation system. Over the short term, this would eliminate the two annual SRPs for equestrian use in the planning area. However, this would also provide an impetus for trail designation in areas that currently do not have any identifiable trail systems.

Over the long-term, as more designated trails (both motorized and non-motorized) are developed, it is likely that this policy would direct annual recreation permits to larger areas with substantial trail systems. Smaller commercial operations and commercial operators that are tied to a specific location (e.g., small guest ranches) would have a harder time gaining permits if they are located adjacent to BLM lands that do not have designated trails and lack the ability to shuttle clients to larger BLM areas with designated trails.

All action alternatives provide general policy for management of group use and SRPs, in many cases applying specific group use, special recreation event, or commercial use stipulations for Special Management Areas such as ACECs, RNAs, etc. These restrictions generally limit recreation use to activities that do not impair the values for which an area has been designated. Therefore, for all alternatives there is an increase in the acreage that is closed to motor vehicle use, firearm discharge, campfires, etc. in order to provide opportunities for interpretation, hiking, etc. Generally, these limitations are applied to relatively small areas, and while they would result in a loss of certain recreation opportunities, if implemented successfully, these areas would offer other, new recreation opportunities such as interpretation, group use, nature study, etc.

All action alternatives provide for increased oversight of organized (non-commercial) group use. All organized groups of over 20 people would require a permit for activities on BLM-administered land. For WSAs, group use of over 12 people would require a permit. This policy would remove the present uncertainty about when/if a permit is needed for group use. If this policy is effectively communicated to the public, it would result in fewer user conflicts, conflicts between public land users and adjacent landowners, and conflicts with permittees. There is no limit set on the overall number of group use permits allocated; however, there may be a reduction in organized group events due to the time it would take the BLM to review and issue permits. As stated above, the movement towards a greater diversity of designated trail systems in the planning area would likely make permit review and authorization much easier.

Rock Climbing
Alternatives 2-7 would specifically identify climbing as a management emphasis for the parcel in Fremont Canyon identified as the Sisters Bouldering (a.k.a. Sisters Climbing)

area. The area would be managed to limit motorized travel to a designated access road and parking area. The management of the area would focus on day use activities in order to maintain the natural setting of the site and minimize conflicts with adjacent landowners.

Special Management Areas

All action alternatives call for specific closures or limitation on certain uses, particularly in Special Management Areas such as WSAs, ACECs, and RNAs. Some of these area or site-specific restrictions include limitations on recreational use of smaller parcels (e.g., 40 acre parcels) in developed areas. In many cases, the Special Management Areas that are common to all action alternatives are relatively small, and while they would represent a loss of certain opportunities such as motorized recreation, overnight camping, campfires, target shooting, paintball use, rockhounding, geocaching, etc, given the small scale of these areas in relation to the availability of opportunities elsewhere on BLM lands, the total effect would be minor.

For all action alternatives, the designation of ACECs would provide new recreation opportunities for interpretation and education activities.

Under all action alternatives, mountain bike use on existing trails within the Horse Ridge RNA would not be allowed. This would fragment part of an existing trail system that has generally been in use over the past decade, and likely would result in the need for and/or creation of new trails to skirt the boundaries of the RNA.

Caving/Cave Dependent Recreation

Management policy for significant caves and caves nominated for significance are contained in the provisions of the Federal Cave Resources Protection Act and existing BLM regulations. These are incorporated by reference in the RMP. Additional cave management policy for all action alternatives include limitation on the size of groups allowed in caves. This restriction may limit future educational/commercial use in caves. All alternatives close Significant/Nominated Caves would be closed to geocaching (i.e., the leaving of cache items). This limitation would represent a fairly small restriction on this use, since even with other restrictions on geocaching (closure of ACECs, RNAs, and WSAs) the majority of the planning area would remain open to this use. In any case, the use of the above mentioned areas for virtual geocaching (where items are not left) would remain.

Fuels/WUI Treatments

For all action alternatives, the fuels treatment measures proposed for WUI zones may increase conflicts between recreationists and adjacent landowners, since buffering/screening vegetation along property lines will be removed. The mowing of areas adjacent to private property may result in increased levels of motorized and non-motorized travel along these mowed areas, since they would offer a path of least resistance. There would likely be a corresponding increase in user conflicts due to noise, dust, trespass, perceived safety issues related to firearm discharge, etc. WUI treatments may also increase the number and dispersal of motorized access points, as adjacent residents use the WUI mowed area as an ingress/egress for their property. The issuance of permits for wood product collection in these areas may also increase the incident of unauthorized motorized use in these areas over time, as people continue to collect/harvest wood products both with and without permits.

Wildlife and Wildlife Habitat Management

The emphasis on wildlife habitat effectiveness (70 percent) in many areas designated for non-motorized trail use emphasis (e.g., Tumalo, Northwest, Smith Rock, Prineville Reservoir, Horse Ridge/Skeleton Fire) may limit extensive development of trail systems

for non-motorized use. However, the long-term effect of this direction is uncertain, since the RMP does not identify specific trail alignments or non-motorized trail density standards.

Public Health and Safety Designations
Closures of areas to target shooting may increase recreation quality for other users (see Public Health and Safety Section). In addition, the closure of parking areas, trailheads, etc. to overnight use may reduce user conflicts and conflicts with adjacent landowners somewhat.

Cumulative Effects
The combination of motorized trail use and OMD use in the Bend-Redmond block may result in conflicts between these two uses, although OMD's use of this area is infrequent at most (about 14 days per year). These uses together may conflict with adjacent residential uses, both for inholdings and private lands adjacent to BLM. Future transportation projects associated with State Highway 97 and a permanent secondary access to Pronghorn Resort may result in greater fragmentation of the Bend-Redmond block and may make creation of full day motorized trail riding opportunities difficult, if not impossible.

The presence of designated trails in the North Millican/Millican Plateau areas, coupled with the paving of the Millican/West Butte Road would likely result in increased visitation to this area, and an increase in the diversity of recreation uses of this area due to the easier access for all types of vehicles.

The increased population growth and cost of living in Central Oregon, the existing 14-day camping stay limit throughout the planning area, and the common travel management regulations (roads open year-round) for many areas (Cline Buttes, Bend-Redmond, Mayfield, Horse Ridge) would likely result in increasing numbers of people residing on BLM-administered lands. Although Alternatives 2-7 close some areas to overnight use, and some areas to motorized vehicle use, in general, most of the area immediately adjacent to Redmond remains open to motorized vehicles and overnight use in all alternatives. Under this condition, it is likely that there will be an increase in the current level of illegal occupancy and resulting conflicts, particularly for permittees, recreationists, and adjacent residents.

Conclusions
All action alternatives provide a greater diversity of recreation opportunities and separation of different user types than Alternative 1. All action alternatives eliminate the large scale, Open travel management designations contained in Alternative 1. If these designated travel systems are implemented throughout the planning area, there would be a major shift from the current recreation setting where visitors can explore and create their own opportunities with little management controls. This would change longstanding uses, perceptions and "traditional" use in the planning area, and thus represent a major increase in management costs and communication needs for the BLM.

Alternative 2

Special Recreation Area Designations
Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations
Alternative 2 emphasizes the use of shared road and trail facilities for all users, to a much greater degree than all other action alternatives and the no-action alternative. Approximately 77 percent of the planning area is managed for multiple use on shared facilities in Alternative 2. The only large area where trails are developed for non-motorized use is the Skeleton Fire and Horse Ridge areas, although some routes in the

Badlands are managed for non-motorized use only. Many small parcels of BLM managed land are closed to motorized use; however, this alternative closes the least amount of land to motorized use (approximately 5 percent). The largest single area designated closed to motorized use would be the Smith Rock parcel of BLM managed land. Alternative 2 also provides the greatest opportunity for unrestricted year-round access to public lands, with approximately 92 percent of the area open year-round. Seasonal closures are generally limited only to the Northwest and Tumalo blocks of BLM managed land. Motorized recreation opportunities are spread throughout the planning area, with Millican Valley, the Bend-Redmond block, and Cline Buttes all being managed for motorized use on designated trail systems. Management of the Bend-Redmond block would change from "Open" to a designated system. Management of the Cline Buttes block would change from limited to "Existing" roads and trails to a specific designated trail system.

The La Pine area would receive more active recreation management that the current direction, with most of the area changing from an Open designation to a network of designated roads and trails. The northern 1/3 of the area (near La Pine State Park) would be managed for motorized use on designated roads only.

Areas that receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) comprise about 14.5 percent of the planning area.

2.8 percent of the planning area is seasonally closed to motorized use, while only 5 percent is closed year-round to motorized use.

Specific effects to recreational activities are described below:

Motorized Use (Roads and Trails)
Alternative 2 would provide the highest amount of recreation opportunities for motorized use of all alternatives, with approximately 92 percent of the planning area open to motorized use on designated road and/or trails year-round. Alternative 2 does represent a large difference from Alternative 1 in management of motorized use. While Alternative 1 allows cross-country motorized use on 38 percent of the planning area, Alternative 2 does not provide for any cross-country use (i.e., areas designated as Open). Along with all other action alternatives, the shift from Open to designated travel systems over a large portion of the planning area will require much more intensive BLM management, including road and trail rehabilitation, maintenance, closing unneeded roads/trails, and new road/trail construction.

Under Alternative 2, very few areas would be managed for separate motorized and non-motorized trail systems, and all users would be expected to share the same system. Motorized recreation opportunities would be greatest in the Millican Valley OHV area, since this area has a history of use and an existing system that could be revised relatively easily to respond to the paving of West Butte Road. The quality of the riding opportunities would be relatively high, as the entire Millican Valley OHV area would be open during the winter/early spring. With more miles of trails in a large area, riders would be spread out and experience fewer encounters and conflicts during a day of riding.

Nearly all of Cline Buttes and the Bend-Redmond block would be available for designation of shared use trails (for motorized and non-motorized use). Like Alternative 4, this alternative does provide some motorized trail opportunities north of Prineville Reservoir (which are lacking in all other alternatives).

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 2 provides the second highest degree of access and user choice (Alternative 1 provides the greatest), since more the planning area

is managed for designated roads and trails available year-round. Alternative 2 provides the greatest degree of motorized recreation opportunities in the Badlands, with about 23 miles of inventoried routes available for motorized use (See Table 4 - 23). While the high degree of access may be considered a positive effect for hunting activities, Alternative 2 would also represent a less diverse set of hunting opportunities, as there would be fewer areas with restricted access and primitive hunting opportunities than Alternative 1 and most of the action alternatives.

The size and location of Closed areas would have the least effect on motorized recreation use compared to Alternatives 3-7. In general, the areas designated Closed to motor vehicles in Alternative 2 are small, isolated blocks in urban settings or those that generally do not offer high quality motorized trail experiences.

Non-Motorized Use (Roads and Trails)
Alternative 2 provide the least amount of acreage specifically allocated for non-motorized recreation. While trails would be available in many areas for non-motorized use (such as Cline Buttes, Mayfield, Steamboat Rock, Prineville Reservoir, etc.) these trails would be shared use trails and depending on the level and types of use, may result in user conflicts between motorized and non-motorized recreationists to the point where the experience is degraded for all users.

