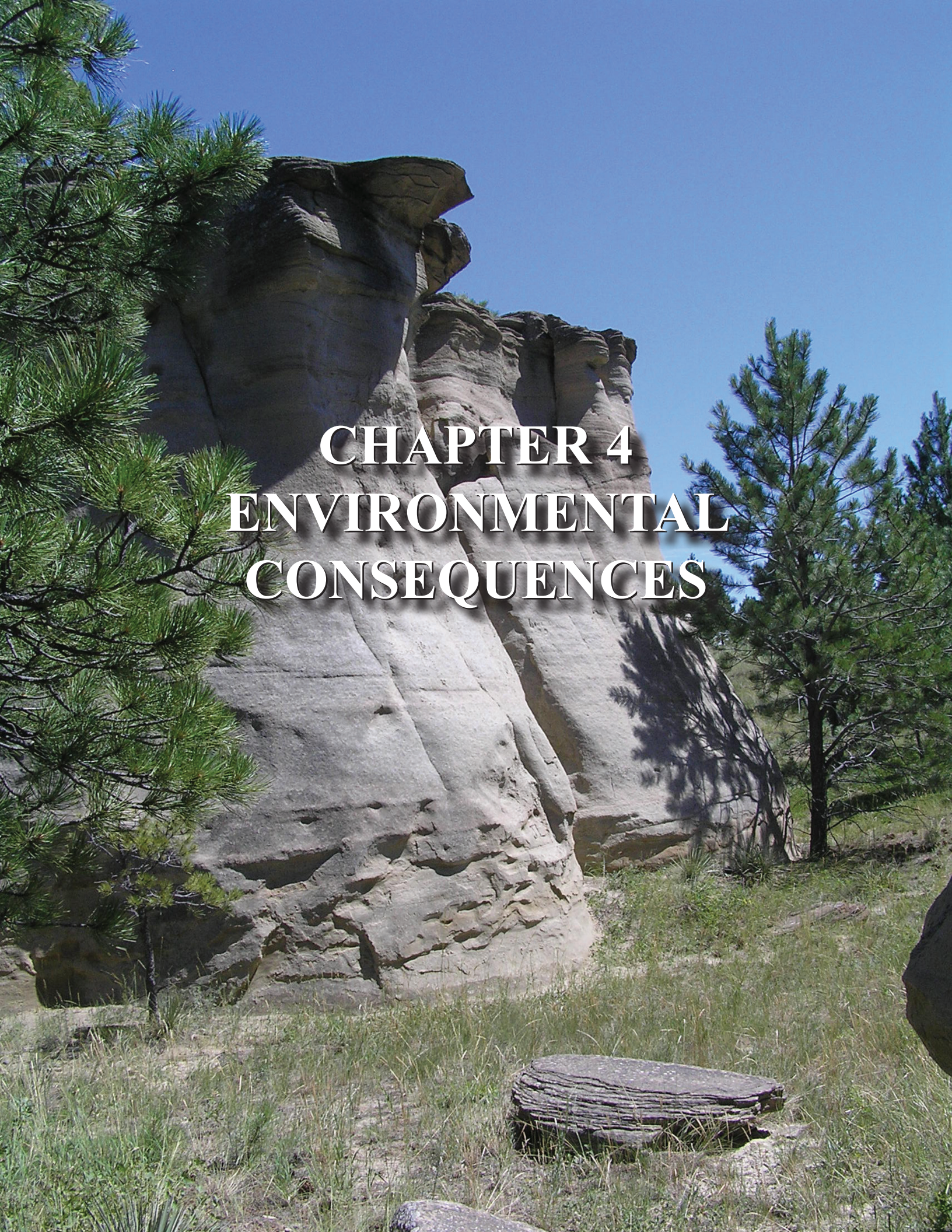


CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

Chapter 4
Environmental Consequences

Introduction

Chapter 4 describes the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2. The impact analyses and conclusions are based on interdisciplinary team knowledge of resources within the planning area, reviews of existing literature, and information provided by other agencies, institutions, and individuals. (Chapter 3 provides a detailed description of each resource). Spatial analysis was conducted using ESRI's ArcGIS Desktop 9.1 software. Effects are quantified where possible; in the absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential effects or in qualitative terms if appropriate. Since the alternatives provide general management direction, the analyses may represent best estimates of impacts since specific locations and proposed actions are often unknown. The analyses are presented here by resource and alternative.

GIS Calculations

Acreages displayed in this document should be considered approximations even when displayed to the nearest acre. Most acreages were calculated from GIS datasets and as a result may not match acres provided in prior published documents that contained calculations from master title plats or other base data. For example, acres calculated for wilderness study areas and reported in the 1991 Montana Statewide Wilderness Study Report vary from the GIS calculated acres for those same areas. The data used throughout this document is for land use planning purposes and not necessarily for actual on-the-ground implementation.

Chapter 4 is presented in the following sections:

- Reasonable Foreseeable Future Actions
- Reasonable Foreseeable Development Scenarios
- Acres of Surface Disturbance
- Impacts from the Alternatives (including Analysis Assumptions and Guidelines, and Impacts Common to All Alternatives)
- Unavoidable Adverse Impacts
- Short-Term Use versus Long-Term Productivity
- Irreversible and Irretrievable Commitment of Resources

The environmental impacts of the alternatives are summarized in Table 2.29 at the end of Chapter 2.

Hawley Creek Area, Phillips County Photo by Kathy Tribby

Mitigation

This Chapter describes the environmental consequences associated with the impacts to Greater Sage-Grouse and its habitat from activities carried out in conformance with this plan, in addition to BLM management actions. In undertaking BLM management actions, and consistent with valid existing rights and applicable law, in authorizing third party actions that result in habitat loss and degradation, the BLM will require mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. In addition, to help implement this Proposed Plan, a WAFWA Management Zone Regional Mitigation Strategy (per Appendix M.4) will be developed within one year of the issuance of the Record of Decision. The Strategy will elaborate on the components identified in Chapter 2 (avoidance, minimization, compensation, additionality, timeliness, and durability), and will be considered by the BLM for BLM management actions and third-party actions that result in habitat loss and degradation. The implementation of a Regional Mitigation Strategy will benefit Greater Sage-Grouse, the public, and land users by providing a reduction in threats, increased public transparency and confidence, and a predictable permit process for land-use authorization applicants.

Reasonable Foreseeable Future Actions

Keystone XL Pipeline

The proposed Keystone Gulf Coast Expansion Project (Keystone XL) is complementary to the Keystone Pipeline and would serve existing refineries and markets on the U.S. Gulf Coast in Texas. It would link a growing and reliable supply of Canadian crude oil with a rising North American demand for energy.

The proposed project is an approximate 1,980 mile (3,200 kilometer), 36 inch crude oil pipeline that would begin at Hardisty, Alberta and extend southeast through Saskatchewan, Montana, South Dakota and Nebraska. It would incorporate a portion of the Keystone Pipeline to be constructed through Kansas to Cushing, Oklahoma, before continuing through Oklahoma to a delivery point near existing terminals in Nederland, Texas to serve the Port Arthur, Texas marketplace. Approximately 42 miles of the pipeline would cross BLM land in Montana and South Dakota, of which about 22 miles would cross BLM land in the planning area.

An auxiliary development that would be necessary for the addition of the Keystone XL Pipeline is the construction of transmission lines to the pump stations in order to provide the necessary power to operate the electric pumps on a year-round basis. It is expected that 115 kilovolt transmission lines would be sufficient to carry the 25-50 megawatts to the respective pump stations. Approximately 113 miles of transmission line would be constructed to facilitate two pump stations located in Phillips and Valley Counties, Montana, with an estimated 34.3 miles to be located on BLM land.

Keystone will be operated as one integrated pipeline system which will include the proposed Keystone XL pipeline project.

Reasonable Foreseeable Development Scenarios

Three reasonable foreseeable development scenarios (RFDs) were developed for the HiLine Resource Management Plan (RMP): fluid minerals, wind energy, and solid minerals. These RFDs are the basis for assessing cumulative impacts from further mineral exploration and development and the impacts from potential wind farms on BLM land.

Fluid Minerals

A description of oil and gas operations and a summary of the RFD for fluid minerals are contained in Appendix E.1. The complete RFD is available on the internet at http://blm.gov/8qkd. Appendix E discusses the general exploration and development process and projects the level of anticipated activity, including the number of oil and natural gas wells.

The number of new oil and gas wells in the planning area (both federal and non-federal mineral estate) projected under each alternative over the next 20 years is shown in Tables 4.1 and 4.2.

Table 4.1
Total Wells by Development Potential Category and Alternative

	Alternative A (Current Management)	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Coalbed Natural Gas					
Very Low Potential	149	137	146	149	144
Bowdoin Natural Gas Project Area (BNGPA)					
High Potential	0	0	0	0	0
Moderate Potential	989	495	863	991	949
Low Potential	77	51	70	77	75
Very Low Potential	0	0	0	0	0
Non-BNGPA					
High Potential	1,665	1,229	1,610	1,679	1,626
Moderate Potential	1,670	1,560	1,654	1,672	1,665
Low Potential	1,298	1,193	1,275	1,299	1,287
Very Low Potential	169	120	147	167	162
Total	6,017	4,785	5,765	6,034	5,908

Table 4.2
Federal Wells by Development Potential Category and Alternative

	Alternative A (Current Management)	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Coalbed Natural Gas					
Very Low Potential	23	11	20	23	18
Bowdoin Natural Gas Project Area (BNGPA)					
High Potential	0	0	0	0	0
Moderate Potential	558	72	434	561	519
Low Potential	44	7	35	43	41
Very Low Potential	0	0	0	0	0
Non-BNGPA					
High Potential	434	167	388	442	408
Moderate Potential	434	211	398	440	419
Low Potential	338	162	308	341	323
Very Low Potential	43	17	34	44	40
Total	1,874	647	1,617	1,894	1,768

For the purpose of quantifying associated surface disturbance with the drilling of the above-mentioned wells, the following assumptions were made:

Coalbed Natural Gas (CBNG)

- Currently, no existing CBNG wells are located in the planning area.
  - New exploratory and development CBNG wells drilled in the planning area would have short-term disturbance figures of 1.85 acres for the access road/pipeline and 1 acre for the well pad, which equates to a total of 2.85 acres of short-term disturbance for a new CBNG well.

- New exploratory and development CBNG wells drilled in the planning area would have long-term disturbance figures of 0.25 acres for the access road/pipeline and 0.5 acres for the well pad, which equates to a total of 0.75 acres of long-term disturbance for a new CBNG well.

Bowdoin Natural Gas Project Area (BNGPA)

- Existing wells in the Bowdoin Dome area in northern Phillips County have disturbed 0.75 acres per well.
  - New exploratory and development wells drilled in the BNGPA would have short-term disturbance figures of 1.85 acres for the access road/pipeline and 1 acre for the well pad, which equates to a total of 2.85 acres of short-term disturbance for a new well drilled in the BNGPA.
  - New exploratory and development wells drilled in the BNGPA would have long-term disturbance figures of 0.25 acres for the access road/pipeline and 0.5 acres for the well pad, which equates to a total of 0.75 acres of long-term disturbance for a new well drilled in the BNGPA.

Non-BNGPA

- Existing wells in the planning area, exclusive of the BNGPA, have disturbed 0.92 acres per well.
  - New exploratory and development wells drilled in the planning area, exclusive of the BNGPA, would have short-term disturbance figures of 3.1 acres for the access road/pipeline and 2.1 acres for the well pad, which equates to a total of 5.2 acres of short-term disturbance for a new well drilled outside of the Bowdoin Dome area.
  - New exploratory and development wells drilled in the planning area, exclusive of the BNGPA, would have long-term disturbance figures of 0.78 acres for the access road/pipeline and 0.14 acres for the well pad, which equates to a total of 0.92 acres of long-term disturbance for a new well drilled outside of the Bowdoin Dome area.

In order to assess the environmental impacts associated with fluid mineral development, planning assumptions were developed to aid in calculating potential surface disturbance from the future development of fluid minerals within the planning area. For the HiLine RMP, an estimated amount of surface-disturbing acres, both short-term and long-term, were applied to each of the following scenarios (Table 4.3):

- new CBNG wells across the entire planning area;
- new exploratory and development oil and gas wells drilled within the BNGPA;
- existing wells within the BNGPA;
- new exploratory and development oil and gas wells drilled in the planning area outside of the BNGPA; and
- existing wells in the planning area outside of the BNGPA.

For the purpose of this planning document, the same figures were applied to new CBNG wells drilled across the entire planning area and new exploratory and development wells drilled within the BNGPA for both long-term and short-term disturbance. These figures, in addition to the numbers used for the existing wells in the BNGPA, are based upon average well pad sizes and access road/pipeline distances that were extracted from a representative sample of existing wells within the BNGPA.

Since the disturbance footprint from exploratory CBNG well development would look similar to existing development in the BNGPA, it was appropriate to apply the same figures. For the remaining figures that were applied to new exploratory and development oil and gas wells drilled in the planning area outside of the BNGPA and existing wells in the same category, the numbers were pulled from an analysis performed for a potential development project in southern Blaine County.

Since a large amount of drilling that occurs outside of the BNGPA is considered exploratory, it is appropriate to apply these numbers to all new exploratory, development and existing wells outside of the BNGPA. This approach should be

considered conservative since some operators utilize directional drilling from existing pads and new infill (developmental) drilling would typically not require as much surface disturbance as an exploratory well.

Table 4.3
Fluid Mineral (Oil and Gas) Development Potential Surface Disturbance by Alternative (Acres)

	Alternative A (Current Management)	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Short-Term Disturbance from BLM Actions	9,564	4,441	8,547	9,663	9,123
Reclaimed from BLM Actions	7,142	2,896	6,309	7,227	6,777
Long-Term Disturbance from BLM Actions	2,422	1,545	2,238	2,436	2,346
Short-Term Disturbance from non-BLM Actions	27,025	27,002	27,051	27,020	27,010
Reclaimed from non-BLM Actions	18,219	18,200	18,242	18,215	18,206
Long-Term Disturbance from non-BLM Actions	8,806	8,802	8,809	8,805	8,804

Disturbance effects from oil and gas activities for each alternative were based on the total number of active wells anticipated under each alternative which included existing wells.

Estimated well densities were calculated by potential area using the total number of wells (new plus current) divided by the acreage for each potential area minus areas closed and no surface occupancy (NSO). Actual well densities may be more or less in portions of each potential category depending on the distribution of oil and gas resources.

Where there are no effects, or effects are not known for species or species groups, they are not addressed in the discussion of each alternative.

Wind Energy

The RFD for wind energy is contained in Appendix O. The RFD describes existing, proposed, and potential wind farms near or within the planning area. Specific data from a wind farm proposal that is no longer under consideration were used for hypothetical modeling of potential future wind farms.

Currently, no wind farms are proposed on BLM land. To determine the reasonable foreseeable wind energy development scenario for the planning area, two types of wind farms were hypothetically described. Table 4.4 shows the two hypothetical wind farms, one small and one large, which are somewhat representative of possible future development. They are based on the Phase II and Phase IV proposals of the Valley County Wind Farm, a proposal that was discontinued by the developer during the planning stages. It is assumed that the two hypothetical wind farms would be located in high or moderate development potential areas for wind resources.

In addition to turbines, it is expected that collector substations, collector systems, new access roads, internal road networks, turbine string turnaround areas, turbine foundations, pad-mounted transformers, material staging areas, transmission lines, and operations and maintenance buildings could be included in a wind farm proposal as associated facilities.

A small wind farm is expected to utilize 2,800 acres of land as a general “footprint” for construction staging areas, turbines, and associated facilities. These associated facilities are assumed to create 200 acres of short-term surface disturbance and 48 acres of long-term surface disturbance (post-reclamation) for a small wind farm proposal.

A large wind farm is expected to utilize 10,706 acres for construction staging areas, turbines, and associated facilities. The acres of surface disturbance for a large wind farm would be 727 acres of short-term surface disturbance and 183 acres of long-term surface disturbance (post-reclamation)

Table 4.4
Large and Small Hypothetical Models of Wind Farms and Associated Facilities
(Not Including Potential Transmission Lines)
(Acres)

	Small			***Large***		
Number of Turbines	63			134		
Overall Area (acres)	2,800			10,706		
Power Generated (MW)	100			200		
	Short-Term	***Long-Term***	***Total***	***Short-Term***	***Long-Term***	***Total***
Operations and Maintenance Buildings	4	2	2	4	2	2
Collector Substation	3	1	2	3	1	2
Collector System	18	18	0	82	82	0
New Access Road	15	9	6	15	9	6
Internal Road Network	58	21	37	266	95	171
Turbine String Turnaround Area	6	6	0	22	22	0
Wind Turbine Foundations	0.3	0	0.3	1	0	1
Pad-Mounted Transformers	0.3	0	0.3	1	0	1
Turbine Work Areas/Material Staging	96	96	0	334	334	0
Total	200	48	152	727	183	544

Solid Minerals

The RFD for locatable solid minerals in contained in Appendix P. The RFD describes the extent of exploration and mine development within the foreseeable future, broken into specific geographic areas with high development potential and by alternative. This includes development of known resource occurrence and of undiscovered resource bodies resulting from prospecting and exploration activity.

The acres of disturbance due to foreseeable locatable mineral activity by alternative are shown in Table 4.5

Table 4.5
Solid Minerals (Locatable) Development Potential Surface Disturbance by Alternative
(Acres)

	Alternative A (Current Management)		***Alternative B***	***Alternative C***	***Alternative D***		***Alternative E (Preferred Alternative)***
Geographic Region	***Short-Term***	***Long-Term***	***Short-Term and Long-Term***	***Short-Term and Long-Term***	***Short-Term***	***Long-Term***	***Short-term and Long-Term***
Brazil Creek	150	150	115	115	115	115	115
Little Rocky Mountains	130	2,170	130	130	10	10	130
Sweet Grass Hills	110	175	110	110	110	175	110
Total	390	2,495	355	355	235	300	355

Acres of Surface Disturbance

In addition to the Keystone XL Pipeline and RFDs, a number of other activities may occur on BLM land in the future including prescribed fires, mechanical treatments, range improvements, and rights-of-way. These activities, which are discussed in the following section, may potentially cause surface disturbance in both the short and long term and are the basis for assessing cumulative impacts but should not be considered an allocation of resources.

Since cumulative impacts must be assessed "regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7), the BLM also estimated the amount of surface disturbance on non-BLM lands in the planning area. These estimates assume the same level of activity on non-BLM land (see Tables 4.6 through 4.11), and are based on the percentage of land ownership or vegetation type (forests and woodlands) in the planning area. However, the projected level of surface disturbance would be the same as Alternative A, since the range of alternatives would not affect these activities on non-BLM land.

Fire Management and Ecology

Prescribed fire could occur in the future to reduce fuels, improve land health, and restore fire regimes. For Alternative A, it is assumed that a total of 343 acres would be treated each year multiplied by 20 years for the life of the plan, for a total of 6,860 acres (Table 4.6). These acres were derived from actual acres treated from the year 2001 through May 2008. They are an average per year for all prescribed fire treatments (both grass/shrub and forested settings). Forested acres burned have averaged 43 acres per year, and grass/shrub acres burned have averaged 300 acres per year for a total of 343 acres.

For Alternatives B through E, the assumption is made that 1,333 acres could be treated with management-ignited prescribed fire, multiplied by 20 years for the life of the plan, for a total of 26,660 acres (Table 4.6). These acres were derived from existing vegetation types on BLM land within the planning area. Through GIS analysis conifer forest types were isolated from LANDFIRE's Existing Vegetation Type. Based on the total acres of ponderosa pine forest and an average fire return interval of 25 years in Fire Regime 1 (Fischer and Clayton 1983), 1,033 acres of ponderosa pine type were calculated to be burned per year. This value was added to the grass/shrub acres from Alternative A of 300 acres. The total of forested acres projected for burning plus the grass/shrub acres would be 1,333 acres. Because of concerns such as sage-grouse habitat, it was determined that the acres of grass/shrub likely would not change from current levels, so the 300 acres is the same for grass/shrub among all alternatives.

Table 4.6
Management-Ignited Prescribed Fire Potential Surface Disturbance by Alternative (Acres)

	Alternative A (Current Management)	***Alternative B***	***Alternative C***	***Alternative D***	***Alternative E (Preferred Alternative)***
Short-Term Disturbance from BLM Actions	6,860	26,660	26,660	26,660	26,660
Reclaimed from BLM Actions	6,860	26,660	26,660	26,660	26,660
Long-Term Disturbance from BLM Actions	0	0	0	0	0
Short-Term Disturbance from non-BLM Actions	38,828	38,828	38,828	38,828	38,828
Reclaimed from non-BLM Actions	38,828	38,828	38,828	38,828	38,828
Long-Term Disturbance from non-BLM Actions	0	0	0	0	0

Forests and Woodlands

Mechanical treatments could occur in the future to reduce fuels, improve land health, and restore fire regimes. This includes silvicultural treatments and management activities as a change agent that is necessary in the development of healthy forests and woodlands.

For Alternative A, 237 acres could be treated including conifer encroachment treatments per year, multiplied by 20 years for the life of the plan (Table 4.7). These acres were derived from actual acres treated from the year 2001 through May 2008. They are an average per year for all mechanical treatments (both grass/shrub and forested settings). Forested acres mechanically treated have averaged 182 acres per year since 2001, and grass/shrub acres mechanically treated (encroachment) have averaged 55 acres per year since 2001 for a total of 237 acres.

For Alternatives B through E, the 7,820 acres of disturbance is based on the assumption of being able to treat 1% of treatable ground per year (100 year rotations). Treatable ground is that ground which could have an actual footprint of work done on it, or ground where activity could likely occur (a total of all the available forested acres less those acres not treatable due to things like scree slopes, streamside management zones, etc.). The acres of treatable ground total approximately 39,100 acres. If 1% (391 acres/year) was treated every year, and the life of the plan was 20 years, then the total treated acres for the life of the plan would be approximately 7,820 acres.

Table 4.7
Forests and Woodlands – Surface Disturbance by Alternative
(Acres)

	Alternative A (Current Management)	***Alternative B***	***Alternative C***	***Alternative D***	***Alternative E (Preferred Alternative)***
Short-Term Disturbance from BLM Actions	4,740	7,820	7,820	7,820	7,820
Reclaimed from BLM Actions	4,740	7,820	7,820	7,820	7,820
Long-Term Disturbance from BLM Actions	0	0	0	0	0
Short-Term Disturbance from non-BLM Actions	47,874	47,874	47,874	47,874	47,874
Reclaimed from non-BLM Actions	47,874	47,874	47,874	47,874	47,874
Long-Term Disturbance from non-BLM Actions	0	0	0	0	0

Livestock Grazing – Range Improvements

Maintenance and/or reconstruction of water developments may occur in the future to meet Standards for Rangeland Health.

The assumption for the number of water developments was developed from the number of reservoirs in the planning area using the Range Improvement Project System (RIPS) database (Table 4.8). A 20-year life span for each existing reservoir was used as a replacement number and it was determined that approximately 100 reservoirs per year need to be replaced across the planning area. The pipeline estimate was determined using data from the previous ten years, using an average number of miles of pipeline built and projecting that out for the life of the plan.

Table 4.8
Livestock Grazing Development Surface Disturbance by Alternative
(Acres)

	Alternative A (Current Management)	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Pipeline Development					
Short-Term Disturbance from BLM Actions	60	75	75	60	75
Reclaimed from BLM Actions	60	75	75	60	75
Long-Term Disturbance from BLM Actions	0	0	0	0	0
Short-Term Disturbance from non-BLM Actions	340	340	340	340	340
Reclaimed from non-BLM Actions	340	340	340	340	340
Long-Term Disturbance from non-BLM Actions	0	0	0	0	0
Reservoir Development					
Short-Term Disturbance from BLM Actions	660	495	495	660	495
Reclaimed from BLM Actions	460	345	345	460	345
Long-Term Disturbance from BLM Actions	200	150	150	200	150
Short-Term Disturbance from non-BLM Actions	3,736	3,736	3,736	3,736	3,736
Reclaimed from non-BLM Actions	2,604	2,604	2,604	2,604	2,604
Long-Term Disturbance from non-BLM Actions	1,132	1,132	1,132	1,132	1,132
Well Development					
Short-Term Disturbance from BLM Actions	80	100	100	80	100
Reclaimed from BLM Actions	70	88	88	70	88
Long-Term Disturbance from BLM Actions	10	12	12	10	12
Short-Term Disturbance from non-BLM Actions	453	453	453	453	453
Reclaimed from non-BLM Actions	396	396	396	396	396
Long-Term Disturbance from non-BLM Actions	57	57	57	57	57

Rights-of-Way

Applications for rights-of-way may increase to accommodate energy development, especially oil and gas, as well as communication site usage for public safety and homeland security. However, the number of authorizations for rights-of-

way has remained steady at around 22-23 grants over the last three years. Surface disturbance resulting from 2007 authorizations are as follows:

- four temporary use permits for 6.38 acres of disturbance;
- seven road rights-of-way for 16.15 acres of disturbance;
- two powerline rights-of-way for 1.58 acres of disturbance;
- three buried telecommunications rights-of-way for 32.8 disturbed acres; and
- seven oil and gas pipeline rights-of-way for 7.42 acres of disturbance, for a total of 64.69 acres of surface disturbance.

The average surface-disturbing area by right-of-way development activity is shown in Table 4.9. These acreages were calculated by dividing the total number of acres encumbered by the various types of rights-of-way by the total number of authorizations for each type of ROW in the HiLine District. The numbers used in these calculations can be found in Table 3.26 in Chapter 3.

Table 4.9
Right-of-Way Development
Average Surface-Disturbing Area by Activity

Powerlines	42 acres
Telecommunication Lines	36 acres
Roads/Highways	33 acres
Communication Sites	3 acres
Oil/Gas Pipelines and Facilities	21 acres
Oil/Gas Roads	5 acres
Material Sites	11 acres
Water Facilities	65 acres
Railroads	53 acres

Upland Vegetation – Mechanical Treatments

Mechanical treatments in the uplands may occur in the future to meet Standards for Rangeland Health.

The 500 acres of mechanical treatment per year was developed using professional judgment, the previous history of treatments over the last 20 years, and an educated estimate of future potential mechanical treatment projects (Table 4.10).

Table 4.10
Vegetation – Mechanical Treatments Surface Disturbance by Alternative
(Acres)

	Alternative A (Current Management)	***Alternative B***	***Alternative C***	***Alternative D***	***Alternative E (Preferred Alternative)***
Short-Term Disturbance from BLM Actions	10,000	10,000	10,000	10,000	10,000
Reclaimed from BLM Actions	10,000	10,000	10,000	10,000	10,000
Long-Term Disturbance from BLM Actions	0	0	0	0	0
Short-Term Disturbance from non-BLM Actions	56,600	56,600	56,600	56,600	56,600
Reclaimed from non-BLM Actions	56,600	56,600	56,600	56,600	56,600
Long-Term Disturbance from non-BLM Actions	0	0	0	0	0

Solid Minerals – Salables

Mineral material sales may occur in the future within the planning area. Table 4.11 shows the projected acres of surface disturbance associated with mineral material sales.

Table 4.11
Solid Minerals – Mineral Material Sales Surface Disturbance by Alternative (Acres)

	Alternative A (Current Management)	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Short-Term Disturbance from BLM Actions	80	80	80	80	80
Reclaimed from BLM Actions	0	0	0	0	0
Long-Term Disturbance from BLM Actions	80	80	80	80	80
Short-Term Disturbance from non-BLM Actions	216	216	216	216	216
Reclaimed from non-BLM Actions	0	0	0	0	0
Long-Term Disturbance from non-BLM Actions	216	216	216	216	216

Other Treatments

In addition to the reasonable foreseeable development scenarios and acres of surface disturbance, other treatments may occur such as biological control of noxious weeds but do not result in surface disturbance.

Table 4.12 shows the projected acres of invasive species that could be treated annually in the planning area.

Table 4.12
Projected Average Annual Invasive Species Treatments (Acres)

	Glasgow Field Office	*Malta Field Office*	*Havre Field Office*	*Total Planning Area*
Biological – Classical*	50	20	20	90
Biological – Non-Classical**	0	0	110	110
Chemical-Ground	85	356	254	695
Chemical-Air	285	0	90	375
Other treatments	0	4	5	9
Total	420	380	479	1,279

* Classical biological control represents only releases made in a given year. Established classical biological control treats hundreds of acres each year as they establish and expand their populations. This is not reflected in this table. Classical biological control is the use of natural enemies from a target plant's native range and is usually a species of herbivorous insect/arthropod or a plant pathogen.

** Non-classical biological control is the use of targeted grazing to affect plant populations. The goal of non-classical biological control is not livestock production, although in some instances that can be a secondary benefit.

Impacts from the Alternatives

This section describes for each resource the analysis assumptions and guidelines, impacts common to all alternatives, and the impacts from the alternatives presented in Chapter 2. Only those resources that could be impacted by a particular alternative are discussed. The Proposed RMP appears as Alternative E (Preferred Alternative), which is a modification of the Alternative E that appears in the Draft RMP/EIS.

In order to improve the readability of this document and to enable the reader to easily locate referenced tables/sections, the resource discussions are organized alphabetically. The resource sections are noted in the document footers, along with the page numbers.

The assumptions and guidelines provide the basis for the cumulative impacts analysis, which is addressed in the environmental consequences for each resource and summarized at the end of each section. The cumulative impacts assessment prepared for each resource accounts for past, present, and reasonably foreseeable future actions that are relevant to determining the significant adverse impacts of the alternatives. These actions include, but are not necessarily limited to the reasonable foreseeable future actions and development scenarios described above.

Throughout the planning area, BLM-authorized activities associated with all resources and all resource use programs would be subject to mitigation and minimization guidelines and Best Management Practices (BMPs) (Appendix C), including specific Mitigation Measures and Conservation Actions for Greater Sage-Grouse (Appendix M.1). For analysis purposes, it has been assumed that these practices and conservation actions would be implemented during site-specific project planning where appropriate.

Northern Blaine County Photo by Craig Miller

Air Resources and Climate Change

Assumptions and Guidelines

The air resources impact analysis includes emission inventories for each alternative, quantitative analysis for near-field air resource impacts, and qualitative descriptions of potential impacts to far-field air pollutant concentrations and air quality related values (AQRVs), including visibility and deposition.

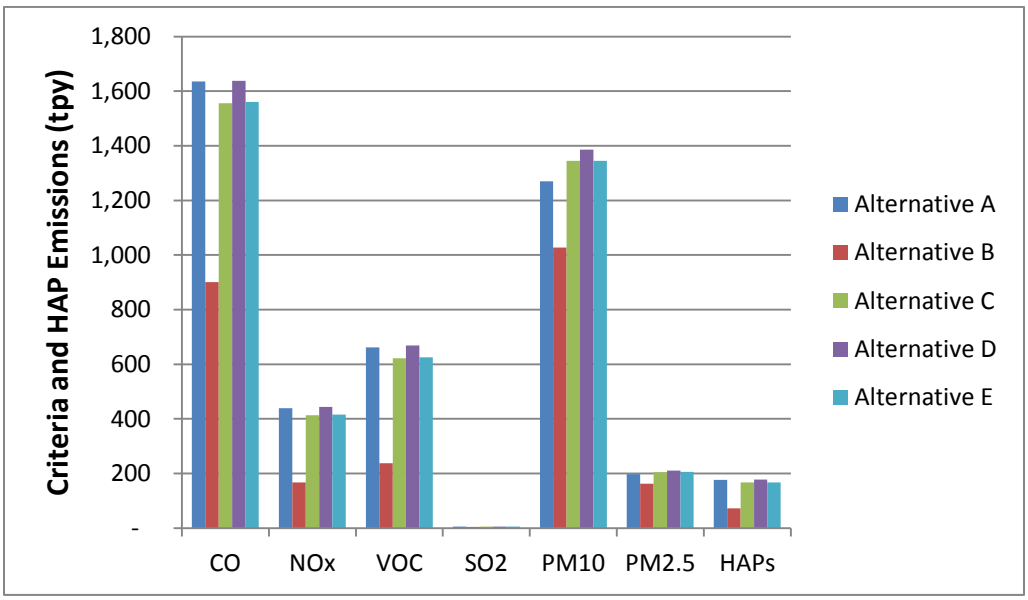
Emission inventories include BLM sources and non-BLM sources within the planning area. Criteria pollutants include CO, NO_x, ozone, $PM_{2.5}$, PM_{10}, and SO_2, as well as VOCs, which are ozone precursors. Hazardous air pollutants (HAPs), such as benzene and toluene, are also included in the inventories. Due to a lack of lead-emitting sources, lead emissions were not estimated. As described in Chapter 3, ozone is not emitted directly into the atmosphere; instead, it is formed in atmospheric reactions involving NO_x and VOCs. Greenhouse Gas (GHG) emissions (CO_2, CH_4, and N_2O) are described in the Climate Change impact analysis. Emission inventories, modeling methods, and modeling results are included in the *HiLine Resource Management Plan Air Resource Technical Support Document* (ARTSD) (BLM 2014), which is available on the HiLine RMP website at http://blm.gov/8qkd.

Impacts Common to All Alternatives

Air Pollutant Emissions

BLM emission sources include energy development (conventional natural gas, coalbed natural gas, and oil); rights-of-way activities (telephone and fiber optics, pipelines, roads, powerlines, communication sites, other facilities); mineral development (sand and gravel, bentonite); fuels management (prescribed fire, mechanical vegetation treatment); resource road maintenance, forest and woodland treatments, and livestock grazing. These emissions would be long-term emissions because most activities would be expected to occur over the life of the plan. However, if activities cease, concentrations of criteria pollutants and HAPs would decrease due to emission reductions. In this respect, air resource impacts would be short-term, reversible impacts. BLM-authorized emissions of criteria pollutants and HAPs are shown in Figure 4.1.

Figure 4.1
Criteria and Hazardous Air Pollutant Emissions from BLM Sources in the HiLine Planning Area



The largest BLM criteria pollutant and HAP emission sources would be associated with energy development, including conventional natural gas, coalbed natural gas, and oil; fire management; and sand and gravel production. Detailed emission breakdowns by resource are included for each of the alternatives. For most of these resources, emissions would be similar to emissions associated with current levels of activity. For example, forestry management and BLM road travel would not be expected to increase over current activity levels and emissions from these activities would remain relatively constant. Consequently, emissions from ongoing resource management activities would not represent increases to regional emissions. However, oil and gas emissions would reflect increased activity in future years and would add to regional emissions. Oil and gas emission estimates reflect the year with the greatest total emissions from development and production activities.

Oil and gas emission inventories were generally based on emission standards required by the Montana Department of Environmental Quality (MDEQ) and the Environmental Protection Agency (EPA). One exception is that emission estimates were based on use of Tier 4 nonroad engine standards for diesel drill rig engines, which would be required under best management practices and as an initial mitigation measure. A list of initial mitigation measures to be applied upon issuance of the Record of Decision is included in the HiLine District Air Resource Management Plan provided in Appendix B. For drill rig and completion engines greater than 200 horsepower, generator set engines with low emission rates were assumed when developing the emission inventories.

Emissions associated with each of the alternatives represent a small fraction of 2008 emissions in the planning area (presented in Chapter 3), as shown in Table 4.13. Criteria pollutant and HAP emissions associated with management actions included in this RMP would be between 1% and 17% of total emissions in Big Horn, Blaine, Chouteau, Glacier, Hill, Liberty, Phillips, Toole, and Valley Counties, as reported by EPA in its National Emission Inventory (NEI) for calendar year 2008. The NEI emissions include stationary sources, nonroad sources, and vehicle sources. However, the NEI emissions do not necessarily include all existing oil and gas emissions, since small individual oil and gas sources may not be included. Furthermore, Version 1.5 of the NEI does not include PM_{10} and $PM_{2.5}$ emissions from agricultural tilling. If the agricultural tilling emissions were included, the PM_{10} and $PM_{2.5}$ percentages in Table 4.13 would be less than those shown.

Table 4.13
Estimated Maximum Annual Criteria and Hazardous Air Pollutant Emissions as a Percentage of Existing Emissions

	Percentage of Total Emissions Within HiLine Counties (%)					
Alternative	***CO***	***NOx***	***VOC***	***SO_2***	***PM_{10}*** [1]	***$PM_{2.5}$*** [1]
Alternative Emissions for Multi-Resource Activities Excluding Wildfire Smoke [2]						
A	7%	3%	17%	3%	5%	6%
B	4%	1%	6%	3%	4%	5%
C	7%	3%	16%	3%	6%	7%
D	7%	3%	17%	3%	6%	7%
E	7%	3%	16%	3%	6%	6%
Oil and Gas Alternative Emissions [3]						
A	5%	3%	15%	<1%	2%	2%
B	2%	1%	5%	<1%	1%	1%
C	4%	3%	15%	1%	2%	2%
D	5%	3%	16%	1%	2%	2%
E	4%	3%	154%	1%	2%	2%

[1] Data obtained from Version 1.5 of the NEI, which did not include particulate emissions from agricultural tilling. PM_{10} and $PM_{2.5}$ percentages would be lower if agricultural tilling is included.
[2] Wildfire smoke is excluded since it is caused by natural events and is not included as part of the NEI. Estimates of wildfire smoke are included in the ARTSD (BLM 2014).
[3] Oil and gas emissions represent an increase above NEI emissions.

Near-Field Criteria Air Pollutant Concentrations

Impacts to criteria air pollutant concentrations would be direct impacts with durations similar to the duration of emission-producing activities. Near-field dispersion modeling was performed for oil and gas development and production using the AERMOD model, which is the EPA guideline model for estimating near-field air quality impacts for most air pollutants. AERMOD is suitable for modeling near-field receptors up to a distance of 50 kilometers from emission sources, and provides conservative estimates of potential air quality impacts. Ozone (and VOC ozone precursors) concentrations are not predicted with AERMOD because it cannot model the chemical transformations associated with atmospheric ozone formation. Ozone would be modeled using photochemical grid modeling (PGM) when sufficient emission and monitoring data become available to perform this type of modeling as described in Appendix B. Detailed information describing AERMOD emissions, meteorology, modeling parameters, and data processing is provided in the ARTSD (BLM 2014) and is summarized below.

Three well pad development scenarios (construction, drilling, and completion) were modeled at a central well pad. Well development activities would be temporary and would occur at different times at a well pad. Well pad construction would occur first over a period of up to three days of active site construction involving soil movement (e.g., digging and grading). Drilling would occur next, with up to 15 days of active drilling. Then well completion would occur over up to 5 days. Once well development is complete, a long-term production phase typically begins. The construction modeling scenario has the greatest short-term (24-hr) emission rates for PM_{10} and $PM_{2.5}$. Temporary drilling activities account for the greatest short-term (1-hr) emission rates for all non-particulate criteria air pollutants. Completion activities have greater non-particulate emissions than the construction phase. In order to represent production activities at nearby wells, estimated oil and gas production emissions were modeled at four operating wells surrounding the central pad. These emissions were modeled concurrently with each of the three well development scenarios (construction, drilling, and completion).

Potential emissions from each of the scenarios were modeled and the resulting modeled concentrations were compared to PSD increments (described below). Ambient background concentrations represent current air quality. Comparisons to the National Ambient Air Quality Standards (NAAQS) and Montana Ambient Air Quality Standards (MAAQS) are done by adding modeled concentrations that reflect additional oil and gas activity to background concentrations and comparing the total concentrations to the standards. The results of the near-field modeling performed for Alternative A are provided in Table 4.14. Alternative A near-field modeling represents dense well pad and equipment spacing that could occur in localized areas within high potential oil and gas activity areas. Because this dense spacing could also occur under Alternatives B, C, D, and E, the Alternative A modeling results conservatively predict impacts that could occur in localized areas under each of the alternatives.

Table 4.14 provides the largest predicted concentration (in the form of the standards) that was modeled for each scenario and for each modeled year (2007-2011). Additional modeling results are included in the ARTSD (BLM 2014). The maximum total 1-hr CO concentration of 4,329 $\mu g/m^3$ was predicted based on drilling activities using meteorology from year 2011. Approximately 7% of the total 1-hr CO concentration was attributable to modeled sources. In contrast, modeled activities accounted for up to 71% of total 24-hr PM_{10} predicted concentrations. Predicted concentrations are well below the NAAQS and MAAQS, as shown by the percentages in the last column of the table. Total concentrations of 50% of a NAAQS or greater were predicted for the 1-hour NO_2, 24-hour PM_{10}, 24-hour $PM_{2.5}$, and annual $PM_{2.5}$ standards. The maximum 1-hour NO_2 impacts were due to heavy-duty construction equipment exhaust during the brief well construction period, as were maximum 24-hour PM_{10} and $PM_{2.5}$ impacts. Predicted ambient concentrations associated with production activities are much less than emissions associated with temporary activities.

Modeled concentrations can also be compared to PSD increments, which are designed to prevent good air quality from deteriorating to the level set by the NAAQS. In areas attaining the NAAQS, PSD increment analysis is required prior to construction of a major stationary source of air pollutants that has the potential to emit at least 100 tons per year (tpy) or 250 tpy of criteria air pollutants. The sources included in this near-field modeling analysis do not meet the definition of a major source of criteria air pollutants and would not be required to undergo PSD analysis. The following PSD analysis is not a regulatory analysis; its purpose is to provide context for evaluating potential air quality impacts.

Table 4.14
Oil and Gas Activity Near-Field Criteria Air Pollutant Concentration Summary for All Alternatives

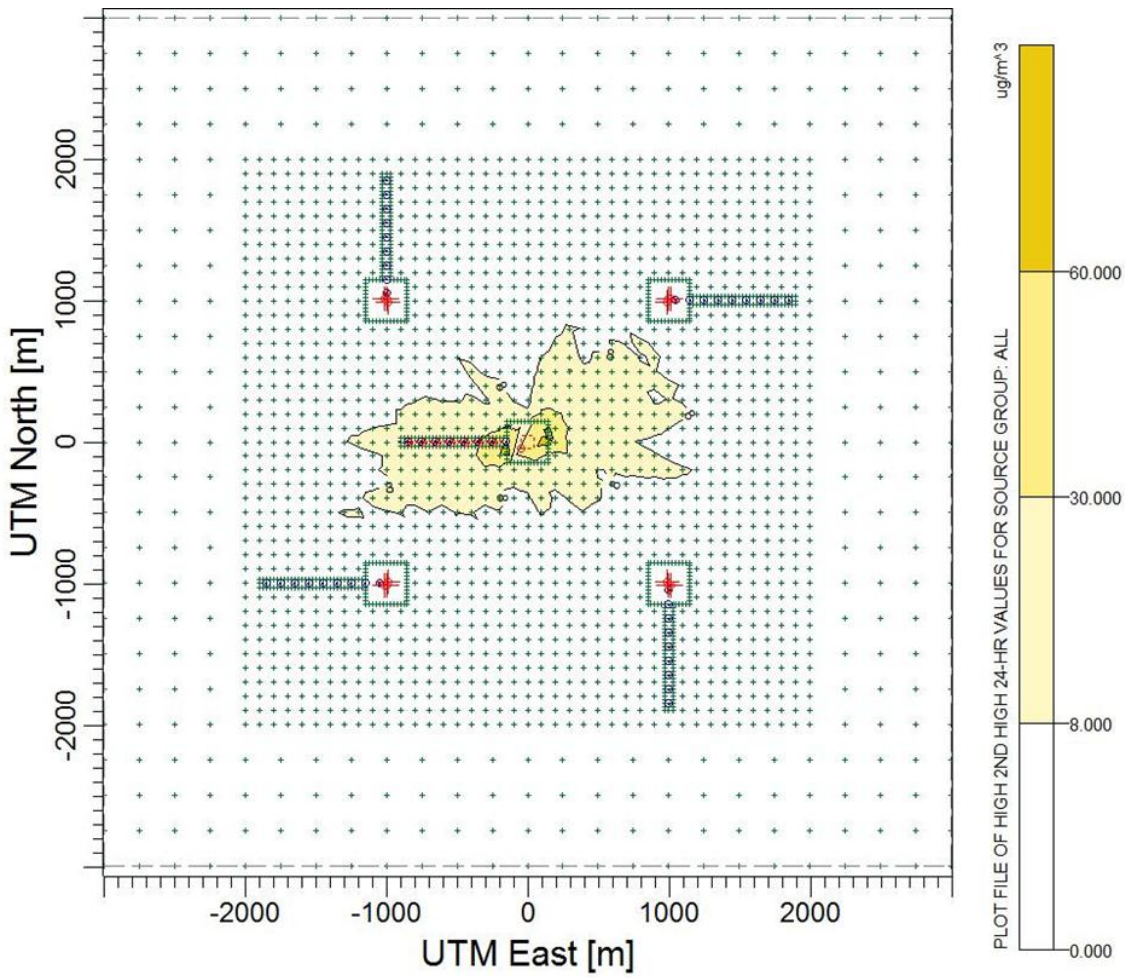
Pollutant	*Average Period*	*Model Output Rank*	*Modeled Concen-tration ($\mu g/m^3$)*	*PSD Increment ($\mu g/m^3$)*		*Background Concen-tration [1] ($\mu g/m^3$)*	*Total Concen-tration ($\mu g/m^3$)*	*NAAQS or MAAQS ($\mu g/m^3$)*	*Percent of NAAQS or MAAQS*
				Class I	*Class II*				
CO	1-hour	H2H	322	None	None	4,007	4,329	26,450 [6]	16%
	8-hour	H2H	251	None	None	2,175	2,426	10,000	24%
NO_2	1-hour	H8H [2]	84	None	None	40	124	188	66%
	Annual	H1H [3]	0.41	2.5	25	6	6.4	94 [6]	7%
PM_{10}	24-hour	H2H	72	8	30	30	102	150	68%
	Annual	H2H	1.2	4	17	8	9.2	50 [6]	18%
$PM_{2.5}$	24-hour	H8H [4] (H2H) [7]	8.5 (19.7)	2	9	22.5	31	35	88%
	Annual	H1H	1.4	1	4	5.5	6.9	12	58%
SO_2	1-hour	H4H [5]	3.3	None	None	35	38.3	196	18%
	3-hour	H2H	2.2	None	None	35	37.2	1300	3%
	24-hour	H2H	0.64	5	91	11	11.6	365 [6]	4%
	Annual	H1H	1.8E-03	2	20	3	3.0	80 [6]	6%

H1H = highest-first-high
H2H = highest-second-high
H4H = highest-fourth-high
H8H = highest-eighth-high
$\mu g/m^3$ = micrograms per cubic meter
MAAQS = Montana Ambient Air Quality Standards
NAAQS = National Ambient Air Quality Standards
PSD = Prevention of Significant Deterioration
[1] Background concentrations were provided by the MDEQ (MDEQ 2012a, MDEQ 2012b).
[2] Five-year average of the 98th percentile (H8H) 1-hour modeled NO_2 concentrations. Post processed using the 1-hour and annual NO_2 Tier 2 method using 80% conversion of modeled NO_x to NO_2.
[3] Post processed using the annual NO_2 Tier 2 method using 75% conversion of modeled NO_x to NO_2.
[4] Five-year average of the 98th percentile (H8H) 24-hour modeled $PM_{2.5}$ concentrations.
[5] Five-year average of the 99th percentile (H4H) 1-hour modeled SO_2 concentrations.
[6] This is a Montana standard.
[7] The H2H rank provided in parentheses is used to compare to the PSD increments, while the H8H rank is compared to the NAAQS.

EPA established PSD increments for Class I areas (e.g., national parks and large wilderness areas) and Class II areas (all non-Class I areas in Montana). Oil and gas activities are expected to occur within Class II areas and the modeled (not total) concentration can be compared directly to the Class II increment. Temporary 24-hr PM_{10} and $PM_{2.5}$ concentrations greater than the Class II PSD increments are predicted to occur during construction (PM_{10} only) and completion, construction, and drilling activities ($PM_{2.5}$). Temporary concentrations above the Class I increments for PM_{10} or $PM_{2.5}$ are also possible during construction, drilling, and completion if these activities would be located near a Class I area.

Air pollutant concentrations generally decrease as distance from the source increases. Figure 4.2 provides an illustration of 24-hr PM_{10} modeled concentrations during 2010. Similar well pad configurations were modeled for other pollutants. At the center of the figure is a well pad with short-term construction activities. The four surrounding well pads are modeled with emissions representing production activity. Red markers indicate emission sources and green markers indicate receptors (points at which concentrations are calculated). Shaded areas indicate the extent of the area for which the PSD Class I increment would be exceeded on the day of the year with the second-highest PM_{10} modeled concentration. In this case, the maximum extent with a predicted concentration above the Class I increment would be approximately 1,000 meters. Concentrations of this magnitude could occur only on days when well pad construction activity is concurrent with meteorological conditions causing the greatest ambient PM_{10} concentration.

Figure 4.2
Example of Extent of Area Exceeding the PM_{10} 24-hour Class I Increment during Construction



Near-Field Hazardous Air Pollutant Concentrations

Impacts to HAP concentrations would be direct impacts with durations similar to the duration of emission-producing activities. Similar to the criteria air pollutant modeling, near-field HAP modeling was conducted to determine predicted ambient air quality impacts of HAP emissions. Additional HAP modeling results are included in the ARTSD (BLM 2014). HAPs are defined by EPA as toxic air pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. HAP modeling consisted of the same three scenarios modeled for criteria air pollutants. Modeled impacts were compared to established health-based thresholds to determine the incremental increase in risk associated with the proposed activities. Health-based thresholds are established for both short-term (acute, typically 1-hour) and long-term (chronic, one year) exposures. The short-term thresholds used in the analysis consisted of acute Reference Exposure Levels (RELs) and are defined as short-term concentrations at or below which no adverse health effects are expected. The long-term non-carcinogenic thresholds used in the analysis consisted of chronic Reference Concentrations (RfCs) and are the threshold at which no long-term, non-carcinogenic adverse health effects are expected. The long-term carcinogenic thresholds used in the analysis consisted of Unit Risk Factors (URFs) to estimate the increased risk of contracting cancer that is associated with the ambient concentration of the HAP being analyzed. Six HAPs were modeled, consisting of benzene, ethyl benzene, formaldehyde, n-hexane, toluene, and xylene. Table 4.15 provides a breakdown of the health effects for each modeled HAP.

Table 4.15
Health Effects of Modeled HAPs

HAP	*Short-Term (Acute)*	*Long-Term (Non-Carcinogen)*	*Long-Term (Carcinogen)*
Benzene	✓	✓	✓
Ethyl Benzene	✓	✓	✓
Formaldehyde	✓	✓	✓
N-Hexane	✓	✓	
Toluene	✓	✓	
Xylene	✓	✓	

Table 4.16 presents the results of the acute HAP modeling. The maximum acute impacts for benzene and n-hexane are predicted to occur during completion activities, while the greatest concentrations of ethyl benzene, formaldehyde, toluene, and xylene are expected to occur during construction operations. Acute HAP modeling impacts were well below the RELs. Table 4.17 presents the results of HAP modeling of potential chronic effects and compares them to RfCs.

Table 4.16
Acute Short-Term HAP Modeling Results for All Alternatives

HAP	*Modeled 1-Hour Concentration (µg/m^3)*	*REL (µg/m^3)*	*Percent of REL*
Benzene	1.46	1,300	<1%
Ethyl Benzene	3.20	350,000	<1%
Formaldehyde	8.07	55	15%
N-Hexane	10.97	390,000	<1%
Toluene	1.13	37,000	<1%
Xylene	0.76	22,000	<1%

Table 4.17
Chronic Non-Carcinogenic HAP Modeling Results for All Alternatives

HAP	*Modeled Annual Concentration (µg/m^3)*	*RfC (µg/m^3)*	*Percent of RfC*
Benzene	0.03	30	<1%
Ethyl Benzene	0.11	1,000	<1%
Formaldehyde	0.03	10	<1%
N-Hexane	0.32	700	<1%
Toluene	0.03	5,000	<1%
Xylene	0.02	100	<1%

Of the HAPs evaluated, only benzene, ethyl benzene, and formaldehyde are identified by EPA as being carcinogens. Cancer unit risk factors (URFs) were derived based on assuming a person is exposed to a HAP for a 70-year lifetime. Cancer risk was estimated by multiplying the annual model-predicted concentrations by the URF for each carcinogen. The resulting calculations were then scaled by adjustment factors to represent the most likely exposure (MLE) and maximally exposed individual (MEI) risks. The MEI adjustment takes into account the lifetime of the project, which was assumed to be 50 years. The MLE adjustment takes into account the average duration that a family remains at a residence as well as the time spent at home versus time spent elsewhere. Table 4.18 presents the results of the carcinogenic HAP modeling for both the MLE and MEI exposure assumptions. Maximum predicted cancer risks for all modeled scenarios and HAPs are below an incremental increase in cancer risk of 1 per million.

Table 4.18
Carcinogenic HAP Modeling Results for All Alternatives

HAP	*Modeled Annual Concentration ($\mu g/m^3$)*	*URF ($\mu g/m^3$) $^{-1}$*	*Adjustment Factor*	*Cancer Risk (Per Million)*	*Risk Exceeds 1 Per Million?*
Most Likely Exposure (MLE)					
Benzene	0.026	7.80×10-6	0.0949	0.02	No
Ethyl Benzene	0.110	2.50×10-6	0.0949	0.03	No
Formaldehyde	0.027	1.30×10-5	0.0949	0.03	No
Maximally Exposed Individual (MEI)					
Benzene	0.026	7.80×10-6	0.71	0.14	No
Ethyl Benzene	0.110	2.50×10-6	0.71	0.20	No
Formaldehyde	0.027	1.30×10-5	0.71	0.23	No

Far-Field Criteria Air Pollutant Concentrations

Due to the relatively low density of expected oil and gas activity in most of the HiLine, far-field criteria air pollutant concentrations are expected to remain low. The following qualitative assessment describes potential impacts based on available data.

Ozone is the pollutant with ambient concentrations closest to the NAAQS based on a percentage basis. Ozone concentrations are variable and highly dependent on weather conditions. Compliance with the ozone NAAQS is based on a three-year average of the fourth highest daily maximum 8-hour concentration. The nearest rural ozone monitor in an oil and gas area with sufficient historical data to calculate this 3-year average is located in Sidney. The 2010-2012 average was 0.056 ppm, which is equivalent to 75% of the standard.

NO_x and VOC emissions contribute to ozone formation. Cumulative emission increases were estimated to be up to 3% for NO_x and up to 17% for VOCs. Predicted emission increases would be unlikely to cause or contribute to a violation of the ozone NAAQS.

Additional ozone monitoring data are needed to determine if high ozone concentrations may occur in rural areas during winter. With funding provided by the BLM, the MDEQ installed two new monitors during July 2012 in Malta (in Phillips County within the planning area) and in Lewistown (Fergus County) south of the planning area. Additional information concerning these monitors is provided in the Air Resource Management Plan (ARMP) within Appendix B. In addition to assessing ozone concentrations on a real-time basis, these monitors would also provide ozone concentration data that would be used in future modeling efforts. As described in the ARMP, the BLM would perform future photochemical grid modeling to predict ozone concentrations in the HiLine planning area and surrounding areas.

Qualitative assessments of far-field air resource impacts for additional criteria air pollutants are provided below.

- CO — Due to low CO concentrations, the MDEQ suspended CO monitoring at its SLAMS locations. An emission increase of approximately 7% in the planning area would cause a negligible or minor increase in CO concentrations in most areas.

- NO_2 — The NO_2 monitor in Sidney indicates that NO_2 concentrations are approximately 9% of the 1-hour NAAQS. An emission increase of 3% or less in the planning area would cause a negligible or minor increase in NO_2 concentrations in most areas. A larger increase in ambient concentrations may occur in some localized areas where large engines operate continuously.

- SO_2 — SO_2 concentrations monitored in Sidney are very low, at 7% of the 1-hour NAAQS. Because increased SO_2 emissions would be 3% or less of planning area emissions and would be dispersed over large areas, these emissions would cause a minor increase in SO_2 concentrations.

- PM_{10} — PM_{10} concentrations monitored at Sidney are approximately 16% of the NAAQS. An emission increase of 4-6% would cause a minor increase in PM_{10} concentrations in some areas. At locations with construction activities, vehicle traffic on unpaved roads, or off-road travel, temporary PM_{10} concentration increases may be moderate or could be high if adverse weather conditions occur.

- $PM_{2.5}$ — $PM_{2.5}$ concentrations monitored at Sidney are approximately 43% and 55% of the 24-hour and annual NAAQS, respectively. An emission increase of 5-7% in the planning area could cause a minor increase in $PM_{2.5}$ concentrations. At locations with construction activities, vehicle traffic on unpaved roads, or off-road travel, temporary $PM_{2.5}$ concentration increases may be moderate or could be high if adverse weather conditions occur.

- Lead — Lead emissions would be negligible and no measurable increase in lead concentrations is expected.

Future monitoring data and PGM results would inform BLM air quality management actions, as described in the ARMP in Appendix B.

AQRV Impacts

AQRV impacts include impacts to visibility; sulfur, nitrogen, and acid deposition; and lake acidification. The best modeling method to determine far-field AQRV impacts for large modeling domains is PGM, which can model long-range regional transport of air pollutants that cause atmospheric deposition and visibility impacts. Reliable PGM requires comprehensive regional emission inventories and ambient monitoring data throughout the 48 contiguous United States. As described in the ARMP in Appendix B, the BLM is acquiring needed data to perform PGM, which is expected to be completed after the Proposed RMP is published. For the Proposed RMP, the following qualitative analysis is provided for atmospheric deposition. Due to a request from the U.S. Fish and Wildlife Service (USFWS) and the National Park Service (NPS), a limited modeling effort was performed to estimate visibility impacts using the VISCREEN model for near-field impacts and the CALPUFF model for far-field impacts. This modeling was performed after the Draft RMP/EIS was published and assessed near-field visibility impacts at the UL Bend Wilderness Class I area.

VISCREEN modeling assessed plume visibility impacts based on an assumption that a drill rig could be located approximately 1 kilometer from the Class I area boundary and a human observer could be located approximately 1 km from the drill rig and the Class I area. The model predicts impacts in terms of a color difference index and a contrast index. As shown in Table 4.19, predicted impacts are less than the following FWS and NPS thresholds used to identify impacts that may potentially pose a visibility concern (FLAG 2010).

- Color difference index: $\Delta E \geq 2.00$
- Contrast: $|C| \geq 0.05$

Table 4.19
VISCREEN Plume Visibility Modeling Results for Alternative A

	Low Standard Visual Range		***High Standard Visual Range***	
Class I Area/Background	***ΔE***	***| C |***	***ΔE***	***| C |***
UL Bend Wilderness				
Sky	0.043	0.001	0.044	0.001
Terrain	0.880	0.001	0.930	0.001

Modeling for the UL Bend Wilderness predicted visibility impacts less than these thresholds for both modeled cases, including a low visibility case when the background standard visual range is 234 km and a high visibility case when the background standard visual range is 242 km. Additional modeling information is provided in the ARTSD (BLM 2014).

Modeling was performed for both high visibility (high standard visual range) days and low visibility (low standard visual range) days. Predicted impacts are provided for cases when an emission plume could be viewed with the sky as background and when a plume could be viewed with terrain as the background.

Far-field impacts were assessed at two FWS Class I areas (the UL Bend and Medicine Lake Wildernesses), at Fort Peck Indian Reservation (a tribal Class I area), and at nearby sensitive Class II areas. CALPUFF modeling included estimated Alternative A emissions from BLM-authorized oil and gas activities as a conservative method to assess potential impacts from all alternatives. Quantitative results from the CALPUFF visibility modeling are summarized below and followed by a qualitative assessment of deposition impacts. Additional information on modeling methodologies and detailed results are provided in the ARTSD (BLM 2014).

Results from the CALPUFF far-field visibility modeling are shown in Table 4.20. The modeling domain included the eastern and central portions of the HiLine District and the northern 40 percent of the Miles City Field Office (MCFO). Modeled emissions included federal oil and gas emissions from the HiLine District and MCFO based on their highest emission alternatives. All HiLine oil and gas emissions were included in the domain. Visibility impacts are predicted to be below the 0.5 deciview change (Δdv) included in FLAG 2010 as a threshold used to identify impacts that may potentially pose a visibility concern. Visibility impacts greater than 0.5 dv change are predicted to occur on zero days per year at each of the modeled areas.

Table 4.20
CALPUFF Visibility Modeling Results for Alternative A (Current Management)

		Deciview Change (98th percentile, Δdv)		
Area Type/Area Name	***Jurisdictional Agency***	***2006***	***2007***	***2008***
Mandatory Class I				
Medicine Lake Wilderness	FWS	0.080	0.078	0.072
UL Bend Wilderness	FWS	0.053	0.076	0.085
Non-mandatory (Tribal) Class I				
Fort Peck Indian Reservation	Sioux and Assiniboine Tribes	0.113	0.076	0.104
Sensitive Class II				
Bear Paw Battlefield	NPS	0.069	0.058	0.055
Black Coulee NWR	FWS	0.075	0.055	0.077
Bowdoin NWR	FWS	0.084	0.059	0.106
Charles M. Russell NWR	FWS	0.045	0.051	0.060
Creedman Coulee NWR	FWS	0.107	0.120	0.106
Fort Belknap Indian Reservation	Gros Ventre and Assiniboine Tribes	0.050	0.059	0.054
Hewitt Lake NWR	FWS	0.123	0.092	0.131
Lake Thibadeau NWR	FWS	0.045	0.116	0.119
Medicine Lake NWR	FWS	0.052	0.046	0.044
Rocky Boy Indian Reservation	Chippewa Cree Tribe	0.058	0.052	0.050

NWR = National Wildlife Refuge

Atmospheric Deposition

Sulfur and nitrogen deposition impacts would likely be minor at Class I and sensitive Class II areas. Increases in NO_x and SO_2 emissions would be less than 3%. Potential total nitrogen and sulfur deposition would likely remain below the levels of concern (3.0 kg/ha/yr and 5.0 kg/ha/yr, respectively). Precipitation would be unlikely to become acidified due to predicted emission increases. Due to proximity to energy development areas, the UL Bend Wilderness, Fort Peck

Indian Reservation, and Medicine Lake Wilderness Class I areas could be affected by increased atmospheric deposition. With regard to potential sensitive Class II areas listed in Table 3.5, some of these areas could experience small increases in deposition. As part of the future PGM mentioned above, deposition impacts would be quantitatively assessed as described in Appendix B.

Visibility

Montana has a state visibility standard of 3×10^{-5}/m, which is equivalent to a visual range of approximately 21 miles. Standard visual range data are 57 and 168 miles at the UL Bend Wilderness during the average haziest 20% of days and clearest 20% of days, respectively. As part of future modeling efforts, cumulative visibility impacts at nearby Class I and sensitive Class II areas will be quantitatively assessed as described in Appendix B.

ARMP and Adaptive Management Strategy for Oil and Gas Resources

The ARMP for oil and gas activities is provided in Appendix B. The ARMP describes the air quality adaptive management strategy that would be used to assess future air quality and AQRVs. The goal of the strategy is to maintain the good air quality that the HiLine currently enjoys. By assessing monitored and modeled air resource and AQRV impacts, the BLM can identify mitigation measures to address unacceptable impacts that may be associated with future oil and gas development. As described in the ARMP, the BLM would work with the Montana Department of Environmental Quality (MDEQ) and the AQTW to identify successful strategies to address air quality and AQRV concerns.

The adaptive management strategy focuses on oil and gas activity because aggregated emissions from multiple small sources at well sites can potentially cause significant air quality and AQRV impacts under certain circumstances. The oil and gas adaptive management strategy was prepared in collaboration with the U.S. Environmental Protection Agency (EPA) and three federal land management agencies under the *Understanding Among the U.S. Department of Agriculture, U.S. Department of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act [NEPA] Process* (DOI 2011). This Memorandum of Understanding (MOU) is summarized in Appendix B.

The ARMP includes both near-term actions and long-term actions. In the near term, the ARMP sets forth initial mitigation measures to maintain good air quality until regional PGM can be performed to further assess potential impacts to air quality (including ozone) and AQRVs. Additional monitoring data and regional emission inventory data are being acquired to support PGM, which is expected to be completed in 2015. In the longer term, the ARMP provides ongoing management strategies to assess and adapt to new air quality and AQRV ambient monitoring and modeling data during the life of this RMP.

The ARMP includes a multifaceted approach involving the following activities.

- Oil and gas activity assessment
- Ambient air quality monitoring support
- Air quality and AQRV assessment
- Future air quality and AQRV modeling
- Mitigation

Pollutants addressed by the ARMP include NO_2, O_3, PM_{10}, and $PM_{2.5}$. The ARMP also addresses modeling and mitigation for the following AQRVs.

- Deposition of sulfur and nitrogen
- Lake acid neutralizing capacity
- Visibility

The adaptive management strategy for oil and gas resources provides the flexibility to respond to changing conditions that could not have been predicted during RMP development. The strategy also allows for the use of new technology and methods that may minimize or reduce impacts.

Impacts under Alternative A (Current Management)

Alternative A has a high level of oil and gas activity and the greatest bentonite mining activity. Resource-specific emissions are provided in Table 4.21, which indicates that oil and gas activities would be the largest sources of each pollutant with the exception of SO_2 from fire management and PM_{10} from sand and gravel operations.

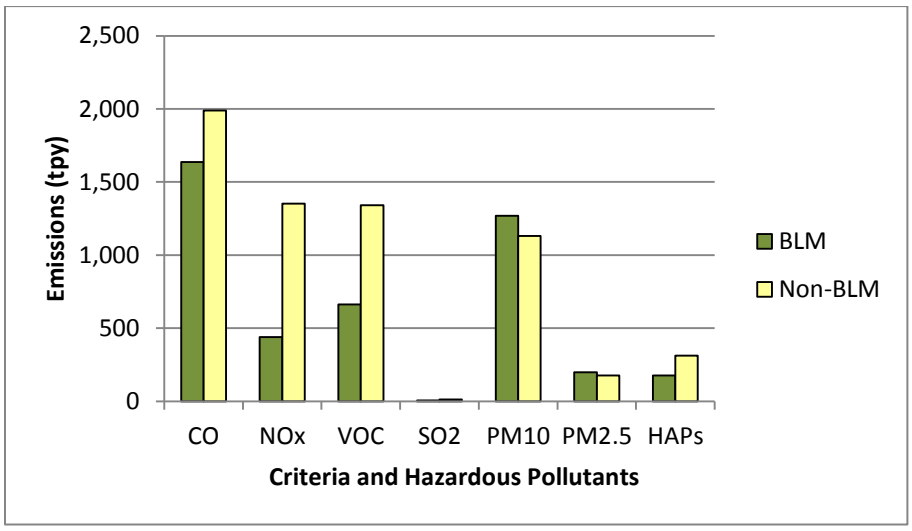
Table 4.21
BLM Source Emissions under Alternative A (Current Management) (Tons/Year)

Resource	*CO*	*NOx*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*VOC*	*HAP*
Oil and Gas							
Oil	36	16	0	12	2	16	1
Natural Gas	1,044	389	1	505	68	614	152
Coalbed Natural Gas	10	5	0	9	1	4	1
Bentonite Mining	61	0	0	39	8	0	0
BLM Travel	2	0	0	24	2	0	0
BLM Road Maintenance	0	0	0	4	0	0	0
Fire Management [1]	465	20	4	94	44	25	22
Forestry Management	2	3	0	5	1	0	0
Land and Realty	1	3	0	18	2	0	0
Livestock Grazing	1	1	0	15	2	0	0
Sand and Gravel	1	0	0	540	67	0	0
Vegetation Management	13	0	0	5	1	3	0
BLM Emission Total [2]	1,636	439	6	1,270	198	662	177

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires. Wildfire emissions are provided in the ARTSD (BLM 2014).
[2] Columns may not add to total values due to rounding.

Cumulative Impacts

Figure 4.3
Long-Term Emissions from BLM and Non-BLM Sources in the HiLine Planning Area under Alternative A (Current Management)



With the exception of PM_{10} and $PM_{2.5}$ emissions, emissions from BLM sources would be much less than non-BLM oil and gas emissions in the planning area. Figure 4.3 shows criteria pollutant and HAP emissions from BLM and from non-BLM oil and gas sources. Cumulative impacts from BLM sources, projected future non-BLM oil and gas sources, and existing sources would not be expected to exceed the NAAQS or MAAQS for any pollutant. As described in the ARMP in Appendix B, ambient concentrations would be monitored at existing and new air quality monitors to assess impacts. Furthermore, pollutant concentration impacts as well as deposition and visibility impacts would be predicted using future PGM.

Impacts under Alternative B

Alternative B has the lowest level of oil and gas activity and low bentonite mining activity. Under Alternative B, emissions would be less than emissions under each of the other alternatives. Resource-specific emissions are provided in Table 4.22, which indicates that oil and gas activities would be the largest emission sources for each pollutant, except CO and SO_2 from fire management and PM_{10} and $PM_{2.5}$ from sand and gravel operations.

Table 4.22
BLM Source Emissions under Alternative B (Tons/Year)

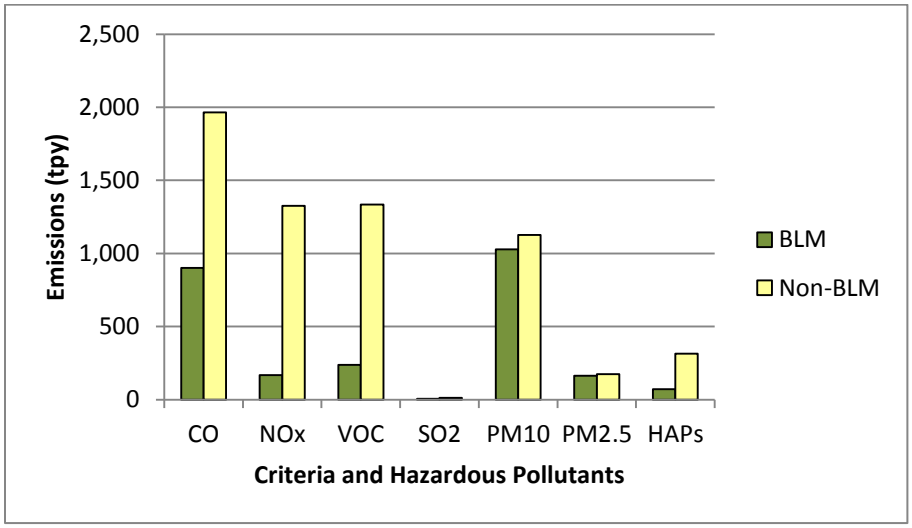
Resource	*CO*	*NOx*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*VOC*	*HAP*
Oil and Gas							
Oil	30	13	0	11	2	13	1
Natural Gas	331	124	0	161	22	195	48
Coalbed Natural Gas	5	3	0	4	1	2	0
Bentonite Mining	49	0	0	147	20	0	0
BLM Travel	2	0	0	24	2	0	0
BLM Road Maintenance	0	0	0	4	0	0	0
Fire Management [1]	465	20	4	94	44	25	22
Forestry Management	2	3	0	5	1	0	0
Land and Realty	1	3	0	18	2	0	0
Livestock Grazing	1	1	0	15	2	0	0
Sand and Gravel	1	0	0	540	67	0	0
Vegetation Management	13	0	0	5	1	3	0
BLM Emission Total [2]	900	167	5	1,027	162	238	72

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires. Wildfire emissions are provided in the ARTSD (BLM 2014).
[2] Columns may not add to total values due to rounding.

Cumulative Impacts

Figure 4.4 shows criteria pollutant and HAP emissions from BLM and from non-BLM oil and gas sources. Cumulative impacts from BLM sources, projected future non-BLM oil and gas sources, and existing sources would not be expected to exceed the NAAQS or MAAQS for any pollutant. Cumulative impacts under Alternative B would be less than those for any other alternative.

Figure 4.4
Long-Term Emissions from BLM and Non-BLM Sources in the HiLine Planning Area under Alternative B



Impacts under Alternative C

Alternative C would allow relatively high oil and gas activity and low bentonite mining activity. Under Alternative C, most emissions would be less than emissions under Alternative A, with the exception of particulate emissions. Resource-specific emissions are provided in Table 4.23, which indicates that oil and gas activities would be the largest emission sources for each pollutant except for SO_2 from fire management and PM_{10} and $PM_{2.5}$ from sand and gravel operations.

Table 4.23
BLM Source Emissions under Alternative C (Tons/Year)

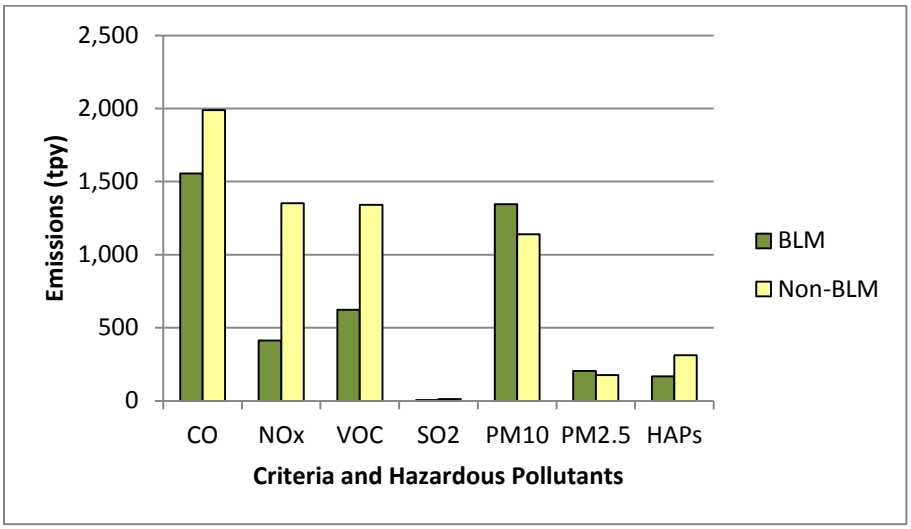
Resource	*CO*	*NOx*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*VOC*	*HAP*
Oil and Gas							
Oil	36	16	0	12	2	16	1
Natural Gas	977	365	1	473	64	575	143
Coalbed Natural Gas	8	4	0	8	1	3	1
Bentonite Mining	49	0	0	147	20	0	0
BLM Travel	2	0	0	24	2	0	0
BLM Road Maintenance	0	0	0	4	0	0	0
Fire Management [1]	465	20	4	94	44	25	22
Forestry Management	2	3	0	5	1	0	0
Land and Realty	1	3	0	18	2	0	0
Livestock Grazing	1	1	0	15	2	0	0
Sand and Gravel	1	0	0	540	67	0	0
Vegetation Management	13	0	0	5	1	3	0
BLM Emission Total [2]	1,555	413	6	1,345	205	622	167

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires. Wildfire emissions are provided in the ARTSD (BLM 2014).
[2] Columns may not add to total values due to rounding.

Cumulative Impacts

Figure 4.5 shows criteria pollutant and HAP emissions from BLM and from non-BLM oil and gas sources. Cumulative impacts under Alternative C would be less than those for Alternative A. Cumulative impacts from BLM sources, projected future non-BLM oil and gas sources, and existing sources would not be expected to exceed the NAAQS or MAAQS for any pollutant. As described in the ARMP in Appendix B, ambient concentrations would be monitored at existing and new air quality monitors to assess impacts. Furthermore, pollutant concentration impacts as well as deposition and visibility impacts would be predicted using future PGM.

Figure 4.5
Long-Term Emissions from BLM and Non-BLM Sources in the HiLine Planning Area under Alternative C



Impacts under Alternative D

Alternative D would have the highest level of oil and gas activity and low bentonite mining activity. Under Alternative D, emissions would be greater than emissions under each of the other alternatives. Resource-specific emissions are provided in Table 4.24, which indicates that oil and gas activities would be the largest emission sources for each pollutant except for PM_{10} from sand and gravel operations.

Table 4.24
BLM Source Emissions under Alternative D (Tons/Year)

Resource	*CO*	*NOx*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*VOC*	*HAP*
Oil and Gas							
Oil	36	16	0	12	2	16	1
Natural Gas	1,057	394	1	514	69	620	154
Coalbed Natural Gas	10	5	1	9	1	4	1
Bentonite Mining	49	0	0	147	20	0	0
BLM Travel	2	0	0	24	2	0	0
BLM Road Maintenance	0	0	0	4	0	0	0
Fire Management [1]	465	20	4	94	44	25	22
Forestry Management	2	3	0	5	1	0	0
Land and Realty	1	3	0	18	2	0	0

Table 4.24
BLM Source Emissions under Alternative D (Tons/Year)

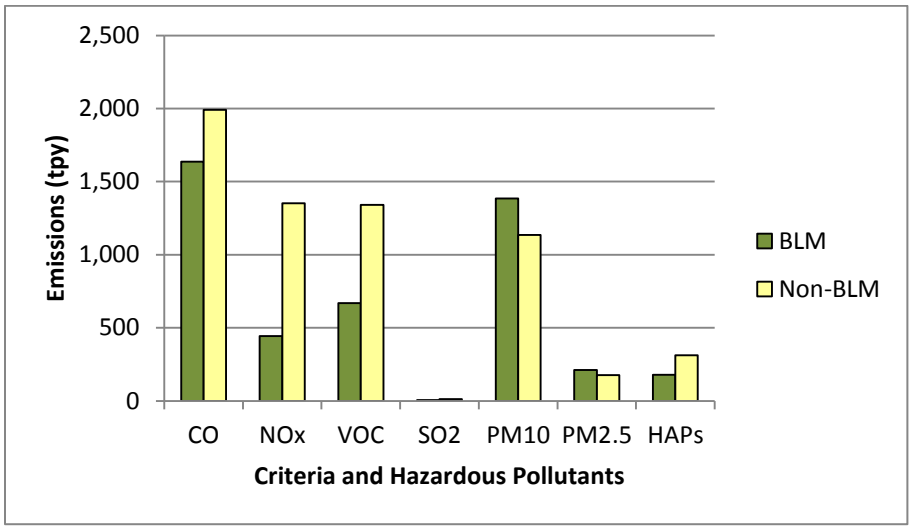
Resource	*CO*	*NOx*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*VOC*	*HAP*
Livestock Grazing	1	1	0	15	2	0	0
Sand and Gravel	1	0	0	540	67	0	0
Vegetation Management	13	0	0	5	1	3	0
BLM Emission Total [2]	1,637	444	6	1,386	211	669	178

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires. Wildfire emissions are provided in the ARTSD (BLM 2014).
[2] Columns may not add to total values due to rounding.

Cumulative Impacts

Figure 4.6 shows criteria pollutant and HAP emissions from BLM and from non-BLM oil and gas sources. Alternative D cumulative impacts would be greater than those for any other alternative, and cumulative pollutant concentrations are expected to be less than the NAAQS and MAAQS. As described in the ARMP in Appendix B, pollutant concentrations would be monitored at existing and new air quality monitors to assess impacts. Furthermore, pollutant concentration impacts as well as deposition and visibility impacts would be predicted using future PGM.

Figure 4.6
Long-Term Emissions from BLM and non-BLM Sources in the HiLine Planning Area under Alternative D



Impacts under Alternative E (Preferred Alternative)

The preferred alternative has the second-highest level of oil and gas activity and low bentonite mining activity. Under Alternative E, emissions would be less than emissions under Alternatives A and D, except for particulate emissions, which would be greater than Alternative A. Resource-specific emissions are provided in Table 4.25, which indicates that oil and gas activities would be the largest emission sources for each pollutant except for SO_2 from fire management and PM_{10} and $PM_{2.5}$ from sand and gravel operations.

Table 4.25
BLM Source Emissions under Alternative E (Preferred Alternative) (Tons/Year)

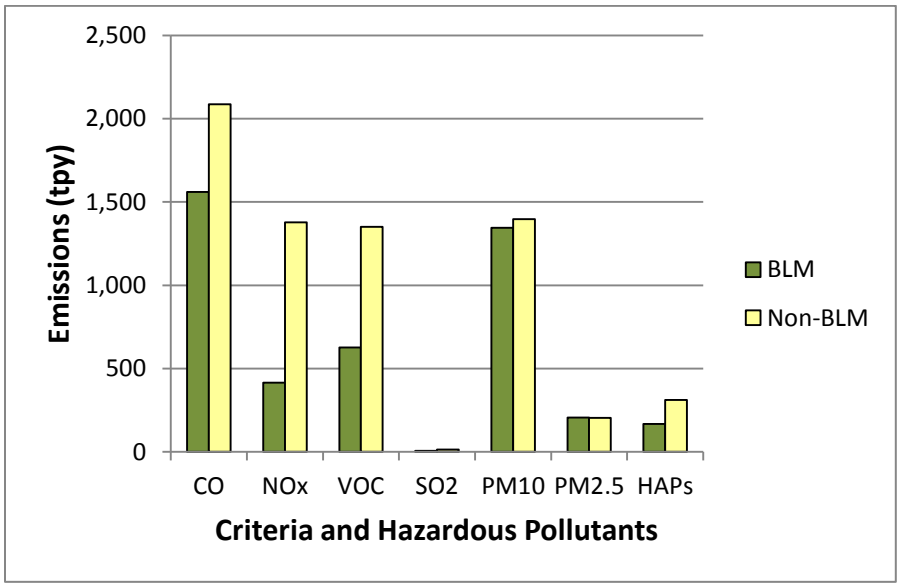
Resource	*CO*	*NOx*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*VOC*	*HAP*
Oil and Gas							
Oil	35	16	0	12	2	15	1
Natural Gas	891	332	1	432	58	524	130
Coalbed Natural Gas	9	5	0	8	1	3	1
Bentonite Mining	49	0	0	147	20	0	0
BLM Travel	2	0	0	24	2	0	0
BLM Road Maintenance	0	0	0	4	0	0	0
Fire Management [1]	465	20	4	94	44	25	22
Forestry Management	2	3	0	5	1	0	0
Land and Realty	1	3	0	18	2	0	0
Livestock Grazing	1	1	0	15	2	0	0
Sand and Gravel	1	0	0	540	67	0	0
Vegetation Management	13	0	0	5	1	3	0
BLM Emission Total [2]	1,469	381	6	1,303	200	571	154

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires. Wildfire emissions are provided in the ARTSD (BLM 2014).
[2] Columns may not add to total values due to rounding.

Cumulative Impacts

Figure 4.7 shows criteria pollutant and HAP emissions from BLM and from non-BLM oil and gas sources. Cumulative impacts under Alternative E would generally be less than those for Alternatives A and D. Alternative E cumulative pollutant concentrations are expected to be less than the NAAQS and MAAQS. As described in the ARMP in Appendix B, pollutant concentrations would be monitored at existing and new air quality monitors to assess impacts. Furthermore, pollutant concentration impacts as well as deposition and visibility impacts would be predicted using future PGM.

Figure 4.7
Long-Term Emissions from BLM and non-BLM Sources in the HiLine Planning Area under Alternative E (Preferred Alternative)



Climate Change

Proposed management activities would cause GHG emission increases from many types of sources. This section quantifies emissions from each alternative and provides a qualitative discussion of potential climate impacts. As described in Chapter 3, climate change is occurring and will continue to occur for many years due to the longevity of GHGs that are already in the atmosphere. Approximate atmospheric lifetimes for CO_2, methane (CH_4), and N_2O are 50–200 years, 12 years, and 120 years, respectively (EPA 2010b). Consequently, GHG emissions would generally be considered to have long-term impacts.

Assumptions and Guidelines

A growing body of evidence indicates that Earth's atmosphere is warming. Records show that surface temperatures in Montana have risen approximately 1–3° Fahrenheit since the 1960 to 1979 baseline years (USGCRP 2009). The largest increase in average temperature has occurred in the winter months in the central and eastern portions of the state. Relatively cold days in the region are becoming less frequent and relatively hot days are becoming more frequent (USGCRP 2009). Observed changes in oceans, ecosystems, and ice cover are consistent with this warming trend (NRC 2006).

Ongoing scientific research has identified the potential impacts of GHG emissions – including CO_2, CH_4, N_2O, water vapor, and several trace gases – on global climate change. Through complex interactions at regional and global scales, atmospheric GHG concentrations cause a net warming of the atmosphere (which makes surface temperatures suitable for life on Earth), primarily by decreasing the amount of heat energy Earth radiates back into space. Although GHG concentrations in the atmosphere and climatic conditions have varied throughout Earth's history, recent industrialization and combustion of fossil fuels have caused global atmospheric CO_2 concentration to increase dramatically; this most recent CO_2 increase is likely to contribute to overall climatic changes (NRC 2006). Global atmospheric concentrations of CO_2, CH_4, and N_2O have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values (as determined from ice cores spanning many thousands of years).

The global increase in CO_2 concentrations is due primarily to fossil fuel use and land use change, while those of CH_4 and N_2O are due to agricultural soil management, animal manure management, sewage treatment, and mobile and stationary combustion of fossil fuels (IPCC 2007). According to climate change researchers, the impacts of climate change are expected to vary by region, season, and time of day (NRC 2006, USGCRP 2009). Computer model forecasts indicate that increases in temperature will not be evenly or equally distributed, but are likely to be accentuated at higher latitudes. Warming during winter is more likely than increases in daily maximum temperatures (NRC 2006).

Within North America, warming is predicted to affect many resources and human health. In western mountain areas, warming is projected to cause decreased snowpack, more winter flooding, and reduced summer flows, which would exacerbate competition for over-allocated water resources. In the early decades of the century, moderate climate change is projected to increase aggregate yields of rain-fed agriculture by 5 to 20%, but with important variability among regions; major challenges are projected for crops that are near the warm end of their suitable range or which depend on highly utilized water resources. Cities that currently experience heat waves are expected to be further challenged by an increased number, intensity, and duration of heat waves during the course of the century, with potential for adverse health impacts. Specific modeling and/or assessments of the potential impacts for the planning area currently do not exist.

The lack of scientific tools (models with sufficient spatial and temporal resolution) to forecast climate change at local scales limits the ability to quantify current and future impacts of climate change in the planning area. The following paragraphs describe potential future impacts of climate change that can be reasonably anticipated for the planning area; some of these impacts are known to already be occurring in the area. However, over the next 20 years, tools will become available that will allow for a better site-specific analysis of the impacts of a proposed activity on GHG and the site-specific impact from climate change. The U.S. Geological Survey (USGS), for example, is developing GIS-based tools to determine the carbon storage of specific soils. Ongoing research is analyzing the response of different vegetation types to increasing CO_2, longer growing seasons, higher heat, and more unpredictable rain patterns.

Increasing temperatures in the planning area are likely to contribute to increased evaporation, drought frequencies, and declining water quantity. The warming of lakes and rivers will adversely affect the thermal structure and water quality of hydrological systems, which will add additional stress to water resources in the region (IPCC 2007). The planning area depends on temperature-sensitive springtime snowpack to meet demand for water from municipal, industrial, agricultural, and recreational uses, and BLM-authorized activities. The USGS notes that mountain ecosystems in the western United States are particularly sensitive to climate change, especially in the higher elevations, where much of the snowpack occurs. Some of these areas have experienced three times the global average temperature increase over the past century (USGS 2010). Higher temperatures are causing more winter precipitation to fall as rain rather than snow, which contributes to earlier snowmelt. Additional declines in snowmelt associated with climate change are projected, which would reduce the amount of water available during summer (USGCRP 2009). Rapid spring snowmelt due to sudden and unseasonal temperature increases can also lead to greater erosive events and unstable soil conditions.

Increasing temperatures could affect the amount of water vapor in the atmosphere, the timing and amount of precipitation, the intensity of storm systems, snow melt, and soil moisture. These factors can affect climate, day-to-day weather conditions, and air quality in the planning area. There is evidence that recent warming is affecting terrestrial and aquatic biological systems (IPCC 2007). Warming temperatures are leading to earlier timing of spring events such as leaf-unfolding, bird migration, and egg-laying (IPCC 2007). The range of many plant and animal species has shifted poleward and to higher elevation, as the climate of these species' traditional habitat changes. As future changes in climate are projected to be even greater than those in the recent past, there will likely be even larger range shifts in the coming decades (Lawler, et al. 2009). Warming temperatures are also linked to longer thermal growing seasons (IPCC 2007). In aquatic habitats, increases in algal abundance in high-altitude lakes have been linked to warmer temperatures, while range changes and earlier fish migrations in rivers have also been observed (IPCC 2007). Climate change is likely to combine with other human-induced stress to further increase the vulnerability of ecosystems to other pests, invasive species, and loss of native species. Climate change is likely to affect breeding patterns, water and food supply, and habitat availability to some degree. Sensitive species in the planning area such as Greater Sage-Grouse, which are already stressed by declining habitat, increased development and other factors, could experience additional pressures as a result of climate change.

The observed change in western Montana glaciers indicates that these changes will influence land management decisions in the planning area. These factors may change migration patterns of wildlife, change appropriate seasons for livestock grazing, increase fire intensity, and intensify weed spread. With climate fluctuations expected to cause hotter and drier summers in the northern Rocky Mountains, the planning area could see an increase in West Nile virus (which responds positively to this type of climate condition).

Climate change also poses challenges for many resource uses on BLM-administered land. Increased temperatures, drought, and evaporation may reduce seasonal water supplies for livestock and could impact forage availability. However, in non-drought years, longer growing seasons resulting from thermal increases may increase forage availability throughout the year. Shifts in wildlife habitat due to climate change may influence hunting and fishing activities, and early snowmelt may impact winter and water-based recreational activities. Drought and resulting stress on vegetation is likely to increase the frequency and intensity of mountain pine beetle and other insect infestations, which reduces the potential for sale of forest products on BLM-administered lands.

Increases in average summer temperatures and earlier spring snowmelt in the planning area are expected to increase the risk of wildfires by increasing summer moisture deficits (USGCRP 2009). Studies have shown that earlier snowmelts can lead to a longer dry season, which increases the incidence of landscape-level fire (Westerling, et al. 2006). Together with historic changes in land use, climate change is anticipated to affect the variability in the occurrence of wildfire throughout the western United States. Although the impact of climatic factors varies by ecosystem type and from year to year, drought, low winter precipitation, wind conditions, and high summer temperatures are positively associated with wildfire occurrence (NPS 2010). During the last 20 years, research has shown that these factors have led to an increase in the frequency of very large wildfires and total acres burned throughout the Rocky Mountain region (NPS 2010).

Climate change science and predictions of climate change impacts are a continually growing and emerging science. Additional and recent information on climate change and regional predictions can be found at http://www.globalchange.gov/ and the Intergovernmental Panel on Climate Change at http://www.ipcc.ch/.

Impacts Common to All Alternatives

GHG Emissions

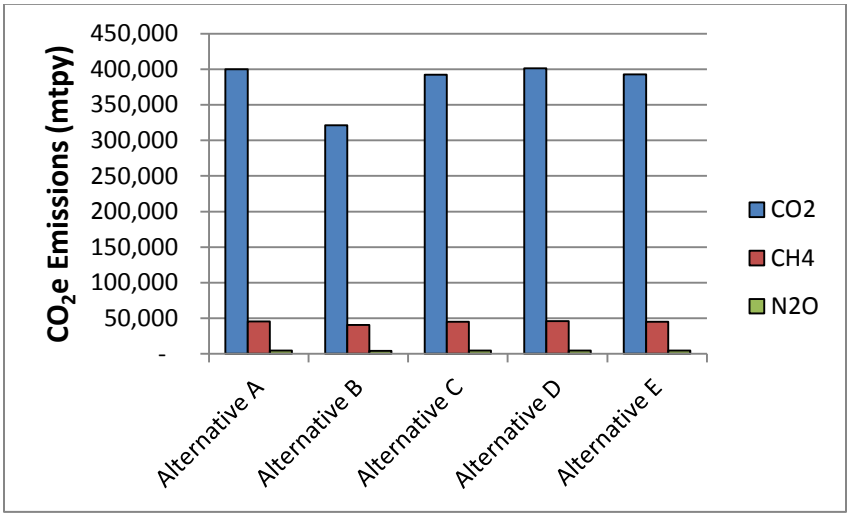
Due to the inability to accurately model the effects of local GHG emissions on climate change, this analysis provides a summary of GHG emissions associated with the alternatives and a comparison of these emissions to other GHG inventories. GHG emissions were estimated using methodologies similar to those used for criteria air pollutants and included GHG emissions that would be directly emitted from sources related to energy development, rights-of-way, mineral development, fuels management, resource road maintenance, forest and woodland treatments, and livestock grazing. The emission estimates reflect GHG emissions from BLM-authorized activities occurring within the planning area. GHG emissions from activities outside the planning area were not included because insufficient data exist to accurately quantify these emissions. For example, combustion emissions associated with oil and natural gas produced within the planning area and combusted outside the planning area were not included in the inventory. GHG emissions from wildfire were not included in the emission inventories because these emissions would be beyond the BLM's control and occur every year, though wildfire intensity and magnitude vary from year to year. GHG emissions from prescribed fire and fire prevention activities were included in the inventory since these activities result from BLM-authorized activities. A copy of the GHG emission inventories can be obtained from the Havre Field Office in Havre, Montana.

GHG emission sinks due to sequestration and changes in land use were not estimated due to insufficient data and methodologies for estimating carbon uptake in vegetation and soils. BLM activities that improve forest and vegetation health would tend to increase CO_2 uptake from the atmosphere and reduce atmospheric concentrations. Increased carbon sequestration on land administered by the BLM would offset GHG emission increases from other BLM sources.

GHG emission inventories developed as part of this analysis are expressed in short tons per year because emission factors used to calculate emissions were available in units of pounds and short tons. However, state, national, and global emission inventories are typically provided in terms of metric tons per year (mtpy). Consequently, GHG emissions provided in this section are given in terms of short tons per year and mtpy in order to compare Alternative emissions with other GHG inventories.

Potential GHG emissions from BLM sources are shown in Figure 4.8 in terms of CO_2e given in mtpy. Under each Alternative, fire management activities account for the greatest quantities of CO_2 and N_2O emissions, while livestock grazing accounts for the greatest CH_4 emissions.

Figure 4.8
GHG Emissions in Terms of CO_2e for Each Alternative



Cumulative Emission Impacts

GHG emissions due to the highest-emitting alternative would be a small percentage of Montana, U.S., and global emissions. Based on emission inventory data included in Table 3.7, Alternative D CO_2e emissions would be approximately 0.900% of Montana emissions, 0.007% of U.S. emissions, and 0.001% of global GHG emissions. Due to the relatively small differences in GHG emissions, differences in cumulative GHG emission impacts among the alternatives would be negligible.

GHG Emission Mitigation

GHG emissions from multiple activities would likely decrease in future years due to future federal regulation of GHGs. EPA's August 16, 2012 NSPS and NESHAP rule is expected to decrease national CH_4 emissions from affected oil and gas systems by approximately 26% (GPO 2012). A previous light-duty vehicle regulation imposed CO_2 emission standards for new vehicles. As new vehicles replace existing vehicles, CO_2 emissions will decline on a per-mile basis. EPA is collecting GHG emission data and is considering additional future regulation.

Climate Change Impact Mitigation

Several federal initiatives have been launched to improve the ability to understand, predict, and adapt to the challenges of climate change. The Secretary of the Interior signed Secretarial Order 3289 on February 22, 2010, establishing a Department-wide, scientific-based approach to increase understanding of climate change and to coordinate an effective response to impacts on managed resources. The order reiterated the importance of analyzing potential climate change impacts when undertaking long-range planning issues, and also established several initiatives including the development of eight Regional Climate Science Centers. Regional Climate Science Centers would provide scientific information and tools that land and resource managers can apply to monitor and adapt to climate changes at regional and local scales (USDI 2010). The North Central Climate Science Center, which will incorporate the planning area, was established in 2011.

Given the broad spatial influence of climate change which requires response at the landscape level, the Department of the Interior also established Landscape Conservation Cooperatives, which are management-science partnerships that help to inform management actions addressing climate change across landscapes. These Cooperatives are formed and directed by land, water, wildlife and cultural resource managers and interested public and private organizations to increase the scope of climate change response beyond federal lands.

In addition to efforts being undertaken to better respond and adapt to climate change, other federal initiatives are being implemented to mitigate climate change. The Carbon Storage Project was implemented to develop carbon sequestration methodologies for geological (i.e., underground) and biological (e.g., forests and rangelands) carbon storage. The project is a collaboration of federal agency and external stakeholders to enhance carbon storage in geologic formations and in plants and soils in an environmentally responsible manner. The Carbon Footprint Project is a project to develop a unified GHG emission reduction program for the Department of the Interior, including setting a baseline and reduction goal for the Department's GHG emissions and energy use. More information about Department's efforts to respond to climate change is available at: www.doi.gov/archive/climatechange/.

Impacts under Alternative A (Current Management)

Under Alternative A, GHG emissions would be larger than emissions under all other alternatives, except for Alternative D. Resource-specific emissions are provided in Table 4.26.

Table 4.26
BLM Source GHG Emissions under Alternative A (Current Management)

	(Tons/Year)				(mtpy)
Resource	***CO_2***	***CH_4***	***N_2O***	***CO_2e***	***CO_2e***
Oil and Gas Development and Production					
Oil	3,583	5	0	3,689	3,347
Natural Gas	125,691	393	1	134,137	121,689
Coalbed Natural Gas	928	5	0	1,028	933
Bentonite Mining	113	0	0	114	103
BLM Travel	108	0	0	113	103
BLM Road Maintenance	40	0	0	40	37
Fire Management [1]	309,193	58	15	315,074	285,835
Forestry Management	363	0	0	365	331
Land and Realty	308	0	0	309	281
Livestock Grazing	150	1,940	0	40,884	37,090
Sand and Gravel	101	0	0	104	94
Vegetation Management	52	0	0	53	48
BLM Emission Total [2]	440,630	2,401	17	495,911	449,890

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires.
[2] Columns may not add to total values due to rounding.

Impacts under Alternative B

Under Alternative B, GHG emissions would be less than emissions under each of the other alternatives. Resource-specific emissions are provided in Table 4.27.

Table 4.27
BLM Source GHG Emissions under Alternative B

	(Tons/Year)				(mtpy)
Resource	***CO_2***	***CH_4***	***N_2O***	***CO_2e***	***CO_2e***
Oil and Gas Development and Production					
Oil	3,107	4	0	3,193	2,897
Natural Gas	39,937	125	0	42,617	38,663
Coalbed Natural Gas	445	3	0	519	471
Bentonite Mining	109	0	0	109	99
BLM Travel	108	0	0	113	103
BLM Road Maintenance	40	0	0	40	37
Fire Management [1]	309,193	58	15	315,074	285,835
Forestry Management	363	0	0	365	331
Land and Realty	308	0	0	309	281
Livestock Grazing	150	1,940	0	40,884	37,090
Sand and Gravel	101	0	0	104	94
Vegetation Management	52	0	0	53	48
BLM Emission Total [2]	353,913	2,130	16	403,382	365,948

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires.
[2] Columns may not add to total values due to rounding.

Impacts under Alternative C

Under Alternative C, GHG emissions would be less than emissions under Alternatives A, D and E. Resource-specific emissions are provided in Table 4.28.

Table 4.28
BLM Source GHG Emissions under Alternative C

	(Tons/Year)				*(mtpy)*
Resource	***CO_2***	***CH_4***	***N_2O***	***CO_2e***	***CO_2e***
Oil and Gas Development and Production					
Oil	3,583	5	0	3,689	3,347
Natural Gas	117,703	368	1	125,614	113,957
Coalbed Natural Gas	740	6	0	860	780
Bentonite Mining	109	0	0	109	99
BLM Travel	108	0	0	113	103
BLM Road Maintenance	40	0	0	40	37
Fire Management [1]	309,193	58	15	315,074	285,835
Forestry Management	363	0	0	365	331
Land and Realty	308	0	0	309	281
Livestock Grazing	150	1,940	0	40,884	37,090
Sand and Gravel	101	0	0	104	94
Vegetation Management	52	0	0	53	48
BLM Emission Total [2]	432,451	2,377	16	487,214	442,001

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires.
[2] Columns may not add to total values due to rounding.

Impacts under Alternative D

Under Alternative D, GHG emissions would be greater than emissions under all other alternatives. Resource-specific emissions are provided in Table 4.29.

Table 4.29
BLM Source GHG Emissions under Alternative D

	(Tons/Year)				*(mtpy)*
Resource	***CO_2***	***CH_4***	***N_2O***	***CO_2e***	***CO_2e***
Oil and Gas Development and Production					
Oil	3,583	5	0	3,689	3,347
Natural Gas	127,522	398	1	136,064	123,437
Coalbed Natural Gas	928	7	0	1,083	982
Bentonite Mining	109	0	0	109	99
BLM Travel	108	0	0	113	103
BLM Road Maintenance	40	0	0	40	37
Fire Management [1]	309,193	58	15	315,074	285,835
Forestry Management	363	0	0	365	331
Land and Realty	308	0	0	309	281
Livestock Grazing	150	1,940	0	40,884	37,090
Sand and Gravel	101	0	0	104	94
Vegetation Management	52	0	0	53	48
BLM Emission Total [2]	442,457	2,408	17	497,888	451,684

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires.
[2] Columns may not add to total values due to rounding.

Impacts under Alternative E (Preferred Alternative)

Under Alternative E, GHG emissions would be less than emissions under Alternatives A and D, and greater than emissions under Alternatives B and C. Resource-specific emissions are provided in Table 4.30.

Table 4.30
BLM Source GHG Emissions under Alternative E (Preferred Alternative)

	(Tons/Year)				*(mtpy)*
Resource	***CO_2***	***CH_4***	***N_2O***	***CO_2e***	***CO_2e***
Oil and Gas Development and Production					
Oil	3,583	5	0	3,689	3,347
Natural Gas	118,099	371	1	126,060	114,362
Coalbed Natural Gas	740	4	0	818	742
Bentonite Mining	109	0	0	109	99
BLM Travel	108	0	0	113	103
BLM Road Maintenance	40	0	0	40	37
Fire Management [1]	309,193	58	15	315,074	285,835
Forestry Management	363	0	0	365	331
Land and Realty	308	0	0	309	281
Livestock Grazing	150	1,940	0	40,884	37,090
Sand and Gravel	101	0	0	104	94
Vegetation Management	52	0	0	53	48
BLM Emission Total [2]	432,847	2,377	16	487,619	442,368

[1] Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires.
[2] Columns may not add to total values due to rounding.

Cultural Resources

Assumptions and Guidelines

The criteria for assessing impacts were those stipulated in the regulations for Protection of Historic Properties (36 CFR §800), which state that an undertaking may have an effect when it may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (36 CFR §800.5(a)(1)).

Examples of effects include:

- physical destruction, damage, or alteration of all or part of the property;
- property alteration that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR §68) and applicable guidelines;
- removal of the property from its historic location; and
- disturbance of the visual setting of an historic property, such as in the case of a Traditional Cultural Property (TCP).

Impact analysis assumptions for cultural resources include the following:

- Discoveries of cultural resources will continue throughout the planning area.
- A direct correlation exists between the number of sites that could be impacted by various actions and the degree, nature, and quantity of surface-disturbing activities within the planning area.

- A direct relationship exists between the frequency of human use in an area and the potential for cultural resources to be impacted.
- The assessment methodology used to analyze cumulative impacts on cultural resources includes the entire planning area and those management activities expected to occur within the planning area.

Impacts Common to All Alternatives

The potential exists for disturbing cultural resources across all alternatives from casual, unauthorized activities (such as dispersed recreational activity, OHV use, and vandalism) and natural processes (natural decay, deterioration, or erosion). Under all alternatives, unquantified indirect impacts would occur. Management activities occurring within the planning area are not expected to affect cultural resources outside of the planning area.

Under all alternatives the BLM would continue to mitigate impacts to cultural resources from authorized uses through project abandonment, redesign, and if necessary, data recovery investigations. However, cultural resources would continue to deteriorate through natural agents, unauthorized public use, and vandalism.

Cultural Resources: The proactive management of historic properties in the planning area would be a beneficial effect to cultural resources as historic properties could receive funding for research.

Fire Management and Ecology: In some instances, cultural or historic sites could be damaged or destroyed when fire suppression efforts are critical to protect human life or property. The types of adverse effects expected to occur from wildfire suppression efforts are damage and/or destruction to historic buildings from fire and dozer impacts to surface and/or buried cultural sites. Under standard protocols, impacts to known cultural resources would be considered and mitigated.

Fire rehabilitation efforts would generally increase the protection of cultural sites that may have remained unaffected from wildfire by preventing or reducing erosion and encouraging rapid revegetation of denuded surfaces. Potential impacts from rehabilitation activities (such as mechanical reseeding) would be mitigated under standard procedures.

Surface disturbance from both wildfire and fuels management activities occur most often when full suppression is required. During full suppression efforts the likelihood of surface disturbance rises when the use of bulldozers, hand-cut trenches and large water pumper trucks are necessary. This would most likely be the case during a wildfire situation or an escaped prescribed fire. The potential for effects such as archaeological sites being damaged and/or destroyed during a prescribed fire is reduced by the mitigation efforts of Section 106 of the National Historic Preservation Act (NHPA).

It is anticipated that wildfire could occur in the planning area. Natural and prescribed fire could damage sites composed of combustible materials. Both prescribed fire and mechanical treatments could occur. Effects to cultural resources from fuels management projects would be minimized by pre-planning and Section 106 (NHPA). Fuels treatment projects should minimize the potential for wildfire, therefore minimizing the potential adverse effects to cultural resources.

Fluid Minerals: Per Montana BLM policy, oil and gas companies conduct small block surveys (10 acre minimum) for well proposals (cultural resource inventories), which has created an irregular sample of cultural resource information. This could potentially create issues concerning how cultural sites are recorded. In an effort to avoid sites within the small 10 acre blocks, several cultural sites recorded over the years may be linked to other sites, yet are potentially one large site rather than several small sites. As a result of the small-block surveys, these larger sites have been severely dissected by pipelines, roads and wells. This creates an adverse visual setting for the cultural resources within areas such the Bowdoin Field. It may also lead to the same adverse effects to the visual setting in the North Blaine and Bears Paw South Field Development Areas. It is important to note that these small block surveys have significantly contributed to the archaeological site information database.

Two areas have leases dating as far back as the 1920s. Active drilling has been ongoing since then. These areas are the Big Bend of the Milk River Area of Critical Environmental Concern (ACEC) and the Kevin Rim ACEC. Both areas are ACECs for unique prehistoric properties. In fact, some of the wells and associated infrastructure are historic sites as well. All of the Kevin Rim ACEC is currently leased and only a small portion of the Big Bend of the Milk River ACEC

remains unleased. The unleased area of the Big Bend of the Milk River ACEC would be subject to the stipulations in the preferred alternative. Those existing leases in both ACECs would be subject to the stipulations of their lease at issuance. If any leases are to expire within these ACECs throughout the life of this plan, the leases would be subject to the stipulations in the preferred alternative.

Lands and Realty

Access: Acquiring new access to BLM land could have an indirect effect of exposing cultural resources to increased damage from illegal collection of artifacts and vandalism.

Rights-of-Way, Leases and Permits: The issuance of rights-of-way, leases and permits that result in surface-disturbing activities could cause direct, indirect or inadvertent impacts to cultural resources. Direct impacts would be mitigated under standard avoidance or recovery procedures. Indirect or inadvertent impacts are expected to be minimal and perhaps proportional to the number and extent of rights-of-way, leases, and permits issued on an annual basis. Surface disturbance from rights-of-way could potentially occur over the next 20 years (720 acres for telephone or fiber optic lines, 160 acres for pipelines, 360 acres for roads, 40 acres for powerlines, and 140 acres for other facilities). Effects are expected to be minimal through standard avoidance or recovery procedures.

Livestock Grazing: Grazing management which meets established Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997a) should reduce the amount and extent of impacts or damage to cultural resources resulting from grazing on BLM land. However, cattle congregating near salt licks and/or water sources could have a potential adverse effect to historic properties not yet recorded.

Mechanical treatments for improving vegetative composition such as chisel plowing could have direct impacts to historic properties but could be mitigated under standard avoidance or recovery procedures. A total of 10,000 acres could potentially receive mechanical treatments (less than 1% of the BLM land).

OHV Use and Travel and Transportation Management: Developing new or upgrading existing transportation facilities could result in the permanent mitigated loss of cultural resources. Again, increased accessibility to resources could lead to vandalism and unauthorized collection of artifacts, but could also better facilitate the traditional use of sacred locations.

Recreation: Impacts from dispersed recreational activity (e.g., camping, hiking, horseback riding, mountain biking, OHV use) are difficult to assess, particularly as such activities may impact cultural resources that have yet to be identified and recorded. Indirect and inadvertent impacts to cultural resources may occur by attracting additional attention or visitation to certain areas such as Special Recreation Management Areas. Increased visitation and recreational use could lead to the collection of artifacts and/or vandalism which is illegal under the Archaeological Resources Protection Act of 1969.

Providing public interpretation of cultural and historic resources may enhance appreciation and understanding of the fragile and finite nature of cultural resources. Similarly, promoting the adaptive reuse of historic buildings and structures for recreational purposes would help preserve and protect significant historic properties, helping fulfill the requirements of Section 110 of the NHPA.

Solid Minerals: Surface-disturbing activities associated with leasable and salable mineral exploration and development could result in mitigated impacts to cultural resources. In addition, the potential for indirect and inadvertent impacts would increase proportionally to the amount of land available for leasable and salable mineral exploration and development. Although opening lands for mineral exploration could have a direct impact on cultural resources, impacts would be mitigated under standard avoidance or recovery procedures.

Disturbance associated with bentonite or hard rock mineral development has some potential to affect cultural resources. Potential impacts may include direct disturbance or visual intrusions to the historic setting. Within the planning area, portions of the Little Rocky Mountains and the Sweet Grass Hills have moderate/high potential for the occurrence of locatable hard rock minerals and the Brazil Creek area in south Valley County has moderate/high potential for the occurrence of bentonite. However, federal minerals within the Sweet Grass Hills and most of the high potential federal minerals in the Little Rocky Mountains are currently withdrawn from entry and the preferred alternative recommends

continuation of these withdrawals. Within the Brazil Creek area, reasonably foreseeable development would be up to 3 operations disturbing 25 acres each or a total of 75 acres disturbance for the life of the plan. Standard protocol involves identification and mitigation of cultural resources under the regulations at 43 CFR 3809. As such, cultural resources are unlikely to be affected by locatable mineral development.

Abandoned mine land reclamation and remediation have a direct impact to historic mining features and properties that may be mitigated through additional data recovery, recordation, and photo documentation. However, the impacts of comprehensive reclamation and remediation programs on historic mining districts and landscapes may be difficult to assess and more cumulative in nature.

Cumulative Impacts

Potential cumulative impacts to cultural resources would result primarily from surface-disturbing activities that cause erosion from vehicular traffic and/or machinery, soil compaction, and landscape alteration. Such activities could result in exposure, damage, and/or destruction of cultural resources. The policies associated with the cultural resource management program that require identification and mitigation of cultural resources prior to surface-disturbing activities would help to reduce potential impacts. Implementation of these requirements would also increase the potential for identification, recordation, and evaluation of cultural resources, although the potential would still exist for damage and/or destruction of previously unknown cultural resources discovered during construction. In addition, illegal OHV use, dispersed recreation, and other surface-disturbing activities not subject to a permitting process could result in exposure, damage, destruction, theft and/or vandalism of cultural resources.

Impacts under Alternative A (Current Management)

Fire Management and Ecology: Prescribed fire would be utilized to reduce hazardous fuels. A total of 4,740 acres could receive mechanical fuels treatments and 6,860 acres could be treated by prescribed fire (less than 1% of the BLM land). Adverse effects from these activities would be mitigated under standard Section 106 procedures. Prescribed fire and mechanical fuels treatments would be utilized to promote a healthy landscape and reduce the potential for wildfire. A healthy landscape would also help protect historic properties from wildfire and fire suppression activities.

Fluid Minerals: The surface disturbance that can reasonably be predicted to occur from leasing subsurface fluid minerals includes well pad construction, drilling, road construction, pipeline construction, vehicular travel during construction, well maintenance and reclamation. These types of surface-disturbing activities should not have an adverse effect on historic properties if the properties are located, recorded, and either avoided or mitigated prior to construction.

A total of 102,298 acres would be closed to leasing in Alternative A, including 27,768 acres in the Little Rocky Mountains TCP. An NSO lease stipulation would be placed on 282,062 acres in the planning area, including two areas containing historic properties: Big Bend of the Milk River ACEC (1,979 acres) and Sweet Grass Hills ACEC (6,248 acres). The remaining area (3,107,090 acres) available for leasing would require mitigation through Section 106 of the NHPA. Moderate constraints such as a timing stipulation are not considered a beneficial effect to historic properties as drilling is only delayed. It is not anticipated that historic properties would be directly adversely affected because of mitigation through the Section 106 process.

Lands and Realty:

Access: Alternative A identifies access acquisition areas to the Kevin Rim and Sweet Grass Hills ACECs, but could include other ACECs. Increasing access to the Sweet Grass Hills ACEC would be a benefit for traditionalists. Traditional users of the Sweet Grass Hills for spiritual purposes would have legal access to those areas critical to their spiritual needs. Discussions with tribal elders from Rocky Boy's Reservation indicate that legal access would be beneficial to them for carrying out traditional religious practices. However, opening up legal public access to sensitive areas poses a potential adverse effect to sacred sites from vandalism and/or looting.

Avoidance Areas: The Sweet Grass Hills and Kevin Rim ACECs are avoidance areas under Alternative A. Rights-of-way may be granted in avoidance areas only when no feasible alternative routes and/or sites are available. In avoidance areas, right-of-way stipulations from BLM Manual Handbook H-2801-1 would be used to protect resource

values, including visual qualities. Construction activities such as transmission lines and/or new roads could impact archaeological sites on the ground in addition to creating a visual intrusion to the setting.

Under this alternative, Big Bend of the Milk River ACEC would not be an avoidance area; therefore, it is considered open to those realty actions. The steps to mitigate impacts to cultural resources in the Big Bend ACEC would be provided for under Section 106 of the NHPA and tribal consultation.

Land Ownership Adjustment: Lands identified for retention and acquisition within ACECs is a beneficial effect for cultural resources. Three ACECs are identified for cultural values: Big Bend of the Milk River ACEC, Sweet Grass Hills ACEC, and Kevin Rim ACEC. Acquiring private land adjacent to these ACECs would contribute to the value of the ACEC, and potentially to the historic integrity of the sites within. Also acquiring unpatented and patented mining claims and private minerals near the Devils Chimney Cave and mineral estate of patented mining claims within and adjacent to the Sweet Grass Hills ACEC would be beneficial toward providing further protection of traditional sacred sites.

OHV Use and Travel and Transportation Management: The Fresno OHV area is currently open and has been in use for many years. A field inventory in 2011 determined that no significant cultural sites are located within the boundary of the Fresno OHV area or in the immediate vicinity. No adverse effects to cultural resources would occur from keeping the Fresno OHV area open.

The Glasgow OHV area (40 acres) was also inventoried in 2011 and a determination was made that no significant cultural sites are located within the boundary of the OHV area or in the immediate vicinity. No adverse effects to cultural resources would occur from keeping the Glasgow OHV area open.

Renewable Energy: Wind energy rights-of-way would be excluded within 1 mile of National Historic Trails. All other areas would be open to wind energy rights-of-way with minor constraints or avoidance areas, including ACECs, TCPs and National Register eligible sites. The installation of either wind turbines or transmission lines in these areas could have adverse effects to cultural resources and the viewshed. Surface-disturbing activities could be mitigated through the Section 106 process, but the viewshed could not be mitigated. A total of 11,590 acres of National Register eligible sites are located in high potential areas for wind energy development. Under this alternative no special protection would be afforded these sites except mitigation under Section 106 of the National Historic Preservation Act.

Solid Minerals: Currently, the only surface disturbance occurring from mining for solid minerals is the bentonite mining occurring in south Valley County and a few claim pits in south Phillips County. Mitigation for any surface disturbance associated with ongoing bentonite mining would be through Section 106 of the NHPA.

Reclamation earthwork from past gold and silver mining in the Little Rocky Mountains has been completed but ongoing water treatments and stabilization is still occurring. It is unknown how many archaeological sites were lost to the gold and silver mining in the Little Rocky Mountains which began over a century ago. However, the high density of remaining historic properties suggests that several sites could have been destroyed by mining activities.

A withdrawal for the Zortman/Landusky mine reclamation area is in effect until 2015 (Public Land Order No. 7753). Upon expiration of the withdrawal, the area would again be available for mining claim location. However, the remaining federally owned subsurface acres are currently open to solid mineral entry. The expiration of the withdrawal would open up an additional 3,530 acres for solid mineral location and development. Of those acres, 1,200 acres are anticipated to have development in already disturbed areas and 710 acres have a potential for mining expansion. Any mining development which occurs in previously disturbed areas would not have a direct impact to cultural properties but could have indirect impacts to the viewshed and create unwanted noise for traditionalists using the surrounding areas.

The Little Rocky Mountains is a TCP and areas within are used for spiritual practices. Mining activities could have indirect impacts to those practitioners. If mining expansion occurs in areas that have never had prior surface disturbance, there is a potential for direct impacts to buried cultural properties that could be missed by a Class III Cultural Resource Inventory. Additionally, the same indirect impacts to the surrounding areas are anticipated. Although the federally owned subsurface acres would all be open to mining and development when the withdrawal expires, the likelihood of extensive mining is low due to current state law which bans cyanide heap leach mining, to date the most viable method of removing the low-grade ore. Other technologies are available for removing the gold and/or silver, but may not be

economically viable. If such technology becomes available in the life of this plan, then effects described above would likely occur.

The Sweet Grass Hills are currently withdrawn from mineral entry until 2017, at which time the area would be available for mining claim location if the withdrawal is not extended. Due to the potential for damage and/or destruction of sacred sites, mining activities such as excavation, road construction, material stockpiling, and associated infrastructure construction would have an adverse effect indirectly on the visual landscape and potentially, directly on sacred sites. The visual and auditory disruptions would have an adverse effect on the traditional religious practices that currently occur in the Sweet Grass Hills. The Blackfeet, Assiniboine, Chippewa-Cree, Gros Ventre, and Confederated Salish and Kootenai Tribes have all expressed concern about preserving the sacredness of the Sweet Grass Hills (BLM 1996b). The Rocky Boy's Reservation has formally gone on record as opposing both mining claim entry and oil and gas leasing in the Sweet Grass Hills (BLM 1996b).

All areas are open to salable minerals, but adverse effects to cultural resources would be mitigated through inventory, avoidance or excavation by Section 106 of the NHPA.

Special Designations: Special stipulations for all ACECs covering oil and gas leasing, solid mineral exploration, renewable energy, certain realty actions, and off-road travel provide more protection for cultural resources in the planning area. The ACECs include Big Bend of the Milk River, Kevin Rim, Sweet Grass Hills, Bitter Creek, Mountain Plover, and Prairie Dog Towns within the 7km Complex. These ACECs all place constraints on oil and gas leasing and the Sweet Grass Hills ACEC prohibits locatable solid mineral entry. These measures provide more protection by prohibiting surface-disturbing activities that threaten to damage and/or destroy cultural resources. The three ACECs specific to cultural resources are Big Bend of the Milk River, Kevin Rim, and Sweet Grass Hills.

Visual Resources: Under Alternative A, no acreage would be assigned to Visual Resource Management (VRM) Class I. Cultural resources located in Class II areas (417,334 acres) would receive greater protection than those located in Class III (58,513 acres) and Class IV (1,961,591 acres). VRM Class II areas allow very little surface-disturbing activity, and any such activities may be seen, but should not attract the attention of the casual observer. The Class III and IV areas would be open for development. Surface-disturbing activities in Classes II, III and IV would be subject to mitigation under Section 106 of the NHPA.

Cumulative Impacts

Alternative A provides less protection for TCPs and ACECs because those areas would be open to renewable energy development. This could have an overall adverse effect to the cultural resources located within these areas. Through Section 106 of the NHPA and tribal consultation, some adverse effects could be mitigated.

Renewable energy development could have an adverse effect on historic properties; however, those effects could be mitigated through project redesign or in some cases through data recovery. Several wind energy projects are being proposed (none on BLM land) and several are under construction on private lands throughout the HiLine area. It is expected that wind energy development will continue across the planning area. The visual intrusion caused by wind energy projects could have some adverse visual effects to cultural resources not yet recorded that may be eligible for the National Register.

Cumulative effects from the Keystone XL pipeline may have adverse effects to some historic properties; however, those effects would be mitigated through avoidance and/or data recovery. Tribal consultation has been ongoing throughout the survey phase of the project and several tribes have opted for Traditional Cultural Studies along the route. This will contribute greatly to the information base of those types of studies in Phillips and Valley Counties, offering an overall positive effect.

Impacts under Alternative B

Fire Management and Ecology: Category B lands would be reduced to the west half of the planning area and Category C to the east. Prescribed fire would be utilized to reduce hazardous fuels in Category B lands and would receive higher priority for fire suppression than Category C lands. A total of 7,820 acres could receive mechanical fuels treatments and

26,660 acres could be treated by prescribed fire (less than 1% of the BLM land). Adverse effects from these activities would be mitigated under standard procedures. Prescribed fire and mechanical fuels treatments would be utilized to promote a healthy landscape and reduce the potential for the high severity of wildfire. A healthy landscape would also help protect historic properties from wildfire and fire suppression activities.

Fluid Minerals: The surface disturbance that can reasonably be predicted to occur from leasing subsurface fluid minerals includes well pad construction, drilling, road construction, pipeline construction, vehicular travel during construction, well maintenance, and reclamation. These types of surface-disturbing activities should not have adverse effects on historic properties if the properties are located, recorded, and avoided. If historic properties cannot be avoided potential adverse effects would be mitigated prior to construction.

A total of 3,173,637 acres would be closed to leasing under Alternative B, including 40 acres near the Bear Paw Battlefield. An NSO lease stipulation would be placed on 258,560 acres in the planning area including three areas containing historic properties: Big Bend of the Milk River ACEC (1,979 acres), Kevin Rim ACEC (4,564 acres), Sweet Grass Hills TCP (21,275 acres), Little Rocky Mountains TCP (38,102 acres), and 1,497 acres of National Register eligible properties. The remaining area available for leasing (59,253 acres) would require mitigation through Section 106 of the NHPA. Moderate constraints such as timing limitations are not considered a beneficial effect to historic properties as drilling is only delayed for wildlife concerns. Potential adverse effects to historic properties would be avoided through project redesign or mitigated by data recovery and/or other mitigation measures.

Lands and Realty:

Access: Alternative B identifies access acquisition areas to Category 1 lands, including but not limited to ACECs. Increasing access to ACECs, particularly the Sweet Grass Hills ACEC, could be a beneficial effect for traditionalists. Traditional users of the Sweet Grass Hills for spiritual purposes would have legal access to those areas critical to their spiritual needs. Discussions with tribal elders from Rocky Boy's Reservation indicate that legal access would be beneficial to them for carrying out traditional religious practices. However, opening up public legal access to sensitive areas poses a potential adverse effect to sacred sites from vandalism and/or looting. The potential for an easement to the Sweet Grass Hills ACEC is low; access has been sought in the area for 17 years but an easement has not been granted.

Land Ownership Adjustment: Alternative B offers maximum protection to cultural resources as it places all Special Designation Areas as Category 1 for retention, which means that these lands would not be available for sale or exchange. Three areas have been designated as ACECs for cultural resource values: Big Bend of the Milk River ACEC, Kevin Rim ACEC, and the Sweet Grass Hills ACEC. Lands within these ACECs would be retained in public ownership. This alternative would also place lands adjacent to ACECs as high priority for acquisition. Newly acquired lands adjacent to ACECs would be placed into Category 1 as well. There are tracts adjacent to Big Bend of the Milk River ACEC, currently in private ownership, which contain historic properties that would contribute to the integrity of the sites within the ACEC.

OHV Use and Travel and Transportation Management: Alternative B offers the greatest protection for cultural resources with no open areas for OHV use. However, potential exists for the public to create illegal OHV areas if no designated legal areas are available for use.

Renewable Energy: Alternative B offers far more protection to ACECs and TCPs with these areas being excluded from wind energy rights-of-way. However, sites eligible to the National Register could still be affected by wind energy development. Potential adverse effects to historic properties would be avoided through project redesign or mitigated by data recovery and/or other mitigation measures.

Solid Minerals: The Sweet Grass Hills and Little Rocky Mountains TCPs would be recommended for withdrawal for an additional 20 years. This would provide a maximum beneficial effect for the preservation of both the archaeological sites and the religious practices that currently occur in both areas. A withdrawal for locatable minerals would allow for traditional practitioners to conduct spiritual and/or ceremonial activities without visual and/or auditory intrusions. Physical historic properties that may or may not be directly related to those types of activities would be provided the most protection as well.

The Kevin Rim ACEC would be recommended for withdrawal from mineral entry for 20 years. By keeping this area off limits to mineral exploration and the potential surface disturbance from building roads, mineral extraction, and stockpiling of waste, the historic properties located in the ACEC would be protected. Historic properties would maintain their archaeological integrity and traditional users of these areas would be able to practice religious traditions without visual and audible disturbance from mining activities.

The Greater Sage-Grouse Protection Priority Area and Grassland Bird/Greater Sage-Grouse Priority Areas would be withdrawn for locatable minerals (1,537,292 acres) and closed to leasable and salable solid mineral exploration and development. This would be a beneficial effect to cultural resources as it would prohibit any surface disturbance in these areas, therefore leaving cultural resources intact.

Special Designations: An NSO lease stipulation would be applied to the three cultural ACECs: Sweet Grass Hills, Kevin Rim and Big Bend of the Milk River. The ACECs would be avoidance areas for certain realty actions such as transmission lines and new roads, and closed to renewable energy. The Big Bend of the Milk River ACEC would remain open to solid mineral sales (i.e., sand and gravel), which could have an adverse effect to archaeological sites. Sand and gravel extraction requires large open-pit type mining and these surface-disturbing activities could damage and/or destroy cultural resources. This type of activity would be mitigated through the Section 106 process. Providing special management for these ACECs would be a beneficial effect to the National Register eligible sites within.

The BLM would designate 6,152 acres as the Malta Geological ACEC. This ACEC would require a CSU stipulation for oil and gas leasing, a withdrawal for locatable minerals, closed to solid mineral leasing and sales, closed to renewable energy and would be an avoidance area for certain realty actions such as transmission lines and new roads. This would provide more protection to cultural resources by ensuring surface-disturbing activities are prohibited within the ACEC.

The BLM would designate 3,505 acres as the Zortman/Landusky Mine Reclamation ACEC. This ACEC is located in the Little Rocky Mountains, which is a TCP, and would protect the mine reclamation area. The area would be closed to solid mineral leasing and sales, NSO for oil and gas leasing, closed to renewable energy, an avoidance area for certain realty actions, and a withdrawal for locatable minerals would be recommended for 20 years. This would provide maximum benefits to cultural resources not directly, but indirectly in that the reclaimed site would contribute to the setting of the TCP.

Visual Resources: The effects would be similar to Alternative A, except most surface-disturbing activities would be prohibited with 90,032 acres of Class I and 977,396 acres of Class II lands. This would provide greater protection to cultural sites due to more stipulations affecting surface-disturbing activities in these areas. The remaining acreage still open to surface-disturbing activities would be Class III and IV lands, in which adverse effects would be mitigated with Section 106 of the NHPA.

Wilderness Characteristics: Alternative B identifies 26 areas (386,462 acres) that would be managed to protect wilderness characteristics; 373,445 acres of federal minerals would be closed to oil and gas leasing. Indirectly this would result in a diminished level of Class III cultural resource survey (associated with oil and gas development). Alternative B would also result in a diminished level of Class III Inventory due to the exclusion of wind energy within the boundaries of identified lands with wilderness characteristics.

Cultural resources within the Western Breaks and Badlands, Intact Sagebrush Grasslands, Intact Prairie Grasslands, and Eastern Breaks and Badlands areas would be afforded the same protective measures as Alternative A (standard protective measures such as mitigation and avoidance). Cultural resources within the Island Mountain Range also would mirror the current management but may have more restrictive measures placed on sites identified in the future as being of "Scientific Use" due to increased VRM Class I and surface disturbance restrictions.

Cultural resource preservation may also benefit through future travel management planning by limiting access and travel within identified lands with wilderness characteristics. These areas would be managed as semi-primitive nonmotorized (4,118 acres) and semi-primitive motorized (382,344 acres). These benefits would include a decreased potential for damage, alteration or destruction by vehicular traffic and human interaction. With decreased traffic the potential for deliberate vandalism or looting is also reduced.

Cumulative Impacts

The overall cumulative effects under Alternative B would be much lower due to more BLM land with special stipulations such as NSO and closed to leasing. These stipulations provide maximum protection for all cultural resources. However, it is assumed that with more BLM land prohibiting surface-disturbing activities from oil and gas development, energy companies would increase their drilling on private lands where potentially no Class III inventory could occur. It is assumed that in instances where no Class III inventory is performed the potential for damage and/or destruction to cultural sites is likely.

The withdrawal of the Sweet Grass Hills and Little Rocky Mountains TCPs would provide the most beneficial cumulative effect to those sensitive resources associated with the TCPs.

The TCPs and ACECs would be exclusion areas for wind energy rights-of-way. Overall, this would provide maximum protection for those areas from the adverse visual effects of wind farms, which can be seen several miles away and could potentially create an adverse visual intrusion to the natural landscape. Several wind energy projects are being proposed (none on BLM land) and several are under construction on private lands throughout the HiLine area. It is expected that wind energy development will continue across the planning area. The visual intrusion may result in some adverse visual effects to historic properties not yet recorded.

Cumulative effects from the Keystone XL pipeline may have adverse effects to some historic properties; however, those effects would be mitigated through avoidance and/or data recovery. Tribal consultation has been ongoing throughout the survey phase of the project and several tribes have opted for Traditional Cultural Studies along the route. This will contribute greatly to the information base of those types of studies in Phillips and Valley Counties, potentially providing an overall beneficial effect.

Impacts under Alternative C

Fire Management and Ecology: Impacts would be the same as under Alternative B.

Fluid Minerals: A total of 218,586 acres would be closed to leasing in Alternative C including 40 acres near the Bear Paw Battlefield. An NSO lease stipulation would be placed on 1,291,160 acres in the planning area including several areas containing known Eligible National Register of Historic Places (NRHP) Historic Properties. These areas include the Big Bend of the Milk River ACEC (1,979 acres), Kevin Rim ACEC (4,564 acres), the Sweet Grass Hills TCP (21,275 acres), the Little Rocky Mountains TCP (38,102 acres), and 1,497 acres of NRHP Eligible properties. The remaining area available for leasing (1,981,704 acres) would be subject to adequate levels of cultural resource review, inventory and mitigation (if applicable) as dictated by Section 106 of the NHPA.

Lands and Realty

Access: Impacts would be the same as under Alternative B.

Land Ownership Adjustment: Impacts would be the same as under Alternative B.

OHV Use and Travel and Transportation Management: Similar to Alternative B, Alternative C would offer the greatest protection for cultural resources with no open areas for OHV use. However, potential exists for the public to create illegal OHV areas if no designated legal areas are available for use.

Motorized game retrieval off road in south Phillips and Valley Counties (387,118 acres) from 10:00 a.m. to 2:00 p.m. could lead to adverse effects to cultural resources. When vehicles are allowed to drive indiscriminately, archaeological features located on the prairie are vulnerable to damage and/or destruction. The sheer weight of a vehicle can pop stones from the ground and reveal buried archaeological material. When archaeological materials are removed from their original context, a significant amount of important information could potentially be lost.

Renewable Energy: Impacts would be the same as under Alternative B.

Solid Minerals: Impacts would be the same as described in Alternative A, except that the Little Rocky Mountains TCP would also be closed to leasable and salable solid minerals. This would provide additional beneficial effects to the TCP as less surface disturbance would occur from these resource uses.

The Greater Sage-Grouse Protection Priority Area and Grassland Bird/Greater Sage-Grouse Priority Areas would be closed to solid mineral locatable and salable (1,384,206 acres) exploration and development and closed to solid mineral leasing (1,340,265 acres). This would be a beneficial effect to cultural resources as it would prohibit any surface disturbance in these areas, therefore leaving cultural resources intact.

Special Designations: The impacts would be the same as Alternative B, except that the BLM would designate 22,411 acres as the Woody Island ACEC and 42,020 acres as the Frenchman Breaks ACEC. The areas would be closed to solid mineral leasing, withdrawn from locatable mineral entry, closed to solid mineral sales, closed to renewable energy, and avoidance areas for certain realty actions such as transmission lines and new roads.

Visual Resources: The effects would be similar to Alternative A except the 74,506 acres of Class I lands and 914,197 acres of Class II lands would prohibit most surface-disturbing activities. This would provide greater protection to cultural sites due to more stipulations affecting surface-disturbing activities in these areas. The remaining acreage still open to surface-disturbing activities would be Class III and IV lands, in which adverse effects would be mitigated with Section 106 of the NHPA.

Wilderness Characteristics: Alternative C identifies 12 areas (228,419 acres) that would be managed to protect wilderness characteristics; 143,794 acres of federal minerals would be closed to oil and gas leasing and 78,280 acres would include an NSO stipulation. Indirectly this would result in a diminished level of Class III cultural resource survey (associated with oil and gas development). Alternative C would also result in a diminished level of Class III Inventory due to the exclusion of wind energy within the boundaries of identified lands with wilderness characteristics.

Cultural resources would be afforded the same protective measures as Alternative A (standard protective measures such as mitigation and avoidance). Cultural resources within the Island Mountain Range also would mirror the current management but may have more restrictive measures placed on sites identified in the future as being of "Scientific Use" due to increased VRM Class I and surface disturbance restrictions.

Cultural resource preservation may also benefit through future travel management planning by limiting access and travel within identified lands with wilderness characteristics. These areas would be managed as semi-primitive nonmotorized (132,788 acres) and semi-primitive motorized (95,631 acres). These benefits would include a decreased potential for damage, alteration or destruction by vehicular traffic and human interaction. With decreased traffic the potential for deliberate vandalism or looting is also reduced.

Cumulative Impacts

The cumulative impacts under Alternative C are similar to Alternative A, except that off-road motorized game retrieval would be allowed in south Phillips and Valley Counties between 10:00 a.m. and 2:00 p.m. Indiscriminate OHV use can have adverse effects to cultural resources. When vehicles drive off designated roads, primitive roads and trails to retrieve game animals the tires can directly impact archaeological features on the ground such as popping stones up and displacing them. Buried archaeological remains can be uncovered and left susceptible to damage and/or destruction. The intense use of the HiLine for hunting could create significant overall damage to cultural resources located on high ridges, as this is the best location to "scout" for game.

The TCPs and ACECs would be exclusion areas for wind energy rights-of-way. Overall, this would provide maximum protection for those areas from the adverse visual effects of wind farms, which can be seen from several miles away and could potentially create an adverse visual intrusion to the natural landscape. Several wind energy projects are being proposed (none on BLM land) and several are under construction on private lands throughout the HiLine area. It is expected that wind energy development would continue across the planning area. The visual intrusion caused by wind energy projects could have some adverse visual effects to cultural resources not yet recorded which may be eligible for the National Register.

Cumulative effects from the Keystone XL pipeline may have adverse effects to some historic properties; however, those effects would be mitigated through avoidance and/or data recovery. Tribal consultation has been ongoing throughout the survey phase of the project and several tribes have opted for Traditional Cultural Studies along the route. This will contribute greatly to the information base of those types of studies in Phillips and Valley Counties, offering an overall positive effect.

Impacts under Alternative D

Fire Management and Ecology: Impacts would be the same as under Alternative B.

Fluid Minerals: A total of 74,674 acres would be closed to leasing in Alternative D. An NSO lease stipulation would be placed on 357,456 acres in the planning area including four areas containing historic properties: Big Bend of the Milk River ACEC (1,979 acres), Kevin Rim ACEC (4,564 acres), Sweet Grass Hills TCP (21,275 acres) and the Little Rocky Mountains TCP (38,102 acres) along with 1,497 acres of National Register eligible properties. The remaining area available for leasing (3,059,320 acres) would require mitigation through Section 106 of the NHPA. Moderate constraints such as timing limitations are not considered a beneficial effect to historic properties as drilling is only delayed for wildlife concerns. Potential adverse effects to historic properties would be avoided through project redesign or mitigated by data recovery and/or other mitigation measures.

Lands and Realty

Access: Impacts would be the same as under Alternative B.

Land Ownership Adjustment: Impacts would be the same as under Alternative B.

OHV Use and Travel and Transportation Management: Opening the Thirty Mile OHV area could have an effect on cultural resources as there are several archaeological sites recorded within and adjacent to the OHV area. The surface disturbance from wheeled vehicles could damage and/or destroy those sites. Increasing public use of the area increases the potential for inadvertent discovery of historic properties and damage and/or destruction from looting or vandalism.

The Fresno OHV area is currently open to OHV use and has been in use for many years. A field inventory in 2011 determined that no significant cultural sites are located within the boundary of the Fresno OHV area or in the immediate vicinity. No adverse effects to cultural resources would occur from keeping the Fresno OHV area open.

The Glasgow OHV Area (40 acres) was also inventoried in 2011 and a determination was made that no significant cultural sites are located within the boundary of the OHV area or in the immediate vicinity. No adverse effects to cultural resources would occur from keeping the Glasgow OHV area open.

Opening the planning area to off-road motorized game retrieval during the hunting season (except for the Wilderness Study Areas (WSAs) and four ACECs) could potentially have adverse effects to cultural resources. Off-road driving for game retrieval on ridge tops could have adverse effects to archaeological features. Ridge tops would be traveled more heavily during hunting season for game retrieval. Archaeological features are more densely located upon ridge tops as this land feature was advantageous to prehistoric hunter/gatherers. However, archaeological features throughout the planning area would be vulnerable to adverse effects from off-road driving.

Renewable Energy: Impacts would be the same as under Alternative B.

Solid Minerals: Under Alternative D, 15,000 acres would be recommended for a mineral withdrawal in the Little Rocky Mountains ACEC. The withdrawal would provide the maximum beneficial effects to cultural resources. A mineral withdrawal would prevent the likelihood of hardrock mining. Hardrock mining can have adverse effects to cultural resources and spiritual practices. Surface-disturbing and disruptive activities would have an adverse effect on cultural resources and spiritual practices. This alternative would have the most beneficial effect to cultural resources in the Little Rocky Mountains.

Special Designations: Impacts would be the same as under Alternative C, except that the BLM would designate 63,482 acres as the Frenchman Breaks ACEC. This would provide a greater area the same protections described in Alternative C. In addition, the Kevin Rim, Big Bend of the Milk River and Sweet Grass Hills ACECs would be closed to solid mineral sales (i.e., sand and gravel). This would prevent the potential for surface-disturbing activities associated with extracting sand and/or gravel from occurring within these ACECs, which is a beneficial effect to cultural resources.

The BLM would also designate 27,177 acres as the Little Rocky Mountains ACEC. This would not, however, provide additional protection as those management prescriptions developed already for the Little Rocky Mountains would be in place with or without an ACEC designation.

The withdrawal for solid minerals in the Sweet Grass Hills ACEC would not be recommended to extend beyond 2017. This could be a direct adverse impact to a sacred spiritual area. At this time mining for gold or silver requires open-pit type mining, which could create visual intrusions for the traditional users of the area for religious practices and could potentially remove National Register eligible cultural sites.

Visual Resources: As in Alternative A, the effects would be similar except 74,506 acres of Class I lands and 127,439 acres of Class II lands prohibit most surface-disturbing activities. This would provide greater protection to cultural sites due to more stipulations affecting surface-disturbing activities in these areas. The remaining acreage still open to surface-disturbing activities would be Class III and IV lands, in which adverse effects would be mitigated with Section 106 of the NHPA.

Cumulative Impacts

Cumulative effects under Alternative D could have the greatest adverse effects to cultural resources. This is in large part due to the substantially increased BLM land open to oil and gas leasing without special stipulations such as NSO, closed to leasing or CSU. Oil and gas companies would not be performing large block inventories for a more holistic information base of cultural resources on the HiLine; rather, the small 10 acre block surveys would continue and the fragmenting of sites would also continue.

The TCPs and ACECs would be exclusion areas for wind energy rights-of-way. Overall, this would provide maximum protection for those areas from the adverse visual effects of wind farms, which can be seen from several miles away and could potentially create an adverse visual intrusion to the natural landscape. Several wind energy projects are being proposed (none on BLM land) and several are under construction on private lands throughout the HiLine area. It is expected that wind energy development will continue across the planning area. The visual intrusion caused by wind energy projects could have some adverse visual effects to cultural resources not yet recorded that may be eligible for the National Register.

Alternative D would provide the most beneficial effect to cultural resources in the Little Rocky Mountains with the withdrawal of locatable minerals. A withdrawal would prevent solid mineral mining in the Little Rocky Mountains. This would have a beneficial effect because solid mineral mining has a potentially adverse effect on archaeological sites and Native American spiritual practices.

Cumulative effects from the Keystone XL pipeline may have adverse effects to some historic properties; however, those effects would be mitigated through avoidance and/or data recovery. Tribal consultation has been ongoing throughout the survey phase of the project and several tribes have opted for Traditional Cultural Studies along the route. This will contribute greatly to the information base of those types of studies in Phillips and Valley Counties, offering an overall positive effect.

Impacts under Alternative E (Preferred Alternative)

Fire Management and Ecology: Impacts would be the same as under Alternatives B, C, and D.

Fluid Minerals: A total of 152,702 acres would be closed to leasing in Alternative E including 21,275 acres in the Sweet Grass Hills TCP and 32,166 acres in the higher elevations of the Little Rocky Mountains TCP. An NSO lease stipulation would be placed on 1,711,378 acres in the planning area including three areas containing historic properties:

The Big Bend of the Milk River ACEC (1,979 acres), Kevin Rim ACEC (4,564 acres), and the remaining lower elevations of the Little Rocky Mountains TCP (5,936 acres) along with 1,497 acres of National Register eligible properties. An NSO lease stipulation would be placed on the 40 acres near the Bear Paw Battlefield. The remaining area available for leasing (1,627,370 acres) would require mitigation through Section 106 of the NHPA. Moderate constraints such as timing limitations are not considered a beneficial effect to historic properties as drilling is only delayed for wildlife concerns. Potential adverse effects to historic properties would be avoided through project redesign or mitigated by data recovery and/or other mitigation measures.

Lands and Realty

Access: Impacts would be the same as under Alternative B.

Land Ownership Adjustment: Impacts would be the same as under Alternative B.

OHV Use and Travel and Transportation Management: Under Alternative E, the Fresno and Glasgow OHV areas would be open to OHV use. No significant cultural sites are located within the boundaries or in the immediate vicinities of the OHV areas. No adverse effects to cultural resources would occur from keeping the OHV areas open.

Renewable Energy: Impacts would be the same as under Alternative B.

Solid Minerals: The Sweet Grass Hills TCP would be recommended for withdrawal from mineral entry for an additional 20 years and would be closed to both leasable and salable mineral entry. By limiting the potential for mineral exploration and the potential surface disturbance from building roads, mineral extraction, and stockpiling of waste, the sensitive resources would be protected. Historic properties would maintain their archaeological integrity and traditional users of these areas would be able to practice religious traditions without visual and audible disturbance from mining activities.

The activities associated with potential solid mineral mining such as open pit mining for gold or silver would have an adverse impact to the visual, aural and physical qualities of the Little Rocky Mountains TCP. The preferred alternative in the 1996 Final Zortman and Landusky EIS (BLM and MDEQ 1996) described potential impacts to Native American cultural resources by stating, "… the existing high impacts would continue while there would be additional aural, physical and visual impacts to the Little Rocky Mountains TCP." These types of impacts are expected to occur if mining activities resume in the Little Rocky Mountains.

Sagebrush Focal Areas would be recommended for withdrawal from the Mining Law of 1872, as Amended. Such withdrawal would also protect cultural resources from impacts associated with mining within the 927,000 acre Sagebrush Focal Area.

The Grassland Bird/Greater Sage-Grouse Priority Habitat Management Areas would require an NSO stipulation for oil and gas leasing. These areas would be closed to renewable energy development and would be avoidance areas for rights-of-way. This would be a beneficial impact to all cultural resources as it would provide greater protection from surface disturbance.

Special Designations: The three cultural ACECs, Sweet Grass Hills, Kevin Rim and Big Bend of the Milk River would be the same as Alternative B, except that Sweet Grass Hills ACEC would be closed to oil and gas leasing. This would ensure that no surface-disturbing activities associated with energy development would occur in the ACEC.

Under this alternative the Prairie Dog Towns within the 7km Complex ACEC would not be retained as an ACEC. Therefore, an NSO stipulation would not be applied to the 7km area, rather a 1/2 mile NSO would be applied to all black-tailed prairie dog habitat. Under Alternative E, additional constraints have been placed on solid mineral leasing and sales, prohibiting all mineral exploration and development.

The BLM would designate 32,869 acres as the Woody Island ACEC and 42,020 acres as the Frenchman Breaks ACEC. Both ACECs would be avoidance areas and closed to renewable energy. The two ACECs would be closed to solid mineral leasable and salables. These constraints would be a beneficial impact to all cultural resources as it would provide greater protection from surface disturbance.

The BLM would designate 2,656 acres as the Zortman/Landusky Mine Reclamation ACEC. The continuation of the reclamation activities would be a beneficial effect as it would contribute to the visual setting of the Little Rocky Mountains TCP.

The BLM would designate 6,153 acres the Malta Geological ACEC. The ACEC would be open to solid mineral entry but as there is no potential for gold or silver mining, there is a low potential for mining. It would be closed to solid mineral leasing and sales, an avoidance area, and closed to renewable energy.

The special management provided in each ACEC would certainly provide a beneficial effect for cultural resources by removing the potential for the surface-disturbing activities associated with certain types of actions. The potential that would remain could be mitigated through the Section 106 process.

Visual Resources: The effects would be similar to Alternative A except the 74,506 acres of Class I lands and 841,087 acres of Class II lands would prohibit most surface-disturbing activities. This would provide greater protection to cultural sites due to more stipulations on surface-disturbing activities allowable in these areas. The remaining acreage still open to surface-disturbing activities would be Class III and IV lands, in which adverse effects would be mitigated with Section 106 of the NHPA.

Wilderness Characteristics: Alternative E identifies 3 areas (16,393 acres) that would be managed to protect wilderness characteristics; 16,393 acres of federal minerals would include an NSO stipulation for oil and gas leasing. Indirectly this would result in a diminished level of Class III cultural resource survey (associated with oil and gas development). Alternative E would also result in a diminished level of Class III Inventory due to the exclusion of wind energy within the boundaries of identified lands with wilderness characteristics.

Cultural resources would be afforded the same protective measures as Alternative A (standard protective measures such as mitigation and avoidance).

Cultural resource preservation may also benefit through future travel management planning by limiting access and travel within identified lands with wilderness characteristics. These areas would be managed as semi-primitive motorized. These benefits would include a decreased potential for damage, alteration or destruction by vehicular traffic and human interaction. With decreased traffic the potential for deliberate vandalism or looting is also reduced.

Cumulative Impacts

Under this alternative the protections for cultural resources from surface-disturbing activities on BLM land offer more opportunity for the preservation of historic properties than Alternatives A, C and D. However, not providing a withdrawal for solid minerals in the Little Rocky Mountains TCP would have an overall adverse cumulative effect to the sensitive resources located there. The withdrawal associated with the Zortman/Landusky Mine Reclamation ACEC would have an overall beneficial effect to the contributing factors of the TCP, but would only provide a limited area with that protection.

The TCPs and ACECs would be exclusion areas for wind energy rights-of-way. Overall, this would provide maximum protection for those areas from the adverse visual effects from wind farms. Wind farms can be seen from several miles away and could potentially create an adverse visual intrusion to the natural landscape. Several wind energy projects are being proposed (none on BLM land) and several are under construction on private lands throughout the HiLine area. It is expected that wind energy development will continue across the planning area. The visual intrusion may result in some adverse visual effects to historic properties not yet recorded.

Cumulative effects from the Keystone XL pipeline may have adverse effects to some historic properties; however, those effects would be mitigated through avoidance and/or data recovery. Tribal consultation has been ongoing throughout the survey phase of the project and several tribes have opted for Traditional Cultural Studies along the route. This will contribute greatly to the information base of those types of studies in Phillips and Valley Counties, providing an overall positive effect.

Economics

Assumptions and Guidelines

- The planning area consists of approximately 2.5 million surface acres of BLM land distributed across eight contiguous counties: Glacier, Toole, Liberty, Hill, Chouteau (north of the Missouri River), Blaine, Phillips, and Valley. Much of the economic activity associated with these lands is confined to these eight counties because the area is remote and no major population or business centers exist near the boundaries to the east, north, or west. Major business centers to the south include Great Falls (approximately 90 miles south of Shelby and 110 miles southwest of Havre); Lewistown (approximately 100 miles southeast of Fort Benton); and Billings (approximately 200 miles south of Malta). Economic activity is further restricted by the following factors: of the eight border crossings along the 300 mile border with Canada, only one (Port of Sweetgrass) is open 24 hours per day; only one major highway (Highway 2) goes to the west over the Rocky Mountains to Kalispell (approximately 156 miles west of Shelby (population 3,417)); only one major highway (Highway 2) goes to the east (approximately 145 miles from Glasgow to Williston, ND (population 12,512) and 229 miles to Bismarck, ND (population 55,532)); and only four highways cross the Missouri River along the 270 mile southern border.

- Potential economic impacts are assessed using the Forest Economic Analysis Spreadsheet Tool (FEAST) developed by the USDA Forest Service Inventory and Monitoring Institute (IMI) in Fort Collins, Colorado. This model uses a Microsoft Excel workbook as the interface between user inputs and data generated using the IMPLAN input-output modeling system.

- The FEAST analysis assesses the economic impacts of the resource outputs projected under each alternative. Resource outputs in this context are the amount of a resource (e.g., timber volume, AUMs, recreation visits, etc.) that would be available for use under each alternative. Average annual resource outputs were projected by resource specialists for each alternative for the 20 year planning period based on the best available information and professional judgment. Impacts to economic well-being are measured in terms of employment and labor income.

- Employment and labor income estimates developed for this analysis include direct, indirect, and induced economic effects. Direct employment would, for example, be generated in the cattle ranching and farming sectors. Additional employment would be generated as the affected cattle ranching operations purchase services and materials as inputs (“indirect” effects) and employees spend their earnings within the local economy (“induced” effects).

- Wildfire suppression costs are not provided by alternative because it is not possible to predict the level of non-prescribed wildfire that would occur under any of the alternatives.

- Sufficient funding and personnel would be available for implementation of any alternative. The actual changes in the economy would depend on individuals taking advantage of the resource-related opportunities that would be supported by each alternative. If market conditions or trends in resource use were not conducive to developing some opportunities, the impact on the economy would be different than estimated herein.

- Implementation of all alternatives would be in compliance with all valid existing rights, federal regulations, bureau policies, and other requirements.

- Appropriate maintenance would provide functional capability of all developments.

- Resource specialists’ projected annual resource outputs are based on the best available information, professional judgment, and professionally accepted analysis methods. The economic analysis compares the relative impacts of the resource management alternatives and should not be viewed as absolute economic values.

- Although management activities proposed under the alternatives may affect the number of AUMs authorized for use within the planning area, forage on BLM lands within the HiLine will continue to support actual use levels by current permittees. These levels are: cattle/calves (371,820 AUMs), sheep and goats (155 AUMs). Based on the 2014 BLM grazing fee of $1.35 per AUM, total federal revenues from livestock grazing would be $502,166 for each

alternative. Approximately $89,000 would be distributed to the local counties. When bison grazing occurs, one AUM for bison is equivalent to one AUM of cattle grazing.

- The economic impact analysis for oil and gas *(excluding coalbed gas)* reflects drilling, completion, and production activities. Impacts of these activities under the alternatives were estimated using IMPLAN and measure employment and income associated with anticipated mineral development under the constraints of the alternatives. Revenue generated from bonus bids, annual lease rents, and royalties distributed back to counties within the planning area are analyzed in the Payments to Counties section.

- The BLM does not know what areas will be targeted for development in the future, or how technological advances may affect future production costs or industry outputs. Under this uncertainty, potential changes in oil and gas related activities under the alternatives were developed based on current production within the 8 counties in the planning area, federal minerals' share of total production across the state, and BLM's share of federal lands within the planning area. These scenarios assume that all BLM-administered minerals administratively available for leasing but not currently leased have been nominated for oil and gas leasing but are deferred until the completion of the RMP and that development will occur uniformly on these lands.

- All sawtimber harvested within the analysis area would be logged by logging contractors, not households. The logs would be processed at mills outside of the planning area.

- The ratios of harvest to jobs and income used to assess the impacts of the alternatives are based on statewide ratios developed for Montana by the University of Montana.

- The BLM's Recreation Management Information System RMiS reported that overall visits and visitor days to the HiLine were very similar. This analysis is based on average annual visits.

- Projected recreation visits and expenditures are distributed among different types of visitors based on the results of National Visitor Use Monitoring surveys conducted for the Lewis and Clark National Forest because of their proximity and similar motorized use levels.

- The ratios of recreation visits to jobs and income used to assess the impacts of the alternatives are based on national ratios developed through the Forest Service's National Visitor Use Monitoring program.

- The FY 2012 budget was $7.792 million ($4.164 million for labor and $3.645 million for non-labor expenditures (BLM 2013). Labor expenses included 44 permanent and 3 other than permanent employees. The annual budget is distributed across all resource programs (i.e. restoration & fuels management, livestock grazing, recreation, etc.) and is fully exhausted each year. Congressional appropriations allocated to the HiLine vary each year and are not determined by District Office plan of action. Instead, the District Office must prioritize program spending to fit within their fiscal capabilities. Since it is difficult to project future salary and non-salary expenses, the HiLine's annual budget is assumed to remain constant under all alternatives. While spending for individual activities may vary across the alternatives, HiLine's overall fiscal capabilities would be the same under alternatives.

- Table 4.31 shows estimated average annual federal mineral production and activity by alternative and is the basis for estimating anticipated future actions that will also influence cumulative economic impacts.

No attempt has been made to assign monetary values to the ecosystem services (e.g., benefits associated with watershed processes, soil stabilization and erosion control, improved air quality, climate regulation and carbon sequestration, and biological diversity) that would be provided because these values are difficult to quantify at this analysis level. In addition to the difficulties involved in developing accurate estimates of these values, the impacts of project alternatives are rarely quantified in the type of units that would allow these values to be assigned. However, the fact that no monetary value is assigned to ecosystem services in this document does not lessen their importance in the decision making process.

Table 4.31
Annual Average BLM Outputs by Alternative

Resource Outputs	*Baseline*	*Alternative A*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E*
Recreation (visits)	113,256	113,256	119,966	120,093	119,914	120,145
Grazing (AUMs)	371,975	371,975	371,975	371,975	371,975	371,975
Forest Products (ccf)	152	152	152	152	152	152
Natural Gas (mcf)	16,956,257	21,408,854	7,103,972	18,278,203	21,639,476	20,141,212
Crude Oil (bbls)	103,353	140,058	127,515	137,044	140,264	138,891
Bentonite (short tons)*	-	230,000	230,000	230,000	230,000	172,500
Sand and Gravel (short tons)	38,480	38,480	38,480	38,480	38,480	38,480

Impacts Common to All Alternatives

The potentially affected local economy is characterized for the planning area counties in the Affected Environment portion of this document (Chapter 3). None of the alternatives would be expected to affect economic diversity (the number of economic sectors) or economic dependency, which occurs when the local economy is dominated by a limited number of industries. While the alternatives have the potential to affect local businesses and individuals, the contribution of BLM HiLine District-related activities to the local economy and the relative differences between the alternatives would not be large enough to have measurable effects on economic diversity or dependency. This is also the case with respect to economic stability, which is typically assessed in terms of seasonal unemployment, sporadic population changes, and fluctuating income growth rates. BLM HiLine District-related activities include recreation, which is characterized by seasonal employment, but none of the alternatives would be expected to affect existing trends in this or other industries.

Those elements of management that would not change among the alternatives include mine reclamation/water treatments and invasive weed treatments. Management of the HiLine District would continue to include mine reclamation and water treatment projects associated with the Zortman/Landusky gold mine. The reclamation of the Zortman/Landusky mine currently costs $2.479 million a year and is funded by reclamation and water treatment bonds, economic stimuli money from the American Recovery and Reinvestment Act of 2009, and the remainder has been made up primarily by the BLM. Mine reclamation and water treatment-related labor and proprietor's income would continue to account for less than 0.01% of total employment and income in the 8-county study area.

Recreation Use: Recreational experiences supported by BLM lands within the 8-county planning area would continue to contribute to the overall quality of life enjoyed by local residents and attract visitors from all over the country. Opportunities to participate in primitive, semi-primitive, motorized, and wildlife-related activities on these public lands would continue to stimulate economic activity, and support local employment and income in communities surrounding BLM land. Revenues from recreation use permits, campground receipts, and outfitter and guide receipts would be similar (approximately $8,000 per year) for all alternatives.

Livestock Grazing: Livestock grazing on BLM land in the 8-county planning area would continue to involve approximately the same number of operators, with nearly 15% of the farms/ranches in the planning area holding grazing permits. Forage authorized for use under these permits would continue to provide approximately 8% of the total forage needed to feed livestock in the planning area. The economic dependency of livestock producers on BLM forage would also remain unchanged as federal forage within the planning area would continue to provide low-cost forage to offset the high cost of grain and hay feed during the winter months.

Although management actions under the alternatives may affect the planning area's preference limit, authorized use levels are anticipated to continue to support average annual billed use within the planning area. All alternatives would continue to provide at least 371,975 AUMs on BLM land. The livestock production that is supported by this forage would continue to support an estimated 683 total jobs (this includes all full-time, part-time, seasonal, and unpaid jobs filled by family labor) and an equivalent of $9.3 million in local wage and proprietor's income within the local economy when unpaid wages to family laborers are factored in. Annual federal revenues from livestock grazing fees would continue to be about $502,166 annually, approximately $89,581 of which would be distributed to the counties within the

study area. Distributions to individual counties within the study area would be based on the amount federal revenue generated from AUMs administered by the BLM within each county.

Minerals: Mineral-related activities, especially oil and gas-related activities, would contribute more income and employment compared to other major land/mineral use categories. About 70% of the natural gas production from federal minerals would continue to occur in Phillips County and almost 70% of the oil production from federal minerals would continue to occur in Toole County.

The average annual amount of sand/gravel produced (about 38,500 short tons per year) and royalties from this production (about $17,000) would remain relatively unchanged. Federal minerals administered by the HiLine include 5.4 million cubic yards of mineable bentonite. Commercial interest has been expressed and bentonite production is anticipated under all alternatives. Employment and income impacts displayed in Tables 4.32 and 4.33 under the minerals program include the effects of sand/gravel, bentonite, and oil and gas production. Under all alternatives, minerals-related activities would continue to be one of the largest contributors to local employment and income of all the major BLM land/mineral uses.

***Externally Funded Ecosystem Restoration Projects*:** Although the HiLine District provides some funding for reclamation and water treatment projects associated with the Zortman/Landusky gold mine, the majority of these activities are financed with external funding not included in the District's annual budget. Externally funded mine reclamation and water treatment projects are estimated to support 20 total jobs and approximately $832,000 in wages and proprietor's income within the planning area (Tables 4.33 and 4.34).

Renewable Energy: The basis for impact analysis also includes the development of wind energy on BLM land. No applications for rights-of-way related to wind energy development are pending on BLM land at this time. However, it is likely that some development would occur. The National Renewable Energy Laboratory developed a Jobs and Economic Development Impact (JEDI) Model to demonstrate economic impacts associated with energy development including wind energy development. It is assumed that two wind energy projects within the planning area would occur (Appendix O). These projects would include one smaller project with an estimated 63 towers (of which 9 towers would occur on BLM land) and a larger project consisting of 134 towers (with 20 towers on BLM land).

Economic impacts related to commercial wind energy development, as indicated by jobs and earnings, are displayed in Table 4.32.

Table 4.32
Annual Economic Impacts Related to Commercial Wind Energy Development on BLM Land

	Employment (jobs)		*Earnings (2008 $millions)*	
Development	***Total***	***BLM-Related***	***Total***	***BLM-Related***
63-Tower (9 towers on BLM)				
Construction	610	115	22.81	4.37
Operation	29	5	1.06	0.18
134-Tower (20 towers on BLM)				
Construction	1,273	223	47.51	8.43
Operation	58	11	2.1	0.40
Total (29 towers on BLM)				
Construction	1,883	338	70.32	12.8
Operation	87	16	3.16	0.58

Source: National Renewable Energy Laboratory JEDI Model, 2011

Estimated economic impacts associated with commercial wind energy development would be the same for all alternatives. An estimated maximum total of 610 and 1,273 workers would be involved in the engineering and design, road and foundation preparation, substation and transmission line construction, wind turbine assembly and erection as well as the indirect and induced jobs during each of the two year construction periods for a 63-tower project and a 134-tower project respectively. Employment associated with the towers on BLM lands would be 115 jobs and 223 jobs

respectively. Construction would be completed within a two-year period and it is unlikely that construction would occur on both projects at the same time. After construction is complete, total annual employment associated with the operation and maintenance of these wind energy developments would be 87 jobs and annual earnings (income) would be an estimated $2.04 million. For the towers on BLM lands, 16 operations jobs and $0.58 million in operations income would be generated.

Lands and Realty: Existing use authorizations (e.g., rights-of-way, permits, and lease rentals) would continue to generate an estimated $76,582 of revenue annually for the federal government. Since no specific major land tenure adjustments within the planning area are pending, it is not possible to determine how PILT and local property taxes might be affected.

The BLM has received a preliminary application for a right-of-way grant for one 36 inch crude oil pipeline running from Canada to Texas. The nearly 1,400 mile crude oil pipeline is proposed to cross through the planning area, although less than 42 miles are expected on BLM land in Montana and it is assumed that about half of this would be in the planning area. It is assumed that local/regional economic impacts would be mostly related to local expenditures. These would be related to lodging, meals, and maybe some vehicle fuel purchases. Total local expenditures are assumed to include total number of labor days for surveys, inventories, and clearances. Total local expenditures would also include expenditures during construction. Some of the expenditures would occur in the existing communities; but some may also be tied to construction workers who may live in a temporary construction work camp. It is also assumed that about 27% of construction-related payroll would be local payroll associated with construction of 21 miles of pipeline across BLM lands in the planning area. This would be about $4.1 million spread over a two year construction period. Other labor expenditures (i.e., wages and salaries) would likely be nonlocal and would not be included in the local input/output analysis. Annual right-of-way rentals would amount to an estimated $1,000. Total estimated annual property taxes would be $18.2 million (Phillips County $5.824 million, and Valley County $12.413 million).

Fire Management and Ecology: Hazardous fuel treatment costs are included in the total BLM salary and non-salary expenditures identified by alternative. Projected annual hazardous fuels treatment costs range from approximately $181,000 under Alternative A to approximately $1.26 million under Alternatives B, C, D, and E. Other potential wildfire-related costs (such as property loss, lost revenues, and increased suppression costs) are difficult to project and are unknown. It is commonly accepted that fire suppression costs and risk to life and property should be less on wildfires that occur where hazardous fuels have been treated with a combination of mechanical treatments, prescribed burns, etc. compared to areas where fuels have not been reduced. For example, fires generally burn hotter, flame length is higher, and fires in tree canopies are more likely in non-treated areas.

BLM Operating Costs: HiLine District expenditures for BLM employee salaries and program operations is assumed to continue to be about $7.7 million annually ($4.1 million for labor and $3.6 million for non-labor expenditures). The BLM offices within the planning area would continue to employ about 44 permanent employees and 3 non-permanent employees. Non-salary expenditures are purchases made in support of resource programs and operations and include items such as contracts, gasoline, diesel, and computer equipment.

Operations expenditures also include contracts and cooperative agreements for fire and fuels treatments, invasive weed treatments, and other activities related to ecosystem restoration such as Zortman/Landusky mine reclamation paid for by the BLM. Annual average ecosystem restoration and timber harvest would continue to include one major mine reclamation and water treatment project ($2.479 million/year), mechanical treatment/pre-commercial thinning of 237 acres of forest/woodlands, prescribed burning of 43 acres of forested areas, mechanical treatments and prescribed burning of 355 acres of grass/shrubs and treating 1,280 acres of invasive species. Mine reclamation, water treatment, 90% of pre-commercial thinning, and 63% of invasive species treatments are contracted out or paid for through cooperative agreements. Annual timber harvest performed by private businesses for hazardous fuels treatments and timber sales would continue to produce about 152 CCF of sawtimber. About 138 personal use permits (Christmas tree permits, firewood permits, etc.) would also be issued annually. Annual revenues from timber salvage sales would generate between $2,000 and $3,000 annually. Total employment and income generated by activities associated with ecosystem restoration and timber harvest (fuels treatments) are included as part of BLM expenditures in Tables 4.33 and 4.34.

Payments to Counties Revenue-sharing programs administered by the BLM entitle local governments to a portion of receipts derived from the use, extraction, or sale of natural resources on BLM lands within their jurisdiction; as well as

payments in lieu of the property taxes (PILT) that would have been received if these federal lands were privately owned. Annual PILT payments are calculated using a complex formula based the number of acres eligible for PILT payments, the county's population, payments in prior years from other specified federal land payment programs, state laws directing payments to a particular government purpose, and the Consumer Price Index as calculated by the Bureau of Labor Statistics. Although annual PILT payments can fluctuate, the study area is anticipated to receive more than $2 million each year in PILT.

Other Impacts: The dependency of the local economy on the livestock industry, timber production, mining, and recreation activities would not be affected by BLM resource management. The influence of resource management on BLM land would not change local economic diversity (as indicated by the number of economic sectors), dependency (i.e., where one or a few industries dominate the economy), or stability (as indicated by seasonal unemployment, sporadic population changes, and fluctuating income rates).

Employment and labor and proprietor's income by BLM outputs are shown for each alternative in Tables 4.33and 4.34, respectively. Public revenues by major BLM land/mineral use are shown in Table 4.35. The employment, income, and revenue effects of BLM resource management would be distributed unequally among the counties and communities within the planning area. Economic opportunities supported by lands and resources administered by the BLM would be concentrated in counties and communities that generate federal revenues from livestock grazing, mineral extraction; and those that support the outdoor recreation, livestock production, mining, and oil and gas industries.

Table 4.33
Annual Average Employment by Resource Use by Alternative*

Resource Outputs	*Baseline*	*Alternative A*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E*
Recreation	55	55	58	58	58	58
Grazing	683	683	683	683	683	683
Minerals	499	1,442	618	1,263	1,455	1,281
Externally Funded Ecosystem Restoration Activities	20	20	20	20	20	20
Payments to States/Counties	28	50	25	43	50	47
BLM Expenditures**	100	100	100	100	100	100
Total BLM Supported Employment	1,383	2,348	1,503	2,167	2,365	2,187

Source: FEAST/IMPLAN (2012)
* Does not include employment related to one-time construction projects of short duration such as construction of wind energy developments, pipelines, etc.
** Includes fire and fuels treatments, invasive weed treatments, and other activities related to ecosystem restoration including the portion of Zortman/Landusky mine reclamation paid for by the BLM.

Table 4.34
Annual Average Income by Resource Use by Alternative* ($1,000s)

Resource Outputs	*Baseline*	*Alternative A*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E*
Recreation	$ 1,347	$ 1,347	$ 1,429	$ 1,427	$ 1,423	$ 1,428
Grazing	$ 9,345	$ 9,345	$ 9,345	$ 9,345	$ 9,345	$ 9,345
Minerals	$ 22,103	$ 51,220	$ 21,669	$ 44,820	$ 51,693	$ 45,284
Externally Funded Ecosystem Restoration Activities	$ 832	$ 832	$ 832	$ 832	$ 832	$ 832
Payments to States/Counties	$ 81	$ 143	$ 71	$ 124	$ 144	$ 135
BLM Expenditures**	$ 6,222	$ 6,222	$ 6,222	$ 6,222	$ 6,222	$ 6,222
Total BLM Supported Employment	$ 39,929	$ 69,109	$ 39,568	$ 62,770	$ 69,659	$ 63,245

Source: FEAST/IMPLAN (2012)
* Does not include income related to one-time construction projects of short duration such as construction of wind energy developments, pipelines, etc.
** Includes fire and fuels treatments, invasive weed treatments, and other activities including the portion of Zortman/Landusky mine reclamation paid for by the BLM.

Table 4.35
Annual Average Federal Revenue Collected on BLM Resources by Alternative

Resource Outputs	*Baseline*	*Alternative A*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E*
Federal Revenue						
Rights-of-Way	$ 76,582	$ 76,582	$ 76,582	$ 76,582	$ 76,582	$ 76,582
Grazing	$ 502,166	$ 502,166	$ 502,166	$ 502,166	$ 502,166	$ 502,166
Bentonite	---	$ 1,955,000	$ 1,955,000	$ 1,955,000	$ 1,955,000	$ 1,466,250
Sand and Gravel	$ 17,000	$ 17,000	$ 17,000	$ 17,000	$ 17,000	$ 17,000
Oil and Gas	$ 8,879,226	$ 13,551,935	$ 5,665,652	$ 11,525,949	$ 13,668,428	$ 12,942,173
Timber Salvage	$ 2,000-3,000	$2,000-3,000	$2,000-3,000	$2,000-3,000	$2,000-3,000	$ 2,000-3,000

Table 4.36
Annual Average State and County Revenue Collected on BLM Resources by Alternative

Resource Outputs	*Baseline*	*Alternative A*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E*
State Revenue						
Bentonite	---	$ 718,463	$ 718,463	$ 718,463	$ 718,463	$ 538,847
Oil and Gas	$ 2,610,492	$ 4,299,574	$ 1,809,087	$ 3,625,929	$ 4,335,145	$ 4,117,219
County Revenue						
PILT	$ 2,301,359	$ 2,301,359	$ 2,301,359	$ 2,301,359	$ 2,301,359	$ 2,301,359
Grazing	$ 89,523	$ 89,523	$ 89,523	$ 89,523	$ 89,523	$ 89,523
Bentonite	---	$ 239,488	$ 239,488	$ 239,488	$ 239,488	$ 179,616
Oil and Gas	$ 1,314,125	$ 2,005,686	$ 838,516	$ 1,705,840	$ 2,022,927	$ 1,915,442

Impacts under Alternative A (Current Management)

Estimates of employment and labor and proprietor's income that would be supported by Alternative A are based on anticipated land and mineral uses, resource outputs, and projected BLM expenditure levels. Estimated average annual employment and labor/proprietor's income are summarized by major resource use in Tables 4.33 and 4.34, respectively. Mineral exploration, development and production, and livestock grazing would be the BLM-related activities that contribute the most employment and income to the local economy. Total local employment, income, and revenues would increase over current levels.

Recreation: Under Alternative A, recreation management would continue under current guidance and policy. Existing recreation opportunities in the study area would be maintained, and people would continue to recreate on public lands as they have done in the past. Recreational experiences supported by BLM lands within the 8-county area would continue to contribute to the overall quality of life enjoyed by local residents and stimulate economic activity throughout the local economy. As discussed in the Affected Environment, recreationists traveling to the HiLine spend money in the local economy and stimulate employment and income in numerous industrial sectors that support the travel and tourism industry.

On annual average, BLM lands administered by the HiLine District would continue to support approximately 113,000 visits. Local and non-local recreationists would continue to be drawn to these public lands because of the diverse recreational experiences they support. Recreation-related spending attributable to visits to the HiLine would continue to stimulate economic activity in rural communities surrounding these lands. On annual average, recreational opportunities supported by the HiLine are estimated to support 55 local jobs and $1.3 million in labor income each year (Tables 4.33 and 4.34).

Livestock Grazing: Economic impacts associated with livestock grazing on BLM land are summarized above under Impacts Common to All Alternatives. If current management actions were continued, public land forage administered by the BLM within the HiLine would continue to support current billed use levels. On annual average permittees would obtain 371,975 AUMs from BLM-administered forage across the HiLine. This forage would support a total of 683 local

jobs, including those filled by full-time, part-time, seasonal, and unpaid family laborers; and an equivalent of $9.3 million in local wages and proprietor's income when unpaid family labor income is included.

Minerals: Under Alternative A, the HiLine District would continue to manage its mineral resources in accordance with the existing RMP. Although there would not be any changes in the way federal mineral resources would be managed, future production of BLM-administered minerals is anticipated to increase over current baseline production. Average annual production of federal minerals across the HiLine over the next 20 years are projected to include 140,058 barrels of oil, 21.4 million MCF of natural gas, approximately 38,480 short tons of construction sand and gravel, and 230,000 short tons of bentonite.

If current fluid mineral management practices were continued, the BLM is expected to lease more than 1.37 million acres of federal minerals within the HiLine District over the next 20 years. Under this alternative, an additional 715,454 mineral acres are anticipated to be leased from the HiLine District for oil and gas development. Approximately 524,867 of these leased acres would be held by production, and 862,133 acres could be subject to annual rents once the additional 715,454 acres were leased. Annual rents and royalties associated with leasing and production of federal fluid minerals within the field office are anticipated to generate more than $13.5 million in public revenue collected by the federal government on annual average over the planning period (Table 4.35). Based on recent bonus bids for federal leases within the HiLine, one-time bonus bids generated for new federal mineral leases at the time of auction could generate more than $21 million in federal revenue over the next 20 years.

On annual average, the extraction of sand, gravel, and bentonite administered by the BLM is anticipated to generate $1.9 million in federal revenue and further stimulate local economic activity within the 8-county study area. When combined, the extraction of solid and fluid minerals administered by the HiLine District are anticipated to support a total of 1,442 local jobs and an estimated $51.2 million in local labor income across the 8-county study area on annual average (Tables 4.33 and 4.34). A portion of federal revenues generated from the exploration, leasing, and development of these minerals will be distributed back to the State of Montana and to counties in accordance with the federal and state statutes discussed in the Payments to Counties section of Appendix R, Economic Impact Analysis Methodology. On annual average, $5 million in federal minerals revenues will be returned to the State of Montana. Approximately $2.2 million of these revenues would be distributed among county and local governments where these revenues were generated (Table 4.36).

GIS analysis indicates there are currently about 514 residential structures within the planning area on lands with federal minerals that have high or moderate potential for oil and gas development. While standard lease terms can be used to limit occupancy within 200 meters of residences, the location of a well or a mine near any of these properties at the time of a residential sale could reduce the net value of that residential property.

Payments to Counties: Revenue-sharing programs administered by the BLM entitle local governments to a portion of receipts derived from the use, extraction, or sale of natural resources on BLM lands within their jurisdiction; as well as payments in lieu of the property taxes (PILT) that would have been received if these federal lands were privately owned. Although payments associated with BLM resources only account for a portion of natural resource-related revenue distributed to counties across the HiLine, local rural communities rely heavily on these payments to cover basic operating costs and to fund basic community services.

Management of BLM resources under Alternative A is anticipated to generate federal revenues from livestock grazing and mineral development on the HiLine, a portion of which will be distributed back to the counties where the revenues were generated. On annual average, the study area receives approximately $89,523 from the leasing of federal forage and $2.2 million from the development of federal minerals on these public lands. In addition to revenue sharing, counties within the study area that contain BLM lands are anticipated to receive more than $2 million in annual Payments in Lieu of Taxes (PILT) from the federal government. These revenues will not be shared equally across the counties of the study area; the majority of these monies will be returned to the counties in which they were generated.

Cumulative Impacts

Annual average local employment (direct, indirect, and induced) and associated local labor and proprietor's income estimated to be supported by BLM land and resource management under Alternative A would be about 2,348 jobs and $69 million, respectively (Tables 4.33 and 4.34). BLM land and mineral uses as well as BLM operations would support

less than 10% of total employment and income across the 8-county planning area. Economic opportunities supported by lands and resources administered by the BLM would be concentrated in counties and communities that generate federal revenues from livestock grazing, mineral extraction; and those that support the outdoor recreation, livestock production, mining, and oil and gas industries.

Average annual federal revenues from BLM land and mineral uses would increase by an estimated $6.6 million to about $16.1 million per year. Annual payments to counties are anticipated to increase by approximately $931,048, with approximately $4.6 million in federal revenues distributed back to counties in the planning area on annual average, most of which would be related to oil and gas production and PILT payments (Tables 4.35 and 4.36).

Impacts under Alternative B

Estimates of employment and labor income that would be supported by Alternative B are based on anticipated land and mineral uses, resource outputs, and projected BLM expenditure levels as reported in Table 4.31. Estimated average annual employment and labor/proprietor's income are summarized by resource area in Tables 4.33 and 4.34, respectively.

Recreation: Under Alternative B, recreational experiences supported by BLM lands within the 8-county area would continue to contribute to the overall quality of life enjoyed by local residents and stimulate economic activity throughout the local economy. As discussed in the Affected Environment, recreationists traveling to the HiLine spend money in the local economy and stimulate employment and income in numerous industrial sectors that support the travel and tourism industry.

Changes in recreation management proposed under Alternative B include improvements to trails and facilities, and are anticipated to increase the quality and quantity of recreational experiences supported by these public lands. Under Alternative B, BLM lands administered by the HiLine District are anticipated to support approximately 119,966 visits on annual average over the next 20 years. Local and non-local recreationists would continue to be drawn to these public lands because of the diverse recreational experiences they support. Recreation-related spending attributable to visits to the HiLine would continue to stimulate economic activity in rural communities surrounding these lands. On annual average, recreational opportunities supported by the HiLine are estimated to support 58 local jobs and $1.4 million in labor income each year (Tables 4.33 and 4.34).

Livestock Grazing: Economic impacts associated with livestock grazing on BLM land are summarized above under Impacts Common to All Alternatives. If current management actions were continued, public land forage administered by the BLM within the HiLine would continue to support current billed use levels. On annual average permittees would obtain 371,975 AUMs from BLM-administered forage across the HiLine. This forage would be would support a total of 683 local jobs, including those filled by full-time, part-time, seasonal, and unpaid family laborers; and an equivalent of $9.3 million in local wages and proprietor's income when unpaid family labor income is included.

Minerals: Although Alternative B would inhibit future development of federal minerals more than any other alternative; leasing, exploration and development of federal minerals within the HiLine District would continue to be permitted. Average annual production of federal minerals across the HiLine are projected to include 127,515 barrels of oil, 7.1 million MCF of natural gas, 38,480 short tons of construction sand and gravel, and 230,000 short tons of bentonite over the planning period (Table 4.31).

Under this alternative, the HiLine District would manage 996,900 acres for the leasing, exploration, and development of crude oil and natural gas with approximately 671,546 acres of existing federal mineral leases and an additional 325,354 acres available for leasing under new, more restrictive standards and stipulations. Although federal mineral leasing is anticipated to increase under Alternative B; closures and new occupancy and timing restrictions are anticipated to cause natural gas production to decline. Estimated average annual federal revenues associated with oil and gas leasing and production-related activities on federal minerals are anticipated to decrease by nearly $2.7 million under Alternative B. On annual average, the leasing and production of fluid minerals administered by the HiLine District are estimated to generate $5.6 million in federal revenue, with more than $800,000 being returned to the counties in which rents and royalties were generated (Tables 4.35 and 4.36). The extraction of other solid minerals (including sand, gravel, and bentonite) are anticipated to further generate public revenues and stimulate local economic activity. On annual average,

mining of sand, gravel, and bentonite administered by the BLM is anticipated to generate $1.9 million in federal revenue, with a total of $239,488 anticipated to be distributed back to county and local governments where the revenues were generated.

It is estimated that minerals exploration, development, and production of federal leasable and locatable minerals would support about 618 local jobs and an estimated $21.6 million in local labor and proprietor's income annually (Tables 4.33 and 4.34). Among all the alternatives, residential property sales would least likely be affected by the exploration, development, and production of federal oil or gas since the least number of wells would be drilled and produced and no federal wells on newly leased federal minerals would be drilled within 1/4 mile of residential buildings. It is important to note that the economic impacts described in the previous two paragraphs are related to mineral leasing, exploration, development, and production on BLM minerals. Under this alternative, much of the oil and gas-related drilling and production would likely shift to private lands and offset some of the impacts previously described.

Payments to Counties: Revenue-sharing programs administered by the BLM entitle local governments to a portion of receipts derived from the use, extraction, or sale of natural resources on BLM lands within their jurisdiction; as well as payments in lieu of the property taxes (PILT) that would have been received if these federal lands were privately owned. Although payments associated with BLM resources only account for a portion of natural resource-related revenue distributed to counties across the HiLine, local rural communities rely heavily on these payments to cover basic operating costs and to fund basic community services.

Management of BLM resources under Alternative B is anticipated to generate federal revenues from livestock grazing and mineral development on the HiLine, a portion of which will be distributed back to the counties where the revenues were generated. On annual average, the study area receives approximately $89,523 from the leasing of federal forage and $1 million from the development of federal minerals on these public lands. In addition to revenue sharing, counties within the study area that contain BLM lands are anticipated to receive more than $2 million in annual Payments in Lieu of Taxes (PILT) from the federal government.

Cumulative Impacts

Annual average employment (direct, indirect, and induced) and associated local labor and proprietor's income contributed by BLM land and resource management under Alternative B would be about 1,503 total jobs and $39.5 million, respectively (Tables 4.33 and 4.34). Economic opportunities supported by lands and resources administered by the BLM would be concentrated in counties and communities that generate federal revenues from livestock grazing, mineral extraction; and those that support the outdoor recreation, livestock production, mining, and oil and gas industries.

BLM land uses and operations would contribute less than 10% of total employment and income within the local economy. Constraints under Alternative B are anticipated to decrease future federal mineral development across the HiLine District. All program revenues to the federal government would be about $8.2 million per year, a $1.2 million decrease from current federal revenue. Annual payments to counties under this alternative are also anticipated to decline. On annual average, the 8-county planning area is anticipated to receive around $3.4 million from revenues associated with BLM-managed lands administered by the HiLine District (Tables 4.35 and 4.36).

The previous two paragraphs describe the anticipated cumulative impacts associated with BLM land and mineral-related activities. It is important to note that many of these impacts could be offset by shifting the oil and gas exploration, development, and production from BLM minerals to private or state mineral estate with less restrictive stipulations.

Impacts under Alternative C

Estimates of employment and labor income that would be supported by Alternative C are based on anticipated land and mineral uses, resource outputs, and projected BLM expenditure levels as reported in Table 4.31 Estimated average annual employment and labor/proprietor's income are summarized by resource area in Tables 4.33 and 4.34, respectively.

Recreation: Under Alternative C, recreational experiences supported by BLM lands within the 8-county area would continue to contribute to the overall quality of life enjoyed by local residents and stimulate economic activity throughout the local economy. As discussed in the Affected Environment, recreationists traveling to the HiLine spend money in the local economy and stimulate employment and income in numerous industrial sectors that support the travel and tourism industry.

Changes in recreation management proposed under Alternative C include improvements to trails and facilities, and are anticipated to increase the quality and quantity of recreational experiences supported by these public lands. Under Alternative C, BLM lands administered by the HiLine District are anticipated to support approximately 120,093 visits on annual average over the next 20 years. Local and non-local recreationists would continue to be drawn to these public lands because of the diverse recreational experiences they support. Recreation-related spending attributable to visits to the HiLine would continue to stimulate economic activity in rural communities surrounding these lands. On annual average, recreational opportunities supported by the HiLine are estimated to support 58 local jobs and $1.4 million in labor income each year (Tables 4.33 and 4.34).

Livestock Grazing: Economic impacts associated with livestock grazing on BLM land are summarized above under Impacts Common to All Alternatives. If current management actions were continued, public land forage administered by the BLM within the HiLine would continue to support current billed use levels. On annual average permittees would obtain 371,975 AUMs from BLM-administered forage across the HiLine. This forage would support a total of 683 local jobs, including those filled by full-time, part-time, seasonal, and unpaid family laborers; and an equivalent of $9.3 million in local wages and proprietor's income when unpaid family labor income is included.

Minerals: Under Alternative C the HiLine District would manage more than 1.2 million acres for the leasing, exploration, and development of crude oil and natural gas. Approximately 671,546 acres would be administered under existing federal mineral leases and an additional 538,454 acres would be available for leasing over the next 20 years. Average annual production of federal minerals across the HiLine are projected to include 137,044 barrels of oil, 18.2 million MCF of natural gas, 38,480 short tons of construction sand and gravel, and 230,000 short tons of bentonite over the planning period (Table 4.31).

Annual average federal revenues generated from oil and gas related activities are anticipated to increase by an estimated $2.6 million under this alternative. On annual average, the leasing and production of fluid minerals administered by the HiLine District are estimated to generate $11.5 million in federal revenue, with more than $1.7 million being returned to the counties in which rents and royalties were generated (Tables 4.35 and 4.36). The extraction of other locatable mineral materials (including sand, gravel, and bentonite) are anticipated to further generate public revenues and stimulate the local economy. On annual average, mining of locatable minerals administered by the BLM is anticipated to generate $1.9 million in federal revenue, with a total of $ 239,488 anticipated to be distributed back to county and local governments where the revenues were generated.

It is estimated that exploration, development, and production of federal leasable and locatable minerals would support about 1,263 local jobs and an estimated $44.8 million in local labor and proprietor's income annually (Tables 4.33 and 4.34). Residential property sales would likely be affected by the exploration, development, and production of federal oil or gas about the same as with Alternative A.

Payments to Counties: Revenue-sharing programs administered by the Bureau of Land Management entitle local governments to a portion of receipts derived from the use, extraction, or sale of natural resources on BLM lands within their jurisdiction; as well as payments in lieu of the property taxes (PILT) that would have been received if these federal lands were privately owned. Although payments associated with BLM resources only account for a portion of natural resource-related revenue distributed to counties across the HiLine, local rural communities rely heavily on these payments to cover basic operating costs and to fund basic community services.

Management of BLM resources under Alternative C is anticipated to generate federal revenues from livestock grazing and mineral development on the HiLine, a portion of which will be distributed back to the counties where the revenues were generated. On annual average, the study area receives approximately $89,523 from the leasing of federal forage and $1.9 million from the development of federal minerals on these public lands. In addition to revenue sharing, counties within the study area that contain BLM lands are anticipated to receive more than $2 million in annual Payments in Lieu of Taxes (PILT) from the federal government.

Cumulative Impacts

The estimated annual average number of local jobs (direct, indirect, and induced) and associated local labor and proprietor's income contributed by BLM land and resource management under Alternative C would be about 2,167 total jobs and $62.7 million, respectively (Tables 4.33 and 4.34). BLM land and mineral uses as well as BLM operations would support less than 10% of total employment and income across the 8-county planning area. Economic opportunities supported by lands and resources administered by the BLM would be concentrated in counties and communities that generate federal revenues from livestock grazing, mineral extraction, and those that support the outdoor recreation, livestock production, mining, and oil and gas industries.

Average annual federal revenues from BLM land and mineral uses would increase by an estimated $4.6 million to about $14 million per year. Annual payments to counties are anticipated to increase by approximately $631,203, with approximately $4.3 million in federal revenues distributed back to counties in the planning area on annual average, most of which would be related to oil and gas production and PILT payments (Tables 4.35 and 4.36).

Like Alternative B, some of the impacts caused by changing activity on BLM land and minerals would likely be offset as more mineral development-related activities shifted to private and/or state lands with less restrictive stipulations.

Impacts under Alternative D

Estimates of employment and labor income that would be supported by Alternative D are based on anticipated land and mineral uses, resource outputs, and projected BLM expenditure levels as reported in Table 4.31. Estimated average annual employment and labor/proprietor's income are summarized by resource area in Tables 4.33 and 4.34, respectively.

Recreation: Under Alternative D, recreational experiences supported by BLM lands within the 8-county area would continue to contribute to the overall quality of life enjoyed by local residents and stimulate economic activity throughout the local economy. As discussed in the Affected Environment, recreationists traveling to the HiLine spend money in the local economy and stimulate employment and income in numerous industrial sectors that support the travel and tourism industry.

Changes in recreation management proposed under Alternative D include improvements to trails and facilities, and are anticipated to increase the quality and quantity of recreational experiences supported by these public lands. Under Alternative D, BLM lands administered by the HiLine District are anticipated to support approximately 119,914 visits on annual average over the next 20 years. Local and non-local recreationists would continue to be drawn to these public lands because of the diverse recreational experiences they support. Recreation-related spending attributable to visits to the HiLine would continue to stimulate economic activity in rural communities surrounding these lands. On annual average, recreational opportunities supported by the HiLine are estimated to support 58 local jobs and $1.4 million in labor income each year (Tables 4.33 and 4.34).

Livestock Grazing: Economic impacts associated with livestock grazing on BLM land are summarized above under Impacts Common to All Alternatives. If current management actions were continued, public land forage administered by the BLM within the HiLine would continue to support current billed use levels. On annual average permittees would obtain 371,975 AUMs from BLM-administered forage across the HiLine. This forage would support a total of 683 local jobs, including those filled by full-time, part-time, seasonal, and unpaid family laborers; and an equivalent of $9.3 million in local wages and proprietor's income when unpaid family labor income is included.

Minerals: Under Alternative D the HiLine District would manage more than 1.3 million acres for the leasing, exploration, and development of crude oil and natural gas. Approximately 671,546 acres would be administered under existing federal mineral leases and an additional 718,454 acres would be available for leasing over the next 20 years. Average annual production of federal minerals across the HiLine are projected to include 140,264 barrels of oil, 21.6 million MCF of natural gas, 38,480 short tons of construction sand and gravel, and 230,000 short tons of bentonite over the planning period (Table 4.31).

Annual average federal revenues generated from oil and gas-related activities are anticipated to increase by an estimated $4.7 million under this alternative. On annual average, the leasing and production of fluid minerals administered by the HiLine District are estimated to generate $13.6 million in federal revenue, more than $2 million being returned to the counties in which rents and royalties were generated (Tables 4.35 and 4.36). The extraction of other locatable mineral materials (including sand, gravel, and bentonite) are anticipated to further generate public revenues and stimulate the local economy. On annual average, mining of locatable minerals administered by the BLM is anticipated to generate $1.9 million in federal revenue, with a total of $239,488 anticipated to be distributed back to county and local governments where the revenues were generated.

It is estimated that exploration, development, and production of federal minerals would support about 1,455 local jobs and an estimated $51.6 million in local labor and proprietor's income annually (Tables 4.33 and 4.34). Residential property sales would likely be affected by the exploration, development, and production of federal oil or gas about the same as with Alternatives A and C because the number of wells drilled and the setbacks from occupied buildings would be similar.

Payments to Counties: Revenue-sharing programs administered by the BLM entitle local governments to a portion of receipts derived from the use, extraction, or sale of natural resources on BLM lands within their jurisdiction; as well as payments in lieu of the property taxes (PILT) that would have been received if these federal lands were privately owned. Although payments associated with BLM resources only account for a portion of natural resource-related revenue distributed to counties across the HiLine, local rural communities rely heavily on these payments to cover basic operating costs and to fund basic community services.

Management of BLM resources under Alternative D is anticipated to generate federal revenues from livestock grazing and mineral development on the HiLine, a portion of which will be distributed back to the counties where the revenues were generated. On annual average, the study area receives approximately $89,523 from the leasing of federal forage and $2.2 million from the development of federal minerals on these public lands. In addition to revenue sharing, counties within the study area that contain BLM lands are anticipated to receive more than $2 million in annual Payments in Lieu of Taxes (PILT) from the federal government.

Cumulative Impacts

Like Alternative A, B, and C, there would be an increase in federal mineral leasing and bentonite mining over current levels. The estimated annual average number of local jobs (direct, indirect, and induced) and associated local labor and proprietor's income contributed by BLM land and resource management under Alternative D would be about 2,365 total jobs and $69.6 million, respectively (Tables 4.33 and 4.34). BLM land and mineral uses as well as BLM operations would support less than 10% of total employment and income across the 8-county planning area. Economic opportunities supported by lands and resources administered by the BLM would be concentrated in counties and communities that generate federal revenues from livestock grazing, mineral extraction, and those that support the outdoor recreation, livestock production, mining, and oil and gas industries.

Average annual federal revenues from BLM land and mineral uses would increase by an estimated $6.7 million to about $16.2 million per year. Annual payments to counties are anticipated to increase by approximately $948,290, with approximately $4.6 million in federal revenues distributed back to counties in the planning area on annual average, most of which would be related to oil and gas production and PILT payments (Tables 4.35 and 4.36).

Impacts under Alternative E (Preferred Alternative)

Estimates of employment and labor income that would be supported by Alternative E are based on anticipated land and mineral uses, resource outputs, and projected BLM expenditure levels as reported in Table 4.31. Estimated average annual employment and labor/proprietor's income are summarized by resource area in Tables 4.33 and 4.34, respectively.

Recreation: Under Alternative E, recreational experiences supported by BLM lands within the 8-county area would continue to contribute to the overall quality of life enjoyed by local residents and stimulate economic activity throughout the local economy. As discussed in the Affected Environment, recreationists traveling to the HiLine spend money in the

local economy and stimulate employment and income in numerous industrial sectors that support the travel and tourism industry.

Changes in recreation management proposed under Alternative E include improvements to trails and facilities, and are anticipated to increase the quality and quantity of recreational experiences supported by these public lands. Under Alternative E, BLM lands administered by the HiLine District are anticipated to support approximately 120,145 visits on annual average over the next 20 years. Local and non-local recreationists would continue to be drawn to these public lands because of the diverse recreational experiences they support. Recreation-related spending attributable to visits to the HiLine would continue to stimulate economic activity in rural communities surrounding these lands. On annual average, recreational opportunities supported by the HiLine are estimated to support 58 local jobs and $1.4 million in labor income each year (Tables 4.33 and 4.34).

Livestock Grazing: Economic impacts associated with livestock grazing on BLM land are summarized above under Impacts Common to All Alternatives. If current management actions were continued, public land forage administered by the BLM within the HiLine would continue to support current billed use levels. On annual average permittees would obtain 371,975 AUMs from BLM-administered forage across the HiLine. This forage would support a total of 683 local jobs, including those filled by full-time, part-time, seasonal, and unpaid family laborers; and an equivalent of $9.3 million in local wages and proprietor's income when unpaid family labor income is included.

Minerals: Under Alternative E the HiLine District would manage more than 1.3 million acres for the leasing, exploration, and development of crude oil and natural gas. Approximately 671,546 acres would be administered under existing federal mineral leases and an additional 708,454 acres would be available for leasing over the next 20 years. Average annual production of federal minerals across the HiLine are projected to include 138,891 barrels of oil, 20.1 million MCF of natural gas, 38,480 short tons of construction sand and gravel, and 172,500 short tons of bentonite over the planning period (Table 4.31).

Annual average federal revenues generated from oil and gas-related activities are anticipated to increase by an estimated $4 million under this alternative. On annual average, the leasing and production of fluid minerals administered by the HiLine District are estimated to generate $12.9 million in federal revenue, with approximately $1.9 million being returned to the counties in which rents and royalties were generated (Tables 4.35 and 4.36). The extraction of other locatable mineral materials (including sand, gravel, and bentonite) are anticipated to further generate public revenues and stimulate the local economy. On annual average, mining of federal solid minerals administered by the BLM is anticipated to generate $1.4 million in federal revenue, with a total of $179,616 anticipated to be distributed back to county and local governments where the revenues were generated.

It is estimated that exploration, development, and production of solid and fluid federal minerals would support about 1,281 local jobs and an estimated $45.2 million in local labor and proprietor's income annually (Tables 4.33 and 4.34).

Payments to Counties: Revenue-sharing programs administered by the BLM entitle local governments to a portion of receipts derived from the use, extraction, or sale of natural resources on BLM lands within their jurisdiction; as well as payments in lieu of the property taxes (PILT) that would have been received if these federal lands were privately owned. Although payments associated with BLM resources only account for a portion of natural resource-related revenue distributed to counties across the HiLine, local rural communities rely heavily on these payments to cover basic operating costs and to fund basic community services.

Management of BLM resources under Alternative E is anticipated to generate federal revenues from livestock grazing and mineral development on the HiLine, a portion of which will be distributed back to the counties where the revenues were generated. On annual average, the study area receives approximately $89,523 from the leasing of federal forage and $22 million from the development of federal minerals on these public lands. In addition to revenue sharing, counties within the study area that contain BLM lands are anticipated to receive more than $2 million in annual Payments in Lieu of Taxes (PILT) from the federal government.

Cumulative Impacts

Like other alternatives, federal mineral leasing and bentonite mining would increase over current levels. The estimated average annual number of local jobs(direct, indirect, and induced) and associated local labor and proprietor's income

contributed by BLM land and resource management under Alternative E would be about 2,187 total jobs and $63.2 million, respectively (Tables 4.33and 4.34). BLM land and mineral uses as well as BLM operations would support less than 10% of total employment and income across the 8-county planning area. Economic opportunities supported by lands and resources administered by the BLM would be concentrated in counties and communities that generate federal revenues from livestock grazing, mineral extraction, and those that support the outdoor recreation, livestock production, mining, and oil and gas industries.

Average annual federal revenues from BLM land and mineral uses would increase by an estimated $5.5 million to about $15 million per year. Annual payments to counties are anticipated to increase by approximately $780,933, with approximately $4.4 million in federal revenues distributed back to counties in the planning area on annual average, most of which would be related to oil and gas production and PILT payments (Tables 4.35 and 4.36).

Fire Management and Ecology

The overriding priorities of fire and fuels management are to protect life and public safety, property, and to protect or enhance natural resources and values. Fire and fuels management strategies focus on these priorities, and encourage the use of vegetation treatments to accomplish them. This section discusses the potential impacts of the proposed management actions to fire and fuels management.

Assumptions and Guidelines

The natural or historical range of fire frequency/severity maintains vegetation structure, health, fuel loads, and fire size/behavior in all but the most severe weather and drought conditions. Fire and other vegetation treatments could improve, mimic, or maintain healthy disturbance regimes on the landscape, improve vegetation health, and decrease hazardous fuel loadings.

Vegetation treatments in forests, woodlands, and juniper shrublands alter fire behavior/severity by reducing ladder fuels and decreasing canopy cover, thereby inhibiting vertical fire spread and reducing the risk of crowning, spotting, and high intensity fire. These treatments are especially helpful in urban interface, rural intermix, or other developed areas. Treatments affect resources and fire management in the following ways:

- mitigate unnatural fire behavior and undesirable effects to resources;
- support fire suppression activities by adding a measure of safety and operational options;
- decrease adverse impacts to resources from suppression actions; and
- restore appropriate fire regimes.

Treatment acres analyzed for fire and fuels management include both mechanical treatments and prescribed fire treatments in all vegetation types across the planning area. Most mechanical treatments in forested areas would occur in the island mountain ranges, as addressed in the Forests and Woodlands section; but for fire and fuels analysis, forest treatments include acres in the breaks and prairie forests.

In areas with the highest departures from natural or historical disturbance regimes/conditions (such as fire frequency/severity), inaction or reduced actions could exacerbate or expand acres of undesirable conditions. Although fire regimes and condition classes have not been assessed for the entire planning area, recently available LANDFIRE data and Fire Regime Condition Class (FRCC) methodology will be used to develop baseline conditions for the planning area, and to monitor management actions during the life of this plan.

Impacts Common to All Alternatives

Resource issues in any alternative may require location and/or timing restrictions for vegetation treatments and implementation of treatments. However for any activity, interdisciplinary planning would consider constraints and long-term effects, and would identify mitigation measures or restrictions necessary for successful implementation.

Special Designations: ACECs managed for cultural, soils, paleontological, and/or wildlife objectives could conflict with vegetation treatments and fire regime/condition class goals because of location or timing restrictions. However, projects would likely be accomplished through mitigation measures.

Wildlife: Timing considerations for protection of wildlife and their habitat would be identified at the project planning level, and mitigation measures would be applied on a case-by-case basis if an onsite evaluation of the project area indicates the presence of important wildlife species. Exceptions may be granted by the field or district manager if an environmental review demonstrates there would be no adverse impacts, or habitat for the species is not present in the area, or portions of the area can be occupied without affecting a particular species. Exceptions may also be granted where the short-term effects are mitigated by the long-term benefits.

Specific timing considerations for mule deer, elk, bighorn sheep, and antelope winter range are addressed under each alternative.

Depending on location and evaluation of project areas, timing considerations for grouse leks and nesting habitat, and active raptor nests could constrain vegetation treatments, especially prescribed fire. Most timing restrictions apply to areas that range in distance from 1/4 mile to 1/2 mile from leks or nesting habitat, so depending on location and evaluations of project areas, implementation could be precluded from mid-March through June or July. More restrictive timing constraints are addressed by alternative.

Impacts under Alternative A (Current Management)

Fire Management and Ecology: Rangeland vegetation and forest health treatments could average about 580 acres per year within the entire planning area, where 237 acres could be treated mechanically and about 343 acres could be treated with prescribed fire. For the 20 year life of the plan, a total of about 11,600 acres could be treated, or about 0.5% of the BLM lands within the planning area.

Opportunities to improve fire regime condition classes at the landscape level are minimal in this alternative because mechanical and prescribed fire treatments would remain at current levels. Forested acres treated would continue to target developed areas in the wildland urban interface (WUI), with small-scale treatment opportunities in undeveloped areas for forest health, rangeland health, and wildlife habitat improvement or protection.

For forested areas alone, little gain would be made toward restoring landscape-level forest health and fire regimes, as only 4,740 forested acres in the planning area are estimated to be treated in 20 years, or about 10% of the BLM forests in the mountains, prairie forests, and breaks.

Most Fire Management Units (FMUs) in the planning area would remain as Category B, so use of wildfire for resource benefit could not be considered in those FMUs as a future management option. In fire management Category C areas there would be less opportunity to consider use of wildfire for resource benefit because vegetation treatments would likely not create adequate changes in forest structure and hazardous fuels at the landscape level.

Forests and Woodlands: For forest health treatments see Fire Management and Ecology.

Livestock Grazing: Resource reserve allotments and unallocated parcels which are available for livestock grazing could provide temporary, alternative grazing when rest periods are required elsewhere after vegetation treatments.

OHV Use and Travel and Transportation Management: Motorized game retrieval off road could be considered through travel management planning. If allowed in portions of the planning area, off-road travel could present more potential for human-caused fire starts because of hot exhaust systems coming in contact with dry grass.

Vegetation – Rangeland: For vegetation treatments see Fire Management and Ecology.

A minimum rest period of two growing seasons would be required after any major disturbance to vegetation communities, including treatments such as seeding, chiseling, and fire (wild or prescribed). In some circumstances this may unnecessarily postpone or constrain activities that benefit range, fire, and fuels management.

Land treatments would be done only to meet watershed, grazing management and wildlife objectives, and would not be done to achieve or maintain fire regimes.

Visual Resources: The Class II rating of the Bears Paw, Little Rocky Mountains, and Sweet Grass Hills may restrict forest health treatments at the landscape level. Prescribed treatments in the forested landscape likely include changes that would contradict the Class II rating objectives. The forests/woodlands that occur in the Class II rating area make up 100% of the available resource. Not treating or reduced levels of treatments on such a large percentage of forested ground would not adequately address ongoing forest health issues such as insects, disease, overstocking, and decreased wildlife habitat.

The Class II rating objectives in the Missouri Breaks, Bitter Creek, and Frenchman Breaks areas could conflict with vegetation treatment objectives that benefit rangeland vegetation, wildlife habitat, or fire regime condition class.

Wildlife (Winter Range): Mule deer, elk, bighorn sheep, and antelope winter range covers most of the conifer vegetation types in the planning area. Because of the extent of the winter range habitats, most forest health activities including mechanical treatments and prescribed fire could have constraints from timing limits that occur from December 1 through May 15. Contracts may require multiple years to be completed. In some situations, prescribed fire may not be available as a treatment option because weather and fuel prescriptions could not be satisfied in forested settings during summer and fall.

Cumulative Impacts

Assuming location and/or timing constraints do not preclude most vegetation treatments, developed areas such as urban interface or rural intermix would likely have received hazardous fuels reduction treatments at least once during the life of the plan. Some areas may have been treated twice, or would be due for re-entry. This would create favorable conditions for fire suppression actions, which would increase the likelihood of early success at fire containment; or would increase the chances of saving more structures.

At the landscape level, Alternative A treatments would not keep pace with vegetation growth/disturbance cycles. The reduced treatments of Alternative A could exacerbate or expand poor forest health conditions. Only wildfire and other natural disturbances would change the vegetation. Compared to the other alternatives, at the end of the life of this plan there could be more areas with heavy fuel loads, which could increase the chances of extreme fire behavior, larger fire sizes, and the potential for large-scale undesirable fire effects.

Impacts under Alternative B

Fire Management and Ecology: Forest and fuels vegetation treatments could average about 1,724 acres per year, where 391 acres could be treated mechanically, and about 1,333 acres could be treated with prescribed fire. For the 20 year life of the plan, a total of about 34,480 acres could be treated.

This alternative, as well as Alternatives C, D, and E, would provide good opportunity to expand mechanical and prescribed fire treatments in forested settings. Acres treated would continue to target developed areas, but would also target more remote areas to improve forest health and improve or protect other resources. During the life of the plan a fair gain could be made toward restoring landscape forest health and fire regimes as 34,480 acres could be treated in the planning area. This is about 73% of the BLM forests in the mountains, prairie forests, and breaks. Grass/shrubland acres treated would be the same as Alternative A. In fire management Category C areas there may be more opportunity to consider use of wildfire for resource benefit as a future option after treatments have been done.

In the eastern half of the planning area, FMUs would be recategorized as fire management Category C, so use of wildfire for resource benefit could be considered as a future option in those FMUs.

Forests and Woodlands: For forest health treatments see Fire Management and Ecology.

Livestock Grazing: Newly acquired lands would be considered for resource reserve allotments and could be used for temporary grazing as needed to facilitate vegetation treatments in other areas. In addition, allotments within the Greater

Sage-Grouse Protection Priority Area ACEC and the Grassland Bird/Greater Sage-Grouse Priority Areas ACEC where grazing preference is relinquished or cancelled would be designated as resource reserve allotments if analysis does not support closing the allotment to grazing for the benefit of sage-grouse. Allotments where grazing preference is relinquished or cancelled outside of priority sage-grouse habitat would remain available for livestock grazing and would be designated as resource reserve allotments. This could positively benefit fire and fuels management by providing alternative, temporary livestock grazing areas when rest periods are required elsewhere after vegetation treatments.

OHV Use and Travel and Transportation Management: Motorized game retrieval off road would not be allowed so there would be less potential for human-caused fire starts from hot exhaust systems coming in contact with dry grass.

Vegetation – Rangeland: For vegetation treatments see Fire Management and Ecology.

Rest periods from livestock grazing of less than two growing seasons in vegetation treatment areas may be allowed in some circumstances and would benefit fire and fuels management by facilitating implementation of vegetation treatments and enhancing site-specific management.

In addition to watershed, grazing management, and wildlife objectives, land treatments would be used to achieve and maintain fire regimes, which specifically benefits fire and fuels management.

Actively managing cheatgrass and annual bromes with use of the best available vegetation treatment, including early spring grazing and mid-summer prescribed fire, could benefit fire suppression efforts by reducing fuel load and the rate of fire spread in the event of wildfire.

Visual Resources: The Class I rating for the Kevin Rim ACEC, Sweet Grass Hills ACEC, Burnt Lodge WSA, and Bitter Creek WSA along with some adjacent lands would likely restrict landscape-level vegetation management opportunities on 90,032 acres. Likewise, the Class II ratings in the Little Rocky Mountains, the Frenchman Breaks area, areas with wilderness characteristics and the Missouri breaks (977,396 acres) could conflict with vegetation treatment objectives that benefit rangeland vegetation, wildlife habitat, or fire regime condition class. Treatments at the landscape level may exceed the accepted level of change and objectives afforded a Class I or II rating.

Wilderness Characteristics: Most of the lands managed for wilderness characteristics (351,542 acres) would be within a fire management Category C where suppression strategies could be reevaluated to include use of wildfire for resource benefit (Table 4.37). About 34,920 acres are within fire management Category B. Wildfires would be suppressed in Category B areas, while Category C areas would be evaluated before suppression actions are taken.

Table 4.37
Areas with Wilderness Characteristics by Fire Management Category under Alternative B

	Fire Management Category	
	Category B	***Category C***
Eastern Breaks and Badlands		10,714
Island Mountain Range	4,118	
Prairie Grasslands	2,540	137,114
Sagebrush Grasslands		203,714
Western Breaks and Badlands	28,262	
Total	34,920	351,542

The VRM Class I rating for the Island Mountain Range would likely restrict landscape level vegetation management opportunities on 4,118 acres. The VRM Class II rating for the other areas managed for wilderness characteristics (382,344 acres) could conflict with vegetation treatment objectives that benefit rangeland vegetation, wildlife habitat, or fire regime condition class.

Wildlife (Winter Range): Mule deer, elk, bighorn sheep, and antelope winter range covers most of the conifer vegetation types in the planning area. Timing or location considerations for protection of wildlife and their habitat would be evaluated at the project planning level and appropriate mitigations would be applied.

Depending on location and evaluation of project areas, timing considerations within 1 mile of active raptor nests could constrain vegetation treatments, especially prescribed fire because implementation could be precluded from March through September. There would be little opportunity to meet weather and fuel parameters during the remaining months of the year.

Depending on location and evaluation of project areas, timing considerations within 1 mile of sharp-tailed grouse leks (March 15 to June 30) and waterbird colonies (April 1 to July 15) could constrain vegetation treatments because implementation could be precluded from March through June and/or July, the key months most likely to meet weather and fuel parameters for prescribed burning.

Buried powerlines would benefit fire management activities by reducing hazards during fire and fuels activities.

Cumulative Impacts

Assuming location and/or timing constraints do not preclude most vegetation treatments, about 73% of the BLM forested landscape could be treated during the life of the plan. In time, treatments may create conditions where new suppression strategies in Category C areas could be considered.

The effects of climate change would be the same as under Alternative A.

Impacts under Alternative C

Fire Management and Ecology: Vegetation treatment opportunities would be the same as under Alternative B. Fire management strategies and options would be the same as under Alternative B.

Forests and Woodlands: Forest health treatment opportunities would be the same as under Alternative B.

Livestock Grazing: Newly acquired lands would be considered for resource reserve allotments and could be used for temporary grazing as needed to facilitate vegetation treatments in other areas. In addition, allotments where grazing preference is relinquished or cancelled would remain available for livestock grazing and would be evaluated to determine if they should be designated as resource reserve allotments. This could positively benefit fire and fuels management by providing alternative, temporary livestock grazing areas when rest periods are required elsewhere after vegetation treatments.

OHV Use and Travel and Transportation Management: Motorized game retrieval off road would be allowed in portions of the planning area which could present more potential for human-caused fire starts because of hot exhaust systems coming in contact with dry grass.

Vegetation – Rangeland: Vegetation treatment opportunities and other management actions would be the same as under Alternative B.

Visual Resources: The Sweet Grass Hills, Bears Paw Mountains, and Little Rocky Mountains would be assigned a Class III rating. This could allow increased landscape-level forest management opportunities on up to 38,037 acres (77% of the forested settings in the planning area). The Class I rating of the Burnt Lodge and Bitter Creek WSAs; and the Class II ratings in the Frenchman Breaks area, Woody Island ACEC, and the Missouri Breaks (857,061 acres) could conflict

with vegetation treatment objectives that benefit rangeland vegetation, wildlife habitat, or fire regime condition class. Treatments at the landscape level may exceed the accepted level of change and objectives afforded a Class I or II rating.

Wilderness Characteristics: Most of the lands managed for wilderness characteristics (224,301 acres) would be within a fire management Category C where suppression strategies could be reevaluated to include use of wildfire for resource benefit (Table 4.38). About 4,118 acres are within fire management Category B. Wildfires would be suppressed in Category B areas, while Category C areas would be evaluated before suppression actions are taken.

Table 4.38
Areas with Wilderness Characteristics by Fire Management Category under Alternative C

	Fire Management Category	
	Category B	***Category C***
Eastern Breaks and Badlands		10,714
Island Mountain Range	4,118	
Prairie Grasslands		81,733
Sagebrush Grasslands		131,854
Total	4,118	224,301

The VRM Class II rating for the other areas managed for wilderness characteristics could conflict with vegetation treatment objectives that benefit rangeland vegetation, wildlife habitat, or fire regime condition class.

Wildlife (Winter Range): Constraints from mule deer, elk, bighorn sheep, and antelope winter range would be the same as under Alternative A.

Buried powerlines would benefit fire management activities by reducing hazards during fire and fuels activities. In addition, this alternative includes managing sagebrush habitats so that mid-scale shrub cover includes a mix of height classes, which may positively benefit natural fire regimes.

Cumulative Impacts

Cumulative impacts would be the same as under Alternative B.

Impacts under Alternative D

Fire Management and Ecology: Vegetation treatment opportunities would be the same as under Alternative B. Fire management strategies and options would be the same as under Alternative B.

Forests and Woodlands: Forest health treatment opportunities would be the same as under Alternative B.

Livestock Grazing: Newly acquired lands would not be available for resource reserve allotments because they would be allocated. In addition, allotments where grazing preference is relinquished or cancelled would be reallocated. Therefore no new resource reserve allotments would be available for temporary, alternative livestock grazing areas when rest periods are required elsewhere after vegetation treatments.

OHV Use and Travel and Transportation Management: Extensive motorized game retrieval off road would be allowed in portions of the planning area which would increase potential for human-caused fire starts because of hot exhaust systems coming in contact with dry grass-relative to the other alternatives.

Vegetation – Rangeland: Vegetation treatment opportunities and other management actions would be the same as under Alternative B.

Visual Resources: All forested areas within the planning area with the exception of the WSAs would be rated as Class III. This could allow increased landscape-level forest and woodland management opportunities on up to 44,282 acres (91% of the forested settings in the planning area). All remaining forested acres in the planning area would fall within the more restrictive Class I and II ratings and may be impacted similar to that described under Alternative A. The minor acres of Class I rating in the Burnt Lodge and Bitter Creek WSAs, and the Class II ratings in the Frenchman Breaks area and the Woody Island and Little Rocky Mountains ACECs (127,439 acres) could conflict with vegetation treatment objectives that benefit rangeland vegetation, wildlife habitat, or fire regime condition class. Treatments at the landscape level may exceed the accepted level of change and objectives afforded a Class I or II rating.

Wildlife (Winter Range): Constraints from mule deer, elk, bighorn sheep, and antelope winter range would be the same as Alternative A except that timing considerations would occur from December 1 through March 31, rather than to May 15. In most situations, prescribed fire could be implemented successfully because weather and fuel prescriptions/parameters could be satisfied during April.

Depending on location and evaluation of project areas, timing considerations within 1 mile of sage-grouse leks from March 1 through June 15 could constrain vegetation treatments, especially prescribed fire. Implementation could be precluded from March through mid-June, the months most likely to meet weather and fuel parameters for prescribed burning.

Buried powerlines would benefit fire management activities by reducing hazards during fire and fuels activities.

Cumulative Impacts

Cumulative impacts would be the same as under Alternative B.

The effects of climate change would be the same as under Alternative A.

Impacts under Alternative E (Preferred Alternative)

Fire Management and Ecology: In the eastern half of the planning area, the Malta Breaks and Malta Prairie Potholes FMUs would be categorized as fire management Category C, so use of wildfire for resource benefit could be considered as a future option in those FMUs.

Forests and Woodlands: Vegetation treatment opportunities would be the same as under Alternative B.

Livestock Grazing: Newly acquired lands would be considered for resource reserve allotments and could be used for temporary grazing as needed to facilitate vegetation treatments in other areas. In addition, allotments where grazing preference is relinquished or cancelled would remain available for livestock grazing and would be evaluated to determine if they should be designated as resource reserve allotments. This could positively benefit fire and fuels management by providing alternative, temporary livestock grazing areas when rest periods are required elsewhere after vegetation treatments.

OHV Use and Travel and Transportation Management: Motorized game retrieval off road would be considered through travel management planning. If allowed in portions of the planning area, off-road travel could present more potential for human-caused fire starts because of hot exhaust systems coming in contact with dry grass.

Vegetation – Rangeland: Vegetation treatment opportunities and other management actions would be the same as under Alternative B.

Visual Resources: The Sweet Grass Hills, Bears Paw Mountains, and Little Rocky Mountains would be assigned a Class III rating. This could allow increased landscape-level forest management opportunities on up to 38,037 acres (77% of the forested settings in the planning area). The Class I rating of the Burnt Lodge and Bitter Creek WSAs; and the Class II ratings in the Frenchman Breaks area, Woody Island area, and the Missouri Breaks (599,954 acres) could conflict with vegetation treatment objectives that benefit rangeland vegetation, wildlife habitat, or fire regime condition class. Treatments at the landscape level may exceed the accepted level of change and objectives afforded a Class I or II rating.

Wilderness Characteristics: All of the lands managed for wilderness characteristics (16,393 acres) would be within a fire management Category C where suppression strategies could be reevaluated to include use of wildfire for resource benefit. Category C areas would be evaluated before suppression actions are taken.

The VRM Class II rating for areas managed for wilderness characteristics could conflict with vegetation treatment objectives that benefit rangeland vegetation, wildlife habitat, or fire regime condition class.

Wildlife (Winter Range): Constraints from mule deer, elk, bighorn sheep, and antelope winter range would be the same as Alternative A: mule deer, elk, bighorn sheep, and antelope winter range covers most of the conifer vegetation types in the planning area. Because of the extent of the winter range habitats, most forest health activities including mechanical treatments and prescribed fire could have constraints from timing limits that occur from December 1 through May 15. Contracts may require multiple years to be completed. In some situations, prescribed fire may not be available as a treatment option because weather and fuel prescriptions could not be satisfied in forested settings during summer and fall.

Depending on location and evaluation of project areas, timing considerations within 1 mile of waterbird colonies could constraint vegetation treatments because implementation could be precluded from March through June, the key months most likely to meet weather and fuel parameters for prescribed burning.

Buried powerlines would benefit fire management activities by reducing hazards during fire and fuels activities. In addition, this alternative includes managing sagebrush habitats so that mid-scale shrub cover includes a mix of height classes which may positively benefit natural fire regimes.

Cumulative Impacts

Assuming location and/or timing constraints do not preclude most vegetation treatments, about 73% of the BLM forested landscape could be treated during the life of the plan. In time, treatments may create conditions where new suppression strategies in Category C areas could be considered.

Fish

Actions that could occur through implementing each alternative could affect fish and their habitats. Effects may be direct, indirect, short-term, long-term, beneficial and/or adverse. Natural events and human activities that influence water quality and water quantity can produce beneficial or adverse effects on fisheries habitats. Direct effects can result from disturbances within fish habitats while indirect effects result from offsite activities that change water quality or quantity within fish habitats. Management actions which transport sediment to and through streams and reservoirs increase deposition and could adversely affect fish. Surface disturbance acreages were estimated by alternative, but effects on fish and fish habitats can be highly variable based more on soil types, slope, aspect, and amount and types of vegetative cover.

Species presence in fisheries reservoirs is determined by MFWP stocking programs, illegal stocking by unknown individuals, or natural dispersal by other wildlife (fish eggs carried in water bird feathers, etc.). The BLM has input into stocking programs, but has little means of influencing the other avenues of fish dispersal into reservoirs. Fish may occur in lakes and reservoirs without the BLM's knowledge, and there is no way of analyzing the effects of management actions on those fish and fish habitats. Actions are available for protecting shoreline vegetation and improving fish habitat conditions in known lake and reservoir fisheries.

Fish-bearing streams, however, are of utmost importance because of their connection to larger streams and rivers which provide corridors for fish movement, and because the stream courses may cross a variety of land ownerships and flow past various management actions. The BLM sensitive species pearl dace/northern redbelly dace/northern redbelly x finescale dace hybrid assemblage is representative of the various native fish species that occur in cool, small prairie streams with clear pool-type habitat. Analysis of the effects to the dace assemblage could also apply to all or most other fish species occupying the same limited habitat. Periods of long-term drought also influence fish occurrence in small prairie streams and recolonization of clear pool-type habitat may take years to occur.

Assumptions and Guidelines

Assumptions and guidelines used in this impact analysis include the following:

- The BLM is responsible for managing habitats, whereas Montana Fish, Wildlife and Parks (MFWP) and the U.S. Fish and Wildlife Service (USFWS) oversee management of fish species. Therefore, to analyze effects to fish habitats this discussion primarily relies on changes to riparian vegetation, stream banks, in-stream habitats, channel erosion, migration corridors, and water quality and quantity.

- Activities that cause substantial disturbance to soils and vegetation may adversely impact water quality and quantity, which adversely affects fisheries habitats.

- Surface disturbances accelerate runoff and sediment delivery to stream channels which, in turn, alters stream flows and reduces habitat quality for fish that require clear water, moderated stream flows, and clean substrates.

- Increased sedimentation adversely affects most fish species in the planning area. Exceptions would be those species such as pallid sturgeon and sauger associated with and adapted to sediment-laden warm waters such as the Milk River, Marias River, and the Missouri River and tributaries. This analysis, therefore, focuses on the degree of surface disturbance anticipated to occur under each alternative.

- The potential for sedimentation of streams and rivers is minimized through use of Best Management Practices (BMPs) (Appendix C).

- Alternatives proposing to: (a) improve fish passage, (b) reduce fish mortality, (c) reduce surface disturbance, (d) improve riparian areas, (e) reduce erosion, (f) improve water quality and quantity, and (g) design survey and monitoring programs for aquatic habitats, are anticipated to have the most beneficial effects on aquatic species.

Proposed management of the following resources would have no anticipated effects on fisheries: air quality, cultural resources, fire management and ecology, forests and woodlands, geology, non-native invasive species, OHV use and travel management areas, paleontological resources, recreation, renewable energy, soils, special designations, visual resources, and wilderness characteristics.

Management actions potentially affecting fish and fish habitats include surface-disturbing activities (e.g., mineral extraction, right-of-way grants, roads), livestock grazing and riparian vegetation, and fish and wildlife management activities. Potential effects on fisheries generally occur in two categories – water quality and water quantity – due to the limited number of fish-bearing stream segments occurring on BLM lands.

The spatial relationship of the disturbance to the fish-bearing streams is critical because a large acreage of disturbance farther from a stream would be less critical than a small acreage of disturbance closer to a stream. Also, a natural gas company drilling one well in a section of land may need to hit a precise point adjacent to a stream with more effects on aquatic resources than the situation where the company is drilling four wells in a section with no need to hit four precise points in the formation. Likewise, a stream crossing that deposits sediments in the stream is dependent upon snowmelt and peak spring flows to flush the system and the number of gas wells or stream crossings has little to do with the overall effects. The largest effect could come from a minor stream crossing followed by an open winter with no flushing of downstream spawning/riffle areas the following spring. For these reasons, comparisons between alternatives will be made in general terms rather than by comparisons of effects by acres.

In order to conserve some fish populations, physical barrier installation to impede fish movement may be undertaken in order to prevent aquatic invasive species (e.g. Northern Pike) from decimating native populations. This would be coordinated with MFWP, USFWS (if necessary), and other affected landowners.