While Alternative 2 provides the least amount of acreage specifically for non-motorized trail use of all the action alternatives, it does provide direction for a small increase over Alternative 1 in areas managed for non-motorized trail designations. These areas include the Skeleton Fire and Horse Ridge areas, the area south of Alfalfa Market Road, the Northwest and Tumalo Blocks, and the Taylor Butte area at Prineville Reservoir. Management of these areas all provide for small amounts of motorized access on roads; however, the amount of roads would generally be limited to a few main roads and the recreation emphasis would be on providing a workable trail system. Unlike Alternatives 3-7, there would be no large areas designated for exclusive non-motorized use, and opportunities for non-motorized trail use in areas of quiet and solitude would be the most limited among the action alternatives. Given this alternatives reliance on providing non-motorized trails in areas with motorized road access, there would be a relatively high degree of management intensity through signage, maps and patrols to maintain separation of users between road and trail use.

Special Recreation Permits/Group Uses
The provision of non-motorized designated trails in some areas would allow for greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. This benefit would likely be greatest in the Skeleton Fire and Horse Ridge areas, where trails would be provided exclusively for non-motorized use and where demand currently is relatively high. The demand for special recreation permits for non-motorized trail events is also high in Cline Buttes and likely will increase in the Bend-Redmond and Millican Plateau or Mayfield areas with the development of new resorts. In the case of the Cline Buttes area, Alternative 2 may require the temporary closure of trails to certain users (e.g., motorized) during special events to provide for visitor safety.

There would be few, if any, restrictions on the management of motorized events. The seasonal closure to events in Millican Valley would not occur.

Rock Climbing
Rock climbing opportunities would be managed similar to most of the other action alternatives. No specific management guidelines would be provided for management of climbing routes adjacent to Smith Rock State Park, other than an emphasis on rehabilitation, stabilization, and consolidation of climbing area access trails. The Sisters Climbing area would be managed for climbing opportunities specifically. Establishment

of sport routes in Pictograph Cave would be allowed, which would provide a somewhat unique climbing opportunity regionally (see also Caving/Cave Dependant Recreation, below).

Interpretive Use
As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use.

Caving/Cave Dependent Recreation
Pictograph Cave would remain specifically available for the installation of sport climbing routes in areas not posted as closed to this activity. It is uncertain how much climbing would be affected under this alternative, since it is reasonable to assume that many areas of past route development occur in locations of cultural resources and would be closed to route development. Although the difficulty of these routes may limit visitation somewhat, the fact that Pictograph Cave would be the only cave open to sport climbing (bolt protected routes) in the Arnold Lava Tube system would tend to increase visitation over time. Pictograph Cave would be closed seasonally to all visitors, which would reduce cave recreation opportunities on BLM land somewhat; since Pictograph Cave is one of the larger caves located on BLM managed lands. However, there would still be opportunities for caving on BLM managed land and at the lava tubes more prevalent on USFS, DNF lands.

OMD Use
Since the entire Millican Valley area and Cline Buttes would be available for motorized trail development, the use of the Bend-Redmond block for motorized trail use may not be as great as other alternatives (that place restrictions in Cline Buttes or Millican). Therefore, conflicts between OMD use and recreation may be fewer than most other alternatives.

Alternative 2 does not provide additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities may have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife/Wildlife Habitat Management
Wildlife management goals in Alternative 2 provide the least restrictions for public access and recreation among the action alternatives. The emphasis on current distribution of source habitats and relatively low (compared to other action alternatives) acreage with primary wildlife management emphasis provide the most flexibility for a wider range of recreation opportunities or an increased emphasis on year-round access. While Alternative 2 would provide direction for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush steppe plant communities, there would be more flexibility to retain juniper to define trails and meet other needs than in Alternatives 3 and 5. Very few areas would be closed seasonally to motorized use (i.e., only the Tumalo and Northwest blocks). While this provides better conditions for recreational access to a wide range of visitors, there are fewer opportunities for non-motorized use on trails or areas reserved solely for this use (see non-motorized effect section, above).

Cumulative Effects
The combination of year-round use in South Millican, North Millican and Millican Plateau may decrease the amount of use pressure for motorized trail activities on other BLM-administered lands in the planning area and on BLM lands to the east of the

planning area. Although trails are specifically not designated to connect South Millican to the East Fort Rock OHV system, the use of South Millican year-round may increase the likelihood that the use of both South Millican and East Fort Rock trail systems would increase.

The emphasis on shared use roads and trails for this alternative, the increasing amounts of new development on inholdings or adjacent to BLM-administered lands, may increase user conflicts among recreational visitors and between public land visitors and adjacent landowners.

Conclusions
Alternative 2 provides for some separation of recreational user types, although at a lower level than the other action alternatives. Areas managed specifically for non-motorized use opportunities are relatively small, and relate more towards interpretive opportunities or special resource concerns rather than provision of non-motorized trails. In general, Alternative 2 provides a high degree of access, and responds well to the demand for road and trail access during the winter season, when recreational use in many areas is high. This alternative does not provide a high degree of diversity of recreation opportunities, and in areas that already receive high levels of use (e.g., Cline Buttes), may create a management setting that results in increased conflicts both between recreational users and between public land visitors and adjacent landowners.

Alternative 3

Special Recreation Area Designations
Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations
The recreation emphasis varies by area in Alternative 3. The largest percentage (39 percent) of the planning area is still managed for multiple use on shared road and trail facilities (the Bend-Redmond block and Millican Valley). About 20 percent of the area is managed exclusively for non-motorized recreation use (a portion of Cline Buttes, Badlands WSA, Alfalfa ACEC, Tumalo block, and the lower Crooked River), while about 16 percent of the area is managed with an emphasis on motorized use only on roads, with trails provided for non-motorized use (Mayfield, Horse Ridge, and Skeleton Fire areas). The largest blocks of land closed to motor vehicles and managed for non-motorized trail use include the Badlands WSA and an area on both sides of the Chimney Rock segment of the lower Crooked River. Cline Buttes and Steamboat Rock blocks require intensive management for multiple uses on separated road or trail systems. About 18 percent of the area is Closed to motorized use year-round; only Alternative 6 closed more acreage. About 22 percent of the area has seasonal restrictions on motorized use, which is about in the middle of the range of alternatives; however, this alternative does close an additional portion of Millican Valley under heavier snow conditions. During seasonal closure periods in the Millican Valley, motorized use would be managed on designated trails in the Millican Plateau, as well as in the Bend-Redmond block and on separate trail systems in a portion of Cline Buttes.

In the La Pine area, Alternative 3 would represent a major change in management emphasis compared to the current Open designation. Most BLM-administered lands in La Pine would be closed to motorized trail use, except for the area between the Rosland OHV play area and the Deschutes National Forest. Small isolated parcels would be Closed to all motorized use.

Areas that receive the most intensive, high-cost management resources (an area with motorized and non-motorized uses separated on different road or trail systems) comprise a fairly high 23 percent of the planning area.

22 percent of the planning area is seasonally closed to motorized use, while 18 percent is closed year-round to motorized use.

Specific effects to recreational activities are described below:

Motorized Use (Roads and Trails)
Alternative 3 provides fewer motorized trail opportunities than Alternatives 1, 2, 4, and 7. During winter periods with heavy snowfall, the closed area in Millican Valley would increase to include Millican Plateau south of Reservoir Road. In these conditions, use would likely be concentrated in the Bend-Redmond block. Given the acreage closed year-round to motorized use in Cline Buttes and this alternative's emphasis on allowing motorized use mainly on roads in Cline Buttes, this area would not be able to offset the seasonal closures in Millican Valley as well as most other alternatives. Management of Cline Buttes, coupled with seasonal restrictions in South Millican, North Millican, and possible snow closures in a portion of Millican Plateau would place the highest amount of use pressure of all alternatives on trails in the Bend-Redmond block. There would also be a tendency for motorized use to increase on BLM lands east of the planning area, as recreationists use roads and trails in this area to create longer distance riding opportunities for themselves. This alternative would result in the greatest amount of crowding in the Millican Plateau area, although as with all action alternatives, there would be an increase in trails in this area and an increase in the quality of the riding experience as the existing non-designated system is developed into a useable, designated system. During the winter, Alternative 3 would likely result in the relatively heavy motorized use levels in Cline Buttes, higher than most alternatives, but likely slightly lower than Alternative 5.

For Alternative 3, the size and dispersal of Closed areas would have a moderate effect on motorized recreation use, compared with the other alternatives. Blocks of land in Cline Buttes, south of Alfalfa Market Road, adjacent to Prineville Reservoir and throughout La Pine that currently are open to cross-country travel and well-used for motorized recreation would be closed to this use altogether. Unlike Alternative 2, these blocks are relatively large. While the Tumalo block is also closed to motorized use, the area is currently seasonally closed, and does not receive consistent high levels of motorized use, so the effect of closing this area would be less than the areas described above.

The location and dispersal of motorized trail use areas would provide opportunities for trail use close to Bend, Redmond and Prineville, but less easily accessible opportunities west of Redmond, at La Pine, and near Prineville Reservoir. Whereas most of the La Pine area is currently designated as Open to cross-country OHV use, in Alternative 3, almost all BLM-administered land would be off-limits to motorized trail development. This would concentrate use in a small area of designated trails adjacent to the Rosland OHV area, likely increasing user conflicts among OHV users. The lack of OHV opportunities in La Pine may increase the use of the East Fort Rock trail system on the Deschutes National Forest, or increase the use of USFS managed lands adjacent to La Pine.

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 3 provides the lowest degree of access and user choice, since more the planning area is either closed to motorized use, or closed to motorized use seasonally. This alternative provides the least amount of motorized recreation opportunities in the Badlands WSA, with no routes being open to motorized use at any time (See Table 4-23). Alternative 3 would represent a diverse set of hunting opportunities, as there would be more areas with restricted access and primitive hunting opportunities than Alternative 1, 2, 4, and 5. The seasonal and year-round closures in Alternative 3 would pose some difficulties for some hunting access, particularly for game retrieval.

Non-Motorized Use (Roads and Trails)
Alternative 3 provides more opportunities for non-motorized trail use than Alternatives 1, 2, 4, 5, and 7. Relatively large areas would be available for development of non-motorized trails, such as Mayfield, Tumalo, all of Cline Buttes, the Horse Ridge/Skeleton Fire area, and most of the area surrounding Prineville Reservoir. Many of these areas would represent high intensity recreation management settings, with BLM's role in separating users on different road or trail systems requiring major investments in the recreation program for the Prineville District. The Badlands WSA would be closed to motorized and mechanized use, and while the area would continue to be popular for hiking and horseback riding, the layout of the route system defined by wilderness inventory would continue to limit the usefulness of the area for many trail dependent activities.

Like alternative 1, the seasonal trail closures in South Millican and North Millican areas could conceivably supply opportunities for non-motorized trail use in a setting that avoids user conflicts. Alternative 3 provides the highest degree of non-motorized trail emphasis in the area east of Bend, particularly in the winter/early spring. During this period, the Mayfield Area, Badlands WSA, Skeleton Fire area, Horse Ridge, South Millican, and North Millican would be available only for non-motorized trail use.

Under this alternative, larger areas that could support well laid out non-motorized trails would include the Skeleton Fire/Horse Ridge areas, the Mayfield Area, and the Cline Buttes area between Cline Falls Highway and the Deschutes River. Mountain bike opportunities would be increased by the development of designated trail systems tailored to non-motorized users in these areas. The upper portions of Cline Buttes would continue to be a challenge in development of a designated trail system, due to the large amount of private land and corresponding lack of trail continuity.

The location and dispersal of non-motorized trail use areas would provide opportunities for trail use close to Bend, Redmond and Prineville.

Special Recreation Permits/Group Uses
The provision of both motorized and non-motorized designated trails throughout the planning area would allow for greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. This benefit would likely be greatest for non-motorized events, given the large amount of the planning area devoted to this use, particularly in the wintertime. SRPs for motorized events would be focused on Millican Plateau. While the Bend-Redmond block would be available for this use, the fragmented nature of the area and reasonably foreseeable development may limit the area's usefulness for motorized commercial, competitive, or organized group events. Non-motorized SRP use would be accommodated year-round in the Skeleton Fire and Horse Ridge areas, where trails would be provided exclusively for non-motorized use and where demand currently is relatively high. To some extent, development of trails in these areas may take some use pressure off the Deschutes National Forest, which currently provides many more recreation permit and event permit opportunities.

Rock Climbing
Rock climbing opportunities would be managed similar to most of the other action alternatives. The Sisters Climbing area would be managed for climbing opportunities specifically. Alternative 3 would eliminate sport climbing at Pictograph Cave, at least for the short-term; until a site-specific management plan could be prepared (see also Caving/Cave Dependant Recreation, below).

Interpretive Use
As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be

identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 7, Alternative 3 provides the greatest amount of area that could conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation. These areas would include the Alfalfa ACEC area south of Alfalfa Market Road and the Cline Buttes area between Cline Falls Highway and the Deschutes River, which would be managed exclusively for non-motorized recreation.

Caving/Cave Dependent Recreation
All Significant Caves and caves currently nominated for Significance under the FCRPA would be closed to all visitation until cave management plans are prepared. The effects to recreational use would likely be greatest at Pictograph Cave and Redmond Caves, because these are the most well known caves on BLM lands in the planning area. The closure of Redmond Caves would require significant management resources, as these caves are easily accessible and located in an urban setting. The closure of Pictograph Cave would generally continue the existing management direction. Under this management, the opportunity for sport climbing (bolt protected, technical routes) would essentially be eliminated in the Arnold Lava Tube system both on USFS and BLM lands, although bouldering opportunities would remain in some USFS caves. Alternative 3 does allow for interpretive use of Pictograph Cave under SRP provisions contained in Common to Alternatives 2-7.

OMD Use
Under this alternative, OMD's permitted use area would be relatively small, and concentrated in the Bend-Redmond block. The combination of this military use alternative and travel management restrictions in Cline Buttes and North/South Millican may result in higher levels of conflict between OMD and recreational use in the Bend-Redmond block than other alternatives.

Alternative 3 does not provide additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities may have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife and Wildlife Habitat Management
Wildlife management goals in Alternative 3 provide greater restrictions for public access and recreation than all other alternatives. The emphasis on historic distribution of source habitats and highest high (compared to all other alternatives) acreage with primary wildlife management emphasis results in greater acreages closed to motorized recreation during the winter. While all action alternatives call for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush steppe plant communities, there would be less flexibility to retain juniper to define trails and meet other needs than in Alternatives 1, 2, 4, 5, and 7.

A major component of the existing Millican Valley OHV trail system would be closed during the winter. Although this may provide benefits to wildlife, the result may be increased crowding on trails in Millican Plateau or other areas (see Recreation, Motorized Use, above). Restrictions on motorized use to achieve wildlife management objectives do provide an opportunity to provide non-motorized trails in some areas. However, as noted previously in the Common to Alternatives 2-7 section, the design and implementation of non-motorized trails (done in subsequent area or project specific planning) in these areas may be limited by the primary wildlife management emphasis designation made in the UDRMP.

Cumulative Impacts
The regulations on rockclimbing, establishment of bolt protected routes, and bouldering adopted by the USFS in the Road 18 Caves Project EA would, when combined with the closure at Pictograph Cave, eliminate most opportunities for sport route climbing in caves close to Bend. Some bouldering opportunities would remain. This would reduce the diversity of climbing opportunities somewhat in Central Oregon.

The seasonal closures in North Millican, South Millican, and possible snow closures in Millican Plateau, combined with the management strategies in Cline Buttes, may tend to increase motorized trail use in the Bend-Redmond block or in areas not managed for this use. This alternative has the potential to increase motorized use levels on BLM-administered lands to the east of the planning area.

Alternative 3 does not identify many motorized trail opportunities surrounding Prineville Reservoir. The potential for increased recreational development at Prineville Reservoir and increased residential development at Prineville Reservoir State Park (including south of the reservoir) may result in motorized trail use in areas not identified or managed for such use. Much of the area surrounding Prineville Reservoir is managed for motorized use on roads only. Considering the increased development of the area, user conflicts may occur between recreationists and others sharing a limited road system.

The paving/upgrading of Millican/West Butte Road may result in greater numbers and diversity of recreation use, particularly during the winter closure period.

Conclusions
Alternative 3 provides for a more diverse set of recreation opportunities than Alternatives 1, 2, and 4 – with greater separation of users and more marked differences in how geographic areas are managed for recreation (mainly road and trail use). The combination of year-round or seasonal closures to motorized trail use east of Bend (Badlands, Horse Ridge, South Millican, North Millican, Mayfield) and separation of motorized vs. non-motorized uses on different trails in Cline Buttes and Steamboat Rock would tend to reduce motorized trail riding opportunities greater than other alternatives and increase the motorized trail use in areas where BLM would be required to maintain and enforce separate uses on trails within an area.

Alternative 4

Special Recreation Area Designations
Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations
Alternative 4 provides a mix of recreation opportunities, but closes relatively few areas to all motorized use and instead relies more on limiting motorized use to roads in areas where non-motorized trails are provided. Approximately 67 percent of the planning area is still managed for multiple use on a shared system of roads and trails (including most of Cline Buttes, Bend-Redmond, and Millican Valley). Areas that allow motorized use on designated roads only (23 percent), while emphasizing non-motorized recreation on designated trails include the Northwest (Squaw Creek), Tumalo, Maston Allotment, Alfalfa ACEC, Badlands, Skeleton Fire, Horse Ridge, South Millican, and areas south of Prineville Reservoir. Seasonal closures to motorized use occur in the Northwest (Squaw Creek), Tumalo, Badlands, and Highway areas. The West Butte Road would form the boundary between different seasons of use in Millican Valley. The largest closed area managed exclusively for non-motorized trail use is an area north of Prineville Reservoir and east of the Crooked River, which would include trail connections between the Wild and Scenic River corridor and Prineville State Park. The North Millican area west of West

Butte Road would be open a month later each season, allowing for riding opportunities in December. The area east of West Butte Road would be open year-round. However, under this alternative, the South Millican area would be closed to motorized trail use.

The La Pine area would receive more active recreation management that the current direction, with most of the area changing from an Open designation to a network of designated roads and trails. The northern 1/3 of the area (near La Pine State Park) would be managed for motorized use on designated roads only.

Areas that receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) comprise about 23 percent of the planning area. These areas include the Skeleton Fire area, Horse Ridge, South Millican, the Maston allotment in Cline Buttes, the Northwest (Squaw Creek), and Tumalo areas. Most of these are areas that limit motorized use to roads and provide trails for non-motorized use, which may be slightly less difficult to manage than separate trail systems for each user type as proposed in Alternatives 3, 5, and 6.

Sixteen percent of the planning area would be seasonally closed to motorized use, while about 6 percent would be closed year-round to motorized use.

Specific effects to recreational activities are described below:

Motorized Use (Roads and Trails)
Alternative 4 is similar to Alternative 2 in that it provides for a high degree of motorized access and designated motorized trail opportunities throughout the planning area. While Alternative 4 provides less motorized recreation opportunities than Alternative 2, it provides more than any of the other action alternatives. Unlike Alternative 2, several areas are closed seasonally to motorized use, including the Badlands WSA and a portion of the North Millican area located between State Highway 20 West Butte Road and the southern Badlands WSA boundary. Additionally the entire South Millican OHV area would be closed to motorized trail use, resulting in a loss of about 12 miles of trails and approximately 29 miles of road use opportunities. However, Alternative 4 does provide direction for increasing trail mileage in North Millican and the Millican Plateau areas. Additionally, the loss of trail miles in South Millican may be also somewhat offset by an increase in motorized trail emphasis in the Cline Buttes area over alternatives 3, 6 and 7. As with Alternative 2, this alternative provides some motorized trail opportunities north of Prineville Reservoir, in an area where residents do not have easy access to the Millican Valley OHV trail system.

Of all the alternatives, Alternative 4 is the only one that separates management strategies for North Millican based on the location of the Millican/West Butte Road. The implementation of this seasonal closure would be relatively easier than most seasonal closures for this area in other alternatives, because it is based on an easily recognizable boundary, and applied at the relatively few grade separated crossings that will likely be built during the Millican/West Butte Road project.

Alternative 4 does provide for greater motorized trail development in La Pine, concentrating non-motorized trail emphasis near La Pine State Park. Alternative 4 would be less likely to increase motorized trail use on adjacent USFS land than Alternatives 3, 5, 6, and 7 – which all place greater restrictions on this use on BLM-administered lands. Alternative 4 does increase the likelihood for user conflicts, particularly between recreationists and adjacent landowners (see also Fuels/WUI Treatments, Common to Alternatives 2-7).

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 4 provides a relatively high degree of access and user choice, since motorized use is managed for a road emphasis in

many areas (i.e., no motorized trails) instead of closing areas to all motorized use. Approximately half (23.4 miles) of the routes in the Badlands WSA would be open to motorized use seasonally (See Table 4-23).

Non-Motorized Use (Roads and Trails)
Like Alternative 2, this alternative provides relatively few areas for exclusive, non-motorized use. Instead, Alternative 4 relies on managing certain areas for non-motorized trail use, while keeping these areas open to motorized use on roads only. These areas would include the Horse Ridge/Skeleton Fire areas, Cline Buttes between Cline Falls Highway and the Deschutes River, the area south of Prineville Reservoir, and the Northwest and Tumalo blocks.

Alternative 4 does provide an increase in non-motorized trail emphasis over the current planning paradigm; however, the dispersal and extent of these areas may not serve the demand as well as other alternatives, particularly for areas of natural solitude and quiet that are managed exclusively for non-motorized trail use. However, if winter season trail use is considered, then Alternative 4 does provide a relatively large block of land available to non-motorized road and trail use from January through April 30. This area would include the Badlands WSA, North Millican west of West Butte Road, and the Skeleton Fire/Horse Ridge area (South Millican would be non-motorized trail use year-round). Although some motorized use would occur on non-BLM roads in areas, this area would provide non-motorized recreation opportunities seasonally. Since the overall management strategy of Alternative 4 is to provide non-motorized trail use in the winter while keeping motor vehicles limited to roads, it is highly dependent on the BLM to actively manage, patrol, and enforce this separation of users.