The BLM may consider removing/decommissioning upland reservoirs if the monetary cost of replacing that reservoir is far above the need to replace it for livestock water or other uses and it is not crucial for wildlife or fisheries habitat. This could include designated sport-fisheries reservoirs.

Impacts Common to All Alternatives

Aquatic Resources

The extent of the activities affecting aquatic resources (fish, aquatic invertebrates and fish habitat) and the dispersed distribution of BLM lands limit the ability of BLM management decisions to substantially improve aquatic resources throughout the planning area. Rivers and streams are linear habitats that pass through multiple land ownerships. Therefore, areas where interagency or interdisciplinary management plans or cooperative agreements have been or would be implemented have the greatest potential to substantially improve aquatic resource conditions over time.

Past planning efforts have resulted in the implementation of standard operating procedures, habitat improvement projects, and more consistent and intensive monitoring programs throughout the planning area. This approach is expected to continue to substantially improve aquatic resources over time.

Aquatic resources are directly or indirectly affected by a multitude of land use activities throughout the planning area, particularly activities that affect water quality/quantity and erosion/sedimentation. Some of these activities include livestock grazing, agricultural practices, water withdrawal or diversion, road construction and maintenance, soil disturbances during land development activities, logging, off-road vehicle use, mining, and oil/gas exploration and development activities. Impacts could include loss of habitat, disturbance during critical life cycle periods (i.e., breeding/spawning), and degradation of water quality conditions. Management actions to improve vegetation, soils, and riparian areas would likely have positive effects on adjacent aquatic resources.

Aquatic habitat associated with the other resource management issues would benefit from increased efforts to implement recovery plans, State of Montana management plans, and conservation strategies for special status species. Conservation and protection of habitat for special status fish species would likely benefit all aquatic species. Improvements in watershed level habitat management would likely benefit fish and other aquatic species.

Fire and fuels management has mandatory setbacks from fish-bearing streams for prescribed fire activities, and effects of wildfire are usually short-term in nature and managed under fire rehabilitation plans.

Rights-of-way in the lands and realty program are covered under surface-disturbing activities, and land ownership adjustment under the various alternatives requires site-specific evaluations of proposals for disposal of BLM land parcels. Any proposal to dispose of a small parcel of BLM land along a fish-bearing stream would be evaluated by the appropriate specialists and it is highly likely that the proposal would be denied. These actions with no effects will not be analyzed further.

The potential direct and indirect effects to aquatics under all alternatives deal with water quality, water quantity, aquatic habitat, direct mortality issues, and special status species as discussed in the next sections. The degree of the effects would be dependent upon the amount of the various actions identified in each alternative.

Water Quality

Changes in water quality can occur through increased erosion, changes in water chemistry (i.e., temperature, salinity, dissolved O_2, and pH), and from hazardous chemical spills (i.e., oil, gas, fertilizer, etc.) causing direct and indirect effects to aquatic species.

Increased Erosion: Potential effects from increased erosion can cause mortality or reductions in population numbers of aquatic species through increasing turbidity, changing channel substrate composition, filling in pools, degrading aquatic cover, and degrading rearing and spawning habitats. BMPs mitigate a large portion of the erosion concerns. Management practices that promote increased riparian vegetation, improved streambank stability, decreased soil disturbance and compaction, improved road drainage, limited off-road, all-terrain vehicle (ATV) use, and rehabilitation of disturbed lines/sites would decrease erosion potential and improve fish populations and habitats.

Water Chemistry: Potential effects from changes in water chemistry include direct mortality, habitat avoidance, migration barriers, altered forage availability, and reduced species diversity. Typically, the effects occur through

changes in water temperature, salinity, dissolved oxygen, nutrient loading, and pH. BMPs mitigate a large portion of the water chemistry concerns and agricultural discharge is typically outside the control of BLM management. Management practices that promote project improvements, avoidance of sensitive areas, and active restoration/ enhancement of habitats would decrease potential effects from changes in water chemistry.

Water Quantity

Changes in water quantity can occur through changes in stream flows, reservoir construction in uplands, and irrigation withdrawal.

Changes in Stream Flows: Flooding, under stable or natural habitat conditions, is important for maintenance and building of habitats (e.g. scouring out deeper pools), nutrient cycling, starting successional riparian trajectories, and allowing aquatic species to disperse to new habitats.

Reservoir Construction: Large reservoirs on large rivers and streams and numerous small reservoirs in uplands can influence stream flows. Reservoirs on large rivers and streams are typically outside the control of BLM management. It is estimated that numerous small reservoirs in upland drainages could be causing decreased stream flows in downstream fish-bearing streams. It is hard to quantify the effect of these reservoirs on stream flow downstream, but it is estimated that stream flow is affected due to the reservoir water holding capacity. In addition, a large part of the land area with these types of reservoirs is outside of the planning area.

Aquatic Habitat

Aquatic habitat is essential for healthy populations of native and game fishes. Quantity and quality of pools, adequacy of fish cover, quality of spawning substrate, structure of overhanging banks (if applicable), and placement of large woody debris (if applicable) are all important habitat components influencing the size and diversity of fish populations. Accelerated erosion can fill in pools and fishing reservoirs and destroy spawning substrate. Riparian vegetation removal can decrease fish cover and destroy overhanging banks. Increased peak flows can change the complexity of large woody debris and damage streambanks and riparian vegetation. Management actions that mitigate or prevent these effects increase the size and diversity of game and native fish species. The BLM can promote fisheries through habitat restoration and enhancement, improvements in water quality and quantity, improvements in fish passage devices, screening of water diversions, aggressive access programs (signs, easements, etc.), and increased public education and interagency coordination.

Direct Mortality Issues

Direct mortality to aquatic species occurs from (a) sport fishing, (b) changes in species composition, (c) irrigation ditch shut-downs, (d) human-caused migration barriers, (e) natural food chains, and (f) disease.

Sport fishing is managed by MFWP and is outside the control of BLM management.

Changes in species composition are often the result of MFWP management, illegal and inadvertent public stocking, natural augmentation such as when fish eggs are transported in birds' feathers, or by changes in water quality or aquatic habitat. Changes in water quality and/or aquatic habitat when caused, for example, by increased turbidity and water temperature, could cause direct mortality of one species or create more favorable conditions for one species over another.

Human-caused barriers are typically barriers that prevent fish migration up or down stream. This can result in loss of habitat, blocking of fish movements to spawning areas, and loss of foraging and rearing areas. Mortality can occur to several life stages of fish dependent on habitats excluded from fish migration corridors. Typical barriers are culverts and fords.

Natural food chains lead to mortality of smaller fish when preyed upon by larger fish.

Undesirable spreading of disease can be reduced through implementation of BMPs for aquatic invasive species containment protocols.

Special Status Species Fish

Effects to special status fish species would be similar to those effects projected for other fish species described above.

BLM management decisions would not jeopardize the continued existence of species that are listed, officially proposed for listing, or are candidates for listing as threatened and/or endangered species by the Endangered Species Act (ESA). Section 7 consultation would occur with USFWS before approving or implementing any action that might affect listed species or designated critical habitat for listed species. Habitat for candidate species would be managed for protections from actions that would contribute to the species being listed under the ESA. Habitat for other special status species would be managed as necessary to protect them and their habitats from loss in accordance with guidance provided by federal, state and local regulations, with particular emphasis placed on maintaining, restoring, and enhancing habitat for all special status species. Assumptions for special status fish are the same as those under the Aquatic Resources and Aquatic Habitat sections above. Conservation measures to improve and secure habitat would continue to receive special consideration during activity planning efforts.

Pallid Sturgeon: The distribution of pallid sturgeon in the planning area is limited to the larger main stem rivers with turbid water and swift currents. Management decisions on the dispersed BLM parcels would likely have limited influence on these habitat areas, and recovery of a self-sustaining population would require restoration of the river flows, temperatures, turbidity and habitats in these main stem areas. Therefore, the implementation of the RMP and typical BLM management decisions are not expected to substantially affect or benefit pallid sturgeon. However, pallid sturgeon would also receive protection as an endangered species under the ESA and continuing efforts resulting from the pallid sturgeon recovery plan (USFWS 1993). This will require the BLM to complete ESA consultation with the USFWS for specific land management actions within the planning area which could affect this species. The most likely action would be the leasing of federal minerals in split estate in lots adjacent to the Milk River.

Paddlefish: The distribution of the paddlefish in the planning area is limited to the larger mainstem rivers where management decisions on dispersed BLM parcels would likely have limited influence. This is expected to minimize the potential effects or benefits occurring as a result of BLM management decisions. As a result, implementation of the RMP is not expected to affect paddlefish. The paddlefish population currently supports a limited fishery, and the future management is expected to focus on monitoring and inventory activities to prevent over-harvest and to insure a sustainable wild fishery (MFWP 2007). This information is expected to provide additional protection for the species when making land use management decisions.

Sauger: The sauger is heavily dependent throughout its life history on unimpeded access to a wide diversity of physical habitats that are present in large river systems. Activities that block migration, or change the natural hydrograph, are expected to have effects on the sauger. This includes water diversion and river impoundment facilities. Management decisions on the dispersed BLM parcels have limited potential to affect this species because the sauger occurs primarily in large river habitat areas. One way that BLM activities could affect sauger is by affecting populations of forage fish (minnows, etc.) of tributary streams into the Missouri River. Actions that result in the loss of population diversity and density include those identified in the northern redbelly-finescale dace hybrid and pearl dace assemblage described below. However, because of the dispersed BLM land ownership within the planning area, BMPs, mitigation measures, and activities that decrease mortality would limit effects on forage fish populations. As a result, the RMP is not expected to substantially affect sauger. Management of this species is expected to be facilitated by the MFWP through a memorandum of understanding and conservation agreement (MFWP 2004).

Sturgeon Chub: The distribution of the sturgeon chub is limited to large mainstem areas of the Missouri River, where typical BLM management decisions are expected to have limited influence. There is no reason to further analyze this species within this RMP.

Northern Redbelly x Finescale Dace Hybrid and Pearl Dace: The northern redbelly x finescale dace hybrid and the pearl dace are typically found in cool, small prairie streams. Changes in stream temperature, sedimentation, stream flow, and water quality could cause effects to the pearl dace and the northern redbelly x finescale dace hybrid. Livestock grazing, oil and gas development activities, agricultural practices, water withdrawal or diversion, road construction and maintenance, surface-disturbing activities, fire and fuels treatments, off-road vehicle use, and mining could cause loss of habitat, disturbance during critical life cycle periods (i.e., breeding), and degradation of water quality conditions for these species. Management actions to improve riparian vegetation, stream flows, stream channel and bank stability,

erosion control, and floodplain functionality would likely have positive effects on adjacent aquatic resources. Further analysis will be done by alternative for the entire northern redbelly/finescale/ pearl dace assemblage.

Impacts under Alternative A (Current Management)

Current management under Alternative A would require surface disturbances to be rehabilitated when greater than 1/4 acre in size. This contrasts with the other alternatives which would require rehabilitation on 1/10 acre or greater in size. Total acres of surface disturbance in Alternative A is estimated to be lower than in Alternatives C, D, and E due to less potential for development (Tables 4.4 through 4.12), but the larger minimum size per instance could allow for more sedimentation in any nearby fish-bearing streams. Effects would be similar whether the stream flowed into a river or a deep reservoir that also contained fish habitat.

Surface-disturbing activities contribute to decreased water quality through increased erosion potential, increased riparian disturbance potential, increased vegetation removal, transportation drainage concerns, decreased aquatic monitoring, increased potential for sedimentation, and a higher potential for high severity fire.

Solid Minerals: The withdrawal from mineral entry in the Little Rocky Mountains would expire in 2015 which could lead to mining and associated surface disturbance. This could affect streams originating in that small mountain range.

Fluid Minerals: A CSU stipulation within 500 feet for oil and gas development would apply in riparian areas. This could have an effect on fish and fish habitat through potential erosion in highly erodible areas as discussed in the Soil Resources and Vegetation – Rangeland section.

Livestock Grazing and Vegetation – Riparian: Riparian areas that have been inventoried, and for which the functional condition(s) are known, would be maintained, restored, and/or improved in order to achieve a healthy and productive ecological condition or Proper Functioning Condition (PFC) for maximum long-term benefits and values within site capability. Riparian habitats may require site-specific management strategies including riparian pastures, stream corridor fencing, specialized grazing methods, winter grazing use, or different classes of livestock in order to protect riparian habitat. Most or all of these strategies could improve fish-bearing stream habitat if selected.

Rights-of-Way: Riparian and wetland areas would be avoidance areas for rights-of-way.

Fish and Wildlife: Alternative A has no specific actions to reduce effects of the culverts and stream crossings on fisheries resources. Fish passage in culverts and stream crossings (new and old) and use of BMPs are brought forward in the other Alternatives.

Alternative A has the potential for effects to northern redbelly x finescale dace hybrid and pearl dace populations and habitat. Both of these species reside in smaller tributary streams that depend on water quality/quantity and appropriate habitat that has the potential to be affected by BLM management activities. A lack of fish passage through culverts and crossings in Alternative A would result in loss of upstream populations of the dace assemblage if colonization is no longer possible after a period of prolonged drought and/or loss of discharge from natural springs.

Cumulative Impacts

Surface disturbance acreage, because of the 1/4 acre minimum disturbance threshold in Alternative A, would lead to greater effects when added to surface disturbance activities on other lands. Cumulative impacts would also result from a combination of BLM resource uses that include transportation, oil and gas production, recreation, livestock grazing, rights-of-way, OHV use, and high intensity wildfire. The majority of the miles of fish-bearing streams are on private land because the water source was a reason for homesteading those parcels of land. The BLM has little influence on resource values and uses of that land. The influence of private activities would be far greater, even when small parcels of BLM land adjoin the private stream beds. These cumulative impacts, when combined with the existing condition (which includes natural environmental conditions, private land ownership and other private activities, and past activities on federal lands) could cause potential effects to aquatic species.

Impacts under Alternative B

More acres would be managed for NSO under Alternative B than in any of the other alternatives. NSO would be required on soils with a severe erosion hazard, and in areas with badlands, rock outcrops, or slopes susceptible to mass failure. NSO would also be required within 1/4 mile of lentic or lotic riparian areas, which is more restrictive than in Alternative A. Alternative B also requires rehabilitation on surface disturbances of 1/10 acre or greater in size, as in Alternatives C, D, and E. Stipulations would greatly reduce the likelihood of large amounts of sediment flowing into either fish-bearing streams or fisheries reservoirs. The Sweet Grass Hills withdrawal from location and entry under mining laws would be recommended for an extension of 20 years (longer than in Alternatives A and D), thus protecting streams in that area. A Little Rocky Mountains 20-year withdrawal from settlement, sale, location and/or entry for reclamation and water treatment would be proposed. Newly constructed road/trail crossings would have fish passage on fish-bearing streams (this also applies to Alternatives C, D, and E).

Livestock Grazing and Vegetation - Riparian: In order to achieve a healthy and productive ecological condition or PFC for maximum long-term benefits and values within site capability, inventoried riparian areas, where functional condition determinations have been made, would be maintained, restored, and/or improved. Riparian habitats may require site-specific management strategies including riparian pastures, stream corridor fencing, specialized grazing methods, winter grazing use, different classes of livestock, and rehabilitative protective measures which could improve fish-bearing stream habitat if selected.

Rights-of-Way: Riparian areas with unique values would be treated as avoidance areas. The use of avoidance areas provides protection for fish-bearing streams.

Fish and Wildlife: Under Alternative B, all culverts and stream crossings would be fish passable as opportunities arise. This would prevent fish mortality.

Alternative B would have decreased effects (compared with Alternative A) in relation to mortality, specifically with changes in species composition, irrigation ditch management (when flows are shut off), and removal of human-caused migration barriers. Alternative B also has provisions for fish passage. In addition, this alternative has decreased potential for increased effects to water quality, quantity and aquatic habitat, which can influence aquatic species composition.

Improvements in water quality, water quantity, aquatic habitat, and decreased fish mortality in Alternative B reduce effects to northern redbelly x finescale dace hybrid and pearl dace populations and habitat. Both of these species reside in smaller tributary streams that depend on water quality/quantity and appropriate habitat that has the potential to be affected by BLM management activities. Fish passage through culverts and crossings would allow for colonization of upstream areas if populations were to be lost during extended periods of drought when pools dried up. Protections for riparian habitat also would improve aquatic habitat for the dace assemblage due to slowed stream flow and shaded, cooler water lacking sediment.

Wilderness Characteristics: Managing all 26 areas to protect wilderness characteristics as a priority over other multiple uses would have minimal effects on the fisheries resource. Small prairie streams are already protected by mandatory setbacks in all alternatives in order to protect water quality and quantity. Developments would be minimized near streams and any required stream crossings would be mitigated to protect aquatic resources. Records exist for sensitive fish species in Frenchman Creek, and in Cottonwood Creek in Phillips County where Black Coulee and Woody Island Coulee converge to form Cottonwood Creek. These areas of sensitive fish habitat occur in the Prairie Grasslands group for northern Blaine, Phillips and Valley Counties. It is likely that similar habitat for sensitive fish species occurs in the other four groups, but there are no known records of sensitive species in those streams. Managing the 26 areas to protect wilderness characteristics would enhance the aesthetics of the watersheds for the prairie streams by limiting man-made sights and sounds and by eliminating most development in the areas.

Cumulative Impacts

Resource protection measures in Alternative B reduce the cumulative impacts resulting from a combination of BLM resource uses that include transportation, oil and gas production, recreation, livestock grazing, rights-of-way, OHV use,

and high intensity wildfire. Alternative B has proposed mitigation, habitat monitoring, and protection measures that help reduce the effects from resource uses and activities. These cumulative impacts, when combined with natural environmental conditions, private land ownership and private activities, and past activities on federal lands, are less than in the other alternatives, but could still cause potential effects to aquatic species. Existing gas well development on BLM land built under less constraints and combined with gas well development on private land with almost no constraints and any future such actions on private land still may cause problems for aquatic resources.

Impacts under Alternative C

Alternative C, with moderate resource development, would have more acres managed for NSO than Alternative D. NSO would be required on soils with a severe erosion hazard, and in areas with badlands, rock outcrops, or slopes susceptible to mass failure. The Sweet Grass Hills withdrawal from location and entry under mining laws would be recommended for extension for 20 years, as in Alternatives B and E, thus protecting streams in that area. A Little Rocky Mountains 20-year withdrawal from settlement, sale, location and/or entry for reclamation and water treatment would be proposed, thus protecting streams originating in that small mountain range. Oil and gas activities would have a 500 foot NSO near riparian areas which would protect fish-bearing streams. Surface disturbances of 1/10 acre or greater would have to be rehabilitated, thereby reducing sediment runoff to adjacent streams. However, there would be no avoidance area designations. This would be same as in Alternative D.

Livestock Grazing and Vegetation – Riparian: In order to achieve a healthy and productive ecological condition or PFC for maximum long-term benefits and values within site capability, riparian areas that have been inventoried and had their functional condition(s) determined would be maintained, restored, and/or improved. Activity planning would also utilize the same strategies of riparian pastures, stream corridor fencing, specialized grazing methods, winter grazing use and different classes of livestock which could improve fish-bearing stream habitat if selected.

Rights-of-Way: Alternative C does not consider unique values such as special status species habitat as avoidance areas, and habitat for sensitive fish species could be compromised in this alternative.

Fish and Wildlife: Alternative C would provide the same protections for fish passage and fish screening. These actions would have positive effects on aquatic resources by improving habitat and decreasing direct fish mortality.

Management measures would have decreased effects to northern redbelly x finescale dace hybrid and pearl dace populations and habitat in Alternative C. Culverts and crossings would be made fish passable.

Wilderness Characteristics: Managing 12 areas to protect wilderness characteristics as a priority over other multiple uses would have minimal effects on the fisheries resource. Small prairie streams are already protected by mandatory setbacks in all alternatives in order to protect water quality and quantity. Developments would be minimized near streams and any required stream crossings would be mitigated to protect aquatic resources. Records exist for sensitive fish species in Frenchman Creek, and in Cottonwood Creek in Phillips County where Black Coulee and Woody Island Coulee converge to form Cottonwood Creek. These areas of sensitive fish habitat occur in the Prairie Grasslands group for northern Blaine, Phillips and Valley Counties. It is likely that similar habitat for sensitive fish species occurs in the other four groups, but there are no known records of sensitive species in those streams. Managing the 12 areas to protect wilderness characteristics would enhance the aesthetics of the watersheds for the prairie streams by limiting man-made sights and sounds and by eliminating most development in the areas

Cumulative Impacts

Alternative C allows a moderate amount of development combined with moderate levels of resource protection. Cumulative effects resulting from a combination of BLM permitted activities that include transportation, oil and gas production, recreation, livestock grazing, rights-of-way, OHV use, and high intensity wildfire would add to past natural gas production which was less constrained on BLM land. Alternative C has proposed mitigation, habitat monitoring, and protection measures that would help reduce the effects from these activities in the future.

Impacts under Alternative D

Alternative D emphasizes active management to produce commodities and develop resources. It has more oil and gas surface-disturbing acres than the other alternatives. The Sweet Grass Hills and Zortman/Landusky mine reclamation withdrawals would expire in 2017 and 2015 respectively. Damage to fish-bearing streams could result from surface disturbance. Oil and gas development would have a 300 foot CSU stipulation, the least restrictive for any of the alternatives. Fish-bearing streams could be affected in areas with unstable soils or steeper slopes. There would be no riparian avoidance areas, but disturbances of 1/10 acre or more would be rehabilitated. Fish-bearing streams and ditches would receive management protection actions, but the greater acreage of disturbance would have the potential for more effects on fish-bearing streams from sediment inflows.

Livestock Grazing and Vegetation – Riparian: Where functional condition determinations have been inventoried on riparian areas, maintenance, restoration, and/or improvement efforts would be planned so as to achieve a healthy and productive ecological condition or PFC for maximum long-term benefits and values within site capability. Activity planning would be similar to Alternative C, but Alternative D also does not consider unique values such as Special Status Species habitat as avoidance areas, as in Alternatives A, B, and E. Alternative D's use of strategies such as riparian pastures, stream corridor fencing, specialized grazing methods, winter grazing use, and different classes of livestock would be similar to other alternatives, and would benefit fish-bearing stream habitat for Sensitive Species.

Fish and Wildlife: Alternative D provides for maximum development with less resource protection. All new and old culverts and stream crossings would be made fish passable and fish screens would be installed.

Management measures would have slightly decreased effects to northern redbelly x finescale dace hybrid and pearl dace populations and habitats. Riparian areas would be restored or improved. With more development and activity, however, more damage could occur to fish-bearing streams. Culverts and crossings would be made fish passable and fish screens installed. Overall, Alternative D would have longer-term adverse effects on the dace assemblage.

Cumulative Impacts

Cumulative impacts resulting from a combination of BLM resource uses that include transportation, oil and gas production, recreation, livestock grazing, rights-of-way, OHV use, and high intensity wildfire could add greatly to those present from past natural gas development that was less constrained. Alternative D has proposed mitigation, habitat management practices, and protection measures that would help reduce the effects from these activities. These cumulative impacts, when combined with natural environmental conditions, private land ownership and private activities, and past activities on federal lands, are slightly less than in Alternative A, but more than in Alternatives B, C and E. This alternative would still cause considerable potential effects to aquatic species.

Impacts under Alternative E (Preferred Alternative)

Surface disturbances of greater than 1/10 acre would be rehabilitated. Alternative E has an NSO stipulation for lentic and lotic areas and a 300 foot CSU stipulation for oil and gas development near riparian and/or wetland areas. The Sweet Grass Hills would be closed to oil and gas leasing and withdrawn from mineral entry for 20 years. Unique riparian avoidance areas would be designated as in Alternative B. Fish management protective actions for stream crossings and fish screening would occur as in Alternatives B, C, and D.

Livestock Grazing and Vegetation – Riparian: Upon determining site capability through ecological condition and PFC assessments, riparian areas would be maintained, restored, and/or improved to maximize long-term health and productivity benefits and values. Riparian areas would be restored or improved using tools such as establishing riparian pastures, stream corridor fencing, specialized grazing methods, winter grazing, or use of different classes of livestock and rehabilitation protective measures, with additional protection for avoidance areas with unique values such as habitat for Special Status Species or water quality.

Fish and Wildlife: Alternative E would have culverts and stream crossings made fish passable and fish screens installed. Protections would have positive effects on fish-bearing stream habitat.

The management measures would have decreased effects to northern redbelly x finescale dace hybrid and pearl dace populations and habitat. All new culverts and stream crossings would be made fish passable. Some upstream dace populations would be lost during prolonged periods of drought when pools dry up and passage is not available past barriers. Management actions such as the creation of riparian pastures, stream corridor fencing, specialized grazing methods, winter grazing use, and different classes of livestock would improve aquatic habitat in fish-bearing streams.

A CSU stipulation prior to surface-disturbing or disruptive activities in identified pallid sturgeon habitat within 1/2 mile of the Milk River would maintain pallid sturgeon habitat through the development of a mitigation plan prepared by the project proponent.

Wilderness Characteristics: Managing two areas to protect wilderness characteristics as a priority over other multiple uses would have minimal effects on the fisheries resource. Small prairie streams are already protected by mandatory setbacks in all alternatives in order to protect water quality and quantity. Developments would be minimized near streams and any required stream crossings would be mitigated to protect aquatic resources. Managing the two areas to protect wilderness characteristics would enhance the aesthetics of the watersheds for the prairie streams by limiting man-made sights and sounds and by eliminating most development in the areas.

Cumulative Impacts

Alternative E reflects a balanced level of resource development with conservation of sensitive finite resources and long-term productivity of renewable resources. Alternative E has proposed mitigation, habitat management practices, and protection measures that would help reduce the effects from these activities. These cumulative impacts, when combined with natural environmental conditions, private land ownership and private activities, and past activities on federal lands, are less than in Alternatives A and D, but more than in Alternative B. This alternative could still cause potential effects to aquatic species similar to those in Alternative C.

Fluid Minerals

Assumptions and Guidelines

The overall goal of the BLM minerals program is to make mineral resources available from federal mineral estate while minimizing any resultant adverse impacts to the environment, public health and safety, and other resource values and uses. This section discusses the potential impacts that the proposed management actions for other resources will impose upon developing the mineral resource – specifically fluid minerals.

The impact that the planning process results have upon the fluid minerals program can be measured directly in terms of the reduction of federal subsurface acreage available for lease as well as the acreage subject to major (NSO) and minor (timing and CSU) leasing constraints. These values can then be used to project the ensuing reduction in the number of wells that will be drilled, the reduction in federal oil and gas production, and ultimately, the reduction in realized federal royalty.

Prior to the process of alternative formulation, a baseline RFD scenario was prepared (available on the internet at http://blm.gov/8qkd) to provide a reasonable prediction of future oil and gas development activity within the planning area. Once the proposed alternatives were in place, an RFD scenario was created for each one in an attempt to quantify predicted development activity levels per alternative. The thought process is that each proposed protective measure can affect oil and gas development activities by not allowing leasing, restricting surface occupancy, controlling surface use, or adding restrictive mitigation to Conditions of Approval (COAs) on federal Applications for Permit to Drill (APDs). The result is an RFD by alternative that utilizes the proposed stipulations in order to calculate a percent reduction in total well numbers and total surface disturbance.

After the projected wells/surface disturbance per alternative have been quantified, the interdisciplinary team can use this information to estimate the potential impacts that fluid mineral development may have upon the different resources. From a resource perspective, well disturbances (versus well numbers) are an indicator of human presence and are considered a disruptive activity. Another component that must be considered by the RFD scenario is the amount of

surface disturbance that is related to the construction of exploratory and development wells along with any associated infrastructure.

Surface disturbance may vary by type of well (conventional versus CBNG) due to the fact that the size of the required drilling equipment may vary and also because multiple wells may be drilled from one surface location. The amount of surface disturbance needed for a well may also vary by the surface topography and soil type. The estimate of surface disturbance by alternative is included in the final RFD report and in Appendix E.1.

In addition to the number of oil and gas wells and the surface disturbance estimated for the various alternatives, the location of the predicted oil and gas activity is equally as important to the analysis of impacts to the other resources. Most future development is projected to occur in areas that are already experiencing oil and gas development, with the exception of the development predicted for the Bears Paw South and North Blaine areas. For more specific information about development potential, please refer to the final RFD.

Many different circumstances could increase or decrease the level of drilling activity and the associated surface disturbance acreage throughout the life of the RMP. If the projections in the RFD prove to be grossly inaccurate, the BLM will revisit the RFD to determine if a plan amendment or revision is necessary.

The impact analysis is based on the following assumptions:

- The RFD scenario that was prepared for the HiLine RMP reviewed and analyzed past, present, and potential future exploratory, development, and production operations and activities. It should be emphasized that the RFD projections are reasonable and science-based projections of the anticipated oil and gas activity.

- The number of new oil and gas wells in the planning area (both federal and non-federal mineral estate) projected under each alternative to be drilled over the next 20 years are shown in Table 4.39. Also, Tables 4.2 and 4.3 at the beginning of Chapter 4 provide a more detailed look at the projected well counts.

Table 4.39
Projected New Oil and Gas Wells in the Planning Area
(includes Federal and Non-Federal Mineral Estate)

	Federal Mineral Estate	***Planning Area Total***
Alternative A (Current Management)	1,874	6,017
Alternative B	647	4,785
Alternative C	1,617	5,765
Alternative D	1,894	6,034
Alternative E (Preferred Alternative)	1,768	5,908

- For the purpose of quantifying associated surface disturbance with the drilling of the above-mentioned wells, the following assumptions were made:

  Coalbed Natural Gas (CBNG)

  - There are no existing CBNG wells in the planning area.

  - New exploratory and development CBNG wells drilled in the planning area would have short-term disturbance figures of 1.85 acres for the access road/pipeline and 1 acre for the well pad, which equates to a total of 2.85 acres of short-term disturbance for a new CBNG well.

  - New exploratory and development CBNG wells drilled in the planning area would have long-term disturbance figures of 0.25 acres for the access road/pipeline and 0.5 acres for the well pad, which equates to a total of 0.75 acres of long-term disturbance for a new CBNG well.

Bowdoin Natural Gas Project Area (BNGPA)

- Existing wells in the BNGPA have disturbed 0.75 acres per well.
- New exploratory and development wells drilled in the BNGPA would have short-term disturbance figures of 1.85 acres for the access road/pipeline and 1 acre for the well pad, which equates to a total of 2.85 acres of short-term disturbance for a new well drilled in the BNGPA.
- New exploratory and development wells drilled in the BNGPA would have long-term disturbance figures of 0.25 acres for the access road/pipeline and 0.5 acres for the well pad, which equates to a total of 0.75 acres of long-term disturbance for a new well drilled in the BNGPA.

Non-BNGPA

- Existing wells in the planning area, exclusive of the BNGPA, have disturbed 0.92 acres per well.
- New exploratory and development wells drilled in the planning area, exclusive of the BNGPA, would have short-term disturbance figures of 3.1 acres for the access road/pipeline and 2.1 acres for the well pad, which equates to a total of 5.2 acres of short-term disturbance for a new well drilled outside of the BNGPA.
- New exploratory and development wells drilled in the planning area, exclusive of the BNGPA, would have long-term disturbance figures of 0.78 acres for the access road/pipeline and 0.14 acres for the well pad, which equates to a total of 0.92 acres of long-term disturbance for a new well drilled outside of the BNGPA.

- Planning decisions also apply to BLM-administered federal minerals that underlie non-federal lands (split estate). If applicable, the BLM would consult the surface management agency.
- Reasonable measures would be required by the authorized officer to minimize adverse impacts to other resource values, land uses, or uses not addressed in the lease stipulations at the time that operations are proposed. Reasonable measures could include modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. These modifications might occur only through site-specific post-lease actions (e.g., APDs and rights-of-way) that are supported by onsite conditions and/or project-specific NEPA analysis. Modification and/or waivers to lease terms and stipulations can be accomplished in accordance with applicable regulatory guidelines. Surface-disturbing and other disruptive activities could occur at existing authorized facilities.
- In the absence of quantitative data, best professional judgment was used.
- Effects to fluid minerals would be considered significant if the management actions caused a substantial reduction in federal leasing and development activities.

Changes in anticipated oil and gas production levels associated with each alternative are discussed in the following sections.

Impacts Common to All Alternatives

Following is some basic information to be kept in mind when reviewing the following description of impacts. The RMP process allows the BLM to decide what lands are suitable for fluid mineral leasing; and if they are deemed suitable, what kind of stipulations, if any, should be placed upon the lease. The stipulations that are proposed to be applied to lands for future leasing are categorized as NSO, CSU, and timing. No new oil and gas leases may be issued in WSAs (BLM Manual 6330 – Management of BLM Wilderness Study Areas). Finally, there are also lands that are leased without any specific lease stipulations.

The NSO stipulation is considered the most restrictive and is generally thought of as a major constraint for fluid mineral leasing. While an NSO stipulation would not entirely preclude a lease from being developed, the restriction of surface occupancy would require that any wells and associated facilities be located on adjacent lands. Directional and horizontal drilling technology may allow an operator to effectively reach out and develop some of the smaller blocks of NSO-leased lands; however, larger contiguous blocks of NSO would very likely be precluded from any future development.

The CSU and timing stipulations are less restrictive than NSO and are generally considered as moderate constraints for leasing. Specifically, the CSU stipulation requires an appropriate plan to be submitted and approved prior to the BLM authorizing any oil and gas projects in these areas. The timing stipulation specifies certain dates throughout the year that oil and gas projects would be allowed to commence in the stipulated area. While these two types of stipulations do not preclude development, they may delay, limit, and possibly relocate oil and gas activities within the stipulated areas. Also, the CSU stipulation may place more scrutiny upon monitoring oil and gas projects in a given area.

It is important to note that the above-mentioned surface use stipulations (including timing, CSU, and NSO) cannot be retroactively applied to existing oil and gas leases or other existing valid use authorizations such as rights-of-way. Site-specific actions such as APDs and new rights-of-way in areas with existing leases would be allowed, subject to surface use stipulations, COAs, and BMPs; however, these stipulations must be reasonable and consistent with existing lease rights. As each lease expires, the corresponding area that was previously under lease would come under the management guidelines of the approved resource management plan.

Of the 3,491,450 subsurface mineral acres that are currently administered by the BLM for oil and gas, approximately 941,664 acres (or 27% of the federal subsurface estate) are currently held by lease. These acreages can be further broken down and described as follows:

- BNGPA includes 435,944 acres of federal subsurface estate, of which 405,027 acres are currently under lease.
- Bears Paw South includes 177,091 acres of federal subsurface estate, of which 149,214 acres are currently under lease.
- North Blaine includes 82,687 acres of federal subsurface estate, of which 60,585 acres are currently under lease.

Appendix E.2 includes a list of general COAs that may be considered for use at the time of site-specific lease operations. While this list should not be considered all-inclusive, it does represent typical mitigation measures that may be used to reduce impacts to resource values that are identified at an onsite inspection or during the review of a proposed plan. The COAs may also be utilized to protect important resource values that were not identified at the time of lease issuance. It is important to reiterate that any conditions imposed on an existing lease must be consistent with the existing lease rights.

Therefore, all of the above factors must be kept in mind when reviewing the following resource stipulations and the effect that they may have on fluid mineral leasing and development. It also bears mentioning that the NSO, CSU and timing stipulations that are applied because of wildlife concerns would also apply to surface-disturbing or disruptive activities (e.g., the reworking of a well or the setting of a pump jack). These additional delays that would apply to the typical maintenance of an oil and gas project would also have an adverse effect on the fluid mineral development. Appendix E.4 describes the waivers, exceptions, and modifications criteria that could be applied to the lease stipulations; therefore, the predicted effects to fluid mineral leasing may be lessened.

Finally, all acreage figures represent federal mineral acres and are approximations based on GIS analysis that have been rounded to the nearest whole acre. The acreages represent a single stipulation's areal extent; although there may be areas where multiple stipulations overlap. In the instances where there is overlap, the most restrictive stipulation would be employed to ensure proper resource protection.

Air Quality: The goal for air resources across all alternatives in the planning area is to ensure that BLM authorizations and management activities protect the local quality of life and sustain economic benefits by complying with tribal, local, state, and federal air quality regulations, requirements and implementation plans. This would be accomplished by employing the use of BMPs in conjunction with evaluating the impacts to air quality at the planning level and implementing the appropriate monitoring and mitigation plans. These activities could potentially limit oil and gas exploration and development activities in certain areas. An easy example to cite would be an operator submitting a proposal to install an artificial lift mechanism (i.e., pumpjack) on a low-pressure gas well in an isolated location. In order to power the lift mechanism in the remote location, a generator would need to be brought in. The resulting exhaust

from the generator could potentially become an issue to air quality. This, in turn, could equate to the operator's proposal being denied.

Cultural Resources: The management of cultural resources could potentially affect the timing, location and size of oil and gas disturbances and facilities but would rarely prevent the development or completion of oil and gas activities. However, some specific areas have been identified as NSO. The degree of effect that this restriction imposes on fluid mineral development will be described quantitatively under each proposed alternative. As is the case with existing management, any future oil and gas facilities could be relocated to avoid disturbance to cultural resources. In all cases of federally permitted surface-disturbing activities, a cultural inventory and subsequent cultural clearance is required prior to approval.

Fire Management and Ecology: Fire and fuels management assigns top priority to areas with high resource or human values when it comes to fire suppression. Oil and gas development areas and associated infrastructure would be included on this list. Wildfires generally cause minimal indirect effects on the development and production of oil and gas resources, but they can be devastating when they occur. Health and safety impacts for oil and gas personnel can be significant. Fuel treatments that are designed to reduce fuels and meet other multiple use resource objectives would benefit oil and gas production by reducing wildfire size and intensity, thereby reducing the threat of loss of oil and gas facilities to wildfire where the potential exists.

Lands and Realty: Lands and realty management actions rarely have an effect on oil and gas operations. Corridors that are established for utility/transportation systems and rights-of-way for existing linear transmission facilities would be avoided where possible for the placement of oil and gas development activities and infrastructure. This may relocate, but rarely preclude, any oil and gas facility. Rights-of-way granted for wind energy development may influence oil and gas development in areas where project proposals would occupy the same area. In that case, the conflicts and necessary mitigation would be worked out on an individual case-by-case basis.

Livestock Grazing: Livestock grazing mitigation measures applied to the fluid minerals program would increase the operational complexity in order to provide for the protection of livestock watering facilities, upkeep and repair of fences/gates and cattle guards affected by oil and gas activities, control of invasive (noxious) weeds, minimization of forage loss, and prevention of mortality or injury to livestock. While these measures could potentially affect the feasibility of an oil and gas operation on a lease, they do not preclude development.

OHV Use and Travel and Transportation Management: Effective transportation and travel management for maintenance of the BLM transportation system would benefit fluid mineral development by providing for public safety and adequate access for mineral development tasks. In most cases, industry would use the existing road network for initial access to potential oil and gas exploration sites, access for geophysical exploration, etc. Once oil and gas exploration moves into the developmental phase, industry would be required to improve and maintain existing BLM roads or develop new roads and routes as appropriate. Conversely, a BLM decision to close a specific road may adversely affect an oil and gas operator if it historically had been used as part of their lease operation.

Paleontological Resources: Avoidance of important paleontological resources could relocate oil and gas facilities or delay facility placement until the paleontological resources are collected and removed. Also, some specific areas have been identified as NSO. The degree of effect that this restriction imposes on fluid mineral development will be described quantitatively under each proposed alternative.

Recreation: Existing recreation sites and management areas would preclude oil and gas development activities within a relatively small area that make up each individual recreation site. Only minor relocation or avoidance of developed and undeveloped recreation sites would be required because of NSO stipulations. The degree of effect that this restriction imposes on fluid mineral development will be described quantitatively under each proposed alternative.

Social: Avoidance of residential areas, such as occupied residences and city limits, could relocate oil and gas facilities. The degree of effect that this restriction imposes on fluid mineral development will be described quantitatively under each proposed alternative.

Soils: Management actions for soils could impact oil and gas development by directing avoidance of areas with sensitive soils. This mitigation would apply to all proposed well sites and associated surface-disturbing activity including

infrastructure. Although this action does pose a restriction upon oil and gas development, it does not preclude the ability to explore for and develop fluid minerals in most areas. The BLM also has the option of applying various BMPs, other measures such as conditions of approval attached to the APD, or a progressive reclamation plan that could mitigate the impacts to the soil resource. In the case that protected soil resources cannot be adequately avoided, an alternative site would need to be proposed.

Solid Minerals: Fluid mineral resource management effects associated with the development of other minerals would be minimal. If this situation were to arise, the conflict between the fluid mineral development and other mineral development (usually locatable minerals) would generally be addressed on a case-by-case basis. If the conflict cannot be easily resolved and ends up in litigation, the entity with the senior (first) right will usually prevail.

Special Designations: The establishment of special designation management areas (e.g., ACECs) would require the intensive management of surface-disturbing and disruptive activities attributed to fluid mineral development in an attempt to reduce the effects in areas that have been identified as having critical resource characteristics. The extent to which these management actions would affect oil and gas development varies across the range of alternatives.

Vegetation – Rangeland: Vegetation management would require reclamation and weed control mitigation measures for surface-disturbing activities in order to help reestablish native plant species on disturbed areas and eliminate weeds. Native habitat that contains special status plant species would potentially limit the location of fluid mineral development activities within any oil and gas lease, although the proposed plan has no existing or planned stipulations related to vegetation management.

Vegetation – Riparian and Wetland: Management actions for wetland and riparian areas could affect oil and gas development by controlling and/or prohibiting surface use associated with oil and gas development in areas identified as being jurisdictionally wet. This mitigation would apply to all proposed well sites and associated surface-disturbing activity including infrastructure. Although this action does pose a substantial restriction upon oil and gas development, it does not preclude the ability to explore for and develop fluid minerals in most areas. The degree of effect that this restriction imposes on fluid mineral development will be described quantitatively under each proposed alternative. The BLM also has the option of applying various BMPs or other measures such as conditions of approval attached to the APD that could mitigate impacts to wetland and riparian areas. If riparian and wetland resources cannot be adequately avoided, an alternative site would need to be proposed.

Visual Resources: Visual resource management would affect the placement of oil and gas facilities on BLM land and could exert a definite influence on finding acceptable locations where development might occur, as well as the size and coloration of facilities depending on the visual class and location. While the requirements of VRM vary by classification, with Class I being the most restrictive and Class IV the least restrictive, VRM requirements do not preclude development.

Wilderness Study Areas: Two WSAs are located within the planning area: the Burnt Lodge WSA (13,773 acres of mineral estate) and Bitter Creek WSA (60,717 acres of mineral estate). Both of these WSAs have been closed to federal oil and gas leasing; therefore, oil and gas exploration and development would be precluded in these two areas.

Wildlife: Avoidance of important wildlife resources/habitat could relocate oil and gas facilities or delay facility placement. Also, specific areas have been identified where surface use and occupancy associated with oil and gas development will be prohibited, in addition to areas that have been deemed as inappropriate for leasing because of valuable wildlife characteristics. The degree of effect that each restriction imposes on fluid mineral development will be described quantitatively under each proposed alternative.

Impacts under Alternative A (Current Management)

The effects from the management of air quality, fire management and ecology, lands and realty, livestock grazing, OHV use and travel management areas, solid minerals, transportation, vegetation, visual resources, and WSAs are all discussed above in the Impacts Common to All Alternatives section. Table 4.40 summarizes the Alternative A stipulations in relation to where they fall within the oil and gas potential categories.

Cultural Resources: An NSO stipulation would be specified for any federal oil and gas acreage that underlies sites or areas designated for conservation use, public use, or sociocultural use including traditional cultural properties. This would affect 23,282 acres, of which 4,706 acres (20%) are currently leased. In all cases of federally permitted surface-disturbing activities, a cultural inventory and subsequent cultural clearance is required prior to approval. If small NRHP Eligible cultural resource sites are found to be present, access roads, drill pads, and any associated infrastructure would be relocated to avoid any adverse impacts to the cultural resource.

Table 4.40
Stipulation Acres by Development Potential under Alternative A (Current Management)

	Development Potential				
	High	***Moderate***	***Low***	***Very Low***	***Total***
Closed	0	0	0	102,298	102,298
NSO	3,938	9,199	22,614	246,310	282,062
CSU/Timing	137,116	233,907	277,051	2,001,094	2,649,242
Standard Terms Only	5,206	94,336	111,916	246,323	457,849

Paleontological Resources: An NSO stipulation would be specified within the boundaries of designated paleontological sites. This would affect 3 acres that are not currently leased.

Recreation Sites/Trails: An NSO stipulation would be specified within 300 feet of recreation sites/trails. This would affect 2,261 acres, of which 530 acres (23%) are currently leased.

Structures: An NSO stipulation would be specified within 300 feet of occupied buildings. This would affect 1,958 acres, of which 834 acres (43%) are currently leased.

Soils: A CSU stipulation would be specified for slopes over 30%, or 20% on extremely erodible or slumping soils. This would affect 891,308 acres, of which 261,957 acres (32%) are currently leased.

Special Designations: The planning area currently contains seven existing ACECs:

- Azure Cave (143 acres, none of which have been leased),
- Big Bend of the Milk River (1,979 acres, of which 1,151 acres are currently leased),
- Bitter Creek (60,717 acres, of which 10 acres are currently leased),
- Mountain Plover (24,672 acres, none of which have been leased),
- Kevin Rim (4,564 acres, of which 3,651 acres are currently leased),
- Sweet Grass Hills (6,248 acres, of which 116 acres are currently leased), and
- Prairie Dog Towns within the 7km Complex (16,403 acres, of which 3,083 acres are currently leased).

Each ACEC has identified an NSO stipulation within the boundaries of the ACEC to protect the critical resource(s). Alternative A would continue the current management of the ACECs; therefore, the NSO avoidance measure would require establishment of facilities in adjacent areas, which would delay and possibly limit oil and gas activities within these areas. Since these ACECs typically consist of continuous blocks of lands, the minerals within the interior of the ACECs would most likely not be developed without further advances in directional drilling technology coupled with energy product prices being high enough to make the advanced drilling costs economically feasible.

Vegetation – Riparian and Wetland: A CSU stipulation would be specified for any area within 500 feet of the 25-year floodplain of reservoirs, lakes, ponds, and intermittent, ephemeral, and small perennial streams; and any area within 1,000 feet of the 100-year floodplain of larger perennial streams, rivers, and domestic water supplies. This would affect 545,305 acres, of which 161,970 acres (30%) are currently leased.

The boundaries of the Dibbler and Whitewater reservoirs along with the area identified as the Lonesome Lake wetlands have been identified as NSO for fluid mineral development. This would affect 171 acres, of which 67 acres (39%) are

currently leased. Also, 347 additional acres of CSU, of which 298 acres (86%) are currently leased, have been identified in the Dibbler and Whitewater reservoir area.

Wildlife: Because of the number of different wildlife species, which leads to a variety of wildlife stipulations, this section will be described by species/habitat type. Also, the stipulation is simply categorized as NSO, CSU or timing. The distances for all of these stipulations are described in detail in Chapter 2, Table 2.8.

- *Black-footed ferret:* An NSO stipulation would be applied in black-footed ferret habitat. This would affect 103,357 acres, of which 8,680 acres (8%) are currently leased.

- *Black-tailed prairie dog:* An NSO stipulation would be applied in black-tailed prairie dog habitat. This would affect 103,357 acres, of which 8,680 acres (8%) are currently leased.

- *Elk:* An NSO stipulation would be specified for areas identified as crucial elk winter range. This would affect 23,730 acres, none of which are currently leased. Lands that have been identified as elk calving grounds would be leased with a timing stipulation. This would affect 472,065 acres, of which 106,808 acres (23%) are currently leased.

- *Greater Sage-Grouse:* An NSO stipulation would be applied to Greater Sage-Grouse leks. This would affect 21,187 acres, of which 4,724 acres (22%) are currently leased. Greater Sage-Grouse habitat would require a timing stipulation. This would affect 1,426,864 acres, of which 279,895 acres (20%) are currently leased.

- *Interior least tern:* Lands that have been identified as having an active least tern colony would be stipulated as NSO. No least tern colonies have been identified in the planning area.

- *Mountain plover:* An NSO stipulation would be applied in mountain plover habitat. This would affect 372,921 acres, of which 9,752 acres (3%) are currently leased.

- *Piping plover:* An NSO stipulation would be applied in piping plover habitat. This would affect 893 acres, of which 447 acres (50%) are currently leased.

- *Raptor:* An NSO stipulation would be specified for areas identified as raptor habitat including, but not limited to, bald eagle, ferruginous hawk, Swainson's hawk, northern goshawk, golden eagle and peregrine falcon. This would affect 24,910 acres, of which 15,319 acres (61%) are currently leased.

- *Sharp-tailed grouse:* An NSO stipulation would be applied to sharp-tailed grouse leks. This would affect 4,412 acres, of which 1,125 acres (25%) are currently leased.

- *Winter range:* A timing stipulation would be specified for areas identified as winter range. This would affect 2,109,949 acres, of which 524,902 acres (25%) are currently leased.

Cumulative Impacts

Stipulations create an effect to oil and gas leasing and subsequent development, ranging from a minor restriction such as a timing stipulation to the most restrictive measure of completely preventing development in a given area. In turn, stipulations lead to less federal acreage being leased, which equates to a reduction in oil and gas exploration and development on federal minerals, a reduction in federal wells drilled, and ultimately a reduction in federal oil and gas produced.

Approximately 6,014 additional oil and gas wells would be drilled during the life of the plan (20 years); of these, 1,874 wells would access federal minerals. The predicted number of federal wells would equate to a short-term disturbance of approximately 9,564 acres, compared to 36,574 acres that would be disturbed by all wells drilled in the planning area. The long-term disturbance of these additional wells would total 11,227 acres with 2,422 acres occurring on BLM land. The HiLine RFD scenario determined the percent reduction in projected oil and gas production by alternative and established a baseline for assessing the impacts to oil and gas associated with the proposed stipulations. From baseline (unconstrained) conditions, (1) total oil production would be 0.6% less; and (2) total gas production would be 4.4% less.

The decrease in coalbed gas production is negligible as the predicted total CBNG well count is only 149 for the life of the plan and no CBNG wells are currently in the planning area.

Impacts under Alternative B

The effects from the management of air quality, fire management and ecology, livestock grazing, lands and realty, other minerals, OHV use and travel management areas, transportation, vegetation, visual resources, and WSAs are all discussed above in the Impacts Common to All Alternatives section. Table 4.41 summarizes the Alternative B stipulations in relation to where they fall within the oil and gas potential categories.

Cultural Resources: An NSO stipulation would be attached to any federal acreage that underlies NRHP Eligible Properties/Districts. Under Alternative B, this would affect 304 acres, of which 196 acres (64%) are currently leased. Also, the Bear Paw Battlefield has been identified as an area not suitable for fluid mineral leasing (closed) because of its archaeological value. This would affect 40 acres, none of which have been leased. In all cases of federally permitted surface-disturbing activities, a cultural inventory and subsequent cultural clearance is required prior to approval. If small NRHP Eligible cultural resource sites are found to be present, access roads, drill pads, and any associated infrastructure would be relocated to avoid any adverse impacts to the cultural resource.

Table 4.41
Stipulation Acres by Development Potential under Alternative B

	Development Potential				
	High	***Moderate***	***Low***	***Very Low***	***Total***
Closed	138,489	283,347	324,728	2,427,013	3,173,637
NSO	6,889	45,247	72,412	133,968	258,560
CSU/Timing	0	778	423	2,090	3,291
Standard Terms Only	883	8,070	14,019	32,956	55,962

Paleontological Resources: An NSO stipulation would be specified within the boundaries of known paleontological sites. Additionally, a CSU stipulation would require that a paleontological inventory be conducted in Class 4 and 5 areas that were identified in accordance with the guidance provided in Washington Office Instruction Memorandum No. 2008-009. However, the stipulations for paleontological resources in Alternative B underlie other resource values, primarily wildlife habitats, which are being proposed as closed to leasing. Therefore, there is no effect to fluid mineral leasing from paleontological resources under Alternative B.

Recreation Sites/Trails: An NSO stipulation would be specified within 1/4 mile of recreation sites/trails. This would affect 1,461 acres, of which only 1 acre is currently leased.

Residential Structures: An NSO stipulation would be specified within 1/4 mile of city limits or occupied residential structures. This would affect 16,667 acres, of which 7,441 acres (45%) are currently leased.

Soils: An NSO stipulation would be specified on areas that contain soils with severe erosion hazard, badlands, rock outcrop, or on slopes susceptible to mass failure. This would affect 78,465 acres, of which 16,321 acres (21%) are currently leased.

Special Designations: Six of the seven existing ACECs within the planning area would be retained (Azure Cave, Big Bend of the Milk River, Bitter Creek, Mountain Plover, Kevin Rim, and Sweet Grass Hills) while the Prairie Dog Towns within the 7km Complex ACEC would be eliminated. The following additional ACECs would be proposed:

- Grassland Bird/Greater Sage-Grouse Priority Areas ACEC (461,220 acres, of which 146,224 acres have currently been leased);
- Greater Sage-Grouse Protection Priority Area ACEC (930,265 acres, of which 8,889 acres have currently been leased);
- Malta Geological ACEC (6,152 acres, all of which have currently been leased); and
- Zortman/Landusky Mine Reclamation ACEC (3,505 acres, none of which have been leased).

The retained ACECs and the Zortman/Landusky Mine Reclamation ACEC have identified an NSO stipulation within the boundaries of the ACEC to protect the critical resource(s). The NSO avoidance measure would require establishment of facilities in adjacent areas, which would delay and possibly limit oil and gas activities within these areas. Since these ACECs typically consist of continuous blocks of lands, the minerals within the interior of the ACECs would most likely not be developed without further advances in directional drilling technology coupled with energy product prices being high enough to make the advanced drilling costs economically feasible. The Grassland Bird/Greater Sage-Grouse Priority Areas ACEC and Greater Sage-Grouse Protection Priority Area ACEC would be closed to oil and gas leasing, which would maintain high quality habitat for Greater Sage-Grouse and other sagebrush-dependent species and protect the areas from fragmentation. The proposed Malta Geological ACEC has identified a CSU stipulation within the boundaries of the ACEC to protect the critical paleontological resource. The CSU stipulation would equate to intensive management of surface-disturbing activities within the ACEC and would potentially change the location and/or design of some projects. It would not, however, preclude the ability to explore for and develop fluid minerals.

Vegetation – Riparian and Wetland: An NSO stipulation would be specified within 1/4 mile of lentic or lotic riparian areas. This would affect 245,167 acres, of which 95,929 acres (39%) are currently leased.

Wilderness Characteristics: Lands managed for wilderness characteristics would be closed to leasing. This would affect 373,445 acres, of which 70,172 acres (19%) are currently leased. About 92% of the areas affected (344,689 acres) are within a very low development potential for oil and gas. However, within the Western Breaks and Badlands area 48% (13,697 acres) are within a high development potential for oil and gas (Table 4.42). Most of the Western Breaks and Badlands area is also currently leased for oil and gas (79% or 22,441 acres) (Table 4.43).

Table 4.42
Areas with Wilderness Characteristics by Development Potential under Alternative B (Acres)

	Development Potential				
	High	***Moderate***	***Low***	***Very Low***	***Total***
Eastern Breaks and Badlands	0	0	0	10,714	10,714
Island Mountain Range	0	0	2,808	0	2,808
Prairie Grasslands	0	0	0	130,616	130,616
Sagebrush Grasslands	0	0	0	201,043	201,043
Western Breaks and Badlands	13,697	0	12,250	2,314	28,261
Total	13,697	0	15,058	344,687	373,442

Table 4.43
Areas with Wilderness Characteristics Leased for Oil and Gas under Alternative B (Acres)

	Oil and Gas Leases	
	Leased	***Unleased***
Eastern Breaks and Badlands	0	10,714
Island Mountain Range	0	2,808
Prairie Grasslands	47,731	82,885
Sagebrush Grasslands	0	201,043
Western Breaks and Badlands	22,441	5,820
Total	70,172	303,270

Wildlife: Because of the number of different wildlife species, which leads to a variety of wildlife stipulations, this section will be described by species/habitat type. Also, the stipulation is simply categorized as NSO, CSU or timing. The distances for all of these stipulations are described in detail in Chapter 2, Table 2.8.

- *Bald eagle:* Lands that have been identified as having an active bald eagle nest within the past seven years would be closed to leasing. This would affect 361 acres, none of which are currently leased.

- *Bighorn sheep:* Lands that have been identified as bighorn sheep habitat would be closed to leasing. This would affect 39,422 acres, of which 2,195 acres (6%) are currently leased. Lands that have been identified as bighorn sheep lambing areas would also be closed to leasing. This would affect 14,263 acres, of which 344 acres (2%) are currently leased.

- *Black-footed ferret:* Lands identified as having black-footed ferret habitat would be closed to leasing. This would affect 212,450 acres, of which 21,224 acres (10%) are currently leased.

- *Black-tailed prairie dog:* Lands identified as having black-tailed prairie dog habitat would be closed to leasing. This would affect 212,450 acres, of which 21,224 acres (10%) are currently leased.

- *Colonial waterbird:* Lands that have been identified as having an active waterbird colony would be closed to leasing. This would affect 5,303 acres, of which 1,780 acres (34%) are currently leased. Additionally, a timing stipulation would be stipulated for areas surrounding the closures for the waterbird colonies. This would affect an additional 8 acres that are currently leased.

- *Crucial winter range:* Lands that have been identified as crucial winter range would be closed to leasing. This would affect 128,622 acres, of which 7,435 acres (6%) are currently leased.

- *Elk:* Lands that have been identified as elk calving grounds would be closed to leasing. This would affect 724,849 acres, of which 109,179 acres (15%) are currently leased.

- *Grassland Bird/Greater Sage-Grouse Priority Areas:* Grassland Bird/Greater Sage-Grouse Priority Areas managed as a single ACEC is being proposed under Alternative B, which identifies 474,035 acres as closed to fluid mineral leasing, of which 461,220 acres are BLM land. Currently, 146,224 acres (31%) are leased in this area. Although the closure represents a large amount of acreage that cannot be leased, the entire priority area has been identified as having low to very low potential for oil and gas development.

- *Greater Sage-Grouse:* Lands identified as having Greater Sage-Grouse leks would be closed to leasing. This would affect 903,150 acres, of which 176,228 acres (20%) are currently leased.

- *Greater Sage-Grouse Protection Priority Area:* A Greater Sage-Grouse Protection Priority Area managed as an ACEC is being proposed under Alternative B, which identifies 1,028,661 acres as closed to fluid mineral leasing, of which 930,265 acres are BLM land. Currently, 8,889 acres (1%) are leased in this area. Although this closure represents a large amount of acreage that cannot be leased, the entire protection priority area has been identified as having low to very low potential for oil and gas development.

- *Interior least tern:* Lands that have been identified as having an active least tern colony would be closed to leasing. No least tern colonies have been identified in the planning area.

- *Mountain plover:* Lands that have been identified as mountain plover habitat would be closed to leasing. This would affect 373,344 acres, of which 9,752 acres (3%) are currently leased. Additionally, a timing stipulation would be stipulated for areas surrounding the closures for the mountain plover habitat. This would affect an additional 55 acres, none of which have been leased.

- *Piping plover:* Lands that have been identified as having piping plover habitat would be closed to leasing. This would affect 2,138 acres, of which 1,185 acres (55%) are currently leased.

- *Raptor:* Lands that have been identified as having an active raptor nest within the past seven years would be closed to leasing. This would affect 30,236 acres, of which 17,901 acres (59%) are currently leased. Additionally, a timing stipulation would be stipulated for areas surrounding the closures for the raptor nests. This would affect an additional 1,532 acres, of which 432 acres (28%) are currently leased.

- *Sharp-tailed grouse:* Lands that have been identified as having sharp-tailed grouse leks would be closed to leasing. This would affect 120,964 acres, of which 33,123 acres (27%) are currently leased. Sharp-tailed grouse nesting habitat would have a timing stipulation. This would affect 1,932 acres, of which 1,256 acres (27%) are currently leased.

- *Winter range:* Lands that have been identified as winter range would be closed to leasing. This would affect 2,647,032 acres, of which 541,401 acres (20%) are currently leased.

Cumulative Impacts

Stipulations create an effect to oil and gas leasing and subsequent development, ranging from a minor restriction such as a timing stipulation to the most restrictive measure of completely preventing development in a given area. In turn, stipulations lead to less federal acreage being leased which equates to a reduction in oil and gas exploration and development on federal minerals, a reduction in federal wells drilled, and ultimately a reduction in federal oil and gas produced.

Approximately 4,787 additional oil and gas wells would be drilled during the life of the plan (20 years), of which 647 wells would access federal minerals. The predicted number of federal wells would equate to a short-term disturbance of approximately 4,440 acres compared to 31,445 acres that would be disturbed by all wells drilled in the planning area. The long-term disturbance of these additional wells would total 10,348 acres with 1,544 acres occurring on BLM land. The HiLine RFD scenario determined the percent reduction in projected oil and gas production by alternative and established a baseline for assessing the impacts to oil and gas associated with the proposed stipulations. From baseline (unconstrained) conditions, (1) total oil production would be 9.5% less; and (2) total gas production would be 68.3% less. The decrease in coalbed gas production is negligible as the predicted total CBNG well count is only 137 for the life of the plan.

Impacts under Alternative C

The effects from the management of air quality, fire management and ecology, livestock grazing, lands and realty, other minerals, OHV use and travel management areas, transportation, vegetation, visual resources, and WSAs are all discussed above in the Impacts Common to All Alternatives section. Table 4.44 summarizes the Alternative C stipulations in relation to where they fall within the oil and gas potential categories.

Table 4.44
Stipulation Acres by Development Potential under Alternative C

	Development Potential				
	High	***Moderate***	***Low***	***Very Low***	***Total***
Closed	0	0	2,841	215,745	218,586
NSO	50,521	154,468	169,265	916,833	1,291,160
CSU/Timing	89,832	126,822	143,928	1,321,410	1,681,990
Standard Terms Only	5,908	56,153	95,550	142,038	299,713

Cultural Resources: An NSO stipulation would be attached to any federal acreage that underlies NRHP Eligible Properties/Districts as well as any TCPs. Under Alternative C, this would affect 74,756 acres, of which 7,766 acres (10%) are currently leased. Also, the Bear Paw Battlefield has been identified as an area not suitable for fluid mineral leasing (closed) because of its historical value. This would affect 40 acres, none of which have been leased. In all cases of federally permitted surface-disturbing activities, a cultural inventory and subsequent cultural clearance is required prior to approval. If small NRHP Eligible cultural resource sites are found to be present, access roads, drill pads, and any associated infrastructure would be relocated to avoid any adverse impacts to the cultural resource.

Paleontological Resources: An NSO stipulation would be specified within the boundaries of known paleontological sites. This would affect 118 acres that are currently leased. Additionally, a CSU stipulation would require that a paleontological inventory be conducted in Class 4 and 5 areas that were identified in accordance with the guidance provided in Washington Office Instruction Memorandum No. 2008-009. This would affect 1,157 acres that are currently

leased. Avoidance of important paleontological resources could relocate oil and gas facilities or delay facility placement until the paleontological resources are collected and removed. A further discussion of additional requirements imposed by the Malta Geological ACEC, which is proposed to protect the paleontological resource, is located in the Special Designations section below.

Recreation Sites/Trails: An NSO stipulation would be specified within 500 feet of recreation sites/trails. This would affect 5,896 acres, of which 1,809 acres (31%) are currently leased.

Residential Structures: An NSO stipulation would be specified within 500 feet of city limits or occupied residential structures. This would affect 5,684 acres, of which 2,487 acres (44%) are currently leased.

Soils: The effects from the soils resource would be similar to those listed in Alternative B; except that a CSU stipulation would be specified for soils with a severe erosion hazard instead of being NSO. The CSU stipulation would affect 774,408 acres, of which 201,961 acres (37%) are currently leased. Soils with badlands, rock outcrop, or slopes susceptible to mass failure would still be stipulated with NSO. The NSO would apply to 99,982 acres, of which 17,903 acres (29%) are currently leased.

Special Designations: The effects from special designations management would be similar to those listed in Alternative B; except that there would be two additional designated ACECs: the Woody Island ACEC (15,804 acres, none of which have been leased) and the Frenchman Breaks ACEC (39,700 acres, of which 3,163 acres are currently leased). Both of these proposed ACECs would stipulate NSO within their boundaries.

Vegetation – Riparian and Wetland: The effects from the vegetation – riparian and wetland resource would be similar to those listed in Alternative B; except that the NSO stipulation would be specified within 500 feet of lentic or lotic riparian areas. This would affect 751,156 acres, of which 312,573 acres (42%) are currently leased.

Wilderness Characteristics: Some of the lands managed for wilderness characteristics (143,794 acres) would be closed to leasing. Another 78,280 acres would be available for leasing with an NSO stipulation. About 99% of the areas affected (219,266 acres) are within a very low development potential for oil and gas (Table 4.45) and less than 1% is currently leased (Table 4.46)

Table 4.45
Areas with Wilderness Characteristics by Development Potential under Alternative C (Acres)

	Development Potential				
	High	***Moderate***	***Low***	***Very Low***	***Total***
Eastern Breaks and Badlands	0	0	0	10,714	10,714
Island Mountain Range	0	0	2,808	0	2,808
Prairie Grasslands	0	0	0	78,280	78,280
Sagebrush Grasslands	0	0	0	130,272	130,272
Total	0	0	2,808	219,266	222,074

Table 4.46
Areas with Wilderness Characteristics Leased for Oil and Gas under Alternative C (Acres)

	Oil and Gas Leases	
	Leased	***Unleased***
Eastern Breaks and Badlands	0	10,714
Island Mountain Range	0	2,808
Prairie Grasslands	766	77,514
Sagebrush Grasslands	0	130,272
Total	766	221,308

Wildlife: Because of the number of different wildlife species, which leads to a variety of wildlife stipulations, this section will be described by species/habitat type. Also, the stipulation is simply categorized as NSO, CSU or timing. The distances for all of these stipulations are described in detail in Chapter 2, Table 2.8.

- *Bald eagle:* Lands within 1/4 mile of bald eagle nest sites that have been active within the past seven years would be stipulated as NSO. This would affect 49 acres, none of which have been leased.

- *Bighorn sheep:* Lands that have been identified as bighorn sheep habitat would be stipulated as CSU. This would affect 6,719 acres, of which 1,131 acres are currently leased. Lands that have been identified as bighorn sheep lambing areas would be stipulated as NSO. This would affect 8,496 acres, of which 343 acres (4%) are currently leased.

- *Black-footed ferret:* Lands within 1/4 mile of black-footed ferret habitat would be stipulated as NSO. This would affect 47,307 acres, of which 8,680 acres (18%) are currently leased.

- *Black-tailed prairie dog:* Lands within 1/4 mile of black-tailed prairie dog habitat would be stipulated as NSO. This would affect 47,307 acres, of which 8,680 acres (18%) are currently leased.

- *Colonial waterbird:* Lands within 1/2 mile of a waterbird nesting colony would be stipulated as NSO. This would affect 5,303 acres, of which 1,780 acres (34%) are currently leased. Additionally, a timing stipulation would be stipulated for lands within 1 mile of waterbird nesting colonies. This would affect an additional 3,495 acres, of which 1,689 acres (48%) are currently leased.

- *Crucial winter range:* Lands that have been identified as crucial winter range would be stipulated as NSO. This would affect 84,591 acres, of which 7,435 acres (9%) are currently leased.

- *Grassland Bird/Greater Sage-Grouse Priority Areas:* Lands within Grassland Bird/Greater Sage-Grouse Priority Areas would be stipulated as CSU. Prior to surface-disturbing or disruptive activities a plan to maintain functionality of grassland bird/Greater Sage-Grouse habitat would be prepared by the proponent and implemented upon approval by the authorized officer. Within the Priority Areas surface-disturbing or disruptive activities would be restricted or prohibited within 6/10 of a mile from any existing surface-disturbing or disruptive activity. The plan shall address how short-term and long-term direct and indirect effects to important breeding (leks), nesting, brood-rearing, and wintering areas would be mitigated based on current science and research. This would affect 318,143 acres, of which 54,678 acres (17%) are currently leased.

- *Greater Sage-Grouse leks:* Lands within 1 mile of Greater Sage-Grouse leks would be stipulated as NSO. This would affect 151,113 acres, of which 58,206 acres (39%) are currently leased. Greater Sage-Grouse nesting habitat would be stipulated with a CSU. This would affect 541,544 acres, of which 168,674 acres (31%) are currently leased.

- *Greater Sage-Grouse Protection Priority Area:* Lands that have been identified as the Greater Sage-Grouse Protection Priority Area would be stipulated as CSU. Prior to surface-disturbing or disruptive activities a plan to maintain functionality of Greater Sage-Grouse habitat would be prepared by the proponent and implemented upon approval by the authorized officer. Within the Protection Priority Area surface-disturbing or disruptive activities would be restricted or prohibited within 6/10 of a mile from any existing surface-disturbing or disruptive activity. The plan shall address how short-term and long-term direct and indirect effects to important breeding (leks), nesting, brood-rearing, and wintering areas would be mitigated based on current science and research. This would affect 1,028,661 acres, of which 1,954 acres (less than 1%) are currently leased.

- *Interior least tern:* Lands within 1/2 mile of occupied interior least tern habitat would be stipulated as NSO. No least tern colonies have been identified in the planning area.

- *Mountain plover:* Lands that have been identified as mountain plover habitat would be stipulated as NSO. This would affect 97,617 acres, of which 2,144 acres (2%) are currently leased. Additionally, a timing stipulation would be stipulated for areas within 1/4 mile of mountain plover habitat. This would affect an additional 6,088 acres, of which 178 acres (3%) are currently leased.

- Peregrine falcon: Lands within 1/4 mile of peregrine falcon nest sites that were active within the past seven years would be stipulated as NSO.
- *Piping plover:* Lands within 1/4 mile of piping plover habitat would be stipulated as NSO. This would affect 893 acres, of which 447 acres (50%) are currently leased.
- *Raptor:* Lands within 1/4 mile raptor nest sites active within the past seven years would be stipulated as NSO. This would affect 9,054 acres, of which 5,668 acres (63%) are currently leased. Additionally, a timing stipulation would be applied to areas within 1/2 mile of active raptor nest sites. This would affect an additional 11,380 acres, of which 6,332 acres (56%) are currently leased.
- *Sharp-tailed grouse:* Lands within 1/4 mile of sharp-tailed grouse leks would be stipulated as NSO. This would affect 25,658 acres, of which 7,982 acres (31%) are currently leased. Sharp-tailed grouse nesting habitat would have a timing stipulation for lands within 1/2 mile of sharp-tailed grouse leks. This would affect 49,399 acres, of which 16,346 acres (33%) are currently leased.
- *Special status species:* Lands within 1/4 mile of essential habitat of special status species would be stipulated as NSO unless other species-specific stipulations apply.
- *Winter range:* Lands that have been identified as big game and Greater Sage-Grouse winter range would be stipulated with a timing stipulation. This would affect 995,610 acres, of which 339,538 acres (34%) are currently leased.

Cumulative Impacts

Stipulations create an effect to oil and gas leasing and subsequent development, ranging from a minor restriction such as a timing stipulation to the most restrictive measure of completely preventing development in a given area. In turn, stipulations lead to less federal acreage being leased which equates to a reduction in oil and gas exploration and development on federal minerals, a reduction in federal wells drilled, and ultimately a reduction in federal oil and gas produced.

Approximately 5,756 additional oil and gas wells would be drilled during the life of the plan (20 years), of which 1,617 wells would access federal minerals. The predicted number of federal wells would equate to a short-term disturbance of approximately 8,547 acres compared to 35,557 acres that would be disturbed by all wells drilled in the planning area. The long-term disturbance would be 11,042 acres total with 2,238 acres occurring on BLM land. The HiLine RFD scenario determined the percent reduction in projected oil and gas production by alternative and established a baseline for assessing the impacts to oil and gas associated with the proposed stipulations. From baseline (unconstrained) conditions, (1) total oil production would be 2.8% less; and (2) total gas production would be 18.4% less. The decrease in coalbed gas production would be negligible as the predicted total CBNG well count is only 146 for the life of the plan.

Impacts under Alternative D

The effects from the management of air quality, fire management and ecology, livestock grazing, lands and realty, other minerals, OHV use and travel management areas, transportation, vegetation, visual resources, and WSAs are all discussed in the Impacts Common to All Alternatives section above. Table 4.47 summarizes the Alternative D stipulations in relation to where they fall within the oil and gas potential categories.

Drill Rig BLM Photo

Table 4.47
Stipulation Acres by Development Potential under Alternative D

	Development Potential				
	High	***Moderate***	***Low***	***Very Low***	***Total***
Closed	0	0	0	74,674	74,674
NSO	13,094	10,742	31,297	302,323	357,456
CSU/Timing	107,298	219,021	211,988	1,923,287	2,461,653
Standard Terms Only	25,867	107,680	168,297	295,744	597,668

Cultural Resources: An NSO stipulation would be attached to any federal acreage that underlies NRHP Eligible Properties/Districts, the Bear Paw Battlefield, and TCPs. Under Alternative D, this would affect 75,844 acres, of which 7,766 acres (10%) are leased. In all cases of federally permitted surface-disturbing activities, a cultural inventory and subsequent cultural clearance is required prior to approval. If small NRHP Eligible cultural resource sites are found to be present, access roads, drill pads, and any associated infrastructure would be relocated to avoid any adverse impacts to the cultural resource.

Paleontological Resources: An NSO stipulation would be specified within the boundaries of known paleontological sites. This would affect 193 acres, none of which are leased. Additionally, a CSU stipulation would require that a paleontological inventory be conducted in Class 4 and 5 areas that were identified in accordance with the guidance provided in Washington Office Instruction Memorandum No. 2008-009. This would affect 1,157 acres that are already leased. Avoidance of important paleontological resources could relocate oil and gas facilities or delay facility placement until the paleontological resources are collected and removed. A further discussion of additional requirements imposed by the Malta Geological ACEC, which is proposed to protect the paleontological resource, is located in the Special Designations section below.

Recreation Sites/Trails: An NSO stipulation would be specified within 300 feet of recreation sites/trails. This would affect 5,226 acres, of which 1,233 acres (24%) are already leased.

Residential Structures: An NSO stipulation would be specified within 300 feet of occupied buildings. This would affect 2,062 acres, of which 837 acres (41%) are already leased.

Soils: The effects from the soils resource would be the least restrictive under Alternative D as standard lease terms would be all that applied. As a point of clarification, standard lease terms allow the authorized officer to move a proposed project a distance of up to 200 linear meters and/or to delay a project for up to 60 days.

Special Designations: The effects from special designations management would be similar to those listed in Alternative B; except that the Zortman/Landusky Mine Reclamation ACEC would not be designated. Two additional ACECs would be designated: the Woody Island ACEC (15,804 acres, none of which have been leased) and the Frenchman Breaks ACEC (57,784 acres, of which 14,874 acres are already leased). Both of these proposed ACECs would stipulate NSO within their boundaries.

Vegetation – Riparian and Wetland: The effects from the vegetation – riparian and wetland resource would be similar to those listed in Alternative B; except that the NSO would be replaced by a CSU stipulation within 300 feet of lentic or lotic riparian areas. This would affect 477,265 acres, of which 192,911 acres (40%) are already leased.

Wildlife: Because of the number of different wildlife species, which leads to a variety of wildlife stipulations, this section will be described by species/habitat type. Also, the stipulation is simply categorized as NSO, CSU or timing. The distances for all of these stipulations are described in detail in Chapter 2.

- *Bald eagle:* Lands within 1/2 mile of bald eagle nest sites active within the past seven years would be stipulated with a timing stipulation. This would affect 358 acres, none of which is leased.

- *Bighorn sheep:* Lands that have been identified as bighorn sheep lambing areas would be stipulated with a timing stipulation. This would affect 2,364 acres, of which 344 acres (15%) are already leased.

- *Black-footed ferret:* Lands identified as having black-footed ferret habitat would be stipulated as NSO. This would affect 23,590 acres, of which 1,245 acres (5%) are already leased.

- *Black-tailed prairie dog:* Lands identified as having black-tailed prairie dog habitat would be stipulated as NSO. This would affect 23,590 acres, of which 1,245 acres (5%) are already leased.

- *Colonial waterbird:* Lands within 1/4 mile of a waterbird nesting colony would be stipulated as NSO. This would affect 1,357 acres, of which 381 acres (28%) are already leased. Additionally, a timing stipulation would be stipulated for areas within 1/2 mile of waterbird nesting colonies. This would affect an additional 2,285 acres, of which 1,283 acres (56%) are already leased.

- *Crucial winter range:* Lands that have been identified as crucial winter range would be stipulated as CSU. This would affect 36,199 acres, of which 7,426 acres (21%) are already leased.

- *Greater Sage-Grouse leks:* Lands within 6/10 of a mile from Greater Sage-Grouse leks would be stipulated as NSO. This would affect 111,504 acres, of which 24,077 acres (22%) are already leased. Additionally, lands within 1 mile of Greater Sage-Grouse nesting habitat would be stipulated with a timing stipulation. This would affect 137,939 acres, of which 34,948 acres (25%) are already leased.

- *Greater Sage-Grouse winter range:* Lands identified as Greater Sage-Grouse winter range would be stipulated with a timing stipulation.

- *Interior least tern:* Lands within 1/4 mile of interior least tern occupied habitat would be stipulated as NSO. No least tern colonies have been identified in the planning area.

- *Mountain plover:* Lands that have been identified as mountain plover habitat would be stipulated as NSO. This would affect 309,054 acres, of which 2,144 acres (1%) are already leased.

- *Peregrine falcon:* Lands within 1/4 mile of peregrine falcon nest sites active within the past seven years would be stipulated with a timing stipulation.

- *Piping plover:* Lands within 1/4 mile of piping plover habitat would be stipulated with a timing stipulation. This would affect 844 acres, of which 414 acres (49%) are already leased.

- *Raptor:* Lands within 1/4 mile of raptor nests active within the past seven years would be stipulated as CSU. This would affect 8,586 acres, of which 5,572 acres are already leased. Additionally, a timing stipulation would be stipulated for areas within 1/4 mile of active raptor nest sites. This would affect an additional 7,465 acres, of which 4,248 acres (57%) are already leased.

- *Sharp-tailed grouse:* Lands within 1/4 mile of sharp-tailed grouse leks would be stipulated as CSU. This would affect 27,640 acres, of which 7,754 acres (28%) are already leased. Sharp-tailed grouse nesting habitat would have a timing stipulation for lands within 1/4 mile of sharp-tailed grouse leks. This would affect 27,640 acres, of which 7,754 acres (28%) are already leased.

- *Special status species:* Lands within 1/4 mile of essential habitat of special status species would be stipulated as NSO unless other species-specific stipulations apply.

- *Winter range:* Lands that have been identified as big game and Greater Sage-Grouse winter range would be stipulated with a timing stipulation. This would affect 2,050,597 acres, of which 511,867 acres (25%) are already leased.

Cumulative Impacts

Stipulations create an effect to oil and gas leasing and subsequent development ranging from a minor restriction such as a timing stipulation to the most restrictive measure of completely preventing development in a given area. In turn, stipulations lead to less federal acreage being leased which equates to a reduction in oil and gas exploration and

development on federal minerals, a reduction in federal wells drilled, and ultimately a reduction in federal oil and gas produced.

Approximately 6,034 additional oil and gas wells would be drilled during the life of the plan (20 years), of which 1,894 wells would access federal minerals. The predicted number of federal wells would equate to a short-term disturbance of approximately 9,663 acres compared to 36,673 acres that would be disturbed by all wells drilled in the planning area. The long-term disturbance of these additional wells would be 11,240 acres total with 2,436 acres occurring on BLM land. The HiLine RFD scenario determined the percent reduction in projected oil and gas production by alternative and established a baseline for assessing the impacts to oil and gas associated with the proposed stipulations. From baseline (unconstrained) conditions, (1) total oil production would be 0.5% less; and (2) total gas production would be 3.4% less. The decrease in coalbed gas production would be negligible as the predicted total CBNG well count is only 149 for the life of the plan.

Impacts under Alternative E (Preferred Alternative)

The effects from the management of air quality, fire management and ecology, livestock grazing, lands and realty, other minerals, OHV use and travel management areas, transportation, vegetation – rangeland, visual resources, and WSAs are all discussed in the Impacts Common to All Alternatives section above. Table 4.48 summarizes the Alternative E stipulations in relation to where they fall within the oil and gas potential categories.

Table 4.48
Stipulation Acres by Development Potential under Alternative E (Preferred Alternative)

	Development Potential				
	High	***Moderate***	***Low***	***Very Low***	***Total***
Closed	0	0	21,271	131,431	152,702
NSO	35,654	59,753	55,328	1,560,614	1,711,378
CSU/Timing	106,803	251,155	286,720	815,388	1,460,096
Standard Terms Only	3,802	26,535	48,263	88,594	167,274

Cultural Resources: An NSO stipulation would be attached to any federal acreage that underlies NRHP Eligible Properties/Districts as well as TCPs. Under Alternative E, this would affect 16,212 acres, of which 4,987 acres (31%) are already leased. Also, the Bear Paw Battlefield has been identified as an area not suitable for fluid mineral leasing (closed) because of its archaeological value. This would affect 40 acres, none of which have been leased. In all cases of federally permitted surface-disturbing activities, a cultural inventory and subsequent cultural clearance is required prior to approval. If small NRHP Eligible cultural resource sites are found to be present, access roads, drill pads, and any associated infrastructure would be relocated to avoid any adverse impacts to the cultural resource.

Paleontological Resources: An NSO stipulation would be specified within the boundaries of known paleontological sites. This would affect 199 acres, of which 5 acres (3%) are already leased. Additionally, a CSU stipulation would require that a paleontological inventory be conducted in Class 4 and 5 areas that were identified in accordance with the guidance provided in Washington Office Instruction Memorandum No. 2008-009. This would affect 1,157 acres that are already leased. Avoidance of important paleontological resources could relocate oil and gas facilities or delay facility placement until the paleontological resources are collected and removed. A further discussion of additional requirements imposed by the Malta Geological ACEC, which is proposed to protect the paleontological resource, is located in the Special Designations section below.

Recreation Sites/Trails: An NSO stipulation would be specified within 500 feet of recreation sites/trails. This would affect 12,223 acres, of which 2,834 acres (23%) are already leased.

Residential Structures: An NSO stipulation would be specified within 500 feet of city limits or occupied residential structures. This would affect 5,076 acres, of which 2,156 acres (42%) are already leased.

Soils: The effects from the soils resource would be similar to those listed in Alternative B; except that a CSU stipulation would be specified for soils with a severe erosion hazard instead of being NSO. The CSU stipulation would affect 563,749 acres, of which 238,703 acres (27%) are already leased. Soils with badlands and rock outcrop would still be stipulated with NSO. The NSO would apply to 131,428 acres, of which 17,931 acres (14%) are already leased.

Special Designations: Six of the seven existing ACECs within the planning area would be retained:

- Azure Cave (143 acres, none of which have been leased),
- Big Bend of the Milk River (1,979 acres, of which 1,151 acres are already leased),
- Bitter Creek (60,717 acres, of which 10 acres are already leased),
- Mountain Plover (24,7 acres, none of which have been leased),
- Kevin Rim (4,564 acres, of which 3,651 acres are already leased), and
- Sweet Grass Hills (6,248 acres, of which 116 acres are already leased).

The Prairie Dog Towns within the 7km Complex ACEC would be eliminated. The following additional ACECs would be proposed:

- Frenchman Breaks ACEC (39,700 acres, of which 3,163 acres are already leased),
- Malta Geological ACEC (6,152 acres, all of which have already been leased),
- Woody Island ACEC (24,083 acres, of which 7,759 acres are already leased), and
- Zortman/Landusky Mine Reclamation ACEC (3,505 acres, none of which have been leased).

Apart from the Sweet Grass Hills and Malta Geological ACECs, all of the ACECs recommended in Alternative E have been identified with an NSO stipulation within the boundaries of each ACEC to protect the critical resource(s). The NSO avoidance measure would require establishment of facilities in adjacent areas, which would delay and possibly limit oil and gas activities within these areas. Since these ACECs typically consist of continuous blocks of lands, the minerals within the interior of the ACECs would most likely not be developed without further advances in directional drilling technology coupled with energy product prices being high enough to make the advanced drilling costs economically feasible. The Sweet Grass Hills ACEC would be closed to leasing under this alternative and the proposed Malta Geological ACEC would specify a CSU stipulation within the boundaries of the ACEC to protect the critical paleontological resource. The CSU stipulation would equate to intensive management of surface-disturbing activities within the ACEC and would potentially change the location and/or design of some projects. It would not, however, preclude the ability to explore for and develop fluid minerals.

Vegetation – Riparian and Wetland: The effects from the vegetation – riparian and wetland resource would be similar to those listed in Alternative C; except that the CSU stipulation would be specified within 300 feet of lentic or lotic riparian areas. This would affect 815,857 acres, of which 432,124 acres are already leased.

Visual Resources: Within VRM Class II areas, a CSU stipulation would require that oil and gas development activities would be located, designed, constructed, operated and reclaimed so that activities should not attract attention to the casual observer within 2 years from initiation of construction. This would affect 4,732 acres, of which 1,096 acres are already leased.

Wilderness Characteristics: Lands managed for wilderness characteristics would be available for leasing with an NSO stipulation. This would affect 16,393 acres. All of the areas affected are within a very low development potential for oil and gas (Table 4.49) and are currently unleased (Table 4.50).

Table 4.49
Areas with Wilderness Characteristics by Development Potential under Alternative E (Preferred Alternative)
(Acres)

	Development Potential				
	High	***Moderate***	***Low***	***Very Low***	***Total***
Eastern Breaks and Badlands	0	0	0	16,393	16,393
Total	0	0	0	16,393	16,393

Table 4.50
Areas with Wilderness Characteristics Leased for Oil and Gas under Alternative E (Preferred Alternative)
(Acres)

	Oil and Gas Leases	
	Leased	***Unleased***
Eastern Breaks and Badlands	0	16,393
Total	0	16,393

Wildlife: Because of the number of different wildlife species, which leads to a variety of wildlife stipulations, this section will be described by species/habitat type. Also, the stipulation is simply categorized as NSO, CSU or timing. The distances for all of these stipulations are described in detail in Chapter 2.

- *Bald eagle:* Lands within 1/2 mile of bald eagle nest sites active within the preceding five breeding season would be stipulated as NSO. This would affect 361 acres, none of which are leased.

- *Bighorn sheep:* Lands that have been identified as bighorn sheep habitat would be stipulated as CSU. This would affect 7,792 acres of bighorn sheep habit, of which 1,248 acres (16%) are currently leased. The CSU stipulation would only apply to the 6,544 unleased acres and any leases that expire.

  Lands that have been identified as bighorn sheep lambing area would be stipulated as NSO. This would affect 2,364 acres of bighorn sheep lambing habitat, of which 343 acres (15%) are currently leased. The NSO stipulation would only apply to the 2,021 unleased acres and leases that expire.

- *Black-footed ferret:* Lands within 1/4 mile of black-footed ferret habitat would be stipulated as NSO. This would affect 103,351 acres, of which 8,680 acres (8%) are already leased.

- *Black-tailed prairie dog:* Lands within 1/4 mile of black-tailed prairie dog habitat would be stipulated as NSO. This would affect 103,351 acres, of which 8,680 acres (8%) are already leased.

- *Colonial waterbird:* Lands within 1/4 mile of a waterbird nesting colony would be stipulated as NSO. This would affect 5,303 acres, of which 1,780 acres (34%) are already leased. Additionally, a timing stipulation would be stipulated for areas within 1/2 mile of waterbird nesting colonies. This would affect an additional 8,863 acres, of which 4,259 acres (48%) are already leased.

- *Crucial winter range:* Lands that have been identified as crucial winter range for big game and/or Greater Sage-Grouse would be stipulated as CSU. This would affect 44,720 acres, of which 7,154 acres (16%) are already leased.

- *Grassland Bird/Greater Sage-Grouse Priority Habitat Management Areas:* Lands that have been identified as Grassland Bird/Greater Sage-Grouse Habitat Management Areas would be stipulated as NSO. This would affect 318,143 total acres, of which 54,746 acres (17%) are already leased.

- *Sagebrush Focal Areas:* SFAs would be stipulated as NSO. This would include 927,074 acres and would not be available for waivers, exceptions or modifications.

- *Greater Sage-Grouse:* Lands within 1 mile of Greater Sage-Grouse leks would be stipulated as NSO. This would affect 107,494 acres, of which 58,085 acres (54%) are already leased. Greater Sage-Grouse nesting habitat would be stipulated with a CSU stipulation. This would affect 1,212,152 acres, of which 221,385 acres (18%) are already leased. Areas that fall within the boundaries of the Greater Sage-Grouse Protection Priority Area would be subject to that stipulation.

- *Greater Sage-Grouse Priority Habitat Management Area:* Lands that have been identified as within the Greater Sage-Grouse Protection Priority Area would be stipulated as NSO. This would affect 1,028,661 acres, of which 7,169 acres (1%) are already leased.

- *Greater Sage-Grouse winter range:* Lands that have been identified as Greater Sage-Grouse winter range would have a timing stipulation.

- *Interior least tern:* Lands within 1/4 mile of interior least tern occupied habitat would be stipulated as NSO. No least tern colonies have been identified in the planning area.

- *Mountain plover:* Lands that have been identified as mountain plover habitat would be stipulated as NSO. This would affect 285,170 acres, of which 2,144 acres (1%) are already leased. Additionally, a timing stipulation would be stipulated for areas within 1/4 mile of mountain plover habitat. This would affect an additional 23,186 acres, of which 346 acres (1%) are already leased.

- *Pallid sturgeon:* Lands within 1/2 mile of river or stream shorelines identified as pallid sturgeon habitat would be stipulated as CSU.

- *Peregrine falcon:* Lands within 1 mile of peregrine falcon nest sites active within the preceding seven breeding seasons would be stipulated as NSO.

- *Piping plover*: Lands within 1/4 mile of piping plover habitat would be stipulated as NSO. This would affect 893 acres, of which 447 acres (50%) are already leased.

- *Raptor:* Lands within 1/4 mile of raptor nest sites active within the past seven years would be stipulated as NSO. This would affect 9,162 acres, of which 5,668 acres (62%) are already leased. Additionally, a timing stipulation would be stipulated for areas within 1/2 mile of active raptor nest sites. This would affect an additional 16,890 acres, of which 9,477 acres (56%) are already leased.

- *Sharp-tailed grouse leks:* Lands within 1/4 mile of sharp-tailed grouse leks would be stipulated as NSO. This would affect 30,491 acres, of which 7,982 acres (26%) are already leased. Additionally, Sharp-tailed grouse nesting habitat would have a timing stipulation for lands within 1/2 mile of sharp-tailed grouse leks. This would affect 77,770 acres, of which 22,353 acres (29%) are already leased.

- *Sprague's pipit:* Lands within Sprague's pipit habitat would be stipulated with a timing stipulation.

- *Winter range:* Lands that have been identified as big game winter range would be stipulated with a timing stipulation. This would affect 723,752 acres, of which 442,694 acres (61%) are already leased.

Cumulative Impacts

Stipulations create an effect to oil and gas leasing and subsequent development ranging from a minor restriction such as a timing stipulation to the most restrictive measure of completely preventing development in a given area. In turn, stipulations lead to less federal acreage being leased which equates to a reduction in oil and gas exploration and development on federal minerals, a reduction in federal wells drilled, and ultimately a reduction in federal oil and gas produced.

Approximately 5,908 additional oil and gas wells would be drilled during the life of the plan (20 years), of which 1,768 wells would access federal minerals. The predicted number of federal wells would equate to a short-term disturbance of approximately 9,123 acres compared to 36,133 acres that would be disturbed by all wells drilled in the planning area. The long-term disturbance of these additional wells would be 11,150 acres total with 2,346 acres occurring on BLM land. The HiLine RFD scenario determined the percent reduction in projected oil and gas production by alternative and established a baseline for assessing the impacts to oil and gas associated with the proposed stipulations. From baseline (unconstrained) conditions, (1) total oil production would be 1.5% less; and (2) total gas production would be 10.1% less. The decrease in coalbed gas production would be negligible as the predicted total CBNG well count is only 144 for the life of the plan.

Forests and Woodlands

This section describes the impacts each alternative has on forest health, woodlands and products in terms of direct, indirect, short-term, and long-term impacts; as appropriate, impacts are described as beneficial or adverse.

Actions within each alternative could affect forests, woodlands, and sales of forest products. Actions (or inaction) that restricts forest health and the availability, quality, and quantity of forest products are considered adverse impacts. Indirect impacts may include any change in the forest and woodland species, vigor, health, site quality, and vegetative community type as a result of natural forces (e.g., insect and disease, fire, and drought conditions), management actions from other resources, or failure to implement management actions. Conversely, beneficial effects include actions that improve health, and protect and restore forests and woodlands as well as provide a variety of forest products in the planning area.

Forests and woodlands within the planning area are, for the most part, fire dependent. These forests naturally maintained themselves through frequent, low severity fires (i.e., ponderosa pine forests) or through less frequent, high severity, stand replacing events (i.e., lodgepole pine forests). Many of the forests and woodlands within the planning area have not seen a natural fire event in several decades. Only recently has there been any attempt at prescribed fire and mechanical treatments that mimicked natural events. Continued inaction (or reduced action) would only add to the negative impact of overstocked and undesirable forest conditions.

Allowable uses and management actions potentially impacting forests, woodlands, and forest products primarily include surface-disturbing activities and proactive management actions. As forest health resources are impacted by the alternatives, they can impact other resources. The impacts of forest health treatments on other resource topics (i.e., physical, biological, fire management and ecology, etc.) are discussed under the appropriate impacted resource section in this chapter.

Assumptions and Guidelines

Assumptions and guidelines used in this analysis include the following:

- A healthy forest is more stable and much more resilient to natural and widespread wildfires.
- The need to manage forests and woodlands will increase to accommodate other multiple uses.
- Forest health (including restoration and hazardous fuels reduction) objectives will be the major determining factor in forest management activities.
- The planning area contains approximately 83 million board feet of commercial wood products on about 39,100 acres of available forested land, mostly located in the three island mountain ranges (Sweet Grass Hills, Bears Paw and Little Rocky Mountains).
- The Probable Sale Quantity (PSQ) is estimated to be 664,000 board feet yearly along with up to 4,000 tons of biomass.
- Old growth stands or those to be managed for old growth will follow the Healthy Forests Restoration Act (HFRA) (2003) Section 102 for maintaining and managing these stands. The principle guiding document will be provided by the “Old-Growth Forest Types of the Northern Region” (USFS 1992).
- The sale of minor amounts of personal use wood products such as Christmas trees, fuelwood and post/poles would have no appreciable effect on the overall forest resource.
- Other natural processes such as insect and disease infestations will continue to contribute to losses within the forested resource.
- Limited access to some isolated parcels restricts the ability to manage forested lands on a long-term basis.

Impacts Common to All Alternatives

Resource issues in any alternative may require location and/or timing restrictions for implementing vegetation treatments or using wildfire for resource benefit. However, for any activity, interdisciplinary planning would consider constraints and long-term effects, and would identify mitigation measures or restrictions necessary for successful implementation.

Special Designations: The Sweet Grass Hills ACEC likely conflicts with forest health objectives. The objective of the Sweet Grass Hills ACEC is to protect the diverse archeological (cultural and traditional) resource values. Mechanical vegetation treatments that would be proposed in the Sweet Grass Hills would involve some level of surface disturbance and change in the landscape that would be perceived as not offering protection to archeological resources. A total of 6,248 acres of forests (13%) may not be available for meaningful treatments.

Wildlife: Timing considerations for protection of wildlife and their habitat would be identified at the project planning level, and mitigation measures would be applied on a case-by-case basis if an onsite evaluation of the project area indicates the presence of important wildlife species. Exceptions may be granted by the authorized officer if an environmental review demonstrates there would be no adverse impacts, or habitat for the species is not present in the area, or portions of the area can be occupied without affecting a particular species. Exceptions may also be granted where the short-term effects are mitigated by the long-term benefits.

Specific timing considerations for mule deer, elk, bighorn sheep, and antelope winter range are addressed under each alternative.

Timing considerations for active raptor nests could constrain vegetation treatments, especially prescribed fire. Most timing restrictions apply to areas that range in distance from 1/4 mile to 1/2 mile from nesting habitat, so depending on location and evaluations of project areas, implementation could be precluded from mid-March through July.

Impacts under Alternative A (Current Management)

Fire Management and Ecology: FMUs would remain as Category B, so using wildfire for resource benefit would not be considered as a management option. Therefore, full fire suppression (as a management strategy) would continue to contribute to the decline of forest health. Fire is one of the disturbances necessary to maintain and improve forest health. Fire (natural or introduced) helps facilitate healthy forests by rejuvenating fire-dependent species such as aspen, chokecherry and lodgepole pine. In addition, the reintroduction of fire helps maintain fuel loadings at a level that helps prevent unwanted high intensity fires which detrimentally alter soil properties and wildlife habitat. Without fire in the forest development cycle, rejuvenation of critical wildlife species and forest health would continue to stagnate or decline.

Forests and Woodlands: Forest health treatments would continue to focus more on quantity and value of commercial products sold rather than treating acres. With the focus of treatments being on not exceeding the Allowable Sale Quantity (ASQ) of 3.5 MMBF (Million Board Feet) per decade the treatments would not allow management initiated actions to “catch up” with the rate of decline of acres of forest health. There would continue to be no guidance for old growth management. Old growth forests are a critical component in maintaining a healthy forest ecosystem. Old growth has value as habitat for dependent or associated wildlife species as well as playing an important role in multiple resource management. Additionally, old growth is a critical element of the total diversity that should be found in a healthy forest landscape.

Vegetation – Rangeland: Mandatory rest following disturbance may continue to be a deterrent to reintroducing fire on the forested landscape. Fire is one of the disturbances necessary to maintain and improve forest health. Fire (natural or introduced) helps facilitate healthy forests by rejuvenating fire-dependent species such as aspen, chokecherry and lodgepole pine. In addition, the reintroduction of fire helps maintain fuel loadings at a level that helps prevent unwanted high intensity fires which detrimentally alter soil properties and wildlife habitat.

Visual Resources: The Class II rating of the Bears Paw and Little Rocky Mountains and the Sweet Grass Hills may restrict forest health treatments at the landscape level. Prescribed treatments in the forested landscape likely include changes that would contradict the Class II rating objectives. The forests/woodlands that occur in the Class II rating area make up 100% of the available resource. Not treating or reduced levels of treatments on such a large percentage of forested ground would not adequately address ongoing forest health issues such as insects, disease, overstocking, and decreased wildlife habitat.

Wildlife (Winter Range): Mule deer, elk, bighorn sheep, and antelope winter range covers most of the conifer vegetation types in the planning area. Because of the extent of the winter range habitats, most forest health activities including mechanical treatments and prescribed fire could have constraints from timing limits that would occur from

December 1 through May 15. Contracts may require multiple years to be completed. In some situations, prescribed fire may not be available as a treatment option because weather and fuel prescriptions could not be satisfied in forested settings during summer and fall.

Cumulative Impacts

During the life of the plan minimal gain on restoring forest health would be made. Volume-driven treatments would not likely accomplish landscape-level forest health objectives due to ASQ limitations. Opportunities for projects would largely be dictated by market conditions and finding a willing purchaser.

Natural fire would not be considered as a management tool for the benefit of the resource. The ASQ would inhibit the ability to treat at the landscape level. Without landscape-level treatments, using wildfire for resource benefit becomes less practical. Treatments would most likely be too small to consider any suppression response other than full suppression.

Short-term impacts to soil may occur through ground-based mechanical equipment. Exposure of bare mineral soil would provide a seed bed for non-native and exotic plant species.

The continued small projects would provide a small quantity of wood products to the local industry as well as provide some work opportunities and boost to the local economy.

Impacts under Alternative B

Fire Management and Ecology: In the eastern half of the planning area (including the 30,949 acres of forested land in the Little Rocky Mountains), FMUs would be recategorized as fire management Category C. Wildfire for resource benefit therefore could be considered in those FMUs as a management strategy. Fire suppression strategies other than full fire suppression could be applied as a management tool for improving forest health. Fire is a necessary disturbance that helps maintain and improve forest health by rejuvenating fire-dependent species such as aspen, chokecherry and lodgepole pine. In addition, the reintroduction of fire helps maintain fuel loadings at a level that helps prevent unwanted high intensity fires that detrimentally alter soil properties and wildlife habitat.

Forests and Woodlands: Forest health treatments could average approximately 390 acres per year and focus more on landscape-level treatments rather than quantity of commercial products sold. Landscape-level projects that focus on forest health rather than product quantity would allow for a greater array of silvicultural treatments that mimic ecological processes. Additionally, silvicultural treatments would address old growth in guidance provided through the document "Old-Growth Forest Types of the Northern Region" (USFS 1992). Managing for old growth helps to provide habitat for dependent or associated wildlife species as well as playing an important role in multiple resource management. Additionally, old growth is a critical element of the total diversity that should be found in a healthy forest landscape.

Visual Resources: The VRM Class I rating for the Sweet Grass Hills would likely restrict landscape-level forest management opportunities on 6,248 acres. Treatments at the landscape level would likely exceed the accepted level of change and objectives afforded a Class I rating. Conversely, the entire Little Rocky Mountains would have the less restrictive Class III rating applied, which would allow much more flexibility to do landscape-level treatments on up to 30,949 acres. All remaining forested acres in the planning area would fall within the Class II ratings and may be impacted similar to that described in Alternative A.

Wilderness Characteristics: The VRM Class I rating for the Island Mountain Range would likely restrict landscape level management opportunities on 4,118 acres. Treatments at the landscape level would likely exceed the accepted level of change and objectives afforded a Class I rating. This area may not be available for meaningful treatments.

Wildlife (Winter Range): Mule deer, elk, bighorn sheep, and antelope winter range covers most of the conifer vegetation types in the planning area. Timing or location considerations for protection of wildlife and their habitat would be evaluated at the project planning level and appropriate mitigations would be applied.

Depending on location and evaluation of project areas, timing considerations within 1 mile of active raptor nests could constrain vegetation treatments, especially prescribed fire because implementation could be precluded from March through September. There would be little opportunity to meet weather and fuel parameters during the remaining months of the year.

Cumulative Impacts

During the life of the plan a more significant gain on restoring forest health would be made. Treating an estimated 390 acres per year (7,820 acres over the life of the plan) equates to 20% of the available forest and woodland landscape.

The PSQ would not inhibit the ability to treat at the landscape level. Without landscape-level treatments, using wildfire for resource benefit becomes less practical. Wildfire for resource benefit could now be considered as a tool for managing forest health in the Little Rocky Mountains (30,949 acres). Larger landscape-level treatments would provide a greater opportunity to utilize fire for resource benefit because fire management would be less restricted by boundaries.

Short-term impacts to soil may occur through ground-based mechanical equipment. Exposure of bare mineral soil would provide a seed bed for non-native and exotic plant species.

Forest health projects would continue to provide wood products and work opportunities to the local industry and help boost the local economy.

Impacts under Alternative C

Fire Management and Ecology: In the eastern half of the planning area, (including the 30,949 acres of forested land in the Little Rocky Mountains) FMUs would be recategorized as fire management Category C. Wildfire for resource benefit therefore could be considered in those FMUs as a management strategy. Fire suppression strategies other than full fire suppression could be applied as a management tool for improving forest health. Fire is a necessary disturbance that helps maintain and improve forest health by rejuvenating fire-dependent species such as aspen, chokecherry and lodgepole pine. In addition, the reintroduction of fire helps maintain fuel loadings at a level that helps prevent unwanted high intensity fires that detrimentally alter soil properties and wildlife habitat.

Forests and Woodlands: Forest health treatments could average approximately 390 acres per year and focus more on landscape-level treatments rather than quantity of commercial products sold. Guidance for Old Growth Management now exists. Landscape-level projects that focus on forest health rather than product quantity allow for a greater array of silvicultural treatments that mimic ecological processes. Additionally, silvicultural treatments would address old growth in guidance provided through the document “Old-Growth Forest Types of the Northern Region” (USFS 1992). Managing for old growth helps to provide habitat for dependent or associated wildlife species as well as playing an important role in multiple resource management. Additionally, old growth is a critical element of the total diversity that should be found in a healthy forest landscape.

Visual Resources: The Sweet Grass Hills and the Bears Paw and Little Rocky Mountains would be assigned a Class III rating. This would result in increased landscape-level forest management opportunities on up to 38,037 acres (77% of the planning area). All remaining forested acres in the planning area would fall within the more restrictive Class II ratings and may be impacted similar to that described under Alternative A.

Wilderness Characteristics: The VRM Class I rating for the Island Mountain Range would likely restrict landscape level management opportunities on 4,118 acres. Treatments at the landscape level would likely exceed the accepted level of change and objectives afforded a Class I rating. This area may not be available for meaningful treatments.

Wildlife (Winter Range): Constraints from mule deer, elk, bighorn sheep, and antelope winter range would be the same as under Alternative A.

Cumulative Impacts

During the life of the plan a more significant gain on restoring forest health would be made. Treating an estimated 390 acres per year (7,820 acres over the life of the plan) equates to 20% of the available forest and woodland landscape.

The PSQ would not inhibit the ability to treat at the landscape level. Without landscape-level treatments, using wildfire for resource benefit becomes less practical. Wildfire for resource benefit could now be considered as a tool for managing forest health in the Little Rocky Mountains (30,949 acres). Larger landscape-level treatments would provide a greater opportunity to utilize fire for resource benefit because fire management would be less restricted by boundaries.

Short-term impacts to soil may occur through ground-based mechanical equipment. Exposure of bare mineral soil would provide a seed bed for non-native and exotic plant species.

Forest health projects would continue to provide wood products and work opportunities to the local industry and help boost the local economy.

Impacts under Alternative D

Fire Management and Ecology: In the eastern half of the planning area, (including the 30,949 acres of forested land in the Little Rocky Mountains) FMUs would be recategorized as fire management Category C. Wildfire for resource benefit therefore could be considered in those FMUs as a management strategy. Fire suppression strategies other than full fire suppression could be applied as a management tool for improving forest health. Fire is a necessary disturbance that helps maintain and improve forest health by rejuvenating fire-dependent species such as aspen, chokecherry and lodgepole pine. In addition, the reintroduction of fire helps maintain fuel loadings at a level that helps prevent unwanted high intensity fires that detrimentally alter soil properties and wildlife habitat.

Forests and Woodlands: Forest health treatments could average approximately 390 acres per year and focus more on landscape-level treatments rather than quantity of commercial products sold. Guidance for old growth management now exists. Landscape-level projects that focus on forest health rather than product quantity would allow for a greater array of silvicultural treatments that mimic ecological processes. Additionally, silvicultural treatments would address old growth in guidance provided through the document “Old-Growth Forest Types of the Northern Region” (USFS 1992). Managing for old growth helps to provide habitat for dependent or associated wildlife species as well as playing an important role in multiple resource management. Additionally, old growth is a critical element of the total diversity that should be found in a healthy forest landscape.

Visual Resources: All forested areas within the planning area with the exception of the WSAs would be rated as Class III. This would result in increased landscape-level forest and woodland management opportunities on up to 44,282 acres (91% of the planning area). All remaining forested acres in the planning area would fall within the more restrictive Class I and II ratings and may be impacted similar to that described under Alternative A.

Wildlife (Winter Range): Constraints from mule deer, elk, bighorn sheep, and antelope winter range would be the same as Alternative A except that timing considerations would occur from December 1 through March 31, rather than to May 15. In most situations, prescribed fire could be implemented successfully because weather and fuel prescriptions/parameters could be satisfied during April.

Cumulative Impacts

During the life of the plan a more significant gain on restoring forest health would be made. Treating an estimated 390 acres per year (7,820 acres over the life of the plan) equates to 20% of the available forest and woodland landscape.

The PSQ would not inhibit the ability to treat at the landscape level. Without landscape-level treatments, using wildfire for resource benefit becomes less practical. Wildfire for resource benefit could now be considered as a tool for managing forest health in the Little Rocky Mountains (30,949 acres). Larger landscape-level treatments would provide a greater opportunity to utilize fire for resource benefit because fire management would be less restricted by boundaries.

Short-term impacts to soil may occur through ground-based mechanical equipment. Exposure of bare mineral soil would provide a seed bed for non-native and exotic plant species.

Forest Health projects would continue to provide wood products and work opportunities to the local industry and help boost the local economy.

Impacts under Alternative E (Preferred Alternative)

Fire Management and Ecology: A majority of the FMUs would remain as Category B, so using wildfire for resource benefit would not be considered as a management option as unplanned fire is likely to cause negative effects. However, the Malta Prairie Potholes and Malta Breaks FMUs would be recategorized as Category C, where fire is desired to manage ecosystems; but ecological, social, or political conditions create constraints on use of wildfire for resource benefit. If these constraints exist, fire suppression may be required in these FMUs. Fire is one of the disturbances necessary to maintain and improve forest health in these fire management units. Fire (natural or introduced) helps facilitate healthy forests by rejuvenating fire-dependent species such as aspen, chokecherry and lodgepole pine. In addition, the reintroduction of fire helps maintain fuel loadings at a level that helps prevent unwanted high intensity fires which detrimentally alter soil properties and wildlife habitat. Without fire in the forest development cycle, rejuvenation of critical wildlife species and forest health would continue to stagnate or decline.

Forests and Woodlands: Forest health treatments could average approximately 390 acres per year and focus more on landscape-level treatments rather than quantity of commercial products sold. Guidance for old growth management now exists. Landscape-level projects that focus on forest health rather than product quantity allow for a greater array of silvicultural treatments that mimic ecological processes. Additionally, silvicultural treatments would address old growth in guidance provided through the document "Old-Growth Forest Types of the Northern Region" (USFS 1992). Managing for old growth helps to provide habitat for dependent or associated wildlife species as well as playing an important role in multiple resource management. Additionally, old growth is a critical element of the total diversity that should be found in a healthy forest landscape.

Visual Resources: The Sweet Grass Hills and the Bears Paw and Little Rocky Mountains would be assigned a Class III rating. This would result in increased landscape-level forest management opportunities on up to 38,037 acres (77% of the planning area). All remaining forested acres in the planning area would fall within the more restrictive Class II ratings and may be impacted similar to that described under Alternative A.

Wildlife (Winter Range): Constraints from mule deer, elk, bighorn sheep, and antelope winter range would be the same as Alternative A. Mule deer, elk, bighorn sheep, and antelope winter range covers most of the conifer vegetation types in the planning area. Because of the extent of the winter range habitats, most forest health activities including mechanical treatments and prescribed fire could have constraints from timing limits that would occur from December 1 through May 15. Contracts may require multiple years to be completed. In some situations, prescribed fire may not be available as a treatment option because weather and fuel prescriptions could not be satisfied in forested settings during summer and fall.

Cumulative Impacts

During the life of the plan a more significant gain on restoring forest health would be made. Treating an estimated 390 acres per year (7,820 acres over the life of the plan) equates to 20% of the available forest and woodland landscape.

The PSQ would not inhibit the ability to treat at the landscape level. Without landscape-level treatments, using wildfire for resource benefit becomes less practical. Wildfire for resource benefit could now be considered as a tool for managing forest health in the Little Rocky Mountains (30,949 acres). Larger landscape-level treatments would provide a greater opportunity to utilize fire for resource benefit because fire management would be less restricted by boundaries.

Short-term impacts to soil may occur through ground-based mechanical equipment. Exposure of bare mineral soil would provide a seed bed for non-native and exotic plant species.

Forest health projects would continue to provide wood products and work opportunities to the local industry and help boost the local economy.

Lands and Realty

This section describes potential effects to lands and realty from management actions by other resource programs. Lands and Realty addresses management of rights-of-way, boundaries, leases and permits; administration of withdrawals; and documentation of land ownership adjustments with associated geospatial data.

Lands and Realty responds to requests for land use authorizations (e.g., rights-of-way, permits, or leases), as well as land ownership adjustments from outside entities or other programs. This analysis addresses how the implementation of management actions may modify the location, size, or design of a given proposal, such as for a right-of-way or a land exchange. Such effects would primarily occur from the implementation of management actions designed to protect natural resources and limit impacts on those resources from surface-disturbing activities and may even preclude approval of a proposal. Therefore, the type and degree of limitations or restrictions placed on a given proposal depends on the location of sensitive or high-value resources and the potential for environmental impacts on those resources.

Assumptions and Guidelines

- Demand for land use authorizations will continue. It is assumed that the demand for these authorizations would fluctuate directly with the degree of economic growth and development occurring within and adjacent to the planning area.

- Applications for rights-of-way may increase to accommodate energy development, especially oil and gas, communication site usage for public safety and homeland security, and utilities in support of community expansions/needs. However, the number of authorizations for rights-of-way has remained steady at around 22-23 grants over the last three years. For 2007, 23 surface-disturbing authorizations can be broken down as follows:

  - 4 temporary use permits for 6.38 acres of disturbance;
  - 7 road rights-of-way for 16.15 acres of disturbance;
  - 2 powerline rights-of-way for 1.58 acres of disturbance;
  - 3 buried telecommunications rights-of-way for 32.8 disturbed acres; and
  - 7 oil and gas pipeline rights-of-way for 7.42 acres of disturbance;
  - A total of 64.33 acres of surface disturbance.

- The need to protect sensitive resources could result in construction delays or the need to relocate proposed rights-of-way. The need to relocate could result in an increase to acres of surface disturbance; it is assumed this increase would not exceed 10%. Such delays will be mitigated through management of land boundary tools, e.g., management of land boundary plans and standards for boundary evidence certificate(s).

Land Ownership Adjustment

- It is expected that proposals for land ownership adjustments to improve the manageability of federal and non-federal lands will continue to be brought forth on an occasional basis. Land exchange would continue to be the preferred method of land ownership adjustment.

- Due to differences in appraised values, it is expected that there would be a net loss in acres of BLM lands in most exchange transactions.

Access

- Demand for adequate public access is expected to exceed access acquisition opportunities. Easement acquisition and land exchange is likely to be the primary means of acquiring access when opportunities arise.

Withdrawal

- It is assumed withdrawal will continue to be used to protect critical resources.

Impacts Common to All Alternatives

Cultural Resources: The management of cultural resources could affect several aspects of the lands and realty program including land use authorizations, land ownership adjustments, and the acquisition of legal and physical access to BLM land. These lands and realty actions are considered federal undertakings and must avoid inadvertent damage to federal and non-federal cultural resources through compliance with Section 106 of the National Historic Preservation Act. Cultural inventories would need to be completed prior to these federal undertakings and impacts to important cultural sites would need to be avoided by project redesign, project abandonment, and/or mitigation of adverse impacts through data recovery. This could result in rerouting a proposed right-of-way or road easement, or restructuring or abandoning a proposed land exchange or sale, in whole or in part. These measures can increase processing costs and processing time for both the federal and non-federal parties.

Paleontological Resources: The impacts from the management of paleontological resources would be very similar to those of cultural resources. Lands and realty projects occurring in known fossiliferous areas would require that adequate time and resources be allocated to conduct an inventory of these resources. The discovery of scientifically important paleontological resources could result in the rerouting or redesign of proposed right-of-way and easement facilities; it could also lead to the restructuring or abandoning of land exchanges or sales, in whole or in part. Such actions can increase processing costs and time for both the federal and non-federal parties.

Vegetation: The management of vegetation, including special status species, would have several environmental consequences. The need to protect riparian and wetland vegetation and/or special status species would impact land use authorizations, land ownership adjustments, and acquisition of legal and physical access to BLM land. Facilities proposed for construction under various land use authorizations or access easements in areas where these types of vegetation are present may need to be mitigated, constructed in alternate locations, or in extreme cases, dropped from consideration. The need to protect certain vegetation types could also result in the restructuring or elimination of a land ownership adjustment proposal such as an exchange or sale.

Fire Management and Ecology: Fire management under all alternatives to manipulate/enhance vegetative composition would generally help protect facilities authorized under the lands and realty program by reducing fuel loads and suppressing fires. However, there is always a slight possibility of losing control of prescribed fire and damaging above-ground right-of-way facilities.

Solid Minerals: The management of leasable, salable, and locatable minerals under all alternatives may result in requests for rights-of-way for utilities and access.

Transportation and Facilities: Transportation and facilities management could require that easements be acquired for any BLM roads or other types of facilities to be located on non-federal lands. Right-of-way reservations may be needed for BLM roads or other types of facilities, such as recreation, to be located on BLM land.

Fish and Wildlife: The management of wildlife and fisheries, including special status species, would have several environmental consequences. The need to protect special status species as well as certain other species of fish and wildlife could impact land use authorizations, land ownership adjustments, and the acquisition of legal and physical access to BLM land. Facilities proposed for construction under various land use authorizations or access easements in areas that could adversely affect wildlife or fisheries may need to be mitigated, relocated, or in some cases, dropped from consideration. Land ownership adjustments such as exchanges or sales proposed in areas where wildlife or fisheries

could be adversely affected may need to be restructured or eliminated from consideration. These types of actions could increase processing costs and time for both the federal and non-federal parties.

Lands and Realty: Reviewing existing withdrawals and revoking or modifying those that are no longer serving their intended purpose would ensure that the BLM land is not unnecessarily encumbered and are open to the widest possible array of public land uses consistent with other portions of the plan. Such a review would also ensure that withdrawals and classifications still serving their intended purpose would remain in place. Management proposed for recommended new withdrawals under all alternatives would also ensure that such actions encumber the minimum area necessary to achieve the intended purpose.

In terms of health and safety, land use authorizations for uses involving the disposal or storage of materials which could contaminate the land would not be issued. Lands proposed for acquisition or disposal would need to be inventoried for the presence of hazardous materials. The presence of contaminants may lead to actions such as the modification or abandonment of a land exchange proposal, or remediation in the form of cleanup and removal of the contaminants.

All land use authorizations require follow-up. This may be in the form of monitoring a year or two after authorization to ensure a right-of-way was constructed and the surface disturbance reclaimed according to the stipulations attached to the right-of-way grant. Or it may be monitoring to determine that no resource impacts are being caused by the right-of-way, or that the right-of-way itself is not being impacted. As more rights-of-way are authorized, the monitoring workload increases.

Renewable Energy: Any renewable energy development proposed for BLM land could result in requests for site, utility and access rights-of-way.

Special Designations: The need to manage national trails to protect the values for which they were designated could impact applicants for rights-of-way as well as BLM actions to obtain legal and physical access across non-federal lands to BLM lands. Proposed facilities such as powerlines may need to be mitigated (e.g., burial of the line) or rerouted in order to protect the trail values. Land ownership adjustments such as sales or exchanges may need to be restructured or eliminated from consideration in order to avoid disposing of BLM lands containing important trail segments.

Management of any BLM lands that may be designated as ACECs could impose stipulations on the use of these areas for land use authorizations and would preclude realty-related disposals of these lands.

Impacts under Alternative B

Wilderness Characteristics: The 386,462 acres of lands managed for wilderness characteristics would be avoidance areas for rights-of-way, leases, permits, and other land use authorizations. Applications and inquires would be analyzed on a case-by-case basis. If potential impacts can be mitigated and those actions do not affect any of the wilderness characteristic of that area, the action may be granted. A small portion of the Prairie Grasslands area (Area 84) includes about 1,500 acres of the Northern Border Corridor (an existing corridor in the HiLine District).

Lands with wilderness characteristics are identified as Category 1 (retention) and would not be available for sale or disposal.

Impacts under Alternative C

Wilderness Characteristics: A total of 4,118 acres of land managed for wilderness characteristics in Area 1 (Island Mountain Range) and 46,937 acres of land in Areas 20B and 55 (Sagebrush Grasslands), would be managed as exclusion areas for rights-of-way, permits, and other land use authorizations.

The remaining 177,364 acres of lands managed for wilderness characteristics would be avoidance areas for rights-of-way, leases, permits, and other land use authorizations. Applications and inquiries would be analyzed on a case-by-case basis. If potential impacts can be mitigated and those actions do not affect any of the wilderness characteristic of that area, the action may be granted.

Lands with wilderness characteristics are identified as Category 1 (retention) and would not be available for sale or disposal.

Impacts under Alternative E (Preferred Alternative)

The 16,393 acres managed for wilderness characteristics would be avoidance areas for rights-of-way, leases, permits, and other land use authorizations. Applications and inquiries would be analyzed on a case-by-case basis. If potential impacts can be mitigated and those actions do not affect any of the wilderness characteristics of that area, the action may be granted.

Lands with wilderness characteristics are identified as Category 2 (retention-limited disposal) and would not be available for sale. The BLM land is these areas would not be disposed of other than by exchange and only when necessary to further protect or enhance the wilderness characteristics.

The 1,433,000 acres of Greater Sage-Grouse PHMAs would be an exclusion area for major ROWs and avoidance area for minor ROWs. PHMA would be managed as exclusion areas for wind and solar energy ROWs.

Cumulative Impacts

As the population continues to shift from urban areas to a more rural setting, more land is subdivided. This will result in an increasing demand for rights-of-way to address access needs, enhanced telecommunications capacity, and increased demands for power. As more private lands are closed to recreational use, the public will turn their attention to available open lands (i.e., BLM land, block management areas, and private land where access is allowed). Consequently, there will be an increased demand for recreational access, whether through access easements, conservation easements that provide access, reciprocal rights-of-way, or land exchange proposals that enhance access.

East Butte in Sweet Grass Hills Photo by Brian Hockett

Livestock Grazing

This section describes potential impacts to livestock grazing from the implementation of management actions for other resource programs. Impacts to livestock grazing activities are generally the result of activities that affect forage levels, land use restrictions that affect the ability to construct range improvements, and human disturbance/harassment of livestock within grazing allotments. Activities that result in surface disturbance (e.g., mineral development, right-of-way construction, and recreation) or management of resources that results in limiting surface disturbance (e.g., fish and wildlife, vegetation, water resources, soil resources, and visual resources) also would impact livestock grazing by affecting forage levels. Management of fire and forest and woodland products would affect livestock grazing by either preserving or increasing available forage for livestock over the long term.

Assumptions and Guidelines

Allowable uses and management actions that limit, reduce, or prohibit livestock grazing or animal unit months (AUMs) in the planning area are considered adverse impacts. Deterioration in rangeland health also is considered adverse to livestock grazing. For example, restrictions on livestock grazing or AUMs from other resources are considered adverse impacts. Conversely, beneficial impacts to livestock grazing include those allowable uses or actions that improve rangeland health, increase AUMs, or decrease restrictions and costs to graze livestock.

Direct impacts to livestock grazing result from actions that change AUM allocations, rangeland health, or restrict livestock grazing. Indirect impacts result from actions that alter livestock grazing management on BLM land within the planning area.

For the purpose of this analysis, short-term impacts include activities that affect livestock grazing within five years of when the activity occurs. Long-term impacts are those remaining or occurring after five years.

- Livestock grazing would occur throughout most of the planning area, and the type of grazing use would remain about the same.
- Livestock grazing is not considered a surface-disturbing activity.
- Range improvement projects would continue to be used to achieve rangeland management goals.
- Livestock grazing allocations would not change because of ACEC or special management area designations.

Impact analyses and conclusions are based on interdisciplinary team knowledge of rangeland resources within the planning area, existing rangeland health and range monitoring data, reviews of existing literature, the Rangeland Administration System, and information provided by other agencies. Effects are quantified where possible. In the absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate.

Impacts Common to All Alternatives

Cultural Resources: Managing cultural resources can restrict the location and design of rangeland improvement projects and consequently grazing systems. For example, avoidance of cultural resource sites, limitations on activities located within 1/4 mile of historic trails, and activities impacting the historic landscape may limit the BLM's ability to construct rangeland improvement projects in an allotment aimed at better management of livestock. In addition, cultural resource management can delay construction of range improvement projects by requiring additional surveys and changes in project designs to avoid cultural sites.

Fire Management and Ecology: Fire can have both beneficial and adverse impacts to livestock grazing. In the short term, fire burns forage that livestock depend on and can damage facilities such as fences. This damage can have a substantial adverse economic impact on grazing operations by requiring leasing of additional pasture, feeding livestock for longer periods of time, repairing or building more fences, and reducing herd size. In the long term, fire may improve the quality and quantity of forage, thereby improving flexibility in managing livestock.

Both wildfire and prescribed fires can increase the extent of invasive non-native plant species (INPS) found on an allotment. The extent that fire degrades rangeland health through propagation of INPS typically depends on the

proximity to a source of INPS seed, the type of vegetation community burned, and fire severity. Fire management using prescribed fire can benefit livestock grazing by improving the quality, quantity, and availability of forage for livestock. Prescribed fire also can help meet specific management objectives, such as improving distribution of livestock or removing dense stands of brush. Fire suppression activities can limit the loss of livestock, short-term loss of forage, and in some cases, the long-term damage to vegetation caused by fire, but it can also increase the likelihood of INPS introduction and/or spread into an allotment. The long-term impact of repeated fire suppression is the buildup of hazardous fuels and the increased risk of severe or high severity wildfire. The long-term impact of fire suppression can also lead to a decline in rangeland health, especially in those ecosystems that evolved under a naturally occurring frequent fire return interval.

Fluid Minerals: Fluid mineral development on BLM land can result in the direct removal of forage available to livestock. Rangeland health and forage production can be indirectly affected by mineral development through the introduction and spread of INPS and soil loss. Both the direct and indirect impacts of mineral development are associated with surface disturbance caused by constructing road networks; drilling; installing well pads, pumps, pipelines, and water detention facilities; other associated infrastructure; and ongoing maintenance. When compared to other minerals, oil and gas development is anticipated to cause the most surface disturbance and hence, the most adverse impact on livestock grazing in the planning area. Of a total of 969 allotments administered by the HiLine District, 185 allotments are in areas considered to have a high-to-moderate potential for oil and gas development. All or portions of these 185 allotments would likely be affected by oil and gas development. Both short-term and long-term impacts to AUM allocations may occur, of which the long-term impacts are of greater concern to livestock grazing. The degree of impact would depend on the rate of development, production success, and how quickly disturbed areas are reclaimed. For example, it is expected that disturbed areas associated with nonproducing wells would be reclaimed fairly quickly and AUMs taken out of production restored. This would be considered a short-term impact. On the other hand, for producing wells, it may take many years before disturbed areas are reclaimed and made available for grazing use. This would be a long-term impact. Reducing AUMs would be local in nature since development is unlikely to occur simultaneously across the entire area (e.g., all wells developed at the same time). The impact on AUM allocations could be substantial for individual allotments, but the overall impact of disturbance from oil and gas development on AUMs in the planning area is expected to be negligible.

Lands and Realty: Land disposal could occur throughout the planning area. The majority of land disposed of would likely continue to be grazed under different (e.g., private) ownership; however, grazing fees would no longer be collected by the BLM for these areas. Land disposal is frequently tied to land exchanges, resulting in no net change in AUMs, or only a slight increase or decrease in AUMs. Land exchanges between the BLM and private entities typically result in the BLM acquiring fewer acres of higher overall quality than the acreage disposed, resulting in a reduction in the number of acres managed by the BLM. However, the impact on overall AUMs in the planning area cannot be predicted due to the differences in forage production among sites. Land disposal and acquisition may or may not occur in the same allotment. Consequently, land exchange frequently has a more dramatic impact on specific allotments than on the total number of AUMs in the planning area.

Subdividing base property for recreation or housing developments could potentially impact the BLM's ability to effectively manage adjacent BLM land for grazing. Subdividing would primarily impact individual grazing allotments and could result in breaking allotments into smaller units or in canceling the grazing lease entirely. In addition to structures, subdivisions generally result in more roads, fences, powerlines, and other facilities – all of which can fragment habitat and increase the opportunity for introduction or spread of INPS. The long-term impact could result in loss of AUMs and degradation of rangeland health.

Livestock Grazing: Livestock grazing would continue to occur within the majority of the planning area under all alternatives; however, approximately 47,000 acres (the Little Rocky Mountains 05630, Whitewater Lake 05068 and Cree Crossing 05302 Allotments) would not be available for livestock grazing. Standards and Guidelines (BLM 1997a) would be applied, regardless of the alternative. Vegetation treatment projects designed to benefit rangeland health also are anticipated to occur under all alternatives. Prescribed burning is anticipated to be a higher priority than it has been in the past.

The analysis of alternatives is based on existing conditions and the assumption that over the last 40 to 50 years, an overall improvement in range conditions has occurred. Such improvement is due largely to improved grazing

management practices, development of range improvement projects (e.g., fences and water developments), and in some cases, reduction in livestock numbers or change in kind of livestock.

Rangeland improvement projects, such as fencing and water development, also occur under all alternatives. Impacts associated with fencing and water pipelines generally are considered to be short-term and typically regeneration occurs within two to three growing seasons. While impacts associated with the construction of these facilities are short-term, the indirect impacts of these actions can be long-term. For example, new fences and new water developments are expected to change livestock grazing patterns and distribution within the allotment. Moreover, congregation of livestock and wildlife around the water source and trailing patterns also are expected to change as a result of constructing these facilities. Overall, the long-term impacts from these facilities are anticipated to be a beneficial improvement of rangeland health. Rangeland improvement projects allow livestock managers and permittees to better implement grazing management practices and manage the distribution and movement of livestock within allotments.

Any changes in AUM allocations would be handled through the watershed planning process or on an individual allotment basis and may occur for several reasons, but generally would be limited to specific allotments. Any potential changes to AUM allocations would be based on the amount of available forage in an allotment as determined through monitoring or other means. The number of AUMs permitted in an allotment may be adjusted permanently, or placed into suspended use for the short-term (three to five years). Changes in AUM allocations have more impact on individual allotments and lessees than they do to AUM allocations in the entire planning area.

Noxious Weeds and Other Non-Native Invasive Species: One of the primary indirect impacts of surface disturbance affecting rangeland health and productivity is the introduction and spread of INPS. INPS displace native vegetation and, because they typically are unpalatable to livestock and wildlife, remain ungrazed. This places more strain on remaining native vegetation to support grazers, giving INPS an additional advantage over native vegetation in their competition for water, nutrients, and light. Invasion of some weed species (e.g., cheatgrass) can alter the fire regime of an area, causing long-term adverse impacts to livestock grazing. Surface-disturbing activities typically include mechanized or mechanical disturbance, such as construction of well pads, roads, pits, reservoirs, pipelines, and powerlines; mining; and vegetation treatments. Although typically reclaimed, these activities can increase INPS infestations and soil erosion within allotments in both the short and long term. Land reclaimed from oil and gas or other activities generally has a short-term beneficial impact on rangeland productivity due to the reseeding and subsequent growth of native grasses.

Wilderness Characteristics: Lands managed for wilderness characteristics would have minimal indirect impacts to livestock grazing potentially affecting approximately 99 individual allotments under Alternative B, 46 allotments under Alternative C, and four allotments under Alternative E. Impacts would mostly be limited to restrictions in surface-disturbing activities like new range improvements or through changes to VRM class that could result in restrictions to preserve or retain the existing character of the landscape. About 4,118 acres would be managed as VRM Class I and 382,344 acres as VRM Class II under Alternative B, 228,419 acres as VRM Class II under Alternative C, and 16,393 acres as VRM Class II under Alternative E.

No changes to livestock grazing or grazing allocations would occur on any lands managed for wilderness characteristics, and all agreements and provisions for maintenance and upkeep of existing range improvements would continue to remain in effect including access to and complete reconstruction of existing range improvements provided such is kept within the original footprint of the project. New range improvements and land treatments could be allowed provided they meet with the objective of enhancing or restoring those wilderness characteristics being managed for and meet with the requirements of the VRM class.

Impacts to primitive recreation could occur if cattle are allowed to congregate in recreation areas which would create conflict between recreation users and cattle. Achieving or maintaining Standards for Rangeland Health and Guidelines for Livestock Grazing Management would benefit wilderness characteristics by maintaining and enhancing natural environments.

Any new range improvements would be built to VRM Class II specifications and may help livestock operators meet the standards for rangeland health and proper functioning condition. This would improve or maintain natural conditions in areas with wilderness characteristics and therefore have no effect. Natural conditions would be expected to remain similar to those present now.

Wildlife and T&E Species: Management for plant and wildlife species designated as threatened or endangered under the Endangered Species Act or considered to be sensitive species by the BLM in the planning area can affect livestock grazing in allotments where these special status species occur. Specifically, restrictions on the type, location, or time period the activity is allowed could limit livestock management options in allotments where sensitive species occur. In addition, special status species management can increase costs to livestock grazing operations by requiring additional surveys and design changes to projects. In sagebrush habitats where Greater Sage-Grouse or other sagebrush-dependent species may occur, the placement of range improvement projects, season of grazing use, use of prescribed fire, adjustments in permitted use, and seasonal restrictions all may be affected; however, because livestock grazing is not a surface-disturbing activity, those stipulations applying specifically to surface-disturbing activities and timing restrictions on such would not apply to livestock grazing and would minimize the direct impacts to livestock grazing from wildlife stipulations as they apply to surface-disturbing activities. Prairie dogs are another species that may affect livestock grazing. Although the black-tailed prairie dog is not listed as threatened or endangered, it is a BLM sensitive species, an important food source for several raptors, and provides habitat for the burrowing owl and the black-footed ferret. The agricultural community in the planning area is concerned about large towns of prairie dogs and how they could affect the forage base, as well as how managing these species affects their grazing operations.

Cattle Grazing on BLM Allotment BLM Photo

Cumulative Impacts

Management on the adjoining Charles M. Russell National Wildlife Refuge (CMR) and UL Bend National Wildlife Refuge has the potential to impact livestock grazing on BLM land in the planning area, particularly on those allotments bordering the refuge system where operators have both CMR and BLM grazing permits.

Prior to the mid-1970s, refuge lands were administered by the BLM. During the 1960s and 1970s many allotment management plans (AMPs) and grazing systems were developed and put into practice. Many of these were developed by Gus Hormay who is considered by many to be the "father of rest-rotation grazing." Many of these were four pasture, rest-rotation grazing systems. When the refuge system adopted a wildlife management emphasis in the mid-1970s, these AMPs and grazing systems were abandoned, historical grazing use on the refuge lands was dramatically reduced, and the grazing season was greatly restricted. In most instances, this change effectively divided these management units in half. This, in turn, served to limit grazing use on the remaining portions of the BLM allotments to the spring and fall seasons as the refuge system only permitted summer use.

Grazing on the refuge system is currently administered through a permit process; however, the refuge units still being permitted are grazed at rates approximately half those of comparable BLM units. Grazing seasons are also generally restricted to the summer season only. Changes to the refuge permitting system may affect BLM allotments which adjoin the refuge.

Impacts Common to Alternatives B, C, D, and E (Preferred Alternative)

Newly acquired lands that are designated as reserve common allotments or allocated to livestock grazing would have no effect to livestock grazing although it may affect local operators. Any newly acquired lands, relinquished allotments, or cancelled permits designated as unavailable for livestock grazing would potentially reduce the amount of forage available locally. Relinquishments and cancellations have historically been rare in the planning area, and there is currently little demand for creating reserve common allotments.

Use of yearling factors for establishing stocking rate and calculating AUM usage would have no impact on livestock grazing. Yearling factors are already in widespread use throughout the planning area, although this procedure has never been standardized which has resulted in a great deal of variability in use.

The changes to visual resources under each alternative would have no effect to livestock grazing or the construction/ maintenance of range improvements needed to manage livestock grazing.

Changes to OHV use and travel management areas would likely not affect livestock grazing as permittees would continue to be allowed an exception for the management of their animals and permit.

Commercial wind energy development could indirectly affect livestock grazing similar to those effects described under fluid mineral development.

Cumulative Impacts

Cumulative impacts would be the same as under Impacts Common to All Alternatives, Cumulative Impacts.

Impacts under Alternative E (Preferred Alternative)

The requirement to meet the Greater Sage-Grouse habitat objectives could affect livestock grazing. Adjustments in the timing, location, and intensity of livestock grazing, as well as livestock numbers, may be necessary to maintain the desired future condition shown in Table 2.4.

Cumulative Impacts

The intensity and duration of livestock use may increase on private land due to decreased forage availability on public land. Corresponding impacts to aquatic and terrestrial habitats on private land would be proportional to the increase in livestock use.

Noxious Weeds and Other Invasive Non-Native Species

Assumptions and Guidelines

Actions that contribute to increases in abundance and distribution of invasive species are considered adverse impacts. Beneficial impacts include actions that protect, restore, or otherwise aid existing communities in resisting invasion.

Direct impacts to invasive species result from actions that disperse reproductive plant material to areas not invaded, cause surface disturbance in or around infested areas, or a combination of both. Indirect impacts to invasive species are those actions that cause surface disturbance or otherwise change the function or structure of existing systems that either favor or discourage invasion without providing invading plant material.

Direct impacts from invasive species include direct effects on the system being invaded which can be beneficial and/or adverse. For example, some invasive species can act to bind soil and contribute to stability while others are capable of increasing bare soil and the probability of erosion. Indirect impacts from invasive species are those impacts that are secondary to the impacts to system functionality. An example of indirect impacts from invasive species would be loss of

carrying capacity for livestock and its associated economic impact due to loss of desirable vegetation caused by invasive species encroachment.

The introduction of invasive invertebrates, vertebrates, microorganisms, plants and pathogens can threaten the stability of ecosystems, create serious human health consequences, and cause substantial economic burdens. Large majorities of native and non-native species do not pose a threat to natural or human systems. However, if any of these species were to become a concern, the BLM would cooperate and coordinate with appropriate government agencies, private industry, and other interested parties involved in public education efforts and control, management, and research of invasive species.

The following assumptions are made for this impacts analysis:

- Increases in invasive species would reduce habitat quality and quantity, reduce livestock forage quality and quantity, reduce soil/site stability, and affect hydrologic function and biotic integrity.
- The expansion of invasive species will most likely continue at its present rate.
- Surface disturbances substantially increase the probability of introduction and establishment of invasive plant species.
- The primary pathways for introduction of invasive and noxious plant seed and reproductive plant material are the road network and waterways.
- Invasive species can be impacted by actions and act as an impact to other resource and resource uses.
- Management of existing invasive and noxious plants will be long-term (over 10 years) and in many instances perpetual.
- Integrated Pest Management will be the management strategy for all invasive species-related issues.
- Mitigation measures developed for surface-disturbing activities will be followed when these activities are implemented.

Impacts Common to All Alternatives

Although potential exists for the introduction and establishment of noxious weeds and other invasive non-native species from many of the current and proposed actions throughout the range of alternatives, mitigation measures are already in place for these types of activities which decrease any potential or real spread of noxious weeds and other invasive non-native species, regardless of the variation in acres disturbed across the alternatives.

Fire Management and Ecology, Forests and Woodlands, Soil Resources, and Vegetation – Riparian: Actions that conserve soil by mitigating surface-disturbing activities and retaining vegetative cover would complement the prevention and control of noxious weeds and invasive species. Proper road maintenance and conditions placed on land use authorizations and surface-disturbing activities would limit the spread of noxious weeds and other invasive non-native species. Implementation of these mitigation measures would decrease any potential or real spread of noxious weeds and other invasive non-native species regardless of the variation in acres disturbed across the proposed alternatives.

Crested wheatgrass is a non-native species that has been used a great deal over the past century to stabilize soils and as forage. Renovating current stands of crested wheatgrass mechanically, adding fertilizer, and seeding new areas would encourage its expansion. This disturbance and changes in soil nutrients also would encourage other invasive species to the detriment of native plants. Large areas of these activities may contribute to unintended species shifts outside the renovated area. These effects may be undesirable and inconsistent with rangeland objectives. However, controlling existing crested wheatgrass stands in the attempt to convert them to native species may be difficult and take more than 3 years of treatments to accomplish. Disturbance from this type of effort would open up areas to invasion from other undesirable plant species.

Livestock Grazing and Wildlife: Continued efforts to manage noxious weeds and other invasive species would improve biodiversity, watershed function and rangeland health. Management actions to improve ecological function and rangeland health would have a positive effect on preventing or reducing INPS, including noxious weeds. Habitats that exhibit better health and function are more resistant to the colonization and establishment of invasive species.

Wildlife and livestock would contribute to the spread of weeds. Weed seeds could either become attached to the animal or be ingested and transported to other areas. Areas where animals concentrate and disturb the soil would be particularly vulnerable to infestations of weeds. Range improvements for both wildlife and livestock management objectives that disturb the soil surface would provide locations for undesirable plants to become established. Overutilization of native and desirable vegetation in areas could increase the susceptibility of an area to weed infestation. However, grazing plans that promote healthy rangelands and vegetation would create conditions resistant to the spread of weeds.

Currently, the use of domestic sheep and goats as a control measure is limited to the west end of the planning area, and does not occur in bighorn sheep habitat. There is a potential effect to the management of noxious weeds and other invasive plants via non-classical biological control in proximity to bighorn sheep populations in that this method of control would be made unavailable for future projects. However, current information indicates that there would be little, if any, conflict because treatable infestations and bighorn sheep habitat do not overlap.

Treatments to control invasive species in sage-grouse habitat would include timing and treatment stipulations to minimize temporary effects to sage-grouse from treatments. Grasshopper/Mormon cricket treatments, if conducted, would not be applied to important sage-grouse habitat.

***Noxious Weeds and other Invasive Non-Native Species*:** Continued implementation of current management of noxious weeds would help prevent new invasions of these species from becoming established in the area. Widely distributed species such as leafy spurge, field bindweed, Russian olive, and Canada thistle would continue to persist. Containment efforts for these species would be perpetual and would require the cooperation of other landowners to accomplish this goal.

Any pesticides or toxicants proposed for use that are not covered by the Vegetation Treatments on BLM Lands in 17 Western States Programmatic EIS (BLM 2007c) would require a detailed environmental and risk analysis.

Recreation, and OHV Use and Travel and Transportation Management: Special recreation management areas are, or have the potential to become, destination areas for visitors from outside the region. The potential for introduction of new invasive species introductions would be higher in these areas. These areas are easier to monitor for new infestations because they are defined. Conversely, extensive recreation would be difficult to monitor and introductions due to these activities would more likely be of invasive species already known to occur locally. Areas that are designated for OHV use would be monitored regularly for new introductions similar to other special recreation management areas.

Fluid Minerals and Solid Minerals: Surface-disturbing activities would impact invasive species to varying degrees depending on the amount, location, and type of disturbance. Surface-disturbing activities remove protective vegetative cover and can alter soil physical, chemical, and biological properties; resulting in increased susceptibility to water and wind erosion, and decreased soil quality and site productivity. This alteration favors invasive species colonization and establishment. These activities are mitigated through Conditions of Approval, Standard Operating Procedures, BMPs and stipulations. Implementation of these mitigation measures would decrease any potential or real spread of noxious weeds and other invasive non-native species regardless of the variation in acres disturbed across the proposed alternatives.

Lands and Realty: Any new acquisition of lands or easements would need to be inventoried for invasive species to determine the impact and cost of management of that parcel.

Any disposal lands would have to be inventoried for the presence of noxious weeds in order to disclose this information according to Montana law.

Invasive species effects on rights-of-way would be mitigated by stipulating that the responsibility for weed control and prevention be on the holder until the right-of-way is abandoned and successfully rehabilitated.

Cumulative Impacts

Integrated Pest Management Practices (IPM) implemented by the BLM have been conducted to the extent time and resources allowed since the mid-1980s. Although more emphasis was placed on integrated weed management through the 1990s and into the 2000s, adequate resources have not yet been available to meet the challenge of reducing invasive

plant populations. Cooperation with county weed districts and private landowners has helped to address invasive species challenges on a broader level. Although management has been inadequate to prevent the spread of invasive species, the management actions have slowed their expansion and in localized areas been able to contain and eradicate certain species and infestations.

The present and future goal is to prevent the introduction and spread of noxious weeds and invasive species through cooperative IPM. Through these means, the BLM hopes to prevent the introduction and establishment of invasive species new or unknown to the planning area, lower the rate of spread for those species currently well established, and manage invaded systems so that they regain or maintain function to the extent practicable.

The use of herbicides on BLM lands since 2000 has been relatively consistent. This can be said generally about each county weed district's activities. There is no reasonable way to determine the use of herbicides by private individuals. Little information is available to determine the cumulative impact of repeated applications of herbicides across the planning area other than factors that are already monitored for rangeland and riparian health. Mitigations applied from the Vegetation Treatment EIS (BLM 2007c) and the pesticide labels are designed to mitigate and avoid these perceived impacts. Foreseeable future use of herbicides should remain consistent unless resources and priorities change above the scope of this analysis.

Classical biological control has been used across the planning area by the BLM since the late 1980s; however, there may be some instances where local weed districts have made releases prior to that. This form of biological control impacts target plant species over a longer time span as they have to establish a viable population from a small number of individuals. Given time and supplemental population enhancements through continued releases, some areas have shown that biological control is a useful tool for invasive species management. These populations have not yet been given adequate time to reach an equilibrium where the interaction between the plant and insect has stabilized. It is not known to what extent these agents will control a specific target plant.

Past and present actions that affect and have affected invasive species include mineral/energy exploration and development, overutilization of vegetation by wildlife and livestock, recreational uses (including OHVs, nonmotorized recreation, etc.), and vegetation treatments (including those for fire management and forest health). In general, these actions have all had cumulatively adverse impacts on other resources due to the introduction of invasive species by causing surface disturbance. It is reasonably foreseeable that these actions will continue to occur and could continue to affect the invasive species populations in these areas. However, mitigations designed and implemented for each of these activities should minimize these effects.

Surface disturbance would increase the potential for proliferation of noxious and invasive species, which would increase the need for monitoring and control activities. Vegetation treatments would cause short-term impacts on vegetation by decreasing vegetation production and increasing establishment of early successional species. However, long-term effects would include increased production and diversity of vegetation communities.

Off-Highway Vehicle Use and Travel and Transportation Management

The following section describes the effects of each alternative on OHV use and management in terms of short-term and long-term effects. Refer to Map 2.6 in Chapter 2 for OHV use designations in the planning area by alternative.

Assumptions and Guidelines

Methods and assumptions used in this analysis include the following:

- Visitor use and demand is likely to continue to increase for both motorized and nonmotorized users.
- Demand for adequate public and agency access to BLM land will remain high.
- OHV use is motor vehicle use of the non-highway road and trail network on BLM land. It includes all resource-related activities, including recreation and those associated with livestock grazing and mineral development.

- Recreational OHV use is highest within large blocks of BLM land with public access and with special resource values such as those associated with hunting and fishing.

Within all travel management areas, off-road vehicle area designations will be designated as limited to existing roads, primitive roads and trails unless otherwise classified as open or closed to meet land use plan objectives (43 CFR 8340).

Until travel management plans are developed, area designations will guide where and how motorized vehicle use will occur. In the event that certain roads or areas designated as open cause the following concerns, signs and barriers will be utilized to close those specific roads or areas:

- significant adverse effects on public land resources;
- considerable nuisance or threats to public safety;
- conflicts of use.

Travel management areas are identified in this RMP and prioritized as high, moderate and low, but no site-specific route designations will be made; therefore, travel and transportation management plans will need to be developed after the completion of this RMP that define designated motorized and nonmotorized transportation networks.
The following assumptions are made before any site-specific travel management planning can occur:

- Inventory and road condition assessments will be completed for each travel management area prior to travel management planning.
- Recorded easements will be reviewed to identify the need to secure legal access to BLM lands.
- Baseline road inventory maps will be printed and made available to the general public for their review utilizing open houses, etc.

Allowable uses and management actions with the potential to affect OHV use primarily include land use designations and restrictions. Effects are described in two ways: the effect a particular designation has on OHV use, and the effect OHV use has on lands due to a particular designation.

All alternatives designate areas within the planning area as open, closed, limited to existing roads, primitive roads and trails, or limited to designated roads, primitive roads and trails.

Effects from the Designation "Open to All Motor Vehicles" – This designation would be of great benefit to users of all-terrain vehicles, motorcycles, and other strictly off-road vehicles. The effect is that such designations benefit OHV users and the community by providing an appropriate, managed place for a kind of OHV recreation considered inappropriate in most areas.

Effects from the Designation "Limited to Existing Roads, Primitive Roads and Trails" – Under this designation, user-created roads, primitive roads and trails could add to the number and miles of motor vehicle routes currently in existence on BLM land. No complete inventory of roads exists, making it difficult for the BLM to determine what existed at the time of the RMP decision. A new set of vehicle tracks is often confused with an existing road and as these tracks attract use, new roads are made. Accordingly, the road system continues to grow. Neither public access nor OHV opportunities would be diminished by this designation.

Effects from the Designation "Limited to Designated Roads, Primitive Roads and Trails" – Under this designation, the incremental growth of user-created roads, primitive roads and trails would be curtailed. OHV use would be limited to a specific, designated network of roads, primitive roads and trails. Such a limitation would be beneficial to soils and limit the spread of INPS, but would have no effect on commercial or industrial uses of BLM land because roads necessary to facilitate those uses are handled under permits or authorizations. This designation would not affect public access, nor would it diminish OHV opportunities. Further, it would have no effect on other resource uses such as mineral development, because under such a designation, access roads are authorized as needed.

Effects from the Designation "Closed to All Motor Vehicle Use" – This designation eliminates motor vehicle access from closed areas, limiting access to nonmotorized means (e.g., foot or horseback). However, no alternative proposes more than 7,553 acres of land to be closed, so the effect is minor. This designation would be beneficial to the resources and resource uses, (wildlife habitats, etc.) it earmarks for protection.

Impacts Common to All Alternatives

The following effects to OHV use are common to all alternatives and most likely would occur from implementing travel management planning decisions. However, some of these effects may occur prior to travel management planning if significant adverse effects on public land resources occur.

Cultural Resources, Paleontological Resources, and Traditional Uses: Protection of important cultural and/or paleontological sites and the preservation of traditional uses may cause the relocation or closure of roads, thereby affecting OHV use.

Fish and Wildlife: Actions conducted for fish and wildlife management could affect OHV use. These actions may include habitat restoration and relocating or closing roads or trails, which may temporarily or permanently affect routes available for OHV use.

Recreation: Recreation management actions could affect OHV use and management. Promoting use and visitation could increase OHV use and could affect road, trail, and open area conditions.

Special Status Species: Protection of critical habitat for special status animal and plant species may permanently or seasonally affect the location and use of roads, primitive roads and trails, thereby affecting OHV use.

Water Resources: Water resource management calls for the use of BMPs and proper floodplain management and/or function to protect water quality. Water resource management may limit or restrict OHV use where water quality could be impaired by runoff from roads, primitive roads and trails.

Wilderness Study Areas: WSA management would be the same in all alternatives. The Bitter Creek WSA (60,701 acres) and the Burnt Lodge WSA (13,727 acres) would be managed as limited to designated primitive routes.

Impacts under Alternative A (Current Management)

Fluid Minerals: Under Alternative A, the amount of oil and gas development would be the second highest authorized on BLM lands of all the alternatives. With development, new roads are constructed to access new oil and gas well sites and could affect vehicle use patterns. Increased road construction would create more OHV access to BLM land but users may avoid these areas when operations were occurring, displacing them to other areas. These effects would occur mostly within the high and moderate potential areas for oil and gas development in Blaine and Phillips Counties and would continue in the future.

Lands and Realty

Land Ownership: Approximately 90,000 acres comprised of small, isolated tracts of BLM land throughout the planning area have been identified for disposal either through land exchange or by sale. Exchanging BLM land for other lands most likely would have a beneficial effect on OHV use by blocking up existing BLM land, which would make available a larger area for OHV use and/or possibly increase legal access to resource-valued isolated BLM land. The sale of BLM land with legal public access would result in the loss of OHV use associated with the specific BLM land sold.

Access: BLM land in the Kevin Rim ACEC, Sweet Grass Hills ACEC and in and around the Marias River have been identified for gaining additional legal access with acquisition of easements from private landowners. Although the Sweet Grass Hills ACEC would remain closed to OHV use, gaining legal access to resource-valued BLM land would make available more public land for OHV use for the recreating public, especially during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving and viewing wildlife.

Rights-of-Way, Leases and Permits: Approximately 1,421 acres of BLM land are projected to be disturbed in the short term by right-of-way authorizations. No acres are projected to be disturbed in the long term because of implementation of reclamation activities. Rights-of-way, leases and permits would be granted for development of surface-disturbing actions such as utility lines, communications sites, oil and natural gas development, and wind farms.

These surface-disturbing actions associated with rights-of-way, leases and permits would create new roads and thereby may increase OHV access to BLM land. These effects would occur throughout the planning area and make available more public land for OHV use during the spring, summer, and fall for most dispersed recreational opportunities such as hunting, pleasure driving, and viewing wildlife.

OHV Use and Travel and Transportation Management: Alternative A continues current OHV use designations as per the OHV Record of Decision (BLM 2003c), including 84 acres open to OHV use off roads, primitive roads and trails within the Fresno OHV area north of Havre and 40 acres open just north of the town of Glasgow, designates 2,429,885 acres as limited to existing roads, primitive roads and trails, and designates 7,429 acres in the Sweet Grass Hills ACEC as closed to OHV use.

This alternative would have little effect on the volume of OHV use in either the short or long-term. Because of the designation's nature, some degree of unauthorized road proliferation would continue, primarily in areas limited to existing roads, primitive roads and trails. The two open OHV areas would have a beneficial effect to those motorized recreational users who enjoy utilizing their specialized off-road vehicle equipment (ATVs, motorcycles, etc.) in a designated off-road open area. Closing the Sweet Grass Hills ACEC to motorized travel protects the traditional uses but adversely affects OHV use in the area.

Currently, as per the OHV Record of Decision (BLM 2003c), motorized wheeled cross-country travel for big game retrieval is not allowed, but through subsequent site-specific travel management planning, options for big game retrieval could be considered.

Travel management planning designates as high priority those areas with conflicts occurring between motorized and nonmotorized users, or where recreational users are creating natural resource concerns. Fourteen travel management areas were prioritized into the following priorities for subsequent travel management planning:

High:

- An area north of the town Glasgow (80 acres) (includes the 40 acre OHV area plus additional BLM lands in the vicinity)
- Little Rocky Mountains area in southwest Phillips County (27,449 acres)

Moderate:

- Bears Paw to Breaks area in South Blaine County (89,369 acres)
- Kevin Rim area north of the town of Shelby (16,325 acres)
- Missouri Breaks area north of the Charles M. Russell Wildlife Refuge boundary (402,349 acres)
- Northwest Blaine County area (170,420 acres)
- Sweet Grass Hills area north of the town of Chester (7,879 acres)
- Vimy area just west of the town of Fort Benton (8,182 acres)

Low:

- Lonesome Lake area northwest of the town of Big Sandy (121 acres)
- Lower Marias River area (12,014 acres)
- Northeast Bears Paw Breaks area in south Blaine County (4,351 acres)
- Upper Marias River area (8,908 acres)
- Wayne Creek area in northeast Blaine County (29,792 acres)
- Woody Island area in northeast Blaine County (53,436 acres)
- Remaining lands in Phillips and Valley Counties (1,606,688 acres)

Cumulative Impacts

Past and present management actions affecting OHV use include mineral exploration and development, lands and realty surface-disturbing rights-of-way, cultural and paleontological resource protection, and protection for traditional uses. These management actions would cumulatively affect OHV use and users within the planning area.

Future management actions in the planning area and on federal, state, private, and other lands relating to the protection of potential threatened, endangered, and/or sensitive plant and animal species, and protection for cultural resources, paleontological resources, and traditional uses have a high potential for affecting motorized recreation uses. However, the degree or level of the effects would be unknown at this time.

Actions that restrict access and/or numbers of OHV users result in users looking elsewhere for recreation opportunities. This leads to increased use of the other areas and may result in increased degradation of resources and conflicts of use. Protection of resources dictates increased management, which inevitably requires stricter controls on access and user numbers.

Impacts under Alternative B

Fluid Minerals: Under Alternative B, the amount of oil and gas development would be the lowest authorized on BLM lands of all the alternatives. With development, new roads are constructed to access new oil and gas well sites and could affect vehicle use patterns. Increased road construction would create more OHV access to BLM land but users may avoid these areas when operations were occurring, displacing them to other areas. These effects would occur mostly within the high and moderate potential areas for oil and gas development in Blaine and Phillips Counties and would continue in the future.

Lands and Realty

Land Ownership: Approximately 14,129 acres comprised of small, isolated tracts of BLM land have been identified for disposal either through land exchange or by sale. Exchanging BLM land for other lands most likely would have a beneficial effect on OHV use by blocking up existing BLM land, which would make available a larger area for OHV use and/or possibly increase legal access to resource-valued isolated BLM land. The sale of BLM land with legal access would result in the loss of OHV use associated with those specific BLM lands sold.

Access: The BLM would seek to acquire public access easements to Category 1 and 2 land ownership adjustment lands where no legal public access exists or where additional access is needed to meet management objectives. Gaining legal access to resource-valued BLM land would make available more public land for OHV use for the recreating public, especially during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving and viewing wildlife.

Rights-of-Way, Leases and Permits: Approximately 1,421 acres of BLM land are projected to be disturbed in the short term by right-of-way authorizations. No long-term acres are projected to be disturbed because of implementation of reclamation activities. Rights-of-way, leases and permits would be granted for development of surface-disturbing actions such as utility lines, communication sites, oil and natural gas development, and wind farms. These surface-disturbing actions associated with rights-of-way, leases and permits would create new roads and thereby may increase OHV access to BLM land. These effects would occur throughout the planning area and make available more public land for OHV use during the spring, summer, and fall for most dispersed recreational opportunities such as hunting, pleasure driving, and viewing wildlife.

OHV Use and Travel and Transportation Management: Alternative B has no areas designated open to off-road travel; designates 2,429,925 acres as limited to existing roads, primitive roads and trails; and designates 7,513 acres as closed to OHV use.

The primary change in designations from Alternative A to Alternative B is that no areas have been designated as open to off-road travel. The increase in the closed acreage is a result of closing the Fresno OHV area (84 acres) for protection of resources and changing the designation of the Glasgow OHV area (40 acres) to limited to existing roads, primitive roads and trails. Not providing a designated off-road travel area would have an adverse effect on OHV users who wish to ride their specialized vehicles in a designated open area. As a consequence, some OHV users may find other areas unauthorized for off-road driving, and possibly create more damage to sensitive resources than if a managed area with less sensitive resources was provided.

No motorized game retrieval off road is allowed or would be considered during travel management planning under this alternative, which would enhance the hunting opportunity for those who are seeking a more primitive, nonmotorized hunting experience. Encountering motorized vehicles away from existing routes may diminish the quality of their experience. Conversely, those who may not have the means or ability to retrieve their down big game by nonmotorized use may experience limitations or restrict their hunting opportunities.

Travel management planning designates as high priority those areas with conflicts occurring between motorized and nonmotorized users, or where recreational users are creating natural resource concerns. The following travel management areas are prioritized for travel management planning after the Record of Decision for this RMP:

High:

- Grassland Bird/Greater Sage-Grouse Priority Areas ACEC and Frenchman Breaks (490,477 acres)
- Greater Sage-Grouse Protection Priority Area ACEC (997,338 acres)
- Little Rocky Mountains area in southwest Phillips County (27,668 acres)

Moderate:

- Marias River area north of the town of Fort Benton (19,032 acres)
- North Missouri Breaks, north of the Upper Missouri River Breaks National Monument (101,523 acres)
- Prairie Grasslands area (149,681 acres)

Low:

- Remaining BLM land in the planning area (651,661 acres)

Wilderness Characteristics: Under Alternative B, approximately 386,462 acres of BLM land would be managed to preserve and enhance the apparent naturalness and the opportunities for solitude and primitive and unconfined recreation (wilderness characteristics) in the area. Areas with wilderness characteristics would be managed as semi-primitive motorized except the Island Mountain Range, which would be managed as semi-primitive nonmotorized. The goal of semi-primitive classifications is to provide some opportunity for isolation from man-made sights, sounds, and management controls in a predominantly unmodified environment. Visitors would have the opportunity for a high degree of interaction with the natural environment with moderate challenge and risk and the chance to use outdoor skills.

Travel management planning for these areas would include identification of existing routes and analysis to determine needs for changes in route maintenance, signage and monitoring or potential need for route closures. New roads would not be developed in areas with wilderness characteristics. Route development and maintenance activities would be limited to the minimum necessary to provide for public safety and access to private lands. Deterioration of existing vehicular routes could lead to increased use of OHV-type vehicles on those routes and possible abandonment of some routes. Overall density of motor vehicle use would be less in these areas and would lead to increased vehicular use of remaining routes. This alternative would potentially have the greatest adverse impact to motorized vehicle access but would lead to the greatest increase in opportunities for primitive and unconfined recreation as well as the least amount of new route and trail development.

The Eastern Breaks and Badlands (Areas 49B and 53) along with the majority of the Prairie Grasslands in Phillips and Valley Counties (all of Areas 90, 91A, 91B, and 93 and most of Areas 32A, 32B, 33, and 84) and the majority of the Sagebrush Grasslands (all of Areas 19A, 19C, 20B, 49A, 49C, 54, 55, 56, 62, and 94 and most of Areas 19B and 20A) would be included in the high priority areas for travel management planning. The Western Breaks and Badlands (Areas 3A, 3B, and 4) as well as the remaining Prairie Grasslands (part of Areas 32A, 32B, 33, and 84) and the remaining portions of Sagebrush Grasslands (Areas 19B and 20A) would be moderate priority for travel management planning. The Island Mountain Range (Area 1) would be low priority for travel management planning.

Cumulative Impacts

Past and present management actions that affect and have affected OHV use include mineral exploration and development, lands and realty surface-disturbing rights-of-way, cultural and paleontological resource protection, and

protection for traditional use areas. These management actions would cumulatively affect OHV use and users within the planning area.

Future management actions in the planning area and on federal, state, private, and other lands relating to the protection of wilderness characteristics, potential threatened, endangered, and/or sensitive plant and animal species, and protection for cultural resources, paleontological resources, and traditional uses have a high potential for affecting motorized recreation uses. However, the degree or level of effects is unknown at this time.

Actions that restrict access and/or numbers of OHV users result in users looking elsewhere for recreation opportunities. This leads to increased use of the other areas and may result in increased impacts to sensitive resource areas and conflicts of use. Protection of resources dictates increased management, which inevitably requires stricter controls on access and user numbers. Because the established protection measures for natural and cultural resources are greater in Alternative B than any other alternative, the total cumulative impact to OHV use would be the greatest of all alternatives.

Impacts under Alternative C

Fluid Minerals: The amount of oil and gas development would be the second lowest authorized on BLM lands of all the alternatives. With development, new roads are constructed to access new oil and gas well sites and could affect vehicle use patterns. Increased road construction would create more OHV access to BLM land but users may avoid these areas when operations are occurring, displacing them to other areas. These effects would occur mostly within the high and moderate potential areas for oil and gas development in Blaine and Phillips Counties and would continue in the future.

Lands and Realty

Land Ownership: Approximately 14,129 acres comprised of small, isolated tracts of BLM land have been identified for disposal either through land exchange or by sale throughout the planning area. Exchanging BLM land for other lands most likely would have a beneficial effect on OHV use by blocking up existing BLM land, which would make available a larger area for OHV use and/or possibly increase legal access to resource-valued isolated BLM land. The sale of BLM land with legal access would result in the loss of OHV use associated with those specific BLM lands sold.

Access, and Rights-of-Way, Leases and Permits: Impacts would be the same as under Alternative B.

OHV Use and Travel and Transportation Management: Alternative C has no areas designated open to off-road travel; designates 2,429,885 acres as limited to existing roads, primitive roads and trails, and designates 7,553 acres as closed to OHV use.

Management of off-highway vehicle use is similar to Alternative B in that there would be no areas designated as open to off-road travel. This would create an adverse effect on users of all-terrain vehicles, motorcycles, and other specialized off-road vehicles. As a consequence of not designating an off-road travel area, some OHV users may find other areas unauthorized for off-road travel, and possibly create more damage to sensitive resources than if a managed area with less sensitive resources was provided.

Overall, the impacts under this alternative are similar to Alternative B except an additional 40 acres at the Glasgow OHV recreation area would be closed to off-road use and this alternative allows for big game retrieval. Motorized game retrieval off road would be allowed during the big game hunting season on BLM lands east of Highway 191 and south of the Dry Fork Road in Phillips County and south of the Willow Creek Road in South Valley County, except for in the Burnt Lodge WSA (see Figure 2.2 in Chapter 2 for the location of the game retrieval area, 387,118 acres). Game retrieval would occur between the hours of 10:00 a.m. and 2:00 p.m. and in a minimum timeframe utilizing the shortest route, and avoiding resource damage. This is considered a benefit to some who would like to be able to drive off road to retrieve their big game animal. However, some recreating publics believe off-road big game retrieval would be an adverse effect because of soil erosion and vegetation loss from off-road vehicle use, and the effect to the hunting experience from motorized use nearby someone hunting by nonmotorized means.

The large area proposed for designation as limited to existing roads, primitive roads and trails would see some degree of continued unauthorized road and trail proliferation.

Travel management planning designates as high priority those areas with conflicts occurring between motorized and nonmotorized users, or where recreational users are creating natural resource concerns. The following travel management areas are prioritized for travel management planning after the Record of Decision for this RMP:

High:

- Frenchman Breaks/Rock Creek area in northeast Phillips County (190,174 acres)
- Little Rocky Mountains area in southwest Phillips County (27,688 acres)
- Marias River area north of the town of Fort Benton (19,032 acres)
-

Moderate:

- North Missouri Breaks, north of the Upper Missouri River Breaks National Monument (101,523 acres)
- South Phillips County, south of Highway 2 (575,917 acres)
- South Valley County, south of Highway 2 (584,820 acres)

Low:

- Remaining BLM land in the planning area (938,246 acres)

Wilderness Characteristics: Under Alternative C, approximately 228,419 acres of BLM land (9% of BLM lands in the District) would be managed to preserve and enhance the apparent naturalness and the opportunities for solitude and primitive and unconfined recreation (wilderness characteristics) in the area. Areas 49C, 54, 62, 49B and 53 (95,631 acres) would be managed as semi-primitive motorized while Areas 1, 20B, 55, 90, 91A, 91B and 93 (132,788 acres) would be managed as semi-primitive nonmotorized. The goal of semi-primitive classifications is to provide some opportunity for isolation from man-made sights, sounds, and management controls in a predominantly unmodified environment. Visitors would have the opportunity for a high degree of interaction with the natural environment with moderate challenge and risk and the chance to use outdoor skills.

The Prairie Grasslands in northeast Phillips and northwest Valley Counties (Areas 90, 91A, 91B, and 93) would be included in the high priority areas for travel management planning. The Eastern Breaks and Badlands (Areas 49B and 53) would be included in the moderate priority travel management planning areas while the Island Mountain Range (Area 1) would remain a low priority area for travel management planning.

This alternative would have less impact to OHV users than Alternative B but more than Alternative A.

Cumulative Impacts

Past and present management actions that affect and have affected OHV use include mineral exploration and development, lands and realty surface-disturbing rights-of-way, cultural and paleontological resource protection, and protection for traditional uses. These management actions would cumulatively affect OHV use and users within the planning area.

Future management actions in the planning area and on federal, state, private, and other lands relating to the protection of wilderness characteristics, potential threatened, endangered, and/or sensitive plant and animal species, and protection for cultural resources, paleontological resources, and traditional uses have a high potential for affecting motorized recreation uses. However, the degree or level of effects is unknown at this time.

Actions that restrict access and/or numbers of OHV users result in users looking elsewhere for recreation opportunities. This leads to increased use of the other areas and may result in increased impacts to sensitive resource areas and conflicts of use. Protection of resources dictates increased management, which inevitably requires stricter controls on access and user numbers. Because the established protection measures for natural and cultural resources are similar to those in Alternative B but relaxed some, Alternative C would have a similar total cumulative impact to OHV use.

Impacts under Alternative D

Fluid Minerals: Under Alternative D, the amount of oil and gas development would be the highest authorized on BLM lands of all the alternatives. With development, new roads are constructed to access new oil and gas well sites and could affect vehicle use patterns. Increased road construction would create more OHV access to BLM land but users may avoid these areas when operations were occurring, displacing them to other areas. These effects would occur mostly within the high and moderate potential areas for oil and gas development in Blaine and Phillips Counties and would continue in the future.

Lands and Realty

Land Ownership: Approximately 30,310 acres comprised of small, isolated tracts of BLM land have been identified for disposal either through land exchange or by sale throughout the planning area. Exchanging BLM land for other lands would likely have a beneficial effect on OHV use by blocking up existing BLM land, which would make available a larger area for OHV use and/or possibly increase legal access to resource-valued isolated BLM land. The sale of BLM land with legal public access would result in the loss of OHV use associated with the specific BLM land sold.

Access, and Rights-of-Way, Leases and Permits: Impacts would be the same as under Alternative B.

OHV Use and Travel and Transportation Management: Alternative D designates three areas as open to OHV use off roads, primitive roads and trails: the 40 acre parcel north of Glasgow, the Fresno OHV area north of Havre (84 acres), and the Thirty Mile OHV area northwest of the town of Harlem (181 acres); designates 2,437,133 acres as limited to existing roads, primitive roads and trails; and does not designate any acres closed to OHV use.

Of all the alternatives, Alternative D offers the most areas and acreage open to OHV use off roads, primitive roads and trails for users of all-terrain vehicles, motorcycles, and other specialized off-road vehicles, which would benefit those specific OHV users. Alternative D also has no areas closed to OHV use and is the only alternative that allows for OHV use in the Sweet Grass Hills area including the ACEC, which could result in adverse impacts to other resources (wilderness characteristics, traditional uses, wildlife habitat, soil erosion, and vegetation loss), but would have a beneficial effect to OHV users.

Motorized game retrieval off road would be allowed during the big game hunting season on all BLM lands in the planning area (see Figure 2.2 in Chapter 2) except in the following areas:

- Big Bend of the Milk River ACEC (1,979 acres)
- Bitter Creek WSA and Burnt Lodge WSA (74,428)
- Frenchman Breaks ACEC (63,482 acres)
- Kevin Rim ACEC (4,557 acres)
- Malta Geological ACEC (6,153 acres)

Game retrieval would occur between the hours of 10:00 a.m. and 2:00 p.m. and in a minimum timeframe utilizing the shortest route and avoiding resource damage. Allowing game retrieval in nearly the entire planning area would benefit those motorized recreational users who may not have the means or ability to retrieve their down big game by nonmotorized use, by continuing this recreational opportunity and experience for them on BLM land. However, for the nonmotorized big game hunter, the encounter of off-road motorized use during their hunt may degrade their hunting opportunity and the quality of that experience. Allowing off-road game retrieval within the Sweet Grass Hills ACEC, which is designated limited to motorized use under this alternative, would lead to additional adverse impacts within this relatively small area (7,952 acres) and threaten the resources for which the ACEC was established. Effects from game retrieval in almost the entire planning area (2,290,669 acres) would be much greater than in Alternative C (387,118 acres) where the acreage for game retrieval is much smaller.

Impacts for travel management areas and prioritization would be the same as under Alternatives B and C.

Cumulative Impacts

Past and present management actions affecting OHV use include mineral exploration and development, lands and realty surface-disturbing rights-of-way, cultural and paleontological resource protection, and protection for traditional uses. These management actions would cumulatively affect OHV use and users within the planning area.

Future management actions in the planning area and on federal, state, private, and other lands relating to the protection of potential threatened, endangered, and/or sensitive plant and animal species, and protection for cultural resources, paleontological resources, and traditional uses have a high potential for affecting motorized recreation uses. However, the degree or level of the effects is unknown at this time.

Actions that restrict access and/or numbers of OHV users result in users looking elsewhere for recreation opportunities. This leads to increased use of the other areas and may result in increased impacts to sensitive resource areas and conflicts of use. Protection of resources dictates increased management, which inevitably requires stricter controls on access and user numbers. Because the established protection measures for natural and cultural resources are the lowest in Alternative D, the total cumulative impact to OHV use would be the lowest of all alternatives.

Impacts under Alternative E (Preferred Alternative)

Fluid Minerals: The amount of oil and gas development would be the third lowest authorized on BLM lands of all the alternatives. With development, new roads are constructed to access new oil and gas well sites and could affect vehicle use patterns. Increased road construction would create more OHV access to BLM land but users may avoid these areas when operations are occurring, displacing them to other areas. These effects would occur mostly within the high and moderate potential areas for oil and gas development in Blaine and Phillips Counties and would continue in the future.

Lands and Realty

Land Ownership: Approximately 14,129 acres comprised of small, isolated tracts of BLM land have been identified for disposal either through land exchange or by sale throughout the planning area. Exchanging BLM land for other lands most likely would have a beneficial effect on OHV use by blocking up existing BLM land, which would make available a larger area for OHV use and/or possibly increase legal access to resource-valued isolated BLM land. The sale of BLM land with legal access would result in the loss of OHV use associated with those specific BLM lands sold.

Access: The BLM would seek to acquire public access easements to Category 1 and 2 land ownership adjustment lands where no legal public access exists or where additional access is needed to meet management objectives. Gaining legal access to resource-valued BLM land would make available more public land for OHV use for the recreating public, especially during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving and viewing wildlife.

Rights-of-Way, Leases and Permits: Approximately 1,421 acres of BLM land are projected to be disturbed in the short term by right-of-way authorizations. No long-term acres are projected to be disturbed because of implementation of reclamation activities. Rights-of-way, leases and permits would be granted for surface-disturbing actions such as utility lines, communication sites, oil and natural gas development, and wind farms. These surface-disturbing actions associated with rights-of-way, leases and permits would create new roads and thereby may increase OHV access to BLM land. These effects would occur throughout the planning area and make available more public land for OHV use during the spring, summer, and fall for most dispersed recreational opportunities such as hunting, pleasure driving, and viewing wildlife.

OHV Use and Travel and Transportation Management: The Glasgow OHV area (40 acres) and Fresno OHV area (125 acres) would remain designated as open to OHV use off roads, primitive roads and trails. As needed, subsequent travel management planning could address seasonal restrictions and/or boundary adjustment to address resource values and conflicts of use. The Sweet Grass Hills ACEC (7,429 acres) would be closed to motorized travel. A total of 2,429,885 acres would be designated as limited.

This alternative would have little effect on the volume of OHV use in the short term. Because of the designation's nature, some degree of unauthorized road proliferation would continue, primarily in areas limited to existing roads, primitive roads and trails. The two open OHV areas would have a beneficial effect to those motorized recreational users who enjoy their specialized off-road vehicle equipment (ATVs, motorcycles, etc.) in a designated open off-road area. Closing the Sweet Grass Hills ACEC to motorized travel protects the traditional uses but would adversely affect motorized travel, including helicopter use, in the area.

In the long term, temporary route or area closures and/or restrictions would be more likely if it is determined that OHV use is having an impact on natural resources, especially within the Greater Sage-Grouse habitat areas. These closures and/or restrictions are more likely to be of a longer duration or become permanent if the adverse effects of the OHV use in those areas cannot be eliminated.

Motorized wheeled cross-country travel for big game retrieval would not be allowed; however, through subsequent site-specific travel management planning, options for big game retrieval could be considered.

Travel management planning designates as high priority those areas with conflicts occurring between motorized and nonmotorized users, or where recreational users are creating natural resource concerns. Seven travel management areas were prioritized into the following priorities for subsequent travel management planning:

High:

- Grassland Bird/Greater Sage-Grouse Priority Areas and Frenchman Breaks (415,875 acres)
- Greater Sage-Grouse Protection Priority Area and Eastern Breaks and Badlands (1,003,017 acres)
- Little Rocky Mountains area in southwest Phillips County (27,688 acres)

Moderate:

- Fresno area (885 acres) (includes the 84 acre OHV area plus additional BLM lands in the vicinity)
- Marias River area north of the town of Fort Benton (19,032 acres)
- North Missouri Breaks, north of the Upper Missouri River Breaks National Monument (101,523 acres)

Low:

- Remaining BLM land in the planning area (875,059 acres)

Wilderness Characteristics: Under Alternative E, approximately 16,393 acres of BLM land (less than 1% of BLM lands within the District) adjacent to the Burnt Lodge WSA would be managed to preserve and enhance the apparent naturalness and the opportunities for solitude and primitive and unconfined recreation (wilderness characteristics) in the area. Under this alternative, Areas 49B, 52L and 53 would be managed as semi-primitive motorized. The goal of semi-primitive classifications is to provide some opportunity for isolation from man-made sights, sounds, and management controls in a predominantly unmodified environment. Visitors would have the opportunity for a high degree of interaction with the natural environment with moderate challenge and risk and the chance to use outdoor skills. Motorized travel would be limited to the few existing routes within these areas.

The Eastern Breaks and Badlands (Areas 49B, 52L and 53) would be included in the high priority areas for travel management planning. Travel management planning for these areas would include identification of existing routes and analysis to determine needs for changes in route maintenance, signage and monitoring or potential need for route closures. New roads would not be constructed in areas managed for wilderness characteristics. Route development and maintenance activities would be limited to the minimum necessary to provide for public safety and access to private lands. Deterioration of existing vehicular routes within these units could lead to increased use of OHV type vehicles on those routes and possible abandonment of some routes. Overall density of motor vehicle could become less in the area but vehicular use of remaining routes would likely increase.

Although this alternative would provide fewer nonmotorized use acres than Alternatives B and C and would have less adverse impact to motorized vehicle access within the planning area, the opportunities for primitive and unconfined recreation would be similar to Alternatives B and C because management for other resources such as grasslands birds,

soils and priority protection areas is expected to maintain or enhance the wilderness characteristic within most other areas throughout the district that currently possess wilderness characteristics.

Cumulative Impacts

Past and present management actions affecting OHV use include mineral exploration and development, lands and realty surface-disturbing rights-of-way, cultural and paleontological resource protection, and protection for traditional uses. These management actions would cumulatively affect OHV use and users within the planning area.

Future management actions in the planning area and on federal, state, private, and other lands relating to the protection of wilderness characteristics, potential threatened, endangered, and/or sensitive plant and animal species, and protection for cultural resources, paleontological resources, and traditional uses have a high potential for affecting motorized recreation uses. However, the degree or level of the effects would be unknown at this time.

Actions that restrict access and/or numbers of OHV users result in users looking elsewhere for recreation opportunities. This leads to increased use of the other areas and may result in increased degradation of resources and conflicts of use. Protection of resources dictates increased management, which inevitably requires stricter controls on access and user numbers.

Paleontological Resources

Direct effects to paleontological resources typically result from actions that physically alter, damage, or destroy fossils or their contexts. Surface-disturbing activities in an area containing important fossil resources could affect paleontological features. These activities may also have an indirect effect by providing greater access to the area which may result in the discovery of important fossils, and could also result in their loss through unauthorized collection or disturbance. Activities that result in data collection and preservation can be considered beneficial effects.

Assumptions and Guidelines

The analysis is based on the following assumptions:

- Vertebrate fossils will continue to be found throughout the lower Tertiary and Upper Cretaceous units (Fort Union, Hell Creek, Judith River, and Two Medicine) exposed in the planning area. The Judith River Formation is the most prevalent geologic formation in the planning area, although all four units are known to contain relatively large quantities of significant paleontological resources.
- The number of paleontological resources that could be impacted by various actions is directly correlated with the degree, nature, and quantity of surface-disturbing activities within the planning area.
- Paleontological resources are most typically associated with bedrock exposures. Areas of deep soils, alluvium, or colluvium rarely contain significant fossils. Therefore, the main areas of concern for impacts on paleontological resources are where fossil-bearing bedrock is at or near the surface, such as badlands, hill slopes, or areas with thin soils over bedrock.

Impacts Common to All Alternatives

Mitigation measures would be applied to all surface-disturbing activities, but the level of mitigation could vary on a case-by-case basis, depending primarily on the potential for effects to significant paleontological resources, the degree of planned disturbance, and topography. These procedures would not change under the various alternatives.

Mitigation efforts applied to surface disturbance in areas known or suspected to contain significant paleontological resources would result in the identification and evaluation of previously undiscovered resources. In addition, continuing scientific research within the planning area will identify new paleontological resources. The BLM would then manage these newly discovered resources accordingly.

Fire Management and Ecology: Damage to paleontological resources would most likely not occur as a direct result of surface disturbances caused by wildfire suppression activities (e.g., construction of fire lines, bulldozing access roads, and general movement of heavy equipment) due to the low potential of paleontological resources in areas of deeper soils. Areas of high potential for paleontological resources such as exposed bedrock would act as natural fire breaks as vegetation generally does not grow in these areas. Therefore, construction activities would not occur in exposed bedrock. Fire itself has nearly no effect to paleontological resources; however, new exposure of bedrock could occur if thinner soils are subject to erosion after a fire. Because of the unplanned nature of wildfires, the effects on paleontological resources from wildfire suppression activities would generally be unmitigated due to the emergency nature of wildfire. Surface-disturbing activities during firefighting actions and post-fire rehabilitation activities could damage or destroy known and unknown significant paleontological resources. With increased accessibility (fire breaks, roads, etc.), the potential for vandalism and looting increases.

Fire management actions that minimize the potential for unplanned wildfires or lessen suppression activities would indirectly protect paleontological resources. Increased erosion from loss of vegetation following wildfires could accelerate exposure and deterioration of paleontological resources. Identification of known localities and sensitive areas during fire planning efforts would allow for possible avoidance or modification of fire suppression activities, such as reducing the use of heavy equipment in paleontologically sensitive areas.

Fluid Minerals: The BLM manages 372,270 acres that have a high potential for paleontological resources. About 15,600 acres of high potential paleontological areas fall within the area considered having a high potential for oil and gas development; and another 82,200 acres are within the area considered to have a moderate potential for oil and gas development. Paleontological resources are not considered a mineral resource and are part of the surface estate. In some areas where the subsurface is federally owned and the surface is privately owned the mitigation efforts described in Impacts Common to All Alternatives would not apply.

The development of fluid minerals has a potential to affect paleontological resources due to the surface-disturbing activities associated with energy exploration and development. The potential for effects would increase with the amount of land made available for mineral leasing and development in high potential paleontological areas.

Project proposals on BLM land with high potential geologic units may be subject to a paleontological inventory. Mitigation measures would be implemented as necessary to protect significant paleontological resources.

North Blaine Field Development Area: The North Blaine area has a total land area of 276,364 acres. Of these acres, 1,403 acres (.05%) are located within high potential for paleontological resources. This development would be expected to have little to no effect on significant paleontological resources.

Bears Paw South Field Development Area: The Bears Paw South area has a total land area of 374,523 acres. Of these acres, 26,739 acres (7%) are located within high potential for paleontological resources. This development would be expected to have little or no effect on significant paleontological resources.

Forests and Woodlands: Based upon the current vegetation distribution along the HiLine, the effects of forestry driven projects would be negligible. Paleontological resources could be affected during projects proposed in south Phillips and south Valley Counties, within the Sweet Grass Hills (except under Alternative A), in the Larb Hills, and along the western edge of the Bears Paw Mountains. However, the anticipated effects would be minimal through avoidance and mitigation actions.

Lands and Realty: The acquisition of lands that contain paleontological resources could result in a beneficial impact to paleontological resources due to the protective measures offered under BLM ownership and the gain of public fossils.

Prior to transfer or disposal of BLM land, a paleontological inventory may be required for Potential Fossil Yield Classification (PFYC) system Classes 3, 4 and 5. In addition, if surveys identify significant paleontological resources, the realty action could be adjusted to retain the associated parcels containing the resources. Given these conditions, the potential for effects would be minimal.

Increased access in areas of high potential for paleontological resource occurrence may enhance research opportunities for authorized paleontologists by allowing them to travel to areas otherwise inaccessible. Conversely, improved access may also increase the likelihood of unauthorized collection of paleontological resources.

Livestock Grazing: Due to the general localities of paleontological resources (i.e., exposed bedrock, badlands) effects are not anticipated from livestock grazing.

OHV Use and Travel and Transportation Management: Roads, primitive roads and trails have the potential to decrease vegetative cover and increase erosion, leading to potential exposure, damage, or destruction of paleontological resources. Trails that are created in badlands areas, particularly in areas with steep slopes, increase the potential for effects since fossil materials are often exposed in these areas. Routes can lead to easier access to sensitive areas and increased potential for looting and/or vandalism. The significance of these effects would depend on the location of travel and/or OHV use in relation to the occurrence of paleontological resources.

The majority of the high potential areas for paleontological resources fall within the limited OHV use designation. However, most paleontological localities are not generally in areas where most vehicular travel is expected such as in areas where the soil levels are very deep which could have direct effects to paleontological resources. Paleontological localities are generally located in areas of steep slopes (i.e., exposed bedrock, badlands) and damage and/or destruction to paleontological resources is not anticipated from OHV use. Increased OHV use can provide better accessibility to areas containing fossils, particularly if these routes pass through significant localities or areas with a high probability for paleontological resources.

Recreation: Dispersed recreational activities in the planning area have the potential to affect paleontological resources through inadvertent discovery, removal, damage, and/or destruction.

Management actions for SRMAs that encourage recreation and development of facilities may impact paleontological resources directly through surface-disturbing activities. However, direct impacts from surface-disturbing actions would be mitigated by resource assessments, avoidance restrictions, and data recovery procedures. Indirect impacts may result from the increase in human activity and associated disturbance.

Renewable Energy: Within the planning area, 372,270 BLM surface acres are considered to have a high potential for paleontological resources. Of this acreage; 57,600 acres (15%) are high wind potential development areas, 279,400 acres (75%) are moderate wind potential, and 37,000 acres (10%) are considered low wind potential acres.

Renewable energy has the potential to affect paleontological resources because of the surface disturbance that is required during construction; however, the anticipated effects could be minimized or eliminated through avoidance and mitigation actions.

Soils: Soil management activities which reduce erosion may indirectly benefit paleontological resources by preventing their exposure and possible loss or damage.

Solid Minerals: Solid mineral development has the potential to affect paleontological resources because of the surface disturbance that is required to remove the minerals from the ground. Based on the location of existing mining claims, there would be virtually no effect upon paleontological resources. All but a very small percentage of the claims are located in low to moderate potential areas for paleontological areas.

Special Designations: Special designation areas may indirectly benefit paleontological resources by limiting other uses which may result in effects to these resources. Six of the special designation areas contain high potential paleontological areas (Table 4.51**)**.

Table 4.51
Special Designation Areas with High Potential Paleontological Resources (Acres)

Name	*High Potential Paleontological Resources*
Bitter Creek WSA	2,756
Frenchman Breaks ACEC	
Alternatives C and E	2,912
Alternative D	3,155
Kevin Rim ACEC	480
Malta Geological ACEC	5,422
Prairie Dog Towns within the 7km Complex ACEC	1,624
Sweet Grass Hills ACEC	156

Cumulative Impacts

Potential cumulative impacts to paleontological resources could result from surface-disturbing activities that cause erosion, soil compaction, and landscape alteration.

The policies associated with the paleontological resource management program, which require identification and mitigation of paleontological resources prior to surface-disturbing activities, would help to reduce potential impacts. Implementation of these requirements would also increase the potential for identification, recordation, and collection of paleontological resources. However, even with identification and mitigation requirements the potential exists for damage or destruction of previously unknown paleontological resources discovered during construction. In addition, OHV use and dispersed recreation could result in exposure and loss of paleontological resources.

Impacts under Alternative A (Current Management)

Mitigation of surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) may indirectly benefit paleontological resources. For example, an NSO for wildlife resources may indirectly benefit paleontological resources.

Fluid Minerals: Under Alternative A, fluid mineral development, as with other surface-disturbing activities, has the potential to affect significant paleontological resources; however, standard permitting procedures per Washington Office IM Nos. 2008-009 and 2009-011 would minimize the effects of the permitted activities. Table 4.52 shows the high potential paleontological areas that would be affected by fluid mineral development stipulations. Under Alternative A, about 23,400 acres (6%) of the high potential paleontological areas would be closed or under an NSO stipulation for oil and gas leasing. About 348,900 acres (94%) would be within areas that would be leased with CSU and/or timing stipulations, or standard lease terms only.

OHV Use and Travel and Transportation Management: OHV use on BLM land may inadvertently impact paleontological resources as a result of vehicles driving over fossil exposures. They may also contribute to erosion which would result in exposure and loss of paleontological specimens.

The Fresno OHV area (84 acres) is within a PFYC Class 5 area with extremely high potential for paleontological resources. However, there are no known sites within the area. Indirect impacts to unknown paleontological sites could occur through inadvertent discovery and possible loss.

The Glasgow OHV area (40 acres) has low to moderate potential for paleontological resources with no known paleontological localities in the area. No effects to paleontological resources are anticipated in the Glasgow OHV area.

Table 4.52
Paleontological Areas (High and Moderate Potential) Affected by Fluid Mineral Development Stipulations (Acres)

	Alternative A (Current Management)		*Alternative B*		*Alternative C*		*Alternative D*		*Alternative E (Preferred Alternative)*	
Fluid Mineral Development Stipulation	***High Potential***	***Moderate Potential***	***High Potential***	***Moderate Potential***	***High Potential***	***Moderate Potential***	***High Potential***	***Moderate Potential***	***High Potential***	***Moderate Potential***
Open/Standard	86,810	131,320	1,904	3,004	35,270	59,501	73,241	121,935	10,597	10,606
Leased	51,773	72,460	1,136	710	21,059	28,575	43,646	60,024	5,559	3,649
Unleased	35,037	58,860	768	2,294	14,211	30,926	29,595	61,911	5,038	6,957
CSU/Timing	262,096	991,827	648	350	132,506	322,520	278,208	988,708	294,761	978,217
Leased	73,921	187,157	465	113	39,454	111,221	81,081	199,975	101,959	219,075
Unleased	188,175	804,670	183	237	93,052	211,299	197,127	788,733	192,802	759,142
NSO	12,733	356,602	32,012	22,764	138,286	413,756	10,190	370,866	55,856	463,336
Leased	2,273	13,129	12,088	7,748	67,454	131,356	3,240	12,747	20,372	49,980
Unleased	10,460	343,473	19,924	15,016	70,832	282,400	6,950	358,119	35,484	413,356
Closed	10,631	6,557	337,706	1,460,188	66,208	690,529	10,631	4,797	11,056	34,147
Leased	0	0	114,278	264,175	0	1,594	0	0	77	43
Unleased	10,631	6,557	223,428	1,196,013	66,208	688,935	10,631	4,797	10,979	34,104

Table 4.53
Paleontological Areas (High and Moderate Potential) Available for Commercial Wind Energy Development (Acres)

	Alternative A (Current Management)		*Alternative B*		*Alternative C*		*Alternative D*		*Alternative E (Preferred Alternative)*	
Commercial Wind Energy Development Potential	***High Potential***	***Moderate Potential***	***High Potential***	***Moderate Potential***	***High Potential***	***Moderate Potential***	***High Potential***	***Moderate Potential***	***High Potential***	***Moderate Potential***
High	56,672	196,751	56,672	196,751	56,672	196,751	56,672	196,751	56,672	196,751
Open/Avoidance Areas	52,444	183,073	4,642	22,921	34,498	111,511	51,229	164,802	33,979	106,587
Exclusion Areas	4,228	13,678	52,030	173,830	22,174	85,240	5,443	31,949	22,693	90,164
Moderate	278,488	1,150,186	278,488	1,150,186	278,488	1,150,186	278,488	1,150,186	278,488	1,150,186
Open/Avoidance Areas	257,880	1,097,078	90,892	78,382	203,262	519,733	257,953	1,101,738	201,566	364,043
Exclusion Areas	20,608	53,108	187,596	1,071,804	75,226	630,453	20,535	48,448	76,922	786,143
Low	37,110	139,369	37,110	139,369	37,110	139,369	37,110	139,369	37,110	139,369
Open/Avoidance Areas	29,846	123,455	10,377	4,628	25,378	73,180	28,750	122,235	22,731	26,440
Exclusion Areas	7,264	15,914	26,733	134,741	11,732	66,189	8,360	17,134	14,379	112,929

Renewable Energy: Under Alternative A, commercial wind energy development has the potential to affect paleontological resources because of the surface disturbance that is required during construction. Most of the planning area would be open to commercial wind energy development (Table 4.53). Under Alternative A, about 32,100 acres (9%) of the high potential paleontological areas would be exclusion areas for wind energy rights-of-way. About 340,200 acres (91%) would be open/avoidance areas for wind energy rights-of-way, but only 52,400 acres (14%) are within high potential wind energy development areas.

Cumulative Impacts

Under Alternative A, inadvertent discoveries near the Fresno OHV area could have an overall adverse effect to paleontological resources as the area is located in high potential for paleontological resources. Also, cumulatively small and large wind farm scenarios could have adverse effects to paleontological resources as there are no protection measures in place. Alternative A provides the least protection to paleontological resources as all areas are open to commercial wind energy development.

Impacts under Alternative B

Mitigation of surface-disturbing activities for the protection of other resources may indirectly benefit paleontological resources (e.g., an NSO for wildlife resources).

Fluid Minerals: Under Alternative B fluid mineral development would have less potential to affect significant paleontological resources; however, standard permitting procedures per Washington Office IM Nos. 2008-009 and 2009-011 would minimize the effects of the permitted activities. Table 4.52 shows the high potential paleontological areas that would be affected by fluid mineral development stipulations. Under Alternative B, about 369,700 acres (99%) of the high potential paleontological areas would be closed or under an NSO stipulation for oil and gas leasing. About 2,600 acres (1%) would be within areas that would be leased with CSU and/or timing stipulations, or standard lease terms only

OHV Use and Travel and Transportation Management: The types of impacts from OHV use under Alternative B would be the same as those identified under Alternative A but less intensive. Alternative B would eliminate both of the existing OHV open areas; thus there would be no OHV open areas. Also, 7,513 acres (Sweet Grass Hills and Fresno) would be closed to OHV use.

Renewable Energy: Under Alternative B, commercial wind energy development has little to no potential to affect paleontological resources because of the surface disturbance that is required during construction. The high potential paleontological areas that would be available for commercial wind energy development are shown in Table 4.53. Under Alternative B, about 266,400 acres (72%) of the high potential paleontological areas would be exclusion areas for wind energy rights-of-way. About 105,900 acres (28%) would be open/avoidance areas for wind energy rights-of way, but only 4,600 acres (1%) are within high potential wind energy development areas.

Cumulative Impacts

The small and large wind farm development scenarios would have little to no effect on significant paleontological resources. Project proposals located in areas with high potential geologic units would be subject to a paleontological inventory.

Impacts under Alternative C

Mitigation of surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, special designations) would provide additional protection for paleontological resources. For example, authorization denial would occur on areas where erosion cannot effectively be controlled or mitigated and reclamation to BLM standards is likely to be unsuccessful. This could limit surface disturbance in areas that are likely to contain fossil-bearing strata.

Fluid Minerals: Alternative C has the most acres open for leasing with NSO and the second most acres closed to leasing; these surface limitations could decrease adverse effects to paleontological resources. With moderate oil and gas development, roads would be created when necessary which could increase the possibility for inadvertent discovery. Table 4.52 shows the high potential paleontological areas that would be affected by fluid mineral development stipulations. Under Alternative C, about 204,500 acres (55%) of the high potential paleontological areas would be closed or under an NSO stipulation for oil and gas leasing. About 167,800 acres (45%) would be within areas that would be leased with CSU and/or timing stipulations, or standard lease terms only.

OHV Use and Travel and Transportation Management: The type of impacts from OHV use under Alternative C would be the same as those identified under Alternative A. Alternative C designates the third highest acreage to OHV use limited to existing and designated roads, primitive roads and trails (2,429,885 acres).

Under Alternative C, motorized game retrieval off road would be allowed under the condition that it be completed in a minimum timeframe utilizing the shortest route and minimizing resource damage. This could increase the number of inadvertent discoveries which, in turn, could lead to damage/destruction and/or theft of paleontological resources. Motorized game retrieval off road under Alternative C would have greater impacts to paleontological resources than all the other alternatives.

Renewable Energy: Under Alternative C, commercial wind energy development has the second least potential to affect paleontological resources because of the surface disturbance that is required during construction. Under Alternative C, about 109,100 acres (29%) of the high potential paleontological areas would be exclusion areas for wind energy rights-of-way. About 263,100 acres (71%) would be open/avoidance areas for wind energy rights-of-way but only 34,500 acres (9%) are within high potential wind energy development areas.

Cumulative Impacts

The cumulative impacts of Alternative C would be the same as under Alternative B.

Impacts under Alternative D

The impacts to paleontological resources from surface-disturbing activities under Alternative D are anticipated to be similar in type to Alternative A but more intensive. Under Alternative D, the projected short-term disturbance acreage from BLM actions would result in the highest disturbance acreage of all the alternatives.

Since more BLM land would be open to surface disturbance, there may be more disturbance to paleontological resources, however, a paleontological inventory in areas of high potential and steep terrain may mitigate those disturbances.

Fluid Minerals: Under Alternative D, fewer acres would have surface limitations placed upon them which could increase adverse effects to paleontological resources. With increased oil and gas development more roads would be created thus increasing the possibility for inadvertent discovery. Table 4.52 shows the high potential paleontological areas that would be affected by fluid mineral development stipulations. Under Alternative D, about 20,800 acres (6%) of the high potential paleontological areas would be closed or under an NSO stipulation for oil and gas leasing. About 351,400 acres (94%) would be within areas that would be leased with CSU and/or timing stipulations, or standard lease terms only.

OHV Use and Travel and Transportation Management: The types of impacts anticipated to occur from development and OHV use under Alternative D are the same as those identified under Alternative A. Alternative D proposes an increase in development compared to Alternative A and the highest level of development of all alternatives. The Fresno OHV area (84 acres) and Glasgow OHV area (40 acres) would remain designated open, and the Thirty Mile OHV area (181 acres) would be designated open. The Fresno OHV area is a high potential area for paleontological resources and indirect effects from OHV use could occur. Indirect impacts from accelerated erosion and degradation due to exposure also could provide increased opportunities for damage and/or looting.

Alternative D would allow motorized game retrieval off road during big game hunting season between the hours of 10:00 a.m. and 2:00 p.m., with the same conditions as under Alternative C. Four ACECs (Big Bend of the Milk, Kevin Rim, Frenchman Breaks, and Malta Geological) would be closed to motorized game retrieval off road under this alternative. Motorized game retrieval off road under Alternative D would decrease the number of inadvertent discoveries that could lead to damage, destruction, and/or theft of paleontological resources. Alternative D would have the third least damaging effect on paleontological resources.

Renewable Energy: Under Alternative D, renewable energy development has the second most potential to affect paleontological resources because of the surface disturbance that is required during construction. Under Alternative D, about 34,300 acres (9%) of the high potential paleontological areas would be exclusion areas for wind energy rights-of-way. About 337,900 acres (91%) would be open/avoidance areas for wind energy rights-of-way, but only 51,200 acres (14%) are within high potential wind energy development areas.

Cumulative Impacts

The cumulative impacts of Alternative D would be the same as under Alternative B.

Impacts under Alternative E (Preferred Alternative)

The impacts to paleontological resources from surface-disturbing activities under Alternative E are anticipated to be adverse and similar in type to Alternative A but less intensive. Under Alternative E, the projected short-term disturbance acreage from BLM actions results in the second least amount of disturbance acreage of all the alternatives.

Moderate stipulations for surface-disturbing activities to protect other resources (e.g., soil, water, biological resources, special designations) would be provided under Alternative E; therefore, additional protection for paleontological resources under Alternative E would be more than under Alternatives A and D, less than under Alternative B, and approximately the same as under Alternative C. For example, under Alternative E, authorization denial would occur on areas where erosion cannot effectively be controlled or mitigated and reclamation to BLM standards is likely to be unsuccessful. This type of restriction could limit surface disturbance in areas that are likely to contain fossil-bearing strata. Under Alternative E, this management action would result in fewer adverse effects to paleontological resources than Alternatives A and D because it would reduce the effects of surface-disturbing activities occurring on BLM lands by limiting some resource uses.

Fluid Minerals: Alternative E has the second most acres open for leasing with NSO and the second most acres closed to leasing; these surface limitations could decrease adverse effects to paleontological resources. With moderate oil and gas development, roads would be created when necessary which could increase the possibility for inadvertent discovery. Table 4.52 shows the high potential paleontological areas that would be affected by fluid mineral development stipulations. Under Alternative E, about 66,900 acres (18%) of the high potential paleontological areas would be closed or under an NSO stipulation for oil and gas leasing. About 305,400 acres (82%) would be within areas that would be leased with CSU and/or timing stipulations, or standard lease terms only.

OHV Use and Travel and Transportation Management: OHV use on BLM land may inadvertently impact paleontological resources as a result of vehicles driving over fossil exposures. They may also contribute to erosion which would result in exposure and loss of paleontological specimens.

The Fresno OHV area (125 acres) is within a PFYC Class 5 area with extremely high potential for paleontological resources. However, there are no known sites within the area. Indirect impacts to unknown paleontological sites could occur through inadvertent discovery and possible loss.

The Glasgow OHV area (40 acres) has low to moderate potential for paleontological resources with no known paleontological localities in the area. No effects to paleontological resources are anticipated in the Glasgow OHV area.

Renewable Energy: Under Alternative E, renewable energy development has the second least potential (along with Alternative C) to affect paleontological resources because of the surface disturbance that is required during construction. Under Alternative E, about 114,000 acres (31%) of the high potential paleontological areas would be exclusion areas for

wind energy rights-of-way. About 258,300 acres (69%) would be open/avoidance areas for wind energy rights-of-way but only 34,000 acres (9%) are within high potential wind energy development areas.

Cumulative Impacts

The small and large wind farm development scenarios would have little to no effect on significant paleontological resources. Project proposals located in areas with high potential geologic units would be subject to a paleontological inventory and subsequent monitoring during construction activities.

Recreation

Assumptions and Guidelines

Assumptions used in this impact analysis include the following:

- Demand for recreational use of BLM land is expected to increase.
- Under existing management, total visitor days would increase about one-half of one percent per year over the next 20 years.
- Increases are expected in hunting, fishing, hiking, wildlife viewing, and other dispersed recreational uses.
- Land for dispersed recreation is in more demand than for developed recreation areas.

Under all alternatives, activities related to resource development (e.g., construction of facilities, land clearing, and drilling activities related to minerals exploration and development; rights-of-way; and transportation) may result in adverse effects or the displacement of recreational opportunities and the degradation of recreational experiences. Conversely, some development activities may present opportunities to improve legal access to BLM land and improve roads. In addition, management actions limiting development activities, such as stipulations and mineral withdrawals may benefit recreation by protecting recreational facilities (e.g., campgrounds) and providing long-term assurance that areas traditionally used for recreational purposes would not be affected by future development activities.

Tables 2.16 and 2.17 in the Recreation section of Chapter 2 show the Special Recreation Management Areas (SRMAs) proposed under the alternatives. By identifying SRMAs, the respective areas become a higher priority for recreation management. Recreational management in SRMAs identifies the primary market strategy, niche, recreation management objective, primary recreation activities, and the prescribed setting characteristics for each proposed SRMA. Accordingly, the BLM would be able to respond to the need for more intensive management efforts. SRMAs are eligible for construction funding, while Extensive Recreation Management Areas (ERMAs) normally receive less attention for funding. Without identifying SRMAs, recreational management would be a lower priority, and management actions custodial in nature.

The recreation opportunity spectrum (ROS) classes and their descriptions (Chapter 2, Recreation section) characterize the recreation opportunities in each class in terms of setting, activity, and experience. The spectrum contains seven classes: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded natural, roaded modified, rural, and urban. The planning area does not include any lands in the primitive or urban classes. Management actions associated primarily from oil and gas production in moderate and high development areas in the reasonable foreseeable future could change the ROS classification of an area by creating more roads, increasing soil and vegetation disturbance, and constructing facilities such as gas well sheds and compressor stations. OHV areas that are open to off-road travel and areas that are closed to all motorized travel can also change a ROS classification of an area by creating more roads and increasing soil and vegetation disturbance or the opposite, respectively. Table 4.54 below shows the ROS class acreages by alternative.

Table 4.54
Recreation Opportunity Spectrum (ROS) Classes by Alternative
(BLM Acres)

ROS Class	*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Semi-Primitive Nonmotorized	7,481	7,566	136,276	0	7,481
Semi-Primitive motorized	91,872	474,216	187,503	91,872	102,586
Roaded Natural	2,336,726	1,916,069	2,060,374	2,095,590	2,111,276
Roaded Modified	125	38,353	52,051	248,742	214,861
Rural	1,234	1,234	1,234	1,234	1,234

Effects to Recreation Visitation

Recreational visitation is affected by population growth and the relative attractiveness of recreational opportunities. Alternatives promoting industrial development encourage population growth in both the short and long term, resulting in an increase in the demand for recreational use of BLM land. Alternatives enhancing recreational resources increase their relative attractiveness, thereby increasing recreational demand. Recreational visitation would increase accordingly.

Fish and wildlife-dependent recreational opportunities would increase or decrease in proportion to the overall productivity of habitats. Habitat management resulting in fish and wildlife population increases would increase recreational visitation. Habitat loss in response to allocation of lands and resources to competing industrial development could cause population decreases that, in turn, would decrease recreational visitation.

Working cooperatively with other agencies to identify and sign BLM lands would facilitate visitor use and enjoyment.

Impacts Common to All Alternatives

Livestock Grazing: Approximately 670 to 800 acres of BLM land are projected to be disturbed in the short term by range improvement projects. In the long term, 157 to 210 acres are projected to be disturbed due to reclamation activities. These surface disturbances are primarily associated with rangeland improvement projects such as constructing fences, wells, and small reservoirs. Construction of these range improvements could increase soil and vegetation disturbance and possibly fragment the landscape by constructing barriers (fences) to the recreating public. New roads may be created to access the range improvements during construction. These effects would have low potential to degrade the recreational opportunities and experiences where rangeland improvements are constructed. Some reservoirs could increase fishing opportunities where habitat will support stocking fish. These effects would be greatest during the fall hunting season and to a lesser degree during the spring and summer.

Solid Minerals – Locatable: Approximately 115 to 150 acres of BLM land are projected to be disturbed in the short term by locatable solid mineral actions associated with bentonite. No long-term acres are projected to be disturbed because of implementation of reclamation activities. These surface-disturbing actions are associated with extracting bentonite and would most likely leave small to moderate open pits on the landscape. This activity would create new roads to access these pits, which would cause dust and noise from increased traffic. The only known specific locations for bentonite extractions are in south Phillips and south Valley Counties. Where these pits and other disturbances may occur there would be a loss of recreational opportunities, along with a decline in the quality of the recreational experience for the surrounding BLM land. These recreational effects would primarily occur during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking and fishing. After mineral extraction and reclamation of these pits are complete the described effect to the recreational opportunities and experiences would be reduced dramatically.

Approximately 210 to 240 acres of BLM land are projected to be disturbed in the short term by locatable solid mineral actions associated with hardrock mining. In the long term, 185 acres to 2,345 acres are projected to be disturbed with the potential for mining in the Little Rocky Mountains under Alternative A. These surface-disturbing actions are associated with extracting hardrock minerals and would leave open pits on the landscape, with new roads to access these pits.

Where these pits and other disturbances may occur there would be a loss of recreational opportunities, along with a decline in the quality of the recreational experience for the surrounding BLM land. These recreational effects would primarily occur during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking and fishing. After mineral extraction and reclamation of these pits are complete the described effect to the recreational opportunities and experiences would be reduced dramatically.

Solid Minerals – Salable: **A**pproximately 80 acres of BLM land are projected to be disturbed in the short term and long-term by salable solid mineral actions. These surface-disturbing acres are primarily associated with excavating and processing gravel from small open pits throughout the planning area. In addition to extracting and processing gravel in these pits new roads would be created to access them, which would create dust and noise from increased traffic. Although these pits would be smaller than those described for locatable minerals, the effect would be the same on the recreating public, but to a lesser degree. Where the pits exist there would be a loss of recreational opportunities along with a decline in the quality of the recreational experience for the surrounding BLM land. The effects would be greatest during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and fishing at developed reservoir sites.

Vegetation – Rangeland: Approximately 10,000 acres of BLM land are projected to be disturbed in the short term by mechanical treatment actions. No long-term acres are projected to be disturbed because of implementation of reclamation activities. These surface-disturbing acres are associated with the vegetation treatment action of chisel plowing (10,000 acres) throughout the planning area. This actual vegetation treatment of plowing the ground to remove undesirable vegetation would be temporary and only increase soil and vegetation disturbance until the more desirable vegetation regrows. These effects would have a very low potential to degrade the recreational opportunities and experiences where chisel plowing occurs. The effects would be greatest during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and fishing at developed reservoir sites.

Cumulative Impacts

It is anticipated that a right-of-way will be issued for the Keystone X/L Pipeline to construct a 36 inch oil pipeline in the next 3 years on BLM land in northeast Phillips County and through Valley County. Approximately 1,186 acres of BLM land are projected to be disturbed in the short term. These surface-disturbing acres are associated with excavating and burying the 36 inch pipeline, which would create new roads to access the pipeline construction and cause soil erosion and vegetation loss. Increased traffic, dust and noise would occur during construction and degrade the recreational opportunities and the quality of the recreational experiences in and around the pipeline construction area. These effects would be greatest during the fall hunting season and to a lesser degree during the spring and summer.

Impacts under Alternative A (Current Management)

Under Alternative A, approximately 35,541 acres of BLM land are expected to be disturbed in the short term by BLM actions and 2,581 acres in the long term. These management actions could cause direct and indirect effects to recreation resources as conflicts between recreational use and development occur in developed areas. The quality of dispersed recreation would diminish over time in areas where large-scale development occurs.

The effects to recreation from surface-disturbing activities under Alternative A, while minor, are anticipated to be similar in type to all other alternatives; however, the intensity of effects varies by alternative. Alternative A projects the second highest acreage of surface disturbance among the alternatives.

Fire Management and Ecology: Approximately 6,860 acres of BLM land are projected to be disturbed in the short term by prescribed fire actions and approximately 4,740 acres by mechanical treatment actions. No long-term disturbance acres are projected from reclamation activities and the regrowth of vegetation.

Prescribed fire actions would burn vegetation to improve the health of the land but would leave a blackened landscape, increase soil erosion, produce smoke, and add many temporary two-track suppression roads throughout the treated area. Although this land treatment would have a short-term effect in reducing recreational opportunities and degrading the quality of the recreational experience, the long-term benefits from improving the health of land and the associated

improved recreational opportunities and experiences would far outweigh the smaller negative effects from the initial prescribed burn. Generally, the long-term benefits to improving the health of the land would include improved vegetation composition and wildlife habitat, which may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking, and hunting.

Mechanical treatment actions include thinning dense stands of timber trees, and would have the same effects as prescribed fire except the short-term period of time would be a little longer due to the time needed for the thinned trees to dry before underburning. Prescribed fire could be used throughout the planning area but more would occur in Phillips and Valley Counties. Mechanical thinning would occur primarily in timbered areas of the Little Rocky Mountains. Prescribed fire would occur during spring, summer, and fall when fuels are within acceptable burning standards.

Fluid Minerals: Approximately 9,564 acres of BLM land are projected to be disturbed in the short term and 2,422 acres in the long term by oil and natural gas development actions. Surface-disturbing actions associated with development of new oil and gas wells may include the creation of new roads, natural gas sheds and compressor stations, and cause dust and noise from increased traffic, which would reduce recreational opportunities and the quality of the recreational experience. This would occur mostly within the high and moderate potential areas for oil and gas development in Blaine, Hill, and Phillips Counties, primarily during the fall hunting season and to a lesser degree during the spring and summer. These recreational effects would continue throughout the life of the plan or term of the leased wells.

Approximately 102,298 acres would be closed to fluid mineral leasing, and 282,062 acres would be open subject to NSO. Within these areas existing recreational opportunities and their respective experiences would not be affected by natural gas development. The effects would be the greatest for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer.

Forests and Woodlands: Approximately 4,740 acres of BLM land are projected to be disturbed in the short term by silviculture treatments, fuels management, and forest product harvesting actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation. Short-term surface disturbance from harvesting timber and underburning the slash and vegetation left after the harvest would produce smoke, remove vegetation, increase soil erosion, and generally degrade the scenery. Although this land treatment would have a short-term effect of reducing recreational opportunities and degrading the quality of the recreational experience, the long-term benefits from improving the health of land and the associated improved recreational opportunities and experiences would far outweigh the smaller negative effects from harvesting the timber and underburning. Generally, the long-term benefits to improving the health of the land would include improved vegetation composition and wildlife habitat, which may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking, and hunting.

Lands and Realty

Land Ownership: Approximately 90,000 acres comprised of small, isolated tracts of BLM land throughout the planning area have been identified for disposal through land exchange or sale. Exchanging BLM land for other lands most likely would have a beneficial effect on recreational opportunities by blocking up existing BLM land or possibly gaining legal access to resource-valued isolated BLM land. The sale of BLM land with legal access would result in the loss of recreational opportunities associated with the specific BLM land.

Access: Gaining legal access to resource-valued BLM land would increase the dispersed recreational opportunities for the recreating public, especially during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, fishing, and viewing wildlife.

Rights-of-Way, Leases and Permits: Approximately 1,421 acres of BLM land are projected to be disturbed in the short term by right-of-way authorizations. In the long term, 360 acres are projected to be disturbed due to reclamation activities. Rights-of-way, leases and permits would be granted to develop surface-disturbing actions such as utility lines, communication sites, and oil and natural gas development. These surface-disturbing actions associated with right-of-way leases and permits would create new roads, visual intrusions from powerlines, and communication sites, and cause dust and noise from increased traffic, which would reduce recreational opportunities and the quality of recreational experiences. These effects would occur throughout the planning area during the spring, summer, and fall for most dispersed recreational opportunities such as hunting, fishing, pleasure driving, and wildlife viewing.

OHV Use and Travel and Transportation Management: Approximately 124 acres of BLM land are projected to be disturbed in the short term and 124 acres in the long term by off-road vehicle use. These surface-disturbing actions are associated with off-road vehicle use at the two designated OHV open areas, the Fresno 84 acre OHV area north of Havre and the Glasgow 40 acre OHV area. Although vegetation is lost and soil erosion occurs from off-road vehicle use, there is a beneficial effect to motorized recreational users from designating an open area for use of their specialized equipment (ATVs, motorcycles, etc.). Off-road vehicle use is prohibited throughout the planning area except at these two locations. Recreational users who enjoy hiking and horseback riding benefit from the 7,429 acres closed to motorized use in the Sweet Grass Hills.

The remaining BLM lands available to motorized use within the planning area are categorized into either 74,428 acres limited to designated primitive routes (Burnt Lodge and Bitter Creek WSAs), or 2,359,287 acres limited to existing roads, primitive roads and trails. This designation benefits the motorized recreational user more than the nonmotorized user because of the extensive public land area accessible by motorized use for enjoying dispersed recreational opportunities such as hunting, fishing, pleasure driving, and viewing wildlife. Although small to moderate blocks of BLM land between primitive two-track roads afford the nonmotorized recreational user opportunities for solitude from hiking, backpacking and horseback use, those recreational experiences can be diminished from dust, noise and vehicle movement caused by nearby motorized use.

Travel management planning designates as high priority those areas with conflicts occurring between motorized and nonmotorized users, or where recreational users are creating natural resource concerns. The Little Rocky Mountains area (27,449 acres) and an area northwest of Glasgow (80 acres), which includes the 40 acre OHV open area near Glasgow plus additional BLM lands in the vicinity, have been identified as a high priority for travel management planning.

Recreation

Special Recreation Management Areas: Under Alternative A, the following five existing SRMAs would continue (see Table 2.16 and Map 2.9 in Chapter 2 for their locations):

- Little Rocky Mountains
- North Missouri Breaks
- South Phillips
- South Valley
- Sweet Grass Hills

The Little Rocky Mountains SRMA (27,750 acres) is primarily a roaded natural ROS area situated in a ponderosa pine setting which also includes two smaller rural ROS recreation management zones associated with the Camp Creek and Montana Gulch campgrounds. As an area of longstanding interest to recreationists from the local and regional area of Montana, it has and would continue to benefit by identification as a SRMA. Problems associated with high OHV use in the area adversely affecting the setting (increased user-created roads, primitive roads and trails) have a much better chance of being addressed if the area is identified as a SRMA. Additionally, the SRMA designation would help to develop and maintain new facilities at and nearby the established campgrounds, which would increase recreation opportunities and enhance the visitor experience as recreation demand increases over the life of this plan.

The North Missouri Breaks SRMA is primarily classified as a roaded natural ROS area and is a large area made up of mostly private land with intermingled BLM lands (110,069 acres). It is located north of the Upper Missouri River Breaks National Monument. Identifying the area as a SRMA allows for priority funding to occur that would help with directional signing and road improvements for ingress and egress to this national destination area from Highway 87 and Highway 2, if needed. This SRMA also includes the Lower Marias River recreation management zone (RMZ) which is increasing in popularity for floating and fishing within this semi-primitive motorized ROS area. The SRMA designation could allow for development of new facilities and road upgrades to enhance river-related activities and user experiences.

The South Phillips SRMA is a roaded natural ROS area with many moderate-size blocks of BLM land within its boundary (576, 252 acres) that are intermingled with private land. This area contains 20 dispersed fishing reservoirs that could enhance user experiences by developing additional facilities at each site with a SRMA designation. This SRMA also includes a portion of the Burnt Lodge WSA (13,727 acres), which is classified as a semi-primitive motorized ROS area with very limited motorized access. This SRMA is directly north of the Charles M. Russell National Wildlife

Refuge and identifying it as a SRMA allows for priority funding to occur that would enhance the motorized recreational users' experience by constructing directional signing and road improvements for ingress and egress to this national destination area from Highway 191 and Highway 2, if needed.

The South Valley SRMA is a roaded natural ROS area with large blocks of BLM land within its boundary (582,187 acres) and small blocks of intermingled private land. This area contains seven dispersed fishing reservoirs that could enhance user experiences by developing additional facilities at each site with a SRMA designation. This SRMA also includes a portion of the Burnt Lodge WSA (13,727 acres), which is classified as a semi-primitive motorized ROS area with very limited motorized access. This SRMA is directly north of the Charles M. Russell National Wildlife Refuge and identifying it as a SRMA allows for priority funding to occur that would enhance the motorized recreational users experience by constructing directional signing and road improvements for ingress and egress to this national destination area from Highway 2, if needed.

The Sweet Grass Hills SRMA is a semi-primitive, nonmotorized ROS area with small blocks of BLM land (9,335 acres) that are closed to mineral leasing, which protects the recreational values of this SRMA. It is also closed to motorized use, which benefits the nonmotorized recreational users' experience and opportunity, and generally improves the wildlife habitat and its associated populations. Closing the area to motorized use adversely affects the motorized recreational users' opportunities to the area.

The remaining lands would be managed as an ERMA (1,131,845 acres) that are primarily classified as a roaded natural ROS area with the following exceptions:

- The Bitter Creek WSA would be managed as a semi-primitive motorized ROS area.
- The Fresno OHV area would be managed as a roaded modified ROS area and an open OHV area available for off-road travel. This is a benefit to the motorized recreating publics who enjoy the opportunity and experience of an off-road motorized open area.
- The 40 acre parcel of BLM land north of Glasgow would be managed as a roaded modified ROS area and an open OHV area available for off-road travel. This would benefit the motorized recreating publics who enjoy the opportunity and experience of an off-road motorized open area.

Recreational Use: Consolidating land ownership and additional public access to lands within the planning area increases recreational opportunities for recreational users seeking both primitive and more developed recreational experiences.

Managing certain resources could influence recreational use patterns, opportunities, and preferences within the planning area to a limited extent. For example, current management actions for oil and gas development affect vegetation, water, and soils, and are anticipated to influence the distribution of fish and wildlife throughout the planning area, thereby influencing recreational use. Increases in fish and wildlife populations from stipulating protective measures on their habitats for oil and natural gas development translates to increased recreational opportunities, such as hunting, fishing, and viewing wildlife.

Under Alternative A, the established protection measures benefit recreation because of the direct link between recreational use (fishing, hunting, wildlife viewing, and photography) related to these resources. Under this alternative current annual visitation is estimated at 90,241 with the greatest amount of visitation occurring during the fall hunting season. OHV use occurs throughout the year and especially during the fall hunting season, and is also high during the spring and summer when camping, hiking and viewing wildlife occurs.

Cumulative Impacts

Past and present actions that affect and have affected recreational opportunities and the quality of the recreational experience include mineral exploration and development, lands and realty surface-disturbing rights-of-way, livestock grazing, and vegetation treatments for fire management and forest health. In general, these actions have all had cumulatively adverse impacts on recreational opportunities and experiences by creating new roads and visual intrusions on the landscape, which causes soil erosion and vegetation loss. Reasonably foreseeable future actions in the planning

area and on federal, state, private, and other lands within and adjacent to the planning area that could adversely impact recreation opportunities and experiences include: ongoing mineral exploration, development, and production; renewable energy development; and vegetation treatments for fire management and forest health.

Surface-disturbing actions associated with the construction of the two wind energy proposals would include the creation of new roads, increased soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines and powerlines. Additionally, increased traffic to maintain these facilities would cause dust and noise to dispersed recreational users. These effects would reduce the recreational opportunities and the quality of the recreational experience in areas of high potential and available (329,652 acres) for development of wind farms during the spring, summer, and fall for most dispersed opportunities such as hunting, fishing, pleasure driving, and viewing wildlife.

Impacts under Alternative B

Under Alternative B, approximately 62,837 acres of BLM land are expected to be disturbed in the short term by BLM actions and 2,576 acres in the long term. These management actions could result in direct and indirect effects to recreation resources as conflicts between recreational use and development may occur in all disturbed areas. The quality of the dispersed recreational experience and opportunities would diminish over time, but only in areas where large-scale development occurs. Potential effects to recreation resources from surface-disturbing activities under Alternative B would be less than those identified under any other alternative because Alternative B projects the lowest acreage of surface disturbance among the alternatives.

Fire Management and Ecology: Approximately 26,660 acres of BLM land are projected to be disturbed in the short term by prescribed fire actions and approximately 7,820 acres by mechanical treatment actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation.

Prescribed fire actions would burn vegetation to improve the health of the land but would leave a blackened landscape, increase soil erosion, produce smoke, and add many temporary two-track suppression roads throughout the treated area. Although this land treatment would have a short-term effect in reducing recreational opportunities and degrading the quality of the recreational experience, the long-term benefits from improving the health of land and its associated improved recreational opportunities and experiences, far outweigh the smaller negative effects from the initial prescribed burn. Generally, the long-term benefits to improving the health of the land would include improved vegetation composition and wildlife habitat, which may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking, and hunting.

Mechanical treatments actions include thinning dense stands of timber trees, and would have the same effects as prescribed fire except the short-term period of time would be a little longer due to the time needed for the thinned trees to dry before underburning. Prescribed fire could be used throughout the planning area but more would occur in Phillips and Valley Counties. Mechanical thinning would occur primarily in timbered areas of the Little Rocky Mountains. Prescribed fire could occur during spring, summer, and fall when fuels are within acceptable burning standards.

Fluid Minerals: Approximately 4,440 acres of BLM land are projected to be disturbed in the short term and 1,544 acres in the long term by oil and natural gas development actions. Surface-disturbing actions associated with the development of new oil and gas wells would create new roads, visual intrusions from natural gas sheds and compressor stations, and cause dust and noise from increased traffic, which would reduce recreational opportunities and the quality of the recreational experience. This would occur mostly within the high and moderate potential areas for oil and gas development in Blaine, Hill, and Phillips Counties, primarily during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and fishing at developed reservoir sites. These recreational effects would continue throughout the life of the plan or term of the leased wells.

Approximately 3,173,637 acres would be closed to fluid mineral leasing, and 258,560 acres would be open subject to NSO. Existing recreational opportunities and their respective experiences would be protected from natural gas development surface-disturbing actions throughout the planning area. The effects would be greatest for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and fishing at developed reservoir sites.

Forests and Woodlands: Approximately 7,820 acres of BLM land are projected to be disturbed in the short term by silviculture treatments, fuels management, and forest product harvesting actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation. Short-term surface disturbance from harvesting timber and underburning the slash and vegetation left after the harvest would produce smoke, remove vegetation, increase soil erosion, and generally degrade the scenery. Although this land treatment would have a short-term effect in reducing recreational opportunities and degrading the quality of the recreational experience, the long-term benefits from improving the health of land and the associated improved recreational opportunities and experiences far outweigh the smaller negative effects from harvesting the timber and underburning. Generally, the long-term benefits to improving the health of the land would include improved vegetation composition and wildlife habitat, which may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking and hunting.

Lands and Realty

Land Ownership: Approximately 14,129 acres comprised of small, isolated tracts of BLM land throughout the planning area have been identified for disposal through land exchange or sale. Exchanging BLM land for other lands most likely would have a beneficial effect on recreational opportunities by blocking up existing BLM land or possibly gaining legal access to resource-valued isolated BLM land. The sale of BLM land with legal access would result in the loss of recreational opportunities associated with the specific BLM land.

Access: The BLM would seek to acquire public access easements to Category 1 and 2 Land Ownership Adjustment lands where no legal public access exists or where additional access is needed to meet management objectives. Gaining legal access to resource-valued BLM land would increase dispersed recreational opportunities for the public, especially during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, fishing, and viewing wildlife.

Rights-of-Way, Leases and Permits: Approximately 1,421 acres of BLM land are projected to be disturbed in the short term by right-of-way authorizations. In the long term, 360 acres are projected to be disturbed because of implementation of reclamation activities. Rights-of-way, leases and permits would be granted to develop surface-disturbing actions such as utility lines, communication sites, and oil and natural gas development. These surface-disturbing actions associated with right-of-way leases and permits would create new roads, visual intrusions from powerlines and communication sites, and cause dust and noise from increased traffic, which would reduce recreational opportunities and the quality of the recreational experience. These effects would occur throughout the planning area during the spring, summer, and fall for most dispersed recreational opportunities such as hunting, fishing, pleasure driving, and viewing wildlife.

OHV Use and Travel and Transportation Management: No open areas would be available as a designated off-road open area. Although vegetation is lost and soil erosion occurs from off-road vehicle use there is a beneficial effect to motorized recreational users from designating an open area for use of their specialized equipment (ATVs, motorcycles, etc.). Not designating an off-road open area would deny this opportunity to recreational users wanting to utilize their specialized equipment on BLM land. Nonmotorized recreational users who enjoy hiking and horseback riding benefit from the 7,429 acres closed to motorized use area in the Sweet Grass Hills. Additionally, the existing 84 acre Fresno OHV area would be closed to motorized use.

No off-road big game retrieval by motorized vehicles would be allowed and would not be considered in future travel management planning. Not allowing off-road big game retrieval would enhance the hunting opportunity for those who are seeking a more primitive, nonmotorized hunting experience. Encountering motorized vehicles away from existing routes may diminish the quality of their experience. Conversely, those who may not have the means or ability to retrieve their down big game by nonmotorized use may experience limitations or restriction of their hunting opportunities.

The remaining BLM lands available to motorized use within the planning area are categorized into either 74,428 acres limited to designated primitive routes (Burnt Lodge and Bitter Creek WSAs), or 2,355,497 acres limited to existing roads, primitive roads and trails. This designation benefits the motorized recreational user more than the nonmotorized user because of the extensive public land area accessible by motorized use for enjoying dispersed recreational opportunities such as hunting, fishing, pleasure driving, and viewing wildlife. Although small to moderate blocks of BLM land between primitive two-track roads afford the nonmotorized recreational user opportunities for solitude from

hiking, backpacking, and horseback use, those recreational experiences can be diminished from dust, noise and vehicle movement from nearby motorized use.

Travel management planning designates as high priority those areas with conflicts occurring between motorized and nonmotorized users, or where recreational users are creating natural resource concerns. The Grassland Bird/Greater Sage-Grouse Priority Areas ACEC and Frenchman Breaks area (490,477 acres); Greater Sage-Grouse Protection Priority Area ACEC (997,338 acres); and Little Rocky Mountains area in southwest Phillips County (27,668 acres) have been identified as a high priority for travel management planning.

Recreation

Recreation Management Areas: Under Alternative B, no SRMAs or ERMAs would be designated and the entire planning area (2,437,399 acres) would be managed as lands not designated as recreation management areas (LND) which would result in an adverse impact to facility-based recreation resources within the SRMAs identified under current management (Alternative A). Although most recreation facilities (campgrounds, picnic areas, fishing reservoirs, etc.) would be maintained for public use and safety, developing new recreation facilities under this alternative would be at a lower priority and at a lesser degree. Some of the existing fishing reservoir recreation sites in Alternative A would not be managed as recreation sites in Alternatives B, C, and D due to poor habitat and/or insufficient water capacity. Those sites are noted in Appendix S, Table S.1. The location of the existing recreation sites are displayed on Map 2.10. Dispersed recreation opportunities and their associated experiences would be the greatest under this alternative.

The planning area is primarily a roaded natural ROS class (1,916,069 acres), which is the least acreage in this class of all the alternatives. Changes from Alternative A include the following:

- Roaded modified ROS class acreage increased 38,229 acres due to the reasonable foreseeable development of the high natural gas production areas in Blaine County. Management actions associated primarily with natural gas production in these high development areas in the reasonably foreseeable future could change the ROS classification of this area and impact the recreational opportunities and experiences by creating more roads, increasing soil and vegetation disturbance, and constructing facilities such as gas well sheds and compressor stations.

- Semi-primitive motorized ROS class acreage increased 382,344 acres due to management of specific areas to preserve and enhance their wilderness characteristics.

- Semi-primitive nonmotorized ROS class acreage increased 84 acres due to the Fresno OHV open area changing to a closed OHV area. This would have an adverse impact on the motorized recreating publics by eliminating the opportunity and experience of a designated off-road motorized open area.

Recreational Use: Consolidating land ownership and additional public access to lands within the planning area increases opportunities for recreational users seeking both primitive and more-developed recreational experiences.

Managing certain resources could influence recreational use patterns, opportunities, and preferences within the planning area to a limited extent. For example, current management actions for oil and gas development affect vegetation, water, and soils, and are anticipated to influence the distribution of fish and wildlife throughout the planning area, thereby influencing recreational use. Increases in fish and wildlife populations from stipulating protective measures on their habitats for oil and natural gas development translates to increased recreational opportunities, such as hunting, fishing, and viewing wildlife.

Additionally, management actions concerning vegetation, water, soil, and fire would enhance fish and wildlife habitats throughout the planning area and preserve the landscape aesthetics for recreation to a greater extent than under any other alternative. The increased stipulations would further protect resources of interest to the recreating public. Because BLM land would be managed for watershed stability, wildlife habitat, and dispersed recreational considerations, beneficial long-term impacts to recreation would occur.

Under Alternative B, the established protection measures would benefit recreation because of the direct link between recreational use (fishing, hunting, wildlife viewing, etc.) related to these resources. Since these protection measures are

greater in Alternative B than in any other alternative, annual visitation is expected to increase, primarily in dispersed recreational opportunities and experiences associated with fish and wildlife-related recreation. Disturbance from development of recreational facilities would be the least under this alternative.

Wilderness Characteristics: Approximately 386,462 acres of BLM land would be managed to preserve and enhance their wilderness characteristics.

The ROS classification for most of these lands would be changed to semi-primitive motorized which means the on-site managerial controls would be subtle and, while motorized use is allowed, vehicle routes would receive only the minimum maintenance required to ensure resource protection and safety of users. Visitors would have prospects for a high degree of interaction with the natural environment, with moderate challenge and risk, and opportunities to use outdoor skills. This Island Mountain Range in north Liberty County, which is currently closed to motorized travel, would be classified as semi-primitive nonmotorized.

Under Alternative B, the opportunities for outstanding primitive and unconfined recreation would increase. Restrictions on development of new vehicular routes and limitations on maintenance or improvement of existing routes would reduce opportunities for those seeking more developed or motorized recreation.

Wildlife: Approximately 1,500,000 acres would be closed to not only oil and gas development, but also to locatable, leasable and salable minerals, wind and renewable energy developments, and new rights-of-way for transmission lines for the purpose of protecting sage-grouse and grassland bird habitat areas in Phillips and Valley Counties. The acres closed would eliminate surface-disturbing actions and infrastructure developments (roads, wind turbines, powerlines, etc.) from the above activities, which would maintain and/or enhance wildlife habitat and provide a beneficial effect on dispersed recreational opportunities and the quality of the recreational experience. Eliminating these surface-disturbing actions would maintain the existing condition of the soil and vegetation resources and protect the existing scenic quality. Protective measures that enhance wildlife habitat would increase populations of wildlife and improve the dispersed recreation opportunities. These effects would occur throughout the planning area during the spring, summer, and fall for most dispersed recreation opportunities such as hunting, fishing, pleasure driving, and viewing wildlife.

Cumulative Impacts

Past and present actions that affect and have affected recreational opportunities and the quality of the recreational experience include mineral exploration and development, lands and realty surface-disturbing rights-of- way, livestock grazing, and vegetation treatments for fire management and forest health. In general, these actions have all had cumulatively adverse impacts on recreational opportunities and experiences by creating new roads and visual intrusions on the landscape, which causes soil erosion and vegetation loss. Reasonably foreseeable future actions in the planning area and on federal, state, private, and other lands within and adjacent to the planning area that could adversely impact recreation opportunities and experiences include: ongoing mineral exploration, development, and production: lands and realty surface-disturbing rights-of-way; livestock grazing; and vegetation treatments for fire management and forest health.

Recently there has been increased interest in developing wind energy within the planning area. In an effort to analyze the resource effects of wind energy development, the BLM analyzed the development of two wind energy proposals within a high wind energy potential area: one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres, with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with the construction of the two wind energy proposals would include the creation of new roads, increased soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines and powerlines. Additionally, increased traffic to maintain these facilities would cause dust and noise to dispersed recreational users. These effects would reduce the recreational opportunities and the quality of the recreational experience in areas of high potential and available (35,165 acres) for development of wind farms during the spring, summer, and fall for most dispersed opportunities such as hunting, fishing, pleasure driving, and viewing wildlife.

Because the established protection measures for wilderness characteristics, soil, water, vegetation and wildlife resources are the greatest in Alternative B compared to the other alternatives, the total cumulative impact to recreation opportunities and experiences would be the lowest of all alternatives.

Impacts under Alternative C

Under Alternative C, approximately 63,404 acres of BLM land are expected to be disturbed in the short term by BLM actions and 2,734 acres in the long term. These management actions could result in direct and indirect effects to recreation resources as conflicts between recreational use and development may occur in disturbed areas. The quality of the dispersed recreational experience and opportunities would diminish over time in areas where large-scale development occurs. Potential effects to recreation resources from surface-disturbing activities are less than any other alternative except those identified under Alternative B.

Fire Management and Ecology: The impacts would be the same as under Alternative B.

Fluid Minerals: Approximately 8,547 acres of BLM land are projected to be disturbed in the short term and 2,238 acres in the long term by oil and natural gas development actions. Surface-disturbing actions associated with development of new oil and gas wells would include the creation of new roads, visual intrusions from natural gas sheds and compressor stations, and dust and noise caused by increased traffic, which would reduce recreational opportunities and the quality of the recreational experience. This would occur mostly within the high and moderate potential areas for oil and gas development in Blaine, Hill and Phillips Counties primarily during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and fishing at developed reservoir sites. These recreational effects would continue throughout the life of the plan or term of the leased wells.

Approximately 218,586 acres would be closed to fluid mineral leasing, and 1,291,160 acres would be open subject to NSO. Existing recreational opportunities and their respective experiences would be protected from natural gas development surface-disturbing actions throughout the planning area. The effects would be greatest for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and fishing at developed reservoir sites.

Forests and Woodlands: The impacts would be the same as under Alternative B.

Lands and Realty

Land Ownership: Approximately 14,129 acres comprised of small, isolated tracts of BLM land throughout the planning area have been identified for disposal through land exchange or sale. Exchanging BLM land for other lands most likely would have a beneficial effect on recreational opportunities by blocking up existing BLM land or possibly gaining legal access to resource-valued isolated BLM land. The sale of BLM land with legal access would result in the loss of recreational opportunities associated with the specific BLM land.

Access, and Rights-of-Way, Leases and Permits: Impacts would be the same as under Alternative B.

OHV Use and Travel and Transportation Management: This alternative is similar to Alternative B except that a big game hunting retrieval area would be established in southern Phillips and Valley Counties.

Motorized game retrieval off road would be allowed during the big game hunting season on BLM lands east of Highway 191 and south of the Dry Fork Road in south Phillips County and south of the Willow Creek Road in south Valley County except for in the Burnt Lodge WSA (see Chapter 2, Figure 2.2 for the location of the game retrieval area, 387,118 acres). Game retrieval would occur between the hours of 10:00 a.m. and 2:00 p.m., in a minimum timeframe utilizing the shortest route and avoiding resource damage. Allowing game retrieval in this area would benefit those motorized recreational users who may not have the means or ability to retrieve their down big game by nonmotorized means. However, for the nonmotorized big game hunter, the encounter of off-road motorized use during their hunt may degrade their hunting opportunity and the quality of that experience.

Travel management planning designates as high priority those areas with conflicts occurring between motorized and nonmotorized users, or where recreational users are creating natural resource concerns. The Frenchman Breaks/Rock Creek area (190,174 acres); Little Rocky Mountains (27,688 acres); and Marias River area (19,032 acres) have been identified as high priority for travel management planning.

Recreation

Recreation Management Areas: The effects from recreation management actions under Alternative C are the same as those identified under Alternative B, except for the following:

- The Little Rocky Mountains would be designated a SRMA (27,688 acres) and is primarily a roaded natural ROS area situated in a ponderosa pine setting which also includes two smaller rural ROS recreation management zones associated with the Camp Creek and Montana Gulch campgrounds. As an area of longstanding interest to recreationists from the local and regional area of Montana, it has and would continue to benefit by identification as a SRMA. Problems associated with high OHV use in the area adversely affecting the setting (increased user-created roads, primitive roads and trails) have a much better chance of being addressed if the area is identified as a SRMA. Additionally, the SRMA designation would help to develop and maintain new facilities at and nearby the established campgrounds, which would increase recreation opportunities and enhance the visitor experience as recreation demand increases over the life of this plan.

- Nine sites (61,800 acres) throughout the planning area would be managed as an ERMA. These designations would protect facilities and recreational uses that have already been developed in those areas, as well as help focus future resources to enhancing or expanding those sites if public demand warranted such development. ERMAs would be a lower priority for resources and development than SRMAs and some recreational uses may be limited if they are not compatible with other uses or resources, but their recreation resources would be less impacted by other resource issues than LND.

- Semi-primitive nonmotorized ROS class acreage would increase by 40 acres from Alternative B due to the Glasgow 40 acre OHV open area changing to a closed OHV area. This would have an adverse impact on the motorized recreating public by eliminating the opportunity and experience of a designated off-road motorized open area.

Recreational Use: Under Alternative C, the established protection measures would benefit recreation because of the direct link between recreational use (fishing, hunting, wildlife viewing, etc.) related to these resources. Since these protection measures are second to those in Alternative B but greater than in any other Alternative and with the designation of the Little Rocky Mountains SRMA, annual visitation is projected to result in a slight increase to 96,287. Visitation is slightly higher in Alternative C than in Alternative B because of the Little Rocky Mountains SRMA designation and increased visitation due to potential increases with outcome-focused management and facility-based recreation development.

Wilderness Characteristics: Under Alternative C, approximately 228,419 acres of BLM land (9% of BLM lands in the District) would be managed to preserve and enhance the apparent naturalness and the opportunities for solitude and primitive and unconfined recreation (wilderness characteristics) in the area. Areas 49C, 54, 62, 49B and 53 would be managed as semi-primitive motorized while Areas 1, 20B, 55, 90, 91A, 91B and 93 would be managed as semi-primitive nonmotorized. The goal of both semi-primitive classifications is to provide some opportunity for isolation from man-made sights, sounds, and management controls in a predominantly unmodified environment. Visitors would have the opportunity for a high degree of interaction with the natural environment with moderate challenge and risk and the chance to use outdoor skills.

Existing routes within the semi-primitive nonmotorized areas would be closed and motor vehicle use would no longer be allowed. The routes would be reclaimed or allowed to revert back to native grasses over time, thus adding to the overall scenic quality and opportunities for solitude and unconfined primitive recreation.

Areas designated as semi-primitive motorized would allow motorized access on existing or designated routes. New roads would not be constructed and some existing routes could potentially be closed or further limited (i.e. seasonal or time restrictions) to motorized travel, maintaining the minimum routes necessary to provide for public safety and access

to private lands. Deterioration of existing vehicular routes within these units could lead to increased use of OHV type vehicles on those routes and possible abandonment of some routes. Overall density of motor vehicle use would be less in the semi-primitive motorized use areas and would lead to increased vehicular use of the remaining routes.

This alternative would provide the greatest number of nonmotorized use acres and potentially have the greatest adverse impact to visitors who prefer developed types of recreation. Alternative C would provide the most opportunities for solitude and primitive and unconfined recreation.

Wildlife: Approximately 820,000 acres would include an NSO stipulation for oil and gas leasing, and closed to locatable, leasable and salable minerals, wind and renewable energy developments, and new rights-of-way for transmission lines for the purpose of protecting sage-grouse habitat areas in south Phillips and south Valley Counties. The acres closed would eliminate surface-disturbing actions and infrastructure developments (roads, wind turbines, powerlines, etc.) from the above activities, which would maintain and/or enhance wildlife habitat and provide a beneficial effect on dispersed recreational opportunities and the quality of the recreational experience. Eliminating these surface-disturbing actions would maintain the existing condition of the soil and vegetation resources and protect the existing scenic quality. Protective measures that enhance wildlife habitat would increase populations of wildlife and improve the dispersed recreational opportunities. These effects would occur throughout the planning area during the spring, summer, and fall for most dispersed recreational opportunities such as hunting, fishing, pleasure driving, and viewing wildlife.

Cumulative Impacts

Past and present actions that affect and have affected recreational opportunities and the quality of the recreational experience include mineral exploration and development, lands and realty surface-disturbing rights-of- way, livestock grazing, and vegetation treatments for fire management and forest health. In general, these actions have all had cumulatively adverse impacts on recreational opportunities and experiences by creating new roads and visual intrusions on the landscape, which causes soil erosion and vegetation loss. Reasonably foreseeable future actions in the planning area and on federal, state, private, and other lands within and adjacent to the planning area that could adversely impact recreation opportunities and experiences include: ongoing mineral exploration, development, and production; lands and realty surface-disturbing rights-of-way; livestock grazing; and vegetation treatments for fire management and forest health.

Recently there has been increased interest in developing wind energy within the planning area. In an effort to analyze the resource effects of wind energy development, the BLM analyzed the development of two wind energy proposals within a high wind energy potential area: one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with the construction of the two wind energy proposals would include the creation of new roads, increased soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines and powerlines. Additionally, increased traffic to maintain these facilities would cause dust and noise to dispersed recreational users. These effects would reduce the recreational opportunities and the quality of the recreational experience in areas of high potential and available (178,622 acres) for development of wind farms during the spring, summer, and fall for most dispersed opportunities such as hunting, fishing, pleasure driving, and viewing wildlife.

Because the established protection measures for soil, water, vegetation and wildlife resources are similar but somewhat more relaxed than in Alternative B, the total cumulative impact to recreation opportunities and experiences would be the second lowest of all alternatives.

Impacts under Alternative D

Under Alternative D, approximately 63,945 acres of BLM land are expected to be disturbed in the short term and 2,979 acres in the long term by resource development actions. These actions would result in direct and indirect effects to recreation resources as conflicts between recreational use and other resource development occurs. The quality of the dispersed recreational experience and opportunities would diminish over time in areas where intensive development occurs. Potential effects to recreation resources from surface-disturbing activities under Alternative D are greater than any other alternative.

Fire Management and Ecology: Impacts would be the same as under Alternative B.

Fluid Minerals: Approximately 9,663 acres of BLM land are projected to be disturbed in the short term and 2,436 acres in the long term by oil and natural gas development actions. Surface-disturbing actions associated with development of new oil and gas wells would include the creation of new roads, visual intrusions from natural gas sheds and compressor stations, and dust and noise caused by increased traffic, which would reduce recreational opportunities and the quality of the recreational experience. This would occur mostly within the high and moderate potential areas for oil and gas development in Blaine, Hill, and Phillips Counties, primarily during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and fishing at developed reservoir sites. These recreational effects would continue throughout the life of the plan or term of the leased wells.

Approximately 74,674 acres would be closed to fluid mineral leasing, and 357,456 acres would be open subject to NSO. Existing recreational opportunities and their respective experiences would be protected from natural gas development surface-disturbing actions throughout the planning area. The effects would be the greatest for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and fishing at developed reservoir sites.

Forests and Woodlands: Impacts would be the same as under Alternative B.

Lands and Realty

Land Ownership: Approximately 30,310 acres comprised of small, isolated tracts of BLM land throughout the planning area have been identified for disposal through land exchange or sale. Exchanging BLM land for other lands most likely would have a beneficial effect on recreational opportunities by blocking up existing BLM land or possibly gaining legal access to resource-valued isolated BLM land. The sale of BLM land with legal access would result in the loss of recreational opportunities associated with the specific BLM land.

Access, and Rights-of-Way, Leases and Permits: Impacts would be the same as under Alternative B.

OHV Use and Travel and Transportation Management: Approximately 305 acres of BLM land are projected to be disturbed in the short term and 305 acres in the long term by off-road vehicle use. Surface-disturbing actions are associated with off-road vehicle use at three designated open OHV open areas: Thirty Mile 181 acre OHV area north of Harlem; Fresno 84 acre OHV area north of Havre; and Glasgow 40 acre OHV area. Although vegetation is lost and soil erosion occurs from off-road vehicle use, there is a beneficial effect to motorized recreational users from designating an open area for use of their specialized equipment (ATVs, motorcycles, etc.). Off-road vehicle use is prohibited throughout the planning area except at these three locations. The Sweet Grass Hills area that is closed to motorized use under all alternatives except this alternative would be open to motorized use and limited to existing roads, primitive roads and trails. There would be no areas closed to motorized use within this alternative, which would benefit motorized recreational users but adversely affect nonmotorized recreational users.

Motorized game retrieval off road would be allowed during the big game hunting season on all BLM lands within the planning area except for in the Burnt Lodge and Bitter Creek WSAs, Big Bend of the Milk River ACEC, Kevin Rim ACEC, Frenchman Breaks ACEC, and Malta Geological ACEC (see Figure 2.2 in Chapter 2 for the exact location of the game retrieval area, 2,290,669 acres). Game retrieval would occur between the hours of 10:00 a.m. and 2:00 p.m., in a minimum timeframe utilizing the shortest route and avoiding resource damage. Allowing game retrieval in this area would benefit those motorized recreational users who may not have the means or ability to retrieve their down big game

by nonmotorized use which allows this recreational opportunity and experience to continue for them on the specific BLM land. However, for the nonmotorized big game hunter, the encounter of off-road motorized use during their hunt may degrade their hunting opportunity and the quality of that experience.

The remaining BLM lands available to motorized use within the planning area are categorized into either 74,428 acres limited to designated primitive routes (Burnt Lodge and Bitter Creek WSAs) or 2,362,705 acres limited to existing, primitive roads and trails. This designation benefits the motorized recreational user more than the nonmotorized user because of the extensive public land area accessible by motorized use for enjoying dispersed recreational opportunities such as hunting, fishing, pleasure driving and viewing wildlife. Although small to moderate blocks of BLM land between primitive two-track roads afford the nonmotorized recreational user opportunities for solitude from hiking, backpacking, and horseback use, those recreational experiences can be diminished from dust, noise and vehicle movement from nearby motorized use.

Impacts for travel management areas and prioritization would be the same as under Alternative C.

Recreation

Recreation Management Areas: Under Alternative D, twelve SRMAs (97,088 acres) and two ERMAs (244 acres) are identified. The remaining lands in the planning area would be LND. This would be the most SRMA acreage and the second least ERMA acreage of all the alternatives. Map W.7, which is available on the internet at http://blm.gov/8qkd, shows the location of the SRMAs and ERMAs.

The Little Rocky Mountains would be designated a SRMA (27,750 acres) and is primarily a roaded natural ROS area situated in a ponderosa pine setting which also includes two smaller rural ROS recreation management zones associated with the Camp Creek and Montana Gulch campgrounds. As an area of longstanding interest to recreationists from the local and regional area of Montana the area has and would benefit by being identified as a SRMA. Problems associated with high OHV use in the area that are adversely affecting the setting (increase of user-created roads, primitive roads and trails) have a much better chance of being addressed if the area is identified as a SRMA. Additionally, the SRMA designation would help to maintain and develop new facilities at and nearby the established campgrounds to increase the recreational opportunities and enhance the visitor experience as recreation demand increases over the life of this plan.

The Marias River Corridor would be designated a SRMA (19,309 acres) with three RMZs within it. The Upper Marias River RMZ and the Lower Marias River RMZ are classified as a semi-primitive motorized ROS area with no recreational facilities available. The Middle Marias River RMZ is a roaded natural ROS area with limited recreational facilities such as restrooms, camping sites and boat launch and take out areas. As visitation increases over the life of this plan, designation of this area as a SRMA would afford development of new facilities, road upgrades, and reclamation of heavily impacted areas, which would enhance river-related recreational opportunities and user experiences. Developing recreational facilities would mitigate environmental impacts related to recreational use by concentrating high-impact activities in developed areas.

The following Recreation Management Areas would also be designated SRMAs:

- The Fresno OHV area would be managed as a roaded modified ROS area and an open OHV area available for off-road travel. This is a benefit to the motorized recreating publics who enjoy the opportunity and experience of an off-road motorized open area.

- The 40 acre parcel of BLM land north of Glasgow would be managed as a roaded modified ROS area and an open OHV area available for off-road travel. This would also benefit the motorized recreating publics who enjoy the opportunity and experience of an off-road motorized open area.

- The Sweet Grass Hills ACEC (7,419 acres) would be changed from a closed OHV area to a limited OHV area and motorized travel would be restricted to existing roads, primitive roads and trails. This area would be managed as a roaded natural ROS area.

- BR-12 (246 acres), South Phillips Recreation Complex (42,217 acres), Cottonwood Riparian Area (42 acres), Faraasen Park (10 acres), Paulo (74 acres), and Troika (56 acres) would all be managed as roaded natural ROS.

This would benefit the current recreational uses and focus management prioritize recreation outcomes over other resources in the area.

While SRMAs may incorporate management actions to enhance and protect recreational values, they do not preclude development of other, often competing resources. Since this alternative emphasizes resource use over resource conservation, it can be expected that recreation uses would be in more direct competition with other resource use opportunities. This alternative would be the most protective of all alternatives for recreation resources in the planning area but could lead to the most recreation-related disturbance to other resources.

Under Alternative D, only two Recreation Management Areas would be identified as ERMAs. The Wards Dam Watchable Wildlife Area (177 acres) and Timber Creek Ridge (67 acres) would be managed to protect and promote the recreational activities that take place there unless they are incompatible with other recreation or priority resource management focus of the area. Except for Alternative B, this would be the least amount of acreage managed as an ERMA.

The remaining lands would be managed as LND (2,340,066 acres) and are primarily classified as a roaded natural ROS area with the following exceptions:

- The Bitter Creek and Burnt Lodge WSAs would be managed as a semi-primitive motorized ROS area.
- The Thirty Mile OHV area northwest of the town of Harlem (181 acres) would be managed as a roaded modified ROS area and an open OHV area available for off-road travel. This would also benefit the motorized recreating publics who enjoy the opportunity and experience of an off-road motorized open area.
- Roaded modified ROS class acreage increased to 248,742 acres due to the reasonable foreseeable development of the high and moderate natural gas production areas in Blaine, Hill, and Phillips Counties. Management actions associated primarily with natural gas production in these high and moderate development areas in the reasonable foreseeable future could change the ROS classification of this area and impact the recreational opportunities and experiences by creating more roads, increasing soil and vegetation disturbance, and constructing facilities such as gas well sheds and compressor stations.

Recreational Use: Management actions and related impacts under Alternative D are similar to, but would be a little more restrictive than those described for Alternative A with regard to impacts from vegetation, fire, cultural, paleontological, and livestock resources, yet less restrictive than Alternatives B and C.

Generally, wildlife management actions afford the least protection to wildlife resources under this alternative. Alternative D would have the greatest potential for outcome-based recreation development which could lead to an overall degradation to the wildlife resource, which could adversely impact recreational users relying on wildlife resources. At the same time, relaxation of protective measures provide minor benefits to recreational users seeking a more rural and/or motorized recreational experience, since this alternative affords the least restriction to access.

Under Alternative D, the established protection measures benefit recreation because of the direct link between recreational use (fishing, hunting, wildlife viewing, etc.) related to these resources. Since these protection measures afford the least protection to wildlife resources of all the alternatives there would be a slight decline in the projected visitation associated with fish and wildlife-related recreation. However, with the addition of the Marias River SRMA to this alternative there would be a slight increase in river-related and facility-based recreation visitation over Alternative C resulting in a projected visitation of 96,052.

Cumulative Impacts

Past and present actions that affect and have affected recreational opportunities and the quality of the recreational experience include mineral exploration and development, lands and realty surface-disturbing rights-of- way, livestock grazing, and vegetation treatments for fire management and forest health. In general, these actions have all had cumulatively adverse impacts on recreational opportunities and experiences by creating new roads and visual intrusions on the landscape, which causes soil erosion and vegetation loss. Reasonably foreseeable future actions in the planning area and on federal, state, private, and other lands within and adjacent to the planning area that could adversely impact

recreation opportunities and experiences include: ongoing mineral exploration, development, and production; lands and realty surface-disturbing rights-of-way; livestock grazing; and vegetation treatments for fire management and forest health.

Recently there has been increased interest in developing wind energy within the planning area. In an effort to analyze the resource effects of wind energy development, the BLM analyzed the development of two wind energy proposals within a high wind energy potential area: one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with the construction of the two wind energy proposals would include the creation of new roads, increase soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines and powerlines. Additionally, increased traffic to maintain these facilities would cause dust and noise to dispersed recreational users. These effects would reduce the recreational opportunities and the quality of the recreational experience in areas of high potential and available (286,488 acres) for development of wind farms during the spring, summer, and fall for most dispersed opportunities such as hunting, fishing, pleasure driving, and viewing wildlife.

Because the established protection measures for soil, water, vegetation and wildlife resources are less than any other alternative except for Alternative A, the total cumulative impact to recreation opportunities and experiences would be the highest of all alternatives.

Impacts under Alternative E (Preferred Alternative)

Under Alternative E, approximately 63,404 acres of BLM land are expected to be disturbed in the short term by resource development actions and 2,734 acres in the long term. These actions would result in direct and indirect effects to recreation resources as conflicts between recreational use and other resource development occurs. The quality of the dispersed recreational experience and opportunities would diminish over time in areas where intensive development occurs. Potential effects to recreation resources from surface-disturbing activities under Alternative E are similar to Alternative C.

Fire Management and Ecology: Approximately 26,660 acres of BLM land are projected to be disturbed in the short term by prescribed fire actions. In addition, approximately 7,820 acres of BLM land are projected to be disturbed in the short term by mechanical treatment actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation.

Surface disturbance from management ignited prescribed fire actions would burn vegetation to improve the health of the land but would leave a blackened landscape, increase soil erosion, produce smoke, and add many temporary two track suppression roads throughout the treated area. Although this land treatment would have a short-term effect in reducing recreational opportunities and degrading the quality of the recreational experience, the long-term benefits from improving the health of land and its associated improved recreational opportunities and experiences, far outweigh the smaller negative effects from the initial prescribed burn. Generally, the long-term benefits to improving the health of the land would include improving vegetation composition and wildlife habitat which in turn may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking and hunting.

Surface disturbance from mechanical treatments includes the action of thinning dense stands of timber trees, and would have the same effects as prescribed fire except the short-term period of time would be a little longer due to the time needed for the thinned trees to dry before under burning. Prescribed fire could be used throughout the planning area but more would occur in Phillips and Valley Counties. Mechanical thinning would occur primarily in timbered areas of the Little Rocky Mountains. Prescribed fire could occur during spring, summer and fall when fuels are within acceptable burning standards.

Fluid Minerals: Approximately 9,123 acres of BLM land are projected to be disturbed in the short term by oil and natural gas development actions and 2,346 acres in the long term. These surface-disturbing actions associated with development of new oil and gas wells would create new roads, visual intrusions from natural gas sheds and compressor stations, and cause dust and noise from increased traffic, which in turn would reduce recreational opportunities and the quality of the recreational experience. This would occur mostly within the high and moderate potential areas for oil and gas development in Blaine, Hill, and Phillips Counties and primarily during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking, horseback riding and fishing at developed reservoir sites. These recreational effects would continue throughout the life of the plan or term of the leased wells.

Approximately 152,702 acres would be closed to fluid mineral leasing, and 1,711,378 acres would be open subject to NSO. Existing recreational opportunities and their respective experiences would be protected from natural gas development surface-disturbing actions throughout the planning area. The effects would be greatest for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking, horseback riding and fishing at developed reservoir sites.

Forests and Woodlands: Approximately 7,820 acres of BLM land are projected to be disturbed in the short term by silviculture treatments, fuels management, and forest product harvesting actions. No long-term acres are projected to be disturbed because of reclamation activities and re-growth of vegetation. Short-term surface disturbance from harvesting timber and under burning the slash and vegetation left after the harvest would produce smoke, remove vegetation, increase soil erosion, and generally degrade the scenery. Although this land treatment would have a short-term effect in reducing recreational opportunities and degrading the quality of the recreational experience, the long-term benefits from improving the health of land, and its associated improved recreational opportunities and experiences, far outweigh the smaller negative effects from harvesting the timber and under burning. Generally, the long-term benefits to improving the health of the land would include improving vegetation composition and wildlife habitat which in turn may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking and hunting.

Lands and Realty

Land Ownership: Approximately 14,129 acres, comprised of small isolated tracts of BLM land have been identified for disposal either through land exchange or by sale throughout the planning area. Exchanging BLM land for other lands most likely would have a beneficial effect on recreational opportunities by blocking up existing BLM land or possibly gaining legal access to resource valued isolated BLM land. The sale of BLM land with legal access would result in the loss of recreational opportunities associated with the specific BLM land.

Access: The BLM would seek to acquire public access easements to Category 1 and 2 Land Ownership Adjustment lands where no legal public access exists or where additional access is needed to meet management objectives. Gaining legal access to resource valued BLM land would increase the dispersed recreational opportunities for the recreating public, especially during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, fishing, and viewing wildlife.

Rights-of-Way, Leases and Permits: Approximately 1,421 acres of BLM land are projected to be disturbed in the short term by rights-of-way authorizations. In the long term, 360 acres are projected to be disturbed because of implementation of reclamation activities. Rights-of-ways, leases and permits would be granted to development of surface-disturbing actions such as utility lines, communications sites, and oil and natural gas development. These surface-disturbing actions associated with rights-of-way leases and permits would create new roads, visual intrusions from powerlines, and communications sites, and cause dust and noise from increased traffic, which in turn would reduce recreational opportunities and the quality of the recreational experience. These effects would occur throughout the planning area and during the spring, summer, and fall for most dispersed recreational opportunities such as hunting, fishing, pleasure driving, and viewing wildlife.

OHV Use and Travel and Transportation Management: Approximately 165 acres of BLM land are projected to be disturbed in both the short and long term by off-road vehicle use. These surface-disturbing actions are associated with off-road vehicle use at two designated open OHV open areas: the Fresno 125 acre OHV area north of Havre and the Glasgow 40 acre OHV area. Although vegetation is lost and soil erosion occurs from off-road vehicle use there is a beneficial effect to motorized recreational users from designating an open area for use of their specialized equipment (ATVs, motorcycles, etc.). Off-road vehicle use would be prohibited throughout the planning area except at these two

locations. Nonmotorized recreational users who enjoy hiking and horseback riding benefit from the 7,429 acres closed to motorized use in the Sweet Grass Hills.

No off-road big game retrieval would be allowed. However, options for off-road big game retrieval could be considered during subsequent site-specific travel management planning. Not allowing off-road big game retrieval would enhance the hunting opportunity for those who are seeking a more primitive, nonmotorized hunting experience. Encountering motorized vehicles away from existing routes may diminish the quality of their experience. Conversely, those who may not have the means or ability to retrieve their down big game by nonmotorized use may experience limitations or restrict their hunting opportunities.

The remaining BLM land available to motorized use within the planning area are categorized into either 74,428 acres limited to designated primitive routes (Burnt Lodge and Bitter Creek WSAs) or 2,355,457 acres limited to existing roads, primitive roads and trails. This designation benefits the motorized recreational user more than the nonmotorized user because of the extensive public land area accessible by motorized use for enjoying dispersed recreational opportunities such as hunting, fishing, pleasure driving and viewing wildlife. Although there are small to moderate blocks of BLM land in between primitive two track roads that afford the nonmotorized recreational user opportunities for solitude from hiking, backpacking and horseback use, those recreational experiences can be diminished from dust, noise and vehicle movement from nearby motorized use.

Travel management planning designates as high priority those areas with conflicts occurring between motorized and nonmotorized users, or where recreational users are creating natural resource concerns. The Grassland Bird/Greater Sage-Grouse Priority Areas and Frenchman Breaks area in northeast Phillips County (415,875 acres); Greater Sage-Grouse Protection Priority Area and Eastern Breaks and Badlands area (1,003,017 acres); and Little Rocky Mountains area in southwest Phillips County (27,688 acres) have been identified as a high priority for travel management planning.

Recreation

Recreation Management Areas: The effects from recreation management actions under Alternative E are the same as those identified under Alternative B, except for the following:

- The Little Rocky Mountains would be designated a SRMA (27,750 acres) and is primarily a roaded natural ROS area situated in a ponderosa pine setting which includes two smaller rural ROS recreation management zones associated with the Camp Creek and Montana Gulch campgrounds. As an area of longstanding interest to recreationists from the local and regional area of Montana, this area has and would continue to benefit by being identified as a SRMA. Problems associated with high OHV use in the area that are adversely affecting the setting (increased user-created roads, primitive roads and trails) have a much better chance of being addressed if identified as a SRMA. Additionally, the SRMA designation would help to develop and maintain new facilities at and nearby the established campgrounds to increase the recreational opportunities and enhance the visitor experience as recreation demand increases over the life of this plan.

- The Glasgow OHV would also be designated a SRMA (40 acres) and open to OHV use. This would benefit the motorized recreational user and prioritize management resources to this type of recreation outcome over other resource issues.

- Ten RMAs would be managed as ERMAs to protect the recreation facilities and uses that currently take place in those areas. Recreation outcomes would be a high priority but may be limited if they conflict with other resource management priorities within the ERMA. Under Alternative E, the following would be managed as ERMAs: BR-12 (246 acres), Cottonwood Riparian Area (42 acres) Faraasen Park (10 acres), Fresno OHV (125 acres), Marias River (19,032 acres), Paulo (74 acres), South Phillips Recreation Complex (42,217 acres), Sweet Grass Hills ACEC (7,414 acres), Timber Creek Ridge (67 acres), and Troika (56 acres).

- New recreational facilities would not be constructed in Greater Sage-Grouse habitat unless the development is required for visitor health and safety or resource protection. This alternative would require the most monitoring of impacts from recreational uses of all alternatives.

The remaining lands within the planning area would be managed as LND (2,340,266 acres) where dispersed recreation activities would continue as long as they do not conflict with other priority resource management in those areas.

Under this alternative, more outcomes-focused recreation management would take place than all other alternatives except D but would result in less recreation-caused disturbance from development and concentrated uses than Alternative D.

Recreational Use: Under Alternative E, the established protection measures benefit recreation because of the direct link between recreational use (fishing, hunting, wildlife viewing, etc.) related to these resources. Since these protection measures are second to those in Alternative B but greater than in any other alternative, and with the designation of the Little Rocky Mountains SRMA, annual visitation is projected to result in a slight increase. Visitation is slightly higher in Alternative E than in Alternative B because of the Little Rocky Mountains SRMA designation and increased visitation due to potential increases in facility-based recreation development.

Wilderness Characteristics: Under Alternative E, approximately 16,393 acres of BLM land (less than 1% of BLM lands within the District) adjacent to the Burnt Lodge WSA would be managed to preserve and enhance the apparent naturalness and the opportunities for solitude and primitive and unconfined recreation (wilderness characteristics) in the area. Under this alternative, Areas 49B, 52L and 53 would be managed as ROS class semi-primitive motorized. The goal of semi-primitive classifications is to provide some opportunity for isolation from man-made sights, sounds, and management controls in a predominantly unmodified environment.

Under the ROS classification of semi-primitive motorized, the on-site managerial controls would be subtle and, while motorized use would be allowed on the few existing routes, these routes would receive only the minimum maintenance required to ensure resource protection and safety of users. Visitors would have prospects for a high degree of interaction with the natural environment, with moderate challenge and risk, and opportunities to use outdoor skills.

Although under Alternative E, fewer acres would be managed for wilderness characteristics than Alternatives B and C, the opportunities for outstanding primitive and unconfined recreation would be similar because management for other resources such as grassland birds, soils and priority protections areas is expected to maintain or enhance the wilderness characteristics within those areas. Restrictions on development of new vehicular routes and limitations on maintenance or improvement of existing routes within areas managed for wilderness characteristics would decrease opportunities for those seeking more developed or motorized recreation.

Cumulative Impacts

Past and present actions that affect and have affected recreational opportunities and the quality of the recreational experience include mineral exploration and development, lands and realty surface-disturbing rights-of- way, livestock grazing, and vegetation treatments for fire management and forest health. In general, these actions have all had cumulatively adverse impacts on recreational opportunities and experiences by creating new roads and visual intrusions on the landscape which cause soil erosion and vegetation loss. Reasonably foreseeable future actions in the planning area and on federal, state, private, and other lands within and adjacent to the planning area that could adversely impact recreation opportunities and experiences include: ongoing mineral exploration, development, and production; lands and realty surface-disturbing rights-of-way; livestock grazing; and vegetation treatments for fire management and forest health.

Recently there has been increased interest in developing wind energy within the planning area. In an effort to analyze the resource effects of wind energy development, the BLM analyzed the development of two wind energy proposals within a high wind energy potential area: one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with the construction of the two wind energy proposals would include the creation of new roads, increase soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines

and powerlines. Additionally, increased traffic to maintain these facilities would cause dust and noise to dispersed recreational users. These effects would reduce the recreational opportunities and the quality of the recreational experience in areas of high potential and available (173,127 acres) for development of wind farms during the spring, summer, and fall for most dispersed opportunities such as hunting, fishing, pleasure driving, and viewing wildlife.

Because the established protection measures for soil, water, vegetation, and wildlife resources are similar but somewhat more relaxed than in Alternative B, the total cumulative impact to recreation opportunities and experiences would be the second lowest of all alternatives.

Renewable Energy Resources

This section describes potential effects to renewable energy from management actions by other resource programs. Lands and Realty addresses management of renewable-energy specific rights-of-way, leases, and permits.

Lands and Realty responds to requests for land use authorizations (e.g., rights-of-way, permits, or leases), for renewable energy from outside entities or other programs. This analysis addresses how the implementation of management actions may modify the location, size, or design of a given proposal, such as for a right-of-way or a permit. Such effects would primarily occur from the implementation of management actions designed to protect natural resources and limit impacts on those resources from surface-disturbing activities, and may even preclude approval of a proposal. Therefore, the type and degree of limitations or restrictions placed on a given proposal depends on the location of sensitive or high-value resources and the potential for environmental impacts on those resources.

Assumptions and Guidelines

- Any renewable energy developments proposed for public lands managed by the BLM could result in requests for land use authorizations such as rights-of-way and permits.
- Applications for renewable energy will be processed on a case-by-case basis as are all other Lands and Realty projects.
- The need to protect sensitive resources could result in construction delays or the need to relocate proposed rights-of-way. The need to relocate could result in an increase to acres of surface disturbance; it is assumed this increase would not exceed 10%.

Impacts Common to All Alternatives

Cultural Resources: The management of cultural resources could affect several aspects of the renewable energy program's land use authorizations. These actions are considered federal undertakings and must avoid inadvertent damage to federal and non-federal cultural resources through compliance with Section 106 of the National Historic Preservation Act. Cultural inventories would need to be completed prior to these federal undertakings and impacts to important cultural sites would need to be avoided by project redesign, project abandonment, and/or mitigation of adverse impacts through data recovery. This could result in rerouting a proposed project, in whole or in part. These measures can increase processing costs and processing time for both the federal and non-federal parties.

Fire Management and Ecology: Fire management under all alternatives to manipulate/enhance vegetative composition would generally help protect facilities authorized under the renewable energy program by reducing fuel loads and suppressing fires. However, there is always a slight possibility of losing control of prescribed fire and damaging above-ground right-of-way facilities.

Fish and Wildlife: The management of wildlife and fisheries, including special status species, would have several environmental consequences. The need to protect special status species as well as certain other species of fish and wildlife could impact land use authorizations. Facilities proposed for construction under various land use authorizations in areas that could adversely affect wildlife or fisheries may need to be mitigated, relocated, or in some cases, dropped from consideration. These types of actions could increase processing costs and time for both the federal and non-federal parties.

Lands and Realty: The Lands and Realty program will manage all applications and inquiries for renewable energy and ancillary projects. All applications would be processed on a case-by-case basis, taking into consideration the impacts to all resource values. Mitigation measures, alternate locations, or denial of the project may ensue due to the potential undue degradation of such resource values.

Paleontological Resources: The impacts from the management of paleontological resources would be very similar to those of cultural resources. Renewable energy projects occurring in known fossiliferous areas would require that adequate time and resources be allocated to conduct an inventory of these resources. The discovery of scientifically important paleontological resources could result in the rerouting or redesign of a proposed project. Such actions can increase processing costs and time for both the federal and non-federal parties.

Solid Minerals: The management of leasable, salable, and locatable minerals under all alternatives may result in requests for rights-of-way for utilities and access.

Special Designations: The need to manage national trails to protect the values for which they were designated could impact applications for rights-of-way as well as BLM actions to obtain legal and physical access across non-federal lands to BLM lands. Proposed ancillary facilities may need to be mitigated (e.g., burial of the line) or rerouted in order to protect the trail values.

Management of any BLM lands that may be designated as ACECs could impose stipulations on the use of these areas for land use authorizations.

Transportation and Facilities: Transportation and facilities management could require that easements be acquired for any BLM roads or other types of facilities to be located on non-federal lands. Right-of-way reservations may be needed for BLM roads or other types of facilities to be located on BLM land.

Vegetation: The management of vegetation, including special status species, would have several environmental consequences. The need to protect riparian and wetland vegetation and/or special status species would impact land use authorizations. Facilities proposed for construction where these types of vegetation are present may need to be mitigated, constructed in alternate locations, or in extreme cases, dropped from consideration.

Wilderness Characteristics: BLM lands managed for wilderness characteristics under Alternatives B, C and E would be exclusion areas for wind energy development. This does not include potential ancillary projects. Applications and inquiries for ancillary projects would be analyzed on a case-by-case basis. If potential impacts can be mitigated and those actions do not affect any of the wilderness characteristic of that area, the action may be granted.

Impacts under Alternative A (Current Management)

Under Alternative A, about 189,000 acres of BLM land would be exclusion areas for wind energy rights-of-way, and as a result would be closed to commercial wind energy development. This includes about 36,000 acres of high potential areas for wind energy and 125,000 acres of moderate potential areas. About 90% of the high and 93% of the moderate development potential areas on BLM land would be available for wind energy rights-of-way. Table 4.55 shows the acres of wind energy development potential that would be open with minor constraints (standard terms/conditions and BMPs), avoidance areas, and exclusion areas for wind energy.

Table 4.55
Wind Energy Development Potential under Alternative A (Current Management)
(BLM Acres)

Development Potential	*Management Category*			
	Open Areas	*Avoidance Areas*	*Exclusion Areas*	*Total*
High	329,652	0	35,883	365,535
Moderate	1,711,895	0	125,418	1,837,313
Low	207,020	0	27,570	234,590
Total	2,248,567	0	188,871	2,437,438

About 13% of the BLM land within two qualified resource areas (QRAs) would be exclusion areas for wind energy rights-of-way. Table 4.56 shows 27,190 acres of BLM land within the QRAs would be open and 3,934 acres would be exclusion areas.

Table 4.56
Qualified Resource Areas under Alternative A (Current Management)
(BLM Acres)

	Management Category			
Qualified Resource Area	***Open Areas***	***Avoidance Areas***	***Exclusion Areas***	***Total***
MT_NE	12,738	0	2,387	15,125
MT_NW	14,452	0	1,547	15,999
Total	27,190	0	3,934	31,124

Qualified Resource Areas

Qualified resource areas (QRAs) represent those lands with the greatest energy density within a contiguous area (WGA and DOE 2009).

Cumulative Impacts

Under Alternative A, most of the BLM land (92%) would be available for wind energy rights-of-way.

This alternative would provide the greatest number of open acres for potential siting of wind energy development on BLM land. This would also provide the potential for wind energy development on adjacent lands where the use of BLM land is necessary for technical or economic reasons.

Impacts under Alternative B

Under Alternative B about 2,188,000 acres of BLM land would be exclusion areas for wind energy rights-of-way, and as a result would be closed to commercial wind energy development. This includes about 327,000 acres of high potential areas for wind energy and 1,646,000 acres of moderate potential areas. Only about 10% of the high and 10% of the moderate development potential areas on BLM land would be available for wind energy rights-of-way. Table 4.57 shows the acres of wind energy development potential that would be open with minor constraints (standard terms/conditions and BMPs), avoidance areas, and exclusion areas for wind energy.

Table 4.57
Wind Energy Development Potential under Alternative B
(BLM Acres)

	Management Category			
Development Potential	***Open Areas***	***Avoidance Areas***	***Exclusion Areas***	***Total***
High	1,490	36,960	327,085	365,535
Moderate	5,938	185,811	1,645,564	1,837,313
Low	582	18,269	215,739	234,590
Total	8,010	241,040	2,188,388	2,437,438

About 91% of the BLM land within the qualified resource areas (QRAs) would be exclusion areas for wind energy rights-of-way. Table 4.58 shows 354 acres of BLM land within the QRAs would be open with minor constraints (standard terms/conditions and BMPs), 2,589 acres would be avoidance areas, and 28,181 acres would be exclusion areas.

Table 4.58
Qualified Resource Areas under Alternative B
(BLM Acres)

	Management Category			
Qualified Resource Area	***Open Areas***	***Avoidance Areas***	***Exclusion Areas***	***Total***
MT_NE	354	2,508	12,263	15,125
MT_NW	0	81	15,918	15,999
Total	354	2,589	28,181	31,124

Cumulative Impacts

Under Alternative B, only about 10% of the BLM land would be available for wind energy rights-of-way.

The closure of BLM land to wind energy rights-of-way to the greatest degree under this alternative (90% of the BLM land) could potentially limit development options on adjacent land if the use of BLM land is necessary for technical or economic reasons.

Impacts under Alternative C

Under Alternative C about 1,325,000 acres of BLM land would be exclusion areas for wind energy rights-of-way, and as a result would be closed to commercial wind energy development. This includes about 188,000 acres of high potential areas for wind energy and 1,018,000 acres of moderate potential areas. About 49% of the high and 45% of the moderate development potential areas on BLM land would be available for wind energy rights-of-way. Table 4.59 shows the acres of wind energy development potential that would be open with minor constraints (standard terms/conditions and BMPs), avoidance areas, and exclusion areas for wind energy.

Table 4.59
Wind Energy Development Potential under Alternative C
(BLM Acres)

	Management Category			
Development Potential	***Open Areas***	***Avoidance Areas***	***Exclusion Areas***	***Total***
High	12,981	164,111	188,443	365,535
Moderate	88,567	730,992	1,017,754	1,837,313
Low	10,560	105,270	118,760	234,590
Total	112,108	1,000,373	1,324,957	2,437,438

About 79% of the BLM land within the qualified resource areas (QRAs) would be exclusion areas for wind energy rights-of-way. Table 4.60 shows 2,811 acres of BLM land within the QRAs would be open with minor constraints (standard terms/conditions and BMPs), 3,702 acres would be avoidance areas, and 24,611 acres would be exclusion areas.

Table 4.60
Qualified Resource Areas under Alternative C
(BLM Acres)

	Management Category			
Qualified Resource Area	***Open Areas***	***Avoidance Areas***	***Exclusion Areas***	***Total***
MT_NE	1,255	2,866	11,004	15,125
MT_NW	1,556	836	13,607	15,999
Total	2,811	3,702	24,611	31,124

Cumulative Impacts

Under Alternative C, about 46% of the BLM land would be available for wind energy rights-of-way.

The closure of 54% of the BLM land to wind energy rights-of-way under this alternative could potentially limit development options on adjacent land in some areas, if the use of BLM land is necessary for technical or economic reasons.

Impacts under Alternative D

Under Alternative D about 293,000 acres of BLM land would be exclusion areas for wind energy rights-of-way, and as a result would be closed to commercial wind energy development. This includes about 79,000 acres of high potential areas for wind energy and 167,000 acres of moderate potential areas. About 79% of the high and 91% of the moderate development potential areas on BLM land would be available for wind energy rights-of-way. Table 4.61 shows the acres of wind energy development potential that would be open with minor constraints (standard terms/conditions and BMPs), avoidance areas, and exclusion areas for wind energy.

Table 4.61
Wind Energy Development Potential under Alternative D
(BLM Acres)

	Management Category			
Development Potential	***Open Areas***	***Avoidance Areas***	***Exclusion Areas***	***Total***
High	50,102	236,386	79,047	365,535
Moderate	186,457	1,483,437	167,419	1,837,313
Low	9,033	179,031	46,526	234,590
Total	245,592	1,898,854	292,992	2,437,438

About 76% of the BLM land within the qualified resource areas (QRAs) would be exclusion areas for wind energy rights-of-way. Table 4.62 shows 5,528 acres of BLM land within the QRAs that would be open with minor constraints (standard terms/conditions and BMPs), 2,083 acres would be avoidance areas, and 23,513 acres would be exclusion areas.

Table 4.62
Qualified Resource Areas under Alternative D
(BLM Acres)

	Management Category			
Qualified Resource Area	***Open Areas***	***Avoidance Areas***	***Exclusion Areas***	***Total***
MT_NE	3,958	519	10,648	15,125
MT_NW	1,570	1,564	12,865	15,999
Total	5,528	2,083	23,513	31,124

Cumulative Impacts

Under Alternative D, most of the BLM land (88%) would be available for wind energy rights-of-way.

This alternative would provide the second greatest number of open acres for potential siting of wind energy development on BLM land. This would also provide the potential for wind energy development on adjacent lands where the use of BLM land is necessary for technical or economic reasons.

Impacts under Alternative E (Preferred Alternative)

Under Alternative E about 1,540,000 acres of BLM land would be exclusion areas for wind energy rights-of-way, and as a result would be closed to commercial wind energy development. This includes about 192,000 acres of high potential areas for wind energy and 1,178,000 acres of moderate potential areas. About 48% of the high and 36% of the moderate development potential areas on BLM land would be available for wind energy rights-of-way. Table 4.63 shows the acres of wind energy development potential that would be open with minor constraints (standard terms/conditions and BMPs), avoidance areas, and exclusion areas for wind energy.

Table 4.63
Wind Energy Development Potential under Alternative E
(Preferred Alternative)
(BLM Acres)

	Management Category			
Development Potential	***Open Areas***	***Avoidance Areas***	***Exclusion Areas***	***Total***
High	5,669	167,458	192,408	365,535
Moderate	26,357	632,809	1,178,147	1,837,313
Low	1,917	63,555	169,118	234,590
Total	33,943	836,822	1,539,673	2,437,438

About 79% of the BLM land within the qualified resource areas (QRAs) would be exclusion areas for wind energy rights-of-way. Table 4.64 shows 1,197 acres of BLM land within the QRAs would be open with minor constraints (standard terms/conditions and BMPs), 5,316 acres would be avoidance areas, and 24,611 acres would be exclusion areas.

Table 4.64
Qualified Resource Areas under Alternative E
(Preferred Alternative)
(BLM Acres)

	Management Category			
Qualified Resource Area	***Open Areas***	***Avoidance Areas***	***Exclusion Areas***	***Total***
MT_NE	757	3,364	11,004	15,125
MT_NW	440	1,952	13,607	15,999
Total	1,197	5,316	24,611	31,124

Cumulative Impacts

Under Alternative E, about 37% of the BLM land would be available for wind energy rights-of-way.

The closure of BLM land to wind energy rights-of-way under this alternative (63% of the BLM land) could potentially limit development options on adjacent land if the use of BLM land is necessary for technical or economic reasons.

Social

Assumptions and Guidelines

For the social effects analysis, information from scoping and other planning documents (BLM 1992b, 1994a, 2003c, and 2008b) and discussions with people knowledgeable about the study area were used to develop a list of potentially affected groups and individuals, the concerns of these groups, and potential effects to these groups. The categorization of stakeholder groups is discussed in the Social section of Chapter 3. Based on the concerns and potential effects, a set of indicators related to resource activity changes were developed for each set of potentially affected stakeholder groups. The indicators were then examined by alternative for each group to determine the potential social effects. The potential social effects were then discussed with resource experts to determine the likelihood of the effect actually occurring to any given group.

In most cases, the social effects are described in terms of effects to quality of life, which can be caused by changes in resource availability and use. These effects could include changes in the amount and quality of available resources such as recreation opportunities or opportunities to develop oil and gas resources, and resolution or creation of problems related to these activities. Other beliefs that could affect quality of life include individuals having a sense of control over the decisions that affect their future and feeling that the government strives to act in ways that consider all stakeholders' needs.

The groupings in this section are made to facilitate the discussion of social effects. It should be noted that these groupings generalize the members' actual beliefs and values. For instance, some ranchers engage in recreation and are particularly concerned about resource protection. Recreationists may engage in both motorized and nonmotorized activities. Some individuals are concerned with resource development and resource protection. The social analysis will include the stakeholder groups most likely to be affected by the plan.

The average age of the national and local populations will continue to increase. The economic, cultural, recreation, transportation and visual resource assumptions and effects sections include information that may be of interest to the reader interested in social effects.

Impacts Common to All Alternatives

No alternative would affect the major social trends or social organization in the local communities of the planning area.

Under any alternative, should oil and gas leasing and subsequent development occur, impacts to people living near or using the area in the vicinity of the lease could take place. Oil and gas exploration, drilling, or production could create an inconvenience to these people due to increased traffic and traffic delays, noise, and visual impacts. This would be especially noticeable in rural areas where oil and gas development has not occurred previously. The amount of inconvenience would depend on the activity affected, traffic patterns within the area, noise levels, length of time and season these activities occurred, etc. Creation of new access roads into an area could allow increased public access and exposure of private property to vandalism. For leases where the surface is privately owned and the mineral estate is federally owned, surface owner agreements, standard lease stipulations, and BMPs could address many of the concerns of private surface owners.

Under all alternatives current levels of forage available for livestock grazing would be maintained so there would be no social effects to operators or to local communities from changes in AUMs for livestock grazing. Under individual alternatives, there may be minor inconveniences or benefits to some operators due to changes in BLM actions; these will be discussed under the individual alternatives where they occur.

Noxious weeds and wildfire would be fought aggressively under all alternatives, which likely would be supported by the local populations. Under any alternative extreme fire behavior could result in smoke causing eye, throat or lung irritation, injury, loss of property and/or reduced recreation potential.

Under all alternatives, administration of a permit or lease allows for driving off road to administer the permit or lease, which could be perceived as unfair to recreationists who are not allowed to drive off road.

The increase in access to ACECs that could happen under any alternative could have both positive and negative effects in that it could provide more access for carrying out traditional uses but could also open up sensitive areas to vandalism and/or looting.

Environmental Justice

Chapter 3 presents the methodology for screening the eight-county study area for potential Environmental Justice populations, and the results. Once potential Environmental Justice populations are identified, Environmental Justice impact analysis consists of determining if the subject populations would experience disproportionately high and adverse environmental or human health effects – as defined by the CEQ and described in Chapter 3 – under one or more of the management alternatives. Environmental health effects may include cultural, economic, or social impacts when those impacts are interrelated to impacts on the natural or physical environment.

Based on the definitions and criteria presented in Chapter 3, and the data obtained for this study, the following places in the socioeconomic study area were flagged as areas of potential concern from an Environmental Justice perspective, for the populations noted:

- Blaine County – minority population, American Indian/Alaska Native
- Chouteau County – minority population, American Indian/Alaska Native
- Glacier County – minority population, American Indian/Alaska Native; low-income population
- Hill County – minority population, American Indian/Alaska Native

None of the alternatives would create disproportionately high and adverse environmental or human health effects on the identified Environmental Justice populations. While some alternatives will reduce economic opportunities, for instance through reductions in oil and gas development, any reductions in opportunities would not fall disproportionately on these populations compared to other populations. The agency has considered all input from persons or groups regardless of age, race, income status, or other social or economic characteristic.

Impacts under Alternative A (Current Management)

Motorized game retrieval off road would not be allowed, which would reduce the potential for conflicts between ranchers and hunters during big game season as compared to Alternatives C and D.

Recreation management under Alternative A would continue as it has in the past. Opportunities for recreationists desiring a motorized experience in intensive use areas would continue to be available. No game retrieval would be allowed unless designated by future travel management planning; the present situation does not address the needs expressed by some hunters who feel motorized game retrieval is important, particularly in an area with an aging hunter population. Opportunities to enhance the primitive experience desired by some recreationists would not exist to the same degree as under Alternatives B, C, or E. This alternative would not offer the opportunity to deal with existing problems such as closing existing fishing reservoirs that no longer offer high quality experiences.

Groups and individuals who give a high priority to resource use would probably support this alternative because it entails only slightly more restrictions than Alternative D, which has the fewest controls on oil and gas and other types of development. Employment and income from all BLM resources would increase over current levels. This could lead to a population increase likely concentrated in Phillips, Valley, Blaine and Hill Counties. BLM program revenues and payments to counties would increase, reflecting the increased development under this alternative and would be similar to Alternative D. Those who give a high priority to resource use include many local residents who are concerned about economic development and its potential positive effects on the social environment of the small communities.

Groups and individuals who give a high priority to resource protection, likely would not feel this alternative offers adequate protection for wildlife and other resources. This could result in a decline in the quality of life for these groups and individuals.

Motorized game retrieval off road would not be allowed in limited or closed areas, which would offer some protection from activities that could interfere with traditional practices. OHV areas would remain open which could have a positive effect in that the areas would concentrate OHV use. Under this alternative, future mining could occur in both the Sweet Grass Hills (upon expiration of the withdrawal in 2017) and the Little Rocky Mountains, which could interfere with the ability of Native Americans to practice their traditional religious activities in an unencumbered way. This could result in a decline in the quality of life for Native Americans who engage in these activities.

Cumulative Impacts

Groups and individuals who give a high priority to resource use, including many local residents, indicate that current management has adequately protected these resources. The quality of life would stay the same under this alternative because their lifestyle needs would be met. Off-road recreation opportunities would be mixed because although the OHV open areas would continue, motorized game retrieval off road would not be allowed (unless opportunities were developed in future travel management planning).

Some individuals believe current management is not adequate for the long-term preservation of public resources such as Greater Sage-Grouse habitat. They would not feel the alternative offers the ability to address current or future problems. Quality of life for these groups and individuals may decline under this alternative.

Recreationists who desire a primitive experience may not feel this alternative provides the opportunities to enhance this type of experience in the future. In addition, Native Americans who engage in traditional practices in the Sweet Grass Hills or the Little Rocky Mountains may be less able to practice their religion in an unencumbered way in the future.

Impacts under Alternative B

Motorized game retrieval off road would not be allowed, which would reduce the potential for conflicts between ranchers and hunters during big game season, as compared to Alternatives C and D. Allotments within the Greater Sage-Grouse Protection Priority Area ACEC and the Grassland Bird/Greater Sage-Grouse Priority Areas ACEC where grazing preference is relinquished or cancelled would remain available for livestock grazing and would be designated as resource reserve allotments if analysis does not support closing the allotment to grazing for the benefit of sage-grouse. Resource reserve allotments would be developed where grazing preferences are relinquished or cancelled outside of priority sage-grouse habitat. This could provide flexibility in ranch management for some operations but would not allow livestock AUMs to continue to be transferred to individual ranch operations when grazing preferences are relinquished or cancelled. Many ranchers indicate livestock AUMs should continue to support individual or family operations.

Recreation management under Alternative B would offer enhanced opportunities for recreationists desiring a high quality primitive experience because there would be less surface disturbance, enhanced fish and wildlife protection, less noise, more protected areas (e.g., ACECs, lands with wilderness characteristics), less future recreation development, more protection of the visual environment, etc. This could enhance the quality of life for those desiring a more primitive experience. However, no game retrieval would be allowed, which does not address the needs expressed by some hunters who feel motorized game retrieval is important, particularly in an area with an aging hunter population. In addition, the areas currently available for intensive OHV use would be closed, which would completely preclude those activities on BLM land in the planning area, and may encourage some people to look elsewhere for recreation opportunities. This could increase conflicts of use and resource degradation.

Groups and individuals who give a high priority to resource use likely would not support this alternative because it contains the most restrictions on oil and gas and other types of development of any alternative. Employment and income from all BLM resources would decrease from current levels. This could lead to a population decline concentrated in Phillips, Valley, Blaine and Hill Counties. BLM program revenues and payments to counties would reflect the decreased development and would decline from current levels. Those who give a high priority to resource use include many local residents who are concerned about economic development and its potential positive effects on the social environment of the small communities.

Groups and individuals who give a high priority to resource protection likely would prefer this alternative because it offers the most protection for wildlife habitat and other resources, and the least amount of surface disturbance. This could enhance the quality of life for these groups and individuals. However, due to the diversity of values within this

stakeholder group, some individuals may still not favor this alternative and feel that it gives enough protection to wildlife habitat and other resources.

Motorized game retrieval off road would not be allowed which would offer some protection from activities that could interfere with traditional practices. No OHV areas would be designated as open, which could have the effect of dispersing OHV activity that could interfere with traditional practices. The BLM would recommend a 20-year extension of the Sweet Grass Hills TCP mineral withdrawal and would recommend a 20-year withdrawal for the Little Rocky Mountains TCP. This would enhance the ability to practice traditional religious activities in an unencumbered way and enhance the quality of life of Native Americans who engage in these activities.

Cumulative Impacts

Under Alternative B, activities in the planning area would be more restricted than under all other alternatives. Groups and individuals who give a high priority to resource protection may prefer Alternative B; however, they may also be concerned that some of the effects to wildlife from development restricted on public lands would be pushed onto private lands where the protections would not be in place. Additionally, as mentioned above, specific individuals or groups may not feel that the restrictions provide enough resource protection.

Native Americans who engage in traditional practices in the Sweet Grass Hills or the Little Rocky Mountains would be better able to practice their religion in an unencumbered way in the future.

Opportunities for primitive, quiet recreation experiences would be greatest under this alternative. The total effects to OHV use would also be greatest under this alternative as all intensive use areas would be closed and no motorized game retrieval off road would be allowed. However, this may encourage some people who like to travel off-road to look elsewhere for recreation opportunities, which could increase conflicts of use and resource degradation.

Groups and individuals who give a high priority to resource use, including many local residents, would feel that the proposed stipulations are too extreme. They may feel that management should continue as it has in the past so they can have the greatest opportunity to continue their current lifestyles which are dependent upon their current uses of BLM land and current population levels. However, it should be noted that the development that does not occur on public lands in this alternative may occur on adjacent private lands and therefore the employment and population changes would not be as drastic as when just examining public lands. Ongoing and future events that contribute to the current uncertainty are associated with activities done outside of BLM management, such as management on the C.M Russell National Wildlife Refuge and ongoing private land sales and development.

Impacts under Alternative C

Conflicts between ranchers and hunters could increase because motorized game retrieval off road would be allowed in a limited area. This could also cause the spreading of weeds. Resource reserve allotments may be developed under this alternative where grazing preferences are relinquished or cancelled. This could provide flexibility in ranch management for some operations but would not ensure that livestock AUMs are transferred to individual ranch operations when grazing preferences are relinquished or cancelled. Many ranchers indicate livestock AUMs should continue to support individual or family operations.

Recreation management under Alternative C would offer enhanced opportunities for recreationists desiring a high quality primitive experience as in Alternative B. However, an area would be available for motorized game retrieval which would make those opportunities available to an aging hunter population. The areas currently available for intensive OHV use would be closed, which would completely preclude those activities on BLM land in the study area and may encourage some people to look elsewhere for recreation opportunities. This could increase conflicts of use and resource degradation.

Groups and individuals who give a high priority to resource use likely would not support this alternative because it contains more restrictions on oil and gas and other types of development than any alternative other than B. Employment and income from all BLM resources would increase less than what is anticipated with Alternatives A and D. This small increase still could lead to a population increase concentrated in Phillips, Valley, Blaine and Hill Counties. BLM program revenues and payments to counties would reflect the lesser levels of development under this alternative. Those

who give a high priority to resource use include many local residents who are concerned about economic development and its potential positive effects on the social environment of the small communities.

Groups and individuals who give a high priority to resource protection may feel this alternative does not offer enough protection for these resources. They may prefer this alternative more than Alternatives A or D, but less than Alternatives B or E.

Motorized game retrieval off road would only be available in a limited area; this would offer some protection from activities that could interfere with traditional practices. No OHV areas would be designated as open, which could have the effect of dispersing OHV activity that could interfere with traditional practices. The BLM would recommend a 20-year extension of the Sweet Grass Hills TCP mineral withdrawal, which would enhance the ability to practice traditional religious activities in an unencumbered way and enhance the quality of life of Native Americans who engage in these activities. The Little Rocky Mountains TCP would be open to mineral entry, which could interfere with the ability of Native Americans to practice their traditional religious activities in an unencumbered way. This could result in a decline in the quality of life for Native Americans who engage in these activities.

Cumulative Impacts

Activities in the planning area would be more restricted than under Alternatives A or D, but less restrictive than under Alternatives B or E. Groups and individuals who give a high priority to resource protection t may not feel these resources would be adequately protected. Quality of life for these groups and individuals may decline under this alternative because their lifestyle needs would not be met.

Effects to Native Americans who engage in traditional practices could be positive in the Sweet Grass Hills and negative in the Little Rocky Mountains in terms of their ability to practice their religion in an unencumbered way.

Recreation management under Alternative C would offer enhanced opportunities for recreationists desiring a primitive experience similar to Alternative B. However, an area would be open to motorized game retrieval but all of the OHV areas would be closed.

Groups and individuals who give a high priority to resource use, including many local residents, may feel that this alternative restricts oil and gas development too much. They may feel that management should continue as it has in the past so they can have the greatest opportunity to continue their current lifestyles which are dependent upon their current uses of BLM land and current population levels. Ongoing and future events that contribute to the current uncertainty are associated with activities done outside of BLM management, such as management on the C.M Russell National Wildlife Refuge and ongoing private land sales and development.

Impacts under Alternative D

Conflicts between ranchers and hunters could increase because motorized game retrieval off road would be allowed on most of the BLM land in the study area. The potential for spreading weeds would be greatest under this alternative because of the motorized game retrieval off road. Resource reserve allotments would not be considered, which would allow livestock AUMs to continue to be transferred to individual ranch operations when grazing preferences are relinquished or cancelled, which many ranchers support.

Recreation management under Alternative D would offer enhanced opportunities for recreationists desiring a motorized experience in intensive use areas and the opportunity to go off road to retrieve game. Going off road to retrieve game is important to some people, particularly in an area with an aging hunter population. However, there are a variety of problems associated with motorized game retrieval off road including the spread of weeds, creation of new roads, diminished quiet and solitude, difficulty of enforcement, etc. All of these effects could diminish the quality of the recreation experience for other users and could cause displacement of recreationists desiring a more primitive experience.

Groups and individuals who give a high priority to resource use likely would support this alternative because it contains the fewest restrictions on oil and gas and other development of any alternative. Employment and income from all BLM

resources would increase from current levels. This could lead to a population increase concentrated in Phillips, Valley, Blaine and Hill Counties. BLM program revenues and payments to counties would increase, reflecting the increased development under this alternative and would be similar to Alternative A. Those who give a high priority to resource use include many local residents who are concerned about economic development and its potential positive effects on the social environment of the small communities.

Groups and individuals who give a high priority to resource protection likely would not feel this alternative offers adequate protection for these resources, because management actions under this alternative would slowly degrade existing conditions for wildlife in most of the planning area. This could result in a decline in the quality of life for these groups and individuals.

In this alternative, all BLM land in the planning area would be available for motorized game retrieval off road except in the Big Bend of the Milk River, Frenchman Breaks, Kevin Rim and Malta Geological ACECs or the Bitter Creek and Burnt Lodge WSAs, and the withdrawal for solid minerals in the Sweet Grass Hills TCP would not be recommended to extend beyond 2017. Both of these activities could interfere with the practice of traditional activities. However, a portion of the Little Rocky Mountains ACEC would be proposed for a mineral withdrawal and designated OHV areas could have the positive effect of concentrating OHV use. This alternative would have both positive and negative effects on the ability of Native Americans to practice traditional religious activities in an unencumbered way.

Cumulative Impacts

Under Alternative D, management would enhance economic opportunities in the planning area. Groups and individuals who give a high priority to resource use, including many local residents, indicate that economic development would benefit local communities. Off-road recreation opportunities would be enhanced because the OHV areas would continue and motorized game retrieval off road would be allowed across the study area. However, opportunities for primitive, quiet recreation experiences would decline under this alternative.

Adoption of Alternative D would contribute to an increasing concern regarding long-term preservation of wildlife habitat and resource protection among local and nonlocal groups and individuals who place a high value on the protection of these resources. They likely would not feel the alternative offers the ability to address current or future problems. Quality of life for these groups and individuals may decline under this alternative.

Effects to Native Americans who engage in traditional practices could be positive in the Little Rocky Mountains but negative elsewhere in terms of their ability to practice their religion in an unencumbered way.

Impacts under Alternative E (Preferred Alternative)

Resource reserve allotments may be developed under this alternative where grazing preferences are relinquished or cancelled. This could provide flexibility in ranch management for some operations but would not ensure that livestock AUMs are transferred to individual ranch operations when grazing preferences are relinquished or cancelled. Many ranchers indicate livestock AUMs should continue to support individual or family operations.

Recreation management under Alternative E would offer more of a balance of opportunities for different types of users compared to any of the other alternatives. This alternative would allow managers more flexibility to respond to opportunities or problems as they arise. Some of the actions that would provide a higher quality primitive experience, as in Alternative B, would occur. No areas would be available for motorized game retrieval in limited or closed areas, which would make those opportunities unavailable to an aging hunter population; however, motorized game retrieval off road could be considered through future travel management planning. The Fresno and Glasgow OHV areas would remain open, which would provide opportunities for off-road use. This alternative may prevent some of the conflicts between motorized and nonmotorized recreationists because the off-road areas would stay open and motorized game retrieval off road would not occur.

Groups and individuals who give a high priority to resource use may not support this alternative because of the restrictions on oil and gas and other types of development. However, this alternative is less restrictive than Alternatives B and C. Employment and income from all BLM resources would increase from current levels compared to Alternatives

A and D. This increase could lead to a population increase concentrated in Phillips, Valley, Blaine and Hill Counties. BLM program revenues and payments to counties would reflect the greater levels of development than under Alternatives B and C and would increase from current levels. Those who give a high priority to resource use include many local residents who are concerned about economic development and its potential positive effects on the social environment of the small communities.

Groups and individuals who give a high priority to resource protection may feel this alternative offers enough protection for these resources. They may prefer this alternative more than any other alternative but B; however, it may not meet groups or individuals interests who would value more resource protection than what is offered in this alternative.

Motorized game retrieval off road would not be allowed in limited or closed areas (unless designated under future travel management), which would offer some protection from activities that could interfere with traditional practices. OHV areas would remain open which could have a positive effect in that the areas would concentrate OHV use. The BLM would recommend a 20-year extension of the mineral withdrawal for the Sweet Grass Hills, which would enhance the ability to practice traditional religious activities in an unencumbered way and enhance the quality of life of Native Americans who engage in these activities. The Little Rocky Mountains TCP would be open to mineral entry, which could affect the ability of Native Americans to practice traditional religious activities in an unencumbered way.

Cumulative Impacts

Under Alternative E, activities in the study area would be more restricted than under Alternatives A or D. Groups and individuals who give a high priority to resource protection may feel these resources would be adequately protected and the opportunities they desire available in the future. They may feel the alternative offers the ability to address current or future problems. Quality of life for these groups and individuals may be enhanced under this alternative because their lifestyle needs would be met. However, some groups and individuals that prioritize resource protection may still think that this alternative does not provide enough resource protection.

Effects to Native Americans who engage in traditional practices could be positive in the Sweet Grass Hills and negative in the Little Rocky Mountains in terms of their ability to practice their religion in an unencumbered way.

Recreation management under Alternative E would offer more of a balance of opportunities for different types of users compared to any other alternative. This alternative would allow managers more flexibility to respond to opportunities or problems as they arise. This alternative may prevent some of the conflicts between motorized and nonmotorized recreationists because, at least in the short term, one of the off-road areas would stay open and motorized game retrieval off road would not occur.

Groups and individuals who give a high priority to resource use, including many local residents, may feel that this alternative restricts oil and gas development too much. They may feel that management should continue as it has in the past so they can have the greatest opportunity to continue their current lifestyles which are dependent upon their current uses of BLM land.

Soil Resources and Vegetation – Rangeland

The effects to Soil Resources and Vegetation – Rangeland are addressed together in this section.

Assumptions and Guidelines

Spatial analysis was conducted with USDA-NRCS's Soil Data Viewer ArcGIS Extension and ESRI's ArcGIS Desktop 9.3 computer software using USDA-NRCS's SSURGO datasets. Effects are described qualitatively and, where possible, quantitatively.

For the purpose of this broad-scale analysis, the primary indicator of effects to soils and vegetation is the amount of acres of surface disturbance caused by allowable uses and management actions, particularly surface disturbance on soils with severe erosion hazards, badlands, and rock outcrop. The types of effects that are projected to occur to soils and

vegetation as a result of the various alternatives are similar; however, the amount of acres disturbed is anticipated to vary by specific allowable uses and management actions associated with individual alternatives, as described below.

The following assumptions were made:

- Prescribed fire and fuels management are generally beneficial to rangeland vegetation.
- Reclamation would effectively mitigate long-term surface-disturbing effects.
- Livestock grazing is not a surface-disturbing activity.
- For analysis purposes, if a Soil Map Unit (SMU) has a severe erosion hazard rating then the entire SMU is rated severe. However, there may be areas within the SMU that could have a slight or moderate rating. For example, the Lisam-Dilts clays, 8% to 35% slopes SMU, has a severe erosion hazard rating. Slopes 22% and greater would have a severe erosion hazard but slopes less than 22% would have a slight or moderate rating. The opposite could be true for an SMU with a slight or moderate rating. There could be areas within the SMU with a severe rating. See the Soils section in Chapter 3 for an explanation of how erosion hazard ratings are derived.
- Soil and vegetation mitigation measures would be addressed at the site-specific project level. Erosion controls and other mitigation measures would be installed and maintained. These measures would effectively mitigate soil erosion.

Actions that contribute to the decline in abundance or distribution of naturally occurring grassland, shrubland and woody draw communities are considered adverse impacts. Conversely, beneficial impacts to these communities include actions that protect or restore them in the planning area.

Direct effects to grassland, shrubland and woody draw communities result from surface-disturbing and other activities that cause vegetation removal and mechanical damage to plants. Surface-disturbing activities generally are considered an adverse direct effect to these naturally occurring plant communities. Activities such as livestock grazing, wildlife use, wildfire and vegetative treatments (e.g., prescribed fire, chemical, or biological) also have direct effects on these communities, which may be both adverse and beneficial. Indirect effects to grasslands, shrublands and woody draws result from activities that alter the quality and health of these plant communities. For example, activities that result in soil compaction, erosion, changes in hydrology, and encroachment of INPS are considered indirect effects. Beneficial effects to grasslands shrublands and woody draws include activities that minimize, reduce, or prevent the spread of INPS into these communities and vegetative treatments to improve these communities.

Short-term effects to soils and vegetation are those that result during initial surface disturbance prior to stabilization by vegetation or practices/structures that minimize water and wind erosion. Long-term effects due to accelerated erosion would occur in locations where bare soils are allowed to remain exposed to water and wind for more than 5 years. Other long-term effects are due in part to changes in vegetation communities and the loss of productivity in areas where facilities and structures are built by removing or greatly altering the soil profile.

Qualitative observations during watershed assessments indicate that soil quality, stability, and watershed health have improved overall within the planning area. Soil quality and stability is diminishing in some areas due to concentrated commercial and recreational activities and use.

Projected increases in commercial (10% per year) and recreational activities/use (0.5% per year) may increase the potential for soil erosion and decreased soil quality in localized areas. Continued implementation of Standards for Rangeland Health is expected to maintain soil quality.

Impacts Common to All Alternatives

The following addresses key soil concepts that are fundamental to understanding the effects to soil quality and soil/site stability.

> "Soil quality is the capacity of a specific kind of soil to function within natural or managed ecosystem boundaries, sustain plant and animal productivity, maintain or enhance the quality of water and air, and support human health and habitation. Changes in the capacity of soil to function are reflected in soil properties that change in response to management or climate. Changes in soil quality that occur as a result of management affect:
>
> - the amount of water from rainfall and snowmelt that is available for plant growth;
> - runoff, water infiltration, and the potential for erosion;
> - the availability of nutrients for plant growth;
> - the conditions needed for germination, seedling establishment, vegetative reproduction, and root growth; and
> - the ability of the soil to act as a filter and protect water and air quality." (NRCS 2001)

Indirect effects attributed to disturbed soils include the following: (1) sedimentation of drainages and perennial water bodies primarily by water or wind erosion; (2) particulate matter affecting air quality through wind erosion; (3) reduced infiltration; (4) an increase in surface water runoff that could cause higher peak stream flows and possibly downstream flooding; and (5) changes in surface water quality caused by exposing soils or bedrock with undesirable chemical characteristics.

Protective management actions for wildlife/habitat, cultural, paleontological and geological resources, special designations, and wilderness characteristics would indirectly benefit soil and vegetation resources. This would be a result of stipulations/restrictions placed on surface-disturbing activities to protect those resource values. However, there could be times when soils and vegetation resources could be compromised by protective measures for those resources.

Surface-disturbing activities would affect soils and vegetation to varying degrees depending on the type of disturbance, amount, and location; soil and vegetation type; time of year; climatic factors; and surface hydrology. Surface-disturbing activities remove protective vegetative cover and/or crusts and can alter soil physical, chemical, and biological properties; resulting in increased soil susceptibility to water and wind erosion, and decreased soil quality and site productivity. Areas with soils that have severe erosion hazards, poor reclamation suitability, badlands, and rock outcrop are the most vulnerable to effects.

All soils are susceptible to accelerated erosion. Accelerated erosion is in excess of natural erosion rates and occurs when soil particles are detached and removed as a result of human and/or animal activities. Soils with severe erosion hazards, badlands, and rock outcrop are the most vulnerable to accelerated erosion. Once disturbed it is difficult and costly to stabilize these areas, affecting reclamation. Accelerated erosion is approximately 7 times greater on soils with a severe erosion hazard than predicted for soils with a low or moderate erosion hazard (USFS 2008).

Soil compaction results from equipment, vehicles, humans, and animals traveling over trails, roads, and land. Severity depends on soil type, soil moisture, vegetative cover, and the frequency and weight (lbs./sq. inch). Compaction alters soil structure reducing infiltration/permeability rates; in turn increasing runoff, erosion and potential sedimentation. Soil quality and vegetative vigor can decrease. Soils are the most susceptible to compaction during moist conditions.

Important soil components often affected by surface-disturbing activities are biological, chemical, and physical crusts. Biological soil crusts are an intimate association between soil particles and cyanobacteria, algae, microfungi, lichens, and bryophytes which live within or on top of the uppermost millimeters of soil (Rosentreter, et al. 2007). Chemical and physical crusts are inorganic features such as a salt crust or platy surface crust (USGS 2006). These crusts (biological and chemical/physical) hold soil particles in place to help stabilize soils; reducing erosion and increasing soil quality. Crusts can be completely damaged/destroyed/removed by repeated foot, vehicle traffic, or any other surface-disturbing activities. Once damaged/destroyed/removed, the erosive powers of water and wind can easily erode exposed soil particles.

Fire Management and Ecology: Prescribed and wildfires cause short-term, localized runoff, soil erosion, and sedimentation. Factors such as intensity, duration, soil moisture, vegetation type, fuel type and density, and time of year determine the severity of the effects to soil physical, chemical and biological properties. As vegetation recovers the effects diminish. Recovery typically occurs within 1 to 5 years, except in areas where there is high burn severity, resulting in minimal effects to the long-term productivity of a site. Soil effects are typically less severe from prescribed

fire than from wildfire. Prescribed fire ignitions can be controlled to times of year when there is less likely damage to soils from excessive heating. Prescribed fires reduce fuel loading, minimizing the risk of high severity wildfires; therefore, short-term effects associated with prescribed fire generate long-term benefits by reducing the risk of highly damaging high severity wildfires.

Implementation of prescribed burning, mechanical treatments, or other appropriate methods to restore desired ecological conditions of rangelands, forests or woodlands would improve soil and vegetation quality in the long term.

Soils quality would benefit by implementation of emergency stabilization and rehabilitation (ES&R) treatments as these treatments are implemented to stabilize and prevent unacceptable degradation to natural resources and to repair or improve fire-damaged lands unlikely to recover naturally to management-approved conditions. Without taking these actions soils would be susceptible to erosion and long-term degradation indirectly affecting other resources and uses that are dependent on stable and productive soils.

Fluid Minerals: Fluid mineral development would affect soils and vegetation during exploration, drilling, production, and abandonment. Effects could include removal of vegetation, exposure of the soil, mixing of soil horizons, loss of topsoil productivity, soil compaction, and increased susceptibility to water and wind erosion. Site-specific mitigation measures, BMPs, and reclamation standards would be implemented and monitored to minimize effects. The Gold Book, Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and USFS 2007) would be followed. Effects would be both short-term (well pads and pipelines) and long-term (production areas and access roads).

Reclamation is not normally a problem on drill pads (Munshower 1994). Areas not needed for active production and operations should undergo interim reclamation. Reclamation measures should begin as soon as possible after the disturbance and continue until successful reclamation is achieved. Generally, soil erosion rates are greater on recently reclaimed areas and decrease over time to natural levels in about 3-5 years. Areas needed for production, access roads, and facilities would require a long-term commitment of the soil and vegetation resource. These sites remain non-productive and continue to be at risk of erosion until abandonment and final reclamation. Production water, when spilled, could contaminate soils and vegetation (depending on properties of the water). This would affect reclamation by altering chemical characteristic of the soils (high EC, ESP, SAR, pH, etc.).

Forests and Woodlands: Disturbance associated with forest treatment activities would generate accelerated soil erosion in the short term and could increase soil compaction within treatment areas. Effects are greatest on roads and skid trails. Silvicultural prescriptions and contracts would be written with mitigation measures including, but not limited to, those specified in the Water Quality BMPs for Montana Forests (Logan 2001). These measures would provide protection to soil, vegetation, and water resources. Meeting the desired future condition in the long term with these treatments would contribute to properly functioning watersheds that support productive plant communities consistent with long-term site potential.

Lands and Realty: Requests for land use authorizations (rights-of-way, leases or permits) would be analyzed and mitigation measures applied on a case-by-case basis through the environmental review process. Terms and conditions for rights-of-way, corridors, and development areas (oil and gas) would incorporate applicable BMPs, current professional practice, and recent scientific findings to protect soils and vegetation resources. Surface-disturbing effects would not occur in exclusion areas; therefore, there would be no soil and vegetation disturbance effects in these areas. If a surface-disturbing activity would be allowed in an avoidance area, site-specific measures would be developed to protect soils and vegetation from long-term degradation (see Chapter 2, Table 2.11 for a listing of the exclusion and avoidance areas).

It is anticipated there would be approximately 1,421 acres (less than 1% of the planning area) of soil and vegetation disturbances for rights-of-way within the next 20 years. Of these, 360 acres (less than 1% of the planning area) would be long-term disturbances as these would be for roads and communication sites.

Livestock Grazing: Livestock can compact soils where trampling, trailing, and congregation occur. Water or wind erosion of soils may be accelerated if insufficient litter or plant cover is left after the grazing season, or if plant composition is changed by grazing practices. Soil structure can be affected by livestock grazing if biological or physical soil crusts are damaged. Overgrazing can reduce the amount of organic matter, the carbon storing ability, and the kinds

and numbers of microorganisms living in soils. Achieving or maintaining Standards for Rangeland Health and Guidelines for Livestock Grazing Management generally are effective in managing the effects to soils from livestock grazing. Adjustments to grazing authorizations are made on a case-by-case basis when site-specific studies indicate changes in management are needed.

Noxious Weeds and Other Non-Native Invasive Species: Treatments to control invasive and noxious weeds could result in short-term, localized effects to soil stability because vegetation could be removed making soil susceptible to erosion. However, controlling invasive and noxious weed species would be beneficial to soil quality if treatments result in increased native plant cover on sites degraded by weedy vegetation. Invasive and noxious weeds can impact soil function and reduce biodiversity. Many invasive and noxious weeds have relatively sparse canopies, which would result in greater amounts of erosion compared to native vegetation (BLM 2007b).

OHV Use, Travel Management Areas, and Transportation and Facilities: Travel management areas were identified and prioritized as high, moderate, and low, but no site-specific route designations would be made in this RMP; therefore, travel and transportation management plans would need to be developed that define designated motorized and nonmotorized transportation networks after the completion of this RMP. An interdisciplinary team, as well as the RMP cooperating agencies, would be used for special expertise in identifying the resource and use conflicts and benefits of various routes. Possible elements for route selection criteria may include erodible soils (severe water/wind hazard, badlands, rock outcrop) and soils with low bearing strength.

Travel on roads/trails could increase disturbances to soils and vegetation; resulting in increased soil compaction, rutting, surface runoff, and subsequent erosion. The severity of disturbance would depend upon soil conditions (moist or wet vs. dry or frozen), frequency, vehicle weight (lbs./sq. inch) and type, tire width or tread, and driver type. Effects would be greatest in areas of concentrated use that are not maintained or improved. Compaction and erosion could occur to the extent that natural revegetation could not occur and some sort of mechanical treatment would be required. Travel during wet soil conditions could lead to rutting and the creation of alternative routes, parallel and/or braided roads/trails. Ruts can provide a channel for concentrated flow to accelerate soil erosion.

BLM roads/trails that are properly designed, graded, and maintained would provide for improved road/trail conditions. This could result in decreased soil disturbances associated with creation of parallel or braided roads/trails and associated runoff and subsequent erosion. Roads/trails with poor design and improper maintenance would be the most susceptible to erosion due to runoff, compacted surfaces, and lack of vegetative cover. Typically, poorly designed and improperly maintained roads are incised and channel and/or pond water, leading to disturbance and/or erosion within and adjacent to the road. Appropriate design standards that minimize surface runoff and subsequent soil erosion would be required for new roads/trails.

Roads/trails would be assigned a maintenance level with specific minimum maintenance standards/intensities for control of runoff, erosion and sedimentation. Drainage structures would be installed or maintained as needed. Grading would be performed only where necessary to correct drainage problems and erosion or when ruts in the roadbed need addressed for travel comfort. This would result in an increase in vegetation over time within the roads/trails, reducing or slowing concentrated flow and stabilizing soils.

Prime Farmlands: Prime Farmlands would be protected from unnecessary and irreversible conversion to nonagricultural uses through identification as such and special attention during construction and reclamation.

Recreation: Recreational use could result in soil and vegetation disturbances. Disturbance would be the greatest in areas of concentrated use, such as roads, hiking trails, and campgrounds (dispersed or developed). These disturbances could result in localized soil compaction and erosion affecting soil and vegetation quality. Effects would depend on duration and circumstance of use.

Renewable Energy: Soils and vegetation would be affected renewable energy projects. Specific soil types at a given site would determine the degree of effects. Effects could include removal of vegetation, exposure of the soil, mixing of soil horizons, loss of topsoil productivity, soil compaction, and increased susceptibility to water and wind erosion. Site-specific mitigation measures, BMPs, and reclamation standards would be implemented and monitored to minimize effects. There would be a long-term commitment of the soil and vegetation resource where roads and associated facilities are located.

Soil Resources: Achieving or maintaining Standards for Rangeland Health (Appendix H) would maintain or promote adequate amounts of ground cover (i.e., litter, live and standing dead vegetation, micro/biotic crusts, and rock/gravel), plant vigor, subsurface soil conditions that support permeability rates, soil biological organisms, nutrient cycling, and riparian and wetland functions. This would reduce soil compaction, runoff, erosion, and sedimentation; improving overall soil and vegetation quality.

Surface-disturbing activities are evaluated on a case-by-case basis using NRCS Soil Survey data/interpretations and/or through onsite investigations. Mitigation guidelines, BMPs, and avoidance of areas where erosion cannot be effectively controlled/mitigated and reclamation to BLM standards (Appendix J) is likely to be unsuccessful, generally are effective in mitigating surface-disturbing effects to soils and vegetation.

Solid Minerals: Soil and vegetation effects result from the removal, storage, and replacement of soils during the extraction of solid minerals. Soils would be compacted by heavy equipment usage and would be at risk of erosion. In some areas, soils would be completely removed to get at desired minerals; thus soil functionality at those sites would be eliminated until abandonment and final reclamation. In some situations, it could be expected that soil productivity would be completely eliminated even after final reclamation (e.g., highwalls). Reclamation planning would be required and implemented to return soil quality and site productivity. Specific effects would be addressed at the site-specific project level. It is anticipated that there could be approximately 80 acres (less than 1% of the planning area) of soil and vegetation disturbances to extract salable minerals within the next 20 years.

Vegetation – Rangeland, and Vegetation – Riparian and Wetland: Managing for healthy vegetation communities would help to achieve or maintain PFC. Achieving or maintaining PFC on upland sites promotes adequate amounts of vegetative cover to stabilize soils and provide organic material and nutrient cycling. Achieving or maintaining PFC in riparian areas promotes the growth of deep-rooted riparian vegetation that dissipates streamflow energy, stabilizes streambanks from cutting action, and filters sediment (Appendix H). Monitoring uplands and riparian areas for PFC would provide information needed to apply appropriate mitigation measures (if necessary) to protect soil and vegetation resources.

The effects of mechanical treatments on soils and vegetation would depend on the following: 1) the amount of soil exposed during the treatment; 2) the effect of surface disturbance on soil properties; 3) the site conditions, especially slope and patterns of precipitation; and 4) the vegetation response after treatment (BLM 2007b). It is anticipated that approximately 10,000 acres (less than 1% of the planning area) of mechanical treatments could occur within the next 20 years.

Cumulative Impacts

Long-term climate change and its effects on vegetation communities is speculative; however, it has been hypothesized that altered conditions driven by long-term climate change could largely be responsible for driving changes in plant community composition over which BLM may have little control. Most researchers agree that if current predictions for climate change come to pass, a shift in species habitat from lower to higher elevation and southern to northern latitude would occur; a great deal of uncertainty lies in whether it would get wetter or drier, or if a change in the timing of precipitation would occur. If recent trends can serve as any indicator, current drought cycles would suggest the future climate will likely be drier.

The timing of precipitation is fundamental in determining vegetation communities. Precipitation received during the growing season favors grassland, while that received during the winter favors shrubland. Hotter, drier climates tend to favor more annual type grass and forb species that are able to rapidly take advantage of moisture when available, rather than perennials that rely on a more consistent source of water.

Little evidence exists to suggest a change in the timing of precipitation is occurring; however, most climate experts have suggested that precipitation events would likely be less frequent and more intense in nature.

The climate of the recent past has supported a semi-arid grassland across most of the planning area. There is some transition from north to south. The far north is predominantly grassland; the far south tends to have more shrubs. This implies a moisture gradient, although management (i.e., grazing, fire suppression) may have contributed significantly to that effect in the past.

If the climate across the planning area shifts toward the hotter, drier, more intense precipitation scenario, plant communities are likely to transition more toward that of a semi-arid desert than the historic semi-arid grassland. A corresponding decline in carrying capacity would be expected, as perennial grasslands transition to shrublands and annual grasslands.

Circumstantial evidence and hypotheses state that this is already happening, although the combined effects of fire suppression and grazing confound efforts to identify a single cause, or even the contributions of individual factors. For example, all evidence indicates that sagebrush is more prevalent across the planning area than at any time since western settlement (Klement, et al. 2001).

If, on the other hand, the climate across the planning area shifts toward the hotter, wetter, more intense precipitation scenario, plant communities are likely to remain grasslands and carrying capacity would likely increase over time.

Soil erosion would be a major concern under either scenario because of the more intense precipitation events.

Managing vegetation based upon historical benchmarks under such a scenario is unrealistic. Greater emphasis should be placed on proactive management, as outcomes of management decisions would likely be uncertain. Monitoring would be fundamental to successfully adapt to change.

Impacts under Alternative A (Current Management)

Fire Management and Ecology, and Forests and Woodlands: Treatments (mechanical) and management activities (prescribed fire) to emphasize healthy forest conditions and to restore desired ecological conditions of rangelands would subject soils to localized short-term erosion and compaction effects as described under Impacts Common to All Alternatives. Table 4.65 lists the approximate number of acres that could be treated. Meeting the desired future condition in the long term with these treatments would contribute to properly functioning watersheds that support productive plant communities and would improve soil and vegetation quality in the long term. Also, on these treated acres the risk of high severity wildfires would be reduced.

Table 4.65
Fuels and Forest Treatment by Alternative
(Acres and Percent of Total BLM Surface Acres)

	Alternative A (Current Management)	***Alternative B***	***Alternative C***	***Alternative D***	***Alternative E (Preferred Alternative)***
Treated Acres	11,600 (.48%)	34,480 (1.41%)	34,480 (1.41%)	34,480 (1.41%)	34,480 (1.41%)

Fluid Minerals: The approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO are listed in Table 4.66. Soils and vegetation would be protected on these acres because fluid mineral surface-disturbing activities and occupancy would not be allowed unless a Waiver, Exception, or Modification is granted. Table 4.64 also lists the approximate acres that would be subject to a Soils-CSU stipulation.

Table 4.66
Fluid Mineral Lease Stipulations for the Entire Planning Area by Alternative
(Acres)

	Alternative A (Current Management)	***Alternative B***	***Alternative C***	***Alternative D***	***Alternative E (Preferred Alternative)***
Closed	102,298	3,173,637	218,586	74,674	152,702
Total NSO	282,062	258,560	1,291,160	357,456	1,711,378
Soils-NSO*	NA	78,465	99,982	NA	131,428
Soils-CSU	891,308	NA	774,408	NA	563,749

* Acres are included in the total acres of NSO.

The approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO within the North Blaine and Bears Paw South Field Development Areas are listed in Table 4.67. Soils would not be affected in these areas because fluid mineral surface-disturbing activities and occupancy would not be allowed. Table 4.67 also lists the approximate acres that would be subject to a Soils-CSU stipulation.

Table 4.67
Fluid Mineral Lease Stipulations for the North Blaine and Bears Paw South Areas by Alternative (Acres)

	Alternative A (Current Management)	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
North Blaine Field Development Area					
Closed	0	81,525	0	0	0
Total NSO	3,453	1,526	31,772	4,906	14,247
Soils-NSO*	NA	104	659	NA	659
Soils-CSU	16,559	NA	14,966	NA	11,322
Bears Paw South Field Development Area					
Closed	0	171,133	0	0	0
Total NSO	6,201	5,440	63,171	14,590	46,418
Soils-NSO*	NA	5,100	11,687	NA	11,687
Soils-CSU	120,097	0	99,549	NA	88,151

* Acres are included in the total acres of NSO.

The Soils-CSU stipulation states that surface use or occupancy within special areas would be strictly controlled, or if absolutely necessary, excluded. Special areas in this case would be slopes over 30%, or 20% on extremely erodible or slumping soils. Use or occupancy would be restricted only when the BLM demonstrates the restriction is necessary for the protection of such special areas. If it were demonstrated that the effects from the proposed surface use or occupancy to the soil resource could not be mitigated, the authorized officer would have the authority to exclude surface use or occupancy. This would provide protection to soils with a severe water erosion hazard on slopes over 20%. This stipulation would not provide protection to soils with a severe water erosion hazard under 20% slope, soils with severe wind erosion hazard, or other landforms where erosion could not be controlled/ mitigated or reclaimed to BLM program standards.

Fluid mineral development would affect soils and vegetation during exploration, drilling, production, and abandonment as described under Impacts Common to All Alternatives. Table 4.68 lists the number of new federal oil and gas wells. Drilling/development would occur mostly in the high and moderate development potential areas (see Map 2.2) over the next 15 to 20 years. The approximate total acres disturbed associated with the construction of well sites, access roads, and pipeline are listed in Table 4.68. Well pads and pipelines would undergo interim reclamation during production, stabilizing soils and returning productivity. The approximate acres that would undergo interim reclamation are listed in Table 4.68. A long-term commitment of soils would be required for access roads and production areas. Soil and vegetation productivity would be severely limited in those areas. The long-term disturbed acres are listed in Table 4.68.

Snake Creek Area, Northwest Valley County Photo by Brian Hockett

Table 4.68
Number of Federal Fluid Mineral Wells and Associated Disturbance by Alternative
(Acres and Percent of Total BLM Oil and Gas Mineral Subsurface Acres)

	Alternative A (Current Management)	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
New Wells	3,468	2,241	3,211	3,488	3,362
New Acres Disturbed	9,564 (.23%)	4,441 (.10%)	8,547 (.20%)	9,663 (.23%)	9,123 (..22%)
Interim Reclamation Acres Reclaimed	7,142 (.17%)	2,896 (.07%)	6,309 (.15%)	7,227 (.17%)	6,777 (.16%)
Long-Term Disturbed Acres	2,422 (.06%)	1,545 (.04%)	2,238 (.05%)	2,436 (.06%)	2,346 (.05%)

Livestock Grazing: Constructing/installing range improvement projects such as livestock reservoirs/pits and pipelines and tanks would result in short-term, localized compaction and soil erosion. Also, retaining water would result in saturated soil pores and aerobic conditions changing over time to anaerobic conditions. Oxygen would not be available to the soil flora and fauna and biological activity would be reduced. Vegetation composition would shift to hydrophytic species. Additionally, as a result of the anaerobic environment, soils would become reduced and undergo chemical reactions that are different than non-saturated soils. The approximate acres disturbed to construct/install reservoirs/pits and pipelines and tanks are listed in Table 4.69. Soil and vegetation mitigation would be addressed at the site-specific project level to minimize effects.

Table 4.69
Livestock Grazing Development Surface Disturbance by Alternative
(Acres and Percent of Total BLM Surface Acres)

	Alternative A (Current Management)	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Pipelines/Wells					
Short-term	140 (<.01%)	175 (<.01%)	175 (<.01%)	140 (<.01%)	175 (<.01%)
Long-term	10 (<.01%)	12 (<.01%)	12 (<.01%)	10 (<.01%)	12 (<.01%)
Reservoirs					
Short-term	660 (.03%)	495 (.02%)	495 (.02%)	660 (.03%)	495 (.02%)
Long-term	200 (<.01%)	345 (.01%)	345 (.01%)	460 (.02%)	345 (.01%)

OHV Use and Travel and Transportation Management: A total of 124 acres would be designated open to OHV use off roads, primitive roads and trails (Fresno OHV Area and Glasgow OHV Area). Effects of OHV use on soils, vegetation, and watershed function include soil compaction, reduced water infiltration, diminished presence and impaired function of soil stabilizers (vegetation biological, chemical, and physical crusts, etc.), and accelerated erosion rates. Where biological and chemical crusts or other soil stabilizers are disturbed or destroyed, soil erosion from water and wind may increase beyond rates found in undisturbed sites with similar soils and conditions; nutrient-cycling processes also are likely to be disrupted, potentially leading to declines in soil fertility (USGS 2007a) and overall soil quality. Effects would be the greatest on sites with severe erosion hazards, shallow soils, badlands, and rock outcrop as these areas would be difficult to stabilize and reclaim once disturbed by repeated OHV use. Table 4.70 lists acres with severe erosion hazards, shallow soils, badlands, and rock outcrop in designated open OHV areas.

Table 4.70
Erosion Hazards, Shallow Soils, Badlands, Rock Outcrop Acres in Designated Open OHV Areas under Alternative A (Current Management)

	Severe Water Erosion Hazard Acres	*Severe Wind Erosion Hazard Acres*	*Shallow Soils Acres*	*Badlands Acres*	*Rock Outcrop Acres*	*Total BLM Acres*
Fresno OHV Area	22	0	22	51	0	84
Glasgow OHV Area	36	0	0	0	0	40

A total of 7,429 acres would be closed to OHV use (Sweet Grass Hills ACEC). Soils and vegetation on these acres would be protected from OHV use effects.

If big game retrieval off road would be allowed through subsequent site-specific planning, effects from big game retrieval to soils and vegetation would be dependent on factors such as soil conditions (dry or frozen vs. wet or moist), soil type, vehicle weight (lbs./sq. in.) and driver type. If game retrieval would occur during wet soil conditions, soils could become rutted and compacted. Effects would be the greatest on soils with severe erosion hazards, shallow soils, badlands, or rock outcrop.

Fifteen travel management planning areas would be prioritized. Table 4.71 lists acres with severe erosion hazards, badlands, and rock outcrop in each travel management area.

Table 4.71
Erosion Hazards, Badlands, Rock Outcrop Acres in Travel Management Areas under Alternative A (Current Management)

	Severe Water Erosion Hazard Acres	*Severe Wind Erosion Hazard Acres*	*Badlands Acres*	*Rock Outcrop Acres*	*Total BLM Acres*
Bears Paw to Breaks	56,396	0	12,129	9	89,369
Kevin Rim	4,413	77	59	0	16,325
Little Rocky Mountains	21,314	0	0	0	27,449
Lonesome Lake	8	0	0	0	121
Lower Marias River	4,541	0	2,657	0	12,014
Missouri Breaks	194,899	401	609	19,055	402,349
Northeast Bears Paw Breaks	3,592	0	0	0	4,351
Northwest of Glasgow	59	0	0	0	80
Northwest Blaine County	25,390	1,264	1,063	0	170,420
Sweet Grass Hills	2,858	0	0	0	7,879
Upper Marias River	6,235	9	0	0	8,908
Vimy	7,062	0	0	0	8,182
Wayne Creek	8,805	0	0	0	29,792
Woody Island	21,094	468	0	0	53,436
Remaining BLM Lands	459,662	21,449	195	111,383	1,606,688

Solid Minerals: Solid minerals have been or could be withdrawn and/or closed in several areas (see Chapter 2, Tables 2.20 and 2.21 for a listing of the areas. Within these areas the effects of mineral extraction to soils, as described under Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods.

It is anticipated that there could be approximately 2,495 acres (less than 1% of the planning area) of soil and vegetation disturbances to extract locatable minerals occurring in the Little Rocky Mountains, Sweet Grass Hills, and Brazil Creek. Effects would be as described under Impacts Common to All Alternatives.

Vegetation – Riparian and Wetland: Corrective measures to treat saline seep areas would occur once there is a problem. Once a saline seep develops it requires large amounts of input/energy to remediate the problem. Some saline seeps may not even be possible to remediate. Saline seeps are characterized by a buildup of salt in localized places, poor to no plant growth, water ponding, and slow water infiltration (McCauley and Jones 2005). Where saline seeps develop soils become "salt-affected." The term "salt-affected" refers to soils with substantial enough salt concentrations to affect plant health, soil properties, water quality, and other land and soil resource uses (McCauley and Jones 2005).

Cumulative Impacts

The BLM's past, present, and future goals are to maintain, improve, and/or restore soil and vegetation quality by preventing and reducing erosion and compaction. Authorized surface-disturbing activities are subject to an onsite evaluation to develop mitigation and plan for reclamation.

Past and present actions that have affected and would affect soil and vegetation resources include mineral exploration and development; improper livestock grazing; recreation; vehicle travel; and wildfire and prescribed fire. In general, these actions have cumulative impacts on soil resources by causing surface disturbance contributing to soil compaction, erosion, and subsequent sedimentation.

Management actions would continue existing trends in soil conditions on BLM-managed lands. However, since the BLM manages a relatively small portion of the planning area (24%) it is expected the cumulative amount of soil impacts would increase due to land uses and development on other ownerships. It is anticipated that there could be up to approximately 223,654 acres of new surface disturbances on all land ownerships over the next 20 years. The disturbances would not occur at one time. Cumulatively, 1.3% of soils and vegetation would be affected from new surface disturbances.

A reasonable foreseeable future action that would affect soil resources would be the Keystone XL Pipeline. It is anticipated that construction would occur within the next 2 years. This pipeline would disturb approximately 300 acres (less than 1% of the planning area) of BLM land in the planning area. Short-term effects, such as compaction and erosion, would be expected. It has been demonstrated in the past that this type of action can be successfully reclaimed and soil and vegetation productivity returned (Northern Border Pipeline).

It is anticipated that up to 5,708 acres (less than 1% of the planning area) of surface disturbance could be associated with wind energy development on all land ownerships. Of these acres, 4,269 acres would be reclaimed leaving 1,439 acres (less than 1% of the planning area) with long-term disturbances. Specific soil types at a given site would determine the degree of effects. Soil compaction and erosion could occur from the associated roads. There would be a long-term commitment of the soil and vegetation resource where the turbines and associated facilities are located.

Impacts under Alternative B

Fire Management and Ecology, and Forests and Woodlands: Table 4.65 lists the approximate number of acres that could be treated. Effects on treatment areas to emphasize healthy forest conditions and to restore desired ecological conditions of rangelands would be the same as described in Alternative A.

Fluid Minerals: Tables 4.66 and 4.67 list the approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO in the entire planning area and the North Blaine and Bears Paw South Field Development Areas. Effects on those acres would be the same as described in Alternative A. The Soils-NSO stipulation acres are included in the total NSO acreage.

The Soils-NSO stipulation states that no surface occupancy or use would occur on sensitive soils, badlands, rock outcrop, or slopes susceptible to mass failure. This stipulation would provide protection to soils and vegetation with both severe water and wind erosion hazards, badlands, rock outcrop, or slopes susceptible to mass failure. These areas, once disturbed, are the most difficult and costly to stabilize and reclaim to BLM program standards.

Fluid mineral development would affect soils and vegetation during exploration, drilling, production, and abandonment as described under Impacts Common to All Alternatives. The number of new federal wells and associated acres of short-term and long-term disturbance are listed in Table 4.68.

Livestock Grazing: The approximate acres disturbed to construct/install reservoirs/pits and pipelines and tanks are listed in Table 4.69. Effects at each construction site would be the same as described in Alternative A.

OHV Use and Travel and Transportation Management: No areas would be designated as open to off-road travel; therefore, soils would not be subject to effects from OHV use as described in Alternative A.

Seven travel management planning areas would be prioritized. Table 4.72 lists acres with severe erosion hazards, badlands, and rock outcrop in each travel management area.

Table 4.72
Erosion Hazards, Badlands, Rock Outcrop, and Total BLM Acres in Travel Management Areas under Alternative B

	Severe Water Erosion Hazard Acres	*Severe Wind Erosion Hazard Acres*	*Badlands Acres*	*Rock Outcrop Acres*	*Total BLM Acres in Travel Management Areas*
Grassland Bird/Greater Sage-Grouse Priority Areas ACEC and Frenchman Breaks	123,695	19,674	28	26,715	490,477
Greater Sage-Grouse Protection Priority Area ACEC	401,664	434	609	78,676	997,338
Little Rocky Mountains	21,458	0	0	0	27,668
Marias River	10,879	9	2,206	0	19,032
North Missouri Breaks	65,524	0	12,579	9	101,523
Prairie Grasslands	49,913	1,539	0	0	149,681
Remaining BLM Lands	143,216	2,012	1,289	25,046	651,661

Solid Minerals: Solid minerals have been or could be withdrawn and/or closed in several areas (see Chapter 2, Tables 2.20 and 2.21 for a listing of the areas). Within these areas the effects of mineral extraction to soils and vegetation, as described under Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods.

It is anticipated that there could be approximately 355 acres (less than 1% of the planning area) of soil and vegetation disturbances to extract locatable minerals occurring in the Little Rocky Mountains, Sweet Grass Hills, and Brazil Creek. Effects would be as described under Impacts Common to All Alternatives.

Vegetation – Rangeland: Reclamation would be required for surface disturbances greater than 1/10 acre. In general, this would result in fewer acres left unreclaimed than under Alternative A; therefore, there would be an overall increase in areas where soil and vegetation quality is returned. Most production areas for oil and gas are 1/10 acre; this would ensure that these areas get reclaimed.

Vegetation – Riparian and Wetland: Reclaiming priority seep areas would improve soil and vegetation quality in those areas where reclamation would be successful. Design and mitigation measures to minimize the development of saline seep areas would protect soils from becoming “salt affected.” The term “salt-affected” refers to soils with substantial enough salt concentrations to affect plant health, soil properties, water quality, and other land and soil resource uses (McCauley and Jones 2005).

Cumulative Impacts

The BLM's past, present, and future goals are to maintain, improve, and/or restore soil and vegetation quality by preventing and reducing erosion and compaction. Authorized surface-disturbing activities are subject to an onsite evaluation to develop mitigation and plan for reclamation.

Past and present actions that have affected and would affect soil and vegetation resources include mineral exploration and development; improper livestock grazing; recreation; vehicle travel; and wildfire and prescribed fire. In general, these actions have cumulative impacts on soil resources by causing surface disturbance contributing to soil compaction, erosion, and subsequent sedimentation. Soil quality and watershed health, overall, has improved within the last 30 years and would continue to do so under this alternative.

Management actions would continue existing trends in soil conditions on BLM-managed lands. However, since the BLM manages a relatively small portion of the planning area (24%) it is expected the cumulative amount of soil impacts would increase due to land uses and development on other ownerships. It is anticipated that there could be up to approximately 241,116 acres of new surface disturbances on all land ownerships over the next 20 years. The disturbances would not occur at one time. Cumulatively, 1.4% of soils and vegetation would be affected from new surface disturbances.

A reasonable foreseeable future action that would affect soil and vegetation resources would be the Keystone XL Pipeline. It is anticipated that construction would occur within the next 2 years. This pipeline would disturb approximately 300 acres on BLM lands in the planning area. Short-term effects, such as compaction and erosion, would be expected. It has been demonstrated in the past that this type of action can be successfully reclaimed and soil and vegetation productivity returned (Northern Border Pipeline).

It is anticipated that up to 5,708 acres (less than 1% of the planning area) of surface disturbance could be associated with wind energy development on all land ownerships. Of these acres, 4,269 acres would be reclaimed leaving 1,439 acres (less than 1% of the planning area) with long-term disturbances. Specific soil types at a given site would determine the degree of effects. Soil compaction and erosion could occur from the associated roads. There would be a long-term commitment of the soil and vegetation resources where the turbines and associated facilities are located.

This alternative would be the most protective and would provide the greatest reductions of cumulative impacts by restricting surface-disturbing activities.

Impacts under Alternative C

Fire Management and Ecology, and Forests and Woodlands: Table 4.65 lists the approximate number of acres that could be treated. Effects on treatment areas to emphasize healthy forest conditions and to restore desired ecological conditions of rangelands would be the same as described in Alternative A.

Fluid Minerals: Tables 4.64 and 4.65 list the approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO in the entire planning area and the North Blaine and Bears Paw South Field Development Areas. Effects on those acres would be the same as described in Alternative A. The Soils-NSO stipulation acres are included in the total NSO acreage. Tables 4.66 and 4.67 also list the approximate acres that would be subject to a Soils-CSU stipulation.

The Soils-NSO and Soils-CSU stipulations would provide protection to sensitive soils and vegetation, badlands, rock outcrop, or slopes susceptible to mass failure. These areas, once disturbed, are the most difficult and costly to stabilize and reclaim to BLM program standards.

Fluid mineral development would affect soils and vegetation during exploration, drilling, production, and abandonment as described under Impacts Common to All Alternatives. The number of new federal wells and associated acres of short-term and long-term disturbance are listed in Table 4.67.

Lands and Realty: Corridors and rights-of-ways impacts would be the same as described in Alternative A.

Livestock Grazing: The approximate acres disturbed to construct/install reservoirs/pits and pipelines and tanks are listed in Table 4.69. Effects at each construction site would be the same as described in Alternative A.

OHV Use and Travel and Transportation Management: A total of 7,513 acres would be closed to OHV use (Sweet Grass Hills ACEC, Fresno OHV Area, and Glasgow OHV Area). Soils and vegetation on these acres would be protected from motorized vehicle use effects.

Effects from game retrieval would be dependent on factors such as soil conditions (dry or frozen vs. wet or moist), soil type, vehicle weight (lbs./sq. in.) and driver type. If game retrieval would occur during wet soil conditions, soils could become rutted and compacted. Effects would be the greatest on soils with severe erosion hazards, shallow soils, badlands, or rock outcrop.

Seven travel management planning areas would be prioritized. Table 4.73 lists acres with severe erosion hazards, badlands, and rock outcrop in each travel management area.

Table 4.73
Erosion Hazards, Badlands, Rock Outcrop, and Total BLM Acres in Travel Management Areas under Alternatives C and D

	Severe Water Erosion Hazard Acres	***Severe Wind Erosion Hazard Acres***	***Badlands Acres***	***Rock Outcrop Acres***	***Total BLM Acres in Travel Management Areas***
Frenchman Breaks/Rock Creek	48,752	9,207	28	13,252	190,174
Little Rocky Mountains	21,458	0	0	0	27,688
Marias River	10,879	9	2,206	0	19,032
North Missouri Breaks	65,524	0	12,579	9	101,523
South Phillips County	189,829	1,105	0	1	575,917
South Valley County	258,844	0	777	79,029	584,820
Remaining BLM Lands	221,063	13,347	1,122	38,156	938,246

Solid Minerals: Solid minerals have been or could be withdrawn and/or closed in several areas (see Chapter 2, Tables 2.20 and 2.21 for a listing of the areas). Within these areas the effects of mineral extraction to soils and vegetation, as described under Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods.

It is anticipated that there could be approximately 355 acres (less than 1% of the planning area) of soil and vegetation disturbances to extract locatable minerals occurring in the Little Rocky Mountains, Sweet Grass Hills, and Brazil Creek. Effects would be as described under Impacts Common to All Alternatives.

Vegetation – Rangeland: Reclamation would be required for surface disturbances greater than 1/10 acre. Effects would be the same as described in Alternative B.

Vegetation – Riparian and Wetland: Reclaiming priority seep areas and implementing design and mitigation measures to minimize the development of saline seep areas would have the same effects as described in Alternative B.

Cumulative Impacts

The BLM's past, present, and future goals are to maintain, improve, and/or restore soil and vegetation quality by preventing and reducing erosion and compaction. Authorized surface-disturbing activities are subject to an onsite evaluation to develop mitigation and plan for reclamation.

Past and present actions that have affected and would affect soil resources include mineral exploration and development; improper livestock grazing; recreation; vehicle travel; and wildfire and prescribed fire. In general, these actions have

cumulative impacts on soil and vegetation resources by causing surface disturbance contributing to soil compaction, erosion, and subsequent sedimentation.

Management actions would continue existing trends in soil conditions on BLM-managed lands. However, since the BLM manages a relatively small portion of the planning area (24%) it is expected the cumulative amount of soil impacts would increase due to land uses and development on other ownerships. It is anticipated that there could be up to 245,228 acres of new surface disturbances on all land ownerships over the next 20 years. The disturbances would not occur at one time. Cumulatively, 1.4% of soils and vegetation would be affected from new surface disturbances.
A reasonable foreseeable future action that would affect soil and vegetation resources would be the Keystone XL Pipeline. It is anticipated that construction would occur within the next 2 years. This pipeline would disturb approximately 300 acres of BLM land in the planning area. Short-term effects, such as compaction and erosion, would be expected. It has been demonstrated in the past that this type of action can be successfully reclaimed and soil and vegetation productivity returned (Northern Border Pipeline).

It is anticipated that there could be up to 5,708 acres (less than 1% of the planning area) of surface disturbance associated with wind energy development on all land ownerships. Of these acres, 4,269 acres would be reclaimed leaving 1,439 acres (less than 1% of the planning area) with long-term disturbances. Specific soil types at a given site would determine the degree of effects. Soil compaction and erosion could occur from the associated roads. There would be a long-term commitment of the soil and vegetation resource where the turbines and associated facilities are located.

This alternative would provide an intermediate level of protection and mitigation of cumulative impacts.

Impacts under Alternative D

Fire Management and Ecology, and Forests and Woodlands: Table 4.65 lists the approximate number of acres that could be treated. Effects on treatment areas to emphasize healthy forest conditions and to restore desired ecological conditions of rangelands would be the same as described in Alternative A.

Fluid Minerals: Tables 4.66 and 4.67 list the approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO in the entire planning area and the North Blaine and Bears Paw South Field Development Areas. Effects on those acres would be the same as described in Alternative A.

Relocating a proposed oil and gas operation up to 200 meters (656 feet) (standard lease terms) would give the authorized officer the option to move a location off an area where erosion cannot be controlled/mitigated or reclaimed. However, 200 meters may not be far enough to move a location off of those areas; therefore; soils and vegetation would not be protected and would be at risk of having long-term effects to soil and vegetation quality.

Fluid mineral development would affect soils and vegetation during exploration, drilling, production, and abandonment as described under Impacts Common to All Alternatives. The number of new federal wells and associated acres of short-term and long-term disturbance are listed in Table 4.68.

Livestock Grazing: The approximate acres disturbed to construct/install reservoirs/pits and pipelines and tanks are listed in Table 4.69. Effects at each construction site would be the same as described in Alternative A.

OHV Use and Travel and Transportation Management: A total of 305 acres would be open to OHV use (Fresno OHV Area, Glasgow OHV Area, and Thirty Mile OHV Area). Effects of OHV use would be the same as described in Alternative A. It has been observed in the proposed Thirty Mile OHV Area that loose material lies underneath a chemical crust. Once this chemical crust is damaged/destroyed by motorized vehicles, this loose material would be susceptible to erosion by water and wind. This eroded material could add to the sediment yield into the nearby Thirty Mile Creek. Table 4.74 lists acres with severe erosion hazards, shallow soils, badlands, and rock outcrop in open travel areas.

Table 4.74
Erosion Hazards, Shallow Soils, Badlands, Rock Outcrop Acres in Designated Open OHV Areas under Alternative D

	Severe Water Erosion Hazard Acres	*Severe Wind Erosion Hazard Acres*	*Shallow Soils Acres*	*Badlands Acres*	*Rock Outcrop Acres*	*Total BLM Acres*
Fresno OHV Area	22	0	22	51	0	84
Glasgow OHV Area	36	0	0	0	0	40
Thirty Mile OHV Area	171	0	160	0	0	181

At the time of travel management planning, if areas are opened to off-road use, soils and vegetation on those areas would be affected as described in Alternative A.

Effects to soils and vegetation from game retrieval, as described in Alternative C, would not occur within the Big Bend, Kevin, Frenchman Breaks, and Malta Geological ACECs as these areas would be closed to game retrieval.

Seven travel management planning areas would be prioritized. The acres of soils with severe erosion hazards, badlands, and rock outcrop for the delineated travel management areas are shown in Table 4.73.

Solid Minerals: Solid minerals have been or could be withdrawn and/or closed in several areas (see Chapter 2, Tables 2.20 and 2.21 for a listing of the areas). Within these areas the effects of mineral extraction to soils and vegetation, as described under Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods.

It is anticipated that there could be approximately 300 acres (less than 1% of the planning area) of soil and vegetation disturbances to extract locatable minerals occurring in the Little Rocky Mountains, Sweet Grass Hills, and Brazil Creek. Effects would be as described under Impacts Common to All Alternatives.

Vegetation – Rangeland: Reclamation would be required for surface disturbances greater than 1/10 acre. Effects would be the same as described in Alternative B.

Vegetation – Riparian and Wetland: Reclaiming priority seep areas and implementing design and mitigation measures to minimize the development of saline seep areas would have the same effects as described in Alternative B.

Cumulative Impacts

The BLM's past, present, and future goals are to maintain, improve, and/or restore soil and vegetation quality by preventing and reducing erosion and compaction. Authorized surface-disturbing activities are subject to an onsite evaluation to develop mitigation and plan for reclamation.

Past and present actions that have affected and would affect soil and vegetation resources include mineral exploration and development; improper livestock grazing; recreation; vehicle travel; and wildfire and prescribed fire. In general, these actions have cumulative impacts on soil resources by causing surface disturbance contributing to soil compaction, erosion, and subsequent sedimentation.

Management actions would continue existing trends in soil conditions on BLM-managed lands. However, since the BLM manages a relatively small portion of the planning area (24%) it is expected the cumulative amount of soil impacts would increase due to land uses and development on other ownerships. It is anticipated that there could be up to 246,659 acres of new surface disturbances on all land ownerships over the next 20 years. The disturbances would not occur at one time. Cumulatively, 1.4% of soils and vegetation would be affected from new surface disturbances.

A reasonable foreseeable future action that would affect soil and vegetation resources would be the Keystone XL Pipeline. It is anticipated that construction would occur within the next two years. This pipeline would disturb approximately 300 acres of BLM land in the planning area. Short-term effects, such as compaction and erosion, would

be expected. It has been demonstrated in the past that this type of action can be successfully reclaimed and soil and vegetation productivity returned (Northern Border Pipeline).

It is anticipated that up to 5,708 acres (less than 1% of the planning area) of surface disturbance could be associated with wind energy development on all land ownerships. Of these acres, 4,269 acres would be reclaimed leaving 1,439 acres (less than 1% of the planning area) with long-term disturbances. Specific soil types at a given site would determine the degree of effects. Soil compaction and erosion could occur from the associated roads. There would be a long-term commitment of the soil and vegetation resource where the turbines and associated facilities are located.

This alternative would be the least protective of soils and vegetation and would result in the greatest cumulative impacts.

Impacts under Alternative E (Preferred Alternative)

Fire Management and Ecology, and Forests and Woodlands: Table 4.65 lists the approximate number of acres that could be treated. Effects on treatment areas to emphasize healthy forest conditions and to restore desired ecological conditions of rangelands would be the same as described in Alternative A.

Fluid Minerals: Tables 4.66 and 4.67 list the approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO in the entire planning area and the North Blaine and Bears Paw South Field Development Areas. Effects on those acres would be the same as described in Alternative A. The Soils-NSO stipulation acres are included in the total NSO acreage. Tables 4.66 and 4.67 also list the approximate acres that would be subject to a Soils-CSU stipulation.

The Soils-NSO and Soils-CSU stipulations would provide protection to sensitive soils and vegetation, badlands, rock outcrop, or areas susceptible to mass wasting. These areas, once disturbed, are the most difficult and costly to stabilize and reclaim to BLM program standards.

Fluid mineral development would affect soils and vegetation during exploration, drilling, production, and abandonment as described under Impacts Common to All Alternatives. The number of new federal wells and associated acres of short-term and long-term disturbance are listed in Table 4.68.

Livestock Grazing: The approximate acres disturbed to construct/install reservoirs/pits and pipelines and tanks are listed in Table 4.69. Effects at each construction site would be the same as described in Alternative A.

OHV Use and Travel and Transportation Management: A total of 165 acres would be designated open to OHV use (Glasgow OHV Area and Fresno OHV area). Effects of OHV use on soils, vegetation, and watershed function include soil compaction, reduced water infiltration, diminished presence and impaired function of soil stabilizers (vegetation biological, chemical, and physical crusts, etc.), and accelerated erosion rates. Where biological and chemical crusts or other soil stabilizers are disturbed or destroyed, soil erosion from water and wind may increase beyond rates found in undisturbed sites with similar soils and conditions; nutrient-cycling processes also are likely to be disrupted, potentially leading to declines in soil fertility (USGS 2007a) and overall soil quality. Effects would be the greatest on sites with severe erosion hazards, shallow soils, badlands, and rock outcrop as these areas would be difficult to stabilize and reclaim once disturbed by repeated OHV use. Table 4.75 lists acres with severe erosion hazards, shallow soils, badlands, and rock outcrop in open travel areas.

Table 4.75
Erosion Hazards, Shallow Soils, Badlands, Rock Outcrop Acres in Designated Open OHV Areas under Alternative E (Preferred Alternative)

	Severe Water Erosion Hazard Acres	*Severe Wind Erosion Hazard Acres*	*Shallow Soils Acres*	*Badlands Acres*	*Rock Outcrop Acres*	*Total BLM Acres*
Fresno OHV Area	50	0	50	62	0	125
Glasgow OHV Area	36	0	0	0	0	40

A total of 7,429 acres would be closed to OHV use (Sweet Grass Hills ACEC). Soils and vegetation on these acres would be protected from OHV effects.

At the time of travel management planning, if areas are opened to off-road use, soils on those areas would be affected as described above in the proposed designated open areas.

If game retrieval would be allowed, effects from game retrieval would be dependent on factors such as soil conditions (dry or frozen vs. wet or moist), soil type, vehicle weight (lbs./sq. in.) and driver type. If game retrieval would occur during wet/moist soil conditions, soils could become rutted and compacted. Effects would be the greatest on soils with severe erosion hazards, shallow soils, badlands, or rock outcrop.

Seven travel management planning areas would be prioritized. Table 4.76 lists acres with severe erosion hazards, badlands, and rock outcrop in each travel management area.

Table 4.76
Erosion Hazards, Badlands, Rock Outcrop, and Total BLM Acres in Travel Management Areas under Alternative E (Preferred Alternative)

	Severe Water Erosion Hazard Acres	***Severe Wind Erosion Hazard Acres***	***Badlands Acres***	***Rock Outcrop Acres***	***Total BLM Acres in Travel Management Areas***
Grassland Bird/Greater Sage-Grouse Priority Areas and Frenchman Breaks	87,726	9,207	28	27,324	415,875
Greater Sage-Grouse Protection Priority Area and Eastern Breaks and Badlands	401,664	434	609	78,676	1,003,017
Fresno	144	0	413	0	885
Little Rocky Mountains	21,458	0	0	0	27,688
Marias River	10,879	9	2,206	0	19,032
North Missouri Breaks	65,524	0	12,579	9	101,523
Remaining BLM Lands	228,954	14,018	877	24,437	875,059

Solid Minerals: Solid minerals have been or could be withdrawn and/or closed in several areas (see Chapter 2, Tables 2.20 and 2.21 for a listing of the areas). Within these areas the effects of mineral extraction to soils and vegetation, as described under Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods.

It is anticipated that there could be approximately 355 acres (less than 1% of the planning area) of soil and vegetation disturbances to extract locatable minerals occurring in the Little Rocky Mountains, Sweet Grass Hills, and Brazil Creek. Effects would be as described under Impacts Common to All Alternatives.

Vegetation – Rangeland: Reclamation would be required for surface disturbances greater than 1/10 acre. In general, this would result in fewer acres left unreclaimed than under Alternative A; therefore, there would be an overall increase in areas where soil quality is returned. Most production areas for oil and gas are 1/10 acre; this would ensure that these areas get reclaimed.

Vegetation – Riparian and Wetland: Reclaiming priority seep areas would improve soil and vegetation quality in those areas where reclamation would be successful. Design and mitigation measures to minimize the development of saline seep areas would protect soils from becoming “salt affected.” The term “salt-affected” refers to soils with substantial enough salt concentrations to affect plant health, soil properties, water quality, and other land and soil resource uses (McCauley and Jones 2005).

Cumulative Impacts

The BLM's past, present, and future goals are to maintain, improve, and/or restore soil and vegetation quality by preventing and reducing erosion and compaction. Authorized surface-disturbing activities are subject to an onsite evaluation to develop mitigation and plan for reclamation.

Past and present actions that have affected and would affect soil and vegetation resources include mineral exploration and development; improper livestock grazing; recreation; vehicle travel; and wildfire and prescribed fire. In general, these actions have cumulative impacts on soil and vegetation resources by causing surface disturbance contributing to soil compaction, erosion, and subsequent sedimentation. Soil quality and watershed health, overall, has improved within the last 30 years and would continue to do so under this alternative.

Management actions would continue existing trends in soil conditions on BLM-managed lands. However, since the BLM manages a relatively small portion of the planning area (24%) it is expected the cumulative amount of soil impacts would increase due to land uses and development on other ownerships. It is anticipated that there could be up to 245,872 acres of new surface disturbances on all land ownerships over the next 20 years. The disturbances would not occur at one time. Cumulatively, 1.4% of soils and vegetation would be affected from new surface disturbances.

A reasonable foreseeable future action that would affect soil and vegetation resources would be the Keystone XL Pipeline. It is anticipated that construction would occur within the next 2 years. This pipeline would disturb approximately 300 acres of BLM land in the planning area. Short-term effects, such as compaction and erosion, would be expected. It has been demonstrated in the past that this type of action can be successfully reclaimed and soil and vegetation productivity returned (Northern Border Pipeline).

It is anticipated that up to 5,708 acres (less than 1% of the planning area) of surface disturbance could be associated with wind energy development on all land ownerships. Of these acres, 4,269 acres would be reclaimed leaving 1,439 acres (less than 1% of the planning area) with long-term disturbances. Specific soil types at a given site would determine the degree of effects. Soil compaction and erosion could occur from the associated roads. There would be a long-term commitment of the soil and vegetation resource where the turbines and associated facilities are located.

This alternative would provide an intermediate level of protection and mitigation of cumulative impacts.

Gold Butte, Sweet Grass Hills Photo by Brian Hockett

Solid Minerals

Assumptions and Guidelines

Locatable

Administration of locatable minerals on BLM land would continue as required by law and regulation (43 CFR 3809) by taking the following steps:

- Review and process Notices to ensure the proposed actions do not create unnecessary or undue degradation of the environment as defined in 43 CFR 3809.5.
- Review and process Plans of Operation to ensure the proposed actions do not create unnecessary or undue degradation of the environment as defined in 43 CFR 3809.5.
- Conduct compliance inspections on each active Notice and Plan of Operation as required by H-3809-1, Section 9.1.2 (Currently 2 years for a Plan of Operation without Leachate (4 times a year with leachate-43 CFR 3809.600(b)).
- Allow casual use where work is done by hand and no explosives are used. Refer inquiries to appropriate agencies for further guidance on other permit requirements.

Impacts Common to All Alternatives

Leasable – Coal

No exploration or development of leasable minerals is anticipated to occur within the planning area during the life of the plan. Leasable mineral applications would be subject to the discretion of management and standard management practices would continue across all alternatives. To date, no areas have been identified with economic reserves to support future leasing analysis.

The entire planning area is currently open to solid mineral entry (leasable, locatable, and salable) with the exception of approximately 19,914 acres which are currently withdrawn in the Little Rocky Mountains and Sweet Grass Hills. All federal mineral acres within the planning area would be open for mineral entry for the entire planning period with the exception of the proposed withdrawals under each alternative.

Under all alternatives, the BLM would consider proposals for developing leasable minerals (coal, phosphate, sodium, potash, sulfur, oil shale, native asphalt, and solid and semi-solid bituminous rock) under the administration of the federal government on a case-by-case basis. Site-specific environmental analyses would be required to lease these minerals. Any proposal for coal leasing within a WSA must first undergo four separate screening processes (coal development potential, unsuitability criteria, multiple use tradeoffs, and surface owner consultation) to determine if the leasing proposal would be cleared for further consideration (BLM Manual 6330 – Management of BLM Wilderness Study Areas). For all leasable minerals other than coal, no leases may be issued in WSAs.

Locatable

The entire planning area is currently open to solid mineral entry (leasable, locatable, and salable) with the exception of approximately 23,444 acres which are currently withdrawn in the Little Rocky Mountains and Sweet Grass Hills. All federal mineral acres within the planning area would be open for mineral entry for the entire planning period with the exception of the proposed withdrawals under each alternative. In the Sweet Grass Hills, exploration could occur under all alternatives where lands are encumbered by mining claims with valid existing rights. Under valid existing rights, mining claims are not closed to locatable mineral activity.

Mining claims in WSAs located after October 21, 1976, would continue to be subject to location under the mining laws. Location methods and subsequent assessment work would be restricted to operations which the BLM determines satisfy the nonimpairment criteria (determined on a case-by-case basis). Work towards post-FLPMA discoveries may take place, but not to the extent that impairment is caused.

Standard management practices in the administration of locatable minerals would continue across all alternatives. The BLM would coordinate with Montana DEQ during the review, approval, inspection, and reclamation of mining operations. At a minimum, the BLM would conduct an annual compliance inspection on each active notice. Requirements of all state and federal laws would be met in the management of mining operations. Terms and conditions would be applied to mining activities (within the constraints of the mining law) to meet land health standards for uplands, riparian and wetlands, water quality, air quality, soil resources, and native plant and animal species.

All recommendations to dispose of, or withdraw, additional lands would be analyzed to determine the mineral potential of each tract before any decision is finalized.

Rehabilitation and closure of abandoned mine land sites and associated features would result in the removal or obscuring of geological information used by exploration companies to sample and map mineral deposits.

Cultural Resources: The management of cultural resources would seldom prevent locatable minerals development, but in order to avoid disturbance to any cultural resource, a cultural inventory and possible relocation of exploration or mining development could occur. This relocation, as well as any additional mitigation under standard avoidance or recovery procedures, would create time delays and further expenses for locatable minerals development.

Fire Management and Ecology: The management of fire and fuels could temporarily result in restricted access to a mining project during implementation of prescribed burning or wildfire suppression.

Fluid Minerals: Fluid mineral resource management would have a minimal impact on locatable solid minerals. If a conflict between fluid mineral development and locatable mineral development were to take place on the same tract of land and could not be accommodated or resolved outside of litigation, the minerals developer with the senior rights will usually prevail.

Because the demand of bentonite is closely tied with the oil and gas industry, activity in fluid mineral development in the planning area would help create opportunity for the local development of bentonite mining. This would have a positive impact on locatable minerals.

Lands and Realty: The BLM or other agency authorization of rights-of-way for facilities such as roads, highways, and powerlines could provide access and infrastructure for exploration of locatable minerals and mining operations. Acquisition of additional legal access across private or other lands could result in increased opportunities to explore and develop areas not accessible by another route.

Land ownership changes could result in acquisition or disposal of lands with mineral value, and could either increase or decrease opportunities for mineral development. Disposing of BLM land would increase split estate because most exchanges are for surface values rather than mineral. In most cases, the mineral estate is at least prospectively valuable and would be retained in federal ownership. Acquisition and disposal could increase the likelihood of surface owner conflicts with mineral development, leading to increased permitting complexity and development costs. When compared to the amount of BLM land in the planning area, this would be a minor impact due to the relatively small acreage of the disposal tracts.

Withdrawals from mineral entry would close areas to locatable mineral development. The degree of effect these withdrawals would have is described quantitatively under each proposed alternative.

Paleontological Resources: The management of paleontological resources would rarely prevent locatable mineral development, but in order to avoid disturbance to paleontological resources, a possible relocation of exploration or mining development could occur. This relocation, as well as possible inventory and any additional mitigation, would create time delays and further expenses for locatable mineral development. A certain area for the special management of paleontological resources has been identified as an ACEC and is analyzed quantitatively under the proposed alternatives.

Special Designations: The BLM would develop and implement measures to prevent unnecessary or undue degradation from exploration, mining, and reclamation activities. In some areas, such as WSAs and ACECs, these requirements could result in additional expenditures to protect resources and prevent unnecessary or undue degradation.

An approved Plan of Operations is required in designated ACECs for all surface-disturbing activities exceeding the casual use level. Activities which could normally proceed after the filing of a Notice would require an approved Plan of Operations in an ACEC. The increased environmental review, mandatory public comment period, and application of management prescriptions needed to protect ACEC values would result in timing delays or increased costs for mineral operators.

The degree of effect that these special designations would impose on locatable mineral development will be described quantitatively under each proposed alternative.

Wildlife: The management of wildlife resources and habitat outside of special designations would seldom prevent locatable mineral development, but in order to avoid significant impact to wildlife, special conditions and possible relocation of exploration or mining development could occur. This relocation, as well as any additional mitigation, would create time delays and further expenses for locatable mineral development if not closing the area to mineral entry through withdrawal. Certain areas for the special management of wildlife resources and habitat have been identified as ACECs, WSAs, or Priority Areas and are analyzed quantitatively under the proposed alternatives.

Salable

The entire planning area is currently open to solid mineral entry (leasable, locatable, and salable) with the exception of approximately 23,444 acres which are currently withdrawn in the Little Rocky Mountains and Sweet Grass Hills. All federal mineral acres within the planning area would be open for mineral entry for the entire planning period with the exception of the proposed withdrawals under each alternative.

The sale and free use of salable mineral materials would not be allowed in WSAs in most instances because it would not be compatible with the nonimpairment criteria (determined on a case-by-case basis). The existence of the use would constrain the Secretary's ability to recommend the area suitable or for the Congress to designate the area as wilderness.

Demand for sand and gravel, building stone, rip-rap and other mineral materials is anticipated to remain at current levels. This is due to the steady to gradual decrease in population and economic development within the planning area.

Extraction of salable material by excavation or mining would result in a mine or quarried pit. Effects from access roads and pit construction would be minor or moderate depending on the scale of the quarrying operations (size and ability to reclaim the ultimate pit). Existing requirements for topsoil salvage and reclamation would minimize impacts from mining.

Stipulated requirements and BMPs designed to avoid or minimize adverse effects on riparian zones from structures, support facilities, and roads could result in additional expenditures and a longer approval time for the developer. The BLM's discretionary sale approval policy could avoid sale of materials from riparian areas.

The BLM or other agency authorization of rights-of-way for facilities such as roads, highways, and powerlines could provide access and infrastructure. Alternatively, denial of rights-of-way could negatively affect operations.

The recommended withdrawal of areas under the various alternatives would have a negligible effect on the number of operations since the anticipated disturbed acreage is only 80 acres each year in the long term, over the entire planning area. The supply of mineral materials resources far exceeds demand within the planning area. Because of this constant demand, large area, and source of supply, the planned locations of mineral material sites could vary by alternative.

Impacts under Alternative A (Current Management)

Locatable

The current area withdrawn from mineral entry is approximately 23,444 acres. The Zortman/Landusky mine reclamation withdrawal (3,530 acres) would be allowed to expire in October 2015 and the Sweet Grass Hills withdrawal (19,671 acres) would be allowed to expire in April 2017, having a positive impact to locatable minerals by opening land for development.

Table 4.77 shows the acres of locatable mineral development potential by category. The short-term columns represent development potential acres when the withdrawals are in place, and the long-term columns represent the acres after the withdrawals are allowed to expire.

Table 4.77
Mineral Development Potential under Alternative A (Current Management)
(BLM Acres)

	Short-Term Development Potential			***Long-Term Development Potential***		
Development Potential	***Open***	***Restricted***	***Withdrawn***	***Open***	***Restricted***	***Withdrawn***
High	3,429	4,939	4,199	3,429	9,016	122
Moderate	14,585	11,927	2,691	14,585	14,397	221
Low	70,850	18,853	5,480	70,850	24,258	75

Open lands are open to location under the mining laws. Lands in the closed category (withdrawn) have been withdrawn or segregated from operation of the mining laws and are not available for mineral development. Restricted lands remain open to operation of the mining laws and are available for mineral development, but because of special designations, special management stipulations apply. These stipulations can result in a more extensive environmental review and increased environmental mitigation costs.

In general, the current management situation after the withdrawals of the Zortman/Landusky mine reclamation area and Sweet Grass Hills are allowed to expire would be the most favorable of all alternatives for locatable minerals exploration and development. Most of the high development potential areas that are no longer closed would still remain in special management areas (Little Rocky Mountains TCP and Sweet Grass Hills TCP) and would require a more extensive review in regard to the management of these lands. The Mountain Plover ACEC would also remain in place, which would create some restrictions within moderate and low development potential areas of the Brazil Creek area.

Impacts under Alternative B

Locatable

The existing withdrawals in the Little Rocky Mountains and Sweet Grass Hills (23,563 acres) would be recommended for renewal. Additional recommended withdrawals of about 1,648,000 acres would close more land to locatable mineral entry. A large portion of the withdrawn acres would be due to the Greater Sage-Grouse Protection Priority Area (1,034,102 acres) and Grassland Bird/Greater Sage-Grouse Priority Areas (480,035 acres), as well as the withdrawals of the Bitter Creek ACEC (60,717 acres), Kevin Rim ACEC (4,553 acres), Malta Geological ACEC (6,152 acres), Mountain Plover ACEC (24,672 acres), Little Rocky Mountains TCP (37,387 acres), and Zortman Cemetery (20 acres).

Table 4.78 shows the acres of locatable minerals development potential by category.

Table 4.78
Mineral Development Potential under Alternative B
(BLM Acres)

	Management Category		
Development Potential	***Open***	***Restricted***	***Withdrawn***
High	0	929	11,638
Moderate	3,357	1,244	24,602
Low	13,580	4,029	77,574

With a significant amount of land being withdrawn, the majority of the areas with high, moderate, and low mineral development potential are in the closed category (withdrawn). This alternative would reduce most locatable minerals development opportunities by eliminating any foreseeable development for the reestablishment and expansion of the Zortman and Landusky mines, and limiting all mining activity in the Sweet Grass Hills to the claims with valid existing rights. Most of the remaining moderate and low development potential lands in the open category are within areas related to bentonite.

Restricted lands remain open to operation of the mining laws and are available for mineral development, but because of special designations, special management stipulations apply. These stipulations can result in a more extensive environmental review and increased environmental mitigation costs.

Impacts under Alternative C

Locatable

The existing withdrawals in the Little Rocky Mountains and Sweet Grass Hills would be recommended for renewal (23,563 acres). Additional recommended withdrawals of about 1,506,000 acres would close more land to locatable mineral entry. A large portion of the withdrawn acres would be due to the Greater Sage-Grouse Protection Priority Area (1,034,102 acres) and Grassland Bird/Greater Sage-Grouse Priority Areas (320,405 acres), but would also include the Bitter Creek ACEC (60,717 acres), Frenchman Breaks ACEC (39,661 acres), Kevin Rim ACEC (4,553 acres), Malta Geological ACEC (6,152 acres), Woody Island ACEC (15,804 acres), and Zortman Cemetery (20 acres).

Table 4.79 shows the acres of locatable minerals development potential by category.

Table 4.79
Mineral Development Potential under Alternative C
(BLM Acres)

	Management Category		
Development Potential	***Open***	***Restricted***	***Withdrawn***
High	0	3,009	9,558
Moderate	3,358	12,980	12,865
Low	33,951	15,442	45,790

Because of the amount of land being withdrawn from mineral entry, the majority of the areas with high and moderate mineral development potential are in the closed category (withdrawn). Similar to Alternative B, this alternative would reduce most locatable minerals development opportunities by eliminating any foreseeable development for the reestablishment and expansion of the Zortman and Landusky mines, and limiting all mining activity in the Sweet Grass Hills to the claims with valid existing rights. Most of the remaining moderate and low development potential lands in the open category are within areas related to bentonite.

Impacts under Alternative D

Locatable

The total area withdrawn from mineral entry would be approximately 185,000 acres. The Zortman/Landusky mine reclamation withdrawal (3,530 acres) would be allowed to expire in October 2015, and the Sweet Grass Hills withdrawal (19,671 acres) would be allowed to expire in April 2017, having a positive impact to locatable minerals by opening land for development. Recommended withdrawals under this alternative would include the Bitter Creek ACEC (60,717 acres), Frenchman Breaks ACEC (57,540 acres), Kevin Rim ACEC (4,553 acres), Little Rocky Mountains ACEC (15,000 acres), Malta Geological ACEC (6,152 acres), Woody Island ACEC (15,804 acres), and Zortman Cemetery (20 acres).

Table 4.80 shows the acres of locatable minerals development potential by category. The short-term columns represent development potential acres when the withdrawals are in place, and the long-term columns represent the acres after the withdrawals are allowed to expire.

Table 4.80
Mineral Development Potential under Alternative D
(BLM Acres)

	Short-Term Development Potential			***Long-Term Development Potential***		
Development Potential	***Open***	***Restricted***	***Withdrawn***	***Open***	***Restricted***	***Withdrawn***
High	3,429	4,844	4,294	3,429	6,016	3,122
Moderate	14,791	5,346	9,066	14,790	7,345	7,068
Low	71,417	2,445	21,321	71,417	7,844	15,922

After the withdrawals of the Zortman/Landusky mine reclamation area and the Sweet Grass Hills are allowed to expire, BLM management actions would be more favorable for locatable minerals exploration and development. Most of the high and moderate development potential areas that are no longer closed would still remain in special management areas (Little Rocky Mountains TCP and Sweet Grass Hills TCP) and would require a more extensive review in regard to the management of these lands. A partial withdrawal of the Little Rocky Mountains ACEC would still affect some of the moderate development potential of that area.

Impacts under Alternative E (Preferred Alternative)

Locatable

The total area withdrawn from mineral entry would be approximately 972,000 acres. The Sweet Grass Hills withdrawal (19,671 acres) would be renewed, potentially having no changing impact to locatable minerals development in that area. Other recommended withdrawals would include Azure Cave (143 acres), Camp Creek Campground (169 acres), Montana Gulch Campground (75 acres), the Mountain Plover ACEC (24,672 acres), and the Sagebrush Focal Area (927,074 acres).

Through the future withdrawal review process, the BLM would consider the need for a new withdrawal or right-of-way to promote successful reclamation of the Zortman/Landusky mine area. The new withdrawal area would likely be limited to the boundary of the Zortman/Landusky Mine Reclamation ACEC (2,605 acres) instead of the current Little Rocky Mountain withdrawal. This would have a positive impact to locatable mineral development.

Table 4.81 shows the acres of locatable minerals development potential by category.

Table 4.81
Mineral Development Potential under
Alternative E (Preferred Alternative)
(BLM Acres)

	Management Category		
Development Potential	***Open***	***Restricted***	***Withdrawn***
High	0	5,028	7,471
Moderate	851	12,298	16,109
Low	9,558	11,830	74,012

With most of the current withdrawals renewed and the addition of the Mountain Plover ACEC and Sagebrush Focal Area recommended withdrawals, the three areas with the most development potential would be affected. Within Brazil Creek, the moderate and low areas of development potential that were under the restricted management category under current management would be closed. The majority of the high development potential areas within the Little Rocky Mountains and the Sweet Grass Hills would continue under the closed category (withdrawn). If the withdrawal in the Little Rocky Mountains is allowed to expire through review, the Zortman/Landusky Mine Reclamation ACEC (2,604 acres) would still remain. This would open the area up to mineral entry, but special stipulations would apply for any operation, resulting in a more extensive environmental review and increased environmental mitigation costs.

Special Designations

Areas of Critical Environmental Concern (ACECs)

The following section addresses the effects to the relevant and important resources within the existing and potential ACECs. For additional information on the effects within each ACEC, please refer to the subheading *Special Designations* under the various resource sections of Chapter 4.

Existing ACECs

Azure Cave ACEC

Impacts Common to All Alternatives

Special management of this ACEC would continue under all alternatives. Retention of the Azure Cave ACEC (142 acres) would provide protection for sensitive bat species hibernating in the cave and features of the cave, and would provide for public safety by limiting access to the cave.

Continuing the mineral withdrawal for this area would protect the sensitive bat species and cave features from potential mineral exploration and development. About 85 acres (60%) have a high development potential for hardrock exploration and development and 57 acres (40%) have a moderate potential.

Cumulative Impacts

Special management of the cave would protect the sensitive bat species and cave features. Cumulative impacts are unlikely to be adverse to the sensitive bat species or cave features.

Impacts under Alternative A (Current Management)

The area would be open to mineral leasing and mineral material sales. However, the likelihood of leasing or material sales is limited in this area. The area would be an avoidance area for wind energy rights-of-way, which would protect sensitive bat species and cave features.

Cumulative Impacts

Special management of the cave would protect the sensitive bat species and cave features. Cumulative impacts are unlikely to be adverse to the sensitive bat species or cave features.

Impacts under Alternatives B, C, D, and E (Preferred Alternative)

The area would be closed to mineral leasing and mineral material sales and an exclusion area for wind energy rights-of-way, which would provide the greatest protection for sensitive bat species and cave features.

Cumulative Impacts

Special management of the cave would protect the sensitive bat species and cave features. Cumulative impacts are unlikely to be adverse to the sensitive bat species or cave features.

Big Bend of the Milk River ACEC

Impacts Common to All Alternatives

Retention of the Big Bend of the Milk River ACEC (1,979 acres) would protect and manage archaeological resources, including the Henry Smith and Beaucoup sites, which represent bison hunting and prehistoric ceremonial use of the Northwestern Plains.

Cumulative Impacts

The cumulative impacts to cultural resources within the Big Bend of the Milk River ACEC would be visual intrusions from the existing natural gas development and potential future development on existing oil and gas leases.

Impacts under Alternative A (Current Management)

Although an NSO stipulation for oil and gas leasing would be required, the stipulation would only apply to future leasing. A portion of the area is currently leased (985 acres or 50%) and natural gas exploration and production would have direct and indirect impacts on archaeological sites within the ACEC, such as gas infrastructure located through sites and well pad facilities located less than 10 feet from sites. Most of the lease area is within a moderate development potential for oil and gas (984 acres). It is anticipated that visual intrusions would occur in the future, but direct impacts to sites would be avoided since they be can mitigated through the Section 106 process.

No effects are anticipated from hardrock mining due to the lack of potential for locatable minerals and the area would be recommended for a mineral withdrawal. The ACEC would be open to salable minerals and if mineral materials (i.e., sand and gravel) are located within the area, impacts could be anticipated but adverse effects would be mitigated through the Section 106 process.

The area would be an avoidance area for wind energy rights-of-way. About 1,681 acres (85% of the area) are within a moderate potential area for wind energy and 298 acres (15%) are within low development potential. The installation of either wind turbines or transmission lines could have adverse effects to cultural resources and the viewshed. Surface-disturbing activities could be mitigated through the Section 106 process, but the viewshed could not be mitigated.

Cumulative Impacts

The cumulative impacts to cultural resources within the Big Bend of the Milk River ACEC would be visual intrusions from the existing natural gas development and potential future development on existing oil and gas leases.

Impacts under Alternative B

The area would be closed to oil and gas leasing. However, a portion of the area is currently leased (985 acres or 50%) and natural gas exploration and production would have direct and indirect impacts on archaeological sites within the ACEC, such as gas infrastructure located through sites and well pad facilities located less than 10 feet from sites. Most of the lease area is within a moderate development potential for oil and gas (984 acres). It is anticipated that visual intrusions would occur in the future, but direct impacts to sites would be avoided since they be can mitigated through the Section 106 process.

Although the BLM would not recommend a mineral withdrawal for the area, no effects are anticipated from hardrock mining due to the lack of potential for locatable minerals. The ACEC would be open to salable minerals and if mineral materials (i.e., sand and gravel) are located within the area, impacts could be anticipated but adverse effects would be mitigated through the Section 106 process.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. The ACEC is not within a high development potential area for wind energy. This exclusion would increase the protection to cultural resources from potential surface-disturbing activities and visual intrusions.

Cumulative Impacts

The cumulative impacts to cultural resources within the Big Bend of the Milk River ACEC would be visual intrusions from the existing natural gas development and potential future development on existing oil and gas leases.

Impacts under Alternative C

Although an NSO stipulation for oil and gas leasing would be required, the stipulation would only apply to future leasing. A portion of the area is currently leased (985 acres or 50%) and natural gas exploration and production would have direct and indirect impacts on archaeological sites within the ACEC, such as gas infrastructure located through sites and well pad facilities located less than 10 feet from sites. Most of the lease area is within a moderate development potential for oil and gas (984 acres). It is anticipated that visual intrusions would occur in the future, but direct impacts to sites would be avoided since they be can mitigated through the Section 106 process.

Although the BLM would not recommend a mineral withdrawal for the area, no effects are anticipated from hardrock mining due to the lack of potential for locatable minerals. The ACEC would be open to salable minerals and if mineral materials (i.e., sand and gravel) are located within the area, impacts could be anticipated but adverse effects would be mitigated through the Section 106 process.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. The ACEC is not within a high development potential area for wind energy. This exclusion would increase the protection to cultural resources from potential surface-disturbing activities and visual intrusions.

Cumulative Impacts

The cumulative impacts to cultural resources within the Big Bend of the Milk River ACEC would be visual intrusions from the existing natural gas development and potential future development on existing oil and gas leases.

Impacts under Alternatives D and E (Preferred Alternative)

Although an NSO stipulation for oil and gas leasing would be required, the stipulation would only apply to future leasing. A portion of the area is currently leased (985 acres or 50%) and natural gas exploration and production would have direct and indirect impacts on archaeological sites within the ACEC, such as gas infrastructure located through sites and well pad facilities located less than 10 feet from sites. Most of the lease area is within a moderate development potential for oil and gas (984 acres). It is anticipated that visual intrusions would occur in the future, but direct impacts to sites would be avoided since they be can mitigated through the Section 106 process.

Although the BLM would not recommend a mineral withdrawal for the area, no effects are anticipated from hardrock mining due to the lack of potential for locatable minerals. The ACEC would be closed to salable minerals. This would increase the protection to cultural resources from surface-disturbing activities associated with sand and gravel extraction.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. The ACEC is not within a high development potential area for wind energy. This exclusion would increase the protection to cultural resources from potential surface-disturbing activities and visual intrusions.

Cumulative Impacts

The cumulative impacts to cultural resources within the Big Bend of the Milk River ACEC would be visual intrusions from the existing natural gas development and potential future development on existing oil and gas leases.

Bitter Creek ACEC

This ACEC is also a WSA. If the Bitter Creek WSA is released by Congress, an ACEC management plan would be completed consistent with the management direction as discussed in Chapter 2. Until an ACEC management plan is completed the area would be managed consistent with BLM Manual 6330 – Management of BLM Wilderness Study Areas as appropriate.

Impacts Common to All Alternatives

Special management of this ACEC would continue under all alternatives. Retention of the Bitter Creek ACEC (60,701 acres) would benefit scenic diversity and a variety of vegetation types and wildlife habitats. The area would remain closed to oil and gas leasing until an ACEC management plan is completed that would address leasing, would be closed to solid mineral material sales, and would be an exclusion area for wind energy rights-of-way. The closures and exclusion would protect the ACEC from potential surface-disturbing activities and visual intrusions.

Cumulative Impacts

Special management of the ACEC would protect the scenic diversity and variety of vegetation types and wildlife habitats for which the ACEC was designated. Cumulative impacts would be minimal intrusions from activities associated with the Northern Border Pipeline.

Impacts under Alternative A (Current Management)

The Northern Border Corridor would be retained as a 4 1/2 mile corridor through the ACEC. This includes about 14,668 acres of BLM land within the ACEC. The existing right-of-way within the corridor would not affect values for which the ACEC was designated due to successful reclamation and soil and vegetation productivity.

The area would be open to solid mineral entry and location, but the development potential is very low (unknown).

Cumulative Impacts

Special management of the ACEC would protect the scenic diversity and variety of vegetation types and wildlife habitats for which the ACEC was designated. Cumulative impacts would be minimal intrusions from activities associated with the Northern Border Corridor.

Impacts under Alternative B

The Northern Border Corridor would be a 1 mile corridor but would not include the Bitter Creek WSA or ACEC. The ACEC would be an avoidance area for rights-of-way. These actions would protect the values for which the ACEC was designated and successful reclamation that has occurred.

The BLM would recommend a withdrawal from mineral entry and location (60,717 acres) to protect significant cultural, scenic, and wildlife values. This would benefit scenic views and sensitive archaeological resources, and would protect wildlife by providing a large, continuous, and contiguous amount of grassland habitat.

Cumulative Impacts

Special management of the ACEC would protect the scenic diversity and variety of vegetation types and wildlife habitats for which the ACEC was designated.

Impacts under Alternative C

The Northern Border Corridor would be a 2 mile corridor through the ACEC. This includes about 6,494 acres of BLM land within the ACEC. The ACEC would be an avoidance area for rights-of-way. These actions would protect the values for which the ACEC was designated and successful reclamation that has occurred.

The BLM would recommend a withdrawal from mineral entry and location (60,717 acres) to protect significant cultural, scenic, and wildlife values. This would benefit scenic views and sensitive archaeological resources, and would protect wildlife by providing a large, continuous, and contiguous amount of grassland habitat.

Cumulative Impacts

Special management of the ACEC would protect the scenic diversity and variety of vegetation types and wildlife habitats for which the ACEC was designated.

Impacts under Alternative D

The Northern Border Corridor would not be designated as a transportation and utility corridor and the area would be an avoidance area for rights-of-way. The values for which the ACEC was designated would be protected, but not to the degree provided under Alternatives A, B, or C.

The BLM would recommend a withdrawal from mineral entry and location (60,717 acres) to protect significant cultural, scenic, and wildlife values. This would benefit scenic views and sensitive archaeological resources, and would protect wildlife by providing a large, continuous, and contiguous amount of grassland habitat.

Cumulative Impacts

Special management of the ACEC would protect the scenic diversity and variety of vegetation types and wildlife habitats for which the ACEC was designated.

Impacts under Alternative E (Preferred Alternative)

The Northern Border Corridor would not be designated as a transportation and utility corridor and the area would be an avoidance area for rights-of-way. The values for which the ACEC was designated would be protected.

The area would be open to solid mineral entry and location, but the development potential is very low (unknown).

Cumulative Impacts

Special management of the ACEC would protect the scenic diversity and variety of vegetation types and wildlife habitats for which the ACEC was designated.

Kevin Rim ACEC

Impacts Common to All Alternatives

Retention of the Kevin Rim ACEC (4,557 acres) would protect the diverse archeological resources and significant raptor habitat.

Although an NSO stipulation for oil and gas leasing would be required, the stipulation would only apply to future leasing. Most of the area is currently leased (3,579 acres or 79%) and production would have direct and indirect impacts on cultural sites within the ACEC. It is anticipated that those types of impacts could occur in the future but the area is within a low or very low development potential for oil and gas. Avoidance and/or other types of mitigation (BMPs) could negate or lessen the effects.

Cumulative Impacts

The cumulative impacts to cultural resources within the Kevin Rim ACEC would be visual intrusions from the existing natural gas development and potential future development on existing oil and gas leases.

Impacts under Alternative A (Current Management)

Although the BLM would not recommend a mineral withdrawal for the area, no effects are anticipated from hardrock mining due to the lack of potential for locatable minerals. The ACEC would be open to salable minerals. This could have some potential effects to cultural resources as sand and gravel would be the most likely solid mineral resource extracted within the ACEC.

The area would be an avoidance area for wind energy rights-of-way. The entire area (4,557 acres) is within a high potential area for wind energy development. The installation of either wind turbines or transmission lines could have adverse effects to cultural resources and the viewshed. Surface-disturbing activities could be mitigated through the Section 106 process, but the viewshed could not be mitigated.

Cumulative Impacts

The cumulative impacts to cultural resources within the Kevin Rim ACEC would be visual intrusions from the existing natural gas development and potential future development on existing oil and gas leases and the potential for wind energy development.

Impacts under Alternatives B, C, and D

No effects are anticipated from hardrock mining due to the lack of potential for locatable minerals and the area would be recommended for a mineral withdrawal. The ACEC would also be closed to salable minerals. This is expected to contribute to potentially fewer effects as sand and gravel would be the most likely solid mineral resource extracted within the ACEC.

The area would be an exclusion area for wind energy rights-of-way. This would increase the protection to cultural resources from potential surface-disturbing activities and visual intrusions.

Cumulative Impacts

The cumulative impacts to cultural resources within the Kevin Rim ACEC would be visual intrusions from the existing natural gas development and potential future development on existing oil and gas leases.

Impacts under Alternative E (Preferred Alternative)

Although the BLM would not recommend a mineral withdrawal for the area, no effects are anticipated from hardrock mining due to the lack of potential for locatable minerals. The ACEC would be closed to salable minerals. This is

expected to contribute to potentially fewer effects as sand and gravel would be the most likely solid mineral resource extracted within the ACEC.

The area would be an exclusion area for wind energy rights-of-way. This would increase the protection to cultural resources from potential visual intrusions.

Cumulative Impacts

The cumulative impacts to cultural resources within the Kevin Rim ACEC would be visual intrusions from the existing natural gas development and potential future development on existing oil and gas leases.

Mountain Plover ACEC

Impacts Common to All Alternatives

Special management of this ACEC would continue under all alternatives. Retention of the Mountain Plover ACEC (24,762 acres) would provide protection to the natural habitat for the mountain plover, a prairie bird. The area is unique because the hardpan areas provide habitat for mountain plovers away from traditional habitat associated with prairie dogs.

Cumulative Impacts

Special management of the ACEC would protect the natural habitat for the mountain plover, for which the ACEC was designated.

Impacts under Alternative A (Current Management)

A timing stipulation for oil and gas leasing would avoid direct long-term impacts to mountain plover habitat within the ACEC. The entire area is within a very low development potential for oil and gas exploration and development and is currently unleased.

The ACEC would be open for locatable solid minerals (bentonite) with timing stipulations to protect breeding mountain plovers. Timing stipulations would protect mountain plovers during the breeding season, but reclamation of mined areas does not appear to provide suitable habitat for mountain plovers.

The ACEC would be open to salable minerals and if mineral materials (i.e., sand and gravel) are located within the ACEC, impacts could be anticipated from surface-disturbing activities associated with sand and gravel extraction. However, other areas are available for mineral materials.

The area would be an avoidance area for wind energy rights-of-way. About 44 acres (less than 1%) are within a high development potential area for wind energy, 21,042 acres (85%) are within moderate potential, and 3,676 acres (15%) are within low development potential. Wind energy facilities could result in population impacts through habitat loss from construction and maintenance of wind towers and associated facilities as well as avoidance of habitats within and near wind farm areas. Although few studies have focused on mountain plovers, it appears that construction and operation of wind farms may temporarily disrupt and displace breeding plovers, although there appears to be little risk from collisions with rotors (Young, et al. 2007).

Cumulative Impacts

Special management of the ACEC would protect the natural habitat for the mountain plover, for which the ACEC was designated.

Impacts under Alternative B

An NSO stipulation for oil and gas leasing would avoid direct long-term impacts to mountain plover habitat within the ACEC. The entire area is within a very low development potential for oil and gas exploration and development and is currently unleased.

The BLM would recommend a mineral withdrawal for the Mountain Plover ACEC. This would be beneficial for the mountain plover since the potential impacts from mining are permanent and can affect the mountain plover population by reducing habitat in the area.

The ACEC would be open to salable minerals and if mineral materials (i.e., sand and gravel) are located within the ACEC, impacts could be anticipated from surface-disturbing activities associated with sand and gravel extraction. However, other areas are available for mineral materials and the area is considered to have low potential for mineral materials.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. This would increase protection of mountain plover habitat.

Cumulative Impacts

Special management of the ACEC would protect the natural habitat for the mountain plover, for which the ACEC was designated.

Impacts under Alternative C

An NSO stipulation for oil and gas leasing would avoid direct long-term impacts to mountain plover habitat within the ACEC. The entire area is within a very low development potential for oil and gas exploration and development and is currently unleased.

The BLM would recommend a mineral withdrawal for the Mountain Plover ACEC. This would be beneficial for the mountain plover since the potential impacts from mining are permanent and can affect the mountain plover population by reducing habitat in the area.

The ACEC would be open to salable minerals and if mineral materials (i.e., sand and gravel) are located within the ACEC, impacts could be anticipated. However, other areas are available for mineral materials and the area is considered to have low potential for mineral materials.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. This would increase protection of mountain plover habitat.

Cumulative Impacts

Special management of the ACEC would protect the natural habitat for the mountain plover, for which the ACEC was designated.

Impacts under Alternative D

An NSO stipulation for oil and gas leasing would avoid direct long-term impacts to mountain plover habitat within the ACEC. The entire area is within a very low development potential for oil and gas exploration and development and is currently unleased.

The BLM would recommend a mineral withdrawal for the Mountain Plover ACEC. This would be beneficial for the mountain plover since the potential impacts from mining are permanent and can affect the mountain plover population by reducing habitat in the area.

The ACEC would be closed to salable minerals. This would increase the protection to mountain plover habitat from surface-disturbing activities associated with sand and gravel extraction.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. This would increase protection of mountain plover habitat.

Cumulative Impacts

Special management of the ACEC would protect the natural habitat for the mountain plover, for which the ACEC was designated.

Impacts under Alternative E (Preferred Alternative)

The ACEC would be closed to oil and gas leasing, which would avoid any impacts from oil and gas exploration and development to mountain plover habitat within the area. The entire area is within a very low development potential for oil and gas exploration and development and is currently unleased.

The BLM would recommend a mineral withdrawal for the Mountain Plover ACEC. This would be beneficial for the mountain plover since the potential impacts from mining are permanent and can affect the mountain plover population by reducing habitat in the area.

The ACEC would be closed to salable minerals. This would increase the protection to mountain plover habitat from surface-disturbing activities associated with sand and gravel extraction.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. This would increase protection of mountain plover habitat.

Cumulative Impacts

Special management of the ACEC would protect the natural habitat for the mountain plover, for which the ACEC was designated.

Prairie Dog Towns within the 7km Complex ACEC

Impacts under Alternative A (Current Management)

The Prairie Dog Towns within the 7km Complex ACEC (16,403 acres) would be retained. The configuration of the boundary for this ACEC was based upon black-tailed prairie dog colony distribution in 1988. Current prairie dog colony distribution no longer reflects the ACEC boundary due to ongoing plague impacts. Benefits for prairie dogs and associated species still found within the ACEC boundary would be maintained under Alternative A.

Cumulative Impacts

Special management of the ACEC would maintain prairie dog populations.

Alternatives B, C, D, and E (Preferred Alternative)

The Prairie Dog Towns within the 7km Complex ACEC would not be retained. Since current prairie dog colony configuration no longer reflects the ACEC boundary, the ACEC is no longer effective in providing special management for prairie dogs, associated species, and black-footed ferret reintroduction. Management actions directed at prairie dogs and associated species under the Wildlife and Special Status Species section of Chapter 2 would protect the resources for which the ACEC was originally established.

Cumulative Impacts

Proposed management actions would be beneficial for prairie dogs and other species associated with prairie dog towns such as mountain plovers.

Sweet Grass Hills ACEC

Impacts Common to All Alternatives

Retention of the Sweet Grass Hills ACEC (7,429 acres) would protect areas of traditional spiritual importance to Native Americans and aquifers in the area that provide potable water to local residents.

Cumulative Impacts

Special management of the ACEC would protect the values for which the ACEC was designated.

Impacts under Alternative A (Current Management)

Although an NSO stipulation for oil and gas leasing would be required, that stipulation would only apply to future leasing. However, only 116 acres (2%) is currently leased. The entire area is within a low development potential for oil and gas. The BLM would work directly with oil and gas operators on existing oil and gas leases to mitigate any adverse impacts to the resources caused by exploration and development activities.

The area would be an avoidance area for wind energy rights-of-way. About 6,377 acres (86%) are within a high development potential area for wind energy, 792 acres (11%) are within moderate potential, and 260 acres (3%) are within low potential. The installation of either wind turbines or transmission lines could have adverse effects to cultural resources and the viewshed. Surface-disturbing activities could be mitigated through the Section 106 process, but the viewshed could not be mitigated.

No impacts are anticipated to occur from hard rock mining because the Sweet Grass Hills TCP, of which this ACEC is part, is withdrawn from mineral entry until 2017. The ACEC is also closed to solid mineral leasing and impacts are not anticipated to occur. However, the ACEC is currently open to salable minerals and if mineral materials (i.e., sand and gravel) are located within the ACEC, impacts are anticipated.

Cumulative Impacts

Special management of the ACEC would protect the values for which the ACEC was designated.

Impacts under Alternative B

Under this alternative, 4,118 acres of the Sweet Grass Hills ACEC would also be managed to preserve and enhance the wilderness characteristics (apparent naturalness and outstanding opportunities for solitude or primitive and unconfined recreation) of the area. This portion of the ACEC would be closed to oil and gas leasing while the remainder would be NSO. Only 116 acres (2%) is currently leased. The entire area is within a low development potential for oil and gas. The BLM would work directly with oil and gas operators on existing oil and gas leases to mitigate any adverse impacts to the resources caused by exploration and development activities.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. Most of the area (86%) is within a high development potential area for wind energy. This would increase the protection to cultural resources from potential surface-disturbing activities and visual intrusions.

The BLM would recommend a continuance of the withdrawal for locatable minerals. No impacts are anticipated to occur from hardrock mining. The ACEC would be closed to solid mineral leasing and impacts are not anticipated to occur. The ACEC would also be closed to salable minerals. These constraints would provide protection from solid mineral extraction in the area.

Cumulative Impacts

Management of the area for wilderness characteristics would also protect the values for which the ACEC was designated.

Impacts under Alternative C

Although an NSO stipulation for oil and gas leasing would be required, that stipulation would only apply to future leasing. However, only 116 acres (2%) is currently leased. The entire area is within a low development potential for oil and gas. The BLM would work directly with oil and gas operators on existing oil and gas leases to mitigate any adverse impacts to the resources caused by exploration and development activities.

The BLM would recommend a continuance of the withdrawal for locatable minerals. There are no impacts anticipated to occur from hardrock mining. The ACEC would be closed to solid mineral leasing and impacts are not anticipated to occur. The ACEC would also be closed to salable minerals. These constraints would provide protection from solid mineral extraction in the area.

A portion of the ACEC (4,118 acres) would be an exclusion area for rights-of-way and the remainder would be an avoidance area. The entire ACEC would be an exclusion area for wind energy rights-of-way. Most of the area (86%) is within a high development potential area for wind energy. This would increase the protection to cultural resources from potential surface-disturbing activities and visual intrusions.

Cumulative Impacts

Special management of the ACEC would protect the values for which the ACEC was designated.

Impacts under Alternative D

Impacts would be similar to Alternatives B and C, except that the withdrawal would be recommended to expire in 2017. At that time the ACEC would be open to locatable mineral extraction. Impacts to the ACEC could be significant if mining would be allowed. Impacts expected to occur would be noise and visual impacts to individuals utilizing the ACEC for traditional uses; and damage and/or destruction to archaeological sites.

Cumulative Impacts

Special management of the ACEC would protect the values for which the ACEC was designated.

Impacts under Alternative E (Preferred Alternative)

Impacts would be similar to Alternative B except the area would not be managed specifically to preserve and enhance wilderness characteristics for East Butte but the ACEC would be closed to oil and gas leasing. This closure along with other resource protections would help protect and enhance the wilderness characteristics found in the area as well as the resources for which the ACEC was established.

The ACEC would also be closed to all motorized travel, not just OHV travel. This means the use of helicopters would also be prohibited.

Cumulative Impacts

Special management of the ACEC would protect the values for which the ACEC was designated.

Potential ACECs

Frenchman Breaks ACEC

Impacts Common to All Alternatives

Surface-disturbing activities could occur under all alternatives and BMPs for surface-disturbing activities would be applied. Under normal circumstances, standard mitigation guidelines are effective in minimizing impacts to resources; however, conditions such as severely erodible soils, severe winters with high mule deer populations on crucial winter range, or extreme environmental events may require more aggressive management actions to mitigate adverse impacts.

Cumulative Impacts

Cumulative impacts are discussed by alternative.

Impacts under Alternative A (Current Management)

The Frenchman Breaks ACEC would not be designated; however, resources would be impacted by management actions as described in the Soils and Vegetation – Rangeland and Wildlife and Special Status Species sections of Chapter 4.

The potential ACEC is within an area that has high and moderate potential for wind energy development (71% of the area). However, only 6% of the area is considered high development potential. The surface disturbance associated with wind energy development would most likely occur on the highly erodible soils, which are difficult to stabilize and reclaim after disturbance. A long-term commitment of the soil and vegetation resource would occur where the turbines and associated facilities are located.

Cumulative Impacts

Surface-disturbing activities could potentially affect soils and mule deer during severe winters.

Impacts under Alternative B

The Frenchman Breaks ACEC would not be designated; however, this area and surrounding BLM lands (a total of 81,733 acres) would be managed to preserve and enhance wilderness characteristics under Alternative B.

The area is within a very low development potential for oil and gas exploration and development and is currently unleased. The potential ACEC and surrounding area would be closed to oil and gas leasing under Alternative B to protect the wilderness characteristics.

The potential ACEC is within an area that has high and moderate potential for wind energy development. This and the surrounding area would be excluded from wind energy right-of-ways and become an avoidance area for other right-of-ways to protect wilderness characteristics.

Cumulative Impacts

Soils and wildlife resources would be protected by other management actions.

Impacts under Alternative C

The 42,020 acre Frenchman Breaks ACEC would be designated. Management actions would be implemented to protect erodible soils and areas (rock outcrop) and important wildlife habitats such as crucial mule deer winter range, Greater Sage-Grouse leks and adjacent nesting habitat, and habitat for designated BLM sensitive species. Establishing the ACEC would restrict surface-disturbing activities such as mineral development and rights-of-way. The ACEC would be an exclusion area for wind energy rights-of-way.

An NSO stipulation for oil and gas leasing would avoid direct long-term impacts to scenic values, wildlife, and the unique landscape. The entire area is within a very low development potential for oil and gas exploration and development and is currently unleased.

Protecting the 34,395 acres of erodible soils and areas would benefit soil quality as these are the most difficult to stabilize and reclaim after disturbance. Protecting these erodible soils and areas would also benefit water quality and channel conditions in Frenchman Creek by minimizing sediment reaching the creek. These same areas are also a major component of the crucial mule deer winter range that can support up to 1,600 deer during severe winters.

Cumulative Impacts

Special management of the ACEC would protect the values for which the ACEC was nominated.

Impacts under Alternative D

The 63,482 acre Frenchman Breaks ACEC would be designated. Management actions would be implemented to protect erodible soils and areas (rock outcrop) and important wildlife habitats such as crucial mule deer winter range, Greater Sage-Grouse leks and adjacent nesting habitat, and habitat for designated BLM sensitive species. Establishing the ACEC would restrict surface-disturbing activities such as mineral development and rights-of-way. The ACEC would be an exclusion area for wind energy rights-of-way.

An NSO stipulation for oil and gas leasing would avoid direct long-term impacts to scenic values, wildlife, and the unique landscape. The entire area is within a very low development potential for oil and gas exploration and development and is currently unleased.

Protecting the 42,003 acres of erodible soils and areas would benefit soil quality as these are the most difficult to stabilize and reclaim after disturbance. Protecting these erodible soils and areas would also benefit water quality and channel conditions in Frenchman Creek by minimizing sediment reaching the creek. More acres of crucial mule deer winter range would be protected by this alternative and disturbances to large concentrations of deer in severe winters would be reduced. Additional acres of nesting habitat around grouse leks would be protected, as well as habitats for BLM sensitive species.

Cumulative Impacts

Special management of the ACEC would protect the values for which the ACEC was nominated.

Impacts under Alternative E (Preferred Alternative)

The 42,020 acre Frenchman Breaks ACEC would be designated. Management actions would be implemented to protect erodible soils and areas (rock outcrop) and important wildlife habitats such as crucial mule deer winter range, Greater Sage-Grouse leks and adjacent nesting habitat, and habitat for designated BLM sensitive species. Establishing the ACEC would restrict surface-disturbing activities such as mineral development and rights-of-way. The ACEC would be an exclusion area for wind energy rights-of-way.

An NSO stipulation for oil and gas leasing would avoid direct long-term impacts to scenic values, wildlife, and the unique landscape. The entire area is within a very low development potential for oil and gas exploration and development and is currently unleased.

Protecting the 34,395 acres of erodible soils and areas would benefit soil quality as these are the most difficult to stabilize and reclaim after disturbance. Protecting these erodible soils and areas would also benefit water quality and channel conditions in Frenchman Creek by minimizing sediment reaching the creek. These same areas are also a major component of the crucial mule deer winter range that can support up to 1,600 deer during severe winters.

Cumulative Impacts

Special management of the ACEC would protect the values for which the ACEC was nominated.

Grassland Bird/Greater Sage-Grouse Priority Areas ACEC

Impacts under Alternatives A, C, D, and E (Preferred Alternative)

The Grassland Bird/Greater Sage-Grouse Priority Areas ACEC would not be designated; however, resources would be impacted by management actions as described in the Soils and Vegetation – Rangeland, and Wildlife (Greater Sage-Grouse, Grassland Species and Sagebrush Species) sections of Chapter 4.

Cumulative Impacts

Soils, vegetation, and wildlife resources would be protected by management actions.

Impacts under Alternative B

Special management would protect the values for which the ACEC was nominated through the creation of a sagebrush and native grassland reserve to provide high quality habitat for Greater Sage-Grouse, Sprague's pipit and other sagebrush and grassland-dependent species. The unique habitats would be protected from fragmentation due to anthropogenic disturbances.

Cumulative Impacts

Cumulative impacts would be the same as described for the Greater Sage-Grouse and grassland bird Priority Areas in the Wildlife section of Chapter 4.

Greater Sage-Grouse Protection Priority Area ACEC

Impacts under Alternatives A, C, D, and E (Preferred Alternative)

The Greater Sage-Grouse Protection Priority Area ACEC would not be designated; however, resources would be impacted by management actions as described in the Soils and Vegetation – Rangeland, and Wildlife (Greater Sage-Grouse, Grassland Species and Sagebrush Species) sections of Chapter 4.

Cumulative Impacts

Soils, vegetation, and wildlife resources would be protected by management actions.

Impacts under Alternative B

Special management would protect the values for which the ACEC was nominated through the creation of a sagebrush and native grassland reserve to provide high quality habitat for Greater Sage-Grouse and other sagebrush-dependent species. The unique habitats would be protected from fragmentation due to anthropogenic disturbances.

Cumulative Impacts

Cumulative impacts would be the same as described for the Greater Sage-Grouse Priority Areas in the Wildlife section of Chapter 4.

Little Rocky Mountains ACEC

Impacts Common to All Alternatives

Impacts common to all alternatives are the same as the impacts described in the Cultural Resources section in Chapter 4.

Cumulative Impacts

Cumulative impacts are discussed by alternative.

Impacts under Alternatives A (Current Management), B, and C

The Little Rocky Mountains ACEC would not be designated; however, prehistoric and historic archaeological resources and spiritual and traditional resources within the area would be managed and protected through management of the Little Rocky Mountains TCP. See the Cultural Resources section of Chapters 2 and 4 for a more in-depth discussion of TCPs.

The area would be open to wind energy rights-of-way. About 15,020 acres (65%) are within a high development potential area for wind energy, 7,664 acres (33%) are within moderate potential, and 260 acres (1%) are within low potential. The installation of either wind turbines or transmission lines could have adverse effects to cultural resources and the viewshed. Surface-disturbing activities could be mitigated through the Section 106 process, but the viewshed could not be mitigated.

Cumulative Impacts

Management of the Little Rocky Mountains TCP would protect the prehistoric and historic archaeological resources, and spiritual and traditional resources within the area.

Impacts under Alternative D

The Little Rocky Mountains ACEC (27,177 acres) would be designated to protect prehistoric and historic archaeological resources and spiritual and traditional resources within the area.

An NSO stipulation for oil and gas leasing would be required, which would avoid potential impacts to prehistoric and historic archaeological resources in the area. The entire area is within a very low development potential for oil and gas and is currently unleased.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. This would increase the protection to cultural resources associated from potential visual intrusions.

The BLM would recommend a mineral withdrawal for the northern portion of the ACEC (15,000 acres). This would avoid potential impacts associated with mining in the area.

Cumulative Impacts

Special management would protect the values for which the ACEC was nominated.

Impacts under Alternative E (Preferred Alternative)

The Little Rocky Mountains ACEC would not be designated; however, prehistoric and historic archaeological resources and spiritual and traditional resources within the area would be managed and protected through management of the Little Rocky Mountains TCP. See the Cultural Resources section of Chapters 2 and 4 for a more in-depth discussion of TCPs, including the exclusion of wind energy rights-of-way.

Cumulative Impacts

Management of the Little Rocky Mountains TCP would protect the prehistoric and historic archaeological resources, and spiritual and traditional resources within the area.

Malta Geological ACEC

Impacts Common to All Alternatives

Impacts common to all alternatives are the same as the impacts described in the beginning of the Paleontological Resources section in Chapter 4.

Cumulative Impacts

Potential cumulative impacts to paleontological resources could result from surface-disturbing activities that cause erosion, soil compaction, and landscape alteration.

Impacts under Alternative A (Current Management)

The area would not be designated an ACEC. Alternative A provides for general protections for paleontological resources across the planning area as provided for in accordance with the BLM 8270 Guidance and Handbook. Based on recent internationally, nationally, and regionally significant paleontological discoveries in the area, it is expected that interest and use would increase in the area. With increased use, the potential for damage, destruction, theft, and vandalism also increases. Impacts due to damage, destruction, theft, and vandalism diminish the scientific value of paleontological resources.

Alternative A would involve further field investigations, including potentially identifying additional paleontological resources which could benefit scientific knowledge. An NSO stipulation for oil and gas leasing would be required only for known paleontological sites. All other resource uses would continue.

The area would be open to wind energy rights-of-way. About 857 acres (14%) are within a high development potential area for wind energy, 5,242 acres (85%) are within moderate potential, and 54 acres (1%) are within low potential. Wind energy development has the potential to affect paleontological resources because of the surface disturbance that is required during construction; however, the anticipated effects could be minimized or eliminated through avoidance and mitigation actions.

Cumulative Impacts

Potential cumulative impacts to paleontological resources could result from surface-disturbing activities that cause erosion, soil compaction, and landscape alteration.

Impacts under Alternatives B, C, and D

The area would be designated an ACEC (6,153 acres). The ACEC would limit surface-disturbing activities in the area. The potential for inadvertent impact, vandalism, and deterioration of the value of paleontological resources remains, but could be addressed in various ways in the management plans created following the ACEC designation. Field investigations with the potential for identifying additional paleontological resources could benefit scientific knowledge. Special management practices and policies would be put into place to address surface disturbance in this scientifically significant area.

Surface-disturbing activities such as those associated with fluid minerals leasing, oil and gas development, and geophysical exploration would be handled on a case-by-case basis and would require a paleontological inventory prior to project approval. A CSU stipulation for oil and gas leasing would be required. About 1,560 acres (25%) are within a moderate development potential area for oil and gas and are currently leased, and 4,593 acres (75%) are within a very low development potential area and are unleased.

A mineral withdrawal would be recommended for locatable minerals. This area is in a very low or unknown potential for locatable mineral development (geologic conditions are not favorable for mineral occurrence, or geological data is insufficient to support a determination). The area would also be closed to leasable and salable minerals. Restrictions on these three activities would avoid damage and destruction of paleontological resources.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. Most of the area (85%) is within a moderate development potential area for wind energy. This would increase the protection to paleontological resources from potential surface-disturbing activities.

Cumulative Impacts

Potential cumulative impacts to paleontological resources could result from surface-disturbing activities that cause erosion, soil compaction, and landscape alteration.

Impacts under Alternative E (Preferred Alternative)

The area would be designated an ACEC (6,153 acres). Surface-disturbing activities would be limited in the area. The potential for inadvertent impact, vandalism, and deterioration of the value of paleontological resources remains, but could be addressed in various ways in the management plans created following the ACEC designation. Field investigations with the potential for identifying additional paleontological resources could benefit scientific knowledge. Special management practices and policies would be put into place to address surface disturbance in this scientifically significant area.

The area within the higher elevations of the Little Rocky Mountains TCP (2,604 acres) would be closed to oil and gas leasing which would protect the prehistoric and historic archaeological resources in the area. For the remaining area, surface-disturbing activities associated with fluid mineral leasing, oil and gas development, and geophysical exploration would be handled on a case-by-case basis and would require a paleontological inventory prior to project approval. A CSU stipulation for oil and gas leasing would be required. About 1,560 acres (25%) are within a moderate development potential area for oil and gas and are currently leased, and 4,593 acres (75%) are within a very low development potential area and are unleased.

The area would be open to locatable minerals but this area is in a very low or unknown potential for locatable mineral development (geologic conditions are not favorable for mineral occurrence, or geological data is insufficient to support a determination).

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. Most of the area (85%) is within a moderate development potential area for wind energy. This would increase the protection to paleontological resources from potential surface-disturbing activities.

Cumulative Impacts

Potential cumulative impacts to paleontological resources could result from surface-disturbing activities that cause erosion, soil compaction, and landscape alteration.

Woody Island ACEC

Impacts under Alternative A (Current Management)

The Woody Island ACEC would not be designated and the impacts would be the same as those discussed in the Soils and Vegetation – Rangeland and Wildlife and Special Status Species sections of Chapter 4.

Currently, none of the federal minerals in the area are leased for oil and gas (approximately 15,808 acres of the 22,411 surface acres). All federal minerals within the area are available for leasing. Direct impacts for development on federal minerals could include creation of roads to access wells, associated traffic during production, and temporary surface disturbance from buried pipelines.

Lands in the area would be available for locatable, salable and leasable hardrock mineral extraction. Although none of these activities are occurring in the area at this time, opportunities may occur in the future.

The area would be open to wind energy rights-of-way. Currently there are no renewable energy developments in the area; however, the area is classified as a Wind Power Class 4 area with good wind resource potential. If renewable energy developments do occur in the area in the future, transmission corridors could be needed in the area.

Cumulative Impacts

Surface-disturbing activities could potentially affect soils and wildlife.

Impacts under Alternative B

The Woody Island ACEC would not be designated; however, mitigation would protect surface resources in the identified Grassland Bird/Greater Sage-Grouse Priority Areas. All lands in these areas would be withdrawn from locatable minerals and closed to leasable and salable minerals. There would be no further oil and gas leasing in this area.

Cumulative Impacts

Surface-disturbing activities could potentially affect soils and wildlife.

Impacts under Alternatives C and D

The BLM would designate the Woody Island ACEC (22,411 acres). Federal fluid minerals (about 22,393 acres) would be available for leasing, but would be constrained through the use of NSO stipulations. The entire area has a very low potential for oil and gas development (2 wells per township). Based on the RFD, the opportunity exists for 2 wells. Indirect impacts of any new wells would include roads to access producing wells and the temporary disturbances based on new pipelines.

A withdrawal would be recommended for locatable minerals, and leasable and salable solid minerals would be closed. This would increase the protection from potential surface-disturbing activities. Currently none of these activities occur in the area.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. Most of the ACEC (76%) is within a high development potential area for wind energy. This would increase the protection for the unique landscape from potential surface-disturbing activities.

Cumulative Impacts

Special management would protect the values for which the ACEC was nominated.

Impacts under Alternative E (Preferred Alternative)

The BLM would designate the Woody Island ACEC (32,869 acres). Federal fluid minerals (about 32,852 acres) would be available for leasing, but would be constrained through the use of NSO stipulations. The entire area has a very low potential for oil and gas development (2 wells per township). Based on the RFD, the opportunity exists for 2 wells. Indirect impacts of any new wells would include roads to access producing wells and the temporary disturbances based on new pipelines.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. Most of the ACEC (76%) is within a high development potential area for wind energy. This would increase the protection for the unique landscape from potential surface-disturbing activities.

Cumulative Impacts

Special management would protect the values for which this ACEC was nominated.

Zortman/Landusky Mine Reclamation ACEC

Impacts under Alternative A (Current Management)

The area would not be designated an ACEC. The area is currently withdrawn from mineral entry to facilitate reclamation and water treatment activities. The mineral withdrawal will expire in October 2015.

Without the withdrawal or any special management designation in place, the Zortman/Landusky reclamation site would be open to OHV use and mineral entry. This type of activity would create surface disturbance that has the potential to negatively impact the reclamation of soil and slopes, as well as exposing the public to hazards within the site.

The area would be open to wind energy rights-of-way. A large portion of the ACEC (47%) is within a high development potential area for wind energy.

Cumulative Impacts

Opening BLM land in this area to more exploration and mining activity in the long term could result in 10 possible exploration projects with a total of 50 acres of surface disturbance. This could also result in reestablishment of mining operations that could create disturbance on currently reclaimed areas of the mine footprint (1,200 acres).

Impacts under Alternatives B and C

Alternative B designates 3,575 acres of BLM land as an ACEC. This designation would limit access and restrict OHV activities to ensure public safety from any hazards within the reclamation site and its water treatment and maintenance facilities. The area would also continue to be withdrawn from mineral entry and closed to solid mineral leasables and salables to support reclamation success by preventing surface disturbance that results from mining activity.

Soil, water, vegetative, and visual resources would benefit due to the monitoring of produced water and stream quality, field inspections, and continued reclamation activities. Any impacts to vegetation that result from wild or prescribed fire would be beneficial to future growing seasons.

The area would include an NSO stipulation for oil and gas leasing. The entire area is within very low development potential for oil and gas and the area is unleased. An NSO stipulation would support reclamation success by preventing surface disturbance associated with oil and gas exploration and development.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. A large portion of the ACEC (47%) is within a high development potential area for wind energy. This exclusion would increase the success of the reclamation by preventing potential surface-disturbing activities.

Cumulative Impacts

A withdrawal from locatable mineral entry would eliminate any foreseeable development and any possible reestablishment and expansion of the Zortman and Landusky Mines.

Impacts under Alternative D

The area would not be designated an ACEC. The area is currently withdrawn from mineral entry to facilitate reclamation and water treatment activities. The mineral withdrawal will expire in October 2015.

Without the withdrawal or any special management designation in place, the Zortman/Landusky reclamation site would be open to OHV use and mineral entry. This type of activity would create surface disturbance that has the potential to negatively impact the reclamation of soil and slopes, as well as exposing the public to hazards within the site.

The area would be an exclusion area for wind energy rights-of-way with the designation of the Little Rocky Mountains ACEC. A large portion of the ACEC (47%) is within a high development potential area for wind energy.

Cumulative Impacts

A withdrawal from locatable mineral entry for the Little Rocky Mountains ACEC would eliminate any foreseeable development and any possible reestablishment and expansion of the Zortman and Landusky Mines.

Impacts under Alternative E (Preferred Alternative)

Alternative E designates 2,656 acres of BLM land as an ACEC. This designation would limit access and restrict OHV activities to ensure public safety from any hazards within the reclamation site and its water treatment and maintenance facilities. The BLM would also recommend a mineral withdrawal if necessary, limited to the area needed to support reclamation success in the future. This would support successful reclamation and protect the associated infrastructure.

Soil, water, vegetative, and visual resources would benefit due to the monitoring of produced water and stream quality, field inspections, and continued reclamation activities. Any impacts to vegetation that result from wild or prescribed fire would be beneficial to future growing seasons.

The area would be an avoidance area for rights-of-way and an exclusion area for wind energy rights-of-way. A large portion of the ACEC (47%) is within a high development potential area for wind energy. This exclusion would increase the success of the reclamation by preventing potential surface-disturbing activities.

Cumulative Impacts

As reclamation and water treatment is further established for the Zortman and Landusky Mine sites, future assessment may deem a reduction of the withdrawn are appropriate. The amount of acres for this reduction is unknown, but any amount of acres withdrawn on the mine site would have the same influence on the reestablishment of mineral development as the current withdrawal.

National Historic Trails

Impacts Common to all Alternatives

Direct effects to National Historic Trails typically result from actions that disturb the soil or alter characteristics of the surrounding environment that contribute to trail significance and introduce visual elements out of character with the property or that alter its setting, or result in neglect of the resource to the extent that it deteriorates or is destroyed. For example, surface-disturbing activities that affect the trail are considered an adverse direct effect because the trail segments are nonrenewable. Conversely, actions that result in data collection and preservation of National Historic Trails can be considered beneficial effects.

Indirect effects result from project-induced increases or decreases in activity in the planning area. The construction of a recreational facility may increase visitor use, which could result in indirect effects to previously undisturbed trail segments. Recreation, in particular, is a complex issue as actions taken to preserve historic values can have both beneficial and adverse effects for heritage tourism and trail enthusiasts.

For all agency undertakings that could adversely affect National Historic Trails, the BLM complies with Section 106 of the NHPA prior to conducting the undertaking. Section 106 compliance typically includes inventory, evaluation, and consultation with the SHPO.

The potential adverse effects to trails is somewhat limited, however, because compliance with Section 106 of the NHPA requires that some type of mitigation be applied to trail segments contributing to the overall importance prior to any disturbance.

However, normal compliance with Section 106 of the NHPA prior to the approval of an action serves to moderate the amount of actual disturbance. In those cases in which an accommodation cannot be made, consultation between the BLM and the SHPO takes place to develop and implement a treatment plan to mitigate adverse effects to contributing

segments. While this often results in project relocation, detailed recording and mapping or interpretation are some of the techniques used for mitigation, depending on the specific trail segment and the nature of the potential adverse effects.

The primary surface-disturbing activity would be from natural gas development, but both trails (Lewis and Clark National Historic Trail and Nez Perce National Historic Trail) are designated as NSO with varying distances from the Trails depending on the alternative (1/4 mile, 500 feet or 300 feet).

Restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) provide additional protection for those resources but those changes would have little effect on National Trails due to the NSO stipulation.

Cumulative Impacts

Management actions would have little effect on National Historic Trails.

Wild and Scenic Rivers

The BLM reviewed rivers and streams within the planning area and found a 1/2 mile segment of the Marias River at the confluence of the Missouri River to be eligible for inclusion in the National Wild and Scenic Rivers System (Appendix L).

Impacts under Alternative A (Current Management)

Under this alternative, the BLM would not recommend this segment for inclusion in the National Wild and Scenic Rivers System.

This BLM land along with a segment of the Marias River is entirely within the Upper Missouri River Breaks National Monument and would be managed consistent with the approved plan for the Monument (BLM 2008b). Management of the area already provides protection for the values along this segment of the Marias River.

Cumulative Impacts

Management actions would have little effect on this segment of the Marias River.

Impacts under Alternative B

Under this alternative, the BLM would recommend this segment for inclusion in the National Wild and Scenic Rivers System.

This BLM land along with a segment of the Marias River is entirely within the Upper Missouri River Breaks National Monument and would be managed consistent with the approved plan for the Monument (BLM 2008b). Management of the area already provides protection for the values along this segment of the Marias River.

Cumulative Impacts

Management actions would have little effect on this segment of the Marias River.

Impacts under Alternatives C, D, and E (Preferred Alternative)

The BLM would not recommend this segment for inclusion in the National Wild and Scenic Rivers System.

This BLM land along with a segment of the Marias River is entirely within the Upper Missouri River Breaks National Monument and would be managed consistent with the approved plan for the Monument (BLM 2008b). Management of the area already provides protection for the fisheries and historical values along this segment of the Marias River. The Proclamation discusses the importance of the Monument's wildlife and wildlife habitat. The River and its tributaries in

the Monument host forty-eight fish species. The approved plan for the Monument provides for maintenance and enhancement of fish and wildlife habitat with emphasis placed on present and potential habitat for sensitive, threatened and/or endangered species, nesting waterfowl, game birds, fisheries and mule deer and elk winter range. The Proclamation also discusses the importance of the Monument's archaeological and historical resources and provides specific guidance for the protection of those resources.

Cumulative Impacts

Management actions would have little effect on this segment of the Marias River.

Wilderness Study Areas (Bitter Creek and Burnt Lodge)

Impacts Common to all Alternatives

Potential effects from vegetation management, energy and minerals, livestock grazing, wildland fire management, realty use authorizations and rights-of-way, transportation, OHVs, and mechanized vehicle use and recreation may occur under all alternatives. However, effects would be minimized due to the restrictions mandated by BLM Manual 6330 – Management of BLM Wilderness Study Areas, which states that activities must meet the non-impairment criteria.

Cumulative Impacts

Management actions would not impair the wilderness values.

Vegetation – Riparian and Wetland

Assumptions and Guidelines

In order to protect and/or restore riparian/wetland vegetation and associated water bodies in the planning area, the following assumptions are made:

- The BLM will ensure that all project planning (EA, EIS, Categorical Exclusion, etc.) and implementation of projects which could result in nonpoint source (NPS) pollution, contain site-specific BMPs that meet or exceed state-accepted practices. Examples of BMPs include the BLM's grazing guidelines and those provided in "Appendix A" of the Montana Nonpoint Source Management Plan.

- The BLM will participate in the development, implementation and monitoring (including five-year reviews) of Montana DEQ Water Quality Plans and Total Maximum Daily Load (TMDL) Planning Areas in which authorized activities have a potential to affect water quality.

- All riparian areas are evaluated according to the Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997a) and managed for PFC. Streams and wetlands that are in PFC are better able to withstand infrequent, high-flow runoff events than those that are not functioning properly.

- Reintroducing fire into riparian habitats to restore plant communities would enhance long-term stability in these habitats.

The setback areas provided in the oil and gas stipulations for riparian protection are intended to act as a filtering process for water and sediment before either reaches the stream or wetland. The greater the setback distance that is applied to the resource, the less effect the oil and gas drilling and production processes would have on riparian and wetland values.

Designated travel routes are present within riparian corridors and influence riparian habitat through soil compaction, sediment input, and maintenance practices. The direct effects of these travel routes would be evaluated when travel management planning is implemented.

Direct effects to riparian and wetland communities result from disturbing vegetation or ground surface in these communities. Indirect effects to riparian and wetland communities result from actions within a watershed that cause a change in riparian and wetland functionality (e.g., increased rates of sediment loading or changes in hydrology). From these effects it can be assumed that:

- Surface disturbances generally increase surface runoff to streams due to an increase in impervious surface (i.e., roads), changes in water routing, and loss of vegetation.
- Surface disturbance, transportation networks, ungulate use, and recreation activity increase the likelihood of noxious and invasive plant species introduction and spread in an area.

The greater the amount of surface disturbance in a watershed, the greater the probability that excess surface runoff and sediment would enter the stream or wetland and contribute to the loss of riparian and wetland functionality.

Impacts Common to All Alternatives

Surface-disturbing activities that affect riparian and wetland systems are both direct and indirect. The direct effects are where actions occur within the riparian area itself, such as grazing or construction. The effect of vegetation removal makes these areas more susceptible to erosion, often leading to channel widening. The indirect effects are those that are generated offsite, usually from the upstream watershed. Generally, these watershed changes result in altered streamflow hydrology (e.g., increased frequency of peak flows) and increased sediment production and sediment delivery downstream. This additional sedimentation can cause changes in channel dynamics which can negatively affect the riparian vegetation that is protecting the stream bank. However, activities such as flow diversion and reservoir storage may have the opposite effects. Downstream riparian areas may adjust due to these indirect watershed effects.

Vegetation manipulation projects may cause short-term negative effects to riparian and wetland systems. The long-term effect from vegetation manipulation projects would be improved vegetative condition and habitat diversity, including diversity in composition and forage production as well as reduced erosion runoff on a landscape level, thereby producing less sediment and runoff in the riparian systems.

Range improvements such as water developments, fences, exclosures, and vegetation manipulation could cause a loss of vegetative cover and changes in plant composition and vigor adjacent to each project. Improved grazing management achieved through range improvements could provide periods of rest for plant growth and seed production to maintain plant vigor and could potentially improve vegetative composition on riparian and wetland areas.

Existing dams, reservoirs and irrigation systems on both federal and private lands have an effect on most of the lotic streams in the planning area. These types of projects, either fully functioning or abandoned, may have changed the hydrologic function of the streams and/or the vegetation in the riparian zone at some time. Generally the streams have adapted to the projects and are fully functional but at a different level of potential. In some cases this adaptation has not occurred and would require major inputs to correct the problem (i.e. removing a dam on private land, restoring an irrigation system back to the original contours) and move the riparian system back to its 'natural' potential and into proper functioning condition. In some cases these projects have created new and additional riparian areas by reducing peak flows and holding water longer in the riparian system. Some of these water holding facilities have down slope drainage that creates and maintains riparian habitat.

Any surface-disturbing activities in riparian areas would promote noxious weed infestations. Post-project weed monitoring and treatments would minimize effects in riparian areas.

Fire Management and Ecology: Both wildfire and prescribed fire (fuels management) have similar effects of removing vegetation and creating bare soil. The short-term effect would be increased bank erosion and sedimentation in the stream. Natural revegetation would occur in a 3-5 year timeframe.

In the long term, fire would increase the health and vigor of surviving vegetation, increase vegetation diversity, modify vegetation types (e.g., a change from shrubs to herbaceous vegetation), and modify age class and structure.

Fluid Minerals: Oil and gas wells co-produce water that is temporarily stored in pits on location. The type and abundance of constituents dissolved in produced water (salts and other compounds) vary within and among geologic basins. Soils can be contaminated and wetland and riparian vegetation can be reduced or eradicated when produced water unintentionally spills on the surface. Produced water has a higher potential to affect wetland and riparian values in the long term than erosion and sedimentation associated with surface-disturbing actions.

Reclamation could effectively mitigate long-term oil and gas surface-disturbing effects. Incorporating rangeland health standards and site-specific mitigation measures into plans of operation for resource extraction, along with site-specific habitat objectives developed through operating plans, would mitigate impacts to riparian and wetland habitat. However, because of protective measures put in place for other resource values (e.g., cultural resources and special status species), riparian values are often compromised at the drilling and production level even though riparian protections are provided.

As well densities increase, the opportunities to relocate operations away from riparian and wetland areas become more difficult. The room to maneuver away from other resources values (e.g., cultural sites and special status species) and still use the full setback of 200 meters (656 feet) for riparian protection becomes more difficult as the well locations and associated infrastructure conflict with other resources.

Parcels currently leased for oil and gas, including unitized fields, may have specific conditions attached to the lease that either provide some protection to riparian and wetland values in the form of a specific lease stipulation, or the standard lease term of relocating proposed operations up to 200 meters. This standard lease term can be applied to reduce the effects of oil and gas development on riparian and wetland values. Conditions of approval may be applied on proposed actions (i.e., APDs, Sundry Notices) and used to mitigate the effects of oil and gas development on riparian values (Appendix C, BMPs). These protections must be negotiated with the operators.

Bears Paw South and North Blaine Field Development Areas: The miles of lotic riparian and acres of lentic riparian habitat in these potential gas fields are displayed in Tables 4.82 and 4.83. These two areas provide only 1-2% of the riparian values in the planning area. Of the acres and miles of riparian in these areas, most is currently leased for oil and gas development. Any additional stipulations affecting lands currently unleased that could be applied to the lotic streams and lentic wetlands would constrain development on only 11 miles and 49 acres in the Bears Paw South area and 12.3 miles and 488 acres in the North Blaine area. A high density of wells is expected in both of these areas, making it more likely that the relocation of well pads and facilities 200 meters from riparian areas could conflict with other resource values. The effects of not being able to relocate the minimum 200 meter distance would be the same as those described under Alternative A.

Table 4.82
Riparian Habitat in the North Blaine Field Development Area

	BLM-Managed Surface Leased by Category		*BLM Surface Unleased*		*North Blaine Field Development Area Totals*			*Planning Area Totals*	
	Development Potential				*Total Miles/ Acres*	*% Unleased*	*Unleased Miles/ Acres*	*% Affected Miles/Acres*	*% Unleased Affected Miles/Acres*
	Moderate	*Low*	*Moderate*	*Low*					
Lotic Miles	11.30	17.60	8.00	4.39	41	19%	12.4	4.2%	1.2%
Lentic Acres	256	558	142	346	1,302	11%	488	2.4%	.91%

Table 4.83
Riparian Habitat in the Bears Paw South Field Development Area

	BLM-Managed Surface Leased by Category			*BLM Surface Unleased by Category*		*Bears Paw South Field Development Area Totals*			*Planning Area Totals*	
	Development Potential					*Total Miles/ Acres*	*% Unleased*	*Unleased Miles/ Acres*	*% Affected Miles/Acres*	*% Unleased Affected Miles/Acres*
	High	*Low*	*Very Low*	*High*	*Low*					
Lotic Miles	18.27	0.44	0.42	6.55	4.45	30.13	37%	11	3.10%	1.13%
Lentic Acres	85	16	0.47	36.8	12.7	150	33%	49	0.28%	0.09%

Forests and Woodlands: The removal of forest products through both thinning and salable timber harvest could potentially create short-term disturbances of between 237 and 391 acres a year. The bare soil created by roads and the vegetation removal could cause increased sedimentation and stream bank erosion in localized intermittent streams in the Sweet Grass Hills and the Zortman area. The long-term effects would be minor as reclamation would provide vegetative cover and reduce erosion and sedimentation to pre-harvest levels.

The forest BMPs for maintaining water quality restrict the harvest of trees and road building in riparian zones, so no direct effects to the riparian resource are expected.

Livestock Grazing: Livestock grazing in riparian areas could reduce the extent of vegetative ground cover and vegetative species diversity. In locations of locally severe native vegetation loss, noxious weed infestations could occur. All of these effects could occur to variable extents across the planning area. Implementing livestock grazing guidelines to meet Standards for Rangeland Health would treat and improve riparian areas by maintaining or improving vegetative cover and structure to trap and hold sediment to rebuild streambanks, restore/recharge aquifers, and dissipate flood energy. Deep-rooted herbaceous and woody shrub species would be promoted to stabilize streambanks and reduce soil erosion.

The health and integrity of riparian vegetation would be protected and improved by livestock fencing, development of upland water sources, and timing livestock use to avoid sensitive periods in the spring or to reduce the intensity of grazing and trampling.

With proper grazing management and implementation of rangeland improvement projects, the health of riparian and wetland areas can be sustained or improved. All alternatives involve management of livestock grazing in riparian areas. The degree and extent of grazing-related impacts to riparian and wetland areas over the long term are expected to continue to improve. On the other hand, improper livestock grazing practices decrease the functionality of riparian and wetland areas through soil compaction, physical removal and destruction of vegetation, and trampling of streambanks causing bank failure. Livestock grazing in riparian areas can prevent regeneration of woody and herbaceous riparian vegetation necessary to stabilize streambanks. Kovalchik and Elmore (1992) state that improper livestock grazing adversely impacts the stability of some riparian areas dominated by willow.

Under all alternatives, 29,411 acres in the planning area are not available for livestock grazing. The riparian and wetland values in these areas would not be affected by livestock grazing.

By emphasizing monitoring on only higher-priority allotments (Categories I and M), undesirable conditions in lower-priority allotments may not be identified and deterioration or improvement that is occurring in vegetative communities may not be realized in a timely manner.

Livestock grazing would have no long-term impacts on riparian areas if properly managed under Standards for Rangeland Health and Guidelines for Livestock Grazing Management.

Noxious Weeds and Other Non-Native Invasive Species: Any surface-disturbing activities in riparian areas would promote noxious weed infestations. Post-project weed monitoring and treatments would minimize the long-term effects in riparian areas.

The chemical spraying of weeds along riparian zones with approved chemicals can kill non-targeted riparian vegetation, especially the shrub and tree component. This action would reduce plant species diversity in the short term and could cause accelerated erosion along streambanks. In the long term, the removal of noxious weeds, which tend to dominate the vegetative component, would increase the diversity of plant species and improve overall riparian and wetland health and the stability of the riparian system.

OHV Use and Travel and Transportation Management: The effects of designating travel management priorities on riparian values would be the same for all alternatives. The only difference is the schedule of which areas are a high priority for travel management planning. The high priority areas that would be scheduled to complete travel management under Alternative A are the Zortman area (which includes 10 lentic acres and 9 lotic miles of riparian habitat), and an area northwest of Glasgow (80 acres) that includes the 40 acre OHV area northwest of Glasgow (which has no riparian habitat).

The process of designating travel routes to reduce OHV travel in or close to riparian areas would improve vegetation, decrease bare soil, and place more riparian acres in proper functioning condition.

The implementation of the travel management plan and the proper management of roads in the riparian zones would, in the long term, improve the quality of the vegetation and reduce sedimentation and erosion where roads cross streams and wetlands and run parallel to stream segments.

The designated open OHV areas under all alternatives would have no direct negative effects on riparian values since no riparian vegetation is located in these designated areas. Bare soil could be carried off the site by wind and water, but the amount is small and would not affect the riparian or wetland systems as they are far removed from these sites.

Recreation: Recreation activities would result in localized effects, such as vegetation disturbance, trampling, and removal due to camping and off-road travel activities. Any effects to riparian function would be minor and temporary.

Solid Minerals:

Leasable and Salable: Development of leasable and salable minerals is expected to continue at the same rate as in the past. Mineral exploration and development activities could remove riparian vegetation in some cases. Affected areas would be maintained, protected, rehabilitated, and compensated to the extent practicable. This would contribute to re-establishing vegetation species diversity and productivity in the aftermath of potential riparian effects associated with mineral development activities. Long-term negative effects to riparian and wetland systems are expected to be very minor.

Locatable: The solid minerals RFD identified 57 miles of stream and 2,115 acres of wetland that are located in the high, moderate and low potential areas for solid mineral development. Table 4.84 shows the breakdown of riparian miles by hard rock and bentonite.

Approximately 9.5 miles of lotic stream are located in the high bentonite potential area in south Valley County. A total of 3.25 miles of stream are located in the high potential area for hard rock mining in the Little Rocky Mountains and Sweet Grass Hills.

The probability of a bentonite claim being developed in a wetland or riparian zone is very small. If adequate mitigation and BMPs are applied at the time of mine development, runoff from overburden piles into wetlands and riparian areas would be small. These developments could create surface disturbances that could have large short-term effects, but after reclamation would have very few long-term effects to the riparian vegetation. The most likely chance of these effects occurring is on the bentonite mining claims located in south Valley and south Phillips Counties. The probability of any of these long-term effects occurring is slight if proper reclamation standards and BMPs are applied at the time of mine development.

Table 4.84
Stream Miles in Bentonite and Hard Rock Potential Areas

	Proper Functioning Condition	*Functioning At Risk*	*Nonfunctioning*
Bentonite			
High	4.18	5.63	-
Moderate	-	-	-
Low	14.86	15.31	-
None	627.87	306.41	32.48
Hard Rock			
High	3.24	-	-
Moderate	7.90	-	-
Low	5.83	0.28	-
None	629.94	327.06	32.48
Total	36.00	21.21	-

Special Designations: The existing and proposed special management areas, mostly ACECs, provide management constraints such as NSO, closed to leasing or mineral entry, and exclusion areas for wind energy rights-of-way. These constraints would all limit potential surface-disturbing activities in wetlands or riparian zones, thereby not degrading the existing wetland and riparian vegetation and maintaining an intact riparian ecological system. The more surface-disturbing activity is constrained, the more protection is provided to riparian and wetland values. The existing and proposed special designations would affect BLM minerals on approximately 171,650 subsurface and surface acres. A major portion of these acres (93%) are in the very low oil and gas development potential area. The remaining 7% are in the low and moderate potential areas. Substantial portions of the Frenchman Breaks, Mountain Plover, and Woody Island ACECs are unleased for oil and gas. The Bitter Creek and Burnt Lodge WSAs are unavailable for mineral leasing or location.

Vegetation: Assessing and monitoring riparian areas for PFC would help identify riparian areas that are functioning at risk or nonfunctioning. Improved health of riparian vegetation would maintain proper functioning condition or move degraded areas toward PFC.

Managing riparian areas with an emphasis on maintaining and restoring riparian function as defined in the Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997a) would allow vegetation to develop in response to disturbance regimes as a result of management actions or natural events, particularly riparian areas that are functioning at risk, because they would be high priority for restoration.

Water Resources: Land disturbances introduce NPS pollution which can alter water resources and affect riparian and wetland vegetation by introducing salts, chemical compounds, and heightened concentrations of sediment and naturally occurring elements and minerals. Approved linear crossings that are constructed according to the BMP for stream crossings would affect riparian vegetation and streambank stability in the short term, but most effects could be reclaimed with little long-term effect to riparian vegetation.

Wetlands and riparian areas play a significant role in protecting water quality and reducing or eliminating many of the potential impacts of NPS pollution. One way this is achieved is by providing a buffer between uplands and adjacent water bodies. This can filter out NPS pollution before it can impact water quality. Healthy riparian areas and wetlands can also reduce NPS pollution by shading waterbodies, stabilizing streambanks, and controlling erosion.

In streams that do not meet state water quality standards, or that do not fully support their beneficial uses, the application of BMPs may not be sufficient to restore water quality. In these situations, the most effective and practical means of restoring water quality is through the development and implementation of science-based and locally supported water quality plans. The plans (and their associated TMDLs) identify reasonable land, soil, and water conservation practices that are expected to reduce NPS pollution and ultimately achieve water quality standards. These practices include, but are not limited to BMPs.

In streams that meet state water quality standards and fully support their beneficial uses, the most effective and practical means of controlling NPS pollution is through the use of watershed planning and science-based BMPs.

Cumulative Impacts

The primary effects to riparian and wetland systems occur when native rangeland or land in the CRP lands are converted to croplands. This conversion is a major surface-disturbing activity and is expected to occur. Water runoff and sedimentation increases as these actions occur, potentially overloading the system with water and sediment. Any actions that increase these loads beyond a certain threshold would cause a loss of functionality of the stream and wetland vegetation and hydrology.

The major BLM actions that could affect surface disturbance in the long term are fluid minerals and commercial wind energy development that could occur on either private or federal land. The effects of fluid minerals on both private and federal land will be discussed under each alternative.

Wind Farms would generally have a minor effect on riparian and wetland values depending on the location of the farms. Most wind farms are located on ridges far enough away from streams that no effects would be expected in these areas.

Natural wetlands could be affected by wind farms on a small scale if they are located in areas of high concentration of natural wetlands. If wind farms are located in farm land with little or no wetland values there would be no effects.

These effects could be limited to a small area, as in the case of a wind farm being developed in an area of extensive fluid mineral development. This could involve various land ownerships and the severity of the effects could vary depending on the location and the amount of riparian and wetland values in that particular location.

The proposed Keystone Pipeline would cross 5 miles of wetlands on federal land in Montana. The surface disturbance caused by these crossings would be short-term in nature. Temporary cumulative effects would include increased sedimentation and reduced flow. Bank stability may decrease in the short term until vegetative cover returns to pre-disturbance levels.

Improper grazing practices on both private and federal land could affect the riparian condition of lotic streams. The scattered land pattern increases the potential for cumulative effects on both BLM and other ownerships. Management changes implemented on BLM land and on adjoining lands could improve the condition of both. If some uses are restricted on BLM lands it could cause increased use on other lands, which could lead to the degradation of riparian conditions on those lands, and potentially downstream on BLM and other lands.

Most cumulative effects on riparian and wetlands are short-term in nature, as in most instances the disturbances affecting these values can be reclaimed over the long term.

Impacts under Alternative A (Current Management)

The total long-term surface disturbance over the 20 year life of the plan would be on 3,770 BLM acres (0.155% of all BLM acres in the planning area. A small part of this effect would be the direct removal of vegetation on streambanks and around potholes when the surface-disturbing activities cannot be moved due to other resource values (i.e., cultural resources, sensitive species). A much larger effect upon riparian areas would result from watershed surface disturbances increasing stream sediment load, potentially changing stream dynamics which can cause the stream to become unstable. This instability can cause gully formation at the headwaters and sediment accumulation downstream where it may cause the channel and floodplain to aggrade. This effect would most likely occur on the small intermittent riparian areas in the planning area where oil and gas development is most intensive. The effects of fluid mineral development on wetlands (potholes, reservoirs) would be minimal if the disturbances could be moved away from the riparian vegetation. When disturbances cannot be avoided the effects would be mostly short-term as most of these effects would be reclaimed and the vegetation should reestablish to pre-disturbance levels. The short-term and long-term surface disturbance is the highest of all alternatives and has the most potential to affect riparian and wetland values.

Fluid Minerals: The stipulation for Alternative A (Appendix E.4, Alternative A) includes possible special areas such as:

> 500 feet, or when necessary, within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams; 1,000 feet, or when necessary, within the 100-year flood plain from larger perennial streams, rivers, and domestic water supplies.

For the purposes of this analysis the following assumptions have been made:

- The major reservoirs are Nelson, Fresno, Fort Peck, and Tiber.
- The intermittent and small perennial streams were derived from the 1:100000 Surface Management map.
- The major rivers were designated as the Milk, Marias, Teton, and Missouri.
- The current land use plan applies specific wetland stipulations to Lonesome Lake and Whitewater and Dibbler reservoirs.

The wetlands and remaining lotic riparian areas are protected under the standard terms and conditions (200 meters and 60 days).

Fluid mineral development would account for 2,422 total long-term surface disturbance acres, mostly in the high and moderate potential oil and gas development areas (70%).

For purposes of the impacts analysis only the proposed and existing stipulations will be analyzed.

The roads, wells and infrastructure associated with fluid minerals development would degrade riparian habitat if the structures are placed in or cross the riparian zone or wetland area. The potential effects are increased sedimentation from runoff and the potential runoff of degraded water into existing wetlands which could cause long-term damage to riparian soils and vegetation.

The oil and gas RFD identified high, moderate, low and very low areas of potential oil and gas development (Appendix E.1). In these areas 93% of the lotic streams and 85% of the wetlands are located in the low and very low category. Riparian miles and wetland acreage by potential oil and gas areas are depicted in Table 4.85. The table shows leased and unleased miles and acres of lotic riparian (streams) and lentic riparian (wetlands) in the oil and gas development potential areas.

Table 4.85
Riparian Values in Potential Oil and Gas Areas under Alternative A (Current Management)

	High Development Potential		***Moderate Development Potential***		***Low Development Potential***		***Very Low Development Potential***		***Total***	
	Leased	***Unleased***	***Leased***	***Unleased***	***Leased***	***Unleased***	***Leased***	***Unleased***	***Leased***	***Unleased***
Stream Miles	18	7	29	11	54	28	77	748	178	794
Wetland Acres	85	50	6,618	1,056	4,432	11,088	5,317	25,022	16,452	37,215

Sixty-five miles (7% of the total) of lotic streams are identified in the oil and gas high and moderate potential areas. Approximately 7,800 acres (15% of the total) of wetlands are located in the oil and gas high and moderate potential areas. The RFD has estimated that 75% of all new wells would occur in high and moderate development potential areas while only 4% of the activity would occur in the very low development potential areas. Currently 72% of the lotic riparian miles and 86% of lentic wetland acres that are located in the high and moderate development potential area are leased with at least the standard lease terms (200 meters). In general, most effects to riparian and wetland values due to fluid mineral development would occur in the high and moderate development potential areas as the density of the wells and related facilities is higher and it is much harder to move the wells and associated infrastructure 200 meters from the riparian zone, thereby increasing the chance for increased sediment load and the potential for produced water to run into the streams and wetlands.