Special Recreation Permits/Group Uses
The provision of both motorized and non-motorized designated trails throughout the planning area would allow for greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. This benefit would likely be greatest for motorized events, given the large amount of the planning area devoted to this use year-round. Given this focus, this alternative may create management issues and user conflicts as trails in some areas may be closed to motorized use during non-motorized events. SRPs for motorized events would be focused on the North Millican and Millican Plateau areas. While the Bend-Redmond and Mayfield blocks would be available for this use, the fragmented nature of the area and reasonably foreseeable development may limit the area's usefulness for motorized commercial, competitive, or organized group events. Non-motorized SRP use would be accommodated year-round in the Skeleton Fire and Horse Ridge areas, where trails would be provided exclusively for non-motorized use and where demand currently is relatively high. To some extent, development of trails in these areas may take some use pressure off the Deschutes National Forest, which currently provides many more recreation permit and event permit opportunities. The demand for special recreation permits for non-motorized trail events is also high in Cline Buttes and likely will increase in the Bend-Redmond and Millican Plateau or Mayfield areas with the development of new resorts.

Rock Climbing
Rock climbing opportunities would be managed similar to most of the other action alternatives. The Sisters Climbing area would be managed for climbing opportunities specifically. Pictograph Cave would remain available for the installation of sport climbing routes with few, if any, restrictions. Although the difficulty of these routes may limit visitation somewhat, the fact that Pictograph Cave would be the only cave open to sport climbing in the Arnold Lava Tube system would tend to increase visitation over time (see also Caving/Cave Dependant Recreation, below).

Interpretive Use
This alternative provides similar opportunities for interpretive services as Alternative 3. As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 7, Alternative 3 provides the greatest amount of area that could conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation. These areas would include the Alfalfa ACEC area south of Alfalfa Market Road and the Cline Buttes area between Cline Falls Highway and the Deschutes River, which would be managed with an emphasis on non-motorized recreation.

Caving/Cave Dependant Recreation
Pictograph Cave would remain specifically available for the installation of sport climbing routes, with little or no management direction. Although the difficulty of these routes may limit visitation somewhat, the fact that Pictograph Cave would be the only cave open to sport climbing (bolt protected routes) in the Arnold Lava Tube system would tend to increase visitation over time. Pictograph Cave would be closed seasonally to all visitors, which would reduce cave recreation opportunities on BLM land somewhat; since Pictograph Cave is one of the larger caves located on BLM managed lands. However, there would still be opportunities for caving on BLM managed land and at the lava tubes more prevalent on USFS, DNF lands.

WUI/Fuels Management
The combination of WUI treatments and emphasis on designated road and trail systems for motorized use (with or without seasonal closures) throughout the planning area may tend to increase conflicts between recreation use and adjacent landowners. Areas with an Heavy concentration of WUI treatments (e.g., La Pine) and those managed with seasonal closures would present particular difficulties, as the boundary between BLM and private lands are cleared and more accessible, and communication and enforcement of seasonal closures becomes more difficult.

OMD Use
OMD's permitted use area would include the Bend-Redmond block and a portion of the Mayfield block. Alternative 4 provides relatively good seasonal access and trail system acreage in the Millican Valley area (notwithstanding the closure of all motorized trails in South Millican) and in Cline Buttes, so the level of use in the Bend-Redmond block may be lower than some other alternatives and the conflicts between OMD's use and trail use may be less pronounced.

Alternative 4, like Alternatives 1, 2, and 3, does not provide new areas for OMD training (e.g., Steamboat Rock, Millican Plateau). While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities may have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife and Wildlife Habitat Management
Wildlife management goals in Alternative 4 provide a moderate level of restrictions for public access and recreation among the action alternatives. The emphasis on current distribution of source habitats and moderate (compared to other action alternatives) acreage with primary wildlife management emphasis provides some flexibility for a wider range of recreation opportunities. In particular, this alternative allows for greater levels of road access that would support a variety of dispersed recreational use (camping, hunting, rockhounding, etc.) than alternatives that have greater acreage of year-round closures.

While Alternative 4 would provide direction for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush steppe plant communities, there would be more flexibility to retain juniper to define trails and meet other needs than Alternatives 3 and 6.

Cumulative Effects
Alternative 4 closes the Badlands WSA and western half of North Millican to motorized use during the winter. This alternative also closes all motorized trail use in South Millican. These travel management policies and the paving of Millican/West Butte Road, would tend to increase the amount of use in the eastern half of North Millican and Millican Plateau, both for OHV use and general public access.

Conclusions
Alternative 4 provides more diversity of recreation settings than Alternative 1 or 2, but less than the remaining action alternatives. Alternative 4 relies most heavily on restricting motorized use to roads in the same areas where non-motorized trails are being provided. While there is an increase in non-motorized trail emphasis for the planning area compared to Alternatives 1 and 2, there are few areas managed exclusively for non-motorized use. Areas that are place under some type of restriction to motorized trail use are generally outlying areas, thus this alternative may have more social impacts and conflicts between public land visitors and adjacent landowners.

Alternative 5

Special Recreation Area Designations
Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations
Alternative 5 provides a relatively high mixture of different recreation opportunities and varying management strategies/intensities. About 50 percent of the planning area is still managed for multiple use, primarily on shared roads and trails (Millican Valley and 3/4 of Cline Buttes). About 20 percent of the planning area would be managed for motorized use on roads only, while providing non-motorized trail opportunities. These areas would include the Northwest (Squaw Creek), Tumalo, Mayfield, Skeleton Fire areas; and the area south of Prineville Reservoir. A moderate amount of the planning area (approximately 12 percent) would be closed to motorized use and managed exclusively for non-motorized trail use. These areas include Horse Ridge, the Maston Allotment in Cline Buttes, the Steamboat Rock parcel, and a large area on both sides of the Chimney Rock segment of the lower Crooked River. The Bend-Redmond block would be intensively managed for multiple uses on separate trail systems. The North Millican area would be open for OHV use a month later to allow for riding opportunities in December.

The La Pine area would receive more active recreation management that the current direction, with most of the area changing from an Open designation to a network of designated roads and trails. The northern 1/3 of the area (near La Pine State Park) would be managed for motorized use on designated roads only.

Areas that receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) comprise about 31 percent of the planning area, the highest of all alternatives. These areas include the Bend-Redmond block, the Mayfield area, a portion of Cline Buttes, and the Skeleton Fire area.

26.7 percent of the planning area is seasonally closed to motorized use (Badlands WSA, North and South Millican), while about 12 percent is closed year-round to motorized use.

Specific effects to recreational activities are described below.

Motorized Use
Alternative 5 closes North Millican seasonally to motorized use; however, this closure starts a month later than the current seasonal closure, and would provide for an extra month of riding opportunities over Alternatives 1 and 3. Motorized use opportunities in the South Millican Area would also be improved since the seasonal closure in Alternative 5 allows for approximately 2 ½ months additional riding opportunities (including some winter use) over alternatives 1 and 3.

However, given the seasonal closure in North Millican and the direction to develop a less comprehensive motorized trail system in the Bend-Redmond block, this alternative has the potential to increase the use pressure for motorized trail use in the Cline Buttes area. Management direction in Cline Buttes would allow development of a motorized trail system, with fewer opportunities than Alternatives 1, 2 and 4, but more than Alternatives 6 and 7. During the winter, Alternative 5 may result in the heaviest motorized use levels in Cline Buttes of all alternatives.

For Alternative 5, the size and dispersal of Closed areas would have a moderate effect on motorized recreation use, compared to all other action alternatives. Areas closed to motorized use year-round in this alternative do not currently contain designated trails, and are generally small in size and not a regional draw for motorized recreation. Alternative 5 closes the Steamboat Rock to motorized use (except for the emergency access road into Crooked River Ranch). This measure would provide recreation opportunities for non-motorized trail use close to Redmond, reduce conflicts with adjacent subdivisions, and create the most realistic solution to the chronic dumping problems experienced in the Steamboat Rock block.

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 5 provides a moderate degree of access and user choice. The majority of the planning area would be open to motorized use on designated roads or designated roads and trails, with seasonal restrictions applying mostly in the more rural, eastern portions of the planning area. Motorized access in the Badlands WSA would fall in about the middle range of alternatives, with no routes being open year-round, and slightly less than half the inventoried routes (17.7 miles) open seasonally (See Table 4-23). During the motorized use closure period, motor vehicle use on designated, inventoried routes would be allowed for legal game retrieval purposes. This provision would provide for easier use of the area by hunters.

Non-Motorized Use
Alternative 5 provides direction for provision of non-motorized trails in the Skeleton Fire/Horse Ridge area, in portions of Cline Buttes, Mayfield Area, in areas around Prineville Reservoir, in the Steamboat Rock area, and in the Bend-Redmond block. Along with alternative 3 and 6, this alternative provides a relatively high amount of non-motorized trail emphasis over the planning area. These opportunities would be dispersed throughout the planning area. The Skeleton Fire/Horse Ridge, Mayfield, and Bend-Redmond blocks would offer opportunities close to Bend. Portions of Cline Buttes, the Steamboat Rock area and the Bend-Redmond block would provide opportunities close to Redmond. The Chimney Rock area north of Prineville Reservoir would offer these opportunities close to Prineville.

In comparison to Alternatives 3 and 7, Alternative 5 offers fewer opportunities for non-motorized trail use in areas managed exclusively for this use. Longer trail systems for non-motorized use would be created in the Bend-Redmond block – this direction is unique among all the alternatives. The management of the Bend-Redmond block may allow for development of interpretive trails along the roads in the Wagon Roads ACEC that connect to other non-motorized trails in the area. The actual management

of the Bend-Redmond block would be fairly intensive, since BLM would charged with separating different trail users (i.e., motorized and non-motorized) on separate trail systems.

Rock Climbing
Rock climbing opportunities would be managed similar to most of the other action alternatives. The Sisters Climbing area would be managed for climbing opportunities specifically. Sport route climbing opportunities in Pictograph Cave would be eliminated (see Caving and Cave Dependent Recreation section, and Cumulative Impacts Section)

Special Recreation Permits/Group Uses
The provision of both motorized and non-motorized designated trails throughout the planning area would allow for greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. While the Bend-Redmond and Mayfield blocks would be available for this use, the fragmented nature of the area and reasonably foreseeable development may limit the area's usefulness for motorized commercial, competitive, or organized group events. Non-motorized SRP use would be accommodated year-round in the Skeleton Fire/Horse Ridge, Smith Rock and portions of Cline Buttes areas, where trails would be provided exclusively for non-motorized use and where demand currently is relatively high. To some extent, development of trails in these areas may take some use pressure off the Deschutes National Forest, which currently provides many more recreation permit and event permit opportunities. Alternative 5 creates additional opportunities for non-motorized SRP use, including use of areas such as the Bend-Redmond block and the area along the Chimney Rock segment of the Lower Crooked Wild and Scenic River. Although these areas are not currently in high demand for SRP authorizations, the development of trails in these areas would likely increase applications for outfitter/guide use.

Interpretive Use
This alternative provides similar opportunities for interpretive services as Alternative 3 and 7. As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 6, Alternative 5 provides fewer areas than Alternatives 3 and 7 for non-motorized use that also are designated ACECs and may conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation. The travel management applied to the Bend-Redmond block would provide conditions most conducive to development of an interpretive trail system using historic roads and the north unit canal, although this use would not be precluded in any other alternative.

Caving/Cave Dependant Recreation
Under this alternative, Pictograph Cave would be closed to installation of bolted routes; therefore, the opportunity for sport climbing (bolt protected, technical routes) would essentially be eliminated in the Arnold Lava Tube system both on USFS and BLM lands, although bouldering opportunities would remain in some caves. Visitation to Pictograph Cave would be closed seasonally (from October 15 to May 1) annually. This would reduce caving opportunities on BLM managed lands somewhat, since Pictograph Cave is one of the larger caves located on BLM managed lands. However, there would still be opportunities for caving on BLM managed land and at the lava tubes more prevalent on USFS, DNF lands.

OMD Use
The OMD would be authorized to use an area in the Bend-Redmond block and a portion of the Mayfield area. The provision of both motorized and non-motorized trails in the

Bend-Redmond block assumes a fairly high level of management intensity, which if implemented, may reduce conflicts between OMD use and recreation.

Alternative 5 does not provide additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities may have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife and Wildlife Habitat Management

Alternative 5 identifies fewer areas as primary wildlife emphasis than Alternatives 3, 4, 6, and 7, but more than Alternatives 1 and 2. Wildlife management goals in Alternative 5 provide a moderate level of restrictions for public access and recreation among the action alternatives. The emphasis on current distribution of source habitats and moderate (compared to other action alternatives) acreage with primary wildlife management emphasis provides some flexibility for a wider range of recreation opportunities.

While Alternative 5 would provide direction for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush steppe plant communities, there would be more flexibility to retain juniper to define trails and meet other needs than Alternatives 3 and 6.

Cumulative Effects

The regulations on rockclimbing, establishment of bolt protected routes, and bouldering adopted by the USFS in the Road 18 Caves Project EA would, when combined with the closure at Pictograph Cave, eliminate most opportunities for sport route climbing in caves close to Bend. Some bouldering opportunities would remain. This would reduce the diversity of climbing opportunities somewhat in Central Oregon.

The seasonal closures in North Millican and South Millican, combined with the management strategy in Mayfield and Bend-Redmond blocks, may tend to increase motorized trail use in the Cline Buttes area. This alternative has the potential to increase motorized use levels on BLM-administered lands to the east of the planning area.

Alternative 5 does not provide motorized trail opportunities surrounding Prineville Reservoir. The potential for increased recreational development at Prineville Reservoir and increased residential development at Prineville Reservoir State Park (including south of the reservoir) may result in motorized trail use in areas not identified or managed for such use. Much of the area surrounding Prineville Reservoir is managed for motorized use on roads only. Considering the increased development of the area, user conflicts may occur between recreationists and others sharing a limited road system.

The paving/upgrading of Millican/West Butte Road may result in greater numbers and diversity of recreation use, particularly during the winter closure period.

Conclusions

Alternative 5 provides a relatively high diversity of recreation opportunities, with some areas managed exclusively for non-motorized use, some areas managed for shared use trails, and other areas managed for motorized use on roads while developing separate non-motorized trails. This alternative places an intensive, higher cost recreation management strategy on the Bend-Redmond block than all other alternatives. Although the seasonal closures in North and South Millican do allow for a small amount of wintertime use, this alternative would still represent a shift in motorized use to Millican Plateau and Cline Buttes.

Alternative 6

Special Recreation Area Designations
Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations
Like Alternative 5, this alternative provides a relatively high mixture of different recreation opportunities and varying management strategies/intensities. As compared to Alternative 5, a slightly smaller portion (40 percent) of the planning area is still managed for multiple use primarily on shared roads and trails (Millican Valley and Bend-Redmond areas). A slightly smaller portion (17 percent) of the planning area would be managed for motorized use on roads only, while providing non-motorized trail opportunities. These areas would include the Northwest (Squaw Creek), Steamboat Rock parcel, and Skeleton Fire areas; and the area south of Prineville Reservoir. Alternative 6 closes the highest percentage of the area to motorized use year-round (19.5 percent), and most of these areas would be managed for non-motorized trail use. Unlike all other alternatives, one large block of land including the Badlands WSA, a portion of the North Millican OHV area, and Horse Ridge would be closed to motorized use year-round. This alternative also proposes the most intensive and high cost management strategy for Cline Buttes, essentially limiting motorized travel to designated roads while providing designated trails for non-motorized users. The North Millican area would be closed during the winter and early spring, resulting in increased use of Millican Plateau, Bend-Redmond, and Mayfield areas for OHV use.

Alternative 6 represents the largest shift in management emphasis for the La Pine area. Like Alternative 3, the entire area surrounding La Pine would be closed to motorized trail use. Further, in this alternative, the southern half of the area would be closed to all motorized use (roads and trails) seasonally. The corridor connecting the Rosland OHV play area to the Deschutes National Forest would be retained for year-round OHV use.

Areas that receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) comprise about 22 percent of the planning area. These include the entire Cline Buttes block, the Steamboat Rock parcel, and the Skeleton Fire area. All these areas currently receive relatively high levels of use that are expected to increase.

28 percent of the planning area is seasonally closed to motorized use, while close to 20 percent is closed year-round to motorized use.

Specific effects to recreational activities are described below.

Motorized Use
Alternative 6 provides the least amount of acreage for motorized trail recreation of all alternatives, particularly during the winter, when approximately 43 percent of the planning area would be closed to motorized use. The use of the existing Millican Valley OHV area would be compromised somewhat by the designation of 5,000 acres in North Millican as Closed year-round to motor vehicles. In addition, the seasonal closure applied to the remainder of the North Millican area would increase the closed period by 2 months over the current (Alternative 1) condition. The effect of these travel management decisions on motorized recreation would be to move more use into a smaller area of trails in Millican Plateau or to the Bend-Redmond or Cline Buttes areas, or further east on BLM managed lands outside the planning area. To some extent, use would be displaced to the East Fort Rock trail system on the DNF during mild winters. This alternative would likely have the greatest effect on user conflicts and management intensity at Cline Buttes, which under this alternative would have motorized use restricted to a fairly

limited travel network that emphasizes roads over trails. BLM would be charged with maintaining motorized use on a relatively small system and keeping the designated non-motorized trail system in the same area reserved for this use.

The Bend-Redmond block would remain available for motorized trail development; however, the fragmentation of this area by canals, ACEC roads, paved public roads, and likelihood of adjacent development would affect the ability for BLM to create a motorized trail system that offers high quality recreation experiences and enough trails for an entire day of riding.

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 6 provides a lower degree of access and user choice than all action alternatives except Alternative 7, since more of the planning area is either closed to motorized use or closed seasonally to motorized use. In addition, the direction to provide both motorized and non-motorized trails in Cline Buttes would likely result in fewer roads available for general public use. Motorized access in the Badlands WSA and a portion of the North Millican area would not be available at any time.

Non-Motorized Use

Alternative 6 creates a large block of land for exclusive motorized use comprised of the Badlands WSA, Horse Ridge, and a 5,000 acre area including Smith Canyon and Dry River Canyon. The combination of Badlands and the Smith Canyon/Dry Canyon area would provide opportunities for all day or weekend hike trips using inventoried routes in the Badlands and roads or future designated trails in the Smith Canyon/Dry River Canyon area and the Horse Ridge/Skeleton Fire area. The use of this entire area for non-motorized trails is somewhat limited by State Highway 20, which bisects these areas; however, some hikers and mountain bicyclists currently cross the highway to complete loops using Horse Ridge and Dry River Canyon.

While the Badlands/Smith Canyon and Horse Ridge areas would be highly visible and heavily used non-motorized recreation areas, the opportunities for non-motorized use in areas of solitude and natural quiet would be somewhat limited elsewhere in the planning area. Most of the more urban blocks of land would be managed for motorized use on roads or on roads and trails.

Alternative 6 is the only alternative to close the 32,221-acre Badlands WSA to mechanized use. This would close a fairly large area (8 percent of the planning area) to mountain bike use and use of horse-drawn carts. Both these activities take place in the Badlands, although the layout of the inventoried routes in the Badlands do not offer much variety in terms of route loops or challenging mountain bike opportunities. The combined closure of the Badlands to motorized vehicles and mechanized use (including game carts) would make it more difficult and strenuous to hunt. Some hunting use may be displaced.

Special Recreation Permits/Group Uses

The provision of both motorized and non-motorized designated trails throughout the planning area would allow for greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. While the Bend-Redmond and Mayfield blocks would be available for this use, the fragmented nature of the area and reasonably foreseeable development may limit the area's usefulness for motorized commercial, competitive, or organized group events. Non-motorized SRP use would be accommodated year-round in the Skeleton Fire/Horse Ridge, Smith Rock, Cline Buttes, Tumalo, and Crooked River/Chimney Rock areas, where trails would be provided exclusively for non-motorized use. To some extent, development of trails in these areas may take some use pressure off the Deschutes National Forest, which currently provides many more recreation permit and event permit opportunities.

Alternative 6 creates additional opportunities for non-motorized SRP use, including use of areas such as the area along the Chimney Rock segment of the Lower Crooked Wild and Scenic River and the Smith Canyon/Dry River Canyon areas. Although these areas are not currently in high demand for SRP authorizations, the development of trails in these areas would likely increase applications for outfitter/guide use. The issuance of SRPs for trail use that includes both the Smith Canyon/Dry River Canyon and the Badlands WSA would require an EA (based on IMP requirements). This may preclude full use of the potential trail opportunities in this area by outfitter/guides or organized groups.

Rock Climbing
The effects on rock climbing would be the same as Alternative 5.

Interpretive Use
As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 5, Alternative 6 provides fewer areas than Alternatives 3 and 7 for non-motorized use that also are designated ACECs and may conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation.

Caving/Cave Dependant Recreation
The effects on caving/cave dependent recreation would be the same as Alternative 5.

OMD Use
Alternative 6 authorizes the OMD to use the largest and greatest range of lands of all the alternatives. These would include the Bend-Redmond block, a portion of the Mayfield area, Steamboat Rock area, and a portion of Millican Plateau. The combination of seasonal or year-round closures in North and South Millican, and the management strategy in Cline Buttes, would put an increased emphasis on motorized trail use in the Bend-Redmond block. This may result in some conflicts with OMD's use of their training area.

Alternative 6 provides additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas may occur in these areas, given the infrequent, rotational schedule of use for these areas, most conflicts could be avoided. The opportunity for the BLM to partner with the OMD in these areas may have long-term benefits to recreational use of these areas that outweigh any short-term effects of specific OMD training exercises.

Wildlife and Wildlife Habitat Management
Wildlife management goals in Alternative 6 provide slightly less restrictions for public access and recreation than Alternatives 3 and 7, but more than all other alternatives. The emphasis on historic distribution of source habitats and relatively high (compared to all other alternatives) acreage with primary wildlife management emphasis results in greater acreages closed to motorized recreation during the winter or year-round. While all action alternatives call for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush steppe plant communities, there would be less flexibility to retain juniper to define trails and meet other needs than in Alternatives 1, 2, 4, 5, and 7.

A major component of the existing Millican Valley OHV trail system would be closed during the winter (along with a portion closed year-round). Although this may provide benefits to wildlife, the result may be increased crowding on trails in Millican Plateau or other areas. Restrictions on motorized use to achieve wildlife management objectives do provide an opportunity to provide non-motorized trails in some areas. However, as noted previously in the Common to Alternatives 2-7 section, the design

and implementation of non-motorized trails (done in subsequent area or project specific planning) in these areas may be limited by the primary wildlife management emphasis designation made in the UDRMP.