Table 4.86 shows the well density totals (federal wells per square mile) by alternative and the potential increase in density for each development potential area as defined by the RFD. The table shows a significant increase in density of wells in the high and moderate development potential categories. As well density increases it becomes more problematic to keep the well site and associated infrastructure away from the riparian and wetland areas.

Table 4.87 shows the miles of stream and acres of wetlands that are affected by the NSO and closed designations (major constraints) that are applied by any resource (i.e., wildlife, cultural, riparian) for each alternative and potential area. This table also shows the acres wetlands and miles of assessed lotic streams that are leased and unleased within each potential area that are affected by the NSO or closed designation.

A total of 972 lotic (stream) miles and 53,668 lentic (wetland) acres have been assessed for condition in the planning area. Stipulations applied under Alternative A as shown in Table 4.87 would protect 243 miles (25%) and 5,890 acres (11%) of wetlands with the major constraints (closed or NSO). Of this total protected, 229 miles (94%) and 5,069 acres (87%) are unleased in the very low potential area. Only 6.7% of the lotic riparian miles and 14.4% of the wetland acres are in the high and moderate potential oil and gas development areas. These areas would be the most open to impacts from oil and gas development.

Table 4.86
Well Density Totals (Federal Wells/Square Mile)

							% Increase over Current No. of Wells				
Development Potential	*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*	*Current*	*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
High	3.63	2.89	3.53	3.66	3.56	0.80	355%	262%	342%	358%	346%
Moderate	2.63	2.32	2.56	2.64	2.61	1.25	111%	85%	104%	111%	108%
Low	1.12	1.10	1.11	1.12	1.12	0.89	26%	23%	25%	26%	26%
Very Low	0.05	0.04	0.05	0.05	0.05	0.03	75%	62%	70%	75%	73%

Table 4.87
Riparian Habitat Affected by NSO and Closed to Leasing
(Lotic Miles/Lentic Acres)

											% of Total			
		Leased				*Unleased*				*Total Riparian Habitat Affected*				
Alternative		*High Potential*	*Moderate Potential*	*Low Potential*	*Very Low Potential*	*High Potential*	*Moderate Potential*	*Low Potential*	*Very Low Potential*		*Affected in Planning Area*	*Very Low Potential Unleased*	*High, Moderate, Low Potential Unleased*	*Leased*
A (Current Management)	Lotic Miles	0	2	2	1	-	1	9	229	243	25%	94%	4%	2%
	Lentic Acres	9	284	139	232	2	111	44	5,069	5,890	11%	86%	3%	11%
B	Lotic Miles	18	29	54	77	7	11	28	748	972	100%	77%	5%	18%
	Lentic Acres	85	6,618	4,432	5,317	50	1,056	11,088	25,022	53,668	100%	47%	23%	31%
C	Lotic Miles	18	29	54	77	7	11	28	748	972	100%	77%	4%	18%
	Lentic Acres	85	6,618	4,432	5,317	50	1056	11,088	25,022	53,668	100%	47%	23%	31%
D	Lotic Miles	0	0	1	4	-	2	9	245	261	27%	94%	4%	2%
	Lentic Acres	28	157	109	137	12	59	118	7,614	8,235	15%	92%	2%	5%
E (Preferred Alternative)	Lotic Miles	18	29	54	77	7	11	28	748	972	100%	77%	4%	18%
	Lentic Acres	85	6,618	4,432	5,317	50	1,056	11,088	25,022	53,668	100%	47%	23%	31%

Lands and Realty: Under Alternative A, 90,343 acres of land which could have some riparian values would be available for disposal or exchange on a case-by-case basis to be determined by the natural resource specialists and managers. Riparian and wetland areas generally are not disposed of or traded unless equal or higher value land is received in the exchange.

Solid Minerals – Locatable: Under Alternative A, the potential short-term surface disturbance for solid mineral development is 390 acres, and the potential long-term surface disturbance is 2,495 acres (Table 4.5.) The majority of the surface disturbance (87%) would occur in the Little Rocky Mountains area if gold mining resumed. A withdrawal for solid minerals for the Zortman/Landusky mine reclamation area is in effect until 2015. Upon expiration of the withdrawal, the Zortman/Landusky mine area would again be available for mining claim location. However, the remaining federally owned subsurface acres are currently open to solid mineral entry. The expiration of the withdrawal would open up an additional 3,436 acres for solid mineral location and development in 2015. Of those acres, 1,200 acres are anticipated to have development in already disturbed areas and 710 acres have a potential for mining expansion.

Approximately 17 miles of lotic streams and 52 acres of wetlands are contained within the boundaries of the high and moderate potential hard rock mining areas. If the projected surface disturbance occurs in or close to riparian and wetland areas it would remove the vegetation and expose the streambank to erosion or dry up a natural wetland. Increased sedimentation from exposed soil could cause similar effects as described under the Fluid Minerals section of this document.

The mineral withdrawals of the Sweet Grass Hills (expires in 2017) and Zortman/Landusky (expires in 2015) would provide protection to riparian values, as surface disturbance from solid mineral development would not be allowed until the withdrawals expire or the existing mining claims are proven valid. If the withdrawals were not renewed or the existing mining claims were proven valid and mining resumed, some minor effects to riparian values would be expected.

Bentonite: The most likely place for locatable mineral development to occur is on existing bentonite claims in south Valley County and south Phillips County. The scale of mining in both locations is projected to be quite small; therefore, the effects on riparian areas would be small. The mining of bentonite in high potential areas would only affect 156 acres of wetlands and 9.5 miles of riparian. The effects associated with mining bentonite would be the same as those described in the Impacts Common to All Alternatives section.

Special Designations: The special designations (ACECs) would provide the least protection to riparian and wetland values of all the alternatives. The potential for surface disturbance, mostly from oil and gas development, is the highest of any alternative. Other surface-disturbing activities associated with minerals development would be allowed in most situations except for the WSAs.

Water Resources: The acres of riparian vegetation associated with the Willow Creek structures located in south Valley County would decrease as reservoir projects are abandoned. The absence of surface water and lowering of the water table by the downcutting gully action would alter the ground water regime and remove the water necessary to maintain the existing riparian vegetation. The potential for new riparian vegetation to become established would be limited as water would be unavailable for riparian plants. This loss of riparian values would occur slowly over many years. Maintaining specifically designated reservoir projects would maintain a certain amount of riparian vegetation associated with the Willow Creek structures. Overall, the loss of riparian and wetland acreage due to the abandonment of the structures would be small in comparison to the total riparian acres in the planning area.

Cumulative Impacts

The long-term acres of disturbance (13,541) for both federal and non-federal actions are a very small percentage of the total disturbance when considering the size of the planning area (17.5 million acres). As most effects to riparian values are considered short-term, the long-term effects on riparian and wetland areas would be small if all the BMP and reclamation standards are adhered to. Surface disturbance on private land during the development of precious metals mining could have effects (increased sedimentation, water quality issues affecting plant survival and growth) on the federally controlled riparian areas downstream from the solid mineral development. Utilizing the standards for rangeland health would result in improved conditions.

Impacts under Alternative B

The effects to riparian and wetland communities under Alternative B from surface-disturbing activities are expected to be the least of any alternative. The projected short-term and long-term surface disturbance from BLM actions are the lowest of all alternatives. The total long-term surface disturbance under Alternative B would be approximately 2,685 BLM acres (0.11% of all BLM acres in the planning area.) This total is approximately 29% less than the total BLM acres disturbed in the long term under Alternative A. The adverse effects anticipated from surface-disturbing activities are expected to be similar in nature, but less in intensity compared to Alternative A. Surface-disturbing activities under Alternative B would have the least potential adverse effects to riparian and wetland communities of all alternatives.

Fluid Minerals: Fluid mineral development would present a total of approximately 1,545 acres of long-term surface disturbance. The 1/4 mile NSO stipulation applied to oil and gas development for the protection of riparian and wetlands area would eliminate most of the effects of fluid mineral development to riparian vegetation. The 1/4 mile setback would also eliminate most of the potential water quality issues on any new leases. See Table 4.87 for the breakdown of leased and unleased acres and miles to which this suite of stipulations would apply. Approximately 18% of the lotic miles and 30% of the wetland acres are currently under lease. The area that is currently under lease (mostly areas of high and moderate potential for oil and gas) would still be protected by the standard lease terms (200 meters and 60 days). The resource protection stipulations applied under this alternative would only affect 45 miles and 12,193 acres of riparian habitat that are unleased in the high, moderate and low potential areas. This is 5% of the total lotic miles and 23% of the total wetlands. The remaining areas are either in the very low potential area or currently leased. The effects of the infrastructure and surface disturbance on the vegetation in the leased areas could decrease the amount of riparian vegetation in PFC if the 200 meter setback could not be maintained due to other resource concerns. As existing leases expire the 1/4 mile NSO would be applied to new leases, which would protect more riparian areas from surface disturbance thereby maintaining or potentially increasing the amount of PFC riparian and wetland areas.

Solid Minerals – Locatable: The effects of solid mineral extraction on riparian and wetland resources would be similar to those described in Alternative A except in the scale of the activity. Under Alternative B, the potential short-term and long-term surface disturbance for solid mineral development is 355 acres (Table 4.5.) The existing and proposed withdrawal actions would limit any future development within the Little Rocky Mountains and Sweet Grass Hills, even though all of the high and moderate potential areas are claimed and could be developed in spite of the withdrawal action. Validation of claims would have to occur which would slow the permitting process, but mining could occur albeit at a slower pace and less acreage than under Alternative A.

Bentonite: Under this alternative almost all of the lotic streams would be provided a level of protection from mineral entry in the areas with potential for bentonite mining. Valid existing claims could be developed with restrictions in place.

Lands and Realty: The land adjustment Category 3 lands that are identified for disposal by exchange or sale would include 193 acres of land that may have wetland and riparian values. The BLM could potentially acquire land with equal or better riparian and wetland values when a land exchange is completed. A resource specialist would review the potential riparian and wetland values before completing any proposed exchange or sale.

Special Designations: The levels of protection provided in the constraints for each ACEC varies in Alternative B. Other resource constraints applied to oil and gas development and mineral development under this alternative would make the designation of some ACECs for special management unneeded for riparian protection. The Woody Island and Frenchman Breaks areas are not proposed for special designation under this alternative, but surface disturbance from fluids and solid minerals development that could affect riparian and wetland values would be minimized by constraints applied by other resource protection measures.

Special Status Species**:** The priority area designation in portions of Valley County and South Phillips County would reduce surface disturbance on riparian and wetland vegetation as it prohibits most surface-disturbing activities. Under this alternative 608 miles of lotic riparian and 22,142 acres of wetlands would be protected from most surface-disturbing activities by the designation. Lotic riparian and lentic wetlands currently in PFC would be maintained in their existing condition as no new surface disturbances would be allowed. Most of the riparian values affected by this designation are in low potential oil and gas areas. These areas have a low potential for surface disturbance.

Wilderness Characteristics: The management of 386,462 acres for wilderness characteristics would protect these lands from most new surface disturbances and would therefore protect the riparian areas from surface-disturbing activity. Under this alternative 197 miles of lotic streams and 1,919 acres of wetlands would be protected from surface disturbance. Lotic riparian and lentic wetlands currently in PFC (133.2 miles and 1,918 acres) would be maintained in their existing condition as no new surface disturbances would be allowed. Most of the riparian values affected by management for wilderness characteristics are in low potential oil and gas areas except for the Western Breaks area which has some high potential oil and gas areas. Less than 1% of the riparian habitat in the HiLine planning area is located in the high potential area of the Bears Paw South Field Development Area. Table 4.88 shows riparian BLM surface in areas with identified wilderness characteristics.

Table 4.88
Riparian BLM Surface in Areas with Identified Wilderness Characteristics under Alternative B

	Leased Lotic Miles			***Available for Lease Lotic Miles***			***Total Lotic Miles***			***Lentic Acres***		
	FAR	***NF***	***PFC***	***FAR***	***NF***	***PFC***	***FAR***	***NF***	***PFC***	***Leased***	***Avail -able***	***Total***
Eastern Breaks and Badlands				0.64							1	1
Prairie Grasslands	4.39		3.45	1.98		41.92	6.37		45.37	192	758	950
Sagebrush Grasslands				52.06	3.75	71.50	52.06	3.75	71.50		920	920
Island Mtn. Range						8.02			8.02		4	4
Western Breaks and Badlands			7.97	1.23		0.35	1.23		8.32	39	5	44
Total	4.39		11.42	55.92	3.75	121.77	60.31	3.75	133.19	231	1,688	1,919

Cumulative Impacts

This alternative would have the least cumulative effects from BLM actions of any alternative as it is the most restrictive for surface-disturbing actions from fluid minerals and has the least area open to commercial wind energy development. The stipulations on the development of fluid minerals and wind energy could shift these actions to private and state lands, which could affect riparian and wetland values on those lands.

Impacts under Alternative C

The effects to riparian and wetland communities under Alternative C for surface-disturbing activities would be the same as under Alternative A, except in intensity. Under Alternative C, the projected short-term and long-term surface disturbance from BLM actions is the second lowest of all alternatives. The total long-term surface disturbance under Alternative C would be 3,379 BLM acres (0.139% of all BLM acres within the planning area). This would be approximately 10% fewer BLM acres than would be affected by surface-disturbing activity in the long term under Alternative A.

Fluid Minerals: Fluid mineral development would present a total of 2,238 acres of long-term surface disturbance. The types of effects to riparian and wetland communities under Alternative C for fluid mineral leasing are expected to be the same as described under Alternative A, except in magnitude. Effects would be slightly less in magnitude than Alternative A. Effects to riparian and wetlands would occur mostly on leased areas in the high, moderate, and low potential areas where the new stipulations would not be implemented unless the current lease expires. See Table 4.87 for details concerning miles and acres of riparian that are leased and would not be affected by the new stipulations.

Alternative C establishes a 500 foot NSO around all lotic and lentic riparian areas which would limit potential contamination of riparian areas and soils by produced water from fluid minerals activity. This alternative would provide protection second only to Alternative B from surface-disturbing activities that could affect riparian systems.

The acres and miles of riparian habitat that could have major constraints (closed or NSO) put on the unleased area is the same as Alternative B. Approximately 18 miles and 1,106 acres of riparian would be expected to be protected in the high and moderate potential areas (see Table 4.87).

Lands and Realty: The effects to riparian areas would be the same as Alternative B. Under this alternative 193 acres of land with potential wetland or riparian values would be available for disposal. The BLM could potentially acquire land with equal or better riparian and wetland values when a land exchange is completed. A resource specialist would review the potential riparian and wetland values before completing any proposed exchange or sale.

OHV Use and Travel and Transportation Management: The effects of OHV use and travel management on riparian habitat would be the same as under Alternative B.

Allowing game retrieval could cause some temporary damage to riparian vegetation as vehicles crush the vegetation with tires. In most cases a full recovery of the vegetation is expected; however, if the one-time tracks are used repeatedly a "road" could be made and some long-term effects to riparian vegetation could occur. The magnitude of this effect would depend on the type of vehicle (four-wheeler, pickup truck) and soil moisture conditions (wet, dry, frozen). These effects would occur mostly in the fall in south Valley and south Phillips Counties. A total of 1,970 acres of wetlands and 116 miles of lotic riparian located in these areas could be affected.

Solid Minerals – Locatable: The effects would be the same as under Alternative B.

Special Designations: No effects to riparian values are expected under this alternative from the establishment of ACECs. Most of the riparian and wetland values would be protected by other resource stipulations applied to surface-disturbing activities.

Special Status Species: The effects would be the same as under Alternative B except for the acres protected from fluid minerals leasing. The effects to riparian and wetlands would be minor as the Protection Priority Areas have low and very low potential for oil and gas development.

Wilderness Characteristics: The management of 228,419 acres for wilderness characteristics would protect these lands from most new surface disturbances and would therefore protect the riparian areas from surface-disturbing activity. Under this alternative 197 miles of lotic streams and 1,919 acres of wetlands would be protected from surface disturbance. Lotic riparian and lentic wetlands currently in PFC (133.2 miles and 1,918 acres) would be maintained in their existing condition as no new surface disturbances would be allowed. Most of the riparian values affected by management for wilderness characteristics are in low potential oil and gas. Table 4.89 shows riparian BLM surface in areas with identified wilderness characteristics.

Table 4.89
Riparian BLM Surface in Areas with Identified Wilderness Characteristics under Alternative C

	Leased Lotic Miles			***Available for Lease Lotic Miles***			***Total Lotic Miles***			***Lentic Acres***		
	FAR	***NF***	***PFC***	***FAR***	***NF***	***PFC***	***FAR***	***NF***	***PFC***	***Leased***	***Avail -able***	***Total***
Eastern Breaks and Badlands				0.64			0.64				1	1
Prairie Grasslands			2.88			31.54			34.42	1	333	334
Sagebrush Grasslands				42.14	1.51	53.42	42.14	1.51	53.42		750	750
Island Mtn. Range						8.02			8.02		4	4
Total			2.88	42.77	1.51	92.98	42.77	1.51	95.86	1	1,088	1,089

Cumulative Impacts

The cumulative effects to riparian and wetland values would be the same as Alternative B.

Impacts under Alternative D

The types of effects to riparian and wetland communities under Alternative D for surface-disturbing activities are expected to be the same as described under Alternative A. Under Alternative D, the projected short-term and long-term surface disturbances from BLM actions are the highest of all alternatives. The long-term surface disturbance effects under Alternative D would be approximately 3,810 BLM acres (0.156% of all BLM acres within the planning area). This would be 40 more acres of long-term surface disturbance than what has been approximated under Alternative A.

Based on the acreage of disturbance and the management actions implemented to reduce disturbance to riparian and wetland communities, adverse effects to these resources under Alternative D would be the same as Alternative A.

Fluid Minerals: Fluid mineral development would present a total of approximately 2,436 acres of long-term surface disturbance. The effects to riparian and wetland communities would be the same as described under Alternative A, except in magnitude. Alternative D allows the most surface disturbance of any alternative. Approximately the same numbers of wells are proposed in the high, moderate and low potential areas as described in Alternative A. Approximately 7,809 acres of wetlands and 65 miles of stream riparian are in the high and moderate potential oil and gas areas and could be affected by the actions proposed in Alternative D. See Table 4.87 for a breakdown of leased and unleased acreage. The proposed lease stipulation would establish a setback of 300 feet for the protection of the lotic riparian and wetland resources which would provide the least protection of all the alternatives and less than the standard lease term of a 200 meter setback that would apply under Alternative A. Protection of riparian values by stipulations closing or establishing NSO applied by other resources would include approximately 16 miles of lotic streams and 621 acres of wetlands that are either currently leased or in the very low potential area. This measure would provide protection to 27% of the streams and 15% of the wetlands when considering the very low potential areas. Under Alternative D, approximately 245 miles and 7,614 acres are closed or NSO in the very low potential area. Approximately 95% of these protected values are in the very low potential area.

Lands and Realty: This alternative identifies approximately 554 acres of wetlands and 9.7 miles of lotic stream riparian area as available for exchange or disposal under the Category 3 designation. This would be the most total acres for disposal and the most potential riparian and wetland areas available for exchange or disposal of all the alternatives. The effects to riparian and wetland values would be the same as Alternative B. The BLM could potentially acquire similar or better riparian values when a land exchange is completed. A resource specialist would review the potential riparian and wetland values before completing any proposed exchange or sale.

OHV Use and Travel and Transportation Management: Allowing game retrieval could cause some short-term, temporary effects to riparian and wetland vegetation as vehicles crush the vegetation with tires. In most cases a full recovery of the vegetation is expected; however, if the one-time tracks are used repeatedly a “road” could be made and some long-term effects to riparian vegetation could occur. The magnitude of this effect would depend on the type of vehicle (four-wheeler, pickup truck) and soil moisture conditions (wet, dry, frozen).

Under this alternative 53,317 acres of wetland and 869 miles of lotic riparian could be affected from motorized game retrieval off road. The potential short-term effects of OHV travel from game retrieval to wetlands and riparian values would be the largest of any alternative. The potential for long-term effects to riparian systems would be very small from off-road use occurring during game retrieval.

A 1/2 mile section of Thirty Mile Creek is within 1/4 mile of the Thirty Mile OHV area (180 acres). The soils in this area are fragile and susceptible to both wind and water erosion. Runoff from this area could carry some sediment into Thirty Mile Creek. The effects of this additional sedimentation on the BLM section of this creek would be minor but may contribute to sedimentation of the irrigation systems on the private land located downstream.

Solid Minerals -- Locatable: The establishment of the Little Rocky Mountains ACEC and the associated mineral withdrawal would limit mining opportunities in the Little Rocky Mountains, making the effects of this alternative very

similar to Alternative B. Under Alternative D, the potential short-term surface disturbance for solid mineral development is 235 acres, and the potential long-term surface disturbance is 300 acres (Table 4.5.)

Special Designations: Alternative D would provide additional protection to riparian areas in the form of NSO for oil and gas leasing and closure to mineral entry and sale, which would eliminate surface-disturbing activities from these sources. The Woody Island ACEC would specifically protect the wetlands acreage shown in Table 4.90 from most surface-disturbing activities.

Table 4.90
Additional Protections for Wetlands in the Woody Island ACEC under Alternatives D and E (Preferred Alternative)

	Leased (Acres)	*Unleased (Acres)*	*Total (Acres)*
Alternative D	-	2,635	2,635
Alternative E	672	2,888	3,560

Cumulative Impacts

This alternative provides the least stipulations to oil and gas development and opens up the most area to wind energy development on BLM land, yet overall the BLM contribution to cumulative effects is very small on a planning-area scale. Some effects could occur on a small scale if both a wind farm and oil and gas field were developed in an area with high concentrations of wetland or riparian values.

Impacts under Alternative E (Preferred Alternative)

Total long-term surface disturbance over the 20 year life of the plan would be 3,602 BLM acres (0.148% of all BLM acres within the planning area). The effects on wetland and riparian values would be the same as Alternative A.

Fluid Minerals: Fluid mineral development would present a total of approximately 2,338 acres of long-term surface disturbance on BLM acres over the 20 year life of the plan. The types of effects to riparian and wetland communities under Alternative E for fluid mineral leasing are expected to be the same as described under Alternative A. The proposed CSU setback (300 feet) and the NSO stipulation on the lotic and lentic water bodies for the protection of riparian values would provide levels of protection greater than Alternatives A and D, but less than Alternatives B or C. The protection of riparian values that would result from applying the closed or NSO stipulations (major constraints) to fluid minerals resource would serve to uphold the current physical, chemical, and biological integrity of approximately 972 miles of lotic streams and 53,668 acres of wetlands. See Table 4.87. The NSO stipulation would provide protection to 100% of the water resources associated with the lotic and lentic riparian areas.

The CSU stipulation that provides a 300 foot setback from riparian vegetation would allow some flexibility in placing structures associated with fluid mineral development. The NSO stipulation within lentic or lotic areas (standing and moving water) does not apply to production facilities (e.g., pipelines). Some minor short-term effects could occur to the riparian system during operation and/or maintenance of facilities that cross a water body. These effects could include degradation of riparian vegetation, alteration of wildlife habitat, and decreased water quality due to increased sedimentation and potential leakage of contaminants. The probability of riparian vegetation and water resources incurring these effects is very small.

Between 4% and 5% of the lotic riparian and 23% of the lentic riparian that is unleased in the high, moderate or low potential areas would be affected by the implementation of major constraints (closed or NSO) proposed under Alternative E (see Appendix E.4).

Lands and Realty: The effects to riparian and wetland values would be the same as under Alternative B. A total of 14,029 acres would be available for disposal. Of the total available, 193 acres have possible wetland or riparian values. The BLM could potentially acquire similar or better land with riparian and wetland values when a land exchange is

completed. A resource specialist would review the potential riparian and wetland values before completing any proposed exchange or sale.

OHV Use and Travel and Transportation Management: The potential effects of big game retrieval would be evaluated when travel management is completed.

Areas open to OHV use have no riparian or wetlands areas associated with the designated open areas, so no effects are expected. Any new areas that could potentially be designated open during travel management planning would be evaluated for effects to the riparian and wetland resources at that time.

Solid Minerals – Locatable: The effects of solid mineral extraction on riparian and wetland resources would be similar to those described in Alternative A except in the scale of the activity. Under Alternative E, the potential short-term and long-term surface disturbance for solid mineral development is 355 acres (Table 4.5.) The existing and proposed withdrawal actions would limit any future development within the Little Rocky Mountains and Sweet Grass Hills, even though all of the high and moderate potential areas are claimed and could be developed in spite of the withdrawal action. Validation of claims would have to occur which would slow the permitting process, but mining could occur albeit at a slower pace and less acreage than under Alternative A.

Bentonite: Under this alternative the Mountain Plover ACEC would be withdrawn from mineral entry. Approximately 15.6 miles of lotic stream would be protected from mineral entry. Valid existing claims could be developed with restrictions in place. The probability of a bentonite claim being developed in a wetland or riparian zone is very small. If adequate mitigation and BMPs are applied at the time of mine development, runoff from overburden piles into wetlands and riparian areas would be small. These developments could create surface disturbances that could have large short-term effects, but after reclamation would have very few long-term effects to the riparian vegetation. The most likely chance of these effects occurring is on the bentonite mining claims located in south Valley County and south Phillips County. The probability of any of these long-term effects occurring is slight if proper reclamation standards and BMPs are applied at the time of mine development.

Special Designations: The effects of special designations on riparian and wetland resources would be very similar to Alternatives C and D except for the acres open for mineral entry and leasing which would increase slightly under Alternative E. Most areas are closed to fluid mineral leasing or have an NSO stipulation as a management action. The Woody Island ACEC, although nominated for special designation for the unique landscape and scenic characteristics, as well as protecting the fragile watershed and wildlife species from fragmentation due to roads and other surface-disturbing activities, has a high concentration of wetlands and would benefit greatly from the NSO stipulation as a majority of the BLM land within the boundary has not been previously leased for oil and gas development (see Table 4.90).

Special Status Species: The PHMA and SFA designations in Valley County and south Phillips County could reduce surface-disturbing activities on riparian and wetland vegetation as NSO stipulations would be applied to surface-disturbing activities. Under this alternative 608 miles of lotic riparian and 22,142 acres of wetland would be protected from most surface-disturbing activities. It is estimated that 70% of the long-term surface disturbance effects would come from fluid mineral development. A total of 95% of this disturbance would occur in the high, moderate and low potential areas of oil and gas development. The PHMA and SFA are mostly in very low potential areas for oil and gas development so the effects of these special designations on riparian and wetland values would be very small from oil and gas development. Lotic riparian areas and lentic wetlands currently in PFC would be maintained in their existing condition.

Wilderness Characteristics: The management of 16,393 acres for wilderness characteristics would protect these lands from most new surface disturbances and would therefore protect the riparian areas from surface-disturbing activity. Under this alternative less than one acre of wetlands would be protected from surface disturbance. Lentic wetlands currently in PFC (0.61 acres) would be maintained in their existing condition as no new surface disturbances would be allowed. Most of the riparian values affected by management for wilderness characteristics are in low potential oil and gas.

Cumulative Impacts

Oil and gas activity, solid mineral development, wind energy development and OHV use on both BLM and other lands that create soil disturbance and remove vegetation could cause increased runoff, erosion and sediment transport resulting in the degradation of riparian/wetland systems. The effects and scale of effects would be the same as under Alternative D.

Vegetation – Special Status Plants

This section describes potential impacts on special status plants from management actions of other resource programs. For the purpose of this analysis, short-term impacts to special status plants include those activities that contribute to the decline in abundance or distribution of a species within 5 years of when the activity occurs. Long-term impacts are those that impact a species beyond 5 years. For this analysis, direct impacts to special status plant species are actions resulting in damage to or loss of individual plants, fragmentation of habitat, loss of habitat quality, loss of pollinators, and loss of soil seed banks. Surface-disturbing activities, herbivory, trampling, fire, and herbicide application are considered the primary direct impacts to special status plant species. Indirect impacts are those actions that compromise the protection of special status plants, such as actions that change the habitats in a way that makes them unsuitable for future colonization.

Assumptions and Guidelines

Assumptions and guidelines used in this impact analysis include the following:

- Where resources overlap, management actions associated with protecting wildlife habitats, riparian vegetation, and cultural resources may benefit special status plant species if those management actions are for protection against disturbance of the sites.
- The total amount of new surface disturbance allowed by an alternative is a good index of potential impacts to special status plants. Success of reclamation measures prescribed as a condition of development is unknown, and could underestimate the potential impact of surface disturbance on special status plant populations.
- Existing provisions (e.g., presence/absence surveys conducted prior to proposed actions at appropriate times to ensure positive identification) to protect special status species are carried out and conditional monitoring is conducted (e.g., grazing and surface disturbance reclamation) to ensure special status species are not jeopardized.
- Management toward desired plant community is assumed to exceed the requirements of managing toward desired future condition.
- Establishing management actions that preclude or restrict development, including those not specifically aimed at conserving special status plant species, are assumed to benefit special status plant species where populations overlap with management action boundaries.
- Impact analyses are based on the amount of vegetation and soil disturbed, the threats identified for special status plant species in Chapter 3, and the level of stipulations placed on BLM actions that could adversely impact special status plant species because the densities and locations of these species in the planning area are not entirely known.
- Following conservation measures for all listed and sensitive species in the BLM's Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic EIS (BLM 2007c) is anticipated to mitigate most impacts to special status plant species from weed control programs.

Allowable uses and management actions having the potential to impact special status plant species include all surface-disturbing activities, concentrated livestock and native ungulate grazing, OHV use, noxious weeds, fire management, and water-depleting activities.

As special status plant species are impacted by the alternatives, they can, in turn, impact resource uses. For example, actions designed to conserve special status plant species could limit livestock grazing, mineral development, fire management and ecology, vegetation treatments, OHV use, and control of noxious weeds. The impacts of special status plant species on other resource topics (e.g., fire management and ecology, etc.) are not anticipated to be substantial; however, they are discussed under the appropriate impacted resources.

Impacts Common to All Alternatives

Impacts from most surface-disturbing activities to special status plants would be minimal under all alternatives due to mitigation measures in place through policies such as the Montana Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997a), BMPs for oil and gas activities, the 6840 manual for special status species management, and the Integrated Vegetation Management handbook (H 1740-2).

Additionally, protections and management prescriptions for riparian areas would mitigate impacts to special status plant species in the planning area since four known special status plant species occur in riparian areas.

Air Resources: Impacts would be minimal in all alternatives.

Fire Management and Ecology: Wildfires would affect special status plants and plant communities by temporarily removing aboveground vegetation, changing plant community composition, inhibiting plant succession, and removing woody vegetation and plant litter. If special status plants are dependent on a specific seral stage or plant association, a wildfire could upset the ecological balance that supports a sensitive plant's habitat or plant community. Wildfire could also enhance the habitat for special status plants and serve as a catalyst for their reestablishment and proliferation.

Fluid Minerals and Solid Minerals: Impacts from minerals management to special status plant species would be negligible because of required mitigation measures. Any proposed developments are reviewed and required site inventories are completed prior to permitting, and new locations of special status plant species and communities which might be found would be subject to mitigation measures to ensure continued existence of the plant site. Additionally, stipulations for riparian/wetland hydrology benefit most of the special status plant species found in the planning area. Stipulations for the Sweet Grass Hills ACEC benefit a special status plant species thought to be in the area.

Forests and Woodlands: None of the known special status plant species in the planning area occur in forests or wooded areas. There is no impact from the actions for this resource in any alternative.

Recreation: Recreational activities would result in localized impacts, such as vegetation disturbance, trampling, and removal due to camping and off-road travel activities. Recreational activities that require a permit would not be authorized in known locations of special status plant species if there were a potential to adversely impact the plants. Activities that do not require a permit such as camping outside of designated campgrounds, could cause minor impacts on sensitive plants and their habitats.

Lands and Realty: No land tenure adjustments are proposed in any of the areas with known special status plants. Land tenure adjustments would not impact special status plant species in all alternatives.

Livestock Grazing: Grazing levels are the same across alternatives which make impacts to special status plants from livestock grazing the same across all alternatives. Such impacts would be minimal due to mitigation measures in place through policies such as the Montana Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997a).

Noxious Weeds and Other Non-Native Invasive Species: Special status plant species and communities could be adversely impacted by the spread and proliferation of weeds because of their limited size and distribution. Weed

management would help to control weed populations and thereby improve the health of native plant communities. Stipulations are in place to protect special status plants from undesirable impacts from noxious weed treatments.

OHV Use and Travel and Transportation Management: OHV use would result in localized impacts on vegetation, such as reduction of vegetation cover and density and community composition changes. The generation of dust from vehicular travel on roads next to special status plant species could affect plant photosynthesis and population survival because of the small number of individual plants in some areas. Reclamation would replace abandoned roads with herbaceous and shrubby vegetation and the impacts stated above would no longer occur.

Soil Resources: Actions to protect soil surface, prevent erosion and mitigate surface disturbance across all alternatives would benefit special status plant species.

Special Designations: Whitebark pine occurs within the Sweet Grass Hills TCP and ACEC. Management actions proposed for the TCP and ACEC across all alternatives are compatible with conserving whitebark pine. No other special status plants are known to occur in any of the other special designation areas.

Vegetation – Rangeland and Riparian/Wetland: Vegetation management actions under all alternatives work to meet the vegetation objectives. Meeting these objectives also meet the objective(s) for special status plants.

Water Resources: Actions identified to maintain or improve watershed, wetland, and riparian functions benefit five special status plant species found in the planning area. Not allowing new permanent facilities in 100-year floodplains is especially beneficial.

Cumulative Impacts

Cumulative impacts from actions developed for the alternatives are unlikely to be adverse to the continued existence of special status plants in the planning area. Mitigation measures required by policy and directive as well as required pre-disturbance inventories make it unlikely that there would be an accumulation of adverse impacts. Special status plants occupy a very small portion of the planning area (approximately 4,260 acres) and it is unlikely that extensive additional occupied acreage would be discovered during the life of this plan.

Visual Resources

An effect to the visual quality of the landscape occurs when a management activity creates noticeable surface disturbance that contrasts with the form, line, color, or texture in the landscape. Allowable uses and management actions that could affect visual resources include surface development and associated infrastructures such as vegetation management, range improvement projects, or more intensive activities such as natural gas development. Most natural gas development is expected in the high and moderate reasonable foreseeable development areas of Blaine and Phillips Counties.

Small-scale, dispersed development (range improvements, etc.) have a lesser impact due to the ability to fit these facilities into natural landscapes. Visual resources in areas with a high potential for natural gas development are likely to be more heavily impacted through the long-term. In addition, actions that occur on lands not administered by the BLM (regardless of ownership) can affect the visual resources of the adjacent BLM lands.

Assumptions and Guidelines

Assumptions and guidelines used in this impact analysis include the following:

- Future development and other land use activities described under each alternative are compared to recommended VRM classes and the existing visual conditions to determine potential effects. For example, because Class III and Class IV lands allow for moderate to high modifications to the landscape, the more acreage of Class III and Class IV designated lands within an alternative, coupled with projected acres of surface

disturbance, will estimate the amount of moderate to high landscape modifications and visual resource effects allowed by alternative.

- Resource protective measures can protect the existing visual resources and scenic quality of the landscape.
- VRM objectives will be applied to all management actions and appropriate mitigation measures will be developed to comply with established visual resource class objectives.
- Short-term effects on visual quality may occur for long-term resource benefit.

Table 4.91 depicts acres by VRM class for each alternative.

Table 4.91
Visual Resource Management Classes by Alternative (Acres)

VRM Class	*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
I	0	90,032	74,506	74,506	74,506
II	417,334	977,396	914,194	127,439	841,087
III	58,513	498,298	521,322	584,113	521,868
IV	1,961,591	871,712	927,413	1,651,380	999,977

Impacts Common to All Alternatives

The management goals for visual resources, which would be to manage BLM land and activities consistent with VRM objectives, could be met for all alternatives. Potential effects could occur under all alternatives, on a site-specific basis, from activities such as proposed oil and natural gas development, forest and woodland treatments, lands and realty actions, mining, recreation, OHV use, grazing and fire suppression. However, by following BMPs and mitigation for specific projects, the degree or level of effects to visual resources would be minimized.

Livestock Grazing: Approximately 670 to 800 acres of BLM land are projected to be disturbed in the short term by range improvements actions. In the long term, 157 to 210 acres are projected to be disturbed with implementation of reclamation activities. These surface-disturbing acres are primarily associated with rangeland improvement projects such as constructing fences, wells, and small reservoirs throughout the planning area. The actual construction of these range improvements would increase soil and vegetation disturbance and possibly fragment the landscape by constructing barriers (fences) to the recreating public. New roads may be created to access the range improvements during construction. Range improvements could affect visual resources through the addition of forms, lines, colors, and textures that would not be found in the surrounding landscape, which may affect the scenic quality and degrade the recreational opportunities and experiences where rangeland improvements are constructed. The effects would be greatest during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking, horseback riding, and viewing wildlife.

Recreation: The sighting and design of recreation developments, facilities, and projects could affect visual resources through the introduction of forms, lines, colors, and textures that contrast with the characteristic landscape. However, these developments, facilities and projects would be planned to minimize any potential contrasts and to meet the VRM objectives of the area. Dispersed recreation activities could strengthen existing line, form, and color contrast through the use of existing roads, trails, and campsites. Closure and/or rehabilitation of undeveloped sites would restore the visual resources of specific sites.

Solid Minerals – Locatable: Approximately 115 to 150 acres of BLM land are projected to be disturbed in the short term by locatable solid mineral actions associated with bentonite. No long-term acres are projected to be disturbed because of implementation of reclamation activities. These surface-disturbing actions are associated with extracting bentonite and would leave small to moderate open pits on the landscape, with new roads to access these pits. The only known specific locations for bentonite extractions are in south Phillips and south Valley Counties. Where these pits and

other disturbances occur they would affect visual resources by creating changes in the form, line, color and texture of the landscape. These visual effects could affect scenic quality and may degrade recreational opportunities and experiences, primarily during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking, and viewing wildlife nearby these surface-disturbing activities. After mineral extraction and reclamation of these pits are complete the described effect to the recreating publics would be reduced.

Approximately 210 to 240 acres of BLM land are projected to be disturbed in the short term by locatable solid mineral actions associated with hardrock mining. In the long term, 185 acres to 2,345 acres are projected to be disturbed with the potential for mining in the Little Rocky Mountains under Alternative A. These surface-disturbing actions are associated with extracting hardrock minerals and would leave open pits on the landscape, with new roads to access these pits. Where these pits and other disturbances occur they would affect visual resources by creating changes in the form, line, color and texture of the landscape. These visual effects could affect scenic quality and may degrade recreational opportunities and experiences, primarily during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking, and viewing wildlife nearby these surface-disturbing activities. After mineral extraction and reclamation of these pits are complete the described effect to the recreating publics would be reduced.

Solid Minerals – Salable: Approximately 80 acres of BLM land are projected to be disturbed in the short term and long-term by salable solid mineral actions. These surface-disturbing acres are primarily associated with excavating and processing gravel from small open pits throughout the planning area. In addition to extracting and processing gravel in these pits new roads would be created to access them. Although the pits would be smaller than those described for locatable minerals, the effects would be the same on visual resources but to a lesser degree.

Vegetation – Rangeland: Approximately 10,000 acres of BLM land are projected to be disturbed in the short term by mechanical treatment actions (e.g., range improvements). No long-term acres are projected to be disturbed because of implementation of reclamation activities. These surface-disturbing acres are associated with the vegetation treatment action of chisel plowing (10,000 acres) throughout the planning area. The actual vegetation treatment of plowing the ground to remove undesirable vegetation would be temporary and increase soil and vegetation disturbance only until the more desirable vegetation regrows. Chisel plowing could affect visual resources by temporarily changing the form, line, color, and texture of the landscape, which may affect the scenic quality and degrade recreational opportunities and experiences. The effects would be greatest during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking, horseback riding, and viewing wildlife.

Cumulative Impacts

It is anticipated that the Keystone X/L Pipeline right-of-way will be issued to construct a 36 inch oil pipeline in the next 3 years on BLM Land in northeast Phillips County and through Valley County. Approximately 1,186 acres of BLM land are projected to be disturbed in the short term by this action. These surface-disturbing actions are associated with excavating and burying the 36 inch pipeline which would create new roads to access the pipeline construction and cause soil erosion and vegetation loss. Construction of the pipeline would affect visual resources by creating changes in the form, line, color and texture of the landscape which may affect the scenic quality and degrade recreational opportunities and the quality of the recreational experiences in and around the pipeline construction area. These effects would be greatest during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, wildlife viewing, hiking, and horseback riding.

The degradation of visual resources and quality of recreational experiences on BLM lands associated with the installation of the Keystone X/L pipeline would affect the eligibility of those lands for special designations.

Impacts under Alternative A (Current Management)

Under Alternative A, approximately 35,541 acres of BLM land are expected to be disturbed by BLM actions in the short term and 2,581 acres in the long term. These management actions could affect visual resources by creating changes in the form, line, color and texture of the landscape. The effects to visual resources would be greatest over time in areas where large-scale development occurs.

The effects to visual resources from surface-disturbing activities under Alternative A, while minor, are anticipated to be similar in type to all other alternatives; however, the intensity of effects varies by alternative. Alternative A projects the second highest acreage of surface disturbance among the alternatives.

Fire Management and Ecology: Approximately 6,860 acres of BLM land are projected to be disturbed in the short term by prescribed fire actions and approximately 4,740 acres by mechanical treatment actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation.

Prescribed fire actions would burn vegetation to improve the health of the land but would leave a blackened landscape, increase soil erosion, produce smoke, and add many temporary two-track suppression roads throughout the treated area. Although this land treatment would have a short-term effect on visual resources by creating changes in the form, line, color and texture of the burned landscape, the long-term benefits from improving the health of land would far outweigh the smaller negative effects from the initial prescribed burn. Generally, the long-term benefits to improving the health of the land would include improving vegetation composition and wildlife habitat, which may improve the scenic quality and should increase the recreational opportunities for wildlife viewing, hiking, and hunting.

Surface disturbance from mechanical treatments includes the action of thinning dense stands of timber trees, and would have the same effects on visual resources as prescribed fire except the short-term period of time would be a little longer due to the time needed for the thinned trees to dry before underburning. Prescribed fire could be used throughout the planning area but more would occur in Phillips and Valley Counties. Mechanical thinning would occur primarily in timbered areas of the Little Rocky Mountains. Prescribed fire would occur during spring, summer, and fall when fuels are within acceptable burning standards.

Fluid Minerals: Approximately 9,564 acres of BLM land are projected to be disturbed in the short term by oil and natural gas development actions and 2,422 acres in the long term. Surface-disturbing actions associated with development of new oil and gas wells would include the creation of new roads and visual intrusions from natural gas meter houses and compressor stations, which would affect visual resources by creating changes in the form, line, color and texture of the landscape. Existing laws, regulations, and policies would minimize the effects from oil and gas development activities to visual resources through mitigation. Effects could also be reduced by utilizing VRM class objectives to provide the basis for allowable changes in form, line, color, and texture. The effects to visual resources would mostly occur within the high and moderate potential areas for oil and gas development in Blaine, Hill, and Phillips Counties and would continue throughout the life of the plan or term of the leased wells.

Approximately 102,298 acres would be closed to fluid mineral leasing, and 282,062 acres would be open subject to NSO. This would have the effect of protecting the existing visual resources on those acres from natural gas development surface-disturbing actions. The protective measures would have a beneficial effect on scenic quality for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and viewing wildlife.

Forests and Woodlands: Approximately 4,740 acres of BLM land are projected to be disturbed in the short term by silviculture treatments, fuels management, and forest product harvesting actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation. Short-term surface disturbance from harvesting timber and underburning the slash and vegetation left after the harvest would produce smoke, remove vegetation, increase soil erosion, and generally degrade the scenery. Although this land treatment would have a short-term effect on visual resources by creating changes in the form, line, color and texture of the landscape, the long-term benefits from improving the health of land would far outweigh the smaller negative effects from harvesting the timber and underburning. Generally, the long-term benefits to improving the health of the land would include improving vegetation composition and wildlife habitat, which may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking, and hunting.

Lands and Realty: Approximately 1,421 acres of BLM land are projected to be disturbed in the short term by right-of-way authorizations. In the long term, 360 acres are projected to be disturbed due to reclamation activities. Rights-of-way, leases and permits would be granted for surface-disturbing actions such as utility lines, communication sites, pipelines, and oil and natural gas development. These surface-disturbing actions associated with rights-of-way, leases and permits would create new roads, visual intrusions from powerlines and communication sites, and affect the visual resources by creating changes in the form, line, color and texture of the landscape.

OHV Use and Travel and Transportation Management: Alternative A continues current OHV use designations, including 84 acres open to OHV use within the Fresno OHV area north of Havre and 40 acres open to OHV use just north of the town of Glasgow; designates 2,359,287 acres as limited to existing roads, primitive roads and trails; and designates 7,429 acres in the Sweet Grass Hills ACEC as closed to OHV use. OHV use would be limited to designated roads, primitive roads and trails (ways) in WSAs (74,428 acres).

OHV activities can affect the visual resources if these uses cause vegetation loss, soil exposure, or erosion. Visual resources could be most affected in those areas designated as open (124 acres) because cross-country travel can add different colored, linear forms that contrast with the forms and colors of the characteristic landscape. OHV use on designated or existing roads, primitive roads and trails could increase color contrasts between the travel surface and the surrounding vegetation through continued vegetation loss and soil erosion.

Visual Resource Management: Under current management, 3% of the planning area would continue to be managed as VRM Class I (74,506 acres), 14% of the planning area would continue to be managed as VRM Class II (342,828 acres), 2% would be managed as VRM Class III (58,513 acres), and 81% of the planning area would be managed as VRM Class IV area (1,961,591 acres). Under current management, the Bitter Creek and Burnt Lodge WSAs would be managed as VRM Class I areas (74,506 acres).

Maintaining the existing VRM classes would allow a variety of management actions that could affect existing visual resources, depending on the VRM class. Alternative A has the second largest acreage managed under the Class III and IV objectives and the second highest projected surface-disturbing acres of all the alternatives.

Cumulative Impacts

Past and present surface-disturbing actions that affect visual resources include mineral exploration and development, lands and realty rights-of-way, range improvements, OHV and recreation use, and vegetation treatments for fire management and forest health. In general, these actions have all had cumulatively adverse effects on visual resources by creating changes to the form, line, color, and texture of the landscape.

Recently there has been increased interest in developing wind energy within the planning area. In an effort to analyze the resource effects of wind energy development, the BLM analyzed the development of two wind energy proposals within high wind energy potential areas, one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres, with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres, with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with development of the two wind energy proposals would include the creation of new roads, increased soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines and powerlines, which would affect the visual resources by adding vertical lines and linear and complex forms to the landscape in areas of high wind energy potential and available for development of wind farms (329,652 acres).

Resource protective measures that eliminate new surface-disturbing actions also protect the existing visual resources and scenic quality of the landscape. Alternative A would continue to allow for the highest acreage of projected surface-disturbing actions of all the alternatives and the least amount of acres of protective resource measures. Because these and other reasonably foreseeable future actions in the planning area from federal, state, private and other lands within and adjacent to the planning area would have adverse effects on visual resources by creating changes to the form, line, color, and texture of the landscape, the total cumulative impact to visual resources would be the greatest of all the alternatives.

Impacts under Alternative B

Under Alternative B, approximately 62,837 acres of BLM land are expected to be disturbed in the short term by BLM actions and 2,576 acres in the long term. These management actions could affect visual resources by creating changes in

the form, line, color and texture of the landscape. The effects to visual resources would be greatest over time in areas where large-scale development occurs.

Potential effects to visual resources from Alternative B would be less than any other alternative, because it projects the lowest acreage of surface disturbance among the alternatives.

Fire Management and Ecology: Approximately 26,660 acres of BLM land are projected to be disturbed in the short term by prescribed fire actions and approximately 7,820 acres by mechanical treatment actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation.

Prescribed fire actions would burn vegetation to improve the health of the land but would leave a blackened landscape, increase soil erosion, produce smoke, and add many temporary two-track suppression roads throughout the treated area. Although this land treatment would have a short-term effect on visual resources by creating changes in the form, line, color and texture of the burned landscape, the long-term benefits from improving the health of land would far outweigh the smaller negative effects from the initial prescribed burn. Generally, the long-term benefits to improving the health of the land would include improving vegetation composition and wildlife habitat, which may improve the scenic quality and should increase the recreational opportunities for wildlife viewing, hiking, and hunting.

Surface disturbance from mechanical treatments includes the action of thinning dense stands of timber trees, and would have the same effects on visual resources as prescribed fire except the short-term period of time would be a little longer due to the time needed for the thinned trees to dry before underburning. Prescribed fire could be used throughout the planning area but more would occur in Phillips and Valley Counties. Mechanical thinning would occur primarily in timbered areas of the Little Rocky Mountains. Prescribed fire would occur during spring, summer and fall when fuels are within acceptable burning standards.

Fluid Minerals: Approximately 4,441 acres of BLM land are projected to be disturbed in the short term by oil and natural gas development actions and 1,545 acres in the long term. Surface-disturbing actions associated with development of new oil and gas wells would include the creation of new roads and visual intrusions from natural gas sheds and compressor stations, which would affect visual resources by creating changes in the form, line, color and texture of the landscape. Existing laws, regulations, and policies would minimize the effects from oil and gas development activities to visual resources through mitigation. Effects could also be reduced by utilizing VRM class objectives to provide the basis for allowable changes in form, line, color, and texture. The effects to visual resources would mostly occur within the high and moderate potential areas for oil and gas development in Blaine, Hill, and Phillips Counties and would continue throughout the life of the plan or term of the leased wells.

Approximately 3,173,637 acres would be closed to fluid mineral leasing, and 258,560 acres would be open subject to NSO. This would have the effect of protecting the existing visual resources on those acres from natural gas development surface-disturbing actions. These protective measures would have a beneficial effect on scenic quality for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking, horseback riding and viewing wildlife.

Forests and Woodlands: Approximately 7,820 acres of BLM land are projected to be disturbed in the short term by silviculture treatments, fuels management, and forest product harvesting actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation. Short-term surface disturbance from harvesting timber and underburning the slash and vegetation left after the harvest would produce smoke, remove vegetation, increase soil erosion, and generally degrade the scenery. Although this land treatment would have a short-term effect on visual resources by creating changes in the form, line, color and texture of the landscape, the long-term benefits from improving the health of land would far outweigh the smaller negative effects from harvesting the timber and under burning. Generally, the long-term benefits to improving the health of the land would include improving vegetation composition and wildlife habitat, which may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking, and hunting.

Lands and Realty: Approximately 1,421 acres of BLM land are projected to be disturbed in the short term by right-of-way authorizations. In the long term, 360 acres are projected to be disturbed because of implementation of reclamation activities. Rights-of-way, leases and permits would be granted for surface-disturbing actions such as utility lines, communication sites, pipelines, and oil and natural gas development. These surface-disturbing actions associated with

rights-of-way, leases and permits would create new roads, visual intrusions from powerlines and communication sites, and would affect the visual resources by creating changes in the form, line, color and texture of the landscape.

OHV Use and Travel and Transportation Management: Alternative B has no "open" OHV use areas designated; designates 2,359,287 acres as limited to existing roads, primitive roads and trails; and designates 7,513 acres (Fresno OHV area and Sweet Grass Hills ACEC) as closed to OHV use. OHV use would be limited to designated primitive routes in WSAs (74,428 acres).

OHV activities can affect the visual resources if these uses cause vegetation loss, soil exposure, or erosion. OHV use on designated or existing roads, primitive roads and trails could increase color contrasts between the travel surface and the surrounding vegetation through continued vegetation loss and soil erosion.

Visual Resource Management: Under Alternative B, 4% of the planning area would be managed as VRM Class I (90,032 acres), 40% as VRM Class II (977,396 acres), 20% as VRM Class III (498,298 acres), and 36% as VRM Class IV (871,712 acres). The Bitter Creek and Burnt Lodge WSAs, along with the Sweet Grass Hills and Kevin Rim ACECs would be managed as VRM Class I areas (90,032 acres).

Alternative B proposes the greatest acreage in Class I and II areas and the most acreage of resource protective measures (no surface disturbance) of any alternative. In addition, Alternative B proposes the least acreage of Class III and IV areas and lowest surface-disturbing acres of all the alternatives. Accordingly, it affords more protection to visual resources and results in fewer adverse effects to visual resources than any other alternative.

Wilderness Characteristics: Approximately 386,462 acres would be managed to preserve and enhance the wilderness characteristics of those BLM lands. These areas would be closed to oil and gas leasing, become exclusion areas for wind energy rights-of-ways, and become avoidance areas for other rights-of-ways. Of these lands, 4,118 acres would be managed as VRM Class I meaning the level of change to the characteristic landscape should be very low and must not attract attention, and 382,347 acres would be managed as VRM Class II meaning any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Alternative B proposes the greatest number of acres protecting wilderness characteristics which, in turn, would protect the visual resources of those lands.

Wildlife: Approximately 1,500,000 acres would be closed to not only oil and gas leasing, but also to locatable, leasable and salable minerals, renewable energy developments, and new rights-of-way for transmission lines for the purpose of protecting sage-grouse and grassland bird habitat areas in Phillips and Valley Counties. The acres closed would eliminate surface-disturbing actions and infrastructure developments (roads, wind turbines, powerlines, etc.) from the above activities. Eliminating these surface-disturbing actions maintains the existing condition of the soil and vegetation resources and protects visual resources. These protective measures would have a beneficial effect on scenic quality for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and viewing wildlife.

Cumulative Impacts

Past and present surface-disturbing actions that affect visual resources include mineral exploration and development, lands and realty rights-of-ways, range improvements, OHV and recreation use, and vegetation treatments for fire management and forest health. In general, these actions have all had cumulatively adverse effects on visual resources by creating changes to the form, line, color, and texture of the landscape.

Recently there has been increased interest in developing wind energy within the planning area. In an effort to analyze the resource effects of wind energy development, the BLM analyzed the development of two wind energy proposals within high wind energy potential areas, one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with development of the two wind farms would include the creation of new roads, increased soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines and powerlines, which would affect the visual resources by adding vertical lines and linear and complex forms to the landscape in areas of high wind energy potential and available (35,165 acres) for development of wind farms.

Resource protective measures that eliminate new surface-disturbing actions also protect the existing visual resources and scenic quality of the landscape. Alternative B would allow for the lowest acreage of projected surface-disturbing actions of all the alternatives and the greatest amount of acres of protective resource measures. Because these and other reasonably foreseeable future actions in the planning area from federal, state, private and other lands within and adjacent to the planning area would have adverse effects on visual resources by creating changes to the form, line, color, and texture of the landscape the total cumulative impact to visual resources would be the lowest of all the alternatives.

Impacts under Alternative C

Under Alternative C, approximately 63,404 acres of BLM land are expected to be disturbed in the short term by BLM actions and 2,734 acres in the long term. These management actions could affect visual resources by creating changes in the form, line, color and texture of the landscape. The effects to visual resources would be greatest over time in areas where large-scale development occurs.

Potential effects to visual resources from surface-disturbing activities under Alternative C are less than any other alternative except those identified under Alternative B.

Fire Management and Ecology: Effects would be the same as under Alternative B.

Fluid Minerals: Approximately 8,547 acres of BLM land are projected to be disturbed in the short term by oil and natural gas development actions and 2,238 acres in the long term. Surface-disturbing actions associated with development of new oil and gas wells would include the creation of new roads and visual intrusions from natural gas sheds and compressor stations, which would affect visual resources by creating changes in the form, line, color and texture of the landscape. Existing laws, regulations, and policies would minimize the effects from oil and gas development activities to visual resources through mitigation. Effects could also be reduced by utilizing VRM class objectives to provide the basis for allowable changes in form, line, color, and texture. The effects to visual resources would mostly occur within the high and moderate potential areas for oil and gas development in Blaine, Hill, and Phillips Counties and would continue throughout the life of the plan or term of the leased wells.

Approximately 218,586 acres would be closed to fluid mineral leasing, and 1,291,160 acres would be open subject to NSO. This would have the effect of protecting the existing visual resources on those acres from natural gas development surface-disturbing actions. These protective measures would have a beneficial effect on scenic quality for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and viewing wildlife.

Forests and Woodlands: Effects would be the same as under Alternative B.

Lands and Realty: Effects would be the same as under Alternative B.

OHV Use and Travel and Transportation Management: This alternative is the same as Alternative B except that a big game hunting retrieval area would be established in southern Phillips and Valley Counties.

Motorized game retrieval off road would be allowed during the big game hunting season on BLM lands east of Highway 191 and south of the Dry Fork Road in south Phillips County and south of the Willow Creek Road in south Valley County except in the Burnt Lodge WSA (see Chapter 2, Figure 2.2 for the location of the game retrieval area, 387,118 acres). Game retrieval would occur between the hours of 10:00 a.m. and 2:00 p.m. and in a minimum time frame utilizing the shortest route, and avoiding resource damage.

OHV activities can affect the visual resources if these uses cause vegetation loss, soil exposure, or erosion. OHV use on designated or existing roads, primitive roads and trails could increase color contrasts between the travel surface and the

surrounding vegetation through continued vegetation loss and soil erosion. Visual resources could be affected in the game retrieval area (387,118 acres) because cross-country travel can add different colored, linear forms that contrast with the forms and colors of the characteristic landscape.

Visual Resource Management: Alternative C would manage visual resources similarly to Alternative B with 3% of the planning area managed as VRM Class I (74,506 acres), 38% as VRM Class II (914,194 acres), 21% as VRM Class III (521,322 acres), and 38% as Class IV (927,413 acres). The Bitter Creek and Burnt Lodge WSAs would be managed as VRM Class I areas (74,506 acres).

Under Alternative C, the planning area has less acreage of resource protective measures than Alternative B, which allows for more surface development and visual resource effects compared to Alternative B, but less than Alternative A or D. This alternative protects scenic quality better than Alternative A and D, and less than Alternative B.

Wilderness Characteristics: Under Alternative C approximately 228,419 acres would be managed to preserve and enhance wilderness characteristics. Of these lands, 4,118 acres (area 1) would be managed as VRM Class I and 224,301 acres (areas 20B, 49C, 54, 55, 62, 90, 91A, 91B, 93, 49B and 53) would be managed as VRM Class II. Under VRM Class I, the level of change to the characteristic landscape should be very low and must not attract attention. Under Class II, any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Under Alternative C, fewer acres would be managed for wilderness characteristics than Alternative B. Managing these lands for resources other than wilderness characteristics means that some areas would receive a VRM III or IV classification which allows for more noticeable impacts to the characteristic landscape.

Wildlife: Approximately 820,000 acres would be closed to not only oil and gas development, but also to locatable, leasable and salable minerals, renewable energy developments, and new rights-of-way for transmission lines for the purpose of protecting sage-grouse habitat areas in south Phillips and south Valley Counties. The acres closed would eliminate surface-disturbing actions and infrastructure developments (roads, wind turbines, powerlines, etc.) from the above activities. Eliminating these surface-disturbing actions maintains the existing condition of the soil and vegetation resources and protects visual resources. These protective measures would have a beneficial effect on scenic quality for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and viewing wildlife.

Cumulative Impacts

Past and present surface-disturbing actions that affect visual resources include mineral exploration and development, lands and realty rights-of-way, range improvements, OHV and recreation use, and vegetation treatments for fire management and forest health. In general, these actions have all had cumulatively adverse effects on visual resources by creating changes to the form, line, color, and texture of the landscape. Recently there has been increased interest in developing wind energy within the planning area.

In an effort to analyze the resource effects of wind energy development in the planning area, the BLM analyzed the development of two wind energy proposals within high wind energy potential areas: one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with development of the two wind farms would include the creation of new roads, increased soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines and powerlines which would affect the visual resources by adding vertical lines and linear and complex forms to the landscape in areas of high wind energy potential and available (178,622 acres) for development of wind farms.

Resource protective measures that eliminate new surface-disturbing actions also protect the existing visual resources and scenic quality of the landscape. Alternative C would allow for the second lowest acreage of projected surface-disturbing

actions of all the alternatives and a similar but somewhat lesser amount of acres of protective resource measures than in Alternative B. Because these and other reasonably foreseeable future actions in the planning area from federal, state, private and other lands, within and adjacent to the planning area, would have adverse effects on visual resources by creating changes to the form, line, color, and texture of the landscape the total cumulative impact to visual resources would be the second lowest of all the alternatives.

Impacts under Alternative D

Under Alternative D, approximately 63,945 acres of BLM land are expected to be disturbed in the short term by BLM actions and 2,979 acres in the long term. These management actions could affect visual resources by creating changes in the form, line, color and texture of the landscape. The effects to visual resources would be greatest over time in areas where large-scale development occurs.

Potential effects to visual resources from Alternative D would be the greatest of any other alternative, because it projects the highest acreage of surface disturbance among the alternatives.

Fire Management and Ecology: Effects would be the same as under Alternative B.

Fluid Minerals: Approximately 9,663 acres of BLM land are projected to be disturbed in the short term by oil and natural gas development actions and 2,436 acres in the long term. Surface-disturbing actions associated with development of new oil and gas wells would include the creation of new roads and visual intrusions from natural gas sheds and compressor stations, which would affect visual resources by creating changes in the form, line, color and texture of the landscape. Existing laws, regulations, and policies would minimize the effects from oil and gas development activities to visual resources through mitigation. Effects could also be reduced by utilizing VRM class objectives to provide the basis for allowable changes in form, line, color, and texture. The effects to visual resources would mostly occur within the high and moderate potential areas for oil and gas development in Blaine, Hill, and Phillips Counties and would continue throughout the life of the plan or term of the leased wells.

Approximately 74,674 acres would be closed to fluid mineral leasing, and 357,456 acres would be open subject to NSO. This would have the effect of protecting the existing visual resources on those acres from natural gas development surface-disturbing actions. These protective measures would have a beneficial effect on scenic quality for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and viewing wildlife.

Forests and Woodlands: Effects would be the same as under Alternative B.

Lands and Realty: Effects would be the same as under Alternative B.

OHV Use and Travel and Transportation Management: Alternative D has three areas designated as open to off-road vehicle use: the parcel north of Glasgow (40 acres), Fresno OHV area north of Havre (84 acres), and the Thirty Mile OHV area northwest of the town of Harlem (181 acres); designates 2,366,535 acres as limited to existing roads, primitive roads and trails; and does not designate any acres as closed to OHV use. OHV use would be limited to designated roads, primitive roads and trails (ways) in WSAs (74,428 acres).

Motorized game retrieval off road would be allowed during the big game hunting season on all BLM lands in the planning area except in the following areas:

- Bitter Creek WSA (60,701 acres) and Burnt Lodge WSA (13,727 acres)
- Big Bend of the Milk River ACEC (1,979 acres)
- Kevin Rim ACEC (4,557 acres)
- Frenchman Breaks ACEC (63,482 acres)
- Malta Geological ACEC (6,153 acres)

Game retrieval would occur between the hours of 10:00 a.m. and 2:00 p.m. and in a minimum timeframe utilizing the shortest route, and avoiding resource damage.

OHV activities can affect the visual resources if these uses cause vegetation loss, soil exposure, or erosion. Visual resources could be most affected in those areas designated as open (305 acres) because cross-country travel can add different colored, linear forms that contrast with the forms and colors of the characteristic landscape. OHV use on designated or existing roads, primitive roads and trails could increase color contrasts between the travel surface and the surrounding vegetation through continued vegetation loss and soil erosion. Visual resources could be affected in the game retrieval area because cross-country travel can add different colored, linear forms that contrast with the forms and colors of the characteristic landscape. Effects from game retrieval in almost the entire planning area (2,290,669 acres) would be much greater than in Alternative C where the acreage for game retrieval is much smaller (387,118 acres).

***Visual Resource Management**:* Under Alternative D, 3% of planning area would be managed as VRM Class I (74,506 acres), 5% as VRM Class II (127,439 acres), 24% as VRM Class III (584,113 acres), and 68% as VRM Class IV (1,651,380 acres). The Bitter Creek and Burnt Lodge WSAs would be managed as VRM Class I areas (74,506 acres).

A variety of management actions would be allowed that could affect existing visual resources, depending on the VRM class. Not only does Alternative D have the largest acreage managed under the Class III and IV objectives, but also has the highest projected surface-disturbing acres of all the alternatives.

Cumulative Impacts

Past and present surface-disturbing actions that affect visual resources include mineral exploration and development, lands and realty rights-of-way, range improvements, OHV and recreation use, and vegetation treatments for fire management and forest health. In general, these actions have all had cumulatively adverse effects on visual resources by creating changes to the form, line, color, and texture of the landscape.

Recently there has been increased interest in developing wind energy within the planning area. In an effort to analyze the resource effects of wind energy development, the BLM analyzed the development of two wind energy proposals within high wind energy potential areas: one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with development of the two wind farms include the creation of new roads, increased soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines and powerlines which would affect the visual resources by adding vertical lines and linear and complex forms to the landscape in areas of high wind energy potential and available (286,488 acres) for development of wind farms.

Resource protective measures that eliminate new surface-disturbing actions would also protect the existing visual resources and scenic quality of the landscape. Alternative D would allow for the greatest acreage of projected surface-disturbing actions of all the alternatives and the lowest amount of acres of protective resource measures. Because these and other reasonably foreseeable future actions in the planning area from federal, state, private and other lands, within and adjacent to the planning area, would have adverse effects on visual resources by creating changes to the form, line, color, and texture of the landscape, the total cumulative impact to visual resources would be the greatest of all the alternatives.

Impacts under Alternative E (Preferred Alternative)

Potential effects to visual resources from surface-disturbing activities under Alternative E are very similar to Alternative C.

Fire Management and Ecology: Approximately 26,660 acres of BLM land are projected to be disturbed in the short term by management ignited prescribed fire actions and approximately 7,820 acres by mechanical treatment actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation.

Surface disturbance from prescribed fire actions would burn vegetation to improve the health of the land but would leave a blackened landscape, increase soil erosion, produce smoke, and add many temporary two-track suppression roads throughout the treated area. Although this land treatment would have a short-term effect on visual resources by creating changes in the form, line, color and texture of the burned landscape, the long-term benefits from improving the health of land would far outweigh the smaller negative effects from the initial prescribed burn. Generally, the long-term benefits to improving the health of the land would include improving vegetation composition and wildlife habitat, which may improve the scenic quality and should increase the recreational opportunities for wildlife viewing, hiking and hunting.

Surface disturbance from mechanical treatments includes the action of thinning dense stands of timber trees, and would have the same effects on visual resources as prescribed fire except the short-term period of time would be a little longer due to the time needed for the thinned trees to dry before under burning. Prescribed fire could be used throughout the planning area but more would occur in Phillips and Valley Counties. Mechanical thinning would occur primarily in timbered areas of the Little Rocky Mountains. Prescribed fire would occur during spring, summer and fall when fuels are within acceptable burning standards.

Fluid Minerals: Approximately 9,123 acres of BLM land are projected to be disturbed in the short term by oil and natural gas development actions and 2,346 acres in the long term. Surface-disturbing actions associated with development of new oil and gas wells would include the creation of new roads and visual intrusions from natural gas sheds and compressor stations, which would affect visual resources by creating changes in the form, line, color and texture of the landscape. Existing laws, regulations, and policies would minimize the effects from oil and gas development activities to visual resources through mitigation. Effects could also be reduced by utilizing VRM class objectives to provide the basis for allowable changes in form, line, color, and texture. The effects to visual resources would mostly occur within the high and moderate potential areas for oil and gas development in Blaine, Hill, and Phillips Counties and would continue throughout the life of the plan or term of the leased wells. Within VRM Class II areas, a CSU stipulation would require that oil and gas development activities would be located, designed, constructed, operated and reclaimed so that activities should not attract attention to the casual observer within 2 years from initiation of construction.

Approximately 152,702 acres would be closed to fluid mineral leasing, and 1,711,378 acres would be open subject to NSO. This would have the effect of protecting the existing visual resources on those acres from natural gas development surface-disturbing actions. These protective measures would have a beneficial effect on scenic quality for dispersed recreational opportunities during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, hiking, horseback riding, and viewing wildlife.

Forests and Woodlands: Approximately 7,820 acres of BLM land are projected to be disturbed in the short term by silviculture treatments, fuels management, and forest product harvesting actions. No long-term acres are projected to be disturbed because of reclamation activities and regrowth of vegetation. Short-term surface disturbance from harvesting timber and underburning the slash and vegetation left after the harvest would produce smoke, remove vegetation, increase soil erosion, and generally degrade the scenery. Although this land treatment would have a short-term effect on visual resources by creating changes in the form, line, color and texture of the landscape, the long-term benefits from improving the health of land would far outweigh the smaller negative effects from harvesting the timber and underburning. Generally, the long-term benefits to improving the health of the land would include improving vegetation composition and wildlife habitat, which may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking, and hunting.

Lands and Realty: Approximately 1,421 acres of BLM land are projected to be disturbed in the short term by right-of-way authorizations. In the long term, 360 acres are projected to be disturbed because of implementation of reclamation activities. Rights-of-way, leases and permits would be granted for surface-disturbing actions such as utility lines, communication sites, pipelines, and oil and natural gas development. Surface-disturbing actions associated with rights-of-way, leases and permits would include the creation of new roads, visual intrusions from powerlines and communications sites, and would affect the visual resources by creating changes in the form, line, color and texture of the landscape.

OHV Use and Travel and Transportation Management: The effects would be the same as under Alternative C except that no game retrieval would be allowed, but options for big game retrieval could be considered during subsequent site-specific travel management planning.

Visual Resource Management: Under Alternative E, 3% of the planning area would be managed as VRM Class I (74,506 acres), 35% as VRM Class II (841,087 acres), 21% as VRM Class III (521,868 acres), and 41% as VRM Class IV (999,977 acres). The Bitter Creek and Burnt Lodge WSAs would be managed as VRM Class I areas (74,506 acres).

Alternative E has the second highest combined acreage in VRM Classes I and II of all the alternatives, which would preserve or retain the existing character of the landscape. The acres in VRM Class IV are the least of any alternative, yet still make lands available for projects which could modify the existing character of the landscape.

Wilderness Characteristics: Under Alternative E, approximately 16,393 acres (Areas 49B, 52L and 53) would be managed to preserve and enhance their wilderness characteristics. These lands would be managed as VRM Class II meaning any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Under this alternative, fewer acres would be managed for wilderness characteristics than Alternatives B and C. Most of the areas in the district which currently meet the wilderness characteristics criterion would be managed for other resources such as migratory birds, soils and priority protection areas which would help to maintain or enhance those wilderness characteristics. However, managing lands for other resources means that some of these areas may receive a VRM III or IV classification which allows for more noticeable impacts to the characteristic landscape. Over time, the cumulative impacts to visual resources on these lands would cause them to no longer meet the wilderness characteristics criterion.

Cumulative Impacts

Cumulative effects would be the same as under Alternative C except for wind energy.

Recently there has been increased interest in developing wind energy within the planning area. In an effort to analyze the resource effects of wind energy development, the BLM analyzed the development of two wind energy proposals within high wind energy potential areas, one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with development of the two wind farms would include the creation of new roads, increased soil erosion and vegetation loss, and large visual intrusions from construction of wind turbines and powerlines which would affect the visual resources by adding vertical lines and linear and complex forms to the landscape in areas of high wind energy potential and available (173,127 acres) for development of wind farms.

Water Resources

Assumptions and Guidelines

The population of beavers within the planning area began to be depleted by trappers following the establishment of Fort Union in 1828 at the confluence of the Yellowstone and Missouri Rivers. Beavers had served as nature's ecosystem engineers with their development and maintenance of ponds, downhill steps, and durable floodplains that controlled the flow of vast amounts of energy and material within the watersheds. Continuous livestock grazing and land use for twelve months of each year, with excessive numbers from around 1909 to the years prior to the Taylor Grazing Act of 1934 and the dry years of the 1930s, left and led to permanent scars in watersheds within the planning area.

The BLM manages water resources for resource values (e.g., watershed health, wildlife, riparian) and resource uses (e.g., recreation and water supply). BLM management and the condition of resources (including upland vegetation, soils, and riparian vegetation) in watersheds across the planning area affect the quality and quantity of water resources that traverse BLM lands. Protecting the quality and quantity of water for ourselves and future generations consists of the BLM

adhering to the objectives of the federal Clean Water Act to restore and maintain the chemical, physical, and biological integrity of the nation's water.

Water quantity management is primarily influenced by watershed functions that include capture, storage, and beneficial release of precipitation and runoff. When beaver activity prevailed within the watersheds of the planning area, it is safe to assume that water retention and storage rates were high and concentrations of suspended sediment were low. The natural systems that once were, and are no more, have been replaced by managed stream systems that include artificial impoundments. BMPs include reservoir, pit, pond, water saver, spring, and water pipeline developments that function for multiple beneficial uses and provide additional and alternative water sources for wildlife, livestock, recreation, or riparian and wetland vegetation. Reservoirs function to retain water, detain runoff, increase infiltration, and trap sediment associated with overland flow. The BLM's operational plan for reservoirs and the effectiveness of BMPs rely on accurate measurements, timely implementation, and monitoring of both implementation and effectiveness.

Impoundments capable of holding water provide the opportunity for riparian vegetation to become established around reservoir shorelines. Retaining and detaining water in reservoirs modifies the magnitude and timing of flows. Constructed embankments and outlet structures reduce flood hazard.

Reconstructing embankments and/or outlet structures of larger dams affects ephemeral and intermittent streambeds and the associated riparian vegetation downstream. In order to avoid progressive erosion and undesired sediment loads, project contracts shall ensure that reservoir outlets and the associated channel paths align. Equipment and vehicular movement could smash vegetation and compact the soil which may contribute to the reduction of moisture infiltration and increase overland flow and erosion. Hazardous materials typical of construction sites, such as fuel, oil, and lubricants for construction equipment will be present at project sites. The BLM would review construction contracts to assure that they contain specifications that require the handling, containment, and disposal of all hazardous material in conformance with typical construction safety practices and applicable State regulations. Ephemeral and intermittent stream channels and riparian areas could be impacted by fluid spills, including engine oil, hydraulic oil, and fuel (gasoline or diesel). These spills could affect water quality along an extensive length of the stream channels following spring runoff or precipitation events.

The type, magnitude, frequency, and timing of environmental effects on watershed ecosystems would be influenced by reservoir operational plans. Where the BLM can control outlet works, reservoir outflows would be a determinant of active reservoir storage and hydraulic residence time (HRT). The HRT is determined by the amount of water in a reservoir divided by either the rate of addition of water to the reservoir or the rate of loss from it. The HRT, or the average time a water molecule will spend in the impoundment, could potentially influence the type and rate of biochemical cycling, the settlement of sediment within the reservoir, and the transport of biota through the reservoir to downstream reaches.

The construction of existing impoundments along ephemeral and intermittent streams within the planning area introduced a barrier to organisms and nutrients traveling down and upstream. The structure and dynamics of aquatic and riparian habitats changed while the downstream flux of water and sediment modified biogeochemical cycles. Allowing reservoirs to breach affects saturation duration within the riparian zone which could alter the intermittent or ephemeral status of an individual flow path. If the silt that has accumulated behind the impoundments washes downstream, sediment loads increase which can influence the hydrologic function and stream dynamics of receiving waters.

Decommissioning high hazard class retention reservoirs diminishes flood damage reduction benefits, and could require the development and implementation of contingency plans for catastrophic storm events. Additional work to downstream infrastructure (i.e., roads and culverts) would be necessary due to heightened flow rates and flood potential. These effects could be small or large depending on the duration and amount of runoff, size of the watershed, and integrity of other existing infrastructure within the watershed.

The PFC method is implemented by the BLM in order to evaluate the condition of riparian vegetation and riparian function which indicate causes and sources of current and potential water quality conditions. Properly functioning riparian areas have stable streambanks (low sediment input) that are well vegetated (low thermal loading). The functioning condition can also imply whether or not livestock are spending excessive time in or immediately adjacent to the waterway (low bacteria and nutrients). Riparian trends also provide valuable information. Improving trends indicate that banks are becoming more stable (lower sediment load), shading is improving (less thermal loading), and livestock

are spending less time in or immediately adjacent to the waterway (less bacteria or nutrients). Declining trends would likely indicate the opposite. Riparian vegetation responds readily to changes in management and can be modified to produce conditions more favorable to stream stability and water quality.

Assessing the ecosystem function of upland and riparian areas provides the context for monitoring data that can improve the targeting of best management practices for NPS pollution, and be a leading (early) indicator for more timely decisions about aquatic habitat and water quality. Assessment of watershed function can be applied to prioritizing resources, developing indicators, monitoring aquatic habitat and water quality, and implementing adaptive management plans to restore degraded ecosystems that are producing NPS pollution (Aron, et al. 2013).

Resource specialists continually assess and record the riparian and wetland conditions conterminous with surface water on BLM land and update datasets that contain information pertaining to miles and acres of functioning lotic and lentic water across the planning area. One dataset identifies water segments that are exceeding state water quality standards or that do not fully support beneficial uses according to the Montana 303(d)/305(b) Integrated Report. Other datasets contain water rights information regarding places of use and points of diversion. Correlating proposed surface disturbances and alternative management themes with the BLM's datasets (utilized by ESRI's ArcGIS Desktop computer software) enables the effects on water resources to be described qualitatively and, where possible, quantitatively.

The following paragraphs present key concepts of water quality impairment that are fundamental to understanding potential effects to water resources.

Precipitation and runoff either infiltrate the soil or gather on the surface and flow down slope, picking up soil particles as velocity increases. Vegetation traps and holds soil in place and hinders erosion. If there is little or no vegetation runoff will easily accumulate large amounts of soil. Runoff is abrasive and can cut rills and gullies in upland terrain before flowing into the nearest body of water.

Sediment that has reached a water body can be suspended at high concentrations for a short period of time or at low concentrations for an extended period of time. Sediment suspension depends on particle size and density, water velocity, and stream characteristics. Clay particles stay in suspension for days or even years and contribute significantly to water clarity and turbidity. Sediment often carries other pollutants including nutrients, bacteria, and toxic and synthetic chemicals. Water quality and the overall productivity of a stream system can be affected when sediment is washed into a stream and pools are filled, riffles are covered or embedded, and sunlight is shaded from aquatic plants. As excess sediment in the water column settles out, the storage volume of the stream can decrease, thereby increasing the likelihood of flood events.

The movement of sediment through a stream channel network is a function of past and present land activities. The vast majority of sediment transport in a stream occurs during periods of high flow. Streams naturally tend toward a state of equilibrium between erosion and sedimentation. As streams meander through floodplains the outside of the stream cuts into the streambanks, eroding it away, while the inside of the stream deposits sediment which creates sandbars. Under many conditions, the amount of sediment carried by a stream will increase as erosion in the watershed increases and decline as erosion decreases. A stream has a finite capacity for transporting sediment. Once the supply of sediment exceeds the stream's carrying capacity, any additional sediment will be deposited in channels and floodplains. These stored deposits can be remobilized into the stream system years or even decades later.

Riparian and wetland areas are the green zones bordering lakes, rivers, reservoirs, estuaries, potholes, springs, seeps, and perennial, intermittent or ephemeral streams where the water table is usually at or near the surface. The interface between the terrestrial zone and the aquatic zone is the riparian area which acts as a natural biofilter of prime importance to water quality and stream stability and is generally more productive than other zones in terms of total biomass.

Riparian zones are one of the most important defenses against pollutants for a water body. The ground cover of riparian zones reduces the velocity of runoff and enables water to percolate into the soil. As runoff works its way downslope pollutants are accumulated, but when polluted runoff reaches the riparian zone the roots of vegetation filter out certain pollutants that are beneficial to plant growth (i.e., fertilizers, pesticides, and nutrients) and runoff that reaches the receiving water is in a cleaner state.

Impacts Common to All Alternatives

Alternatives A through E place water resources at differing levels of risk. The risks are discussed under the individual alternatives. As required under law and the BLM Land Health Standards, Alternatives A through E would meet water quality standards and support beneficial uses of water resources.

Surface-disturbing activities affect water resources to varying degrees depending on the type, amount, and location of disturbance; time of year; precipitation; and the condition and types of present and surrounding soil and vegetation. Acres of short- or long-term surface disturbances do not necessarily equate to impacts to water quality; surface acreage solely serves as an indicator of the potential magnitude of impacts. Surface-disturbing activities lead to alterations in the chemical, physical, and biological integrity of water when vegetation and protective crusts are removed or manipulated and when natural soil architecture and functionality is disrupted. Machinery and vehicles integrated into surface-disturbing activities could leak or foster fluid spills, including engine oil, hydraulic oil, and fuel (gasoline or diesel), etc. Such spills could impact water quality in a watershed following spring runoff or precipitation events. Changes in natural cover or topography can cause or contribute to an increase in sediment delivery to streams. Even though surface-disturbing activities are short-lived and considered temporary they can have severe and long-lasting effects on water quality and overall stream function.

Poorly controlled erosion and sediment from surface-disturbing activities on steep slopes negatively impact water quality and hydrology. Surface-disturbing activities can induce rilling and gullying. Rills and gullies are often discontinuous in natural undisturbed areas, which disables water flow velocities and energies from reaching the magnitudes attained by continuous flows. Disturbances that lead to erosion of sensitive soil surfaces can form continuous rills and channels which can grow into continuous gullies. Steep slope disturbance usually involves some form of grading. Grading is the mechanical excavation and filling of natural slopes to produce a level working surface. Areas that have been graded, and that are not yet successfully reclaimed, may exhibit poor drainage or increased runoff velocities when overland flow is undiffused due to diversion. Surface-disturbing activity on slopes requires adequate site assessment, planning, design, and safe and stable construction and reclamation.

Surface-disturbing activities in and around riparian and wetland areas heighten vulnerability to erosion while increasing the opportunity for pollution and sediment to access water bodies until a functional riparian zone becomes established that is capable of biofiltration. Surface-disturbing activities that stir up sediment and increase streambank erosion may contribute to the loss of vegetation in riparian areas which could result in increased water temperatures and turbidity. Elevated water temperatures reduce the solubility of dissolved oxygen and decrease the oxygen carrying capacity of water. Riparian areas act as biofilters of pollution and accumulate probable water contaminants. Disrupting and loosening such accumulation, by removing or otherwise agitating riparian soils and vegetation, may expose surface and subsurface nutrients, fertilizers, and contaminants that are susceptible to being flushed into water bodies and impairing water quality.

Fire Management and Ecology: High severity fire is detrimental to watershed function and water quality. Fire is potentially very damaging to watershed biodiversity, reservoir water quality, plant communities, and other natural resources. By killing vegetation, burning the organic matter in litter and soil, and forming impervious soil layers, severe fires can accelerate runoff from the watershed. Bare soils and increased runoff cause greater detachment and transport of soil particles. With reduced infiltration, saturated soil conditions and shallow debris flows become more prevalent. Sediment yields increase markedly, particularly where riparian vegetation is burned. Besides the direct effects of high severity fires, surface disturbance related to fire suppression and post-fire activities also may adversely affect water quality and watershed function. Although total surface water yield may increase for several years following a fire in response to decreased transpiration and vegetation interception, the value of the increased yield is limited in that it occurs during peak flows.

Steeply sloping lateral ridges with grassy vegetation can result in rapidly spreading wildfire that accelerates uphill towards the main ridgeline, increasing the size and intensity of a fire burning out of control. This possibility can be minimized by effectively reducing fuel loads on lateral ridges. Fuel modification areas are very effective in reducing the burning intensity and rate of spread of wildfire.

Fire management and ecology consist of removing or reducing the amount of vegetation on the landscape which, depending on site-specific characteristics, may reduce the amount of water loss to transpiration and increase water runoff. Fire management activities that occur early in the dry season may have reduced negative water resource effects as vegetation and root structures have sufficient recovery time prior to the wet season. Water quality impacts may be minimized when riparian vegetation is maintained to allow a buffer beside water bodies for biofiltration.

Use of prescribed fire to prevent unacceptable accumulations of stubble, brush, understory, and other fire fuels in areas where low to moderate fire intensity is preferable and high intensity wildfire is to be avoided can ultimately have a positive effect on watershed functions and water quality. Factors such as intensity, duration, soil moisture, vegetation type, fuel type and density, and time of year determine the severity of the impacts to the physical, chemical, and biological properties of water resources. As vegetation recovers the impacts diminish. Areas that have not undergone high burn severity typically recover within one to five years.

Table 4.65, Fuels and Forest Treatment by Alternative, lists the approximate number of acres that could be treated. Treated areas that met the desired future condition in the long term would contribute to properly functioning watersheds while the risk of high severity wildfires across treated acres would be reduced.

Fluid Minerals: Fluid mineral development could affect water resources during exploration, drilling, production, and abandonment. Table 4.68, Number of Federal Fluid Mineral Wells and Associated Disturbance by Alternative, lists the number of new federal oil and gas wells by alternative and includes the approximate total disturbed acres associated with the construction of well sites, access roads, and pipelines. Actions that can affect surface water and groundwater resources directly, indirectly, and/or cumulatively include removal of vegetation, exposure of the soil, mixing of soil horizons, loss of topsoil productivity, soil compaction, increased susceptibility to erosion, and the introduction of hydrocarbons and chemicals.

Hydraulic fracturing is a standard treatment for stimulating the productivity of oil and gas wells. The process consists of pumping a viscous fluid containing a propping agent into a wellbore at high pressure in order to create and stabilize fractures that extend from the wellbore into the target oil or gas formations. Fracturing fluids and the conditions for their use are summarized in Table 4.92. The chemical additives of the fluid are summarized in Table 4.93. The ideal products for propping open the fracture, once the pumps are shut down and the fracture begins to close, are silica sand, resin-coated (epoxy) sand, and ceramic proppants.

Table 4.92
Fracturing Fluids and Conditions for Their Use

Base Fluid	*Fluid Type*	*Main Composition*	*Use Conditions*
Water Based	Linear Fluids	Gelled Water, GUAR<HPG, HEC, CMHPG	Short Fractures, Low Temperatures
	Crosslinked Fluids	Crosslinker + GUAR, HPG, CMHPG, CMHEC	Long Fractures, High Temperatures
Foam Based	Water-based Foam	Water and Foamer + N2 or CO2	Low Pressure Formations
	Acid-based Foam	Acid and Foamer +N2	Low Pressure, Water Sensitive Formations
	Alcohol-based Foam	Methanol and Foamer +N2	Low Pressure Formations with Water Blocking Problems
Oil Based	Linear Fluids	Oil, Gelled Oil	Water Sensitive Formation, Short Fractures
	Crosslinked Fluids	Phosphate Ester Gels	Water Sensitive Formation, Long Fractures
	Water External Emulsions	Water + Oil + Emulsifier	Good for Fluid Loss Control

Source: EPA 2004.

Table 4.93
Fracturing Fluid Chemical Additives

Type of Additive	*Function Performed*	*Typical Products*
Biocide	Kills Bacteria	Gluteridehyde Carbonate
Breaker	Reduces Fluid Viscosity	Acid, Oxidizer, Enzyme Breaker
Buffer	Controls the pH	Sodium Bicarbonate, Fumaric Acid
Clay Stabilizer	Prevents Clay Swelling	KCl, NH CL, KCl Substitutes
Diverting Agent	Diverts Flow of Fluid	Ball Sealers, Rock Salt, Flake Boric-Acid
Fluid Loss Additive	Improves Fluid Efficiency	Diesel, Particulates, Fine Sand
Friction Reducer	Reduces the Friction	Anionic Copolymer
Gel Stabilizer	Reduces Thermal Degradation	MEOH, Sodium Thiosulphate
Iron Controller	Keeps Iron In Solution	Acetic & Citric Acid
Surfactant	Lowers Surface Tension	Fluorocarbon, Nonionic

Source: EPA 2004.

The majority of the treatments are pumped for these seven reasons:

- increase the flow rate of oil and/or gas from low permeability reservoirs,
- increase the flow rate of oil and/or gas from wells that have been damaged,
- connect the natural fractures and/or cleats in a formation to the wellbore,
- decrease the pressure drop around the well to minimize sand production,
- decrease the pressure drop around the well to minimize problems with asphaltine and/or paraffin deposition,
- increase the area of drainage or the amount of formation in contact with the wellbore, and
- connect the full vertical extent of a reservoir to a slanted or horizontal well.

Engineers design a fracturing operation using computer models that take into account the physical and chemical properties of the rock, the fluids contained within that rock, and the mechanical condition of the well. The geology of the planning area offers protection from groundwater contamination because groundwater that furnishes drinking water typically is separated from gas and oil reservoirs by thousands of feet and by impermeable layers. Other states have had reports of groundwater contamination associated with hydraulic fracturing of coalbed methane formations.

In naturally fractured or cleated formations, such as gas shales or coal seams, it is possible that multiple fractures can be created and propagated during a hydraulic fracture treatment. Hydraulic fracturing can open up pathways for fluids or gases from geologic layers to flow where they are not intended, which presents an opportunity for groundwater contamination. Surface water resources could experience negative effects if fracturing fluid chemicals and wastewater leak or spill from the well bore, flowlines, trucks, tanks, or pits.

Oil and gas operations must attempt to uphold water resource integrity through conduct that minimizes adverse effects to surface and subsurface resources, prevents unnecessary surface disturbance, and conforms with currently available technology and practice. Oil and gas operators cannot commence either drilling operations or preliminary construction activities before the BLM's approval of the Application for Permit to Drill (APD). A copy of the approved APD and any Conditions of Approval must be available for review at the drill site and all operators, contractors, and subcontractors must comply with the requirements of the approved APD and/or Surface Use Plan of Operations. Unless it is otherwise provided in an approved Surface Use Plan of Operations, the operator must not conduct operations in riparian areas, floodplains, playas, lakeshores, wetlands, and/or areas subject to severe erosion and mass soil movement.

Site-specific mitigation measures, BMPs, and reclamation standards would be implemented and monitored in order to minimize effects to water resources. The Gold Book, Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and USFS 2007), would be followed. Guidance in the hydraulic fracturing rule published as final on March 26, 2015 (80 Fed. Reg. 16128) would also be applied as appropriate. Potential effects to water resources are both short-term and long-term.

Potential effects to deeper aquifers include cross-aquifer mixing through the wellbore. All wells would be cased and cemented to depths below accessible freshwater zones pursuant to MBOGC rules and regulations. All wells also would

be constructed according to relevant MBOGC and MDEQ regulations to prevent cross-aquifer contamination. There would be minor potential for commingling of waters during well construction if proper well drilling procedures and completion techniques are employed.

The Safe Drinking Water Act and implementing regulations (42 U.S.C. § 300h and 40 CFR § 144) will assist the BLM's management actions and decisions pertaining to injection wells. The MBOGC has primary regulatory jurisdiction over the Underground Injection Control (UIC) Program for Class II injection or disposal wells. The purpose of this program is to protect underground sources of drinking water.

Access roads, facilities, and areas needed for production would require a long-term commitment to soil and vegetation which would maintain water resource quality. Areas may remain non-productive and continue to be at risk of erosion until abandonment and final reclamation. Production water, when spilled, could contaminate soils and impact surface and groundwater quality. Areas not needed for active production and operation should undergo interim reclamation as soon as possible after the disturbance and continue until successful reclamation is achieved. Generally, erosion rates are greater on recently reclaimed areas and decrease to natural levels in about 3-5 years.

Forests and Woodlands: The removal of forest products through both thinning and salable timber harvest would create short-term disturbances of between 237 and 391 acres a year. The bare soil created by roads and removal of vegetative cover could increase erosion and sedimentation on the uplands in the Sweet Grass Hills and Zortman area.

Mitigation measures for silvicultural prescriptions and contracts would provide protection to water resources by including specifications from the Water Quality BMPs for Montana Forests (Logan 2001). Properly functioning watersheds that support productive plant communities consistent with site potential would likely be established in the long term.

The forest BMPs for maintaining water quality restrict the harvest of trees and road building in riparian zones; therefore, water quality would not be adversely impacted due to direct effects of riparian vegetation disturbance.

Geology: Protecting and preserving geological resources would have a positive effect on water resources. Erosion is a natural process by which soil and rock material is loosened and removed. Natural erosion occurs primarily on a geologic time scale, but when human activities alter the landscape, the erosion process can be greatly accelerated. The cumulative effects on water resources due to erosion depends on many factors such as the amount of rainfall, type of land cover, slope length and gradient, and the size and density of sediment.

Lands and Realty: Rights-of-way would be avoided where reclamation to BLM standards is unachievable and where control and mitigation of excess soil erosion is not feasible. It is projected that within the next 20 years right-of-way authorizations could lead to a short-term disturbance of approximately 1,421 acres of soil and vegetation. The quality of water resources would be maintained through mitigation of adverse effects at the site-specific project level.

Livestock Grazing: Streams are particularly vulnerable to impacts caused by livestock grazing. Water erosion may be accelerated if insufficient litter or plant cover is left after the grazing season, or if plant composition is changed by grazing practices. Overgrazing can eliminate riparian vegetative cover, resulting in increased soil erosion and sedimentation. Increases in nonpoint source pollution, and loss of channel stability, can deteriorate water quality and diminish the ability of ecosystems to maintain healthy aquatic communities across localized and watershed scales.

Stream conditions and degraded water resources characterized by livestock overgrazing often include unstable and eroded banks, sedimentation, buried or embedded rock substrates, loss of riparian vegetative cover and associated organic matter inputs, increased width-to-depth ratio, reduced current in shallow water, nutrient enrichment, increased algae growth, reduced dissolved oxygen, higher temperatures, and reduced wildlife habitat structure.

To reduce the impact to water quality caused by nonpoint source pollution, including livestock grazing, Section 319 of the Clean Water Act requires that nonpoint sources are assessed and BMPs are developed to improve water quality. Achieving or maintaining Standards for Rangeland Health and Guidelines for Livestock Grazing Management, along with PFC assessments, generally are productive in managing the effects of livestock grazing on water resources. Adjustments to grazing authorizations are made on a case-by-case basis when site-specific studies indicate the necessity for management alterations.

Construction and installation of range improvement projects such as livestock watering reservoirs, pits, tanks, and pipelines would result in localized compaction and soil erosion which could affect water resources in the short term. For the installation of wells, 10 to 12 acres of land could be affected in the long term by BLM actions while 57 acres could be affected in the long term by non-BLM actions. Range improvement projects that diverted livestock away from riparian areas and stream corridors would benefit water resources. The approximate acres disturbed to construct and install reservoirs, pits, tanks, and pipelines are listed in Table 4.69, Livestock Grazing Development Surface Disturbance by Alternative. Successful reclamation of all reservoir and pipeline developments would ensure that there are no long-term surface disturbances. Avoidance, mitigation, and minimization of adverse effects to water resources during construction and installation would be addressed at the site-specific project level.

An expanse of salt crystals can form on the surface below reservoirs that are constructed with, on, or around saline soils. Saline seeps can restrict plant growth, reduce vegetative yields, degrade soil stability, and affect water quality. Persistent saline seep problems that are a result of BLM-developed reservoirs would be evaluated, prioritized, and reclaimed as funding is made available.

Noxious Weeds and Other Non-Native Species: Surface-disturbing activities in and around riparian areas could promote noxious weed and invasive species infestation. Many invasive and noxious weeds have relatively sparse canopies, which could generate greater amounts of erosion compared to native vegetation.

Spraying of weeds along riparian corridors with approved chemicals can kill non-targeted riparian vegetation; riparian shrubs and trees are especially susceptible. Targeting noxious weeds and invasive species in riparian zones may reduce the diversity of plant species in the short term, which could lead to accelerated erosion along the streambanks. Removal of noxious weeds, which are capable of dominating the vegetative component of riparian zones, could increase the diversity of plant species in the long term and improve overall health and stability of the riparian system.

OHV Use and Travel and Transportation Management: The majority of the earth's surface has been shaped through various forms of natural erosion including water, wind, and mechanical. Water is the most important erosive agent, either flowing across land or in rivers and streams. Mechanical, or man-induced erosion, can accelerate the natural processes of water and wind erosion. Off-highway vehicle traffic can change the speed, timing, quantity, and quality of water moving through the landscape.

Off-highway vehicle use can damage, disrupt, and compact soil stabilizers including macrofloral elements (plants), microfloral elements (lichen, fungal, and algal crusts), and inorganic elements (soil crusts). Long-lasting negative impacts to water resources, including decreased water infiltration and increased runoff that prompts erosion, can commence when the force of rolling wheels disrupts and compacts soil stabilizers.

Off-highway vehicle use has implications on water quality and accelerated erosion when increased overland flow and sediment transport arise in response to altered runoff hydraulics through channelized flow in vehicle tracks. Obstructions to overland flow on hills and slopes can be smoothed by vehicle compaction, resulting in greater flow rates, which can lead to erosion and the creation of channels and gullies.

Off-highway vehicle use introduces gallons of gasoline and motor oil capable of contaminating soil and water on BLM land as a result of emissions and inefficient combustion. Oil, lubricants, and other undesired chemicals may become incorporated in water quality if vehicles ford stream crossings deep enough to dislodge or wash off grimy undercarriages, transmissions, engines, etc.

Undesirable noxious weeds and non-native invasive species can hitchhike on the undercarriage of vehicles which can affect water resources. For a summary of related potential effects see Noxious Weeds and Other Non-Native Invasive Species under Impacts Common to All Alternatives.

Recreation: Recreational use can result in soil, vegetation, and water resource disturbances. Disturbance would be the greatest in areas of concentrated use, such as roads, hiking trails, and campgrounds (dispersed or developed). These disturbances could result in localized vegetation disruption, soil compaction, erosion, and sedimentation that could negatively affect water resources depending on circumstance of use and duration.

Renewable Energy Resources: The BLM hypothetically described two types of wind farms in order to determine the reasonable foreseeable commercial wind energy development scenario for the planning area (Appendix O). The hypothetical model for a small wind farm capable of annually generating 100 megawatts of energy involves construction of 63 wind turbines which would amount to 133 acres of BLM land disturbance projected in the short term and 33 acres in the long term. The hypothetical model for a large wind farm capable of annually generating 200 megawatts of energy involves construction of 134 wind turbines which would disturb 724 acres of BLM land in the short term and 183 acres in the long term. These acreage figures do not include surface disturbances that could occur by installation of transmission lines.

Water resources could be impacted when soils and vegetation are affected by wind energy development. Alternative energy site location characteristics would determine the degree of effects. Soil compaction and erosion would occur along roadways which could increase overland flow and the concentration of dissolved and suspended sediment. The maintenance of the chemical, physical, and biological integrity of water resources in and around wind turbines and the associated facilities would be a long-term commitment.

Soils: Achieving or maintaining Standards for Rangeland Health and expertly evaluating the effects of proposed actions on soil resources would have a positive effect on water resources. Maintaining and promoting adequate ground cover, plant vigor, and nutrient cycling, along with biological, riparian, and wetland functions would help to ensure water quality by minimizing erosion and water resource contamination. Subsurface soil conditions that support permeability rates assist in decreasing overland flow and erosion and abet biofiltration and groundwater purification.

Solid Minerals: Water is a solvent that can break down and dissolve many substances such as rock, minerals, and concentrated fluids. Organic compounds and inorganic elements can be attracted to the ionic charge of a water molecule and can be carried along in solution. Minerals present in water are known as dissolved solids. Water in motion has kinetic energy and is capable of carrying larger particles in suspension.

Solid mineral exploration and development has the potential to increase erosion and sedimentation which could lead to increased concentrations of dissolved and suspended solids in surface and groundwater. Erosion is affected by a wide range of site-specific factors, including, but not limited to: climate, soils, slope angle, slope length, and slope aspect. Access roads, pads, other constructed support facilities, and the removal of soils, vegetation, and overburden to expose subsurface materials, create an erosive environment. Natural drainage patterns can temporarily be disrupted and surface water may not be capable of infiltrating soil that has been compacted or rock that has been exposed. Overland flow can increase and lead to rill and gully development which induces increased sediment transport to streams. The potential for erosion is highest immediately following surface-disturbing activities, but can remain high until final site stabilization and revegetation.

Ground water quality can be affected by water infiltration at the site of solid mineral removal or by contaminated runoff leaving the site and finding its way into groundwater. Springs can become an issue when they are exposed and present volumes of water that may erode or become polluted. Interception or diversion can adversely affect water resources and watershed function while introduction of substances (or certain forms of energy such as heat) can physically and/or chemically alter water. When water quality is impaired it may not be suitable for beneficial use, and when it is not available in the required or accustomed quantities, at pre-mining points of use, social and biological issues may arise.

Water that percolates through contaminated material can become polluted. Water contamination problems are most often due to several pollutants residing in a waste water stream. The twelve groups of mining-related contaminants include: organic reagents, dissolved solids (soluble salts), oils, anions and cations, cyanides, suspended solids, acids and alkalis, turbidity, base metals, thermal influences, fluorides, and radioactivity. The possible combinations of the above pollutants comprise five major problems: acid mine drainage, alkaline and saline mine drainage, heavy metal pollution, eutrophication, and deoxygenation.

Acid mine drainage (AMD) is a term commonly used to describe leachate, seepage, or drainage that has been affected by the natural oxidation of sulfide minerals contained in rock that is exposed to air and water as a result of mining activity. The reactive sulfide minerals, in combination with oxygen and water, create sulfuric acid. Natural biological activity often accelerates the oxidation reaction responsible for the formation of AMD. AMD and heavy metal pollution can detrimentally impact the quality of ground and surface water. Ore that poses significant AMD risk and are commonly mined are gold, silver, copper, iron, zinc, lead, and coal.

Authorization to allow the release of contaminated waters into the environment must be in compliance with the Clean Water Act, Safe Drinking Water Act, Endangered Species Act, other applicable federal and state environmental laws, consistent with the BLM's multiple use responsibilities under the Federal Land Policy and Management Act (FLPMA), and fully reviewed in the appropriate NEPA document.

The surface disturbance area associated with mineral material sales that are actions of the BLM is expected to be 80 acres in the short term and 80 acres in the long term for all alternatives.

Special Designations: The management constraints that pertain to existing and proposed special management areas all limit surface-disturbing activity potential which could prevent degradation of water resources in and around the special management areas.

Vegetation – Rangeland: Rangelands comprise the majority of watershed surface area that supports livestock production and provides habitat for native wildlife. Precipitation that falls on rangeland vegetation is a major source of aquifer recharge and surface water that ultimately joins rivers and streams flowing through and adjacent to the rangeland. Use and management of rangeland vegetation can have major impacts on the water resources that infiltrate the ground, flow over the land, and render forage and habitat for wildlife and livestock.

The intensity, duration, and quantity of rainfall events, along with the vegetative cover, soil type, topography, and geology of the rangeland would determine the amount of water that can be captured for beneficial use. Water that percolates through rangeland soils and geological substrata contributes to spring flow and aquifer recharge. Rangeland in an unhealthy state would have increased runoff with high nutrient and sediment content and would not maintain adequate soil moisture which is needed for the production of native plants required by livestock and native wildlife. Unhealthy rangelands may also exhibit poor slope stability and heightened levels of erosion.

Managing rangelands for healthy vegetation communities by pursuing Standards for Rangeland Health, Guidelines for Livestock Grazing Management, and PFC assessments assists in achieving or maintaining PFC on upland sites which includes the promotion of adequate amounts of vegetative cover to stabilize soils and ensure proper overland flow characteristics. Monitoring uplands and riparian areas for PFC would provide information needed to apply appropriate mitigation measures (if necessary) to ensure water resources are not adversely affected.

It is anticipated that approximately 10,000 acres could be mechanically treated and affected in the short term within the next 20 years. The effects of mechanical treatments on water resources would depend on the following: 1) the area exposed by the treatment; 2) the effect of surface disturbance on soil properties; 3) the site conditions, especially slope and patterns of precipitation; and 4) the vegetation response after treatment (BLM 2007b).

Vegetation – Riparian and Wetland: Assessing and monitoring riparian areas for PFC in accordance with Riparian Area Management Technical References for Lotic Areas (BLM, USFS and NRCS 1998) and Lentic Areas (BLM, USFS and NRCS 2003) and Standards for Rangeland Health would assist in identification of water quality impairment associated with riparian areas functioning at risk or not functioning. Achieving or maintaining PFC in riparian areas promotes the growth of deep-rooted riparian vegetation that dissipates streamflow energy, stabilizes streambanks from cutting action, and filters sediment. Improving the health of riparian vegetation by directing management efforts toward achieving PFC would increase the quality of water resources.

The hydrologic regimes of watershed basins dictate their chemical characteristics and subsequently the plant and invertebrate communities they support. Salts occur naturally in the planning area in many bedrock deposits and in some deposits that lie on top of the bedrock. Surface water and groundwater flowing over and through these deposits dissolves and transports sodium and magnesium sulfate salts. Seven major types of salinity are associated with saline groundwater rising to the surface: slough ring salinity, coulee bottom salinity, artesian salinity, depression bottom salinity, outcrop salinity, slope-change salinity, and contact salinity. When water accumulates on the surface and evaporates, the salts are left behind and only salt-tolerant vegetation is capable of survival. Over time, the salts accumulate on the soil surface and a white crust forms where salt is highly concentrated.

Structural controls that provide water management and relief can be applied to control saline seeps at the surface and subsurface levels. Biological controls consist of growing crops and salt-tolerant perennial grasses. Crops can intercept water before it percolates below the root zone where the water is capable of accumulating salt that could seep to the

surface later. Perennial grasses can be grown in areas where the salt concentration is not so high as to completely prevent all plant growth. Grasses provide cover and shading which reduces evapotranspiration and, in turn, reduces the rise of salty water to the soil surface.

Reclaiming seep areas would improve soil and vegetation quality and could improve water resources in those areas where reclamation is a success. Water resources could be affected in the short term and long-term by design and mitigation measures implemented to protect and minimize the development of saline seep areas.

Cumulative Impacts

The BLM's goal is to maintain and restore the chemical, physical, and biological integrity of the nation's water. Authorized surface-disturbing activities are subject to an onsite evaluation of potential water resource disturbances in order to avoid, mitigate, and minimize water quality degradation. For water quality, NPS pollution that originates off of BLM land is an important cumulative effect. In many cases, the BLM has no control over the quality of water within streams that flow through BLM lands.

Past and present actions that have affected and would affect water resources include mineral exploration and development; improper livestock grazing; recreation; vehicle travel; and fire. In general, these actions have cumulative impacts on water resources through pollution introduction and surface disturbance that contributes to resource contamination, soil compaction, erosion, and subsequent sedimentation.

Past and present actions that have affected the natural hydrologic regime would affect water resources where the disturbance is still apparent. Water quantity and water quality are affected by the BLM's management of water resources, including hazard class dams, pits, and small reservoirs.

A reasonable foreseeable future action that could affect water resources would be the Keystone XL Pipeline. It is anticipated that construction would occur within the next two years. This pipeline would disturb approximately 300 acres of BLM land in the planning area. Compaction, erosion, chemical leaks and spills, degradation of riparian zones, and minor alterations to watershed function could have an effect on the quality of water resources. It has been demonstrated in the past that these types of actions can be successfully reclaimed, soil and vegetation productivity can return, and effects to water resources can be mitigated.

Impacts under Alternative A (Current Management)

Threats to water quality would be maintained and unforeseen situations could still impact water quality. In these situations, the BLM would continue to take corrective actions.

Fluid Minerals: The approximate acres that would be closed to fluid mineral leasing, and acres that would be open subject to NSO are listed in Table 4.66, Fluid Mineral Lease Stipulations for the Entire Planning Area by Alternative. Water resources would be protected on these acres because fluid mineral surface-disturbing activities and occupancy would not be allowed. Table 4.66 also lists the approximate acres that would be subject to a Soils-CSU stipulation.

The approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO within the North Blaine and Bears Paw South Field Development Areas are listed in Table 4.67, Fluid Mineral Lease Stipulations for the North Blaine and Bears Paw South Field Development Areas by Alternative. Water resources would be protected on these acres because fluid mineral surface-disturbing activities and occupancy would not be allowed. Table 4.67 also lists the approximate acres that would be subject to a Soils-CSU stipulation.

Fluid mineral development could affect water resources during exploration, drilling, production, and abandonment as described under Impacts Common to All Alternatives. Drilling and development would occur mostly in the high and moderate development potential areas (Appendix E.1) spread out over the next 15 to 20 years. A total of 2,422 acres would be disturbed in the long term and 9,564 acres disturbed in the short term by BLM actions under this alternative. Well pads and pipelines would undergo interim reclamation during production which would stabilize soils and minimize runoff and sedimentation. A long-term commitment to soil and vegetation that would fundamentally offer protection to water resources would be required for access roads and production areas. Soil and vegetation productivity would be

limited on acres that exhibit long-term disturbance and an elevated potential for negative water resource impacts would exist.

In analyzing riparian and wetland disturbances that could influence water resources, the following factors and assumptions were integrated:

- Alternative A identifies stipulations according to floodplains. Floodplains have not been designated across the entire planning area.
- Major reservoirs are Nelson, Fresno, Fort Peck, and Tiber.
- Intermittent and small perennial stream miles were obtained from the 1:100000 Surface Management map.
- Major rivers were designated as the Milk, Marias, Teton, and Missouri.
- The current land use plan applies specific wetland stipulations to Whitewater and Dibbler Reservoirs.
- The wetlands and remaining lotic riparian areas are protected under the standard terms and conditions (200 meters (656 feet) and 60 days).
- Only the proposed and existing stipulations will be analyzed.
- Roads, wells, and infrastructure associated with fluid mineral development could degrade water resources, the effects of which could be compounded if riparian and wetland areas are disturbed or manipulated.

The oil and gas RFD designated high, moderate, low and very low areas of potential oil and gas development. In these areas 93% of the lotic streams and 85% of the wetlands are located in the low and very low development potential categories. The riparian miles and wetland acres located within varying development potential areas are summarized in Table 4.85, Riparian Values in Potential Oil and Gas Areas under Alternative A (Current Management). The table shows leased and unleased miles of lotic riparian (streams) and leased and unleased acres of lentic riparian (wetlands) in all of the potential oil and gas areas.

Sixty-five miles (7% of the total) of lotic streams are identified in the oil and gas high and moderate development potential areas. Approximately 7,809 acres (15% of the total) of wetlands are located in high and moderate development potential areas. The RFD estimated that 75% of all new wells would occur in high and moderate development potential areas while only 4% of the activity would occur in very low development potential areas. Currently 72% of lotic riparian miles and 86% of lentic wetland acres that are located in the high and moderate development potential areas are leased with respect to the minimum standard stipulations (200 meters for relocation in order to protect resources). Most potentially negative effects to water resources associated with fluid mineral development would exist in high and moderate development potential areas where the density of wells and related facilities is higher and where it is more difficult to relocate wells and associated infrastructure 200 meters from riparian areas.

Table 4.87 identifies the miles of assessed streams and acres of wetlands that are affected by NSO and closed designations (major constraints) applied by any resource (i.e., wildlife, cultural, riparian) according to potential in leased and unleased areas.

A total of 972 lotic (stream) miles have been assessed for condition while the lentic (wetland) acres total 53,668 in the planning area. Stipulations applied under Alternative A, as shown in Table 4.87, would protect 243 miles (25%) and 5,890 acres (11%) of wetlands with major constraints (closed or NSO). Of the total protected (243 miles and 5,890 acres), 229 miles (94%) and 5,069 acres (87%) are unleased in the very low development potential area.

Lands and Realty: Under Alternative A, 90,343 acres of land which could have some riparian values would be available for disposal or exchange on a case-by-case basis to be determined by natural resource specialists and managers. Generally, riparian and wetland areas are not disposed of or traded unless equal or higher value land is received in the exchange.

Surface-disturbing activities described above in Impacts Common to All Alternatives could affect water resources within the designated corridors. Rights-of-way would be avoided where sensitive resources are present. Water resources would be protected in areas where soil erosion cannot be effectively mitigated or controlled and where reclamation to BLM standards is likely to be unsuccessful.

OHV Use and Travel and Transportation Management: A total of 124 acres would be open to OHV use off roads, primitive roads and trails (Fresno OHV Area and Glasgow OHV Area). Effects of OHV use on water resources could

occur as described in Impacts Common to All Alternatives. Effects to water resources would be the greatest where there are severe erosion hazards, shallow soils, badlands, riparian vegetation, and rock outcrop. Table 4.70 lists acres with severe erosion hazards, shallow soils, badlands, and rock outcrop in designated open OHV areas.

A total of 7,952 acres previously open would be closed to OHV use (Sweet Grass Hills ACEC). Water resources in and around these acres would be protected from OHV effects.

Effects on water resources from big game retrieval, if it were to be allowed, would be dependent on factors such as soil conditions (dry or frozen vs. wet or moist), soil type, vehicle weight (lbs./sq. in.) and driver type. If big game retrieval were to occur during wet soil conditions, ruts may be created and surfaces compacted to resist infiltration which could affect runoff and lead to erosion.

Renewable Energy Resources: Of the BLM land that exhibits wind energy development potential, 82% of the total acres would be avoidance areas for renewable energy rights-of-way where special stipulations, design features, mitigation measures, and/or BMPs would likely go beyond the standard right-of-way terms and conditions. The quality of water resources would be maintained through mitigation of adverse effects at the site-specific project level. Water resources would not be affected by renewable energy development where renewable energy rights-of-way would be excluded on 8% of the of the BLM land that yields wind energy development potential. Standard right-of-way terms and conditions would apply to 10% of the total acres of BLM land that possess wind energy development potential and that are open to renewable energy rights-of-way. Rights-of-way would be avoided where reclamation to BLM standards is unachievable and where control and mitigation of excess soil erosion is not feasible.

Solid Minerals: Under this alternative, BLM actions would contribute to 2,495 acres of long-term surface disturbance and 390 acres of short-term surface disturbance.

The current area withdrawn from mineral entry is 23,444 acres. The Zortman/Landusky mine reclamation withdrawal (3,530 acres) would be allowed to expire in October 2015 and the Sweet Grass Hills withdrawal (19,671 acres) would be allowed to expire in April 2017. If the withdrawals were not renewed and mining resumed, effects of mineral extraction on water resources as described in Impacts Common to All Alternatives could occur.

Table 4.77 shows the acres of locatable mineral development potential by category. The Long-Term columns represent the acres after the withdrawals are allowed to expire while the Short-Term columns represent development potential acres when the withdrawals are in place.

Lands in the Open category are open to location under the mining laws. Lands in the Closed category have been withdrawn or segregated from operation of the mining laws and are not available for mineral development. Lands in the Restricted category remain open to operation of the mining laws and are available for mineral development, but because of special designations, special management stipulations that serve to uphold the chemical, physical, and biological integrity of water resources would be applied.

Solid minerals have been or could be withdrawn and/or closed in the Big Bend ACEC; Azure Cave; Camp Creek and Montana Gulch Campgrounds; and Zortman Cemetery. Within these areas the effects of mineral extraction on water resources, as described in Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods. Most of the high development potential areas that are no longer closed still remain in special management areas (Little Rocky Mountains TCP and Sweet Grass Hills TCP) and would require a more extensive review in regard to the management of these lands. The Mountain Plover ACEC also remains in place which includes restrictions within moderate and low development potential areas of the Brazil Creek area.

The solid minerals RFD (Appendix P) identifies 57 miles of stream and 2,115 acres of wetland that are located in the high, moderate, and low potential areas for solid mineral development. Table 4.84 shows the breakdown of riparian miles by their functioning status in potential hard rock and bentonite mining areas.

Approximately 9.5 miles of lotic stream are located in the high potential bentonite mining location in south Valley County. The probability of a bentonite claim being developed in a wetland or riparian zone is very small. A total of 3.25 miles of stream are located in the high potential area for hard rock mining in the Little Rocky Mountains and the Sweet

Grass Hills. If adequate mitigation and BMPs are applied at the time of mine development, the chemical, physical, and biological integrity of water resources would be upheld.

Special Designations: The special designations (ACECs) and associated proposed actions of Alternative A would provide the lowest protection to water resources and riparian and wetland values of all the alternatives. The potential for surface disturbance, mostly from oil and gas development, is the highest of any alternative. Other surface-disturbing activities associated with minerals development would be allowed in most situations except for the WSAs.

Water Resources: The acres of riparian vegetation associated with impoundments along Willow Creek in south Valley County would decrease as reservoir projects are abandoned. Water resources could be negatively affected by the absence of structures and associated operational procedures that, in the past, ensured the presence of surface water for riparian vegetation maintenance in the reservoirs, along the wetted perimeters, and below outlet structures. The potential for new riparian vegetation to become established, or for existing vegetation to survive, would be limited as water would be unavailable in appropriate quantities to support hydrophytic vegetation. This loss of riparian values is dependent on climatic conditions and could take many years. Allowing structures to breach and fail could lead to large loads of silt and sediment in Willow Creek, the remaining impoundments along Willow Creek, and the larger perennial water bodies that Willow Creek is attributed to. Maintaining specifically designated reservoir projects and applying appropriate operational procedures along Willow Creek would sustain a certain amount of riparian vegetation which could serve to protect or enhance water quality. Over all, the loss of riparian and wetland acreage and water quality impacts due to the abandonment of the structures would be small in comparison to the total riparian acres and water resource concerns in the planning area.

Cumulative Impacts

The approximate acres of new surface disturbance that could occur within the planning area over the next 20 years vary due to the different sizes of the hypothetical wind farm. The anticipated approximate short-term and long-term surface disturbance from all actions in the entire planning area under this alternative is 223,654 and 18,813 acres or 1.271% and 0.107% of the entire planning area, respectively. The disturbances would not all occur at one time. A small portion of the surface disturbance would include direct removal of vegetation on streambanks and around potholes when the surface-disturbing activities cannot be moved due to other resource values (i.e., cultural resources and sensitive species). The effects of mineral development on water resources would be minimized if the disturbances could be moved away from riparian areas.

The management actions proposed under Alternative A have historically led to areas with reduced water quality. If this were to continue, the BLM would continue to take corrective action that could limit the duration of negative impacts. However, the more common situation is that the water quality of streams flowing through BLM lands is often a function of management occurring on multiple ownerships. This is because BLM lands often comprise a very small portion of the total watershed area and total stream length. In these mixed ownership watersheds the BLM would continue to take corrective action that could reduce the NPS pollution contribution. However, since NPS management is voluntary, some level of NPS pollution would continue to affect most planning area streams. As the MDEQ begins developing TMDLs within the planning area, some of the sources of NPS pollution may be reduced and overall water quality could improve. The BLM's contribution to water quality would remain similar to current levels; while the contribution of NPS pollution from other sources would likely be maintained or reduced.

Impacts under Alternative B

Threats to water quality would be reduced; but unforeseen situations could still impact water quality. In these situations, the BLM would continue to take corrective action.

Fluid Minerals: Tables 4.66 and 4.67 list the approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO across the entire planning area and the North Blaine and Bears Paw South Field Development Areas, respectively. Effects on those acres would be the same as described in Alternative A. The Soils-NSO stipulation acres that would offer some protection to water resources are included in the total NSO acreage.

The Soils-NSO stipulation, which states that no surface use or occupancy would occur on soils with a severe erosion hazard, badlands, rock outcrop, or slopes susceptible to mass failure, would provide protection to water resources in such areas. Once disturbed, these areas are the most difficult and costly to stabilize and reclaim to BLM program standards in order to ensure long-term protection of water resources. Protective and performance measures would be established for surface use or occupancy in areas where soils with severe erosion hazards are present. The use or occupancy of the surface would not be permitted if protective and performance measures cannot be satisfied.

Fluid mineral development could affect water resources during exploration, drilling, production, and abandonment as described in Impacts Common to All Alternatives. As portrayed in Table 4.3, a total of 1,545 BLM acres would be disturbed in the long term and 4,440 acres disturbed in the short term by BLM actions under this alternative.

Alternative B proposes the smallest number of new wells and the least amount of surface disturbance of all alternatives. The 1/4 mile NSO stipulation applied to oil and gas development for the protection of riparian and wetland areas would provide substantial protection to the chemical, physical, and biological integrity of water resources. Table 4.88 offers a breakdown of leased and unleased wetland acres and riparian miles that the stipulations under this alternative would affect. Areas that have been identified as possessing wilderness characteristics would be closed to oil and gas leasing. The riparian and wetland areas that are currently under lease (mostly areas of high and moderate fluid mineral development potential) would remain protected by the standard lease terms (200 meters and 60 days). Approximately 18% of the lotic miles and 31% of the wetland acres are currently under lease. When leases expire in areas with wilderness characteristics, 9% of the lotic miles and 1% of the lentic acres that are currently under lease would no longer be available for oil and gas leasing and the 1/4 mile NSO stipulation would be applied to new leases outside of areas with wilderness characteristics. The resource protection stipulations for unleased high, moderate, and low potential areas outside of areas with wilderness characteristics would apply to 45 miles of riparian zones and 12,193 acres of wetlands. This is 5% of the total lotic miles and 23% of the total acres of wetlands. The remaining riparian and wetland areas are either in the very low potential area or are currently leased.

Under Alternative B, the BLM would encourage oil and gas operators to develop and implement methods that treat produced water and enable its beneficial use. Successful treatment would assist in preventing produced water pits from potentially contaminating surface water and groundwater.

Lands and Realty: The land adjustment Category 3 lands that are identified for disposal, by exchange or sale, would include 193 acres of land that may have wetland and riparian values. The BLM could potentially acquire land with equivalent or better riparian and/or wetland values when a land exchange is completed. There could be either positive or negative indirect effects to water resources associated with exchange or disposal of BLM lands. A resource specialist would review the potential riparian and wetland values associated with an exchange or disposal before completing the action. All areas that exhibit wilderness characteristics would be avoidance areas for rights-of-way and stipulations set forth to protect water resources would be determined on a case-by-case basis at the project level.

OHV Use and Travel and Transportation Management: Effects of OHV use on water resources could occur as described under Impacts Common to All Alternatives. No areas would be open to cross-country motorized vehicle use, and water resources would not be subject to effects (as described under Alternative A) from such use.

Renewable Energy Resources: Under this alternative, water resources would receive the greatest amount of protection of all alternatives through the exclusion of renewable energy rights-of-way in 90% of the areas that yield development potential. Of the BLM land that exhibits wind energy development potential, 10% would be avoidance areas for renewable energy rights-of-way where special stipulations, design features, mitigation measures, and/or BMPs would likely go beyond the standard right-of-way terms and conditions. The quality of water resources would be maintained through mitigation of adverse effects at the site-specific project level. Less than 1% of the BLM land that exhibits wind energy development potential would be open to renewable energy rights-of-way with standard right-of-way terms and conditions. Rights-of-way would be avoided where reclamation to BLM standards is unachievable and where control and mitigation of excess soil erosion is not feasible.

Solid Minerals: Under this alternative, BLM actions would contribute to 355 acres of long-term surface disturbance and 355 acres of short-term surface disturbance.

The existing 23,563 acres of withdrawals in the Little Rocky Mountains and Sweet Grass Hills would be renewed. In addition, about 1,647,638 acres of withdrawals would also close more land to locatable mineral entry. A large portion of the withdrawn acres is due to the Greater Sage-Grouse Protection Priority Area (1,034,102 acres) and Grassland Bird/Greater Sage-Grouse Priority Areas (480,035 acres), as well as the withdrawals of the Bitter Creek ACEC (60,717 acres), Kevin Rim ACEC (4,553 acres), Malta Geological ACEC (6,152 acres), Mountain Plover ACEC (24,672 acres), Little Rocky Mountains TCP (33,742 acres), and Zortman Cemetery (20 acres). Within these areas the effects of mineral extraction to water resources, as described under Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods.

Table 4.78 shows the acres of locatable minerals development potential by category. With a significant amount of land being withdrawn, the majority of the areas with high, moderate, and low mineral development potential are in the Closed category. This alternative would reduce most locatable minerals development opportunities by eliminating any foreseeable development for the reestablishment and expansions of the Zortman and Landusky Mines and limiting all mining activity in the Sweet Grass Hills to the claims with valid existing rights. Most of the remaining moderate and low development potential lands in the Open category are within areas related to bentonite.

The probability of a bentonite claim being developed in a wetland or riparian zone is very small. If adequate mitigation and BMPs are applied at the time of mine development, the chemical, physical, and biological integrity of water resources would be upheld.

Special Designations: The levels of protection provided in the constraints for each ACEC varies in Alternative B. Some ACECs assign special management of riparian areas and water resources where constraints are currently in place for oil, gas, and mineral development under Alternative B.

Special Status Species: The protection priority habitat areas in portions of Valley County and south Phillips County would reduce surface disturbances on riparian and wetland vegetation as most surface-disturbing activities would be prohibited. Most of the protection priority habitat areas covered by this designation are in areas of low potential for disturbance. Under Alternative B, 608 miles of streamside riparian areas and 22,142 acres of wetlands would be protected from most surface-disturbing activities by the designation. Not allowing surface disturbances in riparian and wetland areas that are in PFC would assist in maintenance of such a condition while watershed functions and water resource values would benefit.

Vegetation – Rangeland: Most production areas for oil and gas are 1/10 acre. In Alternative B, reclamation would be required for surface disturbances greater than 1/10 acre. More acres would be reclaimed and water resources would likely benefit in Alternative B versus Alternative A.

Wilderness Characteristics: Closure to oil and gas leasing, and accepting the expiration of leases in areas that exhibit wilderness characteristics, would benefit water resources in those areas by excluding surface and subsurface disturbances associated with oil and gas development. Avoiding and excluding rights-of-way would help to uphold the integrity of water resources in areas with wilderness characteristics by limiting the potential for man-induced erosion and sedimentation. Where specific areas are managed for their wilderness characteristics, water resources would be managed to meet the intent of the visual quality objectives. Construction and restoration of water developments and physical improvements to FAR and NF riparian areas would include levels of change to the characteristic landscape that are low to very low.

Cumulative Impacts

Under Alternative B, the projected long-term surface disturbances in the planning area would be the lowest of all alternatives, and surface-disturbing activities would have the least potential of all the alternatives to adversely affect water resources. The approximate acres of new surface disturbance that could occur within the planning area over the next 20 years vary due to the different sizes of the hypothetical wind farm. The anticipated approximate short-term and long-term surface disturbance from all actions in the entire planning area under this alternative is 241,116 and 17,727 acres or 1.37% and 0.1% of the entire planning area, respectively. The disturbances would not all occur at one time.

Management actions proposed under Alternative B would reduce the amount of NPS pollution produced and improve water quality. In areas where impacts occur, the BLM would take corrective action that could limit the duration and

extent of the impacts. However, the more common situation is that the water quality of streams flowing through BLM lands is often a function of management occurring on multiple ownerships. This is because BLM lands often comprise a very small portion of the total watershed area and total stream length. In these mixed ownership watersheds the BLM would continue to take corrective action that could reduce the contribution to NPS pollution. However, since NPS management is voluntary, some level of NPS pollution would continue to affect most planning area streams. As the MDEQ begins developing TMDLs within the planning area, some of the sources of NPS pollution may be reduced and overall water quality could improve. The BLM's contribution to NPS pollution would be reduced which would heighten the potential to improve water quality. The actual resulting water quality would be dependent on the contributions from other sources, which the BLM expects to be either maintained or reduced.

Impacts under Alternative C

Threats to water quality would be reduced; but unforeseen situations could still impact water quality. In these situations, the BLM would continue to take corrective action.

Fluid Minerals: Tables 4.66 and 4.67 list the approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO in the entire planning area and the North Blaine and Bears Paw South areas, respectively. Effects to water resources on those acres would be the same as described in Alternative A. The Soils-NSO stipulation acres, that would offer some protection to water resources, are included in the total NSO acres. Table 4.66 also lists the approximate acres that would be subject to a Soils-CSU stipulation capable of protecting water resources.

The Soils-NSO and Soils-CSU stipulations would assist in preserving the integrity of water resources by providing protection to areas with severe water and wind erosion hazards, badlands, rock outcrops, or slopes susceptible to mass failure. These areas, once disturbed, are the most difficult and costly to stabilize and reclaim in order to ensure long-term protection of water resources. Protective and performance measures would be established for surface use or occupancy in areas where soils with severe erosion hazards are present. The use or occupancy of the surface would not be permitted if protective and performance measures cannot be satisfied.

The types of effects to water resources under Alternative C for fluid mineral leasing are expected to be the same as described under Alternative A, except in magnitude. A total of 2,238 BLM acres would be disturbed in the long term and 8,547 acres disturbed in the short term by BLM actions under this alternative.

Potentially negative effects to water resources would mostly subsist on leased areas in the high, moderate, and low potential areas where the new stipulations would not be implemented unless the current leases expired.

The acres of wetlands and miles of riparian zones that could have major constraints (closed or NSO) put on the unleased areas is the same as Alternative B. Approximately 18 miles of riparian zones and 1,106 acres of wetlands would be protected in the high and moderate potential areas (see Table 4.87). This alternative would provide protection second only to Alternative B from surface-disturbing activities that could affect water resources.

Alternative C establishes a 500 foot NSO around all lotic and lentic riparian areas which would provide protection to water resources by sustaining valuable riparian and wetland functions and by limiting the potential for produced water to contaminate surface water designated for beneficial uses.

Lands and Realty: The effect on riparian zones and water resources would be similar to Alternative B. Potential wetland and riparian values could exist within 193 acres of land that would be available for disposal. The BLM could potentially acquire land with equivalent or better riparian and wetland values when a land exchange is completed. Either positive or negative indirect effects to water resources could be associated with exchange or disposal of BLM lands. A resource specialist would review the potential riparian and wetland values associated with an exchange or disposal before completing the action.

OHV Use and Travel and Transportation Management: The acreage of soils with severe erosion hazards, badlands, and rock outcrop for the delineated travel management areas are shown in Table 4.73.

A total of 8,076 acres would be closed, where previously open, to OHV use (Sweet Grass Hills ACEC, Fresno OHV Area, and Glasgow OHV Area.). Water resources in and around these areas would be protected from motorized vehicle use effects.

Effects on water resources from big game retrieval, if it were allowed, would be dependent on factors such as soil conditions (dry or frozen vs. wet or moist), soil type, vehicle weight (lbs./sq. in.) and driver type. If big game retrieval were to occur during wet soil conditions, ruts may be created and surfaces compacted to resist infiltration, which could affect runoff and lead to erosion. Water resource effects would be greatest where soils with severe erosion hazards, shallow soils, badlands, riparian areas, or rock outcrop were traversed. South Valley County and south Phillips County have 970 acres of wetlands and 116 miles of lotic riparian areas with conjoined water resource values that could potentially be affected.

Renewable Energy Resources: Water resources would not be affected by renewable energy development on 54% of the of the BLM land that yields development potential because renewable energy rights-of-way would be excluded under this alternative. On BLM land that exhibits wind energy development potential, 24% of the acreage would be open to renewable energy rights-of-way with standard right-of-way terms and conditions. Rights-of-way would be avoided where reclamation to BLM standards is unachievable and where control and mitigation of excess soil erosion is not feasible. Of the BLM land that exhibits wind energy development potential, 22% of the total acres would be avoidance areas for renewable energy rights-of-way where special stipulations, design features, mitigation measures, and/or BMPs would be likely to go beyond the standard right-of-way terms and conditions. The quality of water resources would be maintained through mitigation of adverse effects at the site-specific project level.

Solid Minerals: Under this alternative, BLM actions would contribute to 355 acres of long-term surface disturbance and 355 acres of short-term surface disturbance.

The existing 23,563 acres of withdrawals in the Little Rocky Mountains and Sweet Grass Hills would be renewed. Locatable mineral entry would be closed on an additional 1,506,086 acres that would be withdrawn. The majority of the withdrawn acres include the Greater Sage-Grouse Protection Priority Area (1,034,102 acres), the Grassland Bird/Greater Sage-Grouse Priority Areas (320,405 acres), the Zortman Cemetery (20 acres), and the following ACECs: Bitter Creek ACEC (60,717 acres), Frenchman Breaks ACEC (39,661 acres), Kevin Rim ACEC (4,553 acres), Malta Geological ACEC (6,152 acres), and Woody Island ACEC (18,804 acres). Within these areas the effects of mineral extraction to water resources, as described under Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods.

Table 4.79 shows the acres of locatable minerals development potential by category. Because of the amount of land being withdrawn from mineral entry, the majority of the areas with high and moderate mineral development potential are in the Closed category. Similar to Alternative B, this alternative would reduce most locatable minerals development opportunities by eliminating any foreseeable development for the reestablishment and expansions of the Zortman and Landusky Mines and limiting all mining activity in the Sweet Grass Hills to the claims with valid existing rights. Most of the remaining moderate and low development potential lands in the Open category are within areas related to bentonite.

The probability of a bentonite claim being developed in a wetland or riparian zone is very small. If adequate mitigation and BMPs are applied at the time of mine development, the chemical, physical, and biological integrity of water resources would be upheld.

Special Designations: Under Alternative C, the projected special designations would provide protection from the effects of surface occupancy and use through NSO for oil and gas and closure to mineral entry and sale in riparian areas. The more constrained surface-disturbing activities are the more water resources are protected. The Woody Island ACEC, if made available for leasing under the oil and gas leasing program, would offer protection from most surface-disturbing activities on 2,635 acres of wetlands.

Special Status Species: The effects would be the same as under Alternative B except for the acres protected from fluid mineral leasing. The effects to water resources associated with riparian and wetland areas would be minor as the Protection Priority Areas are in the low and very low development potential areas for oil and gas development.

Vegetation – Rangeland: Reclamation would be required for surface disturbances greater than 1/10 acre. Effects would be the same as described in Alternative B.

Wilderness Characteristics: Closure to oil and gas leasing or leasing with an NSO stipulation would benefit water resources in those areas by excluding surface and subsurface disturbances associated with oil and gas development. Avoiding and excluding rights-of-way would help to uphold the integrity of water resources in areas with wilderness characteristics by limiting the potential for man-induced erosion and sedimentation. Where specific areas are managed for their wilderness characteristics, water resources would be managed to meet the intent of the visual quality objectives. Construction and restoration of water developments and physical improvements to FAR and NF riparian areas would include levels of change to the characteristic landscape that are low to very low.

Cumulative Impacts

The types of effects to water resources under Alternative C for surface-disturbing activities are expected to be the same as described under Alternative A except in intensity. Under Alternative C, the projected long-term surface disturbance in the planning area would be the second lowest of all alternatives. The approximate acres of new surface disturbance that could occur within the planning area over the next 20 years vary due to the different sizes of the hypothetical wind farm. The anticipated approximate short-term and long-term surface disturbance from all actions in the entire planning area under this alternative is 245,228 and 18,421 acres or 1.394% and 0.105% of the entire planning area, respectively. The disturbances would not all occur at one time.

Management actions proposed under Alternative C would reduce the amount of NPS pollution produced and improve water quality. In areas where impacts occur, the BLM would continue taking corrective action which could limit the duration and extent of the impacts. However, the more common situation is that the water quality of streams flowing through BLM lands is often a function of management occurring on multiple ownerships. This is because BLM lands often comprise a very small portion of the total watershed area and total stream length. In these mixed ownership watersheds the BLM would continue to take corrective action that could reduce the contribution to NPS pollution. However, since NPS management is voluntary, some level of NPS pollution would continue to affect most planning area streams. As the MDEQ begins developing TMDLs within the planning area, some of the sources of NPS pollution may be reduced and overall water quality could improve. The BLM's contribution to NPS pollution would be reduced which would heighten the potential to improve water quality. The actual resulting water quality would be dependent on the contributions from other sources. The BLM expects the volume of NPS pollution contributions from other sources to be either maintained or reduced.

Impacts under Alternative D

Threats to water quality would increase and unforeseen situations could still impact water quality. In these situations, the BLM would continue to take corrective action.

Fluid Minerals: Tables 4.66 and 4.67 list the approximate acres that would be closed to fluid mineral leasing and acres that would be open subject to NSO across the entire planning area and the North Blaine and Bears Paw South Field Development Areas, respectively. Effects to water resources in and around those areas would be the same as described in Alternative A.

Fluid mineral development would affect water resources during exploration, drilling, production, and abandonment as described under Impacts Common to All Alternatives. A total of 2,436 BLM acres would be disturbed in the long term and 9,663 acres disturbed in the short term by BLM actions under this alternative.

Relocating a proposed oil and gas operation up to 200 meters (standard lease terms) would provide the authorized officer the option to move a location away from an area where erosion cannot be controlled, mitigated, or reclaimed. However, 200 meters may not be a great enough distance to ensure water resources are not at risk of receiving adverse impacts.

Protection of riparian values by stipulations that close surface utilization or establish NSO would protect water resources along 261 miles of riparian zones and 8,235 acres of wetlands. The protection measures under Alternative D would

provide maximum protection to 27% of assessed riparian areas and 15% of wetlands. Approximately 94% of these maximum protected values are in the very low development potential area.

The actions proposed in Alternative D could adversely affect water resources through disturbances to riparian and wetland areas. The proposed setback (300 feet) for the protection of riparian and wetland resources would provide the least protection to water resources of all the alternatives and less than the standard lease term of 200 meters applied in Alternative A.

Lands and Realty: Alternative D identifies approximately 554 acres of wetlands and 9.7 miles of riparian areas along streams that would be available for exchange or disposal under the Category 3 designation. Alternative D identifies the largest total acres for disposal and the most potential riparian and wetland areas available for exchange or disposal of all the alternatives. The effects to water resources would be similar to Alternative B. The BLM could potentially acquire similar or better riparian values when a land exchange is completed. An exchange and a disposal would have resource specialist reviews before completing the action.

OHV Use and Travel and Transportation Management: A total of 305 acres would be open to cross-country motorized vehicle use (Fresno OHV Area, Glasgow OHV Area, and Thirty Mile OHV Area). Watershed values associated with these acres would be subject to the effects described under Impacts Common to All Alternatives and to impacts addressed in the preceding paragraph related to a chemical crust. Table 4.74 lists acres with severe erosion hazards, shallow soils, badlands, and rock outcrop in designated open OHV areas.

The acres of soils with severe erosion hazards, badlands, and rock outcrop for the delineated travel management areas are shown in Table 4.73. At the time of travel management planning, if areas are open to off-road use, water resources linked to those areas could be affected as described in Alternative A.

Effects of cross-country motorized vehicle use would be the same as described in Alternative A. It has been observed in the proposed Thirty Mile OHV Area that loose material lies underneath a chemical crust. Once this chemical crust is disturbed by motorized vehicles the underlying material becomes exposed to erosion. Unnatural and excessive amounts of eroded material produced by the OHV area could add to the dissolved and suspended sediment load in Thirty Mile Creek.

Impacts to water resources from big game retrieval, as described in Alternative C, would not occur within the following areas closed to big game retrieval: Big Bend, Kevin, Frenchman Breaks, and Malta Geological ACECs. Under Alternative D, 53,317 acres of wetland and 869 miles of lotic riparian could potentially be affected from motorized game retrieval off road. The potential short-term effects of OHV travel from game retrieval to wetlands and riparian values would be the largest of any alternative.

Renewable Energy Resources: Of the BLM land that exhibits wind energy development potential, 78% of the total acres would be avoidance areas for renewable energy rights-of-way where special stipulations, design features, mitigation measures, and/or BMPs would likely go beyond the standard right-of-way terms and conditions. The quality of water resources would be maintained through mitigation of adverse effects at the site-specific project level. Water resources would not be affected by renewable energy development where renewable energy rights-of-way would be excluded on 12% of the of the BLM land that yields wind energy development potential. Standard right-of-way terms and conditions would apply to 10% of the total acres of BLM land that possess wind energy development potential and that are open to renewable energy rights-of-way. Rights-of-way would be avoided where reclamation to BLM standards is unachievable and where control and mitigation of excess soil erosion is not feasible.

Solid Minerals: Under Alternative D, BLM actions would contribute to 300 acres of long-term surface disturbance and 235 acres of short-term surface disturbance.

The total area withdrawn from mineral entry is 169,845 acres. The Zortman/Landusky mine reclamation withdrawal (3,530 acres) would be allowed to expire in October 2015, and the Sweet Grass Hills (19,671 acres) withdrawal would be allowed to expire in April 2017. If the withdrawals were not renewed and mining resumed, effects of mineral extraction on water resources as described in Impacts Common to All Alternatives could occur.

Solid minerals have been or could be withdrawn and/or closed in the Big Bend, Kevin Rim, Malta Geological, Woody Island, Frenchman Breaks, Mountain Plover, and Bitter Creek ACECs; Azure Cave; Sweet Grass Hills TCP; Zortman Cemetery; Camp Creek and Montana Gulch Campgrounds; and the Greater Sage-Grouse Protection Priority Area and Grassland Bird/Greater Sage-Grouse Priority Areas. Within these areas the effects of mineral extraction to water resources, as described under Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods.

Table 4.80 shows the acres of locatable mineral development potential by category. The Long-Term column distinguishes the acres after the withdrawals are allowed to expire while the Short-Term columns presents development potential acres when the withdrawals are in place.

Most of the high and moderate development potential areas that would no longer be closed reside in special management areas (Little Rocky Mountains TCP and Sweet Grass Hills TCP) and would require a more extensive review in regard to the management of these lands. Partial withdrawal of the Little Rocky Mountains ACEC would affect some of the moderate development potential of that area.

The probability of a bentonite claim being developed in a wetland or riparian zone is very small. If adequate mitigation and BMPs are applied at the time of mine development, the chemical, physical, and biological integrity of water resources would be upheld.

Special Designations: Alternative D would provide additional protection to riparian areas in the form of NSO for oil and gas leasing and closure to mineral entry and sale, which would eliminate surface-disturbing activities from these sources and uphold the chemical, physical, and biological integrity of water resources.

The Woody Island ACEC would protect water resources from most surface-disturbing activities (see Table 4.90, Additional Protections for Wetlands in Woody Island ACEC) for acres protected.

Vegetation – Rangeland: Reclamation would be required for surface disturbances greater than 1/10 acre. Effects would be the same as described in Alternative B.

Cumulative Impacts

The types of effects to water resources through impacts to riparian and wetland communities are expected to be the same as described under Alternative A for surface-disturbing activities. Under Alternative D, the projected short-term and long-term surface disturbances in the planning area are the highest of all alternatives. The approximate acres of new surface disturbance that could occur within the planning area over the next 20 years vary due to the different sizes of the hypothetical wind farm. The anticipated approximate short-term and long-term surface disturbance from all actions in the entire planning area under this alternative is 246,659 and 18,852 acres or 1.402% and 0.107% of the entire planning area, respectively. The disturbances would not all occur at one time.

Management actions proposed under Alternative D would increase the amount of NPS pollution produced and potentially reduce water quality. In areas where impacts occur, the BLM would continue taking corrective action which could limit the duration and extent of the impact. However, the more common situation is that the water quality of streams flowing through BLM lands is often a function of management occurring on multiple ownerships. This is because BLM lands often comprise a very small portion of the total watershed area and total stream length. In these mixed ownership watersheds the BLM would continue to take corrective action that could reduce the NPS pollution contribution. However, since NPS management is voluntary, some level of NPS pollution would continue to affect most planning area streams. As the MDEQ begins developing TMDLs within the planning area, some of the sources of NPS pollution may be reduced and overall water quality could improve. The BLM's contribution to NPS pollution would be increased which could potentially reduce water quality in the short term. The actual resulting water quality would be dependent on the contributions from other sources. The contribution of NPS pollution from other sources would likely be maintained or reduced.

Impacts under Alternative E (Preferred Alternative)

Threats to water quality would be reduced; but unforeseen situations could still impact water quality. In these situations the BLM would continue to take corrective action.

Fluid Minerals: Fluid mineral development could affect water resources during exploration, drilling, production, and abandonment as described under Impacts Common to All Alternatives. A total of 2,346 BLM acres would be disturbed in the long term and 9,123 acres disturbed in the short term by BLM actions under this alternative.

Tables 4.66 and 4.67 list the approximate acres that would be closed to fluid mineral leasing, and acres that would be open subject to NSO in the entire planning area and the North Blaine and Bears Paw South Field Development Areas, respectively. The Soils-NSO stipulation acres are included in the total NSO acres. Table 4.66 also lists the approximate acres that would be subject to a Soils-CSU stipulation.

The Soils-NSO and Soils-CSU stipulations would assist in preserving the integrity of water resources by providing protection to areas with severe water and wind erosion hazards, badlands, rock outcrops, or areas susceptible to mass wasting. These areas, once disturbed, are the most difficult and costly to stabilize and reclaim to BLM program standards. Protective and performance measures would be established for surface use or occupancy in areas where soils with severe erosion hazards are present. The use or occupancy of the surface would not be permitted if protective and performance measures cannot be satisfied.

An NSO stipulation for State-designated Source Water Protection Areas would protect areas that are used to supply public water systems from potential contamination.

The proposed CSU setback (300 feet) and the NSO stipulation on the lotic and lentic water bodies for the protection of riparian values would provide levels of protection for water resources that are less than Alternatives B or C, but greater than Alternatives A and D. The CSU stipulation that provides a 300-foot setback from riparian vegetation could allow some flexibility in placing structures associated with fluid mineral development. NSO within lentic or lotic areas (standing and moving water) does not apply to production facilities (e.g., pipelines). Where production facilities are allowed, the physical, chemical, and biological integrity of water resources could be negatively affected during operation and maintenance due to potential sediment and contaminant introduction. Protection of riparian values achieved through application of closed or NSO stipulations (major constraints) to fluid mineral resources would serve to uphold the quality of water resources conterminous with approximately 972 miles of lotic streams and 53,668 acres of wetlands (see Table 4.87). Of the 972 miles of assessed lotic streams that are in the Potential Development Area, 77% are unleased and in the Very Low Development Potential Area. Within the planning area, 47% of all of the wetland acres on BLM land are unleased and in the Very Low Development Potential Area.

Lands and Realty: Surface-disturbing activities described under Impacts Common to All Alternatives could affect water resources within the designated corridors. Rights-of-way would be avoided where resources are sensitive to direct and cumulative impacts. Water resources would be protected in areas where soil erosion cannot be effectively mitigated or controlled and where reclamation to BLM standards is likely to be unsuccessful.

There could be either positive or negative indirect effects to water resources associated with exchange or disposal of BLM lands. A total of 14,029 acres would be available for disposal. Of the total available, 193 acres have possible wetland or riparian values. Generally, riparian and wetland areas are not disposed of or traded unless equal or higher value land is received in the exchange. An exchange and a disposal would have resource specialist reviews before completing the action.

OHV Use and Travel and Transportation Management: Effects of off-highway vehicle use on water resources could occur as described under Impacts Common to All Alternatives. Effects to water resources would be the greatest in areas with severe erosion hazards, shallow soils, badlands, riparian vegetation, and rock outcrop.

A total of 165 acres would be open to OHV use (Glasgow OHV Area and Fresno OHV area). Water resources in and around these acres would be subject to effects identified under Impacts Common to All Alternatives. Table 4.75 lists acres with severe erosion hazards, shallow soils, badlands, and rock outcrop in open travel areas. A total of 7,952 acres

would be closed to OHV use (Sweet Grass Hills ACEC). Water resources around these acres would be offered protection from OHV effects.

At the time of travel management planning, if areas are opened to off-road use, water resources in and around the areas could be affected. The effects of OHV use on soils and watershed function include soil compaction, reduced water infiltration, diminished presence and impaired function of soil stabilizers (vegetation; biological, chemical, and physical crusts; etc.), and accelerated erosion rates. Where biological and chemical crusts, or other soil stabilizers, are disturbed or destroyed, erosion could lead to decreased water quality reflected by increased dissolved and suspended sediment. Effects would be the greatest on soils with severe erosion hazards, shallow soils, badlands, and rock outcrops, as these areas would be difficult to stabilize and reclaim once disturbed by repeated motorized vehicle use.

Effects on water resources from big game retrieval, if allowed, would be dependent on factors such as soil conditions (dry or frozen vs. wet or moist), soil type, vehicle weight (lbs./sq. in.) and driver type. If big game retrieval were to occur during wet soil conditions, ruts may be created and surfaces compacted to resist infiltration which could affect runoff and lead to erosion. Water resource effects would be greatest where soils with severe erosion hazards, shallow soils, badlands, riparian vegetation, or rock outcrop were traversed.

Renewable Energy Resources: Under this alternative, water resources would receive the second greatest amount of protection of all alternatives through the exclusion of renewable energy rights-of-way in 63% of the areas that yield development potential. Of the BLM land that exhibits wind energy development potential, 36% would be avoidance areas for renewable energy rights-of-way where special stipulations, design features, mitigation measures, and/or BMPs would be likely to go beyond the standard right-of-way terms and conditions. The quality of water resources would be maintained through mitigation of adverse effects at the site-specific project level. Approximately 1% of the BLM land that exhibits wind energy development potential would be open to renewable energy rights-of-way with standard right-of-way terms and conditions. Rights-of-way would be avoided where reclamation to BLM standards is unachievable and where control and mitigation of excess soil erosion is not feasible.

Solid Minerals: Under this alternative, BLM actions would contribute to 355 acres of long-term surface disturbance and 355 acres of short-term surface disturbance.

Solid minerals have been or could be withdrawn and/or closed in the Big Bend, Kevin Rim, Sweet Grass Hills, Malta Geological, and Mountain Plover ACECs; Azure Cave; Sweet Grass Hills TCP; Zortman Cemetery; Camp Creek and Montana Gulch Campgrounds; Zortman/Landusky mine reclamation area; a portion of the Little Rocky Mountains TCP; Greater Sage-Grouse Protection Priority Areas, and Grassland Bird/Greater Sage-Grouse Priority Areas. Within these areas the effects of mineral extraction to water resources, as described under Impacts Common to All Alternatives, would not occur during the withdrawal or closed time periods.

Through the future withdrawal review process, BLM would consider the need for a new withdrawal or right-of-way to promote successful reclamation for the Zortman/Landusky mine reclamation. The area for the withdrawal would not exceed the existing withdrawal boundary, but would likely be smaller (maximum size would be 2,560 acres). The chemical, physical, and biological integrity of water resources would benefit significantly in the long term from reclamation in the Zortman/Landusky Mine area.

With most of the current withdrawals renewed and the addition of the Mountain Plover ACEC recommended withdrawal, the integrity of water resources would be upheld in the three areas with the most solid mineral development potential. Within Brazil Creek, the moderate and low areas of development potential that were under the Restricted management category under current management would be closed. The majority of the high development potential areas within the Little Rocky Mountains and the Sweet Grass Hills continue to fall under the Closed category. If the withdrawal in the Little Rocky Mountains is allowed to expire through review, the Zortman/Landusky Mine Reclamation ACEC (2,560 acres) would still remain. This would open the area up to mineral entry, but special stipulations would apply for any operation, resulting in a more extensive environmental review and increased water resource protection.

Special Designations: The Azure Cave ACEC (142 acres), Bitter Creek ACEC (60,701 acres), Mountain Plover ACEC (24,762 acres), and Sweet Grass Hills ACEC (7,428 acres) would be closed to oil and gas leasing. These same ACECs, and the proposed Malta Geological ACEC (6,153 acres) and proposed Woody Island ACEC (32,869 acres) would be withdrawn from mineral entry and location. All of the aforementioned ACECs, and the Kevin Rim ACEC (4,557 acres),

the Big Bend of the Milk River ACEC (1,979 acres), and the proposed Frenchman Breaks ACEC (42,020 acres) would be closed to solid mineral leasing and mineral material sales. The closures and withdrawals in all of these areas lend significant protection to water resources.

Under Alternative E, the Proposed Little Rocky Mountains ACEC area would not be designated an ACEC. NSO stipulations for oil and gas leasing would be included in the Big Bend of the Milk River ACEC, Kevin Rim ACEC, the Proposed Frenchman Breaks ACEC, and the Proposed Woody Island ACEC. The Proposed Malta Geological ACEC would include a CSU stipulation for oil and gas leasing. Water resources would be moderately protected in areas that are not designated ACECs and that are not closed to oil and gas leasing.

All existing and proposed ACECs would be avoidance areas for rights-of-way and exclusion areas for wind energy rights-of-way. The water resources that traverse these specially designated areas would benefit from such avoidance and exclusions.

Special Status Species: The PHMA and SFA designations in Valley County and south Phillips County could reduce surface disturbance activities on riparian and wetland vegetation and help to ensure water resource integrity is upheld as it provides NSO stipulations to surface-disturbing activities. Fluid mineral development would create 70% of the long-term surface disturbance effects, 95% of which would occur in high, moderate, and low development potential areas. The PHMAs and SFAs are in the low and very low development potential areas for fluid mineral development so the effects of these special designations on riparian and wetland values and amalgamated water resources would be very small. Lotic riparian and lentic wetlands currently in PFC would be maintained in their existing condition which would positively influence watershed functions and water quality.

Vegetation – Rangeland: Most production areas for oil and gas are 1/10 acre. Reclamation would be required for surface disturbances greater than 1/10 acre. More acres would be reclaimed and water resources would likely benefit.

Wilderness Characteristics: Leasing with an NSO stipulation for oil and gas would benefit water resources in those areas by excluding surface and subsurface disturbances associated with oil and gas development. Avoiding and excluding rights-of-way would help to uphold the integrity of water resources in areas with wilderness characteristics by limiting the potential for man-induced erosion and sedimentation. Where specific areas are managed for their wilderness characteristics, water resources would be managed to meet the intent of the visual quality objectives. Construction and restoration of water developments and physical improvements to FAR and NF riparian areas would include levels of change to the characteristic landscape that are low to very low.

Cumulative Impacts

The approximate acres of new surface disturbance that could occur within the planning area over the next 20 years vary due to the different sizes of the hypothetical wind farm. The anticipated approximate short-term and long-term surface disturbance from all actions in the entire planning area under this alternative is 245,872 and 18,645 acres or 1.397% and 0.106% of the entire planning area, respectively. The disturbances would not all occur at one time.

Management actions proposed under Alternative E would reduce the amount of NPS pollution produced and improve water quality. In areas where impacts occur, the BLM would continue taking corrective action which could limit the duration and extent of the impacts. However, the more common situation is that the water quality of streams flowing through BLM lands is often a function of management occurring on multiple ownerships. This is because BLM lands often comprise a very small portion of the total watershed area and total stream length. In these mixed ownership watersheds the BLM would continue to take corrective action that could reduce the contribution to NPS pollution. However, since NPS management is voluntary, some level of NPS pollution would continue to affect most planning area streams. As the MDEQ begins developing TMDLs within the planning area, some of the sources of NPS pollution may be reduced and overall water quality could improve. The BLM's contribution to NPS pollution would be reduced which would heighten the potential to improve water quality. The actual resulting water quality would be dependent on the contributions from other sources. The BLM expects the volume of NPS pollution contributions from other sources to be either maintained or reduced.

Wilderness Characteristics

The 2011 BLM inventory update identified approximately 386,462 acres in 26 areas (Map W.9) that have wilderness characteristics or approximately 16% of the BLM land in the planning area. In 2013, two more inventory units were added, based on new information submitted by the Montana Wilderness Association, for a total of 28 areas and 399,482 acres. Chapter 3 describes the inventory process and provides a general description of the inventoried areas. This section identifies the potential impacts to wilderness characteristics from implementing proposed management actions in the RMP. Impacts to the wilderness characteristics are described in terms of how certain actions affect the wilderness qualities of naturalness, undeveloped condition, opportunities for solitude or primitive and unconfined type of recreation, or unique or supplemental qualities of a given area, such as significant cultural resources.

Impacts to naturalness occur when management activities fragment the size of natural, undisturbed landscapes through development activities or other resource uses that alter natural ecosystem processes or degrade the appearance of having been affected primarily by the forces of nature. Opportunities to experience solitude or to participate in an unconfined type of primitive recreation can be impacted by activities that create impacts to the visual environment and that create disturbances to recreation users from restricted access, permanent developments, and the presence of field crews, equipment and associated noise. Allowable uses and management actions that could affect wilderness characteristics include surface development and associated infrastructures such as vegetation management, range improvement projects, or more intensive activities such as natural gas development. Impacts to other resources from management of wilderness characteristics are described under the respective resource headings throughout Chapter 4.

Wilderness characteristics in areas with a high potential for resource development are likely to be more heavily impacted through the long-term. Small-scale, dispersed development (range improvements, etc.) have a lesser impact due to the ability to fit these facilities into natural landscapes. In addition, actions that occur on lands not administered by the BLM (regardless of ownership) can affect the wilderness characteristics of the adjacent BLM lands.

Assumptions and Guidelines

In order to protect and/or restore wilderness characteristics in the planning area, the following assumptions are made:

- Short-term impacts to apparent conditions of naturalness and solitude from restoration and management projects would be necessary to manage for long-term naturalness.
- Reintroducing fire would enhance long-term naturalness and ecosystem function in lands with wilderness characteristics.
- Designated travel routes within areas with wilderness characteristics would be identified to prevent impacts to natural resources and the visitor experience. The direct effects of these travel routes would be evaluated when travel management planning is implemented.
- Surface disturbances generally decrease conditions of naturalness due to short and long-term visual resource contrast from loss of vegetation, soil impacts, and alteration of wildlife behaviors.
- The greater the amount of surface disturbance authorized within areas possessing wilderness characteristics, the greater potential impact to naturalness and opportunities for solitude or primitive recreation.
- Resource protection stipulations and measures can protect the existing wilderness characteristics of the landscape.
- Short-term effects on wilderness characteristics may occur for long-term resource benefit.
- Areas possessing wilderness characteristics are not subject to the policies or guidance applicable to WSAs or Wilderness Areas.

- Under Alternative A, decisions on projects in areas possessing wilderness characteristics would be consistent with current management.

Impacts Common to All Alternatives

Protective management actions for wilderness characteristics, wildlife/habitat, cultural, paleontological and geological resources, and special designations would have both direct and indirect impacts on wilderness characteristics. Stipulations and reclamation requirements would be placed on surface-disturbing activities to help protect those resource values.

Surface-disturbing activities would affect wilderness characteristics to varying degrees depending on the type of disturbance, amount, duration (long-term versus short-term), location, and success of reclamation efforts.

Fire Management and Ecology: Fire suppression activities would be expected under all alternatives. Impacts from the use of mechanical equipment for construction of firelines, safety zones, spike camps or landing zones would be expected to degrade naturalness in the short term. Rehabilitation efforts would mitigate impacts over the long term.

Planning for the role of wildland fire as an essential ecological process and natural change agent could benefit naturalness in areas with wilderness characteristics where fire is allowed to play a natural role in the ecosystem. Opportunities for solitude and primitive recreation opportunities would be impacted during fire periods and restoration, due to visual impacts and the presence of suppression and ES&R crews and equipment. ES&R treatments would stabilize and prevent unacceptable degradation to natural resources and would repair or improve fire-damaged lands unlikely to recover naturally to management-approved conditions, which would help ensure long-term naturalness of the impacted areas. Without taking these actions, native vegetation communities, wildlife habitat, aquatic resources, as well as the road and trail system would be susceptible to long-term degradation.

Fluid Minerals: Approximately 70,172 acres (19%) of lands with wilderness characteristics are currently leased for oil and gas development. About 13, 697 acres within the Western Breaks and Badlands region are in the high development potential while the remaining areas fall within the low to very low development potential. Exploration activities and development potential are estimated based on known mineral surveys/inventories, which is subject to change over time with the introduction of new information or technologies.

Livestock Grazing: Livestock grazing can impact native biological communities and often requires developments to accomplish allotment objectives. Impacts to primitive recreation would also be expected due to cattle congregation in recreation use areas which could create conflict between recreation users and cattle. Achieving or maintaining Standards for Rangeland Health and Guidelines for Livestock Grazing Management would benefit wilderness characteristics by maintaining and enhancing natural environments.

Noxious Weeds and Other Non-native, Invasive Species: Management of non-native, invasive species would have the both short and long-term impacts to naturalness and the visitor experience. Eradication and containment of invasive species would help maintain and improve natural vegetative communities and ecosystem processes in the long term. Short-term impacts may occur during and shortly following project implementation. The presence of treatment crews would detract from solitude during project implementation periods, but would benefit long-term opportunities for primitive recreation in an unaltered landscape. Short-term disturbances from plant removal may also create short-term impacts to visual resources, but would benefit the visual setting in the long term through maintenance and recovery of native species.

OHV Use and Travel and Transportation Management: Future travel management planning that is proposed under all of the action alternatives would take proactive steps to inventory, designate and maintain a sustainable transportation system.

Cumulative Impacts

The proposed Keystone X/L Pipeline includes construction of a 36 inch oil pipeline on BLM land in northeast Phillips County and through Valley County. Approximately 1,186 acres of BLM land are projected to be disturbed in the short

term by this action. These surface-disturbing actions are associated with excavating and burying the 36 inch pipeline which would create new roads to access the pipeline construction and cause soil erosion and vegetation loss. Construction of the pipeline would affect visual resources by creating changes in the form, line, color and texture of the landscape which may affect the scenic quality and degrade recreational opportunities and the quality of the recreational experiences in and around the pipeline construction area. These effects would be greatest during the fall hunting season and to a lesser degree during the spring and summer for those who enjoy pleasure driving, wildlife viewing, hiking, and horseback riding.

Impacts under Alternative A (Current Management)

Under Alternative A, no lands with wilderness characteristics would be managed to preserve and enhance the apparent naturalness and the opportunities for solitude and primitive and unconfined recreation.

Fire Management and Ecology: All fires would be managed for full suppression under the current management. Opportunities for solitude and primitive recreation opportunities would be impacted during fire periods and restoration, due to visual impacts and the presence of suppression and ES&R crews and equipment. The construction of new fire lines and other disturbances related to suppression activities would detract from naturalness and the visitor experience in the short term. ES&R treatments would stabilize and prevent long-term degradation to natural resources and would repair or improve fire-damaged lands unlikely to recover naturally to management-approved conditions, which would help ensure long-term naturalness of the impacted areas. Without taking these actions, native vegetation communities, wildlife habitat, aquatic resources, as well as the road and trail system would be susceptible to long-term degradation.

Fluid Minerals: Under Alternative A, approximately 51,108 acres of areas with wilderness characteristics would be subject to NSO for other resource values. Wilderness characteristics would be protected on these acres because fluid mineral surface-disturbing activities and occupancy would not be allowed unless a waiver, exception, or modification is granted.

Forests and Woodlands: Thinning treatments and sale of forest products would continue to be done as needs and opportunities arise and would be identified and prescribed through silvicultural planning. The Island Mountain Range (4,118 acres) would continue to be closed to commercial timber sales but other areas possessing wilderness characteristics would be open to potential harvest of wood products. Removal of wood products would create short-term visual impacts of exposed stumps and slash piles and involve some off-road trails that may be utilized by the recreating public. Best management practices and use of prescribed fire to remove debris would help keep visual these impacts and introduction of invasive plant species to a minimum and promote the overall, long-term health of forests and woodlands.

Lands and Realty

Rights-of-Way, Leases and Permits: No existing easements or permits are authorized for the areas with wilderness characteristics. However, future demand for rights-of-way to provide legal access to private lands and for roads, transmission lines and other energy facilities is likely in some areas with high mineral potential and intermixed land ownership.

Livestock Grazing: Impacts would be similar to those described under Impacts Common to All Alternatives. Range improvements could be built to support AMPs, which would impact the apparent naturalness of areas with wilderness characteristics.

OHV Use and Travel and Transportation Management: The Island Mountain Range (Area 1) would be closed to motorized use. Impacts would be similar to those described under Impacts Common to all Alternatives.

Cross-country vehicle use for game retrieval would not be allowed under this alternative, which would prevent future impacts to naturalness or the visitor experience from this use.

Solid Minerals: About 2,473 of lands with wilderness characteristics have a high or moderate potential for hardrock minerals. The Island Mountain Range (Area 1) is currently withdrawn from mineral entry until 2017. The BLM would

review the withdrawal prior to expiration. If the withdrawal is not extended impacts to wilderness characteristics could be expected.

Vegetation – Rangeland, Riparian and Wetland: Range improvements such as additional fences and livestock waters could have an impact on the apparent naturalness of areas with wilderness characteristics. Land treatments to increase vegetation production, such as chisel plowing, could also have impacts on the visual quality and apparent naturalness of those areas. These impacts would range from short-term to long-term, depending on the type of treatment and vegetative response.

Wilderness Characteristics: No actions would be taken to manage lands with wilderness characteristics to retain their wilderness qualities under this alternative.

Cumulative Impacts

Past and present actions that have affected and would affect wilderness characteristics include mineral exploration and development; livestock grazing; recreational use; vehicle travel; and wildfire and prescribed fire. In general, these actions have cumulative impacts on wilderness characteristics by causing surface disturbance contributing to impacts to naturalness.

The Keystone X/L pipeline would cross approximately 3.2 miles of the one area with wilderness characteristics (Area 84). The pipeline effectively would divide the inventoried lands with wilderness characteristics in half, making the remaining portions unmanageable to protect wilderness characteristics.

Recently there has been increased interest in developing wind energy within the planning area. In an effort to analyze the resource effects of wind energy development, the BLM analyzed the development of two wind energy farms within high wind energy potential areas, one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy farm involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres, with 200 acres of BLM land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy farm involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres, with 727 acres of BLM land disturbance projected in the short term and 544 acres in the long term.

Surface-disturbing actions associated with development of the two wind energy farms would include the creation of new roads, increased soil erosion and vegetation loss, and large visual intrusions from the construction of wind turbines and powerlines, which would affect the wilderness characteristics by adding vertical lines and linear and complex forms to the landscape in areas of high wind energy potential and available for development of wind farms. About 46,309 acres of lands with wilderness characteristics are within a high wind energy development potential.

Resource protective measures that eliminate new surface-disturbing actions also protect the wilderness characteristics of the landscape. Alternative A would continue to allow for the highest acreage of projected surface-disturbing actions of all the alternatives and the least amount of acres of protective resource measures. Because these and other reasonably foreseeable future actions in the planning area from federal, state, private and other lands within and adjacent to the planning area would have adverse effects on visual resources by creating changes to the form, line, color, and texture of the landscape, the total cumulative impact to visual resources would be the greatest of all the alternatives.

Impacts under Alternative B

Under Alternative B, approximately 386,462 acres of BLM land (16% of BLM lands in the planning area) would be managed to preserve and enhance the apparent naturalness and the opportunities for solitude and primitive and unconfined recreation (wilderness characteristics).

Although these areas may be affected by resource conflicts that may be inconsistent with retention of wilderness characteristics, under Alternative B the BLM would apply management to preserve these characteristics to the extent practicable. Potential effects to wilderness characteristics from Alternative B would be less than any other alternative, because it projects the lowest acreage of surface disturbance among the alternatives.

Cultural Resources: Management actions proposed for the Sweet Grass Hills Traditional Cultural Property would protect and enhance wilderness characteristics in the Island Mountain Range (Area 1). Managing the area with an NSO stipulation for oil and gas, as an exclusion area for wind energy rights-of-way, closed to solid mineral leasing and withdrawn from locatable mineral entry would prevent new impacts to wilderness characteristics from development activities. Development of existing leases/claims would create potential impacts to visual resources, the undeveloped character and conditions of naturalness within the Island Mountain Range.

Fire Management and Ecology: Approximately 6,860 acres of BLM land in the entire planning area are projected to be disturbed in the short term by prescribed fire actions. No long-term impacts are expected from reclamation activities. Regrowth of vegetation would improve the visual and natural qualities of the treated areas over the long term.

Both wildfire and prescribed fire would create short-term impacts to primitive and unconfined recreation opportunities, as well as long-term impacts to naturalness. Wildfire would create short-term, localized impacts to visual resources, recreation uses and solitude. Where fuels and vegetative conditions are restored through prescribed fire, the use of heavy equipment and other direct suppression techniques may be reduced in the long term, which would minimize impacts to wilderness characteristics from development of new human-created disturbances and mechanized uses. Impacts are typically less severe from prescribed fire than from wildfire, due to constraints on size and fire line construction techniques. Application of minimum impact suppression tactics would further prevent and minimize impacts from suppression activities. Implementation of prescribed burning, mechanical treatments, or other appropriate methods to restore desired ecological conditions of rangelands, forests or woodlands would improve naturalness in the long term.

Fluid Minerals: Lands with wilderness characteristics would be closed to fluid mineral leasing under this alternative. Approximately 70,172 acres of lands with wilderness characteristics are currently leased for oil and gas development. Most natural gas development is expected to occur in the high and moderate reasonable foreseeable development areas of Blaine and Phillips Counties. About 13,697 acres of lands with wilderness characteristics are within high development areas (Western Breaks and Breaks and Badlands). Fluid mineral development could occur on areas currently leased. Energy development would affect wilderness characteristics during exploration, drilling, production, and abandonment. Effects could include alteration of vegetation, alteration of soils, habitat fragmentation and ongoing activities that would diminish naturalness. Opportunities for solitude and primitive recreation would be diminished relative to the amount of new facility development and the amount of activity that creates noise, dust, emissions or other developments that degrade the natural and undeveloped recreation setting.

Site-specific mitigation measures, BMPs, and reclamation standards would be implemented and monitored to minimize long-term effects to natural resources. The Gold Book, Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and USFS 2007) would be followed. Effects would be both short-term (well pads and pipelines) and long-term (production areas and access roads). Impacts to wilderness characteristics may be protected in the long term if restoration efforts can effectively reestablish native flora and fauna and reclaim or disguise development facilities. No new leases would be authorized or existing leases renewed within areas with wilderness characteristics, which would limit impacts to existing lease areas.

Forests and Woodlands: Under Alternative B, the BLM would offer forest products as opportunities arise. Best management practices would be used to keep adverse impacts to a minimum and the goals and objectives of any treatments would be to mimic ecological processes. Treatment activities would cause short-term impacts to the wilderness characteristics of the areas but the long-term effects are expected to benefit the resource. The potential for silvicultural treatments would be greatest in the Island Mountain Range, Western Breaks and Badlands and Eastern Breaks and Badlands where trees are a common vegetative component.

Lands and Realty

Access: Retention of areas with wilderness characteristics would ensure continued opportunities for dispersed recreational use by the public.

Land Ownership Adjustment: Under Alternative B, all areas with wilderness characteristics would be categorized for retention of public ownership. This would ensure continuance of the recreational opportunities associated with these areas but would limit the opportunities for land exchanges or sales that would benefit wilderness characteristics and opportunities for improved public access elsewhere.

Rights-of-Way, Leases and Permits: Lands with wilderness characteristics would be managed as right-of-way avoidance areas. If lands with wilderness characteristics could not be avoided during sighting of right-of-way facilities, long-term impacts to naturalness, the undeveloped character and opportunities for solitude and primitive recreation would be expected. Long-term impacts to visual resources would be likely, but may be mitigated if facilities can be buried and if permanent access/maintenance roads are not required for operation of the right-of-way. Short-term impacts to visual resources and recreation opportunities would be unavoidable in the short term due to removal/ alteration of vegetation, wildlife, and soils, as well as from disturbances created by use of access roads and construction activities at development sites.

Livestock Grazing: Livestock grazing has the potential to impact naturalness, the undeveloped character, and to create conflict with recreation users. Manipulation of vegetation, alteration of soils, and the presence of fecal matter would create unnatural conditions and would impact opportunities for solitude, particularly in areas where livestock congregate. Range facilities, such as fences, water troughs, and tanks have the potential to degrade wilderness characteristics by creating new developments, disturbing visual resources, and influencing wildlife migration, reproduction, and mortality (e.g., sage-grouse/fence collisions). However, facilities may help livestock operators meet the standards for rangeland health and proper functioning condition, which could improve or maintain natural conditions in areas with wilderness characteristics. Natural conditions would be expected to remain similar to those present now, and may improve in areas that are not currently meeting standards where future allotment management restores natural conditions.

OHV Use and Travel and Transportation Management: All areas with wilderness characteristics would be managed as semi-primitive motorized except the Island Mountain Range, which would be managed as semi-primitive non-motorized. These areas would provide opportunities for isolation from man-made sights, sounds, and management controls in a predominantly unmodified environment. Visitors would have the opportunity for a high degree of interaction with the natural environment with moderate challenge and risk and the chance to use outdoor skills.

Areas with wilderness characteristics would be managed to allow for OHV use on existing routes, with the exception of the Island Mountain Range, which would continue to be managed under a closed designation. Formal route designations would not be made under this alternative. Providing continued access on established routes would benefit some users by allowing continued access to backcountry resources for hunting and other recreation uses, but would also diminish opportunities for solitude commensurate with increasing use. Limiting vehicle use to existing routes would minimize new disturbance and help maintain vegetation and wildlife communities, benefitting naturalness. Managing routes in areas with wilderness characteristics as “primitive routes” would preclude most proactive maintenance efforts, which may create both short- and long-term impacts to naturalness and primitive recreation. Without regular maintenance, access would remain stable or may be diminished where routes become impassable due to improper location and design or heavy precipitation events. Maintaining routes in primitive condition would minimize the potential for increased use which would help maintain opportunities for solitude. However, in cases where existing routes deteriorate, there would be the potential to impact naturalness in areas with high erosion potential, which may lead to multiple user-created routes.

Under this alternative there would be no provision for motorized cross-country vehicle use to retrieve big game species during hunting seasons. Therefore, wilderness characteristics would not be subject to effects from cross-country motorized vehicle use for this purpose, as described in the other action alternatives.

Recreation: Managing areas with wilderness characteristics for semi-primitive motorized recreation setting would maintain existing opportunities for primitive and unconfined recreation. The goals for managing as a semi-primitive motorized setting would provide some opportunity for isolation from man-made sights, sounds, and management controls in a predominantly unmodified environment. Providing continued opportunities for a high degree of interaction with the natural environment, to have moderate challenge and risk and to use outdoor skills would enhance opportunities for solitude and primitive recreation. This management setting also provide for a low concentration of visitors and subtle on-site managerial controls, which would retain existing opportunities for solitude and an unconfined type of recreation.

Solid Minerals: Exploration and development of solid minerals could create lasting impacts to wilderness characteristics. Removal of bentonite resources, for example, would alter natural ecosystem process through the removal and alteration of vegetation and soils, development of new structures and roads, and increased use. Approximately 4,663 acres are within a low potential for bentonite resources (no high or moderate areas). About 6,260 acres are within a high, moderate or low potential for hardrock mineral resources. Once developed, it is unlikely that an area could be returned

to natural conditions. Impacts to visual resources and opportunities for solitude or primitive recreation would be persistent during development and operations.

Vegetation – Rangeland, Riparian, and Wetland: Vegetation treatments on areas with wilderness characteristics would have to be analyzed on a case-by-case basis to ensure they meet VRM Class II specifications (VRM Class I in Area 1). This would include range improvements such as additional fences and livestock waters and land treatments, such as chisel plowing, to increase vegetation production. Impacts from these management treatments would range from short- to long-term, depending on the type of treatment used and vegetative response. Projects that would cause adverse, long-term impacts to the wilderness characteristics of these lands would not be allowed.

Visual Resources: Managing all 386,462 acres of lands with wilderness characteristics to meet VRM Class I or II objectives would retain the appearance of naturalness by allowing only minor changes to the characteristic landscape that would not be discernible to the average person. Opportunities for primitive recreation would benefit from retaining the natural setting because opportunities to escape from the sights and sounds of civilization would remain available. Projects that would create dominant contrasts to the landscape characteristics of form, line, color or texture of the landscape would be minimized, except where valid development rights exist. Adhering to VRM objectives would minimize disturbances and activities that would be incompatible with providing opportunities for solitude or primitive recreation.

Wilderness Characteristics: Under this alternative, all 26 areas totaling 386,462 acres that were found to have wilderness characteristics would be managed to maintain or enhance their wilderness qualities. A variety of protective measures would be applied to these areas, as described above under the applicable resource sections. The areas that would be managed to protect their wilderness qualities are shown in Table 4.94 and Map W.9, which is available on the internet at http://blm.gov/8qkd.

Table 4.94
Areas Managed for Wilderness Characteristics
Alternative B

Inventory No.	*Area*	*Acres*	*Inventory No.*	*Area*	*Acres*
1	East Butte Sweet Grass Hills	4,118	49B	Sage Creek - Castle Butte	5,144
3A	Sand Creek	13,299	49C	Sage Creek - The Sag	35,954
3B	Cummings Bench	6,244	53	Square Creek	5,570
4	Black Elk Coulee	8,719	54	Gumbo Plateau	16,718
19A	Beauchamp Creek West	8,000	55	Lower Grant Coulee	39,913
19B	Beauchamp Creek East	5,039	56	Moss Coulee	14,337
19C	Beauchamp Creek South	6,039	62	Caravan/Mark Hawk Hills	49,564
20A	Dry Fork/Garey Coulee West	7,206	84	Rock Creek	9,264
20B	Dry Fork/Garey Coulee East	7,024	90	East Fork Crow Creek	20,289
32A	Lamere/Lambing Coulees North	14,237	91A	Frenchman Creek - East	24,999
32B	Lamere/Lambing Coulees South	25,744	91B	Snake Creek	22,312
33	Phillips Black Coulee	8,676	93	Frenchman Creek - Northwest	14,133
49A	Sage Creek - Badland Coulee	5,327	94	Box Elder Creek	8,593
	Subtotal	119,672		Subtotal	266,790
				Total	386,462

Cumulative Impacts

Past and present actions that have affected and would affect wilderness characteristics include mineral exploration and development; livestock grazing; recreational use; vehicle travel; and wildfire and prescribed fire. In general, these

actions have cumulative impacts on wilderness characteristics by causing surface disturbance contributing to impacts to naturalness.

Impacts under Alternative C

Under Alternative C, approximately 228,419 acres of BLM land (9% of total BLM land in the planning area and 59% of total lands with wilderness characteristics) in 12 areas would be managed to preserve and enhance the apparent naturalness and the opportunities for solitude and primitive and unconfined recreation (wilderness characteristics).

Although these areas may be affected by resource conflicts that may be inconsistent with retention of wilderness characteristics, in these 12 areas, the BLM would apply management to preserve these characteristics to the extent practicable. Potential effects to wilderness characteristics from Alternative C would be less than Alternatives A, D and E but more than Alternative B.

Under this alternative, the remaining 14 areas (158,043 acres) possessing wilderness characteristics would be managed to protect or develop other resource values that may conflict with the naturalness and opportunities for solitude and primitive or unconfined recreation. These areas are in the high development potential for oil and gas development and/or contain a high percentage of acres already leased for fluid or solid mineral development.

Cultural Resources: The impacts would be the same as Alternative B.

Fire Management and Ecology: The impacts would be the same as Alternative B.

Fluid Minerals: Under Alternative C, the Island Mountain Range (Area 1), Sagebrush Grasslands (Areas 20B, 49C, 54, 55 and 62), and Eastern Breaks and Badlands (Areas 49B and 53) would be closed to fluid mineral leasing (143,794 acres). The Prairie Grasslands (90, 91A, 91B and 93 would be NSO (78,280 acres). Approximately 571 acres of Area 91B is currently leased for oil and gas development though the potential for development is very low. No new leases would be authorized or existing leases renewed within areas with wilderness characteristics, which would limit impacts to existing lease areas.

Management actions within these areas would have to meet VRM Classification I for the Island Mountain Range and II for the remaining areas. Potential affects to wilderness characteristics during exploration, drilling, production, and abandonment would have to be mitigated to meet the goals and objectives of these classifications.

Energy development on areas not managed for wilderness characteristics would be subject to the guidelines and development potential consistent with other resource needs. These guidelines may not be adequate to protect and maintain the current level of wilderness characteristics.

Dry Fork Creek, Phillips County Photo by Kathy Tribby

Forests and Woodlands: The impacts would be the same as Alternative B.

Lands and Realty

Access: Retention of areas with wilderness characteristics would ensure continued opportunities for dispersed recreational use by the public.

Land Ownership Adjustment: Under Alternative C, the 12 areas with wilderness characteristics would be categorized for retention of public ownership. This would ensure continuance of the recreational opportunities associated with these areas but would limit the opportunities for land exchanges or sales that would benefit wilderness characteristics and opportunities for improved public access elsewhere.

Rights-of-Way, Leases and Permits: Lands with wilderness characteristics would be managed as right-of-way avoidance areas under this alternative. If lands with wilderness characteristics could not be avoided during sighting of right-of-way facilities, long-term impacts to naturalness, the undeveloped character and opportunities for solitude and primitive recreation would be expected. Long-term impacts to visual resources would be likely, but may be mitigated if facilities can be buried and if permanent access/maintenance roads are not required for operation of the right-of-way. Short-term impacts to VRM and recreation opportunities would be unavoidable in the short term due to removal/ alteration of vegetation, wildlife, and soils, as well as from disturbances created by use of access roads and construction activities at development sites.

Livestock Grazing: The impacts would be the same as Alternative B.

OHV Use and Travel and Transportation Management: Under Alternative C, Areas 49C, 54, 62, 49B and 53 (95,631 acres) would be managed as semi-primitive motorized while areas 1, 20B, 55, 90, 91A, 91B and 93 (132,788 acres) would be managed as semi-primitive non-motorized. These areas would provide opportunities for isolation from man-made sights, sounds, and management controls in a predominantly unmodified environment. Visitors would have the opportunity for a high degree of interaction with the natural environment with moderate challenge and risk and the chance to use outdoor skills.

Under this alternative, areas managed for wilderness characteristics would allow for OHV use on existing routes only, with the exception of the Island Mountain Range, which would continue to be managed under a closed designation. Formal route designations would be made during travel management planning. Providing continued access on established routes would benefit some users by allowing continued access to backcountry resources for hunting and other recreation uses, but would also diminish opportunities for solitude commensurate with increasing use. Limiting vehicle use to existing routes would minimize new disturbance and help maintain vegetation and wildlife communities, benefitting naturalness. Managing routes in areas with wilderness characteristics as “primitive routes” would preclude most proactive maintenance efforts, which may create both short- and long-term impacts to naturalness and primitive recreation. Without regular maintenance, access would remain stable or may be diminished where routes become impassable due to improper location and design or heavy precipitation events. Maintaining routes in primitive condition would minimize the potential for increased use which would help maintain opportunities for solitude. However, in cases where existing routes deteriorate, there would be the potential to impact naturalness in areas with high erosion potential, which may lead to multiple user-created routes. Cross-country travel for the purpose of big game retrieval would not be allowed in areas managed for wilderness characteristics.

Recreation: Managing areas with wilderness characteristics for semi-primitive non-motorized and semi-primitive motorized recreation settings would maintain existing opportunities for primitive and unconfined recreation. The goals for managing these settings would also provide some opportunity for isolation from man-made sights, sounds, and management controls in a predominantly unmodified environment. Providing continued opportunities for a high degree of interaction with the natural environment, to have moderate challenge and risk and to use outdoor skills would enhance opportunities for solitude and primitive recreation. This management setting also provide for a low concentration of visitors and subtle on-site managerial controls, which would retain existing opportunities for solitude and an unconfined type of recreation.

Solid Minerals: The impacts would be the same as Alternative B.

Vegetation – Rangeland, Riparian, and Wetland: The impacts would be the same as Alternative B.

Visual Resources: The impacts would be the same as Alternative B.

Wilderness Characteristics: Under Alternative C, 12 areas totaling 228,419 acres would be managed to retain or enhance their wilderness qualities. A variety of protective measures would be applied to these areas under the applicable resource sections. The areas that would be managed to protect their wilderness qualities are shown in Table 4.95 and Map W.9, which is available on the internet at http://blm.gov/8qkd.

Table 4.95
Areas Managed for Wilderness Characteristics
Alternative C

Inventory No.	*Area*	*Acres*
1	East Butte Sweet Grass Hills	4,118
20B	Dry Fork/Garey Coulee East	7,024
49B	Sage Creek - Castle Butte	5,144
49C	Sage Creek - The Sag	18,635
53	Square Creek	5,570
54	Gumbo Plateau	16,718
55	Lower Grant Coulee	39,913
62	Caravan/Mark Hawk Hills	49,564
90	East Fork Crow Creek	20,289
91A	Frenchman Creek - East	24,999
91B	Snake Creek	22,312
93	Frenchman Creek - Northwest	14,133
	Total	228,419

Cumulative Impacts

Past and present actions that have affected and would affect wilderness characteristics include mineral exploration and development; livestock grazing; recreational use; vehicle travel; and wildfire and prescribed fire. In general, these actions have cumulative impacts on wilderness characteristics by causing surface disturbance contributing to fragmentation and impacts to naturalness.

Areas that currently meet the wilderness characteristics criterion but are managed for development or protection of other resource values, such as oil and gas or bentonite removal, could be impacted to the point where they no longer meet the criterion for wilderness characteristics resulting in a net loss of opportunities for solitude and opportunities for primitive and unconfined recreation.

Impacts under Alternative D

Potential effects to wilderness characteristics from Alternative D would be the greatest of any other alternative, because it projects the highest acreage of surface disturbance among the alternatives. This disturbance would impact the naturalness, solitude, and opportunities for primitive and unconfined recreation.

Cultural Resources: Island Mountain Range –The impacts would be similar to Alternative B except the BLM would not recommend an extension of the current withdrawal from locatable mineral entry for the Sweet Grass Hills. Potential mining activities would impact the naturalness and opportunities for solitude and primitive and unconfined recreation within the Island Mountain Range.

Fire Management and Ecology: The impacts would be the same as Alternative B.

Fluid Minerals: Under Alternative D, approximately 96,202 acres of areas with wilderness characteristics would be subject to NSO for other resource values. Wilderness characteristics would be protected on these acres because fluid mineral surface-disturbing activities and occupancy would not be allowed unless a waiver, exception, or modification is granted. Another 280,386 acres would be available for leasing with controlled surface use or timing stipulations and 9,877 acres with standard terms only.

Over time, the impacts of increased fluid mineral development throughout the planning area would have an impact on areas that currently possess wilderness characteristics as well as those adjacent. This development could cause long-term or permanent disturbances that would impact the naturalness, opportunities for solitude and opportunities for primitive and unconfined recreation. Supplemental values of these areas could also be compromised.

Forest and Woodlands: Other impacts would be similar to Alternative B except a full range of forest health treatments would be allowed in the Island Mountain Range which could include the sale of wood products. Activities associated with logging and removal of wood products would have an adverse impact on the naturalness, solitude and opportunities for primitive and unconfined recreation in the area.

Lands and Realty

Access: Loss of areas with wilderness characteristics through sale or exchange could lead to a loss of public access to those lands.

Land Ownership: Lands possessing wilderness characteristics would not be designated as Category 1 (retention) lands and may be considered for sale or exchange (Category 2) as opportunities arise.

Rights-of-Way, Leases and Permits: Issuance of rights-of-way, leases or disturbance permits on or through areas with wilderness characteristics could cause long-term or permanent disturbances that would impact the naturalness, opportunities for solitude and opportunities for primitive and unconfined recreation. Supplemental values of these areas could also be compromised.

Livestock Grazing: The impacts would be the same as Alternative B.

OHV Use and Travel and Transportation Management: Under this alternative, the East Butte of Sweet Grass Hills (Area 1) would be limited to OHV use and off road big game retrieval would be allowed between the hours of 10:00 a.m. and 2:00 p.m. Opening up this area to OHV use and allowing hunters to drive off of existing trails to retrieve big game could speed up the spread of unauthorized trails in the area and impact, not only the wilderness characteristics (naturalness, solitude, and opportunities for primitive and unconfined recreation), but also the resources for which the ACEC portion of the area was designated.

Recreation: Alternative D offers the least restrictions to developed and motorized recreation than the other alternatives. This could lead to more dispersal of these types of recreation across the planning area, potentially reducing impacts to areas that would normally receive concentrated use but increasing the overall number of acres impacted. An increase in motorized and developed recreation on lands with wilderness characteristics would affect the naturalness, opportunities for solitude and primitive and unconfined recreation, and supplemental values in those areas.

Renewable Energy: About 10% of the planning area (231,961 acres) would be open to wind energy rights-of-way with minor constraints (standard terms/conditions and BMPs) and 78% of the planning area (1,912,095 acres) would be avoidance areas (Table 2.18). About 46,309 acres of lands with wilderness characteristics are within a high development potential for wind energy. In areas that are not managed to retain their wilderness characteristics, new developments, such as wind farms, transmission facilities and access roads, as well as the operation of renewable energy facilities would impact the undeveloped quality and visitor experience in these areas.

Special Designations: Under Alternative D, the Frenchman Breaks ACEC (63,482 acres) would be designated to maintain the unique landscape and scenic characteristics and protect the fragile watershed and wildlife species from fragmentation. The proposed ACEC includes all or portions of Areas 93, 91A and 91B. Management of the ACEC would help preserve the wilderness characteristics in those areas.

Vegetation – Rangeland, Riparian and Wetland: Range improvements such as additional fences and livestock waters would have an impact on the apparent naturalness of areas with wilderness characteristics. Land treatments to increase vegetation production, such as chisel plowing, would also have impacts on the visual quality and apparent naturalness of those areas. These impacts would range from short- to long-term, depending on the type of treatment and vegetative response.

Visual Resources: The Prairie Grasslands in northeast Phillips County and northwest Valley County (Areas 93, 91A and 91B) would be managed as VRM Class II. This classification would help preserve the wilderness characteristics by maintaining the existing character of the landscape. The remaining areas with wilderness characteristics would be managed as VRM Class III and VRM Class IV. The objective of these classifications allow for moderate to major modifications to the existing character of the landscape which, potentially, would have great impact to the wilderness characteristics of these areas.

Wilderness Characteristics: Under Alternative D, no actions would be taken to manage lands with wilderness characteristics to retain their size, apparent naturalness, opportunities for solitude, opportunities for primitive and unconfined recreation, or supplemental values. These lands would be managed for other resource values which may be in direct conflict with preservation of wilderness characteristics.

Wildlife: Management for various wildlife species and their resource needs on a case-by-case basis would help maintain some wilderness characteristics in those areas where they happen to overlap. However, the stipulations enforced to protect wildlife (i.e. spacing and timing limits) may not adequately protect all the criterion for wilderness characteristics in an area resulting in a net loss of acres, naturalness, opportunities for solitude or opportunities for primitive and unconfined recreation.

Cumulative Impacts

Past and present actions that have affected and would affect wilderness characteristics include mineral exploration and development; livestock grazing; recreational use; vehicle travel; and wildfire and prescribed fire. In general, these actions have cumulative impacts on wilderness characteristics by causing surface disturbance contributing to fragmentation and impacts to naturalness.

Areas that currently meet the wilderness characteristics criterion but are managed for development or protection of other resource values, such as oil and gas or bentonite removal, could be impacted to the point where they no longer meet the criterion for wilderness characteristics resulting in a net loss of opportunities for solitude and opportunities for primitive and unconfined recreation.

Impacts under Alternative E (Preferred Alternative)

Under Alternative E, the Eastern Breaks and Badlands region (Areas 49B, 52L and 53) consisting of approximately 16,393 acres of BLM land (0.7% of total BLM lands in the planning area and 4% of total lands with wilderness characteristics) would be managed to preserve and enhance the apparent naturalness and the opportunities for solitude and primitive and unconfined recreation (wilderness characteristics).

Within these three areas, the BLM would apply management to preserve these characteristics to the extent practicable. Potential effects to wilderness characteristics from Alternative E would be less than Alternatives A and D but more than Alternatives B and C.

All other areas within the planning area possessing wilderness characteristics would be managed to protect or develop other resource values. In some cases, management for these other resource values would also maintain all or some of the wilderness characteristics of those areas.

Cultural Resources: The impacts would be the same as Alternative B.

Fire Management and Ecology: The Sweet Grass Hills FMU, which includes the Island Mountain Range, would be managed as a fire management category B. All unplanned fires would be fully suppressed, which could create impacts

to naturalness from construction of fire lines, safety zones, spike camps and access roads. Management under category B would allow for prescribed burning, which could benefit the maintenance and recovery of natural vegetation communities. Proactively reducing fuel levels to natural conditions may also prevent more aggressive suppression tactics that would impact naturalness.

The remaining areas would be managed as fire management category C, where fire is desired to manage ecosystems. Areas in this category would have the potential to allow wildfire to have a natural role in ecosystem management, which would benefit naturalness and may prevent some potential impacts from suppression efforts.

Fluid Minerals: Under Alternative E, the Eastern Breaks and Badlands region (Areas 49B, 52L and 53) would be NSO for oil and gas leasing to protect wilderness characteristics.

The Island Mountain Range (Area 1) would be closed to mineral leasing to protect cultural resources. This closure would prevent any new impacts from development and operations of energy facilities, thereby protecting wilderness characteristics of the area. Much of the Sagebrush Grasslands (Areas 20B, 49C, 49D, 54, 55 and 62) and Prairie Grasslands (Areas 90 and 91B) regions would be open to mineral leasing but with major constraints to protect the special wildlife values of those lands. The wildlife constraints such as timing and spacing limits would reduce or slow down development in these areas but may not be adequate to maintain the wilderness characteristics.

A portion of the Prairie Grasslands region (Areas 93 and 91A) would be included in the Frenchman Breaks ACEC and managed to maintain the unique landscape and scenic characteristics and protect the fragile watershed and wildlife species from fragmentation. The ACEC would be NSO for oil and gas leasing.

Management under an NSO stipulation would prevent new surface development within these areas, which would protect naturalness and the visitor experience from development conflicts. Most of the lands that would be managed as NSO are located in areas with low or very low mineral potential, which naturally limits the demand for leases or possibility of development. However, some areas may have mineral potential that could be accessed using directional drilling or other technologies that allow for extraction without surface facilities. In these areas, development may occur on or near the area boundaries, which may create outside disturbances that would detract from the visitor experience within protected areas due to clustering of development.

The remaining areas with wilderness characteristics would be open to oil and gas leasing with moderate constraints. Constraints such as timing limitation, controlled surface use or standard lease terms would help prevent undue degradation of public land resources, but may fall short of protecting wilderness characteristics if development occurs. Energy development would affect wilderness characteristics during exploration, drilling, production, and abandonment. Effects could include alteration of vegetation, alteration of soils, habitat fragmentation and ongoing activities that would diminish naturalness. Opportunities for solitude and primitive recreation would be diminished relative to the amount of new facility development and the amount of activity that creates noise, dust, emissions or other developments that degrade the natural and undeveloped recreation setting.

Forest and Woodlands: Forest treatments would have the potential to alter conditions of naturalness and opportunities for primitive recreation in the short term. Removal of vegetation and surface disturbance associated with the removal of forest materials could create contrasts to the visual resources and would create noise and other human disturbances during project periods. Surface disturbance may lead to noxious weed infestations and proliferation where disturbed soils become available for the establishment of weed seeds. Adhering to BMPs would prevent most unnecessary impacts from occurring. These impacts would be less noticeable and would help return forested environments to their natural condition over time, which would benefit wilderness characteristics in the long term.

Lands and Realty

Land Ownership Adjustments: The Eastern Breaks and Badlands areas would be identified for retention or very limited disposal through exchange. The areas would not be available for sale (Category 2 lands under Land Ownership Adjustment). Retaining these areas under federal ownership would help ensure the manageability of these areas for protecting their wilderness characteristics consistent with the management direction proposed by this plan. The lands would be exchanged only if necessary to further protect or enhance the wilderness characteristics.

Rights-of-Way, Leases and Permits: The areas that are targeted to maintain wilderness characteristics would be managed as ROW avoidance areas. In these areas, efforts would be made to reroute future proposals. A right-of-way may be allowed if no reasonable alternative is found; however, special mitigation measures may be required to protect sensitive resource values. Rights-of-way may also be allowed if they support or promote other management objectives for the area. If ROWs are authorized, they would have the potential to impact wilderness characteristics by creating new developments and by authorizing the use of motorized equipment and vehicles to construct, operate and maintain facilities. These impacts may be mitigated where disturbed areas are returned to natural conditions, and where permanent access roads are not required for operation and maintenance.

Livestock Grazing: The impacts would be the same as Alternative B.

OHV Use and Travel and Transportation Management: Under this alternative, the Eastern Breaks and Badlands would be designated limited to OHV use and managed for semi-primitive motorized use pending subsequent travel management planning. This area is a high priority for travel management. The Island Mountain Range would remain closed to motorized travel which would prevent future impact to naturalness from the development of new routes, pull-offs, and vehicle camping areas. Closed areas also offer the greatest opportunities for solitude by limiting access to non-motorized means. Managing the remaining areas with wilderness characteristics as limited to designated or existing routes would help minimize the proliferation of new vehicle routes, especially where planning and implementation (e.g. signs, enforcement) take priority. Preventing the establishment of new routes protects naturalness and primitive recreation opportunities by maintaining natural conditions and limiting access in certain areas where solitude is currently available and important to users. Adverse impacts to wilderness characteristics are more likely to occur the longer it takes to plan and implement a designated route system.

Paleontological Resources: Paleontological investigations and excavations may create short-term disturbances to vegetation, soils and the visitor experience in small, site specific areas. The presence of field crews would also create short-term impacts to visitors' solitude. These impacts would be negligible in the long term, following site restoration. New information gained through investigations would benefit the supplemental values of areas with wilderness characteristics and may provide for increase public education opportunities and appreciation.

Recreation: This alternative would maintain and establish a range of recreation settings from semi-primitive to roaded natural. In general, wilderness characteristics would be better protected under a non-motorized designation when compared to semi-primitive motorized or road natural designation.

The Island Mountain Range would (Area 1) would be managed to maintain and provide non-motorized recreation opportunities. This area would be managed in a manner most consistent with protecting wilderness characteristics and would be least likely to have increasing levels of motorized use.

The Eastern Breaks and Badlands (Areas 49B, 52L and 53) and all wilderness characteristics inventory units east of Highway 191would be managed to maintain and provide semi-primitive motorized recreation opportunities. While these areas would not develop facilities to increase motorized use, they would be open for uses that could become incompatible with protecting wilderness characteristics if use increases. Increasing use may necessitate route maintenance and structures to prevent resource impacts from continued use. In these cases, the wilderness characteristics would be degraded in the long term. Managing vehicle use to maintain semi-primitive access should maintain levels of access and the existing levels of solitude and primitive recreation opportunities.

The remaining areas would be managed as roaded natural. The roaded natural designation would provide for motorized recreation opportunities in a natural setting. Motorized recreation would be expected to increase over time, which would have the potential to degrade the conditions and visitor experience in areas that have wilderness characteristics.

Renewable Energy Resources: The Eastern Breaks and Badlands (16,393 acres) would be managed to retain their wilderness characteristics and excluded from future renewable energy development projects, including wind energy site monitoring and testing. Another 282,987 acres not managed for wilderness characteristics would not be available for wind energy development for other resource values. No impacts from renewable energy exploration or development would be expected in these areas. In areas that are not managed to retain their wilderness characteristics and available for wind energy, new developments, such as wind farms, transmission facilities and access roads, as well as the operation of renewable energy facilities would impact the undeveloped quality and visitor experience in these areas.

Special Designations: Managing the Sweet Grass Hills and Frenchman Breaks ACECs would protect wilderness characteristics in some areas (Areas 1, 90, and 91A).

Vegetation – Rangeland, Riparian/Wetland: The impacts would be the same as Alternative B.

Visual Resources: The Island Mountain Range (Area 1) would be managed to meet VRM Class I objectives, which would prevent any alteration of the visual environment. Maintaining the natural form, line, and color of the setting would prevent large-scale surface disturbance and would help maintain primitive recreation opportunities.

Seventeen areas would be managed as Class II. VRM Class II objectives would retain the characteristic landscape features allowing for only minor modifications that would not be readily observable by visitors. VRM Class II objectives are consistent with providing primitive recreation opportunities and would prevent large-scale disturbances or developments from occurring within these areas.

Nine areas would be managed as Class III or IV. Class III and IV VRM objectives would allow for modifications to the natural setting, which would degrade wilderness characteristics in these areas.

Wilderness Characteristics: Under this alternative, three areas totaling 16,393 acres that were found to have wilderness characteristics would be managed to retain or enhance their wilderness qualities. A variety of protective measures would be applied to these areas, as described above under the applicable resource sections. The areas that would be managed to protect their wilderness qualities are shown in Table 2.25 and Figure 2.6.

Wildlife: Under this alternative, the northern portion of Area 53 (approximately 1,880 acres) would overlap the PHMA in south Phillips and Valley Counties. The entire area, including the portion that overlaps the PHMA, would be managed to protect wilderness characteristics which would also benefit wildlife species such as Greater Sage-Grouse.

Of the remaining areas with wilderness characteristics that would be managed for other resource values, the Sagebrush Grasslands region (203,714 acres) is located within the Greater Sage-Grouse PHMA in south Phillips and Valley Counties and a portion of the Prairie Grasslands area (Areas 84, 90, 91B, 93 and 94) (65,998 acres) is located within the PHMA in north Phillips and Valley Counties. These areas would be managed for protection of specific wildlife species rather than wilderness characteristics.

Under management for these wildlife species and their resource needs, development in these areas would be limited and controlled by an NSO for oil and gas leasing which would help preserve wilderness characteristics. These areas would be avoidance areas for ROWs which means applications for ROWs and ROW renewals would be considered on a case-by-case basis and may, in some cases, be approved if they are not in direct conflict with the goals and objectives of the Priority Areas. These actions whether individual or cumulative, depending on their level of short and long-term disturbance, could have an adverse effect on wilderness characteristics, resulting in a net loss of acres, naturalness, opportunities for solitude or opportunities for primitive and unconfined recreation.

The Priority Areas would be exclusion areas for wind energy ROWs and closed to leasable minerals which would help preserve wilderness characteristics.

Some wildlife mitigation that could be required for development within the Priority Areas, such as high visibility reflectors on fences, could be in direct conflict with retaining wilderness characteristics by affecting the apparent naturalness of the area.

Cumulative Impacts

Past and present actions that have affected and would affect wilderness characteristics include mineral exploration and development; livestock grazing; recreational use; vehicle travel; and wildfire and prescribed fire. In general, these actions have cumulative impacts on wilderness characteristics by causing surface disturbance contributing to fragmentation and impacts to naturalness.

Areas that currently meet the wilderness characteristics criterion but are managed for development or protection of other resource values, such as oil and gas or bentonite removal, could be impacted to the point where they no longer meet the

criterion for wilderness characteristics resulting in a net loss of opportunities for solitude and opportunities for primitive and unconfined recreation.

Wildlife

Assumptions and Guidelines

All alternatives propose actions to manage wildlife habitats throughout the planning area. The focus of management and the acres to be managed vary by alternative. Many of the management actions for wildlife are directed at mitigating direct, short-term impacts of surface-disturbing and disruptive activities in proximity to sensitive wildlife areas.

Impacts to wildlife resources would manifest through changes in the ecological communities, including humans (Hebblewhite 2008). These changes can be classified into direct and indirect effects, and short-term and long-term effects. Actions that remove, degrade, or fragment wildlife habitats are considered adverse. Actions that protect, conserve, or improve habitats, such as limitations on disturbance and habitat restoration, are considered beneficial.

Wildlife populations can be affected by the direct loss of habitat through surface-disturbing activities or through the avoidance of disruptive activities. Populations may also be affected by changes to habitat composition and/or structure related to vegetation management.

Direct impacts to wildlife could result from mortality of individuals or the loss or gain of habitats or key habitat features. Habitats can be lost and fragmented by activities such as mineral exploration and extraction, vegetation conversion or treatments, fire management, construction and maintenance of roads, primitive roads and trails, and development of wind energy facilities. Habitats can also be created through natural processes, vegetation management and habitat restoration. Human activities such as noise and/or movement associated with surface-disturbing activities, management activities, and recreation can impact wildlife, potentially causing abandonment of a nest, breeding area, or home range. Disturbances are particularly harmful during sensitive periods. Sensitive periods vary for different species and include periods for nesting and breeding grouse, nesting raptors, and wintering big game and Greater Sage-Grouse. These disturbances can affect wildlife at local scales or larger scales and the relative effects would vary with the life history of individual species. Generally, larger species have a greater range of habitat needs throughout their life span and respond to landscape-level disturbances more than smaller species. Big game (deer, elk and antelope) and Greater Sage-Grouse are two prominent wildlife groups in the planning area that have demonstrated responses to landscape-level disturbances. Many of the current oil and gas stipulations in place to protect wildlife resources are effective at mitigating effects at local scales, but often do not mitigate impacts at larger scales (Naugle, et al. 2011b).

Indirect impacts to wildlife are difficult to determine and can have impacts far beyond direct effects. Indirect effects can impact whole wildlife communities through species interactions. Changes, either negative or positive, in populations of one species can result in changes to other species and the exact direction and extent of the changes are hard to predict. For example, increased water production in the Powder River Basin of southeastern Montana due to energy development led to an increase in the population and distribution of the mosquito species which carries the West Nile virus. This, in turn, resulted in increased mortality to Greater Sage-Grouse due to West Nile virus (Walker 2008). Indirect impacts can also occur through behavioral changes such as the avoidance of roads and well sites, leading to population level impacts (Sawyer, et al. 2005, 2006).

Disturbance impacts range from short-term displacement and shifts in activities to long-term abandonment of home range or population declines (Sawyer, et al. 2005, 2006; Hebblewhite 2008). Short-term impacts to wildlife are activities that an individual or species respond to immediately, but do not affect population viability. Short-term disturbances may cause animals to abandon an area, nest, or breeding area during one breeding season, but wildlife may return to the area and reproduce successfully the following season. These types of disturbances rarely impact the long-term reproduction or survival of individual animals or species, but they may cumulatively impact populations if they occur with greater frequency or duration, or occur throughout large portions of the habitat.

Long-term impacts to wildlife are impacts that continue indefinitely, resulting in population level changes. Long-term impacts are often the result of indirect effects or cumulative short-term effects and are difficult to definitively assign to

one particular disturbance factor. Long-term population level impacts are often not noticed for many years, particularly in relatively long lived animals such as deer, elk and antelope (Hebblewhite 2008). Long-term impacts to wildlife populations through behavioral responses to increased human disturbance are associated with the amount of surface disturbance. Initial surface disturbance removes vegetation and disturbs soil resulting in a direct loss of habitat as noted above, but also indirectly affects wildlife populations through habitat fragmentation and avoidance of disturbances (Hebblewhite 2008). Avoidance is variable but the average zone of influence is approximately 1,000 meters (3,281 feet) from roads and oil and gas wells for ungulates (Hebblewhite 2008) and 100 meters (328 feet) from roads for passerine birds (Ingelfinger and Anderson 2004). Walston, et al. (2009) found that indirect effects at these distances resulted in effects to 61% and 15% of sagebrush habitats respectively.

Although reclamation restores habitats, thereby reducing long-term surface disturbance acreage, many wildlife species may still avoid a reclaimed area because of permanent facilities (e.g., roads, well pads, etc.) located adjacent or within the habitat area. Some effects can be mitigated by removing or modifying facilities such as powerlines, roads, or other structures.

Higher densities of permanent facilities and roads have been found to increase the adverse impacts to wildlife although investigations on landscape-level effects have only been completed on a few species. Hebblewhite (2008) conducted an analysis of relevant published studies addressing the effects of energy development on big game throughout North America and found significant long-term impacts to ungulate populations (mule deer, antelope, and elk) when well densities exceed between 0.1 and 0.4 wells/km² (0.26 and 1.04 wells/mi²) and road densities exceed between 0.18 and 1.05 linear km/km² (0.290 and 1.689 linear miles of road/mi²) in ungulate habitat. Some species of grassland birds also avoid improved roads, particularly Sprague's pipits, Baird's sparrows, and chestnut-collared longspurs (Sutter, et al. 2000).

Recent investigations conducted on the effects of oil and gas activities on Greater Sage-Grouse found impacts to breeding populations when well densities exceed one well pad/2.6 km² (one well pad/mi²) within 3 km (1.9 miles) of a lek (Holloran 2005) and impacts at well densities of 8/mi² exceeded the species threshold of tolerance (Holloran 2005, Walker, et al. 2007, Doherty, et al. 2006). Harju, et al. (2009) found that long-term effects varied by development area but generally occurred at densities greater than two well pads/mi² within 5.3 miles of a lek. Some areas had impacts when well densities were less than one well pad/mi^2 and common well pad densities of 4 and 8 well pads/mi² were associated with lek declines ranging from 13-74% and 77-79% respectively (Harju, et al. 2009). Holloran (2005) and Walker, et al. (2007) found effects were often not noted until 3-4 years after development and Harju, et al. (2009) found effects in some areas were only apparent 9-10 years after development, suggesting that the full impact of development may not have yet occurred from recent oil and gas activities. In addition, Tack (2009) found the probability of large leks (>25 males) decreased with the number of wells within 12.3 km (7.6 miles) of a lek and no large leks were expected when well pads exceeded 2 wells/mi². Yearling females avoided infrastructure when selecting nesting sites (Holloran, et al. 2010) and older females that nested near infrastructure had lower survival (Holloran 2005). This suggests that impacts to Greater Sage-Grouse populations are determined by the level of disturbances in nesting habitat regardless of the distance of disturbances to leks, and impacts can be assessed by well density in sagebrush habitats even though those impacts are measured by the number of males at nearby leks and are often described in relation to distance to leks. The threshold level for disturbances in silver sage habitats may be lower because of the limited habitat available in this system (Tack 2009).

For some wildlife species disturbances are related to the timing of activities. Raptors are more vulnerable to disturbances during the early stages of nesting. Big game are more vulnerable during the winter, although disturbances located outside winter range areas during the growing season can affect the physiological condition and subsequent winter survival of individuals.

Table 4.96 summarizes the anticipated short-term and long-term surface disturbance from BLM actions in the planning area. Reasonably foreseeable actions contributing to this surface disturbance are discussed in the introduction of Chapter 4. Because the precise location of foreseeable actions in the planning area is not known, Table 4.96 and associated types of development were used to estimate the relative impact of alternatives on wildlife.

Table 4.96
Future Surface Disturbance on BLM Land by Alternative
(Acres)

	Alternative A (Current Management)	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Short-Term Disturbance	34,703	52,170	56,277	57,708	56,922
Reclaimed Disturbance	30,933	49,485	52,898	53,898	53,320
Long-Term Disturbance	3,770	2,685	3,379	3,810	3,602

Throughout the planning area, BLM-authorized activities associated with all resources and all resource use programs would be subject to mitigation and minimization guidelines and Best Management Practices (BMPs) (Appendix C), including specific Mitigation Measures and Conservation Actions for Greater Sage-Grouse (Appendix M.1).

Methods and assumptions used in this impact analysis include the following:

All Wildlife

- Changes to vegetation types; either in quantity, quality, or increased fragmentation, are compared to baseline conditions for each alternative (Chapter 3). Adverse and beneficial impacts to vegetation types (i.e., wildlife habitats) are assumed to have a corresponding adverse or beneficial impact on wildlife species.

- Loss of habitat, whether direct or indirect, can reduce populations via reduced survival, reduced reproduction, or emigration. Individuals pushed from habitats near disturbances would increase densities on remaining habitats, exposing populations to greater density-dependent effects (Sawyer, et al. 2005).

- Thresholds for densities of roads and oil and gas wells have been described for big game (Hebblewhite 2008), and long-term significant impacts to big game species are expected to begin at well densities from 0.26 to 1.04 wells/mi² and with road densities between 0.29 and 1.69 miles of road/mi². The higher figures are used as the threshold in this analysis.

- The extent of disturbances that result in impacts to wildlife was estimated by adding a 1,000 meter buffer to existing oil and gas wells for big game (Hebblewhite 2008) and a 100 meter buffer for passerine birds (Ingelfinger and Anderson 2004). Impacts from new wells were not estimated since we are unable to determine the location of new wells to calculate how much overlap in disturbance areas would occur between the new wells and existing wells.

- All known raptor nests were used in the analysis and all raptor nests of unknown species are assumed not to be special status species.

- The BLM will utilize best available information, management and conservation plans, and other research and related directives, as appropriate; to guide wildlife habitat management on BLM land.

Special Status Species

- Precise quantitative estimates of impacts generally are not possible because the exact locations of future actions are unknown, population data for special status wildlife species are often lacking, or habitat types impacted by surface-disturbing activities cannot be predicted.

- Thresholds for densities of roads and oil and gas wells have been described for Greater Sage-Grouse. Effects to sage-grouse populations have been noted when well pad densities exceed 1 well/mi² (Holloran 2005) and long-term significant impacts are expected when well pad densities exceed 2 wells/mi² (Harju, et al. 2009; Tack 2009) in Greater Sage-Grouse habitat.

- Actions impacting one species have similar impacts on other species using the same habitats or areas.
- Management of sagebrush habitats follows the BLM National Sage-Grouse Habitat Conservation Strategy (BLM 2004a). Using these guidelines, Greater Sage-Grouse serve as an umbrella species for all sagebrush-dependent species (Hanser and Knick 2009).
- Short-term and long-term surface disturbance are assumed to occur in vegetation types in proportion to the availability of these vegetation types in the planning area. Impact acreages for vegetation types are not absolute, but serve as a relative comparison among alternatives.
- The nature and relative mobility of some special status wildlife species (e.g., Greater Sage-Grouse, grassland birds, migratory birds, and raptors) exposes these species to effects on non-BLM land more so than other species. In the case of migratory species, impacts to winter and migration habitats could adversely impact the viability of some species. Winter and migration habitats are assumed to be at least as important to long-term viability of these species as breeding and nesting habitats.
- Grizzly bears, gray wolves, bull trout, pallid sturgeon, least terns, whooping cranes, and Canada lynx are found in the planning area but no impacts are expected to occur to these species as a result of activities on BLM land in the planning area.
- Impacts are addressed only for BLM sensitive species for which BLM management can impact recovery.

Impacts Common to All Alternatives

Allowable uses and management actions that could impact wildlife habitats include all surface-disturbing activities, primarily oil and gas activities; disruptive activities, usually related to surface-disturbing activities; and actions that result in changes to vegetation structure and diversity without intensive soil disturbance such as livestock grazing. At various intensities, the actions of all alternatives could adversely impact wildlife through the loss, degradation, and fragmentation of habitats, and benefit wildlife through the protection, enhancement, and restoration of habitats. Potential effects from each category of activities are described below as they apply to all alternatives.

All alternatives have surface-disturbing and disruptive activities. The impacts projected to occur to wildlife as a result of the various alternatives are similar; however, the intensity of impacts is anticipated to vary by alternative. Therefore, impacts to wildlife from surface-disturbing and disruptive activities and changes in vegetation structure and composition are described under individual alternatives.

Fire Management and Ecology, and Forests and Woodlands: Planned and unplanned fire removes vegetation and can impact soils. Although fire adversely impacts wildlife habitats in the short term by removing vegetation, the long-term benefits of fire often outweigh the short-term adverse impacts. Fire can improve the quality of wildlife habitats by releasing soil nutrients, reducing fuel load, or setting back trees encroaching into shrubland or grassland habitats. Fire can be used to restore conditions benefiting wildlife species favoring early plant succession stages, young age classes of woody plants, or grassland habitats with little residual cover.

Fire suppression can have adverse effects to wildlife habitats. For example, fuels tend to build under repeated fire suppression, sometimes resulting in intense fires that can cause long-term adverse impacts to soils and subsequent revegetation to provide wildlife habitats. Repeated fire suppression in forests also results in loss of fire-induced wildlife habitats.

Fire suppression activities remove vegetation and disturb soil. Suppression activities can have both short-term and long-term impacts to big game and other habitats. Construction of fire lines can cause habitat loss, degradation, and fragmentation in the short term. Moreover, if not rehabilitated, these fire lines can cause erosion and provide opportunities for the spread of noxious weeds, thereby resulting in long-term adverse impacts to wildlife habitats. Timely rehabilitation of the effects of fire suppression is important to maintaining the quality of wildlife habitats.

Fluid Minerals: Oil and gas development (well pads and associated roads) is anticipated to contribute to long-term surface disturbance and loss of wildlife habitats in the planning area as discussed in the introduction of Chapter 4 (Tables 4.2, 4.3, and 4.4). Some areas would have greater impacts from oil and gas activities compared to other areas. The location and density of individual gas wells in the planning area is determined by the geology and oil and gas resource distribution.

Many species often avoid areas of long-term surface disturbance and disruption resulting in long-term indirect effects. Avoidance is not the same as exclusion and ungulates may still use areas near disturbances. However, the avoidance or lower probability of use of habitats near surface-disturbing and disruptive activities creates indirect habitat losses. Loss of habitat, whether direct or indirect, can reduce populations via reduced survival, reduced reproduction, or emigration. Individuals pushed from habitats near disturbances would increase densities on remaining habitats, exposing populations to greater density-dependent effects (Sawyer, et al. 2005).

Applying a 1,000 meter avoidance zone (Hebblewhite 2008) to existing wells, which may lead to long-term indirect impacts to populations of ungulates, results in 11,413 acres (8%) of BLM lands in the high development potential areas; 123,819 acres (32%) in the moderate potential areas; 45,260 acres (10%) in the low potential areas; and 10,830 acres (0.4%) in the very low potential areas within 1,000 meters of an active well (Table 4.97). The number of wells would increase and the acres within 1,000 meters of an active well would also increase in each of the oil and gas potential areas under all alternatives (Table 4.97). Many of these wells would be placed in areas currently not within 1,000 meters of an active well because of well spacing restrictions. The number of wells that can be placed in the lands currently not within 1,000 meters of an active well, based on standard well spacing of one well per square mile, is used as an indicator of how much of this land could potentially be affected when compared with the number of anticipated new wells within each development potential area.

Table 4.97
BLM Land within 1,000 Meters of Existing Wells and Anticipated New Wells on BLM Land by Alternative

	Existing Wells			*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Development Potential	*BLM Acres within 1000m of Well*	*BLM Acres Remaining*	*No. of Wells Available at 1 Well/Sq. Mile*	*Anticipated New Wells BLM*	*Anticipated New Wells BLM*	*Anticipated New Wells BLM*	*Anticipated New Wells BLM*	*Anticipated New Wells BLM*
High	11,413	134,786	210	434	167	388	442	405
Moderate	123,819	262,540	410	992	283	832	1,001	931
Low	45,260	393,457	614	382	169	343	384	362
Very Low	10,830	2,769,224	4,326	66	28	54	67	58

The only stipulation for oil and gas leasing common to all the alternatives is an NSO stipulation that would be implemented within 1/4 mile of special status species habitat unless other species-specific management actions apply. This stipulation would limit surface-disturbing and disruptive activities to mitigate long-term loss of the species habitat and long-term indirect effects from disturbances and disruptions near habitat. The effects of this stipulation would be beneficial for any species it would be applied to, but the extent of the benefits would be based on the ecology of the individual species.

Lands and Realty: Rights-of-way occur in the planning area under all alternatives and impact wildlife in varying ways. Utility poles may benefit some birds by providing perching or nesting structures; however, these same utility structures also can cause mortality through electrocution and collisions (APLIC 2012). Utility poles can also impact Greater Sage-Grouse and sharp-tailed grouse by providing perches for predatory birds. Even when these structures are fitted with anti-perching devices, the grouse may perceive the structures as a predation risk without direct mortality, particularly when they are near breeding areas (Frid and Dill 2002). Therefore, in areas with tall structures there may be reduced habitat utilization by Greater Sage-Grouse.

Wind energy facilities are a particular type of right-of-way action that can be a source of mortality for birds and bats when they collide with wind tower blades. High mortality could result if wind towers are placed along a migration path

or within nesting territories. Wind energy facilities also result in direct impacts through habitat loss by construction and maintenance of wind towers and associated facilities as well as indirect impacts due to avoidance of wind farm areas.

Rights-of-ways for new roads or road upgrades may impact migratory birds and Greater Sage-Grouse through avoidance of roadways and associated traffic. Sprague's pipits, Baird's sparrows, and Chestnut-collared longspurs have been found to avoid improved roads (ditched on each side) (Sutter, et al. 2000).

Livestock Grazing, and Vegetation – Rangeland: Cattle grazing remains the most widespread effect to vegetation structure in the planning area, but historically, grazing is a natural disturbance in this area. Implementation of allotment management plans (AMPs), intensively working with the permittees since the early 1980s, and the Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997a) have improved range conditions and thus habitat values for most species in the planning area. The most impact to wildlife habitats from livestock is anticipated in concentrated areas, such as water sources and riparian areas.

Vegetation treatments used to manage rangelands and forests, such as chisel plowing and silvicultural treatments, can impact wildlife habitats by changing the structure and composition of vegetation. The impacts of these changes vary considerably between wildlife species, or even within species in relation to seasonal habitat requirements, depending on the location, extent and severity of the treatments. The impact to wildlife from these activities is expected to be low across the planning area because of the limited acres anticipated to be treated. Vegetation treatments on non-native rangelands can improve the value of those areas as wildlife habitat or improve habitat conditions on native rangelands through changes in grazing pasture rotations.

Noxious Weeds and Other Non-Native Invasive Species: Noxious weeds contribute to loss of wildlife habitats, increase soil erosion, reduce water quantity and quality, and reduce structural and species diversity. Controlling the spread of noxious weeds is necessary to maintain wildlife habitats. Comprehensive management plans are anticipated to be effective in controlling the adverse impacts of noxious weeds. Targeting and eradicating noxious weeds particularly detrimental to certain wildlife habitats are anticipated to benefit wildlife. Leafy spurge is a noxious weed often found in habitats that are important to numerous wildlife species. If the spread of noxious weeds in the planning area continues, adverse impacts to wildlife habitats are anticipated, but strong weed control efforts would be implemented under all alternatives and should mitigate the impacts of weed infestations on wildlife habitat.

OHV Use and Travel and Transportation Management: Roads can result in direct mortality of wildlife species during construction and more importantly from collisions with vehicles operating on the roads. Mortality varies with the average volume and speed of traffic on roads (Forman and Alexander 1998). In addition, because roads typically are void of vegetation and exhibit impervious surface or compacted soil, they often promote increased surface runoff and lead to soil erosion and transport of pollutants to nearby streams, wetlands, or riparian areas. The density of roads also impacts habitat integrity through fragmentation of habitats. The management of roads, primitive roads and trails would be addressed in subsequent travel management plans. New user-created roads, primitive roads and trails could continue to be established in the planning area under all alternatives pending development of a travel management plan. Wildlife habitats would continue to be impacted by roads in the planning area under all alternatives.

Off-road vehicle use is another surface-disturbing activity which, through removal of vegetation, disturbance of soil, and transport of noxious weeds, can degrade wildlife habitats. Currently, only 124 acres of the planning area are open to OHV use off of existing roads, primitive roads and trails.

Recreation: Impacts to wildlife from recreation activities are expected to be low and remain similar across alternatives with a majority of the planning area managed as an ERMA allowing for dispersed recreation.

Renewable Energy: Wind energy facilities can be a source of direct mortality for wildlife, particularly birds and bat mortalities resulting from collisions with wind tower blades. High mortality could result if wind towers are placed along a migration path or within nesting territories. Wind energy facilities also result in indirect population impacts through habitat loss from construction and maintenance of wind towers and associated facilities as well as avoidance of habitats within and near wind farm areas. Impacts to wildlife from wind farms located in areas with highly fragmented native habitats would minimize impacts to priority wildlife species in the planning area (Kiesecker, et al. 2011). Within the planning area, two candidate species may be particularly vulnerable to impacts from wind development: Greater Sage-

Grouse and Sprague's pipit. In addition, a suite of special status species associated with grassland habitats including a number of bird species may also be particularly vulnerable to impacts associated with wind development.

The presence of wind turbines may displace some species of grassland birds (Leddy, et al. 1999; Johnson, et al. 2000); however, data are lacking for most mixed-grass and shortgrass affiliated birds. Sprague's pipits negatively respond to shrub and tree densities, and it is likely that they exhibit negative responses to other vertical structures in their habitat (e.g., wind turbines, telecommunication towers, powerline towers), although specific data are limited (Jones 2010). The impacts of wind farms on sage-grouse have not been documented; however, it has been suggested that as a large-scale industrial development it may have similar effects as natural gas (shallow and coal-bed) development (MFWP 2005). Both gas development and wind farms are characterized by extensive road developments that fragment habitat and increase potential for vehicle collisions. Vertical structures, transmission lines, and turbines may decrease survival or reproductive success as a result of collisions and creation of habitat for predators. Additionally, the structures themselves may alter habitat suitability, resulting in abandonment. The reason for avoidance is unclear, but the Greater Sage-Grouse is thought to avoid power lines because of predation pressure from perching raptors (Graul 1980; Lammers & Collopy 2007).

Response of grassland passerines to wind energy development is currently under investigation in North and South Dakota (Shaffer and Johnson 2008). Very preliminary data suggest that grasshopper sparrows avoid turbines, whereas western meadowlarks and chestnut-collared longspurs do not avoid turbines. Species that do not avoid turbines may be more vulnerable to direct mortality, particularly those species whose aerial courtship displays occur at altitudes within the rotor sweep area of turbines. Sprague's pipits may be particularly vulnerable because they prefer landscape features that are also preferred by wind developments. Highest male densities are often along north-south oriented ridges. They are also more vulnerable because males take advantage of winds to display for up to several hours in relatively small areas 50 to over 100 meters above the ground (Robbins 1998). Eagles may also be particularly susceptible to mortality at wind turbines.

Utility poles associated with wind farms may benefit some birds by providing perching or nesting structures; however, these same utility structures also can cause mortality through electrocution and collisions (APLIC 2012). Utility poles can also impact Greater Sage-Grouse and sharp-tailed grouse by providing perches for predatory birds. Even when these structures are fitted with anti-perching devices, the grouse may perceive the structures as a predation risk without direct mortality, particularly when they are near breeding areas (Frid and Dill 2002). Utility poles increase the avoidance areas associated with wind farms and increase fragmentation of remaining habitats resulting in long-term indirect population declines of species associated with native habitats where wind farms occur.

New roads or road upgrades associated with wind farms may impact special status wildlife through avoidance of roadways and associated traffic. Sprague's pipits, Baird's sparrows, and chestnut-collared longspurs have been found to avoid improved roads (ditched on each side) (Sutter, et al. 2000). In addition, construction of roads may negatively impact grassland birds by fragmenting habitat. Sprague's pipit relative abundance and productivity increased with area of available habitat (patch size), and chestnut-collared longspur and Baird's sparrow relative abundances were also influenced by patch size and shape (Davis 2003). Roads would increase the avoidance areas associated with wind farms and increase fragmentation of remaining habitats resulting in long-term indirect population declines of species associated with native habitats where wind farms occur, particularly those noted above.

Soils: Mitigation proposed under all alternatives to protect soil resources would benefit wildlife habitat by ensuring the basis for all wildlife habitat is conserved or improved.

Special Designations: The Kevin Rim (raptors), Bitter Creek (general wildlife) and Azure Cave (bat hibernaculum) ACECs would be retained under all alternatives. This would continue to benefit the resources for which these ACECs were established through area-specific management actions needed to protect or enhance wildlife values. In addition, retention of the Sweet Grass Hills ACEC and the Big Bend of the Milk River ACEC would benefit wildlife species found in those areas by limiting disturbances and minimizing disruptions.

Wildlife

Small Mammals: The small mammals group includes the shrews, mice, rabbits, weasels, and bats. No specific management actions for most small mammals exist under any alternative, but these species would be impacted by other

resource management actions. Nongame mammals are found in a variety of habitats and are affected by management actions in the preferred vegetation type of each species. Management actions and allowable uses that restrict or mitigate the effects of surface disturbances and disruptions, regardless of the resource the action applies to, are generally beneficial for mammals occupying habitats as described for migratory birds.

Bats also can utilize a variety of habitats, but caves, abandoned mines, and badland areas are important features for many bat species. Bats that use caves for roosting, maternity colonies, or hibernation could be affected by surface-disturbing activities near caves, cliffs, other rock features, and riparian areas. Mitigation for effects to these species would occur in project level analysis.

Swift fox occur in grassland habitats north of the Milk River in the planning area and could be affected by surface-disturbing and disruptive activities. However, impacts would be mitigated in project level analysis and no large-scale, long-term impacts are anticipated for this species under all alternatives.

Animal damage control is conducted by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) Wildlife Services and would not differ among alternatives. Animal damage control typically applies to coyote, red fox, and skunk in the planning area. Impacts to these species through control actions can be intensive but no difference in adverse impacts to predatory animals is anticipated across alternatives.

Impacts from surface-disturbing activities, disruptive activities, and management actions are anticipated for special status nongame mammals. Surface disturbance is anticipated to have localized adverse impacts to special status nongame mammal habitats including temporary and permanent loss of habitats. Fragmentation and degradation of habitat for special status nongame mammals also is anticipated from surface-disturbing activities and associated development.

Birds

- *Greater Sage-Grouse:* Impacts from surface-disturbing activities, disruptive activities, and management actions are anticipated for Greater Sage-Grouse across all alternatives. Estimated short-term and long-term surface disturbance from BLM actions in the planning area are anticipated to result in loss, degradation, and fragmentation of sagebrush habitat. Oil and gas development is the major source of surface disturbance identified in the planning area under all alternatives, and oil and gas development has been identified as a cause of declining Greater Sage-Grouse populations (Doherty, et al. 2006, Walker, et al. 2007, Naugle, et al. 2011b, Harju, et al. 2009). Surface disturbance is anticipated to have adverse impacts to sagebrush habitats including temporary and permanent loss of habitats across all alternatives. Fragmentation and degradation of habitat for Greater Sage-Grouse also is anticipated from surface-disturbing activities and associated development.

- *Migratory Birds:* Each migratory bird species occupies a unique ecological niche and may be subject to a unique set of limiting factors. Given the variety of food habits and breeding requirements of the migratory birds that occupy the planning area, it is certain that any decision to restore or enhance habitat for a particular species would benefit one species or species group, to the detriment of another. Cottonwood galleries and riparian shrubs are particularly important for migratory birds in the planning area.

  Many special status migratory birds breed and nest on BLM land and winter elsewhere. Although impacts to these species on their winter habitat are not subject to BLM management, impacts to breeding and nesting habitats from surface-disturbing activities, disruptive activities, and management actions on BLM land are anticipated for migratory birds.

  Because of the number and diversity of migratory bird species and habitat requirements, the descriptions of impacts are categorized under the following habitats: forest and woodland species, grassland species, riparian and wetland species, and sagebrush species.

  - *Forest and Woodland Species* – No specific management actions for migratory birds in forests and woodlands are proposed in the alternatives. Management actions and constraints proposed under all alternatives in the Fire Management and Ecology, and Forests and Woodlands sections would provide a mosaic of forested habitat conditions that would benefit a broad range of forest-associated species.

- *Grassland Species* – Grassland-associated migratory birds benefit from actions to conserve special status species grassland birds, and those management actions, which are included in the Wildlife section of Chapter 2, would have benefits for all grassland-associated birds. In addition, grazing management for rangeland health under the current standards and guidelines for all alternatives would benefit grassland-associated species.

- *Riparian and Wetland Species* – No specific management actions are noted for riparian and wetland species but actions to protect and conserve water quantity and quality in the planning area would benefit these species. In addition, management actions that benefit waterfowl would also benefit riparian and wetland species. Grazing management for rangeland health under the current standards and guidelines for all alternatives would benefit riparian-associated species.

- *Sagebrush Species* – A number of management actions related to Greater Sage-Grouse conservation may have benefits for all sage-associated birds. Studies indicate that sage-grouse may act as an umbrella species for passerine birds (Hanser and Knick 2011), which means that they might benefit from conservation measures focused on sage-grouse. Some advantages and disadvantages likely will be realized by various species in areas where sage-grouse are the focus of management, including the ongoing designation of areas as priority and general habitat. In addition, grazing management for rangeland health under the current standards and guides for all alternatives would benefit sage-associated species.

Priority special status bird species associated with these habitats are:

- *Forest and woodland species* – American three-toed woodpecker, red-headed woodpecker.

- *Grassland Species* – Baird's sparrow, chestnut-collared longspur, dickcissel, Le Conte's sparrow, long-billed curlew, marbled godwit, McCown's longspur, mountain plover, and Sprague's pipit.

- *Riparian and Wetland Species* – black tern, Franklin's gull, Nelson's sharp-tailed sparrow, piping plover, white-faced ibis, willet, Wilson's phalarope.

- *Sagebrush species* – Brewer's sparrow, Greater Sage-Grouse, loggerhead shrike, sage thrasher.

- *Raptors:* Special status raptor species are the bald eagle, northern goshawk, Swainson's hawk, burrowing owl, golden eagle, ferruginous hawk, and peregrine falcon. All new powerlines constructed on BLM lands would be required to comply with the most current raptor protection standards. Currently, these are Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012). Existing powerlines constructed on BLM land with rights-of-way processed after 1976 would be modified to prevent electrocution of raptors if problems are identified. These actions would greatly reduce impacts to raptors from powerlines on BLM lands under all alternatives. No management actions are specific to raptors under each alternative other than those noted for oil and gas activities.

- *Waterfowl:* No specific management actions for surface-disturbing activities relate to waterfowl. However, as noted above, management actions and allowable uses which restrict or mitigate the effects of surface disturbances and disruptions, regardless of the resource the action applies to, are generally beneficial for waterfowl. Management actions and allowable uses that protect water quality and quantity and riparian habitats are particularly beneficial for waterfowl.

Amphibians and Reptiles: Management actions and allowable uses which restrict or mitigate the effects of surface disturbances and disruptions, regardless of the resource the action applies to, are generally beneficial for reptiles and amphibians. Management actions and allowable uses that protect water quality and quantity and riparian habitats are particularly beneficial for amphibians. Impacts from surface-disturbing and disruptive activities on important habitat or seasonal use areas (i.e., snake hibernaculum) can be mitigated with standard oil and gas lease terms under each alternative. Impacts to reptiles and amphibians would be minimal with the implementation of these actions.

Cumulative Impacts

Impacts from BLM actions under all alternatives are additive to impacts occurring on non-BLM lands throughout the planning area. Non-BLM impacts generally would not vary by alternative and are discussed here as the baseline to which impacts described for BLM actions under each alternative would be added.

The primary direct impact to wildlife habitats in the planning area is the direct loss of native habitats from conversion to row crop and small grain production. Much of this conversion occurred in the past resulting in agricultural lands comprising about 36% of the planning area, primarily in the western portion. However, continued conversion is expected on private lands in the planning area based on current trends in the Northern Great Plains (Fargione, et al. 2009). In addition, contracts on 1,154,000 acres of private lands enrolled in the Conservation Reserve Program (CRP) in Montana (most of it within the planning area) and not currently cropped would not be renewed, potentially resulting in additional losses of wildlife habitat (Fargione, et al. 2009). The percent of non-federal surface ownership converted to cropland could incrementally continue to increase through the life of the plan. Oil and gas activities on all lands in the planning area are projected by alternative and are discussed in the cumulative effects section for each alternative.

Applying a 1,000 meter avoidance zone (Hebblewhite 2008) to existing wells, which may lead to long-term indirect impacts to populations of ungulates, results in 147,145 acres (39%) in the high development potential areas; 550,565 acres (45%) in the moderate potential areas; 971,353 acres (25%) in the low potential areas; and 169,252 acres (1.7%) in the very low potential areas within 1,000 meters of an active well (Table 4.98). The number of wells would increase and the acres within 1,000 meters of an active well would also increase in each of the oil and gas potential areas under all alternatives (Table 4.98). Many of these wells would be placed in areas currently not within 1,000 meters of an active well because of well spacing restrictions. The number of wells that can be placed in the lands currently not within 1,000 meters of an active well based on standard well spacing of one well per square mile is used as an indicator of how much of this land potentially would be affected when compared with the number of anticipated new wells within each development potential area.

Table 4.98
Total Land in the HiLine Planning Area within 1,000 Meters of Existing Wells and Anticipated New Wells by Alternative (Total Wells)

	Existing Wells			*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
Development Potential	*Total Acres within 1000m of Well*	*Total Acres Remaining*	*No. of Wells Available at 1 well/sq. Mile*	*Anticipated New Wells Total*	*Anticipated New Wells Total*	*Anticipated New Wells Total*	*Anticipated New Wells Total*	*Anticipated New Wells Total*
High	147,145	228,620	357	1,665	1,229	1,606	1,679	1,623
Moderate	550,565	680,465	1,063	2,659	2,054	2,513	2,663	2,607
Low	971,353	2,853,610	4,458	1,375	1,244	1,344	1,376	1,360
Very Low	169,252	9,528,599	14,888	315	260	293	316	306

Alternative energy projects could also impact important wildlife habitat in the planning area. A number of wind farms are currently in production or are planned in the region. Although no wind farms are currently proposed for BLM lands in the planning area, one large and one small wind farm are projected to be built on BLM land somewhere in the planning area under all alternatives. The long-term impacts on wildlife resources from wind farms are predicated on the location they are built. If wind farms are located in areas that are currently not providing high quality wildlife habitat or are outside of major migration routes, impacts to wildlife would be minimized compared to a wind farm placed in high quality wildlife habitat or in a migration corridor (Martin, et al. 2009). Wind farms placed in high value wildlife habitat could result in significant long-term direct and indirect impacts to many wildlife species through direct mortality (particularly birds and bats) to avoidance, displacement, and habitat fragmentation resulting in population level impacts.

Declining populations of many species associated with grassland habitats have been attributed, in large part, to alteration of disturbance regimes and extensive conversion of habitat to cropland (Samson and Knopf 1994, Fitzgerald et al. 1999, Knapp et al. 1999, Blann 2006). Data from the U.S. Department of Agriculture show that the nation's private grassland and rangeland declined by 25 million acres in just 20 years (1983 to 2003), largely as a result of conversion to cropland (GAO 2007). The greatest losses occurred in the northern Great Plains, specifically in Montana and the Dakotas. Conversion may accelerate in the near future to accommodate a projected four-fold increase in biofuels (Nash 2007, USDA National Agricultural Statistics Service 2007). These impacts to wildlife populations through loss of habitat continue to occur within the planning area making native habitats on BLM lands even more important to populations of grassland and sage associated species. The addition of wind projects into the remaining native habitat on BLM lands would further degrade habitat and result in population declines of species dependent on the habitats where the developments would occur.

Cumulative impacts to wildlife and wildlife habitats are expected to be most prevalent where BLM lands are mixed with non-federal lands and synergistic effects of direct habitat loss through conversion to cropland and indirect disturbances, primarily from oil and gas activities, are expected to occur. Alternately, large blocks of BLM land or blocks where BLM land is interspersed with private rangeland without high densities of surface-disturbing activities are expected to continue to provide important wildlife habitat.

The cumulative effects analysis study area for Greater Sage-Grouse extends beyond the HiLine planning area boundary and consists of Western Association of Fish and Wildlife Agencies (WAFWA) Management Zone (MZ) I. The analysis of BLM actions in MZ I is primarily based on MZ-wide datasets developed by the BLM National Operations Center. The cumulative effects analysis on the long-term effects on Greater Sage-Grouse from implementing each RMP/EIS alternative, in conjunction with other past, present, and reasonably foreseeable future actions is included in Appendix M.9.

Impacts under Alternative A (Current Management)

Estimated short-term direct disturbance from all surface-disturbing activities is 34,703 acres (Table 4.96). Approximately 30,933 acres would be reclaimed, resulting in 3,770 acres of direct long-term surface disturbance from all surface-disturbing activities under Alternative A.

Fire Management and Ecology, and Forests and Woodlands: About 4,740 acres of forested acres could be mechanically treated for forest health. This is less than 1% of all forested habitat managed by the BLM in the planning area. Short-term direct impacts to wildlife from these treatments would be minimal because of the limited acreage involved in treatments.

Approximately 6,860 acres could be treated with prescribed fire. These treatments would provide heterogeneity in these habitats and the effects would be beneficial for most wildlife species as long as treatments in sage habitats are designed to avoid long-term effects. Forest management under Alternative A uses silviculture treatments to achieve stand vigor. In general, forest management and silviculture treatments under Alternative A are anticipated to have mixed effects on big game. Alternative A also proposes to achieve desired future condition in sagebrush and mountain shrub communities. Both of these communities are used by wildlife, and achieving desired future condition on all acreage within the planning area is anticipated to benefit wildlife.

Fluid Minerals: Approximately 102,298 acres of BLM minerals would be closed to oil and gas leasing under Alternative A to protect a variety of resource values, not just wildlife. An additional 282,062 acres would be available for leasing with an NSO stipulation, of which 87% is located in the very low oil and gas development potential area. These protections would benefit all wildlife species located in these areas by minimizing surface-disturbing activities and associated avoidance as noted under Impacts Common to All Alternatives, Fluid Minerals, and Table 4.97.

The number of new wells on BLM minerals anticipated under Alternative A is 1,874 wells. Most of these wells would be located in the moderate development potential area (992 wells). This would result in 9,564 acres of direct short-term habitat disturbance and 2,422 acres of direct long-term habitat disturbance. Most of this disturbance would occur in grassland/sagebrush/shrubland habitats (approximately 92%, based on the percentage of habitat types in the planning area).

Although stipulations may mitigate impacts at local scales, impacts to wildlife often happen at much larger scales. Large-scale impacts to wildlife and wildlife habitats are best described by the density of impacts on the landscape. Road effects are discussed in this section since most road development in the planning area is anticipated to be associated with oil and gas activities. Impacts to wildlife populations are often not immediate and may be manifest in population level responses a number of years after the initial disturbance.

Under Alternative A mean well densities on BLM land in each of the oil and gas development potential areas would exceed 1.04 wells/mi² except in the very low development potential areas (0.03 wells per square mile) (Table 4.99). Mean road densities would exceed 1.69 miles of road/mi² in the moderate development potential area (Table 4.100). A significant decline in populations of big game animals would be expected within all potential areas except in the very low development potential area under Alternative A because of the density of wells and roads.

Table 4.99
Anticipated Well Density (Wells per Square Mile) on BLM Land by Alternative

Development Potential	*Existing Well Density*	*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
High	0.44	2.34	2.64	2.14	2.38	2.22
Moderate	1.69	3.33	2.36	3.06	3.34	3.23
Low	0.62	1.18	0.87	1.12	1.18	1.15
Very Low	0.01	0.03	0.02	0.02	0.03	0.03

Table 4.100
Anticipated Road Density (Miles of Road per Square Mile) on BLM Land by Alternative

Development Potential	*Existing Road Density*	*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
High	0.47	1.21	1.14	1.15	1.23	1.17
Moderate	1.24	2.29	1.92	2.21	2.30	2.26
Low	0.64	1.01	0.92	1.00	1.02	1.01
Very Low	0.89	0.90	0.89	0.90	0.90	0.90

The greatest impact in the long term would occur in the high development potential areas, including the Bears Paw South area, where mean well densities would rise from the current 0.44 wells/mi² to 2.34 wells/mi² (a 420% increase) and mean road densities would increase from 0.47 to 1.21 miles of road/mi². This would result in a direct and indirect loss of most habitat for big game in the high development potential areas. Approximately 220,000 acres of big game winter range are currently within the high development potential area and the entire area is considered seasonal habitat for elk and mule deer.

The number of wells anticipated in the high and moderate potential areas are also expected to result in most of the potential areas being within 1,000 meters of an existing well (avoidance zone for big game), based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.97). Alternative A provides a number of stipulations to minimize disturbance impacts from oil and gas activities at local scales through stipulations limiting timing or distance from key wildlife resource values. These are addressed below. The acreage figures are not additive as some resource values overlap.

- *Big Game:* Alternative A has a restriction on oil and gas activities in big game winter range areas by excluding drilling from December 1 through May 15. This mitigation would eliminate short-term direct disturbance on 903,000 acres of winter range during critical time periods for animal stress but would allow long-term disturbances to occur on winter range. This would lead to long-term changes in big game populations if well densities exceed thresholds for winter range. Mean well densities would exceed a threshold of 1.06 wells/mi² on approximately 120,000 acres of winter range in the high, moderate, and low development potential areas (13% of all winter range). Alternative A has no stipulations to mitigate impacts to bighorn sheep range or

bighorn sheep lambing areas, and impacts to bighorn sheep populations would be expected if oil and gas activities were to occur in bighorn sheep habitat.

- *Black-footed Ferret:* An NSO stipulation would be implemented within 1/4 mile of essential black-footed ferret habitat to limit surface-disturbing activities. This would result in approximately 82,523 acres of black-footed ferret habitat on BLM lands where direct and indirect impacts would be avoided.

- *Black-tailed Prairie Dog:* An NSO stipulation would be implemented within 1/4 mile of essential black-tailed prairie dog habitat to limit surface-disturbing activities. This would result in approximately 82,523 acres of BLM prairie dog habitat where direct and indirect impacts would be minimized.

- *Colonial Waterbird:* Under Alternative A, direct and indirect long-term impacts to waterbird colonies are mitigated by an NSO stipulation for activities within 1/4 mile of a waterbird colony. This would result in 1,545 acres surrounding waterbird colonies where surface-disturbing and disruptive activities would not be allowed. Most of this protection (95%) would apply in the very low development potential area.

- *Game Birds:* Under Alternative A, an NSO stipulation would apply within 500 feet of sharp-tailed grouse leks to limit surface-disturbing activities. A timing restriction would apply from March 1 through June 30 for grouse nests to minimize disruptive activities. This would result in approximately 2,984 acres of habitat surrounding leks where direct impacts would be avoided. Direct effects would be mitigated by avoiding direct impacts to nesting habitats with the timing stipulation, but indirect long-term effects would still be present from surface-disturbing activities initiated outside the timing stipulation. Most sharp-tailed grouse nests within 1.3 miles of their lek and disturbances located within that distance would have indirect long-term impacts on sharp-tailed grouse populations (Giesen and Connelly 1993).

- *Greater Sage-Grouse:* Alternative A has a restriction on oil and gas activities in Greater Sage-Grouse nesting areas by excluding drilling from March 1 through June 15. This mitigation would eliminate short-term direct disturbance on 1,187,040 acres of sage-grouse nesting habitat on BLM lands. Direct effects would be mitigated by avoiding direct impacts to nesting habitats with the timing stipulation, but indirect long-term effects would still be present from surface-disturbing activities initiated outside the timing stipulation. A 1/4 mile NSO also protects breeding activities at leks from long-term direct impacts, but does not protect nesting and brood-rearing habitat located outside the 1/4 mile limit from long-term impacts. This would lead to long-term declines in sage-grouse populations if well densities exceed thresholds for long-term disturbances. Well densities would exceed a threshold of approximately 1 well/mi² on approximately 136,458 acres of sage-grouse habitat on BLM lands in the high, moderate, and low development potential areas (11% of all grouse habitat) under this alternative. This would result in an expected decrease in the populations of Greater Sage-Grouse in all of these areas and depending on the exact configuration and density of well pads, could result in extirpation of Greater Sage-Grouse from these areas.

  Greater Sage-Grouse winter habitats are protected from disruptive activities through stipulations in place to protect wildlife winter ranges. The timing stipulation for drilling activities on wildlife winter range is from December 1 through May 15. Direct effects would be mitigated by applying a timing stipulation to 1,549,358 acres of winter habitats on BLM land, but indirect long-term effects would still be present from surface-disturbing activities initiated outside the timing restriction (May 16 through November 30).

- *Least Tern:* Under Alternative A, an NSO stipulation would be implemented within 1/4 mile of essential least tern habitat to limit surface-disturbing activities. This would protect least tern habitat and nesting activities in the planning area should this species be found nesting on BLM land.

- *Mountain Plover:* Under Alternative A, an NSO stipulation would be implemented within 1/4 mile of essential mountain plover habitat to limit surface-disturbing activities. This would result in approximately 325,053 acres of mountain plover habitat where direct long-term impacts would be avoided.

- *Piping Plover:* Under Alternative A, an NSO stipulation would be implemented within 1/4 mile of essential piping plover habitat to limit surface-disturbing activities. This would apply to approximately 614 acres of

piping plover habitat overlying federal minerals not covered by other more restrictive stipulations. Long-term effects to piping plover populations are not expected with these mitigations in place.

- *Raptors:* Under Alternative A, surface-disturbing and disruptive impacts to raptors are mitigated by stipulations which require a 1/4 mile timing restriction from March 1 through August 1 for any raptor nest. Ferruginous hawks, bald eagles and peregrine falcons have a 1/4 mile NSO restriction in the Judith-Valley-Phillips portion of the planning area, and within a 1/4-3 mile zone of identified essential habitat for the West HiLine portion of the planning area. Direct impacts would be avoided to ferruginous hawks and bald eagle nesting areas (no peregrine falcon nests are known in the planning area) on approximately 2,909 acres surrounding nests. The timing stipulation would mitigate direct effects during the breeding season, but the timing stipulations do not mitigate direct and indirect effects from surface-disturbing activities that would impact nesting raptors in subsequent years.

- *Swift Fox:* Under Alternative A, a CSU stipulation would be implemented within 1/2 mile of swift fox dens to limit surface-disturbing activities in the Lonesome Lake portion of the planning area. The rest of the planning area would have a 1/4 mile NSO from a swift fox den. This stipulation would ensure long-term protection of denning activities for all known dens.

Livestock Grazing, and Vegetation – Rangeland: Changes to rangeland vegetation would be similar across all alternatives. These changes are primarily derived from grazing on these habitats and current grazing management would be beneficial to wildlife by introducing large-scale heterogeneity in grassland habitats. However, under Alternative A the minimum rest period from grazing following any major disturbance to vegetation communities would be two growing seasons, which may benefit some wildlife species in the short term. Long-term goals to promote heterogeneity in grassland habitats would be minimized with this management action as long as grazing within the disturbed areas does not impact soil resources and contribute to increased soil erosion.

Noxious Weeds and Other Non-Native Invasive Species: Road density is a relative measure of noxious weed risk because many weeds are spread through vehicle traffic (Gelbard and Belnap 2003). Management of noxious weeds would be similar through all alternatives but effective management would be dependent on the amount of treatment needed to control infestations. The risk of noxious weed infestation is similar to all alternatives other than Alternative B and would at least nearly double the current road density in the high, moderate, and low development potential areas. It is not known if control efforts would minimize impacts to wildlife habitat.

OHV Use and Travel and Transportation Management: Impacts from motorized off-road vehicle use are limited to 124 acres in two open areas in the planning area. The impacts on wildlife are limited in these small areas. Alternative A does not allow for motorized game retrieval off road, minimizing impacts to vegetation and soil resources as well as limiting disruptions to wildlife from motorized vehicles.

Renewable Energy: Under Alternative A about 188,871 acres of BLM land would be exclusion areas for wind energy rights-of-way. BLM land within 1 mile of National Historic Trails, in WSAs, and within two miles of large waterfowl producing reservoirs would be exclusion areas for wind energy rights-of-way. All other areas would be open areas with minor constraints (standard terms/conditions and BMPs) or avoidance areas for wind energy rights-of-way.

In an effort to analyze the resource effects of wind energy development, the BLM analyzed the effects of development of two hypothetical wind energy proposals within a high wind energy potential area: one for 100 megawatts and the other for 200 megawatts of energy (Appendix O). The 100 megawatt wind energy proposal involves construction of 63 wind turbines which would leave a footprint on the landscape of approximately 2,800 acres, with 200 acres of land disturbance projected in the short term and 152 acres in the long term. The 200 megawatt wind energy proposal involves construction of 134 wind turbines which would leave a footprint on the landscape of approximately 10,706 acres with 727 acres of land disturbance projected in the short term and 544 acres in the long term. Surface-disturbing actions associated with the construction of the two wind energy proposals would include the creation of new roads, increased soil erosion, and vegetation loss from the construction of wind turbines and powerlines.

The impacts of either wind farm scenario depicted above would depend on the type of wildlife habitat located within and near the location of the wind development, but in general impacts to wildlife habitat and populations would be greatest and result in impacts to wildlife habitat and populations when the project is located in areas with high value to fish and

wildlife, such as maternity roosts, hibernacula, staging areas, winter ranges, nesting sites, migration stopovers or corridors, grouse leks, or other areas of seasonal importance. Project impacts would also be greatest in areas of intact habitat in the planning area, where development would result in habitat degradation, loss or fragmentation; particularly those areas with species sensitive to habitat fragmentation, areas identified as critical for the recovery of a listed species, a core population area, or an expansion area of a recovering species. Impacts to wildlife from wind farms located away from areas with high value for wildlife would minimize impacts to priority wildlife species in the planning area.

The development of wind energy projects within high value habitats for grassland birds would result in short-term and long-term population declines of the species through direct mortality from wind farm operations as well indirect impacts through avoidance of the towers and infrastructure (powerlines, roads, buildings) and wind farm operation activities (increased vehicle traffic, human presence and disturbance). As noted above, Sprague's pipits may be particularly vulnerable to mortality from strikes by wind turbine blades. Development within high value Greater Sage-Grouse habitat would also result in short-term and long-term population declines of the species through direct mortality from wind farm operations as well indirect impacts through avoidance of the towers and infrastructure (powerlines, roads, buildings) and wind farm operation activities (increased vehicle traffic, human presence and disturbance). Impacts may be particularly high for a population of Greater Sage-Grouse that migrate from breeding areas in southern Saskatchewan and northern Valley County to wintering areas in southern Valley County if a wind energy development would occur within their migration corridor. Any additional stresses to this population from increased mortality or disruption of migration routes could result in extirpation of this species in Saskatchewan.

Soils: Alternative A considers a CSU on surface-disturbing activities for slopes over 30% or for slopes over 20% on extremely erodible or slumping soils. This would mitigate impacts to soil resources on approximately 484,117 acres in the planning area and would be beneficial for most wildlife in the planning area by protecting the integrity of habitats.

Special Designations: In Alternative A, all existing ACECs are retained and no additional ACECs are proposed. This would be beneficial for the wildlife resources located in the current ACECs, but some areas with unique and valuable wildlife values that meet the relevance and importance criteria as potential ACECs would not be afforded special management.

Vegetation – Riparian and Wetland: Alternative A provides some protection of surface water from impacts associated with soil erosion and runoff from disturbed areas and from other actions by restricting surface use and occupancy within 500 feet of streams, lakes, reservoirs, canals, and associated riparian habitats. This mitigation would protect approximately 364,109 acres of wildlife habitat associated with floodplains and waterbodies.

Wildlife: In addition to the actions noted above, specific management actions and impacts for wildlife categories (mammals and birds) are described below.

Mammals

- *Bighorn Sheep:* Alternative A provides for management actions to minimize disease transmission from domestic sheep to bighorn sheep. The Judith-Valley-Phillips portion of the planning area does not allow grazing by domestic sheep to overlap bighorn sheep habitat, and the West HiLine portion does not allow allotments currently classified for cattle to be changed to domestic sheep grazing. These management actions may be detrimental to bighorn sheep because they do not provide adequate management to minimize disease transmission between wild and domestic sheep, and the potential for disease transmission remains high despite these actions. This could result in significant long-term direct impacts to bighorn sheep in the planning area.

- *Black-footed Ferret:* All management actions for black-footed ferrets under Alternative A occur in the Phillips County portion of the planning area and these management actions (except for the restriction on surface-disturbing activities) all occur in the Prairie Dog Towns within the 7km Complex ACEC.

  Oil and gas activities are managed with a 1/4 mile NSO for special status species habitat and this would apply to black-tailed prairie dog towns and black-footed ferrets under Alternative A.

  Actions and impacts noted above for black-tailed prairie dogs are actions and impacts that would affect black-footed ferrets indirectly through impacts to their habitats. Recreational shooting on prairie dog towns would be

maintained but may be prohibited on prairie dog towns where ferret reintroduction is occurring. However, shooting would be managed on towns with reintroduced ferrets unless impacts from shooting are found to be detrimental.

Management actions in Alternative A for black-footed ferrets would follow the Black-footed Ferret Recovery Plan (USFWS 1988a). Specific management actions that would apply only to the Prairie Dog Towns within the 7km Complex ACEC include: powerlines and rights-of-way would be located to avoid prairie dog towns and discourage raptor perching; animal damage control on Prairie Dog Towns within the 7km Complex would be allowed. Stipulations on the placement of M44s, traps, and snares would be necessary to avoid accidently taking black-footed ferrets; recreational activities would be allowed and managed to prevent adverse impacts to ferrets; controlling ferret predators and monitoring for ferret diseases in specific locations within the 7km Complex may be necessary; the BLM would maintain existing livestock AUMs within the 7km Complex; and a public education program would be jointly developed by USFWS, CMR, MFWP and the BLM to explain the ferret management effort and to minimize any potential problems (i.e., distemper, etc.).

Impacts to black-footed ferrets under Alternative A would be beneficial and long-term should ferrets continue to exist in the planning area or should reintroduction efforts begin again. However, continued shooting of prairie dogs could negatively impact ferret habitat.

- *Black-tailed Prairie Dog:* Acres of active black-tailed prairie dog towns have fluctuated greatly since 1992 when sylvatic plague was discovered in the black-tailed prairie dog population of southern Phillips County. Plague continues to be the primary factor in determining prairie dog populations in the planning area. Prairie dog management in the planning area under Alternative A would vary by previously designated resource areas.

  - *Phillips Resource Area (Phillips County)* – The BLM would manage prairie dog shooting on BLM land before and after ferret reintroduction. The BLM would respond to requests for information, prepare maps, sign prairie dog towns, and manage the towns to provide shooting. Shooting may be restricted to a certain number of people each year to ensure the quality of the experience. Prairie dog shooting may temporarily be prohibited on prairie dog towns where black-footed ferret reintroduction is occurring. However, shooting would be managed on these towns and towns subsequently occupied by the ferret, unless impacts from shooting are shown to be detrimental.

    The BLM, in cooperation with the USFWS and MFWP, would maintain the existing prairie dog habitat and distribution on BLM land within the 7km Complex based on a 1988 survey. The BLM would also support cooperative agreements for prairie dog towns on the CMR, lands administered by the Montana Department of Natural Resources and Conservation (DNRC), and private land within the 7km Complex. The 7km Complex contains approximately 26,000 acres of prairie dog towns (12,346 BLM acres; 5,800 CMR acres; 2,012 DNRC acres; and 5,821 private acres). Management actions would be directed to cooperatively maintain this amount of prairie dog habitat. Prairie dogs on BLM land outside the 7km Complex are nonessential to black-footed ferret recovery and would be maintained at the existing level (1988 survey) or controlled based on values other than the ferret.

    The BLM would monitor prairie dog towns for expansion and all allotments within the 7km Complex with prairie dog towns would be categorized as “I” (Improved). The BLM would control prairie dog expansion on BLM lands within the 7km Complex when the acreage exceeds the 1988 levels. The BLM would maintain the prairie dog towns on the BLM lands outside the 7km Complex at the existing level for recreational viewing, associated species' benefits, and prairie dog shooting. The BLM may reduce or eradicate some small, isolated prairie dog towns.

    Prairie dog reduction methods may include using EPA-registered toxicants or nontoxic methods for prairie dog control (i.e., barriers, water, vegetation enhancement, prairie dog sterilization, biological control, etc.). Management actions would follow guidance set forth in the Black-footed Ferret Recovery Plan (USFWS 1988a) to avoid killing ferrets.

When poisoning is scheduled on a prairie dog town which includes state and private land, a cooperative effort would be made to control the entire town. The cost of poisoning for state and private land would be the responsibility of the private landowner or the state land permittee.

The loss of prairie dog habitat on private land may be compensated for by developing additional habitat on BLM land in the vicinity of the habitat loss. Prairie dog expansion within the 7km Complex above the level recorded in the 1988 survey would not be allowed on BLM land without AUM mitigation. Any loss of livestock forage due to prairie dog habitat increases on BLM lands above the 1988 level would be mitigated through land treatments (mechanical, fire, etc.).

Under Alternative A, prairie dogs in the Prairie Dog Towns within the 7km Complex ACEC would be managed to maintain adequate population levels for black-footed ferret habitat and prairie dogs would be expected to maintain populations within the ACEC. Prairie dog towns outside the ACEC would be at risk because of a lack of management actions to conserve prairie dog populations.

- *Valley Resource Area (Valley County)* – No restriction would be placed on surface-disturbing activities other than the NSO stipulation noted above. The BLM would maintain prairie dog towns on BLM land (800 acres) based on the values or problems encountered.

- *West HiLine (the portion of the planning area not in Phillips and Valley Counties)* – No restriction would be placed on surface-disturbing activities other than the NSO stipulation noted above. One prairie dog town located in T. 33 N., R. 22 E., Section 28 would be managed to provide habitat for associated species and some recreational shooting. Special status species would be given priority should control measures be considered, and appropriate mitigation would be developed prior to control efforts. Prairie dog towns smaller than 10 acres would not be actively managed.

Birds

- *Greater Sage-Grouse:* Alternative A does not specifically require BLM to develop standards for Greater Sage-Grouse habitat but states the BLM would use the national and Montana Greater Sage-Grouse conservation strategies to address Greater Sage-Grouse habitat at the watershed or project planning level. In addition, project-specific land treatments would be designed to maintain desired canopy coverage of sagebrush between 15% and 50% within sage-grouse nesting and wintering areas, and also maintain an effective height of 12 inches. Greater Sage-Grouse habitat would also be managed for succulent vegetation including a variety of forbs. These strategies may not be appropriate to Greater Sage-Grouse habitat in the planning area and may call for more stringent requirements than vegetation potential could support. Also, these strategies are applied locally and do not address large-scale impacts across the planning area.

  Wildfires that remove large tracts of big sagebrush could be detrimental to Greater Sage-Grouse populations. Prescribed burns may also impact Greater Sage-Grouse habitat but may also enhance some habitats if properly located. The number of acres that could be burned under Alternative A is probably not detrimental to Greater Sage-Grouse habitat and fuel buildup due to full suppression in grassland and sagebrush habitats does not accumulate from year to year; therefore, full suppression in big sagebrush habitats is beneficial for short-term and long-term persistence of Greater Sage-Grouse habitat. Silver sagebrush habitats, typically located north of Highway 2 in Blaine, Phillips and Valley Counties, are less vulnerable to wildfire. During the spring, with adequate soil moisture fire could enhance silver sagebrush sprouting.

  Livestock grazing could impact the suitability and extent of Greater Sage-Grouse habitats in the planning area by altering Greater Sage-Grouse habitat components. Livestock grazing management could degrade Greater Sage-Grouse habitats through removal of residual vegetation needed to minimize nest predation and transport of noxious weeds. Aside from transporting noxious weeds, the most impact to wildlife habitats from livestock is anticipated in concentrated areas such as water sources and riparian areas. Proper management of livestock grazing through the implementation of grazing standards and guidelines could minimize adverse impacts to Greater Sage-Grouse or create beneficial impacts to sage-grouse by increasing forage production when managed to create heterogeneity in vegetation at larger scales. Current population trends and habitat

assessments suggest grazing management under Alternative A does not impact Greater Sage-Grouse populations in the planning area.

Alternative A does not provide specific guidance or management actions for the protection of priority habitat areas from habitat loss and fragmentation. Alternative A also does not include stipulations for the development of wind energy in Greater Sage-Grouse habitats.

Overall, surface disturbance in sagebrush habitats under Alternative A may adversely impact Greater Sage-Grouse. Projected surface-disturbing and disruptive activities under Alternative A may result in long-term negative impacts to Greater Sage-Grouse in the planning area.

- *Migratory Birds:* No specific management actions for migratory birds are outlined in Alternative A. Impacts from other resource uses and use stipulations are described below. Because of the diversity of bird species and habitat requirements, the descriptions of impacts are categorized under the following habitats: forest and woodland species, grassland species, riparian and wetland species, and sagebrush species. The described impacts also apply to special status bird species associated with those habitat types (see Impacts Common to All Alternatives).

  - *Forest and Woodland Species* – No specific management actions for special status species in forests and woodlands are proposed in the alternatives; however, management actions and constraints in the Forests and Woodlands section are found in management actions for fire and fuels management. BLM actions for silviculture treatments, forest products, and insect control result in short-term disturbance. Because of their diverse habitat requirements, some migratory birds are adversely impacted and some benefit from these management actions. In general, because of the limited acreage treated in the planning area species that favor dense, older forests would predominate in the short term and species which require early successional habitats could be affected negatively. However, the increased risk of high severity fire would increase the long-term effects for species associated with dense, older forests.

  - *Grassland Species* –Alternative A contains no specific management actions for migratory birds that utilize grassland. These species would be impacted by actions in grassland habitats, such as surface-disturbing activities, reclamation, noxious weed control, and livestock and wildlife grazing. The number of acres impacted by short-term and long-term surface disturbance would directly and indirectly affect populations of these species. Direct effects due to habitat loss are amplified by avoidance of areas with long-term disturbance. Impacts from oil and gas activities are expected to be the major disturbance action in grassland habitats in the planning area. The loss of 3,770 acres to long-term disturbance (Table 4.96) and avoidance of disruptive activities would result in declines in grassland bird populations.

    The suite of grassland-associated special status migratory birds are also impacted by changes to vegetation heterogeneity, both species composition and structure. These species have differing habitat needs and heterogeneity in grasslands throughout the planning area would provide habitat for the entire suite of special status species. The major disruptive activities that alter heterogeneity in the planning area include noxious weeds, widespread heavy grazing, or widespread light grazing. Grazing management for rangeland health under the current standards and guidelines for Alternative A would benefit grassland-associated species, although weed infestations could worsen under Alternative A through an increase in the number of roads from oil and gas activities in areas available to be leased or on leases currently held.

  - *Riparian and Wetland Species* – No specific management actions are noted for riparian and wetland-associated species, but actions to protect and conserve water quantity and quality in the planning area would benefit these species. Wetland-associated species are impacted by other biological resource management actions, particularly those pertaining to water and riparian and wetland habitats as noted above. Under Alternative A, the BLM would limit oil and gas activities through a CSU stipulation within 500 or 1,000 feet of lotic and lentic systems. This would be a benefit to most riparian and wetland-associated species. Actions associated with waterfowl habitat and colonial waterbirds would also benefit a number of wetland-associated migratory birds.

- *Sagebrush Species* – Species that utilize or depend on sagebrush habitats benefit from management actions for Greater Sage-Grouse as discussed previously. Under Alternative A, a 1/4 mile NSO around Greater Sage-Grouse leks would protect nesting habitat. This alternative would exclude surface occupancy on 18,799 acres of BLM lands with high value for Greater Sage-Grouse. This action would eliminate short-term direct impacts and long-term indirect impacts associated with oil and gas leasing in small areas around Greater Sage-Grouse leks and would benefit all sagebrush-associated species located in those areas. Degradation of sagebrush habitat would continue in areas away from Greater Sage-Grouse leks and would potentially have short-term and long-term direct and indirect impacts to sagebrush-associated birds, particularly in areas associated with high densities of disturbances. Grazing management for rangeland health under the current standards and guidelines for all alternatives would benefit sage-associated species. No actions in Alternative A minimize habitat fragmentation and degradation and impacts to sagebrush-associated species, including special status species, would continue to increase as incremental development of surface-disturbing and disruptive actions continues on BLM land.

- *Waterfowl:* An estimated 1,500 acres of water sources beneficial to waterfowl currently exist in the planning area. Alternative A suggests having one water development/mi² in the planning area. This would provide a long-term benefit to some waterfowl. Alternative A would also implement grazing management directed towards improving waterfowl nesting cover on allotments with existing or potential water production in the portion of the planning area managed under the Judith-Valley-Phillips RMP. High value waterfowl areas would be evaluated to determine the need for fencing to improve waterfowl habitat in the portion of the planning area managed under the West HiLine RMP. Both of these actions would benefit long-term waterfowl reproductive success in the planning area.

Cumulative Impacts

Table 4.101 summarizes the anticipated short-term and long-term surface disturbance from all actions in the planning area. The amount of future long-term surface disturbance does not vary much by alternative and mostly reflects future oil and gas-associated disturbances.

Table 4.101
Future Surface Disturbance on All Lands in the HiLine Planning Area by Alternative (Acres)

	Alternative A (Current Management)	***Alternative B***	***Alternative C***	***Alternative D***	***Alternative E (Preferred Alternative)***
Short-Term Disturbance	223,654	241,116	245,228	246,659	245,872
Reclaimed Disturbance	204,841	223,389	226,807	227,807	227,227
Long-Term Disturbance	18,813	17,727	18,421	18,852	18,645

The management actions for Alternative A slowly degrade existing conditions for wildlife in portions of the planning area through incremental development of surface-disturbing and disruptive actions regardless of land ownership and the limited beneficial impacts of the current BLM stipulations to mitigate impacts to wildlife at regional scales. This would result in long-term declines in a number of wildlife populations in large portions of the planning area, particularly the high, moderate, and low oil and gas development potential areas, through direct impacts (increased mortality of individuals) and indirect effects (increased fragmentation and avoidance of impacted areas) as measured by the amount of surface-disturbing activity densities. Oil and gas mean well densities in the high, moderate, and low development potential areas (Table 4.102) and mean road densities in the high and moderate development potential areas (Table 4.103) would exceed thresholds for significant impacts to big game populations resulting in impacts to 166,310 acres or 30% of all antelope winter range, and 185,603 acres or 24% of all mule deer winter range. The number of wells anticipated in the high and moderate potential areas are also expected to result in most of these potential areas being within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.98).

Table 4.102
Total Well Density (Wells per Square Mile) by Alternative

Development Potential	*Existing Well Density*	*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
High	0.80	3.63	2.89	3.53	3.66	3.56
Moderate	1.25	2.63	2.32	2.56	2.64	2.61
Low	0.89	1.12	1.10	1.11	1.12	1.12
Very Low	0.03	0.05	0.04	0.05	0.05	0.05

Table 4.103
Total Road Density (Miles per Square Mile) by Alternative

Development Potential	*Existing Road Density*	*Alternative A (Current Management)*	*Alternative B*	*Alternative C*	*Alternative D*	*Alternative E (Preferred Alternative)*
High	0.98	2.13	1.90	2.10	2.14	2.11
Moderate	1.60	2.44	2.34	2.41	2.44	2.43
Low	0.93	1.28	1.28	1.28	1.28	1.28
Very Low	0.97	0.99	0.99	0.99	0.99	0.99

Mean well densities would also exceed thresholds for impacts to Greater Sage-Grouse in the high, moderate, and low development potential areas. This would result in significant declines in sage-grouse populations as measured by the number of males at leks and loss of large (>25 males) leks. Approximately 76 leks are affected by well densities found in the high, moderate, and low development potential areas comprising 27% of all known leks in the planning area.

The greatest impact would occur in the high development potential areas, particularly in the Bears Paw South area, where current important wildlife habitats overlap with high development potential. Mean well densities in the high development potential areas would rise from the current 0.80 wells/mi² to 3.63 wells/mi² (Table 4.102) and road densities would increase from 0.98 to 2.13 miles of road/mi² (Table 4.103).

There are few areas in the planning area where incremental development would be avoided. Wildlife habitat in the very low development potential area would continue to remain at risk as the percentage of lands affected by development increase throughout the life of the plan.

Closure or NSO would only affect areas not currently leased or areas leased after the current lease expires. Currently, 80% of the high, 87% of the moderate, 57% of the low, and 12% of the very low development potential areas are leased, limiting the ability to apply the stipulations proposed in Alternative A, but activities on existing leases would be managed using BMPs (Appendix E.2).

Wind energy rights-of-way would be excluded from 188,871 acres of BLM land, which would limit the cumulative impact from wind energy development in those areas. However, Alternative A does not provide management actions that would limit fragmentation of important habitat areas, and wind energy developments could have short-term and long-term direct and indirect impacts on high value wildlife habitats and wildlife populations associated with those habitats. Potential impacts could include direct loss of high value habitat within a project area and indirect subsequent population declines through avoidance of a wind farm and infrastructure. The degree of indirect impacts would vary by species depending on their reaction to a wind project. Direct mortality would also be expected during operations of the wind farm, particularly for grassland birds in some areas.

The impacts noted above would be additive to current and continued loss of habitat through conversion to cropland, particularly in those areas where land ownership is fragmented and crop production is adjacent to or nearby BLM land.

Impacts under Alternative B

Estimated short-term disturbance from all surface-disturbing activities is 52,170 acres (Table 4.96. Approximately 49,485 acres would be reclaimed, resulting in 2,685 acres of long-term surface disturbance from all surface-disturbing activities in Alternative B. The effects of each resource use are described below.

Fire Management and Ecology, and Forests and Woodlands: About 7,820 acres of forested acres could be mechanically treated for forest health. An additional 26,660 acres could be treated with prescribed burning. This is about 1.4% of all forested habitat managed by the BLM in the planning area. Short-term direct impacts to wildlife from these treatments may be severe in treated areas. Long-term indirect effects to wildlife would be beneficial because of the decreased risk of high severity unplanned wildfire and an increase of early successional habitats favored by some species of wildlife. About 6,000 acres of grass/sage could also be treated with prescribed burns. This would promote heterogeneity in these habitats and long-term indirect effects would be beneficial to most wildlife species as long as there was careful planning for burns in sagebrush habitats to avoid impacting the integrity of the complete sage habitats.

Fluid Minerals: The number of new wells on BLM minerals anticipated under Alternative B is 647 wells. Most of these wells (283) would be located in the moderate development potential area. This would result in 4,440 acres of direct short-term habitat disturbance and 1,544 acres of direct long-term habitat disturbance. Most of this disturbance would occur in grassland/sagebrush/shrubland habitats (approximately 92%, based on the percentage of habitat types in the planning area).

Although many of the short-term effects to wildlife habitat and populations are mediated by reclamation, those reclaimed areas adjacent to or surrounding long-term habitat disturbance do not necessarily result in reclaimed wildlife habitat. Many species often avoid areas of long-term surface disturbance and disruption resulting in long-term indirect effects. The number of wells anticipated in all potential areas are also expected to result in an increase in the amount of BLM land within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.97).

Approximately 3,173,637 acres of BLM surface lands would be closed to oil and gas leasing under Alternative B to protect a variety of resource values, not just wildlife. An additional 258,560 acres would be available for leasing with an NSO stipulation, of which 52% are located in the very low oil and gas development potential area. These protections would benefit all wildlife species located in these areas by minimizing surface-disturbing activities and associated avoidance as noted above.

Although these stipulations may mitigate impacts at local scales, impacts to wildlife often happen at much larger scales. Large-scale impacts to wildlife and wildlife habitats are best described by the density of impacts on the landscape. Under Alternative B, mean well densities on BLM land exceed the upper threshold only in the moderate oil and gas development potential area. Mean well densities in the high and moderate development potential areas would approach 2.64 and 2.36 wells/mi². These areas would exceed the lower threshold of 0.26 wells/mi² and some effects to big game populations could be expected. Mean well densities in the very low development potential area would remain well below the lower threshold for effects to big game. Road densities would exceed 1.69 miles of road/mi² only in the moderate development potential areas (Table 4.100). A significant decline in populations of big game animals would be expected on BLM land within the moderate development potential areas under Alternative B because of the density of wells and roads.

The greatest impact during the life of the plan would occur in the high development potential areas, including the Bears Paw South area, where mean well densities would rise from the current 0.44 wells/mi² to 2.64 wells/mi² (a 587% increase) and road densities would increase from 0.47 to 1.14 miles of road/mi². This would result in an increase in direct and indirect loss of habitat for big game in the high development potential areas but mean well densities on BLM land would not exceed the upper threshold. However, overall well densities in the area would exceed thresholds (see cumulative impacts) and big game populations would be expected to be impacted despite constraints on BLM land.

Alternative B proposes management actions to conserve priority habitat areas for grassland birds/Greater Sage-Grouse (474,035 acres) and Greater Sage-Grouse (1,028,661 acres). Management of Priority Areas for grassland birds and Greater Sage-Grouse minimizes the adverse impacts of habitat fragmentation and minimizes short-term direct impacts

and long-term indirect impacts from disturbances. Conservation of these Priority Areas is expected to benefit many other animal species occurring there.

Alternative B would close most wildlife habitat to oil and gas leasing and also provides a number of stipulations to minimize disturbance impacts from oil and gas activities at local scales through stipulations limiting timing or distance from some wildlife resource values. These are addressed below. The acreage figures are not additive as some resource values overlap.

- *Big Game:* Alternative B would close big game winter range areas to oil and gas leasing, which includes critical winter range areas. This would minimize surface-disturbing and disruptive activities in approximately 2,134,337 acres of winter range and minimize direct and long-term indirect effects to big game populations in all big game winter range.

  Bighorn sheep habitat and bighorn sheep lambing areas are closed to oil and gas leasing. This would minimize surface-disturbing and disruptive activities in 46,016 acres of bighorn sheep habitat and would minimize direct and long-term indirect effects on bighorn sheep populations.

- *Black-footed Ferret:* Lands within 1/2 mile of black-footed ferret habitat would be closed to leasing to minimize surface-disturbing and disruptive activities. This would result in approximately 168,165 acres where direct impacts would be minimized.

- *Black-tailed Prairie Dog:* Lands within 1/2 mile of black-tailed prairie dog habitat would be closed to leasing to minimize surface-disturbing and disruptive activities. This would result in approximately 168,165 acres surrounding prairie dog habitat where direct impacts would be minimized.

- *Colonial Waterbirds*: Lands within 1/4 mile of a waterbird colony would be closed to oil and gas leasing. This would result in 5,547 acres surrounding waterbird colonies where surface-disturbing and disruptive activities would not be allowed. Most of this protection (95%) would apply in the very low development potential area. Additionally, to minimize short-term disturbances during the breeding season, a timing stipulation would limit activities within 1 mile of a waterbird colony from April 1 through July 15.

- *Game Birds:* Lands within 1/2 mile of a sharp-tailed grouse lek would be closed to oil and gas leasing. This would minimize long-term impacts to 82,971 acres of habitat surrounding leks. Additionally, to minimize short-term disturbances during the breeding season, a timing stipulation would limit activities within 1 mile of a sharp-tailed grouse lek. The timing stipulation would mitigate short-term direct effects to breeding activities on 784 acres of habitat.

- *Greater Sage-Grouse:* Lands within two miles of Greater Sage-Grouse leks and all Greater Sage-Grouse habitat would not be leased under Alternative B. Greater Sage-Grouse winter habitats would also not be leased. This would greatly reduce impacts to Greater Sage-Grouse in the planning area by eliminating disturbances from oil and gas activities on 1,579,161 acres of BLM land.

- *Least Tern:* Lands within 1/2 mile of essential least tern habitat would be closed to leasing. This would protect least tern habitat and nesting activities in the planning area should this species be found nesting on BLM land.

- *Mountain Plover:* Lands within 1/4 mile of mountain plover habitat would be closed to leasing to minimize surface-disturbing and disruptive activities. This would result in approximately 325,476 acres surrounding mountain plover habitat where direct impacts would be minimized. A timing stipulation would mitigate disruptive impacts within 1/2 mile of mountain plover habitat from April 1 through July 31, resulting in an additional 5 acres of land where impacts would be minimized.

- *Piping Plover:* Lands within 1/2 mile of essential least tern habitat would be closed to leasing. This would result in approximately 1,442 acres of piping plover habitat on BLM land where direct and indirect long-term impacts would be avoided.

- *Raptors:* Lands within 1/2 mile of a raptor nest (including all special status species) that has been active within the last 7 years would be closed to oil and gas leasing. This would result in 22,946 acres of habitat surrounding nests where long-term direct and indirect effects to reproductive success of the raptors would be minimized. A timing stipulation would mitigate disruptive impacts within 1 mile of a raptor nest from March 1 through September 1, resulting in an additional 412 acres of land where impacts would be minimized.

- *Swift Fox:* Oil and gas activities would be limited by standard lease terms. Activities near swift fox dens could be moved 200 meters (656 feet) or delayed for 60 days to protect reproductive activities associated with swift fox dens. Because the location of dens is unpredictable and highly variable in the planning area this would ensure protection of denning activities for all known dens on an annual basis.

Livestock Grazing and Vegetation – Rangeland: Changes to rangeland vegetation would be similar across all alternatives. These changes are primarily derived from grazing on these habitats and current grazing management would be beneficial to wildlife by introducing large-scale heterogeneity in grassland habitats. Under Alternative B, a minimum rest period from grazing following any major disturbance to vegetation communities would be determined through a site-specific planning process. This would benefit wildlife species by tailoring management for specific resource needs in the burned area. Heterogeneity in grassland habitats would be maximized with this management action as long as grazing within the disturbed areas does not impact soil resources and contribute to increased soil erosion.

Noxious Weeds and Other Non-Native Invasive Species: Road density is a relative measure of the noxious weed risk because many weeds are spread through vehicle traffic. Management of noxious weeds would be similar through all alternatives but effective management would depend on the amount of treatment needed to control infestations. The risk of noxious weed infestation in Alternative B is the least of all alternatives. It is not known if control efforts would be able to minimize impacts to wildlife habitat.

OHV Use and Travel and Transportation Management: OHV use off-road is eliminated under Alternative B and motorized game retrieval off road is not allowed across the planning area. This would minimize impacts to vegetation and soil resources and limit disruptions to wildlife from OHVs driven off of established roads, primitive roads and trails.

Renewable Energy: Under Alternative B about 2,188,388 acres of BLM land would be exclusion areas for wind energy rights-of-way. This includes Greater Sage-Grouse protection priority and Grassland Bird/Greater Sage-Grouse Priority Areas, winter range and crucial winter range, and large reservoir waterfowl complexes in addition to ACEC areas, traditional cultural properties, VRM Class I and II areas, and developed recreations sites. Impacts to wildlife and special status species from wind energy developments would be minimal under this alternative because short-term and long-term, direct and indirect impacts would be avoiding in most areas with value to fish and wildlife, included large areas of intact habitat in the planning area.

Population impacts to Sprague's pipits from wind developments in Grassland Bird/Greater Sage-Grouse Priority Areas would be eliminated and would result in protection of a portion of the Sprague's pipit habitat in the planning area that contains high densities of Sprague's pipits and a large proportion of the global population of this species (Hendricks, et al. 2008). Impacts to pipits and other grassland birds from wind development would be the same as noted in Alternative A for those developments that take place in high value grassland bird habitat outside areas closed to wind development.

Population impacts to Greater Sage-Grouse from wind developments in Grassland Bird/Greater Sage-Grouse Priority Areas and the sage-grouse Protection Priority Areas would be eliminated and would result in protection of a portion of the Greater Sage-Grouse habitat in the planning area that contains high densities of Greater Sage-Grouse. Impacts to Greater Sage-Grouse and other sage associated birds from wind development would be the same as noted in Alternative A for those developments that take place in high value sage-grouse habitat outside areas closed to wind development.

Soils: Alternative B does not allow surface occupancy and use (NSO) on soils with a severe erosion hazard, badlands, rock outcrops, or slopes susceptible to mass failure. This would mitigate impacts to soil resources on approximately 10,802 acres in the planning area and would be beneficial for wildlife in the planning area by minimizing short-term direct impacts and long-term indirect impacts to wildlife habitat associated with these soil features.

Special Designations: Alternative B would not retain the Prairie Dog Towns within the 7km Complex ACEC. All other ACECs would be retained. The impacts to black-tailed prairie dogs because of this change are not apparent because all

prairie dog towns in the planning area would be afforded similar protections as those in this ACEC, negating the need for special management for a subset of the prairie dogs located in the Prairie Dog Towns within the 7km Complex. The Grassland Bird/Greater Sage-Grouse Priority Areas ACEC and Greater Sage-Grouse Protection Priority Area ACEC, Malta Geological Area ACEC and the Zortman/Landusky Mine Reclamation ACEC would be beneficial for wildlife within these areas by minimizing short-term and long-term direct and indirect effects from surface-disturbing and disruptive activities to wildlife through special management.

Vegetation – Riparian and Wetland: Alternative B provides more protection to surface water from potential impacts associated with soil erosion and runoff from disturbed areas and other actions. Under Alternative B, the BLM would limit surface-disturbing and disruptive activities within 1/4 mile of lotic and lentic systems. This would be a benefit to most riparian and wetland-associated species.

Alternative B also protects or enhances riparian, wetland, and streamside habitats. No pits would be placed in natural wetlands. Pits currently existing in natural wetlands may be filled if it would restore the wetland, and other wetlands that have been drained would be restored. This would benefit wetland-associated wildlife by minimizing habitat destruction or disturbance and providing for restoration of habitats that currently are not functioning.

Wilderness Characteristics: Under Alternative B, wildlife would have the most acres of protections of all alternatives.

The 386,462 acres of lands found to have wilderness characteristics would be managed to preserve and enhance their wilderness characteristics. These areas would be managed as avoidance areas for rights-of-way, leases, permits, and other land use authorizations.

Eastern Breaks and Badlands (10,714 acres)

- *Mule Deer Winter Range:* Alternative B would manage 10,714 acres of mule deer winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Elk Winter Range:* Alternative B would manage 10,549 acres of elk winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to elk on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

Prairie Grasslands (139,654 acres)

- *Antelope Winter Range:* Alternative B would manage 50,553 acres of antelope winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to antelope on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 11,326 acres (22%) is leased for energy development.

- *Mule Deer Winter Range:* Alternative B would manage 125,530 acres of mule deer winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 24,814 acres (20%) is leased for energy development.

- *Critical Winter Range:* Alternative B would manage 44,063 acres of crucial winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to crucial winter range habitat due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 40 acres (<1%) is leased for energy development.

- *Prairie Dog Habitat:* Alternative B would manage 200 acres of black-tailed prairie dog habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to prairie dogs due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Greater Sage-Grouse (winter range, leks, nesting):* Alternative B would manage 4 Greater Sage-Grouse leks as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. None of these leks are on lands currently leased for energy development.

  Alternative B would manage 95,281 acres of Greater Sage-Grouse habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 12,071 acres (13%) is leased for energy development.

  Alternative B would manage 6,393 acres of Greater Sage-Grouse winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse winter range due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 4,452 acres (70%) is leased for energy development.

- *Sharp-tailed Grouse (leks):* Alternative B would manage 13 sharp-tailed grouse leks as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sharp-tailed grouse leks due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 2 of these leks are on lands that are leased for energy development.

- *Important Grassland Bird Nesting Habitat:* Alternative B would manage 124,342 acres of important grassland bird nesting habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to grassland bird nesting habitat due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 20,720 acres (17%) is leased for energy development.

Sagebrush Grasslands (203,714 acres)

- *Antelope Winter Range:* Alternative B would manage 154,633 acres of antelope winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to antelope on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Mule Deer Winter Range:* Alternative B would manage 127,043 acres of mule deer winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Elk Winter Range:* Alternative B would manage 19,105 acres of elk winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to elk on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Prairie Dog Habitat:* Alternative B would manage 3,100 acres of black-tailed prairie dog habitat avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to prairie dogs due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Greater Sage-Grouse (winter range, leks, nesting):* Alternative B would manage 19 Greater Sage-Grouse leks as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. None of these leks are on lands currently leased for energy development.

  Alternative B would manage 180,984 acres of Greater Sage-Grouse habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

Alternative B would manage 180,245 acres of Greater Sage-Grouse winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Sharp-tailed Grouse (leks):* Alternative B would manage 6 sharp-tailed grouse leks as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sharp-tailed grouse leks due to impacts from oil, gas and wind energy development and other land use authorizations. None of these leks are on lands currently leased for energy development.

Island Mountain Range (4,118 acres)

- *Big Game Winter Range:* Alternative B would manage 4,115 acres of mule deer and elk winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer and elk on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

  Alternative B would manage the entire area as a semi-primitive nonmotorized. This would eliminate any impacts to mule deer and elk on 4,115 acres of winter range.

Western Breaks and Badlands (28,262 acres)

- *Antelope Winter Range:* Alternative B would manage 3,884 acres of antelope winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to antelope on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 2,900 acres (75%) is leased for energy development.

- *Mule Deer Winter Range:* Alternative B would manage 28,262 acres of mule deer winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 22,441 acres (79%) is leased for energy development.

- *Bighorn Sheep (distribution, lambing):* Alternative B would manage 3,263 acres of bighorn sheep habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to bighorn sheep due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 710 acres (22%) is leased for energy development.

  Alternative B would manage 1,034 acres of bighorn sheep lambing habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to bighorn sheep due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Prairie Dog Habitat:* Alternative B would manage 54 acres of black-tailed prairie dog habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to prairie dogs due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 16 acres (29%) is leased for energy development.

- *Greater Sage-Grouse (winter range, leks, nesting):* Alternative B would manage 14 Greater Sage-Grouse leks as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. Currently all of these leks are on lands that are leased for energy development.

  Alternative B would manage 10,621 acres of Greater Sage-Grouse habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 9,142 acres (86%) are leased for energy development.

Alternative B would manage 4,293 acres of Greater Sage-Grouse winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse winter range due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 4,094 acres (95%) is leased for energy development.

Wildlife: In addition to the actions noted above, specific management actions and impacts for wildlife categories are described below.

Mammals

- *Bighorn Sheep:* Alternative B provides for management actions to minimize disease transmission from domestic sheep to bighorn sheep. New domestic sheep or goat allotments would not be allowed in bighorn sheep habitat, and new sheep or goat allotments or conversion from cows to sheep or goats would not be allowed within 20 miles of occupied bighorn sheep habitat. This alternative would maximize the distance between domestic sheep and goats and wild sheep, and would minimize the risk of disease transmission between them and greatly reduce the risk of long-term direct impacts to bighorn sheep populations in the planning area.

- *Black-footed Ferret: A*ctions and impacts noted above for black-tailed prairie dogs would affect black-footed ferrets indirectly through impacts to their habitats. No management actions specific to black-footed ferrets are proposed in Alternative B because of the failure of reintroduction efforts to establish a current population of ferrets on BLM land; however, the BLM would manage prairie dog habitat to maintain prairie dog populations and distribution and also provide habitat for ferrets and other special status species. Impacts to ferret habitat are noted in the prairie dog section above.

- *Black-tailed Prairie Dog:* Management for black-tailed prairie dogs would be accomplished through the Fish, Wildlife and Parks Region 6 Prairie Dog Abundance and Distribution Objectives Plan (MFWP 2006a). This plan provides acreages for black-tailed prairie dogs within three complex types as follows:

  - One Category 1 complex of at least 5,000 acres of active prairie dog towns spaced no more than 1.5 km apart. This Category 1 complex would not be actively managed to exceed 10,000 acres.

  - Six to eight Category 2 complexes of 1,000 or more acres of active prairie dog towns. Two or three of these complexes would follow the 1.5 km rule and the remainder would follow the 7 km rule.

  - Category 3 prairie dog towns would be scattered throughout the historic prairie dog range in Region 6.

  Impacts to prairie dogs under Alternative B would be expected to be minimal and proposed management actions would be beneficial for prairie dogs and other species associated with prairie dog towns such as mountain plovers because of the acreage amounts and the distribution of prairie dogs throughout their current range in the planning area.

Birds

- *Greater Sage-Grouse:* Alternative B would require the BLM to use the national and Montana Greater Sage-Grouse conservation strategies as standards in the planning area except for habitat standards which would be derived from regional standards. Regional standards for Greater Sage-Grouse habitat would be cooperatively developed from recent habitat inventories and population parameters in the planning area along with relevant range-wide research findings. Management under Alternative B would also emphasize restoration and rehabilitation of sagebrush in areas capable of but no longer supporting sagebrush to contribute to the distribution and connectivity of habitat patches. Greater Sage-Grouse habitats associated with silver sagebrush north of the Milk River would be enhanced to improve habitat conditions for nesting and brood rearing.

A large block of priority Greater Sage-Grouse habitat would be managed as a Protection Priority Area ACEC to minimize surface-disturbing activities (930,265 acres). Alternative B also provides specific guidance or management actions for the protection of the priority habitat area from habitat loss and fragmentation. The large block of priority habitat would be managed to maintain Greater Sage-Grouse habitat by limiting surface-disturbing and disruptive activities, thereby reducing the impacts from habitat loss and fragmentation under Alternative B.

The spread of noxious weeds is probably the second greatest impact to Greater Sage-Grouse habitat on BLM lands in the planning area (after surface-disturbing and disruptive activities as noted above). Noxious weeds contribute to loss of Greater Sage-Grouse habitats, increase soil erosion, reduce water quantity and quality, and reduce structural and species diversity. The relative risk of noxious weed infestation between alternatives can be evaluated by the amount of roads anticipated by alternative. Alternative B has the least risk of infestation compared to the other alternatives through the closure of oil and gas leasing in large portions of the planning area, and the resulting reduction in potential well pads and roads being constructed. Closing the Greater Sage-Grouse Protection Priority Area to oil and gas leasing (930,265 acres) also minimizes the potential for the spread of noxious weeds in the planning area.

All alternatives provide for approximately 300 acres of habitat to be treated through fire in grassland and shrubland. Burning can adversely impact nesting habitats due to the extensive time it takes for sagebrush canopy to recover. However, the number of acres burned under Alternative B is probably not detrimental to overall Greater Sage-Grouse habitat in the planning area and full suppression in most sagebrush habitats is beneficial for short-term and long-term persistence of Greater Sage-Grouse habitat through maintenance of large blocks of sagebrush habitat.

All new powerlines on BLM land within 1 mile of Greater Sage-Grouse leks would be buried. This would improve habitat quality in areas near leks and would potentially enhance Greater Sage-Grouse populations.

Wind power is restricted throughout the planning area under Alternative B to areas where wind energy is compatible with other specific resource values, and is specifically restricted in the Greater Sage-Grouse and Grassland Bird/Greater Sage-Grouse Priority Areas, ACECs, and WSAs. Developing minerals and wind energy facilities on BLM land under Alternative B could result in long-term adverse impacts to Greater Sage-Grouse by destroying and fragmenting sagebrush habitats. These stipulations would limit the disturbance associated with wind power generation in Greater Sage-Grouse Priority Areas and where other resources conflict with wind energy development, and short-term and long-term impacts to Greater Sage-Grouse from wind power under Alternative B are expected to be minimal.

Overall, protection under Alternative B to minimize disturbances and protect habitat for Greater Sage-Grouse would provide short-term and long-term beneficial impacts to Greater Sage-Grouse on BLM land.

- *Migratory Birds:* Because of the diversity of bird species and habitat requirements, the descriptions of impacts are categorized under the following habitats: forest and woodland species, grassland species, riparian and wetland species, and sagebrush species.

  - *Forest and Woodland Species* – BLM actions for silviculture treatments, forest products, and wildfire control result in short-term disturbance. Because of their diverse habitat requirements, some migratory birds are adversely impacted and some benefit from these management actions. Alternative B would provide greater amounts of these treatments and would benefit migratory birds associated with early successional habitats.

  - *Grassland Species* – Under Alternative B, grassland-associated migratory birds would be protected by limits on surface-disturbing and disruptive activities in the Priority Areas ACEC through a closure to oil and gas leasing on the large blocks of intact grassland habitat (461,220 acres of BLM land). However, there would be no specific stipulations for grassland-associated birds outside the Priority Areas ACEC. The potential long-term disturbance of 17,727 acres (Table 4.101) could result in declines in bird populations, particularly in the high, moderate, and low oil and gas development potential areas. Road maintenance in mountain plover habitat would be limited in Alternative B between April 1 and July 31

unless surveys are initiated prior to maintenance to avoid impacts to young plovers, which would mitigate the potential loss of young birds due to road maintenance activities.

The suite of grassland-associated special status migratory birds is impacted by changes to vegetation heterogeneity, both in species composition and structure. Heterogeneity in grasslands throughout the planning area would provide habitat for the entire suite of special status species. The major disruptive activities that alter heterogeneity in the planning area include noxious weeds, widespread heavy grazing, or widespread light grazing. Grazing management for rangeland health under the current Standards and Guidelines would benefit grassland-associated species. Weed infestations would be limited under Alternative B through an increase in the acreage with no oil and gas leasing in the Greater Sage-Grouse Protection Priority Area and Grassland Bird/Greater Sage-Grouse Priority Areas.

The impacts of disruptive activities on migratory birds occur primarily during the breeding period in all general habitat types noted above. In the planning area this generally applies to activities occurring from April 15 through July 15.

- *Riparian and Wetland Species* – Although there are no specific management actions for migratory birds that use riparian areas and wetlands in Alternative B, these species are impacted by other biological resource management actions, particularly those pertaining to water and riparian and wetland habitats. Under Alternative B, the BLM would close leasing within 1/2 mile of a waterbird colony. This would be a benefit to most riparian and wetland-associated species. Actions associated with waterfowl habitat and colonial waterbirds would also benefit a number of wetland-associated migratory birds.

- *Sagebrush Species* – Species that utilize or depend on sagebrush habitats benefit from management actions for Greater Sage-Grouse as discussed above. This action would close 1,579,161 acres of BLM lands with high value for Greater Sage-Grouse to oil and gas leasing. This action would eliminate short-term direct impacts and long-term indirect impacts associated with oil and gas leasing in a majority of the sagebrush habitat in the planning area and would be beneficial for all sagebrush-associated species. This would also benefit sagebrush-associated birds by avoiding short-term direct impacts and long-term indirect impacts in these areas.

- *Waterfowl:* Upland and emergent vegetation in pastures surrounding reservoirs established or rebuilt for waterfowl values would be managed under Alternative B to provide adequate nesting and brood-rearing cover for waterfowl. This action would provide long-term benefits for waterfowl production and populations in areas where waterfowl are a priority for wildlife management. Waterfowl habitats would also be improved to provide long-term benefits to waterfowl populations through actions limiting pit development outside of natural wetlands as well as restoration of currently degraded wetlands.

Cumulative Impacts

Management actions proposed under Alternative B would close 3,173,637 acres of BLM minerals to oil and gas leasing. An additional 258,560 acres would have an NSO stipulation. These management actions for BLM minerals would curtail direct and indirect short-term and long-term effects to wildlife on 99% of BLM land. Two large blocks of relatively intact habitat would be managed as ACECs to maintain habitat integrity for Greater Sage-Grouse (930,265 acres) and grassland birds/Greater Sage-Grouse (461,220 acres). Management of these areas would strive to maintain or improve current habitat conditions and would greatly enhance habitat integrity and connectivity providing long-term benefits to wildlife species in those areas. These actions would help ensure viable populations at a regional scale and provide connectivity to allow for potential range shifts if habitat conditions change.

Despite closure of significant portions of BLM land, wildlife habitat conditions would slowly degrade in the high, moderate, and low oil and gas development potential areas through incremental development of surface-disturbing and disruptive actions combined with the current level of disturbance. Under Alternative B, mean well densities in each of the oil and gas development potential areas would exceed 1.04 wells/mi² except in the very low development potential areas (0.04 wells per square mile) (Table 4.102). Road densities would exceed the upper threshold in the high and moderate development potential areas and the lower threshold in the low and very low development potential areas (Table 4.103). Mean well densities in the high, moderate, and low development potential areas and road densities in the

high and moderate development potential areas would exceed thresholds for significant impacts to big game populations, resulting in impacts to 166,300 acres or 30% of all antelope winter range and 185,600 acres or 24% of all mule deer winter range. A significant decline in populations of big game animals would be expected within the high, moderate, and low development potential areas under Alternative B because of direct impacts (increased mortality of individuals) and indirect effects (increased fragmentation and avoidance of impacted areas) as measured by the amount of surface-disturbing activity densities. The number of wells anticipated in all potential areas are also expected to result in an increase of the amount of land within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.98).

Mean well densities would also exceed thresholds for Greater Sage-Grouse in the high, moderate, and low development potential areas. This would result in significant declines in Greater Sage-Grouse populations as measured by the number of males at leks and loss of most large (>25 males) leks. Approximately 76 leks are affected by well densities found in the high, moderate, and low development potential areas comprising 27% of all known leks in the planning area.

The greatest impact during the life of the plan would occur in the high development potential areas, including the Bears Paw South area, where mean well densities would rise from the current 0.80 wells/mi² to 2.89 wells/mi² (a 361% increase) and road densities would increase from 0.98 to 1.90 miles of road/mi² (194% increase), even with closure of 97% of BLM minerals in this area (Tables 4.103 and 4.104). About 84% of the area is currently leased (149,214 acres).

Approximately 164 Greater Sage-Grouse leks (57% of all leks in the planning area) would be within 5.3 miles (8.5 km) of areas with mean well densities in excess of 1 well/mi², a level at which impacts would be expected based on work by Harju (2009). Furthermore, 49 of those leks would be within 5.3 miles of areas with mean well densities in excess of 2 wells/mi², a density threshold where no large leks would be expected to remain and significant declines in sage-grouse populations would be expected.

Closure would only affect areas not currently leased or areas leased after the current leases expire. Currently, 80% of the high, 87% of the moderate, 57% of the low, and 12% of the very low development potential areas are leased, limiting the ability of the stipulations proposed in Alternative B, but activities on existing leases would be managed using BMPs (Appendix E.2).

Wind energy rights-of-way would be excluded from 2,188,388 acres of BLM land (primarily Greater Sage-Grouse and Grassland Bird/Greater Sage-Grouse Priority Areas, ACECs, and WSAs) which would limit the impacts from wind energy development in those areas. Alternative B provides management actions that would limit fragmentation of important habitat areas, and short-term and long-term direct and indirect impacts from wind energy developments would be minimized.

The impacts addressed above would be additive to current and continued loss of habitat through conversion to cropland, particularly in those areas where land ownership is highly fragmented and crop production is adjacent to or nearby BLM lands.

Impacts under Alternative C

Estimated short-term disturbance from all surface-disturbing activities is 56,277 acres. Approximately 52,898 acres would be reclaimed, resulting in 3,379 acres of long-term surface disturbance from all surface-disturbing activities in Alternative C. The effects of each major resource use are described below.

Fire Management and Ecology, and Forests and Woodlands: The effects would be the same as in Alternative B.

Fluid Minerals: The number of new wells on BLM minerals anticipated under Alternative C is 1,617 wells. Most of these wells (832) would be located in the moderate development potential area. This would result in 8,547 acres of short-term habitat disturbance and 2,238 acres of long-term habitat disturbance. Most of this disturbance would occur in grassland/sagebrush/shrubland habitats (approximately 92%, based on the percentage of habitat types in the planning area).

Although many of the short-term effects to wildlife habitat and populations are mediated by reclamation, those reclaimed areas adjacent to or surrounding long-term habitat disturbance do not necessarily result in reclaimed wildlife habitat. Many species often avoid areas of long-term surface disturbance and disruption resulting in long-term indirect effects. The number of wells anticipated in the high and moderate potential areas are also expected to result in most of these potential areas being within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.97).

Approximately 218,586 acres would be closed to oil and gas leasing under Alternative C to protect a variety of resource values, not just wildlife. An additional 1,291,160 acres would be available for leasing with an NSO stipulation, of which 82% are located in the very low oil and gas development potential area. These protections would benefit all wildlife species located in these areas by minimizing surface-disturbing activities and associated avoidance as noted above.

Although these stipulations may mitigate impacts at local scales, impacts to wildlife often happen at much larger scales. Large-scale impacts to wildlife and wildlife habitats are best described by the density of impacts on the landscape. Thresholds for densities of roads and oil and gas wells have been described for big game (Hebblewhite 2008), and long-term impacts to big game species are expected at well densities from 0.26 to 1.04 wells per square mile and with road densities between 0.29 and 1.69 miles of road/mi². Road effects are discussed in this section since most road development in the planning area is anticipated to be associated with oil and gas activities. Impacts to populations are often not immediate and may manifest in population level responses a number of years after the initial disturbance.

Under Alternative C, mean well densities on BLM land in each of the oil and gas development potential areas would exceed 1.04 wells/mi² except in the very low development potential areas (0.02 wells per square mile) (Table 4.99). Road densities would exceed the upper threshold in the moderate development potential area and the lower threshold in the high and low development potential areas (Table 4.100). A significant decline in populations of big game animals would be expected within all potential areas except in the very low development potential area because of the density of wells and roads.

The greatest impact during the life of the plan would occur in the high development potential areas, including the Bears Paw South area, where mean well densities would rise from the current 0.44 wells/mi² to 2.14 wells/mi² (a 408% increase) and road densities would increase from 0.47 to 1.15 miles of road/mi². This would result in a direct and indirect loss of most habitat for big game in the high development potential areas.

There are few areas where incremental development would be avoided, and wildlife habitat in the very low development potential area would remain at risk as the percentage of lands affected by development continues to increase throughout the life of the plan.

Alternative C provides a number of stipulations to minimize disturbance impacts from oil and gas activities at local scales through stipulations limiting timing or distance from key wildlife resource values. These are addressed below under each wildlife category for BLM lands. The acreage figures are not additive as some resource values overlap.

- *Big Game:* Alternative C has an NSO restriction on oil and gas activities in crucial big game winter range areas. This stipulation would limit short-term and long-term impacts on 66,012 acres of crucial winter range.

  Alternative C also includes a winter range timing stipulation which limits surface-disturbing and disruptive activities in winter range from December 1 through May 15. This mitigation would eliminate short-term direct disturbance on 633,850 acres of winter ranges during critical time periods for animal stress but would allow long-term direct and indirect disturbances to occur on winter ranges. This would lead to long-term changes in big game populations if well densities exceed thresholds for winter range. Mean well densities under this alternative would exceed a threshold of 1.06 wells/mi² on approximately 142,098 acres of winter range in the high, moderate, and low development potential areas (22% of all winter range).

  A CSU stipulation is also placed on bighorn sheep habitat in the planning area to minimize impacts to bighorn sheep habitat. This would mitigate disturbance on 3,045 acres of bighorn sheep, but would allow long-term direct and indirect disturbances to occur. Bighorn sheep lambing areas would be protected by an NSO stipulation. This would minimize surface-disturbing and disruptive activities on 7,625 acres of bighorn sheep habitat and would minimize direct and long-term indirect effects on bighorn sheep populations.

- *Black-footed Ferret:* The effects would be the same as described in Alternative A.

- *Black-tailed Prairie Dog:* The effects would be the same as described in Alternative A.

- *Colonial Waterbirds:* Direct and indirect long-term impacts to waterbird colonies are mitigated by an NSO stipulation for activities within 1/2 mile of a waterbird colony. This would result in 5,547 acres surrounding waterbird colonies where surface-disturbing and disruptive activities would not be allowed. Most of this protection (91%) would apply in the very low development potential area. Additionally, to minimize short-term disturbances during the breeding season, a timing stipulation would limit activities within 1 mile of a waterbird colony from April 1 through July 15. This would result in an additional 2,934 acres surrounding waterbird colonies, not covered by other stipulations, where this stipulation would be applied.

- *Game Birds:* Lands within 1/4 mile of a sharp-tailed grouse lek have an NSO stipulation for surface-disturbing activities and a timing stipulation for surface-disturbing or disruptive activities from March 15 through June 30 within 1/2 mile of a sharp-tailed grouse lek. The NSO stipulation would minimize long-term impacts to 16,995 acres of habitat surrounding leks. The timing stipulation would mitigate short-term direct effects to breeding activities on 31,141 acres of habitat, but would allow long-term direct and indirect disturbances to occur within nesting habitat, potentially leading to population impacts.

- *Greater Sage-Grouse:* Lands within 1 mile of Greater Sage-Grouse leks would have an NSO stipulation under Alternative C. The NSO stipulation around leks would minimize disturbances to breeding activities and avoid impacts to those birds nesting within 1 mile of a lek on 117,890 acres of BLM land. A timing restriction on oil and gas activities would also be applied to Greater Sage-Grouse winter range from December 1 through May 15 to minimize disruptive activities that would result in increased mortality and disturbance. This stipulation would mitigate short-term impacts to Greater Sage-Grouse on winter ranges but would not address long-term indirect impacts to Greater Sage-Grouse from activities that would occur outside the timing restriction.

  A CSU stipulation would be applied to Greater Sage-Grouse habitat and would require a plan to maintain functionality of Greater Sage-Grouse habitat, avoid or minimize habitat loss, and minimize disturbances. Also, submersible pumps would be required on all wells, and noise levels from production facilities would be lower than 49 decibels at 300 feet within Greater Sage-Grouse habitat to minimize disturbances associated with elevated noise levels at these facilities. The CSU stipulation would minimize impacts to all habitat regardless of the distance from a lek. This would be applied to 403,751 acres of Greater Sage-Grouse habitat not covered by other, greater stipulations. The CSU does not limit well density, so sage-grouse habitats may be subject to continued incremental degradation of habitat through increased density of disturbances.

  Species that utilize or depend on sagebrush habitats benefit from management actions for Greater Sage-Grouse including the action which would require a CSU stipulation on 930,265 acres of BLM lands with high value for Greater Sage-Grouse. This would limit well density to one well per square mile and require project proponents within this area to provide plans of operation with detailed mitigation for Greater Sage-Grouse effects. These actions would minimize short-term direct impacts and long-term indirect impacts associated with oil and gas leasing in a majority of the sagebrush habitat in the planning area and would be beneficial for all sagebrush-associated species in the priority area.

  Alternative C also provides specific guidance or management actions for the protection of the priority habitat area from habitat loss and fragmentation. The large block of priority habitat area would have a CSU stipulation to maintain Greater Sage-Grouse habitat by limiting surface-disturbing and disruptive activities, thereby reducing the impacts from habitat loss and fragmentation. This CSU is the same as described above except this CSU also limits well densities to one/mi². These stipulations would provide mitigation that may allow current Greater Sage-Grouse populations to exist in the priority area because well densities up to one/mi² have been noted to not have an impact on Greater Sage-Grouse populations. However, Harju, et al. (2009) noted that some areas they investigated showed impacts to Greater Sage-Grouse populations when any well pads were placed in the landscape. Approximately 98% of the priority area is within 8.5 km (5.28 miles) of a Greater Sage-Grouse lek and even at densities of one well per section, some impacts to leks and local populations would be expected, particularly the loss of large leks.

Impacts to leks located in the high, moderate, and low oil and gas development potential areas would be similar to those described in Alternative A.

Given the intent of the Protection Priority Area to maintain or improve current conditions, which largely means preventing detrimental land uses and minimizing undesirable ecological processes (Wisdom, et al. 2005), the potential impacts to Greater Sage-Grouse described above prevent the accomplishment of that goal.

- *Least Tern:* An NSO stipulation would be implemented within 1/2 mile of essential least tern habitat to limit surface-disturbing activities. This would provide long-term protection for nesting habitat and long-term protection from disruptions within 1/2 mile of nesting habitats during the breeding season should this species be found nesting on BLM land.

- *Mountain Plover:* An NSO stipulation would be implemented within mountain plover habitat to limit surface-disturbing activities. This would result in approximately 87,869 acres of mountain plover habitat where direct long-term impacts would be avoided. In addition, a timing stipulation would mitigate disruptive impacts within 1/4 mile of mountain plover habitat from April 1 through July 31, resulting in an additional 3,985 acres of land where impacts would be minimized.

- *Piping Plover:* The effects would be the same as described under Alternative A.

- *Raptors:* An NSO stipulation would restrict surface-disturbing and disruptive impacts within 1/4 mile of a raptor nest which has been active within the last 7 years. This would result in 7,067 acres of habitat surrounding nests where long-term direct and indirect effects to reproductive success of the raptors would be minimized.

- *Swift Fox:* The effects would be the same as described under Alternative B.

Livestock Grazing and Vegetation – Rangeland: The effects would be the same as described under Alternative B.

Noxious Weeds and Other Non-Native Invasive Species: The effects would be the same as under Alternative A.

OHV Use and Travel and Transportation Management: No areas would be open to off-road travel under Alternative C. The Sweet Grass Hills ACEC would continue to be closed to OHV use and two areas currently open to OHV use would be closed. Alternative C does allow for motorized game retrieval off road in portions of the planning area during specified times. Closure of the planning area to OHV use would minimize direct impacts to vegetation and soil resources, and thus wildlife habitat, and would also eliminate indirect impacts to wildlife resources in a very small portion of the planning area currently open to OHV use (124 acres). Game retrieval would potentially provide short-term direct disturbance to some wildlife species. Long-term indirect impacts may occur if game retrieval leads to the establishment of new roads, primitive roads and trails.

Renewable Energy: Under Alternative C about 1,324,957 acres of BLM land would be exclusion areas for wind energy rights-of-way. This includes Greater Sage-Grouse protection priority and Grassland Bird/Greater Sage-Grouse Priority Areas (but with fewer acres under this alternative than Alternative B), crucial winter range (but not general winter range), and large reservoir waterfowl complexes in addition to ACEC areas, traditional cultural properties, VRM Class I areas, and developed recreation sites.

There may be some impacts to wildlife from wind energy developments under this alternative because short-term and long-term, direct and indirect impacts as noted in Alternative A may occur in areas with value to fish and wildlife and special status species, including portions of large areas of intact habitat in the planning area that are closed in Alternative B (568,809 acres). However, specific impacts would depend on the location of the wind energy development in relation to the location of high value wildlife habitat. Impacts would not occur in the Greater Sage-Grouse protection priority and Grassland Bird/Greater Sage-Grouse Priority Areas as delineated in this alternative (298,772 acres) and general winter range (1,110,000 acres).

Soils: Alternative C considers a CSU on surface-disturbing activities for soils with severe erosion hazard and an NSO on badlands, rock outcrops, and slopes susceptible to mass failure. This would mitigate impacts to soil resources on

approximately 331,807 acres in the planning area and would be beneficial for wildlife by minimizing short-term direct impacts and long-term indirect impacts to wildlife habitat associated with these soil features.

Special Designations: All current ACECs would be retained. In addition, the Malta Geological Area ACEC, Zortman/Landusky Mine Reclamation ACEC, Woody Island ACEC, and Frenchman Breaks ACEC would be designated. Alternative C eliminates the Prairie Dog Towns within the 7km Complex ACEC for black-tailed prairie dogs. The impacts to black-tailed prairie dogs because of this change are not apparent because all prairie dog towns in the planning area are now afforded similar protections as those in this ACEC, negating the need for special management for a subset of the prairie dogs located in the Prairie Dog Towns within the 7km Complex ACEC. Short-term and long-term impacts to wildlife would be beneficial for wildlife within these ACECs by minimizing short-term and long-term direct and indirect effects from surface-disturbing and disruptive activities to wildlife found within these ACECs. In addition, changes to management actions such as closing areas to oil and gas leasing and renewable energy in current ACECs increases the benefits for the wildlife resources for which many of the ACECs were designated.

Vegetation – Riparian and Wetland: Alternative C provides some protection of surface water from impacts associated with soil erosion and runoff from disturbed areas, and from other actions with an NSO stipulation within 500 feet of streams, lakes, reservoirs, canals, and associated riparian habitats. This would mitigate short-term direct and long-term indirect impacts to 510,481 acres of wildlife habitat associated with wetland/riparian features not protected by other resource stipulations.

Wilderness Characteristics: The 228,419 acres of lands found to have wilderness characteristics would be managed to preserve and enhance their wilderness characteristics.

Eastern Breaks and Badlands (10,714 acres)

- *Mule Deer Winter Range:* Alternative C would manage 10,714 acres of mule deer winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Elk Winter Range:* Alternative C would manage 10,549 acres of elk winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to elk on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

Prairie Grasslands (81733 acres)

- *Antelope Winter Range:* Alternative C would manage 50,553 acres of antelope winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to antelope on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 11,326 acres (22%) is leased for energy development.

- *Mule Deer Winter Range:* Alternative C would manage 125,530 acres of mule deer winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 24,814 acres (20%) is leased for energy development.

- *Critical Winter Range:* Alternative C would manage 44,063 acres of crucial winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to crucial winter range habitat due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 40 acres (<1%) is leased for energy development.

- *Prairie Dog Habitat:* Alternative C would manage 200 acres of black-tailed prairie dog habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to prairie dogs due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Greater Sage-Grouse (winter range, leks, nesting):* Alternative C would manage 4 Greater Sage-Grouse leks as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. None of these leks are on lands currently leased for energy development.

  Alternative C would manage 95,281 acres of Greater Sage-Grouse habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 12,071 acres (13%) is leased for energy development.

  Alternative C would manage 6,393 acres of Greater Sage-Grouse winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse winter range due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 4,452 acres (70%) is leased for energy development.

- *Sharp-tailed Grouse (leks):* Alternative C would manage 13 sharp-tailed grouse leks as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sharp-tailed grouse leks due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 2 of these leks are on lands that are leased for energy development.

- *Important Grassland Bird Nesting Habitat:* Alternative C would manage 124,342 acres of important grassland bird nesting habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to grassland bird nesting habitat due to impacts from oil, gas and wind energy development and other land use authorizations. Currently 20,720 acres (17%) is leased for energy development.

Sagebrush Grasslands (131,854 acres)

- *Antelope Winter Range:* Alternative C would manage 154,633 acres of antelope winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to antelope on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Mule Deer Winter Range:* Alternative C would manage 127,043 acres of mule deer winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Elk Winter Range:* Alternative C would manage 19,105 acres of elk winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to elk on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Prairie Dog Habitat:* Alternative C would manage 3,100 acres of black-tailed prairie dog habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to prairie dogs due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Greater Sage-Grouse (winter range, leks, nesting):* Alternative C would manage 19 Greater Sage-Grouse leks as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. None of these leks are on lands currently leased for energy development.

  Alternative C would manage 180,984 acres of Greater Sage-Grouse habitat as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

Alternative C would manage 180,245 acres of Greater Sage-Grouse winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sage-grouse winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Sharp-tailed Grouse (leks):* Alternative C would manage 6 sharp-tailed grouse leks as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to sharp-tailed grouse leks due to impacts from oil, gas and wind energy development and other land use authorizations. None of these leks are on lands currently leased for energy development.

Island Mountain Range (4,118 acres)

- *Big Game Winter Range:* Alternative C would manage 4,115 acres of mule deer and elk winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer and elk on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

  Alternative C would manage the entire area as a semi-primitive nonmotorized. This would eliminate any impacts to mule deer and elk on 4,115 acres of winter range.

Wildlife: In addition to the actions noted above, specific management actions and impacts for wildlife categories are described below.

Mammals

- *Bighorn Sheep:* Alternative C provides for stipulations to minimize disease transmission from domestic sheep to bighorn sheep. No new domestic sheep or goat allotments would be allowed in bighorn sheep habitat, and allotments between current bighorn sheep range and current sheep allotments would be reviewed and reclassified based on habitat, movement potential, and current science and guidelines to minimize contact between domestic sheep and bighorn sheep.

- *Black-footed Ferret:* The effects would be the same as those described under Alternative B.

- *Black-tailed Prairie Dog:* The effects would be the same as those described under Alternative B.

Birds

- *Greater Sage-Grouse:* Alternative C would require the BLM to use the national and Montana Greater Sage-Grouse conservation strategies as standards in the planning area except for habitat standards which would be derived from regional standards. Regional standards for Greater Sage-Grouse habitat would be cooperatively developed from recent habitat inventories and population parameters in the planning area along with relevant range-wide research findings. Management under Alternative C would also emphasize restoration and rehabilitation of sagebrush in areas capable of but no longer supporting sagebrush to contribute to the distribution and connectivity of habitat patches. Greater Sage-Grouse habitats associated with silver sagebrush north of the Milk River would be enhanced to improve habitat conditions for nesting and brood rearing. This is the same as in Alternative B.

  Under Alternative C, 930,265 acres of priority Greater Sage-Grouse habitat would be managed to maintain Greater Sage-Grouse habitat and populations by limiting habitat loss and fragmentation. The priority area would limit surface-disturbing and disruptive activities by an NSO stipulation for oil and gas leasing, excluding the area from wind energy rights-of-way, and avoiding rights-of-way in the area. Outside the Priority Areas, lands within 1 mile of Greater Sage-Grouse leks would have an NSO stipulation. A CSU stipulation would be applied to Greater Sage-Grouse habitat and would require a plan to maintain functionality of Greater Sage-Grouse habitat, avoid or minimize habitat loss, and minimize disturbances.

Alternative C would require an NSO stipulation within 1 mile of occupied leks to minimize impacts to breeding Greater Sage-Grouse. The distance associated with this NSO stipulation would limit disruptions in 117,890 acres around Greater Sage-Grouse leks and should provide enough protection to limit changes to Greater Sage-Grouse populations from disruptions at the lek site. Greater Sage-Grouse nesting habitats are protected by a CSU stipulation that would minimize or mitigate disruptive activities.

Alternative C includes some stipulations for the development of wind energy. Wind power is restricted throughout the planning area to areas where wind energy is compatible with other specific resource values and is specifically excluded in the Greater Sage-Grouse and Grassland Bird/Greater Sage-Grouse Priority Areas, ACECs, and WSAs. Impacts to Greater Sage-Grouse from wind energy development are similar in Alternative C and Alternative B. These stipulations would limit the disturbance associated with wind power generation in Greater Sage-Grouse Priority Areas and where other resources conflict with wind energy development, and short-term and long-term impacts to Greater Sage-Grouse from wind power under Alternative C are expected to be low.

Developing minerals and wind energy facilities on BLM land under Alternative C could result in long-term adverse impacts to Greater Sage-Grouse by destroying and fragmenting sagebrush habitats but the impacts are mitigated by the establishment of Greater Sage-Grouse Priority Areas and stipulations to surface-disturbing and disruptive activities under Alternative C.

As noted in Alternative B, the relative risk of noxious weed infestation between alternatives can be measured by the amount of roads expected under each alternative. Alternative C has a lower risk of noxious weed infestation than all the alternatives other than Alternative B, resulting in lower risks to Greater Sage-Grouse habitats.

Changes to vegetation structure and composition from fire and grazing are the same as described in Alternative B.

All new powerlines within 1/2 mile of Greater Sage-Grouse leks would be buried on BLM land. This action would result in benefits for Greater Sage-Grouse population compared to not having powerlines removed but would not result in benefits for breeding habitats away from leks or as much of a benefit as noted in Alternative B because fewer miles of powerlines would be removed from Greater Sage-Grouse habitat.

Protection for Greater Sage-Grouse winter habitats from disruptive activities would limit activities on Greater Sage-Grouse winter range by having a timing stipulation which would limit activities on Greater Sage-Grouse winter range from December 1 through May 15 and an NSO stipulation for areas of crucial winter range which would limit the number of surface disturbances from oil and gas activities.

Alternative C would require the BLM to manage sagebrush habitats so that mid-scale shrub cover would include a mix of height classes with herbaceous understory adequate for meeting Greater Sage-Grouse requirements. This is similar to management proposed under Alternative B, but the scale of management is reduced to the watershed level. Short-term impacts would be similar to Alternative B, but long-term indirect impacts to Greater Sage-Grouse may be increased by managing at smaller scales and potentially missing large-scale changes in habitat connectivity through fragmentation and loss.

- *Migratory Birds:* No specific management actions for migratory birds are outlined in Alternative C.

  Because of the diversity of bird species and habitat requirements, the descriptions of impacts are categorized under the following habitats: forest and woodland species, grassland species, riparian and wetland species, and sagebrush species.

  - *Forest and Woodland Species* – The effects would be the same as described under Alternative B.

  - *Grassland Species* – Grassland-associated migratory birds would be protected by limits on surface-disturbing and disruptive activities in the Priority Areas through a NSO stipulation on the large blocks of intact grassland habitat (298,772 acres of BLM land). However, there would be no stipulations for grassland-associated birds outside the Priority Areas. An NSO stipulation within mountain plover habitat

and a timing stipulation within 1/4 mile of mountain plover habitat from April 1 through July 31 would protect 91,854 acres of habitat for this species and other special status species associated with the same habitats.

- Grazing management for rangeland health under the current Standards and Guidelines for Alternative C would benefit grassland-associated species and the impacts are similar to Alternative B. Weed infestations would be limited under Alternative C through limitations on acreage with no oil and gas leasing in the Greater Sage-Grouse Protection Priority Area and Grassland Bird/Greater Sage-Grouse Priority Areas with CSU stipulations to protect grassland birds, but the total amount of habitat protected is less than in Alternative B.

- *Riparian and Wetland Species* – Although there are no specific management actions for migratory birds that use riparian areas and wetlands, these species are impacted by other biological resource management actions, particularly those pertaining to water and riparian and wetland habitats as noted above. Under Alternative C, the BLM would limit surface-disturbing and disruptive activities through a CSU stipulation within 300 feet of lotic and lentic systems. This would benefit most riparian and wetland-associated species. Actions associated with waterfowl and colonial waterbird habitat would also benefit a number of wetland-associated migratory birds.

- *Sagebrush Species* – Species that utilize or depend on sagebrush habitats benefit from management actions for Greater Sage-Grouse. Management actions in Alternative C would include an NSO stipulation for oil and gas leasing of BLM lands with high value for Greater Sage-Grouse (1,028,661 acres). This action would eliminate short-term direct impacts and long-term indirect impacts associated with oil and gas leasing in a large percentage of the sagebrush habitat in the planning area and would be beneficial for all sagebrush-associated species. Alternative C also provides for an NSO stipulation within 1 mile of a Greater Sage-Grouse lek (117,890 acres) and a CSU stipulation within all Greater Sage-Grouse nesting habitat (403,751 acres). Both actions would also benefit sagebrush-associated birds by limiting short-term direct impacts and long-term indirect impacts in these areas.

- *Waterfowl:* The effects to waterfowl under Alternative C would be the same as described under Alternative B.

Cumulative Impacts

Management actions proposed under Alternative C would close 218,586 acres of BLM minerals to oil and gas leasing. An additional 1,291,160 acres would have an NSO stipulation. Two large blocks of relatively intact habitat would be managed to maintain habitat integrity for Greater Sage-Grouse (930,265 acres) and grassland birds (298,772 acres). Management of these areas would strive to maintain or improve current habitat conditions and would greatly enhance habitat integrity and connectivity, providing long-term benefits to wildlife species in those areas. These actions would help ensure viable populations at a regional scale and provide connectivity to allow for potential range shifts if habitat conditions change.

Wildlife habitat conditions would slowly degrade in the high, moderate, and low oil and gas development potential areas through incremental development of surface-disturbing and disruptive actions combined with the current level of disturbance. Under Alternative C, mean well densities on BLM land in each of the oil and gas development potential areas would exceed 1.04 wells/mi² except in the very low development potential areas (0.05 wells per square mile) (Table 4.102). Road densities would exceed the upper threshold in the high and moderate development potential areas and the lower threshold in the low and very low development potential areas (Table 4.103). A significant decline in populations of big game animals would be expected within the high, moderate, and low development potential areas because of direct impacts (increased mortality of individuals) and indirect effects (increased fragmentation and avoidance of impacted areas) as measured by the amount of surface-disturbing activity densities. Incremental development would continue outside areas where development is precluded or densities are controlled. Wildlife habitat in these areas would remain at risk as the percentage of lands affected by development continues to increase throughout the life of the plan. The number of wells anticipated in the high and moderate potential areas are also expected to result in most of these potential areas being within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.98).

The greatest impact during the life of the plan would occur in the high development potential areas, including the Bears Paw South area, where mean well densities would rise from the current 0.80 wells/mi² to 3.53 wells/mi² (a 441% increase) and road densities would increase from 0.98 to 2.10 miles of road/mi² resulting in loss of most current wildlife habitat in that area.

Stipulations would only affect areas not currently leased or areas leased after the current leases expire. Currently, 80% of the high, 87% of the moderate, 57% of the low, and 12% of the very low development potential areas are leased, limiting the ability the stipulations proposed in Alternative C, but activities on existing leases would be managed using BMPs (Appendix E.2).

Wind energy rights-of-way would be excluded from 1,324,957 acres of BLM surface ownership which would limit the cumulative impacts from wind energy development in those areas. Alternative C provides management actions that would limit fragmentation of important habitat areas, and short-term and long-term direct and indirect impacts from wind energy developments would be minimized.

The impacts addressed above would be additive to current and continued loss of habitat through conversion to cropland, particularly in those areas where land ownership is highly fragmented and crop production is adjacent to or nearby BLM lands.

Impacts under Alternative D

Estimated short-term disturbance from all surface-disturbing activities is 57,708 acres. Approximately 53,898 acres would be reclaimed, resulting in 3,810 acres of long-term surface disturbance from all surface-disturbing activities in Alternative D. The effects of each resource use are described below.

Fire Management and Ecology, and Forests and Woodlands: The effects would be the same as noted in Alternative B.

Fluid Minerals: The number of new wells on BLM minerals anticipated under Alternative D is 1,894 wells. Most of these wells (1,001) would be located in the moderate development potential area. This would result in 9,663 acres of short-term habitat disturbance and 2,436 acres of long-term habitat disturbance. Most of this disturbance would occur in grassland/sagebrush/shrubland habitats (approximately 92%, based on the percentage of habitat types in the planning area).

Although much of the short-term effects to wildlife habitat and populations are mediated by reclamation, those reclaimed areas adjacent to or surrounding long-term habitat disturbance do not necessarily result in reclaimed wildlife habitat. Many species often avoid areas of long-term surface disturbance and disruption resulting in long-term indirect effects.

Approximately 74,674 acres of BLM minerals would be closed to oil and gas leasing under Alternative D to protect a variety of resource values. An additional 357,456 acres would be available for leasing with an NSO stipulation. Eighty five percent (85%) of this acreage is located in the very low oil and gas development potential area. These protections would benefit all wildlife species located in these areas by minimizing surface-disturbing activities and associated avoidance as noted above.

Although these stipulations may mitigate impacts at local scales, impacts to wildlife often happen at much larger scales. Large-scale impacts to wildlife and wildlife habitats are best described by the density of impacts on the landscape. Thresholds for densities of roads and oil and gas wells have been described for big game (Hebblewhite 2008), and long-term impacts to big game species are expected at well densities from 0.26 to 1.04 wells per square mile and with road densities between 0.29 and 1.69 miles of road/mi². Road effects are discussed in this section since most road development in the planning area is anticipated to be associated with oil and gas activities. Impacts to populations are often not immediate and may manifest in population level responses a number of years after the initial disturbance.

The number of wells anticipated in the high and moderate potential areas are also expected to result in most of these potential areas being within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.97).

Under Alternative D, mean well densities on BLM land in each of the oil and gas development potential areas would exceed 1.04 wells/mi² except in the very low development potential areas (0.03 wells per square mile) (Table 4.99). Road densities would exceed the upper threshold in the moderate development potential area and the lower threshold in the high and low development potential areas (Table 4.100). A significant decline in populations of big game animals would be expected within all potential areas except in the very low development potential area because of the density of wells and roads.

The greatest impact during the life of the plan would occur in the high development potential areas, including the Bears Paw South area, where mean well densities would rise from the current 0.44 wells/mi² to 2.38 wells/mi² (a 541% increase) and road densities would increase from 0.47 to 1.23 miles of road/mi² (262% increase). This would result in a direct and indirect loss of most habitat for big game in the high development potential areas.

Alternative D provides a number of stipulations to minimize disturbance impacts from oil and gas activities at local scales through stipulations limiting timing or distance from key wildlife resource values. These are addressed below under each wildlife category. The acreage figures are not additive as some resource values overlap.

- *Big Game:* Alternative D has a CSU stipulation that limits well density in crucial winter range to limit long-term indirect effects to big game populations with identified crucial winter range (currently only mule deer). This would apply to 12,816 acres.

  Alternative D also includes a winter range timing stipulation which limits surface-disturbing and disruptive activities in winter range from December 1 through March 31. This stipulation would still allow long-term indirect disturbances to occur which could impact big game populations if well densities exceed threshold levels in winter range. Expected mean well densities would exceed the threshold of 1.06 wells/mi² in 233,020 acres of winter range located in the high, moderate, and low development potential areas, resulting in long-term indirect effects to big game populations.

  There are no stipulations for surface-disturbing or disruptive activities on bighorn sheep habitat in the planning area and the effects would be the same as described in Alternative A. Bighorn sheep lambing areas would be protected by a timing stipulation from May 1 to June 30 (1,652 acres) which would minimize short-term direct effects, but long-term indirect effects would occur and impact bighorn sheep populations if well densities exceeded a tolerance threshold; however, the expected well density in lambing areas does not exceed 1.06 wells/mi².

- *Game Birds:* Lands within 1/4 mile of a sharp-tailed grouse lek have a CSU stipulation for surface-disturbing activities and a timing stipulation for surface-disturbing or disruptive activities from March 15 through June 30 within 1/4 mile of a sharp-tailed grouse lek. The CSU stipulation would mitigate some long-term impacts to 18,062 acres of habitat surrounding leks, but long-term direct and indirect effects would continue due to the presence of disturbances near leks. The timing stipulation would mitigate short-term direct effects to breeding activities on 18,062 acres of habitat. Both the CSU and timing stipulations would allow long-term direct and indirect disturbances to occur within nesting habitat, potentially leading to population impacts.

- *Raptors:* A CSU stipulation would minimize surface-disturbing and disruptive impacts within 1/4 mile of a raptor nest which has been active within the last 7 years. The CSU stipulation would mitigate some long-term impacts to 5,374 acres of habitat surrounding nests, but long-term direct and indirect effects would continue due to the presence of disturbances near nests.

- *Colonial Waterbirds:* Direct and indirect long-term impacts to waterbird colonies are mitigated by an NSO stipulation for activities within 1/4 mile of a waterbird colony. This would result in 1,545 acres surrounding waterbird colonies where surface-disturbing and disruptive activities would not be allowed. Most of this protection (95%) would apply in the very low development potential area. Additionally, to minimize short-term disturbances during the breeding season, a timing stipulation would limit activities within 1/2 mile of a waterbird colony from April 1 through July 15. This would result in an additional 2,316 acres surrounding waterbird colonies, not covered by other stipulations, where this stipulation would be applied.

- *Greater Sage-Grouse:* Alternative D has a restriction on oil and gas activities in Greater Sage-Grouse nesting areas by excluding drilling from March 1 through June 15. This mitigation would eliminate short-term direct disturbance on 116,553 acres in sage-grouse nesting habitat. Short-term effects would be mitigated by avoiding direct impacts to nesting habitats with the timing stipulation but indirect long-term effects would still be present from surface-disturbing activities initiated outside the timing stipulation. An NSO within 0.6 miles of occupied leks was established to protect breeding activities at leks from long-term direct impacts. Six-tenths of a mile is the distance from a lek that a majority of the breeding males spend during the time they are not actively on the lek, and this distance was included to protect disturbances to those males (Colorado Greater Sage-grouse Steering Committee 2008). Breeding males could still be disrupted by disturbances outside that distance and the stipulation has not been determined to provide protection of breeding activities, and effects to individual lek populations would be expected with this mitigation. There are no stipulations on well density anywhere in the planning area under Alternative D and this would lead to long-term changes in sage-grouse populations if well densities exceed thresholds for long-term disturbances. Mean well densities would exceed a threshold of approximately 1 well/mi² on approximately 144,719 acres of sage-grouse habitat in the high, moderate, and low development potential areas (9% of all grouse habitat) under this alternative. Impacts to leks located in the high, moderate, and low oil and gas development potential areas would be similar to those described in Alternative A.

  Greater Sage-Grouse winter habitats are protected from disruptive activities through stipulations in place to protect wildlife winter ranges. The timing stipulation for drilling activities on wildlife winter range is from December 1 through March 31. Short-term disruptive impacts are expected to be minimized by the timing protection under Alternative D, but long-term effects would be expected because of the effects on actions initiated in winter range outside the timing stipulation.

  Under this alternative oil and gas activities would be expected to impact Greater Sage-Grouse throughout the planning area where oil and gas activities occur in Greater Sage-Grouse habitat and would result in widespread declines in Greater Sage-Grouse populations.

- *Black-footed Ferret:* An NSO stipulation would be implemented within black-footed ferret habitat to limit surface-disturbing activities. This would result in approximately 19,966 acres of black-footed ferret habitat where direct impacts would be avoided.

- *Black-tailed Prairie Dog:* An NSO stipulation would be implemented within black-tailed prairie dog habitat to limit surface-disturbing activities. This would result in approximately 19,966 acres surrounding prairie dog habitat where direct impacts would be minimized. Potential long-term indirect impacts could occur when disturbances located immediately adjacent to black-tailed prairie dog habitat have effects that extend beyond the initial direct impact and extend into prairie dog habitat.

- *Least Tern:* The effects would be the same as described under Alternative A.

- *Mountain Plover:* An NSO stipulation would be implemented within mountain plover habitat to limit surface-disturbing activities. This would result in approximately 275,504 acres of mountain plover habitat where direct long-term impacts would be avoided. In addition, a timing stipulation would mitigate disruptive impacts within mountain plover habitat from April 1 through July 31.

- *Piping Plover:* A timing stipulation would be implemented from May 15 to July 31 within 1/4 mile of essential piping plover habitat to limit surface-disturbing activities. Direct effects would be mitigated by avoiding impacts to nesting habitats with the timing stipulation, but indirect long-term effects would still be present from surface-disturbing activities initiated outside the timing stipulation. This would result in approximately 189 acres of piping plover habitat where long-term indirect impacts would be not avoided.

- *Swift Fox:* The effects would be the same as described under Alternative B.

Livestock Grazing and Vegetation – Rangeland: The effects would be the same as described under Alternative B.

Noxious Weeds and Other Non-Native Invasive Species: The effects would be the same as under Alternative A.

OHV Use and Travel and Transportation Management: Three areas would be open to off-road vehicle use in Alternative D. There would be no areas closed to OHV use. Alternative D does allow for motorized game retrieval off road in the planning area during specified time periods. The areas open to off-road vehicle use would have direct impacts to vegetation and soil resources and thus wildlife habitat and would also have indirect impacts to wildlife resources in a very small portion of the planning area (305 acres). Motorized game retrieval off road would potentially provide short-term direct disturbance to some wildlife species. Long-term indirect impacts may occur if game retrieval leads to the establishment of new roads, primitive roads and trails.

Renewable Energy: Under Alternative D about 292,992 acres of BLM land would be exclusion areas for wind energy rights-of-way. This includes only large reservoir waterfowl complexes in addition to ACEC areas, traditional cultural properties, VRM Class I areas, and developed recreation sites. Greater Sage-Grouse protection priority and Grassland Bird/Greater Sage-Grouse Priority Areas, general winter range and crucial winter range would not be exclusion areas for wind energy rights-of-way.

Impacts to wildlife under Alternative D, including special status species, would be the same as described for Alternative A.

Soils: Alternative D would apply standard lease terms to soil resources. This stipulation would limit the effectiveness of soil resource protection on highly erosive soils and be detrimental to wildlife dependent on habitats defined by those soil types. Direct and indirect long-term effects to those wildlife resources would be prevalent throughout the planning area.

Special Designations: The effects would be the same as noted in Alternative C with the exception of the Zortman/Landusky Mine Reclamation, which would not be designated an ACEC. The lack of an ACEC designation for this area would have long-term direct and indirect effects on wildlife currently found in this reclamation area, such as bighorn sheep, by potentially negating long-term reclamation of wildlife habitats impacted by past mining operations.

Vegetation – Riparian and Wetland: Alternative C provides protection of surface water from impacts associated with soil erosion and runoff from disturbed areas and from other actions with a CSU stipulation within 300 feet of streams, lakes, reservoirs, canals, and associated riparian habitats. This would partially mitigate short-term and long-term direct impacts to 328,990 acres of wildlife habitat associated with wetland/riparian features not protected by other resource stipulations. Long-term indirect effects to these habitat types and associated populations of wildlife may still occur because of impacts occurring within the riparian zone under the CSU stipulation.

Wildlife: In addition to the actions noted above, specific management actions and impacts for wildlife categories are described below.

Mammals

- *Bighorn Sheep:* Alternative D provides for management actions to minimize disease transmission from domestic sheep to bighorn sheep. No new domestic sheep or goat allotments would be allowed in bighorn sheep habitat, and new sheep or goat allotments would not be allowed within 5 miles of occupied bighorn sheep habitat to minimize contact between domestic sheep and bighorn sheep. These management actions may be detrimental to bighorn sheep because they do not provide adequate management to minimize disease transmission between wild and domestic sheep. The potential for disease transmission remains high despite these actions.

- *Black-footed Ferret:* No management actions specific to black-footed ferrets are proposed in Alternative D because of the failure of reintroduction efforts to establish a current population of ferrets on BLM lands; however, the BLM would manage prairie dog habitat to maintain prairie dog populations and distribution and also provide habitat for ferrets and other special status species. Impacts to ferret habitat are noted in the prairie dog section above.

- *Black-tailed Prairie Dog:* Black-tailed prairie dog colonies would be managed on a case-by-case basis at the project level. This would result in continued degradation of prairie dog colonies and habitat for other special status species associated with black-tailed prairie dog colonies because of the potential loss of large complexes of prairie dogs, large prairie dog colonies, and the overall distribution of prairie dogs in the planning area.

Birds

- *Greater Sage-Grouse:* Alternative D would require the BLM to manage sagebrush habitats using national and Montana Greater Sage-Grouse conservation strategies to address Greater Sage-Grouse habitat needs during watershed planning and project-level analysis. This is the same as in Alternative A. Short-term impacts and long-term indirect impacts to Greater Sage-Grouse may be increased by managing at smaller scales and potentially missing large-scale changes in habitat connectivity through fragmentation and loss. Impacts to sage-grouse habitats by BLM actions under Alternative D are exacerbated by a lack of sagebrush restoration in this alternative which would result in even greater impacts to sage-grouse populations.

  No large blocks of priority Greater Sage-Grouse habitat would be managed to minimize surface-disturbing activities. Stipulations affecting surface-disturbing and disruptive activities to minimize impacts from these activities on Greater Sage-Grouse are the least protective of all alternatives.

  Developing minerals on BLM land under Alternative D could result in long-term adverse impacts to Greater Sage-Grouse by destroying and fragmenting sagebrush habitats.

  As noted in Alternative B, the relative risk of noxious weed infestation between alternatives can be measured by the amount of roads expected under each alternative. Alternative D has the highest risk of noxious weed infestation of all the alternatives, resulting in the greatest risks to Greater Sage-Grouse habitats.

  Changes to vegetation structure and composition from fire and grazing are the same as described in Alternative B.

  Alternative D would require an NSO within 0.6 miles of occupied leks to minimize impacts to Greater Sage-Grouse. The distance associated with this NSO stipulation would protect leks and breeding activities, but is inadequate to protect a majority of the nesting attempts. Greater Sage-Grouse nests are protected by a timing stipulation within 1 mile of a lek that would minimize or mitigate disruptive activities in Greater Sage-Grouse breeding habitat during the nesting season. Surface disturbances would still be allowed outside this timeframe, resulting in increased loss and disruption of Greater Sage-Grouse habitats compared to the other alternatives.

  All powerlines within 1 mile of Greater Sage-Grouse leks would be fitted with raptor anti-perching devices on BLM land. Although this would help limit direct mortality to Greater Sage-Grouse from raptors, the impacts of the structure would still remain. Even when these structures are fitted with anti-perching devices, the grouse may perceive the structures as a predation risk without direct mortality, particularly when they are near breeding areas (Frid and Dill 2002).

  Impacts to Greater Sage-Grouse winter habitats would be mitigated through a timing stipulation which would limit activities on 1,072,126 acres of Greater Sage-Grouse winter range from December 1 through March 31. The length of protection from disruptive activities is one month shorter in Alternative D than in Alternative C. Impacts from a shorter protection time period may not be evident in most years, but some years impacts occurring in April on winter range may be detrimental and long-term for Greater Sage-Grouse populations. A CSU stipulation for areas of crucial winter range which would limit the number of surface disturbances from oil and gas activities to less than 2 disturbances per 640 acres of crucial winter range is the same as in Alternative C. Currently, no crucial winter range areas have been identified in the planning area.

- *Migratory Birds:* No specific management actions for migratory birds are outlined in Alternative D.

  Because of the diversity of bird species and habitat requirements, the descriptions of impacts are categorized under the following habitats: forest and woodland species, grassland species, riparian and wetland species, and sagebrush species.

  - *Forest and Woodland Species* – The effects would be the same as described in Alternative B.

  - *Grassland Species* – Under Alternative D, there are no specific management actions for migratory birds that utilize grassland. These species would be impacted by actions in grassland habitats, such as surface-

disturbing activities, reclamation, noxious weed control, and livestock and wildlife grazing. Under Alternative D, grassland habitats could be impacted by long-term surface disturbance on BLM land in the planning area. The potential long-term disturbance of 18,852 acres (Table 4.101) could result in declines in bird populations, particularly in the high, moderate, and low oil and gas development potential areas. An NSO stipulation within 1/4 mile of mountain plover habitat (the same as Alternative C) and a timing stipulation within mountain plover habitat from April 1 through July 31 would protect habitat for this species and other special status species.

Grazing management for rangeland health under the current Standards and Guidelines would benefit grassland-associated species, and the impacts are similar to Alternative C. Weed infestations would be greatest under Alternative D because of the amount of land available for oil and gas leasing and limited restriction on surface-disturbing and disruptive activities.

The impacts of disruptive activities on migratory birds occur primarily during the breeding period in all general habitat types noted above. In the planning area this generally applies to activities occurring from April 15 through July 15. No stipulations on disruptive activities specifically noted for migratory birds are noted in Alternative D. This could have detrimental impacts to all species of migratory birds across the planning area.

- *Riparian and Wetland Species* – Although there are no specific management actions for migratory birds that use riparian and wetlands, these species are impacted by other biological resource management actions, particularly those pertaining to water and riparian and wetland habitats as noted above. Under Alternative D, the BLM would limit surface-disturbing and disruptive activities through a CSU stipulation within 300 feet of lotic and lentic systems. This would be a benefit to most riparian and wetland-associated species. Actions associated with waterfowl and colonial waterbird habitat would also benefit a number of wetland-associated migratory birds as well.

- *Sagebrush Species* – Species that utilize or depend on sagebrush habitats benefit from management actions for Greater Sage-Grouse. Management actions in Alternative D would place an NSO stipulation within 0.6 miles of a lek. This stipulation would protect 95,895 acres of BLM lands with high value for sage-associated migratory birds from disturbances. Alternative D also provides a timing stipulation within 1 mile of Greater Sage-Grouse leks from March 1 through June 30. The timing stipulation would mitigate short-term direct effects to sagebrush habitats on 89,000 acres of habitat, but long-term direct and indirect disturbances would continue to occur within sagebrush habitat, potentially leading to population impacts of sagebrush-associated species.

- *Waterfowl:* The effects to waterfowl would be the same as described under Alternative B.

Cumulative Impacts

The management actions for Alternative D slowly degrade existing conditions for wildlife in most of the planning area through incremental development of surface-disturbing and disruptive actions and the limited beneficial impacts of the current stipulations to protect wildlife at regional scales. Under Alternative D, mean well densities on BLM land in each of the oil and gas development potential areas would exceed 1.04 wells/mi² except in the very low development potential areas (0.05 wells per square mile) (Table 4.102). Road densities would exceed the upper threshold in the high and moderate development potential areas, and the lower threshold in the low and very low development potential areas (Table 4.103). This would result in long-term declines in a number of wildlife populations in large portions of the planning area, particularly the high, moderate, and low oil and gas development potential areas, through direct impacts (increased mortality of individuals) and indirect effects (increased fragmentation and avoidance of impacted areas) as measured by the amount of surface-disturbing activity densities. Mean well densities in the high, moderate, and low development potential areas and road densities in the high and moderate development potential areas would exceed thresholds for significant impacts to big game populations resulting from the loss of big game habitat. The number of wells anticipated in the high and moderate potential areas are also expected to result in most of these potential areas being within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.98).

The greatest impact during the life of the plan would occur in the high development potential areas, including the Bears Paw South area, where mean well densities would rise from the current 0.80 wells/mi² to 3.66 wells/mi² (a 458% increase) and road densities would increase from 0.98 to 2.14 miles of road/mi² (218% increase).

Stipulations would only affect areas not currently leased or areas leased after the current leases expire. Currently, 80% of the high, 87% of the moderate, 57% of the low, and 12% of the very low development potential areas are leased, limiting the ability of the stipulations proposed in Alternative D, but activities on existing leases would be managed using BMPs (Appendix E.2).

There are few areas where incremental development would be avoided and wildlife habitat in the very low development potential area would remain at risk as the percentage of lands affected by development continues to increase throughout the life of the plan.

Wind energy rights-of-way would be excluded from 292,992 acres of BLM surface ownership which would limit the cumulative impact from wind energy development in those areas. However, Alternative D does not provide management actions that would limit fragmentation of important habitat areas, and wind energy developments could have short-term and long-term, direct and indirect impacts on high value wildlife habitats and wildlife populations associated with those habitats.

The impacts noted above would be additive to current and continued loss of habitat through conversion to cropland, particularly in those areas where land ownership is fragmented and crop production is adjacent to or nearby BLM lands.

Impacts under Alternative E (Preferred Alternative)

The estimated short-term disturbance from all surface-disturbing activities is 56,922 acres. Approximately 53,320 acres would be reclaimed, resulting in 3,602 acres of long-term surface disturbance from all surface-disturbing activities in Alternative E. The effects of each resource use are described below.

Fire Management and Ecology, and Forests and Woodlands: About 7,820 acres of forested acres could be mechanically treated for forest health. An additional 26,660 acres could be treated with prescribed burning. This is about 1.4% of all forested habitat managed by the BLM in the planning area. Short-term direct impacts to wildlife from these treatments may be severe in treated areas. Long-term indirect effects to wildlife would be beneficial because of the decreased risk of high severity unplanned wildfire and an increase of early successional habitats favored by some species of wildlife. About 6,000 acres of grass/sage could be treated with prescribed burns. This would promote heterogeneity in these habitats and long-term indirect effects would be beneficial to most wildlife species as long as there was careful planning for burns in sagebrush habitats to avoid impacting the integrity of the complete sage habitats.

Fluid Minerals: The number of new wells on BLM minerals anticipated under Alternative E is 1,756 wells. Most of these wells (931) would be located in the moderate development potential area. This would result in 9,068 acres of short-term habitat disturbance and 2,337 acres of long-term habitat disturbance. Most of this disturbance would occur in grassland/sagebrush/shrubland habitats (approximately 92%, based on the percentage of habitat types in the planning area).

Although much of the short-term effects to wildlife habitat and populations are mediated by reclamation, those reclaimed areas adjacent to or surrounding long-term habitat disturbance do not necessarily result in reclaimed wildlife habitat. Many species often avoid areas of long-term surface disturbance and disruption resulting in long-term indirect effects. The number of wells anticipated in the high and moderate potential areas are also expected to result in most of these potential areas being within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.97).

Approximately 152,702 acres of BLM minerals would be closed to oil and gas leasing under Alternative E to protect a variety of resource values. An additional 1,711,378 acres would be available for leasing with an NSO stipulation. Of this acreage, 75% is located in the very low oil and gas development potential area. These protections would benefit all wildlife species located in these areas by minimizing surface-disturbing activities and associated avoidance as noted above.

Although these stipulations may mitigate impacts at local scales, impacts to wildlife often happen at much larger scales. Large-scale impacts to wildlife and wildlife habitats are best described by the density of impacts on the landscape. Thresholds for densities of roads and oil and gas wells have been described for big game (Hebblewhite 2008), and long-term impacts to big game species are expected at well densities from 0.26 to 1.04 wells per square mile and with road densities between 0.29 and 1.69 miles of road/mi². Road effects are discussed in this section since most road development in the planning area is anticipated to be associated with oil and gas activities. Impacts to populations are often not immediate and may manifest in population level responses a number of years after the initial disturbance.

Under Alternative E, mean well densities on BLM land in each of the oil and gas development potential areas would exceed 1.04 wells/mi² except in the very low development potential areas (0.05 wells per square mile) (Table 4.99). Road densities would exceed the upper threshold in the moderate development potential area and the lower threshold in the high and low development potential areas (Table 4.100). A significant decline in populations of big game animals would be expected within high, moderate and low potential areas under Alternative E except in the very low development potential areas because of the density of wells and roads.

The greatest impact during the life of the plan would occur in the high development potential areas, including the Bears Paw South area, where mean well densities on BLM land would rise from the current 0.45 wells/mi² to 2.36 wells/mi² (a 428% increase) and road densities would increase from 0.47 to 1.21 miles of road/mi². This would result in a direct and indirect long-term loss of most habitat for big game in the high development potential areas.

Alternative E provides a number of stipulations to minimize disturbance impacts from oil and gas activities at local scales through stipulations limiting timing or distance from key wildlife resource values. These are addressed below under each wildlife category for BLM lands. The acreage figures are not additive as some resource values overlap.

- *Big Game:* Alternative E has a CSU stipulation that limits well density in crucial winter range to limit long-term indirect effects to big game populations with identified crucial winter range (currently only mule deer). This stipulation would apply to 25,609 acres.

  Alternative E also includes a winter range timing stipulation that limits surface-disturbing and disruptive activities in winter range from December 1 through May 15. The timing stipulation would still allow long-term indirect disturbances to occur which could impact big game populations if well densities exceed threshold levels in winter range. Expected mean well densities would exceed the threshold of 1.06 wells/mi² in 193,450 acres of winter range, located in the high, moderate, and low development potential areas not protected by a stricter stipulation for another resource, resulting in long-term indirect effects to big game populations. The later date in this alternative would protect wintering big game from direct disturbance longer in the year. This may be particularly important if winter conditions persist later in the spring when animals are most often at the lowest condition level and most susceptible to increased stress.

  There are no stipulations for surface-disturbing or disruptive activities on bighorn sheep habitat in the planning area and the effects would be the same as described in Alternative A. Bighorn sheep lambing areas would be protected by an NSO stipulation. This would minimize surface-disturbing and disruptive activities on 7,625 acres of bighorn sheep habitat and would minimize direct and long-term indirect effects on bighorn sheep populations.

- *Black-footed Ferret:* An NSO stipulation would be implemented within 1/4 mile of essential black-footed ferret habitat to limit surface-disturbing activities. This would result in approximately 82,517 acres of black-footed ferret habitat on BLM lands where direct and indirect impacts would be avoided.

- *Black-tailed Prairie Dog:* Lands within 1/4 mile of black-tailed prairie dog habitat would be closed to leasing to minimize surface-disturbing and disruptive activities. This would result in approximately 82,517 acres surrounding prairie dog habitat where direct impacts would be minimized.

- *Colonial Waterbirds:* Direct and indirect long-term impacts to waterbird colonies are mitigated by an NSO stipulation for activities within 1/2 mile of a waterbird colony. This would result in 5,547 acres surrounding waterbird colonies where surface-disturbing and disruptive activities would not be allowed. Most of this protection (95%) would apply in the very low development potential areas. Additionally, to minimize short-

term disturbances during the breeding season, a timing stipulation would limit activities within 1 mile of a waterbird colony from April 1 through July 15. This would result in an additional 7,425 acres surrounding waterbird colonies, not covered by other stipulations, where this stipulation would be applied.

- *Game Birds:* Lands within 1/4 mile of a sharp-tailed grouse lek have an NSO stipulation for surface-disturbing activities and a timing stipulation for surface-disturbing or disruptive activities from March 15 through June 15 within 1/2 mile of a sharp-tailed grouse lek. The NSO stipulation would minimize long-term impacts to 20,809 acres of habitat surrounding leks. The timing stipulation would mitigate short-term direct effects to breeding activities on 51,700 acres of habitat, but would allow long-term direct and indirect disturbances to occur within nesting habitat, potentially leading to population impacts.

- *Greater Sage-Grouse (Priority Habitat):* Lands within the Greater Sage-Grouse priority habitat would have an NSO stipulation under Alternative E. The NSO stipulation in the Priority Habitat would not allow fluid mineral development on 1,314,500 acres of BLM surface.

- *Sagebrush Focal Areas:* Open to leasing with NSO. This would include 927,074 acres that would not be available for waivers, exceptions or modifications.

- *Greater Sage-Grouse (General Habitat):* Lands within 0.6 mile of Greater Sage-Grouse leks would have an NSO stipulation under Alternative E. The NSO stipulation around leks would minimize disturbances to breeding activities and avoid impacts to those birds nesting within 0.6 mile of a lek on BLM lands not covered by a more restrictive stipulation.

  Greater Sage-Grouse restoration areas (46,786 acres) would be managed through plan implementation, specifically a natural gas field development plan. The timeline for a field development plan has not been scheduled and would most likely be driven by future economics of natural gas rather than a time schedule. Management actions addressed during implementation would emphasize reclamation and appropriate mitigation to sustain Greater Sage-Grouse populations and habitat. Until a field development plan is established, the area would be managed as Greater Sage-Grouse General Habitat.

  Greater Sage-Grouse (Winter Habitat): Greater Sage-Grouse would be protected from disruptive activities by a timing stipulation which would limit activities on Greater Sage-Grouse winter range from December 1 through March 31.

  Alternative E also provides specific guidance or management actions for the protection of the priority habitat area from habitat loss and fragmentation. The large block of priority habitat area would have an NSO stipulation to maintain Greater Sage-Grouse habitat by limiting surface-disturbing and disruptive activities, thereby reducing the impacts from habitat loss and fragmentation.

  Impacts to leks located in the high, moderate, and low oil and gas development potential areas would be similar to those described in Alternative A.

  Appendix M.3 provides an assessment of the consistency of management actions identified for Greater Sage-Grouse habitat in Alternative E with the conservation objectives identified in the USFWS Conservation Objectives Team (COT) report.

- *Least Tern:* An NSO stipulation would be implemented within 1/4 mile of essential least tern habitat to limit surface-disturbing activities. This would protect least tern habitat and nesting activities in the planning area should this species be found nesting on BLM land.

- *Mountain Plover:* An NSO stipulation would be implemented within mountain plover habitat to limit surface-disturbing activities. This would result in approximately 251,532 acres of mountain plover habitat where direct long-term impacts would be avoided. In addition, a timing stipulation would mitigate disruptive impacts within 1/4 mile of mountain plover habitat from April 1 through July 15, resulting in an additional 19,553 acres of land where impacts would be minimized.

- *Piping Plover: A*n NSO stipulation would be implemented within 1/4 mile of essential piping plover habitat to limit surface-disturbing activities. This would apply to approximately 614 acres of piping plover habitat overlying federal minerals not covered by other more restrictive stipulations. Long-term effects to piping plover populations are not expected with these mitigations in place.

- *Raptors: A*n NSO stipulation would restrict surface-disturbing and disruptive impacts within 1/4 mile of a raptor nest which has been active within the last 7 years. This would result in 7,105 acres of habitat surrounding nests where long-term direct and indirect effects to reproductive success of the raptors would be minimized.

- *Swift Fox:* Oil and gas activities would be limited by standard lease terms. Activities near swift fox dens could be moved 200 meters (656 feet) or delayed for 60 days to protect reproductive activities associated with swift fox dens. Because the location of dens is unpredictable and highly variable in the planning area this stipulation would ensure protection of denning activities for all known dens on an annual basis.

Livestock Grazing and Vegetation – Rangeland: Changes to rangeland vegetation would be similar across all alternatives. Under Alternative E, a minimum rest period from grazing following any major disturbance to vegetation communities would be determined through a site-specific planning process. This would benefit wildlife species by tailoring management-specific resource needs in the burned area.

Under Alternative E, the BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in Sagebrush Focal Areas (927,074 acres) followed by PHMAs outside of the SFAs.

Noxious Weeds and Other Non-Native Invasive Species: Road density is a relative measure of the risk of noxious weeds because many weeds are spread through vehicle traffic (Gelbard and Belnap 2003). Management of noxious weeds would be similar through all alternatives but effective management would be dependent on the amount of treatment needed to control infestations. The road density in Alternative E is similar to all alternatives except Alternative B, and would nearly double in the high, moderate and low development potential area. Areas with increased road density (increased vectors) would increase the risk of noxious weed infestation and the need for control efforts. The need for control efforts may exceed capacity; however, in accordance with the future assessment processes priority would be given to control actions in Greater Sage Grouse habitats.

OHV Use and Travel and Transportation Management: Impacts from motorized off-road vehicle use are limited to 124 acres in two open areas in the planning area. The impacts on wildlife are limited in these small areas. Alternative E does not allow for motorized game retrieval off road (unless designated through travel management planning), minimizing impacts to vegetation and soil resources as well as limiting disruptions to wildlife from motorized vehicles.

Renewable Energy: Under Alternative E about 1,539,673 acres of BLM land would be exclusion areas for wind energy rights-of-way, and fragmentation, degradation, and predation risk caused by wind energy development would not occur. This includes the Priority Habitat Management Area, crucial winter range, and large reservoir waterfowl complexes in addition to ACEC areas, traditional cultural properties, VRM Class I areas, and developed recreation sites.

There may be some impacts to wildlife and special status species from wind developments under this alternative because short-term and long-term, direct and indirect impacts may occur in areas with value to fish and wildlife in areas open to wind energy rights-of-way. However, specific impacts would depend on the location of the wind development in relation to the location of high value wildlife habitat. Impacts from habitat fragmentation and degradation and predation risk would not occur in the Priority Habitat Management Areas or in crucial winter range.

Soils: Alternative E considers a CSU on surface-disturbing activities for soils with severe erosion hazard and an NSO on badlands and rock outcrops. This would mitigate impacts to soil resources on approximately 119,489 acres in the planning area and would be beneficial for wildlife by minimizing short-term direct impacts and long-term indirect impacts to wildlife habitat associated with these soil features.

Solid Minerals: The Sagebrush Focal Area (SFA) would be recommended for withdrawal from mineral entry for 20 years. By not permitting mineral exploration and the potential surface disturbance from building roads, mineral

extraction, and stockpiling of waste, 927,000 acres of sagebrush habitat, including Greater Sage-Grouse habitat would be protected from fragmentation and degradation related to mining impacts. The proposed mineral withdrawal would result in approximately 6,400 acres of high bentonite development potential, 11, 500 acres of moderate development potential, and 71,500 acres of low development potential being closed to bentonite mining for 20 years.

Special Designations: All current ACECs would be retained. In addition, the Malta Geological ACEC, Zortman/Landusky Mine Reclamation ACEC, Woody Island ACEC, and Frenchman Breaks ACEC would be designated. Alternative E would eliminate the Prairie Dog Towns within the 7km Complex ACEC for black-tailed prairie dogs. The impacts to black-tailed prairie dogs because of this change are not apparent because all prairie dog towns in the planning area are now afforded similar protections as those in this ACEC, negating the need for special management for a subset of the prairie dogs located in the Prairie Dog Towns within the 7km Complex ACEC. Short-term and long-term impacts to wildlife would be beneficial for wildlife within these ACECs by minimizing short-term and long-term direct and indirect effects from surface-disturbing and disruptive activities to wildlife found within these ACECs. In addition, changes to management actions such as closing areas to oil and gas leasing and renewable energy in current ACECs increases the benefits for the wildlife resources.

Vegetation – Riparian and Wetland: Reducing hot season livestock grazing in riparian and wetland habitats would promote recovery and maintenance of appropriate vegetation utilized as summer habitat for sage-grouse. Alternative E also provides protection of surface water from impacts associated with soil erosion and runoff from disturbed areas and from other actions with an NSO stipulation and a CSU stipulation within 300 feet of streams, lakes, reservoirs, canals, and associated riparian habitats. This would partially mitigate short-term and long-term direct impacts to 439,751 acres of wildlife habitat associated with wetland/riparian features not protected by other resource stipulations. Long-term indirect effects to these habitat types and associated populations of wildlife may still occur because of continued impacts occurring within the riparian zone under the CSU stipulation.

Wilderness Characteristics: The 16,393 acres of lands managed for wilderness characteristics would be managed to preserve and enhance their wilderness characteristics.

Eastern Breaks and Badlands (16,393 acres)

- *Mule Deer Winter Range:* Alternative E would manage 16,393 acres of mule deer winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to mule deer on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

- *Elk Winter Range:* Alternative E would manage 10,549 acres of elk winter range as avoidance areas for rights-of-way, leases, permits, and other land use authorizations. This would eliminate any impacts to elk on winter range due to impacts from oil, gas and wind energy development and other land use authorizations. None of the area is currently leased for energy development.

Wildlife: In addition to the actions noted above, specific management actions and impacts for wildlife categories are described below.

Mammals

- *Bighorn Sheep:* Alternative E provides for stipulations to minimize disease transmission from domestic sheep to bighorn sheep. No new grazing permits authorizing sheep or goat allotments would be allowed within the MFWP Bighorn Sheep Management Zone (Figure 3.21). Sheep and goat allotments in areas with risk of contact with bighorn sheep and domestic sheep and/or goats in the planning area would be reviewed and managed, or reclassified if necessary, to achieve effective separation (both temporal and/or spatial) between domestic sheep and/or goats and bighorn sheep. Domestic sheep/goats would not be allowed within bighorn sheep range unless mechanisms are in place to achieve effective separation from wild sheep.

- *Black-footed Ferret: A*ctions and impacts noted for black-tailed prairie dogs are actions and impacts that would affect black-footed ferrets indirectly through impacts to their habitats. No management actions specific to black-footed ferrets are proposed in Alternative E because of the failure of reintroduction efforts to establish a

current population of ferrets on BLM lands; however, the BLM would manage prairie dog habitat to maintain prairie dog populations and distribution and also provide habitat for ferrets and other special status species. Impacts to ferret habitat are noted in the prairie dog section.

- *Black-tailed Prairie Dog:* Management for black-tailed prairie dogs under Alternative E would be accomplished through the Fish, Wildlife and Parks Region 6 Prairie Dog Abundance and Distribution Objectives Plan (MFWP 2006a). This plan provides acreages for black-tailed prairie dogs within three complex types as follows:

  - One Category 1 complex of at least 5,000 acres of active prairie dog towns spaced no more than 1.5 km apart. This Category 1 complex would not be actively managed to exceed 10,000 acres.

  - Six to eight Category 2 complexes of 1,000 or more acres of active prairie dog towns. Two or three of these complexes would follow the 1.5 km rule and the remainder would follow the 7 km rule.

  - Category 3 prairie dog towns would be scattered throughout the historic prairie dog range in Region 6.

  Impacts to prairie dogs under Alternative E would be expected to be minimal and proposed management actions would be beneficial for prairie dogs and other species associated with prairie dog towns such as mountain plovers because of the acreage amounts and the distribution of prairie dogs throughout their current range in the planning area.

Birds

- *Greater Sage-Grouse:* Alternative E would require the BLM to use the national and Montana Greater Sage-Grouse conservation strategies as standards in the planning area except for habitat standards which would be derived from regional standards. Regional standards for Greater Sage-Grouse habitat would be cooperatively developed from recent habitat inventories and population parameters in the planning area along with relevant range-wide research findings. Local standards have been derived and can be found in Table 2.4, Desired Conditions for Greater Sage-Grouse Habitat. Management under Alternative E would also emphasize restoration and rehabilitation of sagebrush in areas capable of but no longer supporting sagebrush to contribute to the distribution and connectivity of habitat patches. Greater Sage-Grouse habitats associated with silver sagebrush north of the Milk River would be enhanced to improve habitat conditions for nesting and brood rearing. Tools may include prescribed fire for silver sagebrush stimulation and returning tame grass seeding conversions to native habitats.

  Under Alternative E, large blocks of PHMA habitat would be managed to minimize surface-disturbing activities. Alternative E also provides specific guidance or management actions for the protection of priority habitat areas from habitat loss and fragmentation. Large blocks of priority habitat area would be managed to maintain Greater Sage-Grouse habitat by limiting surface-disturbing and disruptive activities, thereby reducing the impacts from habitat loss and fragmentation under Alternative E.

  Noxious weeds contribute to loss of Greater Sage-Grouse habitats, increase soil erosion, reduce water quantity and quality, and reduce structural and species diversity. The relative risk of noxious weed infestation between alternatives can be evaluated by the amount of roads anticipated by alternative. The risk of infestation in Alternative E is nearly double current levels based on the number of potential well pads and roads being constructed (Table 4.102).

  All alternatives provides for approximately 300 acres of habitat to be treated through fire in grassland and shrubland. Burning can adversely impacts nesting habitats due to the extensive time it takes for sagebrush canopy to recover. However, the number of acres burned in Alternative E is probably not detrimental to overall Greater Sage-Grouse habitat in the planning area, and full suppression in most sagebrush habitats is beneficial for short-term and long-term persistence of Greater Sage-Grouse habitat through maintenance of large blocks of sagebrush habitats.

All new powerlines within 1 mile of Greater Sage-Grouse leks would be buried on BLM land. These stipulations in areas near leks and would potentially enhance populations.

Wind power is restricted throughout the planning area in Alternative E to areas where wind energy is compatible with other specific resource values and is specifically excluded in the Greater Sage-Grouse and Grassland Bird/Greater Sage-Grouse Priority Management Areas, ACECs, and WSAs in the planning area. Greater Sage-Grouse GHMAs are identified as avoidance areas for wind energy. These stipulations would limit the disturbance associated with wind power generation in Greater Sage-Grouse Priority Areas and where other resources conflict with wind energy development, and long-term and short-term impacts to Greater Sage-Grouse from wind power under Alternative E are expected to be minimal.

Overall, protection to minimize disturbances and protect habitat for Greater Sage-Grouse under Alternative E would provide short-term and long-term beneficial impacts to Greater Sage-Grouse on BLM land.

- *Migratory Birds:* No specific management actions for migratory birds are outlined in Alternative E.

  Because of the diversity of bird species and habitat requirements, the descriptions of impacts are categorized under the following habitats: forest and woodland species, grassland species, Riparian and wetland species, and sagebrush species.

  - *Forest and Woodland Species* – BLM actions for silviculture treatments, forest products, and wildfire control result in short-term disturbance. Because of their diverse habitat requirements, some migratory birds are adversely impacted and some benefit from these management actions. Alternative E would provide greater amounts of these treatments and would benefit migratory birds associated with early successional habitats.

  - *Grassland Species* – Grassland-associated migratory birds would be protected by limits on surface-disturbing and disruptive activities in the priority area through a CSU stipulation on the large blocks of intact grassland habitat (298,772 acres of BLM land). However, there would be no specific stipulations for grassland-associated birds outside the priority area. The potential long-term disturbance of 18,645 acres (Table 4.101) could result in declines in bird populations. An NSO stipulation within mountain plover habitat and a timing stipulation within 1/4 mile of mountain plover habitat from April 1 through July 15 would protect 271,085 acres of habitat for this species and other special status species associated with the same habitats. Road maintenance in mountain plover habitat would not occur between April 1 and July 15 unless the road is surveyed for plover presence prior to maintenance activities and avoidance measures are implemented if mountain plovers are present. This would mitigate the potential loss of young birds due to road maintenance activities.

  - *Riparian and Wetland Species* – Although there are no specific management actions for migratory birds that use riparian areas and wetlands, these species are impacted by other biological resource management actions, particularly those pertaining to water and riparian and wetland habitats as noted above. Under Alternative E, the BLM would limit surface-disturbing and disruptive activities through a CSU stipulation within 300 feet of lotic and lentic systems. This would be a benefit to most riparian and wetland-associated species. Actions associated with waterfowl and colonial habitat would also benefit a number of wetland-associated migratory birds as well.

  - *Sagebrush Species* – Alternative E also provides specific guidance or management actions for the protection of Priority Habitat Management Areas (PHMAs) and Sagebrush Focal Areas (SFAs) from habitat loss and fragmentation. PHMAs would have an NSO stipulation to maintain Greater Sage-Grouse habitat by limiting surface-disturbing and disruptive activities, thereby reducing the impacts from habitat loss and fragmentation. This stipulation would provide mitigation that may allow current Greater Sage-Grouse populations to exist in the priority area because well densities up to one/mi² have been noted to not have an impact on Greater Sage-Grouse populations. However, Harju, et al. (2009) noted that some areas they investigated showed impacts to Greater Sage-Grouse populations when any well pads were placed in the landscape. Approximately 98% of the priority area is within 8.5 km (5.28 miles) of a Greater Sage-Grouse lek and even at densities of one well per section, some impacts to leks and local populations would

be expected, particularly the loss of large leks. Alternative E also provides for an NSO stipulation within 0.6 miles of Greater Sage-Grouse leks and a CSU within 2 miles of leks in General Habitat Management Areas (GHMAs). Both actions would also benefit sagebrush-associated birds by limiting short-term direct impacts and long-term indirect impacts in these areas. The SFA would be withdrawn from locatable mineral entry under Alternative E. The proposed mineral withdrawal would protect 927,000 acres of sagebrush habitat, including Greater Sage-Grouse habitat from fragmentation and degradation related to bentonite mining impacts.

- *Waterfowl:* Upland and emergent vegetation in pastures surrounding reservoirs established or rebuilt for waterfowl values would be managed to provide adequate nesting and brood-rearing cover for waterfowl under Alternative E. Waterfowl habitats would also be improved to provide long-term benefits to waterfowl populations through actions limiting pit development outside of natural wetlands as well as restoration of currently degraded wetlands.

Cumulative Impacts

Management actions proposed under Alternative E would close 152,702 acres of BLM minerals to oil and gas leasing, curtailing direct long-term and short-term effects to wildlife on those BLM land. In addition, two large blocks of relatively intact habitat would be managed to maintain habitat integrity for Greater Sage-Grouse (1,006,312 acres) and grassland birds (426,355 acres). Management of these areas would strive to maintain or improve current habitat conditions and would greatly enhance habitat integrity and connectivity, providing long-term benefits to all wildlife species in these areas. These areas would ensure viable populations at a regional scale and provide connectivity to allow for potential range shifts if habitat conditions change.

Wildlife habitat conditions would slowly degrade in the high, moderate, and low oil and gas development potential areas through incremental development of surface-disturbing and disruptive actions combined with the current level of disturbance.

Under Alternative E, mean well densities on all lands in each of the oil and gas development potential areas would exceed 1.04 wells/mi² except in the very low development potential areas (0.05 wells/mi²) (Table 4.102). Road densities would exceed the upper threshold (1.69 miles/m^2) in the high and moderate development potential areas and the lower threshold (.29 miles/m^2) in the low and very low development potential areas (Table 4.103). This would result in long-term declines in a number of wildlife populations in large portions of the planning area, particularly the high, moderate, and low oil and gas development potential areas (891,151 acres of BLM minerals), through direct impacts (increased mortality of individuals) and indirect effects (increased fragmentation and avoidance of impacted areas) as measured by the amount of surface-disturbing activity densities. The number of wells anticipated in the high and moderate potential areas are also expected to result in most of these potential areas being within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.98).

The greatest impact during the life of the plan would occur in the high development potential areas, including the Bears Paw South area, where overall mean well densities would rise from the current 0.80 wells/mi² to 3.56 wells/mi² (445% increase) and road densities would increase from 0.98 to 2.11 miles of road/mi² (215% increase).

Stipulations would only affect areas not currently leased or areas leased after the current leases expire. Currently, 80% of the high, 87% of the moderate, 57% of the low, and 12% of the very low development potential areas are leased, limiting the ability of the stipulations proposed in Alternative E, but activities on existing leases would be managed using BMPs (Appendix E.2).

Wind energy rights-of-way would be excluded from 1,539,673 acres of BLM surface ownership which would limit the cumulative impacts from wind energy development in those areas. Alternative E provides management actions that would limit fragmentation of important habitat areas, and short-term and long-term direct and indirect impacts from wind energy developments would be minimized.

The impacts addressed above would be additive to current and continued loss of habitat through conversion to cropland, particularly in those areas where land ownership is highly fragmented and crop production is adjacent to or nearby BLM lands.

The reduction in grass height caused by livestock grazing in sage-grouse nesting and brood-rearing areas has been shown to negatively impact nesting success when residual herbaceous cover was reduced below approximately 7 inches needed for predator avoidance (Gregg, et al. 1994). Desired Conditions for Greater Sage-Grouse Habitat standards (Table 2.27) will provide at least 75% of the breeding habitat identified within a given management unit (e.g., a grazing allotment) should meet the recommended vegetation characteristics on an annual basis.

The cumulative effects analysis study area for Greater Sage-Grouse extends beyond the HiLine planning area boundary and consists of Western Association of Fish and Wildlife Agencies (WAFWA) Management Zone (MZ) I. The analysis of BLM actions in MZ I is primarily based on MZ-wide datasets developed by the BLM National Operations Center. The cumulative effects analysis on the long-term effects on Greater Sage-Grouse from implementing each RMP/EIS alternative, in conjunction with other past, present, and reasonably foreseeable future actions is included in Appendix M.9.

Unavoidable Adverse Impacts

NEPA §102(2)C requires disclosure of any adverse environmental effects that cannot be avoided should the proposed plan be implemented. Unavoidable adverse impacts are those that remain following the implementation of mitigation measures or impacts for which there are no mitigation measures. Some unavoidable adverse impacts would occur as a result of implementing the HiLine RMP. Others are a result of public use of BLM land within the planning area.

Cultural Resources

Adverse impacts to cultural resources which cannot be avoided and/or mitigated include those impacts that occur to unknown cultural resources, such as unrecorded and/or buried sites which could be damaged, destroyed, vandalized and/or looted.

Fire Management and Ecology

Invasive Nonnative Plant Species (INPS) may establish and persist in areas that have had vegetation treatments, regardless of Integrated Pest Management actions and treatments.

In some areas such as the Little Rocky Mountains, vegetation treatments have facilitated off-road vehicle travel because of reduced fuel loads on the forest floor. In some cases new ATV trails have been created in treated areas. The increased levels of treatments proposed under Alternative E (Preferred Alternative) could indirectly cause increased levels of off-road ATV travel. Travel management planning would be important to complete in these susceptible areas.

Fish

Additional natural gas development in the vicinity of fish-bearing streams would only add to the effects currently present from existing gas development. Stream crossings for gas field vehicles on private land would probably not change and increased use would only add to the problem. Dust generated from adjacent roads, primitive roads and trails also would contribute to sedimentation in streams. Effects would be greatest in Alternatives A and D, and least in Alternative B. Sedimentation would affect the special status species dace assemblage of which little is known. Total effects of natural gas development on these species may never be known due to lack of historical surveys and data sets.

Forests and Woodlands

Non-native and exotic plants tend to invade disturbed areas. These undesirable plant species tend to establish themselves in areas following mechanical treatments and prescribed fires. However, with monitoring followed by aggressive treatments long-term invasion can be avoided or mitigated.

Mechanical treatments "change" the way the forested landscape appears to some observers. The effect of timber cutting to observers is immediate following the activity. For planning purposes the forests are managed on a 100 year rotation; however, for the life of the plan (20 years) the forest will likely look "different" and to some it may be considered a long-term impact. However, with respect to the more realistic timeframe of forest management there is very little to no long-term adverse impact.

In many areas mechanical treatments that involve temporary roads, primitive roads and trails tend to attract off-road vehicle travel because a "pathway" now exists. While the majority of riders are respectful and stay on authorized trails some do not. These unauthorized uses contribute to increased soil compaction, rutting and weed infestations that can cause long-term adverse impacts.

Paleontological Resources

Inadvertent damage, destruction, vandalism, and/or looting of paleontological resources from increased public use and surface-disturbing activities would be unavoidable. Although mitigation measures would include identification and mitigation of resources prior to surface-disturbing activities, some unanticipated discoveries of unknown paleontological resources would occur. The number of sites anticipated to be inadvertently damaged is unknown. There is a high probability that the theft, damage and/or destruction of paleontological resources will go undetected or the delay in detection will prohibit successful prosecution of the theft, damage and/or destruction.

Soils and Vegetation – Rangeland

Vehicle travel during moist or wet soil conditions could lead to soil rutting and compaction within the travelway of roads and adjacent to roads. This would have the potential to increase surface runoff and soil erosion. Soil erosion and loss of soil quality would occur in open OHV areas. Prescribed and wildfires cause short-term localized runoff, soil erosion, and sedimentation.

Transportation

Certain resources management actions could adversely impact the transportation program by placing limitations on transportation development.

Short-Term Uses versus Long-Term Productivity

NEPA §102(C) requires discussion of the relationship between local, short-term uses of man's environment and the maintenance and enhancement of long-term productivity of resources.

Economics

Consumptive uses such as mineral production and timber harvest would be considered short-term uses that may influence and/or reduce long-term productivity of the land and mineral resources for future production. The development of minerals within the planning analysis period would preclude the use of those minerals in the future.

Fire Management and Ecology

Vegetation treatments can cause short-term adverse impacts to soils, air quality, and other sensitive resources, but maintenance or restoration of desired ecological conditions would improve landscape health in the long term.

Fish

Damage to riparian areas by livestock grazing would continue until management actions such as fencing, riparian pastures, and alternative livestock grazing are put into place. Those fish-bearing streams without blockage of fish movement could improve as riparian vegetation is restored, streambanks stabilize, and stream flows return to a more natural condition. Enhancing or restoring riparian composition and structure beyond PFC in Alternative E, and activity planning on an aggregate basis with special protective measures for riparian areas with unique values in Alternative B would have the highest probability of restoring long-term productivity to fish-bearing streams.

Forests and Woodlands

Alternatives B, C, D, and E all require that any forest management activity require a silvicultural prescription that looks at the proposed management activities and how they would be carried out to maintain the productivity of the site, accommodate all resource values including biological diversity as well as producing a free-growing stand capable of meeting the management objectives.

In the very short-term (2-5 years) immediately following treatments, site productivity may be lower than before treatments due to the impacts of heavy equipment, prescribed fire, or the invasion of exotic plants. However, in the long term, productivity of the native species and trees would likely increase due to a decrease in the stocking level and increased amount of available moisture and sunlight to the forest floor and vegetation.

Noxious Weeds and Other Invasive Non-Native Species

Vegetation treatments and other authorized activities could cause short-term displacement of wildlife due to the treatment activity and localized effects on non-target vegetation used for food and cover, expose soils, and as a result increase erosion and stream sedimentation. These would be short-term effects on small localized sites that only occur during the activity or treatment and while the treated area regenerates or recovers. The goal of these activities is to enhance long-term productivity and sustainability by controlling or eradicating invasive species and encouraging the production of desirable soil and vegetation conditions.

Paleontological Resources

The RMP would allow scientific research of paleontological specimens. This research would have an irreversible impact on paleontological resources. The excavation of a paleontological locale could consume 2-3 years of work but the long-term payoff is the knowledge gained from the excavation and analysis. In the long term the research would have a beneficial effect on not only the research being completed locally but also the scientific field as a whole.

Recreation

Short-term surface disturbance from harvesting timber and underburning the slash and vegetation left after the harvest would produce smoke, remove vegetation, increase soil erosion, and generally degrade the scenery. Although this land treatment would have a short-term effect in reducing recreational opportunities and degrading the quality of the recreational experience, the long-term benefits from improving the health of land and its associated improved recreational opportunities and experiences would far outweigh the smaller negative effects from harvesting the timber and underburning. Generally, the long-term benefits to improving the health of the land would include improving vegetation composition and wildlife habitat which, in turn, may improve the scenery and should increase the recreational opportunities for wildlife viewing, hiking and hunting.

Soils and Vegetation – Rangeland

Treatments and management activities to emphasize healthy forest conditions and to restore desired ecological conditions of rangelands would subject these acres to short-term soil erosion and compaction effects. Meeting the desired future condition in the long term with these treatments would contribute to properly functioning watersheds that support productive plant communities and would improve soil quality in the long term. Also, on these treated acres the risk of high severity wildfires would be reduced.

Oil and gas activities affect soil and vegetation quality in both the short and long term. Well pads and pipelines undergo interim and final reclamation to return soil and vegetation quality in the short term. Access roads and production areas require a long-term commitment of the soil and vegetation resource, affecting these in the long term. At the time of final abandonment, access roads and production areas undergo final reclamation to return soil and vegetation quality.

Irreversible and Irretrievable Commitment of Resources

Economics

The use of non-renewable resources would eliminate the potential economic uses of those resources in the future for the same or different purposes. This is generally assumed to apply to use of mineral resources.

Fish

Loss of fish passage in small, cool prairie streams may have permanent effects that may not be reversible. Many streams that have had trails with rock crossings developed now have no means of fish passage. Periods of drought have compounded the problem by eliminating some surviving fish populations in upstream pools. Once gone, those populations may not be replaced. Crossings on BLM land may be rehabilitated at some point in the future, but those on private land probably would remain in place due to their use as farm and ranch roads. Effects would be greatest under Alternatives A and D, and least in Alternative B. Loss of habitat for the special status species dace assemblage could result in their being listed by the ESA sometime in the future.

Fluid Minerals

The only irreversible/irretrievable aspect when considering fluid mineral leasing and development has to do with the fact that the oil and gas resource is a non-renewable resource. Once the product has been produced, it would not be replaced.

Forests and Woodlands

Unplanned high severity events such as fire, windstorms, etc. can happen anytime that may likely alter soil properties and stand composition that are irreversible/irretrievable. However, utilizing sound silvicultural practices with monitoring to follow up treatments should not cause any irreversible/irretrievable problems.

Noxious Weeds and Other Invasive Non-Native Species

Loss of habitat for plant and animal species and loss of the forage for current and future wildlife and livestock would occur where control of invasive species is limited. Limited control could result in soil loss which would reduce the site potential of an infested area so that it would no longer support desired plant communities. Recovery to existing conditions would not be possible even with a major influx of resources for control and restoration. Site preparation and seeding would not bring the site back to full potential and the invasive species would continue to persist.

Paleontological Resources

Inadvertent damage, destruction, vandalism, and/or looting of paleontological resources from increased public use and surface-disturbing activities can be classified as both an irreversible and an irretrievable impact. Inadvertent damage and

vandalism may render a paleontological resource irretrievable for a period of time until restoration efforts are completed. The destruction or looting of a paleontological specimen is an irreversible impact to the resource. The destruction and looting removes the specimen from public ownership and prevents researchers from garnering knowledge from the location and specimen.

The RMP would allow scientific research of paleontological specimens. This research would have an irreversible impact on paleontological resources; however, the knowledge gained from that research would have a beneficial effect on the scientific field as a whole.

Recreation

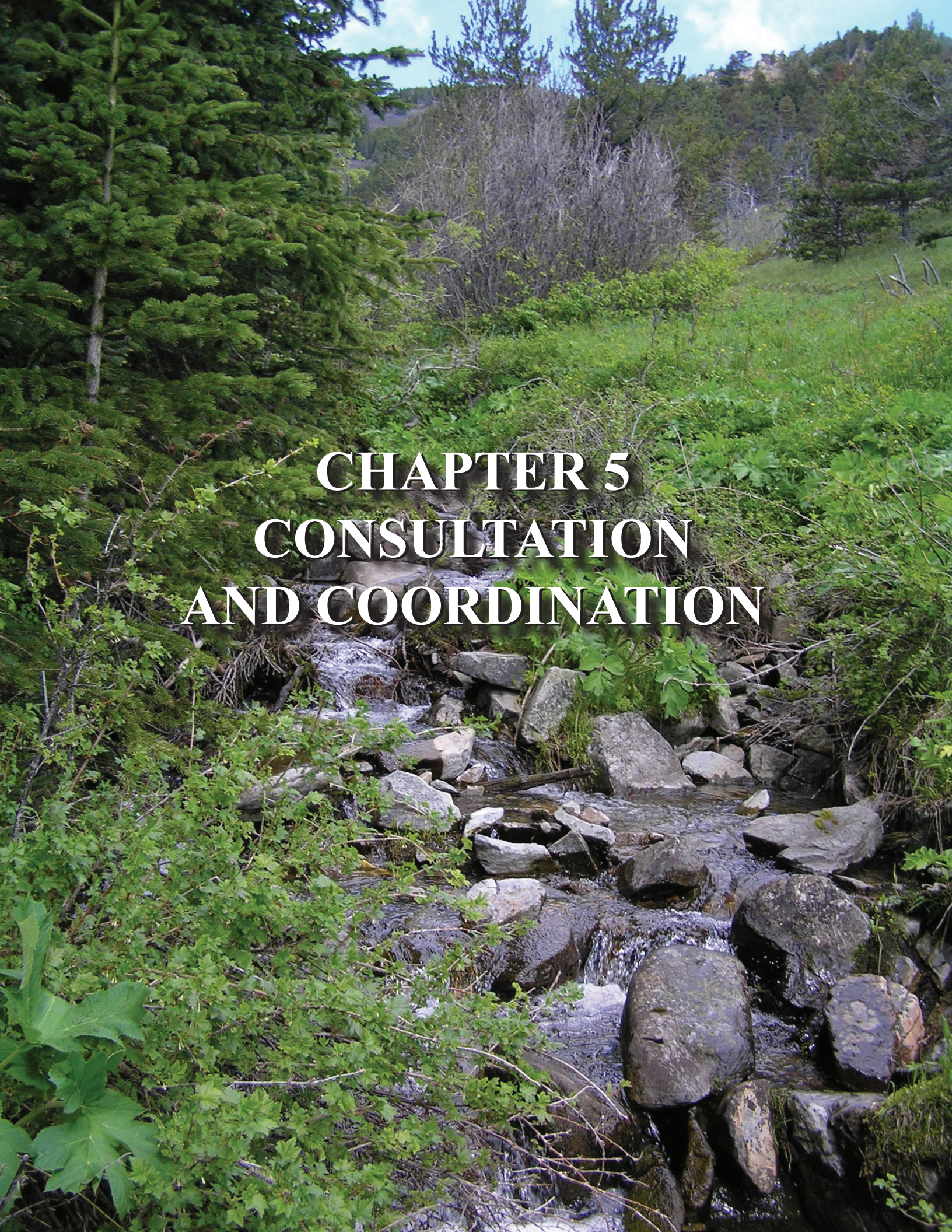
Locatable, leasable, and salable solid minerals create small to moderate open pits from extracting the mineral from the landscape. Dispersed recreation opportunities associated with the open pit prior to excavation would be lost and considered irretrievable until such time that the pits are reclaimed. The dispersed recreation opportunities lost would be greatest during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking and horseback riding.

The sale of BLM land with legal access would result in the loss of dispersed recreational opportunities associated with the specific BLM land and would be considered an irreversible action. The dispersed recreation opportunities lost would be greatest during the fall hunting season and to a lesser degree during the spring and summer for publics who enjoy pleasure driving, hiking and horseback riding.

Soils and Vegetation – Rangeland

Soil formation requires thousands of years. Erosion of topsoil would result in an irretrievable loss of soil quality. Eroded soil entering surface waters as sediment would be irreversible.

Frenchman Area, Phillips County Photo by Kathy Tribby



CHAPTER 5
CONSULTATION AND COORDINATION

Chapter 5
Consultation and Coordination

Introduction

This chapter describes the public participation opportunities made available through the development of the Proposed Resource Management Plan and Final Environmental Impact Statement (Proposed RMP/Final EIS). This chapter also describes the consultation that occurred and collaborative efforts with the State of Montana; the eight counties in the area; the Tribes; and the U.S. Fish and Wildlife Service.

The Proposed RMP/Final EIS was prepared by an interdisciplinary team of resource specialists, identified at the end of this chapter, from the Malta Field Office, Glasgow Field Office, Havre Field Office, Great Falls Oil and Gas Field Office, Lewistown Field Office, and the Montana State Office. Technical review and support were provided by field offices, cooperators, and the State of Montana.

The State of Montana, Bureau of Indian Affairs, Bureau of Reclamation, Fish and Wildlife Service and Blaine, Phillips and Valley Counties as well as eight grazing districts participated in the development of the Proposed RMP/Final EIS as cooperating agencies. The Central Montana Resource Advisory Council also participated, and a discussion of their involvement is included later in this chapter.

Members of the planning team have consulted formally and informally with numerous agencies, groups and individuals during the preparation of this document. Consultation, coordination, and public involvement occurred as a result of scoping meetings, briefings and meetings with federal, state, tribal, and local government representatives, informal meetings and individual contacts.

Public Participation Opportunities

The major public participation events are described below. Table 5.1 contains a list of public involvement opportunities which occurred as the Proposed RMP/Final EIS was developed.

Scoping

The scoping process identifies land use issues, conflicts, and opportunities. These issues may stem from new information or changed circumstances, the need to address environmental protection concerns, or a need to reassess the appropriate mix of allowable uses based on new information.

Scoping is the first stage of the planning process and closely involves the public with identifying issues, providing resource and other information, and developing planning criteria to guide preparation of the document.

A Notice of Intent to prepare the Draft RMP/EIS was published in the Federal Register on September 9, 2006. This notice served as the beginning of BLM's formal scoping process.

The first newsletter for the RMP was mailed on October 4, 2006, to 993 individuals from the public, agencies, and organizations. The newsletter introduced the BLM and the RMP planning process; provided the preliminary issue themes, planning criteria, and project milestones timeline; and suggested methods for public involvement. The newsletter also provided the dates and venues for 18 scoping open houses. A postage-paid comment form was included as an insert to the newsletter to allow the public to easily submit their comments.

A news release also was issued to various media points during the week of September 19, 2006, and advertisements were published in the following newspapers to notify the public of the project, to announce the public open houses, to request public comments, and to provide contact information:

- *Phillips County News* – Malta, Montana (September 13, 2006);
- *Blaine County Journal News & Opinion* – Chinook, Montana (September 13, 2006);
- *Shelby News Reporter* – Shelby, Montana (September 14, 2006);
- *Great Falls Tribune* – Great Falls, Montana (September 24, 2006); and
- *Billings Gazette* – Billings, Montana (October 30, 2006).

Table 5.1
Public Involvement Opportunities

Date	*Opportunity*
September 2006	Notice of Intent
September 2006	News Release
October 2006	Newsletter
October 2006	Public Meetings
July 2007	Newsletter
July 2010	Newsletter

The BLM hosted 18 scoping open houses during October 2006 (Table 5.2) to provide the public with opportunities to become involved, learn about the project and planning process, meet some of the RMP team members, and offer comments. Open houses were held in fifteen locations within the planning boundary and three meetings were held in regionally accessible locations; Great Falls, Helena and Billings.

At this scoping phase of the planning process, an open house format was chosen over a more formal public meeting format to encourage broader participation, to allow attendees to learn about the project, and to enable people to ask questions of BLM representatives in a more casual setting. Fact sheet handouts about the project, including preliminary planning criteria and project milestones were provided. Site and resource maps and posters were displayed illustrating the current situation and management techniques practiced among different resources and land areas. A presentation highlighted key issues and summarized the planning process. Prominent, local facilities in informal settings were chosen as venues to encourage broad participation. A total of 185 people attended the open houses.

Table 5.2
HiLine RMP Public Scoping Meetings

Location	*Date*	*Attendance*
Malta	October 2, 2006	10
Whitewater	October 3, 2006	16
Glasgow	October 4, 2006	8
Opheim	October 5, 2006	8
Zortman	October 6, 2006	21
Harlem	October 10, 2006	1
Hays/Lodge Pole	October 11, 2006	0
Turner	October 12, 2006	21
Shelby	October 16, 2006	6
Browning	October 17, 2006	36
Great Falls	October 18, 2006	11
Helena	October 19, 2006	2
Chester	October 23, 2006	9
Big Sandy	October 24, 2006	5
Havre	October 25, 2006	8
Rocky Boy Agency	October 26, 2006	2
Chinook	October 30, 2006	15
Billings	October 31, 2006	6

Consultation and Coordination

Tribal Consultation

In accordance with the National Historic Preservation Act and in recognition of the government-to-government relationship between tribes and the federal government, letters were sent to nine tribal governments and officials at the start of the planning process to inform them of the HiLine RMP and an opportunity to partner with the BLM as a cooperating agency. While no tribes became an official cooperating agency, coordination has occurred and will continue through letters, updates, and meetings. Table 5.3 lists the meetings that have taken place to date.

Table 5.3
Meetings with Tribal Governments/Officials on the HiLine RMP

Date	*Meeting Details*
September 20, 2010	Met with the White Clay Society on the Fort Belknap Indian Reservation and made a PowerPoint presentation on the HiLine RMP/EIS. Discussion included proposed BLM management of the Little Rocky Mountains, Sweet Grass Hills, Kevin Rim, and Big Bend of the Milk River.
September 21, 2010	Met with the Chippewa-Cree Tribal Historic Preservation Officer (THPO) on the Rocky Boy's Indian Reservation. Discussion included proposed BLM management of the Little Rocky Mountains, Sweet Grass Hills, Kevin Rim, and Big Bend of the Milk River.
October 14, 2010	Met with the Assiniboine/Sioux THPO on the Fort Peck Indian Reservation and made a PowerPoint presentation on the HiLine RMP/EIS. Discussion included proposed BLM management of the Little Rocky Mountains, Sweet Grass Hills, Kevin Rim, and Big Bend of the Milk River. Other items discussed included tribal treaty rights, the importance of understanding the biodiversity of landscapes, and renewable energy.
March 3, 2011	Met with the Confederated Salish and Kootenai Tribes of the Flathead Nation THPO at the tribal headquarters in Pablo and made a PowerPoint presentation on the HiLine RMP/EIS. Discussion included proposed BLM management of Little Rocky Mountains, Sweet Grass Hills, Kevin Rim, and Big Bend of the Milk River. Other items discussed included wildlife and natural resources.
April 23, 2013	Met with the Confederated Salish and Kootenai Tribes of the Flathead Nation THPO at the tribal headquarters in Pablo and made a PowerPoint presentation on the HiLine RMP/EIS. The Tribal Council was briefed on the Draft RMP and the Preferred Alternative (as well as provided a Draft RMP), and the BLM explained the comment period and had a productive discussion with the Tribal Chairman and two councilmen regarding issues where they voiced their support for the preferred alternative and its conservation measures pertaining to cultural heritage and preservation. Items discussed included: RMP discussion, OHV usage and closures, grazing leases, and sage-grouse conservation.
April 23, 2013	Met with the Blackfeet Tribal Council and THPO at the Tribal Headquarters in Browning, Montana. The Tribal Council was briefed on the Draft RMP and the Preferred Alternative (as well as provided a Draft RMP), and the BLM explained the comment period and had a productive discussion with the Tribal Chairman and two councilmen regarding issues where they voiced their support for the preferred alternative and its conservation measures pertaining to cultural heritage and preservation. The majority of the conversation centered on oil and gas as well as wind energy development. The BLM explained that the RMP only applied to off-reservation public lands managed by the BLM. Items discussed included: RMP discussion, OHV usage and closures, NSO stipulations for oil and gas, interaction of threatened and endangered species, travel management, grazing leases, sage-grouse conservation, and wind energy potential.

Table 5.3
Meetings with Tribal Governments/Officials on the HiLine RMP

Date	***Meeting Details***
April 25, 2013	Met with the Chippewa-Cree Tribal Council and THPO on the Rocky Boy's Indian Reservation. The Tribal Council and THPO were briefed on the Draft RMP and the Preferred Alternative (as well as provided a Draft RMP), and the BLM explained the comment period. Items of interest included: carbon sequestration, oil and gas rights-of-way and the Keystone XL pipeline. Items discussed included: RMP discussion, air resources, NHPA, mineral extraction, federal archaeological reports, carbon sequestration, whitebark pine, Sweet Grass Hills, Keystone XL pipeline, medicinal plants, and tribal government challenges.
May 3, 2013	Met with the Fort Peck Tribal Council in Poplar, Montana. The Tribal Council was briefed on the Draft RMP and the Preferred Alternative (as well as provided a Draft RMP), and the BLM explained the comment period and had a productive discussion with the Tribal Chairman and two councilmen regarding issues where they voiced their support for the preferred alternative and its conservation measures pertaining to cultural heritage and preservation. The majority of the briefing was dominated by discussion of oil and gas development. Items discussed included: RMP discussion, tribal sovereignty, oil and gas drilling, fracking, and predator control.
May 10, 2013	Met with the Fort Belknap Tribal Council on the Fort Belknap Indian Reservation. The Tribal Council was briefed on the Draft RMP and the Preferred Alternative (as well as provided a Draft RMP), and the BLM explained the comment period and had a productive discussion with three councilmen regarding issues where they voiced their support for the preferred alternative and its conservation measures pertaining to cultural heritage and preservation. They also thanked the BLM for its expertise and mentioned ongoing efforts between the BLM and the Tribal College. Items discussed included: RMP discussion, hard rock mining, mine reclamation, sage-grouse, wind energy, oil and gas, and carbon sequestration.
January 14, 2014	BLM provided an annual work plan and RMP update to the THPO and Tribal chairs of the Fort Belknap Indian Community (Assiniboine, Gros Ventre), Eastern Shoshone, Arapahoe, Blackfeet, Crow, Northern Cheyenne, Fort Peck (Sioux, Assiniboine), Salish, Kootenai and Chippewa Cree Tribes. Tribes that expressed an interest in further updates in relation to the RMP were updated in person or via phone calls. General discussion focused on proposed RMP and sage-grouse guidance in relation to schedules and publications.
April 15, 2014	Met with the Confederated Salish and Kootenai tribes of the Flathead Nation THPO in Pablo, MT. General RMP discussion focused on proposed RMP and sage-grouse guidance in relation to schedules and publications.
January 29, 2015	BLM provided an annual work plan and RMP update to the THPO and Tribal chairs of the Fort Belknap Indian Community (Assiniboine, Gros Ventre), Eastern Shoshone, Arapahoe, Blackfeet, Crow, Northern Cheyenne, Fort Peck (Sioux, Assiniboine), Salish, Kootenai and Chippewa Cree Tribes. Tribes that expressed an interest in further updates in relation to the RMP were updated in person or via phone calls. General discussion focused on proposed RMP and sage-grouse guidance in relation to schedules and publications. No new information was available to share.
March 24, 2015	Met with the Confederated Salish and Kootenai tribes of the Flathead Nation THPO in Pablo, MT. General RMP discussion focused on proposed RMP and sage-grouse guidance in relation to schedules and publications. No new information was available to share.

U.S. Fish and Wildlife Service Consultation

Federal agencies are required to comply with provisions of the Endangered Species Act of 1973, as amended. This includes a requirement to consult with the U.S. Fish and Wildlife Service (USFWS) on any action that may affect species listed as threatened and endangered or result in destruction or adverse modification of habitat designated as critical for listed species. In addition, federal agencies must confer with the USFWS on any action that is likely to jeopardize the continued existence of any species proposed to be listed or any action that may result in the destruction or adverse modification of critical habitat proposed to be designated for listed species.

Contacts were made with the USFWS early in the planning process, and early drafts of alternatives were provided for discussion. An initial list of federally listed threatened or endangered plant, animals, or fish species or habitats present in the planning area was requested in 2008. Three federally listed threatened wildlife species and four endangered species either occur in the planning area or use habitat found within the planning area. These include pallid sturgeon (endangered), black-footed ferret (endangered/experimental non-essential), Canada lynx (threatened), grizzly bear (threatened), least tern (endangered), piping plover (threatened), and whooping crane (endangered).

Informal meetings were held with the USFWS to discuss issues and alternatives and the USFWS participated during cooperating agency meetings. Four additional face-to-face meetings between BLM resource specialists and USFWS Ecological Services biologists regarding sage-grouse took place between April 2012 and July 2014. Informal consultation between Montana BLM biologists and USFWS biologists at the Helena Montana Ecological Services Field Office continued through May 2015.

A Biological Assessment evaluating the impacts of the Preferred Alternative on federal threatened, endangered and proposed species will be submitted to the USFWS prior to issuance of the Record of Decision.

Resource Advisory Council

Resource advisory councils (RACs) were created in 1995 to advise the BLM on land management programs and issues. The Central Montana RAC consists of local residents who represent three broad interest categories: commodity interests, non-commodity interests, and government/academic interests. RAC members are chosen by the Secretary of the Interior in consultation with the governor of the state in which they serve. One of the strengths of the RAC is their ability to provide assistance and input on a wide variety of land use issues.

The first meeting with RAC on the HiLine RMP was held on July 13, 2006 at the Cottonwood Inn in Glasgow, Montana. A presentation was offered of the RMP process highlighting the components and issues of the planning area, preliminary planning criteria, and project status. The RAC continued to be involved through briefings and updates during preparation of the Proposed RMP/Final EIS.

Cooperating Agencies

A cooperating agency is any federal, state, or local government agency or Native American tribe that enters into an agreement with the lead federal agency to assist in the development of an environmental analysis. On October 26, 2006, the BLM mailed letters to the federal, tribal, state and local representatives shown in Table 5.4, inviting them to participate as cooperating agencies for the HiLine RMP.

The Bureau of Indian Affairs, Bureau of Reclamation, Fish and Wildlife Service, Montana Fish, Wildlife and Parks, Blaine, Phillips and Valley Counties, and the Badlands, North Blaine, North Phillips, South Phillips, Wayne Creek, Willow Creek, Buggy Creek, North Valley Cooperative State Grazing Districts participated as cooperating agencies.

The BLM is aware that there are specific state laws and local plans relevant to aspects of public land management that are discrete from, and independent of, federal law. However, the BLM is bound by federal law. As a consequence, there may be inconsistencies that cannot be reconciled. The FLPMA and its implementing regulations require that the BLM's land use plans be consistent with state and local plans only if those plans are consistent with the purposes, policies, and programs of federal laws and regulations applicable to public lands. Where state and local plans conflict with the purposes, policies, and programs of federal law there will be an inconsistency that cannot be resolved. While county and

federal planning processes, under FLPMA, are required to be as integrated and consistent as practical, the federal agency planning process is not bound by or subject to county plans, planning processes, or planning stipulations.

Table 5.4
Federal, Tribal, State and Local Representatives Invited to Participate As Cooperating Agencies for the HiLine RMP

Blackfeet Nation – Tribal Business Council	Montana Department of Transportation
Blaine County Commission	Montana Environmental Quality Council
Chippewa Cree Business Committee	Montana Fish, Wildlife & Parks
Chouteau County Commission	Montana Heritage Preservation & Development Commission
City of Glasgow	
Crow Tribal Council	Montana State Historic Preservation Office
Fort Belknap Community Council	National Park Service
Fort Peck Tribal Executive Board	Northern Cheyenne Tribal Council
Glacier County Commission	Phillips County Commission
Hill County Commission	Rocky Boy's Indian Reservation
Liberty County Commission	Toole County Commission
Little Shell Tribe of Chippewa Indians of Montana	Turtle Mountain Band of Chippewa Indians
Montana Board of Oil & Gas Conservation	US Army Corps of Engineers
Montana Cooperative State Grazing Districts	US Environmental Protection Agency
Montana Department of Agriculture	USDA Forest Service
Montana Department of Environmental Quality	USDI Fish and Wildlife Service
Montana Department of Livestock	USDI Bureau Indian Affairs
Montana Department of Natural Resources & Conservation	USDI Bureau of Reclamation
	Valley County Commission

Montana Governor's Cabinet Briefing on the BLM's Greater Sage-Grouse Planning Strategy

On March 14, 2012, the BLM Montana/Dakotas State Director and other BLM personnel from the Montana State Office met with and briefed members of the Montana Governor's cabinet and/or their representatives concerning the Montana/Dakotas BLM Implications and Implementation of the National Greater Sage-Grouse Planning Strategy. Discussions included an overview of the BLM planning process, the BLM's Greater Sage-Grouse conservation planning process, and questions and answers related to Greater Sage-Grouse conservation.

Air Quality Technical Workgroup

On February 22, 2012, the BLM hosted a conference call concerning the HiLine RMP/EIS air quality impact analysis with an Air Quality Technical Workgroup consisting of representatives from the US Environmental Protection Agency, USDA Forest Service, USDI Fish and Wildlife Service, and USDI National Park Service. This call formally initiated collaborative planning and review activities under the *Memorandum of Understanding among the U.S. Department of Agriculture, U.S. Department of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions through the National Environmental Policy Act Process* (USDA, USDI and USEPA 2011). During the February 22, 2012 call, the BLM presented background information on existing air quality within the HiLine planning area, predicted oil and gas activities, estimated emissions associated with the reasonable foreseeable development scenario (RFD), and a proposed air resource analysis approach for the HiLine RMP revision. The BLM solicited comments from each of the MOU agencies and continued to coordinate with these agencies throughout the development process for the HiLine RMP revision.

Plan Distribution

Since initial scoping, the BLM has maintained a mailing list of individuals, businesses, organizations, and federal, state, tribal, and local government representatives interested in development of the HiLine RMP.

The Proposed RMP/Final EIS is available on the BLM web site at http://blm.gov/8qkd and is available for public review at the following locations: Montana State Office (Billings, Montana), Great Falls Oil and Gas Field Office (Great Falls, Montana), Havre Field Office (Havre, Montana), Malta Field Office (Malta, Montana), and Glasgow Field Office (Glasgow, Montana).

Copies of the document have been distributed to the government agencies, businesses, and organizations listed below. The Proposed RMP/Final EIS, either on CD or in printed format, was also mailed to individuals who requested a copy.

Federal Government

US Border Patrol
US Department of Energy
US EPA Region 8
US Fish and Wildlife Service
USDA NRCS
USDI BLM
USDI Bureau Indian Affairs
USDI Bureau of Reclamation
USDI Field Solicitor's Office
USDI National Park Service

State Government

Colorado Parks and Wildlife
Colorado State Land Board
Colorado State University
Montana Cooperative State Grazing Districts
- Badlands
- Buggy Creek
- North Blaine County
- North Phillips
- South Phillips
- North Valley
- Wayne Creek
- Willow Creek

Montana Department of Environmental Quality
Montana Department of Livestock
Montana Department of Natural Resources and Conservation
Montana Department of Transportation
Montana Environmental Quality Council
Montana Fish, Wildlife & Parks
Montana Governor's Office
Montana State Historic Preservation Office
North Dakota Game and Fish Department
Oregon Department of Fish and Wildlife
Wyoming Department of Agriculture
Wyoming Department of Environmental Quality
Wyoming Department of Game & Fish
Wyoming Department of Revenue
Wyoming Department of State Parks & Cultural Resources
Wyoming Department of Transportation
Wyoming Governor's Office
Wyoming Livestock Board
Wyoming Office of State Lands and Investments
Wyoming Oil and Gas Conservation Commission
Wyoming State Engineers Office
Wyoming State Forestry
Wyoming State Geological Survey
Wyoming State Historic Preservation Office
Wyoming State Planning Office
Wyoming State Trails Program
Wyoming Travel and Tourism
Wyoming Water Development Commission
Wyoming Water Quality Division

County/Local Government

Blaine County Library, Montana
Chouteau County Library, Montana
Glacier County Library, Montana
Hill County Library, Montana
Liberty County Library, Montana
Phillips County Library, Montana
Toole County Library, Montana
Valley County Library, Montana
Blaine County Commission, Montana
Carbon County Commission, Wyoming
Chouteau County Commission, Montana
City of Billings, Montana
City of Browning, Montana
City of Great Falls, Montana
City of Havre, Montana
City of Helena, Montana
City of Shelby, Montana
Converse County Commission, Wyoming
Elko County Commission, Nevada
Fergus County Commission, Montana
Glacier County Commission, Montana

Hill County Commission, Montana
Iron County Commission, Utah
Judith Basin County Commission, Montana
Liberty County Commission, Montana
Mesa County Commission, Colorado
Moffat County Commission, Colorado
Niobrara County Commission, Wyoming
Phillips County Commission, Montana
Toole County Commission, Montana
Valley County Commission, Montana
Weston County Commission, Wyoming

Tribal Government

Blackfeet Nation
Cheyenne & Arapaho Tribes of Oklahoma
Cheyenne River Lakota Tribe
Chippewa-Cree Tribe
Comanche Nation of Oklahoma
Confederated Salish and Kootenai Tribes
Crow Nation
Eastern Shoshone Tribe
Fort Belknap Indian Community
Fort Peck Assiniboine & Sioux Tribes
Kiowa Tribe of Oklahoma
Little Shell Tribe of Chippewa Indians
Nez Perce Tribe
Northern Arapaho Tribe
Northern Cheyenne Tribe
Oglala Sioux Tribal Council
Pawnee Nation of Oklahoma
Rosebud Lakota Tribe
Santee Sioux Tribe of Nebraska
Sioux Executive Committee
Sisseton-Wahpeton Dakota Nation
Standing Rock Sioux Tribe
Three Affiliated Tribes (MHA Nation)
Turtle Mountain Band of Chippewa/Cree
Western Shoshone National Council

Congressional

Montana Congressman Ryan Zinke
Montana Senator Jon Tester
Montana Senator Steve Daines

Businesses

45 Degrees North Outfitters, LLC
Adkins Ranch, Inc.
Alme, Steen Inc.
Alpha Coal West, Inc.
Alves Land and Livestock
Americas Bentonite Corporation
Amos Enterprises
Anadarko Petroleum
Anna Nyquist Ranch LLP
Anschutz Exploration Corp.
Antelope Ranch, Inc.
Arion Energy
Arledge Ranches
Austin & Green Cattle Co.
B & J Livestock, Inc.
B. Kenneth Carlyle, Inc.
Balko Incorporated
Barthelmess Ranch
Barton Land & Livestock
Bear Paw Hunts, Inc.
Beartooth Oil & Gas Co.
Behm Energy Incorporated
Beil Ranch, Inc.
Berenergy Corporation
Bessette Ranch Co.
BI LO JI Farms, Inc.
Big Flat Electric Coop Inc.
Big Sandy Chamber of Commerce
Billingsley Ranch Outfitting and Equipment, Inc.
Birkley/Rumney Partnership
Bitter Creek Pipelines
Bjork Lindley Little PC
Black Hawk Resources LLC
Blatter Ranch, Inc.
Bloom Outfitting
Borderline Outfitters
Borderview Bell Ranch
Boucher Ranch, Inc.
Branch Oil & Gas
Brown & Brown of Montana, Inc.
Brown/Kennedy Ranch Co.
Browning Area Chamber of Commerce
Bruckner Farms, Inc.
Buggy Creek Livestock
Burke Ranch Outfitters
Busenitz Land and Cattle, Inc.
C & A Han, Inc.
Canen Ranch, Inc.
Captain Operating LLC
Carl Mann's Montana Experience Outfitters
Carl Underwood Oil & Gas Co.
Carrell Oil Company
Cavalier Petroleum Inc.
Chad Hoover Outfitting, Inc.
Chase Hill Outfitters
Chauvet Ranch
Chinook Chamber of Commerce
Christensen Ranch
Circle 9 Cattle Co.
Citation Oil & Gas
Coal Creek, Inc.
Coastal Petroleum Company
Coeur Rochester Mine

Compton Ranch
Conrad, Inc.
Cornwell Ranch, Inc.
Cosner Land LLC
Costin Ranch Co.
Cowan & Son & Cowan Select Horses, LLC
CP Callahan, Inc.
Croft Petroleum Company
Cronk Ranch
Cut Bank Area Chamber of Commerce
D&W Livestock Co
Dan Simonson Ranch, Inc.
Dancing Grouse Farm & Ranch, Inc.
Davies Ranch Co.
Decker Operating Company LLC
Denson Ranch
Depuydt Farms, Inc.
Desert Coulee Ranch
Devon Energy LLC
Devon Energy Production Co.
Dominion OK TX Expl. & Prod.
Double O Ranch, Inc.
Doucette Ranch
DRGA Farms, Inc.
Dunbar Cattle Co., Inc.
E & M Remy, Inc.
E-7 Grain & Livestock/Lone Tree Cattle Co.
East Malta Colony
Edwards Ranch
El Paso Corporation, Pipeline Division
Elliot Ranch
Enclave Operating LLC
Encore Operating LP
Energy Equity Company
Engebretson Farms, Inc.
Engstrom Ranch
Ernest K. Lehmann & Associates
Exergy Development Group, LLC
F. Anderson Ranch
Faith Drilling, Inc.
Fiddleback Ranch
Fidelity Exploration & Production Company
First Creek Ranch
Flying J Ranch
Fort Benton Chamber of Commerce
Four D Farm & Ranch
Frenchman Valley Ranch
Funk & Potter Partnership
Funk Ranch, Inc.
FX Drilling Company Inc.
G B Coolidge Inc.
G S Producing Incorporated
Gasvoda & Sons, Inc.
GCRL Energy Ltd
Geyer Farms, Inc.
Gilmore Ranch, Inc.
Glasgow Chamber of Commerce and Agriculture, Inc.
Gleason Ranch, Spring Creek Association
Golden Organic Wheat Farms Inc.
Gordon Cattle Co.
Gordon Ranch
Gough Shanahan Johnson Waterman
Grass & Sons, Inc.
Great Northern Drilling Co. Inc.
Grieves Ranch
Griffon Petroleum Incorporated
Grimsley Ranch
H & H Farms
H & R Energy LLC
Hancock Enterprises
Hartland Colony, Inc.
Harvey Mineral Partners
Havre Area Chamber of Commerce
Hays Community Economic Development Corporation, Inc.
HD Farms, Inc.
Heart R Angus Ranch, Inc.
Helis Oil & Gas Company/Black Hawk Resources LLC
Hellies, Inc.
Hinsdale Land Company
Hinsdale Livestock Company
Hogan Lovells US LLP
Holzhey Ranch, Inc.
Homestake Oil & Gas Co
Horizon Wind Energy, LLC
Horse Ranch, Inc.
Hunter Energy, LLC
Infinite Petroleum Partners
Intermountain Leasing Inc.
Invenergy
Iofina Natural Gas Inc.
IX Ranch Co.
J & G Operating
J & J Farm & Ranch, Inc.
J Burns Brown Operating Co
J H Oil Company
Jenks Farms
JGL Farms, Inc.
Joe Driskell Ranch
Johnson Brothers Cattle Co. LLC
Johnson Ranch
JR Simplot
K & E Brothers, Inc.
K2 America Corporation
Kalanick Ranch, Inc.
KeeSun Corporation
Keil Ranch, Inc.
Kellam Investments, LLC
KGH Operating Company
Kipling Energy Incorporated
Klabzuba Oil & Gas, Inc.

Knudson Associates
L E Behm, Inc.
Lance Oil & Gas Co Inc. c/o Western Gas Resources, Inc.
Langen Ranhc
Lazy J5 Cattle Co.
Lazy JD Cattle Co.
Lazy K6 Ranch, Inc.
Lee Law Office
Lee Washburn Oil Company
Lenington Farms Corp.
Lincoln Farms, Inc.
Lincoln Gold US Corp.
Lissolo Ranch
Livingston Ranch Inc.
Lloyd Levy Consulting LLC
Lonesome Prairie Farms Inc.
Longshot Oil
Loring Hutterian Brethren, Inc.
Louie Petrie Ranch, Inc.
Lyon Oil
M & K Oil Company
M & P Henderson Brothers, LLP
M Cross Cattle Co.
Mackey Land & Livestock, LLC
Madden Fly Fishing
Malsam Ranches, Inc.
Malta Chamber of Commerce
Manewal-Bradley Oil Co.
Manx Oil Corporation
Marias River Land & Livestock
Marigold Mining Company
Mart Madsen Sheep
Martens Land & Cattle
Maxim Drilling & Exploration
McColly Ranch, Inc.
McEwen Cattle Co.
McFarland & Livestock
McIntyre Ranch, Inc.
MCR LLC
Meadow Springs Ranch
Meissner Ranches, Inc.
Mercury Exploration Co
Meridian Oil, Inc.
Merit Energy Corporation
Milan Ayers Company
Milk River Land & Cattle Co.
Milk River Outfitters
Mill Iron Ranch Company
Miller Farms, Inc./Rosehill Cattle Co.
Mitchell Ranch
Moncrief Oil
Montana Chamber Of Commerce
Montana Land & Exp., Inc.
Montana Resource Management
Montana Rural Water Systems, Inc.
Mortenson Farms, Inc.
Mountain Pacific General Inc./Taylor Well Operating Co./Two Taylor Well Operating Inc.
N Hanging 5 Ranch
Nance Petroleum Corp
NaturEner USA
Nevada High Desert Outfitters
New Bear LLC
New Nevada Resources LLC
Newfield Production Corporation
NFR Bear Paw Basin LLC
Nine Bar Six, Inc.
Noble Energy Inc.
North Harlem Colony
Northern Rockies Outfitters, Ltd.
Northland Holdings Inc.
NorthWestern Energy
NV Energy
Olsen Ranch, Inc.
Olsens Farm West, Inc.
Omimex Canada Ltd.
Owl Creek Ranch
OX Land & Livestock, Inc.
Oxarango Lamb & Wool
P & P Partnership
P Cross Livestock, Inc.
Pacer Energy LLC
Pankratz Farms
Pathfinder Energy, Inc.
Patton Land & Cattle
Peabody Natural Gas, LLC
Perino Partnership
Peterson Brothers
Petro Energy
Petro-Canada Resources (USA) Inc.
PhillCo Economic Growth Council, Inc.
Phoenix Energy Inc.
Pickrel Land & Cattle Co., Inc.
Popham/Reese Partnership
Primary Natural Resources
PT Energy LLC
Pugsley Ranches, Inc.
Questar, Wexpro Company
Quicksilver Resources, Inc.
Quinn River Crossing Ranch
R. Williams Limited Partnership
Rainbow Irrigation
Ranck Oil Company, Inc.
Redbone Outfitting
Redrock Drilling
Ree Ranch, Incorporated
Reed Lands & Livestock
Renaissance Services LLC
Retamco Operating Inc.
Rhodes Ranch
Rimrock Colony, Inc.

Rincon Oil & Gas LLC
Ritthaler Cattle Co.
River Ridge Ranch, Inc.
Robert Hawkins, Inc.
Robinson Oil Company
Rock Well Petroleum (US) Inc.
Rocky Mountain Exploration Inc.
Rocky Ridge Ranch
Roland Oil & Gas LLC
Rosetta Resources Operating LP
S & A Corporation
S Bar B Ranch Co.
S&B Industrial Minerals N.A., Inc.
Saco Chamber of Commerce
Sagebrush Outfitters
Sands Oil Company
Saunders Land & Livestock
Shadaco
Shelby Area Chamber of Commerce
Shelco
Shiloh Petro Res
Shipwheel Cattle Co.
Simmes Ranch, Inc.
Simonson Ranch, Inc.
Skull Creek A, LLC
Sky Blue Ranch, Inc.
Snider Ranch Co.
Solenex LCC
Somont Oil Co., Inc.
St Mary Land & Exploration
Stephens Energy Co LLC
Stroh and Sons, Inc.
Stuker Ranch Co.
Summit Resources Incorporated
Sunshine Valley Petroleum Corp
Sunshine Valley Ranch
Swanson Ranch, Inc.
Taft Ranch
Tavegie Ranch Co
Taylor Well Operating Co.
Terra Rossa Gold Ltd
Tesla Exploration Inc.
The Green Energy Group
Thomas Operating Company, Inc.
Three Fingers Ranch
TLE Ranch
Total Construction, Inc.
Townsend Company Inc.
Tri-State Generation and Transmission Assoc. Inc
True Oil Company
Turner Colony
Twentymile Coal, LLC
Tyler Oil Company
U2 Land, Inc.
VA Resources
Veseth & Veseth Livestock, Inc.
Viola Production Inc.
Virgelle Ventures, Inc.
VM Diamond Ranch
Wave Energy Ltd.
Weaver Cattle Co.
Welborn Sullivan Meck & Tooley, P.C.
Wenande Land & Livestock, Inc.
Western Area Power Administration
Western Natural Gas Co
Williston Basin Interstate Pipeline
Windmill Road Farm, Inc.
Windy Rim, Inc.
Wingspread West, LLC
WK Farella Ranch
Wyodak Resources Development Corp.
Wyoming Business Council
X Bar X Cattle Co.
Y 3 Cattle Co.
Yates Petroleum Corp.
Yellowstone Safari Co.
Zier Associates Ltd.

Organizations

American Petroleum Institute
American Prairie Foundation
American Prairie Reserve
American Sportfishing Association
American Wind Energy Association
Archery Trade Association / Bowhunting Preservation Alliance
Association of Fish and Wildlife Agencies
Audubon Society
Bear Paw Economic Development District
Bear Trust International
Big Horn Audubon Society
Biodiversity Conservation Alliance
Blackfeet Land Owners Association
Boone and Crockett Club of America
California Association of 4 Wheel Drive Clubs
Campfire Club of America
CBMCC
Central Montana Wildlands Association, Inc.
Coastal Conservation Association
Colorado Mining Association
Congressional Sportsmen's Foundation
Conservation Force
Defenders of Wildlife
Douglas Creek Conservation District
Ducks Unlimited
Flathead Wildlife Inc.
Foundation for North American Wild Sheep
Friends of the Missouri Breaks
Friends of the Rocky Mountain Front
Harlem Civic Association
Houston Safari Club

Inyan Kara Grazing Association
Izaak Walton League of America
Lodge Pole District Community Development Corporation
Malta Boys and Girls Club
Marias River Watershed
Montana Trout Unlimited
Montana Wilderness Association
Montana Wildlife Federation
Mule Deer Foundation
National Assembly of Sportsmen's Caucuses
National Rifle Association of America
National Shooting Sports Foundation
National Trappers' Association
National Wild Turkey Federation
National Wildlife Federation
North American Bear Foundation
North Central Montana Stockgrowers Association
Northcentral Montana Cattlewomen, Inc.
Northeasten Nevada Stewardship Group
Northern MT Oil & Gas Association
Northern Plains Resource Council
Northwest Mining Association
Nuclear Energy Institute
Oregon Farm Bureau
Orion the Hunter's Institute
Our Montana
PC Conservation District
Pew Environment Group
Pheasants Forever
Pope and Young Club
Powder River Basin Resource Council
Prairie Hills Audubon Society
Public Lands Foundation
Quails Unlimited
Quality Deer Management Association
Rocky Mountain Elk Foundation
Rocky Mountain Mineral Law Foundation
Rose Community Development Center
Ruffed Grouse Society
Safari Club International
Sage Creek Watershed
Sand County Foundation
Sierra Club Northern Plains
Mineral Policy Center
Missouri River Conservation Districts Council
Missouri River Stewards
Montana Audubon
Montana Chapter of Sierra Club
Montana Petroleum Association
Signal Butte Grazing Association
Silver Dollar Grazing Association
Sonoran Institute Northern Rockies Office
Sporting Arms and Ammunition Manufacturers' Institute
Spring Creek Grazing Association
Square Butte Grazing Association
Teton River Watershed
Texas Wildlife Association
The Nature Conservancy
The Wilderness Society
Theodore Roosevelt Conservation Partnership
Thunder Basin Grasslands Prairie Ecosystem Association
Thunder Basin Grazing Association
Thunder Basin Resource Coalition
Tordik Wildlife Foundation
Trout Unlimited
Two Rivers Economic Growth
U.S. Sportsmen's Alliance
Upper Missouri Breaks Chapter of Montana Audubon
Valley County Grazing District
Western Environmental Law Center
Western Organization of Resource Councils
Western Resources Advocates
Western Watersheds Project
White River Conservation District
Whitetails Unlimited
WildEarth Guardians
Wildlands CPR
Wildlife Forever
Women's Voices on Earth
World Wildlife Fund
Wyoming Outdoor Council
Wyoming Professional Association of Archaeologists
Wyoming Stock Growers Association
Wyoming Wilderness Association
Wyoming Wildlife Federation

List of Preparers

Core Team

Amanda L. Anderson

Education	B.S. Computer Information Systems, AAS Software Application, AAS Computer Information Technology, AAS Network Technician, GIS Certificate
Professional Discipline	GIS Specialist
Responsibility	GIS Analysis/Maps

Alicia D. Beat

Education	B.A. Sociology/Criminology, M.A. Anthropology
Professional Discipline	Archaeologist
Responsibility	Paleontological Resources

Susan Bassett

Education	B.S. Chemical Engineering, B.A. English
Professional Discipline	Air Resource Specialist
Responsibility	Air Resources and Climate Change

Susan Caplan (Retired)

Education	B.S. Meteorology, MS Air Resource Management
Professional Discipline	Physical Scientist, Air Quality
Responsibility	Air Resources and Climate Change

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Education	B.S. Zoology, M.S. Zoology and Physiology
Professional Discipline	Wildlife Biologist
Responsibility	Wildlife, Special Status Species

Josh Chase

Education	B.A. Anthropology
Professional Discipline	Archaeologist
Responsibility	Cultural Resources, Paleontology

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Education	B.S. Renewable Natural Resources
Professional Discipline	Outdoor Recreation Planner
Responsibility	Recreation, Off-Highway Vehicles and Travel Management, Visual Resources, Special Designations

Karly DeMars

Education	B.S. Range Science
Professional Discipline	Wildlands Fire Mitigation and Education Specialist
Responsibility	Fire Management and Ecology

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Education	B.A. Economics, M.S. Agricultural and Resource Economics
Professional Discipline	Regional Economist
Responsibility	Economics

Kay Haight

Education	High School Graduate
Professional Discipline	Technical Writer-Editor
Responsibility	Technical Writer-Editor

Brian Hockett

Education	B.S. Range Science
Professional Discipline	Planning and Environmental Coordinator
Responsibility	Project Manager

Kenneth Keever

Education	B.S. Crop Science/Plant Protection
Professional Discipline	Invasive Species
Responsibility	Noxious Weeds and Other Non-Native Invasive Species

Stephen Klessens

Education	B.S. Range Management
Professional Discipline	Rangeland Management Specialist
Responsibility	Vegetation – Riparian and Wetlands

Micah Lee

Education	B.S. Secondary Education, Business Education
Professional Discipline	Realty Specialist
Responsibility	Lands and Realty

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Education	B.S. Forestry, M.S. Forestry
Professional Discipline	Planning and Environmental Specialist
Responsibility	Project Manager

Craig Miller

Education	B.A. Wildlife
Professional Discipline	Wildlife Biologist
Responsibility	Wildlife, Special Status Species

Jody L. Miller

Education	B.A. Anthropology
Professional Discipline	Archaeologist
Responsibility	Cultural Resources

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Education	B.S. Natural Resource Management, M.S. Recreation Resource Management, Ph.D. Wildlife Biology
Professional Discipline	Socioeconomic Specialist
Responsibility	Social and Economics

Loretta Park (Retired)

Education	High School Graduate
Professional Discipline	Realty Specialist
Responsibility	Lands and Realty

Michael Philbin

Education	B.S. Business Economics, BS Geography - Watershed Emphasis, MS Forestry - Watershed Emphasis
Professional Discipline	Hydrology, Soils, Air, Climate, Wetlands, Fire Rehabilitation. (Hydrologist)
Responsibility	Project Reviewer

Fritz Prellwitz (Retired)

Education	B.S. Wildlife Management/Biology, M.S. Natural Resource Management - Wildlife
Professional Discipline	Certified Wildlife Biologist
Responsibility	Fisheries, Wildlife Review/Support

Thomas Probert

Education	B.S. Environmental Engineering
Professional Discipline	Hydrologist
Responsibility	Water Resources

Bruce Reid

Education	B.S. Forestry
Professional Discipline	Forester
Responsibility	Forests and Woodlands

Burk Rhodes

Education	B.S. Animal Science; M.S. Range Science
Professional Discipline	Rangeland Management Specialist
Responsibility	Livestock Grazing, Vegetation – Rangelands

Christopher Rye

Education	B.S. Geological Engineering
Professional Discipline	Geologist
Responsibility	Geology, Solid Minerals

Josh Sorlie

Education	B.S. Soils
Professional Discipline	Soil Scientist
Responsibility	Soils

Nora Taylor (Retired)

Education	B.S. Wildlife Management/Range Management
Professional Discipline	Botanist
Responsibility	Vegetation – Special Status Plants

John Thompson (Retired)

Education	B.S. Economics/Political Science; M.S. Agricultural Economics
Professional Discipline	Planning and Environmental Specialist/Economist
Responsibility	Economics

Joan Trent (Retired)

Education	B.A. Psychology, M.En. Environmental Science
Professional Discipline	Sociologist
Responsibility	Social Conditions

Kathy Tribby

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Professional Discipline	Outdoor Recreation Planner
Responsibility	Recreation, Off-Highway Vehicles and Travel Management, Visual Resources, Special Designations, Wilderness Characteristics

Wendy Velman

Education	B.S. Botany
Professional Discipline	Botanist
Responsibility	Special Status Plants

Jennifer Walker

Education	B.S. General Biology
Professional Discipline	Fire Ecologist
Responsibility	Fire Management and Ecology

Tessa Wallace

Education	B.S. Geology, M.S. Geology
Professional Discipline	Natural Resource Specialist
Responsibility	Hazardous Materials, Surface and Environmental Compliance for Oil and Gas Operations

Barney Whiteman

Education	B.S. Petroleum Engineering
Professional Discipline	Petroleum Engineer
Responsibility	Fluid Minerals

Interdisciplinary Team Support

Engineering	Carl Patten
Engineering	Ken Koncilya
Facilitation	Kaylene Patten
Planning Coordination	Kim Prill, Ruth Miller
Printing	Ann Boucher
Rangeland Management	Steve Zellmer
Renewable Energy	Renee Johnson
Transportation	Roy Taylor

Management Team

State Director	Jamie Connell
Associate State Director	Kate Kitchell
District Manager, HiLine	Mark Albers
Field Manager, Malta	Vinita Shea
Field Manager, Havre	Stanley Jaynes
Field Manager, Glasgow	Pat Gunderson
Field Manager, Great Falls Oil and Gas Field Office	Donato Judice

Contractor Assistance

Environmental Management and Planning Solutions, Inc.
3775 Iris Avenue, Suite 1A
Boulder, CO 80301

Public Comments on the Draft RMP/EIS

The Draft RMP/EIS was released in March 2013 for a 90-day public review and comment period which closed on June 20, 2013. The BLM hosted five open-house meetings in May 2013. The meetings began at 6:00 p.m. with introductions and a brief BLM presentation about the planning process and the alternatives presented in the Draft RMP/EIS. This was followed by an opportunity for attendees to review large-scale maps and talk with various BLM resource specialists one-on-one. Fact Sheets on a variety of resource topics and comment forms were available to the public, and written comments were accepted at these meetings. The meetings usually concluded at 8:00 p.m. More than 135 people attended the public meetings in the following locations:

- May 6 Glasgow
- May 7 Malta
- May 8 Havre
- May 9 Chester
- May 13 Great Falls

The BLM received 2,438 letters and emails on the Draft RMP/EIS. This includes six form-type letters. Public comment letters postmarked or emails received after June 20, 2013 were read to ensure no new issues were identified, but are not included in the comment analysis process. Actual comment submissions (letters, emails, etc.), including comments received after the public comment period, are included in the administrative record but have not been reprinted in the Proposed RMP/Final EIS.

The Responses to Public Comments section was developed through a content analysis process that involved assistance from a private contractor (Environmental Management and Planning Solutions, Inc.). When reading the letters and emails, we look for substantive comments – those that reveal new information, missing information, or flawed analysis

that would substantially change conclusions. Such substantive comments may lead to changes or revisions in the analysis or in one or more of the alternatives. Generally they:

- challenge the accuracy of information presented;
- challenge the adequacy, methodology or assumptions of the environmental or social analysis (with supporting rationale);
- present new information relevant to the analysis; or
- present reasonable alternatives (including mitigation) other than those presented in the document.

There may be many or no substantive comments in a letter. Comments that are not considered substantive include the following:

- comments in favor of or against the proposed action or alternatives without reasoning that meet the criteria listed above (such as "we disagree with Alternative E and believe the BLM should select Alternative B");
- comments that only agree or disagree with BLM policy or resource decisions without justification or supporting data that meet the criteria listed above (such as "more grazing should be permitted");
- comments that don't pertain to the project area or the project (such as "the government should eliminate all dams," when the project is about a grazing permit); or
- comments that take the form of vague, open-ended questions.

Specific comments from the six form-type letters are considered once, but not counted as votes. However, individual substantive comments provided with form-type letters are included in our analysis.

All submissions were read and specific comments were identified and coded into the appropriate resource category (ranging from Air Resources to Wildlife) along with comments pertaining to NEPA and FLPMA. The letters and emails contained over 1,000 specific comments. These comments were then assigned to the appropriate resource specialists for analysis. Substantive comments were not grouped and are shown individually in the Responses to Public Comments section.

Of the suggested studies and references brought to the BLM's attention by commenters (see below), the BLM reviewed them to determine if they: (1) presented new information that needed to be incorporated into the Proposed RMP/Final EIS; (2) were references already included in the Draft RMP/EIS; or (3) provided information the same as that already used or described in the Draft RMP/EIS. On the whole, unless otherwise noted in the Responses to Public Comments, the references provided by commenters do not present a seriously different picture of the environmental consequences than that already included/relied upon in the Draft RMP/EIS. Neither did this information, or these references present identify impacts that were not previously considered and analyzed within the spectrum of the alternatives in the Draft EIS.

Comments that were not considered substantive are summarized below.

Summary of Public Comments – Personal Opinions or Preferences, Outside the Scope

This section provides a summary of those expressions of personal opinion or preference, or comments that were outside the scope of the HiLine RMP/EIS.

Cultural Resources

- Expressed opinions or a desire for BLM to facilitate partnerships with other federal agencies, tribes and private organizations
- Supported BLM's proposed protection of culturally significant areas

Fire Management and Ecology

- Supported the use of planned fire management to aid in the restoration and maintenance of ecosystem structures and functions.

- Stated that silver sagebrush is a prolific sprouter after fire and actually increases in density as long as not burned several consecutive years.
- Offered that spring burning of silver sage would increase density and potentially improve sage-grouse habitat within low density silver sage communities.
- Stated that the plan would continue the BLM practices and policies that are setting sage-grouse habitat up for catastrophic wildfires.

Federal Land Policy and Management Act

- Thought that the DRMP did not meet the requirements of the Federal Land Policy Management Act (FLPMA).
- Stated that oil and gas development is a crucial part of the BLM's multiple-use mandate.
- Offered that BLM must recognize that not all uses need to be authorized everywhere in the analysis area in order to provide for multiple uses.
- Stated that the Federal Land Policy Management Act (FLPMA) requires the BLM "take action necessary to prevent unnecessary or undue degradation of the lands."

Fluid Minerals

- Thought that oil and gas activity should be carefully restricted.
- Believed that the Preferred Alternative could include many more conservation actions for fish, wildlife, hunting, and angling.
- Felt that specific areas (Frenchman, Shotgun Coulee, Larb Hills) should be closed to oil and gas development.
- Requested that the BLM not waive NSO provisions for oil and gas development in order to protect fish and wildlife values.
- Felt that the Preferred Alternative gives unnecessary priority to oil and gas and grazing interests, especially when compared to identified wildlife goals.
- Stated that the Preferred Alternative would further limit use, including industrial uses such as electric and gas distribution and transmission lines, on BLM-administered lands in the planning area.
- Felt that the practice of hydraulic fracturing warranted more regulation.
- Mentioned that some BLM policy as it relates to oil and gas development is outdated.

Lands and Realty

- Offered opinions for and against the use of avoidance areas for resource management.
- Thought that the restrictions placed on new energy infrastructure and facilities would potentially increase costs for industry and ultimately consumers.
- Expressed the opinion that the language used for land acquisitions was too specific and it would restrict the lands that the BLM could pursue acquiring.

Livestock Grazing

- Expressed concern regarding reductions in livestock grazing and closing of allotments.
- Disagreed with policy direction of proposed management for reserved common allotments.
- Requested grazing be modified or eliminated.
- Expressed concern over impacts of livestock grazing on wildlife and habitat.
- Felt riparian areas are not adequately protected from livestock grazing and that PFC is an inadequate tool for monitoring purposes.
- Offered their support of ranchers as good stewards of the land.
- Supported rest-rotation grazing.
- Indicated that livestock and sage-grouse can coexist.
- Expressed concern that removing livestock would increase residual vegetation thus resulting in hot fires that kill big sagebrush.
- Disagreed with establishing any grazing exclosures in riparian areas.
- Felt the Draft RMP inadequately documented the "positive" aspects of livestock grazing.
- Expressed a preference that allotments remain in active use and not be retired.
- Indicated that livestock grazing should be used as a tool for managing hazardous fuels.

National Environmental Policy Act

- Stated that the NEPA process and Draft RMP should carefully consider and incorporate the best available science on climate change and impacts to native wildlife species.
- Did not feel that the Draft RMP provides the balanced land management required by law.
- Felt that the BLM's inventory of lands with wilderness characteristics and inventory for eligible wild and scenic rivers did not satisfy NEPA's "best science" standard.
- Did not support any of the alternatives as they are drafted.
- Received requests to extend the public comment period an additional 45-120 days.

OHV Use and Travel and Transportation Management

- Requested that off- road motorized use for game retrieval be prohibited as it is impossible to enforce, leads to creation of new roads, and is unneeded.
- Is concerned that the Preferred Alternative proposes to manage only 7,481 acres out of nearly 2.4 million as nonmotorized.
- Stated that nonmotorized areas protect wildlife habitat and prevent herding of wildlife to private lands while maintaining quality traditional nonmotorized hunting experiences.
- Suggested that Alternative D be changed to allow motorized cross-country game retrieval from noon to dusk to prevent predator damage to game left overnight.
- Recommended that the BLM change the Preferred Alternative to allow motorized big game retrieval on most BLM land.
- Suggested that the BLM set up a plan to provide public access to all BLM land as directed by EO-13443.
- Stated that there are citizen groups eager to work with the BLM in marking routes and obliterating those which are illegal.
- Asked for baseline route maps to work with until management planning is completed.
- Wondered why we allow cross-country motorized travel for non-emergency uses such as administration of grazing leases but do not provide the hunting and recreating public the same latitude.
- Supports adding the Thirty Mile OHV area.
- Suggested that travel and transportation management planning in areas managed for sage-grouse protection will lead to fewer OHV opportunities and promote more wilderness designation.
- Expressed opposition to any cross-country motorized game retrieval in the Draft Plan or subsequent travel and transportation management planning.
- Stated that any cross-country motorized use will lead to an increase in invasive and noxious weeds and proliferation of trails.

Recreation

- Expressed opposition to limiting motorized game retrieval and prohibiting target practice.
- Stated that the BLM should designate ERMAs that will actively support backcountry experiences.
- Is against expanding the issuance of commercial outfitting and guiding permits on BLM lands so hunters won't have to compete with them on BLM lands.
- Would like the BLM to propose a more pro-wildlife and sportsmen friendly alternative in the Draft Plan.

Solid Minerals

- Expressed the opinion that mineral material free use permits should not be available to nonprofit organizations.

Special Designations – Areas of Critical Environmental Concern

- Stated that there is no logical reason to designate Woody Island as an ACEC.

Vegetation

- Offered opinions regarding the terminology, science and ecology of sagebrush.
- Concerned that chiseling would be used to "convert" habitat from one type to another.

- Supported BLM's proposed method for allocating increases in production resulting from land treatments.
- Opposed resting areas for two growing seasons following any major disturbance.

Wilderness Characteristics

- Believes that expansion of the Bakken development could irreversibly impact these lands.
- Expressed concern that the Preferred Alternative management of the Intact Prairie Grasslands and Island Mountain Range may not be adequate to protect the wilderness characteristics of these areas.
- Stated that WSAs warrant the level of protection consistent with their WSA designations.
- Suggested that the BLM did not consider protecting these lands in the wider context of expanding oil and gas development and loss of CRP on private lands.
- Offered that the BLM could better protect wildlife and wildlife habitat by managing all of these lands for the wilderness characteristics as suggested in Alternative B.

Wildlife – General

- Grassland Bird Species: Many species of these birds are in sharp decline, primarily due to habitat destruction by grazing. The RMP/EIS provides inadequate protections for these species, primarily due to excessive focus on livestock grazing.
- Wildlife can be killed in toxic pits as well as birds. The profiteers should not be allowed to be so extremely brutal.
- Feel that the Preferred Alternative give priority to oil and gas and grazing compared to wildlife.
- Would like the BLM to propose a more pro-wildlife and sportsmen-friendly alternative in the Final EIS and subsequent Resource Management Plan.

Wildlife – Greater Sage-Grouse

- The current borders of the Greater Sage-Grouse Restoration Areas should be expanded.
- No fire should be allowed within 15 miles of sage-grouse winter habitat.
- Livestock should not be excluded for healthy sage-grouse populations to co-exist on semiarid grasslands.
- At least one-half of the total acres that are managed by this plan should be free from the effects of grazing, including all riparian areas.
- Sage-Grouse will make it difficult to keep or reach any of the 5 Standards.
- The Wyoming Governor issued Executive Order 2011-5 that establishes guidelines for managing Greater Sage-Grouse Core Area Protection.

Outside the Scope

- Requested a discussion on the debate among scientists over whether there is a risk (or no risk) from extremely low frequency radiation.
- Suggested trading out the 112 parcels of State land inside the Upper Missouri River Breaks National Monument.
- Reported on efforts currently being explored to isolate a brucellosis-free bison population with acceptable genetics in order to establish free-ranging herds outside Yellowstone National Park.
- Felt the RMP failed to acknowledge the basic needs of the U.S. and the world's population for food.
- Stated the Government Accounting Office estimated the cost of eliminating the agencies' reported backlog of maintenance problems on public land exceeds $12 billion.
- Requested the BLM pay for third party intermediaries whenever a dispute arises.
- Recommended the BLM designate a new monument connecting the Charles M. Russell National Wildlife Refuge with Grasslands National Park in Canada.
- The Canadian Government does not have plans that are consistent with Montana's efforts to protect these birds.
- MFWP penalizes land owners under the Block Management program, who want to restrict the hunting of sage-grouse.
- The Greater Sage-Grouse Protection Priority Area should be expanded to the west to include BLM lands associated with and in close proximity to The Nature Conservancy's Matador Ranch. BLM defined the purpose of the priority area "To minimize wildlife habitat fragmentation." While this area does not meet the criteria of

containing greater than 50% BLM surface ownership, The Nature Conservancy's ownership is dedicated for conservation purposes.
- It is discriminatory against permittees that have allotments within Greater Sage-Grouse area(s) because of severe restrictions.
- Ensure there is no unauthorized control of prairie dogs on BLM lands.
- Suggested that the BLM designate Back Country Conservation Areas and suggested management strategies to protect wildlife habitat and support primitive recreational experiences.

Commenter Index

The following list in Table 5.5 displays the names of the individuals, groups, organizations, businesses and governmental agencies that submitted substantive comments on the Draft RMP/EIS and the corresponding comment letter number. Letters and emails (including form-type letters and emails) that did not contain substantive comments are not included in the index or in the Response to Public Comments section below.