Cumulative Effects
The combination of travel management regulations for motorized use in the North Millican and Cline Buttes areas would likely increase the demands for motorized trail use in the Millican Plateau area, the Bend-Redmond block, USFS managed lands, and BLM-administered lands to the east of the planning area. The use pressure in the Bend-Redmond block may create some conflicts between OMD use and recreational use; however, these conflicts would likely be less than Alternative 3, because Alternative 6 provides a greater range of use areas for OMD. There would likely be greater conflicts between OMD use and recreational use in Millican Plateau for this alternative than most other action alternatives.

Conclusions
Alternative 6 closes the largest percentage of the planning area to motorized use during the winter. This would affect motorized recreation activities the greatest, although there would be less access for many different types of recreation. Alternative 6 does provide for a high diversity of recreation settings, with areas managed exclusively for non-motorized trail use, a mix of uses, or as shared use areas. The majority of the acreage closed to motorized use occurs east of Bend, comprised of the Badlands WSA, Horse Ridge, and the Smith Canyon/Dry River Canyon areas. This management strategy would provide non-motorized recreation opportunities relatively close to Bend, which would be a particular benefit in the wintertime. However, Alternative 6 does not provide these types of recreation opportunities close to Redmond. The management strategy for Cline Buttes would require a high commitment of planning, engineering, education and enforcement resources by the BLM.

Alternative 7

Special Recreation Area Designations
Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations
Alternative 7 differs from Alternative 6 by providing winter OHV trail riding opportunities in the North Millican area, albeit on a greatly reduced trail system. Like Alternatives 5 and 6, this alternative provides a relatively high mixture of different recreation opportunities and varying management strategies/intensities. As compared to Alternative 6, a slightly smaller portion (37 percent) of the planning area is still managed for multiple use primarily on shared roads and trails (Millican Valley and Bend-Redmond areas). The reduction is a result of the Mayfield block's management changing to a roads only emphasis. Alternatives 6 and 7 provide about the same amount of lands managed for motorized use on roads only, while providing non-motorized trail opportunities. These areas would include the Northwest (Squaw Creek), and Skeleton Fire areas; and the area south of Prineville Reservoir. Alternative 6 closes the highest percentage of the area to motorized use year-round (19.5 percent) of any alternative. While most of these areas would be managed for non-motorized trail use, with the exception of the Badlands, these areas are relatively small and would not allow very lengthy trail systems for mountain bikes or horses. This alternative proposes one of the most intensive and high cost management strategy for Cline Buttes, providing separate trails and/or separate areas for motorized and non-motorized trail users. Motorized use is concentrated in the middle and north portion of the Cline Buttes block, and will likely result in increased conflicts between recreational visitors and private landowners. Like many other alternatives, the Steamboat Rock management strategy is also extremely management intensive. No opportunities for motorized use exist surrounding a broad area around Prineville Reservoir.

Alternative 7 represents a large shift in management emphasis for the La Pine area. Like Alternative 3, the entire area surrounding La Pine would be closed to motorized trail use. Further, in this alternative, the southern half of the area would be closed to all motorized use (roads and trails) seasonally. The corridor connecting the Rosland OHV play area to the Deschutes National Forest would be retained for year-round OHV use.

Alternative 7 has slightly less land closed seasonally than Alternative 6, due to North Millican being open year-round due to a greatly reduced trail density. However, approximately 16.5 percent of the planning area is closed seasonally during the winter, and 22.6 percent is closed year-round. This results in approximately 40 percent of the planning area being closed to motorized use during the winter. To a large degree, these closures are in outlying areas where BLM management is limited or non-existent.

Areas that receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) comprise about 30 percent of the planning area, one of the highest of all alternatives. These include most of the entire Cline Buttes block, the Steamboat Rock parcel, the Mayfield block, the area surrounding Prineville Reservoir, and the Skeleton Fire area. All these areas currently receive relatively high levels of use that are expected to increase.

16.5 percent of the planning area is seasonally closed to motorized use, while close to 23 percent is closed year-round to motorized use.

Specific effects to recreational activities are described below:

Motorized Use (Roads and Trails)
Alternative 7 provides more opportunities for motorized trail use than Alternatives 6, 3, and 5, but less than Alternative 1, 2, and 4. While this alternative keeps the North Millican area open year-round for motorized recreation, it calls for a reduction in trail density and the number of trail loops – to achieve a motorize use road and trail density of about 1.5 miles per square mile and large unfragmented blocks of land within the road and trail system. Like all action alternatives, the Dry River Canyon would remain as a non-motorized trail. While this alternative would reduce the quality of riding opportunities by decreasing trail miles and eliminating many options for riders to choose different loops and thus disperse use and reduce conflicts, the use of this area during the winter and early spring would provide OHV opportunities when there is a highest demand. As with Alternatives 2, 4, and to a lesser extent, 5 (which allows use in December), the ability for riders to use the North Millican area may reduce the demand for other BLM lands in the planning area or to the east.

Two other areas would be managed for motorized trail use in this alternative, the Bend-Redmond area, and a portion of Cline Buttes. For Cline Buttes, there would be reduction in trail miles over the current, unmanaged situation. OHV trails would be provided in the area between Barr Road and Fryrear Road and the area north of State Highway 126. However, the dry canyon complex in the western portion of the area would be closed to motorized trails, as would the area between Cline Falls Highway and the Deschutes River (the area east of Barr Road would generally not have many motorized trails, although the area is not explicitly closed to this use). Additionally, the creation of a designated trail system would be done to emphasize conflicts with private property. All these measures would contribute to a reduction in trail miles and likely result in a highly intensive management scenario. The provision of motorized trails in the central portion of Cline Buttes may also increase conflicts, as the available miles of trail system would be reduced and more encounters between recreationists would occur. If use levels increase over time, it is possible that the motorized trail system would become crowded enough where visitors begin to select other areas to ride that offer better opportunities. In

addition, the concentration of trails in the center portion of the area may increase conflicts with residents, although routing of trails to minimize conflicts with private landowners would be done.

Similar constraints would occur in the Bend-Redmond area, although this area is less affected by private land development. As with all action alternatives, both the Bend-Redmond and Cline Falls areas would generally only provide shorter riding opportunities close to the urban area when compared to the larger Millican Valley area.

The Steamboat Rock area would provide for shorter motorized trail opportunities.

Under this alternative, there would be no motorized trail opportunities surrounding Prineville Reservoir or available on BLM lands between Prineville and Prineville Reservoir.

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 7 provides a relatively low degree of access and user choice, since more of the planning area is either closed to motorized use or closed seasonally to motorized use. In addition, the direction to provide both motorized and non-motorized trails in Cline Buttes would likely result in fewer roads available for general public use. Motorized access in the Badlands WSA would not be available at any time (See Table 4-23).

Unlike any of the other action alternatives, Alternative 7 would decrease the number of roads in the North Millican area drastically in favor of designated trails. The reduction in roads in this area would affect general motorized access for a variety of recreationists, including sightseers, hunters, rockhounds, etc.

Alternative 7 provides a low level of motorized trail riding opportunities compared to Alternatives 1, 2, and 4. Alternative 7 does provide slightly more acreage for motorized trail use than Alternative 6.

Non-Motorized Use (Roads and Trails)
Alternative 7 would provide an increase in non-motorized trail opportunities, with about the same level of opportunities as Alternatives 6 and 3. Mechanized use would be allowed in the Badlands WSA, in contrast to Alternative 6, which does not allow these uses. However, the usefulness of the trail system in North Millican for non-motorized uses would be more limited in Alternative 7 than any other alternative, since these trails would be designed for very large loops that would not provide as high a quality mountain biking, hiking or equestrian conditions (see also SRP section). Management of the Tumalo block, Skeleton Fire/Horse Ridge area, Mayfield area, areas surrounding La Pine State Park, and areas surrounding Prineville Reservoir would all offer non-motorized trail opportunities. Certain portions of Cline Buttes would emphasize non-motorized trails, such as the Dry Canyon complex in the western portion of Cline Buttes, and the area east of Barr Road. As with other alternatives or areas that separate different types of trail users on different trails or areas within a geographic area, this alternative presents very high management challenges for the BLM.

Similar to alternatives 3, 5, and 6, this alternative would apply a non-motorized emphasis for recreation on all lands surrounding Prineville Reservoir. Like alternatives 3, 5, and 6, this would increase consistency with the recreation management goals of Prineville Reservoir State Park and the overall management goals of the Bureau of Reclamation.

Special Recreation Permits/Group Uses
As with all other action alternatives, the provision of designated trail systems throughout the planning area (as opposed to undesignated casual use networks) would increase the ability of the BLM to authorize commercial, competitive and group use. In contrast to

most other alternatives, Alternative 7 does place some restrictions on special recreation events in specific areas, either by limiting the types of events, their frequency, or the time of year permits would be granted. While these restrictions do limit the amount of special recreation permit use (mainly trail use events), they also may serve to speed up the processing of permits for events done within the confines of the RMP. Key effects of Special Recreation Event management in Alternative 7 include:

1. Opportunities for road and trail dependent events in South Millican would not be available at any time, except for the minimum road/trail use necessary to accomplish loops using designated road and trails in the Horse Ridge area. This would eliminate use of the South Millican area for OHV events.

2. Opportunities for road and trail dependent events on the multi-use trail system in North Millican would not be available from December 1 to April 30th. While site-specific events (e.g., events at ODOT Pit or Cinder Pit play areas) could occur during this period, this restriction would place more pressure on other areas such as Millican Plateau, Bend-Redmond, Cline Buttes, or USFS managed lands for special event use. During the remainder of the year, restrictions on the number of events, and their frequency would again put demands on other areas as the BLM tries to balance the demand for trail use events with available miles of trail system. If the trail designation measures in Alternative 7 are fully implemented, the effect of special event restrictions in North Millican would be minimized. Additionally, the trail system goals (long loops and unfragmented blocks) in North Millican would generally make this area less suitable for many (especially non-motorized) trail events, which require shorter loops.

3. The Skeleton Fire/Horse Ridge area would have a year-round limitation on the number and frequency of all road and trail dependent events. Given the emerging trend of this area receiving high levels of non-motorized trail use and the current frequency of requests for events, this alternative would require that BLM deny many requests or find other suitable locations, such as Cline Buttes or Mayfield for these activities. This limitation may also increase the requests for trail events in the Badlands WSA.

Rock Climbing
The effects on rock climbing would be the same as Alternative 5.

Interpretive Use
As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 3, Alternative 7 provides the greatest amount of area that could conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation. These areas include the area south of Alfalfa Market Road and the Cline Buttes area between Cline Falls Highway and the Deschutes River, which would be managed exclusively for non-motorized recreation.

Caving/Cave Dependant Recreation Use
The effects on caving/cave dependent recreation would be the same as Alternative 5.

OMD Use
Alternative 7 authorizes the OMD to use the second largest and greatest range of lands of all the alternatives. These would include the Bend-Redmond block, a portion of the Mayfield area, Steamboat Rock area, and a portion of Millican Plateau. Unlike Alternative 6, the greater accommodation for motorized use in North Millican and Cline Buttes may tend to place a decreased emphasis on motorized use in the Bend-Redmond block. This may result in fewer conflicts with OMD training, although as noted previously, the level of active training done throughout this area is relatively low.

Alternative 7 provides additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas may occur in these areas, given the infrequent, rotational schedule of use for these areas, most conflicts could be avoided. The opportunity for the BLM to partner with the OMD in these areas may have long-term benefits to recreational use of these areas that outweigh any short-term effects of specific OMD training exercises.