Table 5.5
Commenter Index

Commenter Name	*Comment Letter Number*
Alberta Wilderness Association, Christyann Olson	0198
American Bird Conservancy, Daniel Casey	0035
American Prairie Reserve, Dick Dolan	0064
Anderson, Marie	0003
Audubon Rockies, Daly Edmunds	0069
Avian Power Line Interaction Committee, Sherry Liguori	0147
Backcountry Hunters and Anglers, Greg Monther	0184
Bailey, Jim	0008
Bateman, Guy Dean	0013
Bennett, Dan	0016
Bischke, Scott	0019
Chamberlain, Ty	0037
Conservation Congress, Denise Boggs	0025
Cunningham, Bill	0045
Datko, Karen	0046, 0275
Defenders of Wildlife, Mark Salvo	0222
DePuydt, Tom	0276
Enk, Michael	0072
Environmental Protection Agency, Suzanne Bohan	0295
Ereaux, Nancy	0074
Fidelity Exploration & Production Company, Laura Koval	0140
Flathead Wildlife, Inc., Chuck Hunt	0122, 0277
Form Letter A (Lands with Wilderness Characteristics)	0286
Form Letter B (Energy Development)	0287
Form Letter C (Wild Bison)	0288
Form Letter D (Wild Bison)	0289
Form Letter E (Management of Grassland Habitats)	0290
Foster, Aaron	0079
Friends of the Missouri Breaks Monument, Beth Kampschror	0131
Frieze, Mary	0081
Gallatin Wildlife Association, Glenn Hockett	0114
Greene, Jim	0097

Table 5.5
Commenter Index

Commenter Name	*Comment Letter Number*
Harding, Rita	0103
Hockett, Laurie	0113
Hoehn, Laura	0115
Hoitsna, Todd	0116
Holt, Jason	0118
Illi, Warren	0124
Kopec, Len	0138
Little, Pat	0150
Lund Law, PLLC, Julie Brown	0029
Madden, Elizabeth	0154
Manoukian, Mark	0083
Mari, David	0157
Montana Attorney General, Tim Fox	0181
Montana Audubon, Janet Ellis	0071
Montana Department of Environmental Quality, Misty Gable	0086
Montana Department of Environmental Quality, Robert Ray	0212
Montana Department of Environmental Quality, Stephen Carpenedo	0034
Montana Fish, Wildlife and Parks, M. Jeff Hagener	0279
Montana Petroleum Association, David Galt	0087
Montana State Historic Preservation Office, Kathryn Ore	0180
Montana Trail Vehicle Riders Association, Ramona Ehnes	0183
Montana Wildlife Federation, Gerald "Skip" Kowalski	0141
Montana-Dakota Utilities Co., Abbie Krebsbach	0142
Moody, Ron	0177
Mount Royal Joint Venture, Ernest K. Lehmann	0145
National Park Service, Denise L. Nelson	0188
National Park Service, Stephen Black	0159
National Rifle Association and Other Organizations	0191
National Wildlife Federation, Susan Scaggs	0223
Nez Perce National Historic Trail, Julie Molzahn	0174
Noble Energy Inc., Chris Rowe	0189
North Blaine County Cooperative State Grazing District, Cheryl Schuldt	0225
North Blaine County Cooperative State Grazing District, Miles Hutton	0123
Northern Plains Resource Council, Rebecca Fischer	0077
Northwest Mining Association, Laura Skaer	0234
NorthWestern Energy, Mary Gail Sullivan	0248
Nye, Barbara	0192
Olsen, Darrell	0195
Organized Sportsmen and Women, William Geer	0089
Orr, Taylor	0200
Patric, William	0202
Patterson, Phoebe	0283
Peters, Jody	0203
Phillips Conservation District, Matt Simonson	0280
Phillips County, Montana Board of County Commissioners, Richard Dunbar	0282

Table 5.5
Commenter Index

Commenter Name	*Comment Letter Number*
Prairie County, Montana Board of County Commissioners, Todd Devlin	0051, 0053, 0055, 0056, 0057, 0061
Prairie Hills Audubon Society, Nancy Hilding	0110
Reichert, Cheryl	0213
Reifschneider, Carol	0284
Richardson, Gail	0214, 0215
Robertson, Dick	0217
Rogers, Tom	0219
Rosencranz, Steve	0291
Ryshavy, Joan	0130
Schultz, Nancy	0227
Skari, Arlo	0236
South Phillips County Cooperative State Grazing District, Vicki Olson	0197
Steinmuller, David	0241
Stoneberg, Ron	0243
Stoneberg, Rose	0244
Stuker, Rich	0246
The Nature Conservancy, Brian Martin	0158
The Wilderness Society, Phil Hanceford	0102
Theodore Roosevelt Conservation Partnership, Edward Arnett	0006
Theodore Roosevelt Conservation Partnership, Hal Herring	0108
Tibbetts, Ron	0251
Tighe, Dennis	0252
Trebesch, Kay	0256
US Fish and Wildlife Service, Catherine Collins	0039
US Fish and Wildlife Service, Jodi Bush	0292
Valley County, Montana Board of County Commissioners, David Pippin	0245
Walton, Dick	0259
Weber, Sas	0263
Western Environmental Law Center, Kyle J. Tisdel	0254
Western Environmental Law Center, Matthew Bishop	0021
Western Watershed Project, George Wuerthner	0269, 0270
Western Watershed Project, Jeremy Greenberg	0096
World Wildlife Fund, Martha Kauffman	0128
Wyberg, Bryan	0271

Responses to Public Comments

This section contains the substantive comments received from individuals, groups, organizations, businesses and governmental agencies during the comment period on the Draft RMP/EIS, and the corresponding BLM responses to the comments. All public comments received were carefully considered. As described above, only substantive comments are addressed and responded to in the Proposed RMP/Final EIS. Comments such as those merely expressing approval or disapproval of a proposal without reason did not receive a response in the Proposed RMP/Final EIS. Gaps in the numbering of comment letters do not represent missing information; rather, they were determined to be form-type letters or consisted of comments that were either not substantive or outside the scope of this planning process.

Commenters can reference their names in the Commenter Index above to identify their comment letter number and the BLM responses to their comments. If the comment resulted in a change to the RMP/EIS, it is noted in the last column of the table.

Comment Letter No. – Issue No.	***Topic***	***Comment***	***BLM Response***	***Resultant Change in RMP/EIS***
0003-01	Fluid Minerals	I would encourage the BLM to add conditions of approval that companies must comply with before they can drill, especially for leases held on the prairie back country areas north of the monument. These are some of the conditions I believe you should consider: No new roads; No upgrades of existing roads; Requiring the lease holder to obliterate roads when they leave and do other meaningful restoration work on their well pads; Closing areas that are currently leased to future leasing; No surface occupancy - i.e. the lease holder can't occupy or disturb the lease surface to get at the oil and gas underneath. This would restrict the lease holder to developing the resource by drilling from outside the area. BLM could and should add these stipulations to existing leases.	Conditions of approval are developed for site-specific projects on lands that already have authorized oil and gas leases. It is at that point that the Authorized Officer prescribes the proper conditions for new roads, road upgrades, and any reclamation requirements. Appendix E.2 Oil and Gas Best Management Practices (General Conditions of Approval) highlights some of the more typical Conditions of Approval. The oil and gas leasing aspect of the HiLine RMP will determine which lands are suitable to be leased, and those lands that should be closed to leasing. Additionally, lands that are determined to be suitable for leasing will be prescribed lease stipulations that are designed to protect identified resources.	No
0006-01	FLPMA	TRCP recommends the BLM coordinate with Montana Fish, Wildlife and Parks closely to 1) ensure land use planning and habitat management objectives in the final RMP and ROD achieve and sustain the state wildlife agency's population management objectives for species like sage grouse, mule deer, and others; and 2) ensure commitments made in the proposed RMP are flexible enough to change if state needs require such management flexibility.	This topic is addressed in Chapter 1, Collaboration. Montana Fish, Wildlife and Parks is a cooperating agency for the HiLine RMP planning process.	No
0006-02	Livestock Grazing	We recommend that the BLM assess and modify their respective livestock grazing permits if needed, leases and grazing allotment management plans in the sagebrush steppe/mixed grass community and adjacent woodlands to incorporate grazing systems that provide at least 15-month of continuous rest from domestic livestock grazing once every 3 years. A less-desirable alternative would be to require immediate removal of livestock once a 35% utilization level is reached within any given year.	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern. Also refer to Appendix M, which includes the following measures: When conducting land health assessments: • Prioritize allotments that have the best opportunities for conserving, enhancing or restoring habitat for sage-grouse. • Include (at a minimum) indicators and measurements of structure/condition/ composition of vegetation specific to achieving sage-grouse habitat objectives (Doherty, et al. 2011). If local/state	No

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			seasonal habitat objectives are not available, use sage-grouse habitat recommendations from Connelly, et al. (2000b) and Hagen, et al. 2007. Include terms and conditions on grazing permits and leases that assure plant growth requirements are met, and residual forage remains available for Greater Sage-Grouse hiding cover. Utilize techniques appropriate for uplands vs. riparian/meadow areas and enhancement vs. reclamation/ restoration. Across all these types of projects consider singly, or in combination, changes as necessary: • Season or timing of use; • Numbers of livestock (includes temporary non-use or livestock removal); • Distribution of livestock use; • Intensity of use (utilization or stubble height objectives) • Kind of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats) • Class of livestock (e.g., yearlings versus cow calf pairs)	
0006-03	Wildlife-Greater Sage-Grouse	We suggest BLM utilize additional published articles and guidance, particularly the use of the Western Association of Fish and Wildlife Agencies recommendations on mule deer habitat guidance and energy development (Lutz et al. 2011), the recently approved technical review by The Wildlife Society on impacts of oil and gas development on wildlife (Riley et al. 2012), and a recent USGS synthesis of sage grouse research (Manier et al. 2013). Other relevant articles on sage grouse we did not see in the RMP include Doherty et al. (2008, 2010), Holloran et al. (2010), Kirol (2012), Naugle et al. (2011), and Walker et al. (2007).	Some of these published articles are included in the HiLine RMP/EIS, as shown in the Bibliography.	No
0006-04	Fluid Minerals	TRCP supports the 2010 DOI lease reforms and the fundamental concept of Master Lease Plans (MLPs). More recently, the DOI issued an Instruction Memorandum (IM No. 2013-142) defining a landscape-scale approach to mitigation. Recommendations: The 2010 Energy Lease Reforms should be fully implemented and we support the development of a Master Lease Plan (MLP) or plans as part of this RMP revision; When mitigation is necessary, we encourage a landscape-scale approach as presented in the newly released BLM mitigation policy and encourage BLM contemplate mitigation needs and options during the development of the final range of alternatives and ROD in accordance with its	This topic is discussed in Appendix E.1, Oil and Gas Operations. The five areas that were considered for an MLP are discussed in detail, including detailed maps and the justification as to why those areas did not warrant preparation of an MLP. Refer to Chapter 2, Fluid Minerals; Chapter 2, Wildlife; and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat.	No

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		new policy direction. Mitigation also should be coordinated with the state wildlife agency and based on established goals to meet and sustain population goals.		
0006-05	Economics	The TRCP FACTS recommendations (see attached document) and recent economic studies on the impacts of hunting, fishing and the outdoor industry on the economy (Southwick Associates 2012a, b) should be incorporated in the analysis and decision making process.	A discussion on economic contributions of outdoor and wildlife-related recreation on the state's economy has been added to the Economics section of Chapter 3 under Recreation Use. Results reported in Chapter 4 reflect estimated changes in wildlife and non-wildlife-related recreation visits under the alternatives and captures changes in hunting and fishing uses.	Yes
0006-07	Wildlife-Greater Sage-Grouse	Lek attendance declines have consistently been reported when well-pad densities exceed 1 pad/section (mi2]) and within approximately 2 mi of a lek (Naugle et al. 2011). Moreover, Naugle et al. (2011) reported that impacts to leks were most severe when infrastructure occurred near leks and were discernible out to distances of 3.8–4 mi. Disturbances from energy exploration and development activities are a major threat to the long-term stability of greater sage-grouse, and restricting or eliminating these activities within 4 mi of leks and other important habitats is the only viable solution to minimizing these threats unless other measures are taken to mitigate impacts to leks and sage grouse breeding activity.	Refer to Chapter 2, Fluid Minerals; Chapter 2, Wildlife; and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. Closed to fluid mineral leasing in Greater Sage-Grouse nesting habitat was analyzed in Alternative B.	No
0008-01	Wildlife-General	I strongly urge you to make it crystal clear that some portion of the HiLine District must be authorized for wild bison, should Montana undertake restoration in that area, and given that the size and specific location for bison restoration would be determined under NEPA. We do not want Montana to forego considering HiLine habitat for bison because BLM did not clarify its authorization in the RMP.	Additional text has been added to the "Issues Considered but Not Addressed Further" in Chapter 1 of the Final RMP/EIS under the heading "How will bison be managed?" The BLM recognizes the State's role in managing native wildlife and would work cooperatively with MFWP, USFWS, other agencies, partners, and cooperators in the development of a wild bison restoration plan. At this time, the State does not have an ongoing plan to reintroduce wild bison in the planning area.	Yes
0008-02	Wildlife-General	Pronghorn: Some winters are critical seasons for pronghorn survival. It is common knowledge that fencing in pronghorn habitat exacerbates this issue. What is less often noted is the important role that bison once played to enhance pronghorn travel, feeding and survival during periods of deep snow. Bison create feeding craters in which the smaller pronghorn can find important forage resources. Bison create trails through patches of deep snow that may be used by pronghorn, increasing their access to forage resources and reducing energy requirements for travel. Please note	Refer to Chapter 2, Wildlife, Decisions Common to All Alternatives, General Wildlife which includes the following: New fences would follow BLM specifications to allow for wildlife passage, except for fences built specifically to keep wildlife out of an area. Fences would also be placed and marked, or modified, to reduce wildlife collisions or entanglements. The relationship between pronghorn and bison in terms of feeding patterns has been added to the text in Chapter 3.	Yes

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		this relationship between the two species in your discussion of pronghorn ecology in the RMP.		
0013-01	Wilderness Character-istics	I urge the BLM to inventory Carpenter Creek, Lena Coulee, and Long Coulee for wilderness characteristics. As oil and gas leases expire on lands identified as having wilderness characteristics, manage those lands for their wilderness values. Such lands should have remediation performed when leases expire to return the lands to the condition that existed prior to them being exploited and degraded.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0016-01	Fluid Minerals	My understanding was that an oil and gas leasing EIS was to be included in the draft plan. It may be due to the difficulty of trying to piece together the fragments of analysis in the electronic copy, but I wasn't able to locate any coherent leasing EIS.	The Resource Management Plan also includes an Environmental Impact Statement (EIS). Chapter 4 of the document analyzes the environmental consequences that would occur as a result of the oil and gas leasing decisions in the Proposed RMP/Final EIS.	No
0019-03	Solid Minerals	I do not believe that the plan sufficiently protects the little Rockies. Please extend the withdrawal of the area for many beyond 2015. This place is a documented mining disaster. Please do not rely on state law to protect this area. There is no guarantee that this law from 1998 will survive the life of the RMP.	Under Alternative E (Preferred Alternative), 2,682 acres would be designated an ACEC to promote successful reclamation, protect associated infrastructure, and ensure public safety. In addition, the BLM would consider the need for a new withdrawal or right-of-way. See Alternative E (Preferred Alternative) under Special Designations, Zortman/Landusky Mine Reclamation ACEC, and Solid Minerals, Locatable.	No
0021-03	Wildlife-Greater Sage-Grouse	In the two grassland bird/greater sage-grouse priority areas BLM explains that under the preferred alternative, exploration and development for existing oil and gas leases “may be” subject to reasonable measures to minimize adverse impacts. BLM also notes that existing range improvements in these areas would “possibly” be modified to conserve, enhance or restore sage grouse habitat. More is required: BLM must subject all existing leases to measures necessary to protect greater sage-grouse habitat in these and other areas and should modify existing range improvements to conserve sage-grouse habitat. In addition, unless absolutely necessary for administrative use, no new road construction or realignment of existing routes in sage-grouse habitat should be allowed.	This topic is discussed in Chapter 2 and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. Also refer to Chapter 2, Off-Highway Vehicle Use and Travel and Transportation Management, Alternative E (Preferred Alternative), which states: “Site-specific travel planning within the Grassland Bird/Greater Sage-Grouse Priority Areas and Greater Sage-Grouse Protection Priority Area would be completed within a five (5) year period after the ROD is signed.” Those areas, along with the Little Rocky Mountains, are listed as the highest priority for travel management.	No

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0021-04	FLPMA	In the DEIS, BLM mistakenly asserts that certain areas should not be managed for certain resources because they are already protected and/or managed by other designations. A ½ mile segment of the Marias River, for instance, is eligible (free-flowing and outstanding values) but not suitable for inclusion in the National Wild and Scenic River System (NWSRS) because it is already included in the Upper Missouri Breaks National Monument and sufficiently protected. And, even though lands were identified as having wilderness characteristics (which, by the way, is not a formal designation but merely recognition of an important resource value that should be properly managed and preserved by the Agency (see section 4. below)) BLM is choosing not be manage such areas for wilderness values because, according to BLM, they area already designated ACECs, WSAs, or managed for other resources like sage grouse. BLM needs to re-evaluate this anti-layering approach.	One of the options available to BLM for managing lands with wilderness characteristics is to emphasize other multiple uses while applying management restrictions (conditions of use, mitigation measures) to reduce impacts to wilderness characteristics (BLM Manual 6320.06 A (2)). The Preferred Alternative in Chapter 2 of the Proposed RMP/Final EIS proposes this management strategy for some lands with wilderness characteristics that are located within the boundaries of other special designations. The Preferred Alternative in the Proposed RMP/Final EIS also proposes management for numerous resources, some of which include multiple designations. For example, the Bitter Creek WSA and the Bitter Creek ACEC are included in the Grassland Bird/Greater Sage-Grouse Priority Area in the Proposed RMP/Final EIS.	No
0021-05	Wilderness Character-istics	Details on BLM's inventory is supposed to be (but is not) included in the DEIS and should be made readily available to the public. BLM's guidance explains the "Affected Environment" section of the NEPA document used to support the planning decision must "describe the inventory process, summarize any information received from the public, and incorporate inventory information by reference. The NEPA document should also include a brief description of each land with wilderness characteristics, including a map delineating the boundaries of each such area and the acreage." BLM Manual 6320. The "Environmental Consequences" section of the NEPA document should "describe the direct, indirect, and cumulative effects of (1) various alternatives on lands with wilderness characteristics and (2) managing to protect lands with wilderness characteristics on other affected resources." Id	This topic is discussed in Chapter 3 under Wilderness Characteristics. The inventory forms and maps are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html.	No
0021-06	Wilderness Character-istics	The best available information, including a recent inventory from MWA, demonstrates that areas like Carpenter Creek (10,000 acres), Lena (5,679 acres), and Long Coulee (46,048) possess wilderness character and should be managed as such. BLM should therefore re-evaluate its inventory and findings for these three areas (MWA submitted a detailed inventory to BLM on June 12, 2013, documenting these three areas and other areas that have wilderness values in the HiLine District).	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E	Yes

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			(Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	
0021-07	Wilderness Character-istics	The existence of two-tracks on the landscape – unlike roads – should not disqualify an area as land with wilderness characteristics or even count as a strike against managing such lands for wilderness characteristics. Nor should other human intrusions i.e., fencing, stock ponds, that are minor and substantially unnoticeable be used to disqualify areas from being managed for wilderness character. The same is true with respect to mineral leases, ROWs, or other undeveloped interests. As stated in BLM Manual 6310, undeveloped ROWs and similar undeveloped possessory interests (e.g. mineral leases) are not treated as impacts to wilderness characteristics because these rights may never be developed.	This topic is discussed in Chapter 3 under Wilderness Characteristics. The inventory update was completed following guidance contained in IM-2011-154 and BLM Manuals 6310 and 6320.	Yes
0021-08	Wilderness Character-istics	In the DEIS, BLM explains that many of these areas would be open to oil and gas leasing. This is true for Lamere & Lambing Coulees, Phillips Black Coulee, Cumins Bench, Black Elk Coulee, and Sand Creek (approximately 87,000 acres). BLM states that it would apply management to preserve the wilderness characteristics but no details or specific stipulations or conditions of approval are provided. This is insufficient. BLM should impose reasonable measures on existing and future leases (based on new findings and the need to manage the wilderness and wildlife values) and commit not to lease these areas once the existing leases expire.	This topic is discussed in Appendix E of the Proposed RMP/Final EIS.	No
0021-09	Wilderness Character-istics	These areas [LWWCs] should also be included in a Master Leasing Plan (MLP) so that more care would be given to how these areas are managed for uses and values other than oil and gas (oil and gas should not dominate over other important resource values, including wilderness character and wildlife habitat). Including these areas in a MLP will provide an in-depth NEPA analysis on detailed closures, protective stipulations, and site-specific impacts that would come with any leasing in this sensitive area. While the HiLine RMP revision underway is expected to provide broad guidance for leasing availability and general stipulations for wildlife habitat, it will not provide the	The topic of Master Leasing Plans (MLP) is discussed in Appendix E.1 Oil and Gas Operations. As per Washington Office Instruction Memorandum No. 2010-117, to be considered for a MLP, an area must meet each of four criteria. These areas do not meet all four of the criteria to be considered for an MLP.	No

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		crucial "look before you leap" in depth analysis of the specific resource values in an area. It is important that lease stipulations ensure necessary protection of public lands already leased and that non-waivable no surface occupancy stipulations be attached to leases that could threaten important wildlife habitat or use areas, water resources, recreation areas, historic sites etc., particularly if site-specific impacts are unknown or poorly known.		
0021-10	Wilderness Character-istics	Examples of the valuable resources in the lands that should be managed and protected (via a MLP) include the following: • Lamere & Lambing Coulees (50,000 acres), 38% leased: "Many fossils and cultural resources are evident throughout the area." "The unit provides mule deer and pronghorn winter range as well as important nesting habitat for waterfowl and other grassland birds." "Sharp-tailed grouse dancing grounds and Greater sage-grouse strutting grounds can also be found in the area." • Phillips Black Coulee (8,676 acres): "This area provides important winter range for mule deer and pronghorns as well as prime nesting habitat for waterfowl and other grassland birds." "Sharp-tailed grouse dancing grounds and great sage-grouse strutting grounds can also be found her." "Other supplemental values associated with the area include prehistoric cultural resources, such as numerous habitation sites." • Cumins Bench (6,244 acres): "Big game and upland bird hunting are currently the most popular recreational pursuits in the area attracting hunters from across Montana as well as many nonresident hunters." "The unit supports a world class bighorn sheep herd. There have been several rams harvested in the area . . . Cumins Bench provides seasonal habitat for Greater sage-grouse, mule deer, pronghorn, elk, and bighorn sheep. Other supplemental values associated with these areas include numerous paleontological sites and prehistoric cultural resources…" • Black Elk Coulee (8,721 acres), 78% leased: "The area has excellent mule deer hunting opportunities…The unit supports a world class bighorn sheep herd . . .The ridge tops and benches (plateaus) on the southern end of the unit offer outstanding panoramic views of the badlands and breaks topography that is unique to the Missouri River Breaks. Cultural	The topic of Master Leasing Plans (MLP) is discussed in Appendix E.1 Oil and Gas Operations. As per Washington Office Instruction Memorandum No. 2010-117, to be considered for a MLP, an area must meet each of four criteria. These areas do not meet all four of the criteria to be considered for an MLP.	No

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		Resources, both known and unknown within the unit boundary are present and may be eligible for the National Register of Historic Places." • Sand Creek (13,299 acres): "Cultural Resources, both known and unknown with the unit boundary are present and may be eligible for the National Register of Historic Places . . . The unit is also valuable Greater Sage-grouse breeding habitat. There are 4 known leks in the unit and several others within one mile of the boundary."		
0021-11	Wilderness Character-istics	Additional protective measures in lands with wilderness character (as well as sage grouse areas, ACECs, WSAs, and other sensitive areas) include providing operators with incentives to protect large blocks of undeveloped land for wildlife habitat and wilderness values, clustering development, using timing restrictions and limitations (either as a lease stipulation or at the time of permitted), and incorporating a detailed reclamation plan. At the very least, BLM should manage all areas identified as possessing wilderness characteristics with the same level of protection afforded to such areas in the DEIS and draft RMP for the Billings Field Office. This includes: • assigning the areas a VRM II classification; • closing the areas to OHV use; • closing the areas to oil and gas (once existing leases expire) or, at the very least, only allow leasing with NSO stipulations and with no exceptions, waivers, or modifications; • protective conditions of approval for all existing and future APDs; • closing the areas to solid mineral leasing; • recommending withdrawal from all mineral entry in the areas; • closing all lands to new roads, routes, or trails; • excluding the areas from new rights-of-way (ROW); and • developing standards for the areas for additional minor protections, i.e., no new structures, firewood cutting, etc. Also, when lands identified as having wilderness characteristics are developed for oil and gas, the plan should expressly state that they will be restored and managed for wilderness values upon completion of the oil and gas drilling.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. Table 2.26 and the associated text under Alternative E in the Proposed RMP/Final EIS have been revised to better articulate the actions proposed for lands being managed to protect wilderness characteristics. The management of lands identified as having wilderness characteristics that are available for oil and gas development are currently identified in the Proposed RMP as lands managed to emphasize other resource values and multiple uses as a priority over protecting wilderness characteristics. The restoration and future management of these lands post development is beyond the scope of this document.	Yes
0021-13	Wildlife-General	BLM should also retain the Prairie Dog Towns within the 7km Complex ACEC. We recommend that the Prairie Dog Town ACEC be managed as a future restoration area. Given sylvatic plague, prairie dog towns are even more threatened than in the	The 7km Complex ACEC does not meet Relevance and Importance. Please refer the Appendix K for that discussion as well as a discussion of the Sweet Grass Hills ACEC. Habitat protection for black-footed ferrets,	No

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		past, so more dispersed areas need to be protected. We also recommend that the Sweet Grass Hills ACEC be expanded to cover more area.	black-tailed prairie dogs and mountain plovers is discussed in Chapter 2, Special Status Species.	
0021-15	Wilderness Character-istics	Existing ways in both the Bitter Creek and Burnt Lodge WSAs have already been identified and the creation of any new, user-created routes (ways, roads, or trails) since 1991 (when the WSA report was completed) is not allowed. The draft RMP for the HiLine District presents a good opportunity to analyze and compare any increases in the total number of routes in the WSAs and also evaluate increases in the amount of use. Even if the total number of ways has remained the same (which is unlikely), an increase in visitor use of the area may still impair the wilderness character of the area. In short, now is the time to carefully review, assess, and if need be make changes to the management of the two WSAs in the HiLine District.	This topic is discussed in Chapter 2 under Wilderness Study Areas. The BLM manages these areas in accordance with BLM Manual 6330.	No
0021-16	NEPA	More information is required in the DEIS in order to submit meaningful public comments. Specifically, more information is required on: (1) the existing system of routes (roads and trails) in the analysis area including the location (as depicted on a map) and total mileage of routes; (2) BLM's inventory for eligible wild and scenic rivers; (3) BLM's Section 106 of the National Historic Preservation Act (NHPA) inventory for cultural and historic properties; and (4) BLM's inventory for lands with wilderness characteristics in the analysis area.	Refer to the following sections of the Proposed RMP/Final EIS: (1) Chapter 2, Off-Highway Vehicle Use and Travel and Transportation Management, Decisions Common to All Alternatives; (2) Chapter 2, Special Designations, Wild and Scenic Rivers; and Appendix L, Wild and Scenic Rivers Report Eligibility and Suitability Determinations; (3) Chapter 2, Cultural Resources, Decisions Common to All Alternatives; and (4) Chapter 3, Wilderness Characteristics. The individual wilderness characteristics inventory updates are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html.	No
0021-18	NEPA	This proposed action may have significant, direct impacts on the area's resources, including but not limited to ACECs, WSAs, lands with wilderness characteristics, cultural and historic properties, surface water resources (rivers, streams, creeks, lakes, ponds, wetlands), groundwater resources, soils, native vegetative communities, fish and aquatic species, native wildlife, big game species (pronghorn, elk, deer (mule and white-tailed), big horn sheep), game birds (including greater sage grouse), and special status species including, but not limited to listed and candidate species for protection under the federal Endangered Species Act ("ESA") and species of concern (both	Chapter 4 of the Proposed RMP/Final EIS provides a detailed description of the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2.	No

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		federal and state). BLM, therefore, must take a hard look at the direct impacts of the revised RMP on these important resources.		
0021-19	NEPA	The drastic and alarming decline in the natural habitat and numbers of greater sage-grouse (along with other game species such as pronghorn, sharp-tailed grouse, mule deer and non-game species like plover, Sprague's pipit, badger, jack rabbit, prairie dogs, and ferrets), in particular, requires special attention. BLM must take a hard look at how the proposed action directly (and, as discussed below, indirectly and cumulatively) impacts these important natural resources. Oil and gas development and ever increasing motorized access and use of public lands has resulted in the overall loss and degradation that is putting sage grouse and other species in peril. The impacts, therefore, must be carefully analyzed by BLM.	Chapter 4 of the Proposed RMP/Final EIS provides a detailed description of the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2.	No
0021-20	NEPA	Here, the DEIS fails to properly address indirect impacts of offering widespread oil and gas development, OHV use on existing roads and trails, designating SRMAs, and authorizing livestock grazing on 2.3 million acres on the various resources of the analysis area, including but not limited to ACECs, WSAs, lands with wilderness characteristics, 19 cultural and historic properties, water resources (both surface and groundwater), fish and aquatic species, and native wildlife species (including big game, sage grouse, and special status species).	Chapter 4 of the Proposed RMP/Final EIS provides a detailed description of the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2.	No
0021-21	NEPA	BLM neglected to properly consider and analyze the cumulative effects of the proposed action. For example, in addition to the proposed action, there are a number of state, private, and other federal actions as well as natural occurrences or events taking place (or proposed to take place) in the analysis area including, but not limited to mining, oil and gas development, livestock grazing, irrigation, utility corridors, coal mining, private land development, logging and thinning (and associated developments), prescribed burning, recreation, energy development, travel planning, OHV use, climate change, and water developments. By themselves, these activities may have "individually minor" effects. A small area of wildlife habitat may be adversely affected by oil and gas activities or fragmented by existing routes. Lands with wilderness characteristics may be harmed by the sounds of an oil and gas rig or pre-existing mining	Chapter 4 of the Proposed RMP/Final EIS includes the cumulative impacts analysis, which is addressed in the environmental consequences for each resource and summarized at the end of each section. The cumulative impacts assessment prepared for each resource accounts for past, present, and reasonably foreseeable future actions that are relevant to determining the significant adverse impacts of the alternatives.	No

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		operation, scarred by a new system route, or dissected by pasture and allotment fences. Individually, each of these incidents – though serious – may not rise to the level of posing a significant risk to the area's wilderness character or wildlife habitat. Collectively, however, the impacts of all of these and other activities – whether conducted by private individuals, state agencies, or other federal agencies – may be significant and must be analyzed.		
0021-22	NEPA	Careful review of the various alternatives reveals there are very few differences between the various options. All alternatives, for instance, set aside large areas for oil and gas development with many of the same lease stipulations and conditions of approval. No alternatives explore various ways to provide protections and mitigation for wildlife during the leasing or permitting process, i.e., incentives to protect large blocks of undeveloped land for wildlife habitat and wilderness values, clustering development, using timing restrictions and limitations (either as a lease stipulation or at the time of permitted), and incorporating detailed 21 reclamation plans. Nor does the DEIS explore alternatives that to seek to revise conditions of approval for applications for permits to drill (APDs) based on updated scientific information. The same is true with respect to livestock grazing (all alternatives authorize over 2.3 million acres as open for grazing) and travel planning.	Five alternatives are presented in Chapter 2 of the Proposed RMP/Final EIS for managing the HiLine District to meet the purpose and need, the vision and management goals, and to address the issues discussed in Chapter 1. For more detailed discussions of various approaches to mitigation of impacts from oil and gas development, and grazing, refer to Appendices C, E.2, H, M.1 and M.4.	No
0021-24	Cultural Resources	The DEIS includes some detailed information on cultural and historic properties in the analysis area and notes that as of July, 2007 a total of 9,827 cultural sites were recorded in the planning area. It is, however, unclear whether BLM's findings are based on a Class I, II, or II inventory. BLM does reverence a "field inventory" conducted in the Fresno and Glasgow OHV areas but no specific information is provided. BLM as references a 2007 study (Walker-Kuntz) but again, no specific information on how cultural and historic properties were identified as part of the 2007 is provided. It appears that some parts of the analysis area have been inventoried at various times but more information is needed. Based on information provided in the DEIS it appears that BLM: (1) does not consider the RMP to be an undertaking triggering the need to conduct a new Class I literature	The cumulative number of cultural resource locations mentioned in the Final EIS is a product of all three Classes of Inventory (I, II, III) reviewed and compiled over the last 50 years. See Chapter 2, Cultural Resources, Decisions Common to All Alternatives. Specific cultural resource information is restricted and not open for public distribution. See National Historic Preservation Act NHPA, Section 304 (16 U.S.C. 470w-3) as well as 36 CFR 800.11 (c)(1). Both the Fresno and Glasgow OHV areas have been intensively inventoried to Class III standards for the presence or absence of cultural resources. See Chapter 4, Cultural Resources, Impacts under Alternative E (Preferred Alternative), OHV Use and Travel and Transportation Management. No NRHP eligible or unevaluated sites are	No

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		review and Class II and Class III inventories now; (2) only commits to doing additional inventories if new surface disturbance occurs; and (3) has not undertaken a Class II or Class III inventory before authorizing various, site-specific activities within the analysis area. BLM's approach is inconsistent with the NHPA, the implementing regulations, and BLM's own guidance.	within the confines of the designated OHV areas.	
0021-25	Cultural Resources	Not enough information is provided in the DEIS to properly assess NHPA compliance. Second, the proposed action (or at least certain aspects of it) qualify as an undertaking triggering the need –now – to undertake a reasonable and good faith effort to identify cultural and historic properties. For example, the proposed action includes designating specific areas for OHV use. This is clearly an undertaking that will result in increased surface disturbance. Third, authorizing new surface disturbing activities is not a pre-requisite to qualify as an undertaking. According to BLM's own guidance, where there is a reasonable expectation that a proposed designation will shift, concentrate or expand travel into areas where historic properties are likely to be adversely affected a Class III inventory is required prior to designation. BLM's decision to concentrate OHV use in certain areas, therefore, triggers the need for a Class III inventory.	Both the Fresno and Glasgow OHV areas have been intensively inventoried to Class III standards for the presence or absence of cultural resources. See Chapter 4, Cultural Resources, Impacts under Alternative E (Preferred Alternative), OHV Use and Travel and Transportation Management. No NRHP eligible or unevaluated sites are within the confines of the designated OHV areas.	No
0021-26	OHV Use and Travel and Transpor-tation Mgmt	BLM never analyzes the direct, indirect, and cumulative impacts of this approach on the various resources in the analysis area, including but not limited to lands with wilderness characteristics, ACECs, WSAs, native wildlife (including but not limited to, big game habitat and sage grouse habitat), soils, cultural and historic properties, and water resources. Important security areas for big game species, for instance, will continue to be carved up under BLM's hands off approach. Second, no effort is made to inventory, document, and map the "existing" system of routes in the analysis area. As such, it is impossible for BLM to analyze the impacts of such routes (and for the public to comment on the impacts of such routes) in the absence of a comprehensive inventory documenting and mapping all existing routes in the analysis area. And, as BLM concedes, the "baseline" condition will	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, Decisions Common to All Alternatives. Cumulative effects are discussed in Chapter 4 under various resources. The text was clarified in Chapter 3, OHV Use and Travel and Transportation Management in response to this comment.	Yes

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		continue to change and likely get worse before a future travel plan is adopted (OHV use is on the rise). Third, as per Tri-State, no new user-created routes were to be created in the analysis area. Motorized use was to be restricted to existing routes that existed in 2003 (when the ROD was signed), subject to a few exceptions. BLM, however, has taken no steps to document the existing system of routes that existed in 2003. Nor is BLM attempting to do so now. What is preventing members of the public from creating new "existing" routes in the analysis area prior to adoption of the RMP and any future travel plan? And, how will BLM even know such routes are "new" given that lack of a comprehensive inventory? Indeed, in the DEIS, BLM concedes that the number of "existing" routes may change prior to completing a travel plan for the region. This is a violation of NEPA, Tri-State, E.O. 11644, and 43 C.F.R. § 8342. Fourth, the draft RMP does authorize OHV use areas but there is no evidence in the DEIS or draft RMP that BLM considered and applied the minimization criteria (outlined above) when making this decision. This is a violation of E.O. 11644 and BLM's implementing regulations. Fifth, BLM should designate a system of routes (roads and trail) and not leave it up to whatever may be perceived as an "existing" route. As mentioned above, these routes should be depicted on a map and undergo a NEPA and minimization criteria analysis. BLM should also determine where lands fall on the Recreational Opportunities Spectrum (ROS). Managing an area as semi-primitive or even semi-primitive motorized, might help when lay the ground work for future travel planning. Finally, BLM should not postpone completing a travel plan for the analysis area. In fact, BLM should have included travel planning for the entire analysis area in the DEIS and draft RMP because, in effect, it is designating a system of routes open to motorized use (just without any details about what the system is or an end date). In the absence of any travel planning, the BLM should, at a minimum, limit motorize travel to designated routes in areas where a wilderness inventory has been conducted.		

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		Through the 2011 wilderness inventory process, BLM has already identified existing routes and no new vehicle routes should be created before the travel planning process begins, which probably will not be completed for many years.		
0021-27	OHV Use and Travel and Transpor-tation Mgmt	If BLM is going to defer travel planning until after a ROD approving the new RMP is signed, we recommend the Agency initiate the planning and NEPA process for a travel plan as soon as practicable to avoid the creation of additional "existing" routes and further harm and impacts to the region's resources.	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, Decisions Common to All Alternatives. Cumulative effects are discussed in Chapter 4 under various resources. The text was clarified in Chapter 3, OHV Use and Travel and Transportation Management in response to this comment.	Yes
0021-28	OHV Use and Travel and Transpor-tation Mgmt	Other areas, including the Marias River and North Missouri Breaks areas are classified as lower priorities and BLM will only commit to get travel planning down within the life of the RMP (15-20 years). This does not meet the standards set out in current BLM policy guidance. BLM must commit to completing the travel network for the entire area over the next 5 years and should prioritize more areas, such as special designations, for completion sooner.	Travel planning will be done in accordance with BLM Handbook 8342 with highest priority given to travel planning areas containing critical resources. Each travel planning area within the HiLine District will be managed according to the 2003 OHV Record of Decision until comprehensive travel and transportation management planning can be completed for that area.	No
0021-29	OHV Use and Travel and Transpor-tation Mgmt	BLM must immediately close any areas where the agency finds that off-road vehicles are or will cause considerable adverse effects upon natural or cultural resources. 43 C.F.R. § 8341.2. BLM has policy guidance describing how RMPs and travel plans should address temporary closures including defining thresholds for when OHV related closures will take place. BLM should issue temporary closures for any area where OHVs are currently harming or may harm natural or cultural resources in the interim period before BLM can designate the appropriate travel network.	This issue is discussed in Chapter 2, OHV Use and Travel and Transportation Management, Off-Highway Vehicle Use.	No
0021-30	Special Designa-tions-Wild and Scenic Rivers	Missing from the DEIS, however, is the actual inventory documenting the standards and methods used and how the Agency reached its determinations for these river segments. The public does not know why specific rivers and streams (or segments thereof) were deemed not to possess outstanding remarkable values. BLM's determination that, but for a ½ mile stretch of the Marias (deemed unsuitable), no rivers and streams in the entire analysis area include outstandingly remarkable values is dubious. But as it now stands, the DEIS does not provide enough information to assess whether the Agency's inventory for eligible wild and scenic rivers was thorough, comprehensive, and consistent with the WSRA. The actual inventory is not	This topic is discussed in Appendix L of the Proposed RMP/Final EIS.	No

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		provided, only the results of the inventory. In order to submit meaningful public comment on the DEIS, the BLM must provide the inventory of eligible rivers and explain its methodology for identifying eligible rivers.		
0021-31	Special Designa-tions-Wild and Scenic Rivers	BLM, therefore, needs to go back – under the appropriate standard for eligibility – and reevaluate all rivers within the analysis area. Particular attention should be placed on rivers that have both ecological, fish and wildlife, and historic/cultural values – in particular those areas inhabited and/or used by Native Americans and the Lewis & Clark expedition.	This topic is discussed in Appendix L of the Proposed RMP/Final EIS.	No
0025-01	Wilderness Character-istics	The Conservation Congress supports wilderness acreage for all of the 386,428 acres that qualify as wilderness. The BLM has not provided any legitimate rationale for recommending a paltry 11,000 acres for wilderness designation. If these lands were all designated wilderness they would provide prime wildlife habitat for a host of species including sage-grouse and free roaming bison. They would also be available to the public for hiking, backpacking, hunting, fishing, etc. While the headwaters of Timber Creek are spectacular, so are the Frenchman's Creek Breaks and other areas identified - along with the already existing Bitter Creek WSA. Just north of the Bitter Creek WSA is the Canadian Grasslands National Park which would provide for good connectivity of habitat.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0027-27	FLPMA	Executive Order 12630 requires that federal government actions which may result in a taking of private property must undergo a takings analysis prior to implementation. Executive Order 1263o, 62 Fed. Reg. 48, 445 (Governmental Actions and Interference with Constitutionally Protected Property Rights (1988)) (stating that "governmental actions that may have significant impact on the use of value or private property should be scrutinized to avoid undue or unplanned burdens on the public.") The BLM has failed to complete a takings analysis.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria. Impacts from the management alternatives considered in the RMP are analyzed in Chapter 4 of the Final EIS developed in accordance with regulations at 43 CFR 1610 and 40 CFR 1500.	No
0029-02	Livestock Grazing	The BLM assumed that removing livestock from the landscape would be necessary on allotments. DRMP/DEIS Ch. 2 at 68. However, based on research removing livestock is not necessary for sage grouse. Exhibit A — M. M. Rowland, Effects of Management Practices on Grassland Birds: Greater Sage Grouse, Northern Prairie Wildlife Research Center Online (2004).	No such language is found in Chapter 2, Livestock Grazing.	No

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0029-05	Livestock Grazing	The BLM plans on cutting 47,000 acres from livestock grazing use, However, there is inadequate or no review, analysis, or research on how this drastic cut in livestock grazing will impact the cultural, economic and social effects. Further, this area has been used for livestock grazing for more than 120 years, which would mean that the cut in livestock grazing would also have a negative effect on the historic use of the area. DRMP/DEIS Ch. 4 at 514.	The Little Rocky Mountains 05630, Whitewater Lake 05068 and Cree Crossing 05302 Allotments (approximately 47,000 acres) have been categorically closed to livestock grazing since the 1970s. This resource management plan makes it possible to use livestock grazing as a tool to manage the Little Rocky Mountains and Whitewater Lake Allotments for resource conditions, therefore making grazing use possible on areas that were previously unavailable. See Chapter 2, Livestock Grazing, Alternative E (Preferred Alternative). Chapter 4, Livestock Grazing, Impacts Common to All Alternatives, Livestock Grazing, has been revised to clarify that the [approximately] 47,000 acres not available for livestock grazing is comprised of the three allotments referenced above.	Yes
0029-06	Social	Some of the farmers and ranchers with private land included in the DRMP are third and fourth generation farmers and ranchers, and many others have lived in the area the majority of their lives. The proposed management plan will impact these people's ability to make a living, thereby destroying the ranching culture of the area. The limited access will also preclude them from enjoying their traditional family activities. The area included with DRMP includes counties with a declining population and tax base, and an older, more poverty stricken population. Additionally, as the tax base and tax revenues dwindle, funding to the local schools will dwindle, which will also hinder these families' ability to raise their children in the area. The BLM should have taken the required steps to preserve the cultural heritage of ranching in the area covered by the DRMP.	The Social section of Chapter 4 includes discussion about impacts on ranchers. The Economics section of Chapter 4 includes discussion about impacts on the local economy.	No
0029-07	NEPA	The relevant information or impacts that the BLM failed to consider include but are not limited to: • the historical and current information detailing the cultural heritage of ranching in the impacted area; • the impacts of layers and layers of regulation (Wild and Scenic River designation, Wilderness Study Area designation, the neighboring Charles M. Russell Wildlife Refuge designation, the Missouri River Monument, Designation of Areas of Critical Environmental Concern, and so on) that already exist and which are being planned, all of which negatively affect the historic, cultural, economic, and social	Historic and current information on farming and ranching in the planning area is included in Chapter 3, Cultural Resources, Historic Overview, Farming and Ranching; and in Chapter 3, Economics, Livestock Grazing and Production. Chapter 4 provides a detailed description of the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2. The cumulative impacts analysis is addressed in the environmental consequences for each resource and summarized at the end of each section in Chapter 4.	No

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		environment attached to the area; • the DRMP limits all pipelines, phone lines, cell towers, electrical lines, and the like; but, there is no analysis of these limitations and their impact on local communities and economies. Furthermore, this exclusion forces all such linear projects on to private land without an adequate cumulative impacts analysis.		
0029-08	Economics	There are instances where the alternatives could affect grazing. However, the DRMP/DEIS makes no attempt to quantify any potential impacts to grazing. Equally important, the DRMP/DEIS does not provide any sort of comparison of the economic costs among the alternatives with regard to the impacts on grazing. The economic analysis shows economic impacts from natural gas exploration and development. However, the BLM still has not provided any analysis quantifying the potential impacts to ranching. The DRMP does not even mention grazing or any other natural resource as important. All the DRMP refers to is decreasing grazing whether it be retiring allotments because of sage grouse issues or fictitious water quality issues that vilify livestock with no monitoring proof. The DRMP, Ch. 4 at 457, states that the amount of livestock grazing would be relatively unchanged, but the whole document refers to decreases in AUMs, increases in standing un-harvested vegetation, and increased fuel loads that are the result of decreases in AUMs for livestock grazing. Though the DRMP states, "The dependency of the local economy on the livestock industry, timber production, mining, and recreation activities would not be affected by BLM resource management;" the DRMP does not provide any further analysis of the economic impacts. DRMP/DEIS Ch. 4 at 457. The BLM acknowledged that agriculture was the second largest industry in the planning area. DRMP/DEIS Ch. 4 at 457. However, the DRMP sets up processes to cut livestock grazing in the future, and then the DRMP does not further address how this loss in AUMs will impact the socioeconomic condition of the counties. Basically, there is no analysis of the specific local impact on the communities, towns and individuals affected by the DRMP. Furthermore, it is widely recognized that	The economic impacts in terms of local jobs and income associated with grazing on BLM land within the planning area are discussed in the Economics section of Chapter 4. The economic contributions of current livestock grazing, and grazing levels under the alternatives have been updated in the Proposed RMP/Final EIS.	Yes

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		grazing permits have value which is capitalized into the value of a ranch. L. Allen Torell & John P. Doll, Public Land Policy and the Value of Grazing Permits, 16 W. J. AG. ECON. 174, 175 (1991). Increasing restrictions on livestock grazing on the Federal Allotments decreases the value of the permit, and thereby the value of the ranch to which the permit is attached which, in turn, could impact property tax values. Moreover, the preference right itself is often subject to taxation. Frank J. Falen & Karen Budd-Falen, The Right to Graze Livestock on the Federal Lands: The Historical Development of Western Grazing Rights, 30 Idaho L. Rev. 505, 511 (1993-1994). A decrease in the value of the preference right will therefore decrease the amount of taxes that are generated. The BLM's data is not based on the actual county economics and is insufficient to support the changes in the DRMP. In summary, the BLM's economic analysis is deficient because it provides no data to indicate that the BLM actually did any analysis showing the impact that the alternatives would have on ranching, local communities, towns or the other individuals impacted by the DRMP. While acknowledging that the various alternatives could increase costs or reduce income to ranchers, the BLM makes no attempt to quantify these costs, or even to provide a comparison of the relative costs associated with implementing different alternatives. Also, much of the data added in the DRMP is not on point, is speculative, is not timely and provides no detailed economic analysis of the specific impacted area. Clearly, the BLM has failed to follow NEPA's requirement to "assess and discuss the secondary [socio-economic] effects of the project in question." Stop H-3 Ass'n v. Dole, 740 F.2d 1442, 1461 (9th Cir. 1984).		
0029-09	Air Resources	Some examples of the BLM's failure to meet data quality standards include: • The information contained in Ch. 3 at 255-256 of the DRMP/DEIS, related to temperature, was cherry picked to leave out years in the 1930s that were very hot and would throw off the desired curve.	The BLM summarized data from a published report from the National Oceanic and Atmospheric Administration (NOAA). The time frame was determined by NOAA.	No
0029-11	Livestock Grazing	Throughout the DRMP/DEIS, the BLM has established more onerous standards and will now require permit renewals to go through the NEPA process, which will likely lead to a reduction in livestock, which will only increase the dead vegetation that will lead to	The text referred to in the first bullet statement is from Impacts under Alternative A (Current Management). See Chapter 2, Vegetation – Rangeland, Alternative E (Preferred Alternative).	No

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		hot fires. Hot fires kill big sagebrush. The BLM states that big sagebrush is sage grouse habitat. Therefore, it seems that the data and science do not add up. In Ch. 4 at 467 of the DRMP/DEIS, the BLM is requiring a two-year rest after a fire. However, this requirement is totally false according to USDA research. Exhibit B — Lance Vermeire, Challenging Taboos in Fire and Grazing Management, Soil and Water Conservation Society (2006). In Ch. 4 at 671 of the DRMP/DEIS, the BLM states that livestock grazing is bad for sage-grouse, which is not an accurate statement based on science. See Exhibit A.	Regarding the second bullet statement, no text is found on p. 671 of the Draft RMP/EIS stating that "livestock grazing is bad for sage-grouse."	
0029-14	OHV Use and Travel and Transpor-tation Mgmt	The BLM is not supposed to increase or decrease the ability of Montana to manage fish and wildlife. However, in contrast to that stated goal, under the DRMP the BLM is planning to limit hunter and game warden ability for vehicular travel that allow hunters to reach big game hunting and fishing areas. If hunters cannot reach the game, they will not be able to harvest it, which means that Montana will be less able to manage the numbers of big game. The BLM has not considered how its transportation plan will negatively impact hunting. Access to game hunting areas is key to game harvest and retrieval in the rugged terrain of the areas included within the DRMP. In fact, promotion of public access to hunting is a top priority for the State's game management officials and continues to be a huge public interest issue in Montana. By reducing hunter access, the BLM adversely impacts the State's ability to achieve game harvest goals and significantly detracts from the BLM's ability to manage habitat. Game harvest is a key tool in keeping game herds in balance with forage consumption goals. Reducing hunter access compromises both the State's and the BLM's abilities to keep game animals in balance with the carrying capacity of the habitat. Access is key to game harvest success. Failure to protect access and allow enough game harvest forces grazing consumption goals to be borne by domestic livestock producers and could easily result in reducing livestock AUMs.	Off-road game retrieval is discussed and analyzed in Chapters 2 and 4 under OHV Use and Travel and Transportation Management, Alternatives C and D. Public access is discussed in Chapter 2, Lands and Realty, Access, Decisions Common to All Alternatives. The text in Chapter 2 Decisions Common to All Alternatives has been clarified in response to this comment.	Yes
0029-15	Wildlife-Greater Sage-Grouse	The BLM's actions as listed in the DRMP do not follow the State's plan. While the Montana plan does suggest avoiding the placement of salt near leks during breeding	The *Management Plan and Conservation Strategies for Sage Grouse in Montana* was reviewed and is include in the bibliography.	Yes

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		season and avoiding supplemental winter feeding on crucial winter habitat, it does not go so far as to suggest conservative stocking levels to avoid concentrations of livestock. The DRMP should follow the 2005 Management Plan and Conservation Strategies for Sage Grouse in Montana which recognizes that "properly managed grazing can stimulate growth of grasses and forbs, and thus livestock can be used to manipulate the plant community toward a desired condition." See 2005 Management Plan and Conservation Strategies for Sage Grouse in Montana at 55 (available at https://fwp,mt.gov/fwpDoc.html?id=31187) (last accessed June 4, 2013).	The proposed Greater Sage-Grouse conservation measures and management actions are based on the best available science. Refer to Chapter 2, Greater Sage-Grouse Habitat Management, Appendices C and M, and the associated references and literature cited in the Proposed RMP/Final EIS.	
0029-18	Economics	The agency has failed to adequately outline the quantitative and qualitative economic impacts on the private sector. Similarly, the economic analysis is completely void of any quantitative or qualitative costs and benefits to the State and local governments from imposition of the DRMP. The economic analysis section does note that the costs of managing the area may change under the RMP; however, there is no assessment of any impact to State or local governments. Clearly, this fails to meet the requirements of the UMRA (Unfunded Mandates reform Act). The UMRA additionally requires that the agency estimate the future costs of complying with the federal mandate, as well as any disproportionate budgetary effects upon State or local governments or particular segments of the private sector. 2 U.S.C. § 1532(a)(3). Nowhere in the DRMP does the BLM provide such an estimate. As stated in the section on economic analysis, the costs of complying with the DRMP would significantly impact the local tax base (due to decreases in ranch values, decreased revenue from natural gas operations, and a decrease in the tax base due to BLM land acquisitions). This would, in turn, significantly impact local communities, and particularly school districts, whose budgets are already struggling to meet the requirements of the No Child Left Behind Act. Furthermore, the BLM failed to provide an analysis of the budgetary impact to local communities from having to provide increased emergency services on the DRMP lands.	Effects to state and local government from management actions under the alternatives can be found in Chapter 4, Economics, Impacts Common to all Alternatives. Changes in government revenue can be found in Table 4.35 and 4.36, annual average federal, state and county revenues by alternative. Additional text has been added to the Proposed RMP/Final EIS to show employment and income by sector, showing contributions to government and other private sectors.	Yes
0029-19	FLPMA	The UMRA requires that the BLM "enable officials of affected small governments to provide meaningful and timely input in the	This topic is addressed in Chapter 1, Collaboration.	No

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		development of regulatory proposals containing significant Federal intergovernmental mandates" and "inform, educate, and advise small governments on compliance with the requirements." 2 U.S.C. § 1533(a). While the county governments were included as cooperating agencies in the development of the DRMP, the BLM has completely ignored the concerns of these local governments, thereby preventing them from providing meaningful input into the process. For example, the BLM ignored a request for more time for the public to provide comments on the DRMP.	At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	
0029-20	FLPMA	The Regulatory Flexibility Analysis Act, 5 U.S.C. Â§ 6o1 et seq., requires the BLM to perform an analysis on whether the approach outlined in the DRMP is the most flexible necessary to meet the goals. This analysis has not been done, which means the public, including my clients, have not had the opportunity to comment based on legally mandated analysis by the BLM.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria. Impacts from the management alternatives considered in the RMP are analyzed in Chapter 4 of the Final EIS developed in accordance with regulations at 43 CFR 1610 and 40 CFR 1500.	No
0029-21	FLPMA	Pursuant to 5 U.S.C. § 804(2), the BLM was supposed to determine whether the DRMP would negatively impact small businesses in the area. This analysis was not done.	The impacts to small businesses of implementing the various alternatives are discussed in Chapter 4, Economics.	No
0029-22	FLPMA	Executive Order 12866 requires the BLM to have the Office of Management review all significant rules and regulations. This analysis has not been done.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria. Impacts from the management alternatives considered in the RMP are analyzed in Chapter 4 of the Final EIS developed in accordance with regulations at 43 CFR 1610 and 40 CFR 1500.	No
0029-23	FLPMA	Executive Order 13211 requires that the BLM analyze how this DRMP would impact energy needs in the United States. This analysis has not been done.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria. Impacts from the management alternatives considered in the RMP are analyzed in Chapter 4 of the Final EIS developed in accordance with regulations at 43 CFR 1610 and 40 CFR 1500.	No
0029-24	FLPMA	Executive Order 13132 requires that the BLM provide a federalism analysis. This analysis has not been done.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria. Impacts from the management alternatives considered in the RMP are analyzed in Chapter 4 of the Final EIS developed in	No

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			accordance with regulations at 43 CFR 1610 and 40 CFR 1500.	
0029-25	FLPMA	Executive Order 12988 requires that the BLM analyze the impact of the DRMP on civil justice. This analysis has not been done.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria. Impacts from the management alternatives considered in the RMP are analyzed in Chapter 4 of the Final EIS developed in accordance with regulations at 43 CFR 1610 and 40 CFR 1500.	No
0029-26	Social	Executive Order 12898 requires the BLM to analyze the impact of the DRMP on low-income citizens. As found in the DRMP, many of those in the area impacted by the DRMP are lower income citizens. The BLM has not done the necessary analysis on how the DRMP negatively impacts those people, as required.	The section on Environmental Justice, which corresponds to Executive Order 12898, has been revised and based upon the criteria identified only Glacier County is identified as a low-income environmental justice population for consideration in the HiLine RMP. See Chapter 4, Social, Impacts Common to All Alternatives, Environmental Justice, which states, in part, that during the course of this analysis, no alternative considered would result in any identifiable disproportionate effects specific to any minority or low income population or community.	Yes
0029-28	Cultural Resources	Pursuant to this Act, 16 U.S.C. §§ 470-470x-6, the BLM was supposed to consult with the local governments impacted to determine whether the DRMP would adversely affect historic property. This consultation has not occurred.	See Chapter 5, Consultation and Coordination, Cooperating Agencies, for a list of local governments that were invited to participate and have participated in the RMP process.	No
0029-29	NEPA	Pursuant to this Act, the BLM was supposed to coordinate with local governments. See 16 U.S.C. §§ 2003(b), 2008. As already explained, the BLM has failed to adequately coordinate with local governments.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria. Impacts from the management alternatives considered in the RMP are analyzed in Chapter 4 of the Final EIS developed in accordance with regulations at 43 CFR 1610 and 40 CFR 1500. This topic is also addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No

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0029-30	FLPMA	Executive Order 12866 states that, "[t]he American people deserve a regulatory system that works for them, not against them: a regulatory system that protects and improves the health, safety, environment, and well being and improves the performance of the economy without imposing unacceptable or unreasonable costs on society; regulatory policies that recognize that the private sector and private markets are the best engine for economic growth; regulatory approaches that respect the role of state, local and tribal governments; and, regulations that are effective, consistent, sensible, and understandable." Pursuant to this Executive Order, the agencies were supposed to seek input from local governments, minimize the regulatory burdens, and harmonize federal regulatory actions with related state, local and tribal regulatory functions. Again, the BLM has not met the requirements in this Executive Order.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria. Impacts from the management alternatives considered in the RMP are analyzed in Chapter 4 of the Final EIS developed in accordance with regulations at 43 CFR 1610 and 40 CFR 1500.	No
0029-31	FLPMA	The BLM Has Violated the Resource Conservation Act of 1981 Pursuant to this Act, 16 U.S.C § 3451 et seq., the BLM was supposed to coordinate with local governments. As already explained, the BLM has failed to adequately coordinate with local governments.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria. Impacts from the management alternatives considered in the RMP are analyzed in Chapter 4 of the Final EIS developed in accordance with regulations at 43 CFR 1610 and 40 CFR 1500. This topic is also addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No
0034-01	Vegetation	Page 44 Table 2.3 Oil and Gas Lease Stipulations by Alternative - Water, Riparian, Wetland and Floodplains: for CSU I am concerned about the allowance for improvement of riparian/wetland areas. How would this be regulated, and how would the functionality be determined? It is quite possible for an intact wetland system it is functioning properly for its landscape position, soils, and hydrology and so	See Chapter 2, Vegetation – Riparian and Wetland, Decisions Common to All Alternatives. In addition, Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under Alternative E (Preferred Alternative), includes the following stipulations for Water, Riparian, Wetland, and Floodplains resources:	Yes

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		improving the functionality of one aspect (for example hydroperiod) could actually degrade the system and convert the wetland to another wetland type all together.	– Surface occupancy and use is prohibited within perennial or intermittent streams, lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas (NSO). – Surface occupancy and use would be controlled within 300 feet of riparian and/or wetland areas. Surface-disturbing activities would require a plan with design features that demonstrate how all actions would maintain and/or improve the functionality of riparian/wetland areas. The plan will address: (a) potential impacts to riparian and wetland resources, (b) mitigation to reduce impacts to acceptable levels (including timing restrictions), (c) post project restoration, and (d) monitoring (the operator must conduct monitoring capable of detecting early signs of changing riparian and/or wetland conditions) (CSU).	
0034-02	Vegetation	Page 61 - 63 Avoidance areas in Alternatives B - E: In these areas wetlands are no longer considered as avoidance areas nor are they mentioned as in exclusion areas. Riparian areas, with unique values only, are mentioned as exclusion areas. As dictated by the federal clean water act, jurisdictional, wetlands should be avoided first and foremost, the State of Montana echoes this and avoidance of wetlands and riparian areas, regardless of uniqueness, should be included.	See changes to Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Alternatives B-E, Avoidance Areas. Potential disturbance of wetlands will be evaluated on a case-by-case basis. Per the applicant-committed mitigation measures, the applicants will evaluate all project facility sites for occurrence and distribution of waters of the U.S., special aquatic sites and jurisdictional wetlands, and will locate all project facilities out of these sensitive areas. If complete avoidance is not possible, impacts will be minimized through modification and minor relocations.	Yes
0034-03	Vegetation	Page 137 Objectives and goals – Is it not a goal to ensure healthy and proper function condition of wetlands within site or ecological capability? I am not sure if wetlands are purposefully left out or if Riparian areas are considered as a catch all for wetland areas as well. This is consistent throughout the document. At a minimum in the objectives, the third objective "maintain, restore and improve riparian areas…" wetlands should be included in this objective. And unless it is purposeful that only riparian areas are included you should maintain the working language of "riparian and wetland areas".	See revisions made in Chapter 2, Vegetation – Riparian and Wetland, Goals and Objectives.	Yes
0034-05	Vegetation	Page 139 Alternatives B and E: Please explain "what alternative water developments may be developed in these areas [wetlands]". This reads or could be construed that alternative water developments like stock pond development of wetlands may be acceptable. This should	In this context it means anything alternative to the riparian area under consideration, but in no case would it exempt such facility from any stipulation or requirement normally required of any water facility.	No

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		be clarified, and that beyond restoration of a wetland to natural hydrology, enhancement of the hydrology often has an impact on the quality of the wetland.		
0034-07	Vegetation	Numerous places in the document: it is continually mentioned that grazing and other land use practices can directly or indirectly impact riparian ecosystems. Grazing and other land use practices negatively impact wetlands, just as they do to riparian areas. When talking about impacts to resources, please consider looking outside of the normal small band surrounding a stream and look at the affects these land use practices have on all aquatic resources.	See revisions made in Chapter 2, Vegetation – Riparian and Wetland, Goals and Objectives.	Yes
0034-08	Vegetation	Page 486 Impacts common to all alternatives. Currently the Vegetation – Riparian and Wetland paragraph ends with "If protected riparian resources cannot be adequately avoided, an alternative site would need to be proposed." Are we to read that protected wetland resources are not included? Unless only riparian areas are meant or included, please use wetlands and riparian areas as this reads that the BLM is only interested in protected, avoiding, mitigating for riparian areas and that wetlands serve little to no purpose, nor need to be considered. This is pervasive throughout this document.	See revisions made in Chapter 4, Fluid Minerals, Impacts Common to All Alternatives, Vegetation – Riparian and Wetland.	Yes
0035-01	Wildlife-General	We urge you to consider including the following BMPs as an Appendix to your RMP, and think there are many places within the analysis and description of alternatives where their incorporation would strengthen the final selected alternatives: The wildlife aspects of the Oil and Gas Stipulations (Chapter 2, pp. 45-51); Grassland Bird Priority Areas: we strongly recommend retention of these, as per Alternatives C and E (p. 61); The habitat needs of Long-billed Curlews, and the potential to enhance habitat value using the BMPs we recommend, should be considered under all alternatives (p. 65); OHV management considerations should specifically include Long-billed Curlew-occupied areas as sensitive species habitats during site-specific planning (p. 80).	Refer to Appendix E.2, Oil and Gas Best Management Practices (General Conditions of Approval). Also refer to Chapter 2, Decisions Common to All Alternatives, General Wildlife; and Chapter 2, Off-Highway Vehicle Use and Travel and Transportation Management, Decisions Common to All Alternatives, Travel Management Planning Criteria.	No
0035-02	Wildlife-General	We recommend implementation of Long-billed Curlew guidelines for the Bitter Creek ACEC management plan if called for as on p. 115, and that they should be modeled closely after the specific guidelines included for the Mountain Plover ACEC (pp. 117-119).	A new Map 2.18, Greater Sage-Grouse and Grassland Bird Priority Habitat Management Areas under Alternative E (Preferred), has been added to the maps which follow Chapter 2 in the Proposed RMP/Final EIS. The Bitter Creek ACEC is included in the Grassland Bird/Greater Sage-Grouse Priority Habitat Management	Yes

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			Area (PHMA) and the Mountain Plover ACEC is included in the Greater Sage-Grouse Protection Priority Habitat Management Area. Management of these areas can be found in Chapter 2 of the Proposed RMP/Final EIS.	
0035-04	Wildlife-General	The following set of recommended management actions and guidelines should be implemented wherever practicable within the breeding range of the Long-billed Curlew in North America. They are adapted primarily from Dechant et al (1999) and Cannings (1999). In every case, these guidelines will be most effective if implemented on landscapes already known to be inhabited by breeding curlews; ideally implementation should be accompanied by local surveys to verify important nesting or brood rearing areas. The timing of breeding, appropriate stocking rates, seed mixes and opportunities will vary regionally, as well as by site. We present these as overall guidance to land managers across the range of the species, but urge local partner cooperation and consultation during their implementation. This will help ensure that local expertise and other site management objectives are taken into account. Manage Grazing Appropriately • Remove tall, dense residual vegetation before the pre-laying period (graze in fall/winter). ? Adjust timing and intensity of grazing to leave grass cover 10-30 cm tall by 15 April. • Retain 5% of grasses and forbs in taller condition (30-40 cm) for broods. • Avoid grazing during the incubation and nestling period (15 April – 15 July), to avoid potential for trampling. • Do not drag hayfields to break up cowpies. We recommend using existing or future information regarding the known distribution of Long-billed Curlews to implement these grazing BMPs on the 2.5 (alternative B) to 2.7 (all other alternatives) million ac where grazing is allowed.	Refer to Appendix E.2, Oil and Gas Best Management Practices (General Conditions of Approval) and Chapter 2, Decisions Common to All Alternatives, General Wildlife. For grazing management, refer to Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. The recommendations may be considered during the implementation stage.	No
0035-05	Wildlife-General	Halt Habitat Conversion • Prevent conversion of grassland or shrubsteppe, particularly within ¼ mile of wetlands. • Maintain or manage for grassland block sizes of >120 acres. • Manage the forest fringe to minimize/reverse forest encroachment using slashing or other suitable method.	Refer to Appendix E.2, Oil and Gas Best Management Practices (General Conditions of Approval) and Chapter 2, Decisions Common to All Alternatives, General Wildlife.	No

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		We recommend using existing or future information regarding the known distribution of Long-billed Curlews to implement these BMPs under any selected alternative, particularly on the 3.3 – 5.4 million ac available for oil and gas leasing, and the 400,000 (Alternative B) to nearly unlimited (Alternative A) Renewables ROW designations. Known Long-billed Curlew breeding areas should be excluded from sites considered for wind energy developments.		
0035-06	Wildlife-General	Emphasize Native Grasses and Forbs • Burn areas only where and when fire intensity will reduce shrub coverage and increase habitat openness without reducing the diversity of native grass and forbs. • Avoid seeding with non-natives (e.g. crested wheatgrass). • Use locally-appropriate native bunchgrass/forb seed mixes for restoration and revegetation efforts. • Where necessary, manage taller non-native grass cover with grazing, mowing or fire to maintain low profile vegetation prior to the nesting season. We recommend using existing or future information regarding the known distribution of Long-billed Curlews to implement these BMPs under any selected alternative.	This topic is discussed in Chapter 2, Wildlife, Decisions Common to All Alternatives, General Wildlife.	No
0035-07	Wildlife-General	Avoid Disturbance During Sensitive Periods • Protect breeding habitat of curlews from detrimental human activities, such as vehicular use, researcher disturbance, and shooting. • Do not construct roads in occupied curlew habitat unless there is no other practicable option. Limit road use during the breeding season (March 15-July 15). We recommend using existing or future information regarding the known distribution of Long-billed Curlews to implement these BMPs under any selected alternative, particularly on the 3.3 – 5.4 million ac available for oil and gas leasing, and the 400,000 (Alternative B) to nearly unlimited (Alternative A) Renewables ROW designations. Designation of areas open (e.g. 660 – 2,900 ac), limited (2.8 million ac), or closed to OHV use should consider Long-billed Curlew breeding habitat and timing.	Refer to Appendix E.2, Oil and Gas Best Management Practices (General Conditions of Approval) and Chapter 2, Decisions Common to All Alternatives, General Wildlife.	No
0037-01	Lands and Realty	I am not seeing any land being set aside for disposal or any other land actions. Is that correct? Do you know if you have DLE or	See Appendix F, Land Ownership Adjustment, Tables F.2.1 and F.2.2.	No

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		Carey Act lands identified?		
0039-01	Air Resources	In the Executive Summary, Air Quality Related Values should be briefly discussed along with air quality.	See the Executive Summary section reference to Air Resources, which includes AQRVs.	Yes
0039-02	Air Resources	Chapter 3 Affected Environment, Particulate Matter, 2nd paragraph (page 246) – Add: Fine particulate also contributes to reduced visibility in nationally important areas such as national parks "and wilderness areas."	See Chapter 3, Affected Environment, Particulate Matter.	Yes
0039-03	Air Resources	VISCREEN is addressed in the Appendix, but is not described in Chapter 4. The "Far-field AQRV Impacts" section be renamed to "AQRV Impacts" and should include the commitment to perform near-field analysis. In the discussion of all the Chapter 4 alternatives, it states that future PGM modeling will be used. The statements should reference both limited AQRV analysis that will occur now and the PGM modeling analysis that will occur in the future to evaluate potential air impacts.	See the summary of VISCREEN results in Chapter 4, Air Resources, Impacts Common to All Alternatives, AQRV Impacts.	Yes
0039-04	Air Resources	The FWS does not necessarily support the statement "Potential total nitrogen and sulfur deposition would likely remain below the levels of concern (3.0 kg/ha/yr and 5.0 kg/ha/yr, respectively)". FWS needs to evaluate these level of concern numbers and potentially provide supportable deposition values. FLAG 2010 suggests that incremental emission increases from development should be evaluated using the DATs.	Until the FWS can provide data with specific levels of concern (LOC), the default LOC values in FLAG will be used. Future photochemical grid modeling will evaluate incremental and cumulative deposition impacts.	No
0039-05	Air Resources	AQRV impacts are not assessed as a function of "new" versus "existing" air quality emission levels. Although referenced as a subjective analysis, FLAG guidance does not support such a determination.	Cumulative impacts including new and existing emissions will be modeled using photochemical grid modeling to assess air quality and AQRV impacts, as described in Appendix B, Section 5.1.	No
0039-06	Air Resources	Summary/averaging current visibility conditions at Class I areas is relevant to cumulative (regional haze rule) evaluation. Incremental analysis being conducted between draft and final EIS development will not consider this averaging.	Analysis of Class I visibility modeling results was performed in accordance with FLAG. The BLM conferred with the FWS during post-processing and the FWS had an opportunity to comment on results presented in an informal report to the AQTW.	No
0039-07	Air Resources	The statements that the "Air Resource Management Plan and Adaptive Management Strategy" was "prepared in collaboration" under the oil and gas MOU may not accurately reflect our understanding of what was discussed in the air quality technical workgroup. FWS was not fully aware of the intent to utilize an Adaptive Management Strategy and its associated methods in the future. The FWS Branch of Air Quality would like to request a meeting	The BLM introduced the adaptive management strategy during a meeting with the FWS on February 22, 2012 and discussed this issue with the FWS during subsequent Air Quality Technical Workgroup (AQTW) conference calls.	No

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		or conference call with BLM on a staff and management level to discuss this strategy and its associated agreements.		
0039-08	Air Resources	In the Glossary add the term "Air Quality Related Value", "Class I Areas," "Class II Areas" and "Sensitive Class II Areas."	These terms have been added to the Glossary. "Class I Areas" and "Class II Areas" are defined under the "Prevention of Significant Deterioration (PSD) Program." "Sensitive Class II Areas" are defined as a separate entry.	Yes
0039-09	Air Resources	In the Bibliography add the BLM, EPA, FS, FWS, and NPS Oil and Gas Air Quality MOU dated June 23, 2011.	This citation is located in the Bibliography as well as in Appendix B.	No
0039-10	Air Resources	In the Index add "Air Quality Related Values" and the associated pages where this is referenced.	"Air Quality Related Values (AQRVs)" has been added to the Index.	Yes
0045-01	Wilderness Character-istics	The BLM inventory should be reevaluated for Long Coulee (46,048 acres), Lena (5,679 acres), and Carpenter Creek (10,000 acres). Even if all of these lands are managed to protect their wilderness characteristics the total would still amount to less than 17% of the BLM land on the HiLine district, leaving the overwhelming majority of public land available for other multiple uses.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0046-01	Special Designa-tions-Wild and Scenic Rivers	I recommend that the half-mile stretch of the Marias River where it flows into the Upper Missouri River Breaks National Monument be classified as "recreational" under the Wild and Scenic Rivers Act, given the popular recreational use of this stretch.	This topic is discussed in Chapter 2, Special Designations, Wild and Scenic Rivers. The impacts of designating this segment as a Wild and Scenic River are analyzed in Chapter 4 under Alternative B. The inventory and designation processes are described in Appendix L, Wild and Scenic Rivers Report, Eligibility and Suitability Determinations.	No
0046-02	Solid Minerals	I recommend that you extend the moratorium on gold and silver mining in the Sweet Grass Hills for another 20 years when the current moratorium expires. You must protect this spiritual landmark and protect the water quality. I would prefer that the moratorium be extended in perpetuity, if it were possible.	Under Alternative E, all BLM-managed lands within the Sweet Grass Hills TCP are recommended for a 20-year extension of the withdrawal for locatable minerals and closed to leasable and salable minerals. See Chapter 2, Solid Minerals, Alternative E (Preferred Alternative) and Tables 2.20, 2.21 and 2.22.	No
0051-01	NEPA	The position of Prairie County is that BLM should manage the properties assigned to them with "multiple use" directive of FLPMA of 1976. In your DRMPs you should have addressed all Environmental Issues for not just Ecosystems, but also	The BLM's multiple-use mission and the BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies are addressed in Chapter 1 of the Proposed RMP/Final	No

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		Economics, Heritage, History, etc. Environmental Consequences of the Draft(s) RMP/EIS never even addressed these issues. The requirements of NEPA and the guidelines of your own handbook (Desktop Guidelines for Cooperative Agency Relationships) have not been followed.	EIS. The topics referenced are discussed in the Cultural Resources, Economic, and Social sections of Chapters 3 and 4 of the Proposed RMP/Final EIS.	
0053-01	NEPA	Prairie County is notifying the BLM now, that any changes after Record of Decision must first be addressed with our county. Even if these modification(s) happen outside our jurisdictional boundaries, Prairie County realizes that the impacts of intensity and change of use of federal land affects can cross county lines as well and BLM district lines. We expect a detailed EIS and a statement of Environmental Consequences. On any action made that differs from Record of Decision, we expect and demand reasonable time for us and our constituents to review and comment. We expect you to follow FLPMA of 1976, NEPA, Council on Environmental Quality, and our state constitution.	Prairie County is on our mailing list and will receive a copy of the HiLine Proposed RMP/Final EIS.	No
0055-01	FLPMA	What statute and/or regulation directed BLM to manage GSG habitat this aggressively, which direct conflict with FLPMA multiple use directive, due to a court - order to the United States Fish and Wildlife Service? Show me where BLM is required by law, statute, regulation. Be specific in sighting.	BLM Manual 6840 provides policy guidance for managing sensitive species (i.e., Greater Sage-Grouse) habitat. Appendix C of BLM's Land Use Planning Handbook (H-1601-1) provides program-specific decision guidance for sensitive species. Management proposed for sage-grouse habitat in the Preferred Alternative of the Proposed RMP/Final EIS is consistent with section 103(c) of the Federal Land Policy and Management Act (FLPMA) (43 U.S.C. 1702(c)).	No
0056-01	FLPMA	There is nothing in Environmental Consequences addressing possible conflicts with local purposes, policies, approved plans, and programs.	This topic is discussed in Chapter 1, Development of Alternatives, Related Plans.	No
0057-01	NEPA	Explain in detail how you have followed this presidential executive order from President Clinton on Sept. 30, 1993[EXECUTIVE ORDER #12866]	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in Chapter 1, Planning Criteria.	No
0061-04	Economics	There are 4 economic multipliers in a local economy: They are: (1) Output, (2) Employment, (3) Income and (4) Value Added. Have you done any economic analysis on how each of the multipliers is affected?	Text has been revised in Chapter 3, Economics, under Demographic and Economic Characteristics and Trends, to include a description of these multipliers along with detail on the impact area and modelling tool used to generate these multipliers.	Yes

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0061-06	NEPA	Publish in your RMP the right of protest and appeal to the IBLA court, how, and costs to file in Federal Appeals after IBLA on any administrative decision by the BLM.	The Dear Reader letter in the Proposed RMP/Final EIS provides information on the protest and appeal processes. Also refer to http://www.blm.gov/wo/st/en/prog/planning/planning_overview/protest_resolution.html and http://www.doi.gov/oha/manuals/upload/IBLAManual-2011.pdf.	No
0064-01	Wildlife-General	On page 330, the draft RMP states that the BLM has recommended APF not seek further changes in class of livestock on additional BLM grazing allotments. That statement is a mischaracterization of a discussion on page 17 of the "Middle Box Elder Allotment Change in Livestock Use" decision document. That document dealt with APR's request to change the class of livestock permitted to graze that allotment from cattle only to bison and cattle. In the "Cumulative Impacts" section of the document, the BLM stated: "By removing the [interior] fence and allowing free ranging bison [within the allotment boundaries] it is unknown what the impacts to vegetation, wildlife---fence conflicts, and wildlife habitat are without implementing monitoring, and making adjustments. Considering this, until APF clearly demonstrate their ability to effectively manage and husband their animals in this relatively small area before pursuing further changes in class of livestock on additional BLM grazing allotments" grammatical errors in original]. It appears that some language was inadvertently left out of the last sentence of the quoted section of the document. But it is clear that the language was meant to suggest that APR demonstrate its ability to effectively manage its bison herd—which it has done—before requesting additional changes of use. The language certainly does not suggest that APR refrain from making such requests in the future, nor has any BLM official ever made such a suggestion to APR, either orally or in writing. In fact, such a policy would be illegal. The BLM should correct this mistake in the final RMP document.	The Social section of Chapter 3 has been revised in response to the comment.	Yes
0064-02	Social	pp. 330-331 of the draft RMP broadly mischaracterizes APR and its mission, and presents the social and economic future of the area in an "either/or" context, unnecessarily pitting one group of BLM users (some critics of APR) against another (APR and its supporters). While APR understands it is appropriate to identify resource use conflicts as part of the planning process, this should be done objectively and	The Social section of Chapter 3 has been revised and there is no mention of APR in the text. The BLM provides the discussion of individuals or groups of individuals that have an interest or stake in HiLine management and the variety of views and values held as a way to indicate the complexity involved in balancing multiple views toward BLM land management. The revised section (Stakeholders and	Yes

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		be supported by data, as opposed to providing a forum for different BLM resource user groups to vent their subjective opinions. For example, numerous paragraphs are devoted to "local" concerns with APR, without any descriptive data about how these concerns were obtained, who the "locals" are, how the breakdown of the classification of the commenters scored (e.g., whether rancher, BLM permittee, whether rural or urban), how distant from the project area (e.g. residents of Havre versus Glasgow), socioeconomic status of the commenters, and so forth. Moreover, there is no presentation of the viewpoints representing APR' point of view or values. APR is resident in the planning area, not some distant or theoretical entity, and engages as part of the HiLine community at the local level. It would be APR' recommendation that the section should be removed in the final RMP, because it offers no insight into how BLM should manage its resources. If the BLM chooses not to remove the section, then it should offer equal discussion regarding APR's values and an opportunity to offer contrasting views held by others in the planning area.	Stakeholder Values) highlights that there are a wide variety of views toward BLM management as indicated by scoping comments and comments on the Draft RMP/EIS. There is also an emphasis that the categories of groups is merely used as a valuable way to discuss the range of views and impacts to those views (in the Social section of Chapter 4). It is also emphasized that an individual can fall into a variety of groups and that the groups are not indicative of any one specific organization.	
0064-05	Fire Manage-ment and Ecology	APR supports an approach to wildfire suppression that acknowledges limitation on suppression resources measured against potential benefits and sensitive areas where fire should be tightly controlled. We suggest that the zone concept described in the plan is somewhat simplistic, however. In particular the constraints imposed make the distinction between management classes B and C one without a difference if "all unplanned fires will be suppressed" in either category, and prescribed burns will be encouraged in both. Moreover, physical constraints (distance, access, and topography) will likely make suppression infeasible or economically untenable in some instances. This seems to warrant a more sophisticated analysis than that presented in the Draft RMP if there is to be more certainty with respect to where and when fire will be suppressed or planned.	Refer to Chapter 2, Fire Management and Ecology, as well as Appendix D, Fire and Emergency Stabilization and Rehabilitation for definitions and distinctions between the fire management categories. Physical fire suppression constraints are addressed in the Central Montana Fire Zone Fire Management Plan.	No
0064-06	Fire Manage-ment and Ecology	APR supports greater BLM use of prescribed fire to produce desired management outcomes. We note that the plan states that BLM only used prescribed burns on "1,799 [acres]…in grassland/shrubland areas" from 2001-2007 (Draft RMP, p 282.), or approximately 250 acres/year. Given the amount of BLM rangeland that would benefit from treatment, substantially more acreage should be	Refer to Chapter 2, Fire Management and Ecology, Decisions Common to All Alternatives, which includes the following statement: "Prior to approval of vegetation treatment activities, an interdisciplinary environmental review would be required." This interdisciplinary environmental review would include adjacent landowners and other local, state, tribal and federal agencies. Project-level treatment plans would be made	No

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		brought into a fire management regime. APR encourages BLM to develop programs with NRCS to find ways to find alternate forage or compensation for permittees who have to forego forage during the course of treatment. We encourage the BLM to include APR in future fire management planning and implementation.	available for public comment.	
0064-08	Fish	Fish living in Great Plains streams are some of the least protected and likely most imperiled of any fishery in North America (Dodds et al 2004). APR understands BLM limitations on stream habitat improvement projects due to its limited ownership of streamside land (see e.g. Draft RMP, p. 287). APR suggests that BLM emphasis on creating upland reservoir fishing opportunities should be tempered, as surface water impoundments may have significant impacts to existing stream flow. Downstream reaches are affected by altered water temperatures and flow, changes in sediment transport (Winston et al. 1991). Loss of flow that could have filled numerous downstream pools can prevent recolonization by fish populations (Stagliano 2005, Cook et al. 1996). They may also have unintended impacts on upland wildlife. The potential conflict between livestock grazing and sage grouse intensifies near water sources due to the importance of these areas to sage grouse. Heavy cattle grazing near springs, seeps, and riparian areas can remove grasses used for cover by grouse (Klebenow 1982). According to Call and Maser (1985), "rapid removal of forbs by livestock on spring or summer ranges may have a substantial adverse impact on young grouse, especially where forbs are already scarce" (p. 17). West Nile virus will likely be exacerbated by surface water impoundment. The BLM should therefore emphasize barrier removal, development of in-stream pools as refugia, and riparian vegetation improvement on stream reaches where it does have management authority.	The BLM has not created upland reservoir fishing opportunities for many years due to water rights issues and/or lack of funding and none are planned right now. Past sport fishing projects on existing deeper reservoirs often provide food for fish-eating birds such as American white pelican, double-crested cormorant, eared grebe and many others thereby taking pressure off of native fish populations in small prairie streams. The BLM has also reduced construction of reservoirs in recent years and relied more on pipelines and stock tanks for watering livestock because of concerns about Greater Sage-Grouse in some areas. Many springs have been fenced to exclude livestock and more fencing projects are planned. The BLM does not stock fish. MFWP has authority to manage fish populations. The BLM is not aware of MFWP stocking fish in small prairie streams, and the BLM reports to the MNHP and MFWP any observations of non-native predatory fish moving into small prairie streams during above-normal spring runoff. Fish habitat improvement projects are discussed in Chapter 4, Fish, Assumptions and Guidelines. Language has been added to this section stating that the BLM may consider removing/decommissioning upland reservoirs if the monetary costs of replacing that reservoir is far above the need to replace it for livestock water or other uses and it is not crucial for wildlife or fisheries habitat.	Yes
0064-09	Lands and Realty	APR agrees in principle with the categorization of lands designated for retention or disposal (Draft RMP, Appendix F at p. 1002 et seq.). Because BLM lands provide substantial integrity to wildlife migration corridors, particularly pronghorn and sage grouse migration (see e.g. Jakes 2009; Smith 2013), acquisition and retention criteria should specifically call out these features in its criteria (Draft RMP, Appendix E at p. 976). Pronghorn are undertaking	Appendix F, Land Ownership Adjustments, Acquisition Criteria, has been revised in response to this comment to include identified wildlife corridors.	Yes

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		what is perhaps the longest animal migration movements remaining in North America, from north of the Canadian border to south of the Missouri River. These pathways are becoming increasingly defined (see e.g. Poor et al 2012) and would benefit from land consolidation and corridor identification. In addition, land consolidation could benefit a number of species where uniform management over large areas is required. Fragmented ownership is an impediment to minimizing conflicts, for example, in areas where prairie dog complexes are to be established for black---footed ferret recovery. The criteria could be made more specific with respect to specific resource targets for consolidation/disposal.		
0064-10	Lands and Realty	We would like BLM to consider changes to rights-of-way classification from "avoidance" to "exclusion" for all areas designated "sage grouse/grassland birds" and "prairie dog colonies"(for mountain plover and other associated species) essentially as described for Alternative B, for all the reasons cited by BLM in the Oil and Gas section and Renewable Resources (Wind) section, with the exception of allowing small scale, non-surface (buried) transmission within 500 ft of an existing road.	See Chapter 2, Wildlife, Alternative B, Special Status Species.	No
0064-11	Recreation	Recreation Opportunity Spectrum. APR concurs with the majority of classifications for ROS. However, we would like to note that the goals appear to be highly skewed and represent less of a "spectrum" and more of a "lumping" within the "roaded natural" designation (Table 2.10, p 86). If it is BLM's goal to provide a broader, actual spectrum of recreational experiences, then some additional thought needs to go into how and where that can be accomplished. There are certainly numerous more acres of remote BLM lands that would qualify as "primitive motorized" than the draft RMP identifies, and many of them are associated with APR grazing leases. Similarly, many isolated parcels of BLM surrounded by active agricultural operations would more likely be described as "rural" than indicated by the maps (Map 2.8). We believe it is appropriate to more precisely calibrate this classification to actual goals and condition if these classifications are to have any management meaning.	This topic is discussed in Chapter 2, Recreation, Recreation Opportunity Spectrum. The BLM utilizes a matrix of physical, social and operational qualities and conditions to create the recreation opportunity spectrum. These classifications can be broken down further through development of supplemental plans such as travel management plans. Table 2.15 in the Proposed RMP/Final EIS (previously Table 2.10 in the Draft RMP/EIS) reflects the effort to manage for the widest variety of quality recreational opportunities and visitor experiences that are consistent with other resource management objectives.	No

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0064-12	Lands and Realty	We would like BLM to consider changes to rights-of-way classification from "avoidance" to "exclusion" for all areas designated "prairie dog colonies" (for mountain plover and other associated species) as well. It has been shown that wind development activities have roughly the same impact as oil and gas (Pruett et al. 2009). Thus, APR believes it is appropriate to limit wind development projects and associated transmission corridors similarly to oil and gas surface occupancy, particularly in sage grouse areas.	See Chapter 2, Wildlife, Alternative B, Special Status Species. Refer to Chapter 2, Renewable Energy Resources, Table 2.19, Alternative E (Preferred Alternative), which states that the Grassland Bird/Greater Sage-Grouse Priority Habitat Management Areas and Greater Sage-Grouse Protection Priority Habitat Management Area are exclusion areas for wind energy development.	No
0064-13	Wildlife-General	The Draft RMP acknowledges the need to facilitate and do more for species that are essentially BLM obligates, like the black-tailed prairie dog. However, the plan fails to describe how it will implement the Montana Prairie Dog Conservation Plan (MPWG 2002), which envisions at least 2 "Category 1" prairie dog complexes (suitable for establishment of a viable population of black-footed ferrets) in the state. The distribution of prairie dogs in Montana makes it imperative that one of these complexes be sited within the planning area of the Malta Field Office (see, e.g., Proctor et al. 2006). This is reflected as well in the Montana Fish, Wildlife, and Parks Region 6 Prairie Dog management plan (MFWP 2006). The most likely location will include some contribution of BLM lands. The BLM, in consultation with the FWP and other stakeholders, should continue to work to establish a Category 1 complex that occurs at least partially on BLM lands. This is one of the continuing and contentious wildlife issues that remains unresolved in the HiLine Management Area. Landowners such as APR will voluntarily participate in contributing to these management goals, but would be aided by leadership from BLM as to where such prairie dog complexes should be best situated. BLM is responsible for ensuring habitat for plovers, burrowing owls and other prairie dog associates. We hope, therefore, that BLM exerts some leadership to complete this important part of its overall wildlife responsibility under the Final RMP, and APR stands willing to participate in such discussions as this planning and implementation moves forward.	Refer to the discussion of Black-tailed Prairie Dogs under Chapter 3, Wildlife, Wildlife Special Status Species, Montana BLM Sensitive Species.	No
0064-14	Wildlife-General	The BLM should continue efforts to reintroduce black---footed ferrets and expand the habitat for the existing population of ferrets on the UL Bend on the CM Russell National Wildlife Refuge, as BLM lands in the Planning Area still	The BLM will be a willing partner to black-footed ferret recovery efforts in the planning area. Adaptive Management is discussed in Chapter 2, Implementation and Monitoring.	No

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		constitute some of the best potential ferret habitat in the country. APR lands abut CMR lands that could be used to "bridge" to prairie dog habitat on BLM lands in the planning area, linking those habitats. Again, APR will be happy to participate in planning with the BLM for expanding prairie dog habitat. The BLM should refocus some of its efforts on establishing prairie dog colony complexes of sufficient size and distribution to support greater numbers of black-footed ferrets, which will necessarily require active management (shooting management and plague mitigation). The BLM could also assist the Canadian ferret recovery effort in Grasslands National Park by providing additional prairie dog habitat near that reintroduction site.		
0069-01	NEPA	Audubon Rockies appreciates the discussion on adaptive management in the HiLine RMP. DEIS at 24. However, it must be meaningful and have specific measures/thresholds. It is imperative that the BLM require and enforce the implementation of a science-based adaptive management program. The purpose of an adaptive management program is to reduce uncertainty about the effects of specific development projects on wildlife and wildlife habitat. Referencing a more recent source then that presented within the DEIS, the Department of Interior's 2009 principles of adaptive management[4], the key elements of an adaptive management program are: stakeholder involvement, management objectives, management alternatives, predictive models, monitoring plans, decision making, monitoring responses to management, assessment, and adjustment to management actions. [4]Williams, B.K., R. C. Szaro, and C.D. Shapiro. 2009. Adaptive Management Working Group, US DOI, Adaptive Management: the U.S. Department of Interior Technical Guide. [4]The World Wildlife Fund defines an ecoregion as a "large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions." See http://www.worldwildlife.org/science/ecoregions/delineation.html.	Adaptive management is discussed and defined in the Implementation and Monitoring section of Chapter 2. The reference to the U.S. Department of the Interior Adaptive Management Technical Guide has been updated to reflect the most recent publication date (2009).	No
0069-02	NEPA	Earlier this month, the BLM has issued a new interim policy on regional mitigation, effective immediately (http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/	The BLM issued this manual section in draft format as interim policy. Montana BLM will provide its "lessons learned and recommendations for enhancing this manual section" to the Assistant Director for	No

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		policy/im_attachments/2013.Par.57631.File.dat/IM2013-142_att1.pdf). The new manual covers regional mitigation strategies, planning, and implementation. In the planning portion, the goal is to incorporate sites and measures and mitigation strategies into land use plans, including a regional baseline, mitigation objectives, land use allocations or "areas for landscape-level conservation and management actions." Relevant to the HiLine RMP, ACECs and sage-grouse priority habitat are used as examples of these. In the implementation portion, this is described as part of approving specific land uses, which may be "within (onsite) or outside of the area of impact." The manual emphasizes that on-site mitigation is always the first choice (including a "mitigation priority order", then discusses off-site mitigation comprising replacing or providing similar or substitute resources or values through "restoration, enhancement, creation, or preservation." As the RMP process proceeds in the HiLine planning area, Audubon respectfully requests clarification on how this new interim regional policy on mitigation will be incorporated.	Minerals and Realty Management as requested in Instruction Memorandum No. 2013-142. Additional discussions of mitigation addressing specific resources are included in Appendices C, E.2, H, and M.	
0069-03	NEPA	In addition to ensuring that off-site mitigation meets a "no net loss" requirement for resources and values lost on the project site and is tied to the species being impacted, BLM should require that mitigation take place in the same ecoregion as the project site, to ensure the continued health of the overall ecoregion. Off-site mitigation is necessary in some instances but should be used with emphasis placed on scientifically defensible habitat improvements and strict development activity restrictions in important habitats.	Given the majority of the BLM-administered lands in the planning area occur in either the Northwestern Glaciated Plains ecoregion or the Northwestern Great Plains ecoregion, the existing language pertaining to off-site mitigation in Appendices E and M adequately addresses this concern.	No
0069-04	Special Designa-tions-ACECs	Audubon respectfully requests that ACECs be labeled in Map 2.15.	This change has been made to Map 2.15 in the Proposed RMP/Final EIS.	Yes
0069-05	Wildlife-Greater Sage-Grouse	Upon designation of special status species, the species' distribution, key habitat areas, and special management needs should be identified prior to developing resource management plans. While winter range was referenced in the document (DEIS 48) with protective measures, it was only very broadly referenced in Figure 3.23. In addition to more carefully assessing the spatial distribution/acreage of current winter habitat for sage grouse, the BLM should also consider the current quality of this	In addition to Figure 3.23, refer to Chapter 3, Wildlife, Wildlife Special Status Species, Greater Sage-Grouse for a description of Greater Sage-Grouse habitat in the planning area. Winter habitat is discussed in various sections of Appendix M.	No

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		habitat as this will likely drive selection of appropriate protective measures and prioritize restoration activities. The Governor-appointed Wyoming Sage-grouse Implementation Team recently commissioned the Wyoming Chapter of the Wildlife Society, a non-profit organization of wildlife biologists, to review current protocol for identifying and mapping sage-grouse winter concentration areas. This report would be helpful for consideration in Montana's efforts going forward.[5] The protocol proposed within this report may be helpful to the Montana BLM when developing a defensible protocol for identifying and mapping sage-grouse winter concentration areas. [5]This report can be downloaded at http://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/SGIT_051513_WYTWSAREAREPORT0004118.pdf.		
0069-06	Wildlife-Greater Sage-Grouse	While some of the winter range is contained within the Greater Sage-grouse Protection Priority Habitat in the southeastern corner of the planning area, and thus has protections associated with it, a large amount of winter range falls outside of this area. Because of the importance of this habitat to grouse, Audubon Rockies suggests protections for these areas based on what has been presented in the Lander RMP (Record # 3006): "In identified greater sage-grouse winter range, vegetation treatments should emphasize strategically reducing wildfire risk around or in the winter range and maintaining winter range habitat quality." FEIS at 101. And Audubon supports the more flexible management option (compared to winter concentration areas) proposed for Alternative E, to prohibit surface-disturbing and disruptive activities from December 1 to March 31 unless data indicate a date modification is necessary to better protect wintering greater sage-grouse. DEIS at 48.	Refer to Chapter 2, Fluid Minerals, Table 2.8. Under Alternative E (Preferred Alternative), surface occupancy and use is prohibited within winter range from December 1 through March 31. Also refer to Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under Alternative E (Preferred Alternative), Greater Sage-Grouse Winter Range – Timing Limitation.	No
0069-07	Vegetation	Audubon encourages the following as riparian/wetland habitat was inadequately addressed: • Surface disturbing and disruptive activities would not be allowed in riparian and wetland areas, • Oil and gas leasing would be offered with a CSU stipulation within 300 feet of riparian and wetland areas. Miles City DEIS at 2-23 and 2-24. • Surface disturbing activities should be prohibited within 1,329 feet (0.25 mile)	Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under Alternative E (Preferred Alternative), includes changes to stipulations for Water, Riparian, Wetland, and Floodplains resources. Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential	Yes

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		of playas and 100-year floodplains where mapped. The Lander BLM noted that a set-back of 1,329 feet "would not result in any substantial adverse impact because most drilling operations would be able to accommodate the setback distance and still adequately recover the oil and gas resources. Lander RMP FEIS at 706. • New livestock water developments (troughs or tanks) would be located at least 0.25 miles from riparian and wetland areas, waterbodies, and streams. Miles City DEIS 2-24 and 2-25. This should be expanded to include no new range improvement projects within ½ mile of water and riparian-wetland areas, so as to avoid providing perching locations for raptors, while hens and their broods are foraging. • Prohibit placement of salt and mineral supplements, such as low moisture block supplements in the following areas: within ½ mile of water and riparian-wetland areas, regional historic trails and early highways or as needed to protect setting, so long as impacts are not visible; within 0.6 mile of the perimeter of greater sage-grouse leks; on areas being reclaimed, locate supplements (salt or mineral blocks) in a manner designed to conserve, enhance, or restore greater sage-grouse habitat. Lander RMP FEIS at 176. Audubon supports these measures as a means to minimize soil and vegetative damage caused by congregating livestock, which would negatively impact grouse foraging and disrupt nesting. Lander RMP FEIS at 388.	measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern. Additional guidance on how Greater Sage-grouse decisions will be incorporated into grazing administration is provided in Appendix M.	
0069-09	Wildlife-Greater Sage-Grouse	In the Miles City Draft RMP/EIS, Habitat Compensation was proposed for Sage-grouse Habitat – General Habitat Areas, Protection Priority Areas, and Restoration Areas. In theory, the result of compensation would be to minimize disturbances within the habitat areas or provide incentives for project proponents to prevent new disturbances. According to the Miles City RMP, habitat conditions would improve in the planning area in the future due to this strategy. DEIS at 2-200. However, this effort must be closely monitored to determine effectiveness and enable improvement. Given the minimal information provided (and the goal of minimizing disturbances) and the addition of monitoring, Audubon supports this concept and requests clarification on what this process would involve. Audubon is also	Refer to Chapter 2, Greater Sage-Grouse Habitat Management, and Appendices C and M in the Proposed RMP/Final EIS.	Yes

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		interested in whether this concept was discussed for the HiLine RMP.		
0069-10	Wildlife-Greater Sage-Grouse	Protective stipulations should be extended to maintenance and operations actions. Lander RMP FEIS notes that "wildlife seasonal protections from surface-disturbing and disruptive activities apply to maintenance and operations actions when the activity is determined to be detrimental to wildlife." FEIS at 117. This is an important timing due to the longer period of time associated with maintenance and operations actions, beyond the usual development-specific stipulations. BLM supports this, "Beyond initial exploration (including geophysical activities), land clearing, and aboveground facility construction, continued human disturbance to special status wildlife could occur from activities such as equipment maintenance and site operations, which are especially disruptive during sensitive times (wintering, breeding, and nesting)." FEIS at 931. Furthermore, BLM notes that "it would not preclude development or limit the number of wells and would result in no more adverse impacts than management under Alternative A, which does not have timing limitations on O&M." FEIS at 707. The Miles City Draft RMP noted that in areas where development occurred, "there would be no restrictions to operation and maintenance activities, which would potentially result in the reduction or extirpation of populations." DEIS at 4-134 (emphasis added).	This topic is discussed in Chapter 2, Wildlife, General Wildlife, Decisions Common to All Alternatives, Mitigation Measures and Conservation Actions For Surface-Disturbing and Disruptive Activities.	No
0069-12	Wildlife-Greater Sage-Grouse	The current protections proposed for adoption uses NSO stipulations as a means of protection for grouse, most notably in protection priority areas for Alternative E. DEIS at 47. However, NSOs are subject to exceptions, waivers and modifications. If these can be applied to NSOs, this fails to meet the regulatory certainty being sought by USFWS, which is extremely concerning given the importance of this habitat to grouse persistence in the planning area and connectivity to Canadian populations. DEIS at 397. If waivers, exemptions and modification are allowed then the BLM should set up a process that allows the public to comment when these actions are considered.	Closed to leasing and no exceptions, modifications or waivers were management actions analyzed within the range of alternatives. Refer to Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria. PHMAs are managed as NSO with limited exceptions and no waivers or modifications in the Final EIS. Additionally, the Proposed RMP includes Sagebrush Focal Areas (SFAs) which would be managed as NSO without waiver, exception, or modification for fluid mineral leasing. See Chapter 2, Table 2.8 of the Final EIS.	Yes
0069-13	Wildlife-Greater Sage-Grouse	In General Habitat, Alternative B has "closed to leasing within 2 miles of a sage-grouse lek" and Alternative E has "NSO within 1 mile of a sage-grouse lek. " DEIS at 194. However, referenced research within	Refer to Chapter 2, Greater Sage-Grouse Habitat Management; Chapter 2, Fluid Minerals; Chapter 2, Wildlife; and Appendices C and M in the Proposed RMP/Final EIS. Closed to fluid mineral	Yes

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		the HiLine RMP contradicts the usefulness of these stipulations: In Wyoming, gas development has resulted in wide-scale extirpation or reduction of populations at distances as great as 4 miles from leks (Holloran 2005, Walker 2008). Both gas development and wind farms are characterized by extensive road developments that fragment habitat and increase potential for vehicle collisions. Additionally, the structures themselves may alter habitat suitability, resulting in abandonment. DEIS at 688. Therefore, all pump stations and other permanent structures should be placed a minimum of 2 miles (3.2 km) from the nearest lek, with a preferred distance of >4 miles (6.4 km) from active leks, based upon the best-available data from Naugle et al. (2011) as well as noted in Miles City RMP, which also proposed a 4 mile buffer.	leasing in Greater Sage-Grouse nesting habitat was analyzed in Alternative B.	
0069-15	Fire Manage-ment and Ecology	In the HiLine Draft RMP "Fire management-related activities, including prescribed fire, should preserve or enhance the habitat quality for sage-grouse and other sensitive status species, especially in priority habitat areas, and would be subject to mitigation measures and conservation actions for greater sage-grouse habitat." DEIS at 34. There is a growing body of evidence that argues against the use of prescribed fire for sage-grouse. This latter concern was echoed in the USFWS' 1/28/12 letter to the BLM on the Lander Draft RMP, "The Service recommends that the Bureau address potential effects to sage-grouse populations and the potential for spreading cheatgrass before approving such actions. The USFWS also stressed that the BLM "evaluate and document the actual need these actions [treatment], and the potential long-term effects to sage-grouse populations from such management actions prior to the approval of such actions." In response to increasing concerns about impacts of fire, including exacerbating invasive species problems, the Lander FEIS Record #3015" "Full suppression of wildland fire is used within … areas of high resource values including greater sage-grouse Core Areas."	Refer to Chapter 2, Greater Sage-Grouse Habitat Management; Chapter 2, Fire Management and Ecology, as well as Appendices C and M in the Proposed RMP/Final EIS.	Yes
0069-16	Wildlife-Greater Sage-Grouse	Infrastructure such as fences and roads are inadequately addressed in the HiLine RMP. DEIS at 151 states that "New fences would follow BLM specifications to allow for wildlife passage, except for fences built specifically to keep wildlife out of an area. Fences would also be placed and marked, or modified, to reduce wildlife collisions or	Refer to Chapter 2, Greater Sage-Grouse Habitat Management and Appendices C and M in the Proposed RMP/Final EIS.	Yes

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		entanglements. Greater specificity is needed. Fencing can be an obstacle or potential hazard to special status wildlife species by concentrating livestock, adversely impacting vegetation and fragmenting habitat. In relation to sage-grouse, the addition of new fences further fragments the landscape, provides potential collision points, and provides perching opportunities for raptors – all detrimental to sage-grouse. A 2009 WGFD report examined sage-grouse mortalities near Farson and found that sage-grouse fence diverters reduced sage-grouse fatalities by 61 percent (Christiansen 2009). In addition, fence surveys in the Lander and Rock Springs Wyoming BLM Field Office areas have shown that Greater Sage-grouse can be injured or killed as a result of flying into fence wires. Lander RMP FEIS at 969. To address this, the HiLine RMP should include the option to remove identified wildlife hazard fences that are adversely affecting wildlife where opportunities exist. This option was provided in the Miles City RMP, "Fences in high-risk areas (based on proximity to leks, lek size, and topography) would be removed, modified, or marked to reduce outright sage-grouse strikes and mortality." DEIS at 2-49. The BLM should also increase the visibility of existing fences to reduce hazards to flying greater sage-grouse and require the installation of fence markers on new wire fences constructed in greater sage-grouse habitat to increase fence visibility and reduce collision potential. When fences are authorized, the BLM should require a design that has the fewest adverse impacts to greater sage-grouse including features to reduce greater sage-grouse strikes and mortality. Audubon is very supportive of these requirements, all of which are in the Lander RMP FEIS (Record #4039, Record #4083, and Record #4101). Furthermore, BLM should specifically require that priority stretches of existing fences, especially those in proximity to leks, will be identified for use of sage-grouse fence diverters/markers to prevent collisions. BLM should adopt the provision which avoids construction of new infrastructure (such as fencing) and instead focuses on livestock grazing management throughout seasons of use and lower forage utilization. Lander RMP FEIS at 43. Conservation is best served by protecting and enhancing habitat.		
0069-17	OHV Use	Audubon Rockies requests clarification,	This topic is addressed in Chapter 2,	No

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	and Travel and Transpor-tation Mgmt	while existing roads (or realignments) and new road construction were addressed in the Protection Priority Habitats in Alternative E, these issues were not addressed for the ACEC in Alternative B. DEIS at 168. As roads cause habitat fragmentation, wildlife disturbances, erosion problems, and potentially spread of invasive species, they should be appropriately addressed within Alternative B. Audubon supports a proactive approach to systematically inventory and close unnecessary roads and trails, and prescribe rehabilitation/reclamation for them to benefit wildlife habitat. However, simply closing an eroding road without alleviating soil compaction and reseeding can be successful in some cases and very unsuccessful in others, leading to more adverse impacts from INNS invasion. Lander RMP FEIS at 810. We also recognize the BLM's staff and resource limitations. A combination of protection (no new infrastructure), especially in relatively undeveloped areas, and rehabilitation will best achieve habitat goals. The HiLine RMP noted for the Grassland Bird/Greater Sage-Grouse ACEC and Greater Sage-grouse ACEC, that "Where leases or rights-of-way have some level of development (e.g., road, fence, well, etc.) that are no longer in use, the site would be reclaimed by removing the features and restoring the habitat. Upon project completion or right-of-way expiration, roads built and maintained for commercial use across BLM land would be reclaimed, unless based on site-specific analysis, the route provides specific benefits to the public and the continued public use does not contribute to resource conflicts." DEIS at 156. This should be expanded to other important wildlife habitats in the planning area.	Wildlife, Alternatives Considered but Not Analyzed in Detail, Conservation Groups Alternative. Also refer to Chapter 2, OHV Use and Travel and Transportation Management, as well as Appendices C and M.	
0069-18	Wildlife-Greater Sage-Grouse	In 2004, the USFWS used several scientific studies to develop recommendations about impacts of wind energy development on grouse species. Due to various structural factors, including height, the USFWS recommended avoiding placement of wind turbines within 5 miles of greater sage-grouse and Columbian sharp-tailed grouse leks. See, e.g., Comments of USFWS on Antelope Ridge Wind Project, May 17, 2010, at 3 (noting that the "5-mile protective zone for wind project features helps buffer sage-grouse against increased mortality (both human-caused and natural), habitat degradation and fragmentation, and disturbance"). Audubon supports these	Refer to Chapter 2, Greater Sage-Grouse Habitat Management and Appendices C and M in the Proposed RMP/Final EIS. General Habitat Management Areas (GHMAs) are managed as avoidance areas for wind and solar energy ROWs in the Proposed RMP/Final EIS.	Yes

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		recommendations for placement of turbines within General Habitat.		
0069-19	Wildlife-Greater Sage-Grouse	BLM should avoid siting new temporary meteorological (met) towers near leks and other important sage-grouse habitat. Where wind turbines or met towers are considered appropriate and properly sited, guy wires should be marked with recommended bird deterrent devices and other state-of-the-art best practices applied to minimize impacts. Guyed meteorological (met) towers have been known to cause more bird fatalities than associated wind turbines in a number of instances. For example, at Foote Creek Rim in Wyoming, researchers found an estimated 8.1 bird fatalities per met tower per year, whereas they found an estimated 1.5 bird fatalities per wind turbine per year.[11] Given these findings and the U.S. Fish and Wildlife Service (USFWS)'s recommendations for using bird diverters to prevent avian collisions and remain in compliance with the Migratory Bird Treaty Act (16 U.S.C. 703-712), bird diverters should be more commonly used met towers. [11] Young, D. P. Jr., W. P. Erickson, R. E. Good, M. D. Strickland, and G. D. Johnson. 2003. Avian and bat mortality associated with the initial phase of the Foote Creek Rim Windpower Project, Carbon County, Wyoming: November 1998 - June 2003. Technical Report prepared by WEST, Inc. for Pacificorp, Inc., SeaWest Wind Power, Inc. and Bureau of Land Management. 35 pp.	Refer to Chapter 2, Greater Sage-Grouse Habitat Management and Appendices C and M in the Proposed RMP/Final EIS. PHMAs are managed as avoidance areas for general ROWs in the Proposed RMP/Final EIS. The Proposed RMP/Final EIS also recommends a 2 mile lek buffer for tall structures (e.g., communication or transmission towers, transmission lines) within 2 miles of leks.	Yes
0069-20	Wildlife-Greater Sage-Grouse	The USFWS recommends that all existing guy wires be marked with recommended bird deterrent devices.[12] Although the use of bird deterrent devices has been particularly important in raptor and waterfowl concentration areas, such devices also are useful in preventing songbird and perhaps even sage-grouse collisions with guy wires. Sage-grouse probably are far more likely to strike met tower guy wires than wind turbines (efforts currently are underway to mark rangeland fencing, which accounted for 18% of sage-grouse deaths in a Utah study,[13] to prevent grouse collisions with wires). Due to the impacts to raptor populations, we encourage strict exclusion language for raptor concentration areas. [12] U.S. Fish and Wildlife Service. 2003.	Refer to Chapter 2, Greater Sage-Grouse Habitat Management and Appendices C and M in the Proposed RMP/Final EIS.	Yes

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		Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines. U.S. Fish and Wildlife Service. Department of the Interior. Washington, D.C. http://www.fws.gov/habitatconservation/wind.pdf [13] R. E. Danvir. 2002. Sage grouse ecology and management in Northern Utah sagebrush-steppe. Deseret Land and Livestock Ranch and the Foundation for Quality Research Management, Woodruff, UT. ftp://ftpfc.sc.egov.usda.gov/WY/Sage%20Grouse/Ecology%20of%20Northern%20Utah%20sage%20grouse.pdf		
0069-22	Wildlife-Greater Sage-Grouse	Anti-perching devices should be required for on all new overhead powerlines in Greater Sage-grouse habitats to reduce predation from raptors. In addition, the BLM should work ROW holders to identify conflict areas and get anti-perching devices installed on existing overhead powerlines in these same habitats. These two minimizing techniques are noted in the Lander RMP (DEIS at 882). Because approximately 74-80% of sage-grouse females nest within 4 miles of leks (Moynahan 2004[15], Holloran and Anderson 2005[16]), this measure will help to reduce predatory pressures on nesting and foraging grouse. We recommend deterrent devices on H-frame structures because recent research indicates they are effective tools in reducing perch use of such structures (Lammers and Collopy 2007[17], Slater and Smith 2010[18]). [15] Moynahan, B. 2004. Landscape-scale factors affecting population dynamics of greater sage-grouse (Centrocercus urophasianus) in north-central Montana, 2001-2004. Ph. D. Dissertation. University of Montana. Missoula, MT. [16] Holloran, M. J. and S. H. Anderson. 2005. Spatial distribution of greater sage-grouse nests in relatively contiguous sagebrush habitats. Condor 107:742-752. [17] Lammers, W. M., and M. W. Collopy. 2007. Effectiveness of avian predator perch deterrents on electric transmission lines. Journal of Wildlife Management 71:2752–2758. [18] Slater, S. J., and J.P. Smith. 2010. Effectiveness of raptor perch deterrents on an electrical transmission line in southwestern Wyoming. Journal of Wildlife Management 74:1080-1088.	Refer to Chapter 2, Greater Sage-Grouse Habitat Management; Chapter 2, Wildlife, Alternative E (Preferred Alternative), Special Status Species, and Appendix M in the Proposed RMP/Final EIS. PHMAs would be avoidance areas for the issuance of rights-of-way except within designated corridors. Rights-of-way and similar facilities would be located adjacent to other facilities in a corridor where practical. The BLM would consider opportunities to remove, bury, or modify existing powerlines (e.g., burying, anti-perching devices or line location).	Yes
0069-23	Wildlife-Greater	High voltage powerlines should be avoided within Protection Priority Habitat, as	Refer to Chapter 2, Greater Sage-Grouse Habitat Management; Chapter 2, Wildlife,	Yes

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	Sage-Grouse	proposed for Alternative B. While they are allowed within General Habitat, they should prohibited within 1 mile of a lek to minimize grouse avoidance behavior and increased predation pressure. Burying powerlines, while eliminating perching opportunities for avian predators, may well be more detrimental in regards to volume of surface disturbance occurring in such proximity to leks. Audubon requests additional analyses compare the impacts to sage-grouse from burying versus vertical structures. Audubon remains concerned at the amount of habitat lost or fragmented, resulted in direct and indirect impacts, resulting from a uniform stipulation of burying powerlines within 1 mile of leks.	Alternative E (Preferred Alternative), Special Status Species, and Appendix M in the Proposed RMP/Final EIS. PHMAs are managed as avoidance areas for general ROWs (minor and major) while GHMAs are open to minor ROWs and avoidance for major ROWs (high voltage transmission and large pipelines) in the Proposed RMP.	
0069-24	Wildlife-Greater Sage-Grouse	The Lander RMP FEIS Record #4102 (Alternative B): Prohibit new, permanent, high-profile structures (higher than 12 feet) within 1 mile of occupied greater sage-grouse nesting habitat (Map 64). FEIS at 130. Similarly in the Miles City Daft RMP, while high voltage power lines are allowed within General Habitat, they should avoid areas within 1 mile of a lek to minimize grouse avoidance behavior and increased predation pressure. Research indicates approximately one-third of juvenile sage-grouse mortality is directly attributed to collisions with power lines (Beck, Reese, Connelly, and Lucia 2006[19]; Flake, Connelly, Kirschenmann, and Lindbloom 2010[20]). Miles City DEIS at 4-133. In addition, a study in Idaho found that power line collisions resulted in 33 percent of juvenile sage-grouse deaths in the study area (Beck et al. 2006; Flake et al. 2010). Miles City DEIS at 4-158. We support this provision as a means to prevent area avoidance by sage-grouse. These powerline provisions should all be incorporated into BLM's final decision. [19] Beck, J.L., K.P. Reese, J.W. Connelly, and M.B. Lucia. 2006 Movements and survival of juvenile greater sage-grouse in southeastern Idaho. Wildlife Society Bulletin, 34(4): 1070–1078. [20] Flake, L. D., J. W. Connelly, T. R. Kirschenmann, and A. J. Lindbloom. 2010 Grouse of the plains and mountains-the South Dakota story. South Dakota Department of Game, Fish, and Parks. Pierre.	Refer to Chapter 2, Greater Sage-Grouse Habitat Management; Chapter 2, Wildlife, Alternative E (Preferred Alternative), Special Status Species, and Appendix M in the Proposed RMP/Final EIS. Also refer to Chapter 4, Wildlife, Impacts under Alternative E (Preferred Alternative), Birds, under Greater Sage-Grouse.	Yes
0069-25	Wildlife-Greater Sage-	The HiLine Draft RMP references the 2006 guidance provide by the Avian Power Line Interaction Committee. DEIS at 59 and 151.	The topic is discussed in Chapter 2, Wildlife, Decisions Common to All Alternatives, General Wildlife, and includes	Yes

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	Grouse	Audubon was one of the original members of this committee and has participated in recent training workshops. Please note that a newer APLIC guideline manual was released in 2012 and should be referenced. Suggest contacting Rick Loughery (rloughery@eei.org).	the following paragraph: "Powerlines and substations constructed on BLM land would comply with the most current raptor protection standards (currently Reducing Avian Collisions with Power Lines: The State of the Art 2012 (APLIC 2012). Existing powerlines that have been identified as having problems with collision or electrocution of wildlife and do not meet APLIC standards would be corrected and modified to prevent future wildlife collision threats or electrocution…." The APLIC citation has been updated from 2006 to 2012.	
0069-26	Wildlife-Greater Sage-Grouse	The HiLine RMP fails to addresses noise impacts. Facilities that produce continual noise can affect the breeding vocalizations of greater sage-grouse. Continuous noise from industrial facilities, such as compressor stations, close to active greater sage-grouse leks would interfere with male greater sage-grouse strutting behavior which could reduce the reproductive success of greater sage-grouse using these leks. Audubon supports the protections presented in the Lander RMP Final EIS, especially given ongoing research: BLM-authorized human activity on this same area is prohibited between 1 hour before sunset to 1 hour after sunrise between March 1 and May 15, unless the activity is specific to inventorying, monitoring, or viewing greater sage-grouse. This action would prevent noise and disruptive activities in and around leks during the breeding season that could interfere with greater sage-grouse breeding and cause a localized population decline. Audubon strongly recommends that BLM carefully review existing research which relates to noise impacts on grouse, as these are suggesting threats to sage-grouse population viability – through abundance, stress levels, and behavior (Blickley et al. 2012, Blickley and Patricelli 2012). In a recent review prepared for the BLM Lander Field office and the Wyoming Game and Fish Department, they note, "Further research may find this threshold insufficient to protect sage-grouse—or too stringent. Further, these stipulations apply only within the lek perimeter, potentially allowing disturbance to foraging, nesting and brood-rearing habitat" (G.L. Patricelli et al. 2012).	Refer to Chapter 2, Wildlife, Decisions Common to All Alternatives, Mitigation Measures and Conservation Actions For Surface-Disturbing and Disruptive Activities and Appendix M. A ¼ mile lek buffer for noise and related disruptive activities including those that do not result in habitat loss (e.g., motorized recreational events) is required in PHMA and recommended in GHMA. The recommended literature has been reviewed and added to the bibliography for the Proposed RMP/Final EIS.	Yes

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0069-27	Wildlife-General	The current protections proposed in Alternative B and E are inadequate, closed to leasing within 0.5 mile of a Bald Eagle nest and winter roost sites (active within past 7 years) and NSO within 0.5 mile of Bald Eagle nest (active within past 5 breeding seasons), respectively. Table 2.21 DEIS at 192. Audubon instead refers the Montana BLM to adopt the protections outlined in the Lander RMP FEIS - prohibiting surface-disturbing activities within 1 mile of Bald Eagle nests and 1 mile for Ferruginous Hawk nests. Audubon does support the specificity of "nests active within the past 7 years and the inclusion of winter roost sites. Audubon recommends 1 mile buffer for all other raptors nests as well (BLM Special Status Raptors – Burrowing Owl, Swainson's Hawk, Peregrine Falcon, and Northern Goshawk). The USFWS (USFWS 2002a) identifies courtship, nest construction, incubation, and early brooding as higher risk periods in the life-cycles of raptors when adults are more prone to abandon nests due to disturbance. The USFWS (USFWS 2002a) also indicates that human activities resulting in disturbance to raptors can cause population declines. Therefore, seasonal restrictions and buffers around nest sites are intended to minimize disturbance to golden eagles. Audubon recommends that year-round exclusion areas also be considered for use, if circumstances require.	The 0.5 mile buffer is based on guidance from the Montana Bald Eagle Management Guidelines: Montana Bald Eagle Management Plan (1994); in cooperation with the Montana Bald Eagle Working Group.	No
0069-28	NEPA	The HiLine Draft RMP fails to provide any description of how climate change will be addressed. The BLM's Rapid Ecological Assessment (REA) program is discussed very briefly in the DEIS as a tool to "monitor and respond to the effects of climate change." DEIS at 260. The Northwestern Plains REA, which encompasses this planning area was initiated in Sept 2010 and is supposed to be completed in early 2013. We respectfully ask for greater clarity as to how this REA will be incorporated into this RMP.	This topic is addressed in the Climate Change section in Chapter 3 of the Proposed RMP/Final EIS. Additional information regarding USDI's efforts to respond to climate change is available from http://www.doi.gov/whatwedo/climate/cop15/index.cfm.	No
0071-01	Fluid Minerals	No Surface Occupancy (NSO) does not seem to mean (as would be expected) no occupation of the land surface (e.g., see "Exceptions" granted on pages 962 – 971). There are too many exceptions offered—and no public process spelled out that would allow the public to comment when exceptions are made. This needs to be corrected. If exceptions are made (waivers, exemptions and modifications) to NSO, the	• The public has the opportunity to be involved in the development of waivers, exceptions, and modifications (WEMs) during the RMP process. • The public has the opportunity to be involved in the application of lease stipulations during leasing environmental assessment (EA) reviews. • At the development stage, the public has the opportunity to be involved during	No

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		BLM needs to notify interested parties and allow for public comment, including an analysis under the National Environmental Policy Act. At a minimum, this public comment process and NEPA compliance should apply to the NSO provisions in sensitive areas for wildlife, including the Grassland Bird/Greater Sage-Grouse Priority Area, Greater Sage-Grouse Protection Priority Area, Areas of Critical Environmental Concern (ACECs) for Mountain Plover, raptors (see Kevin Rim below), and other BLM Sensitive Species.	NEPA reviews. NEPA logs are posted on the Montana/Dakotas BLM web site for public viewing and NOS/APDs are also posted for 30 days. • WEMs are applied using the best available information/data during the NEPA review and at the discretion of the Authorized Officer (AO). This process is also done in consultation with other Federal agencies, if needed (FWP, FWS, USFS, BOR, etc.)	
0071-02	Wildlife-General	Montana has a total of 40 Important Bird Areas, six of which are located partially or wholly within the HiLine District boundary: the Kevin Rim IBA; Lonesome Lake IBA; Bowdoin National Wildlife Refuge and IBA; Glaciated Prairie Sage-Steppe IBA, which contains the BLM's proposed Greater Sage-Grouse Protection Priority Area; Little Beaver Creek IBA, which corresponds to the Mountain Plover ACEC; and North Valley Grasslands, which contains the BLM's proposed Grassland Bird/Greater Sage-Grouse Priority Area. Management decisions and direction in the Final RMP/EIS should take into account the location of IBAs, applying appropriate protections to ensure the continued conservation value of these critical habitats. This is especially important given the rangewide population declines documented for birds that breed within grassland and sagebrush-steppe habitats, likely due to widespread habitat loss and alteration (Rich et al. 2004).	Kevin Rim IBA – Protected with special designation. Please refer to Appendix K. Lonesome Lake IBA – Protected by stipulations, Conditions of Approval and Best Management Practices. Please refer to Appendix C and Appendix E. Bowdoin NWR IBA – Managed by the USFWS; the BLM has no management authority. Glaciated Prairie Sage-Steppe IBA – Nearly all the public lands are protected with management from the Greater Sage-Grouse Protection Priority Area designation. Areas outside the Protection Priority Area would be protected by stipulations, Conditions of Approval and Best Management Practices. Please refer to Chapter 2, Wildlife, Alternative E (Preferred Alternative), Greater Sage-Grouse Protection Priority Area; Appendix C; and Appendix E. Little Beaver Creek IBA – Protected with special designation. Please refer to Appendix K. North Valley Grasslands IBA – Nearly all the public lands are protected with management from the Grassland Bird/Greater Sage-Grouse Priority Areas designation. Areas outside the Priority Areas would be protected by stipulations, Conditions of Approval and Best Management Practices. Please refer to Chapter 2, Wildlife, Alternative E (Preferred Alternative), Grassland Bird/Greater Sage-Grouse Priority Areas; Appendix C; and Appendix E.	No
0071-03	Wildlife-General	Specific information and a map on the IBAs within the HiLine District planning area appear below: • Kevin Rim IBA. This IBA includes the BLM's Kevin Rim ACEC. Ten species of	Language has been added to Chapter 3, Wildlife, Wildlife Species, Birds describing Important Bird Areas (IBAs). Since IBAs are not a BLM designation, maps will not be included in the EIS. BLM protections that	No

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		raptors breed within the IBA, four of which are of Global (Ferruginous Hawk), Continental (Swainson's Hawk, Prairie Falcon), or State (Golden Eagle) conservation concern. The site contains the highest known density of nesting Ferruginous Hawks in Montana. • Lonesome Lake IBA. Lonesome Lake is an ephemeral wetland surrounded by native short grass prairie. The lake is fed by spring runoff from three coulees. The IBA is a mix of BLM land and privately-owned ranchland. • Bowdoin National Wildlife Refuge and IBA. Land within this IBA is entirely managed by the US Fish and Wildlife Service (USFWS). • Glaciated Prairie Sage-Steppe IBA. This IBA contains the BLM's proposed Greater Sage- Grouse Protection Priority Area. The Montana Fish, Wildlife and Parks (FWP) sage-grouse core area identified in 2010 overlaps with this IBA, but is of a slightly different configuration. Located just north of the C.M. Russell National Wildlife Refuge, it contains high-quality sagebrush shrub-steppe that supports populations of Greater Sage-Grouse. • Little Beaver Creek IBA. This IBA corresponds to the BLM's Mountain Plover ACEC in recognition of the high number of Mountain Plovers that nest there. This IBA is recognized as being globally significant because of the high numbers of nesting plovers within its borders. • North Valley Grasslands IBA. This IBA contains the BLM's proposed Grassland Bird/Greater Sage-Grouse Priority Area, as well as the Montana Fish, Wildlife and Parks (FWP) sage-grouse core area identified in 2010. Located in Valley County, this IBA is composed of high-quality, largely unfragmented sagebrush-steppe and prairie grasslands that support populations of grassland birds, as well as Greater Sage-Grouse.	may protect some of these areas can be found in Chapter 2, Wildlife, Alternative E (Preferred Alternative), under Grassland Bird/Greater Sage-Grouse Priority Areas and Greater Sage-Grouse Protection Priority Area; and Appendices C, E and K.	
0071-04	Wildlife-Greater Sage-Grouse	Audubon's IBAs [important bird areas] are slightly different in size than the sage-grouse core areas established in 2010 by FWP. Because both efforts relied on the same initial approach to determining core areas, we suggest erring on the side of caution and considering both boundaries when determining the boundary of the BLM's HiLine District Sage-Grouse Protection Priority Areas (PA) and Grassland Bird/Greater Sage-Grouse PA,	Refer to Chapter 2, Wildlife, Alternative E (Preferred Alternative), Special Status Species. A shaded text box offers the following description for Grassland Bird/Greater Sage-Grouse Priority Areas: "Areas containing substantial and high quality grasslands that support large populations of a suite of special status grassland bird species. This suite of species includes the following species of concern:	No

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		avoiding development and disturbance within either the FWP identified core area or the Montana Audubon classified Important Bird Areas. Combining these two boundaries would specifically add acreage to both of the BLM's proposed Grassland Bird/Greater Sage-Grouse PA and Sage-Grouse Protection PA.	Sprague's pipit, chestnut-collared longspur, McCown's longspur, Baird's sparrow, and long-billed curlew. Management actions would emphasize the conservation and enhancement of sustainable grassland bird habitats. Areas are delineated by using survey results, predictive models of species distributions, and land ownership patterns. These areas also include core area for Greater Sage-Grouse identified by MFWP. Sage-grouse core areas are habitats associated with 1) Montana's highest densities of sage-grouse, based on male counts and/or 2) sage-grouse lek complexes and associated habitat important to sage-grouse distribution." In addition, a shaded text box offers the following description for the Greater Sage-Grouse Protection Priority Area: "An area with limited impacts containing substantial and high quality Greater Sage-Grouse habitat that supports high density Greater Sage-Grouse populations. Management actions would emphasize the conservation and enhancement of sustainable Greater Sage-Grouse habitat. The area is delineated by using "key," "core" and connectivity data/maps, land ownership patterns, and other resource information."	
0071-05	Vegetation	The following statement on page 138 is inaccurate: "[r]iparian protection will be provided by the Montana Streamside Management Zone Law…" (SMZ). The SMZ has more to do with forest practices than riparian protection. Reading the SMZ law, it does not allow clearcutting next to streams. In contrast, riparian protection means maintaining the suite of species typifying a riparian area—and the SMZ does not guarantee this at all. At a minimum, the DRMP/DEIS could indicate that the BLM will comply with the SMZ law when it conducts forest management practices—but to say this law is a significant source of riparian protection is not accurate (especially when the Preferred Alternative recommends 650 MBF harvest per year).	Montana Code Annotated (specifically, parts 77-5-301, 77-5-302, 77-5-303, 77-5-304, 77-5-305, 77-5-306, and 77-5-307) applies to the BLM's management of the Streamside Management Zone. The SMZ law is an additional tool that the BLM uses to maintain the suite of species typifying a riparian area. Besides riparian areas, floodplains receive special protection under Executive Order (EO) 11988 (1977), which directs federal agencies (including the BLM) to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains.	No
0071-07	Vegetation	We are concerned that under the current RMP, 35% (341 miles) of riparian areas are classified as "Streams Functioning at Risk" or "Streams Nonfunctioning." Although the DRMP/DEIS identifies grazing as causing 7% of the HiLine's streams from being less than PFC, it does not explain why so many	See Chapter 3, Vegetation – Riparian and Wetland, where the main causes of FAR conditions are detailed within paragraphs 11 and 12. Livestock grazing accounts for approximately 20% of FAR conditions. Also see Chapter 3, Water Resources,	No

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		riparian areas are degraded. Because of the sensitivity of this habitat, we would request that the BLM categorize the main causes for riparian degradation by percentage and/or miles, and describe how the agency plans to address the root causes of this degradation.	Factors Affecting Water Quality, Surface Water (Quality). This section has been updated from the 2008 Integrated Report Data to the 2012 Integrated Report Data. Livestock grazing had accounted for 7% of FAR conditions along stream segments identified by the DEQ and EPA as water quality impaired. The Proposed RMP/Final EIS has been updated to reflect the 2012 Integrated Report, which shows that percentage up from 7% to 9%. Additional language that identifies significant historical watershed alterations which have heightened the fragility of sensitive lotic environments (a significant part of the 'root' of degradation) has been added to Chapter 4, Water Resources, Assumptions and Guidelines. The BLM's plan(s) to address degradation are found in Chapter 2, in both the Objectives and Decisions Common to All Alternatives portions of the Vegetation – Riparian and Wetland and Water Resources sections.	
0071-08	Vegetation	Floodplains should be designated a NSO—with no ability to grant waivers, exemptions and modifications—for all development activities. We did not see where in the HiLine District DRMP/DEIS this issue was covered, but it is covered in other RMPs (e.g., Miles City DRMP/DEIS).	See changes made to Chapter 3, Water Resources, Floodplains. Stipulations for Floodplains have been adjusted and are available in Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under Alternative E (Preferred Alternative). Exceptions would still be granted by the authorized officer for surface occupancy but the operator must be able to demonstrate that: (1) there are no practicable alternatives to locating facilities in these areas, (2) the proposed actions would maintain or enhance resource functions, and (3) all reclamation goals and objectives would be met.	Yes
0071-10	Wildlife-Greater Sage-Grouse	The BLM is proposing two "Priority Areas" within the HiLine District: the first is the Greater Sage- Grouse Protection PA located just north of the Missouri River, the second is the Grassland Bird/Greater Sage-Grouse PA located in Valley County. These areas generally follow the boundaries of two ACEC nominations submitted in 2009 by the World Wildlife Fund and Montana Audubon (see Appendix I). Montana Audubon supports ACEC status for these two areas. These Priority Areas have no legal standing in the BLM—and could be changed with a new Administration	The Grassland Bird/Greater Sage-Grouse Priority Areas and the Greater Sage-Grouse Protection Priority Area encompass the priority sage-grouse habitat in the planning as identified by the BLM in consultation with Montana Fish, Wildlife and Parks (MFWP) and the U.S. Fish and Wildlife Service (USFWS). These priority habitats include sage-grouse core areas as identified by MFWP and priority areas of conservation (PACs) as identified by the USFWS. Refer to Map 2.18. These priority areas were considered for ACEC designation in Alternative B of the	No

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		in Washington, D.C. ACEC status is legally recognized. This designation is specifically recognized within the BLM, including in the Federal Land Policy and Management Act (FLPMA) and BLM Manual 1613, which require that the BLM give priority to the designation and protection of ACECs when it develops and revises its land use plans. We also believe that ACEC status is appropriate for the proposed PA areas for the following reasons: • BLM Manual 1613, item 33, requires the BLM to describe the "rationale for ACEC designations in the preferred alternative," as well as the "rationale for not proposing designation of a potential ACEC in the preferred alternative must also be provided. In other words, if the proposed plan does not call for special management attention of a potential ACEC in the preferred alternative (and therefore, it is not proposed for designation), the reasons for the decision not to provide special management attention must be clearly set forth." This requirement was not met in the HiLine DRMP/DEIS: these two ACECs were nominated in 2009; the rationale for not designating them as ACECs must be provided. • BLM Manual 1613, item .5 (Relationship of ACEC's to Other Designations), states that the "ACEC designation is the principal BLM designation for public lands "where special management is required to protect important natural, cultural, and scenic resources and to identify natural hazards."" BLM special management areas are supposed to be designated as ACECs. There is no official recognition of PAs—only ACECs. • BLM Manual 1613, item 53 C (Other BLM Designations And Management Areas/Special Management Areas Avoided), specifically states that the use of the terms "special area" or "special management area" are to be avoided. These terms are relative and have little useful meaning. This is required to avoid ambiguities and to provide an appropriate context to BLM designation of areas requiring special management attention, consistent with designation authority under the FLPMA and the planning regulations (43 CPR 1610.7)." Note that although PAs do not specifically use the term "special area" or "special management area," the concept behind PAs is exactly what	Draft RMP/EIS. The areas were not designated ACECs in the preferred alternative because the management prescriptions proposed in Alternative E (Preferred Alternative) for Greater Sage-Grouse and grassland bird habitat are sufficient to protect the relevant and important values of the potential ACECs. The management of sage-grouse and grassland bird habitat is discussed in Chapter 2 under Wildlife, Alternative E, Special Status Species, and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat.	

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		Manual 1613 was trying to avoid: ambiguities. • BLM Manual 1613, item 64 (Conformance Determinations and NEPA Compliance), specifically states that '[a]ll actions to be conducted or authorized by a BLM official must be in conformance with the provisions of the RMP as defined in 43 CPR l601.0-5(b). Whenever an ACEC may be affected by the implementation of an authorized or permitted activity, the decision instrument authorizing the specific action must include a description of the special management measures to be applied. An environmental analysis for a proposed action which might affect an ACEC must identify impacts, if any, on the ACEC and must incorporate by reference the pertinent portions of the EIS prepared for the RMP." Because of this provision, we believe ACEC status will provide far greater protection for these areas than a PA designation, because specific permitted activates would be subject to an environmental analysis under NEPA, which should include public comment. This provision will prevent an excessive number of waivers, exemptions and modifications to NSO stipulations.		
0071-12	Wildlife-Greater Sage-Grouse	Livestock Grazing: All alternatives maintain the current level of livestock grazing (see p. 457). Greater Sage-Grouse can be significantly impacted by grazing, particularly when grazing changes vegetation, fencing (see below), and alternative water facilities that can become a source for West Nile Virus. Because all BLM Alternatives maintain the current level of livestock grazing, this not an adequate range of alternatives. As an example, Table 4.8 (p. 413) shows a very narrow range of differences in "rangeland improvements" between the alternatives (varying between 0 acres for most of the categories to 170 acres).	Refer to Chapter 2, Alternatives Considered but Not Analyzed in Detail, No Livestock Grazing/Reduced Grazing.	No
0071-13	Wildlife-General	Any time the BLM authorizes changes to the NSO or Controlled Surface Use (CSU) stipulations in areas less than 4 miles from a lek, the public should have a chance to comment on the proposal and a site-specific NEPA analysis should be conducted. In addition, the BLM should issue an annual summary of all NSO and CSU stipulations authorized that are within less than 4 miles of a lek. In all sage-grouse areas where buffers are	Refer to Appendix E.4 for a discussion of waivers, exceptions and modifications. The issuance of an annual summary of all NSO and CSU stipulations authorized within less than 4 miles of a lek is not within the scope of this RMP/EIS. Also refer to Appendix M, Mitigation Measures and Conservation Actions For Greater Sage-Grouse Habitat, Fluid Minerals, Best Management Practices for Fluid Mineral Development.	No

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		used, energy development should be prevented—to the maximum extent possible—within 4 miles of active leks. Colorado (Colorado Steering Committee 2008) and Wyoming (Governor's Executive Order 2008) have adopted a 4-mile buffer to protect sage-grouse breeding habitat. These buffers were based on regional radio-telemetry data that indicated 80% of nesting occurred within 4 miles of leks. Thus, 20% of the nesting population in these regions may be compromised Noise: Facilities that produce substantial noise, such as compressor stations, should not be allowed near active sage-grouse leks. The BLM should develop a scientifically-defensible provision that has a buffer around industrial sources of noise. For example, all pump stations should be located at least 2 miles from the nearest active lek, but preferably more than 4 miles (Naugle et al. 2011). In addition to a buffer, noise should be prohibited between 1 hour before sunset to 1 hour after sunrise between March 1 and May 15 near leks, unless the activity is specific to inventorying, monitoring, or viewing greater sage-grouse.		
0071-14	Special Designa-tions-ACECs	Further Protect Kevin Rim ACEC. Kevin Rim ACEC deserves the highest level of protection. Conservation measures for this ACEC should maximize protection of raptor species nesting in the area (No Surface Occupancy for oil and gas leasing; it should be an exclusion area for wind development; and the area should be closed to solid mineral leasing). We request that the BLM implement one change to the Preferred Alternative: new communication facilities should NOT be located within the ACEC, even at the existing communication tower site. Instead, any new communication facilities should be located on BLM land outside the ACEC. With the 126-tower Rim Rock Wind Farm adjacent to this raptor-rich ACEC, it makes sense to reduce the number of tall structures in this area on public land – and not erect more communication towers. In addition, power lines should be placed underground unless there are extenuating circumstances.	This topic is discussed in Chapter 2, Special Designations, Kevin Rim ACEC, and Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives. Additional facilities would be placed at the existing communication site to minimize impacts to other public lands in the area.	No
0071-15	Vegetation	This DRMP/DEIS changes current restrictions in the Sweet Grass Hills for forest management, allowing the sale of commercial wood products. We could find no explanation for this change; nor could we find details on what level of commercial wood product sales would be allowed. The	Forest health treatments are discussed in the Forests and Woodlands section in Chapters 2 and 4 of the Proposed RMP/Final EIS. An array of silvicultural treatments that mimic ecological processes would be allowed in the in the Sweet Grass Hills ACEC to reduce fuels, improve land health, and	No

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		Final RMP/EIS should explain this change; it should also allow the public to comment on whether or not they agree with the reasoning behind the change, as well as the amount of wood product sales proposed.	restore fire regimes.	
0071-17	NEPA	The HiLine Draft RMP fails to provide any description of how climate change will be addressed. The BLM's Rapid Ecological Assessment (REA) program is discussed very briefly in the DRMP/DEIS as a tool to "monitor and respond to the effects of climate change" (p. 260). The Northwestern Plains REA, which encompasses this planning area, was initiated in Sept 2010 and was supposed to be completed in early 2013. We ask that the BLM provide greater clarity as to how this REA will be incorporated into the Final RMP/EIS.	This topic is addressed in the Climate Change section in Chapter 3 of the Proposed RMP/Final EIS. Additional information regarding USDI's efforts to respond to climate change is available from http://www.doi.gov/whatwedo/climate/cop15/index.cfm.	No
0072-03	Wilderness Character-istics	Please also reevaluate your inventory of Long Coulee, Carpenter Creek and Lena, as there is documented evidence of their wilderness characteristics. For all lands having wilderness characteristics, please manage for or restore those wilderness values when oil and gas leases expire or drilling has been completed.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0072-04	Wilderness Character-istics	To protect historic values, please extend the moratorium on mineral development in the Sweet Grass Hills.	This topic is discussed in Chapter 2 under Special Designations, Sweet Grass Hills ACEC.	No
0074-02	FLPMA	The Phillips County Land Resource Use Plan is not even listed in the RMP. The P.C. Growth Policy is not listed either and with the passage of House Bill 169, this also requires coordination with. This indicates that the RMP was not reviewed to see if it was consistent with our policies. Our Land Resource Use Plan was distributed to the BLM in electronic form as soon as it was adopted which was well before this RMP was completed.	The Phillips County Growth Policy and Phillips County Land Resource Use Plan have been added to Chapter 1, Development of Alternatives, Related Plans. Both documents have been reviewed for consistency with the Proposed RMP.	Yes
0074-04	Wildlife-Greater Sage-Grouse	Greater Sage grouse priority areas and Greater Sage grouse protection priority areas should be written the same as the general greater sage grouse areas wording, "consideration would be given to incorporating site specific greater sage grouse habitat and management objectives	Refer to Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, under Livestock Grazing, which includes the following measures: When conducting land health assessments:	No

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		as appropriate." Rather than on page 39 and 40 "Site specific greater sage grouse habitat and management objectives would be developed for BLM land and incorporated into respective allotment management plans or livestock grazing permits as appropriate."	• Prioritize allotments that have the best opportunities for conserving, enhancing or restoring habitat for sage-grouse. • Include (at a minimum) indicators and measurements of structure/condition/composition of vegetation specific to achieving sage-grouse habitat objectives (Doherty, et al. 2011). If local/state seasonal habitat objectives are not available, use sage-grouse habitat recommendations from Connelly, et al. (2000b) and Hagen, et al. 2007. Include terms and conditions on grazing permits and leases that assure plant growth requirements are met, and residual forage remains available for Greater Sage-Grouse hiding cover. Utilize techniques appropriate for uplands vs. riparian/meadow areas and enhancement vs. reclamation/restoration. Across all these types of projects consider singly, or in combination, changes as necessary: • Season or timing of use; • Numbers of livestock (includes temporary non-use or livestock removal); • Distribution of livestock use; • Intensity of use (utilization or stubble height objectives) • Kind of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats) • Class of livestock (e.g., yearlings versus cow calf pairs)	
0074-05	Public Safety	On page 323 Hazard Class Dams--You are a little behind, the PR19 was modified and updated several years ago.	Chapter 3, Public Safety, Hazard Class Dams has been updated to show that BR-12 Reservoir in Blaine County is now rated as high hazard: PR-19 Reservoir in Phillips County and Anita Reservoir in Blaine County are still rated as high hazard.	No
0074-06	Special Designa-tions-Wild and Scenic Rivers	On page 1105 Wild and Scenic Inventory: Several rivers and creeks or coulees inventoried are mostly on privately owned property. This decision must be made by the private land owners, not the Department of Interior! On page 1111 "There are no specific requirements for segment length" Only BLM controlled segments should be inventoried and considered.	This topic is discussed in Appendix L of the Proposed RMP/Final EIS. The section Identification of Eligible River Segments explains that the BLM limited the evaluation to only those lands that it administers as per BLM Manual 8351. Table L.1 lists all river segments that were considered during the evaluation process to determine the presence of BLM-administered lands.	No
0074-14	Lands and Realty	On page 38 "The BLM would consider opportunities to remove, bury or modify existing power lines." The BLM should not have the ability to remove power lines. This would have a negative impact on adjoining	In accordance with CFR 43 §2807.10 - §2807.22, stipulations for rights-of-way grants can be amended only when the grant is expiring or being renewed, being amended or assigned, or if the right-of-way	No

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		landowners.	is found to be out of compliance with the original terms and conditions (possible trespass). All cases that fall under one of these circumstances will be reviewed on a case-by-case basis for compliance with current laws and regulations. At that time new stipulations may be applied to the grants.	
0077-02	Water Resources	Although the current public debate focuses on contamination from hydraulic fracturing, other deficiencies such as faulty well casing, cement failure, and surface spills are all major threats to water quality and are the most common ways that water becomes contaminated in drilling operations. Earthjustice has documented with an interactive map many of the known contamination cases across the US.[3] One of those known incidences that is not on the map but is in the BLM RMP area, is water contamination on the Fort Peck Indian Tribe Reservation. Through the RMP, the BLM should make sure that stronger casing and cementing standards are in place. Updated standards are currently included in the draft chemical disclosure and well stimulation rules just released by the BLM mentioned above. [3] "Fracking Across the United States," Earthjustice, May 2011, http://earthjustice.org/features/campaigns/fracking-across-the-united-states.	Adherence to 43 CFR §3160; Onshore Oil and Gas Orders No.1, No. 2, and No. 7; and The Gold Book will serve to protect water quality through practices and programs that include compliance monitoring. Additional text referencing the hydraulic fracturing rule published as final on March 26, 2015 (80 Fed. Reg. 16128) was added to Chapters 2 and 4. Although the Fort Peck Indian Reservation lies outside the HiLine planning area, additional language has been incorporated in Chapter 3, Fluid Minerals, under Vertical, Directional, and Horizontal Drilling that applies to casing and cementing operations within the planning area. Operating standards are discussed in Appendix E.2; Water, Riparian Areas/Wetlands, Floodplains; Soils; and Wastes, Hazardous and Solid.	Yes
0077-04	Water Resources	The EPA has estimated that between 70 and 140 billion gallons of water are required annually for fracking.[6] This water is completely lost to the system since it is contaminated with chemicals and much of it is disposed of into deep-injection wells. This is in contrast to agricultural water use. Agriculture is the largest water user in Montana, but the water used is sent back into the overall water cycle. The BLM must study and address the increasing water use and loss from oil and gas development in the RMP. To do so, first, the BLM must analyze the amount of water available in the system. Some of the water uses in the area are documented under the Chapter 3 water section, however, the BLM has not yet documented the amount of water used for each federal oil and gas well to date. This needs to be done. Once documented, each well should have monitoring systems to ensure that the actual amount of water being used is accurate. The industry should not be	Water use and loss from oil and gas development is not included in the RMP because it would be speculative. A determination of the amount of water available in the system currently and into the future would be speculative and is outside the scope of this RMP. Identifying and documenting the amount of water used for each federal oil and gas well to date is outside of the scope of this RMP. Water use is discussed in the RMP under Alternative E.1 Oil and Gas Operations; Drilling Permit Process, Permitting, third and fourth paragraphs; and Surface Disturbance Associated With Exploratory Drilling, the eighth paragraph. See Chapter 4, Water Resources, Impacts Common to All Alternatives, Fluid Minerals. The Safe Drinking Water Act and implementing regulations (42 U.S.C. § 300h, and 40 CFR § 144) will assist the BLM's management actions and decisions associated with injection wells.	No

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		allowed to self-monitor. [6] "Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources," EPA, 2011.	The MBOGC has primary regulatory jurisdiction over the Underground Injection Control (UIC) Program for Class II injection or disposal wells which has a purpose of protecting underground sources of drinking water.	
0077-05	Water Resources	On a related note, in Chapter 3 under the water section, the BLM provides a water rights chart (page 373). It is unclear in this chart what commercial uses are. This should be defined below the chart since water marketing is increasing in areas in north eastern Montana due to demand from the Bakken, and if the BLM is undertaking water marketing, the impacts must be studied in the RMP.	See changes to Chapter 3, Water Resources, Water Rights, last paragraph.	Yes
0077-06	Air Resources	Climate change is also a concern that the BLM needs to take a hard look at. According to the Billings Gazette, "carbon dioxide emissions rose by more than 11 percent in Montana last decade as the state continued to have one of the highest per capita greenhouse gas emission rates in the country.[9]" This is extremely significant since the carbon dioxide levels in the atmosphere recently surpassed 400 parts per million. The impacts from oil and gas development alone will accelerate climate change, as will the cumulative impacts from the other proposed developments in the area such as the Keystone XL pipeline. The BLM is required to study and address the impacts of climate change. A simple solution would be putting some of the BLM minerals off limits to leasing. The preferred alternative does not do enough of this, and oil and gas development is by far the largest emitter of CO2 (page 439, Chapter 4). This needs to be addressed. [9] "Montana Greenhouse Gas Emissions Rose 11% Last Decade," Billings Gazette, May 14, 2013, http://billingsgazette.com/news/state-and-regional/montana/montana-greenhouse-gas-emissions-rose-lastdecade/article_5fb4b015-7c73-55e5-bdd9-f05d090d94b8.html#ixzz2VHt8n32G.	The Preferred Alternative restricts oil and gas leasing compared to the No-Action Alternative. The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and Appendix B, Section 1.5.2. Appendix C, Best Management Practices, Air Resource BMPs includes additional BMPs.	Yes
0077-07	Wildlife-General	Besides sage grouse, the endangered pallid sturgeon has the potential to come back into the RMP area. Oil and gas development can reduce riparian areas and add sediment and chemicals to the area's water resources. Strong setbacks requirements, no surface occupancy, and other conditions on all oil and gas leases near riparian areas and water	Refer to Chapter 2 of the HiLine RMP EIS. The BLM may recommend modifications to or disapprove a proposed activity that would contribute to a need to list plants, animals, or their habitats determined to be threatened, endangered, or other special status species, or that is likely to jeopardize	No

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		sources should be required to protect the endangered pallid sturgeon.	the continued existence of a proposed or listed species or its habitat. CSU - Prior to surface-disturbing or disruptive activities occurring in or within 1/2 mile of river or stream shorelines identified as pallid sturgeon habitat, a plan to maintain pallid sturgeon habitat would be prepared by the proponent and implemented upon approval by the authorized officer.	
0079-01	OHV Use and Travel and Transpor-tation Mgmt	I ask that all important wildlife habitats receive high priority for future travel planning. Now only 28,000 out of 2.4 million acres are proposed to be designated as High Priority for future Travel Planning.	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, Travel Management Areas.	No
0079-05	Lands and Realty	I request priority effort to gain public access to isolated BLM parcels to facilitate public land hunting opportunities.	See Appendix F, Land Ownership Adjustments, Acquisition Criteria.	No
0081-01	Wilderness Character-istics	For full protection, the HiLine District needs to manage these lands in the following manner (as proposed by the Billings Field Office): Close areas to oil and gas leasing, or allow leasing only with “no surface occupancy” stipulations with no exceptions, waivers, or modifications; Designate the areas closed to rights-of-way for power lines, pipelines and wind farms; Close the lands to construction of new roads; Manage the areas for semi-primitive non-motorized recreation, limiting vehicle use to protect wilderness values; Close the areas to mining; Restrict construction of new structures and facilities unrelated to the preservation or enhancement of wilderness characteristics.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0081-02	Wilderness Character-istics	In the HiLine District, BLM has assessed 26 areas as “lands with wilderness characteristics” for a total of 386,000 acres. And yet in BLM’s RMP preferred alternative, the agency will manage only two backcountry areas as “lands with wilderness characteristics.” Together, these two areas - Sage Creek and Square Creek - total only 10,700 acres. This is less than 3% of the lands that BLM itself said were “lands with wilderness characteristics.” BLM’s mission includes the obligation to manage wilderness resources, which to me means that BLM must manage all 26 lands identified as having wilderness characteristics for their wilderness values.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0083-04	Economics	{43 U.S. Section 1701 (a) (2)} of FLPMA also invokes coordination. In short, if any federal actions impacting local land use	The BLM considers the environmental, social, and economic impacts of all of the alternatives in the decision-making process.	No

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		management are to be implemented coordination must be properly addressed. If any alternative has a negative economic impact on rural communities, the BLM shall reconsider the alternative.	These impacts are presented in Chapter 4, Environmental Consequences.	
0086-01	Air Resources	BLM participates in the Montana-Idaho Interagency Smoke Management Coordination Strategy, along with other Federal Land Managers and DEQ. DEQ recommends incorporating information regarding the Montana-Idaho Interagency Smoke Management Coordination Strategy into the RMP.	See Chapter 3, Air Resources, Smoke Management.	Yes
0086-02	Air Resources	DEQ is concerned with the terminology used in the draft RMP. The draft RMP contains numerous terms with unique legal and technical meaning and implications under the CAA. In many cases, the draft RMP terminology is not clearly defined and may have different meanings than established by the CAA (i.e. - adverse impacts, increment analysis, air quality related values, design value, etc.).	See the Glossary for definitions of additional air resource terms, including exceedance, exceptional event, design value, Prevention of Significant Deterioration increment and increment analysis, potential to emit, and air quality related value. Adverse impact is a subjective term, which is not defined.	Yes
0086-03	Air Resources	NPS and FWS have asserted that all non-Class I areas under their jurisdiction should be considered to be sensitive Class II areas. The justification used to determine which areas should be considered sensitive Class II areas is unclear. Impacts to sensitive Class II areas would be modeled in the same manner as Class I areas; this is inconsistent with CAA requirements.	The BLM agrees that sensitive Class II areas are not afforded protection under the CAA. The BLM is working with other Federal Land Management Agencies under the Air Quality Oil and Gas Memorandum of Understanding (MOU) to address their concerns regarding AQRV impacts to sensitive areas. The Fish and Wildlife Service (FWS) stated verbally that mitigation of AQRV impacts at sensitive Class II areas would rarely be suggested by the FWS. The BLM requests MDEQ's continued participation in conference calls with members of the Air Quality Technical Workgroup formed to implement the MOU with regard to the HiLine District RMP.	No
0086-04	Air Resources	DEQ is concerned about the use of air quality modeling at the planning stage. Without project specific information, several assumptions must be made to complete the modeling, which results in a quantitative analysis based on assumptions rather than an informed scientific evaluation.	The BLM agrees with the MDEQ that modeling at the planning stage requires many assumptions. However, the Air Quality Oil and Gas Memorandum of Understanding (MOU) requires modeling and/or mitigation for every oil and gas EIS that may potentially have a significant impact on air quality or AQRVs.	No
0086-06	Air Resources	The draft RMP ARMP states that many small oil and gas emission sources are not required to obtain air quality permits from DEQ, unlike large stationary sources. This statement is misleading. As described above, DEQ implements a minor source program that requires sources with a PTE greater than 25 tons per year of any regulated air pollutant to apply for a permit to construct	Additional description of the MDEQ air quality program and associated regulations has been added to Appendix B, Section 1.5.	Yes

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		pursuant to the MAQP requirements or register with the DEQ pursuant to the registration requirements under the Administrative Rules of Montana. The vast majority of sources become regulated as a result of Montana's minor source permitting and registration programs. In addition, many sources that fall below the 25 tons per year threshold have equipment standards and emission control requirements established through applicable New Source Performance Standards (NSPS).		
0086-07	Air Resources	The draft RMP states that the oil and gas emission inventories were generally based on emission standards required by DEQ and EPA. The draft RMP identifies new Federal regulations and states that the oil and gas emission inventories will be updated in the final RMP to address these regulatory changes. However it is not clear if BLM considered DEQ's reasonable precautions or emission control requirements in the inventory development. DEQ requests that BLM review their emission inventory assumptions and calculation for inconsistencies and ensure all applicable emission reduction requirements are considered and incorporated into the final RMP emission inventory as appropriate.	Emission inventories presented in the Chapter 4, Air Resources, alternative-specific impacts sections and in the Air Resource Technical Support Document (available at http://blm.gov/8qkd) have been updated to reflect additional MDEQ regulations.	Yes
0086-08	Air Resources	Monitoring information provided in the draft RMP should be updated to reflect the current monitoring program. With the exception of the NCORE monitoring station, carbon monoxide monitoring was suspended throughout the state at the end of March 2011. In addition, the Glacier National Park monitoring station is referenced in the RMP as both a SLAMS and CASTNET site. It should only be listed as a CASTNET site.	Air quality monitoring data have been updated. See Chapter 3, Air Resources, Air Quality Monitoring.	Yes
0086-09	Air Resources	DEQ requests that BLM review the monitoring station data provided within the draft RMP and supporting documents to ensure the ambient air quality concentrations were calculated appropriately when comparing to the NAAQS standards.	Air quality monitoring data have been updated. See Chapter 3, Air Resources, Air Quality Monitoring.	Yes
0086-10	Air Resources	BLM has proposed monitoring-based mitigation measures in which monitoring data may trigger enhanced mitigation measures that are beyond BACT and NSPS. Under CAA authority, DEQ is required to take into account environmental benefit and economic and technical feasibility prior to requiring similar measures.	If monitoring-based mitigation measures are needed to address air resource concerns, the BLM will work closely with MDEQ to identify mitigation measures that can be applied under the CAA to federally authorized and non-federally authorized oil and gas activity. In some cases, if MDEQ does not have sufficient legal authority to implement needed mitigation measures, the BLM may impose mitigation measures on BLM-authorized activities only. This is not BLM's preference since the mitigation	No

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			would address only a portion of emission-producing activities.	
0086-11	Air Resources	DEQ is concerned that BLM may implement management strategies for the entire planning area based on a single monitored exceedance. DEQ recommends that BLM consider establishing spatial limitations when requiring enhanced mitigation measures. It would be inappropriate to mandate mitigation measures for an entire planning area that are not consistent with the CAA.	See Appendix B, Section 6.2.4 for language limiting the geographic scope of mitigation measures.	Yes
0086-12	Air Resources	Prior to completion of the photochemical grid modeling (PGM), BLM would review NAAQS exceedances and determine if enhanced mitigation is warranted. BLM has proposed to monitor EPA's Air Quality System (AQS) database to determine if monitoring data is showing an exceedance. It is not clear what criteria BLM will use to determine if an exceedance has occurred. DEQ requests that BLM include an explanation of how an exceedance will be determined in the RMP. Additionally, once data is posted to the AQS, even though available for review, the data may not be certified for several months. It would be inappropriate to compare uncertified data to the NAAQS. Additionally, DEQ cautions BLM against imposing enhanced mitigation measures based on uncertified data.	See Appendix B, Section 6.2.1 for language requesting concurrence from the MDEQ and USEPA on any potential exceedances.	Yes
0086-13	Air Resources	Following completion of the PGM, BLM has proposed to calculate site specific design values for each pollutant monitored at a federal reference monitor within the planning area. If a BLM calculated design value is greater than 85 percent of the NAAQS, enhanced mitigation measures would be evaluated and selected by the BLM, in cooperation with DEQ, etc., when appropriate. It is unclear to DEQ what criteria BLM will use to determine when it is appropriate or not appropriate to consult with DEQ. Additionally, establishing a threshold of 85 percent of the NAAQS does not appear to have any legal basis within the CAA. It is unclear under what authority BLM plans to implement mitigation measures based on this proposed threshold.	See Appendix B, Section 6.2.4 for revised language indicating that the MDEQ would be consulted when identifying mitigation measures. The BLM agrees with the MDEQ that the CAA does not include an 85 percent threshold. The BLM's mandate is to protect air resources and the BLM will begin reviewing oil and gas emission impacts when ambient monitoring indicates that air pollutant concentrations are approaching the NAAQS. This process should allow enough time to consult with MDEQ and formulate actions, if needed, in order to prevent NAAQS violations.	Yes
0086-14	Air Resources	It is unclear within the draft RMP who and how the proposed mitigation measures will be implemented and how DEQ would be involved in these efforts. DEQ must consider the implementation of any new requirements and ensure that these requirements are incorporated in a way that is consistent with DEQ's implementation	The BLM seeks to reach a Memorandum of Understanding with the MDEQ in order to address future implementation issues.	No

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		authority. Furthermore, DEQ is concerned that BLM does not sufficiently recognize the potential conflicts and confusion certain proposed mitigation measures may cause with implementation of DEQ's air quality program.		
0087-01	NEPA	BLM has failed to explain its rationale for selecting the Preferred Alternative. It is inadequate for BLM to simply identify a preferred alternative without providing detailed analysis that supports WHY such an alternative is in the best interest of the agency and public. According to the BLM's Land Use Planning Manual and Land Use Planning Handbook, II.A.7, pg. 22 (Rel. 1-1693 03/11/05), BLM must identify how the Preferred Alternative best meets the multiple use and sustained yield requirements of FLPMA. This lack of meaningful analysis constitutes a fatal flaw in the DEIS. Therefore, in accordance with 40 CFR 1502.0(a), we find the DEIS "inadequate as to preclude meaningful analysis" and recommend the agency prepare and circulate a revised draft which provides the analysis necessary to support each of the management alternatives, including the preferred alternative.	Rationale for selecting the Preferred Alternative is presented in the Introduction section of Chapter 2.	No
0087-04	NEPA	Another significant flaw in the DEIS is the conspicuous lack of resource maps, in particular wildlife and plant maps. The lack of maps is especially egregious because it makes it impossible to discern where BLM proposes specific management actions, which is a primary objective of NEPA, as discussed above.	Map 2.4 provides a general overview of stipulations for Alternative E. The overview includes not only NSO, CSU and TLS for a variety of wildlife species, but also for special designations such as ACECs, TCPs and WSAs. Individual maps for species with stipulations in Alternative E can be found in Chapter 3, Wildlife, Figures 3.18-3.23 (pronghorn winter range, mule deer winter range, elk winter range, bighorn sheep distribution, black-tailed prairie dog habitat, Greater Sage-Grouse winter range). A vegetation map of the HiLine planning area is available on the RMP website at http://blm.gov/8qkd. Reference to this map (W.13) has been added to the Final RMP/EIS in Chapter 3, Vegetation – Rangeland and Vegetation – Riparian and Wetland.	Yes
0087-05	Fluid Minerals	An indicator of industry's interest in the HiLine planning area is demonstrated by the fact that a significant portion of the planning area is already under lease for oil and gas resources. However, the DEIS is not clear regarding how many tracts have actually been sold along with the total acreage they	While leasing is a precursor to eventual development, it isn't always the case. Many leases are let in a prospective manner, and it is not uncommon for these leases to expire without seeing any real development. • The 803,656 acreage total equals the last	No

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		encompass. For example, • Chapter 2, Page 2-38 indicates that "existing oil and gas leases (803,656 acres) will continue according to the respective stipulations until they expire." • Chapter 3, Page 3-275 states "In February 2011, more than 939,700 acres of federal minerals were leased for oil and gas within the planning area • Chapter 3, Page 3-293 states "Between 1998 and 2012, approximately 270 federal leases consisting of approximately 254,176 acres were nominated and offered for lease in the planning area. As of December 2012, 1,199 existing federal oil and gas leases covered 804,873 acres, or approximately 19% of the federal oil and gas mineral estate in the planning area." Accurate leasing figures along with acreages need to be included in the final planning documents. This another example of the inconsistencies found throughout the planning document that must be remedied.	known amount of acreage prior to issuing the Draft RMP/EIS. Lease acreage figures vary as new leases are let or existing leases expire. • The 939,700 acreage value reflects the lands leased as of February 2011. So, between February 2011 and the time that the Draft RMP/EIS was issued to the public, 136,044 fewer acres were leased (939,700 – 803,646 = 136,044). • Again lease acreages vary as new leases are let or existing leases expire. In comparing this to the other two bullets above, less acreage was under lease in December 2012 than in February 2011; however, even less acreage was under lease at the time the Draft RMP/EIS was issued to the public. This indicates a downward trend of lands under lease, which makes sense because new oil and gas leasing has been minimal in anticipation of the Proposed RMP/Final EIS.	
0087-06	Fluid Minerals	Section 363 of the Energy Policy Act of 2005 (EPAct) requires federal land management agencies to ensure that lease stipulations are applied consistently and to ensure that the least restrictive stipulations are utilized to protect many of the resource values to be addressed. The DEIS ignores established BLM policy that states "the least restrictive stipulation that effectively accomplished the resource objectives or uses for a given alternative should be used." Moreover, BLM has failed to demonstrate that less restrictive measures were considered but found insufficient to protect the resources identified. A statement that there are conflicting resource values or uses does not justify the application of restrictions. Discussion of the specific requirements of a resource to be safeguarded, along with a discussion of the perceived conflicts between it and oil and gas activities must be provided. Clearly, an examination of less restrictive measures must be a fundamental element of a balanced analysis and documented accordingly in the FEIS.	This topic is discussed in Appendix E.1. Oil and Gas Operations, Oil and Gas Leasing.	No
0087-07	Fluid Minerals	An examination of less restrictive measures must be a fundamental element of a balanced analysis and documented accordingly in the FEIS. Moreover, under EPCA BLM is required to identify impediments to oil and gas development. It was the intent of Congress that access to	EPCA is discussed in Appendix E.1. Oil and Gas Operations under Oil and Gas Leasing. Chapter 4, Fluid Minerals, Impacts Common to All Alternatives, states the following: "While an NSO stipulation would not entirely preclude a lease from	No

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		energy resources be improved. BLM recognized the intent of the both Phases I and II of the EPCA review when it issued Instruction Memorandum 2003-233, Integration of the Energy Policy and Conservation Act (EPCA) Inventory Results, into the Land Use Planning Process. Consequently, BLM Field Offices are now required to review all current oil and gas lease stipulations to make sure their intent is clearly stated and that stipulations utilized are the least restrictive necessary to accomplish the desired protection. Moreover, the IM directs that stipulations not necessary to accomplish the desired resource protection be modified or eliminated using the planning process. BLM asserts it would set aside only 4 percent of the federal mineral as closed to oil and gas leasing. However, this is highly deceptive due to the imposition of No Surface Occupancy (NSO) stipulations on nearly 2 million acres under the Preferred Alternative. This overzealous use of NSO in reality puts most of the FO out of reach for new oil and gas exploration and development and would compromise expansion of existing development.	being developed, the restriction of surface occupancy would require that any wells and associated facilities be located on adjacent lands. Directional and horizontal drilling technology may allow an operator to effectively reach out and develop some of the smaller blocks of NSO-leased lands; however, larger contiguous blocks of NSO would very likely be precluded from any future development." (emphasis supplied)	
0087-08	Fluid Minerals	Page 3, Chapter 1, states "The BLM administers approximately 2,437,000 acres of public land and 4,240,000 acres of federal minerals within the planning area in Blaine, Chouteau, Glacier, Hill, Liberty, Phillips, Toole, and Valley Counties" for a total of 6,677,000 acres subject to BLM management. COMMENT: When the acreage figures in Table 2.2 are tabulated by alternative, it is apparent BLM has only addressed about half of the acreage under its jurisdiction. The leasing categories for each alternative add up to approximately 3,491,450, give or take 1,000 acres. What is BLM's proposed management for the remaining 3.2 million acres? If this acreage is subject to the management controls of other agencies, why aren't they identified in the DEIS?	Public land refers to the surface lands administered by the BLM, while federal minerals refer to lands where the BLM administers the mineral estate. Sometimes these lands overlap. Refer to Appendix E.1 Oil and Gas Operations, Regulations, Laws and Special Procedures, Split Estate.	No
0087-09	NEPA	On the whole, the DEIS lacks the analysis required to successfully or scientifically justify these dramatic proposed changes in management. Even though BLM has quantified the impacts this alternative would have on activities, including oil and gas, it fails to adequately describe the need for such changes. It is incumbent upon BLM to clearly and specifically explain why current	Chapter 4 of the Proposed RMP/Final EIS provides a detailed description of the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2.	No

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		management strategies have proven inadequate in managing the variety of resource values that exist within the planning area. BLM has failed to provide this information in the DEIS which is why it fails to comply with the requirements of NEPA.		
0087-10	Wildlife-General	Page 726, Chapter 4 – "Although much of the short-term effects to wildlife habitat and populations are mediated by reclamation, those reclaimed areas adjacent to or surrounding long-term habitat disturbance do not necessarily result in reclaimed wildlife habitat. Many species often avoid areas of long-term surface disturbance and disruption resulting in long-term indirect effects. The number of wells anticipated in the high and moderate potential areas are also expected to result in most of these potential areas being within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.96)." COMMENT: The paragraph above is specifically attributed to fluid mineral development. There are many measures that BLM has apparently failed to consider which ameliorate such impacts on a broad scale. Concentrated habitat disturbance is typically short-term in nature because they are the result of initial construction activities. Once a well is completed and put into production, interim reclamation can significantly reduce the footprint of the activity and access to the site is substantially reduced. For facilities that require long-term placement, measures to limit their impact can be utilized, such as combining them to a single location, where technically and economically feasible. With respect to the type of reclamation that is undertaken, industry complies with the parameters established by BLM, such as seeding and contour of the site. We object that BLM has chosen to ignore the many measures that can, and are, taken to lessen the impact of activities in wildlife habitat.	Reclamation for fluid mineral development is discussed in Appendix C and Appendix E.1.	No
0087-14	Air Resources	BLM's proposed management clearly exceeds its authority by attempting to control air emissions and air quality despite the regulatory boundaries included in the Clean Air Act (CAA). Under the CAA, only the Environmental Protection Agency (EPA) and its delegates have sole authority for such regulation.	See Appendix B, Section 1.5.3 for a description of the BLM's authority to manage air resources.	Yes

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0087-15	Air Resources	The numbers documented in the DEIS show exceedances of PSD increments. The analysis is far from appropriate for evaluating air quality impacts and must be removed from the document. It is the responsibility of MDEQ to implement the PSD permitting program for major sources. It is inappropriate for BLM to apply this analysis on a wide scale using these extreme estimates because they produce false results that some may believe are real potential impacts. This is an unsuitable use of this analysis process and is very misleading to all interested parties. Also, under any and all alternative scenarios, BLM concludes that current levels and any future potential increases in emissions are expected to comply with the NAAQS and MAAQS. We recommend that BLM revise its approach in the revised DEIS and subsequent Record of Decision (ROD).	As stated in Chapter 4, Air Resources, Near-field Criteria Air Pollutant Concentrations, the PSD increment analysis is not a regulatory analysis and is presented only to provide context.	No
0087-16	Air Resources	Page 424 – "As described in the ARMP in Appendix B, the BLM is actively acquiring needed data to perform PGM, which is expected to be completed after this RMP is complete." Page 425 – "The CALPUFF modeling effort would include estimated emissions from BLM-authorized oil and gas activities. This modeling would be completed prior to publication of the Final RMP/EIS." COMMENT: Both of these projects are being conducted outside of BLM's jurisdiction. Additionally, there is no indication that BLM will afford the public an opportunity to review and comment upon these future actions. We are extremely concerned that the oil and gas industry will be impacted by the results of these emission inventories and modeling exercises in the form of potential mitigation measures being imposed on lease agreements for individual operations. Again, the DEIS mentions collaboration with AQTW and MDEQ on modeling protocol development for the future modeling; however, there is no mention of seeking industry involvement in this process. There is mention of making results available to the public, but no mention of public participation in determining the methods of conducting the modeling. We strongly urge BLM to involve the affected parties, in particular the oil and gas industry, in future modeling efforts.	Operators of oil and gas sources were solicited to provide emission inventory information for the regional oil and gas inventories for the Williston and Central Montana Basins. Many operators participated. These emission inventories were developed using methodologies similar to the Western Regional Air Partnership (WRAP) Phase III oil and gas emission inventories for other regions of the nation. Results from the 2011 Williston and Central Montana Basin inventories will be made available to the public and comments will be solicited prior to completion of final emission inventory reports. These data will be used as the basis for future photochemical grid modeling. Modeling protocols for land use planning NEPA analyses are developed by the BLM in collaboration with the AQTW. CALPUFF and VISCREEN results are provided in Chapter 4, Air Resources, AQRV Impacts. No mitigation measures were necessary based on VISCREEN and CALPUFF modeling results. The ARMP in Appendix B, Section 6.3 provides a summary of the process for identifying potential future mitigation measures based on photochemical modeling results.	Yes
0087-17	Air Resources	Any emissions estimates must take into account the amount of electrification	Emission inventories were updated to address recent EPA regulations and are	Yes

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		occurring. Additionally, gas sales on the upstream side of industry are expected to increase significantly as pipeline availability increases. For example, within the last year industry has electrified hundreds of oil and gas wells and, as a result, no longer has natural gas lifting engines or gasoline-fired recycle pump engines. Furthermore, more gas is being sold from sites as the natural gas pipeline/processing infrastructure has been expanding, thus "actual" flaring data clearly would not be representative to use in extrapolating for future predictions. The DEIS must also take into account the reduction in emissions associated with the New Source Performance Standards (NSPS) and the National Emission Standards for Hazardous Air Pollutants (NESHAP) 1 also known as Maximum Achievable Control Technology (MACT) standards. Implementation of these regulations will reduce emissions in the planning area. All of these items lead to considerable concern about BLM's ability to accurately estimate emissions, and thus ambient impacts and we strongly urge BLM to reconsider its proposal.	provided in Chapter 4, Air Resources, alternative-specific impacts sections and in the Air Resource Technical Support Document (available at http://blm.gov/8qkd). Without commenter submission of specific data concerning electrification, the BLM conservatively estimated emissions based on diesel and natural gas fueled equipment.	
0087-18	Air Resources	Page 421 - "Due to the relatively low density of expected oil and gas activity in most of the HiLine, far-field criteria air pollutant concentrations are expected to remain low." Page 424 - "Qualitative assessments of far-field air resource impacts for additional criteria air pollutants are provided below."… COMMENT: Based on monitoring data from Sidney, MT, the qualitative analysis demonstrates expected compliance with the NAAQS. MDEQ is now operating two new air quality monitoring stations in Malta and Lewistown, MT. These sites will confirm the areas' compliance with the NAAQS. Consequently, we strongly object to the agency's use of any newly created "mitigation design value." Since MDEQ already has an approved program along with the requisite expertise to handle the calculations of an appropriate design value, why does BLM feel compelled to develop a separate program? Moreover, the Clean Air Act has already established extensive actions based on actual scientific monitoring data. BLM should only use approved design values prior to implementing mitigation measures on sources in the planning area.	The Clean Air Act's regulations impose extensive actions after ambient air quality monitoring indicates violations of the NAAQS and exposure of the public to unhealthy air quality. As explained in Appendix B, Section 1.5.3, the BLM has mandates under FLPMA to protect air resources and prevent violations of the Clean Air Act. As described in Appendix B, Section 4.1, the BLM will use only quality-assured monitoring data when determining mitigation design values and will confer with the MDEQ and EPA concerning these values.	No

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0087-19	Air Resources	Page 425 - BLM acknowledges that the planning area is an area of "good" air quality and states that it intends to use both monitoring and modeling data to "identify mitigation measures to address unacceptable impacts" COMMENT: We are disturbed that BLM has not included a definition as to what it believes constitutes "good" air quality and what "unacceptable impacts" would be. As such, it is impossible to provide comments in any knowledgeable fashion when these terms are undefined and the information used to make these decisions has not been publically vetted.	"Good" air quality summarizes the monitoring data provided in Chapter 3, Air Resources, Air Quality Monitoring, which show that air pollutant concentrations are well below the NAAQS. An example of an unacceptable impact includes a violation of the NAAQS or an air pollutant concentration trend showing the potential for a future violation of the NAAQS.	No
0087-20	Air Resources	The state operates an EPA approved air quality program, and as it has been demonstrated, the planning areas have no concerns with air quality. As a result, the requirement to implement Tier 4 engines is unwarranted because it transcends current statutory requirements. There is discussion in the initial mitigation measures that sources will be required to consolidate facilities to reduce fugitive emissions. However, these consolidation determinations are either redundant or overly restrictive for the control of fugitive emissions, since emissions are successfully mitigated through existing regulations. Once again, BLM would exceed its authority.	Current regulatory requirements include compliance with the NAAQS. Near-field AERMOD modeling of non-Tier 4 engines indicated potential exceedances of the 1-hour NO_2 standard at locations close to well pads, where ambient air quality monitoring data are not available. Modeling of Tier 4 engines indicated no such concern. As described Appendix B, Section 6.1, oil and gas operators must use drill rig engines meeting Tier 4 emission standards unless modeling or monitoring demonstrate compliance of non-Tier 4 engines. Facility consolidation protects air resources and other resources, including wildlife and habitat. The BLM's authority with respect to air resources management is discussed in Appendix B, section 1.5.3.	Yes
0087-21	Air Resources	While the "Monitoring-Based Mitigation" process is seemingly a very deliberate process to determine cause or contribution, the potential enhanced mitigation measures to be imposed are nothing short of excessive in light of that fact that the determination is made based on a single source contribution of a single exceedance at a single monitor. A single exceedance, even if the data is valid, certainly does not constitute a violation of the standard and may not even be indicative of a trend or pattern. The potential enhanced mitigation measures themselves are uncompromising and in only one case may the possibility exist that BLM will take into account technical and economic feasibility. Also, the DEIS states that BLM can decide on any additional measures it chooses. Again, this is done with no involvement with the public or the regulated industry and is based simply upon a single exceedance at a single monitor. The "Determination of Enhanced Mitigation Measures after Photochemical Grid Modeling Completion"	Provisions within Appendix B, Section 6.2.1 were developed in conjunction with the EPA under the Air Quality Oil and Gas Memorandum of Understanding (MOU, see the DOI 2011 entry in the Bibliography). These measures are temporary and are designed to protect air quality until future PGM can be completed. Mitigation measures will be determined in conjunction with the EPA and MDEQ and will consider the appropriate geographic area for mitigation, as described in Appendix B, Section 6.2.2 and 6.2.4. Imposition of any such measures would be subject to appropriate NEPA and other environmental review.	Yes

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		section determines potential enhanced mitigation measure implementation based on reaching 85% of the design value. However, it does not state any process in determining which facilities this will apply to.		
0087-22	Air Resources	Page 424 - The DEIS discusses the fact that AQRV analysis will be fully conducted using the CALPUFF and PGM modeling results. COMMENT: We object that there is no opportunity afforded to the public to comment on this analysis and are concerned that potential mitigations will be imposed based on the outcome of the analysis.	CALPUFF modeling results are provided in Chapter 4, Air Resources, AQRV Impacts. No mitigation measures were identified and no mitigation measures will be implemented based on CALPUFF modeling. Photochemical grid modeling results will be provided to the public on the Glasgow, Havre, and Malta BLM websites when they become available, as described in Appendix B, Section 5.1.4.	No
0087-23	Lands and Realty	The DEIS fails to explain what types of special mitigation measures may be required to protect sensitive resource values. BLM needs to provide direction as to the types of mitigation it would consider effective rather than leaving such decisions opened ended and solely in the realm of a Natural Resource Specialist.	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: "Terms and conditions for rights-of-way, corridors, and development areas (oil and gas) will incorporate applicable BMPs, current professional practice, and recent scientific findings."	No
0087-24	Wildlife-General	The species habitat delineations in the RMP/DEIS are wholly inconsistent with those identified by the Montana Department of Fish, Wildlife & Parks (MFWP). We ask BLM to explain these discrepancies in the final planning document, particularly due to the fact that the State manages most of the species for which habitat is identified. Such discrepancies are highly problematic for operators who work on both State and private lands that may be adjacent to public lands because two separate processes could be required for the same project in circumstances where projects cross jurisdictional boundaries. We strongly recommend that BLM work closely with State agencies to eliminate the discrepancies in wildlife data and spatial representations utilized by BLM in the draft planning documents.	Species habitat delineations may not always align with MFWP or other partners due to scale. The MFWP mapping is broader at a statewide scale, while the BLM is generally more precise at a smaller geographical area.	No
0087-25	Wildlife-General	While the NSO, CSU, and TLS for fish and wildlife species may have been aggregated in Map 2.4 "Fluid Mineral Leasing Stipulations for Future Leasing" (Alternative E – Preferred), BLM failed to separately map the habitat areas with associated management restrictions for several species. It is crucial for BLM to map habitat areas that may or may not include restrictions and management prescriptions separately from maps that illustrate the overall restrictions on future fluid mineral	Map 2.4 provides a general overview of stipulations for Alternative E. The overview includes not only NSO, CSU and TLS for a variety of wildlife species, but also for special designations such as ACECs, TCPs and WSAs. Individual maps for species with stipulations in Alternative E can be found in Chapter 3, Wildlife, Figures 3.18-3.23 (pronghorn winter range, mule deer winter range, elk winter range, bighorn sheep	No

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		leasing. Therefore, we strongly recommend that BLM provide habitat maps which show land-use restrictions, including special management areas for all species discussed in Chapter 2 of the DEIS.	distribution, black-tailed prairie dog habitat, Greater Sage-Grouse winter range).	
0087-26	Wildlife-General	BLM has no scientific basis to preclude or severely restrict leasing in identified mountain plover habitat through the designation of the "Mountain Plover ACEC." In May 2011, the US Fish and Wildlife Service (FWS) determined that listing the mountain plover under the ESA was not warranted, estimating that "the current mountain plover breeding population to be over 20,000 birds, more than double the estimate cited in [its] 2002 proposal." (1 "Mountain Plover Factsheet." U.S. Fish & Wildlife Service. Last updated: August 2011. Available at: http://www.fws.gov/mountain-prairie/species/birds/mountainplover/) In addition, the Service concluded that "despite the prevalence of energy development activities throughout the range of the mountain plover, there is little evidence as to whether, or to what extent, the overall effects of energy development are detrimental to mountain plover (Andres and Stone 2009, p. 25). Although oil and gas field development modifies and fragments nesting, brood rearing, and foraging habitats, mountain plover continue to use these areas (Smith and Keinath 2004, p. 36; Carr, in review)" 76 FR 27782. Prohibiting fluid mineral leasing or adding NSO stipulations to well over 300,000 acres in the planning area does fails to correspond with the FWS' listing determination for the species and is not justified through any peer-reviewed science since that decision was made. As such, the NSO stipulations proposed for oil and gas leasing in areas within mountain plover habitat is completely arbitrary and capricious and should be eliminated from the revised DEIS.	The mountain plover is a BLM sensitive status species. BLM Manual 6840 states: "The purpose of this manual is to provide policy and guidance for the conservation of BLM special status species and the ecosystems upon which they depend on BLM-administered lands. BLM special status species are: (1) species listed or proposed for listing under the Endangered Species Act (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau sensitive by the State Director(s)." BLM Manual 6840 also states: "The objectives of the BLM special status species policy are: A. To conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species. B. To initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA." For disturbances including pedestrian foot traffic and continual equipment operations, a 1/4 mile buffer is recommended. Smith, Hamilton, and Douglas A. Keinath. "Species assessment for Mountain Plover (Charadrius montanus) in Wyoming." Unpublished report, Bureau of Land Management, Cheyenne, WY (BLM 2004d).	No
0087-27	Wildlife-General	Language in Chapter 4 of the DEIS implies that NSO stipulations that apply to all mountain plover habitat will also apply to areas that have already been leased. We remind BLM that any stipulations for mountain plover that may be applicable for future leases may not be imposed on valid existing leases simply because a plan amendment has been prepared. Further, restrictions on surface-disturbing and disruptive activities that are inconsistent with the original lease terms may not be consistent with valid existing lease rights.	Per 43 Code of Federal Regulations (CFR) 3101.1-2, conditions of approval are deemed consistent with lease rights provided they do not require relocation of proposed operations by more than 200 meters, mandate that operations be sited off the leasehold (i.e. no surface occupancy), or prohibit new surface-disturbing activities for a period of more than 60 days in a lease year. This is also mentioned in Chapter 2, Fluid Minerals, Decisions Common to All Alternatives.	No

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0087-28	Wildlife-General	Page 2-195 - "TLS - Surface occupancy and use is prohibited within 1/4 mile of mountain plover habitat from April 1 through July 15." COMMENT: This restriction will result in the prohibition of surface occupancy and use on an additional 23,186 acres from April 1 through July 15. We are unable to locate in the DEIS any scientific justification that an additional ¼ buffer around mountain plover habitat, on top of already designating over 285,000 acres as NSO, is necessary to protect the species during nesting season. In addition, while BLM has mapped the Mountain Plover ACEC, the DEIS does not contain a separate map that delineates the lands identified as mountain plover habitat or the area within ¼ mile of habitat where surface occupancy will be seasonally prohibited. A new map needs to be included in the revised DEIS.	Mountain plover habitat is discussed in Chapter 3, Wildlife, Montana BLM Sensitive Species, Mountain Plover, and includes the following language: "Mountain plovers migrate into the planning area in late April to breed and typically leave by early September. Mountain plovers on BLM land in Phillips and Blaine Counties are often associated with black-tailed prairie dog towns (see Wildlife Habitat section above); while in Valley County they are found in hardpan locations around Little Beaver Creek. The Little Beaver Creek area is considered a Globally Important Bird Area because of the numbers of mountain plovers breeding there (Audubon 2007). The mountain plover was proposed for listing as threatened, but was removed from consideration for listing in 2003. However, concern for this species remains high." Refer to Figure 3.22 for a map of the potential habitat.	No
0087-29	Wildlife-General	Page 2-193, Alternative E (Preferred Alternative) - "NSO within ¼ mile of black-tailed prairie dog habitat." COMMENT: BLM has failed to present any supporting data to justify the management restrictions for the black-tailed prairie dog in the DEIS, particularly the NSO stipulation within ¼ mile of habitat. Moreover, this stipulation does not correspond with the FWS' recent listing determination for the species and its conclusions about the impact of oil and gas development on black-tailed prairie dog habitat. In 2009 the FWS determined that the listing of the black-tailed prairie dog under the ESA was not warranted and that "increasing trends in the species' occupied habitat since the early 1960s, indicates that the present or threatened curtailment of habitat due to energy development is not a limiting factor for the species in Wyoming or elsewhere throughout its range" 74 FR 63353. In addition, the FWS has found that the "prairie dog occupancy has apparently increased within oil and gas development areas in Wyoming (Sorensen et al. 2009, pp. 5– 6)." 76 FR 27782. Accordingly, we recommend that BLM eliminate the proposed NSO stipulation for oil and gas leasing within ¼ mile of black-tailed prairie dog in a revised DEIS to maintain consistency with the FWS' findings.	The black-tailed prairie dog is a BLM sensitive status species and is managed through BLM Manual 6840, Special Status Species Management Manual for the Bureau of Land Management. This manual establishes policy for management of species listed or proposed for listing pursuant to the Endangered Species Act and Bureau sensitive species which are found on BLM-administered lands. The objectives of the BLM special status species policy are: A. To conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species. B. To initiate proactive conservation measures that reduces or eliminates threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA. Current professional judgment considers a ¼ mile buffer to be adequate and necessary to eliminate threats to black-tailed prairie dogs and surrounding habitat.	No
0087-30	Wildlife-General	Page 4-730 - "Alternative E would eliminate the Prairie Dog Towns within the 7km Complex ACEC for black-tailed prairie	Alternative E (Preferred Alternative) does include a ¼ mile NSO buffer for oil and gas development. This is also current	No

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		dogs. The impacts to black-tailed prairie dogs because of this change are not apparent because all prairie dog towns in the planning area are now afforded similar protections as those in this ACEC, negating the need for special management for a subset of the prairie dogs located in the Prairie Dog Towns within the 7km Complex ACEC." COMMENT: We object to BLM's decision to ease restrictions for black-tailed prairie dogs in the 7km Complex ACEC by dramatically increasing restrictions, particularly those for oil and gas development, across the entire planning area. This 'one size fits all' management approach fails to correspond with the FWS' view recent not-warranted listing determination and its findings regarding the impact of oil and gas development on the species' habit, and will unnecessarily delay, preclude, or prevent responsible oil and natural gas development without commensurate benefit to the species across the planning area.	management (Alternative A). Black-tailed prairie dogs are a BLM sensitive status species and current management requires NSO 1/4 mile from identified essential habitat of state and federal sensitive species.	
0087-31	Wildlife-General	Page 2-192, Alternative E - "NSO within ½ mile of bald eagle nest sites active within the preceding 5 breeding seasons." COMMENT: BLM presents no scientific justification for designating areas that are within ½ mile of the active nests of bald eagles as NSO. The species was recently removed from the threatened and endangered list and these buffers significantly exceed the FWS's recommended restrictions for oil and gas activities around nests, which call for 200 meter (660 feet) buffers. Accordingly, this ½ mile buffer is unwarranted and must be revised to comport with FWS recommendations in a revised DEIS.	Alternative E (Preferred Alternative) was selected based on the Montana Bald Eagle Management Plan. Montana Bald Eagle Working Group. 2010. Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan, 1994, Montana Fish, Wildlife and Parks, Helena, Montana. From that document: Potentially disturbing activities should not occur within 1/2 mile of active and alternate nests (for territories occupied within the last five years), although some activities may produce less disturbance and recommended distances might be decreased in areas where visual buffers obstruct the direct line of sight between activities and nests, perches, and roosts.	No
0087-32	Wildlife-General	Specifically, BLM must explain and justify the methodology used to define a nest as "active" in order to use the proposed timeline in surface use restrictions for future oil and gas leases. If BLM ultimately decides that the standard by which a nest will be considered "active" is use within the last five breeding seasons or some other period of time, the agency must also clearly identify nest sites that have been inactive within the past five breeding seasons or some other period of time and clearly note that they will not be subject to the surface	Alternative E (Preferred Alternative) was selected based on the Montana Bald Eagle Management Plan. Montana Bald Eagle Working Group. 2010. Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan, 1994, Montana Fish, Wildlife and Parks, Helena, Montana. From that document: Potentially disturbing activities should not occur within 1/2 mile of active and alternate	No

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		disturbing and disruptive activities and lease stipulations identified in Chapter 2. It is important for BLM to plainly identify and map active and inactive bald eagles nests in a revised DEIS.	nests (for territories occupied within the last five years), although some activities may produce less disturbance and recommended distances might be decreased in areas where visual buffers obstruct the direct line of sight between activities and nests, perches, and roosts.	
0087-33	Fish	Pages 2-196, Alternative E - "CSU - Prior to surface-disturbing or disruptive activities occurring in or within 1/2 mile of river or stream shorelines identified as pallid sturgeon habitat, a plan to maintain pallid sturgeon habitat would be prepared by the proponent and implemented upon approval by the authorized officer." COMMENT: It is not explained in the DEIS whether the recommended ½ mile CSU buffer was suggested by the FWS or devised by BLM. BLM must disclose in a revised DEIS the scientific justification for the proposed CSU stipulation, either through reference to a recommendation by FWS or some other scientific justification. We also encourage BLM to regularly work and consult with the FWS to determine if portions of the stipulated area are no longer critical to the pallid sturgeon and may be modified. BLM must also clearly identify and map pallid sturgeon habitat in the maps section of the revised DEIS.	The 1/2 mile CSU buffer was not suggested by the USFWS, but they would be consulted should development be proposed in proximity to pallid sturgeon habitat. They could require something different at that time if new science is available. The Miles City District RMP pallid sturgeon buffer discussion refers to the distance an oil spill or leak might flow overland to a river or other water body. There is considerable literature dealing with model development for predicting oil flow based on topography, soils, temperature and other factors. This buffer distance is being reviewed and may be changed. Additional information was added to Chapter 2, Table 2.8 under Wildlife, Pallid Sturgeon, Alternative E; and Table 2.28 under Wildlife, Oil and Gas Lease Stipulations, Pallid Sturgeon, Alternative E. The BLM does not conduct pallid sturgeon surveys. MFWP surveys were used to produce the MNHP map for pallid sturgeon available on their website in the Animal Field Guide which shows distribution below Fort Peck Dam and upstream from UL Bend in the Missouri River. It does not show recent spring surveys in 2010-2011 where pallid sturgeon were found below Vandalia Dam in the Milk River in Valley County (Fuller, D. B. and T. M. Haddix, 2012. Examination of pallid sturgeon use, migrations and spawning in Milk River and Missouri River below Fort Peck Dam during 2011. Report prepared for the U. S. Geological Survey, Columbia Environmental Research Center. Montana Fish, Wildlife and Parks, Fort Peck, MT.)	Yes
0087-34	Wildlife-General	Pages 2-193, Alternative E - "Surface-disturbing or disruptive activities would be restricted or prohibited within 0.6 miles from any existing surface-disturbing or disruptive activity." COMMENT: BLM must explain the logic behind prohibiting or restricting new surface-disturbing or disruptive activities within 0.6 miles from existing surface-disturbing or disruptive activities within big game crucial winter range. Prohibiting	Refer to Hebblewhite, Mark. 2008. A literature review of the effects of energy development on ungulates: Implications for central and eastern Montana. Report prepared for Montana Fish, Wildlife and Parks, Miles City, Montana. This is included in the bibliography.	No

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		additional disturbances within 0.6 of oil and gas infrastructure and wells, whether they are existing and producing, or are being drilled, completed, or maintained, may prevent the construction of additional infrastructure, pipelines, roads, or other equipment needed to bring important energy resources to consumers, which may ultimately shut in that resource and/or compromise valid existing lease rights. Further, by restricting or prohibiting these activities within 0.6 miles of existing surface disturbing activities, BLM may actually increase the overall amount of surface disturbance within crucial winter range. Accordingly, we recommend that BLM remove this provision from the CSU stipulations for crucial winter range as proposed under the preferred alternative. If BLM does decide to move forward with this provision, the RMP/EIS must clearly define what constitutes an 'existing surface-disturbing or disruptive activity' and whether BLM will consider a completed and producing oil or gas well and other infrastructure as an existing surface-disturbing activity.		
0087-35	Wildlife-General	Page 4-500 - "Lands that have been identified as bighorn sheep habitat would be stipulated as CSU. This would affect 7,792 acres, of which 1,248 acres (16%) are already leased. Lands that have been identified as bighorn sheep lambing areas would be stipulated as NSO. This would affect 2,364 acres, of which 343 acres (15%) are already leased." COMMENT: Language in Chapter 4 of the DEIS implies that CSU stipulations that apply to bighorn sheep habitat will also apply to areas that have already been leased. We remind BLM that any stipulations for bighorn sheep habitat that may be applicable for future leases cannot be imposed on valid existing leases simply because a plan amendment has been prepared. Further, restrictions on surface-disturbing and disruptive activities that are inconsistent with the original lease terms will abrogate valid existing lease rights.	The quoted language has been revised in Chapter 4, Fluid Minerals, Impacts under Alternative E, Wildlife, to state: "*Bighorn sheep:* Lands that have been identified as bighorn sheep habitat would be stipulated as CSU. This would affect 7,792 acres of bighorn sheep habit, of which 1,248 acres (16%) are currently leased. The CSU stipulation would only apply to the 6,544 unleased acres and any leases that expire. "Lands that have been identified as bighorn sheep lambing area would be stipulated as NSO. This would affect 2,364 acres of bighorn sheep lambing habitat, of which 343 acres (15%) are currently leased. The NSO stipulation would only apply to the 2,021 unleased acres and leases that expire."	Yes
0087-36	Wildlife-General	Page 2-192 - "NSO within 1/4 mile of black-footed ferret habitat." COMMENT: We have been unable to determine in the DEIS whether the recommended ¼ mile NSO buffer around black-footed ferret habitat has been suggested by the FWS or devised by the	The black-footed ferret and black-tailed prairie dog are BLM special status species and are managed through BLM Manual 6840, Special Status Species Management Manual for the Bureau of Land Management. This manual establishes policy for management of species listed or proposed for listing pursuant to the	No

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		agency. It is necessary for BLM to disclose the scientific justification for the proposed NSO stipulation, either through a reference to a recommendation by FWS or by some other justification. We also encourage BLM to regularly work and consult with the FWS to determine if portions of the stipulated area are no longer critical to the black-footed ferret and may be modified. BLM must also clearly map black-footed ferret habitat in the maps section of Chapter 2 in a revised DEIS.	Endangered Species Act and Bureau sensitive species which are found on BLM-administered lands. The objectives of the BLM special status species policy are: A. To conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species. B. To initiate proactive conservation measures that reduces or eliminates threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA. Current professional judgment considers a ¼ mile buffer to be adequate and necessary to eliminate threats to black-footed ferret and black-tailed prairie dog habitat.	
0087-37	Wildlife-General	Page 2-196, Alternative E - "NSO within 1/4 mile of piping plover habitat." Page 2-195, Alternative E - "NSO within 1/4 mile of interior least tern occupied habitat." COMMENT: BLM has failed to demonstrate why the NSO stipulation for Interior Least Tern will apply to occupied habitat while the NSO stipulation for Piping Plover will apply to all habitat areas. Applying NSO stipulations to all piping plover habitat, rather than just occupied habitat, has not been justified in Chapters 3 or 4 by any reference to guidance from the FWS. Management restrictions for the Interior Least Tern should be consistent with those for the Piping Plover unless BLM can cite recommended guidance from FWS that justifies the more restrictive management prescriptions for Interior Least Tern in the DEIS. In order to avoid the unfounded application of stipulations to areas that may not truly contain occupied habitat, we recommend that BLM apply stipulations for occupied habitat for both species. Accordingly, BLM must clearly identify and map Interior Least Tern and Piping Plover occupied habitat in the maps section of the revised DEIS.	In the HiLine planning area, the USFWS has identified "critical habitat" for piping plover. There is no identified "critical habitat" for least tern. The least tern is an ESA listed Endangered Species. The ESA requires BLM to consult on federal actions and potentially impose protective actions where the species "may be present" (also called occupied habitat). The piping plover is an ESA listed Threatened Species with designated critical habitat. Therefore ESA requires BLM to consult on federal actions and potentially impose protection actions where the species "may be present" and also where this is designated critical habitat.	No
0087-38	Wildlife-General	BLM must clearly explain and justify the methodology used to define a nest as "active" in order to use the proposed timeline in surface use restrictions and CSU stipulations for future oil and gas leases. If BLM ultimately decides that the standard by which a nest will be considered "active" is use within the last seven breeding seasons or some other period of time, the agency must	Stipulations will be prepared after parcels have been nominated. This topic is discussed in Appendix E.1 Oil and Gas Operations.	No

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		explicitly state that nest sites that have been inactive within the past seven breeding seasons or some other period of time will not be subject to the surface disturbing and disruptive activities and lease stipulations identified in Chapter 2. BLM must also clearly identify and map active and inactive nests for raptors and peregrine falcons in the revised DEIS.		
0087-40	Fluid Minerals	Subject to the requirements of existing federal and state law protecting various cultural and historic resources, the FLPMA, the MLA, and BLM Planning Handbook 1600 all prohibit BLM from imposing new restrictions on existing lease holdings. Leases issued under one management regime may not be altered by the introduction of new management regimes or amendments to existing management plans. Nor can BLM impose mitigation measures that exceed the requirements outlined in existing leases. The integrity of valid existing rights for mineral leases must be maintained as any other private property right must be.	Per 43 Code of Federal Regulations (CFR) 3101.1-2, conditions of approval are deemed consistent with lease rights provided they do not require relocation of proposed operations by more than 200 meters, mandate that operations be sited off the leasehold (i.e. no surface occupancy), or prohibit new surface-disturbing activities for a period of more than 60 days in a lease year. This is also mentioned in Chapter 2, Fluid Minerals, Decisions Common to All Alternatives.	No
0087-41	Wildlife-National Greater Sage-Grouse	The NTT Report is not supported by the Western Association of Fish and Wildlife Agencies (WAFWA) as BLM's sole source of Sage-grouse management direction. In a letter sent to the Interior Secretary on May 16, 2013 WAFWA member states made it clear that they never endorsed the sole use of the NTT or any other scientific publication. Rather, they believe that a variety of peer-reviewed publications which collectively provide the best available science for sage-grouse should have been used by BLM as the basis for conserving the Sage-grouse, thereby avoiding a listing under the Endangered Species Act (ESA). WAFWA went on to recommend that management and regulatory mechanisms be based upon the best available science which would provide the best strategy for near- and long-term management of sage-grouse and provides the best opportunity for precluding the need to list the species under the ESA.	The NTT report was not the sole source of management decisions for the range of alternatives. The National Technical Team was formed as an independent, science-based team to ensure that the best information about how to manage the Greater Sage-Grouse is reviewed, evaluated, and provided to the BLM and Forest Service in the planning process. The group produced the NTT report in December 2011 that identified science-based management considerations to promote sustainable Greater Sage-Grouse populations. The NTT report was intended to be used at a programmatic scale and may not reflect local conditions. The report was a synthesis of peer-reviewed literature that cited 122 references including published papers from formal scientific literature such as Journal of Wildlife Management, Conservation Biology, Biological Conservation, Wildlife Biology, BioScience and others, as well as graduate theses and dissertations, conservation strategies, USFWS 2010 finding, and others representing the best available science. On December 27, 2011, the BLM released IM 2012-044. In accordance with this IM, the BLM must consider all conservation measures developed by the NTT in at least one alternative in the land use planning process. Alternative B in the Proposed	No

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			RMP/Final EIS fulfills this requirement by incorporating the recommendations set forth by the NTT. Alternatives C and E in the Proposed RMP/Final EIS have incorporated elements of the NTT report while Alternatives A and D in the Proposed RMP/Final EIS do not include sage-grouse management recommendations included in the NTT Report, but instead propose to use the national and Montana Greater Sage-Grouse conservation strategies as the basis to address Greater Sage-Grouse needs during the watershed planning process and project-level analysis.	
0087-42	Wildlife-Greater Sage-Grouse	Another major fundamental concern the signatories to this letter wish to raise is the inherent flaw in BLM's basic assumptions, due in part to the flawed recommendations contained in the NTT report, which fail to recognize that the level of disturbance associated with a well is not a constant throughout its life. The highest level of surface disturbance associated with oil and gas development occurs primarily during the construction, drilling and completion phases, which can last a little as a day or two up to a few months, depending upon the time it takes to complete the well. Once a well goes into production, these activities subside dramatically and only regular monitoring and maintenance of the well are required. Shortly after well completion, the operator typically begins interim reclamation actions designed to partially restore any impacted habitat. This partial reclamation will remain in effect until the well has been depleted. Upon conclusion of production activity, the operator will then move forward with plugging and abandonment procedures, which also includes final reclamation that will ultimately result in full restoration of the site and its return to productive habitat.	A detailed discussion of the activities and potential impacts associated with exploration, drilling, production, and plugging and abandoning a well are included in Appendix E.1, Oil and Gas Operations, in the Proposed RMP/Final EIS. Appendix E.1 includes estimates of short-term and long-term disturbance associated with all new drilled wells and existing active wells.	No
0087-43	Wildlife-Greater Sage-Grouse	Throughout the Affected Environment discussion regarding sage-grouse, much of the information presented is based on studies of Sage Grouse Management Zone 1 (MZ1), which includes northeastern Wyoming and far western North and South Dakota. This broader scale may or may not be directly applicable to the HiLine planning area. BLM needs to clearly specify the current situation in the HiLine planning area consistent with the direction provided on Page 241. Individual comments along this same vein are made below reflecting this	Refer to Chapter 3, Wildlife, Wildlife Special Status Species, Montana BLM Sensitive Species, Greater Sage-Grouse.	No

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		concern as it applies to specific topics. Although analysis of MZ1 would be appropriate as a study area for analysis of cumulative impacts to sage-grouse (see comments directed to Cumulative Effects below), potential direct and indirect impacts to sage-grouse and sage-grouse habitat resulting from implementation of the RMP must address only those conditions and potential direct and indirect impacts specific to the HiLine planning area.		
0087-45	Wildlife-Greater Sage-Grouse	The report by Samson et al (2004) is a general discussion of birds associated with prairie grassland habitats in the Great Plains. Although the past and current effects of management in parts of MZ1 are addressed in this DEIS, the influence of these factors on sage-grouse in the HiLine planning area, specifically, is unclear. What is the status of sage-grouse populations specific to the HiLine planning area? The DEIS seems to equate Sage-Grouse MZ1 with the planning area, but does not present any rationale for how the planning area is similar or dissimilar. Much of the discussion hinges on information gathered on a much broader scale, which may or may not have direct applicability to the HiLine planning area. Please clarify the above, and provide a more robust discussion of the HiLine planning area specifically.	Information has been added to Chapter 3, Wildlife, under Sensitive Species, Greater Sage-Grouse.	Yes
0087-46	Wildlife-Greater Sage-Grouse	Page 398 – "The most pervasive and extensive change to sage-brush ecosystems in MZ1 is conversion of nearly 60% of native habitats to agriculture (Samson et al 2004)." COMMENT: The publication of Samson et al (2004) does not address sagebrush ecosystems in Sage-Grouse MZ1. This paper addresses prairie grasslands in the Great Plains, which represents a much larger area. Moreover, Samson et al (2004) also does not differentiate between prairie grasslands and sagebrush steppe. It is necessary for the final RMP/EIS to explicitly quantify the amount of sagebrush habitat that has been converted to agricultural uses within the HiLine planning area specifically. The DEIS seems to equate Sage-Grouse MZ1 with the HiLine planning area, but fails to provide a rationale detailing how MZ1 is similar or dissimilar to the planning area. Please clarify.	Refer to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse. Sufficient data do not exist at this time to quantify the acres of sagebrush that have been converted to agriculture.	No
0087-47	Wildlife-Greater	Page 399 – "Individual species have different thresholds of fragmentation	The paragraph discussing the thresholds of fragmentation tolerance of different species	Yes

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	Sage-Grouse	tolerance; greater sage-grouse have large spatial requirements and eventually disappear from landscapes that no longer contain enough patches of habitat while smaller birds like the Sprague's pipit can persist in landscapes with smaller patches of habitat because their spatial requirements are smaller." COMMENT: What are the thresholds for patch size for persistence of sage-grouse? This information has implications for management. Various studies have shown patch-size requirements for other grassland birds. Have studies been done on patch-size thresholds for sage-grouse? What is the source of information that indicates that sage-grouse have habitat patch-size thresholds?	has been removed from the Proposed RMP/Final EIS.	
0087-48	Wildlife-Greater Sage-Grouse	Page 400 – "Much of the current oil and gas development is occurring on private lands with little or no mitigation efforts, which elevates ecological and conservation importance of sage-grouse habitat on public lands." COMMENT: This is a very broad statement. Upon what data is this assumption made? What is the source of information that there are little or no mitigation efforts on private land? Does this statement apply to MZ1 or the HiLine planning area? How does current oil and gas development in the planning area compare on private versus public land? This statement fails to recognize the initiatives and advances in technology that have been developed in response to elevated concerns over the conservation status of sage-grouse. Ramey et al (2011) identify the following advances in technology that avoid and reduce potential effects of oil and gas development on sage-grouse: • Directional drilling to reduce surface disturbance by drilling multiple wells from one drilling pad; • Steerable downhole motors and horizontal well bores that can drill as many as many as 20 boreholes from one pad and greatly increase the effective radius of production from one well pad; • More efficient drill bits that reduce drilling times and rates of failure; • Lightweight modular drilling rigs which deploy more easily and require a smaller foot print; and• Slim-hole drilling, micro-holes, and coiled tubing which reduce waste volumes, surface disturbance, and	The sentence has been removed from the Proposed RMP/Final EIS.	Yes

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		noise. Has BLM taken these measures into account in its analysis? If not, they need to be fully considered in the revised DEIS.		
0087-50	Wildlife-Greater Sage-Grouse	Under Assumptions and Guidelines, BLM provides no discussion of the assumed relationship of sage-grouse and sage-grouse habitat in MZ1 compared to the HiLine planning area. Most of the cited references that address effects of oil and gas development on sage-grouse have been conducted in the southeast Montana and Wyoming in the area of MZ1 where intensive development has been ongoing for decades, which is not a projected occurrence in the HiLine FO.	The sentence "Much of the current oil and gas development is occurring on private lands with little or no mitigation efforts, which elevates the ecological and conservation importance of sage-grouse habitat on public lands." has been removed from the Proposed RMP/Final EIS.	Yes
0087-51	Wildlife-Greater Sage-Grouse	Page 501 – "Greater sage-grouse: Lands within one mile of greater sage-grouse leks would be stipulated as NSO. This would affect 107,494 acres, of which 58,085 acres (54%) are already leased. Greater sage-grouse nesting habitat would be stipulated with a CSU stipulation. This would affect 1,212,152 acres, of which 221,385 acres (18%) are already leased. Areas that fall within the boundaries of the Greater Sage-Grouse Protection Priority Area would be subject to that stipulation." COMMENT: Please clarify and/or provide the total BLM acres of "Federal Mineral Estate" and "Surface" that would be included within the "General Habitat acres" category for the HiLine planning area in the revised DEIS. It is unclear based on the information presented here as well as on Page 167 of the Draft RMP/EIS what the total number of acres that fall either under this broad category would be and whether the total would be derived from adding in those acres subject to NSO with those subject to CSU stipulations in nesting/brood rearing acres, or whether there is another way to calculate this total.	Acres of Greater Sage-Grouse habitat have been added to Chapter 3.	Yes
0087-52	Wildlife-General	Page 607 The 42,020 acre Frenchman ACEC would be designated. Management actions would be implemented to protect erodible soils and areas (rock outcrop) and important wildlife habitats such as crucial mule deer winter range, greater sage-grouse leks and adjacent nesting habitat, and habitat for designated BLM sensitive species. Establishing the ACEC would restrict surface-disturbing activities such as mineral development and rights-of-way. The ACEC would be an exclusion area for wind energy	The GIS calculations of total acres affected by an NSO stipulation, including the Frenchman Breaks ACEC under Alternative E, are included in the acreage totals shown in the bulleted lists (by wildlife species) located in Chapter 4, Fluid Minerals, Impacts under Alternative E, Wildlife.	No

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		rights-of-way. An NSO stipulation for oil and gas leasing would avoid direct long-term impacts to scenic values, wildlife, and the unique landscape. The entire area is within a very low development potential for oil and gas exploration and development and is currently unleased. COMMENT: Why isn't the Frenchman ACEC reflected in the summary of Alternative E potential impacts relative to sage grouse listed on Page 501, which lists acreages of NSO and CSUs for various categories of sage grouse habitat?		
0087-53	Wildlife-Greater Sage-Grouse	Page 682 – "Many of the current oil and gas stipulations in place to protect wildlife resources are effective at mitigating effects at local scales, but often do not mitigate impacts at larger scales (Naugle, et al. 2009)." COMMENT: What specific oil and gas stipulations are referenced as effective at protecting wildlife resources at local scales but often do not "mitigate impacts" at larger scales"? What does this mean or how does this apply to the specific NSO/CSU restrictions proposed in this DEIS under Alternative E (See page 728)? The effectiveness of mitigation is a topic that has not been addressed in this DEIS. Mitigation of potential impacts from oil and gas development has been ongoing with increased intensity in recent years, especially in Wyoming. It would be prudent for BLM to review types of mitigation that have been effective in avoiding and reducing impacts to sage-grouse and other wildlife species affected by oil and gas development and include them in the revised DEIS.	Refer to Naugle, et al. 2011 in the bibliography.	No
0087-54	Wildlife-Greater Sage-Grouse	While the document discusses that potential impacts from various alternatives would impact the greater sage-grouse across all alternatives, there is no clearly articulated discussion of how existing population levels of sage-grouse would be affected by each alternative. The above statement seems to indicate, that even with the preferred alternative, there would be a decline in sage-grouse populations. If this were the case, the preferred alternative (and others) would increase the potential for listing of sage-grouse under the ESA, which the revised DEIS should clearly state.	Wildlife populations are managed by Montana Fish, Wildlife and Parks.	No
0087-55	Wildlife-Greater	Page 733 – The impact discussions contained in both Chapter 3 and the Chapter	Additional discussion of the impacts to sage-grouse and sage-grouse habitat at the	Yes

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	Sage-Grouse	4, particularly when addressing predicted impacts to sage-grouse, rely heavily upon research conducted in MZ1, which we have already pointed out is an area that encompasses sage-grouse habitats in large areas of Montana, Wyoming, and the Dakotas; however, the cumulative effects of land management in the HiLine planning area on sage-grouse, over this broad area, are not addressed under Cumulative Impacts.	management zone level is provided in Appendix M and in Chapter 4 of the Proposed RMP/Final EIS, under the cumulative effects discussion for the various alternatives in the Wildlife section.	
0087-56	Wildlife-Greater Sage-Grouse	The cumulative effects discussion does not specifically address the effects of livestock grazing on private and public land on sage-grouse and other wildlife. Comparatively, the draft MCFO RMP/EIS (page 4-60) states: "Determining season-of-use and livestock numbers for grazing permits on a case-by-case basis would not necessarily result in high quality sage-grouse habitat. The reduction in grass height caused by livestock grazing in sage-grouse nesting and brood-rearing areas has been shown to negatively impact nesting success when residual herbaceous cover was reduced below approximately 7 inches needed for predator avoidance (Gregg et al 1994). Livestock grazing would potentially reduce suitability of breeding and brood-rearing habitat, which would impact sage-grouse populations (USFWS 2010a)." Grazing undoubtedly has the potential to effect on sage-grouse habitat; however, it is unclear how sage-grouse habitat and displacement of sage-grouse have been affected by grazing practices in the HiLine planning area as well as the broader region (e.g., MZ1 or adjoining MCFO planning area). Potential cumulative impacts should evaluate the effects of livestock grazing on public and private land on sage-grouse.	In response to this comment, language was added to Chapter 4, Impacts under Alternative E (Preferred Alternative), Cumulative Impacts.	Yes
0087-58	Wildlife-Greater Sage-Grouse	While the appendix lists what a plan to maintain functionality of sage-grouse habitat must address, it does not distinguish which of the elements are "requirements" and which are "guidelines."	Refer to Appendix M.	Yes
0087-59	Wildlife-Greater Sage-Grouse	The guidelines in Appendix M restrict or avoid disturbance at varying distances from sage-grouse leks. For example, page 1135 under the heading Greater Sage-Grouse Leks, states the following: "Surface-disturbing activities would be avoided if possible within 1 mile of greater sage-grouse leks." These guidelines present a	The variance in lek buffers for different management actions and activities is based on the best available science. Refer to Appendix M and the associated references and literature cited.	Yes

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		conflict on avoidance of disturbance in relation to leks, which must be clarified.		
0087-60	Wildlife-Greater Sage-Grouse	When discussing specific acreages of sage-grouse habitat that would fall under various management restrictions (based on the respective Preferred Alternatives), the Billings/Pompey's Pillar DEIS and the HiLine DEIS reference BLM Administered "Federal Mineral Estate" and "Surface" under each main sage-grouse management classifications (e.g., General Habitat, Priority Protection Area, Restoration Area). However, the MCFO DEIS references "Oil and Gas Lease" and "Surface" as the two main categories of BLM administration. Please clarify the questions below: • Are the categories of "Federal Mineral Estate" and "Oil and Gas Lease" intended to represent the same classification? If not, please explain any difference. If yes, please clarify terminologies among all Montana BLM RMP/EISs to aid the public (and potential operators) in consistently interpreting the proposed sage-grouse habitat restrictions. • Are all proposed surface management restrictions applied equally regardless of whether the BLM Administered Lands in question are "Surface or "Federal Mineral Estate" and/or "Oil and Gas Lease"? • Is it assumed that if a particular "Surface" acreage is under BLM Management then the mineral estate within that same acreage is also under BLM Administered "Federal Mineral Estate" and/or "Oil and Gas Lease" as well?	Refer to Appendix E.1.	No
0087-62	Wildlife-Greater Sage-Grouse	To understand the effects of proposed sage-grouse management in the planning areas for the three BLM field offices, the sage-grouse resource (i.e., populations and habitat) that would be affected by various management directives need to be identified. The DEISs for the three planning areas do not present sage-grouse estimates for population sizes (see Table 1) so other metrics that represent the sage-grouse resource which will be subject to the proposed management directives need to be presented. To better understand the sage-grouse resource that would be subject to the management prescriptions identified in the three DEISs, we request the that following information be clearly stated in each DEIS's Chapter 3 – Existing Environment: • Acres of various classes of sage-grouse habitat within each planning area on BLM administered lands; and • Number of leks on BLM-administered	Refer to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse, where acres of Greater Sage-Grouse habitat have been added. As stated in that paragraph, there are 286 known leks in the planning area, 147 of which are located on BLM lands.	No

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		lands in the planning area.		
0087-63	Wildlife-Greater Sage-Grouse	The planning prescriptions for surface occupancy and controlled surface use for the three planning areas (MCFO, HiLine, and Billings/Pompey's Pillar) are variable which raises questions of how NSO restrictions were determined. Based on review of the three draft planning documents, it appears that all three relied on same data sources to address impacts of oil and gas development on sage-grouse. All planning areas have similar sage-grouse habitat conditions (i.e., all are in Sage-Grouse Management Zone 1), and all are anticipating some level of oil and gas development. It is unclear how different NSO restrictions around leks were developed. NSO restrictions around leks vary among the planning areas, with buffers around leks being 0.6, 1, 2, and 3 miles. Why are these NSO restrictions different for the three planning areas when they all relied on similar sources to define potential impacts associated with oil and gas development? Does sage-grouse vulnerability to impact or population viability differ among BLM planning areas?	The oil and gas lease stipulation for general sage-grouse habitat has been changed from a 1 mile NSO lek buffer to a 0.6 mile NSO buffer so as to be consistent with the other ongoing BLM RMP revisions in Montana, North Dakota and South Dakota. The new stipulation in the Proposed RMP is presented in Appendix E.4 under Alternative E (Preferred Alternative), Greater Sage-Grouse Leks (General Habitat Areas).	Yes
0087-64	Wildlife-Greater Sage-Grouse	The listing of sage-grouse as a candidate species under the ESA and its "warranted but precluded" status has increased awareness of the conservation status and conservation efforts and has led to Wyoming, Montana, and other states to develop statewide conservation strategies to protect sage-grouse and their habitat. As such, the RMP/EIS should reference and discuss how such efforts would interface with proposed BLM restrictions. The following are some of the initiatives that have been developed in response to sage-grouse conservation concerns: [1] The Montana Governor issued Executive Order No. 2-2013 establishing a Greater Sage-grouse Habitat Conservation Advisory Council which is mandated to gather information, furnish advice, and provide recommendations to the Governor on policies and actions for a state-wide strategy to preclude the need to list the Greater Sage-grouse under the ESA. [2] The USFWS, in 2013, issued the Conservation Objectives Team Report, which provides state, federal, local, and private entities with permitting or land management authority information to support conservation actions for sage-	[1] Refer to Chapter 1, Related Plans, Montana Sage Grouse Habitat Conservation Program. [2] The COT report has been incorporated into the HiLine RMP. Refer to Appendix M. [3] The Sage-Grouse National Technical Team Report is incorporated in the HiLine PMP. Much of it can be found in Appendix M. [4] The Western Association of Fish and Wildlife Agencies Greater Sage-grouse Comprehensive Conservation Strategy (2006) is included in the HiLine RMP. [5] The historical overview of sage-grouse at a local, Management Zone, and National level are discussed in Chapter 3.	Yes

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		grouse. [3] The Sage-Grouse National Technical Team (2011) produced A Report on National Greater Sage-Grouse Conservation Measures, which addresses the latest science and best biological judgment to assist in making management decisions. [4] The Western Association of Fish and Wildlife Agencies completed the Greater Sage-Grouse Comprehensive Conservation Strategy (2006), which identifies the critical need to develop associations among local, state, provincial, tribal, and federal agencies, non-governmental organizations, and individual citizens to design and implement cooperative actions to support robust populations of sage-grouse and the landscapes upon which they depend. [5] A joint report (The History and Current Conditions of the Greater Sage-Grouse in Regions with Energy Development - 2007) by U.S. Department of Energy, Interstate Oil and Gas Compact Commission and ALL Consulting provides a historical overview of the sage-grouse to help clarify its regional significance; identifies current conservation plans of important stakeholders; and discusses current and historical management approaches.		
0089-01	Recreation	We do not want unlimited commercial outfitting and guiding on public lands, and we feel Preferred Alternative E should be amended to limit or eliminate commercial outfitting and guiding on BLM-administered public lands.	This topic is discussed in Chapter 3, Recreation under Special Recreation Permits. The text in this section has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0096-01	Livestock Grazing	Responsible land management requires the use of ecologically sound, science-based analysis in the determination of appropriate livestock grazing levels. Unfortunately, the HiLine DRMP fails to sufficiently address the environmental impacts of livestock grazing. While the DRMP addresses conservation concerns to a degree, the document falls short of providing the depth of analysis and consideration of grazing alternatives warranted by a land use plan for all BLM-managed lands in northern Montana. The draft plan would allow 386,600 AUMs on 2,390,000 acres, with no variance between alternatives as to acreage grazed or AUMs allowed. The DRMP states that permit level range management will be	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern.	No

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		consistent with the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota, (DEIS at 177) essentially leaving all decisions regarding the number of permitted on the landscape for the individual permitting process. For example, Guideline #1 provides that "[[g]razing will be managed in a manner that will maintain the proper balance between soils, water, and vegetation over time." (DEIS at 1034) While such guidelines articulate important goals, those goals will not be achieved without requiring that land managers meet quantitatively measurable terms and conditions. However, the DRMP fails to provide clear, quantitative terms and conditions to guarantee compliance with those guidelines.		
0096-02	Livestock Grazing	In regards to livestock grazing, Western Watersheds Project urges the BLM to add the following to the Final EIS and RMP: (1) specific measurable terms and conditions for livestock grazing in riparian areas, uplands, and wildlife and fisheries habitat, including: (i) a minimum of 7" stubble height remaining on hydric soils riparian greenlines after livestock grazing (ii) a 10% maximum annual bank or wetland alteration from all sources for streams and wetland hydric and mesic soil areas of upland seeps, springs, wet meadows and aspen clones (iii) a maximum annual woody browse utilization by all browsing ungulates of 15% on cottonwood, aspen, woody shrub, and willows (iv) a maximum annual grazing utilization of perennial grass species on upland landscapes by all grazer of 35% (v) a minimum 9" residual perennial native grass cover for ground-nesting birds like sage-grouse and sharp-tailed grouse (2) additional needed alternatives (3) inclusion of directions for the permanent retirement of voluntarily waived grazing permits in all alternatives and the selected alternative of the Final EIS.	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern. Quantifiable vegetation objectives have been identified for sage-grouse breeding habitat on public land. Refer to Chapter 2, Greater Sage-Grouse Habitat Management in the Proposed RMP/Final EIS. Guidance regarding voluntary relinquishment of a permit or lease is located in Chapter 2 of the Proposed RMP/Final EIS, Livestock Grazing; Processing Grazing Permits/Leases.	Yes
0096-03	NEPA	Maintaining and improving wildlife habitat and restoring degraded range conditions should be reflected in the purpose and need for the RMP in compliance with both the Taylor Grazing Act of 1934, the Federal	The Purpose and Need section in Chapter 1 includes direction to maintain, improve, or enhance resource conditions including wildlife habitat.	No

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		Lands Policy Management Act (FLPMA) of 1976, and other laws that govern livestock management on public lands. Approval of the RMP will guide livestock management in the project area for years to come and provides the foundation on which future Allotment Management Plans will be based. The Taylor Grazing Act was passed to "stop injury to public lands by preventing overgrazing and soil deterioration," and the Federal Land Policy and Management Act (FLPMA) requires the BLM to maintain and improve wildlife habitat. It also requires that "Allotment management plans shall be tailored to the specific range condition of the area to be covered by such plan, and shall be reviewed on a periodic basis to determine whether they have been effective in improving the range condition of the lands involved…" (43 U.S.C. 1752(d)) The requirement to focus on improvement of range condition is also explicit in the Public Rangeland Improvement Act (PRIA), which provides that the goal of public land range management is to improve range condition (emphasis added).(43 U.S.C. 1901(b)(2), 1903) "Range condition" as defined in PRIA means the "quality of the land" as reflected by the ability of specific areas to support the productivity sought by BLM.(See id 1902(d)) Thus, the reason for addressing livestock grazing in the RMP is to improve the range condition of the allotments within the project area and to maintain and improve wildlife habitat. This direction, based on laws and regulations, should be explicitly stated in the "Purpose and Need for the Plan" in the FEIS. Furthermore, the selection of any alternative in the DEIS that does not provide direction for meeting those goals violates the intent of the laws and regulations that govern public land management.	The BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies is addressed in the Planning Criteria section of Chapter 1.	
0096-04	NEPA	While the purpose and need section of the DEIS mentions the need to conserve Greater Sage-Grouse habitat, it should extend this conservation need to all wildlife and add restoration of degraded range conditions as a purpose of the document.	The Purpose and Need section in Chapter 1 includes direction to maintain, improve, or enhance resource conditions including wildlife habitat.	No
0096-06	Livestock Grazing	The DEIS states that the goal of the livestock grazing program is as follows: "Provide opportunities on the public rangelands for a sustainable level of livestock grazing consistent with multiple	The document text has been changed in response to this concern. See Chapter 2, Livestock Grazing. The record shows that the BLM has	Yes

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		use and sustained yield," (DEIS at 65) yet it fails to define what constitutes a sustainable level of livestock grazing. "Sustainability" is defined in the glossary as "[t]he ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time." (DEIS at 804) However, the DEIS fails to explain how it meets this definition of sustainability. The Havre Field Office ("HFO") has failed to take the required "hard look" at the impacts of domestic livestock grazing. The DEIS fails to scientifically and accurately determine those lands which are capable and suitable for livestock grazing. The BLM has further failed to accurately and quantitatively determine how much forage (i.e. forage capacity) is currently available. On top of this, the DRMP fails to properly allocate that forage to watershed and stream protection, wildlife habitat and food, then to livestock if available.	addressed the environmental impacts of grazing on the landscape. Current rangeland health standard statistics (Appendix G) show that authorized grazing use within the HiLine District is achieving consistency with the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota. Over 93% of the allotments assessed are achieving all of the standards.	
0096-07	Livestock Grazing	The DRMP fails to provide for long-term rest to facilitate recovery, and any discussion of impacts should have addressed the unwillingness of permittees to use peer-reviewed range science principles for management and their strong opposition to the most minimal standards of performance. Instead they rely on unfounded solutions such as time-controlled grazing. For example, the effects of different livestock grazing intensities on forage plant production were studied in a ponderosa pine type in Colorado as early as the 1940's[8]. This study showed that forage consumption at a rate of 57% produced an average of twice as much forage as a rate of 71%. An area left ungrazed by livestock for 7 years produced three times as much forage as the 71% use area. The authors concluded that, as grazing use increased, forage production decreased. During that same period, Dyksterhuis[9], in a classic paper on the use of quantitative ecology in range management, presented examples of how stocking rates must be adjusted based on precipitation and range condition, which included a rating based on departure from the potential plant community. NRCS[10] considers proper grazing management as that management that sustains the potential plant community. Hutchings and Stewart[11], suggested that 25 –	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern.	No

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		30 % use of all forage species by livestock was proper. They recommended this level because routinely stocking at capacity will result in overgrazing in half the years and necessitate heavy use of supplemental feed. Even with this system, they recognized that complete destocking would be needed in 2 or 3 out of ten years. Holechek et al[12] concluded that the research is remarkably consistent in showing that conservative grazing at 30 – 35% use of forage will give higher livestock productivity and financial returns than stocking at grazing capacity. They also recognized that consumption by rodents and other wildlife must be taken into account as part of this utilization, otherwise, rangeland productivity would suffer even at these levels of use. Galt et al[13] recommended levels of 25% utilization for livestock and 25% for wildlife with 50% remaining for watershed protection. In none of these cases have the scientists recommended 50% utilization by livestock, as the BLM continually authorizes (i.e. take half, leave half) and they are clear that even at the lower use levels recommended, allowance for wildlife use must be included in overall use. Clearly, the long-term range studies cited here show that under actual field conditions, light grazing (25% or less by livestock) or no grazing is most appropriate to meet BLM's mandate for sustainable use. These utilization rates are the minimum needed to ensure proper functioning condition, which is the minimum acceptable condition. The BLM must require at least minimum compliance with these standards in the RMP until these standards can be evaluated at the site-specific level. [8] Schwan, H.E., Donald J. Hodges and Clayton N. Weaver. 1949. Influence of grazing and mulch on forage growth. Journal of Range Management 2(3):142-148. [9] Dyksterhuis, E. J. 1949. Condition and management of range land based on quantitative ecology. Journal of Range Management 2:104-115. [10] USDA. 1982. Soil Survey of Rich County Utah. USDA Soil Conservation Service, Forest Service and Bureau of Land Management. [11] Hutchings, S.S. and G. Stewart. 1953. Increasing forage yields and sheep production on Intermountain winter ranges.		