Wildlife and Wildlife Habitat Management
The effects of wildlife management strategies for Alternative 7 are similar to Alternative 6. However, Alternative 7 does provide a slightly greater degree of flexibility by relying on low trail density and creation of unfragmented blocks to meet wildlife goals in the North Millican area instead of seasonal closures. Alternative 7 emphasizes historic distribution of wildlife habitat and restoration of habitat, but does place more emphasis on consideration of multiple resource goals (including recreation needs) in planning and implementing habitat restoration.

Cumulative Effects
The combination of a drastic reduction in roads open to the public (in favor of motorized trails) in North Millican and the paving of West Butte/Millican Road would likely result in increased conflicts between motorized trail use and other public land visitors. The increase in access provided by a paved surface road and the lack of roads providing full-size vehicle access into the area may result in full size vehicles using the trail system or the development of user created roads in the area.

Conclusions
Alternative 7 provides a diverse set of recreation opportunities, providing a range of exclusive non-motorized use areas scattered throughout the planning area. Other areas such as the Skeleton Fire area and Mayfield area are managed for non-motorized trail use, while allowing motorized use on roads in these areas. Large blocks of land (Bend-Redmond, Millican) are managed for shared use (motorized trail systems). The management strategy for Cline Buttes would require a high commitment of planning, engineering, education and enforcement resources by the BLM, more so than all other alternatives.

Land Ownership

Summary

Under all alternatives a core of about 191,000 acres would be zoned Z-1 (retention) to meet BLM multiple use objectives. Land tenure under this designation could not be changed without a Resource Management Plan Amendment except under the Recreation and Public Purposes Act and similar acts. The classification Z-1 almost ensures that lands so classified will remain under BLM management. However, this designation does not allow for use of such lands to be exchanged for private lands that would be even more highly valued. As consequence this classification reduces the flexibility of the BLM in meeting its management objectives. There are so few lands zoned Z-2, Z-3, and for community expansion common (CE) to all alternatives that analysis of those lands is not meaningful.

Land Acquisition and Exchange

There is a significant shift of land classification away from Z-2 and Z-3 and toward Z-1 in Alternatives 2-7. Lands that are desirable for acquisition are targeted to facilitate future opportunities for funding and partnerships. Although the purposes and priorities for land acquisition vary by alternative, the same base would provide for a future land acquisition program that could be used by numerous entities. Alternatives 2-7

all would have significantly reduced flexibility for acquiring lands through exchange when compared with Alternative 1, because of the shift away from Z-2 classifications. Alternative 7 provides the most Z-2 lands, at less than half the acreage of lands desirable for acquisition. Lands identified for acquisition (see Appendix D: Withdrawal, Disposal, and Acquisition Lands) are common to Alternatives 2-7. However, acquisition of many of these parcels is limited by the pool of BLM lands available for sale or exchange making acquisition of many of these parcels unlikely.

Community Expansion
Alternatives 2-7 all classify some portion of public lands as available for community expansion. Each alternative includes different configurations and stipulations associated with the designation. Alternative 4 has the greatest amount of land classified for Community Expansion, while Alternative 3 has the least. None of the alternatives classify more than 2% of the planning area for Community Expansion. Each alternative meets community and public land management objectives at different levels, depending upon whether stipulations on the lands include requirements for maintaining green space, as in Alternative 3, or interconnected open spaces, as in Alternative 5. Alternative 7, while it does not have the greatest amount, has few stipulations and will meet expected community needs for the next 10 – 20 years. For additional detail on community needs, see also Chapter 4 – Social and Economic Consequences.

Assumptions

BLM policy generally directs that public lands be retained in federal ownership, unless disposal or acquisition of a particular parcel would better serve the national interest and the needs of State and local people, including needs for lands for the economy, community expansion, recreation areas, food, fiber, minerals, and fish and wildlife. Changes in public land ownership would be considered where consistent with public land management policy and where improved management efficiency would result.

The Taylor Grazing Act provides the framework for categorizing public lands for retention, retention with an option to exchange for lands of equal or greater value, disposal, or acquisition based on resource values, administrative considerations, and social or economic community values.

Land classifications have the potential to affect future conditions. A Z-1 designation prevents transfer of public lands through sale or exchange except in rare incidences including a future land use plan amendment or congressional action. As such, this designation is the highest assurance that these lands would remain in public ownership. A Z-1 designation does not preclude use, lease, or transfer of public lands under the Recreation and Public Purposes Act (R&PP) and similar acts; however, often uses proposed under R&PP coincide with the values for the Z-1 designation. This designation also often limits transfer of lands to other public agencies better suited to manage specific parcels.

A Z-2 classification would only allow for exchange of public lands for private lands of equal or greater resource values. Managers often have the greatest flexibility to reconfigure undesirable ownership patterns (e.g.: intermixed private and public lands) by exchanging to acquire desirable parcels. In so doing, specific funding for acquisition is not required, rather desirable private parcels are obtained through an exchange of public parcels of roughly equal value. Attaching a “local area” restriction to the Z-2 designation assures that specific geographic areas retain a net balance of public land, but reduces both the land base from which to pull together an exchange package and the likelihood that an exchange will be successful.

A Z-3 classification is applied to lands that are no longer suitable to retain in public ownership. These lands include isolated parcels, fringe parcels, parcels that no longer

have resource values to retain, and parcels that no longer serve the purposes for which they were obtained. These lands can be sold directly or exchanged for more desirable private parcels. Often, however, Z-3 lands include encumbrances that preclude sale or exchange; for instance, several parcels identified as Z-3 lands include cinder pits, electrical substations, or transmission lines. It is unlikely that anyone other than the current users would be able to purchase or use these lands, given the legal status of the permits or rights-of-way.

Community Expansion is a designation where BLM recognizes the needs of communities to acquire public lands to meet growth needs. Community Expansion provides assurance to local governments that the land would not be traded to private interests and reduces the potential for communities to lose lands they have identified as critical for future economic growth and development, such as to meet state requirements for urban growth reserves. It may reduce the ability of BLM to maximize the trading value of its land if these lands would have otherwise been designated to the general pool of Z-2 or Z-3 lands because lands destined for community growth are generally in higher demand than lands with limited access or low economic value.

The Z-3 and Community Expansion lands provide a land trade base for targeted acquisition lands such as those along the river corridors, or undeveloped private parcels within larger blocks of public lands such as are in Cline Buttes, Badlands, or the Mayfield area. Many of these areas are likely to be developed in the course of the next 10-15 years if kept in private ownership. If these private parcels are not acquired and are developed, it is likely that additional rights-of-way will be granted and management costs associated with private use and development will increase.

Table 4-24 displays a summary of Land Tenure classifications by alternative

Analysis of the Alternatives

Alternative 1
Alternative 1 represents continuation of existing BLM management direction on lands within the planning area. The current classifications are displayed in Table 4 - 24 and

Table 4-24: Public Land Classifications

ALT	Z-1, Retain		Z-2, Retain but may exchange		Total for retention, Z-1 plus Z-2		Z-3, Dispose		Community Expansion		Total for disposal, Z-3 plus Comm. Ex.	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1	206,201	51	175,523	44	381,724	95	15,422	4	5,617	1	21,039	5
2	359,690	89	23,082	6	382,772	95	12,639	3	7,592	2	20,231	5
3	357,598	89	34,829	8	392,427	97	7,456	2	3,120	1	10,576	3
4	327,335	81	57,488	14	384,823	95	9,669	3	8,512	2	18,181	5
5	322,693	80	66,713	17	384,406	97	7,821	2	5,776	1	13,597	3
6	344,406	86	39,693	10	384,099	96	13,789	3	5,115	1	18,904	4

described below. A more detailed discussion of effects of land ownership classifications on amenity values and community needs is included in Chapter 4 – Social and Economic Consequences.

Z-1, Retain
About 51 percent of BLM lands, about 206,200 acres, in the planning area would be retained. These lands would remain under BLM management and managed to meet multiple use objectives. Land tenure changes could occur without a resource management plan amendment only under provisions of the Recreation and Public Purposes Act and similar acts.

Z-2, Retain With Option to Exchange for Parcels of Equal or Greater Resource Values
About 175,500 acres or 44 percent, of BLM managed lands in the planning area, would be retained. This pool of lands would provide opportunities to make exchanges so land tenure adjustments could be made to meet the objectives described in the Brothers/La Pine RMP. Since more lands are available for exchange it is more likely for exchanges to occur under this alternative than any other. As a result it is more likely that an exchange could occur involving acquisition of lands in the La Pine area to block up BLM managed lands to provide habitat for deer migration. Similarly exchanges could occur that would acquire lands that would block up and or connect lands in the Northwest, Steamboat Rock, and Cline Buttes. Other large blocks within Z-2 could be blocked up with new acquisitions. Many of these Z-2 parcels have encumbrances and other uses. As a result many parcels would be less desirable and more difficult to exchange than parcels without encumbrances or established uses.

Z-3, Sale
About 15,422 acres or 4 percent of the planning area would be designated for transfer or disposal. All public lands designated Z-3 in this alternative qualifies under the BACA Bill. As a consequence all funds generated from the disposal of Z-3 lands from within the planning area may be returned to the district for the acquisition of lands that would meet BLM objectives.

A few parcels remain west of Highway 97 in La Pine. Various groups and agencies have expressed interest in obtaining them. These parcels are isolated and away from large blocks in public ownership. All these parcels have the potential to be of some value. Though encumbered, the location of the encumbrances on the parcels should not interfere with the future uses of these parcels. There is a high likelihood these parcels will be offered for Sale or Exchange.

Community Expansion
About 5,617 acres or 1 percent of the BLM managed land within the planning area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. The designation of Community Expansion lands in Alternative 1 coincided with the needs of Redmond, Prineville, and La Pine at the time.

In La Pine the majority of the acres identified as Community Expansion have been conveyed to the community. No additional lands have been selected in this alternative. The community has provided information about future needs in this and other planning processes. This alternative does not have sufficient lands as Community Expansion to remedy the needs expressed by the community.

Opportunities for Prineville to obtain Barnes Butte (the public parcel northeast of the city) have only recently become available. During the term of this plan, it is likely that the community would request Barnes Butte to provide land for a park.

Historically, the lands south of Redmond have been of interest to the community, though not to the extant equal to the area described. Redmond requested only a portion of

these public lands for the purpose of moving the golf course from its present location. Redmond is likely to identify more lands for public purposes in connection with updating its Urban Growth Boundary.

Acquisition
No parcels were identified for acquisition in the Brothers – La Pine Resource Management Plan. Identification of acquisition lands would be in response to privately initiated exchanges or as the result of subsequent identification of lands suitable for acquisition.

Cumulative Impacts
The combination of Z-1 and Z-2 lands provides a base of BLM land for which the attainment of multiple use objectives is the primary goal. Under Alternative 1, the total acres so identified equals 97 percent of the acres similarly zoned in Alternative 7 the alternative with the most Z-1 and Z-2 lands. This alternative has, by far, the most Z-2 lands and though this means some land may be exchanged for lands currently possessed by different owners such acquisition parcels must meet BLM objectives and the net change in the amount of land managed by the BLM would likely be very small.

The mix of Z-2 and Z-3 lands makes the acquisition of new lands more likely than under any other alternative because the pool of lands available for sale or exchange is much larger than any other alternative. A significant loss of BLM-administered lands compared to other alternatives as a result of sales or exchanges is unlikely since the differences in the proportion of lands available for sale or for other outright disposal is five percent or less than the total BLM managed lands under all alternatives. This proportion is further reduced by the fact that some parcels classified Z-3 would not be considered desirable for acquisition by private parties due to poor land, the inaccessibility of the land, and the fact that the logical candidates for acquiring isolated lands, the adjacent landowners, have no need to purchase the land when they control access to the land.

Alternatives 2-6

Land Acquisition and Exchange
About 260,900 acres or 65 percent of the BLM managed lands in the Planning Area are designated Z-1. These lands constitute a core block of lands available to meet BLM objectives. Land tenure under this designation could not be changed without a Resource Management Plan Amendment except under the Recreation and Public Purposes Act and similar acts. The classification Z-1 almost guarantees that lands so classified will remain under BLM management. However, this designation does not allow for use of such lands to exchange for private lands that would be even more highly valued. As consequence this classification reduces the flexibility of the BLM in meeting its management objectives. Because this core of lands does not reflect any alternative, there are no consequences to be described.

The ranges of lands classified Z-2 and Z-3 are relatively narrow and provide from 16 to 38 percent of the number of acres of land available for sale or exchange under alternative 1. Because of the limited pool of lands available and the limitations of some available parcels of lands suitable for exchange it is likely that the acquisition of private lands to achieve BLM land tenure adjustment objectives, other than for community expansion would occur infrequently during the life of the plan under any of Alternatives 2-6. As a consequence, the objectives described for each of the alternatives concerning land tenure adjustments for other than community expansion are not likely to be met.

Alternative 2

Community Expansion
About 7,600 acres or 2 percent of the BLM managed lands would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes.

In La Pine parcels were selected by representatives of the community and by planners from Deschutes County to match projects anticipated within the next few years. It is likely that these parcels will be transferred, though not all would occur within the life of the plan.

The area set aside for community expansion in the Redmond Area is the same as in Alternative 1. This area meets (and probably exceeds) the needs described by the community. As with Alternative 1, it is reasonable to assume some of the parcels will transfer, in support of highway 97, the fairgrounds, and the airport. The outcome will be the same as in Alternative 1.

Barnes Buttes in Prineville is Z-2, but the transfer of this parcel to local government is as likely for Alternative 2 as it is for Alternative 1.

Alternative 3

Community Expansion
About 3,120 acres or 1 percent of BLM managed lands within the Planning Area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. Restricting the transfer to providing for parks, greenbelts, and open spaces would make such transfers less desirable for local communities. A similar restriction is in Alternative 6 and only along the Highway 97 corridor south of Redmond in Alternative 7.

This alternative is less likely to meet community needs because they would not provide for expected uses such as industrial land expansion. Other conditions that could affect the willingness or ability of other government agencies to acquire these lands may include:
- Lands identified as Z-3 are not quite where the communities identified;
- These lands are heavily encumbered representing diverse users;
- These lands have overlapping jurisdictional issues;
- The communities of Bend and Redmond do not have jurisdiction;
- These lands have considerable non-resource uses associated with developing communities;
- Agencies with the greatest potential interests have reduced budgets; and
- Agencies with the potential interests have greater priorities elsewhere.

Along Highway 97 south of Redmond and in La Pine, these parcels are not likely to be requested by the county or communities. The park restrictions do not meet community needs. These parcels would not be transferred in this alternative.

Barnes Buttes is the same in alternatives 1, 3, 5, 6, and 7. Future use proposed by the community is consistent with the restriction.

Alternative 4

Community Expansion
About 8,512 acres or 2 percent of BLM managed lands in the Planning Area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. Requiring development of transferred parcels to

include interconnecting open spaces would reduce the likelihood of implementing such transfers because the stipulations would make some developments difficult or preclude others such as industrial land expansion.

The lands offered in the La Pine area for Community Expansion would be consistent with future needs, as expressed by the community. Because these interests involve larger tracks for open uses, the special restrictions in this alternative may be incorporated into the projects. These parcels would be requested for transfer.

South and east of Redmond includes a large area open to community expansion, for the purpose of compatibility with the special restriction. However, the needs of the community may be difficult to blend with the restriction. Results would be the similar to those anticipated in alternatives 1 and 2 but more complex because of the restriction.

Alternative 5

Community Expansion
About 5,800 acres or 1 percent of BLM managed lands within the Planning Area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. As in Alternative 4, development of transferred parcels would include providing interconnecting open spaces. This would reduce the likelihood of implementing such transfers for the same reasons described for Alternative 4. No lands are made available in La Pine, so this alternative is not likely to meet expressed community needs.

Providing less land than Alternative 4 in Redmond, south of the fairgrounds and along Highway 97 would further reduce ability of the community to meet its expansion needs. With additional Z-2 lands in this alternative, the possibility of an exchange could possibly provide needed lands. This proposed land pattern, however, conflicts with the objective of Redmond and Bend to keep the communities separated.

West of Redmond in Cline Buttes community expansion would not be impaired because the emphasis for transfer would be for park or open space purposes if an agreement was to be developed.

Lands designated for community development East of Redmond would be in or adjacent to the proposed Urban Growth Boundary. It is likely that these lands could serve the community in the future, blending open space with other community needs.

Barnes Buttes is the same in alternatives 1, 3, 5, 6, and 7. Future use proposed by the community is consistent with the restriction.

Alternative 6

Community Expansion
About 5,115 acres or 1 percent of the BLM managed lands within the planning area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. By requiring transfers to be utilized for parks, greenbelts, open spaces, open recreation spaces, and open community infrastructure needs only this alternative reduces the probability that such a transfer will occur as described under Alternative 3. A similar restriction is in alternative 3 and only along the Highway 97 corridor south of Redmond in alternative 7.

In La Pine, these parcels are likely to be requested by the county or community. This use matches well with La Pine developments near the Little Deschutes River. The park restrictions do meet community needs. These parcels would be transferred in this alternative. Because of the restrictions this alternative would not provide sufficient lands

to meet expressed community expansion needs. However, there are considerable Z-2 lands available to the community and the county owns lands in the area that the BLM has identified as suitable for acquisition.

Parcels East and South of Redmond are not likely to be requested by the county or community. The park restrictions do not meet community needs. These parcels would be unlikely to be transferred in this alternative. Cline Buttes is the same as Alternative 5, with a reasonable likelihood of future use as open space.

Barnes Buttes would be the same as Alternatives 1, 3, 5, 6, and 7. Future use proposed by the community is consistent with the restriction.

Alternative 7

Land Acquisition and Exchange
Alternative 7 has fewer Z-1 lands and more Z-2 and Z-3 lands (in combination) than Alternative 2-6. This creates a larger pool of lands available for sale and exchange than these alternatives and consequently makes it more likely that exchanges, sales, and acquisitions could be made to achieve plan objectives than any of Alternatives 2-6.

The lands selected as Z-2 may provide exchange options that would improve the configuration of the public land pattern. Administration should simplify and improve through exchanges for private parcels with connectivity among large parcels and to block up (fill in) larger blocks. Acquired private lands should have equal or greater resource values than the public lands exchanged into private ownership.

There is no stipulation in this alternative that requires public parcels to be exchanged for private parcels in the same vicinity. Though no locality restriction is placed on parcels selected for exchange, many of these parcels are located close to areas where private parcels for acquisition have been identified. The emphasis for exchanges will be to reconfigure the land pattern in these identified areas; consequently, the emphasis for exchange of the surrounding Z-2 parcels would be local.

The greatest opportunity for success in the exchange process in is the La Pine area because many of the desirable private parcels are isolated and distant from communities and services, and the number of owners of desirable private parcels is low. The land designated for exchange in La Pine is for the purpose of changing the current north-south land pattern to an east-west pattern that coincides with the deer-elk migration route. Actively pursuing exchanges during the duration of the Upper Deschutes EIS/RMP is necessary because the influx of population projected over the next decade may severely restrict possible future exchanges as to make them not viable. Increasing development would widen the value discrepancy between public and private parcels.

In the northern portion of the planning area, the most viable exchange opportunities are for the private lands between the BLM-administered parcels and the Maury Mountains, USDA Forest Service. The gap between the two federal land patterns is narrow, the number of private landowners is few, and potential exchanges could improve management of both the private and public lands; hence, exchanges that would benefit both the public and private sectors.

Widening the land bridges between the large public land blocks encircling Alfalfa is still possible, but opportunities are quickly dwindling as the large ranches are converting into subdivisions, resorts, and ranchettes. Subdivided lands, complex ownership agreements and covenants, and existing encumbrances compound and escalate the difficulties in negotiating exchanges. It is doubtful that exchanges to provide for connectivity will

extend beyond the duration of the Upper Deschutes EIS/RMP. Developing private parcels and subdividing for the purpose of obtaining the greatest value per parcel will take BLM out of the market.

The possibilities for exchanges to the northwest and southwest of Cline Buttes are less likely than around Alfalfa. Cline Buttes already has a greater development potential than Alfalfa and is further along. Recent exchange opportunities for the purpose of providing corridors have been opposed by local property owners, local watchdog groups, and other agencies. It is doubtful that any of the goals for pursuing exchanges will be obtained, and the current public land pattern will remain the same.

The isolated and semi-isolated public parcels selected for exchange would be to meet resource goals, primarily in adjacent large public blocks throughout the planning area, but could also be used outside the planning area if determined for the general public good. Many of these parcels are in the middle of subdivisions, growth areas, and other non-compatible resource uses. Many of these parcels were Z-2 or Z-3 in the Brothers La Pine RMP. It is doubtful that more than a quarter of these parcels would be exchanged, judging from exchanges and incomplete proposals over the last decade.

Although acres designated Z-2 exceed those similarly designated in Alternatives 2-6,the acres designated as Z-2 are disproportionately small (less than half as many as Alternative 1) compared to the acres selected for acquisition in this plan. Though well located to match the areas selected for acquisition, the amount of public lands made available for exchange is too small for a substantial exchange program and compared to Alternative 1, acquisition of parcels that would meet plan objectives would be much less likely or frequent

Community Expansion
About 4,882 acres or 1 percent of BLM managed lands would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes.

The public lands selected for Community Expansion was confined to the least amount of area that would still allow for viable community/social needs. Representatives from the communities were instrumental in the selection of parcels. Their participation ensured consistency with community development plans for the city of Redmond, the community of La Pine, Deschutes County, and Crook County. It is reasonable to assume that these parcels will be requested for public purposes before the end of the life of this plan.

The selection of public lands for Community Expansion also recognizes previous requests from communities and considers what agency or cooperation of agencies would best represent community values. Transferring or cooperatively developing Barnes Buttes as a local park is an example of such considerations that may occur. Barnes Buttes is the same in Alternatives 1, 3, 5, 6, and 7. Future use proposed by the community is consistent with the restriction.

The parcels in La Pine would meet the expressed needs of the community and are likely to be requested by La Pine.

A restriction is added along the Highway 97 corridor south of Redmond: Designation applies only to parks, greenbelts, open spaces, open recreation spaces, and open community infrastructure needs. The same restriction is in Alternative 6 and a similar restriction is in Alternative 3.

Restricting the selected public parcels in T. 16 S., R. 12 E. and R. 13 E. to parks and open space would inhibit opportunities for commercial, industrial and residential development along the 97 corridor. Restricting use was intended as a consequence of