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		U.S. Department of Agriculture Circular 925. 63p. [12] Holechek, Jerry L., Hilton Gomez, Francisco Molinar and Dee Galt. 1999a. Grazing studies: what we've learned. Rangelands 21(2):12-16 [13] Galt, Dee, Francisco Molinar, Joe Navarro, Jamus Joseph and Jerry Holechek. 2000. Grazing capacity and stocking rate. Rangelands 22(6):7-11.		
0096-09	Livestock Grazing	In spite of the evidence of widespread loss of plant productivity and ground cover, accelerated erosion and BLM's own documentation of rapid declines in species such as sage-grouse, BLM routinely chooses not to address livestock impacts in any scientific or sustainable fashion. While the DRMP acknowledges the negative impacts of livestock grazing, the DRMP fails to propose grazing reductions to address these impacts. In regard to riparian areas, the DEIS states that "[l]ivestock grazing in riparian areas can prevent regeneration of woody and herbaceous riparian vegetation necessary to stabilize streambanks," and other impacts.(DEIS at 618) The DRMP continues: Overgrazing can eliminate riparian vegetative cover, resulting in increased soil erosion and sedimentation. Increases in nonpoint source pollution, and loss of channel stability, can deteriorate water quality and diminish the ability of ecosystems to maintain healthy aquatic communities across localized and watershed scales... Stream conditions and degraded water resources characterized by livestock overgrazing often include unstable and eroded banks, sedimentation, buried or embedded rock substrates, loss of riparian vegetative cover and associated organic matter inputs, increased width-to-depth ratio, reduced current in shallow water, nutrient enrichment, increased algae growth, reduced dissolved oxygen, higher temperatures, and reduced wildlife habitat structure.(DEIS at 650.) After acknowledging the many negative impacts of grazing, the DRMP goes on to claim that "[l]ivestock grazing would have no long-term impacts on riparian areas if properly managed under Standards for Rangeland Health and Guidelines for Livestock Grazing Management."(DEIS at 618.) Unfortunately, the DRMP provides no	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern. Including every possible measure that has been or could be taken would be unnecessarily extensive and cumbersome for an area as large and diverse as the HiLine District.	No

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		measurable terms and conditions to guarantee compliance with those standards. Without such clear, measurable terms and conditions, the BLM will continue to perform qualitative, approximate analysis, insufficient to meet the requirements set forth by the standards.		
0096-10	Livestock Grazing	The DRMP claims that "[d]omestic livestock function as a keystone species" in the planning area, and "influence ecological pathways and species persistence." (DEIS at 400) It is unclear to what definition of keystone species this statement refers, and the term is not defined in the glossary. A keystone species is a species that has a disproportionately large effect on an ecosystem relative to its abundance.[23] The term "keystone species" is generally used to recognize the benefits of a species to an environment, and it is misleading to apply the term to a domestic animal that impacts the environmental in so many negative ways. The RMP and Final EIS must remove this mention of domestic livestock as a keystone species or provide a scientific explanation of how cattle constitute a keystone species. [23] Paine, R.T. 1995. A Conversation on Refining the Concept of Keystone Species. Conservation Biology 9 (4): 962–964.	The text of the Proposed RMP/Final EIS has been changed in response to this concern. See Chapter 3, Wildlife, Wildlife Special Status Species, Greater Sage-Grouse, Greater Sage-Grouse Management Zone 1.	Yes
0096-12	Livestock Grazing	Based on 43 CFR 4180, appropriate actions to address the negative impacts of domestic livestock are to be implemented that will result in significant progress toward attainment of the standards no later than the start of the next grazing season. Clearly this has not been accomplished. Given the fact that the number of cows that could be grazed on BLM land in the planning area represents a slight and declining economic influence, this degradation is unacceptable.	This topic is covered in Chapter 3 of the Proposed RMP/Final EIS. Past or present livestock uses were determined to be contributing factors in not meeting rangeland health standards in 27 of 969 allotments. Only specific areas (e.g., 15% or less of the allotment) within the 27 allotments were failing to meet at least one rangeland health standard, and in all cases corrective actions have been taken.	No
0096-18	Wilderness Character-istics	In consideration of the Environmental Consequences of the proposed alternatives, the DRMP acknowledges: Livestock grazing has the potential to impact naturalness, the undeveloped character, and to create conflict with recreation users. Manipulation of vegetation, alteration of soils, and the presence of fecal matter would create unnatural conditions and would impact opportunities for solitude, particularly in areas where livestock congregate. Range facilities, such as fences, water troughs, and tanks have the potential to degrade wilderness characteristics by	This topic is discussed in Chapter 2, Wilderness Characteristics, and Chapter 4, Wilderness Characteristics, under Livestock Grazing. Proposed changes in livestock management would be analyzed on a case-by-case basis in allotments with wilderness characteristics to ensure they will meet with the objectives of enhancing or restoring wilderness characteristics in those areas.	No

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		creating new developments, disturbing visual resources, and influencing wildlife migration, reproduction, and mortality (e.g., sage-grouse/fence collisions).(DEIS at 671.) While this acknowledgement of the impacts associate with grazing is encouraging, the BLM must not stop with an acknowledgement of the issues. The HiLine DRMP must also address these impacts.		
0096-21	Wildlife-Greater Sage-Grouse	The 2012 Montana Fish, Wildlife, and Parks ("MTFWP") counts for the eastern Montana Sage-grouse Management Zone are only 64.9% of the long term average.[69] Across Montana, sage-grouse numbers have declined by more than half since 1980. (Id) Furthermore, hunter harvest estimates have declined even further, dropping from 40,000 birds in 1984 to less than 5,000 in 2011. (Id) This represents an 87.5% decline in hunter harvest across the State. Please review and share this important sage-grouse data in the final EIS. If you have more site specific information relevant to sage-grouse trends and habitat conditions within the Hi-Line RMA, please reveal it in the final EIS as well. [69] Montana Fish, Wildlife & Parks. June 20, 2012. Interoffice Memorandum From: Rick Northrup To: George Pauley. Re: Sage-Grouse AHM lek results from spring 2012.	Refer to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse, where acres of Greater Sage-Grouse habitat have been added. Hunter harvest information for 2012 has also been included.	Yes
0096-22	Livestock Grazing	The DRMP intends to "[d]iscourage concentration of livestock on sage-grouse leks and winter habitat."(DEIS at 1124) But the discouragement of an action is completely unenforceable. The Final RMP and EIS must present measurable, enforceable terms and conditions to protect sage-grouse in the planning area.	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern. Current rangeland health standard statistics (Appendix G) show that authorized grazing use within the HiLine District is achieving consistency with the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota. Over 93% of the allotments assessed are achieving all of the standards.	No
0096-23	Wildlife-Greater Sage-Grouse	Livestock grazing is considered the single most important influence on sagebrush habitats and fire regimes throughout the Intermountain West in the past 140 years.[73] Grazing is the most widespread use of sagebrush steppe and almost all sagebrush	Refer to Appendix H, Standards for Rangeland Health and Guidelines for Livestock Grazing Management; and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, under Livestock Grazing.	No

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		habitat is managed for grazing.[74] Livestock grazing disturbs the soil, removes native vegetation, and spreads invasive species in sagebrush steppe.[75] Cattle or sheep grazing in sage-grouse nesting and brood-rearing habitat can negatively affect habitat quality; nutrition for gravid hens; clutch size; nesting success; and/or chick survival.[76] Livestock may directly compete with sage-grouse for grasses, forbs and shrub species; trample vegetation and sage-grouse nests; disturb individual birds and cause nest abandonment.[77] The potential conflict between livestock grazing and sage-grouse intensifies near water sources due to the importance of these areas to sage-grouse, particularly during early brood rearing. Heavy cattle grazing near springs, seeps, and riparian areas can remove grasses used for cover by grouse.[78] "[R]aped removal of forbs by livestock on spring or summer ranges may have a substantial adverse impact on young grouse, especially where forbs are already scarce."[79] [73] (Knick, S. T., A. L. Holmes, R. F. Miller. 2005. The role of fire in structuring sagebrush habitats and bird communities. FIRE AND AVIAN ECOLOGY IN NORTH AMERICA. Studies in Avian Biology, no. 30. Page 68. Cooper Ornithological Society. Boise, ID) [74] Connelly, J. W., S. T. Knick, M. A. Schroeder, S. J. Stiver. 2004. Conservation assessment of Greater Sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies. Cheyenne, WY. (July 22, 2004); Knick, S. T., D. S. Dobkin, J. T. Rotenberry, M. A. Schroeder, W. M. Vander Haegen, C. van Riper. 2003. Teetering on the edge or too late? Conservation and research issues for avifauna of sagebrush habitats. Condor 105(4): 611-634.; Knick, S. T., S. E. Hanser, R. F. Miller, D. A. Pyke, M. J. Wisdom, S. P. Finn, E. T. Rinkes, C. J. Henny. 2011. Ecological influence and pathways of land use in sagebrush. Pages 203-251 in S. T. Knick and J. W. Connelly (eds). GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS. Studies in Avian Biol. Series, vol. 38. Cooper Ornithological Society. Univ. Calif. Press. Berkeley, CA. [75] Knick et al. 2005. [76] Connelly, J. W. and C. E. Braun. 1997.		

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		Long-term changes in sage-grouse Centrocercus urophasianus populations in western North America. Wildl. Biol. 3: 229-234.; Beck, J. L. and D. L. Mitchell. 2000. Influences of livestock grazing on sage grouse habitat. Wildl. Soc. Bull. 28(4): 993-1002. Barnett, J. F. and J. A. Crawford. 1994. Pre-laying nutrition of sage-grouse hens in Oregon. J. Range Manage. 47: 114-118. Coggins, K. A. 1998. Relationship between habitat changes and productivity of sage grouse at Hart Mountain National Antelope Refuge, Oregon. M.S. thesis. Oregon State University. Corvallis, OR. Aldridge, C. L. and R. M. Brigham. 2003. Distribution, status and abundance of Greater Sagegrouse, Centrocercus urophasianus, in Canada. Canadian Field-Natur. 117: 25-34. [77] Vallentine, J. F. 1990. GRAZING MANAGEMENT. Academic Press. San Diego, CA.Pederson, E. K., J. W. Connelly, J. R. Hendrickson, W. E. Grant. 2003. Effect of sheep grazing and fire on sage grouse populations in southeastern Idaho. Ecol. Model. 165(1): 23-47.; Call, M. W. and C. Maser. 1985. Wildlife habitats in managed rangelands – the Great Basin of southeastern Oregon: sage grouse. Gen. Tech. Rep. PNW-187. U.S. Forest Service, Pacific Northwest Forest and Range Exp. Stn. Portland, OR. Holloran, M. J. and S. H. Anderson. 2005. Spatial distribution of Greater Sage-grouse nests in relatively contiguous sagebrush habitats. Condor 107(4): 742-752. Coates, P. S. 2007. Greater Sage-grouse (Centrocercus urophasianus) nest predation and incubation behavior. Ph.D. Diss. Idaho State Univ. Pocatello, ID. [78] Klebenow, D. A. 1982. Livestock grazing interactions with sage grouse. Proc. Wildlife-Livestock Relations Symp. 10: 113-123. [79] Call, M. W. and C. Maser. 1985. Wildlife habitats in managed rangelands – the Great Basin of southeastern Oregon: sage grouse. Gen. Tech. Rep. PNW-187. U.S. Forest Service, Pacific Northwest Forest and Range Exp. Stn. Portland, OR.		
0096-24	Livestock Grazing	The DEIS states that "it may be desirable use grazing to control weedy or invasive species immediately following a vegetation treatment."(DEIS at 133-36.) Considering the scientific studies to the contrary, the BLM should retract its plan to control	See Chapter 2, Livestock Grazing, Alternative E (Preferred Alternative) concerning site-specific interdisciplinary review.	No

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		invasive plants with grazing.		
0096-25	Wildlife-Greater Sage-Grouse	Sage-grouse do not use cheatgrass. Invasive species was identified as a threat to sage grouse by three expert panels and in recent reviews (Connelly et al. 2011, Table 1). One panel listed cheatgrass as the most important threat to sage-grouse in the western portion of its range (70 Fed. Reg. 2267), where it has invaded much of the lower elevation, xeric sagebrush habitat (Miller et al. 2011). Land uses such as livestock grazing (Reisner 2010), off-road vehicle use, and coalbed methane development.	According to the COT Report (2013), Weeds/Annual Grasses are a Threat Present, but Localized in the Northern Montana Greater Sage-Grouse portion of Management Zone 1.	No
0096-27	Economics	While the BLM need not choose the alternative with the greatest economic return, the BLM also fails to calculate the economic value of grazing. The economic and social value of public lands livestock grazing receives disproportionate weight in the DEIS. The importance of public lands grazing to the economy of the region is grossly overestimated. The calculation of the social and economic values of the draft plan should demonstrate a clear understanding and consideration of the conflicts between continued grazing and other uses of the public lands. The BLM must provide a more thorough analysis of the social and economic values of different livestock grazing levels. This analysis must consider the administrative costs of a grazing policy, economic benefits from recreation where grazing is reduced or eliminated, and the cost of negative environmental consequences of livestock grazing in the area.	The livestock grazing analysis conducted for the HiLine RMP/EIS has been updated with data for billed use on BLM lands within the planning area to better assess the economic contributions of the HiLine's grazing program. Costs associated with administering the HiLine District's range program are included in the annual salary and non-salary expenditures analyzed in Chapter 4 along with the economic contributions of outdoor recreation under the alternatives.	Yes
0096-28	Economics	The administrative costs of public lands grazing are often underestimated, and not even considered in the DEIS. Considering only direct costs, BLM range management costs in 2011 totaled $77.3 million, while income from grazing fees was only $4.5 million, leaving a net deficit to the U.S. Treasury was $72.8 million.[85] This loss on federal grazing programs fails to consider indirect costs, such as administration of the range program. Estimates of those indirect costs rise well over $100 million. (Id. at 17.) The economic calculation in the DEIS ignores potential administrative cost savings from reduced grazing. Decreased grazing would save the BLM costs associated with environmental analysis, litigation, grazing permit administration, predator control, weed spraying, and costly efforts to preserve species harmed by grazing.	Costs associated with administering the range program are included in the Field office's annual salary and non-salary expenditures analyzed in Chapter 4. These expenditures are financed with congressionally appropriated funds.	No

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		[85] Karyn Moskowitz and Chuck Romaniello, Assessing the Full Cost of the Federal Grazing Program, October 2002, 14.		
0096-29	Economics	Agricultural statistics often overestimate the value of public lands ranching to local economies. The number of permittees and full-time ranchers is often extremely inflated. In fact, "the elimination of all public lands livestock grazing would result in a loss of 18,300 jobs in agriculture and related industries across the entire West, or approximately 0.1 percent of the West's total employment."[87] For further information on the significance of federal public lands grazing to employment and economies in the West generally, see Thomas Power's article, Taking Stock of Public Lands Grazing: An Economic Analysis.[88] [87] George Wuerthner & Mollie Matteson, Welfare Ranching: The Subsidized Destruction of the American West, 13 (2002), available at http://www.publiclandsranching.org/htmlres/wr_myth_economics.htm. [88] Thomas Power, Taking Stock of Public Lands Grazing: An Economic Analysis, available at http://www.publiclandsranching.org/htmlres/wr_taking_stock.htm.	See Chapter 4, Economics. The livestock grazing analysis conducted for the HiLine RMP/EIS was updated with data on billed use on BLM lands within the planning area to better assess the economic contributions of the HiLine's grazing program.	Yes
0096-30	Economics	Often, public lands recreation provides far more economic benefit to local communities than livestock grazing. Improved environmental conditions that would result from decreased grazing would likely create more jobs and economic development related to outdoor recreation such as hiking, camping, fishing, hunting, and the associated benefits to restaurants, hotels, convenience stores, and other in the area. A 2011 Department of Interior study stated that "[r]ecreation visits to Interior-managed lands in the contiguous United States, Hawaii, and Alaska in 2011 supported over 403,000 jobs and about $48.7 billion in economic contributions to the communities and regions surrounding Interior-managed land."[89] The DEIS ignores the economic significance of recreation, an economic benefit that would increase with improved land conditions from decreased grazing. [89] The Department of the Interior's Economic Contributions: Fiscal Year 2011, July 9, 2012, 152, available at http://www.doi.gov/americasgreatoutdoors/loader.cfm?csModule=security/getfile&pagei	The economic contributions of outdoor recreation and livestock grazing are discussed in Chapters 3 and 4. General economic contributions to the State of Montana are discussed in the Recreation Use section of Chapter 3, Economics, and the economic impacts of changes in visitation under the alternatives are discussed in Chapter 4, Economics.	No

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0096-31	Economics	The DRMP fails to address the costs of environmental degradation. It fails to calculate the value lost from negative environmental impacts to water quality and quantity, aquatic species habitat, riparian and upland wildlife habitat quality and quantity, and native vegetation. Unsustainable grazing practices proposed in the DEIS could lead to species loss throughout the area. The DEIS also fails to address the potential for further exotic species and weed expansions, the costs associated with weeds and flammable invasive species, and the resulting potential for species loss. The viability of wildlife and rare plant populations and the cost to protect and preserve them in the face of chronic grazing degradation demands BLM's attention. If the BLM is to rise to its calling as land administrator for the public, the beauty and intrinsic value of the land, as described by Aldo Leopold, must also be addressed.[91] In accordance with its multiple use mission, the BLM must consider land uses other than grazing in its calculation of the economic and social values of each alternative, including administrative costs and environmental impacts to water, wildlife, plants, recreation, potential species loss, intrinsic land value, and beauty. Under the Taylor Grazing Act, the BLM must prevent injury to public lands. (43 U.S.C. §315(a).) However, the current grazing utilization level is unsustainable, and the proposed plan would continue grazing at unsustainable levels. Restoration of the land will require costly action by the BLM. Taking into account the overestimated costs and underestimated benefits of reducing grazing in the planning area, the BLM must provide a more thorough and balanced analysis that considers the factors addressed in this comment. [91] See Aldo Leopold, A Sand County Almanac, Part III: The Upshot: The Land Ethic (1949).	The HiLine RMP/EIS examines multiple uses including recreation, mineral development, and livestock grazing under alternative management scenarios. While this analysis does not monetize ecosystem services, many of the actions proposed under the alternatives are intended to better align resource conditions with desired conditions over the life of the RMP.	No
0096-32	Livestock Grazing	The alternatives section of the DRMP lists three goals of livestock grazing management in the planning area. Unfortunately, these goals provide only qualitative objectives, not quantitative terms and conditions. These goals, and the DRMP analysis generally, fails to provide specific measurable terms	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-	No

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		and conditions related to livestock management sufficient to meet the requirements of FLPMA's unnecessary or undue degradation and multiple uses provisions. Western Watersheds Project urges the BLM to add specific measurable objectives for livestock grazing specific to riparian areas, uplands, and impacts on sensitive species habitat in order to comply with FLPMA, beginning with the five terms and conditions mentioned above.	specific level to address any particular and unique resource need or concern.	
0096-33	Wildlife-Greater Sage-Grouse	The DRMP fails to provide in-depth analysis of various alternatives, including a no grazing alternative, and two or more significantly reduced livestock use alternatives. The impact of oil and gas development on these species is analyzed in more detail, but livestock grazing impacts are not sufficiently analyzed. For example, the DRMP would close Grassland Bird/Greater Sage-Grouse Priority Areas and Greater Sage-Grouse Protection Priority Areas to oil and gas leasing, but leave those areas open to livestock grazing. (DEIS at 155-68) Alternative E contemplates two other categories of area in reference to sage-grouse, General Greater Sage-Grouse Habitat Areas and a Greater Sage-Grouse Restoration Area, but inadequately addresses livestock grazing in those areas as well. General Greater Sage-Grouse Habitat Areas would receive site-specific analysis, but no further terms and conditions are provided. The proposed Greater Sage-Grouse Restoration Area does not address grazing at all. (DEIS at 167-69.)	See Chapter 2, Alternatives Considered but Not Analyzed in Detail, No Livestock Grazing/Reduced Grazing.	No
0096-34	Wildlife-Greater Sage-Grouse	The DRMP recognizes that sensitive species such as sage-grouse may be impacted by climate change, but the document fails to tie decision-making regarding livestock grazing levels to habitat protection in order to mitigate this potential impact on sage-grouse and other species.	Grazing management in Greater Sage-Grouse habitats is discussed in Appendix M.	No
0096-35	Livestock Grazing	As part of the Final EIS's explanation of the existing management situation, the Final EIS and RMP must provide an Allotment Management Summary detailing the conditions of each allotment within the planning area. This summary should include not only the number of AUMs permitted on each allotment, but also the actual use or "average use." Without data about actual use, the environmental assessment of livestock grazing impacts may be significantly distorted, especially on those	Much of the requested information can be found in Appendix G, Livestock Allocations.	No

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		allotments where less than the permitted AUMs are actually grazing on the land. Additionally, this section of the document should include the suspended nonuse AUMs, other forage allocations, specific resource concerns, and management objectives. The attached two-page excerpt from the July 1999 Owyhee RMP and FEIS offers a great example of an Allotment Management Summary.		
0096-36	NEPA	The National Environmental Policy Act ("NEPA") requires that the BLM consider a reasonable range of alternatives. See 42 U.S.C. § 4332(2)(C)(iii). Considering the presence of endangered, special status, and sensitive species in the planning area, a no grazing alternative and 50% reduction in permitted grazing should be included within the reasonable range of alternatives for the HiLine DRMP.	Chapter 2 presents five alternatives for managing the HiLine District to meet the purpose and need, the vision and management goals, and to address the issues discussed in Chapter 1.	No
0096-37	NEPA	The DRMP does not analyze the no grazing alternative, and attempts to justify this lack of analysis by claiming that a no grazing alternative would be inconsistent with the purpose and need of the DRMP. The DRMP argues that because the BLM has "considerable discretion" to adjust grazing levels, the agency need not analyze the no grazing alternative. This seems less than logical, essentially stating that because the BLM has discretion to choose stocking rate A or stocking rate B, it need not analyze stocking rate B. It is akin to stating that because a person can choose whether or not to buy a house, she need not inform her decision-making process by weighing the pros and cons of home ownership. The BLM must at least analyze the no grazing alternative to determine whether it is a viable alternative. In addition to the no grazing alternative, the BLM should analyze an alternative that reduces permitted grazing by 50%. The current alternatives offer only minimal variation in number of acres and permitted AUMs, and only a reduction of 50% or more would offer sufficient change to address the environmental impacts of livestock grazing. The EIS and RMP must also address the fact that livestock sizes, and thus forage consumption, have increased dramatically since the AUM was defined. Failure to address this critical issue will lead to legal vulnerability under NEPA, APA and the False Claims Act.	Additional rationale is provided in Chapter 2 of the Proposed RMP/Final EIS, under Alternatives Considered but Not Analyzed in Detail, for not analyzing a "No" or reduced grazing alternative. The BLM definition of an AUM at 43 CFR 4100.0-5 does not identify the quantity of forage that constitutes an AUM nor does the regulation at 43 CFR 4130.8-1 providing for payment of grazing fees. The amount of permitted use is a mandatory term in grazing permits and leases. Permitted use will be modified when such an adjustment is needed to manage, maintain, or improve rangeland productivity; to assist in restoring ecosystems to properly functioning condition; or to otherwise meet land health standards. (See Chapter 2, Livestock Grazing, Decisions Common to All Alternatives.) The BLM manages grazing impacts using the data gathered through monitoring, field observations, and land health assessments. Even though data for livestock weights or the amount of forage consumed per animal are not specifically gathered or identified, monitoring resource conditions and, where necessary, making changes in grazing management would account for differences in livestock weights and forage consumption.	Yes
0096-38	Wildlife-	Antelope are also negatively impacted by	Refer to Chapter 2, Wildlife, Decisions	No

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	General	livestock and livestock-related fencing. Fences or fragment antelope habitat. Fences pose a serious challenge and create a number of problems for antelope.[95] Fences can disrupt antelope escape strategies by confusing them, forcing them to slow down, change routes and congregate, in particular in fence corners. BLM must consider the removal of fences on pronghorn habitat within the Hi-Line planning area. Livestock use and presence can also significantly impact pronghorn habitat and behavior.[96] [95] Pyrah, D.B. 1987. American pronghorn antelope in the yellow water triangle, Montana: a study of social distribution, population dynamics, and habitat use. Montana Dept. Fish, Wildl. and Parks in cooperation with USDI, BLM. P. 121; Trubak, G., A. Carey and S. Carey. 1995. Pronghorn: portrait of the American Antelope. Northland Publishing, Flagstaff Arizona. P. 138. [96] Pyrah, D.B. 1987. American pronghorn antelope in the yellow water triangle, Montana: a study of social distribution, population dynamics, and habitat use. Montana Dept. Fish, Wildl. and Parks in cooperation with USDI, BLM. P. 121.	Common to All Alternatives, General Wildlife which includes the following: New fences would follow BLM specifications to allow for wildlife passage, except for fences built specifically to keep wildlife out of an area. Fences would also be placed and marked, or modified, to reduce wildlife collisions or entanglements.	
0096-39	Livestock Grazing	According to all alternatives in the draft plan, "No changes to livestock grazing or grazing allocations would occur on any lands managed for wilderness characteristics, and all agreements and provisions for maintenance and upkeep of existing range improvements would continue to remain in effect including access to and maintenance of range improvements."(DEIS at 45) BLM must first analyze the impacts of these discretionary and perhaps significant actions on the primitive nature of these lands, including the native plants, wildlife, soils and water present in these areas.	No new actions are being proposed. Existing infrastructure currently in place has been previously authorized.	No
0096-40	Wildlife-General	The Final EIS should discuss in detail the vast array of livestock diseases that can significantly harm if not kill native wildlife. Bighorn sheep in particular are extremely susceptible to livestock diseases carried by domestic sheep and goats, which are often asymptomatic to these same diseases.[98] Pasteurella pneumonia and lung worm in particular are spread by domestic sheep. Yet, the RMP proposed to continue domestic sheep grazing in known bighorn sheep ranges without disclosing the expected impacts.	Refer to the revised text in Chapter 2, Wildlife, Alternative E (Preferred Alternative), General Wildlife, Bighorn Sheep that redefines the bighorn sheep management area as defined by MFWP.	Yes

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		[98] Schommer, T and M. Woolever. 2008. A review of diseases related conflicts between domestic sheep and goats and bighorn sheep. USDA Forest Service, Rocky Mountain Research Station, General Technical Report RMRSGTR- 209. 16 pp.		
0096-41	Livestock Grazing	Because of economic pressures and uncertainty, many ranchers in the West would like to voluntarily retire their grazing permits, and the RMP and Final EIS should grant ranchers the freedom to retire their permits if voluntarily waived to the BLM. Voluntary grazing permit retirement would offer permittees a new economic opportunity while providing protection and restoration for the land managed by the HiLine BLM office. Alternatives B and E do contemplate retirement of grazing allotments, (DEIS at 178) but all alternatives analyzed in the Final EIS and the chosen alternative for the RMP need to include specific direction and language authorizing the permanent retirement of voluntarily waived BLM grazing permits. Suggested language for authorizations is as follows: Grazing privileges that are lost, relinquished, canceled, or have base property sold without transfer would have attached AUMs held for watershed protection and wildlife habitat. (Adapted from the Challis Resource Area Proposed RMP and Final EIS, October 1998, p. 87).	See Chapter 2, Livestock Grazing, Decisions Common to All Alternatives and Alternative E (Preferred Alternative).	No
0096-42	NEPA	In the case of the HiLine DRMP, the BLM has recognized many times that the quality of the land in the project area is severely diminished. Thus, when the RMP seeks to improve range condition, as it must, what this really means is that the RMP must provide for improved riparian, upland, and wildlife habitat conditions and include goals, terms and conditions, and standards to achieve those goals. The correction of resource degradation caused by domestic livestock and the prevention of future degradation should be driving forces behind the RMP and should be reflected throughout the NEPA document and in any future agency decisions regarding domestic livestock grazing in the project area. Each alternative falls short of restoring degraded conditions and meeting the mandates described above. Specific livestock grazing levels that will be used to meet standards are lacking in all alternatives in the DEIS and must be included in the	Resource degradation caused by domestic livestock was not identified as a major planning issue during public scoping. Consequently “improve range condition” is not included in the Purpose and Need of the HiLine RMP/EIS.	No

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		FEIS.		
0096-43	NEPA	Simply stating that specific standards will be developed at the site specific level violates law and allows the BLM to continue the degradation caused by domestic livestock. By not stating minimum livestock utilization standards in the RMP, the BLM failed to establish allowable use levels as required by both 43 CFR Sec 4100.0-8 and 43 CFR 1601.0-5(b).	Allowable use levels for livestock grazing are presented under Livestock Grazing in Chapter 2 of the Proposed RMP/Final EIS.	No
0097-01	OHV Use and Travel and Transpor-tation Mgmt	Please provide us, the public, with maps of existing routes in the prairies, so that we can better participate in travel planning in the future.	This topic is discussed in Chapter 2, Off-Highway Vehicle Use and Travel and Transportation Management, Travel Management Areas, under Travel Management Planning criteria and Travel Management Criteria for Making Road and Trail Selections.	No
0102-02	Fluid Minerals	The HiLine RMP should apply stronger protections through mandated conditions of approval to existing leases, as well as in lease stipulations for new leases. These COAs can include no surface occupancy stipulations, phased leasing, limiting surface disturbance and other types of phased development, prohibiting new routes and infrastructure, obliterating unneeded routes. For reference, the White River Field Office in Colorado, as part of a Draft RMP Amendment, has prepared a factsheet on the types of stipulations (for new leases) and conditions of approval (for existing leases) to be used to protect wildlife (available on-line at: http://www.blm.gov/pgdata/etc/medialib/blm/co/programs/land_use_planning/rmp/white_river/documents/factsheets.Par.40998.File.dat/WRFO%20RMPA%20FACT%20SHEET%20wildlife%208-17-12.pdf). The same RMP amendment also addresses management of lands with wilderness characteristics to limit motorized use (such as no new roads or improvement of existing roads) and take other protective measures (such as removing structures and prohibiting any new ones) through conditions of approval on existing leases (see, Table 2-22, pp. 145-147 at: http://www.blm.gov/pgdata/etc/medialib/blm/co/programs/land_use_planning/rmp/white_river/documents/draft_rmpa_-_1.Par.52235.File.dat/03_WRFO_RMPA-EIS_Chapter%202_Aug2012.pdf).	Per 43 Code of Federal Regulations (CFR) 3101.1-2, conditions of approval are deemed consistent with lease rights provided they do not require relocation of proposed operations by more than 200 meters, mandate that operations be sited off the leasehold (i.e. no surface occupancy), or prohibit new surface-disturbing activities for a period of more than 60 days in a lease year. This is also mentioned in Chapter 2, Fluid Minerals, Decisions Common to All Alternatives. Also, refer to Chapter 2, Fluid Minerals, Decisions Common to All Alternatives, where it states: "New surface use stipulations (including TLS, CSU, and NSO) cannot be applied to existing oil and gas leases or other existing valid use authorizations such as rights-of-way."	No
0102-03	Fluid Minerals	BLM's approach to the proposed Bitter Creek/Frenchman Breaks MLP is not "consistent" with Chapter V, which requires MLPs to be "easily recognizable throughout	Appendix E.1, Oil and Gas Operations has a discussion under the Master Leasing Plan header in which the Bitter Creek/Frenchman Breaks area (along with four other areas)	No

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		the RMP document. . . .” Chapter V – F.1.	was considered for an MLP. It did not meet the criteria, and the rationale was provided within the discussion along with detailed maps.	
0102-04	Fluid Minerals	BLM should thoroughly evaluate and adopt the proposed Bitter Creek/Frenchman Breaks Master Leasing Plan.	Appendix E.1, Oil and Gas Operations has a discussion under the Master Leasing Plan header in which the Bitter Creek/Frenchman Breaks area (along with four other areas) was considered for an MLP. It did not meet the criteria, and the rationale was provided within the discussion along with detailed maps.	No
0102-05	Fluid Minerals	When developing the “vision” and “framework” for the Bitter Creek/Frenchman Breaks MLP, the BLM must address several key considerations: • First, the ultimate goal of the MLP, which should be stated explicitly in the “vision” and “framework,” is to resolve potential resource conflicts within the analysis area. For the Bitter Creek/Frenchman Breaks MLP, those conflicts include potential impacts on prairie grasslands, wildlife habitat, cultural resources, watersheds, lands with wilderness characteristics, recreation. • Second, the “vision” and “framework” should acknowledge the need to address conflicts not only with future leasing, but also with future development, including on existing leases. See Chapter V – C.2. (“MLPs must identify whether the resource protection measures identified in the MLP will also apply to areas currently under lease.”). • Third, the “vision” and “framework” should explain that opportunities exist to proceed slowly and carefully with leasing and development in the Bitter Creek/Frenchman Breaks area, in light of the information presented in the Reasonably Foreseeable Development (RFD) Scenario for the planning area, which must be updated to reflect current economic conditions. Opportunities to avoid or minimize conflicts through “evolving” technological developments, such as directional and “pad” drilling, should also be acknowledged here. • Finally, the BLM must incorporate the “vision” and “framework” throughout the RMP and explicitly tie the development and selection of RCOs and RPMs to the “vision” and “framework.” Put differently, the BLM must explain how the RCOs and RPMs will achieve the “vision” for oil and gas leasing and development in the Bitter	Appendix E.1, Oil and Gas Operations has a discussion under the Master Leasing Plan header in which the Bitter Creek/Frenchman Breaks area (along with four other areas) was considered for an MLP. It did not meet the criteria, and the rationale was provided within the discussion along with detailed maps.	No

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		Creek/Frenchman Breaks area. See Chapter V – F.10. ("The analysis should demonstrate the effectiveness of resource protection measures for helping achieving resource objectives.").		
0102-06	Fluid Minerals	Within the Final RMP, the BLM must fully identify and describe the "important resources" of the Bitter Creek/Frenchman Breaks area. MLPs are driven by the need to resolve "likely conflicts" with "important national and local resource[s]. . . ." See generally Chapter V; IM 2010-117. Those resources should include the values already identified by the BLM and in the study referenced above. In the Final RMP, the BLM must include within the "Affected Environment" chapter a full and complete description for each of the "important resources" in Bitter Creek/Frenchman Breaks. Doing so is required by Chapter V, which states that "MLP[s] should be easily recognizable throughout the RMP document" and directs the BLM to "discuss the relevant resource values and uses present in the MLP area that may result in conflicts with oil and gas development (whether actual or reasonably foreseeable)" in the "Affected Environment" chapter. Chapter V – F.1., 8. By way of example, the Miles City Field Office, which is developing the Carter MLP through an RMP revision, included a specific discussion for many of Carter's "important resources" in the "Affected Environment" Chapter 1. The BLM should build upon this example, and include a more robust discussion for each of the Bitter Creek/Frenchman Breaks MLP's "important resources" in the Final RMP.	Appendix E.1, Oil and Gas Operations has a discussion under the Master Leasing Plan header in which the Bitter Creek/Frenchman Breaks area (along with four other areas) was considered for an MLP. It did not meet the criteria, and the rationale was provided within the discussion along with detailed maps.	No
0102-07	Fluid Minerals	The BLM must fully identify and describe the Shale Ridges MLP's "important resources," including lands with wilderness characteristics, recreation and critical wildlife habitat. That information must appear throughout the Final RMP, but a detailed discussion of baseline conditions should appear in the "Affected Environment" chapter.	The Shale Ridges area was not considered for a Master Leasing Plan. Additionally, there is no record of a proposal being submitted for consideration. (See Appendix E.1, Oil and Gas Operations, Master Leasing Plan.)	No
0102-08	Fluid Minerals	RCOs and RPMs are the "two main elements of master leasing planning for an area. . . ." Chapter V – C. They "provide standards for subsequent development and reclamation of the MLP analysis area" and measures that will "reduce environmental impacts and help achieve" those standards. Id. at C.1., 2. Thus, prior to finalizing the	Appendix E.1, Oil and Gas Operations has a discussion under the Master Leasing Plan header in which the Bitter Creek/Frenchman Breaks area (along with four other areas) was considered for an MLP. It did not meet the criteria, and the rationale was provided within the discussion along with detailed maps.	No

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		RMP, the BLM must develop and incorporate RCOs and RPMs that will avoid conflicts with the Bitter Creek/Frenchman Breaks MLP's "important resources." When developing the RCOs and RPMs, the BLM must comply with several important requirements from IM 2010-117 and Chapter V, including the following: • First, the BLM must base the RCOs and RPMs on the "vision" and "framework" for the Bitter Creek/Frenchman Breaks MLP. For example, if the "vision" and "framework" prioritizes the avoidance of potential impacts on lands with wilderness characteristics, recreation and critical wildlife habitat, the RCOs and RPMs should provide clear standards (numeric or otherwise) and measures for implementing that component of the "vision" and "framework." • Second, the BLM must develop RCOs and RPMs for each of the "important resources" within the Bitter Creek/Frenchman Breaks MLP. This includes RCOs and RPMs for lands with wilderness characteristics, prairie grasslands, and critical wildlife habitat, as well as additional "important resources" identified by the BLM. • Third, the BLM must develop a range of RPMs—alternative ways to achieve the RCOs—in the Final RMP. See Chapter V – F.7. ("The planning document should include alternative ways of implementing the MLP."). The BLM should not limit the RPMs to measures proposed in the Draft RMP's range of alternatives, however. As explained in BLM's NEPA Handbook, there is some flexibility in going outside the range of alternatives proposed in Draft RMPs if new alternatives or measures "lie within the spectrum of alternatives analyzed in the draft EIS or [are] a minor variation of an alternative analyzed in draft EIS." H-1790-1 at 5.3.2.		
0102-09	Fluid Minerals	• Fourth, the BLM must develop RPMs for oil and gas leasing and development. As explained in Chapter V, "MLPs must identify whether the resource protection measures identified in the MLP will also apply to areas currently under lease." Chapter V – C.2. Additionally, when considering measures for areas covered by existing leases, the BLM should specifically consider closing those areas to future leasing (not re-issuing leases when	Appendix E.1, Oil and Gas Operations has a discussion under the Master Leasing Plan header in which the Bitter Creek/Frenchman Breaks area (along with four other areas) was considered for an MLP. It did not meet the criteria, and the rationale was provided within the discussion along with detailed maps.	No

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		existing leases expire), when doing so would avoid future conflicts with the Bitter Creek/Frenchman Breaks MLP's "important resources." • Finally, the BLM must "demonstrate the effectiveness of resource protection measures for helping to achieve resource objectives." Chapter V – F.10. This analysis should appear in the "Environmental Consequences" chapter and should "address oil and gas development in greater detail than is found in the remainder of the RMP. . . ." Id. at F.11. The BLM should include a distinct and separate analysis for each "important resource" in the Bitter Creek/Frenchman Breaks MLP—explaining how each set of RPMs will (or will not) achieve the applicable RCOs. In addition, BLM can look to the new guidance provided by IM 2013-142 and Draft Manual Section 1794 on regional mitigation. A master leasing plan like the Bitter Creek/Frenchman Breaks MLP is an opportunity to develop a landscape-level, strategic approach to oil and gas development that also addresses its impacts through other conservation and preservation measures.		
0102-10	Fluid Minerals	The BLM must develop and include in the Final RMP an RFD specifically for the Bitter Creek/Frenchman Breaks MLP. The BLM must base that RFD on current information concerning economics and technological developments, and must use the RFD to inform the development and selection of RPMs.	Appendix E.1, Oil and Gas Operations has a discussion under the Master Leasing Plan header in which the Bitter Creek/Frenchman Breaks area (along with four other areas) was considered for an MLP. It did not meet the criteria, and the rationale was provided within the discussion along with detailed maps.	No
0102-11	Fluid Minerals	The BLM must provide the public and stakeholders with the opportunity to review and comment on the range of alternatives and analysis for the Bitter Creek/Frenchman Breaks MLP. This can be done formally by soliciting comments on the Final RMP or informally through the issuance of a newsletter on the Bitter Creek/Frenchman Breaks MLP.	Appendix E.1, Oil and Gas Operations has a discussion under the Master Leasing Plan header in which the Bitter Creek/Frenchman Breaks area (along with four other areas) was considered for an MLP. It did not meet the criteria, and the rationale was provided within the discussion along with detailed maps.	No
0102-12	Wilderness Character-istics	BLM should adopt Alternative E to manage all identified lands with wilderness characteristics, as well as identifying and managing additional potential lands with wilderness characteristics. BLM should strengthen its management approach to better protect wilderness characteristics, as described above.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0102-14	Special Designa-	We recommend that BLM adopt its approach under Alternative B for	This topic is discussed in Chapter 2, Special Designations, Wild and Scenic Rivers. The	No

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	tions-Wild and Scenic Rivers	management of the ½ mile segment of the Marias River as suitable for inclusion in the Wild and Scenic River System. This would help fulfill the agency's duty to manage National Conservation Lands at the landscape level by managing this segment consistent with the Upper Missouri River Breaks National Monument.	impacts of designating this segment as a Wild and Scenic River are analyzed in Chapter 4 under Alternative B. The inventory and designation processes are described in Appendix L, Wild and Scenic Rivers Report, Eligibility and Suitability Determinations.	
0102-16	Cultural Resources	BLM should develop a National Trail Management Corridor for the Nez Perce National Historic Trail. The Corridor should be wide enough and prescriptive enough to protect the historic values associated with the designation. We recommend looking at the Lander Proposed RMP for potential management prescriptions that should also be adopted in this RMP.	The Nez Perce National Historic Trail is administered by the U.S. Forest Service. Management actions would be guided by their comprehensive management plan. See Chapter 2, Special Designations, National Historic Trails.	No
0102-17	OHV Use and Travel and Transpor-tation Mgmt	BLM must map and document the existing route system as of the date of this RMP and clarify that any additional routes will not be considered as "existing." BLM should prioritize areas for comprehensive travel planning with interim closures and restrictions and specific timeframes for completion, no later than 5 years from the signing of the ROD. BLM should also incorporate the language for R.S. 2477 claims that was set out in BLM's Manual 1626 and Handbook 8432 rather than citing to WO IM No. 2006-159, which is no longer relevant.	This topic is discussed in Chapter 2, Off-Highway Vehicle Use and Travel and Transportation Management, Travel Management Areas, under Travel Management Planning criteria and Travel Management Criteria for Making Road and Trail Selections.	No
0103-02	Wilderness Character-istics	Lands with Wilderness Characteristics are very limited and once lost, can never be replaced. Lands with Wilderness Characteristics are very limited in the Hi-Line RMP. Prairie and grasslands are often overlooked in terms of wilderness simply because they do not have mountains. Yet these areas on the Hi-Line have vast and undisturbed naturalness, wildlife, and solitude. Adequate inventory and designation of Land with Wilderness Characteristic opportunities were not fully explored in the Hi-Line RMP. It is therefore emphasized that additional time and study be devoted to fully evaluating areas such as Carpenter Creek, Lena, and Long Coulee.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0103-03	Wildlife-Greater Sage-Grouse	Much research just recently completed indicates Greater Sage-Grouse are very fragile to increasing habitat changes such as energy development, ground vibrations, noise, land disruption, and human encroachment. It is noted that BLM lands on the Hi-Line are absolutely critical for migration, nesting, breeding, and connectivity of Greater Sage-Grouse habitat.	Refer to Chapter 2, Fluid Minerals; Chapter 2, Wildlife; and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. Closed to fluid mineral leasing in Greater Sage-Grouse nesting habitat was analyzed in Alternative B.	No

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		Therefore a buffer zone of 4 miles from any and every development is emphasized as critical for survival of Greater Sage- Grouse. It is also noted that Greater Sage-Grouse are a bellwether for many other species.		
0108-01	Recreation	In order to resolve conflict and conserve high quality lands, we recommend the HiLine District RMP utilize a Backcountry Conservation Area designation, (or allocation or emphasis area) to conserve, maintain, restore and enhance the conservation value of identifiable areas of BLM administered public lands that are generally intact, appear generally undeveloped, contain important habitats for fish and wildlife species of conservation need, and provide dispersed outdoor recreation opportunities. The BCA designation is intended to give conservation identity and supportive core management policies to important habitats and recreationally important identifiable areas across BLM administered backcountry public lands that are generally intact and appear generally undeveloped. Such a designation (or allocation or emphasis area) should include a standard set of core management principles to ensure that all designated areas are consistently and meaningfully managed to conserve important fish and wildlife habitat and the intact and undeveloped nature of the designated areas, despite development pressures from industry and recreation. The designation should also allow locally identified and adapted policies to meet local and regional conservation, maintenance, restoration and enhancement needs. This designation should be developed in a way that maximizes support from stakeholders and minimize the potential for conflict surrounding the conservation of high value lands.	This topic is discussed in Chapters 2 and 3 under Special Designations, Areas of Critical Environmental Concern; under Wilderness Characteristics; and under Wildlife, Special Status Species in the RMP/EIS. Almost all of the area proposed by TRCP for a Backcountry Conservation Area (BCA) designation falls within the proposed Greater Sage-Grouse Protection Priority Area, proposed Grassland Bird/Greater Sage-Grouse Priority Areas, proposed Frenchman Breaks ACEC, or areas to be managed for wilderness characteristics. The remaining lands proposed for BCA designation would be managed for other resources or multiple uses which may or may not preserve the current conditions.	No
0108-02	Recreation	We recognize that the BCA is currently not included in the BLM land use planning handbook as an administrative designation or allocation. It should be noted that the BLM has broad authority and flexibility under Section 202 of FLPMA to conserve lands administratively and the BLM has exercised this authority by creating unique administrative allocations at the land use planning level. For example, in the Lower Sonoran Field Office and Sonoran Desert National	This topic is discussed in Chapters 2 and 3 under Special Designations, Areas of Critical Environmental Concern; under Wilderness Characteristics; and under Wildlife, Special Status Species in the RMP/EIS. Almost all of the area proposed by TRCP for a Backcountry Conservation Area (BCA) designation falls within the proposed Greater Sage-Grouse Protection Priority Area, proposed Grassland Bird/Greater Sage-Grouse Priority Areas, proposed Frenchman ACEC, or areas to be managed for wilderness characteristics. The	No

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		Monument RMPs, the BLM created two designations/allocations to protect priority wildlife species and habitat in the planning area through "Wildlife Habitat Areas" and "Wildlife Movement Corridors." A second example of the BLM using their authority to create administrative designations/allocations can be seen with the Lander RMP where the BLM created the Heritage Tourism and Recreation Management Corridor allocation. This is designed to preserve not only the physical traces of the National Historic Trails, but also their historic settings. These designations/allocations demonstrate: 1. The BLM has the authority at a state, district and field office level to conserve lands through administrative designations and allocations that are consistent with the BLM's obligations under the Federal Land Policy and Management Act (FLPMA), 42 U.S.C. §1701, et seq., and National Environmental Policy Act (NEPA), 42 U.S.C. §4321, et seq. 2. The agency has demonstrated a willingness to conserve fish and wildlife habitat through the use of new land use allocations.	remaining lands proposed for BCA designation will be managed for other resources or multiple uses which may or may not preserve the current conditions.	
0110-01	Lands and Realty	While we support alternative energy, care must be taken by BLM to protect birds and native and "not-disturbed" prairie from harm from such development/disturbance. Proper siting of wind facilities is important and thus the chosen alternative should be protective of sensitive locations. We also think BLM in general needs to work on improving access to isolated tracks or areas that are surrounded by private land, without any public right of ways.	See Chapter 2, Renewable Energy Resources, Decisions Common to All Alternatives, Wind, which includes the following statement: "Prior to authorizing any wind energy projects, a site-specific environmental review would be conducted to determine project feasibility, and to address and mitigate impacts." Also see Appendix F, Land Ownership Adjustments, Acquisition Criteria.	No
0110-02	Lands and Realty	You should provide a map which just has land ownership within the area disclosed.	Land ownership maps are available at local BLM offices.	No
0110-03	Water Resources	You should provide a map of all streams (with stream names included) and the stream map should over lay a base map showing BLM property. It should have the condition of the stream highlighted, when the stream flows over BLM. There should also be a map of dams, ponds, lakes and if possible wetlands.	The BLM does not have a finalized map of existing lentic areas that meets the standard of the Draft RMP. Wetland and standing water inventorying efforts are still being conducted by multiple state and federal agencies. Even if more than several maps were included within the RMP to cover all eight counties within the HiLine District, maps of streams would not provide a great deal of insight for the reader due to the size of the streams segments managed and the scale of the acreage. BLM surface ownership and	No

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			water related maps for the RMP are included at the following locations: Chapter 1, Planning Area, Figure 1.1; and Chapter 3, Water Resources, Figures 3.15, 3.16 and 3.17.	
0110-04	Fish	You should discuss all non-native game or non-game fish in the streams. Are you stocking with non-native fish? What is the effect of non-native fish on native fish and native aquatic ecosystems?	The BLM does not stock fish. MFWP stocks fish and they determine the species to be stocked in various reservoirs. The BLM only provides water level data after spring runoff to assist MFWP in their stocking decisions for ponds and reservoirs. The BLM is not aware of MFWP putting non-native fish in small prairie streams crossing BLM land. The BLM is aware of non-native predatory fish (northern pike) moving upstream during spring runoff periods with large flows and these fish can deplete native fish species, but the non-native fish usually don't survive the following winter. MFWP has the authority to control carp expansion if a problem area is identified.	No
0110-05	Solid Minerals	If closing mines that have shafts, you should evaluate mine for bat or other wildlife habitat and use appropriate mitigations for the wildlife if present.	Closure of abandoned mine land (AML) features on public land is a federal action that is analyzed on a case-by-case basis under site-specific NEPA (see Chapter 2, Public Safety, Abandoned Mine Lands, Decisions Common to All Alternatives). Through site-specific environmental analysis, physical safety closures of abandoned shafts or adits generally require baseline monitoring for potential bat habitat. Commonly, installation of bat gates or cupolas is a required design feature in AML closures to mitigate impacts to bat habitat.	No
0110-07	Livestock Grazing	We normally raise these concerns in areas where grazing occurs and if you have not addressed them, please do: 1. That all water tanks have floating devices or ramps to prevent birds and small creatures from drowning; 2. That all water tanks provide water discharge in an appropriate place for small mammals, reptiles, amphibians, mollusks who may visit them; 3. That natural springs, seeps, wetlands, not be dried up to create stock watering facilities and if they have, you try to return at least some water to soil that has been dried up and recover some of the plants that lived in the saturated soils; 4. That all stock tanks and other water containment, storage devices, blend in with the landscape; 5. That you think of the effect fences will have on movement of wildlife during	For comments 1, 2, 5 and 6, See Chapter 2, Wildlife. For comment 3, See Chapter 2 Vegetation – Riparian and Wetland. For comment 4, See Chapter 2, Visual Resources. For comments 7 and 8, See Chapter 2, Recreation.	No

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		heavy snow in winter, especially near water sources and 6. That you think of the effect of fence on sage grouse and mitigate; 7. That you insure that people with less chest muscles (such as women, old folk and teenagers) can open and close all the informal gates that are created with bob-wire and posts; 8. That you create gates, styles or other easy ways to cross fences for recreational users of areas, especially if you enclose riparian areas with protective fence.		
0110-08	Wildlife-General	You also have an area of timbered lands below Fort Belknap Indian Reservation. Please study and consider that area (in conjunction with Reservation lands) as suitable habitat for lions. Please consider all your streams and rivers as potential dispersal corridors for lions. Please discuss if they can be such and any others areas where you have either trees and/or some sort of cover on slopes or eco-tones near forest edges. Your discussion of mountain lions occurs in two spots and is very brief. Please expand and discuss all BLM areas of use to mountain lions and how you can manage habitat to improve it for them and impacts of activities to them (for example increased road density is adverse impact).	Mountain lions are discussed in Chapter 3, Wildlife.	No
0110-09	Wildlife-General	Please differentiate between “big game” animals that are “prey” species and those that are “predator” species and discuss them differently in the sections on affected environment, consequences and mitigations. The issues with predators and prey are not always the same.	This topic is discussed in Chapter 4 Wildlife, Impacts Common to All Alternatives.	No
0110-10	Wildlife-General	Discuss the effects of large predators on ecosystem and particularly any species protected under the Endangered Species Act or otherwise believed to be at risk. Will large predators help by reducing medium and small predators, helping with riparian areas recover or make it worse by eating special species? Please discuss the effect of predators, large, medium and small on your species targeted for protection.	Refer to Chapter 3, Wildlife, Wildlife Species, Mammals, which states: “Large predators such as gray wolves, mountain lions (Puma concolor), and grizzly bears are limited in their distribution [within the HiLine planning area]." The effects of predation are discussed in Chapter 4 Wildlife, Impacts Common to All Alternatives.	No
0113-01	Wildlife-General	I encourage you to work with the Montana Fish, Wildlife & Parks, the U.S. Fish & Wildlife Service, private landowners, wildlife conservationists and other interested parties to develop a plan where bison habitats and populations can be restored and conserved.	Additional text has been added to the “Issues Considered but Not Addressed Further” in Chapter 1 of the Final RMP/EIS under the heading “How will bison be managed?” The BLM recognizes the State’s role in managing native wildlife and would work cooperatively with MFWP,	Yes

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			USFWS, other agencies, partners, and cooperators in the development of a wild bison restoration plan. At this time, the State does not have an ongoing plan to reintroduce wild bison in the planning area.	
0114-01	Wildlife-Greater Sage-Grouse	Have you reviewed the general sage grouse monitoring data from Montana FWP that reveals a dramatic decline in sage grouse numbers across their range in Montana, including eastern Montana (Montana FWP 2012)? For example, the 2012 FWP counts for the eastern Montana Sage Grouse Management Zone are only 64.9% of the long term average. As well in general across Montana, sage grouse numbers have declined by more than half since 1980 (males counted on leks are used to estimate sage grouse population numbers) (Montana FWP 2012). We find this information quite troubling. Furthermore, hunter harvest estimates have declined even further, dropping from 40,000 birds in 1984 to less than 5,000 in 2011 (Montana FWP 2012). This represents an 87.5% decline in hunter harvest across the State. These data reveal a significant loss of sage grouse numbers as well as public hunting opportunity in Montana. Please review and share this important sage grouse data in the final EIS. If you have more site specific information relevant to sage grouse trends and habitat conditions within the Hi-Line RMA, please reveal it in the final EIS as well.	Refer to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse, where information on distribution of Greater Sage-Grouse in the planning area has been added. Hunter harvest information for 2012 has also been included.	Yes
0114-05	Wildlife-General	Pronghorn (Antelope) Habitat: Pronghorn are a unique and important wildlife species within the Hi-Line RMA, which often require a vast landscape of connected habitat to survive (Pyrah 1987). In the last few years this species has suffered some dramatic die-offs, in particular due to hard winters, but habitat fragmentation is increasingly becoming a problem. Has this been discussed in the EIS? Fences in particular disrupt or fragment antelope habitat. Fences pose a serious challenge and create a number of problems for antelope (Pyrah 1987 and Trubak et al. 1995). Fences simply are an anathema for antelope habitat, because pronghorn evolved without ever needing to jump (Trubak et al. 1995). In some cases antelope have learned to cope with fences, but in other areas fences remain a significant impediment to preferred movements. In most cases antelope will attempt to go under a fence, but even if successful this can take a toll. Frequently, patches of hair from the antelope's back are	Refer to Chapter 2, Wildlife, Decisions Common to All Alternatives, General Wildlife which includes the following: New fences would follow BLM specifications to allow for wildlife passage, except for fences built specifically to keep wildlife out of an area. Fences would also be placed and marked, or modified, to reduce wildlife collisions or entanglements.	No

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		ripped off as the animal moves under the fence wire. Scars and hairless spots on their backs often result where animals are forced to maneuver under fences, and this can lead to a variety of issues including infection and death. Antelope may also be forced to cross fences at specific locations, which increases the likelihood of predation. In particular, fences can increase predation of pronghorn fawns and predation of pronghorn fawns may be a limiting factor on marginal or degraded habitat. (U.S. Fish and Wildlife Service 1993). Antelope elude predators by using sight, distance and speed. Fences can disrupt antelope escape strategies by confusing them, forcing them to slow down, change routes and congregate, in particular in fence corners. What is BLM doing to remove, minimize and/or mitigate the adverse impacts of fences on pronghorn habitat within the Hi-Line RMA?		
0114-06	Wildlife-General	We will provide via email 12 research papers for your review and consideration regarding the challenges and threats to bighorn sheep habitat and population viability. Livestock in particular can pose significant threats to bighorn sheep on shared ranges. Please develop an alternative that protects the historic bighorn sheep habitat on the Hi-Line RMA.	Refer to the revised text in Chapter 2, Wildlife, Alternative E (Preferred Alternative), General Wildlife, Bighorn Sheep that redefines the bighorn sheep management area as defined by MFWP.	Yes
0114-07	Wildlife-General	Are you aware the Montana FWP has initiated a State-wide planning process regarding native bison restoration and conservation in Montana? Have you identified the historic bison habitat that exists within the Hi-Line RMA? How much of this habitat is currently occupied by native bison? Have you informed the public as to the current status of native bison across the Hi-Line RMA? Are you aware native bison are ecologically extinct in Montana, except in a few small areas just outside of and within Yellowstone National Park (Montana FWP 2009)? Are you aware FWP's goal for a native bison Conservation Strategy is to establish free-ranging, brucellosis-free American bison populations in suitable grassland habitats outside Yellowstone National Park where they can function ecologically and operate as keystone species to restore grassland systems (Montana FWP 2009)? Do you support the FWP's native bison Conservation Strategy, which proposes to create populations of wild bison that can be harvested and provide economic and social benefits to Montana (Montana FWP 2009)? ***	Additional text has been added to the "Issues Considered but Not Addressed Further" in Chapter 1 of the Final RMP/EIS under the heading "How will bison be managed?" The BLM recognizes the State's role in managing native wildlife and would work cooperatively with MFWP, USFWS, other agencies, partners, and cooperators in the development of a wild bison restoration plan. At this time, the State does not have an ongoing plan to reintroduce wild bison in the planning area.	Yes

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		How will you cooperate with the Montana Fish, Wildlife & Parks, U.S. Fish & Wildlife Service, private landowners and other interested parties in the restoration and conservation of bison to historic habitat within the Hi-Line RMA? We will provide via email 8 research papers for your review and consideration regarding the opportunities, challenges and threats to bison habitat and population viability.		
0114-09	Wildlife-General	What types of fences and how many miles of each type of fencing are there on the HiLine RMA? Please map and review these impacts across the HiLine RMA, because fences can significantly fragment habitat and increase wildlife mortality (Harrington 2005, Harrington and Conover 2006, Pyrah 1987, and Trubak et al. 1995, U.S. Fish and Wildlife Service. 1993). We encourage the BLM to develop an alternative that removes as much fencing as possible and that minimizes the use of fences on the HiLine RMA.	Refer to Chapter 3, Table 3.31 for the number of miles of fence. Refer to Chapter 2, Wildlife, Decisions Common to All Alternatives, General Wildlife for a discussion of fences.	No
0114-11	Livestock Grazing	We suggest at a minimum adopting the recommendations of Bock et al. (1993) to establish watershed level controls which are protected from livestock use impacts at the landscape level. This will ensure the impacts of areas subjected to livestock use can be monitored and compared to control areas over time. Please develop and adopt such an alternative.	This topic is addressed in the Alternatives Considered but Not Analyzed in Detail section of Chapter 2. This does not preclude consideration of such an alternative during the grazing permit renewal process as discussed in Chapter 2, Livestock Grazing, Decisions Common to All Alternatives.	No
0114-13	Recreation	As we understand it, BLM currently has an unlimited policy for commercial hunting outfitters on the Hi-Line RMA. Please develop and choose an alternative that establishes a limit on commercial hunting outfitting permits for these public lands, in particular where adjacent private landowners are blocking access to BLM lands.	This topic is discussed in Chapter 3, Recreation under Special Recreation Permits. The text in this section has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0115-01	Solid Minerals	I strongly support extending the withdrawal of the Little Rockies beyond 2015. I learned of the massive destructive pollution cause by the Zortman-Landusky mine almost 20 years ago. Because water is so imperative to the health and the economic future of communities in the area, this area should be permanently protected from any future mining activity.	Under Alternative E (Preferred Alternative), 2,682 acres would be designated an ACEC to promote successful reclamation, protect associated infrastructure, and ensure public safety. In addition, the BLM would consider the need for a new withdrawal or right-of-way. This process would include opportunity for public involvement by notifications in the newspaper and in the Federal Register. See Alternative E (Preferred Alternative) under Special Designations, Zortman/Landusky Mine Reclamation ACEC, and Solid Minerals, Locatable.	No

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0116-01	Fluid Minerals	I ask the BLM to set high standards related to protecting these values in the face of aggressive pressure from energy development interests. Please consider: • no surface occupancy (enforced) • no new roads north of the Monument • road obliteration/reclamation by energy leaseholders within 30 days of non-occupancy • closure to areas currently leasing- to future leasing • pad rehab & reclamation	Conditions of approval are developed for site-specific projects on lands that already have authorized oil and gas leases. It is at that point that the Authorized Officer prescribes the proper conditions for new roads, road upgrades, and any reclamation requirements. Appendix E.2 Oil and Gas Best Management Practices (General Conditions of Approval) highlights some of the more typical Conditions of Approval.	No
0118-01	Cultural Resources	It would be good if the BLM could work with the Montana Wilderness Association and the American Prairie Foundation to educate hikers about the cultural importance of sheepherders' monuments.	The BLM continually seeks partnerships and opportunities to work closely with interested parties to educate and expand understanding of unique types of cultural resources. Refer to Chapter 3, Cultural Resources, Current Demand and Use of Cultural Resources.	No
0118-02	Fire Manage-ment and Ecology	Fire Regimes (pg. 33) "Mechanical, prescribed fire and other appropriate treatments will be used to restore and maintain fire regimes [and] land health." Prescribed burns are fashionable, but fire is an inappropriate tool for this landscape. Fire and big sagebrush are mutually exclusive. Big sagebrush is completely destroyed by fire. Areas that burned decades ago are still empty of sagebrush today. These areas of no sagebrush are healthy habitat for a variety of wildlife, but they cannot support wintering sage grouse and antelope. Until we discover management techniques that lead to the wide-spread reestablishment of big sagebrush, fire in sagebrush steppe should be suppressed at all costs. No fire should be allowed within 15 miles of sage grouse winter habitat. Fuel should be reduced by temporary increases in grazing pressure.	Refer to Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, under the heading Wildfire Suppression, Fuels Management and Fire Rehabilitation for Fire and Fuels Management Best Management Practices for Sage-Grouse Conservation. Additionally, the following change has been made to the wording in Chapter 2 – Fire Management and Ecology: "Mechanical, prescribed fire and other treatments would be used, where appropriate, to restore and maintain fire regimes, land health, and to reduce hazardous fuels accumulations."	Yes
0118-03	Wildlife-Greater Sage-Grouse	The Sun Prairie FMU (table 2.1, map 2.1) should be designated Category A to protect sage grouse winter range. Certain portions of the Malta Prairie Potholes FMU should be designated Category A, in coordination with a plan to expand the range of big sagebrush to the lands north of the Milk River.	Refer to Appendix D, Fire and Emergency Stabilization and Rehabilitation. Rationale for the categorization of Category B throughout the planning area is listed as "Unplanned ignitions would have negative effects on ecosystems unless mitigated." This category allows the BLM to mitigate the negative effects by emphasizing fire prevention/education as well as suppression. Furthermore, this category allows the BLM the flexibility to complete fire and non-fire fuels treatments that could better protect important sage-rouse habitat. Category A does not allow this flexibility. Refer to	No

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			Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. The Wildfire Suppression, Fuels Management and Fire Rehabilitation section outlines best management practices for sage-grouse conservation.	
0118-14	Wildlife-Greater Sage-Grouse	Alternative B – Greater Sage-Grouse Protection Priority (pg. 123) I realize that Alternative B is a red herring, but if the BLM were to designate ACECs for protection of sage grouse, the restrictions listed (designation, closure to leasing, exclusion of rights-of-way) would be insufficient to protect grouse and sagebrush dependent species. To protect the sage grouse, the BLM must preserve big sage brush. The biggest threat to big sage brush is fire. Areas designated for the protection of sage grouse need to have special fire management in place. Regulations need to be loosened to allow first responders to take any measures necessary to stop wildfire. Firefighters should not have to receive permission before they begin creating fire breaks.	The topic is discussed in Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, under Wildfire Suppression, Fuels Management and Fire Rehabilitation.	No
0118-16	Wildlife-General	Mountain Plover (pg. 170) "The BLM would reduce or control non-native grasses to increase breeding habitat, and prescribed burning could be used to increase the availability of nesting habitat." Because mountain plover nesting habitat is adjacent to sagebrush steppe that supports antelope (especially along the Beaver Branch Road) it would be irresponsible to start fires here. Instead of prescribed burning, prescriptive grazing should be used to increase the availability of nesting habitat.	Refer to Chapter 2, Fire Management and Ecology as well as Appendix M, Wildfire Suppression, Fuels Management and Fire Rehabilitation for information on fire management in sagebrush steppe vegetation type.	No
0122-03	Lands and Realty	The Draft Plan and EISRMP should include a map of BLM land with/without legal public road access.	Currently, sufficient data does not exist to produce these maps.	No
0122-04	Recreation	The DRMP and EIS does not disclose the total current recreation visitor days broken down by types of uses such as hunting or how those uses will change by alternative?	The current recreational activities are shown in Table 3.37. Chapter 4, Economics discusses the impacts to recreation over the range of alternatives.	No
0122-06	OHV Use and Travel and Transpor-tation Mgmt	Your final RMP should include a plan to get public access to all BLM land both for administrative use and public enjoyment of public land. This is consistent with the ADA, EO- 13443, and age discrimination legislation and administrative direction.	Off-road game retrieval is discussed and analyzed in Chapters 2 and 4 under OHV Use and Travel and Transportation Management, Alternatives C and D. Public access is discussed in Chapter 2, Lands and Realty, Access, Decisions Common to All Alternatives. The text in Chapter 2 Decisions Common to All Alternatives has been clarified in response to this comment.	Yes

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0123-01	Special Designa-tions-ACECs	The range is in excellent shape and the wildlife thrives all because of the ranchers who use it. I feel it would be very wrong to set this area [Woody Island ACEC] aside for special designation, changing any management on these allotments sets a precedent that will work against future utilization of the grazing resources as well as other multiple uses.	This topic is discussed in Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. The text in Chapter 2, Special Designations, Areas of Critical environmental Concern has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0124-01	Recreation	I have gone on the BLM and USDI web sites and found where the BLM is mandated to make special accommodation for handicap persons for parking lots, swimming sites, campgrounds, toilets and boat launches. But this DRMP gives almost no consideration for older Americans that have very limited ability to drag a 200 pound deer or an 80 pound antelope across a mile or more of prairie.	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, under Decisions Common to All Alternatives, Off-Highway Vehicle Use, and also under Alternative E (Preferred Alternative), OHV Area Designations. The text has been clarified under the same topic in Chapter 3 of the Proposed RMP/Final EIS in response to this comment.	Yes
0124-03	NEPA	Your preferred alternative E violates the intent and spirit of E.O. 13443 which directs federal agencies "... to facilitate the expansion and enhancement of hunting opportunities and the management of game species." I fail to see anything in Alternative E that expands hunting opportunities and does anything to increase game species.	Public access is discussed in Chapter 2, Lands and Realty under Access, Decisions Common to All Alternatives. Big game and game bird populations are managed by Montana Fish, Wildlife and Parks.	No
0128-04	Vegetation	The BLM indicates that Alternative B would have the least potential to affect riparian and wetland values (p. 233) (This is interpreted to mean it would have the least adverse impacts). Based upon the environmental consequences narrative for Alternative E, that alternative would be inadequate to even maintain, much less enhance, riparian and wetland habitat. The BLM should adopt conservation measured proposed in Alternative B including an NSO stipulation within a minimum ¼ mile from lentic or lotic riparian areas or as determined as adequate through the best available science with no waivers, exemptions or exclusion.	The surface acres identified per alternative are long-term surface disturbance acres anticipated from all surface disturbing activities for the life of the plan. These are not acres of wetlands. Adequate management planning has been incorporated into each alternative to ensure that wetland habitats are maintained and/or enhanced to properly functioning condition. Montana's EPA-approved 2012 Final Water Quality Integrated Report appears to demonstrate that the proposed lease stipulations are effective at maintaining water quality. In the report, only two waterbodies in the State are listed as impaired with a probable source being "Petroleum/Natural Gas Activities." Neither waterbody is located in the planning area. Additionally, no waterbodies are listed as impaired with a similar probable source in North or South Dakota. It is important to note that not all waterbodies have been assessed to date. However, the results of the report seem to indicate that impairments due to oil and natural gas development are rare occurrences that do not justify an unsubstantiated expansion of the NSO stipulation. If the location of a proposed well would potentially threaten a sensitive	No

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			resource, Onshore Oil and Gas Order Number 1, Approval of Operations allows for the movement of proposed wells by up to 660 feet, which is used frequently to protect sensitive resources. Studies cited within the RMP/EIS indicate that a 300-ft buffer maintains water quality by significantly reducing concentrations of fecal coliform, nitrogen, phosphorus, sediment, and pesticides. The 300-ft buffer provides a high level of protection by creating a buffer that extends from the boundary of the wetland or riparian area, not just the edge of the stream. There is no indication that increasing the width of the buffer to 500 ft or 750 ft would result in commensurate improvements to water quality.	
0128-05	Water Resources	The BLM should clarify how the water resources will be affected by the adopted conservation measures and the BLM should ensure through its planning process that water quality is at the least maintained by its proposed plan. WWF supports the conservation measures in Alternative B that would be the most protective and provide the greatest reductions of cumulative impacts to water resources. However, the BLM should adopt stronger measures than is suggested for any of the alternatives (p. 191) to ensure produced waters are handled in an environmentally responsible manner and do not harm surface and groundwater resources or impact other natural resources.	See changes to Chapter 2, Water Resources, Decisions Common to All Alternatives, last paragraph. Additional information is available in Appendix E.1, Oil and Gas Operations, Water Production The Safe Drinking Water Act and implementing regulations (42 U.S.C. § 300h, and 40 CFR § 144) will assist the BLM's management actions and decisions associated with injection wells. The MBOGC has primary regulatory jurisdiction over the Underground Injection Control (UIC) Program for Class II injection or disposal wells which has a purpose of protecting underground sources of drinking water.	Yes
0128-06	Vegetation	The BLM concludes that the risk of infestation in all alternatives except Alternative B is nearly double current levels based on the number of potential well pads and roads (Table 4.101). Because prevention is the best strategy for minimizing invasive species, and anthropogenic disturbance is highly associated with the introduction of noxious, invasive species, the BLM should minimize surface-disturbing and disruptive activities (such as energy development or roads) in undisturbed habitats. The BLM should implement those measures in Alternative B that reduce road density in high, moderate and low development potential areas which would result in the much lower risk of noxious weed infestations (p. 729)	The RMP/EIS addresses prevention and mitigation measures to reduce the potential or real spread of noxious weeds caused by activities on public lands in the Noxious Weeds and Other Invasive Non-Native Species sections of Chapters 2 and 4 and Appendix M.	No
0128-07	NEPA	WWF encourages BLM to address the	This topic is addressed in the Climate	No

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		potential impacts of climate change on the spread of invasive plants, particularly cheatgrass (Bromus tectorum), which may highly alter the quality of habitat by outcompeting native grasses and forbs and causing increased frequency and severity of wildfires, which are detrimental to fire-intolerant sagebrush species. Recent modeling studies have shown the possible expansion of cheatgrass in the Eastern Region of sage-grouse under various climate-change scenarios (Bradley 2009).	Change section in Chapter 3 of the Proposed RMP/Final EIS. Additional information regarding USDI's efforts to respond to climate change is available from http://www.doi.gov/whatwedo/climate/cop15/index.cfm.	
0128-08	Fluid Minerals	In order to ensure the protection of disturbance sensitive areas, such as sage-grouse priority areas and riparian and wetland habitats, when the BLM identifies a No Surface Occupancy stipulation for those areas no waivers, exemptions or modifications should be allowed. If waivers, exemptions and modifications are allowed, then the BLM should set up a process that allows the public to comment when these are actions considered.	• The public has the opportunity to be involved in the development of waivers, exceptions, and modifications (WEMs) during the RMP process. • The public has the opportunity to be involved in the application of lease stipulations during leasing environmental assessment (EA) reviews. • At the development stage, the public has the opportunity to be involved during NEPA reviews. NEPA logs are posted on the Montana/Dakotas BLM web site for public viewing and NOS/APDs are also posted for 30 days. • WEMs are applied using the best available information/data during the NEPA review and at the discretion of the Authorized Officer (AO). This process is also done in consultation with other Federal agencies, if needed (FWP, FWS, USFS, BOR, etc.)	No
0128-09	Special Designa-tions-Wild and Scenic Rivers	WWF disagrees with the justification for not finding the section suitable. The BLM does have ownership of lands of a half mile section within this 0.75 mile segment and there are several cases where lands within other designations also have Wild and Scenic designations, so these should not be factors in determining that this section is unsuitable. The BLM should designate the half mile section of the Marias River suitable for Wild and Scenic designation and ensure management in accordance with the lands in the Upper Missouri Breaks National Monument.	This topic is discussed in Chapter 2, Special Designations, Wild and Scenic Rivers. The impacts of designating this segment as a Wild and Scenic River are analyzed in Chapter 4 under Alternative B. The inventory and designation processes are described in Appendix L, Wild and Scenic Rivers Report, Eligibility and Suitability Determinations.	No
0128-10	OHV Use and Travel and Transpor-tation Mgmt	WWF recommends that specific timelines, priorities and interim protection and management be identified in the plan. Due to the known impacts of roads on sage-grouse, WWF commends and supports prioritizing sage-grouse areas for travel management planning, which is supported by recommendations in the Sage Grouse National Technical Team (NTT) report (2011). We further suggest that the BLM complete travel management plans in a	Travel planning will be done in accordance with BLM Handbook 8342 with highest priority given to travel planning areas containing critical resources. Each travel planning area within the HiLine District will be managed according to the 2003 OHV Record of Decision until comprehensive travel and transportation management planning can be completed for that area.	No

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		shorter time frame given the timeline for the listing decision is about 2 years (2015).		
0128-11	Social	Minor correction: p. 330 of the RMP states: "In 2004, the APF purchased property in Phillips County and in 2005, bison were brought in from the Wind River Cave National Park in South Dakota." This statement is incorrect the bison were brought in from "Wind Cave National Park in South Dakota".	The Social section has been revised.	Yes
0128-12	Wildlife-Greater Sage-Grouse	Because the adequacy of sage-grouse conservation measures is of critical importance in this document, the BLM should clarify the environmental consequences between alternatives and their associated conservation measures in Table 2.22 and in the Chapter 4 narrative on sage-grouse, and include the science or information that supports those conclusions. For example, it seems unlikely that both Alternative B and Alternative E, with the difference in area protected under the highest conservation measures as well as the differences in fluid and mineral development measures (p. 198) would both have and only list the same summary environmental consequence stating that those areas "would minimize additional impacts to wildlife resources in these areas" (p. 240).	Table 2.29 provides a summary comparison of the varying impacts across the alternatives. Information regarding Greater Sage-Grouse under Alternative E has been updated to reflect the additional acreage that will be managed as priority habitat in the Proposed RMP. A complete discussion of the environmental consequences of implementing the various alternatives on sage-grouse is provided in Chapter 4 of the Proposed RMP/Final EIS, under the Wildlife section. Literature cited in the Proposed RMP/Final EIS is presented in the Bibliography.	Yes
0128-13	Wildlife-Greater Sage-Grouse	The BLM should also clarify the environmental consequences between an ACEC and Protection Priority Area designation and adopt the one that provides the greatest protection.	Impact analysis for ACEC designations and Protection Priority Areas is discussed in Chapter 4. The effects of designation as an ACEC depend upon the management prescriptions associated with that designation. If the management prescriptions are identical to those associated with a Protection Priority Area, then the effects are likewise identical.	No
0128-16	Wildlife-Greater Sage-Grouse	The adopted alternative should include conditions that all pump stations and other permanent structures should be placed a minimum of 2 miles (3.2 km) from the nearest lek, with a preferred distance of >4 miles (6.4 km) from active leks and oil and gas stipulations should have a buffer of 4 miles, based upon the best- available data from Naugle et al. (2011) as well as noted in the BLM Miles City Draft RMP/EIS planning document that impacts are up to 4 miles. Therefore, the BLM should clarify the rationale for selecting buffers and the environmental consequences, and a 4 mile buffer for active leks should be adopted.	Refer to Chapter 2, Fluid Minerals; Chapter 2, Wildlife; and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. Closed to fluid mineral leasing in Greater Sage-Grouse nesting habitat was analyzed in Alternative B.	No
0128-17	Wildlife-Greater	Alternative B would close nesting habitat to leasing and Alternative E would provide a	[1] As written – "CSU - Surface-disturbing or disruptive activities may be restricted	No

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	Sage-Grouse	CSU. [1] The environmental consequences of a CSU for nesting habitat are not specifically addressed and several different conclusions appear to be drawn as a result CSU disturbance (p. 278). The impacts from Alternative B's nesting closure are also unclear but the conclusion is that overall Alternative B would greatly reduce impacts to sage-grouse. [2] The BLM should clarify how nesting habitat will be inventoried and defined, clarify the impacts of different alternatives, and adopt the strongest conservation measures suggested including disturbance caps.	or prohibited. Prior to such activities a plan to maintain functionality of Greater Sage-Grouse habitat would be prepared by the proponent and implemented upon approval by the authorized officer." [2] This topic is discussed in Appendix M.	
0128-18	Fluid Minerals	It does not appear that Alternative E provides an action for the expiration or termination of existing leases. Actions for expiration or termination of existing leases that at the least provides the protections for new leases should be identified, as well as considering a commitment to closing to future leasing.	This topic is covered in Chapter 2, Fluid Minerals, Decisions Common to All Alternatives, where it states: "The existing oil and gas leases (803,656 acres) would continue according to the respective stipulations until they expire. As these leases expire, the areas would come under the management guidelines of the approved resource management plan."	No
0128-19	Wildlife-Greater Sage-Grouse	Although the BLM concludes that timing stipulations in Alternative E would protect winter habitats from disruptive activities (p. 728) and thus address direct impacts – the BLM also concludes that indirect long-term effects would still be present from surface-disturbing activities. The BLM also notes that, "Specific wintering concentration areas of greater sage-grouse within the planning area are not well documented to date." (p. 397) although it appears these inventories are being conducted. The BLM should address both direct and indirect impacts to winter range and improve documentation of specific winter habitats in which to apply conservation measures.	Refer to Chapter 4, Wildlife, Assumptions and Guidelines.	No
0128-20	Wildlife-Greater Sage-Grouse	The BLM produced an Information Bulletin (MT-2011-033) regarding best management practices to reduce the availability of breeding grounds for mosquitoes that carry West Nile virus. We recommend that these best management practices be implemented across BLM lands and particularly in sage-grouse core areas to prevent deaths. WWF has also produced, along with partners at the University of Wyoming, a spatially explicit map showing where West Nile virus is most likely to become prevalent under climate change conditions (Schrag et al. 2011). Areas with a high threat of West Nile virus (areas coded in yellow, orange and red in	Refer to the last paragraph of Chapter 2, Noxious Weeds and Other Invasive, Nonnative Species, Decisions Common to All Alternatives. Also refer to Chapter 2, Vegetation – Rangeland, Appendix M, Alternative E (Preferred Alternative, in the fifth paragraph; and in several sections under Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat.	No

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		Figure 5) that are located within core areas should be prioritized for reduction of standing water and other factors that increase the likelihood of becoming Culex mosquito breeding grounds.		
0128-21	Wildlife-Greater Sage-Grouse	Additional research on sage-grouse and pronghorn migration in the HiLine District planning area has recently been completed and should be incorporated into the revised RMP. Specific conservation measures should be developed for the areas between the Protection Priority Areas that are identified as a corridor in that research. Two recent multi-year studies (Tack et al. 2011; Smith 2013) followed the migrations of female sage-grouse occupying three leks in North Valley County and one lek in Grasslands National Park (Canada) and confirmed that migration of these populations is an obligate event that occurs annually regardless of winter severity. Tracked sage-grouse (Smith 2013) engaged in a month-long fall migration in November and a punctuated spring migration that lasted an average of 2 weeks in late March/early April (Smith 2013). Smith's data (2013) indicate that migrating sage-grouse use a network of routes connecting stopover sites rather than a single distinct route or corridor to travel from summer range within the Alternative E's proposed Grassland Bird/Greater Sage-Grouse Protection Priority Area to winter range within Alternative E's proposed Greater Sage-Grouse Protection Priority Area (Figure 6).	See the changes made to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse, where text has been added to include Smith and Tack research.	Yes
0128-22	Wildlife-Greater Sage-Grouse	Evaluate potential impacts from Keystone XL pipeline to sage-grouse core areas and migration corridors and incorporate appropriate conservation measures. The Keystone XL pipeline, while currently in an indeterminate state legislatively, is proposed to bisect core areas within the HiLine District planning area of sage-grouse habitat, which have been identified and recognized by the Montana Natural Resources Conservation Service, Montana Fish, Wildlife and Parks, and other partner agencies (Figure 8). Avoidance of small and large aboveground structures on the landscape by greater sage-grouse is well documented. Buried pipelines present a unique set of challenges because they consist of three main types of structures: 1) the pipeline; 2) pump stations and associated roads; and 3) overhead power lines. Pump stations are permanent aboveground structures that require 5-10 acres and are	The proposed pipeline may cross portions of the Grassland Bird/Greater Sage-Grouse Priority Areas. The topic is discussed in Chapter 4, Reasonable Foreseeable Future Actions, Keystone XL Pipeline.	No

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		constructed at approximately 48-50 mile intervals. Pump stations require road construction, which greater sage-grouse will avoid, and overhead power lines, which are likely to increase the number of aerial predators for greater sage-grouse by providing perching areas. In the HiLine District, WWF is most concerned about the placement of Keystone XL pump stations PS-9 and PS-10. Recent migration research shows significant movements by sage-grouse between these areas and suggests that these areas are vital for sage-grouse annual movements. The map below shows the location of the proposed Keystone XL pipeline (alternative B in yellow) relative to the two Montana sage-grouse core areas in the HiLine District (1 and 2 shown in tan).		
0128-23	Wildlife-Greater Sage-Grouse	Of equal concern, the pipeline will bisect known migratory corridors for sage-grouse, as evidenced by Figure 9 and 10 below, which show satellite tracked movements of sage-grouse between Montana core areas 1 and 2 (red hatched areas) based on data collected by Rebecca Smith under the supervision of Dr. Dave Naugle (University of Montana) (Smith 2013). PS-10 and the associated transmission line are located in and adjacent to this migratory corridor. Although the Keystone XL pipeline was considered in several resource issues within the HiLine draft RMP, the BLM did not appear to address the Keystone XL for wildlife including greater sage-grouse.	The proposed pipeline may cross portions of the Grassland Bird/Greater Sage-Grouse Priority Areas. The topic is discussed in Chapter 4, Reasonable Foreseeable Future Actions, Keystone XL Pipeline.	No
0128-24	Wildlife-Greater Sage-Grouse	We also believe the impact of the pipeline on migratory corridors has been overlooked. While alternative B bisects only a small portion of Montana sage-grouse core area 1, it bisects key migratory pathways for sage-grouse coming from and moving to Canada. Because sage-grouse from core areas 1 and 2 provide 'source' populations for sage-grouse that are federally listed as endangered in Canada, it is imperative that we not disrupt their migration in this region. All pump stations and other permanent structures should be placed a minimum of 2 miles (3.2 km) from the nearest lek, with a preferred distance of >4 miles (6.4 km) from active leks, based upon the best-available data from Naugle et al. (2011).	Refer to Chapter 2, Fluid Minerals; Chapter 2, Wildlife; and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. Closed to fluid mineral leasing in Greater Sage-Grouse nesting habitat was analyzed in Alternative B.	No
0128-25	Wildlife-Greater Sage-Grouse	Overall, WWF recommends that the movement data collected by Rebecca Smith (Smith 2013) and sage-grouse movement data collected from across the eastern region should be incorporated into the HiLine District draft RMP as well as the	See the changes made to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse, where text has been added to include Smith research.	Yes

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		information provided on potential impacts from the Keystone XL pipeline. The BLM should then assess the environmental consequences of the Keystone XL pipeline to wildlife resources in the HiLine draft RMP and incorporate appropriate conservation measures into the revised RMP. Furthermore, considerations of the importance of connectivity of sage-grouse habitats including those that extend beyond national borders should be a key consideration as the Canadian population of sage-grouse is unlikely to persist without the support of management actions by wildlife and land managers in the United States including the BLM.		
0128-26	Wildlife-Greater Sage-Grouse	This new research described in this section should be reviewed and incorporated into the revised RMP. • Poor EE, Loucks C, Jakes A, Urban DL (2012) Comparing Habitat Suitability and Connectivity Modeling Methods for Conserving Pronghorn Migrations. PLoS ONE 7(11): e49390. doi:10.1371/journal.pone.0049390 • Poor, E.E., Jakes, A., Loucks, C. and Suitor, M. Modeling landscape level fence density in northern Montana. In preparation. • Smith, R.E. 2013. Conserving Montana's Sagebrush Highway: Long distance migration in sage-grouse. Thesis. University of Montana p. 54. • Tack, J.D., D.E. Naugle, J.C. Carlson, and P.J. Fargey. 2011. Greater sage-grouse Centrocercus urophasianus migration links the USA and Canada: a biological basis for international prairie conservation. Oryx 46:64-68.B	See the changes made to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse, where text has been added to include Smith and Tack research. The Jakes research is still in preparation and not included in the RMP/EIS.	Yes
0128-27	Wildlife-General	WWF does not support the removal of the Prairie Dog Towns within the 7km Complex ACEC in BLM's Preferred Alternative E. Furthermore, WWF disagrees with the BLM that this ACEC is no longer relevant to or important for black-footed ferret recovery or prairie dog conservation. Historically (Messiter 1890; BLM Resource Management Plan 1993) and recently (Forrest et al. 2004; Maxell et al. 2010; Schrag and Olimb 2013) the area contained within the existing ACEC has been shown to be highly relevant and important biologically. This ACEC is valuable for preserving habitat for prairie dogs and other associated species, particularly when shooting closures were in place, and is adequate for ferret recovery when prairie dog populations are actively conserved and	The 7km Complex ACEC does not meet Relevance and Importance. Please refer the Appendix K.	No

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		restored through shooting closures, poisoning restrictions, plague mitigation, and translocations. Furthermore, this area is one of only 19 places in North America that has been designated as a black-footed ferret reintroduction site.		
0128-28	Wildlife-General	Since the Draft RMP does not address specific management actions to "promote maintenance and recovery of federally listed species and BLM sensitive species" (such as black-footed ferrets, black-tailed prairie dogs, and prairie dog associated species), WWF recommends the BLM adopt the following management actions: 1. Similar to the BLM's approach for the Greater Sage-Grouse, delineate a "Prairie Dog Restoration Area" in and surrounding the existing BLM 40 Complex (see Figure 11) The BLM already has a U.S. Fish and Wildlife designated black-footed ferret recovery area in south Phillips County (e.g., the BLM 40 Complex). WWF recommends that the BLM identify this area for the recovery of black-footed ferrets and their required prairie dog habitat. 2. Manage and mitigate sylvatic plague within the Prairie Dog Restoration Area Sylvatic plague is an imminent threat to black-footed ferret recovery as it is highly lethal to both ferrets and their main prey – prairie dogs. For black-footed ferret recovery efforts to be successful, plague mitigation is essential. Currently, there are two tools available to ameliorate plague in both species: insecticidal dusting (via the use of deltamethrin, an insecticide that eliminates plague-infected fleas) and a ferret vaccine. A third tool, a newly developed prairie dog vaccine, is now being tested in the field and if successful, will be available for designated ferret reintroduction sites. 3. Reinstate prairie dog shooting closures within the Prairie Dog Restoration Area Recreational shooting of prairie dogs has negative impacts to their populations (Pauli 2005; Keffer et al. 2000) and this, in turn, may limit the carrying capacity for ferrets (U.S. Fish and Wildlife Service 2013). WWF suggests the BLM follow recommendations by the U.S. Fish and Wildlife Service to regulate shooting of prairie dogs at reintroduction sites (U.S. Fish and Wildlife Service 2013) by establishing year round (preferable) or	1. The BLM will be a willing partner to black-footed ferret recovery efforts in the planning area. Adaptive Management is discussed in Chapter 2, Implementation and Monitoring. 2. Refer to Chapter 2, Noxious Weeds and Other Invasive Non-Native Species. Also refer to Chapter 3, Wildlife, Wildlife Habitat. 3. The BLM would consider year-round or seasonal shooting closures on prairie dog towns identified for black-footed ferret reintroductions by the USFWS (43 CFR 8364.1). Language has been added to the Black-tailed Prairie Dog section of Chapter 2, Wildlife, Alternative E (Preferred Alternative), under Special Status Species. Also refer to Chapter 2, Lands and Realty, Land Ownership Adjustment, Decisions Common to All Alternatives. 4. Poisoning is not within the scope of this RMP/EIS. 5. This topic is discussed in Chapter 3, Wildlife, Wildlife Habitat. 6. The BLM will be a willing partner to black-footed ferret recovery efforts in the planning area. Adaptive Management is discussed in Chapter 2, Implementation and Monitoring. 7. Please refer to Chapter 3, Lands and Realty, Land Ownership Adjustment 8. The topic is discussed in Chapter 2, Wildlife, Special Status Species.	No

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		seasonal (April 1 to July 15) prairie dog shooting closures within the BLM 40 Complex. The BLM has the legal authority to regulate prairie dog shooting on BLM lands (i.e., 64 Fed. Reg. 56213; Oct. 18, 1999). 4. Restrict poisoning within the Prairie Dog Restoration Area The BLM should ensure there is no unauthorized lethal control of prairie dogs by poisoning on BLM lands within the ferret reintroduction area. The BLM should also restrict the use of any anti-coagulant toxicants due to the known deleterious effects on non-target species, like black-footed ferrets and other BLM special status species. Furthermore, WWF encourages the BLM to prioritize non-lethal management (vegetative barriers, exclosure fences, etc.) of prairie dogs over lethal prairie dog management. 5. Actively restore prairie dog colonies within the Prairie Dog Restoration Area Many of the prairie dog colony complexes that exist in the HiLine District today have experienced plague outbreaks in the recent past. Some natural recovery of prairie dog populations occurs, but it is often slow and hindered by other threats such as unregulated prairie dog shooting. Translocation is an effective tool to enhance existing prairie dog populations and establish new populations in plagued-out areas. Management of tall grass within and surrounding prairie dog colonies in the black-footed ferret reintroduction area via grazing or burning can also help prairie dog colonies to expand. WWF recommends that the BLM work with MFWP and others to augment existing prairie dog populations within the 40 Complex. 6. Reintroduce black-footed ferrets within the Prairie Dog Restoration Area Because the BLM “will provide ecological conditions that support wildlife species over the long term and promote maintenance and recovery of federally listed species and BLM sensitive species”, WWF recommends the BLM reintroduce black-footed ferrets into the BLM 40 Complex. Restoring black-footed ferrets to this area will contribute to regional and national conservation and recovery objectives and ultimately aid in removal of the species from the Endangered Species list.		

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		7. Seek land consolidation opportunities within the Prairie Dog Restoration Area Where feasible, consolidation of BLM land tenure in the ferret reintroduction/prairie dog restoration area will help minimize land use conflicts with adjacent owners. WWF suggests the BLM develop a land exchange process that would facilitate further consolidation of BLM-managed lands. 8. Minimize surface disturbance by oil and gas exploration and development within the Prairie Dog Restoration Area Oil and gas development is often accompanied by significant surface disturbance, roads, pipelines, compressor stations, power lines, and other infrastructure. No Surface Occupancy stipulations to mitigate these impacts should be required for all oil and gas development within designated ferret reintroduction areas. No additional oil and gas exploration and development should be allowed into occupied prairie dog colonies. WWF does not support surface-disturbing activities or disruptive activities nor oil and gas leasing with special design features in black-tailed prairie dog colonies within and surrounding the BLM 40 Complex. WWF recommends No Surface Occupancy stipulations for all occupied and recovering prairie dog colonies within designated ferret reintroduction areas for well pads or ancillary facilities (e.g., compressor stations, processing plants, etc.) within 1/2 mile of prairie dog colonies within designated ferret reintroduction areas.		
0128-29	Wildlife-General	Swift foxes are a BLM Sensitive Species (Table 3.58 and Appendix Q) and are also a species of concern in Montana (G3, S3 – "vulnerable"; http://fieldguide.mt.gov/detail_AMAJA03030.aspx). While the reintroduced population of swift foxes to the north of the HiLine District has been increasing during the last decade, the population remains small and vulnerable (Moehrenschlager 2010). Furthermore, they are largely absent in the southern portions of the Hi-Line District – particularly in south Phillips County (Figure 13). Habitat fragmentation is known to negatively impact swift fox distributions, yet understanding effects of energy development, and specifically buffer requirements, remains largely unknown (Moehrenschlager 2010). Oil and gas developments in particular are	The suggested buffer distance is analyzed in Alternatives B through D of the Proposed RMP/Final EIS.	No

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		likely to have several adverse effects on wildlife species, including habitat loss, fragmentation, physiological stress, displacement, and increased competition or predation pressure, among others (Wyoming Game and Fish Department 2009). These factors can all negatively impact species survival and reproduction. To best protect the existing swift fox population (Figure 13) and associated habitat (Figure 12), WWF suggests that a No Surface Occupancy stipulation be implemented within 1/4 mile of den sites to limit surface-disturbing activities. All energy development activities near swift fox dens sites should be avoided year round as swift fox rely upon den sites for shelter 12 months of the year.		
0128-30	Wildlife-General	Chapter 2 on p. 118 – At the recommendation of grassland bird experts Dr. Kevin Ellison (Wildlife Conservation Society) and Dr. Stephen Dinsmore (Iowa State University), the word "occupied" should be changed to "active nest." Similarly, "occupied nesting habitat" should be changed to "one or more breeding pairs" or "evidence of nesting."	The terms currently used in the RMP/EIS are accurate and no change has been made.	No
0128-31	Wildlife-General	WWF is concerned that only 46% of the Sprague's pipits locations are protected by the Grassland Bird and Greater Sage-Grouse Protection Priority Areas (Figure 15). From Montana's Natural Heritage Program habitat suitability analysis, it is clear that more Sprague's pipit habitat could be accommodated (and protected) by expanding the Grassland Bird and Greater Sage-Grouse Protection Priority Areas. As a Candidate Species with a higher priority than greater sage-grouse and as a BLM Sensitive Species, WWF urges the BLM to expand these two areas in Phillips County. WWF also recommends the BLM develops conservation actions for the species that includes specific grazing regimes. The U.S. Fish and Wildlife Service's conservation plan for Sprague's pipit provides an excellent resource (Jones 2010).	This topic is discussed in Chapter 2, Livestock Grazing, Decisions Common to All Alternatives.	No
0130-01	Wilderness Character-istics	Please consider further, for protections of vast prairies not included in the Square Creek, Sage Creek parcels. The huge quiet of prairies is a wilderness characteristic many of us as "primitive" users value deeply! I fear the exploitation of the northeastern Mt. prairie will spread if not contained. As well as roads and mines.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined	Yes

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		Would you reevaluate the inventory for Carpenter Creek, Lena and Long Coulee? All very worthy of a 2nd look.	that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	
0131-02	OHV Use and Travel and Transpor-tation Mgmt	BLM currently limits OHVs to "existing routes" and we would like to have a better understanding of what BLM considers to be "existing routes". Please provide us a map of these existing routes as of the date of this plan.	The HiLine RMP defines OHV travel in areas not otherwise designated as "open" or "closed" as "limited to existing roads, primitive roads and trails." Roads, primitive roads, and trails are defined in the RMP Glossary. The 2003 OHV ROD amended previous management plans and the designation was applied to roads, primitive roads and trails that existed at that time. The best available GIS data was utilized to estimate the current miles and locations of routes (including roads, primitive roads and trails) within the HiLine District, but subsequent on-the-ground inventory is needed to determine the accuracy of the data.	No
0131-03	Special Designa-tions-Wild and Scenic Rivers	Please take the opportunity to manage this part of the Marias [half mile stretch that flows into the Upper Missouri River Breaks National Monument] in a way that's consistent with protecting the values in the Monument. BLM's own manual for the day-to-day management of national monuments directs that "NLCS units will be managed as an integral part of the larger landscape, in collaboration with all BLM programs" (p. 1-6, 6100 – National Landscape Conservation System Management Manual). BLM's own strategies also call for landscape-scale management (please see two strategies, "The National Landscape Conservation System: 15-Year Strategy 2010-2025," and "Bureau of Land Management Montana/Dakotas: National Landscape Conservation System, Three-Year Strategy 2013-2015"). We urge BLM to follow its own manuals and strategies and protect this part of the Marias River.	This topic is discussed in Chapter 2, Special Designations, Wild and Scenic Rivers. The impacts of designating this segment as a Wild and Scenic River are analyzed in Chapter 4 under Alternative B. The inventory and designation processes are described in Appendix L, Wild and Scenic Rivers Report, Eligibility and Suitability Determinations.	No
0131-04	Fluid Minerals	As BLM itself has acknowledged, there are resources in this place that need to be protected. So BLM needs to make sure that those resources are protected, even if these leaseholders begin developing this area for gas. Please use your authority to impose conditions on existing leases in sensitive	Per 43 Code of Federal Regulations (CFR) 3101.1-2, conditions of approval are deemed consistent with lease rights provided they do not require relocation of proposed operations by more than 200 meters, mandate that operations be sited off the leasehold (i.e. no surface occupancy), or prohibit new surface-disturbing activities for a period of more than 60 days in a lease	No

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		areas like this one [Black Elk Coulee] north of the Monument – the agency has already done so in Colorado, Wyoming and other places that have much more oil and gas traffic than this part of Montana. Please don't give Montana short shrift. Please add protective the conditions for this special area north of the Monument to include all of the following: • No new roads • No upgrades of existing roads • Requiring the leaseholder to obliterate roads as they go, and do other meaningful restoration work on their well pad • Closing areas that are currently leased to future leasing • No surface occupancy. BLM has the authority to add this stipulation to existing leases, as the agency considered in a recent environmental assessment in New Mexico. (That EA is here: http://www.blm.gov/pgdata/etc/medialib/blm/nm/field_offices/las_cruces/las_cruces_planning/lcdo_eas.Par.7094.File.dat/SIGNEDEA_D0IBLMNM0302006161.pdf) Doesn't Montana deserve the same protections as New Mexico? Please add this stipulation to leases in sensitive areas like Black Elk Coulee and Lamere Coulee. We would also like BLM to impose buffers around sage-grouse leks to protect them from any surface disturbance and to impose other limitations to protect nesting, breeding and winter range by restricting activities during this time of year.	year. This is also mentioned in Chapter 2, Fluid Minerals, Decisions Common to All Alternatives. Conditions of approval are developed for site-specific projects on lands that already have authorized oil and gas leases. It is at that point that the Authorized Officer prescribes the proper conditions for new roads, road upgrades, and any reclamation requirements. Appendix E.2 Oil and Gas Best Management Practices (General Conditions of Approval) highlights some of the more typical Conditions of Approval. The topic of buffers around sage-grouse leks is covered in Chapter 2, Table 2.8 Oil and Gas Lease Stipulations by Alternative.	
0131-05	Fluid Minerals	BLM is already giving the industry a big break with this "no surface occupancy" rule. But in addition, BLM is allowing companies to ask to be excused from this rule through what are called exemptions, modifications and waivers (Draft RMP, Appendix E, pp. 956-972). Oil and gas companies ask for these changes a lot throughout the West, and much of the time, they're successful. We have two concerns about these exemptions, modifications and waivers: • The public can't comment on these processes. BLM told us that the only recourse the public has is to ask BLM at the end of the year for a list of the exemptions, modifications, and waivers that had been granted that year. We will only know what's happened after the fact. • The draft RMP's language is vague about	• The public has the opportunity to be involved in the development of waivers, exceptions, and modifications (WEMs) during the RMP process. • The public has the opportunity to be involved in the application of lease stipulations during leasing environmental assessment (EA) reviews. • At the development stage, the public has the opportunity to be involved during NEPA reviews. NEPA logs are posted on the Montana/Dakotas BLM web site for public viewing and NOS/APDs are also posted for 30 days. • WEMs are applied using the best available information/data during the NEPA review and at the discretion of the Authorized Officer (AO). This process is also done in consultation with other Federal agencies, if needed (FWP, FWS, USFS, BOR, etc.)	No

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		the circumstances under which it will allow an exception. It reads that this can happen "if portions of the area can be occupied without adversely affecting greater sage-grouse habitat" (Draft RMP, pp. 966-967). BLM doesn't specify the level of proof that's necessary for the agency to grant an exception. What does "adversely affecting habitat" mean? Who decides? A wildlife biologist? The field manager? The oil and gas office?	The topic of exceptions is covered in more detail in Appendix E.4 Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under the heading of Process for Reviewing and Approving and Exception to, Waiver of, or Modification to a Stipulation on a Lease That Has Been Issued (WO IM No. 2008-32).	
0131-06	Fluid Minerals	We also ask BLM to institute time limitations on drilling (i.e. not allowing any during the nesting season), and geographic limitations on where the drilling can take place (5 miles from sage-grouse leks). And we ask BLM to put new rules, like a no surface occupancy rule, on existing leases in this area. BLM has the authority to add this stipulation to existing leases, as the agency considered in a recent environmental assessment in New Mexico. (Please see: http://www.blm.gov/pgdata/etc/medialib/blm/nm/field_offices/las_cruces/las_cruces_planning/lcdo_eas.Par.7094.File.dat/SIGNED EA_D0IBLMNM0302006161.pdf) Doesn't an area just outside Montana's premiere national monument – which BLM is supposed to be managing as part of the wider landscape – deserve the same protections as regular BLM lands in New Mexico? Please add this stipulation to leases in this sensitive area just outside the Monument.	Per 43 Code of Federal Regulations (CFR) 3101.1-2, conditions of approval are deemed consistent with lease rights provided they do not require relocation of proposed operations by more than 200 meters, mandate that operations be sited off the leasehold (i.e. no surface occupancy), or prohibit new surface-disturbing activities for a period of more than 60 days in a lease year. This is also mentioned in Chapter 2, Fluid Minerals, Decisions Common to All Alternatives.	No
0131-07	NEPA	BLM's assessment acknowledges that gas development in this area, and its increase in road density, would "result in a direct and indirect long-term loss of most habitat for big game in the high development potential areas." (Draft RMP, p. 727.) BLM's assessment also acknowledges that Alternative E would increase the road density in a high development potential area like the Bear Paw South by 215 percent (Draft RMP, p. 733), which is a direct cause of noxious weed spread (Draft RMP, p. 729). We see two problems with this. Number one, BLM in general should not shrug off habitat degradation as an inevitable outcome of gas development in Bears Paw South. If BLM has identified resources in this area that should be protected – Bighorn sheep and mule deer – then BLM needs to protect those resources by protecting habitat from fragmentation and from noxious weeds.	This topic is discussed in Chapter 4, Wildlife, Impacts under Alternative E (Preferred Alternative), Cumulative Impacts. Seventy-eight percent of the federal oil and gas mineral estate in the in Bears Paw South area is currently leased. Any future development in the Bears Paw South area would most likely be addressed through a natural gas field development plan. In addition to a field development plan, the management actions outlined in the Preferred Alternative and Appendices B, C, E and M of the Proposed RMP/Final EIS would apply to any future development.	No

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		The second problem we see here is that this degradation would be occurring right next door to the Upper Missouri River Breaks National Monument. BLM's own manual for the day-to-day management of such monuments directs that "NLCS units will be managed as an integral part of the larger landscape, in collaboration with all BLM programs" (p. 1- 6, 6100 – National Landscape Conservation System Management Manual). BLM's own strategies also call for landscape-scale management (please see two strategies, "The National Landscape Conservation System: 15-Year Strategy 2010-2025," and "Bureau of Land Management Montana/Dakotas: National Landscape Conservation System, Three-Year Strategy 2013-2015").		
0131-08	NEPA	The necessity for BLM to manage the Monument at a landscape level was not mentioned in Chapter 3: Affected Environment. BLM's baseline assessment is therefore missing a crucial piece of information about wildlife corridors and other connectivity between the Hi-Line District and the Monument. This then brings into question BLM's decisions governing the potential gas developments in Bears Paw South.	Wildlife corridors are discussed in Chapter 3, Wildlife, Special Status Species. No decisions have been made regarding potential gas developments in Bears Paw South. Seventy-eight percent of the federal oil and gas mineral estate in the in Bears Paw South area is currently leased. Any future development in the Bears Paw South area would be addressed through plan implementation, most likely a natural gas field development plan. In addition to a field development plan, the management actions outlined in the Preferred Alternative and Appendices B, C, E and M of the Proposed RMP/Final EIS would apply to any future development.	No
0131-10	Vegetation	Under this plan, however, BLM will allow for a full range of forest health treatments in the Sweet Grass Hills, which includes commercial logging. Please give us more details on plans for such treatments in the Hills. We're concerned about the effects commercial logging could have on the area's water, as well as on the habitat for peregrine falcons, elk and mule deer that BLM has identified.	Forest health treatments are discussed in the Forests and Woodlands section in Chapters 2 and 4 of the Proposed RMP/Final EIS. An array of silvicultural treatments that mimic ecological processes would be allowed in the in the Sweet Grass Hills ACEC to reduce fuels, improve land health, and restore fire regimes. Specific proposals would be subject to appropriate environmental review prior to any implementation.	No
0131-11	Recreation	Many of our hunter members have raised their concerns about outfitters leasing up private lands that abut large tracts of public land for which the only access is through the private lands. (Please see the map below.)[Map Title: Private Lands Where Landowners Authorize Licensed Hunting Outfitters to Operate (2011 Hunting Season)]	This topic is discussed in Chapter 3, Recreation under Special Recreation Permits. The text in this section has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes

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		This is already a big problem, and the fact that BLM isn't addressing this is its 20-year plan is troubling. We ask you to consider introducing special permits for hunting outfitters in the District, to ensure that our public-lands hunters retain access to our public lands. Montana is known for its amazing opportunities to hunt our public wildlife on our public lands, and we want to keep it that way.		
0138-01	Wilderness Character-istics	Please consider adding much more of the HiLine District area to be managed as wilderness, and recommend for permanent wilderness protection all lands which meet the BLM's criteria as having wilderness characteristics, including those lands inventoried by the Montana Wilderness Association in Carpenter Creek, Lena, and Long Coulee.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0140-01	NEPA	The alternatives were explained in the DEIS, but useful information was not included in the draft RMP. BLM's planning regulations similarly require BLM to estimate the physical, biological, economic, and social impacts associated with each alternative in the RMP/EIS and a proper description of the alternatives was not provided.	The Reader's Guide and Executive Summary provides a general description of the five alternatives included in the RMP/EIS. A more complete description of each alternative is included in the text of Chapter 2. The environmental, economic and social consequences of implementing each of the five alternatives are presented in Chapter 4.	No
0140-02	Fluid Minerals	BLM also failed to comply with the Energy Policy and Conservation Act requirements to use the least restrictive stipulations necessary for oil and gas exploration and development activities	This topic is discussed in Appendix E.1. Oil and Gas Leasing.	No
0140-03	NEPA	The l:2,000,000 scale maps that were provided for the planning area are not sufficient at the county level.	Maps in the RMP/EIS vary in scale from 1:400,000 to 1:2,000,000. The size of the planning area (17.6 million acres) dictates the use of medium and small-scale maps.	No
0140-04	Economics	BLM fails to analyze how these new, harsh stipulations (for oil and gas leasing) are necessary or why current management is failing, thus prompting the need for additional restrictions. The reasons should be detailed in the document and backed up with scientific evidence to justify all proposed changes. Fidelity feels BLM has failed to recognize how greatly the new restrictions will impact	This topic is covered in Chapter 1, Purpose and Need. It is also covered in Chapter 1, Issues Addressed, "Issue 1: How will the area be managed for the development of fluid minerals, solid minerals, and renewable energy?" Also refer to Chapter 4, Economics, Impacts Common to All Alternatives.	No

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		the oil and gas industry as well as many other multiple uses. There is no consideration to how much a decline in activity will impact local economies.		
0140-05	Fluid Minerals	Page 3 - Chapter 1, states "The BLM administers approximately 2,437,000 acres of public land and 4,240,000 acres of federal minerals within the planning area in Blaine, Chouteau, Glacier, Hill, Liberty, Phillips, Too1e, and Valley Counties" for a total of 6,677,000 acres subject to BLM management. – The leasing categories for each alternative only add up to approximately 3,491,450 acres. Why did BLM not include information for management on the other 3.2 million acres?	Public land refers to the surface lands administered by the BLM, while federal minerals refer to lands where the BLM administers the mineral estate. Sometimes these lands overlap. Refer to the topic of Split Estate located in Appendix E.1 Oil and Gas Operations under Regulations, Laws, and Special Procedures.	No
0140-06	Fluid Minerals	Table 4-37 - BLM projects only 118 fewer wells to be drilled under the preferred alternative compared to current management, which is very confusing given No Surface Occupancy (NSO) stipulations will be applied to almost 2 million acres in the planning area. Given this dramatic increase in NS0, how does BLM come to the conclusion that only 118 wells will be impacted? Clearly the NS0 restrictions will have a much more drastic effect on industry's ability to drill new wells outside currently leased acreage. Fidelity does not feel this immense increase in NS0 is warranted.	Refer to Chapter 4, Fluid Minerals, Impacts Under Alternative E (Preferred Alternative), Table 4.48. A total of 1,615,942 acres would be stipulated as NSO in either Low or Very Low development potential. Only 95, 407 acres would be located in Moderate or High Development potential. The driving force of the number appearing to be on the low end is simply because over 94% of the NSO acreage is in Low/Very Low development potential.	No
0140-07	Wildlife-General	Species and Habitat Maps – There is a map for NSO, Controlled Surface Use (CSU) and Timing Limit Stipulations (TLS) (map 2.4), however there were not separate maps available for many of the species with proposed restrictions. BLM should provide these habitat maps to allow interested parties to determine exactly what areas will be affected separately from maps demonstrating overall restrictions.	Individual habitat maps for species with Stipulations in Alternative E can be found in Chapter 3 (pronghorn winter range, mule deer winter range, elk winter range, bighorn sheep distribution, black-tailed prairie dog habitat, Greater sage-grouse habitats).	No
0140-08	Wildlife-General	Page 4-500 - "Lands that have been identified as bighorn sheep habitat would be stipulated as CSU This would 7, 792 acres, of which 1,248 acres (16%) are already leased. Lands that have been identified as bighorn sheep lambing areas would be stipulated as NSO. This would affect 2,364 acres, of which 343 acres (15%) are already leased. This statement implies CSU stipulations that apply to bighorn sheep habitat will also apply to areas that have already been leased. We remind BLM that any stipulations for bighorn sheep habitat that may be applicable	Refer to Chapter 2, Introduction. Many of the decisions from the existing RMPs have been implemented. In some cases, implementation of these decisions established valid existing rights or other obligations that are important considerations in preparing the HiLine RMP. For example, many of the oil and gas resources in the planning area are leased. The presence of these valid existing rights influences, and sometimes limits, management choices. Specific to the oil and gas program, the alternatives address the availability and allocation of lands for future oil and gas	No

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		for future leases may not be imposed on valid existing leases simply because a plan amendment has been prepared. Further, restrictions on surface-disturbing and disruptive activities that are inconsistent with the original lease terms may not be consistent with valid existing lease rights.	leasing, potential lease stipulations, and additional mitigation to be considered and applied during the Application for Permit to Drill (APD) process. Per 43 Code of Federal Regulations (CFR) 3101.1-2, conditions of approval are deemed consistent with lease rights provided they do not require relocation of proposed operations by more than 200 meters, mandate that operations be sited off the leasehold (i.e., no surface occupancy), or prohibit new surface-disturbing activities for a period of more than 60 days in a lease year. This is also mentioned in Chapter 2, Fluid Minerals, Decisions Common to All Alternatives.	
0140-09	Wildlife-General	Page 903 — "Prior to surface-disturbing or disruptive activities a plan to maintain bighorn sheep habitat will be prepared by the proponent and implemented upon approval by the authorized This plan shall address how short-term and long- term direct and indirect to bighorn sheep range will be mitigated based on current science and research." Fidelity discourages the use of compensatory mitigation. The details of how the levels of mitigation would be measured, what measures would be taken and how they would be carried out are vague and it is unclear how BLM would decide what measures are necessary.	Mitigation measures would be prepared by the proponent and analyzed by the Federal Agency. Appropriate measures would be applied based on current research at the time of the proposed action.	No
0140-10	Wildlife-General	Page 726, Chapter 4 – "Although much of the short-term effects to wildlife habitat and populations are mediated by reclamation, those reclaimed areas adjacent to or surrounding long-term habitat disturbance do not necessarily result in reclaimed wildlife habitat. Many species often avoid areas of long-term surface disturbance and disruption resulting in long-term indirect effects. The number of wells anticipated in the high and moderate potential areas are also expected to result in most of these potential areas being within 1,000 meters of an existing well (avoidance zone for big game) based on the number of anticipated wells and the amount of lands currently outside the avoidance zone in each potential area (Table 4.96)." In this paragraph, from the fluid mineral development section, BLM has overlooked the temporary nature of many oil and gas activities. Over the life of a well, which may be several decades, surface impacts on the	Long-term impacts are often the result of indirect effects or cumulative short-term effects and are difficult to definitively assign to one particular disturbance factor. Long-term population level impacts are often not noticed for many years, particularly in relatively long lived animals such as deer, elk and antelope (Hebblewhite 2008). Long-term impacts to wildlife populations through behavioral responses to increased human disturbance are associated with the amount of surface disturbance. Initial surface disturbance removes vegetation and disturbs soil resulting in a direct loss of habitat as noted above, but also indirectly affects wildlife populations through habitat fragmentation and avoidance of disturbances (Hebblewhite 2008). Avoidance is variable but the average zone of influence is approximately 1,000 meters (3,281 feet) from roads and oil and gas wells for ungulates (Hebblewhite 2008).	No

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		front end, including the drill rig, the initial well pad, mobile equipment, and access roads, are removed after several weeks, or are intermittently reclaimed to reduce the overall footprint. Best Management Practices (BMP's) may be employed at the site and camouflage equipment and access infrastructure can be used to minimize the impact to visual resources as much as possible. Fidelity strongly recommends BLM take these measures into consideration.		
0140-11	Wildlife-General	Pages 2-193, Alternative E - "Surface-disturbing or disruptive activities would be restricted or prohibited within 0.6 miles from any existing surface-disturbing or disruptive activity." There is no information explaining why new surface disturbing activities would be restricted within .6 miles of existing surface disturbance. What is the rationale behind this restriction? It is highly possible that restricting surface-disturbing activities near existing surface-disturbing activity would cause additional roads, pipelines, and infrastructure in order to move these activities elsewhere to comply with this .6 mile restriction. It is likely this will increase the amount of overall surface disturbance in crucial winter range. BLM should clearly describe what qualifies as existing surface-disturbance or disruptive activities as well as what would qualify as new surface-disturbance or disruptive activities.	Refer to Hebblewhite, Mark. 2008. A literature review of the effects of energy development on ungulates: Implications for central and eastern Montana. Report prepared for Montana Fish, Wildlife and Parks, Miles City, Montana. This is included in the bibliography.	No
0140-12	Wildlife-General	Many of the restrictions placed on mountain plover seem to be tied to the black-tailed prairie dog, including NSO stipulations. As listing of the black-tailed prairie dog was not warranted, restriction on the mountain plover cannot be justified by habitat association alone. BLM must provide further justification for these restrictions if they are to be included in the final document.	Refer to Chapter 3, Wildlife, Montana BLM Sensitive Species, Mountain Plover. For disturbances including pedestrian foot traffic and continual equipment operations, a 1/4 mile buffer is recommended. Smith, Hamilton, and Douglas A. Keinath. "Species assessment for Mountain Plover (Charadrius montanus) in Wyoming." Unpublished report, Bureau of Land Management, Cheyenne, WY (BLM 2004d). The impact of the development of this natural resource to breeding Mountain Plovers, in addition to other oil, mineral, and wind generated energy at this point is unknown (USFWS 2003). The Mountain Plover ACEC is also part of the Greater Sage-Grouse Protection Priority Area.	No

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			BLM Manual 6840 states: "The purpose of this manual is to provide policy and guidance for the conservation of BLM special status species and the ecosystems upon which they depend on BLM-administered lands. BLM special status species are: (1) species listed or proposed for listing under the Endangered Species Act (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau sensitive by the State Director(s)." BLM Manual 6840 also states: "The objectives of the BLM special status species policy are: A. To conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species. B. To initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA."	
0140-13	Wildlife-General	Page 2-195 – "TLS - Surface occupancy and use is prohibited within 1/4 mile of mountain plover habitat April 1 through July 15." There is no justification in the DEIS for this additional ¼ mile buffer around mountain plover habitat from April 1 through July 15. BLM has also failed to provide a map with the areas where this timing stipulation would apply. A map should be provided and scientific documentation should be included as to Why this additional restriction is necessary during nesting season.	The mountain plover is a BLM sensitive status species and is managed through BLM Manual 6840, Special Status Species Management Manual for the Bureau of Land Management. This manual establishes policy for management of species listed or proposed for listing pursuant to the Endangered Species Act and Bureau sensitive species which are found on BLM-administered lands. The objectives of the BLM special status species policy are: A. To conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species. B. To initiate proactive conservation measures that reduces or eliminates threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA. Current professional judgment considers a ¼ mile buffer to be adequate and necessary to eliminate threats to mountain plovers and surrounding habitat. Refer to Chapter 3, Wildlife, Figure 3.22 Black-tailed Prairie Dog Habitat.	No

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0140-14	Wildlife-General	Page 2-192, Alternative E – "NSO within 1/2 mile of bald eagle nest sites active within the preceding 5 breeding seasons." The bald eagle was recently removed from the threatened and endangered list and BLM does not provide scientific justification for the NSO 1/2 mile buffer proposed in the DEIS. FWS recommends buffers of 660 feet and BLM far surpasses this recommendation. Unless scientific data shows otherwise, BLM should remain consistent with FWS buffers. What is the reason for using this 5 breeding season window to determine an "active" nest? How does one determine if the nest has been active in the past 5 breeding seasons? Would there be no exception to this stipulation if the nest had been vacant for 4 breeding seasons? Without scientific justification for this 5 breeding season rule, this is very arbitrary and unclear. If this stipulation is included, a map of active nests should be provided by BLM.	Alternative E (Preferred Alternative) was selected based on the Montana Bald Eagle Management Plan. Montana Bald Eagle Working Group. 2010. Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan, 1994, Montana Fish, Wildlife and Parks, Helena, Montana. From that document: Potentially disturbing activities should not occur within 1/2 mile of active and alternate nests (for territories occupied within the last five years), although some activities may produce less disturbance and recommended distances might be decreased in areas where visual buffers obstruct the direct line of sight between activities and nests, perches, and roosts.	No
0140-15	Fish	Pages 2-196, Alternative E - "CSU - Prior to surface-disturbing or disruptive activities occurring in or within 1/2 mile of river or stream shorelines identified as pallid sturgeon habitat, a plan to maintain pallid sturgeon habitat would be prepared by the proponent and implemented upon approval by the authorized officer." Fidelity concurs with PLA's comment that "It is not explained in the DEIS Whether the recommended 1/2 mile CSU buffer was suggested by the FWS or devised by BLM. BLM must disclose in the final EIS the scientific justification for the proposed CSU stipulation."	The 1/2 mile CSU buffer was not suggested by the USFWS, but they would be consulted should development be proposed in proximity to pallid sturgeon habitat. They could require something different at that time if new science is available. The Miles City District RMP pallid sturgeon buffer discussion refers to the distance at which an oil spill or leak might flow overland to a river or other water body. There is considerable literature dealing with model development for predicting oil flow based on topography, soils, temperature and other factors. This buffer distance is being reviewed and may be changed. Additional information was added to Chapter 2, Table 2.8 under Wildlife, Pallid Sturgeon, Alternative E; and Table 2.28 under Wildlife, Oil and Gas Lease Stipulations, Pallid Sturgeon, Alternative E.	Yes
0140-16	Wildlife-General	Interior Least Tern and Piping Plover Page 2-196 - Alternative E - "NSO within 1/4 mile of piping plover habitat." Page 2-195 - Alternative E - "NSO within 1/4 mile of interior least tern occupied habitat." BLM has failed to demonstrate why the N80 stipulation for Interior Least Tern Will apply to occupied habitat while the N80 stipulation for Piping Plover will apply to all habitat areas. Fidelity agrees with PLA's	In the HiLine planning area, the USFWS has identified "critical habitat" for piping plover. There is no identified "critical habitat" for least tern.	No

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		comments that "Applying NSO stipulations to all piping plover habitat, rather than just occupied habitat, has not been justified in Chapters 3 or 4 by any reference to guidance from the FWS. Management restrictions for the Interior Least Tern should be consistent With those for the Piping Plover unless BLM can cite recommended guidance from FWS that justifies the more restrictive management prescriptions for Interior Least Tern in the DEIS. In order to avoid the unfounded application of stipulations to areas that may not truly contain occupied habitat, we recommend that BLM apply stipulations for occupied habitat for both species. Accordingly, BLM must clearly identify and map Interior Least Tern and Piping Plover occupied habitat."		
0140-18	Wildlife-Greater Sage-Grouse	The HiLine DEIS provides for a 1 mile buffer around leks in general habitat, however the Miles City document has a 2 mile buffer. Both of these documents cite similar sources of data and both are based upon data from Sage-Grouse Management Zone 1, so it is concerning that this similar data could be interpreted in two very different ways. Additionally, much of the information presented is based on studies of Sage Grouse management Zone 1, Which includes northeastern Wyoming and far western North and South Dakota. This broader scale may or may not be directly applicable to the HiLine planning area. How does the planning area compare to Zone 1? What similarities and differences exist between the zones and how is Zone 1 compatible with the planning area? Fidelity questions the validity of the proposed stipulations in the DEIS if the data used comes to two different conclusions. The discrepancies between the two NSO buffers should be explained.	The oil and gas lease stipulation for general sage-grouse habitat has been changed from a 1 mile NSO lek buffer to a 0.6 mile NSO buffer so as to be consistent with the other ongoing BLM RMP revisions in Montana, North Dakota and South Dakota. The new stipulation in the Proposed RMP is presented in Appendix E.4 under Alternative E (Preferred Alternative), Greater Sage-Grouse Leks (General Habitat Areas).	Yes
0140-20	Wildlife-Greater Sage-Grouse	Page 398 "The most pervasive and extensive change to sage-brush ecosystems in MZ1 is conversion of nearly 60% of native habitats to agriculture (Samson et al 2004)." We concur with PLA's comment that states "The publication of Samson et al (2004) does not address sagebrush ecosystems in Sage-Grouse MZl. This paper addresses prairie grasslands in the Great Plains, which represents a much larger area. Samson et al (2004) also does not differentiate between prairie grasslands and sagebrush steppe. It is necessary for the final RMP/EIS to specifically quantify the amount of sagebrush habitat that has been converted to	Sufficient data do not exist at this time to quantify the acres of sagebrush that has been converted to agriculture.	No

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		agricultural uses within the HiLine planning area specifically."		
0140-21	Wildlife-Greater Sage-Grouse	BLM has failed to identify if West Nile virus occurs in the planning area population. This information should be included in the final document.	Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse has been updated to include information on West Nile virus mortalities in the planning area.	Yes
0140-22	Wildlife-Greater Sage-Grouse	Appendix M appears to provide "guidelines;" however, references in the text of the DRMP/EIS imply that the mitigation measures in Appendix M are requirements. This is very confusing and BLM should define what is considered a guideline versus what is considered a requirement.	The topic is discussed in the Introduction of Appendix M.	No
0140-23	Wildlife-Greater Sage-Grouse	Under Executive Order No. 2-2013, Montana Governor Bullock mandated the establishment of a Greater Sage-grouse Habitat Conservation Advisory Council with a stated purpose "to gather information, furnish advice, and provide to the Governor recommendations on policies and actions for a state-wide strategy to preclude the need to list the Greater Sage-grouse under the Endangered Species Act (ESA), by no later than January 3], 2014." BLM should include information on how the decision of the Greater Sage-grouse Habitat Conservation Advisory Council will affect management in the planning area. How does BLM plan to implement the guidance of the Council?	No final document has been drafted by the Governor's Advisory Council; therefore, it cannot be incorporated into the HiLine RMP.	No
0140-24	Wildlife-Greater Sage-Grouse	Page 400 – "Nearly 16 percent of Sage-Grouse Management Zone I is within 3 kilometers of oil and gas wells, a distance in which ecological impacts are likely to occur (Knick et al 2011). Much of the current oil and gas development is occurring on private lands, with little or no mitigation efforts, which elevates the ecological and conservation importance of sage-grouse habitat on public lands." Please provide the source of information stating much of the current development is on private lands. In addition, this statement refers to the entirety of Management Zone l, a portion of which includes northeastern Wyoming where intensive oil and gas development has occurred. These statistics should be tied to the HiLine planning area specifically. The "warranted but precluded" listing of the sage-grouse has increased public awareness of the need for conservation efforts. This has increased conservation efforts on private lands and BLM should discuss some of the measures	The sentence has been removed from the Proposed RMP/Final EIS.	No

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		already in place promoting protection of the bird.		
0140-25	Wildlife-Greater Sage-Grouse	Page 501 – "Crucial winter range: Lands that have been identified as crucial winter range for big game and/or greater sage-grouse would be stipulated as CSU This would 44, 720 acres, of which 7,154 acres (16%) are already leased." BLM needs to provide detailed information as to where these lands are located.	This information is found in Chapter 3, Wildlife, Figure 3.19.	No
0140-27	Wildlife-Greater Sage-Grouse	Page 1126 (Fluid Minerals) – "To limit impacts to breeding and nesting habitat, surface disturbing activities shall be prohibited or restricted within 4 miles of a lek to the extent possible and consistent with valid existing rights." The guidelines in this appendix are confusing, as they have different distances in which disturbance should be avoided. Page 1135 says "Surface-disturbing activities would be avoided if possible within 1 mile of greater sage-grouse leks." BLM should explain Why these discrepancies exist and provide consistent information.	The topic is discussed in Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. The 4-mile buffer language is discussed in the Priority Habitat section and the 1-mile buffer is in the General Habitat section.	No
0140-28	Wildlife-Greater Sage-Grouse	The document fails to explain how Zone 1 relates to the planning area. Furthermore, how does this data from Zone 1 effect the proposed actions? What are the sources of direct mortality in the planning area that have caused these declines?	Refer to the description of Greater Sage-Grouse Management Zone 1 under Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse, which states in part: "The range of the Greater Sage-Grouse in North America has been divided into seven sage-grouse management zones based on populations within floristic provinces (Stiver, et. al. 2006). The floristic provinces are areas within which similar environmental factors influence vegetation communities (Knick and Connelly 2011). Management Zone 1 (MZ1) includes central and eastern Montana, northeastern Wyoming, southwestern North Dakota, and northwestern South Dakota." This section also discusses sources of Greater Sage-Grouse declines. Management Zone 1 is the geographic scope for cumulative impacts discussed in Chapter 4.	No
0140-29	Wildlife-Greater Sage-Grouse	Page 682 – "Many of the current oil and gas stipulations in place to protect wildlife resources are effective at mitigating effects at local scales, but often do not mitigate impacts at larger scales (Naugle, et al.	Refer to Naugle, et al. 2011 in the bibliography.	No

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		2009). " What stipulations are being referenced here? How does this apply to the specific NSO/CSU restrictions in the document? The effectiveness of current mitigation is not explained in the DRMP/EIS.		
0140-30	Air Resources	Industry already provides estimated annual actual emissions to the state for air quality emissions compliance. There is no discussion of what the survey methodology will be for the future modeling BLM wants, thus we cannot comment on if this will produce valid results. This information should be included in the final document.	Oil and gas operators within Montana were surveyed to obtain emission inventory information for future photochemical grid modeling. Many oil and gas operators participated in the surveys.	No
0140-31	Air Resources	The DEIS discusses several different levels of modeling that have either been conducted or will be in the future. – BLM analyzed PSD increments. PSD increments are the amount of pollution an area is allowed to increase. It is important to note that PSD increment analysis does NOT apply in this scenario. It is the responsibility of the Montana Department of Environmental Quality (MDEQ) to implement the PSD permitting program for major sources. It is inappropriate for this analysis to be applied on a wide scale using conservative estimates and producing what can be believed to be real impacts. This analysis is wholly inappropriate and is being misused, thus this should be removed from the document.	As stated in Chapter 4, Air Resources, Near-field Criteria Air Pollutant Concentrations, the PSD increment analysis is not a regulatory analysis and is presented only to provide context.	No
0140-32	Air Resources	BLM should only use approved design values prior to implementing mitigation measures on sources in the planning area.	Design values will be calculated using data that have been quality assured by the MDEQ and EPA. The MDEQ will review design value calculations, as explained in Appendix B, Section 4.1.	No
0140-33	Air Resources	The requirement to implement Tier 4 engines is pointless and goes beyond the current requirements of law. There is discussion in the initial mitigation measures that sources will be required to consolidate facilities to reduce fugitive emissions. Clearly, these consolidation determinations are either redundant or overly restrictive for the control of fugitive emissions, since these emissions are mitigated through existing regulations… We object that BLM intends to go beyond both federal and state regulations by requiring compliance with a New Source Performance Standard (NSPS) on sources for which that rule is not applicable. ...The NSPS standards are applied nationally after much research and public participation. This requirement must	Drill rig engines are non-stationary sources that are not subject to NSPS or to MDEQ permitting, though they operate 24 hours a day and seven days per week at a single well pad for weeks or months. Current regulatory requirements include compliance with the NAAQS. Near-field AERMOD modeling of non-Tier 4 engines indicated potential exceedances of the 1-hour NO_2 standard at locations close to well pads, where ambient air quality monitoring data are not available. Modeling of Tier 4 engines indicated no such concern. As described Appendix B, Section 6.1, oil and gas operators must use drill rig engines meeting Tier 4 emission standards unless modeling or monitoring demonstrate	Yes

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		not be arbitrarily applied to sources where it is not otherwise applicable unless further analysis by BLM indicates a specific environmental benefit.	compliance of non-Tier 4 engines. Facility consolidation protects air resources and other resources, including wildlife and habitat.	
0140-34	Vegetation	BLM did not provide a map of areas special status plants are located in the planning area. This should be included in the final document.	The location and occurrence of special status plants are discussed in Chapter 3 of the Proposed RMP/Final EIS. Four sensitive plant species (long-sheath waterweed, dwarf woolyheads, slender bulrush and slender-branched popcorn-flower) are known to occur in and near wetlands in Phillips County. The only documented occurrences of whitebark pine on BLM land are in the Sweet Grass Hills. Species-specific inventories and mapping have not been completed for these species, but the riparian and wetland systems in the planning area are shown on map W.13 on the RMP website at http://blm.gov/8qkd.	No
0140-35	Visual Resources	Prior general knowledge as to how these mitigation measures for visual resources) might be employed is vital to planning purposes for other land uses. Therefore, we recommend that BLM establish parameters for inclusion in the planning documents.	This topic is discussed in Appendix C, Best Management Practices. Mitigation measures to meet VRM objectives are dependent on the surrounding characteristic landscape; therefore, they are site-specific and would be prepared on a case-by-case basis.	No
0140-37	Wildlife-Greater Sage-Grouse	Page 689 "Greater Sage-Grouse: Impacts from surface-disturbing activities, disruptive activities, and management actions are anticipated for greater sage-grouse across all alternatives. Estimated short-term and long-term surface disturbance from BLM actions in the planning area are anticipated to result in loss, degradation, and fragmentation of sagebrush habitat. Oil and gas development is the major source of surface disturbance identified in the planning area under all alternatives, and oil and gas development has been identified as a cause of declining greater sage-grouse populations (Doherty, et al. 2006, Walker, et al. 2007, Naugle, et al. 2009, Haiju, et al. 2009)." This portion of the document implies that under all alternatives, the sage-grouse population will decline. There is no discussion of how populations will differ between the alternatives. If this is true, the DEIS should indicate a decline is predicted under all alternatives, which will in turn increase the likelihood of the bird being listed under the Endangered Species Act.	Wildlife populations are managed by Montana Fish, Wildlife and Parks. Refer to Chapter 4, Wildlife, generally, but especially Impacts Common to All Alternatives, as well as to Chapter 2, for a description of possible benefits to wildlife associated with the various alternatives.	No
0141-03	Wildlife-General	Identify, conserve, enhance and monitor rare, vulnerable, and representative habitats, communities, and ecosystems to ensure self-sustaining persistence of special status species.	Please refer to Chapter 2, Special Status Species, Decisions Common to All Alternatives.	No

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0141-04	Wildlife-General	Ensure that proposed land uses initiated or authorized by the BLM minimize damage to wildlife habitat and populations of special status species.	See Chapter 2, Wildlife, under Decisions Common to All Alternatives, Special Status Species; and also under Alternative E (Preferred Alternative), Special Status Species. In addition, see Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: "Requests for land use authorizations (rights-of-way, leases or permits) would be analyzed and mitigation measures applied on a case-by-case basis through the environmental review process."	No
0141-05	Wildlife-Greater Sage-Grouse	Maintain and/or increase greater sage-grouse abundance and distribution by conserving, enhancing or restoring the sagebrush ecosystem upon which populations depend in cooperation with other conservation partners.	Refer to the following statement under Chapter 2, Wildlife, Goals: "Maintain and/or increase Greater Sage-Grouse abundance and distribution by conserving, enhancing or restoring the sagebrush ecosystem upon which populations depend in cooperation with other conservation partners."	No
0141-08	Wilderness Character-istics	We believe that you should manage more land for its wilderness or backcountry attributes than identified in Alternative E.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0141-09	Wildlife-General	Many wildlife species need relatively unroaded landscapes to provide for habitat security. This includes not only big game species, but also rarer and sensitive species as well.	Refer to Chapter 2, OHV Use and Travel and Transportation Management, Decisions Common to All Alternatives, Travel Management Areas.	No
0141-10	Wilderness Character-istics	Eastern Montana has very limited remaining lands with wilderness or back-country resource potential and those few areas that do exist should be offered additional protection. Wilderness Areas found in western Montana are critical for big game and T&E species survival. They also add to the quality of life and are a drawing card for recreationists and tourism. You should consider protecting more of the 26 areas for their wilderness characteristics or manage them for semi-primitive back-country values.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0141-11	Fluid Minerals	We believe that you should give higher priority to protecting grassland bird and greater sage grouse habitat. Bird hunting is very important to our members and much of the hunting occurs on public lands. Prairie and grassland habitats have declined a great deal since settlement and remaining habitats should be protected from vegetation type conversion, increased fragmentation and disturbance from oil and gas development -	In Chapter 4, Environmental Consequences, under Fluid Minerals, Impacts under Alternative E (Preferred Alternative), over 1.4 million acres of federal mineral estate have been classified as No Surface Occupancy (NSO) for future oil and gas leasing in PHMAs. Additionally, any lands within 0.6 mile of Greater Sage-Grouse leks in GHMAs and one-quarter mile of sharp-tailed grouse leks would be designated as	Yes

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		not only for bird hunting, but also to help arrest the decline of many prairie bird species. Having the greater sage grouse as a potentially listed species under ESA should make this even more important. You should consider modifying grazing practices and providing additional areas of No Surface Occupancy (NSO) in grassland and sagebrush ecosystems especially on important sage grouse and sharp-tailed grouse habitat.	NSO in the Proposed RMP. Quantifiable vegetation objectives have been identified for sage-grouse breeding (leks, pre-laying, nesting and early brood-rearing) habitat on public land. All BLM use authorizations, including grazing, will contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives.	
0141-12	Fluid Minerals	We believe that you should limit future oil and gas leasing on deer, elk and antelope winter ranges and on all bighorn sheep ranges. Oil and gas development has dramatically reduced big game populations elsewhere (northwest Wyoming) and we do not want similar results in Montana. As a minimum, provide for stricter standards for wildlife habitat coordination and apply NSO for minerals development on winter ranges.	Closing big game winter range to leasing is analyzed in Alternative B of the Proposed RMP/Final EIS. In Chapter 4, Environmental Consequences, under Fluid Minerals, Impacts Under Alternative E (Preferred Alternative), 723,752 total acres have been identified as having a timing stipulation for future oil and gas leasing in big game winter range.	No
0141-13	OHV Use and Travel and Transpor-tation Mgmt	Regarding travel management, more control of motorized use in the RMP is needed to reduce the displacement of big game to adjacent private lands where there is more security from motorized disturbance. Displacement of big game often results in animals leaving public lands during the hunting season resulting in harboring of wildlife on private lands. As a result, there is a reduction in both big game harvest and quality of hunting experience for those of us who hunt public lands. Plan direction should reduce road density as well as create significant large blocks of BLM land where motorized use is prohibited or greatly controlled.	This topic is discussed in Chapter 4, Wildlife, Impacts Common to All Alternatives, under OHV Use and Travel and Transportation Management.	No
0141-14	Recreation	We would like to comment on public access to isolated BLM parcels and related commercial outfitting on public lands. Many of our members hunt public lands and are concerned about competition from commercial outfitters. There is an increasing trend for private lands to be leased to commercial outfitters for hunting privileges. As a result, these private lands are no longer available to non-guided hunters making competition for hunting on public lands even greater. Therefore, we do not believe that outfitters in these situations are providing for a real public need and oppose the BLM issuing any additional commercial outfitting permits on BLM lands.	This topic is discussed in Chapter 3, Recreation under Special Recreation Permits. The text in this section has been clarified in the Proposed RMP/Final EIS in response to this comment.	No
0142-06	Wildlife-Greater Sage-Grouse	The BLM also states that the agency has a few years time to finalize the sage- grouse conservation measures to assist in averting an ESA listing for sage-grouse. As BLM is	No final document has been drafted by the Governor's Advisory Council; therefore, it cannot be incorporated into the HiLine RMP.	No

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		aware, the State of Montana has formed a Greater Sage-grouse Advisory Council to develop conservation measures by January 2014 to be enacted into law for protection of the sage-grouse and its habitat in Montana. Montana-Dakota recommends the BLM not finalize its sage-grouse conservation measures until the agency can review What the State of Montana develops, and adopt the same conservation measures that the Montana Greater Sage-grouse Advisory Council finalizes in order to maintain as much consistency with requirements for electric and gas distribution and transmission line as possible. The Montana conservation measures are being developed for the same purpose as BLM, to provide adequate protection of the species and to avert a final listing decision from USFWS. Applying the same conservation measures will be much more efficient for industry to manage and implement.		
0142-07	Wildlife-Greater Sage-Grouse	Montana-Dakota is concerned that the BLM did not review scientific literature that has found lesser impacts from power lines on sage grouse than some have believed. Consequently, there is concern with the preferred alternative which includes stringent conservation measures that appear to be based more on modeling of theories rather than scientifically rigorous and peer-reviewed research. Montana-Dakota recommends the BLM adopt the conservation measures being developed by the Montana Greater Sage grouse Advisory Council, or consider applying the sage-grouse BMPs that are being developed together between APLIC and wildlife agencies to serve as appropriate conservation measures for sage-grouse issues related to electric utility facilities.	No final document has been drafted by the Governor's Advisory Council; therefore, it cannot be incorporated into the HiLine RMP.	No
0142-08	Lands and Realty	Montana-Dakota recommends that the BLM not require the removal or undergrounding of electric distribution or transmission lines for restoration considerations in priority conservation areas or in areas proposed for restoration due to the significant cost for underground installation and the cost and complexity involved with establishing a new route for this infrastructure. It is recommended that the BLM work With utilities on a case-by-case basis to address potential impacts or concerns from this infrastructure to sage-grouse in areas identified for restoration and consider BMPs other than removal or undergrounding. Montana-Dakota believes this approach is appropriate since electric transmission and	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: "Requests for land use authorizations (rights-of-way, leases or permits) would be analyzed and mitigation measures applied on a case-by-case basis through the environmental review process. Terms and conditions for rights-of-way, corridors, and development areas (oil and gas) would incorporate applicable BMPs, current professional practice, and recent scientific findings. All rights-of-way would comply with Streamside Management Zone restrictions and guidelines where applicable. In accordance with current policy, land use authorizations	No

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		distribution line infrastructure has a small footprint and has not resulted in significant direct displacement of sagebrush habitat.	would not be issued for uses which involve the disposal or storage of materials which could contaminate the land (e.g., hazardous waste disposal sites, landfills, rifle ranges, etc.)." Requests for renewal, assignments, or amendments to existing rights-of-ways, leases, and permits would be analyzed in the same fashion.	
0142-09	Lands and Realty	Existing leases for electric and gas distribution and transmission that are currently located in priority areas of conservation as well as areas identified for restoration, should be allowed to be renewed due to the potential impact any lease expiration would have by requiring a costly reroute of existing gas or electric lines, substations, and gas border stations and may not necessarily achieve greater protection for sage-grouse. Existing surface occupancy of facilities should be allowed due to the cost of relocating facilities. Montana-Dakota believes BLM and utilities can work together on rebuilding projects and develop conservation measures if necessary on a case-by-case basis.	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: "Requests for land use authorizations (rights-of-way, leases or permits) would be analyzed and mitigation measures applied on a case-by-case basis through the environmental review process. Terms and conditions for rights-of-way, corridors, and development areas (oil and gas) would incorporate applicable BMPs, current professional practice, and recent scientific findings. All rights-of-way would comply with Streamside Management Zone restrictions and guidelines where applicable. In accordance with current policy, land use authorizations would not be issued for uses which involve the disposal or storage of materials which could contaminate the land (e.g., hazardous waste disposal sites, landfills, rifle ranges, etc.)." Requests for renewal, assignments, or amendments to existing rights-of-ways, leases, and permits would be analyzed in the same fashion. Also see Chapter 2, Fluid Minerals, Decisions Common to All Alternatives, which includes the following statement: "New surface use stipulations (including TLS, CSU, and NSO) cannot be applied to existing oil and gas leases or other existing valid use authorizations such as rights-of-way."	No
0145-01	FLPMA	The preferred alternative should not be adopted with respect to the Sweet Grass Hills Withdrawal because the Secretary of the Interior does not have the authority to extend the withdrawal. First, the extension would perpetuate an indefinite withdrawal of the area, in violation of Congressional intent. Secondly, even if the Secretary has the authority to extend the withdrawal, the proposed extension does not meet the criteria for an extension laid out in the Federal Land and Policy Management Act ("FLPMA").	The Sweet Grass Hills Traditional Cultural Property is currently withdrawn from locatable mineral entry under the Mining Law until 2017. Alternative E (Preferred Alternative) in the HiLine RMP/EIS recommends the Sweet Grass Hills withdrawal be continued. Prior to expiration of the Sweet Grass Hills withdrawal on April 9, 2017, the BLM would submit an application to the Secretary of the Interior for approval to consider extending the withdrawal pursuant to Section 204 of FLPMA. This extension process would include opportunity for public involvement by notifications in the newspaper and in the Federal Register. A	No

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			withdrawal extension may not be made for a period longer than the length of the original withdrawal period, which for the Sweet Grass Hills is 20 years. There is no limit on the number of times a withdrawal may be extended, if warranted.	
0145-02	FLPMA	The legislative history shows that Congress was especially concerned with indefinite withdrawals of public lands. The BLM is proposing a twenty-year extension of the withdrawal of the Sweet Grass Hills Area for the exact same reasons as the previous withdrawal. Furthermore, the language used in the Draft RMP and EIS indicates that the BLM's reasoning behind the withdrawal will not change in the next twenty years when the withdrawal is once again up for reconsideration. As a result, the BLM is abusing its limited authority under FLPMA by effectively withdrawing federal land for an indefinite period. Therefore, the BLM should reconsider the preferred alternative in the RMP. An indefinite withdrawal of the area is not within the Secretary of the Interior's authority.	The Sweet Grass Hills Traditional Cultural Property is currently withdrawn from locatable mineral entry under the Mining Law until 2017. Alternative E (Preferred Alternative) in the HiLine RMP/EIS recommends the Sweet Grass Hills withdrawal be continued. Prior to expiration of the Sweet Grass Hills withdrawal on April 9, 2017, the BLM would submit an application to the Secretary of the Interior for approval to consider extending the withdrawal pursuant to Section 204 of FLPMA. This extension process would include opportunity for public involvement by notifications in the newspaper and in the Federal Register. A withdrawal extension may not be made for a period longer than the length of the original withdrawal period, which for the Sweet Grass Hills is 20 years. There is no limit on the number of times a withdrawal may be extended, if warranted.	No
0145-03	FLPMA	FLPMA provides that a withdrawal can be extended "only if the Secretary determines that the purpose for which the withdrawal was first made requires the extension." 43 U.S.C. § 1714(f). For the Sweet Grass Hills Area, the original purported purposes of the withdrawal are no longer applicable and, thus, the withdrawal cannot be extended.	The relevance and importance criteria for the Sweet Grass Hills ACEC are presented in Appendix K. The text in Chapter 2, Special Designations, Sweet Grass Hills ACEC under Decisions Common to All Alternatives and Alternative E has been changed to remove the reference to peregrine falcons and seasonally important elk and deer habitat. The recommendation for a 20-year extension to the solid mineral withdrawal remains relevant and valid. The Sweet Grass Hills ACEC is included in the Sweet Grass Hills Traditional Cultural property (TCP). As described below, the BLM is recommending a 20-year extension of the current withdrawal to protect the entire Sweet Grass Hills TCP which includes 19,671 acres of federal minerals. The Sweet Grass Hills Traditional Cultural Property is currently withdrawn from locatable mineral entry under the Mining Law until 2017. Alternative E (Preferred Alternative) in the HiLine RMP/EIS recommends the Sweet Grass Hills withdrawal be continued. Prior to expiration of the Sweet Grass Hills withdrawal on April 9, 2017, the BLM would submit an application to the Secretary of the Interior for approval to consider	No

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			extending the withdrawal pursuant to Section 204 of FLPMA. This extension process would include opportunity for public involvement by notifications in the newspaper and in the Federal Register. A withdrawal extension may not be made for a period longer than the length of the original withdrawal period, which for the Sweet Grass Hills is 20 years. There is no limit on the number of times a withdrawal may be extended, if warranted.	
0145-04	FLPMA	The Draft RMP and EIS lists four main purposes of the proposed withdrawal: preserve areas of traditional importance to Native Americans, protect aquifers in the area that provide potable water to local residents, preserve high value habitat for peregrine falcons, and protect seasonally important elk and deer habitat. Draft RMP and EIS at 112. Although these are the same reasons that were used to justify the previous twenty-year withdrawal in the area, the Draft RMP and EIS fails to address how circumstances have changed since the withdrawal went into effect. These changed circumstances render the purported purposes of the withdrawal irrelevant.	The relevance and importance criteria for the Sweet Grass Hills ACEC are presented in Appendix K. The text in Chapter 2, Special Designations, Sweet Grass Hills ACEC under Decisions Common to All Alternatives and Alternative E has been changed to remove the reference to peregrine falcons and seasonally important elk and deer habitat. The recommendation for a 20-year extension to the solid mineral withdrawal remains relevant and valid.	Yes
0145-05	Cultural Resources	The management of the Sweet Grass Hills area over the past sixteen years also demonstrates that the area has little to no "cultural significance" which justifies a withdrawal. The 1996 Final Amendment EIS only used vague terms when describing the cultural significance of the site. Only one site in the entire Area was identified as having significance to Native Americans: the Devil's Chimney Cave. The mineral estate underlying the Devil's Chimney Cave is owned by MRJV, however, meaning that a withdrawal adds no additional protection to the area. Furthermore, the Final EIS for the 1996 Amendment provided that "the specific details of 'why' the Sweet Grass Hills are spiritually important may be inappropriate for public discussion." 1996 Final Amendment/EIS at 25. The current Draft RMP and EIS also uses the word "spiritual," several times, indicating a non-secular purpose for the withdrawal.	See Chapter 2, Cultural Resources, Decisions Common to All Alternatives, National Register of Historic Places, Use allocation Categories, Traditional Use. Also see Chapter 3, Cultural Resources, Cultural Resources of Special Importance or Concern, Traditional Cultural Properties.	No
0145-06	Wildlife-General	Secondly, the argument that a withdrawal is needed to preserve high value habitat for peregrine falcons has no support in the Draft RMP and EIS. The document provides that "[n]o peregrines are currently known to use the Sweet Grass Hills." Draft RMP and EIS at 352. Furthermore, although the Sweet Grass Hills Area may be suitable for	The text referring to peregrine falcons in Chapter 3, Special Designations, Sweet Grass Hills ACEC, (ninth and tenth paragraphs) has been deleted from the Proposed RMP/Final EIS.	Yes

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		peregrine falcon introduction, there is no reason to withdrawal the Sweet Grass Hills for that purpose. The peregrine falcon is no longer an endangered species and has been recovered. 64 Fed. Reg. 46543 (Aug. 25, 1999); 71 Fed. Reg. 60563 (Oct. 13, 2006). The BLM has no basis for extending the withdrawal in order to introduce a species that is thriving. This argument is further supported by the fact that the BLM has not attempted to reintroduce the falcon in the past 16 years. The withdrawal has not led to the introduction of the peregrine falcon, and there is no reason to believe that an extension of the withdrawal will change that fact.		
0145-07	Water Resources	Third, a withdrawal will not provide any extra protection to water quality in the area. Both the federal and state governments have various laws intended to protect the water quality of the area. For example, any future mining operations would be governed by the Montana Water Quality Act, the Federal Safe Drinking Water Act, and the Clean Water Act. These water quality standards are revised frequently in order to ensure that water quality is preserved. See Montana Department of Environmental Quality, Water Quality Standards and Classifications, available at http://www.deq.mt.gov/wqinfo/standards/default.mcpx (showing that water quality standards were revised in October 2012). Furthermore, BLM regulations require that all mining activities comply with both the CWA and state water quality standards. 43 C.F.R. § 3809.420(b)(5) (2013) ("[a]ll operators shall comply with applicable Federal and State water quality standards"). Thus, the pre-existing statutory and regulatory regimes guarantee that water quality would not be affected by any mining activities. Therefore, an extension of the withdrawal of the Sweet Grass Hills is unnecessary for the purposes of protecting water quality. This argument is supported by the Draft RMP and EIS and past BLM documents. The Draft RMP and EIS provides that "[s]urface and ground water quality will be maintained to state and federal water quality standards," that "[p]rojects will be reviewed on a case-by-case basis to minimize impacts to water quality," and that "the BLM will participate in the development, implementation, and monitoring of water quality restoration plans and total maximum	Refer to Chapter 4, Water Resources, Impacts Common to All Alternatives, Solid Minerals. Effects of mineral extraction to water resources begin with heightened erosion potential associated with access roads. The laws and acts in place that the operator would have to adhere to upon initiation of planning and operation efforts would serve to uphold water quality standards; however, the BLM proposes to request renewal of the withdrawal in order to reduce the potential for water quality degradation (big or small) and alteration of the natural hydrologic flow regime.	No

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		daily load in watershed planning areas in which the BLM is a significant land manager or water user." Draft RMP and EIS at 143. The BLM oversees other operations in the area to protect water quality and any future mining operations would not be managed differently.		
0145-09	FLPMA	In passing FLPMA, Congress also continued the policy of the General Mining Law by requiring public lands to be managed "in a manner which recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands including implementation of the [MMPA] as it pertains to the public lands . . . ." 43 U.S.C. § 1701(a)(12) (emphasis added). As demonstrated above, an extension of the Sweet Grass Hills withdrawal would not achieve the purported goals of the withdrawal. On the other hand, an extension of the withdrawal would greatly hinder the development of minerals in the Sweet Grass Hills Area. As a result, the preferred alternative would needlessly prevent multiple use of the Sweet Grass Hills area, in violation of FLPMA.	The BLM's multiple-use and sustained yield mission and the BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies are addressed in Chapter 1 of the Proposed RMP/Final EIS.	No
0145-10	Economics	The Draft RMP and EIS does not adequately address the economic effects of the proposed alternatives. Although Chapter 4 of the document addresses economic effects of the different alternatives, and addresses the effects of some solid mineral production, it does not address how an extension of the Sweet Grass Hills Area withdrawal would affect the local economy. The document analyzes the economic effects of sand and gravel production in other areas of the management area, Draft RMP and EIS at 457, but fails to assess the economic effects of extending the withdrawal in the Sweet Grass Hills Area. The Draft RMP and EIS makes vague statements about the consequences of Alternative A, which would allow the withdrawal to expire in 2017, but fails to analyze the benefits of that alternative. See Draft RMP and EIS at 450 (stating that Alternative A "could be a direct adverse impact to a sacred spiritual area").	This topic is discussed in Chapter 4 of the Proposed RMP/Final EIS. The referenced text from page 450 in the Draft RMP/EIS refers to Alternative D rather than Alternative A as the commenter suggested and is presented under Cultural Resources. Additional discussion of the effects of not extending the withdrawal in the Sweet Grass Hills in Alternatives A and D, including some benefits, is presented under the Solid Minerals and Economics sections of Chapter 4.	No
0145-11	Economics	As MRJV commented previously, there is high gold potential in the Sweet Grass Hill Area. Prior to 1996, several major and junior companies conducted exploration in the 1980s and early 1990s including that of MRJV at East Butte where MRJV proposed drilling its gold deposit. As indicated earlier, mineral development could result in 50 to	Under the Sweet Grass Hills RMP Amendment to the West HiLine RMP, the Sweet Grass Hills area was identified as being of critical environmental concern. In addition, the area has been withdrawn from mineral entry. The area continues to be withdrawn from mineral entry.	No

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		200 direct jobs, and possible several hundred indirect jobs, for the surrounding communities. See Attachment II at 41-42; Exhibits 11, 12, and 13.[7] As demonstrated above, the Draft RMP and EIS fail to address the positive impacts of letting the withdrawal expire. Therefore, the BLM should include a cost-benefit analysis of the alternatives, which will show the desirability of letting the withdrawal expire. [7] These estimates were based on the 1995 gold price of $400 per ounce, which is significantly lower than the price of gold today. Today, the price of gold is estimated to be between $1400 and $1500 per ounce. See CNN Money, Commodities, available at http://money.cnn.com/data/commodities/. Therefore, the previous estimated benefits are conservative compared to the present situation.	From a solid minerals perspective, the acres of surface disturbance resulting from mineral activity within the cited areas of development potential are described for each alternative. This analysis takes into account the way in which any withdrawal may result in greater or lesser realization of the RFD. Commodity markets, more specifically gold and silver prices, are discussed in Appendix P, Locatable Mineral Resources Reasonable Foreseeable Development Scenario, under Future Trends and Assumptions, Commodity Markets. This takes into account gold and silver prices from 1988 through 2009.	
0147-03	Wildlife-Greater Sage-Grouse	APLIC submits that stipulations for sage-grouse included in the BLM RMP revision should not include any mitigation requirement unless it is based on valid science, not anecdotal or casual observation, and is specific to sage-grouse (not surrogate species such as prairie chickens). APLIC encourages the BLM to apply the APLIC/agency sage-grouse BMPs, much like the BLM has for APPs, to serve as the current best practices for sage-grouse issues related to electric utility facilities.	The topic is discussed in Chapter 2, Wildlife, Decisions Common to All Alternatives, General Wildlife, and includes the following paragraph: "Powerlines and substations constructed on BLM land would comply with the most current raptor protection standards (currently Reducing Avian Collisions with Power Lines: The State of the Art 2012 (APLIC 2012). Existing powerlines that have been identified as having problems with collision or electrocution of wildlife and do not meet APLIC standards would be corrected and modified to prevent future wildlife collision threats or electrocution..." The APLIC citation has been updated from 2006 to 2012.	Yes
0147-06	Wildlife-Greater Sage-Grouse	As BLM is aware, the State of Montana has formed a Greater Sage-grouse Advisory Council to develop conservation measures by January 2014 to be enacted into law for protection of the sage-grouse and its habitat in Montana. APLIC recommends the BLM adopt the same conservation measures that the Montana Greater Sage-grouse Advisory Council is developing in order to maintain as much consistency with requirements for electric distribution and transmission line as possible. The Montana conservation measures are expected to be developed for adequate protection of the species and to avert a final listing decision from USFWS. Applying the same conservation measures will avoid much confusion and will be much more efficient for industry to manage and implement.	No final document has been drafted by the Governor's Advisory Council; therefore, it cannot be incorporated into the HiLine RMP.	No

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0150-01	Fluid Minerals	Please set up a process that allows the public to comment any time the BLM makes exceptions or modifications to the No Surface Occupancy provisions in Protection Priority Areas and Areas of Critical Environmental Concern. The public is expecting these areas to protect sensitive wildlife and other natural resources; ensuring that we have the right to comment will help the BLM make tough choices to better protect these important resources.	• The public has the opportunity to be involved in the development of waivers, exceptions, and modifications (WEMs) during the RMP process. • The public has the opportunity to be involved in the application of lease stipulations during leasing environmental assessment (EA) reviews. • At the development stage, the public has the opportunity to be involved during NEPA reviews. NEPA logs are posted on the Montana/Dakotas BLM web site for public viewing and NOS/APDs are also posted for 30 days. • WEMs are applied using the best available information/data during the NEPA review and at the discretion of the Authorized Officer (AO). This process is also done in consultation with other Federal agencies, if needed (FWP, FWS, USFS, BOR, etc.)	No
0150-02	Fluid Minerals	PPA protections should be strengthened. All oil and gas leases within the Grassland Bird/Greater Sage-Grouse Protection Priority Area should be allowed to expire, with no ability to renew the lease. This will ensure that this critical habitat has long-term protection	Refer to Chapter 2, Table 2.8 Oil and Gas Lease Stipulations by Alternative. The No Surface Occupancy stipulation in the Preferred Alternative for the Priority Areas would provide the same long-term protection of the critical habitat.	No
0150-03	Special Designa-tions-ACECs	Kevin Rim ACEC should be supported with maximum protection to nesting raptors. New communication facilities should NOT be located within the ACEC, even at the existing communication tower site. Instead, any new communication facilities should be located on BLM outside the ACEC.	This topic is discussed in Chapter 2, Special Designations, Kevin Rim ACEC, and Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives. Additional facilities would be placed at the existing communication site to minimize impacts to other public lands in the area.	No
0150-04	Wildlife-General	Manage the 7-km Complex to better protect wildlife. The BLM's RMP should include management activities in the 7 km Complex area that will maintain and enhance the black-tailed prairie dog populations (Mountain Plover are dependent on prairie dog towns). Management actions should include a program to manage and mitigate Sylvatic plague, which can eradicate prairie dogs and ferrets; continuing to exclude surface disturbances; regulating recreational prairie dog shooting in a manner that protects the dog towns in this area; monitoring and preventing the unauthorized poisoning of prairie dogs in this area; and working to consolidate BLM parcels within this area.	The 7km Complex ACEC does not meet Relevance and Importance. Please refer the Appendix K. Stipulations in Alternative E would protect black-tailed prairie dog habitat, as well as associated species such as black-footed ferrets, burrowing owls and mountain plovers. Please refer to Chapter 4, Impacts under Alternative E (Preferred Alternative).	No
0150-05	Wilderness Character-istics	I would like the BLM to manage the intact prairie grasslands and intact sagebrush grasslands found on pages 374-375 as "lands with wilderness characteristics." Few areas in the Great Plains are so remote and	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes

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		pristine. Protection of these areas would protect these sensitive habitats for generations to come.		
0154-01	Wildlife-Greater Sage-Grouse	While many of the provisions in these PPAs will assist with the protection of these birds [Greater Sage grouse and Sprague's pipits], protection efforts should be improved as follows: • Current oil and gas leases within the North Valley County PPA should be allowed to expire, with no renewal possible. This will add greater protection to this remote area, which is critical for both grassland birds and sage-grouse. In addition, if the BLM can apply a No Surface Occupancy provision to these current leases, it should. Just look to neighboring southern Alberta, where sage-grouse are almost extinct, to see how oil and gas surface activity can decimate the habitat AND populations of grassland birds! They wish they had the chance to do things differently – we do here. • Exceptions to the No Surface Occupancy (NSO) stipulation should be reviewed by the public near sage-grouse leks. Any time the BLM authorizes NSO stipulations in areas less than 4 miles from a sage-grouse lek, the public should have a chance to comment on the proposal and a site-specific NEPA analysis should be conducted. In addition, the BLM should issue an annual summary of all NSO stipulations authorized that are within less than 4 miles of a sage-grouse lek. • Increase the size of both PPAs to help protect migration corridors between the two areas. A 2013 study has indicated that many sage-grouse summering in North Valley County migrate to areas south of the Milk River and along the Missouri River to spend the winter. The BLM should increase protections for this migratory corridor. • Include black-tailed prairie dog towns in the PPAs: The Hi-Line District hosts the northernmost population of threatened mountain plovers. It is estimated that nearly 10% of the species' continental population breeds in this area. More than 99% of the nest locations in Phillips County, including those that are mapped in this Draft RMP, are on active prairie dog colonies. Therefore, it is well-documented that the persistence of prairie dogs in this region is the most important factor for maintaining a viable mountain plover	Refer to Chapter 2, Table 2.8 Oil and Gas Lease Stipulations by Alternative. The No Surface Occupancy stipulation under Alternative E (Preferred Alternative) for the Grassland Bird/Greater Sage-Grouse Priority Areas and the Greater Sage-Grouse Protection Priority Area would provide the same long-term protection of the critical habitat. Also refer to Appendix E.4, Oil and Gas Lease Stipulations.	No

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		population. Because of the strong link between mountain plovers and prairie dogs in this region, the Protection Priority Areas must also include prairie dog colonies.		
0154-02	Special Designa-tions-ACECs	Kevin Rim Important Bird Area (IBA) deserves the highest level of protection as an Area of Critical Environmental Concern (ACEC). Kevin Rim ACEC is the premier raptor nesting area in Montana, and should be supported with maximum protection to nesting raptors (No Surface Occupancy for oil and gas leasing; exclusion area for wind development; and the area should be closed to solid mineral leasing). Please implement this change to the Preferred Alternative: new communication facilities should NOT be located within the ACEC, even at the existing communication tower site. New communication facilities should be located on BLM outside the ACEC. With the 126-tower Rim Rock Wind Farm adjacent to this ACEC, it makes sense to reduce the number of tall structures in this area on public land--and not erect more communication towers.	This topic is discussed in Chapter 2, Special Designations, Kevin Rim ACEC, and Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives. Additional facilities would be placed at the existing communication site to minimize impacts to other public lands in the area.	No
0154-03	Wildlife-General	The current "7 km Complex" area needs to be managed for greater protection of black-footed ferrets, black-tailed prairie dogs, and Mountain Plover. The BLM's current "7 km Complex" ACEC in south Phillips County should be retained. This is a critical area for prairie dogs and Mountain Plover. In addition, it is one of 19 places in North American that had been designated as a black-footed ferret reintroduction site. If the ACEC is not retained by the BLM, at a minimum this area should have increased management and protection of habitat for black-footed ferrets, black-tailed prairie dogs, and Mountain Plover.	The 7km Complex ACEC does not meet Relevance and Importance. Please refer the Appendix K. Habitat protection for black-footed ferrets, black-tailed prairie dogs and mountain plovers is discussed in Chapter 2, Special Status Species.	No
0154-04	Wildlife-General	Specifically, the BLM's RMP should include management activities in the 7 km Complex area that will maintain and enhance the black-tailed prairie dog populations. Management actions should include a program to manage and mitigate Sylvatic plague, which can eradicate prairie dogs and ferrets; continuing to exclude surface disturbances; regulating recreational prairie dog shooting in a manner that protects the dog towns in this area; monitoring and preventing the unauthorized poisoning of prairie dogs in this area; and working to consolidate BLM parcels within this area.	The 7km Complex ACEC does not meet Relevance and Importance. Please refer the Appendix K. Stipulations in Alternative E would protect black-tailed prairie dog habitat, as well as associated species such as black-footed ferrets, burrowing owls and mountain plovers. Please refer to Chapter 4, Impacts under Alternative E (Preferred Alternative).	No
0154-05	Wilderness Character-istics	Please increase the number of acres of lands managed for wilderness characteristics to include all of the 26 areas. These grasslands	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified	Yes

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		are some of the last intact native prairie in North America! It is only 380,000 acres which is a small part of this plan's scope. At a minimum, the BLM should manage the intact prairie grasslands and intact sagebrush grasslands found on pages 374-375 as "lands with wilderness characteristics." Protecting the wilderness qualities will also protect ecological integrity and the associated declining prairie wildlife.	in the Proposed RMP/Final EIS in response to this comment.	
0154-06	Wilderness Character-istics	Many fossils and cultural resources are evident throughout the area [Lamere/Lambing Coulee]. The unit provides mule deer and pronghorn winter range as well as important nesting habitat for waterfowl and other grassland birds. Sharp-tailed grouse dancing grounds and greater sage-grouse strutting grounds can also be found in the area. (Lamere/Lambing Coulee inventory, Form 2, p. 3) I would like to see this area protected as the rest of the areas with wilderness character will be.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0154-07	Fluid Minerals	Add conditions of approval that protect the prairie before allowing drilling. Please add conditions of approval that companies must comply with before they can drill. BLM has the authority to impose conditions on applications for permits to drill on existing leases, such as the leases held on the prairie backcountry areas just north of the Monument. I urge BLM to use its authority to do so.	Conditions of approval are developed for site-specific projects on lands that already have authorized oil and gas leases. Appendix E.2 Oil and Gas Best Management Practices (General Conditions of Approval) highlights some of the more typical Conditions of Approval.	No
0157-02	OHV Use and Travel and Transpor-tation Mgmt	On page xxvii, you would not allow game retrieval off road in limited or closed areas even for people in possession of a MT Disabled Hunting license unless designated through travel management planning. Some of that travel management planning will take several years to complete, so in the interim, disabled hunters will not be able to retrieve game off road. In 2003, Montana BLM issued a Record of Decision (ROD) on an OHV EIS. If my memory serves me, that ROD did provide for off road game retrieval for people in possession of the Disabled Hunting license. If I am correct, I wonder what information you have that would necessitate this change. Perhaps your experience since 2003 with administering exceptions for disabled hunters has demonstrated that the exceptions are difficult to enforce or are creating problems.	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, under Decisions Common to All Alternatives, Off-Highway Vehicle Use. Chapter 3 has been modified to clarify this topic.	Yes
0157-03	Solid Minerals	I support your preferred management for the Sweet Grass Hills. It is imperative that you conduct the required withdrawal review and get a new withdrawal in place before the existing withdrawal expires so there is no	See Solid Minerals, Locatable, Alternative E (Preferred Alternative), where the BLM recommends a 20-year extension of the Sweet Grass Hills TCP withdrawal.	No

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		gap during which someone could locate new mining claims in the area.		
0157-04	OHV Use and Travel and Transpor-tation Mgmt	I am concerned about allowing people to drive off road for up to 300 feet to locate a camp. These camps tend to get used over and over during hunting season, and they may get used from season to season. So over time, a new user-created road is established. I think it is imperative that you have a complete road inventory of what you define as existing roads before you ever sign a ROD. That way, you will have a baseline. An existing road should be something that exists on the land now. Any roads created by users in the future should not become part of your "existing road" inventory.	This topic is discussed in Chapter 3, OHV Use and Travel and Transportation Management, under Decisions Common to All Alternatives, Off-Highway Vehicle Use. The 2003 OHV Record of Decision authorizes motorized wheeled cross-country travel to a campsite within 300 feet of roads and trails; however, site selection must be completed by nonmotorized means and accessed by the most direct route causing the least damage.	No
0157-05	OHV Use and Travel and Transpor-tation Mgmt	So-called "moderate" priority areas for travel management planning will be done over the life of the RMP. Because the RMP has a shelf life of at least 20 years, that doesn't seem like you are putting much of a priority on getting this work done. It would be desirable to establish some sort of schedule to demonstrate that you intend to accomplish this work.	Travel planning would be done in accordance with BLM Handbook 8342 with highest priority given to travel planning areas containing critical resources. Each travel planning area within the HiLine District would be managed according to the 2003 OHV Record of Decision until comprehensive travel and transportation management planning can be completed for that area.	No
0158-01	NEPA	In regard to mitigation, the RMP should incorporate the recently released Draft Regional Mitigation Manual Section 1794. The RMP should identify the level of potential future infrastructure development, specifically energy development, and also identify the areas and actions for Where and how mitigation investments will be utilized. In identifying these areas, BLM should delineate the actions to be taken to ensure mitigation investments in these areas are additional and durable over the life of the impact they are intended to address, whether on public or private lands.	The BLM issued this manual section in draft format as interim policy. Montana BLM will provide its "lessons learned and recommendations for enhancing this manual section" to the Assistant Director for Minerals and Realty Management as requested in Instruction Memorandum No. 2013-142. Additional discussions of mitigation addressing specific resources are included in Appendices C, E.2, M.1 and M.4.	No
0159-01	Cultural Resources	We ask that Surface Disturbance should be prohibited within either five miles or the visual horizon (whichever is closer) of the historic trail corridor. Because of the open terrain and few trees, we feel ¼-mile buffer from the trail is insufficient. We would also request that the Authorized BLM Officer would alert Nez Perce National Historical Park when new Surface Disturbance exemptions, waivers, or modifications to the buffer zone are proposed.	The Nez Perce National Historic Trail currently terminates at the location of the final event, the Battle of the Bear Paw Mountains located south of Chinook, Montana. If and when additional segments are added to the trail, those segments would be addressed at that time through the U.S. Forest Service comprehensive plan. See Chapter 2, Special Designations, National Historic Trails.	No
0171-01	Special Designa-tions-Wild and Scenic Rivers	Please protect the entire Marias River in the monument as wild and scenic and the additional half mile of the river upstream of the monument.	This topic is discussed in Chapter 2, Special Designations, Wild and Scenic Rivers. The impacts of designating this segment as a Wild and Scenic River are analyzed in Chapter 4 under Alternative B. The	No

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			inventory and designation processes are described in Appendix L, Wild and Scenic Rivers Report, Eligibility and Suitability Determinations.	
0174-01	Cultural Resources	Introduction, Consistency with National Trails System Act (P.L. 90-543, as amended through P.L. 111-11, March 30, 2009)(also found in the United States Code Volume 16, Sections 121-1251). The HiLine Planning Area contains portions of two national historic trails. The two congressionally designated historic trails include the trail tread, their associated sites, historic route segments, historic corridor, associated side trails and auto tour routes. The following portion of the law directions our management for these two trails: SEC. 7. (16USC1246) (c) National scenic or historic trails may contain campsites, shelters, and related public-use facilities. Other uses along the trail, which will not substantially interfere with the nature and purposes of the trail, may be permitted by the Secretary charged with the administration of the trails. Reasonable efforts shall be made to avoid activities incompatible with the purposes for which such trails were established…. Where a national historic trail follows existing public roads, developed rights-of-way or waterways, and similar features of man's non historically related development, approximating the original location of a historic route, such segments may be marked to facilitate retracement of the historic route, and where a national historic trail parallels an existing public road, such road may be marked to commemorate the historic route. Other uses along the historic trails and the Continental Divide National Scenic Trail, which will not substantially interfere with the nature and purposes of the trail, and which, at the time of designation, are allowed by administrative regulations, including the use of motorized vehicles, shall be permitted by the Secretary charged with administration.	Auto Tour routes associated with the Nez Perce National Historic Trail that bisect the BLM HiLine District are the responsibility of the nearest federal agency, in this case the National Park Service located in Chinook, Montana.	No
0174-04	OHV Use and Travel and Transpor-tation Mgmt	xxiv & page 71. Off-Highway Vehicle Use and Travel and Transportation Management, Objectives. Please add: The NPNHT is a non-motorized trail by Congressional designation except for auto tours, crossing, and approve motorized use dating prior to the enacting legislation.	This topic is discussed in Chapters 2 and 3 under Special Designations, National Historic Trails.	No
0174-05	Recreation	xxx & page 88, Recreation Management	This topic is discussed in Chapters 2 and 3	No

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		Areas, Decisions common to all alternatives. Please consider designating the NPNHT Corridor(s) as a designated and mapped special recreation management area (SRMA) which follows the NTSA and 2012 BLM's Manual 6250 direction to protect high potential historic sites and high potential route segments.	under National Historic Trails.	
0174-06	Lands and Realty	xxxii & page 97, Renewable Energy Resources, Solar. Add a clause: The NPNHT corridor(s) will be excluded from solar energy development.	See Chapter 2, Renewable Energy Resources, Decisions Common to All Alternatives, Solar.	No
0174-07	Cultural Resources	xxxix & page 127, Special Designations, National Historic Trails. Edit last sentence to reflect the following information; NTSA Public Law (P.L.) 90-543 was the original Act and at this time there are amendments through P.L. 111-11 which allowed the NPNHT to now acquire land and had specific new requirements as to all trail Comprehensive Management Plans and revisions. The NPNHT was established in 1986 NTSA amendment P.L. 99- 445 however the trail is subject to all amendments thereafter. Nez Perce National Historic Trail Staff comments to HiLine Resource Management Plan June 10, 2013 Julie Molzahn, CMP Coordinator NPNHT and the Lewis and Clark NHT both have designated Auto Tour routes that cross the HiLine District and are to be treated with the same management specifications as the trails' themselves. The auto tours are not mentioned anywhere in this document. Both the NPNHT and Lewis and Clark NHT have existing Comprehensive Management Plans that must be followed. The NPNHT's plan was completed in 1990 and the Lewis and Clark's was completed in 1982. The NPNHT is undergoing a revision of the 1990 and the Lewis and Clark NHT just completed a Foundation document to start their revision process. Suggest the addition of the following sentence: The BLM will manage the segments of each National Historic Trail in a manner consistent with the Trail's comprehensive management plan and any revisions or additional NTSA required detailed plans (such as acquisition or interpretive plans). National Historic Trails can have associated sites and side trails. These need to be acknowledged has they may not be within	See Chapter 2, Cultural Resources, Decisions Commons to All Alternatives and Chapter 2, Special Designations, National Historic Trails.	No

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		the trail corridors. The old Fort Belknap has been brought up as a possible associated site and the trail(s) from Bear Paw Battlefield to Canada are a potential side trails or future revisions for inclusion to the NPNHT.		
0174-08	Cultural Resources	ROS Map, OHV Map, Right of Way Map, Visual Map. Please add the NPNHT and Lewis and Clark NHT to the maps for reference and include in your general map. The Auto Tours should be added to your transportation map and recreation map.	Map 2.10, located at the conclusion of Chapter 2, reflects National Historic Trail routes. Auto Tour routes associated with the Nez Perce National Historic Trail that bisect the BLM HiLine District are the responsibility of the nearest federal agency, which in this case is the National Park Service located in Chinook, Montana.	No
0174-09	Cultural Resources	Page 25-26, Cultural Resources, Objectives. The NPNHT is a congressionally designated historic trail and the potential for a national historic register status is possible. There is a need for a historic preservation protection plan for the corridor, designated high potential historic sites; • Cow Creek Camp • Ilges Skirmish • Burning of Bull Wagon • Bullwhackers Graves • Miles Butte Military Camp • Bear Paw Battlefield And the associated side trail Cow Creek Freight Road that are cited in The Nez Perce (Nee-Me-Poo) National Historic Trail Comprehensive Plan, Forest Service, Northern Region, 1990, page 26. The CMP revision will require the historic preservation plan. Oral histories have the tribes splitting up into bands after leaving Cow Creek Camp and then coming back together at the Snake Creek Camp, now known as Bear Paw Battlefield. There are at least three possible "trails" to Bear Paw with campsites along each route from the Missouri Breaks area northward. Please indicate that there is more research to be conducted here. This trail is a Cultural Landscape and please discuss it has such throughout the document. Nez Perce tribal members have informed the agencies that the Trail is a sacred site. They have requested protection for the Trail, associated sites and potential side trails including the routes into Canada be protected as such.	Management of the Nez Perce National Historic Trail is the responsibility of the U.S. Forest Service (USFS). The trail crosses approximately three miles of the identified trail corridor within the HiLine District and would be managed in concert with the USFS according to their 1990 comprehensive plan. See Chapter 2, Special Designations, National Historic Trails, Decisions Common to All Alternatives. Chapter 2 of the Proposed RMP/Final EIS under Special Designations, National Historic Trails has been expanded to clarify, by alternative, management of the Lewis and Clark National Historic Trail and the Nez Perce (Nee-Me-Poo) National Historic Trail. This information is contained in various resource sections of Chapter 2, but is now summarized in this location.	No
0174-10	Visual	Page 84-85 and page 140-141, Recreation	See Map 2.10 and Map 2.16. In Alternative	No

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	Resources	Opportunity Spectrum and Visual Resources, Objectives. The goal of a national historic trail is to protect the cultural, historic landscape in a condition that is duplicates the time period for which the trail was designated. For all three of these management tools, please designated the area in and around the trail corridor with the strongest possible management protections or stress the desired future condition in terms of the strongest protection. For ROS – primitive or at most semi-primitive and for Visual- Class I and the least Class II.	E (Preferred Alternative), the segments of the Lewis and Clark National Historic Trail that cross BLM-administered lands within the HiLine District all fall within VRM Class II. With the exception of approximately 0.5 miles, the segments of the Nez Perce National Historic Trail that cross BLM-administered lands within the HiLine District also fall within VRM Class II. Management for these segments is discussed in Chapter 2, Special Designations, National Historic Trails, Decisions Common to All Alternatives.	
0174-11	Cultural Resources	Page 263, Historic Overview, Military Posts and Indian Conflict. Please add the following to 2nd paragraph: Not all of the remaining non-treaty Nez Perce were among those who surrendered. Led by Chief White Bird, nearly 300 Nez Perce men, women, and children managed to escape the battle at Bear Paw and make their way the 40 miles into Canada where they joined Sitting Bull and the Lakota near Fort Walsh.	The change is reflected in the Proposed RMP/Final EIS.	Yes
0174-12	Lands and Realty	Page 302, Land Ownership Adjustment, Acquisition. Please add a sentence addressing the potential land acquisition for NPNHT and Lewis & Clark NHT.	See Appendix F, Land Ownership Adjustments, Acquisition Criteria.	No
0174-13	Recreation	Page 317 or Page 324, Off Highway Vehicle Use and Travel and Transportation Management, Travel and Transportation Management or Recreation. Please add a sentence acknowledging the Nez Perce National Historic Trail Auto Tour Routes including the Highway route and route from the Stafford Ferry to Bear Paw. Here is the link: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5362979.pdf.	Auto Tour routes associated with the Nez Perce National Historic Trail that bisect the BLM HiLine District are the responsibility of the nearest federal agency, in this case the National Park Service located in Chinook, Montana.	No
0174-14	Cultural Resources	Page 336, Native Americans. Please [add] these sentences: The Nez Perce (Nee-Me-Poo) National Historic Trail which commemorates the 1877 Flight of the Nez Perce from the U.S. Army ends at Bear Paw Battlefield near Chinook, Montana. The Nez Perce, Confederated Tribes of the Umatilla Reservation, and Confederated Tribes of the Colville Reservation have an interest in any actions which may affect this Trail used by their ancestors to flee the U.S. Army. Even though a large number of non-treaty Nez Perce surrendered at Bear Paw Battlefield, nearly 300 were able to flee north to Canada.	Discussion of a National Historic Trail is not appropriate for the Social section. The Trail is discussed in Chapter 2, Special Designations, National Historic Trails as well as Chapter 3, Cultural Resources and Chapter 3, Special Designations, National Historic Trails. The text regarding the Nez Perce National Historic Trail has been revised consistent with the commenter's suggestion.	Yes
0174-15	Cultural Resources	Page 354, National Historic Trails, Nez Perce National Historic Trail. Please add the	Auto Tour routes associated with the Nez Perce National Historic Trail that bisect the	No

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		following information: In 1990, The Nez Perce (Nee-Me-Poo) National Historic Trail Comprehensive Plan, was completed and guides all federal agency management for this Trail. Currently, this Comprehensive Plan is undergoing a revision to incorporate new items authorized in the National Trails System Act (as amended) including the approval for land acquisition for this Trail under P.L. 111-11 in 2009. The Trail has accompanying Auto Tours which travel both highways and back country roads within the District. In 1999 a draft interpretive plan was written for the Trail and this plan will be finalized as part of the revision process. Add to the current paragraph after the surrender: Even though a large number of non-treaty Nez Perce surrendered at Bear Paw Battlefield, nearly 300 were able to flee north to Canada.	BLM HiLine District are the responsibility of the nearest federal agency, in this case the National Park Service located in Chinook, Montana. See Chapter 2, Special Designations, National Historic Trails.	
0180-01	Solid Minerals	Our only question has to do with the management of the Little Rocky Mountains Traditional Cultural Property (TCP). We noticed that in Alternatives B, C, and D it is closed to the exploration and development of so lid leasable minerals. However, in the preferred alternative (Alternative E) a large portion is open to Solid Minerals development. We would like to further discuss the reasoning behind this decision, so that we have a better understanding of the HiLine District's management plans for the Little Rocky Mountains TCP.	Under Alternative E (Preferred Alternative), about 32,500 acres of federal minerals within the Little Rocky Mountains TCP are closed to leasable mineral development. Any development of leasable minerals in the remaining open area (about 5,400 acres) would be subject to site-specific NEPA on a case-by-case basis.	No
0181-01	FLPMA	I have serious concerns about the way the DEIS cooperated with numerous Montana local governments, including county commissions and grazing districts, under the cooperating agency status provisions in federal law and regulations. As you are aware, land management documents like this must be consistent with local government resource plans. If they are inconsistent, the DEIS must disclose and discuss any inconsistencies with local plans and laws, and discuss how these inconsistencies will be reconciled. The DEIS must evaluate the environmental consequences resulting from its conflict with local resource plans. And perhaps most importantly for this document, the DEIS must evaluate and discuss the economic impact of its proposed action, and the impact of its inconsistency with local government resource plans.	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No
0181-02	FLPMA	In this regard, numerous local governments have expressed to me that the DEIS did not	This topic is addressed in Chapter 1, Collaboration.	No

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		evaluate their resource plans, did not evaluate inconsistencies with such plans, and did not adequately analyze the economic impacts of its restrictions compared to local government resource plans. These same concerned local government leaders also feel they were surprised by many of the provisions contained within the DEIS, which were contrary to what they had reviewed in their role as cooperating local government and agency representatives. I urge you to ensure BLM officials fully utilize the cooperating agency process in good faith, with full disclosure, and with respect to the role these local citizen representatives have under federal and state law.	At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	
0183-02	Recreation	Chapter 2, Alternatives, page 74: "Before any site specific travel management planning occurs"; point 3. 'Baseline road inventory maps will be printed and made available to the general public.' We would suggest the statement be modified to read: 'Baseline road and trail inventory maps will be printed and made available to the general public.'	This change has been made in the Proposed RMP/Final EIS.	Yes
0184-01	Wilderness Character-istics	Protect wilderness characteristics on 26 areas totaling 386,000 acres compared with the preferred Alt E which protects only two areas totaling less than 11,000 acres. We request the 26 areas be managed to retain their wilderness characteristics. Close oil and gas leasing in 5 areas with wilderness characteristics.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0184-02	Cultural Resources	Direct full protection of traditional cultural properties. We request the Little Rockies and Sweetgrass Hills TCPs be protected by restricting motorized travel, and closing these entire areas to oil and gas leasing.	OHV routes will be addressed through travel management at a later date following completion of the Proposed RMP/Final EIS. See Chapter 2, Off-Highway Vehicle Use and Travel and Transportation Management, Travel Management Areas. Oil and Gas leasing within the boundaries of both the Little Rockies and Sweet Grass Hills TCPs are addressed in Chapter 2, Cultural Resources.	No
0184-04	Wildlife-Greater Sage-Grouse	We question the decision to not provide sage grouse prioritization on all potential sage grouse habitat, in light of evidence that the species is a candidate for listing as threatened. Prioritizing only those sage grouse habitats with greater than 50% BLM ownership in a 10,000 acre block diminishes the importance of BLM sage grouse habitat, even when some habitat fragmentation may or may not occur via other ownerships. We request an assessment and protection of all	As stated in Chapter 1, the BLM prepared this RMP/EIS to provide direction for managing public lands and federal minerals in northcentral Montana under the jurisdiction of the HiLine District. The scope of this planning process does not include private property, state or tribal lands, or lands managed by other federal agencies. Refer to Greater Sage-Grouse sections	No

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		sage grouse habitat in the Resource area, regardless of ownership. There are private-land leasing programs designed to protect existing sagebrush communities on private lands. We also believe the BLM has a federal land management responsibility to protect and restore all potential sage grouse habitat, given that adjacent private lands do not have the same habitat responsibilities that do the BLM lands. How is the RMP compatible with National and Regional sage grouse planning guidelines, and what assurances are in the RMP to assure on-the-ground positive actions to protecting habitat are completed? We strongly object to Plan's proposed potential "exceptions" to the No Surface Occupancy designated in Greater Sage Grouse priority habitats.	under Chapter 2, Wildlife, Special Status Species. Also refer to Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat.	
0184-05	Vegetation	Vegetative health is a key element necessary to maintenance or restoration of wildlife habitat. How does the Preferred Alternative assure that all components of vegetative communities are managed for community plant diversity and health? The EIS must provide quantified evidence that documents that vegetative components of vegetative communities within the RMP are within natural range of variability at both the micro and macro scale, and proposed uses will not degrade vegetative diversity and health. We believe the BLM has legal mandates and custodial land management responsibility to insure all components and structure of all vegetative communities are maintained on all landscapes in the Resource Area. How does this plan assure health and full distribution of at-risk plant communities? On this Resource area, at-risk plant communities include hardwood draws, riparian areas and sagebrush communities. The Plan and EIS must assess the plant community's and health and distribution of in context of their historical presence and condition as managed under the RMP. The plant community assessment must also address future risk of invasion by noxious weeds and address containment of mechanisms that accelerate noxious weed invasions. These mechanisms to spread noxious weeds include grazing, off road vehicle use and surface disturbance by oil and gas development. We request the final RMP specify grazing system modifications to assure all vegetative components of plant communities are measured for condition and trend, not just grass. We request the RMP insist all grazing allotment management plans assure health and vigor of sagebrush,	The RMP/EIS addresses prevention and mitigation measures to reduce the potential or real spread of noxious weeds in the Noxious Weeds and Other Invasive Non-Native Species sections of Chapters 2 and 4 and in Appendix M. Crested wheatgrass and cheatgrass are addressed in Chapter 2, Vegetation – Rangelands, Alternative E. Also see Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern.	No

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		hardwood draws and riparian areas, as well as forbs and other native plants. What assurances are to be incorporated in both the RMP and subsequent allotment management plans to insure grazing usage does not exceed specified use levels regardless of budget shortfalls, drought, wildfire, or other perturbations? This RMP must be modified to be an action-oriented document that places resource condition and health before utilization and extractive activities.		
0184-07	Vegetation	Recently a 140-page opinion by Judge James Heffernan, concluded that the BLM ignored inconvenient data and contrarian views in its environmental assessment of the Utah Duck Creek project, intended to be a showcase for public-lands grazing. What assurances are in this Plan to insure that sufficient, measured and quantified vegetative data will be collected on all allotments? What direction is in the Plan to assure that quantitative data will be collected and used in new allotment management plans? What specific direction is in the RMP to assure vegetative communities especially important to wildlife are properly assessed in each allotment management plan? We request riparian areas and hardwood draws habitat have required specific, statistically sound, quantified collection of vegetative data and condition required as part of each grazing management plan. How will data for non-grass species important to wildlife be measured and its abundance and health be incorporated into allotment management direction and plans?	See Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern.	No
0184-10	Vegetation	What specific RMP direction will assure native plant communities be protected and restored where surface disturbing activities are permitted? We request safeguards for protection or restoration of healthy vegetative communities be mandated on all surface activities to minimize surface disturbance, prevent noxious weed invasions, topsoil protection, and plant utilization standards. Adequate safeguards using the best science and techniques must be mandated as requirements for all future surface disturbing activities in the final RMP. The RMP must direct timely action to minimize disturbed acreage with rapid, effective native plant restoration on disturbed sites. There are important timing elements to plant re-establishment on disturbed sites which must be mandated as condition of surface occupancy activity permitting.	The RMP/EIS addresses prevention and mitigation measures to reduce the potential or real spread of noxious weeds in the Noxious Weeds and Other Invasive Non-Native Species sections of Chapters 2 and 4and in Appendix M. Crested wheatgrass and cheatgrass are addressed in Chapter 2, Vegetation – Rangelands, Alternative E. Prevention and mitigation measures to reduce the potential or real spread of noxious weeds are addressed in the Noxious Weeds and Other Invasive Non-Native Species sections of Chapters 2 and 4 and in Appendix M. Crested wheatgrass and cheatgrass are addressed in Chapter 2, Vegetation – Rangeland, Alternative E.	No

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0184-11	Wildlife-General	What specific requirements in the RMP assure the health and potential productivity of wildlife habitat is maintained or enhanced where surface occupancy is permitted and/or where grazing is permitted ? The health of the wildlife community is dependent on how the BLM manages its surface activities and uses. We request documentation of the current health and distribution of all components of native wildlife communities as a baseline before the RMP is implemented. While big game are often the primary species evaluated and considered, we know that many other species may be even more vulnerable to surface activities. We request documentation and quantified assessment of how the Alternatives affect all components of the native wildlife community. This would certainly include candidate listed or listed species including Greater Sage Grouse, Black Footed Ferret, Mountain Plover, Interior Least Tern, Pallid Sturgeon, Whooping Crane and Sprague's Pipit. But it would also include Bald and Golden eagles. It would also include commonly hunted species including deer, elk, antelope and bighorn sheep as well as sharptail grouse. We request specific actions be identified for implementation in the revised RMP to assure all habitats for each of these species be protected and restored.	The topic is discussed in Chapter 2, Livestock Grazing, Decisions Common to All Alternatives; and Chapter 2, Wildlife, Decisions Common to All Alternatives, General Wildlife.	No
0184-12	Wildlife-General	How will the RMP protect or restore hardwood draws and other vulnerable habitat types? No less important to our members is assuring the health of sharptail grouse habitat. Sharptail grouse populations and other wildlife species are likely limited by the past mismanagement of hardwood draws that are very susceptible to damage or elimination by domestic livestock grazing that are vital as winter habitat.. In addition, short grass prairie health, including nesting cover and insect populations are essential to healthy sharptail populations. We request the final EIS document the historic distribution of hardwood draws in the Plan area and map and document condition and distribution of these habitats where they historically occurred. Where less than full potential, we request specific actions or standards be specified for allotment management plans to restore health and distribution of hardwood draws. We also request an assessment of present abundance and distribution of wildlife species obligate to hardwood draws.	The BLM does not have a finalized map of historic or existing hardwood draws that meets the standard of the Draft RMP. Inventorying efforts are still being conducted through multiple state and federal entities for deciduous hardwood shrub draws, deciduous and open coniferous woods, and old-growth forested coulees (ravines). Shrub communities and woody draws are discussed in Chapter 3, Vegetation – Rangeland and Wildlife. A list of HiLine species can be found in Appendix Q, Wildlife Species. Refer to changes to Chapter 2, Vegetation – Rangeland, under Goals and under Objectives. Also refer to changes in Chapter 4, Soil Resources and Vegetation – Rangeland, Assumptions and Guidelines.	Yes
0184-13	Vegetation	How will the RMP protect all existing and potential sagebrush communities and their	The RMP/EIS addresses prevention and mitigation measures to reduce the potential	No

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		obligate species? The environmental consequence section fails to discuss how current and proposed grazing is likely to affect sagebrush composition, density, vigor and reproduction as well as the effects of sagebrush changes on obligate wildlife species. Sagebrush communities are vulnerable to grazing systems that are designed to focus and foster grass dominance and vigor at the expense of other vegetative components. In addition, sagebrush is vulnerable to noxious weed invasions, and other surface disturbing activities including oil and gas development. We request specific required actions be identified in the final RMP to assure grazing systems in sagebrush habitat types foster health and recruitment of younger sagebrush in such communities. We request the final plan direct changes to grazing strategies to insure health, density, vigor and reproduction of sagebrush in all sagebrush habitat types. We advocate aggressive restoration of native vegetation on non-native plant communities, especially in sagebrush habitat types, and key winter ranges for big game.	or real spread of noxious weeds in the Noxious Weeds and Other Invasive Non-Native Species sections of Chapters 2 and 4and in Appendix M. Crested wheatgrass and cheatgrass are addressed in Chapter 2, Vegetation – Rangelands, Alternative E. Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern.	
0184-14	Wildlife-General	We request oil and gas leasing be prohibited within 2 miles of a sage grouse lek and sage grouse nesting and wintering habitat, as currently reflected as viable in Alternative B. We also request areas within one-half mile of sharptail grouse leks be closed to leasing as reflected as Viable in Alternative B. In addition, minimal surface disturbance to sagebrush communities must be required in all surface disturbing activities, including road construction, drilling pads, pipeline installation and other such activities. To have effective restoration, the Plan must specify topsoil retention must be required, and immediate native plant community restoration initiated once a site has been disturbed. The Plan must specify monitoring of all restoration activities connected with Surface Occupancy. What RMP direction assures all surface disturbance, including new roads and drill pads have native plant communities restored immediately and noxious weed control measures be implemented throughout the project life. The project "footprint" must be reduced to minimum necessary where surface occupancy is permitted. Native plant species must be mandated in all restoration efforts.	Refer to Appendix C, Best Management Practices and Appendix E.1, Oil and Gas Operations, for discussions of reclamation and monitoring related to fluid mineral development.	No
0184-15	Wildlife-General	How will the RMP insure habitat for big game species is managed to it biological potential? Habitat for big game species,	Refer to Chapter 2, Wildlife, Decisions Common to All Alternatives, General Wildlife which includes the following:	Yes

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		including deer, bighorn sheep, elk and antelope, must be provided throughout the Resource Area where historically present. This includes all the plant communities used must be managed for viability and distribution where historically present. Specific direction must be included that mandates all fences be wildlife friendly; regarding location and construction standards. Migration corridors must be identified in the RMP, and science based habitat modifications and human occupancy restrictions be required for any project within the RMP. We request that all winter range,(not just critical winter range) for all big game species and elk calving areas be designated as Closed to leasing and/or No Surface Occupancy with no exceptions provided. This direction is currently reflected in Alternative B.	"New fences would follow BLM specifications to allow for wildlife passage, except for fences built specifically to keep wildlife out of an area. Fences would also be placed and marked, or modified, to reduce wildlife collisions or entanglements." See the changes made to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse, where text has been added to include Smith and Tack research. The suggested Closed to Leasing is analyzed in Alternative B of the Proposed RMP/Final EIS.	
0184-17	Wildlife-General	We are particularly concerned about lack of protection in bighorn sheep habitat within Bearpaw South, as it relates to future natural gas developments. Where currently under lease, we request a No Surface Occupancy stipulation be applied in bighorn sheep habitat, This population of bighorn sheep is recognized nationally for both the genetic quality of bighorn rams as well as the unique prairie setting in which hunting occurs. Disturbance, habitat alteration, noxious weed invasions are all risks intensified by oil and gas exploration and development. We request reconsideration of the preferred alternative allowing any potential for oil and gas surface occupancy within the habitat of this bighorn sheep population. In Bighorn Sheep Hunting units 680/620 the 25 available tags receive over 6000 applicants each year, for a less than 0.5% chance of drawing. A Governor's Sheep tag used in this area to harvest a ram in 2012 sold for over $300,000. A bighorn sheep hunt is a once-in-a-lifetime experience for one of the lucky tag recipients. The quality of the hunt is defined in part by the natural surroundings, uninterrupted by the sights and sounds of man.	Refer to Chapter 2, Fluid Minerals, Table 2.8 and Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria. Under Alternative E (Preferred Alternative), surface occupancy and use is prohibited within bighorn sheep lambing areas. Prior to surface-disturbing or disruptive activities a plan to maintain bighorn sheep habitat would be prepared by the proponent and implemented upon approval by the authorized officer. This plan shall address how short-term and long-term direct and indirect effects to bighorn sheep range would be mitigated based on current science and research. Refer to Appendix E.5, Requirements and/or Guidelines for Wildlife, Controlled Surface Use Stipulation.	No
0184-18	OHV Use and Travel and Transpor-tation Mgmt	We object to the dismissal of the scale of ORV/ATV impacts in the Environmental Consequences Section, as stated to have impacts limited to only 124 acres. ORV user created routes promote wildlife displacement, fragmentation of continuous secure wildlife habitat, spread of noxious weeds and accelerated erosion. We request the final recognize the impacts of ATVs and ORVs on the above discussed resource	This topic is discussed in Chapter 4, OHV Use and Travel and Transportation Management.	No

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		values and direct actions and future travel planning to eliminate routes that promote wildlife displacement, fragment otherwise secure wildlife habitat and foster spread of noxious weeds.		
0184-19	Wildlife-General	More control of motorized use in the RMP is needed to reduce the displacement of big game to adjacent private lands where there is more security from motorized disturbance. The result of big game displacement is often harboring of big game on private lands and therefore the reduction of huntable big game on public lands, thus reducing both harvest and quality of hunting. We request the Environmental Consequences Section of the EIS fully describe the adverse effects of open roads to wildlife and wildlife displacement and its effect on public land hunting opportunities. Road density needs to be recognized as a significant issue, and Plan direction to reduce road density as well as create significant large blocks of BLM land where motorized use is prohibited.	This topic is discussed in Chapter 4, Wildlife, Impacts Common to All Alternatives, under OHV Use and Travel and Transportation Management.	No
0184-21	OHV Use and Travel and Transpor-tation Mgmt	How is off motorized use assessed as to its effect on wildlife and non-motorized recreation opportunities in the Plan and EIS? We request an map delineation of each and all motorized routes in the RMP to serve as a current baseline, and as documentation of effects of motorized use on wildlife and wildlife habitat. We also request the EIS complete as assessment of the cumulative effect of existing motorized use on wildlife displacement, noxious weed spread, non-motorized hunting opportunities, and other wildlife related resource damage.	This topic is addressed in Chapter 4 under the Recreation and Wildlife sections.	No
0184-22	OHV Use and Travel and Transpor-tation Mgmt	We also note there is no effort to protect Traditional Cultural Property areas in the Little Rockies and Sweetgrass Hills from abuse by ORVs. Not only do these sites have notable archeological features, but they also provide nesting habitat for raptors and other cliff nesting species. User created ORV routes already have been established dangerously close to these sites, and may have already displaced sensitive avian nesters such as prairie falcons. How can the RMP recognize TCP's and direct management to protect these resources from uncontrolled motorized access and potential abuse? We request the Plan direct all Traditional Cultural Properties in both the little Rockies and Sweetgrass hills be closed to off-road motorized use, and be a high priority for travel planning. How can a proposed Little Rockies Recreation	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management. The Sweet Grass Hills TCP is included in the ACEC closure to motorized use, and the Little Rockies travel management area is High Priority for travel management planning.	No

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		Management Zone featuring OHV and ATV uses be compatible with protection of both cultural properties as well as sensitive wildlife species? We object to establishing a featured OHV/ATV use area in or near TCPs. In addition we request the Little Rockies TCP have No Surface Occupancy for the 38,000 as currently described as part of viable Alternative B. We believe limiting the NSO in the Little Rockies TCP to only 5936 acres adequately protects the cultural and unique wildlife habitat values. In addition, we request any forest vegetation projects in this area obliterate all timber access roads to better protect these sites integrity as well as reduce vandalism from new motorized access to these cultural resources.		
0184-23	Recreation	We request a balanced reallocation of recreation opportunities as defined in the Recreation Opportunity Spectrum system to better provide significantly more non-motorized recreation setting opportunities. The Preferred Alternative allocates 2,111,311 acres to “Roaded Natural”, while only 7481 acres to “Semi-primitive non-motorized”. We do not consider this to provide a balance of recreation opportunities. We also note ALL alternative consider establishment of no more than 7000-8000 acres of semiprimitive non-motorized ROS setting. How can the RMP process consider a ROS range of alternatives has been developed and evaluated? We request development of a new alternative that provides substantially more semiprimitive non-motorized setting. We request designation of at least 25% of the Resource Area be designated as no closer than one mile from a designated motorized route to provide a better balance of “Semi-primitive non-motorized” recreation opportunities . We request such non-motorized areas be formally delineated on a RMP map and surface disturbing activities be strongly discouraged from such lands. This map of delineated non-motorized areas should be directed to be a framework for future travel management planning. As part of such delineation, MT BHA supports inclusion of those 26 areas having wilderness qualities and non-motorized management of the 26 such areas with wilderness qualities contained within the RMP. All of these 26 areas should be receive high priority for future travel plan management planning to provide for non-motorized recreation opportunities, and also	This topic is discussed in Chapter 2, Wilderness Characteristics and in Chapter 2, Recreation Opportunity Spectrum. The BLM utilizes a matrix of physical, social and operational qualities and conditions to create the recreation opportunity spectrum. These classifications can be broken down further through development of supplemental plans such as travel management plans. Table 2.14 reflects the effort to manage for the widest variety of quality recreational opportunities and visitor experiences that are consistent with other resource management objectives.	No

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		provide additional security for many wildlife species. These 26 areas could be the core of semi-primitive non-motorized areas within the Resource Area.		
0184-24	Recreation	How does the RMP address public hunting access to isolated BLM parcels where no public access exists? How does permitted outfitting on BLM lands affect public hunting access? We request the RMP balance the impacts of the outfitting industry and its adverse effects on non-guided Montana hunters. We believe the outfitter industry contributes to land-locking out non-guided hunters, particularly on isolated BLM parcels without public access. Options which must be considered and evaluated in the final RMP are 1) prioritize obtaining legal public access to all presently isolated BLM parcels, 2) prohibit outfitting on all BLM lands within the Resource Area to discourage locking out public hunters, and 3) restricting permitted outfitting to only those BLM lands which are landlocked, retaining the other accessible BLM lands for Montana non-guided hunters.	Public Access is discussed in Chapter 2, Lands and Realty, Access, under Decisions Common to All Alternatives. Also refer to Chapter 3, Recreation, Special Recreation Permits. The text in this section has been clarified in the Proposed RMP/Final EIS.	Yes
0188-02	Cultural Resources	Chapter 2 Alternatives, p. 42, Table 2.3: The NPS supports the proposed added protection afforded National Historic Trails (NHTs) from oil and gas development impacts under Alternatives B and E. The proposed oil and gas lease stipulations for these two alternatives will extend the No Surface Occupancy (NSO) distance from NHTs from 300 feet to 1320 feet. Disallowing surface occupancy within ¼ mile of a NHT will help reduce visual impacts from oil and gas development on the historic trail setting. Chapter 2 Alternatives, p. 127, Map 2.10: A portion of the Lewis and Clark National Historic Trail along the Marias River is not included on the map. The map shows Lewis's return route along the Marias in 1806, but not Lewis's exploration of the Marias River in June 1805. During the outbound trek, the Expedition split into two parties at the mouth of the Marias and scouted the north and south forks in the river trying to determine which one was the Missouri River. This outbound route segment is not indicated on many of NPS's own maps of the Lewis and Clark Trail, but is included in the 1982 Comprehensive Management Plan for the Trail. The addition of this trail segment may increase the number of miles of BLM land that the trail crosses. For more information and data	Chapter 2, Special Designations, National Historic Trails, Decisions Common to All Alternatives; Map 2.10; and Chapter 3, Special Designations, National Historic Trails, Lewis and Clark National Historic Trail, have been revised to reflect the outbound journey.	Yes

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		regarding this route, please contact GIS technician Rachel Daniels at rachel_daniels@nps.gov, or 402-661-1934. Chapter 3, Affected Environment, p. 354: The Lewis and Clark National Historic Trail description doesn't include Lewis's outbound exploration of the Marias River. If this route is considered, it will likely increase the miles of BLM land crossed by the trail.		
0189-01	FLPMA	While BLM may counter that most of the NSO stipulations are outside areas of oil and gas development potential, nearly 25% of the areas BLM has identified as having high development potential (which, as discussed below, BLM has underestimated) are subject to an NSO stipulation. id. at 498. Imposing such significant development constraints - many of which would preclude development altogether-on such a large percentage of the federal mineral estate is inconsistent with FLPMA's requirement to balance the management of public lands for multiple use.	The Preferred Alternative in the RMP/EIS strikes a balance between long-term conservation of public land and resource use including development of fluid minerals; it is consistent with Section 103(c) of the Federal Land Policy and Management Act (FLPMA) (43 U.S.C. 1702(c)).	No
0189-02	Fluid Minerals	BLM's position that only 4% of the federal mineral estate is closed to leasing is an incomplete picture as a far greater percentage is subject to de facto closure through NSO stipulations. The Final RMP/EIS must acknowledge the true impacts of the NSO stipulations on oil and gas leasing and identify the actual acreage that is effectively closed to leasing.	This topic is covered in Chapter 4, Fluid Minerals, Impacts Common to All Alternatives, which states the following: "While an NSO stipulation would not entirely preclude a lease from being developed, the restriction of surface occupancy would require that any wells and associated facilities be located on adjacent lands. Directional and horizontal drilling technology may allow an operator to effectively reach out and develop some of the smaller blocks of NSO-leased lands; however, larger contiguous blocks of NSO would very likely be precluded from any future development." (emphasis supplied)	No
0189-03	Wildlife-Greater Sage-Grouse	BLM should reevaluate its NSO designations and consider eliminating areas of existing development from such designations. BLM must also provide more detailed data to allow the public to better understand how these NSOs areas were identified and to justify why less restrictive constraints would not be effective.	Refer to Chapter 2, Wildlife, Special Status Species; Chapter 2, Wilderness Characteristics; and Appendix K, Areas of Critical Environmental Concern Evaluation of Relevance and Importance Criteria for Existing and Potential ACEC.	No
0189-04	Wildlife-Greater Sage-Grouse	Draft RMP/EIS at 502. In recognition of the fact that these restrictions have the potential to have significant impacts on oil and gas development, for each NSO, controlled surface use, and timing limitation, BLM should allow for a site-specific review of a particular area at the time a specific action is proposed to determine whether a given restriction is warranted in that area. If the	The topic of Waivers, Exceptions and Modifications and how they are requested is located in Appendix E.4., Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria.	No

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		on-the-ground conditions differ from those depicted on the maps, BLM should include in the RMP the flexibility to waive the application of the restriction. Likewise, BLM should allow exceptions to the applicable restrictions if the impacts to the sensitive resource may be mitigated to the point where the restriction is no longer necessary. While Appendix E identifies exceptions, modifications, and waiver criteria for some of the stipulations, BLM should ensure that each restriction on oil and gas development has the opportunity for modification after site-specific review and application of mitigation measures.		
0189-05	Fluid Minerals	The RFD could be read as implying that classified development potential based on select companies' anticipated future drilling plans rather than actual resource conditions and oil and gas occurrence. RFD at 68. To the extent that is what occurred, BLM must explain why this approach is appropriate rather than an objective evaluation of likely development based on resource availability and market conditions, especially in light of the RFD's recognition that the "planning area also has significant potential for continuing to help meet rising national demand by supplying additional oil and gas that has not yet been discovered." ld. at 56; see also id. at 59 (estimating a volume of 9.16774 trillion cubic feet of undiscovered gas in the planning area).	The reasonable foreseeable development scenario (RFD) that provided the oil and gas development projections was continually updated throughout the RMP process, with the last update occurring in February 2012. The RFD is based on: • Oil and gas occurrence potential (presence of hydrocarbon source rocks, presence of reservoir rocks with adequate porosity/permeability, potential for structural stratigraphic traps to exist, opportunity for migration from source to trap, and other conditions such as temperature, depth of burial, and subsurface pressures). • Future oil and gas price estimates (supply and demand). With these factors is mind, the BLM contacted oil and gas companies (via mailed letter) and requested their anticipated levels of development activity that were anticipated in the HiLine planning area during the life of the plan. Utilizing all of this information as a whole, the oil and gas potential of the RFD was then formulated.	No
0189-06	Fluid Minerals	The Draft RMP/EIS does not explain BLM's reasoning for lowering its classification of oil and gas development potential in the BNGPA. In fact, on-the-ground activity in the Bowdoin Field area and increased technological advances in both conventional and unconventional oil and gas development contradicts BLM's unexplained decision to reclassify the oil and gas development potential. Since this RMP planning process is intended to cover the foreseeable future development in the resource area, the RMP/EIS analysis of oil and gas development potential within the planning area needs to accurately reflect this activity or justify the reclassification.	The reasonable foreseeable development scenario (RFD) that provided the oil and gas development projections was continually updated throughout the RMP process, with the last update occurring in February 2012. The RFD is based on: • Oil and gas occurrence potential (presence of hydrocarbon source rocks, presence of reservoir rocks with adequate porosity/permeability, potential for structural stratigraphic traps to exist, opportunity for migration from source to trap, and other conditions such as temperature, depth of burial, and subsurface pressures). • Future oil and gas price estimates (supply and demand).	No

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			With these factors in mind, the BLM contacted oil and gas companies (via mailed letter) and requested their anticipated levels of development activity that were anticipated in the HiLine planning area during the life of the plan. Utilizing all of this information as a whole, the oil and gas potential of the RFD was then formulated.	
0189-07	Fluid Minerals	In addition to recognizing that NSO and other restrictions cannot apply to oil and gas leases, BLM should recognize that these restrictions cannot indirectly interfere with all rights associated with those leases, including access.	Refer to Chapter 2, Fluid Minerals, Decisions Common to All Alternatives, which states: "New surface use stipulations (including TLS, CSU, and NSO) cannot be applied to existing oil and gas leases or other existing valid use authorizations such as rights-of-way."	No
0191-01	Recreation	The Respected Access campaign was initiated to address problems associated with recreational shooting, but has grown beyond that to the promotion of responsible stewardship associated with other recreation activities on public lands. Even though the Draft RMP does not address recreational shooting other than disallowing it in developed areas, we recommend that the campaign be woven into the final RMP and its implementation because the BLM is a partner in the Respected Access campaign. Reference: http://treadlightly.org/programs!respect-access-campaign/.	The text was modified in Chapter 2, Lands and Realty, Access under Decisions Common to All Alternatives in the Proposed RMP/Final EIS in response to this comment.	Yes
0191-02	Recreation	One time retrieval that would likely be unnoticeable after a short period of time (one year for example) would be consistent with Executive Order 13443: Facilitation of Hunting Heritage and Wildlife Conservation. In addition, it would permit older hunters and handicapped individuals to continue to hunt and support the Department of Fish, Wildlife and Parks through purchase of licenses. During warm weather the likelihood of losing meat is greatly reduced or eliminated. The proposal to prohibit MBGR deserves written analysis by the BLM.	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, under Decisions Common to All Alternatives, Off-Highway Vehicle Use, and also under Alternative E (Preferred Alternative), OHV Area Designations. The text has been clarified under the same topic in Chapter 3 of the Proposed RMP/Final EIS in response to this comment.	Yes
0192-01	Wilderness Character-istics	I urge the BLM to manage lands with wilderness characteristics using the same management prescriptions as the Billings Field Office proposes, including: • Close areas to oil and gas leasing, or allow leasing only with "no surface occupancy" stipulations with no exceptions, waivers, or modifications. • Designate the areas closed to rights-of-way for powerlines, pipelines and wind farms. • Close the lands to construction of new roads.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment. As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_wit	Yes

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		• Manage the areas for semi-primitive non-motorized recreation, limiting vehicle use to protect wilderness values. • Close the areas to mining. • Restrict construction of new structures and facilities unrelated to the preservation or enhancement of wilderness characteristics. • Reevaluate BLM's inventory for Carpenter Creek (10,000 acres), Lena (5,679 acres), and Long Coulee (46,048 acres).	h_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	
0195-01	Special Designa-tions-Wild and Scenic Rivers	You have my private coulees listed on you Wild and Scenic river analysis This is totally unacceptable. These are not Fed land and an invasion of my privacy and also are so far from being a river it is stupid. It is a total waste of time and money and never have been done on anything but rivers. Take my private lands out of here.	This topic is discussed in Appendix L of the Proposed RMP/Final EIS. The section Identification of Eligible River Segments explains that the BLM limited the evaluation to only those lands that it administers as per BLM Manual 8351. Table L.1 lists all river segments that were considered during the evaluation process to determine the presence of BLM-administered lands.	No
0197-01	FLPMA	Page 19 Phillips County has a Resource Use plan and it is not listed in this book. Why not Valley Co. is?	The Phillips County Growth Policy and Land Resource Use Plan have been added to Chapter 1, Development of Alternatives, Related Plans. The two documents have been reviewed for consistency with the Proposed RMP.	No
0198-03	Vegetation	AWA encourages the BLM to limit the impact of invasive plant species on grassland birds by minimizing surface disturbance (such as petroleum development and roads) in undisturbed habitats. In addition, an invasive plant species management plan, that addresses both weeds and invasive agronomic plant species such as crested wheatgrass and cheatgrass, should be developed for, at minimum, all Greater Sage-grouse and Grassland Bird Priority Areas shown in Alternative B.	The RMP/EIS addresses prevention and mitigation measures to reduce the potential or real spread of noxious weeds in the Noxious Weeds and Other Invasive Non-Native Species sections of Chapters 2 and 4 and in Appendix M. Crested wheatgrass and cheatgrass are addressed in Chapter 2, Vegetation – Rangelands, Alternative E.	No
0200-01	Wilderness Character-istics	Reevaluate BLM's inventory of Carpenter Creek, Lena, and Long Coulee. These three areas meet the BLM's criteria as lands with wilderness characteristics.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0202-01	Solid	The current mineral withdrawal expires in	Alternative E (Preferred Alternative) in the	No

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	Minerals	2017 and the RMP's current preferred alternative would renew it. Short of the permanent mineral withdrawal which the Sweet Grass Hills should have, this is a good step. To safeguard regional water vital to ranchers, maintain wildlife habitat, and preserve a landscape of cultural importance to Native Americans, prohibiting mining activity as incompatible is appropriate and commendable. The Hills should also be off limits to oil and gas and other resource development. Commercial logging is likewise incompatible and, contrary to the Plan's current direction, should be prohibited.	HiLine RMP/EIS recommends the Sweet Grass Hills withdrawal be continued. Prior to expiration of the Sweet Grass Hills withdrawal on April 9, 2017, the BLM would submit an application to the Secretary of the Interior for approval to consider extending the withdrawal pursuant to Section 204 of FLPMA. This extension process would include opportunity for public involvement by notifications in the newspaper and in the Federal Register. A withdrawal extension may not be made for a period longer than the length of the original withdrawal period, which for the Sweet Grass Hills is 20 years. There is no limit on the number of times a withdrawal may be renewed, as warranted.	
0202-02	Solid Minerals	BLM has stated that Montana's current ban on cyanide heap leach mining means serious mining is not likely to be initiated in the Little Rockies. But as you know, the cyanide ban has been challenged repeatedly, and there is no guarantee it will survive the next few years, to say nothing of the life of this RMP. Again, please take an honest look at what mining in the Little Rockies has meant to date and close the door, permanently, to creating a greater legacy of environmental destruction, controversy, and wasted public resources.	See Appendix P, Locatable Mineral Resources Reasonable Foreseeable Development (RFD) Scenario, Legislative Changes, which states that "… the Montana law for the ban on open-pit gold and silver mining that utilizes heap or vat leaching with cyanide ore-processing reagents, Section 82-4-390, MCA, is considered a mine planning criteria, so it is not applicable to the development potential for public lands managed by the BLM" which includes the Little Rocky Mountains. All analysis within the HiLine RMP/EIS is based on this RFD.	No
0202-03	Wildlife-General	If there is anywhere in the American West where buffalo reintroduction has a chance to flourish, it would be on public lands north of the Missouri River within this RMP. I would urge the BLM to adapt visionary management measures that will keep that option open as much as possible.	Additional text has been added to the "Issues Considered but Not Addressed Further" in Chapter 1 of the Final RMP/EIS under the heading "How will bison be managed?" The BLM recognizes the State's role in managing native wildlife and would work cooperatively with MFWP, USFWS, other agencies, partners, and cooperators in the development of a wild bison restoration plan. At this time, the State does not have an ongoing plan to reintroduce wild bison in the planning area.	Yes
0203-02	Vegetation	Page 357 Vegetation-Rangeland, Paragraph 4; Last two statements "Large tracts of mature sagebrush …...historic heavy grazing and fire suppression." Where is your source, citations for both silver sage and big sage in this area? What is the fire frequency and why do you assume it is the same for south Blaine or Phillips, and north Valley, Phillips, Blaine? WY big sage does not return for decades and is very slow at reestablishing vast burned tracts. Document is saying the vast expanses of big sagebrush north of the Missouri River managed to get established sometime before homesteading	The document text has been changed in response to this concern. See Chapter 3, Vegetation – Rangeland.	Yes

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		picked up in the 1920-30s. Plenty of documentation that vast expanses of sagebrush existed when homesteader arrived and survived off of the plentiful and sagebrush obligate "sage hens".		
0203-05	Vegetation	Paragraph 8; How many acres of non-native grass, and where are those tracts, specifically crested wheatgrass? BLM and other agencies have identified conversion of crested and non-natives as a priority for wildlife habitat and healthy rangelands. Can't find mention for restoration of the 10,000s of acres of non-native grasslands. Is it allowed, planned, where is it being proposed. If it is not proposed or planned, why isn't it being proposed at some level to improve rangeland health and wildlife habitat?	Sufficient data do not exist at this time to quantity the acres of non-native grasses. Restoration to native species is discussed in Chapter 2, Vegetation – Rangeland.	No
0203-06	Fire Manage-ment and Ecology	Paragraph 7; What is fire history in each of the veg types within the planning area? A good look at lightning strikes and subsequent fires in the planning area shows a great variability associated with the island mtn ranges, with natural fires falling within distinct areas and absent from others. An excellent study was presented at meeting in Lewistown set up by CMR a couple years ago.	Sufficient data does not exist. Fire history information for the timeframes specified in Chapter 3, Fire Management Ecology did not include vegetation types within the national reporting system.	No
0203-07	Fire Manage-ment and Ecology	What evidence that fire was a regular occurrence across the entire planning unit. Umbanhowar 1996, did his study on mixed and tallgrass prairie well to the east and south of Most of the planning area. Is not relevant to big sagebrush grasslands within the planning area. See previous comment on lightning strikes and pattern of natural starts associated with the island mtn ranges(to the south and east).	The document text has been changed in response to this concern. See Chapter 3, Vegetation – Rangeland.	No
0203-09	Wildlife-Greater Sage-Grouse	Page 387, Paragraph 7; Populations of greater sage grouse are declining in parts of the planning area, and are slow to rebound in respond to losses.	Refer to Chapter 3, Wildlife, Special Status Species, Greater Sage-Grouse.	No
0203-11	Wildlife-General	Paragraph 6; Stating that Canada geese nest primarily on river islands is not true on the HiLine, as they will nest almost anywhere, including islands when available. They will nest in cottonwoods and cliffs along the rivers, but will also nest in any upland site with enough vegetative cover. I have often found them nesting in snowberry and rose patches, and even under sagebrush with decent grass cover.	The text has been removed from the Proposed RMP/Final EIS.	Yes
0203-14	Wildlife-General	Page 390, Paragraph 1; Bald Eagle Protection Act of 1940, This act is now referred to as "The Bald and Golden Eagle Protection Act" (16 U.S.C. 668-668d),	The correction has been made in Chapter 3.	Yes

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		enacted in 1940, with amendments. http://www.fws.gov/le/USStatutes/BEPA.pdf. Page 401, last Paragraph; Bald Eagle Protection Act of 1940, This act is now referred to as "The Bald and Golden Eagle Protection Act" (16 U.S.C. 668-668d), enacted in 1940, with amendments. http://www.fws.gov/le/USStatutes/BEPA.pdf.		
0203-15	Fish	Page 473, Paragraph 4; Under Assumptions and Guidelines; "Increased sedimentation adversely affects most fish species in the planning area." Should differentiate between native, introduced and possibly introduced sport fisheries. Should differentiate between small clear prairie streams and warm turbid larger streams, or even ephemeral streams providing spawning habitat. Native species associated with the breaks and badlands are likely adapted to sediment laden warm waters like the Milk, Marias, and Missouri Rivers and tributaries. These species are negatively impacted by removal of sediments, clearing and cooling of waters. Look at difference of waters flowing into and out of Tiber Reservoir. Native species such as pallid sturgeon and sauger, have been impacted by improved water qualities. Pallid sturgeon recovery plan actually recommends increasing sedimentation to replace that lost to upstream dams. It would be logical to assume that other native species associated with these systems would also be adapted to and prefer these sediment laden warm systems.	The difficulty in managing aquatic habitats when the BLM is a minority landowner and waters cross land owned by different entities is discussed in Chapter 3, Fish, Fish Species. The various State of Montana laws, regulations and agencies involved in sediment management and water quality in the state's waters is discussed throughout Chapter 3, Water Resources, including a discussion on the Memorandum of Understanding Regarding Water Quality Management on BLM Lands in Montana (BLM and MDEQ 2010). Additional information was added to Chapter 4, Fish, Assumptions and Guidelines.	Yes
0203-16	Fish	Last Paragraph; What about invasive mussels, aquatic weeds, carp, and several predatory fish species like northern pike, or bass? Any management which controls or promotes any of these species will affect native aquatic vegetation, invertebrates, and fisheries. The affect may be positive or negative, depending on the action and target species. Recreation management actions which promote non-native sport fisheries may impact any efforts to improve native fisheries.	The BLM monitors for non-native invasive species and works with partners to control infestations soon after detection. County Weed Districts work on plant control and MFWP manages non-native fish species by encouraging sport fishing on isolated ponds and reservoirs and some larger rivers while managing for native fish species in small prairie streams. The MNHP and MFWP were recently notified when northern pike were observed in a small stream on BLM land after above-normal spring runoff.	No
0203-18	Fish	Page 474, Paragraph 1; ". . . ROW grants, Roads . . ." Aren't these Lands & Realty actions which apparently have no effect in previous paragraph? Paragraph 8; OK do they have an effect or not? See previous comment.	Realty actions could have an effect on fisheries. "Lands and realty" has been removed from Chapter 4, Fish, Assumptions and Guidelines, in the paragraph listing resources that would have no anticipated effects on fisheries.	No
0203-19	Fish	Page 475, Paragraph 7 under Aquatic Habitat; Last sentence; Is BLM proposing to	The BLM is proposing to maintain or improve habitat for all fish species, but not	No

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		maintain or improve habitat for native fisheries, or just sport fisheries, including nonnative? How does getting access for more people to an aquatic system improve a fishery, whether native or sporting?	all in the same place. Most of the small prairie stream habitat would be managed for native fish even though the public might not utilize the resource for sport fishing. Access programs would be more for the BLM and its partners to maintain and improve fish habitats than to promote additional public use. Increased public education programs would increase public awareness of fragile aquatic systems and the importance of native species management.	
0203-20	Vegetation	Page 477, Paragraph 8, under Livestock Grazing and Vegetation – Riparian; "All manageable riparian areas would have a Management Plan . . ." Is BLM really going to write a "Management Plan" for every riparian area? This means a written document to me, which could have public comment. There may be a grazing prescription, an exclosure or stipulation in the grazing permit, but BLM would have to write dozens of plans to cover every allotment with manageable riparian. Should also define what makes a Manageable Riparian Area. Standards of Rangeland Health have same requirements for all riparian areas. Shouldn't this management be Common to All Alternative? Page 478, Paragraph 4, under Livestock Grazing and Vegetation – Riparian; See previous comments Page 477. Page 479, Paragraph 4, under Livestock Grazing and Vegetation – Riparian; See previous comments Page 477. Page 480, Paragraph 4, under Livestock Grazing and Vegetation – Riparian; See previous comments Page 477. Page 481, Paragraph 4, under Livestock Grazing and Vegetation – Riparian; See previous comments Page 477.	See Chapter 4, Fish, *Livestock Grazing and Vegetation – Riparian* in Impacts under Alternatives A, B, C, D and E. The text has been revised by alternative to include language that essentially assures that riparian areas would be maintained, restored, and/or improved in order to achieve a healthy and productive ecological condition or Proper Functioning Condition (PFC) for maximum long-term benefits and values within site capability.	Yes
0203-22	Wildlife-General	Page 687, Paragraph 3; No mention of impacts to reptiles, with direct effect causing mortality and indirect effect causing dispersal to non-suitable habitat.	The effects of roads to wildlife are discussed in Chapter 4 Wildlife, OHV Use and Travel and Transportation Management.	No
0203-24	Wildlife-General	Page 688, Paragraph 6; No mention of impacts to reptiles, from any roads, with direct effect causing mortality and indirect effect causing dispersal to non-suitable habitat.	The effects of roads to wildlife are discussed in Chapter 4 Wildlife, OHV Use and Travel and Transportation Management.	No
0203-25	Wildlife-General	Page 691, Paragraph 1; Roads and traffic have been shown to have substantial impacts on reptiles. This has been documented in southern Alberta as well. Personal communication with Biologists in Alberta	The effects of roads to wildlife are discussed in Chapter 4, Wildlife, OHV Use and Travel and Transportation Management.	No

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		and southern NM have stated the same.		
0203-27	Fluid Minerals	Page 728, Paragraph 4; Does not identify associated facilities, such as roads, pipeline ROW, or power lines. Same restrictions should apply to all associated infrastructure. My personal experience of protecting lek from drilling activity, but loosing lek to access road from another well placed less than 1/4 mile.	This topic is discussed in Chapter 4, Fluid Minerals, Impacts Common to All Alternatives. It also bears mentioning that the NSO, CSU, and timing stipulations that are applied because of wildlife concerns would also apply to surface-disturbing or disruptive activities.	No
0203-28	Fluid Minerals	Paragraph 5; Does this include production activity? Water hauling, well checks, meter reading, work-overs?	This topic is discussed in Chapter 4, Fluid Minerals, Impacts Common to All Alternatives. It also bears mentioning that the NSO, CSU, and timing stipulations that are applied because of wildlife concerns would also apply to surface-disturbing or disruptive activities.	No
0203-29	Vegetation	Page 729, Paragraph 5; Where do you mention, restoring crested wheatgrass stands to native or at least restoring more natural vegetative structure and diversity?	See Chapter 2, Vegetation – Rangeland, Alternative E (Preferred Alternative).	No
0203-31	Fire Manage-ment and Ecology	Page 731, Paragraph 9; Why not more treatment acres of silver sage habitat, where fire causes vigorous resprouting and can increase the density of sagebrush? No mention of rehabbing crested stands, sagebrush planting, or any type of seeding native species.	Refer to Chapter 4, Fire Management and Ecology, Assumptions and Guidelines.	No
0212-01	Water Resources	The "2007 Montana Nonpoint Source Management Plan" is obsolete. It was replaced in 2012 by the "2012 Montana Nonpoint Source Management Plan". The current (2012) plan is available for download at the following DEQ website: http://deq.mt.gov/wqinfo/nonpoint/NonpointSourceProgram.mcpx.	See updates to Chapter 3, Water Resources.	Yes
0212-02	Water Resources	The 2008 Montana 305(b)/303(d) Integrated Report (for example, references on page 368) is outdated. Facts and figures from the 2008 report may have changes in later versions. The current version is the 2012 Montana 305(b)/303(d) Integrated Report. A copy may be downloaded from the following website: http://cwaic.mt/gov/wq_reps.aspx?yr=2012qryld=101445.	See updates to Chapter 3, Water Resources, Surface Water (Quality); and Tables 3.54, 3.55, and 3.56.	Yes
0212-03	Water Resources	Pages 44 and 45, Table 2.3. The following text appears in the "Alternative E" column on the "Water, Riparian, Wetlands, and Floodplains" row: "CSU – Surface occupancy and use would be controlled within 300 feet of riparian and/or wetland areas. Surface-disturbing activities would require a plan with design features that demonstrate how all actions would maintain and/or improve the functionality of	See revisions made in Chapter 2, Vegetation – Riparian and Wetland, Decisions Common to All Alternatives, fourth paragraph. Stipulations for Water, Riparian, and Wetland resources have been bolstered and appear in Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under Alternative E	Yes

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		riparian/wetland areas." The allowance for improvement of riparian/wetland areas has the potential to either benefit or degrade the resource. How would this allowance be regulated, and how will the functionality of a wetland area be determined? It is quite possible that an intact wetland system is functioning properly for its landscape position, soils, and hydrology and so improving the functionality of one aspect (for example hydro-period) could actually degrade the system and convert the wetland to another wetland type all together.	(Preferred Alternative). It is a BLM objective to protect the unique biological and hydrological features associated with wetland and riparian areas. Disturbances adjacent to wetland and/or riparian areas (including road use) can adversely impact these sensitive areas. This stipulation would protect these features from indirect effects produced within the adjacent ground. This would also encompass the floodplain along most first to third order streams: – Surface occupancy and use would be controlled within 300 feet of riparian and/or wetland areas. Surface-disturbing activities would require a plan with design features that demonstrate how all actions would maintain and/or improve the functionality of riparian/wetland areas. The plan would address: (a) potential impacts to riparian and wetland resources, (b) mitigation to reduce impacts to acceptable levels (including timing restrictions), (c) post project restoration, and (d) monitoring (the operator must conduct monitoring capable of detecting early signs of changing riparian and/or wetland conditions) (CSU). Appendix E.4, also outlines the following stipulations for Water, Riparian, Wetland, and Floodplains resources: (NSO) - No exceptions would be allowed in streams, natural lakes, or wetlands. An exception may be granted by the authorized officer for riparian areas, floodplains, and artificial ponds or reservoirs if the operator can demonstrate that: (1) there are no practicable alternatives to locating facilities in these areas, (2) the proposed actions would maintain or enhance resource functions, and (3) all reclamation goals and objectives would be met.	
0212-04	Water Resources	Pages 61-63. In the alternatives presented, wetlands are not considered as avoidance areas nor are they mentioned as exclusion areas. Riparian areas, with unique values only, are mentioned as exclusion areas. Under the federal Clean Water Act, negative impacts to jurisdictional wetlands should be avoided first and foremost. Montana regulations also require the avoidance of wetland impacts. Protection of wetlands and riparian areas, regardless of uniqueness, should be included under avoidance.	See changes to Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Alternatives B-E, Avoidance Areas. Potential disturbance of wetlands would be evaluated on a case-by-case basis. Per the applicant-committed mitigation measures, the applicants would evaluate all project facility sites for occurrence and distribution of waters of the U.S., special aquatic sites, and jurisdictional wetland, and would locate all project facilities out of these sensitive areas. If complete avoidance is not possible, impacts would be minimized through modification and minor relocations.	Yes

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0212-05	Solid Minerals	Page 82, under "Abandoned Mine Lands." This section is very short on details. Please describe or provide a reference to the procedure BLM will use to identify, prioritize and remediate abandoned mine lands. Please provide information on the known extent of abandoned mine sites on BLM lands within the HiLine RMP planning area.	See Chapter 3, Public Safety, Abandoned Mine Lands for detailed information.	No
0212-06	Vegetation	Page 137, under "Vegetation – Riparian and Wetland." The "Goals" statement says: "Manage activities to ensure healthy and proper functioning condition of riparian areas within site or ecological capability." Are wetlands purposefully left out, or is the term "riparian areas" being used as a catch-all for wetland areas as well? This confusion seems to crop up in other places within the document as well. Consider using the wording "riparian and wetland areas" throughout the document wherever wetland areas are not meant to be specifically excluded. For example, in the "Objectives," the third objective "maintain, restore and improve riparian areas…" should be reworded as "maintain, restore and improve riparian and wetland areas…"	See revisions made in Chapter 2, Vegetation – Riparian and Wetland, Goals and Objectives.	No
0212-07	Livestock Grazing	Page 139, under "Alternatives C and D." The text includes the following statement: "Alternate water facilities would be installed to relieve grazing impacts on riparian areas." Please define "alternate water facilities." This statement could be construed to mean that alternative water developments like stock ponds may be acceptable in wetlands. This should be clarified. Beyond restoration of a wetland to natural hydrology, enhancement of the hydrology often has an impact on the quality of the wetland.	In this context it means anything alternative to the riparian area under consideration, but in no case would it exempt such facility from any stipulation or requirement normally required of any water facility.	Yes
0212-08	Water Resources	Page 143, under "Water Resources." • DEQ supports BLM's efforts to protect and improve water quality. • DEQ supports BLM's consideration of impacts to both surface water and groundwater resources. • DEQ appreciates BLM's referencing the BLM/DEQ memorandum of understanding. Please consider mentioning the excellent, biennial report BLM produces and provides to DEQ as part of the MOU. The report describes the successes BLM has achieved in protecting and improving water quality in Montana. Please consider providing a link to a place on the Montana/Dakotas BLM webpage where the public can download copies of	See changes to Chapter 2, Water Resources, Decisions Common to All Alternatives, fourth paragraph.	Yes

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		past reports.		
0212-09	Water Resources	Page 143, under "Decisions Common to All Alternatives," third paragraph. In the list of "indicators," please include "flow alterations," "metals," and "riparian vegetation condition." These, along with nutrients, sediment and habitat alterations, make up the bulk of the probable causes of impairment in Montana.	See changes to Chapter 2, Water Resources, Decisions Common to All Alternatives, third paragraph.	Yes
0212-10	Livestock Grazing	Page 152, in the call-out box titled "Mitigation Measures and Conservation Actions For Surface-Disturbing and Disruptive Activities." The document defines "Surface-Disturbing Activities" as: "The physical disturbance or removal of land surface and vegetation. Some examples of surface-disturbing activities include, but are not limited to, construction of roads, well pads, pipelines, powerlines, pits/reservoirs, facilities, recreation sites, and mining. Vegetation renovation treatments that involve soil penetration and/or substantial mechanical damage to plants (plowing, chiseling, chopping, etc.) are also surface-disturbing activities." The document then states "livestock grazing" is not considered a surface disturbing activity. Please identify the measures BLM will take to keep livestock with access to wetlands and streambanks from physically disturbing the land surface and removing vegetation. Alternatively, please provide the rationale for the categorical exclusion of livestock grazing from the definition of surface-disturbing activities.	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern.	No
0212-11	Vegetation	Page 189, "Vegetation – Riparian and Wetland" section of Table 2.21. In the "Range Improvements/Water Facilities" row and the "Hot Season Grazing" row, the preferred alternative calls for specific riparian best management practices (BMPs) to be implemented for the benefit of Sage Grouse. Please adopt a similar approach to protecting riparian areas adjacent to water bodies that are listed as impaired on the State's 2012 List of Impaired Waters (Appendix A of Montana's 2012 Water Quality Integrated Report, available for download at http://cwaic.mt.gov/wq_reps.aspx?yr=2012qryId=101435). Table A-1 of Appendix A of the 2012 Montana Nonpoint Source Management Plan contains a list of BMPs, several of which could be implemented to protect and improve riparian and wetland vegetation.• In the "Riparian Exclosures" row, the preferred alternative does not	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern.	No

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		appear to address the possible need for new riparian exclosures in circumstances where livestock are over-grazing.		
0212-12	Water Resources	Page 190, under "Water Resources." Please analyze alternatives for protecting water quality. Please include specific best management practices and a program for monitoring compliance.	Best Management Practices (BMPs) are identified in Chapter 4, Water Resources, Impacts Common to All Alternatives, Livestock Grazing. Additional references and guidance for BMP implementation is included in Chapters 2, 3, and 4 under Livestock Grazing and are extensively referenced and discussed in Appendix E for Oil and Gas Activity. Appendix C contains a discussion of BMPs for multiple Water Resource-related BMP topic discussion sources and lists such sources. BMPs can also be found in Appendix A of the 2012 Montana Nonpoint Source Management Plan. Also see Chapter 4, Vegetation – Riparian and Wetland, Impacts Common to All Alternatives, third paragraph. Adherence to 43 CFR §3160; Onshore Oil and Gas Orders No.1, No. 2, and No. 7; and The Gold Book (BLM and USFS 2007) would serve to protect water quality through practices and programs that include compliance monitoring. See changes made to the following areas: Chapter 2, Water Resources, Decisions Common to All Alternatives, last paragraph; Chapter 4, Vegetation – Riparian and Wetland, Assumptions and Guidelines; and Chapter 4, Water Resources, Assumptions and Guidelines.	Yes
0212-13	Vegetation	Page 232, under "Vegetation – Riparian and Wetland." The document seems to indicate that under the preferred alternative, BLM anticipates the loss of 2,055 acres of wetland/riparian habitat. 2,055 acres of surface disturbance to wetlands and riparian areas is an unacceptable loss of resources. In Montana, state, federal and private entities spend hundreds of thousands of dollars each year to protect and restore wetland and riparian resources. Please provide measures to prevent further loss from occurring. If a loss is somehow unavoidable, mitigation should be required.	Table 2.29, Summary Comparison of Environmental Consequences, under Vegetation – Wetland and Riparian, Surface Disturbing Activities, indicates that 2,055 surface acres could be disturbed in the long-term. These are not wetland acres. The subsequent discussion under Vegetation – Wetland and Riparian, Fluid Minerals, goes on to explain the occurrence of lotic and lentic riparian habitat in the high and moderate potential areas that could be affected by fluid mineral development. Additional analysis of effects from Fluid Minerals is discussed for each alternative within Chapter 4, Water Resources. Fluid mineral development increases the chance for heightened sediment loads and the potential for produced water to run into streams and wetlands.	No

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0212-14	Water Resources	Pages 367 through 371, under "Factors Affecting Water Quality" • This section needs to be updated to reflect information in the current versions of the Montana Nonpoint Source Management Plan (2012) and the Montana 2012 305(b)/303(d) Integrated Report. • Please do more to highlight the effects Dams, impoundments, and other flow modifications have on water quality and stream condition. Table 3.54 attempts to include these effects as part of grazing (see footnotes to Table 3.54). But Table 3.56 appears to dissociate the two, and could mislead readers into thinking that all is well with respect to water quality and stream condition in the Lone Tree Creek watershed. Based on a review of USDA aerial photos from 2005, 2009, and 2011, it appears that impoundments are having a profound effect on water quality and stream condition in the Lone Tree Creek watershed. • On page 368, you state "Of the twelve potential water quality impairment sources, only four can be directly related to BLM management: (1) resource extraction, (2) rangeland grazing, (3) historical mining, and (4) riparian grazing." Please explain how you arrived at the number twelve. Please explain why sources such as hydrostructure flow regulation/modification, and streambank modifications/destabilization (sources identified for Lone Tree Creek in hydro unit 10050012) did not make the list of things that can be directly related to BLM management. • On page 368, you state "Grazing has been identified as a source of impairment to the Milk River (020), but the only identified pollutant (mercury) would not be caused by grazing." The 020 section of the Milk River is not listed for mercury. It is listed as impaired due to alteration in stream-side vegetative covers, flow regime alterations, iron, and nitrates. Incidentally, the 010 section of the Milk is listed for Escherichia coli, iron, and mercury.	See updates to Chapter 3, Water Resources, Factors Affecting Water Quality, Surface Water (Quality) and Tables 3.54, 3.55, and 3.56. Also see revisions made to Chapter 4, Water Resources, Assumptions and Guidelines. The effects of dams, impoundments, and other flow modifications on water quality and stream condition are discussed in Chapter 4, Vegetation – Riparian and Wetland, Impacts Common to All Alternatives, the first paragraph.	Yes
0212-15	Water Resources	Page 372, under "Floodplains." Please provide additional information on the affected floodplain environment. The public comment period recently closed on the BLM, Miles City Field Office Draft Resource Management Plan (MCFO RMP). The MCFO RMP contained a more robust discussion of floodplains. The preparers of	See changes to Chapter 3, Water Resources, Floodplains.	Yes

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		the MCFO RMP may be able to provide insight on where to find additional resources for creating a more substantive characterization of floodplains along the HiLine.		
0212-16	Vegetation	Page 481, under "Livestock Grazing and Vegetation – Riparian." Please define the term "manageable riparian areas".	All riparian areas can be managed. The subject text in Chapter 4, Fish, *Livestock Grazing and Vegetation – Riparian* has been changed to reflect this: "Upon determining site capability through ecological condition and PFC assessments, riparian areas would be maintained, restored, and/or improved to maximize long-term health and productivity benefits and values."	Yes
0212-17	Vegetation	Page 615, Vegetation – Riparian and Wetland section. The first assumption in the bulleted list states: "Montana DEQ Water Quality Management Plans would be developed in coordination and cooperation with surrounding agencies and private landowners." Please clarify what document you are referring to as a "Montana DEQ Water Quality Management Plan." This label has been applied to some of the TMDL documents over the years, but DEQ also supports several other water quality management planning frameworks that may fit the general description of a "Water Quality Management Plan." These range from project or site-specific plans, to Watershed Restoration Plans, to statewide strategic planning efforts. DEQ water quality planning efforts almost always include significant coordination and cooperation with surrounding agencies, private landowners, and other stakeholders. However, planning documents have not been developed for all watersheds, and there are some watersheds for which they might not be developed for many years to come. Factors such as local landowner interest, funding availability, and the availability of monitoring data may affect the rate and focus of plan development.	See revisions made in Chapter 4, Vegetation – Wetland and Riparian, Assumptions and Guidelines.	Yes
0212-18	Water Resources	Pages 646 and 647, under "Assumptions and Guidelines"• This section fails to acknowledge the correlation between water quantity and water quality. Improvements in riparian vegetation will do little to achieve the goals of the Clean Water Act if there is no water left in the stream because it is all trapped in headwaters impoundments. Please add guidelines and incentives to encourage decommissioning of some of the existing impoundments and limit the construction of new impoundments. These might include the following:	A comparison of water resource management alternatives is presented in Table 2.28, Water Resources. Chapter 4, Water Resources, Assumptions and Guidelines, has been revised to include historical watershed impacts. It is the BLM's goal to honor Montana Water Law which includes the loss of a water right if the beneficial use by the appropriator is inactive for 10 years.	Yes

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		• Creating a "use it or lose it" policy for existing impoundments; • When conducting PFC assessments, place more weight on impacts from stream dewatering, and do not assume that dewatering activities are uncontrollable, limiting factors that limit a stream's "capability"; • Conduct assessments to identify streams that are chronically dewatered as a result of impoundments and diversions on BLM land; • Place size (volume and surface area) limitations on new impoundments.	The effects of dams, impoundments, and other flow modifications on water quality and stream condition are discussed in Chapter 4, Vegetation – Riparian and Wetland, Impacts Common to All Alternatives, the first paragraph. Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern.	
0212-20	Water Resources	Page 654, under "Cumulative Impacts." This section fails to acknowledge the significant, cumulative impacts that the hundreds of stream impoundments on BLM land are having on water resources. Please acknowledge and address these impacts.	See Chapter 4, Water Resources, Impacts Common to All Alternatives, Cumulative Impacts, third paragraph. The effects of dams, impoundments, and other flow modifications on water quality and stream condition are discussed in Chapter 4, Vegetation – Riparian and Wetland, Impacts Common to All Alternatives, the first paragraph. See changes made to Chapter 4, Water Resources, Assumptions and Guidelines.	Yes
0212-21	Water Resources	Page 839, Appendix C. The "2007 Montana Nonpoint Source Management Plan" is obsolete. It was replaced in 2012 by the "2012 Montana Nonpoint Source Management Plan". The current (2012) plan is available for download at the following DEQ website: http://deq.mt.gov/wqinfo/nonpoint/NonpointSourceProgram.mcpx.	See changes made to Appendix C, Best Management Practices, Montana Non-Point Source Management Plan.	Yes
0213-01	Fluid Minerals	I realize that there needs to be a balance with development interest, and more of these lands are inevitably destined for oil and gas production. Please ensure that this is done in an environmentally responsible manner and that the extraction companies are bonded to repair the landscape when the leases expire.	This topic is covered in Appendix E.1. Oil and Gas Operations, Drilling Permit Process.	No
0214-01	Wilderness Character-istics	All lands with identified wilderness characteristics should be managed for their wilderness values. These include 26 areas the BLM has identified as well as 3 areas identified by the MT Wilderness Association (MWA). The total of only 17% of the total land mass is not too much to ask to be preserved.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2,	Yes

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			Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	
0214-02	Wilderness Character-istics	The BLM should re-evaluate Carpenter Creek, Lena and Long Coulee; MWA's inventory determined that all 3 areas meet BLM's criteria as lands with wilderness characteristics. There is no reason not to include these 60,000+ acres.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0214-03	Fluid Minerals	Wilderness quality lands should be managed as such when their oil and gas leases expire. Any wilderness quality lands that are developed by oil and gas should be returned to as pristine condition as possible afterwards.	This topic is discussed in Appendix E of the Proposed RMP/Final EIS.	No
0214-04	Solid Minerals	Extend the moratorium on leasable, locatable and salable solid minerals in the Sweetgrass Hills for 20 years to prevent gold mining in the historic district.	Under Alternative E, all BLM-managed lands within the Sweet Grass Hills TCP are recommended for a 20-year extension of the withdrawal for locatable minerals and closed to leasable and salable minerals. See Chapter 2, Solid Minerals, Alternative E (Preferred Alternative) and Tables 2.20, 2.21 and 2.22.	No
0214-05	Wilderness Character-istics	The Billings Field Office has management prescriptions for wilderness quality lands that you, too, should follow. They include: closing areas to oil and gas leasing or allowing leasing only with "no surface occupancy" period; closing areas to rights-of-way for powerlines, pipelines and wind farms; closing lands to construction of new roads; managing areas for non-motorized recreation to protect wilderness values; closing areas to mining; restricting construction of new structures unless they enhance wilderness characteristics.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0215-01	Wildlife-General	Although we have previously commented on the HiLine RMP, we wanted to add our strong support for the restoration and conservation of wild bison on the spectacular landscapes of the CM Russell National Wildlife Refuge (NWR) and the	Additional text has been added to the "Issues Considered but Not Addressed Further" in Chapter 1 of the Final RMP/EIS under the heading "How will bison be managed?" The BLM recognizes the State's role in managing native wildlife and	Yes

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		HiLine Resource Management Area (RMA). We have recreated in this region and know its value. We ask you to work with MT Fish Wildlife and Parks (FWP) to make this a reality. The return of bison to their native high plains would be good for the land and for other high plains species. Bison belong here. People of the region would benefit because of increased wildlife tourism. We can think of no other region of MT that is more suitable for the return of bison to the landscape.	would work cooperatively with MFWP, USFWS, other agencies, partners, and cooperators in the development of a wild bison restoration plan. At this time, the State does not have an ongoing plan to reintroduce wild bison in the planning area.	
0217-01	Cultural Resources	An area of high concern is lack of protection of Traditional Cultural properties. The area southwest of Zortman in the Grouse Gulch-Saddle Butte area needs more protection. Off Road Vehicle use and abuse is overwhelming in this area. New ORV trails have been blazed into very close proximity to the prehistoric caves and archeological features in this area. This has led to abuse of the pictographs in the area as well as littering problems.	A critical component of the Cultural Resource program in the BLM is the monitoring of significant cultural resource locations. The BLM monitors on a biannual (at a minimum) basis the NRHP eligible sites located in the Little Rockies TCP. No recent damage or litter has been noted at those locations. See Chapter 2, Cultural Resources, Decisions Common to All Alternatives. OHV routes would be addressed through travel management at a later date following completion of the Proposed RMP/Final EIS. See Chapter 2, Off-Highway Vehicle Use and Travel and Transportation Management, Travel Management Areas.	No
0217-02	Vegetation	I may have missed it but was also wondering how the plan addresses the Pine Beatle infestation in the above described area as well as the rest of BLM lands.	See the discussion of forest and woodland health treatments in Chapter 2, Forests and Woodlands, Decisions Common to All Alternatives and Alternatives B, C, D, and E (Preferred Alternative). Also see Chapter 3, Air Resources, Climate Change Effects on Resources, last paragraph; Chapter 3, Forests and Woodlands, Factors Affecting Forest and Woodland Health; Chapter 4, Climate Change, Assumptions and Guidelines, third from last paragraph.	No
0219-01	Wilderness Character-istics	My first and foremost concern the woeful inadequacy of the area and management of wilderness characteristics. It appears the Draft does not adequately address the importance of management of wildland areas.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes

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0219-02	Water Resources	Designating the Marias River as a wild and scenic river is a minimum standard. The Draft Assessment does not address the turbidity and other water quality issue that will become more important as the process of hydraulic fracking contaminates our ground water and surface water.	See changes to Chapter 3, Water Resources, Factors Affecting Water Quality. Table 3.54 addresses water quality issues and provides details on water quality impairment within the segment of the Marias River that is detailed in Appendix L.2, Marias River Wild and Scenic River Eligibility and Suitability Report.	No
0222-03	Wildlife-Greater Sage-Grouse	Some sage-grouse leks in the planning area are outside priority habitat, relegated to general habitat areas.[1] [1] It is unclear how many active sage-grouse leks are in general habitat; the BLM should provide these data in the proposed RMP/final EIS. The BLM should also clarify (and correct, as necessary) the relation of various lek data in the DRMP/EIS. The plan states there are approximately 154 leks on BLM land in the planning area (397) (how many are on other land ownerships?). The plan also states that approximately 76 leks would be affected by high density fluid minerals development, comprising 31% of all known leks in the planning area (711). On the same page, the plan indicates that 164 leks also equate 31% of all leks in the planning area. At least one of these totals is described incorrectly.	Refer to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse, where acres of Greater Sage-Grouse habitat have been added. As stated in that paragraph, there are 286 known leks in the planning area, 147 of which are located on BLM lands.	Yes
0222-04	Wildlife-Greater Sage-Grouse	Protecting leks and associated habitat are key to sage-grouse recovery (Knick et al. 2013; Connelly et al. 2000). The preferred alternative and best management practices (BMPs) for fluid minerals development would only require a 1-mile no surface occupancy buffer around active leks in general habitat, if possible (728; 904). Surface disturbance would be "avoided," if possible, in sage-grouse nesting habitat (728) (although a process is provided for developers to plan drilling in nesting habitat, 905). A seasonal timing stipulation is prescribed to avoid disturbing sage-grouse in winter habitat (728). There would be no limit on well density (or density of other forms of development) in general habitat areas (728). These stipulations are inadequate to conserve sage-grouse. One-mile lek buffers are too small to protect nesting and brood-rearing sage-grouse, as a large proportion of hens may nest farther away than 1 mile from leks (Moynahan 2004; Holloran and Anderson 2005; Doherty et al. 2010a). The avoidance standard for fluid minerals development in nesting habitat is helpful—until it is waived as part of an approved	Larger buffers were within the range of alternatives.	No

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		development plan (966-967). Protecting winter habitat is important to sage-grouse persistence (Braun et al. 2005, citing Connelly et al. 2000 and others; Moynahan et al. 2007) and timing stipulations, as opposed to year-round prohibitions on disturbance, do not ensure that these essential habitats are protected. The DRMP/EIS should adopt larger lek buffers, development density and disturbance caps, and strict protections for sage-grouse winter habitat in general habitat areas.		
0222-07	Wildlife-Greater Sage-Grouse	The plan should adopt a single, comprehensive set of nondiscretionary prescriptions for managing sage-grouse habitat. The preferred alternative defers key sage-grouse management decisionmaking to future project-level planning conducted in accordance with various and overlapping compilations of conservation prescriptions. Depending on the project, management could be guided by as many as five different strategies, BMPs or guidelines related to sage-grouse conservation: 1. The plan states that the preferred alternative would require BLM to use the national sage-grouse strategy as management standards in the planning area (731). 2. The preferred alternative would also require the agency to use the Montana greater sage-grouse conservation strategy to plan resource management in the planning area (731). 3. Sage-grouse habitat standards for the planning area would not be derived from the national or Montana strategies, however, but from regional standards that are still to be developed "cooperatively…from recent habitat inventories and population parameters in the planning area" (731). 4. The plan includes specific BMPs for fluid minerals development (Appendix E), and references BMPs for other management issues on BLM lands (Appendix C). 5. The plan also includes Mitigation Measures and Conservation Actions for Greater Sage-Grouse (MMCAs) (Appendix M), a compilation of sage-grouse conservation measures of mixed origin.	This topic is discussed in Chapter 2, Wildlife, Special Status Species, and in Appendix M, Mitigation Measures and Conservations Actions for Greater Sage-Grouse Habitat.	No
0222-09	Wildlife-Greater Sage-	Reserving specific habitat standards for regional research and development that is still to be completed leaves a significant gap	Refer to Appendix M, Livestock Grazing which includes the following language:	No

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	Grouse	in the RMP; it is also unnecessary, as there are several, widely accepted descriptions of sage-grouse habitat requirements already available (Connelly et al. 2000; Braun et al. 2005; Hagen et al. 2007).	"Include (at a minimum) indicators and measurements of structure/condition/composition of vegetation specific to achieving sage-grouse habitat objectives (Doherty, et al. 2011). If local/state seasonal habitat objectives are not available, use sage-grouse habitat recommendations from Connelly, et al. (2000b) and Hagen, et al. 2007."	
0222-10	Wildlife-Greater Sage-Grouse	BMPs presented in Appendix C are helpful, but should be required stipulations rather than optional guidelines in project planning.	Oil and gas stipulations can be found in Appendix E.4.	No
0222-11	Wildlife-Greater Sage-Grouse	The MMCAs appear to be a combination of guidelines and prescriptions from the Montana sage-grouse strategy and the National Technical Team's (NTT) Report on National Greater Sage-Grouse Conservation Measures. They include important restrictions for managing sage-grouse habitat, although is unclear from the DRMP/EIS how and when the MMCAs would be applied ("The EIS for the RMP does not decide or dictate…inclusion of these guidelines", 1119). The MMCAs would be selectively applied in project-level plans, rather than incorporated in the RMP as minimum standards for conserving sage-grouse and their habitat (1119).	Refer to Appendix M, Mitigation Measures and Conservation Actions For Greater Sage-Grouse Habitat, Purpose.	No
0222-13	Wildlife-Greater Sage-Grouse	The plan should clearly document its analysis of the NTT report recommendations. The MMCAs were purportedly used in the RMP and EIS process as a tool to help develop management alternatives (1119). However, it is unclear how they influenced alternative development, particularly given how few sage-grouse management prescriptions are actually included in the alternatives (as opposed to being relegated to the appendix). Given the mixed derivation of Appendix M, it is also unclear if the HiLine DRMP/EIS analyzed the entirety of the NTT recommendations as directed by the Washington Office (BLM Memo 2012-044), or only some of the NTT prescriptions mixed in with recommendations from other sources.	Refer to Chapter 4, Wildlife, under the subheading, Birds and under Cumulative Impacts. On December 27, 2011, the BLM released IM 2012-044. In accordance with this IM, the BLM must consider all conservation measures developed by the NTT in at least one alternative in the land use planning process. Alternative B in the Proposed RMP/Final EIS fulfills this requirement by incorporating the recommendations set forth by the NTT. Analysis of this alternative can be found in Ch. 4. Alternatives A and D in the Proposed RMP/Final EIS do not include sage-grouse management recommendations included in the NTT Report, but instead propose to use the national and Montana Greater Sage-Grouse conservation strategies as the basis to address Greater Sage-Grouse needs during the watershed planning process and project-level analysis.	No
0222-14	Wildlife-Greater Sage-Grouse	The plan should account for the predicted effects of climate change on sage-grouse. The World Wildlife Fund modeled predicted	The topic is discussed in Chapter 4, Climate Change, Assumptions and Guidelines. Unpublished data will not be included in the Proposed RMP/Final EIS.	No

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		effects of climate change on Wyoming big sagebrush and silver sagebrush in Wyoming, Montana, North Dakota, and South Dakota (Schrag and Forrest 2008, unpublished data). Results suggested a decrease in distribution of Wyoming big sagebrush by approximately 76-81 percent and a decrease in silver sagebrush of 71-80 percent by 2030 (Schrag and Forrest 2008, unpublished data). The authors contended that increased temperatures will also lead to the increased spread of West Nile virus and these factors, combined with habitat loss and degradation from continued land uses, may threaten sage-grouse with extinction (Schrag and Forrest 2008, unpublished data). Climate change is also expected to facilitate the spread of cheatgrass in the Northern Plains (Bradley 2009). The DRMP/EIS acknowledges that climate change poses a challenge to resource management (259-260; 434) (increased temperatures associated with climate change are expected rise higher in northern Montana relative to other parts of the West, 257, Figure 3.6) and notes that "sensitive species in the planning area, such as the greater sage-grouse, which are already stressed by declining habitat, increased development, and other factors, could experience additional pressures due to climate change" (260; 434). However, the plan includes only a few, minor prescriptions that consider the potential effects of climate change on the landscape (e.g., consider collecting seeds from warmer areas within a species' current range to reseed after wildfire, 843; 1133), and fails to address the cumulative effects of climate change and land use on sagebrush ecosystems (e.g., declaring that livestock grazing is not considered a surface-disturbing activity in regard to soil and vegetation management, 513; 571). The DRMP/EIS should do more to account for the multiple, negative impacts of climate change on sage-grouse and other sagebrush-dependent species in the planning area.		
0222-16	Wildlife-Greater Sage-Grouse	Conservation measures in the plan should be strengthened to comply with the BLM sensitive species policy. The preferred alternative may contribute to the continued decline of sage-grouse populations in the planning area, in contravention of the best available science and BLM sensitive species policy (BLM	Objectives of BLM Manual 6840 are to initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA. The BLM is being proactive to reduce impacts to Greater Sage-Grouse. The topic	No

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		WO IM 97-118; BLM Manual 6840). The smaller priority habitat areas; existing and foreseeable energy development on all land ownerships in the planning area (400, 728, 733); inadequate protections in general habitat areas (728); increased risk of noxious weed incursion (731); and agricultural conversion on private lands (733) are all likely to contribute to continued sage-grouse population declines. The plan's deduction that "[o]verall, protection to minimize disturbances and protect habitat for greater sage-grouse under Alternative E would provide short-term and long-term beneficial impacts to greater sage-grouse on BLM land" (732) is unsupported by BLM's own assessment of the impacts of current and foreseeable land uses on sage-grouse (689). It also contradicts the agency's sobering conclusion that even the strictest management prescriptions applied in priority habitat—essential to preserving sage-grouse populations in the planning area—will fail to maintain or improve current conditions for sage-grouse (728).	is discussed in Chapter 4 and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat.	
0222-17	Wildlife-Greater Sage-Grouse	The plan should analyze the Sage-Grouse Recovery Alternative. The DRMP/EIS declined to separately analyze the Sage-Grouse Recovery Alternative (www.sagebrushsea.org/land_recovery_alternative.htm), a management alternative submitted by conservation organizations to conserve and recover sage-grouse populations. The DRMP/EIS declined to separately analyze the Recovery Alternative, contending that components of the "conservation groups alternative" were substantially considered in the range of other alternatives analyzed in the plan (170-171)—although it is unclear whether the DRMP/EIS is referring specifically to the Recovery Alternative, since different conservation organizations submitted at least three different conservation alternatives to BLM during the scoping process for the National Sage-Grouse Planning Strategy. The Sage-Grouse Recovery Alternative, though based on the NTT report recommendations, makes additional and stronger management prescriptions for a number of land uses and related effects in sage-grouse range, including livestock grazing, vegetation management, invasive plants, and fire management. The recovery	The Greater Sage-Grouse recovery alternative was within the range of alternatives. Specifically, Alternative B would establish a public land sagebrush reserve to provide high quality habitat for Greater Sage-Grouse and other sagebrush-dependent species by designating a Greater Sage-Grouse Protection Priority Area ACEC and applying major constraints on the use of other resources.	No

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		alternative also recommends including all active sage-grouse leks on BLM land in priority habitat. These recommendations were not analyzed together or individually in the DRMP/EIS. Moreover, given that sage-grouse populations will likely continue to decline under the DRMP/EIS (778)—even under the conservation alternative (Alternative B) (710-711)—the BLM should analyze the complete Sage-Grouse Recovery Alternative as a possible strategy to conserve and restore sage-grouse populations and potentially preclude the need to list the species under the ESA.		
0222-18	Social	The BLM should revise its estimation of wildlife advocates' support for the plan's prescriptions for sage-grouse management. The DRMP/EIS suggests that "[g]roups and individuals who give a high priority to resource protection, including the protection of the prairie ecosystem and greater sage-grouse habitat, may feel this alternative offers enough protection for these resources" (570). For reasons stated in these comments, Defenders of Wildlife is not satisfied that sage-grouse and their habitat will be adequately protected by the DRMP/EIS.	The discussion of stakeholders and stakeholder values, including the quoted text, has been revised in Chapter 4, Social.	Yes
0222-21	NEPA	The plan includes only a few, minor prescriptions that consider the potential effects of climate change on the landscape and fails to address the contributions of some land uses to the cumulative effects of climate change on ecosystems.	This topic is addressed in the Climate Change section in Chapter 3 of the Proposed RMP/Final EIS. Additional information regarding USDI's efforts to respond to climate change is available from http://www.doi.gov/whatwedo/climate/cop15/index.cfm.	No
0222-23	Wildlife-General	Defenders argues here that: 1) the BLM, through its Draft HiLine RMP, has failed to take the necessary steps to ensure that black-footed ferrets in the planning area are conserved 14 even though it has an affirmative obligation to do so and further 2) that the BLM has failed to state in the plan how it intends to address one of the most significant habitat management issues on its lands in the planning area with respect to wildlife-- prairie dog conservation and black-footed ferret recovery-- and therefore is unreasonably delaying and withholding agency action that could ensure recovery of the ferret on BLM lands through its inaction (See, eg, Forest Guardians v. Babbitt, 174 F.3d 1178 (10th Cir. 1999)).	Please refer to Chapter 2, Table 2.8, Oil and Gas Lease Stipulations by Alternative, Wildlife; and Chapter 2, Wildlife, Special Status Species.	No
0222-27	Wildlife-General	Defenders recommends: 1) That BLM adopt BMPs for prairie dogs as mountain plover habitat that include all of	Refer to Chapter 2, Wildlife, Black-tailed prairie dogs.	No

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		the aforementioned actions (see BMP discussion above) with particular goals of maintaining prairie dog colony sizes in excess of 250 acres for plovers; 2) That BLM consider carefully the timing and use of pesticides for plague control to minimize impacts to mountain plovers, and should consider the use of oral vaccines (Abbot et al 2013) for plague in plover areas; 3) that BLM specifically identifies priority management areas and/or ACEC designation for plovers that occupy prairie dog colonies (eg outside of the Plover ACEC)	Also refer to Chapter 2, Noxious Weeds and Other Invasive Non-Native Species, and Chapter 3, Wildlife, Wildlife Habitat. The BLM would consider year-round or seasonal shooting closures on prairie dog towns identified for black-footed ferret reintroductions by the USFWS (43 CFR 8364.1). Language has been added to the Black-tailed Prairie Dog section of Chapter 2, Wildlife, Alternative E (Preferred Alternative), under Special Status Species. Also refer to Chapter 2, Lands and Realty, Land Ownership Adjustment, Decisions Common to All Alternatives.	
0222-28	Wildlife-General	Prairie Dogs/Canada. The BLM should not forget its obligations under international agreements (eg Trilateral Commission, 1940 Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere[20]) to assist foreign countries in achieving their conservation and wildlife goals ([20]Available at: http://www.trilat.org/about-the-trilateral/memorandum-of-understanding). The prairie dog is threatened in Canada (Species At Risk Act (SARA), S.C. 2002, c.29) and limited to distribution just north of the US border in Grasslands National Park. Black-footed ferrets have been reintroduced there and are considered endangered in Canada. The BLM should assist the Canadian ferret recovery effort in Grasslands National Park by providing additional prairie dog habitat near that reintroduction site on BLM lands adjacent to the border, to facilitate genetic exchange between prairie dogs, and maintain migration corridors for prairie dogs. Within the HiLine Plan, Defenders asks that 1) the BLM identify an area where it believes suitable prairie dog habitat exists to connect prairie dogs in Canada with the rest of the range of prairie dogs in the US, and 2) establish a timeline for further planning to clarify the scope and extent of any expansion or population targets for prairie dogs in this area adjoining the border. In the meantime, Defenders expects that the BLM would not take any management action that would irreparably impair the ability of any future priority management designation for prairie dogs/ferrets in the area identified or migration corridors for prairie dogs cross-border.	Refer to discussion in Chapter 3, Wildlife, Wildlife Habitat. Also refer to Chapter 3, Black-tailed Prairie Dogs, for a map of Black-tailed Prairie Dog Habitat (Figure 3.22).	No

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0222-29	Wildlife-General	Prairie Dogs/Conclusion. Within the black-footed ferret and prairie dog associates conservation priority sites we describe, or which BLM may choose to delineate independently, and for existing prairie dog complexes and colonies regardless of BLM's adoption of this concept, Defenders believes the HiLine RMP will more robustly address BLM's conservation responsibilities if it takes positive management action for prairie dog management. Ultimately, the UL Bend ferret habitat is not large enough to sustain a viable ferret population. Success will require the availability of prairie dog colony habitat on adjacent BLM lands. Without BLM cooperation, the UL Bend ferret population will eventually go extinct due to the fact that BLM failed to expand habitat on its lands as it has an obligation to do and as it has agreed to do. With positive management action, however, BLM lands in the Planning Area can be occupied by ferrets still extant within the planning area migrating from the UL Bend area. Defenders will be pleased to continue to work with the BLM to further the goal of seeing a healthy, viable ferret population in whatever way possible. An objective to reach the 10,000 acre complex as called for in various planning efforts should be explicitly called out in the HiLine RMP and a timeline developed for implementation.	Refer to Chapter 2 of the HiLine RMP/EIS. The BLM would adopt the MFWP Region 6 Prairie Dog Abundance and Distribution Objectives Plan (MFWP 2006a) in the Proposed RMP and would commit to achieving prairie dog objectives outlined in the plan.	No
0222-30	Wildlife-General	Particularly important and recently recognized are pronghorn and sage grouse migration (see e.g. Jakes 2009; Smith 2013)[22] The pronghorn migration in northcentral Montana may be one of the longest animal migrations in North America (Andrew Jakes, pers. comm.). The Draft HiLine RMP needs to specifically address how it will manage for these features (Sawyer et al 2009; Poor et al 2012). Defenders recommends incorporating current information into designation of corridors in order to prioritize best management practices for corridor management, including: 1) identifying in the plan known areas of migration as priorities; 2) reviewing fence design for all boundary fences in designated corridors and replacing/modifying fences within the known corridors (See eg Poor et al 2012); 3) including these features in acquisition and retention criteria (Draft RMP, Appendix E at	1) Migration corridors for Greater Sage-Grouse have not been developed at this time. There are migration paths that have been observed, but they are based on less than five birds. Pronghorn migration corridors from research conducted by Andrew Jakes are still being developed. 2) Refer to Chapter 2, Wildlife, Decisions Common to All Alternatives. New fences would follow BLM specifications to allow for wildlife passage, except for fences built specifically to keep wildlife out of an area. Fences would also be placed and marked, or modified, to reduce wildlife collisions or entanglements. 3) Refer to Appendix F, Land Ownership Adjustment, Acquisition Criteria, which includes the following: • Enhance important public values and used, especially • Special Status Species plant, animal and fish habitats; as well as identified	No

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		p. 976); and 4) creating a working group to identify critical crossings, barriers, potential locations for over or underpasses, and other best management practices by 2014. [22] These researchers have described preliminary assessments of major pronghorn and sage grouse movement corridors and can provide data for these pathways on request.	wildlife corridors 4) Creation of a working group is not within the scope of this RMP/EIS.	
0222-31	Wildlife-General	While no introduction of wild bison in the planning area is currently proposed, a statewide bison management plan is being developed (Adams and Dood 2011) that very likely will recommend one or more sites within the HiLine planning area for bison based on criteria developed by Montana Fish, Wildlife and Parks. Defenders believes that the BLM can and should have a suite of tools and best management practices to address contingencies arising from wildlife management activities such as this. To this end, Defenders recommends the BLM include a section in the RMP on tools applicable to all wildlife management, that could be applied in a variety of situations but which currently lack policy guidance for the public. Among these are: Voluntary grazing retirement. Voluntary grazing retirement has been shown in many situations to provide economic benefit to permittees while managing wildlife/grazing conflicts (Wrabely 2009). The level of detail provided by BLM in the plan (see eg HiLine Draft RMP, Alternatives, Table 2.21, p. 178) is inadequate to determine where BLM would prioritize grazing retirement outside of sage grouse priority areas. BLM should clarify when and under what circumstances grazing retirement could be deployed to resolve wildlife/grazing/development conflicts in more detail, just as it has done with land disposal/acquisition. Also, Defenders believes that a programmatic EIS would more efficiently address the environmental impacts of such a program than a case by case NEPA analysis as is proposed in the Draft RMP. Pay for production incentives. Permittees may wish to balance their operations to produce more wildlife benefits on BLM allotments if they were given special	The difference between grazing retirement and grazing relinquishment is explained in the Livestock Grazing section of Chapter 2 of the Proposed RMP/Final EIS. Voluntary grazing retirement is outside the scope of the RMP, while the voluntary relinquishment of grazing preference is considered and addressed in Alternatives B, C, D and E. As stated in Chapter 1, Issues and Concerns Considered but Not Addressed Further, the BLM manages wildlife habitat on public lands, which is addressed in Chapter 2. Montana Fish, Wildlife and Parks (MFWP) is responsible for fish and wildlife population management. The BLM has considerable management options available through implementation of Standards for Rangeland Health and Guidelines for Livestock Grazing Management. The HiLine RMP/EIS addresses reserve common allotments in Chapter 2, Livestock Grazing, Alternatives B, C and E. Pay for production incentives are not within current BLM authorities.	No

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		consideration (deferral of grazing fees, reimbursement for certain improvements, cash payments for wildlife benefits produced). The BLM should identify programs and conditions under which these kinds of consideration could be deployed. Grass banking. Permittees may be willing to forego forage reductions needed for species conservation if alternative grazing were available within the overall BLM grazing program, which would also be useful in situations where drought, fire, or other contingencies arise. BLM should describe a pathway to obtaining unused grazing preferences to create a common pool to be used for such situations.		
0222-32	Wildlife-General	The BLM should adopt as part of this plan, a statement of prairie dog-specific "best management practices"[16] which it will implement to be included with the priority designations and prairie dog colonies outside priority areas that includes, but is not limited to, BMPs adopted by other BLM jurisdictions for black-tailed prairie dog management as follows: 1) Shooting closures/management. Shooting has significant effects on prairie dog populations (Pauli 2005; Keffer et al. 2000). BLM needs to close prairie dog shooting on all habitat within each black-footed ferret priority zone throughout the year.[17] Shooting closures initiated by federal managers to maintain black-footed ferret habitat currently exist on federal lands in South Dakota and Wyoming, and in the past, in Montana on some of the very lands we are calling for as priority areas as well. The BLM has the legal authority to regulate prairie dog shooting on BLM lands (see, e.g., 64 Fed. Reg. 56213 (Oct. 18, 1999). Colonies closed to shooting will provide refugia where prairie dog production, instead of being taken off by shooters, can provide a source of prairie dogs for black-footed ferrets and recolonization of nearby prairie dog colonies lost to plague. Access roads in priority areas should be rerouted to discourage access by recreational shooters (see, eg BLM 2007, recommendation 9; Draft HiLine RMP, Alternatives, p 118, rerouting of roads for mountain plovers). The BLM should commit to working with Montana Fish, Wildlife and Parks to implement seasonal restrictions on prairie dog shooting or seasonal firearms/shooting restrictions or closures on all other BLM	The BLM would consider year-round or seasonal shooting closures on prairie dog towns identified for black-footed ferret reintroductions by the USFWS (43 CFR 8364.1). Language has been added to the Black-tailed Prairie Dog section of Chapter 2, Wildlife, Alternative E (Preferred Alternative), under Special Status Species. Also refer to Chapter 2, Lands and Realty, Land Ownership Adjustment, Decisions Common to All Alternatives.	Yes

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		properties with prairie dogs between April 1 and July 15 (see, eg BLM 2007, recommendation 14). [16] While the HiLine Draft RMP has incorporated BMP's generally for sage grouse (see eg HiLine Draft RMP, Appendix M, p. 1126), prairie dogs require BMPs as well to address management of these BLM sensitive species and ferret habitat. [17] This is by no means unusual for recovery sites in other jurisdictions, and BLM has the authority to close any of its lands to shooting prairie dogs…not restricting hunting for other legitimate purposes.		
0222-34	Wildlife-General	3) Prairie dog expansion/supplementation. Utilize translocations of prairie dogs and other habitat-growing techniques to maximize the footprint of prairie dog occupancy in core management areas within priority zones and the black-footed ferret ACEC. Establish land stewardship agreements with other agencies and/or private landowners within and adjacent to priority areas. These agreements can control potential uses that may be detrimental to prairie dogs and their habitats, while preserving the landowner's intent for use (see eg BLM 2007 recommendation 17). The BLM should avoid the sale or exchange of lands with prairie dogs and should attempt to acquire parcels with prairie dogs on them (see eg, BLM 2007 recommendation 16). Defenders agrees in principle with the categorization of lands designated for retention or disposal as described in Alternative E, given its proposed black-footed ferret priority area designation and the overlap of protection offered by the sage grouse priority sites (HiLine Draft RMP, Appendix F.2, BLM Land Available for Disposal by Exchange or Sale, p. 977). Defenders believes that prairie dog management will be more effective if an aggressive program of land consolidation and disposal is undertaken. Retention of lands inside black-footed ferret priority areas should be specifically incorporated into retention and acquisition priority criteria. Consolidating BLM management in priority areas will reduce potential prairie dog edge conflicts with neighbors, allow for more efficient administration, and allow for greater opportunity for black-footed ferret exchange between colonies.	Translocation of wildlife is not within the scope of this RMP/EIS. Montana Fish, Wildlife & Parks manages native wildlife populations, including proposals to reestablish native species such as prairie dogs and black-footed ferrets. The BLM would work cooperatively with MFWP, USFWS, other agencies, partners, and cooperators in the development of wildlife restoration plans. Refer to Chapter 2, Lands and Realty, Land Ownership Adjustment, Decisions Common to All Alternatives.	No
0222-35	Wildlife-	4) Plague management. Current plague	Refer to Chapter 2, Noxious Weeds and	No

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	General	mitigation involves application on core black-footed ferret refugia of deltamethrin dust (Biggins et al 2010), which has been shown to be effective in suppressing flea populations, thus interdicting plague outbreaks in prairie dogs. Currently some half dozen ferret reintroduction areas in the US and Canada deploy deltamethrin as part of the management regime for ferret and prairie dog conservation. BLM needs to include and fund a program to use deltamethrin or other plague management tools to maintain prairie dog numbers in some subset of colonies within priority zones to maintain prairie dog colonies for black-footed ferrets. The BLM should participate in oral plague vaccine studies and incorporate plague vaccine into their management program (Abbot et al. 2013).	Other Invasive Non-Native Species. Also refer to Chapter 3, Wildlife, Wildlife Habitat.	
0222-36	Wildlife-General	5) Surface disturbance. No further oil and gas exploration and development should be allowed in occupied prairie dog colonies. Defenders supports the surface use constraints criteria for prairie dogs in the Preferred Alternative E (Draft HiLine RMP, Alternatives, p 193[18] In general, Defenders finds the approach that BLM has taken to avoid surface disturbance in sage grouse habitats to be an admirable model for retaining the important attributes of habitat conservation for a number of sensitive species. While prairie dogs, and likely black-footed ferrets as well, do not seem particularly sensitive to the nearby presence of oil and gas field development (see, e.g., Clark et al 1986), the surface development activity within prairie dog colonies (loss of surface habitat to road, oil pad, and processing footprints) will result in proportional loss of prairie dog habitat (see eg US BLM (2007), recommendation 11). More importantly, it is not known to what extent prairie dog colony dependent grassland birds such as mountain plovers, burrowing owls, and ferruginous hawks may exhibit avoidance behavior to oil and gas field development activity. When drilling multiple oil or gas wells, if geologically and technically feasible, drill from the same pad using directional (horizontal) drilling technologies (up to 16 wells per pad, as technologically feasible) to lessen surface impacts on prairie dog colonies/towns (see, eg BLM 2007, recommendation 21). When possible, no seismic activity should	Refer to Chapter 2, Fluid Minerals, Table 2.8 and Appendix E.4 for Black-tailed Prairie Dog stipulations by alternative. Also refer to Appendix E.2, which describes Oil and Gas Best Management Practices for wildlife. Seismic proposals would be analyzed on a case-by-case basis. The RMP has not designated black-footed ferret prairie dog priority areas. As stated in Solid Minerals, Locatable, Decisions Common to All Alternatives, terms and conditions (Appendix P) would be applied to mining activities (within the constraints of the mining law) to meet land health standards for uplands, riparian areas and wetlands, water quality, air quality, and native plant and animal species (Appendix M).	No

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		be allowed in occupied or recovering prairie dog habitat (see eg, BLM 2007, recommendation 11). We would like BLM to consider changes to rights-of-way classification from "avoidance" to "exclusion" for all areas designated black-footed ferret prairie dog priority areas (for mountain plover and other associated species) essentially as described for Alternative B, for all the reasons cited by BLM in the Oil and Gas section and Renewable Resources (Wind) section, with the exception of allowing small scale, non-surface (buried) transmission within 500 ft of an existing road. While prairie dog habitat can be maintained with some loss to surface disturbance (see e.g. Clark et al 1986), surface mining of coal, gravel, bentonite, and other minerals is essentially a complete surface conversion and therefore incompatible with maintaining prairie dog habitat, including intra-colony areas needed for connectivity within prairie dog complexes. Defenders therefore does not support Alternative E for Solid Mineral leasing as it currently only protects those habitats where exclusion overlaps sage grouse and prairie dogs, does not entirely include the priority areas described here, and provides no protection for outlying prairie dog colonies that are important habitat for prairie dog associates. [18]http://www.blm.gov/mt/st/en/fo/malta_field_office/rmp/hiline_rmp.html.		
0222-38	Wildlife-General	7) Grazing. The relevant Standards for Rangeland Health and Guidelines for Livestock Grazing Management on the Malta and Lewistown Districts, particularly Standards #11 and #12 (Lewistown GUIDELINE #11: Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plant and animals. Lewistown GUIDELINE #12: Grazing management should maintain or promote the physical and biological conditions to sustain native populations and communities; HiLine Draft RMP, Appendix H at 1033, Standard #5)[19] should encourage grazing that supports species conservation. On any given grazing allotment containing black-tailed prairie dogs, the Bureau and grazing permittee should manage for a mosaic of range conditions (see eg, BLM	Black-tailed prairie dogs are addressed in all livestock permit renewal evaluations. Please refer to Appendix H – Standards for Rangeland Health And Guidelines for Livestock Grazing Management. Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management). The BLM would ensure that land use and implementation plans fully address appropriate conservation of BLM special status species (BLM Manual 6840. The black-tailed prairie dog is a BLM	No

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		2007 recommendation 9). Areas occupied by prairie dogs may have reduced vegetation while other areas of the allotment which do not contain black-tailed prairie dogs may have thicker stands of grass and forbs. Ensure that prairie dog conservation is being addressed on all livestock permit renewal evaluations and associated environmental assessments for oil and gas developments, rights-of-way grants, organized recreational events, etc. (see eg, BLM 2007, recommendation 17). Grazing should be reduced or eliminated during drought. Practices should avoid vegetation stand conversions (BLM 2007, Recommendation 18). [19] Available at: http://www.blm.gov/pgdata/etc/medialib/blm/mt/blm_programs/grazing.Par.96565.File.dat/LewistownSG.pdf.	sensitive status species and is managed through BLM Manual 6840, Special Status Species Management Manual for the Bureau of Land Management. This manual establishes policy for management of species listed or proposed for listing pursuant to the Endangered Species Act and Bureau sensitive species which are found on BLM-administered lands. The objectives of the BLM special status species policy are: A. To conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species. B. To initiate proactive conservation measures that reduces or eliminates threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA.	
0223-01	Wildlife-General	While we generally support the preferred alternative, the BLM does not adequately address wild bison in its plan. More than 22,000 people commented on Montana's statewide bison plan, and the majority of comments suggested the best place for restoring bison is the Charles M. Russell (CMR) National Wildlife Refuge and the adjacent public lands managed by BLM. BLM needs to be an active player in bison restoration, and we urge the agency to make sure this planning effort accommodates wild bison in the future.	Additional text has been added to the "Issues Considered but Not Addressed Further" in Chapter 1 of the Final RMP/EIS under the heading "How will bison be managed?" The BLM recognizes the State's role in managing native wildlife and would work cooperatively with MFWP, USFWS, other agencies, partners, and cooperators in the development of a wild bison restoration plan. At this time, the State does not have an ongoing plan to reintroduce wild bison in the planning area.	Yes
0223-02	Livestock Grazing	In regards to fencing, the BLM should use "wildlife-friendly" fencing when possible and avoid building new fences in priority sage-grouse areas. While the BLM has indicated that a high rotation grazing system would decrease negative effects of cattle grazing, often a high rotation system requires additional fencing, which should be avoided in priority areas, especially near leks and known occupied habitat.	See Chapter 2, Wildlife, Decisions Common to All Alternatives.	No
0225-05	Recreation	Upland game bird hunting is prevalent throughout the HiLine RMP area; the RMP area corresponds to Region 6 of MT FWP. Statewide, sage grouse harvests are the highest in Region 6 and account for 25% of the sage grouse harvested from 1999 to 2009. Hunting season dates for sage grouse have not been reduced since we have a viable and sustainable sage grouse in the HiLine RMP area.	Montana Fish, Wildlife and Parks is the managing agency for wildlife populations in Montana.	No

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0225-07	Special Designa-tions-ACECs	Chapter 3, pg 353-354, Potential ACECs, Woody Island ACEC and Appendix K, pg 1072, Table K.10, Woody Island ACEC Relevance and Importance Evaluation We oppose nominating the 32,869 acres as an ACEC and specifically the 22,411 acres located in northern Blaine County. While the area is a large intact acreage of unbroken prairie and is home to both domestic livestock, wild life and grass land associated birds it does not need to be designated as an ACEC to maintain these positive attributes. BLM policies have dictated past and present land use and will continue to dictate future use of this land mass without the need for any further special designations. Page 1072, Paragraph 4 of "A fish and wildlife resource/rationale for determination" discusses the abundance and diversity of bird species that have been documented in the area. While habitat in the Blaine County portion of Woody Island Coulee is certainly conducive to grass land bird populations another reason for thriving bird populations there compared to other areas may well be predator control. The Woody Island Coulee area has had the unique fortune to have had regular aerial hunting of coyotes by private planes as well as hunting and trapping of coyotes on the ground by two to three professional private coyote hunters for over 30 years. One of the driving forces that has also contributed to the habitat in Woody Island Coulee is the fact that the area borders Canada on the Northern edge in Blaine County and the remaining E, W and S borders are composed of private land owners that are predominately involved in domestic livestock production. These ranches have been in production since the country was homesteaded at the turn of the 20th century and are now in their third or fourth generation of ownership by sustainable ranching families that would prefer to keep their private and publicly grazed acres in grass production. Historical use of the Woody Island Coulee area has been dictated by the management practices that have been in place for a number of years resulting in the desirable current condition of the grass lands. No change in management designation is needed. We do recommend that Havre BLM Field Office Range Technicians continue to monitor this area with due diligence and work cooperatively with adjacent land owners and other land users to ensure that the Woody Island Coulee range condition goals are not	This topic is discussed in Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. The text in Chapter 2, Special Designations, Areas of Critical environmental Concern has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes

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		compromised. Woody Island Coulee land area in N Blaine County is located in a rural area. The cooperative relationship currently enjoyed by the BLM, private land owners, and MT FWP Block Management program provides for the most cost effective method to ensure that travel restrictions on public lands are monitored and reported, protecting the safety of the land.		
0227-01	Vegetation	Keys to management of sagebrush and sagebrush grassland habitats are maintaining expansive stands of sagebrush especially varieties of big sagebrush with abundant forbs in the understory, particularly during spring; undisturbed and relatively open sites for leks; and healthy perennial grass and forb stands intermixed with sagebrush for brood rearing. Within suitable habitats, areas should have 15 to 25% canopy cover of sagebrush 30 to 80 cm tall for nesting, and 10 to 25% canopy cover from 40 to 80 cm tall for brood rearing (Connelly et al. 2000). A Montana study showed 27% canopy cover to be the most successful for sage grouse. In winter habitats, shrubs should be exposed 25 to 35 cm above snow level and have 10 to 30% canopy cover exposed above snow. In nesting and brood-rearing habitats, understory habitats with adequate cover of grasses (>15%) and forbs (>10%) at least 18 cm tall are needed (Connelly et al. 2000).	See Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures, including those mentioned could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern. Refer to Appendix M, Livestock Grazing which includes the following language: "Include (at a minimum) indicators and measurements of structure/condition/ composition of vegetation specific to achieving sage-grouse habitat objectives (Doherty, et al. 2011). If local/state seasonal habitat objectives are not available, use sage-grouse habitat recommendations from Connelly, et al. (200b) and Hagen, et al. 2007."	No
0227-05	Wildlife-Greater Sage-Grouse	Avoid livestock water developments and salt grounds in traditional sage grouse spring, summer, and fall habitats. These developments significantly concentrate livestock and increase forage use, trailing, and soil compaction that fragment sagebrush habitat. These heavy-use areas may extend up to 0.8 km away from the site providing a niche for noxious weeds and other undesirable or unpalatable vegetation to take hold. It is advisable to avoid and eliminate man-made water sources that support breeding mosquitoes known to vector the West Nile Virus. This infectious disease is known to exist in the sage grouse ranges in Montana.	Refer to Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, under Livestock Grazing, Range Management Mitigation Measures and Conservation Actions; and under Fluid Minerals, Best Management Practices for Fluid Mineral Development.	No
0227-06	Wildlife-Greater Sage-Grouse	If the BLM wishes to demonstrate that sage grouse can be protected and restored, the BLM must: – Have quantifiable data collected that show there is enough herbaceous cover (at least 18cm under and around sagebrush. This cover is to be a condition of grazing on public land. – Have quantifiable data collected that	Refer to Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, under Livestock Grazing.	No

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		shows there is adequate canopy cover of sagebrush (height and percentage of cover)-27% canopy cover appears to be the most successful in Montana. This canopy cover must be contiguous. – Limit grazing to the month of July – Limit grazing in riparian areas. During low precipitation years, livestock should not be in riparian areas. – Limit and avoid man-made water sources. – Have a drought management plan, with quantifiable objectives, in place before cattle are turned in to graze. – Have regulatory and enforceable actions in place when grazing changes need to be made.		
0234-01	Wildlife-National Greater Sage-Grouse	The conservation measures proposed by the Sage-grouse National Technical Team (NTT) in a report entitled "A Report on National Greater Sage-Grouse Conservation Measures" (December 21, 2011), are draconian and will have severe negative impacts on NWMA members, other multiple-users of federal lands, and numerous resource-dependent communities in the ten state area. The limit in the NTT report on the percent of land that can be disturbed is unsupported, arbitrary and will have a dramatic adverse impact on multiple-use activities. The draconian conservation measures proposed in the NTT report will further stifle investment in the U.S. mining industry and exacerbate the Nation's mineral import dependency.	The proposed Greater Sage-Grouse conservation measures including the disturbance cap are based on the best available science. Refer to Chapter 2, Greater Sage-Grouse Habitat Management, Appendices C and M and the associated references and literature cited in the Proposed RMP/Final EIS. Refer to Chapter 4 in the Proposed RMP/Final EIS for a discussion of the environmental and economic impacts of implementing the various proposed conservation measures.	Yes
0234-03	NEPA	The EIS must analyze impacts to interference with expectation-backed investments. Analyze the cost of validity exams and the cost of regulatory takings if lands are withdrawn from mineral entry.	Chapter 4 of the Proposed RMP/Final EIS provides a detailed description of the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2.	No
0234-04	Wildlife-National Greater Sage-Grouse	The EIS documents must include a thorough discussion of how the NTT Report conservation measures are based on: 1) the best available scientific and commercial data; and 2) take into account the existing state and local conservation measures. The EIS must evaluate whether and how the conservation measures and regulatory mechanisms recommended in the NTT Report achieve the required balance in managing the public lands.	The NTT report is not the sole source of management decisions for the range of alternatives. A National Technical Team (NTT) was formed as an independent, science-based team to ensure that the best information about how to manage the Greater Sage-Grouse is reviewed, evaluated, and provided to the BLM in the planning process. The group produced a report in December 2011 that identified science-based management considerations to promote sustainable Greater Sage-Grouse populations.	No

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			In March 2012, the USFWS initiated a collaborative approach to develop range-wide conservation objectives for the Greater Sage-Grouse to inform the 2015 decision about the need to list the species and to inform the collective conservation efforts of the many partners working to conserve the species. In March 2013, this team of State and USFWS representatives released the Conservation Objectives Team (COT) report based upon the best scientific and commercial data available at the time that identifies key areas for Greater Sage-Grouse conservation, key threats in those areas, and the extent to which they need to be reduced for the species to be conserved. The report serves as guidance to Federal land management agencies, State Greater Sage-Grouse teams, and others in focusing efforts to achieve effective conservation for this species. Alternatives presented in the Proposed RMP/Final EIS are supported by information provided in the NTT report, the COT report, the 2005 Management Plan and Conservation Strategies for Sage-Grouse in Montana, and Montana's 2014 Greater Sage-Grouse Habitat Conservation Strategy.	
0234-05	NEPA	The proposal to withdraw lands with high-priority habitat from mineral entry is not supported by any authority under the ESA or FLPMA and should not be included as part of BLM's Preferred Alternative.	The proposal to withdraw lands with priority sage-grouse habitat from mineral entry is included in Alternative B of the Proposed RMP/Final EIS. The Preferred Alternative recommends mineral withdrawals of 24,692 acres.	No
0234-06	Wildlife-National Greater Sage-Grouse	NWMA recognizes that in the DRMP/DEIS, BLM has deferred specific conservation measures to be stipulated at the project level; however NWMA believes the alternatives still rely too heavily on the recommendations contained in A Report on National Sage-Grouse Conservation Measures that the Sage-Grouse National Technical Team published on December 21, 2011 (NTT Report). The NTT Report creates policies that assume that Greater Sage-grouse (sage-grouse) conservation is the highest and best use of the land, while subordinating other interests, like locatable mineral exploration and development, without adequate analysis of the economic impacts these policies will have on the area as well as the hardrock mining industry as a whole, discussed infra, Section II, and Section IV. Furthermore, NWMA contends that the provisions of the NTT Report do not represent the Best Available Science and	The NTT report is not the sole source of management decisions for the range of alternatives. A National Technical Team (NTT) was formed as an independent, science-based team to ensure that the best information about how to manage the Greater Sage-Grouse is reviewed, evaluated, and provided to the BLM in the planning process. The group produced a report in December 2011 that identified science-based management considerations to promote sustainable Greater Sage-Grouse populations. In March 2012, the USFWS initiated a collaborative approach to develop range-wide conservation objectives for the Greater Sage-Grouse to inform the 2015 decision about the need to list the species and to inform the collective conservation efforts of the many partners working to conserve the species. In March 2013, this team of State	No

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		therefore alternative conservation measures should be analyzed.	and USFWS representatives released the Conservation Objectives Team (COT) report based upon the best scientific and commercial data available at the time that identifies key areas for Greater Sage-Grouse conservation, key threats in those areas, and the extent to which they need to be reduced for the species to be conserved. The report serves as guidance to Federal land management agencies, State Greater Sage-Grouse teams, and others in focusing efforts to achieve effective conservation for this species. Alternatives presented in the Proposed RMP/Final EIS are supported by information provided in the NTT report, the COT report, the 2005 Management Plan and Conservation Strategies for Sage-Grouse in Montana, and Montana's 2014 Greater Sage-Grouse Habitat Conservation Strategy.	
0234-09	NEPA	The NEPA process requires an agency to rigorously explore and objectively evaluate all reasonable alternatives so that decision-makers and the public are fully informed and is intended to be used as a tool during the planning and decision-making process (40 C.F.R. §§1502.14(a), 1502.14(b),(d)). Substantial case law exists regarding the range of alternatives that need to be included in an Environmental Impact Statement (EIS), and "[t]he existence of a viable but unexamined alternative renders an environmental impact statement inadequate" (Resources Ltd. v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1993)). To that end, failing to analyze full implementation of Manual 6840, IM-2005-024: National Sage-Grouse Habitat Conservation Strategy (2004 Strategy), Fundamentals for Standards for Rangeland Health (43 C.F.R §4180.1), and existing Best Management Practices (BMPs) as an alternative (a "Manual 6840 Alternative") in the EIS documents is arbitrary and capricious and does not comply with NEPA requirements. Consequently, the Final EIS documents should not be published for public review until a detailed analysis of the Manual 6840 Alternative is included.	This topic is discussed in Chapter 2 of the Proposed RMP/Final EIS. Five alternatives are presented for managing the HiLine District to meet the purpose and need, the vision and management goals, and to address the issues discussed in Chapter 1.	No
0234-10	NEPA	The failure to provide a detailed evaluation of Manual 6840 and other BLM policies pertaining to sage-grouse conservation is inconsistent with the guidance in Section 6.6 of BLM's NEPA Handbook (H-1790-1): The range of alternatives explores alternative means of meeting the purpose	This topic is discussed in Chapter 2 of the Proposed RMP/Final EIS. Five alternatives are presented for managing the HiLine District to meet the purpose and need, the vision and management goals, and to address the issues discussed in Chapter 1.	No

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		and need for the action…The broader the purpose and need statement, the broader the range of alternatives that must be analyzed. You must analyze those alternatives necessary to permit a reasoned choice (40 C.F.R 1502.14…In determining the alternative to be considered, the emphasis is on what is "reasonable"… Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense… (BLM Handbook H-1790-1 at 49 –50).		
0234-11	NEPA	BLM may have presented its management actions by resource and alternative in the DEIS, however it has failed to include any useful explanation of potential impacts associated with each of the alternatives selected for detailed review as required by CEQ regulation 40 CFR § 1502.14, and instead only provides a comparison of proposed management actions without any explanation of the potential impacts (See DRMP/DEIS Table 2.2).	Chapter 4 of the Proposed RMP/Final EIS provides a detailed description of the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2.	No
0234-12	NEPA	NWMA Recommendation No. 1- Analyze, Disclose, and Provide Convincing Rationale of the Impacts to Mineral Development Under Each Alternative-BLM failed to identify or provide useful explanation of direct, indirect, or cumulative impacts to locatable minerals required by 40 CFR §§1502.16(a)(b),1508.7 (See DRMP/DEIS Ch. 4: Solid Minerals). NWMA contends that the cumulative impacts related to mineral withdrawals in sage-grouse habitat across the range must be considered, analyzed and disclosed in order for the DRMP/DEIS to withstand legal scrutiny. For example, in Kettle Range Conservation Group v. U.S. Forest Service, 148 F. Supp.2d (D.C. Cir. 2001)2 the court held that agencies must locate, describe, and consider other projects (or in this case RMPs) that could have cumulative impacts when combined with the project under consideration (2 See also, Neighbors of Cuddy Mtn, v. USFS, 137 F.3d 1372 (9th Cir. 1998) (Court ruled that the cumulative impact analysis was inadequate in the EIS because it failed to properly take into account other proposed timber sales in the project vicinity and "general statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could be provided'').). In Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, (9th Cir. 1999) the court discusses in dicta "the problem is	The impacts to mineral development resulting from implementing the various alternatives are discussed in Chapter 4, Solid Minerals.	No

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		compounded by the very general and one-sided analysis of the cumulative impact information…these sections merely provide very broad and general statements devoid of specific, reasoned conclusions." The court then held that the 12 cumulative impact statements contained in the EIS were "too general and one-sided to meet NEPA requirements." NWMA maintains that the cumulative impact to locatable minerals from the combined land withdrawals currently in place, as well as the future land withdrawals proposed in dozens of RMP revisions will have an inadequately defined and significant adverse effect on the hardrock mining industry, and this must be given thorough analysis in the DRMP/DEIS; otherwise it represents a significant flaw that renders the DRMP/DEIS incomplete. NWMA further contends that the direct, indirect, and cumulative impact analysis is inadequate and lacks convincing data as well as rationale that the impacts to mineral development are insignificant (See DRMP/DEIS Ch. 4).		
0234-13	FLPMA	The CEQ regulation at 40 CFR § 1502.16(c) requires BLM to include discussion of "[p]ossible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies, and controls for the area concerned." NWMA contends that the surface use restrictions and land withdrawals proposed within sage-grouse habitat under Alternatives B, C, D, and E, the Preferred Alternative, contained in the DRMP/DEIS conflict with BLM's own policy contained in Manual 6840 and its multiple use mandate under FLPMA (discussed in detail below), and represents a fatal flaw which renders the DRMP/DEIS both inadequate and inconsistent with existing laws and policies. The conflict between sage-grouse conservation and the prohibition through administrative fiat of commodity use in the planning area must not be ignored. Detailed discussion of the impacts to each of the resources with respect to the proposed mitigation measures for sage-grouse found in Appendix M and throughout the DRMP/DEIS must be thoroughly developed and analyzed before the Final EIS is published.	This topic is discussed in Chapter 1, Development of Alternatives, Related Plans.	No
0234-14	FLPMA	BLM has failed to explain its rationale for selecting the Preferred Alternative. BLM must provide detailed analysis that supports why the Preferred Alternative is in the best	Rationale for selecting the Preferred Alternative is presented in Chapter 2, Introduction.	No

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		interest of the agency as well as the public. BLM's Land Use Planning Manual and Land Use Planning Handbook, II.A.7, pg. 22 (Rel. 1-1693 03/11/05), provides that BLM must identify how the Preferred Alternative best meets the multiple use and sustained yield requirements of FLPMA. The lack of meaningful analysis contained in the DRMP/DEIS constitutes a fatal flaw. Consequently, the DRMP/DEIS is "inadequate as to preclude meaningful analysis" (40 CFR 1502.0(a)); and therefore the BLM must prepare and re-issue a revised draft which provides the analysis necessary to support each of the management alternatives, including the Preferred Alternative.		
0234-15	NEPA	Only alternatives that will incorporate adequate conservation measures that will protect sage-grouse and its habitat, and meet the stated goals and objectives can be considered. The DRMP/DEIS should carefully evaluate a reasonable range of alternatives to the conservation measures contained Appendix M of the DRMP/DEIS and regulatory mechanisms proposed in IM 2012 – 044, and the NTT Report. Some of these measures may not be necessary or effective in the HiLine Planning Area because the NTT Report conservation measures are one-size-fits all approach, which NWMA believes is not the best approach to developing sage-grouse conservation measures which need to be based on site-specific conditions.	Five alternatives are presented in Chapter 2 of the Proposed RMP/Final EIS for managing sage-grouse habitat within the HiLine District. The Preferred Alternative includes conservation measures to protect sage-grouse and its habitat.	No
0234-16	NEPA	There can be no doubt that analyzing Manual 6840, 2004 Strategy, and existing BMPs is a viable alternative. To that end, BLM's failure to examine this viable alternative in the Draft RMP/DEIS will not withstand legal scrutiny pursuant to NEPA case law. Moreover, the alternatives analysis in the DRMP/DEIS does not satisfy the above-noted Purpose of the document and BLM's own requirements for analyzing alternatives as set forth in its NEPA Handbook, H-1790-1. The Final RMP/EIS must include a revised and expanded alternatives analysis.	Five alternatives are presented in Chapter 2 of the Proposed RMP/Final EIS for managing sage-grouse habitat within the HiLine District. The Preferred Alternative includes conservation measures to protect sage-grouse and its habitat.	No
0234-17	Wildlife-Greater Sage-Grouse	As a designated sensitive species under BLM Manual 6840, sage-grouse conservation must be addressed in the development and implementation of RMPs on BLM lands…if an RMP contains specific direction regarding sage-grouse habitat, conservation, or management, it represents a regulatory mechanism that has potential to	Refer to Chapter 2, Wildlife, Greater Sage-Grouse and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. Also refer to Chapter 2, Wildlife, Decisions Common to All Alternatives, Special Status Species, where the following language has	No

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		ensure that the species and its habitats are protected…during decision-making on BLM lands…However, the information provided to us by BLM did not specify what requirements, direction, measures, or guidance has been included in the newly revised RMPs to address threats to sage-grouse and sagebrush habitat. Therefore, we cannot assess their value or rely on them as regulatory mechanisms for the conservation of sage-grouse…Although RMPs, AMPs, and the permit renewal process provide an adequate regulatory framework, whether or not these regulatory mechanisms are being implemented in a manner that conserves sage-grouse is unclear (75 Fed. Reg. 13910 at 13975-77, emphasis added). NWMA contends that United States Fish and Wildlife Service (USFWS) was not looking for new regulatory mechanisms. It seems clear from the above-cited section of the USFWS' Warranted But Precluded (WBP) determination that the agency was seeking evidence that the current regulatory mechanisms would be implemented and documentation of the effectiveness of those mechanisms. However, BLM mischaracterizes the USFWS' WBP determination by saying that USFWS' determination concluded that BLM lacks adequate regulatory tools to conserve sage-grouse. Using this as a premise, BLM maintains the NTT Report conservation measures are required to respond to the WBP determination. The NTT Report does not use Manual 6840 or ESA as a foundation upon which to build. In fact, the NTT Report never references Manual 6840, nor does it explain the need for an entirely new regulatory approach. As such, it inappropriately discards an existing agency policy without ever justifying the radical change advanced in the NTT Report, and is thus arbitrary and capricious.	been inserted: "BLM Manual 6840 provides policy and guidance for the conservation of BLM special status species and the ecosystems upon which they depend on BLM-administered lands. "The BLM would initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA."	
0234-18	NEPA	The Final EIS documents should not be published until a full and detailed analysis of an additional alternative, that incorporates and analyzes full implementation of existing BMPs, Manual 6840, 2004 Strategy, and Fundamentals for Standards for Rangeland Health (43 CFR 4180.1) is included. NWMA contends that this additional alternative fits the Purpose, Need, and Objectives of the DRMP/DEIS and is consistent with FLPMA, the Mining Law of 1872, the Mining, Minerals and Policy Act,	Five alternatives are presented in Chapter 2 of the Proposed RMP/Final EIS for managing sage-grouse habitat within the HiLine District. The Preferred Alternative includes conservation measures to protect sage-grouse and its habitat.	No

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		and BLM's sage-grouse conservation goals and objectives.		
0234-19	Wildlife-Greater Sage-Grouse	None of the alternatives give proper analysis to the existing conservation measures or authorities the BLM has to protect sage-grouse and its habitat. The DRMP/DEIS fails to include or even reference Manual 6840 in the Alternatives analysis. BLM must not ignore Manual 6840. The DRMP/DEIS documents should evaluate the numerous directives in BLM Manual 6840 in the context of each Alternative Considered in Detail.	Language has been added to Chapter 2, Wildlife, Decisions Common to All Alternatives, Special Status Species.	Yes
0234-20	NEPA	NWMA Recommendation No. 3: The DRMP/DEIS Must Include a Manual 6840 Alternative (Better Implementation of Manual 6840)-Consideration of specific provisions pursuant to Manual 6840 must be referenced in the Alternatives chapter of the DRMP/DEIS and described in detail in an appendix, so that the public can objectively evaluate the potential effectiveness of the sage-grouse conservation measures in Manual 6840. BLM should not ignore or replace the existing regulatory tools it already has without demonstrating why the existing regulations are not functioning properly or are inadequate. Important aspects of Manual 6840 that apply to sage-grouse and should be discussed in the DRMP/DEIS include the following • In compliance with existing laws, including the BLM multiple use mission as specified in the FLPMA, the BLM shall designate Bureau sensitive species and implement measures to conserve these species and their habitats, including ESA proposed critical habitat, to promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA. Any obligation to conserve proposed critical habitat under this section is terminated at the time the proposal becomes final or the habitat is no longer proposed for listing. All federally designated candidate species, proposed species, and delisted species in the 5 years following their delisting shall be conserved as Bureau sensitive species (Manual 6840 @ .1I, emphasis added). • On BLM-administered lands, the BLM shall manage Bureau sensitive species and their habitats to minimize or eliminate threats affecting the status of the species or to improve the condition of the species habitat, by… Ensuring that BLM activities	The text in Chapter 2, Wildlife, Decisions Common to All Alternatives, Special Status Species was modified in the Proposed RMP/Final EIS to address this concern.	Yes

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		affecting Bureau sensitive species are carried out in a way that is consistent with its objectives for managing those species and their habitats at the appropriate spatial scale… Monitoring populations and habitats of Bureau sensitive species to determine whether species management objectives are being met… Working with partners and stakeholders to develop species-specific or ecosystem-based conservation strategies (see .2D Agreements, Assessments and Cooperative Strategies for Conservation)… Prioritizing Bureau sensitive species and their habitats for conservation action based on considerations such as human and financial resource availability, immediacy of threats, and relationship to other BLM priority programs and activities…Using Land and Water Conservation Funds, as well as other land tenure adjustment tools, to acquire habitats for Bureau sensitive species, as appropriate…Considering ecosystem management and the conservation of native biodiversity to reduce the likelihood that any native species will require Bureau sensitive species status… In the absence of conservation strategies, incorporate best management practices, standard operating procedures, conservation measures, and design criteria to mitigate specific threats to Bureau sensitive species during the planning of activities and projects. Land Health Standards should be used for managing Bureau sensitive species habitats until range-wide or site-specific management plans or conservation strategies are developed. Off-site mitigation may be used to reduce potential effects on Bureau sensitive species (Manual 6840 at .2A1, .2C7, emphasis added). • State Directors and line managers should initiate the development of [these] conservation assessments, strategies, and agreements for the purpose of furthering the conservation of the subject species on BLM-administered lands where significant conservation benefits can be achieved through such an effort. Strategies and agreements should identify the role of the BLM and be proportionate to the resource values on BLM-administered lands…The BLM should use habitat conservation assessments based on regional ecosystem assessments, where available, to develop		

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		conservation strategies and agreements that outline the program of work necessary to reduce, eliminate, or mitigate specific threats to sensitive species; to develop an ecosystem management approach to conservation on BLM-administered lands; and to facilitate coordination and cooperation with others, such as States and private entities, to achieve species and habitat conservation across the range of the species…The BLM should be signatory to conservation strategies and agreements if public land or BLM authorization is involved… Habitat and species conservation assessments, strategies, and agreements should be consistent with existing BLM land use plans and describe in sufficient detail management objectives, treatments, and means for assessing accomplishment. Where existing land use plans are not adequate, use plan maintenance, plan conformance reviews, or plan amendments as a means of integrating conservation strategies into existing land use plans (Manual 6840 at .2C7, .2D5, emphasis added) • Initiate and provide technical support to other BLM personnel in the development of conservation strategies for special status species on BLM lands (Manual 6840 at.04D2). • Monitor implementation of Bureau sensitive species activities and policies within the state, and develop state level policies as needed to ensure program objectives are met (Id., emphasis added). • Ensuring that all actions undertaken comply with the ESA, its implementing regulations, and other directives associated with ESA-listed and proposed species (Manual 6840 at .04D8e). • Ensuring that land use and implementation plans fully address appropriate conservation of BLM special status species (Id., emphasis added). • Split-Estate Federal Minerals. When necessary to comply with the ESA, the BLM or project proponent shall collect information to support an analysis of the effects to listed and proposed species as part of an effect determination for the proposed action in a biological assessment.		

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		This may include the need for conducting inventory of either ESA listed or proposed species on private surface lands. The BLM or the Federal mineral lessee has the right to enter the property for this purpose, since it is a necessary prerequisite to development of the dominant mineral estate. When sufficient information already exists, the BLM may proceed through the Section 7 consultation process using the existing information and determine appropriate measures to avoid and minimize effects on listed species and their habitats. The BLM will take the lead in completing consultation on the proposed action unless the surface estate is administered by another Federal agency that elects to serve as the lead for consultation, or the project proponent is designated as the non-Federal representative by the Federal agency managing the surface or by the BLM (see section .1.F.8) (Manual 6840 at .1F2c(1), emphasis added). • Section 402.10 of 50 CFR provides the procedures necessary for compliance with Section 7(a)(4) of the ESA, which establishes requirements for conferencing on proposed species and proposed critical habitat…a. The ESA requires BLM to conference with the FWS and/or NMFS on actions that are likely to jeopardize a proposed species or cause destruction or adverse modification to proposed critical habitat. Since the BLM is generally not in a position to determine jeopardy, BLM policy is to confer on all discretionary actions that are determined to be May Affect, Likely to Adversely Affect. Conversely, BLM policy is to not confer on actions determined Not Likely to Adversely Affect. B. For proposed species, the BLM should request conference in anticipation of future listing. The BLM should request that the conference follow the procedures for formal consultation when deemed advantageous to the agency. The conference opinion issued at the conclusion of a conference may be adopted as the biological opinion if the species or critical habitat is listed or designated, provided the project proposal has not changed and no new pertinent information exists. The FWS and NMFS usually provide advisory recommendations on ways to avoid or minimize adverse effects c. The BLM should consider the		

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		advisory recommendations for minimizing or avoiding adverse effects to proposed species or proposed critical habitat that are provided by the FWS and/or NMFS in the conference report or conference opinion…(Manual 6840 at .1F5i(1) to .1F7, emphasis added).		
0234-21	NEPA	As the DRMP/DEIS currently stands, no recognition of current regulatory mechanisms or conservation strategies are described with respect to sage-grouse. The current management is described under Alternative A as "The national and Montana greater sage-grouse conservation strategies would be used as the basis to address sage-grouse needs during the watershed planning process and project level analysis" (DRMP/DEIS CH. 2 at 154). However, sage-grouse as a BLM "Special Status Species" is subject to protection under Manual 6840, the 2004 Strategy, unnecessary and undue degradation provisions under FLPMA §302(b), among others. Yet the DRMP/DEIS fails to include any recognition of these current protective authorities and therefore provides no useful baseline against which each of the proposed alternatives would be compared. The continuation of existing management and conservation measures and existing regulatory policies including the directives in BLM Manual 6840 must define the No Action Alternative. As is the case for all NEPA documents, the No Action Alternative provides the baseline against which all other alternatives must be compared and measured.	For BLM land use planning actions the No Action alternative is to continue to implement the management direction in the land use plan(s) (i.e., the land use plan as written). Alternative A (Current Management) in the RMP/EIS is the No Action alternative. A summary comparison of the environmental consequences of implementing each alternative is presented in Table 2.29 at the end of Chapter 2. The effects of implementing the No Action alternative (Alternative A) on sage-grouse, which includes the directives in Manual 6840, are presented in the Wildlife section of Chapter 4.	No
0234-22	NEPA	The No Action Alternative analysis in the DRMP/DEIS should quantify the impacts associated with ongoing implementation of the many existing local, state, and federal conservation measures and the existing BLM policies to protect sage-grouse habitat. Some of the impacts that could result from continuation of the existing regulatory framework and conservation measures that should be evaluated in the DRMP/DEIS documents include the future, long-term habitat improvements that could occur with ongoing implementation of the existing sage-grouse habitat conservation measures in the HiLine District. For example, any state, local, private, and Tribal efforts to conserve sage-grouse through voluntary conservation agreements and/or strategies should be analyzed. Moreover, the stated objective of the	The effects of implementing the No Action alternative (Alternative A) on sage-grouse are presented in the Wildlife section of Chapter 4. Under Alternative A in Chapter 2, the national and Montana Greater Sage-Grouse conservation strategies would be used as the basis to address sage-grouse needs during the watershed planning process and project level analysis.	No

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		DRMP/DEIS states "…This RMP revision incorporates specific management actions and conservation measures to conserve greater sage-grouse and its habitats on BLM land" (DRMP/DEIS CH. 1 at 3, emphasis added). Yet BLM fails to include any specific management actions or conservation measures currently in effect in the planning area.		
0234-23	NEPA	NWMA Recommendation No. 4: Thoroughly Evaluate the No Action Alternative-The EIS documents must include a detailed discussion of the habitat conservation improvements currently being achieved under the existing policies, the socioeconomic benefits that would result from continued private-sector authorized uses of public lands with sage-grouse habitat, and the possibility that in light of the numerous habitat conservation measures already in place, the USFWS will determine in 2015 that the sage-grouse should maintain its status as a Warranted but Precluded, candidate species. The No Action Alternative must discuss, in detail, specific conservation measures like those in Manual 6840 (see discussion supra at 8-11) and explain and quantify the deficiencies (if any) associated with these conservation measures and/or the way in which they are being implemented and documented. Without this analysis, it is impossible for the public to gauge and understand the need (if any) for land use management changes in BLM's Preferred Alternative.	The text in Chapter 2, Wildlife, Decisions Common to All Alternatives, Special Status Species was modified in the Proposed RMP/Final EIS to address this concern. The effects of implementing the No Action alternative on sage-grouse, which includes the directives in Manual 6840, is presented in the Wildlife section of Chapter 4.	No
0234-24	FLPMA	In addition, the DRMP/DEIS states, as one of its objectives is to: Provide for locatable mineral entry in accordance with existing laws and regulations (43 CFR 3700 and 3800)" (DRMP/DEIS Ch. 2 at 105). BLM includes as its goal relating to locatable minerals to "[p]rovide land use opportunities contributing to economic benefits while protecting or minimizing adverse impacts to other resources" (Id.). The objective and goal together imply that mineral development is to be pursued and that exploration and development be conducted in an environmentally sound manner in compliance with the FLPMA mandate at 43 U.S.C. 1732(b) to prevent unnecessary or undue degradation of the lands. However, precluding mineral development by way of validity exams and land withdrawals (See DRMP/DEIS Ch. 2 at	Withdrawal of the Grassland Bird/Greater Sage Grouse Priority Areas and the Greater Sage-Grouse Protection Priority Area is analyzed under Alternatives B and C, but under Alternative E (Preferred Alternative), the subject areas are open to mining claim location.	No

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		105-111) does not accomplish the DRMP/DEIS' stated goal, or provide consistency with the mandate under FLPMA or Mining and Mineral Policy Act to recognize the Nation's need for domestic mineral sources. NWMA contends that full implementation of existing regulatory tools –including required conservation and mitigation measures – are adequate to ensure environmentally sound mineral development that is compatible with sage-grouse conservation.		
0234-25	NEPA	NWMA Recommendation No. 5: Include a Detailed Evaluation of Manual 6840 and Other Existing Regulatory Tools - The DRMP/DEIS must include a detailed analysis of the existing regulatory tools BLM has available for protecting sage-grouse, like Manual 6840, but in the context of the No Action alternative. The EIS documents should evaluate the numerous directives in BLM Manual 6840 and discuss whether they are being fully and consistently implemented. BLM must not propose new or different regulatory mechanisms if any of the apparent shortcomings or gaps in the existing regulations are due mainly to uneven or incomplete implementation of existing policies. Additionally, as discussed in more detail below, BLM should develop a Manual 6840 alternative to evaluate better implementation and documentation of the conservation measures mandated in Manual 6840 and other existing regulatory tools.	The text in Chapter 2, Wildlife, Decisions Common to All Alternatives, Special Status Species was modified in the Proposed RMP/Final EIS to address this concern. The effects of implementing the No Action alternative on sage-grouse, which includes the directives in Manual 6840, is presented in the wildlife section in Chapter 4 of the Final EIS.	No
0234-26	Wildlife-National Greater Sage-Grouse	Use the Best Available Science. The Council on Environmental Quality regulations require agencies to use the best available science when preparing EIS documents 40 C.F.R §1502.24.[8] NWMA has learned a peer review of the NTT Report suggests that the NTT Report[9] does not in fact represent the "Best Available Science" but rather relies on studies that have been criticized for: • significant mischaracterization of previous research; • substantial errors and omissions; • lack of independent authorship and peer review; • methodological bias; • a lack of reproducibility; • invalid assumptions and analysis; and • inadequate data.[10] NWMA is concerned that all of the Alternatives considered, except the No	The NTT report is not the sole source of management decisions for the range of alternatives. A National Technical Team (NTT) was formed as an independent, science-based team to ensure that the best information about how to manage the Greater Sage-Grouse is reviewed, evaluated, and provided to the BLM in the planning process. The group produced a report in December 2011 that identified science-based management considerations to promote sustainable Greater Sage-Grouse populations. In March 2012, the USFWS initiated a collaborative approach to develop range-wide conservation objectives for the Greater Sage-Grouse to inform the 2015 decision about the need to list the species and to inform the collective conservation efforts of the many partners working to conserve the species. In March 2013, this team of State and USFWS representatives released the	No

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		Action Alternative rely almost entirely on the NTT Report conservation measures. This is particularly concerning in light of WAFWA's above-noted concerns with the management approach advocated in the NTT Report as stated in its May 16, 2013 letter to Secretary Jewell. The WAFWA letter states, in part: Simply put, we believe it would represent a setback to sage-grouse conservation…Applying a "one-size-fits-all" approach focusing solely on the NTT report is not appropriate for management of the variations that occur across the sage-grouse range... Our concern is that using the NTT, in vacuum, would undermine sage-grouse conservation range-wide.[11] [8] "Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. An agency may place discussion of methodology in an appendix." [9] See, Maxwell, supra, note 2 at Appendix A. [10] Maxwell, supra, note 2 at 3-6. [11] The WAFWA letter is attached hereto and incorporated by reference.	Conservation Objectives Team (COT) report based upon the best scientific and commercial data available at the time that identifies key areas for Greater Sage-Grouse conservation, key threats in those areas, and the extent to which they need to be reduced for the species to be conserved. The report serves as guidance to Federal land management agencies, State Greater Sage-Grouse teams, and others in focusing efforts to achieve effective conservation for this species. Alternatives presented in the Proposed RMP/Final EIS are supported by information provided in the NTT report, the COT report, the 2005 Management Plan and Conservation Strategies for Sage-Grouse in Montana, and Montana's 2014 Greater Sage-Grouse Habitat Conservation Strategy.	
0234-27	NEPA	NWMA contends that while the Mitigation Appendix contains language that allows for modification of the recommended conservation measures, the habitat disturbance threshold which determines the level of required mitigation is not scientifically supported.[12] Further, specific conservation measures stipulated in the DRMP/DEIS appear to be completely arbitrary. For example the BLM stipulates in the DRMP/DEIS that a "6/10" of a mile buffer be used around leks, but provides no source to support this buffer as adequate or necessary (DRMP/DEIS Ch. 2 at 159, 161). BLM should be compelled to provide evidence that supports the land use restrictions proposed in the DRMP/DEIS. In addition, it seems that the BLM has mistaken the lack of available science regarding sage-grouse to mean that the science that is available is the Best Available Science, which NWMA argues is not the case.[13]	Appendix M, Mitigation Measures and Conservations Actions for Greater Sage-Grouse Habitat, includes a "Literature Cited" section which provides a listing of scientific papers that support the recommended conservation measures. Rationale for a "6/10" of a mile buffer around leks comes from the Colorado Greater Sage-Grouse conservation plan. The citation for this document is included in the Bibliography section of the Proposed RMP/Final EIS (Colorado Greater Sage-grouse Steering Committee 2008).	No

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		[12] Maxwell, supra, note 1 at 2-3, 14-15. [13] Supra, note 1.		
0234-28	NEPA	NWMA Recommendation No. 6: The Alternatives Described in Detail Should Represent a Range of Conservation Measures- The DRMP/DEIS and the subsequent Alternatives should represent a range of conservation measures. At least one additional alternative should be included that analyzes conservation measures that are not described in the NTT Report.	Five alternatives are presented in Chapter 2 of the Proposed RMP/Final EIS for managing sage-grouse habitat within the HiLine District. Alternatives A and D propose conservation measures that are not recommended in the NTT Report.	No
0234-29	NEPA	Analysis of existing regulatory authorities including but not limited to BLM's Surface Management Regulations for locatable minerals at 43 CFR 3809 that allows for hardrock mineral development with mitigation to prevent unnecessary or undue degradation needs to be included.	Five alternatives are presented in Chapter 2 of the Proposed RMP/Final EIS for managing resources including hard rock mineral development within the HiLine District. All include (as they must) application of appropriate regulatory standards.	No
0234-30	Wildlife-National Greater Sage-Grouse	IM 2012-044 itself even recognizes that the NTT Report conservation measures may not be appropriate in all situations: Policy/Action: The BLM must consider all applicable conservation measures when revising or amending its RMPs in Greater Sage Grouse habitat. The conservation measures developed by the NTT and contained in Attachment 1 must be considered and analyzed, as appropriate, through the land use planning process by all BLM State and Field Offices that contain occupied Greater Sage-Grouse habitat. While these conservation measures are range-wide in scale, it is expected that at the regional and sub-regional planning scales there may be some adjustments of these conservation measures in order to address local ecological site variability. Regardless, these conservation measures must be subjected to a hard look analysis as part of the planning and NEPA processes. This means that a reasonable range of conservation measures must be considered in the land use planning alternatives. As appropriate, the conservation measures must be considered and incorporated into at least one alternative in the land use planning process....	On December 27, 2011, the BLM released IM 2012-044. In accordance with this IM, the BLM must consider all conservation measures developed by the NTT in at least one alternative in the land use planning process. Alternative B in the Proposed RMP/Final EIS fulfills this requirement by incorporating the recommendations set forth by the NTT. Alternatives C and E in the Proposed RMP/Final EIS have incorporated elements of the NTT report while Alternatives A and D in the Proposed RMP/Final EIS do not include sage-grouse management recommendations included in the NTT Report, but instead propose to use the national and Montana Greater Sage-Grouse conservation strategies as the basis to address Greater Sage-Grouse needs during the watershed planning process and project-level analysis.	No
0234-31	FLPMA	Policy Issues that Must be Evaluated in the EIS. BLM policies regarding sage-grouse conservation measures must be consistent with the agency's statutory authorities and the regulations and policies that implement those authorities. As described below, NWMA is concerned that the land use	The BLM's multiple-use mission and the BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies are addressed in Chapter 1 of the Proposed RMP/Final EIS.	No

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		restrictions and prohibitions incorporated into the DRMP/DEIS pursuant to IM 2012-044 and in the NTT Report exceed BLM's authority under FLPMA, or conflict with the multiple use mandate under FLPMA, rights under the General Mining Law, and BLM Manual 6840.		
0234-32	FLPMA	Under the multiple use and sustained yield requirements, BLM must strike an appropriate balance between potentially competing interests and land management objectives. This balance is to be achieved in the Section 102 land use planning process and the resulting RMPs. FLPMA does not authorize the subordination of any of these uses in preference for a single land use such as sage-grouse habitat conservation. The EIS must evaluate how the land use restrictions, prohibitions, and withdrawals recommended in the DRMP/DEIS pursuant to IM 2012 -044 and the NTT Report achieves the required balance in managing the public lands.	The Preferred Alternative in the RMP/EIS strikes a balance between long-term conservation of public land and resource use including development of fluid minerals; it is consistent with Section 103(c) of the Federal Land Policy and Management Act (FLPMA) (43 U.S.C. 1702(c)).	No
0234-33	FLPMA	IM 2012 –044, the implementing mechanism for the NTT Report, asserts that: When considering the conservation measures in (the NTT Report) through the land use planning process, BLM offices should ensure that implementation of any of the measures is consistent with applicable statute and regulation. Where inconsistencies arise, BLM offices should consider the conservation measure(s) to the fullest extent consistent with such statute and regulation. NWMA contends that the land use restrictions and prohibitions, especially the proposed withdrawal of high-priority sage-grouse habitat areas from mineral entry are not consistent with FLPMA's multiple use mandate or the specific directive pertaining to minerals in FLPMA § 102(a)(12): … the public lands [shall] be managed in a manner that recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands including the implementation of the Mining and Minerals Policy Act of 1970 [at] 30 U.S.C. 21a… (43 U.S.C. 1701(a)(12)).	The BLM's multiple-use mission and the BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies are addressed in Chapter 1 of the Proposed RMP/Final EIS.	No
0234-34	FLPMA	The proposed restrictions and withdrawals from mineral entry in the DRMP/DEIS directly conflict with FLPMA's requirement that the Secretary must manage public lands to respond to the Nation's needs for	The BLM's multiple-use mission and the BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies are addressed	No

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		minerals. Moreover, the proposed restrictions and withdrawals place more importance on aesthetics and conservation of resources over other uses, like mineral development. BLM must acknowledge that it is required to fully consider the need for mineral development along side with the need for conservation of resources. NWMA is sympathetic to the difficult balancing act BLM must achieve when dealing with competing resources; however, BLM must recognize that the need for mineral development may in fact be greater than the need to conserve millions of acres of sage-grouse habitat. As such BLM must demonstrate its compliance with the mandate under the Mining and Minerals Policy Act (30 U.S.C. §21(a)), and FLPMA (43 U.S.C. §1701(a)(12)) to recognize the Nation's need for domestic minerals.	in Chapter 1 of the Proposed RMP/Final EIS. Withdrawal of the Grassland Bird/Greater Sage Grouse Priority Areas and the Greater Sage-Grouse Protection Priority Area is analyzed under Alternatives B and C, but under Alternative E (Preferred Alternative), the subject areas are open to mining claim location.	
0234-35	FLPMA	Furthermore, FLPMA expressly provides that none of its other provisions "shall in any way amend the Mining Law of 1872 or impair the rights of any locators or claims under that Act, including, but not limited to, rights of ingress and egress" (43 U.S.C. § 1732(b)). Therefore, the DRMP/DEIS' proposed land withdrawals, prohibitions, and restrictions are contrary to provisions under FLPMA and Section 22 of the General Mining Law (discussed below) and must be revised.	The BLM's multiple-use mission and the BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies are addressed in Chapter 1 of the Proposed RMP/Final EIS. Withdrawal of the Grassland Bird/Greater Sage Grouse Priority Areas and the Greater Sage-Grouse Protection Priority Area is analyzed under Alternatives B and C, but under Alternative E (Preferred Alternative), the subject areas are open to mining claim location.	No
0234-36	Solid Minerals	NWMA Recommendation No. 7: Demonstrate Compliance with FLPMA- The DRMP/DEIS should discuss how the proposed land withdrawals and surface disturbing restrictions in sage-grouse priority and general habitat contained in each Alternative Considered in Detail, and the Agency Preferred Alternative comply with the FLPMA mandate to balance a wide range of resource values and uses of public lands and the directive in the Mining and Minerals Policy Act at 43 U.S.C. §1701(a)(12) and 30 U.S.C. §21(a) to recognize the Nation's need for domestic sources of minerals. NWMA recognizes that the Preferred Alternative claims that mineral entry is open in sage-grouse priority and general habitat. However deferring withdrawal proposals to the time a project is proposed or is not consistent with "protecting BLM resource values" (DRMP/DEIS Ch. 2 at 166), does not go far enough to recognize that mineral	The impacts of possible land withdrawals and surface-disturbing restrictions in sage-grouse priority and general habitat areas contained in each alternative are discussed in Chapter 4 in each resource section. Under FLPMA, the Department of the Interior was delegated the authority to create withdrawals. When considering recommendations of new or extensions of existing withdrawals, the BLM follows the guidance of Departmental Manual 603 and regulations found at 43 CFR 2300. Section 302(b) of FLPMA states that "[i]n managing the public lands, the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 USC §1732(b). This unnecessary or undue degradation statutory standard is defined under 43 CFR §3809.5 and is the basis for applying applicable BMPs as conditions of	Yes

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		development projects with proper mitigation measures are compatible with sage-grouse conservation, and at the same time, are consistent with the need for mineral development within the boundaries of sage-grouse habitat which may outweigh the need to protect or conserve the sage-grouse regardless of the level of mitigation required under Appendix M of the DRMP/DEIS.	approval on Plans of Operations or to request a Notice modification. The BMPs found in Appendices C and M would only be applied on a case-by-case basis in order to prevent unnecessary or undue degradation. Alternative E (Preferred Alternative) would recommend withdrawal of Greater Sage-Grouse habitat in Sagebrush Focal Areas. Bulleted text in the RMP/EIS regarding evaluation of withdrawal proposals at the project level has been removed from Chapter 2, Wildlife, Alternative E (Preferred Alternative) under Grassland Bird/Greater Sage-Grouse Priority Areas and Greater Sage-Grouse Protection Priority Area. (pp. 166 and 168 of the Draft RMP/EIS). The impacts of withdrawal of the Grassland Bird/Greater Sage Grouse Priority Areas and the Greater Sage-Grouse Protection Priority Area are analyzed under Alternatives B and C, but under Alternative E (Preferred Alternative), the subject areas are recommended to remain open to mining claim location.	
0234-37	NEPA	The BLM states that its vision and goals in the HiLine District is to: manage the planning area in a manner that provides for multiple use while sustaining a healthy and productive environment for present and future generations…Ensure habitat for… special status species is of sufficient quantity and quality to enhance biological diversity and sustain ecological, economic and social values…Ensure dependable and environmentally responsible exploration and development of mineral resources…" (DRMP/DEIS Ch. 1 at 15-16). However, Alternative B, Alternative C, Alternative D, and Alternative E, the Preferred Alternative, severely limit the possibility of hardrock mineral development by way of land withdrawals, validity exams, and surface use restrictions which will result in no economic benefit and unreliable mineral development. Thus, the DRMP/DEIS contains internal inconsistencies and mutually exclusive recommended outcomes.	Mineral withdrawal recommendations range from 1,674,298 acres in Alternative B to 1,991 acres in Alternative A. The Preferred Alternative in the Proposed RMP/Final EIS would recommend mineral withdrawals of approximately 952,000 acres.	No
0234-38	Solid Minerals	The Mining Law of 1872. NWMA contends the recommendations contained in the DRMP/DEIS are not consistent with rights under the General Mining Law which allow	Under FLPMA, the Department of the Interior was delegated the authority to create withdrawals. When considering recommendations of new or extensions of	No

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		citizens of the United States the opportunity to enter, use and occupy public lands open to location to explore for, discover, and develop certain valuable mineral deposits (30 U.S.C. §22). The General Mining Law authorizes and governs the exploration, discovery and development of valuable minerals. Except as otherwise provided, all valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, shall be free and open to exploration and purchase, and the lands in which they are found to occupation and purchase…(Id.) 30 U.S.C. §22 ensures pre-discovery access, use, and occupancy rights to enter lands open to location for mineral exploration and development. Prohibiting mineral exploration and development on lands co-located with priority sage-grouse habitat, is contrary to the provisions under Section 22 of the General Mining Law, and therefore must be revised.	existing withdrawals, the BLM follows the guidance of Departmental Manual 603 and regulations found at 43 CFR 2300. Section 302(b) of FLPMA states that "[i]n managing the public lands, the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 USC §1732(b). This unnecessary or undue degradation statutory standard is defined under 43 CFR §3809.5 and is the basis for applying applicable BMPs as conditions of approval on Plans of Operations or to request a Notice modification. The BLM analyzed withdrawal of Greater Sage-Grouse habitat in a range of alternatives. Alternative E, the Preferred Alternative, does not recommend withdrawal from locatable mineral entry in PHMA, but does recommend a withdrawal in the SFAs. See Chapter 2, Solid Minerals, Locatable, Alternative E (Preferred Alternative) and Table 2.21.	
0234-39	Solid Minerals	BLM's assertion that solid mineral entry will be "open" and subject to Best Management Practices and Mitigation found in Appendices C and M, respectively, is extremely misleading (DRMP/DEIS Ch. 4 at 589, Ch. 2. at 198). While NWMA agrees that it may be necessary to implement specific conservation measures for sage-grouse at a project level, as opposed to large-scale applications, BLM recommends the following substantial acreage to be withdrawn from locatable mineral entry for the purpose of sage-grouse conservation (See Table 2.17): • Alternative B: 1,537,292 (63% BLM surface acres, 36% BLM mineral acres); • Alternative C: 1,384,206 (57% BLM surface acres, 33% BLM mineral acres).[14] (Note: percentage only includes proposed sage-grouse withdrawals, not other withdrawals proposed and currently present in the planning area).[15] [14] The DRMP/DEIS does not differentiate between surface acreage and mineral acreage that is proposed for withdrawal. [15] Percentages are derived from the total acres cited in the DRMP/DEIS Ch. 1 at 3.	The BLM analyzed withdrawal of Greater Sage-Grouse habitat in a range of alternatives. Alternative E, the Preferred Alternative, does not recommend withdrawal from locatable mineral entry in PHMA, but does recommend a withdrawal in the SFAs. See Chapter 2, Solid Minerals, Locatable, Alternative E (Preferred Alternative) and Table 2.21.	No
0234-40	Solid Minerals	Alternative E, the Preferred Alternative, states with respect to Grassland Bird/Greater Sage-Grouse Priority Areas:	It was not the intent of the BLM to suggest that withdrawals would be considered at the project level. The cited text was misleading	Yes

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		Withdrawal proposals would be evaluated at the project level and would not be approved unless the land management is consistent with maintaining and protecting BLM resource values (Appendix M)(DRMP/DEIS Ch. 2 at 166). NWMA believes this language does not go far enough to protect the rights of individuals under the General Mining Law. Limiting disturbance in priority sage-grouse habitat to 3% and 5% (Appendix M at 1121) puts an overly restrictive and unrealistic burden on mining operations exercising their rights under the General Mining Law. Moreover it is unclear which threshold would be utilized. Absent specific guidance, resource specialists would be inclined to impose the most restrictive threshold, without regard to a mining operation's mitigation and conservation measures; and if this threshold could not be met, recommend withdrawing the site from operation of the Mining Law.	and has been removed from the document.	
0234-41	Lands and Realty	In addition, NWMA maintains that tiering land withdrawals at the project level, so that the decision to withdrawal remains in the jurisdiction of the BLM circumvents, Congress' sole discretion of approving or disapproving large land withdrawals such as those proposed in this DRMP/DEIS, which may be arbitrary and capricious.	See Chapter 2, Lands and Realty, Withdrawals, Decisions Common to All Alternatives, which includes the following statement: "New withdrawals would be pursued where other agency actions are inadequate to protect critical resource values or federal investments."	No
0234-42	Solid Minerals	NWMA Recommendation No. 8: Demonstrate Compliance with the General Mining Law- The DRMP/DEIS should discuss how the conservation measures detailed in Appendix M, the proposed "project level" land withdrawals contained in the Preferred Alternative, and the proposed withdrawals contained in Alternatives B, C, and D are in compliance with rights under the General Mining Law to allow access to public lands for prospecting, mining and processing and uses reasonably incident thereto.	Under FLPMA, the Secretary of the Interior is authorized to withdraw public lands from operation of one or more of the public land laws, including the mining law. When considering recommendations of new or extensions of existing withdrawals, the BLM follows the guidance of Departmental Manual 603 and regulations found at 43 CFR 2300. Section 302(b) of FLPMA states that "[i]n managing the public lands, the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 USC §1732(b). This unnecessary or undue degradation statutory standard is defined under 43 CFR §3809.5 and is the basis for applying applicable BMPs as conditions of approval on Plans of Operations or to request a Notice modification.	No
0234-43	Solid Minerals	BLM's proposal to recognize Valid Existing Rights ("VERs") on valid claims (e.g., claims with a discovery of a valuable	Under FLPMA, the Secretary of the Interior has the authority to withdraw the public lands from operation of one or more of the	No

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		mineral deposit) (DRMP/DEIS Ch. 2 at 105, Ch. 4 at 589) does not go far enough to protect the property rights associated with unpatented mining claims prior to discovery and fee land because it restricts the analysis of the VERs to the four corners of a mining claim or the boundaries of the fee land; leaving lands adjacent to or surrounded by withdrawn lands sterilized or withdrawn on a de facto basis. Similarly, if public lands needed for ROWs for roads, power lines, pipelines, etc. are no longer available for development, (see Appendix M @1128 "Do not issue ROWs to counties on mining development roads unless for a temporary use consistent with all other terms & conditions included in this document") the unpatented mining claims, patented claims, fee lands, and associated private property rights could be rendered worthless and subject the federal government to a 5th Amendment takings claim. Instead, BLM must evaluate the substantially adverse consequences of making it impossible to develop pre-discovery unpatented mining claims and lands that are currently open to location on which there are no unpatented mining claims that are withdrawn from mineral entry and location of mining claims. BLM must recognize the rights granted in Section 22 of the Mining Law and the Section 22 VERs associated with pre-discovery claims. These rights cannot be extinguished by executive fiat. Moreover, the authority to make broad-scale land withdrawals rests solely with Congress.	public land laws. When considering recommendations of new or extensions of existing withdrawals, the BLM follows the guidance of Departmental Manual 603 and regulations found at 43 CFR 2300. Section 302(b) of FLPMA states that "[i]n managing the public lands, the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 USC §1732(b). This unnecessary or undue degradation statutory standard is defined under 43 CFR §3809.5 and is the basis for applying applicable BMPs as conditions of approval on Plans of Operations or to request a Notice modification. All activity related to developing locatable minerals would fall under a Plan of Operations or a Notice, including the examples provided (roads, power lines, pipelines, etc.). Creating a ROW exclusion area does not prevent mining because the activity that is incidental to mining would not fall under a ROW action.	
0234-44	Solid Minerals	The assertion that locatable mineral exploration and development can be "relocated" is absurd and demonstrates an extreme lack of understanding of mineral development. If simply "relocating" a mineral deposit to an area outside of sage-grouse habitat were possible, that would be a viable alternative; however as previously stated mineral deposits must be developed where they are located – they cannot be moved. BLM must thus find a way to achieve an appropriate balance of competing resources, and recognize there are other geologic, physical, topographical, environmental, and engineering constraints that must be considered in the exploration and development of hardrock minerals. In addition, the above language suggests that when relocating a mineral deposit cannot be achieved (which is always the case), then	Under the exploration and mining development proposed in Plans of Operations or Notices, there usually is necessary infrastructure related to the mineral activity. Though this infrastructure (access routes, power lines, tailings impoundments, leach pads, etc.) is incidental to mining, it may be possible to relocate certain aspects of the development to prevent unnecessary or undue degradation. As analyzed in the cited section, these conditions of approval or Notice modifications may be more likely in areas identified as valued wildlife habitat; therefore, it is analyzed that mineral development in wildlife habitat is expected to be impacted through delays and/or greater expenses due to these measures.	No

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		the land in question would be withdrawn, which is contrary to FLPMA as it makes conservation of wildlife a priority in all instances where there might be a conflict. Such withdrawals would also be inconsistent with the Minerals and Mining Policy Act.		
0234-45	Solid Minerals	The above language represents a significant flaw in the impact analysis in the DRMP/DEIS because it inappropriately concludes that there will be little to no impact on mineral development, based on impossible assumptions. The assumption that exploration and mineral development can be relocated, thus minimizing adverse impacts is ignorant of the basic principles of economic geology; any management action or impact analysis based on this unsupportable premise will not withstand legal scrutiny under NEPA (See discussion supra at 4).	Under the exploration and mining development proposed in Plans of Operations or Notices, there usually is necessary infrastructure related to the mineral activity. Though this infrastructure (access routes, power lines, tailings impoundments, leach pads, etc.) is incidental to mining, it may be possible to relocate certain aspects of the development to prevent unnecessary or undue degradation. As analyzed in the cited section, these conditions of approval or Notice modifications may be more likely in areas identified as valued wildlife habitat; therefore, it is analyzed that mineral development in wildlife habitat is expected to be impacted through delays and/or greater expenses due to these measures.	No
0234-46	Economics	The DRMP/DEIS is seriously flawed and incomplete because the socioeconomic impact resulting from the proposed withdrawal of locatable minerals is not discussed at all in the DRMP/DEIS (See Ch. 2. Alternatives, and Ch. 4 Environmental Consequences) even though the areas with high to moderate mineral development potential are proposed to be withdrawn under Alternative B, Alternative C, and Alternative E, the Preferred Alternative (DRMP/DEIS Ch. 4 at 592, 593, 594); while under Alternative D the areas with moderate to high potential for mineral development located in "special management areas" would require a higher level of environmental review and stipulations (DRMP/DEIS Ch. 4 at 594).	The economic analysis conducted for the HiLine RMP/EIS examines the potential impacts of several management scenarios developed by resource specialists. The withdrawal of lands with moderate to high potential from mineral leasing is anticipated to reduce future economic activity associated with locatable minerals administered by the HiLine District. The economic impacts of proposed withdrawals can be interpreted as the difference between the current levels of local employment and income supported by BLM-administered locatable minerals and levels supported under the alternatives. Refer to Chapter 4, Economics, Table 4.31. From a solid minerals perspective, the acres of surface disturbance resulting from mineral activity within the cited areas of development potential are described in each alternative. The analysis takes into account the impact a withdrawal would have on realization of the RFD.	No
0234-47	Economics	The DRMP/DEIS also states: While the alternatives have the potential to impact local businesses and individuals, the contribution of BLM HiLine District-related activities to the local economy and the relative differences between the alternatives would not be large enough to cause measurable impacts to economic diversity or	Additional text discussing employment by industry, local economic specialization, and employment supported by BLM resources has been added to Chapter 3, Economics. Text has also been added to Chapter 4, Economics to show that while BLM contributions to economic activity in individual sectors may change, these changes are not large enough to affect	Yes

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		dependency (DRMP/DEIS Ch. 4 at 454). BLM does not provide detailed analysis or reference to support this assertion. The Final EIS documents must provide detailed socioeconomic information that can be reviewed to support this claim, in order to withstand legal scrutiny, like in Neighbors of Cuddy Mtn, v. USFS, 137 F.3d 1372 (9th Cir. 1998) where the Court ruled that "general statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could be provided.''	overall economic specialization.	
0234-48	Economics	The DRMP/DEIS goes on to state: Under all alternatives, minerals-related activities on federal minerals would also continue to be the largest contributors to local employment and income of all the major BLM-administered land uses… the influence of resource management on BLM land would not change local economic diversity (as indicated by the number of economic sectors, dependency (i.e. where one or more a few industries dominate the economy), or stability…" (DRMP/DEIS Ch. 4 at 457-458). Yet the DRMP/DEIS does not quantify or disclose the potential impacts to support the above claim. Further NWMA questions the accuracy of this claim in light of the impacts described under Alternative B, which severely restricts any development or use, not just mineral development. NWMA contends that the socioeconomics analysis related to locatable minerals is severely lacking, especially with respect to small entities, and does not comply with the CEQ regulations as cited in BLM's NEPA Handbook: The CEQ regulations require the BLM to obtain information if it is "relevant to reasonably foreseeable significant adverse impacts," if it is "essential to a reasoned choice among alternatives," and if "the overall cost of obtaining it is not exorbitant (40 CFR 1502.22)" (BLM Handbook H-1-1790, Page 54)	Additional text discussing employment by industry, local economic specialization, and employment supported by BLM resources has been added to Chapter 3, Economics. Text has also been added to Chapter 4, Economics to show that while BLM contributions to economic activity in individual sectors may change, these changes are not large enough to affect overall economic specialization.	Yes
0234-49	Economics	The Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) requires BLM to analyze adequately the impacts of its proposal on small entities. The DRMP/DEIS does not consider the adverse	The economic analysis included in the RMP/EIS examines the potential impacts of withdrawing lands from mineral leasing by measuring the economic contributions associated with current foreseeable development alongside those associated	No

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		impact on small businesses of requiring validity exams in withdrawn or segregated lands, and is devoid of any analysis or discussion of the impact of sweeping and cumulative land withdrawals in priority sage-grouse. This is a significant omission and must be included in the socioeconomic analysis, especially because the proposed land withdrawals are co-located in areas with moderate to high mineral development (DRMP/DEIS Ch. 4 at 592, 593, 594). As BLM discovered in Northwest Mining Association v. Babbitt, 5 F.Supp.2d 9 (D.D.C. 1998), failure to comply with the RFA and SBREFA will invalidate a rulemaking. Therefore the Final EIS/RMP risks being invalidated if this issue is not addressed.	with development anticipated under alternatives which propose land withdrawals. Although land withdrawals may hamper future economic activity in sectors specializing or supporting mineral development, it cannot be determined how these withdrawals would affect individual firms within these industries.	
0234-50	Wildlife-National Greater Sage-Grouse	NWMA Recommendation No. 10: The EIS Must Evaluate Ways to Minimize Adversely Affecting Private Property Rights- The land use restrictions, prohibitions, and withdrawals proposed pursuant IM 2012-044 and the NTT Report have significant potential to diminish landowners' rights to develop their private property if their lands have priority sage-grouse habitat or are located near priority sage-grouse habitat. The EIS must evaluate ways to minimize interfering with private property rights, including the rights associated with owning patented mining claims and fee mineral estates located in, adjacent to or near priority sage-grouse habitat.	On December 27, 2011, the BLM released IM 2012-044. In accordance with this IM, the BLM must consider all conservation measures developed by the NTT in at least one alternative in the land use planning process. Alternative B in the Proposed RMP/Final EIS fulfills this requirement by incorporating the recommendations set forth by the NTT. Alternatives A and D in the Proposed RMP/Final EIS do not include sage-grouse management recommendations included in the NTT Report, but instead propose to use the national and Montana Greater Sage-Grouse conservation strategies as the basis to address Greater Sage-Grouse needs during the watershed planning process and project-level analysis.	No
0236-01	Solid Minerals	I was unaware of a paragraph on page 1173 of the Draft RMP and EIS - It states that "if future exploration discovers an economic deposit, and underground mine could result".... "the entire operation would be less than 100 acres." This is unacceptable as the entire ACEC is to be withdrawn from any mineral entry. Mine shaft operations invariably lead to copper pit operations. Absolutely no more mining in the Sweet Grass Hills- three major rural lines secure their water in the Hills.	About 100 acres of valid existing mining claims are located within the withdrawn area of the Sweet Grass Hills. It is the claim holder's right to develop the minerals of these claims.	No
0241-01	Solid Minerals	Extend the moratorium on leasable, locatable, and salable solid minerals in the Sweet Grass Hills for 20 years to prevent gold mining in the historic district.	Under Alternative E, all BLM-managed lands within the Sweet Grass Hills TCP are recommended for a 20-year extension of the withdrawal for locatable minerals and closed to leasable and salable minerals. See Chapter 2, Solid Minerals, Alternative E (Preferred Alternative) and Tables 2.20,	No

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			2.21 and 2.22.	
0241-02	Wilderness Character-istics	Reevaluate BLM's inventory for Carpenter Creek (10,000 acres), Lena (5,679 acres), and Long Coulee (46,048 acres) because all three of these areas meet BLM criteria as lands with wilderness characteristics.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0241-03	Fluid Minerals	When lands identified as having wilderness characteristics are developed for oil and gas, restore and manage for wilderness values upon completion of the oil and gas drilling.	This topic is discussed in Appendix E of the Proposed RMP/Final EIS.	No
0243-02	Wildlife-Greater Sage-Grouse	The general wisdom is that if there is enough cover (i.e. vegetation) predation will be minimized. This is usually used as the justification to remove cattle. However, there has never been a scientific study that showed reducing cattle numbers reduced predation. In fact a study of nesting sage-grouse hens in south Phillips County found grazing had no impact on chick survival. This study covered a large area and encompassed many land ownerships that employed various grazing strategies and systems. No chicks survived during a year of extreme drought. Winter sage-grouse flocks can be easily spotted when passing over in a small plane. I'm sure a golden eagle would have no problem spotting them either! Cutting cow numbers would provide no protection to these vulnerable birds. Apparently, Saskatchewan researchers have identified Richardson's ground squirrels as a major nest predator. The quantity and quality of vegetation would probably not deter these little critters. In conclusion, there is no evidence that changing the intensity, duration or timing of grazing will affect sage-grouse predation.	Refer to Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, Livestock Grazing.	No
0243-05	Livestock Grazing	The area identified as sage-grouse habitat within the HiLine District (map p. 396) included considerable private land. The Taylor Grazing Act of 1934 allocated federal lands to private base property. This cooperative program between federal and private entities has been phenomenally	See Chapter 2, Livestock Grazing, Decisions Common to All Alternatives.	No

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		successful. The improved range conditions and healthy wildlife populations (including sage-grouse) are proof that it has worked exceptionally well. In order to protect and maintain this unique ecosystem it is imperative this cooperative relationship be maintained. In order to attain this, the BLM must address and protect the interests of its private partners to avoid further habitat fragmentation. Unfortunately, in response to outside pressure to 'do something' to help sage-grouse most federal land management agencies cut AUM's. This not only imposes an economic hardship on the operator, may increase the severity of a range fire, but is not supported by any scientific evidence that it benefits the sage-grouse. The RMP must emphasize that no AUM's will be cut unless there is solid scientific evidence to support this action. The evidence and rationale for the cut must be coordinated with a third party, such as a Grazing District. In addition, a study must be designed to document if the action obtained the desired result. If it did not the cut would be rescinded.		
0244-01	FLPMA	The Plan basically reads that actual change in management may not happen but it leaves open the possibility for major changes in the name of mitigation, species protection, wilderness values, road closures, etc. Each actual action taken must be in compliance with United States law and compensation for any rights taken in the process must be paid.	The BLM's multiple-use mission and the BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies are addressed in Chapter 1 of the Proposed RMP/Final EIS.	No
0244-03	FLPMA	Coordinate is defined as "equal, of the same rank, order, degree or importance not subordinate"-from Blacks Law Dictionary 1979. FLPMA, section 1712 @ (9) requires coordination-giving preference to counties engaging in land use planning. Our Valley County Commissioners have consistently asked for coordination. Prior coordination is, of course preferable, but it is hard to implement before a definite action has been decided upon and the affected parties/local government have been notified directly. {43 U.S. Section 1701 (a) (2)} of FLPMA also invokes coordination. In short, if any federal actions impacting local land use management are to be implemented coordination must be properly addressed. Valley County has an established county plan that predates the 2013 Plan being commented on here. The BLM has been provided with this Valley County Resource Use Plan. Coordination would apply if the BLM should decide wilderness values, for	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No

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		example, called for a reduction in grazing or otherwise interfere with local interests. Perhaps wilderness value is not the proper example-FLPMA established that by 1991 the Secretary of the Interior had to review roadless federal areas of 5,000 acres or more and recommend them as suitable or non-suitable for wilderness preservation. I am not sure that wilderness designation still applies-not under FLPMA, anyway.		
0244-04	FLPMA	The Plan mentions coordination but no coordination (actual equal one on one discussion with facts and figures) has been attempted. Local government entities can demand coordination if BLM actions will cause local damages or are not compatible with the Valley County (or another Mt county) Plan. Grazing districts and conservation districts also do local planning and qualify for coordination.	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No
0245-01	FLPMA	There is nothing in this RMP document to indicate that there was a Consistency Review done, comparing this RMP to any land plans or growth policies that are in place and pertinent to Valley County, City of Glasgow, Town of Opheim, Town of Nashua, Town of Fort Peck, or any of the Town Sites located in Valley County. This would, and should be, a basic priority to any RMP that has such far reaching consequences.	A summary of the consistency review is provided in Chapter 1, Development of Alternatives, Related Plans.	No
0245-02	Fluid Minerals	Oil production projections in this RMP are based on what was known prior to 2006, not on what are current knowledgeable facts. The many layers of oil production capabilities are an evolving technology and can change significantly every few months. Many things are very different today, and are not properly addressed in the RMP by what the new technology can and cannot do.	The reasonable foreseeable development scenario (RFD) that provided the oil and gas development projections was continually updated throughout the RMP process, with the last update occurring in February 2012. The RFD is based on: • Oil and gas occurrence potential (presence of hydrocarbon source rocks, presence of reservoir rocks with adequate porosity/permeability, potential for structural stratigraphic traps to exist, opportunity for migration from source to trap, and other conditions such as temperature, depth of burial, and subsurface pressures). • Future oil and gas price estimates (supply and demand). With these factors is mind, the BLM contacted oil and gas companies (via mailed letter) and requested their anticipated levels of development activity that were anticipated in the HiLine	No

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			planning area during the life of the plan. Utilizing all of this information as a whole, the oil and gas potential of the RFD was then formulated.	
0245-03	Economics	By changing the land to "No Surface Occupancy" on the BLM land that was acquired under the Bankhead-Jones Act, deprives Valley County of the opportunity to capitalize on the 6.25% royalty, that was part of the selling price when the land was sold to the United State Government in 1937. It could also have far reaching effects on the roads that cross this property, as well as the public utilities and easements that cross these lands.	Refer to Chapter 2, Fluid Minerals, Decisions Common to All Alternatives, where it states: "New surface use stipulations (including TLS, CSU, and NSO) cannot be applied to existing oil and gas leases or other existing valid use authorizations such as rights-of-way."	No
0245-04	Economics	Valley County was assured that these right-of-ways would remain intact and No Surface Occupancy would greatly change land values and access to private holdings. The Current RMP has set the No Surface Occupancy designation on 282,062 acres of land. The new purposed (Preferred) RMP raises that number to 1, 711,378 acres of land. This is an increase of over six times the previous amount. Many acres of that land is located in North Valley County, and will deprive Valley County of gas and oil revenues. As it turns out, Valley County was in the process of negotiating a mineral lease with a company looking at exploring oil on some Valley County land. That company just informed the Commissioners that they are backing out on any leasing. They stated that unfortunately, because of Sage Grouse habitat issues involving Federal lands, it will be extremely difficult to conduct exploratory operations with regard to these minerals. The offer to lease the mineral interest in Valley County is hereby withdrawn.	Refer to Chapter 2, Fluid Minerals, Decisions Common to All Alternatives, where it states: "New surface use stipulations (including TLS, CSU, and NSO) cannot be applied to existing oil and gas leases or other existing valid use authorizations such as rights-of-way."	No
0245-07	Fire Manage-ment and Ecology	Fire management in Valley County is not done by the BLM, but by Valley County. This was not properly addressed, as in most cases, fires are put out by Valley County's Fire Company, and not BLM fire units.	An existing Reciprocal Fire Protection Agreement is in place between the BLM and the Board of County Commissioners, Valley County, Montana.	No
0245-08	Livestock Grazing	I feel that projected management plans lean more towards wildlife recovery, than to multiple uses with livestock operations. Absolutely nowhere do I find ranching and farming described as our cultural heritage, which has been fostered by as many as six generations of occupancy in many Valley County families. Many, if not all, of Valley County residents have irrevocable ties to ranching and farming and most feel that federal agencies are not respecting their civil rights.	See Chapter 3, Social, Affected Groups and Individuals, Ranchers/Livestock Permittees.	No

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0245-09	FLPMA	It would be to the best interest of the residents of the counties affected by this RMP, if it was readdressed through a legitimate coordination effort that would allow new data and legitimate input from local governments and other political subdivisions. This document sets some far reaching policies that are not going to help the people that live in this Hi-Line region, and could very well deprive us of some very basic civil rights.	Blaine, Phillips and Valley Counties and eight Montana Cooperative State Grazing Districts are cooperating agencies in the HiLine RMP planning process. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No
0246-01	Economics	Chapter 2, Livestock Grazing, pg 65, paragraph 2, the last sentence. If you go to a no grazing alternative, it could have a large impact on the local economies of those areas.	The referenced text in Chapter 2, under Decisions Common to All Alternatives, states that a no grazing alternative would be considered in all environmental assessments prepared as part of the grazing permit renewal process, which is at the site-specific level. As stated in Chapter 2, Alternatives Considered but Not Analyzed in Detail, under No Livestock Grazing/Reduced Grazing, the BLM considered but did not analyze in detail an alternative that would make all and/or a reduction of public lands within the planning area unavailable for livestock grazing.	No
0246-05	Livestock Grazing	Appendix G, Table G.1, pg 1009. It is missing one allotment, 06237 Cold Greek Holding Pasture.	See Chapter 2, Livestock Grazing, Alternative E (Preferred Alternative).	No
0246-07	Wildlife-Greater Sage-Grouse	Pg 1123, Permit Renewals, third bulleted point, last sentence, “only authorized new springs or seep developments where to the impact to sage-grouse would be beneficial.” Why not include areas for spring and seep development that would have no impact also.	Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habit, Livestock Grazing, has been revised to address this comment. The last sentence of third bulleted item now reads: “Only authorize new spring or seep developments where the impacts to sage-grouse would be neutral or beneficial.”	Yes
0248-01	Air Resources	NWE objects to the use of the DRMP to impose new or additional regulatory requirements that are duplicative with existing requirements or that do not appear justified. A good example of this is how air quality is addressed. The DRMP has proposed new requirements without a clear explanation as to why the existing requirements are ineffective or insufficient. Specifically, common to all Alternatives is a proposal whereby the BLM would be establishing a separate air quality program from the State of Montana to evaluate air quality at the "activity planning level" and will prepare detailed monitoring and mitigation prescriptions for proposals that could degrade air quality. The Montana Department of Environmental Quality (MDEQ) operates a fully approved air quality program and the EPA has an	For an explanation of the interaction between the oil and gas registration program and BLM air resource management authority, see Appendix B, Sections 1.5.2 and 1.5.3.	Yes

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		approved air quality registration program for the oil and gas industry. BLM's proposal constitutes a duplication of these efforts without explaining why it is necessary.		
0248-02	Water Resources	Similarly, regarding management of water resources, The DRMP discusses actions as if there is no current regulatory oversight and includes several new requirements. An example of this is in how the BLM addresses produced water discharges in the Preferred Alternative. It states, "Avoid the discharge of produced water from point sources to BLM land, including stream channels and uplands, as a means of disposal." Produced water cannot be discharged to live surface water in Montana without treatment in conjunction with a Montana Pollution Discharge Elimination System (MPDES) permit. Effluent limits set by the DEQ for direct discharge ensure no degradation will occur. Discharge to impoundments within an ephemeral drainage would also require an MPDES permit and a non-degradation waiver for groundwater. Further the guidance (2009) developed by the BLM, DEQ and MBOGCC prohibits infiltration pits within 500 feet of any stream feature (blue line) on a 1:24,000 scale map. This would typically remove pits from sitting within flood plains. Again, the DRMP proposes additional conditions without explaining why the current system is inadequate. We urge the BLM to eliminate conditions or requirements associated with the alternatives where existing regulatory programs are meeting the BLM's management objectives or explain the rationale and scientifically defend the need for more stringent requirements.	See changes to Chapter 2, Water Resources, Decisions Common to All Alternatives, last paragraph. Also see changes to Chapter 4, Water Resources, Impacts Common to All Alternatives, Fluid Minerals, second paragraph from the last. The HiLine RMP/EIS was prepared under the guidance of the Federal Land Policy and Management Act and the National Environmental Policy Act. This RMP revision incorporates specific management actions and conservation measures to conserve wildlife habitats on BLM Land. Thank you for your telephone correspondence regarding the 2009 citation. The Bowdoin Natural Gas Project EA from December 2008 does “Prohibit construction of well sites, access roads, and pipelines within 500 feet of surface water and/or riparian areas” with exceptions granted by the BLM based on environmental analysis and site-specific mitigation plans. The application of such a stipulation pertains to jurisdictional wetlands, but not particularly the stream features (blue lines) obtained through application of the National Hydrography Dataset’s 1:24,000 scale map.	Yes
0248-03	Lands and Realty	In its analysis of alternatives and selection of a preferred alternative, the BLM has not recognized the efforts the electric and natural gas industry has made to balance its customer's needs with the environment. Eliminating opportunity to reward "good actors" and promote creative solutions from the industry to protect resources is a step backward. For example, common to all alternatives is a management action under Right of Ways, Leases and Permits, that "the latest version of Suggested Practices for Avian Protection on Power Lines (APLIC 2006) and the BMPs established by the BLM Wind Energy Development Programmatic EIS and Record of Decision (BLM 2006c) would be implemented in the construction and operation of right-of-way	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: “Terms and conditions for rights-of-way, corridors, and development areas (oil and gas) would incorporate applicable BMPs, current professional practice, and recent scientific findings.”	No

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		facilities". This requirement is similar under the Wildlife Section where it states, "Powerlines and substations constructed on BLM land would comply with the most current raptor protection standards (currently Suggested Practices for Avian Protection on Power Lines: The State of the Art 2006 (APLIC 2006)). NWE is an active member of the Avian Power Line Interaction Committee (APLIC) which works collaboratively with the MTDFWP, US Fish and Wildlife Service, and other agencies, including the BLM, to study and find creative solutions to protect birds from impacts of power lines. NEW respectfully asks the BLM to eliminate these mandates and other actions that discourage voluntary stewardship and instead to develop incentives for industry that meet conservation and customer goals.		
0248-04	Lands and Realty	There are several mentions in the DRMP of "burying distribution power lines". This requirement does not take into account safety, technologically-based logistics, and other resource impacts. Nor does it address the potential that burying power lines might have to introduce invasive weed species, split up sage grouse habitat, or provide new routes for sage grouse predators to follow. Further, it is important to recognize that NWE's operations, including power lines, are often regulated by other agencies (FERC, NERC, and Western Electricity Coordinating Council) that may not include provisions for burying lines. We recommend decisions as to when to bury power lines be site specific and include consideration for technical feasibility, safety and other resource management and agency objectives.	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: "Requests for land use authorizations (rights-of-way, leases or permits) would be analyzed and mitigation measures applied on a case-by-case basis through the environmental review process. Terms and conditions for rights-of-way, corridors, and development areas (oil and gas) would incorporate applicable BMPs, current professional practice, and recent scientific findings. All rights-of-way would comply with Streamside Management Zone restrictions and guidelines where applicable. In accordance with current policy, land use authorizations would not be issued for uses which involve the disposal or storage of materials which could contaminate the land (e.g., hazardous waste disposal sites, landfills, rifle ranges, etc.)." Requests for renewal, assignments, or amendments to existing rights-of-ways, leases, and permits would be analyzed in the same fashion.	No
0248-05	Lands and Realty	A topic very important to NWE is how the BLM intends to manage existing and future rights of way (ROW). Significant acreage is designated as "ROW avoidance" without adequate discussion, documentation or justification for the proposed prohibitions of ROW.	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: "Requests for land use authorizations (rights-of-way, leases or permits) would be analyzed and mitigation measures applied on a case-by-case basis through the environmental review process. Specific rationale for designating ROW avoidance areas is presented in Chapter 4 of the Proposed RMP/Final EIS in the various resource sections such as Cultural Resources, Soils, Special	No

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			Designations, Wildlife, etc., under the sub-heading *Lands and Realty; Avoidance Areas*.	
0248-06	Lands and Realty	The DEIS indicates, that proposed ROW must be "compatible with the purpose for which the area was designated" and "not otherwise feasible on lands outside the avoidance area." However, these statements do not specify any standards by which such determinations will be made. NWE recommends that BLM provide more definition to these statements that take into account the short-term nature of construction disturbance and the minimal residual impacts associated with power line and pipeline ROWs.	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Alternative E (Preferred Alternative), Avoidance Areas.	No
0248-07	Lands and Realty	Another point we wish raise is regarding co-locating facilities such as addressed in the document: "the total disturbance area would be kept to a minimum and located in an area that would reduce environmental impacts as much as possible. Surface disturbances would be co-located where feasible; and sites would be located using existing roads and previously disturbed sites unless it would cause or aggravate an erosion problem. All linear facilities would be located in the same trenches (or immediately parallel to) and placed during the same period". While we understand the need to co-locate facilities, reasons other than erosion may make this infeasible. For example, different operators on adjoining leases may be unable to co-locate facilities due to different safety and operating practices. Therefore, we recommend that the following phrase be added to this statement, "to the extent technically and economically feasible."	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: "New right-of-way facilities would be located within or adjacent to existing rights-of-way, or corridors, to the extent practical, in order to minimize adverse environmental impacts and the proliferation of separate rights-of-way."	No
0248-08	Economics	A large number of acres are proposed to be eliminated for future development, will have increased restrictions, or will be discontinued once existing leases expire. The document is unclear as to the locations affected, and impact this may have on operators, local tax base, and to the revenue generated due to leasing.	The locations that would be affected by the lease stipulations can be found in Chapter 2, Map 2.4. See additional text regarding assumptions for economic impact analysis of oil and gas activities under Chapter 4, Economics, Assumptions and Guidelines, the tenth bulleted paragraph. Also see revised text in Chapter 4, Economics, by alternative, particularly under the Fluid Minerals and Solid Minerals headings and under Cumulative Impacts.	Yes
0248-09	Fluid Minerals	The terms to be imposed on future leasing and existing leases is unclear, making assessment of impacts difficult to assess. Natural gas development considerations in the area are important for public and private	The topic of terms on future leasing and existing leases is covered in Chapter 2, Fluid Minerals, Decisions Common to All Alternatives. The impacts to fluid minerals are analyzed in Chapter 4, Fluid Minerals.	No

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		interests and need to be more fully explained and analyzed.		
0248-10	Lands and Realty	It is not clear how the new rules will address utility corridors outside of the five utility and transportation corridors to be designated. We are concerned that utility interconnections necessary for operation of infrastructure will need to be constructed outside of the designated corridors, but the proposed language is vague as to how and to what extent this may be permitted. Although it appears that many of the lands and realty considerations will not change significantly, overall the proposed changes are vague as to their actual impact and implementation process.	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: "New right-of-way facilities would be located within or adjacent to existing rights-of-way, or corridors, to the extent practical, in order to minimize adverse environmental impacts and the proliferation of separate rights-of-way."	No
0248-11	Wildlife-Greater Sage-Grouse	Numerous state sage-grouse plans have either included or are developing incentive programs for industry and private landowners, as these are critical to the overall conservation of sage-grouse and their habitat. Because un-fragmented habitat is one of the primary factors influencing sage-grouse populations, habitat conservation and enhancement efforts should be a primary focus of minimization and mitigation efforts. NWE encourages the BLM to consider mitigation banks and offsite mitigation as mechanisms to pool habitat conservation resources and target conservation efforts in highest priority areas. In the development of such mitigation banks, the potential for future energy delivery corridors should be considered. For unknown impacts of operating and maintaining gas production and delivery systems and power lines, NWE recommends that the BLM provide opportunities and incentives to conduct additional studies using the research protocols developed by Utah Wildlife in Need in 2012 and endorsed by the Western Association of Fish and Wildlife Agencies (WAFWA). As indicated by WAFWA, such research should be acceptable as a component of a mitigation package for unknown project impacts. In addition, NWE encourages the BLM to jointly identify potential sage-grouse incentives and partnerships with the electric and gas utility industry.	This topic is discussed in Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. Also refer to Chapter 2, Wildlife, Decisions Common to Alternative, Special Status Species, which includes the following additional language: "The BLM would initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA."	No
0248-12	Wildlife-Greater Sage-Grouse	NWE is concerned with the inconsistencies in management options for Sage grouse habitat on public lands within the State of Montana. For example, we note that the MCFO DEIS NSO stipulation of 2 miles around leks but the HiLine DEIS provides for a 1-mile buffer around leks in general	The oil and gas lease stipulation for general sage-grouse habitat has been changed from a 1 mile NSO lek buffer to a 0.6 mile NSO buffer so as to be consistent with the other ongoing BLM RMP revisions in Montana, North Dakota and South Dakota. The new stipulation in the Proposed RMP is	Yes

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		habitat. Are there threshold effects that would be avoided by the 2-mile buffer versus the 1-mile buffer? The differing buffers around leks between the HiLine and MCFO planning areas raises questions concerning how these values were determined and the scientific basis that caused each DEIS to arrive at different conclusions (proposed stipulations). Both planning areas are part of Sage-grouse Management Zone 1 and both DEIS documents cite similar sources of data as justification for their individual (differing) conclusions. Are sage-grouse populations, habitat, and projections of impacts from energy development substantially different in the two BLM planning areas? Please explain the rationale that would justify discrepancies among the stipulations proposed as part of various DEIS documents (i.e., MCFO, HiLine, Billings/Pompey's Pillar) when referenced data sources are generally the same.	presented in Appendix E.4 under Alternative E (Preferred Alternative), Greater Sage-Grouse Leks (General Habitat Areas).	
0251-04	Economics	The economic impacts on a community will be far reaching into the future livelihoods for agriculture if a continuation of decreased allotments were to continually take place on BLM lands. You are messing with our historic way of life. Your EIS does not even touch on the possible negative economic consequences that future BLM management will be responsible for under this alternative. I am assuming that you should have addressed this in the "environmental consequences" of your Draft Resource Management Plan.	The RMP/EIS assesses the economic contributions of BLM's grazing program on the HiLine planning area and Chapter 4 analyzes potential impacts of alternative management actions which may affect future livestock grazing. This analysis has been updated in the Proposed RMP/Final EIS with better use data to more accurately quantify potential impacts to the local economy.	Yes
0251-05	NEPA	The Montana Constitution says: "Right of participation. The public has the right to expect governmental agencies to afford such reasonable opportunity for citizen participation in the operation of the agencies prior to the final decision as may be provided by law." State constitutions must follow federal law! So, you must follow our constitution. Your comment period is way too short by anyone's standards to be defined as "reasonable opportunity" and should be extended at least another 90 days or more.	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of this Draft RMP/EIS by becoming cooperating agencies. The public comment period for all draft EISs must last at least 45 days (516 DM 4.26), but some programs require longer comment periods. For example, according to BLM's Land Use Planning Handbook a draft EIS for a land use plan such as the HiLine Draft RMP must be available for a 90-day comment period. The public comment period for the Draft RMP/EIS ran from March 22 – June 20, 2013.	No
0252-01	Wilderness Character-istics	The BLM failed to analyze a reasonable range of alternatives and, in particular, an alternative which includes at least three	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the	Yes

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		other areas which meet the criteria for inclusion under the management goal: Carpenter Creek, Lena and Long Coulee. The BLM inventoried 26 areas as meeting the criteria for lands with wilderness characteristics, but only included 2 areas for a little over 10,000 acres for the specific designation. The next closest alternative covered 12 areas and over 228,395 acres. The absence of an alternative which analyzed the 2 areas plus the three named above (totaling approximately 72,000 acres) is a failure to analyze a reasonable and adequate range of alternatives.	Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	
0252-02	Special Designa-tions-Wild and Scenic Rivers	The half mile segment of the Marias River where it meets the Missouri was analyzed and left out as unsuitable for inclusion in the National Wild & Scenic Rivers system. The rational for not recommending designation is arbitrary and makes no sense. The segment meets the definition for recreational designation under the Wild and Scenic Rivers system and is contiguous with the premier Wild and Scenic River in Montana. Moreover, the Marias is critical with respect to future planning for water pulses in the Upper Missouri River Breaks National Monument, so its value must be recognized and enhanced when the opportunity arises. This is an opportunity for the BLM to recognize that value and recommend designation of the ½ mile section.	This topic is discussed in Chapter 2, Special Designations, Wild and Scenic Rivers. The impacts of designating this segment as a Wild and Scenic River are analyzed in Chapter 4 under Alternative B. The inventory and designation processes are described in Appendix L, Wild and Scenic Rivers Report, Eligibility and Suitability Determinations.	No
0252-03	OHV Use and Travel and Transpor-tation Mgmt	The draft RMP must clarify and document "existing" roads now before serious, comprehensive travel planning takes place in the future. Without a clear understanding of actual roads open for travel as they now exist, there is no valid baseline for monitoring impacts and for determining travel planning in the future, which leaves such planning open to being arbitrary and capricious. Limiting motorized travel to existing roads is proper; however, the incentive to drive off road for camping (300 feet) leaves the potential for a huge footprint of additional man-made routes which, as history has shown, oftentimes turn into "roads" for purposes of future travel planning. Therefore, the draft RMP is incomplete without a proper inventory of open roads.	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, Decisions Common to All Alternatives. Cumulative effects are discussed in Chapter 4 under various resources. The text was clarified in Chapter 3, OHV Use and Travel and Transportation Management in response to these comments.	No
0252-04	NEPA	The RMP does not adequately address the impacts of oil and gas development including exploration and development infrastructure on the objects of the UMRBNM. The area north and west of the Monument include sage-grouse leks and big	Chapter 4 of the Proposed RMP/Final EIS includes the cumulative impacts analysis, which is addressed in the environmental consequences for each resource and summarized at the end of each section. The cumulative impacts assessment prepared for	No

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		horn sheep and deer habitat. The Monument is a unit of the National Conservation Lands and that designation requires the BLM to manage areas outside the Monument to account for impacts to natural and cultural resources in the Monument including wildlife, wildlife corridors for sage-grouse, elk, deer and antelope, management to reduce the spread of noxious weeds, impacts on historic trails and visual resources. The RMP fails to adequately analyze how the cumulative impacts of activities in the lands under review will affect the objects of the Monument and recreational opportunities in the Monument.	each resource accounts for past, present, and reasonably foreseeable future actions that are relevant to determining the significant adverse impacts of the alternatives.	
0252-05	Fluid Minerals	The RMP improperly states that the BLM cannot impose necessary conditions on existing leases. This is incorrect. The BLM can, and should, manage existing leases to include the following restrictions: • No construction of new permanent roads and require obliteration of roads created for the development of a site. • No surface occupancy.	Per 43 Code of Federal Regulations (CFR) 3101.1-2, conditions of approval are deemed consistent with lease rights provided they do not require relocation of proposed operations by more than 200 meters, mandate that operations be sited off the leasehold (i.e. no surface occupancy), or prohibit new surface-disturbing activities for a period of more than 60 days in a lease year. This is also mentioned in Chapter 2, Fluid Minerals, Decisions Common to All Alternatives.	No
0252-06	Fluid Minerals	Too often the BLM grants the typical modifications, exemptions and waivers for development activities. The BLM should include a discussion of whether the RMP must include restrictions on when and where such waivers are appropriate and, in the least, analyze whether it is ever appropriate to grant a waiver that: • Allows surface occupancy within 1/2 mile of a National Historic Trail, including the Lewis and Clark Trail and the Nez Perce Trail • Allows surface occupancy in areas designated as wildlife corridors, wintering areas and lambing or nesting areas.	Refer to Appendix C, Best Management Practices, under Fluid Minerals BMPs and Wind Energy BMPs; Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria; and Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat. Also refer to Chapter 2 of the Proposed RMP/Final EIS under Special Designations, National Historic Trails, which has been expanded to clarify, by alternative, management of the Lewis and Clark National Historic Trail and the Nez Perce (Nee-Me-Poo) National Historic Trail. This information is contained in various resource sections of Chapter 2, but is now summarized in this location. Alternative E (Preferred Alternative) includes an NSO stipulation for oil and gas within ¼ mile of National Historic Trails, and wind energy rights-of-way would be excluded within 1 mile of National Historic Trails. Also refer to Chapter 2, Fluid Minerals, Table 2.8, Oil and Gas Lease Stipulations by Alternative. Under Alternative E (Preferred Alternative), an NSO stipulation would apply within ½ mile of bald eagle nest sites active within the preceding 5	No

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			breeding seasons; in bighorn sheep lambing areas; within ¼ mile of black-foot ferret and black-tailed prairie dog habitat; within ¼ mile of a waterbird nesting colony; within Grassland Bird/Greater Sage-Grouse Priority Areas and the Greater Sage-Grouse Protection Priority Area; within 1 mile of Greater Sage-Grouse leks in general habitat; within ¼ mile of interior least tern occupied habitat; within 1 mile of peregrine falcon nests active within the preceding 7 breeding seasons; within ¼ mile of piping plover habitat; within ¼ mile of raptor nests active within the past 7 years; and within ¼ mile of sharp-tailed grouse leks.	
0254-02	Air Resources	Research indicates a strong correlation between oil and gas development and increased ozone concentrations - particularly in the summer when warm, stagnant conditions yield an increase in O_3 from oil and gas emissions. Marco A Rodriguez, et al., Regional Impacts of Oil and Gas Development on Ozone Formation in the Western United States, JOURNAL OF AIR & WASTE MANAGEMENT ASSOCIATION (Sept. 2009) (attached as Exhibit 111). Particularly in areas of significant existing oil and gas development - such as the area researched by Rodriguez, the San Juan Basin in the Four Corners region, but also relevant, here - summertime "peak incremental O_3 concentration of 10 ppb" have been simulated. Id. at 1118. This study indicates a "clear potential for oil and gas development to negatively affect regional O_3 concentrations in the western United States, including several treasured national parks and wilderness areas in the Four Corners region. It is likely that accelerated energy development in this part of the country will worsen the existing problem." Id. Although these findings are a based on a case study in the Four Corners region, the applicability of this research is far broader and should be considered by the HiLine Field Offices, here. Additionally, oil and gas production in the mountain west has recently been linked to winter ozone levels that greatly exceed the National Ambient Air Quality Standards ("NAAQS").[1] [1] See Gail Tonnesen and Richard Payton, EPA Region 8. Winter Ozone Formation: Results from the Wyoming Upper Green River Basin Studies and Plans for the 2012, Uintah Basin Study (seminar abstract) (Jan. 2012), available at: http://www.esrl.noaa.gov/csd/seminars/2012	As discussed in Chapter 3, Air Resources, Air Quality Monitoring, ambient air quality data from ozone monitors near the planning area indicate ozone concentrations that are no more than 75 percent of the ozone NAAQS. The ARMP in Appendix B provides a process to manage ozone impacts from future growth in oil and gas activity.	No

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		/TonnesenPayton.html (citing, inter alia, Schnell, et. al., Rapid photochemical production ozone at high concentrations in a rural site during winter, 2 Nature Geosci. 120-122 (2009) (attached as Exhibit 114).		
0254-03	Air Resources	Despite these impacts, and indeed the HiLine Field Offices' recognition of some of these impacts, HiLine's preferred alternative calls for oil and gas activity that would be the largest emission sources for each of the identified criteria and hazardous air pollutants. Draft EIS at 431. Although the HiLine Field Offices have modeled some of the air quality impacts, they dismissed many of the admitted increases as "negligible" • because they will not exceed NAAQS. Draft EIS at 431-32. This analysis does not consider more localized impacts that may be much greater, or more constant. The impacts of these shorter term and more localized impacts should not be discounted.	Localized impacts were assessed using AERMOD near-field modeling as described in Chapter 4, Air Resources, Near-Field Criteria Air Pollutant Concentrations.	No
0254-04	Air Resources	By dismissing the additional contributions of air pollutants as “negligible” or as a small contribution to a percentage of the NAAQS, the HiLine Field Offices also fail to consider the cumulative impacts of air pollution caused by the oil and gas development authorized by the HiLine RMP. However, oil and gas development of federal minerals, combined with development of private resources, along with other activity in the area, may present impacts that exceed NAAQS or contribute to violations of Class I visibility requirements. The HiLine Field Offices must consider the cumulative impacts of development authorized by the RMP “added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” 40 C.F.R. § 1508.7	Insufficient data were available to model cumulative air resource impacts prior to Record of Decision issuance. As described in Appendix B, Section 5.0, comprehensive cumulative photochemical grid modeling will assess air quality and AQRV impacts.	No
0254-05	Air Resources	Despite these noted impacts, the HiLine Field Offices’ preferred alternative would authorize oil and gas and coal development in a manner that suggests it has no power whatsoever to influence events. However, as discussed below, BLM not only has the authority, but an obligation to address GHG emissions and methane waste. Furthermore, the HiLine Field Offices must consider not only the cumulative impact of the GHG emissions authorized by the revised RMP, it must also consider those emissions combined with other activity in the area.	The Preferred Alternative restricts oil and gas mineral estate available for leasing, thereby decreasing GHG emissions compared to the No-Action Alternative. The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of	No

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			MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and Appendix B, Section 1.5.2. Appendix C, Best Management Practices, Air Resource BMPs includes additional BMPs.	
0254-06	Air Resources	With GHG pollution and climate change, it is not only the contribution to climate change that must be considered, but, also, the combined impact of the authorized activity and climate change to specific resources; e.g., water resources, vegetation, farmlands, wildlife and endangered species, etc. Here, the HiLine Filed Offices fail to take this next step. While the HiLine RMP provides data on GHG emissions from the preferred alternative, and lists general impacts from climate change, the agency fails to account for this data in its decisionmaking or provide any hard look analysis of the associated impacts, in violation of NEPA.	Insufficient data are available to predict specific planning area climate change impacts associated with GHG emissions from the HiLine.	No
0254-07	Air Resources	As noted above, the HiLine Field Offices have recognized the impacts of authorized activities on GHG pollution and climate change. Accordingly, the agency must take the next step and address HiLine related emission contributions in the RMP. It is not enough to simply identify impacts that may occur. BLM is required to take a hard look at those impacts as they relate to the agency action. The HiLine RMP fails to provide this hard look analysis. "Energy related activities contribute 70% of global GHG emissions; oil and gas together represent 60% of those energy-related emissions through their extraction, processing and subsequent combustion."[12] Even if science cannot isolate each additional gas well's contribution to these overall emissions, this does not obviate BLM's responsibility to consider oil and gas development in the HiLine Field Offices from the cumulative impacts of the oil and gas sector. In other words, the BLM cannot ignore the larger relationship that oil and gas management decisions have to the broader climate crisis that we face. If we are to stem climate disaster – the impacts of which we are already experiencing, as discussed above – the agency's resource management decisions, as will be provided in the HiLine RMP, must be reflective of this reality and plan accordingly. The current draft RMP fails to do so. [12] International Investors Group on Climate Change, Global Climate Disclosure Framework for Oil and Gas Companies	The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and Appendix B, Section 1.5.2. Appendix C, Best Management Practices, Air Resource BMPs includes additional BMPs.	Yes

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		(attached as Exhibit 36).		
0254-08	Air Resources	We reject any notion that the emissions from specific activities in the HiLine RMP are so small as to warrant a dismissive analysis. The reality of climate change is that it is caused by myriad, specific sources of GHG pollution. For BLM, here, to disavow itself of responsibility for these specific emissions is to condemn us to unabated GHG emissions.	The BLM includes BMPs for GHG emission reduction within Appendix C.	No
0254-09	Air Resources	To suggest that the agency does not, here, have to account for GHG pollution from activity authorized by the HiLine RMP, is to suggest that the collective 700 million acres of subsurface mineral estate is not relevant to protecting against climate change. This sort of flawed, reductive thinking is problematic, and contradicted by the agency's very management framework that provides a place-based lens to account for specific pollution sources to ensure that the broader public interest is protected. In fact, the climate mitigation opportunity for methane leaking and vented from oil and gas activity on federal lands is significant. Therefore, even though climate change emissions from the Alternatives may look minor when viewed in isolation, when considered cumulatively with all of the other methane emissions from BLM-managed land they become significant and cannot be ignored.	The RMP addresses BLM management actions affecting future oil and gas activities, which are subject to NSPS. In addition, MDEQ regulates many of these sources, as described in Appendix B, Section 1.5.2. Several types of emission sources mentioned by the commenter do not contribute to actual GHG emissions reported by oil and gas operators under the EPA Greenhouse Gas Mandatory Reporting Rule (40 CFR Part 98, Subpart W) or contribute very small amounts, as discussed in Chapter 3, Climate Change, National Actions to Reduce GHGs.	No
0254-10	Air Resources	The NSPS rules do not cover significant existing sources, such as pneumatic devices or storage tanks. They do not cover completions and recompletions for conventional (non-fracked) wells, or well deliquification (well clean-up, most commonly with plunger lifts). They also do not cover portable or smaller desiccant dehydrators, well-site compressors, pipeline maintenance and repair programs, or leak monitoring and repair programs. There is no justification for assuming that future federal GHG regulations will provide the necessary mitigation for the methane emissions estimated to result from the Alternatives and their contribution to the negative impacts of climate change. Rather, the Draft RMP must look to actions the HiLine Field Offices can take as part of this plan to minimize methane emissions.	The RMP addresses BLM management actions affecting future oil and gas activities, which are subject to NSPS. In addition, the MDEQ regulates many of these sources, as described in Appendix B, Section 1.5.2. Several types of emission sources mentioned by the commenter do not contribute to actual GHG emissions reported by oil and gas operators under the EPA Greenhouse Gas Mandatory Reporting Rule (40 CFR Part 98, Subpart W) or contribute very small amounts, as discussed in Chapter 3, Climate Change, National Actions to Reduce GHGs.	Yes
0254-11	Air Resources	BLM's claims assume that restrictions on leases would preclude or limit future development, reduce lease values, and/or drive drilling activity to non-federal lands.	The BLM recognizes that cost-effective methane reductions depend on well-specific characteristics. Oil and gas operators are aware of these characteristics and can best	No

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		See id. This view is flawed in several respects. First, restrictions on leases requiring reductions in methane emissions could actually lead to higher profits and valuations for operators on BLM lands, since many commercially available technologies to capture methane have been shown to have rapid paybacks and yield substantial profits thereafter.[16] Further, restrictions on leases that require methane emissions reductions could plausibly spur state oil and gas commissions and state land offices to follow BLM's lead to reduce methane waste, increase royalty payments and take action on climate change by adopting comparable lease restrictions to minimize methane emissions. The HiLine Field Offices are obligated to consider this alternative outcome. [16] See http://www.epa.gov/gasstar/ and http://www.nrdc.org/energy/leaking-profits.asp.	identify when methane emission reductions would increase profitability and valuations.	
0254-13	Air Resources	The practical applications of BLM's GHG pollution mandate are manifest through the GHG emissions and methane waste that will result from oil and gas development authorized by the HiLine RMP and EIS. To this end, BLM certainly does not provide any consideration of the relationship between GHG emissions and the RMP decision made, and fails to address or identify any alternatives or mitigation of GHG emissions from oil and gas development in the HiLine RMP. This failure is in direct conflict with SO 3226 as well as BLM's mandate under NEPA, FLPMA, and the MLA.	GHG emission inventories are presented in the Air Resources and Climate, alternative-specific sections of Chapter 4 and in the Air Resource Technical Support Document (available at http://blm.gov/8qkd). GHG BMPs are provided in Appendix C, Air Resource BMPs. Note that the USEPA and MDEQ require emission controls that reduce GHG emissions, as described in Chapter 3, Climate Change, National Actions to Reduce GHGs and in Appendix B, Section 1.5.2.	No
0254-14	Air Resources	A recent Report released by the Natural Resources Defense Council identified that "[c]apturing currently wasted methane for sale could reduce pollution, enhance air quality, improve human health, conserve energy resources, and bring in more than $2 billion of additional revenue each year."[20] Moreover, the Report further identified ten technically proven, commercially available, and profitable methane emission control technologies that together can capture more than 80 percent of the methane currently going to waste. Id. Such technologies must also be considered in BLM's alternatives analysis, discussed infra. [20] Susan Harvey, et al., Leaking Profits: The U.S. Oil and Gas Industry Can Reduce Pollution, Conserve Resources, and Make Money by Preventing Methane Waste	GHG emission inventories are presented in the Air Resources and Climate, alternative-specific sections of Chapter 4 and in the Air Resource Technical Support Document (available at http://blm.gov/8qkd). GHG BMPs are provided in Appendix C, Air Resource BMPs. Note that the USEPA and MDEQ require emission controls that reduce GHG emissions, as described in Chapter 3, Climate Change, National Actions to Reduce GHGs and in Appendix B, Section 1.5.2.	No

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		(March 2012) (attached as Exhibit 44).		
0254-17	Air Resources	Oil and natural gas systems are the biggest contributor to methane emissions in the United States, accounting for over one quarter of all methane emissions.[22] In light of serious controversy and uncertainties regarding GHG pollution from oil and gas development, BLM's quantitative assessment should account for methane's long-term (100-year) global warming impact and, also, methane's short-term (20-year) warming impact using the latest peer-reviewed science to ensure that potentially significant impacts are not underestimated or ignored. See 40 C.F.R. § 1508.27(a) (requiring consideration of "[b]oth short- and long-term effects"). [22] Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2011 (April 2013) (attached as Exhibit 53).	See the global warming potential discussion in Chapter 3, Climate Change. Also see the Air Resource Technical Support Document (available at http://blm.gov/8qkd).	Yes
0254-18	Air Resources	EPA's GHG Inventory – which BLM currently relies on in its analysis, Draft EIS at 255 – assumes that methane is 21 times as potent as carbon dioxide ("CO2") over a 100-year time horizon,[23] a global warming potential ("GWP") based on the Intergovernmental Panel on Climate Change's ("IPCC") Second Assessment Report from 1996.[24] As a Supplementary Information Report ("SIR") prepared for BLM's oil and gas leasing program in Montana and the Dakotas explains, GWP "accounts for the intensity of each GHG's heat trapping effect and its longevity in the atmosphere" and "provides a method to quantify the cumulative effect of multiple GHGs released into the atmosphere by calculating carbon dioxide equivalent (CO_2e) for the GHGs." SIR at 1-2.[25] However, substantial questions arise when you calibrate methane's GWP over the 20-year planning and environmental review horizon used in the SIR and, typically, by BLM, including the HiLine Field Offices. See SIR at 4-1 thru 4-45 (discussing BLM-derived reasonably foreseeable development potential in each planning area). Over this 20- year time period, the IPCC has calculated that methane's GWP is 72 – over three times as potent as otherwise assumed by the SIR.[26] However, recent peer-reviewed science demonstrates that gas-aerosol interactions amplify methane's impact such that methane is actually 33 times as potent as carbon	See the global warming potential discussion in Chapter 3, Climate Change. Also see the Air Resource Technical Support Document (available at http://blm.gov/8qkd).	Yes

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		dioxide over a 100-year time period, and 105 times as potent over a twenty year time period.27 This information suggests that the near-term impacts of methane emissions have been significantly underestimated. See 40 C.F.R. § 1508.27(a) (requiring consideration of short and long term effects). Further, by extension, BLM is also significantly underestimating the near-term benefits of keeping methane emissions out of the atmosphere. 40 C.F.R. §§ 1502.16(e), (f); id. at 1508.[27]. These estimates are important given the noted importance of near term action to ameliorate climate change – near term action that scientists say should focus, inter alia, on preventing the emission of short-lived but potent GHGs like methane while, at the same time, stemming the ongoing increase in the concentration of carbon dioxide.[28] These uncertainties – which BLM has left unaddressed in prior NEPA analysis – necessitate analysis in the HiLine RMP and EIS. 40 C.F.R. §§ 1508.27(a), (b)(4)-(5). [23] See 78 Fed. Reg. 19802, April 2, 2013 (EPA proposal to increase methane's GWP to 25 times CO2). [24] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, Second Assessment Report (1996) (attached as Exhibit 48); see also U.S. Environmental Protection Agency, Methane, available at: http://www.epa.gov/outreach/scientific.html (last visited Dec. 20, 2011). [25] BLM, Climate Change, Supplementary Information Report, Montana, North Dakota and South Dakota (2010) available at: www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing/leasingEAs.html (last visited Dec. 20, 2011) (attached as Exhibit 49). [26] See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, Fourth Assessment Report, Working Group 1, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Ch. 2, p. 212, Table 2.14, available at: www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html (attached as Exhibit 50). [27] Drew Shindell et al., Improved Attribution of Climate Forcing to Emissions, SCIENCE 2009 326 (5953), p. 716, available at: www.sciencemag.org/cgi/content/abstract/326/5953/716 (last visited Dec. 20, 2011)		

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		(attached as Exhibit 51). [28] See, e.g., Limiting Global Warming: Variety of Efforts Needed Ranging from 'Herculean' to the Readily Actionable, Scientists Say, SCIENCE DAILY (May 4, 2010), available at: http://www.sciencedaily.com/releases/2010/05/100503161328.htm (last visited Dec., 20, 2011); see also, Ramanathan et al., (attached above as Exhibit 10).		
0254-19	Air Resources	While dispersed, oil and gas development is nonetheless a massive, landscape scale industrial operation – one that just happens to not have a single roof. BLM, as the agency charged with oversight of onshore oil and gas development, therefore has an opportunity to improve our knowledge base regarding GHG emissions from oil and gas production, providing some measure of clarity to this important issue by taking the requisite "hard look" NEPA analysis before selling and executing oil and gas leases.[36] [36] In this context, the 2010 SIR, while providing a basic literature review of GHG emissions sources, is merely a starting point for BLM's responsibility to take a hard look at GHG emissions in the context of foreseeable drilling operations in the geologic formations proposed for leasing.	The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and Appendix B, Section 1.5.2. Appendix C, Best Management Practices, Air Resource BMPs includes additional BMPs.	Yes
0254-20	Air Resources	The myriad impacts that will result from the HiLine Field Offices' RMP decisionmaking must be considered within the context of resiliency. Although the HiLine RMP recognizes the threat of climate change, the agency's decisionmaking is not reflective of this harm and fails to take any steps to ameliorate the impacts to communities, landscapes, and species. To the contrary, the HiLine RMP's preferred alternative would open up extensive lands to oil and gas leasing.	The Preferred Alternative restricts oil and gas mineral estate available for leasing, thereby decreasing GHG emissions compared to the No-Action Alternative.	No
0254-21	Water Resources	Although BLM acknowledges that "[h]ydraulic fracturing can open up pathways for fluids or gases from geologic layers to flow where they are not intended, which presents an opportunity for groundwater contamination," historically, BLM has been dismissive of possible impacts to water quality from hydraulic fracturing. Draft EIS at 649. Here, the HiLine Field Offices correctly recognize that fracking can result in groundwater and surface water impacts. See id. at 650 (providing that "[p]roduction water, when spilled, could contaminate soils and impact surface and groundwater quality."). Yet, the	Adherence to 43 CFR §3160; Onshore Oil and Gas Orders No.1, No. 2, and No. 7; and The Gold Book would serve to protect water quality through practices and programs that include compliance monitoring. Additional text referencing the hydraulic fracturing rule published as final on March 26, 2015 (80 Fed. Reg. 16128) was added to Chapters 2 and 4. See changes to Chapter 3, Fluid Minerals, under Drilling and Completion Activity, and Chapter 3, Water Resources, under Factors Affecting Water Quality, Groundwater (Quality).	Yes

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		agency's decisionmaking is not reflective of this identified harm, and fails to sufficiently analyze impacts, providing, only, that "[s]ite specific mitigation measures, BMPs, and reclamation standards would be implemented and monitored in order to minimize effects to water resources." Id.; see also Center for Biological Diversity v. Bureau of Land Management, No. C 11-006174 PSG (N.D. Cal. 2011), Doc. No. 45 (Order concluding that NEPA review was inadequate and specifically referenced BLM's failure to adequately analyze groundwater contamination impacts). Given the weight of both new and old evidence documenting the risk of water contamination from gas drilling across the country, BLM's approach is becoming increasingly untenable, in particular given the absence of any scientific analysis that conclusively finds that these documented problems do not exist in the area of the proposed lease sale. Indeed, even an industry report prepared for Gunnison Energy Corporation – a major oil and gas developer – has acknowledged the potential for significant impacts to water resources from fracking.[72] The simple fact of the matter is that natural gas development has the potential for poisoning our water with toxic, hazardous, and carcinogenic chemicals as well as naturally occurring radioactive radium, and BLM must provide a thorough analysis of these potentially significant impacts in the HiLine RMP and EIS. Here, BLM has failed to provide this hard look analysis. [72] See Gunnison Energy Corporation, Analysis of Potential Impacts of Four Exploratory Natural Gas Wells to Water Resources of the South Flank of the Grand Mesa, Delta County, Colorado (March 2003) at 42, 56 (attached as Exhibit 80).	Chapter 4, Water Resources, Impacts Common to All Alternatives, Fluid Minerals, first paragraph, states that the BLM is aware that fluid mineral development could introduce hydrocarbons and chemicals to water resources. See Appendix E.1, Oil and Gas Operations, Drilling Permit Process, and Reasonably Foreseeable Development Scenarios for Resource Management Plan Alternatives. Also see the changes to Chapter 4, Water Resources, Impacts Common to All Alternatives, Fluid Minerals, second paragraph from the last.	
0254-22	Fluid Minerals	In preparing its NEPA analysis for the HiLine RMP and EIS, BLM must catalogue the substances that will be used or are reasonably likely to be used in fracking on the parcels made available in the RMP. In order to make this information accessible to the public, BLM should categorize these substances as hazardous, toxic, carcinogenic, or benign.	See Chapter 4, Water Resources, Table 4.92, Fracturing Fluids and Conditions for Their Use; and Table 4.93, Fracturing Fluid Chemical Additives.	No
0254-24	Air Resources	Emissions from oil and gas development are not limited only to combustion, rather they occur throughout the chain of production – with some of the greatest emissions	Emission inventories presented in the Chapter 4, Air Resources, alternative-specific impacts sections and in the Air Resource Technical Support Document	No

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		occurring at the point of extraction. These impacts are a consequence of various stages of oil and gas development – from the drilling and fracking of oil and gas wells, to air quality impacts and the release of hazardous emissions. The HiLine RMP has failed to sufficiently address and analyze these impacts, representing a major failure of the subject EIS.	(available at http://blm.gov/8qkd) include oil and gas extraction activities. Qualitative and quantitative impacts are provided in Chapter 4, Air Resources.	
0254-25	Social	As BLM proceeds with the HiLine RMP and evaluates public land management throughout the HiLine area, including opening federal lands to oil and gas development and hydraulic fracturing, it must consider the human health impacts associated with these extractive practices.	A discussion concerning protection of human health and the environment is included in the Public Safety section, under Hazardous Materials.	Yes
0254-26	Fluid Minerals	The rapid development of high volume/horizontal drilling in conjunction with hydraulic fracturing has driven expansion of new sources resulting in increased emissions – a change that requires consideration in the HiLine RMP and EIS. Notably, EPA has, thus far, decided that it will not regulate methane emissions directly, suggesting an important and necessary role for BLM.	Additional information on hydraulic fracturing has been included in Chapter 3, Fluid Minerals, under Drilling and Completion Activity.	Yes
0254-27	Social	The health problems and uncertainties that proliferate in communities where oil and gas development takes place warrants the further collection of data and research, as contemplated under NEPA, before such development can be made possible by the HiLine RMP. NEPA requires a hard look at these myriad impacts, which the Draft EIS fails to sufficiently offer.	A discussion concerning protection of human health and the environment is included in the Public Safety section, under Hazardous Materials.	Yes
0254-28	NEPA	BLM's HiLine Field Offices must acknowledge this reality – that the existing RMP cannot be used to guide current development decisionmaking – and announce a moratorium on development pending the completion of the HiLine RMP revision.	This topic is addressed in the Background section in Chapter 1 of the Proposed RMP/Final EIS. The BLM lands in the planning area are currently managed under two RMPs: the Judith-Valley-Phillips Resource Management Plan (BLM 1994a) and the West HiLine Resource Management Plan (BLM 1988).	No
0254-29	Water Resources	In preparing its NEPA analysis of the HiLine Draft RMP, BLM must address the direct, indirect, and cumulative impacts to groundwater, 40 C.F.R. § 1508.25(c), giving particular scrutiny to the potential for contamination of groundwater supplies.	See changes to Chapter 4, Water Resources, Impacts Common to All Alternatives, Fluid Minerals, first paragraph, and the second paragraph from the last.	Yes
0254-30	Water Resources	In its NEPA analysis, BLM must address whether the development of resources, and in particular the development of oil and gas, throughout the HiLine area will affect any high quality waters or whether it will degrade any existing uses. BLM may not evade its NEPA duty to consider these	All BLM NEPA efforts within the planning area are conducted in order to address whether development of resources affects water or degrades what is in existence. This applies to each chapter and each alternative of the HiLine RMP/EIS.	No

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		impacts by asserting that other agencies may issue discharge permits. 40 C.F.R. §§ 1502.14(f), 1502.16(h).		
0254-31	Water Resources	As applied to the HiLine RMP, the HiLine Field Offices must consider the current and potential impacts of authorizing additional oil and gas and coal development. The HiLine RMP fails to sufficiently analyze these impacts. Not only is BLM mandated to follow antidegradation and water quality standards under the CWA and state law, but it must also take a NEPA "hard look" at any impacts that may be related to these water quality standards as well. Here, the HiLine Field Offices provide only that "[o]il and gas operations must attempt to uphold water resource integrity through conduct that minimizes adverse effects to surface and subsurface resources, prevents unnecessary surface disturbance, and conforms with currently available technology and practice." Draft EIS at 650. The RMP later continues, providing that "[s]ite specific mitigation measures, BMPs, and reclamation standards would be implemented and monitored in order to minimize effects to water resources." Id. This dismissive and cursory analysis is insufficient and fails to take the hard look that NEPA demands.	See Chapter 4, Solid Minerals, Impacts Common to All Alternatives, Leasable – Coal. Also see Chapter 4, Fluid Minerals, Coalbed Natural Gas (CBNG); Chapter 4, Water Resources, Impacts Common to All Alternatives, Fluid Minerals; and Appendix E.1, Oil and Gas Operations, Production Operations, Coalbed Natural Gas Production and Water Production.	No
0254-32	Water Resources	In its NEPA analysis BLM must closely assess the direct, indirect, and cumulative impacts of lease development on water supplies from oil and gas operations. 40 C.F.R. §§ 1508.7, 1508.8. This analysis must consider the potential sources of water in the HiLine Field Offices that would be used for oil and gas development, and the impacts of these water withdrawals on water availability for drinking, agriculture, and wildlife. The analysis must further address the impacts to water quantity at different annual, seasonal, monthly, and daily time scales because the impacts of such water withdrawals could be more acute during times, months, and seasons of scarcity. For example, increased withdrawal and irretrievable contamination of waters will be particularly harmful during times – like the present – when much of the state is experiencing drought conditions. As noted above, the HiLine RMP fails to provide any analysis or recognition of significant water quantity issues associated with oil and gas development, representing a fundamental shortcoming in the RMP.	Water use and loss from oil and gas development is not included in the RMP because it would be speculative. Technological advances in oil and gas operations are expected to continue surfacing which is likely to decrease the volume of water required to initiate oil and gas production. A determination of the amount of water available in the system would be speculative as it is in relation to the hydrologic cycle. Water use is discussed in the RMP under Alternative E.1, Fluid Minerals; Drilling Permit Process; Permitting, third and fourth paragraphs; and Surface Disturbance Associated With Exploratory Drilling, eighth paragraph. See changes made to Chapter 3, Water Resources, Factors Affecting Water Quality, Groundwater (Quality); and Chapter 3, Water Resources, Water Rights, last paragraph. Adherence to 43 CFR §3160; Onshore Oil and Gas Orders No.1, No. 2, and No. 7; and The Gold Book would serve to protect water	Yes

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			quality through practices and programs that include compliance monitoring. Chapter 4, Water Resources, Impacts Common to All Alternatives, Fluid Minerals, first paragraph, states that the BLM is aware that fluid mineral development could introduce hydrocarbons and chemicals to water resources. Also see Appendix E.1, Oil and Gas Operations, Drilling Permit Process, and Reasonably Foreseeable Development Scenarios for Resource Management Plan Alternatives.	
0254-33	Wildlife-General	The HiLine Field Offices identify numerous threatened and endangered species within the planning area, including black-footed ferret (mustela nigripes), Canada lynx (Lynx canadenis), and grizzly bear (Ursus arctos horribilis), as well as bird species such as the least tern (Sterna antillarum), piping plover (Charadrius), and whooping crane (Grus americana). Draft EIS at 403. Despite BLM's recognition that these species are present in the HiLine planning area, the RMP fails to provide sufficient analysis regarding possible impacts to these protected species. For grizzly bear, Canada lynx, least tern and whooping crane, the agency provides only that "no impacts are expected to occur." Id. at 685. For piping plover, BLM offers that "[l]ong-term effects to piping plover populations are not expected with [ ] mitigations in place," yet, the agency fails to sufficiently describe or analyze how mitigation will achieve this result. Id. at 729. For black-footed ferret, which the agency acknowledged is "considered the rarest mammal in North America," id. at 402, the HiLine Field Offices states only that "[a]n NSO stipulation would be implemented within 1/2 mile of essential black-footed ferret habitat to limit surface-disturbing activities. This would result in approximately 82,517 acres of black-footed ferret habitat on BLM lands where direct and indirect impacts would be avoided." Id. at 727. The agency goes on to provide that "[n]o management actions specific to black-footed ferrets are proposed in Alternative E because of the failure of reintroduction efforts to establish a current population of ferrets on BLM lands." Id. at 730. Such dismissive and lax treatment of these protected species is insufficient under the procedural and substantive standards established in the ESA.	Please refer to Chapter 2, Wildlife, Objectives; and General Wildlife, Decisions Common to All Alternatives. Black-footed ferret management is addressed under prairie dog habitat management in Chapter 2, Wildlife, Special Status Species.	No

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0254-34	Economics	In the instant case, authorizing virtually all of the 4.2 million acres in the HiLine RMP to oil and gas development and its ensuing infrastructure – which includes the construction of well pads, evaporation ponds, roads, power lines, and pipelines – clearly will represent a dramatic and community altering change to the physical environment. The impacts that this development will have on the traditional rural, ranching, and native communities must be sufficiently identified in the RMP and EIS.	The analysis of oil and gas development within the HiLine planning area is based on the number of acres administratively available for leasing. Development of administratively available lands could occur over the next 10 to 15 years following subsequent environmental assessment.	No
0254-35	Fluid Minerals	NEPA requires the HiLine Field Offices to look at the cumulative impacts of the proposed action. See 40 C.F.R. § 1508.25. Failure to include cumulative impacts of all the mineral development authorized by the HiLine RMP segments the process of oil and gas development into many mini-NEPAs. This practice, in turn, has the effect of hiding the fact that the cumulative impacts of all the segments are significant. Historically, BLM has failed to analyze the impacts of the authorized oil and gas development in the HiLine RMP with the already permitted activities in the vicinity of the project. Under NEPA, BLM "must analyze not only the direct impacts of the proposed action, but also the indirect and cumulative impacts of 'past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions.'" Wyoming v. U.S. Dept. of Agriculture, 661 F.3d 1209, 1251 (10th Cir. 2011) (citing Colorado Environmental Coalition v. Dombeck, 185 F.3d 1162, 1176 (quoting 40 C.F.R. § 1508.7)); see also 40 C.F.R. § 1508.25 (c) (stating that the "scope" of an EIS includes consideration of "cumulative" impacts).	This issue is addressed in Chapter 4.	No
0254-36	Fluid Minerals	The cumulative impacts to the landscape of energy development in the region have already left scars, and the potential for further development threatens greater impacts to the area. Compounding the problem, BLM has historically failed to consider the cumulative impacts of extractive mineral development together. For example, mining activities add to the cumulative impacts of oil and gas development, including impacts to air and water quality, habitat destruction and fragmentation, and loss of wild areas and the aesthetic, recreational, and spiritual benefits derived therefrom.	This issue is addressed in Chapter 4.	No

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0254-37	Air Resources	In addition to the cumulative land disturbance from energy development in the region, BLM has failed to consider the cumulative impacts of air pollution caused by this development.	Cumulative impacts of energy development activities on air resources are described in Chapter 4, Air Resources, and in the Air Resource Management Plan to future cumulative modeling in Appendix B, Section 5.0.	No
0254-38	Air Resources	In addition to the cumulative effects of conventional air pollution, energy development in the region is causing significant GHG pollution in the form of methane emissions – the impacts of which were detailed, above. BLM has historically, and here, failed to consider the methane emissions of oil and gas development and its contribution to climate change. BLM has added to this error by failing to consider the cumulative methane emissions throughout the HiLine area. BLM must consider the cumulative impacts of oil and gas and coal development in the area.	GHG emission emissions from BLM-authorized activities are included in Chapter 4, Climate Change, alternative-specific emission inventories. Cumulative GHG emission emissions for all counties within the HiLine are not available. Although the EPA has GHG emission estimates for larger facilities representing some source categories, cumulative GHG estimates that include mobile sources, residential sources, and small commercial sources in the HiLine area are not available.	No
0254-39	NEPA	BLM must ensure that it has adequate baseline data to determine impacts, rather than basing impacts only on incremental additions to the already significant development occurring within the HiLine planning area.	Chapter 3 in the RMP/EIS contains a description of the physical, biological, cultural, economic and social conditions of the HiLine planning area. The Affected Environment serves as the baseline of existing conditions from which the impacts of the alternatives are analyzed.	No
0254-42	FLPMA	While certain lands may indeed be appropriate for responsible oil and gas leasing and development, it is equally evident that there are lands where other resource values should prevail. FLPMA affords BLM great authority to appropriately balance these competing interests, which expressly includes the responsibility to "preserve and protect certain public lands in their natural condition." 43 U.S.C. § 1701(a)(8). Moreover, FLPMA further delegates BLM authority to permanently withdraw lands from consideration. See 43 U.S.C. § 1714. This ability authorizes the Secretary to "make, modify, extend, or revoke withdrawals." Id. In either event, BLM's HiLine Field Offices cannot continue its practice of prioritizing oil and gas leasing and development above the other resource values at stake. The HiLine RMP revision process should be used to provide a framework where BLM can more fully realize its multiple use mandate now and into the future.	The BLM's multiple-use mission and the BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies are addressed in Chapter 1 of the Proposed RMP/Final EIS.	No
0254-43	Air Resources	It is critical that the HiLine Field Offices take a hard look in the RMP at methods to reduce GHG emissions and at how authorizations and management activities will ensure implementation of feasible GHG emission reduction strategies, and, yet, the	The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the	Yes

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		agency fails to do so. Indeed, the HiLine Field Offices have already demonstrated a lack of attention to methane emissions and reductions. On March 19, 2013 WELC submitted a FOIA request for: "All records and information on instances where, as a stipulation on a lease sale or a condition of approval of an application for a permit to drill, BLM field offices in Montana, North Dakota, or South Dakota, since November 1, 2010, have required oil and gas operators to take measures to capture or mitigate methane emissions, including but not limited to the following technologies: green completions, plunger lift systems, triethylene glycol dehydrator emission controls, desiccant dehydrators, dry seal systems, improved compressor maintenance, low-bleed or no-bleed pneumatic controllers, pipeline maintenance and repair, vapor recovery units, leak monitoring and repairs." The BLM State Office sent a reply letter on 5/15/13 stating: "No responsive records because the Miles City Field Office does not have any lease stipulations pertaining to methane or greenhouse gas emissions. Additionally, the office does not have conditions of approval (COA) specific to mitigation measures for emissions."	commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and Appendix B, Section 1.5.2. Appendix C, Best Management Practices, Air Resource BMPs includes additional BMPs.	
0254-44	Air Resources	Considerable information is available to the HiLine Field Offices about methods to reduce methane emissions, and the agency has ample means, including binding commitments in the Draft RMP, lease stipulations, and conditions on approval to drill, that would ensure that such authorizations and management activities do implement feasible GHG emission reduction strategies. Much of this information is in fact contained in official documents of the BLM. If the HiLine Field Offices are waiting to address GHG emissions at the APD stage, while ignoring them at the RPM and subsequent leasing stages, this is a fatal flaw. These and other sources of GHG and methane emissions reduction BMPs are addressed here.	The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and Appendix B, Section 1.5.2. Appendix C, Air Resource BMPs includes additional BMPs.	Yes
0254-45	Air Resources	The first set of BMPs that the HiLine Field Offices must consider including as stipulations in the RMP process are those that BLM itself has recognized and publicized on its website.[126] These measures include: • Moving toward cleaner diesel engines • Natural gas powered engines	Tier 4 diesel engines are required as a mitigation measure, unless modeling or monitoring data demonstrate acceptable impacts, as described in Appendix B, Section 6.1. The Air Resource BMPs referenced by the commenter are included in the HiLine RMP in Appendix C, Air Resource BMPs.	No

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		• Flaring
		  o Reduces Methane GHG emissions, but has downsides as noted below.
		  o Combustion emissions include NOx, CO, VOCs, and PM2.5, which can pose visibility and health problems, and CO2 (a less potent GHG). NOx and VOCs contribute to ozone formation.
		  o Wastes valuable natural gas resources
		• Reduced Emissions Completions
		• Using chemical pumps and well monitoring telemetry powered by solar panels
		• Using electricity from the nation's power grid is typically cleaner than using onsite diesel or natural gas engines to power drill rigs, compressors, and pumping units.
		• Using enclosed tanks instead of open pits to reduce fugitive VOC emissions
		• Vapor Recovery Units
		• Using and maintaining proper hatches, seals, and valves to minimize VOC emissions
		• Optimize Glycol Circulation and Install Flash Tank Separator
		• Replacement of Wet Seals with Dry Seals in Centrifugal Compressors
		• Reduce Emissions from Compressor Rod Packing Systems
		• Replace high-bleed devices with low-bleed and Retrofit bleed reduction kits on high-bleed devices
		• Installing Plunger Lift Systems and Automated Systems in Gas Wells
		• Directed Inspection & Maintenance and Infrared Leak Detection
		
		[126] See Bureau of Land Management, Air Resource BMPs: Best Management Practices for Fluid Minerals (2011), available at: http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/bmps.Par.60203.File.dat/WO1_Air%20Resource_BMP_Slideshow%2005-09- 2011.pdf (attached as Exhibit 113).		

0254-46	Air Resources	The second set of BMPs that the HiLine Field Offices must consider including as stipulations in the RMP process are those that have been included as "Mitigation Objectives" in for other Montana Draft RMP Appendices, but which the HiLine RMP fails to identify.[127] These BMPs include: Fugitive volatile organic compound (VOC), hazardous air pollutant (HAP), or methane	The BMPs have been added to Appendix C, Air Resource BMPs.	Yes

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		(a GHG) would be reduced by: • using green completion technology to capture methane (and some VOC and HAP) emissions during completion and route them to sales pipelines, • using flaring rather than venting, but only in cases in which product capture is not feasible, • using closed tanks rather than open tanks or pits, • installing vapor recovery units on storage tanks, • using closed-loop drilling, • replacing pneumatic (natural gas) pumps with electric or solar pumps, • optimizing glycol circulation rates on glycol dehydrators, • replacing wet seals with dry seals in centrifugal compressors, • replacing worn rod packing in reciprocating compressors, • installing automated plunger lift systems in natural gas wells, and • monitoring and repairing equipment leaks. Additional Best Management Practices • Electrification of drill rigs, well pads, and compressor stations would be encouraged to reduce emissions, particularly emissions of nitrogen oxides (NOx), volatile organic compounds, and GHGs. • Methane GHG emissions from well completions, recompletions, and workovers would be captured and routed to gas sales lines when feasible. [127] BLM Miles City Field Office, Best Management Practices Appendix, available at: http://www.blm.gov/mt/st/en/fo/miles_city_field_office/rmp/draft_rmp.html.		
0254-47	Air Resources	BLM has also noted many methane pollution mitigation measures in its Climate Change, Supplementary Information Report ("SIR").[128] BLM notes "US EPA's Natural Gas STAR program has identified more than 80 potentially cost-effective technologies for decreasing methane emissions from the oil and natural gas industry."[129] Of these, the following discussion selects technologies that focus primarily on natural gas production and gathering equipment and on emission sources for which BLM may have a major role in identifying mitigation measures." SIR at 6-4. The report highlights the following mitigation technologies: Natural Gas Mitigation Measures	The BLM supports the Natural Gas STAR program, from which some GHG emission reduction methods have been adopted in EPA regulations, MDEQ regulations, and BLM BMPs. The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of	Yes

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		Wells: • Reduced Emission (Green) Completions • Plunger Lift Systems • Smart Automation for Plunger Lift Systems • Well Foaming Agents Tanks: • Installation of Vapor Recovery Units • Tank Consolidation Glycol Dehydrators: • Flash Tank Separators • Optimization of Glycol Recirculation • Zero-emission Dehydrators Pneumatic Devices and Control systems: • Replacement of High-Bleed Devices with Low-Bleed Devices • Convert Gas Pneumatic Controls to Another Motive Force Valves: • Test and Repair of Pressure Safety Valves • Inspection and Repair of Compression Station Blowdown Valves Compressors: • Electrification of Compressors • Replacement of Wet Seals with Dry Seals • Replacement of Compressor Rod Packing Systems The report also addresses key mitigation technologies for oil production and Coal Bed Methane. Oil Sector Mitigation Measures • Methane Flaring • Methane Reinjection: " … in many oil production fields natural gas cannot be captured and sold due to a lack of gas processing facilities and the absence of a nearby natural gas pipeline. When the gas cannot be sold, it can be vented, used as onsite fuel, flared, or reinjected into the oil field. … methane reinjection is estimated to be … more expensive than flaring. However, methane reinjection has several potential benefits over flaring, including (1) increasing oil well production, (2) avoiding combustion emissions, and (3) preserving natural gas in the well field for potential recovery at a later time," at 6-14, 15. • CO2 Injection • VRU Installation on Oil Storage Tanks Coal Bed Methane Well Mitigation Measures • CBM Wells to Remove Methane • CBM Wells to Sequester CO2	MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and Appendix B, Section 1.5.2. Appendix C, Best Management Practices, Air Resource BMPs includes additional BMPs.	

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		[128] URS, Climate Change, Supplementary Information Report (Oct. 2010) (mitigation measure costs and paybacks are summarized in Table 6-2 at 6-6, 6-7 and described in Chapter 6), available at: http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing/leasingEAs.html. [129] U.S. EPA, Natural Gas STAR Program, Recommended Technologies and Practices, available at: http://epa.gov/gasstar/tools/recommended.html.		
0254-48	Air Resources	Gas Production and Processing • Perform reduced emissions completions • Install plunger lifts • Aerial leak detection using laser and/or infrared technology • Eliminate unnecessary equipment and/or systems Oil Production • Install VRUs on crude oil storage tanks • Route casing head gas to VRU or compressor for recovery & use or sale Gas Storage • Convert gas pneumatic controls to instrument air • Replace bi-directional orifice metering with ultrasonic meters • Reduce methane emissions from compressor rod packing systems Gas Transmission • DI&M at compressor stations • Use fixed/portable compressors for pipeline pumpdown • Install vapor recovery units on pipeline liquid/condensate tanks The EPA Natural Gas STAR measures are recognized as effective, and as noted, were developed with industry. There is no reason why BLM should not work to include these measures in the HiLine RMP process.	The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and Appendix B, Section 1.5.2. Appendix C, Best Management Practices, Air Resource BMPs includes additional BMPs.	Yes
0254-49	Air Resources	Another source of mitigation measures is the Leaking Profits report, published by NRDC.[131] The stipulations outlined in that report would establish a mandatory obligation on lessees to adopt widely-recognized industry "best management practices," take all reasonable, cost-effective action to reduce GHG pollution and require the lessees to demonstrate, in applications for permit to drill, how GHG pollution will in fact be reduced from production-stage technologies and practices. It would also provide that BLM retains the authority to	The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and	Yes

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		require best available technology for GHG reductions upon review of the lessee's APD. Best available methane emissions reduction technology would include at least the following, which are technically proven, commercially available and in most cases profitable: • Green or reduced-emissions completions—all recovered liquids must be routed to storage vessels and all recovered gases must be routed to a gas gathering line and collection system. This process captures liquids and gases coming out of wells as they are being drilled, repaired, stimulated or re-stimulated during hydraulic fracturing and keeps them out of the atmosphere. If capturing methane is not feasible due to the absence of gathering infrastructure, options include (1) imposing royalty and tax payments on flared gas to create economic incentives for infrastructure incentives, or (2) requiring gas re-injection. • Liquids unloading—operators must employ a plunger lift system or other liquids unloading system with an equal or greater methane capture rate at wellhead facilities to remove accumulated liquids from the well bore, separate them from the gas, route gas to a sales line, and route liquids to a storage vessel. • Improved maintenance for compressors, dry seals—operators must implement a maintenance program for compressors that is in line with industry best practices and must also employ tandem dry seals for all centrifugal compressors used in the production and transmission of natural gas. • Pneumatic devices—for all pneumatic devices, operators must employ low bleed or nobleed controllers. High-bleed pneumatic devices should be prohibited for all new applications and replaced on existing ones. • TEG dehydrator emission controls—methane venting from tri-ethylene (TEG) dehydrators must be minimized by retrofitting TEG dehydrating systems with emission control equipment including flash tank separators, optimizing the glycol circulation rate, rerouting the skimmer gas, and installing electric pumps to replace natural gas driven energy exchange pumps. • Desiccant dehydrators—operators must deploy desiccant dehydrators, which pass gas through a bed of water-absorbing salt	Appendix B, Section 1.5.2. Appendix C, Best Management Practices, Air Resource BMPs includes additional BMPs.	

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		to remove gas moisture without venting methane, whenever feasible. • Vapor recovery units—operators shall employ vapor recovery units comprising scrubbers, compressors and valves with all storage tanks that recover, at minimum, 99 percent of all vapors. Recovered vapors shall not be leaked or vented into the ambient air. • Pipelines—all pipelines must be constructed using plastic pipe. If operators are able to demonstrate to the satisfaction of BLM that the use of plastic pipe is infeasible, operators shall employ plastic insert liners to reduce gas leakage. Excess flow valves shall be installed in all pipelines. When a pipeline is repaired or replaced, or cut to install a new connection point, the amount of methane released into the atmosphere must be reduced by either re-routed the gas and burning it as fuel during the repair and maintenance. Methane gas venting must also be mitigated by using hot tap connections, de-pressuring the pipeline to a nearby low pressure fuel system, or using a pipeline pump-down technique to route gas to sales. • Leak Monitoring and Repair - Methane leaks can occur from numerous locations at an oil and gas facility – valves, drains, pumps, connections, pressure relief devices, open ended valves, and lines. Since methane is a colorless, odorless gas, methane leaks often go unnoticed. Operators must establish a well-implemented program of regularly monitoring and repairing leaks to significantly reduce fugitive emissions. [131] See Exhibit 44.		
0254-50	Air Resources	The Clearing the Air report, by the World Resources Institute, outlines measures by which methane waste can be reduced.[132] • Reducing emissions from well blowdowns with plunger lift systems • Replacing existing high-bleed pneumatic controllers with low-bleed devices • Leak detection and repair (“LDAR”) [132] James Bradbury, Michael Obeiter, Laura Draucker, Wen Wang, and Amanda Stevens, Clearing the Air: Reducing Upstream Greenhouse Gas Emissions from U.S. Natural Gas Systems, Working Paper, World Resources Institute (April 2013), available at:	The BLM reviewed GHG emissions, based on new data from the USEPA's Greenhouse Gas Mandatory Reporting Rule (MRR). Oil and gas operators did not report methane emissions from many types of the oil and gas air pollutant sources listed by the commenter based on year 2011 activity. For other sources, methane emissions accounted for less than 1 percent of CO2e. EPA and MDEQ regulations will reduce future methane emissions. See the summary of MRR data in Chapter 3, Climate Change, National Actions to Reduce GHGs, and Appendix B, Section 1.5.2. Appendix C, Best Management Practices, Air Resource BMPs includes additional BMPs.	Yes

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		http://www.wri.org/publication/clearing-the-air (attached as Exhibit 110).		
0256-01	Wilderness Character-istics	I urge you to plan & manage the high line area in keeping with wilderness priorities: no oil or gas leasing, or only very low impact occupation; no new roads & limited vehicle use to protect wilderness characteristics; no mining; strict guidelines on new structures & facilities.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0259-01	Wilderness Character-istics	More areas need to be inventoried and designated as LWCs. These include Carpenter Creek, Lena and Long Coulee. These few small and special areas of the Last Best Place will have more value for Montanans (and other Americans) in the future if the landscapes and ecosystems are protected by not allowing them to be fragmented with power lines, roads and motor vehicles, mining and oil and gas leasing etc. No surface occupancy regulations should apply.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0259-02	Wilderness Character-istics	Any LWC lands which now have oil, gas or other mineral leases should be managed for their wild character as much as possible now, and fully after such leases or drilling activities expire.	This topic is discussed in Appendix E of the Proposed RMP/Final EIS.	No
0259-03	Solid Minerals	The moratorium on leasable, locatable and salable minerals in the Sweet Grass Hills must be extended. This special area needs to be preserved for future Montanans.	Under Alternative E, all BLM-managed lands within the Sweet Grass Hills TCP are recommended for a 20-year extension of the withdrawal for locatable minerals and closed to leasable and salable minerals. See Chapter 2, Solid Minerals, Alternative E (Preferred Alternative) and Tables 2.20, 2.21 and 2.22.	No
0263-01	Fluid Minerals	Make sure the Plan allows for public comment anytime the BLM makes exceptions or modifications to the No Surface Occupancy provisions in Protection Priority Areas and Areas of critical Environmental Concern. We the public expect these areas to protect sensitive wildlife and other natural resources.	• The public has the opportunity to be involved in the development of waivers, exceptions, and modifications (WEMs) during the RMP process. • The public has the opportunity to be involved in the application of lease stipulations during leasing environmental assessment (EA) reviews. • At the development stage, the public has the opportunity to be involved during NEPA reviews. NEPA logs are posted on the Montana/Dakotas BLM web site for public viewing and NOS/APDs are also posted for 30 days. • WEMs are applied using the best available information/data during the NEPA review and at the discretion of the Authorized	No

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			Officer (AO). This process is also done in consultation with other Federal agencies, if needed (FWP, FWS, USFS, BOR, etc.). The WEM process is discussed in Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria.	
0263-02	Fluid Minerals	When the oil and gas leases within the Grassland Bird/Greater Sage-Grouse Protection Priority Area expire, there should be no ability to renew the lease. This will ensure that this critical habitat has long-term protection.	Refer to Chapter 2, Table 2.8 Oil and Gas Lease Stipulations by Alternative. The No Surface Occupancy stipulation in the Preferred Alternative for the Priority Areas would provide the same long-term protection of the critical habitat.	No
0263-03	Wilderness Character-istics	I would like to see the BLM expand the number of acres managed for wilderness characteristics. Specifically, the intact prairie grasslands and intact sagebrush grasslands found on pages 374-375 are remote and pristine and should be managed as lands with wilderness characteristics.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0269-01	Wilderness Character-istics	I am writing to request that you give specific and formal protection to all 386,000 acres identified as having wilderness characteristics in the Hi Line BLM District. I am pleased the BLM has recommended wilderness designation for Sage Creek and Square Creek, however, there are many other roadless lands that qualify as WSA. There lands should be protected from In addition, I request that you review the wilderness qualities of three areas identified by the MWA that may qualify for wilderness: Long Coulee, Lena and Carpenter Creek. For all these lands, I believe the BLM should continue to manage them so their wilderness qualities are not compromised. This means no new roads. No oil and gas leasing. No wind farms. No powerlines, pipelines or other surface disturbing activities. It means no motorized access by ORVs. In short, manage these lands as wilderness.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0270-01	Wildlife-General	The current "7 km Complex" area needs to be managed for greater protection of black-footed ferrets, black-tailed prairie dogs, and Mountain Plover. The BLM's current "7 km Complex" ACEC in south Phillips County should be retained. This is a critical area for prairie dogs and Mountain Plover biologically. In addition, it is one of 19 places in North American that had been designated as a black-footed ferret reintroduction site. If the ACEC is not retained by the BLM, at a minimum this area should have increased management and	The 7km Complex ACEC does not meet Relevance and Importance. Please refer the Appendix K. Habitat protection for black-footed ferrets, black-tailed prairie dogs and mountain plovers is discussed in Chapter 2, Special Status Species.	No

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		protection of habitat for black-footed ferrets, black-tailed prairie dogs, and Mountain Plover.		
0270-02	Wildlife-General	Specifically, the BLM's RMP should include management activities in the 7 km Complex area that will maintain and enhance the black-tailed prairie dog populations (Mountain Plover are dependent on prairie dog towns).	The 7km Complex ACEC does not meet Relevance and Importance. Please refer the Appendix K. Stipulations in Alternative E would protect black-tailed prairie dog habitat, as well as associated species such as black-footed ferrets, burrowing owls and mountain plovers. Please refer to Chapter 4, Impacts under Alternative E (Preferred Alternative).	No
0270-03	Wildlife-General	Management actions should include a program to manage and mitigate Sylvatic plague, which can eradicate prairie dogs and ferrets; continuing to exclude surface disturbances; prohibit prairie dog shooting; monitoring and prohibit poisoning of prairie dogs; and working to consolidate BLM parcels within this area.	Refer to Chapter 2, Noxious Weeds and Other Invasive Non-Native Species. Also refer to Chapter 3, Wildlife, Wildlife Habitat. The BLM would consider year-round or seasonal shooting closures on prairie dog towns identified for black-footed ferret reintroductions by the USFWS (43 CFR 8364.1). Language has been added to the Black-tailed Prairie Dog section of Chapter 2, Wildlife, Alternative E (Preferred Alternative), under Special Status Species. Also refer to Chapter 2, Lands and Realty, Land Ownership Adjustment, Decisions Common to All Alternatives.	Yes
0270-04	Wilderness Character-istics	Increase the acreage that BLM will manage as "lands with wilderness characteristics." BLM's own inventory identified 26 special places covering more than 380,000 acres of wild prairies and remote badlands eligible to be called "lands with wilderness characteristics." Unfortunately, the BLM's RMP would manage just two of these areas for wilderness characteristics—just over 10,000 acres– less than one-half of one percent – of its total HiLine District lands. The BLM should manage the intact prairie grasslands and intact sagebrush grasslands found on pages 374-375 as "lands with wilderness characteristics."	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2, Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	Yes
0270-05	Wildlife-Greater Sage-Grouse	The 2012 FWP counts for the eastern Montana Sage Grouse Management Zone are only 64.9% of the long term average. As well in general across Montana, sage grouse numbers have declined by more than half since 1980 (males counted on leks are used to estimate sage grouse population numbers) (Montana FWP 2012). Furthermore, hunter harvest estimates have declined even further, dropping from 40,000 birds in 1984	The following information has been added to Chapter 3, Wildlife, Montana BLM Sensitive Species, Greater Sage-Grouse: "The 2012 FWP counts for the eastern Montana Sage Grouse Management Zone are only 64.9% of the long term average. Across Montana, sage-grouse numbers have declined by more than half since 1980 (MFWP 2012). Hunter harvest estimates	No

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		to less than 5,000 in 2011 (Montana FWP 2012). This represents an 87.5% decline in hunter harvest across the State. These data reveal a significant loss of sage grouse numbers. Please review and share this important sage grouse data in the final EIS. If you have more site specific information relevant to sage grouse trends and habitat conditions within the Hi-Line RMA, please reveal it in the final EIS as well.	have declined even further, dropping from 40,000 birds in 1984 to less than 5,000 in 2011 (MFWP 2012). This represents an 87.5% decline in hunter harvest across the State."	
0270-06	Wildlife-Greater Sage-Grouse	We have been told the sage grouse has already been listed in Canada under their ESA program and that the latest lek counts indicate only 15 male sage grouse still exist in Alberta and only 35 exist in Saskatchewan. We also understand that these "Canadian" sage grouse populations migrate to Montana during the fall and winter, which coincides with our current hunting season. Is this information accurate? Do these birds spend time on BLM lands in the Hi-Line RMA? Are you communicating and coordinating with Montana FWP and the U.S. Fish & Wildlife Service about how to best handle this apparently dire situation for sage grouse that migrate to and from Canada?	Language has been added to Chapter 3, Wildlife, Montana BLM Sensitive Species, in reference to Greater Sage-Grouse migrations from Canada to northern Montana. Refer to Chapter 5, Consultation and Coordination, for a discussion of U.S. Fish and Wildlife Service Consultation. Montana Fish, Wildlife and Parks is a cooperating agency in this planning process.	No
0270-07	Wildlife-General	Pronghorn (Antelope) Habitat: Pronghorn are a unique and important wildlife species within the Hi-Line RMA, which often require a vast landscape of connected habitat to survive (Pyrah 1987). In the last few years this species has suffered some dramatic die-offs, in particular due to hard winters, but habitat fragmentation is increasingly becoming a problem. Has this been discussed in the EIS? Fences in particular disrupt or fragment antelope habitat. Fences pose a serious challenge and create a number of problems for antelope (Pyrah 1987 and Trubak et al. 1995).Fences simply are an anathema for antelope habitat, because pronghorn evolved without ever needing to jump (Trubak et al. 1995). In some cases antelope have learned to cope with fences, but in other areas fences remain a significant impediment to preferred movements. In most cases antelope will attempt to go under a fence, but even if successful this can take a toll. Frequently, patches of hair from the antelope's back are ripped off as the animal moves under the fence wire. Scars and hairless spots on their backs often result where animals are forced to maneuver under fences, and this can lead to a variety of issues including infection and death. Antelope may also be forced to cross	This topic is discussed in Chapter 3, Wildlife, Wildlife Habitat, Historic Habitat Reduction and Fragmentation.	No

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		fences at specific locations, which increases the likelihood of predation. In particular, fences can increase predation of pronghorn fawns and predation of pronghorn fawns may be a limiting factor on marginal or degraded habitat. (U.S. Fish and Wildlife Service 1993). Antelope elude predators by using sight, distance and speed. Fences can disrupt antelope escape strategies by confusing them, forcing them to slow down, change routes and congregate, in particular in fence corners. What is BLM doing to remove, minimize and/or mitigate the adverse impacts of fences on pronghorn habitat within the Hi- Line RMA?		
0270-08	Wildlife-General	Livestock use and presence can also significantly impact pronghorn habitat and behavior. Pyrah (1987) found mesic sites were actively selected by cattle and rapidly became unusable for antelope once upland vegetation cured. Cattle grazing displaced antelope from preferred habitats. Out competed in the swales and with upland vegetation desiccated, antelope moved into adjoining pastures not occupied by cattle. Pyrah (1987) also observed higher doe:fawn ratios in pastures where antelope were not currently competing with cattle for forage. For 1,406 antelope observations there were 0.82 fawns/doe in pastures occupied by antelope and cattle and 0.92 fawns/doe in pastures occupied by antelope alone. Thus, cattle use during the summer can significantly alter antelope use of an area by creating competition for forage in limited mesic sites and can adversely affect doe/fawn ratios (Pyrah 1987). Similar to sage grouse, big sagebrush is an important component of the pronghorn's diet (Pyrah 1987 and Ngugi et al. 1992), especially during winter.	The effects of livestock grazing and wildlife habitat are addressed in Chapter 4, Wildlife, Livestock Grazing, and Vegetation – Rangeland.	No
0270-09	NEPA	Livestock in particular can pose significant threats to bighorn sheep on shared ranges. Please develop an alternative that protects the historic bighorn sheep habitat on the Hi-Line RMA.	The bighorn sheep management area has been modified (see Map 3.21) in response to public comments and additional text has been added to the bighorn sheep discussion in Chapter 2, Wildlife, Alternative E (Preferred Alternative), under General Wildlife, Bighorn Sheep.	No
0270-11	Wildlife-General	Please map and review these impacts across the Hi-Line RMA, because fences can significantly fragment habitat and increase wildlife mortality (Harrington 2005, Harrington and Conover 2006, Pyrah 1987, and Trubak et al. 1995, U.S. Fish and Wildlife Service. 1993).	Please refer to Chapter 2, Wildlife, Decisions Common to All Alternatives, General Wildlife for a discussion of fences. Also refer to Chapter 3, Table 3.31 for the number of miles of fence; and discussion in Chapter 3, Wildlife under Wildlife Habitat, Historic Habitat Reduction and Fragmentation and under Wildlife Special	No

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			Status Species, Greater Sage-Grouse Management Zone 1.	
0270-14	Livestock Grazing	We are concerned that according to the current draft plan, "No changes to livestock grazing or grazing allocations would occur on any lands managed for wilderness characteristics, and all agreements and provisions for maintenance and upkeep of existing range improvements would continue to remain in effect including access to and maintenance of range improvements." How can BLM make this commitment without first analyzing the impacts of these discretionary and perhaps significant actions on the primitive nature of these lands, including the native plants, wildlife, soils and water present in these areas? What about all the RMA that is currently used by domestic livestock that doesn't have wilderness characteristics? Is BLM proposing to perpetuate existing domestic livestock use across the RMA without any sight specific analysis?	See Chapter 2, Livestock Grazing, Decisions Common to All Alternatives.	No
0270-15	NEPA	We suggest at a minimum adopting the recommendations of Bock et al. (1993) to establish watershed level controls which are protected from livestock use impacts at the landscape level. This will ensure the impacts of areas subjected to livestock use can be monitored and compared to control areas over time. Please develop and adopt such an alternative.	This topic is addressed in the Alternatives Considered but Not Analyzed in Detail section of Chapter 2. This does not preclude consideration of such an alternative during the grazing permit renewal process as discussed in Chapter 2, Livestock Grazing, Decisions Common to All Alternatives.	No
0271-02	Wilderness Character-istics	All 26 areas found by the BLM's own assessment to possess wilderness qualities should be managed to maintain their wilderness qualities. The draft RMP gives no justifiable rationalization for the failure to extend this consistent management level to all 26 of the areas. I believe that it is the responsibility of the BLM as stewards of these lands for future generations to be consistent, and to not exclude qualified areas from equal protection until the time that Congress acts upon the question of their permanent preservation as designated wilderness areas.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0271-04	Wilderness Character-istics	Reevaluate the BLM inventory for the Carpenter Creek, Lena, and Long Coulee areas. These lands should be found by the BLM to possess wilderness characteristics and therefore should be added to the lands that will be managed to maintain those existing wilderness qualities. Interested private organizations have conducted inventories and found all three of these areas meet the BLM criteria for lands with wilderness characteristics.	As described in updated text in Chapter 3, Wilderness Characteristics, BLM resource specialists completed on-site surveys of the Carpenter Creek, Lena and Long Coulee units in July 2013. The inventory forms are available on the internet at http://www.blm.gov/mt/st/en/prog/lands_with_wilderness.html. The BLM determined that the Lena unit meets the criteria to be managed for wilderness characteristics as a priority over other multiple uses. Chapter 2,	Yes

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			Wilderness Characteristics, Alternative E (Preferred Alternative) and Chapter 4, Wilderness Characteristics, Impacts under Alternative E (Preferred Alternative) have been updated to incorporate this new information.	
0275-01	Wildlife-Greater Sage-Grouse	I recommend that no exceptions to the rule banning surface occupancy for oil and gas extraction be allowed in sage grouse habitat areas on BLM land. Granting exceptions, waivers and modifications will make protection meaningless.	Closed to leasing and no exceptions, modifications or waivers were management actions analyzed within the range of alternatives. Refer to Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria.	No
0275-03	Wildlife-Greater Sage-Grouse	I recommend that leases not be renewed once they expire in sage grouse habitat, and that these areas not be made available for future leasing.	Refer to Chapter 2, Table 2.8 Oil and Gas Lease Stipulations by Alternative. The No Surface Occupancy stipulation in the Preferred Alternative for the Grassland Bird/Greater Sage-Grouse Priority Areas and the Greater Sage-Grouse Protection Priority Area would provide the same long-term protection of the critical habitat.	No
0275-04	Special Designa-tions-Wild and Scenic Rivers	I recommend that the half-mile stretch of the Marias River where it flows into the Upper Missouri River Breaks National Monument be classified as "recreational" under the Wild and Scenic Rivers Act, given the popular recreational use of this stretch. Have you sat at Decision Point and looked upon the river? Not only is it spectacular, it's all part of the same landscape as the Monument.	This topic is discussed in Chapter 2, Special Designations, Wild and Scenic Rivers. The impacts of designating this segment as a Wild and Scenic River are analyzed in Chapter 4 under Alternative B. The inventory and designation processes are described in Appendix L, Wild and Scenic Rivers Report, Eligibility and Suitability Determinations.	No
0275-05	Solid Minerals	I recommend that you extend the moratorium on gold and silver mining in the Sweet Grass Hills for another 20 years when the current moratorium expires. You must protect this spiritual landmark and protect the water quality. I would prefer that the moratorium be extended in perpetuity, if it were possible.	Under Alternative E, all BLM-managed lands within the Sweet Grass Hills TCP are recommended for a 20-year extension of the withdrawal for locatable minerals and closed to leasable and salable minerals. See Chapter 2, Solid Minerals, Alternative E (Preferred Alternative) and Tables 2.20, 2.21 and 2.22.	No
0275-06	Wilderness Character-istics	With the widespread devastation and disruption to land in the Bakken, it's all the more essential that the 386,000 acres identified as "lands with wilderness characteristics" be managed as such. What you have proposed In your preferred alternative is woefully inadequate considering what's going on in Eastern Montana.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0275-07	Solid Minerals	I support a 20-year moratorium for the Zortman-Landusky mining area after 2015 and a ban on mining in the Little Rockies Traditional Cultural Property.	Under Alternative E (Preferred Alternative), 2,682 acres would be designated an ACEC to promote successful reclamation, protect associated infrastructure, and ensure public safety. In addition, the BLM would consider the need for a new withdrawal or right-of-way. See Alternative E (Preferred Alternative) under Special Designations, Zortman/Landusky Mine Reclamation	No

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			ACEC, and Solid Minerals, Locatable.	
0276-01	NEPA	Chapter 1 page 6, states that coordination has been important components of the planning effort. Yet I cannot find who the BLM coordinated with. It states who it "cooperates" with, but not who it "coordinates" with. It appears the only agency to which the BLM may have coordinated with is stated in this sentence on the same page; "While no tribes became an official cooperating agency, coordination has continued through letters and updates."	This topic is addressed in the Collaboration section in Chapter 1 of the Proposed RMP/Final EIS. The BLM coordinated with the cooperating agencies, tribes and the general public throughout the planning process during the preparation of the Draft RMP/EIS. Consultation and coordination will continue with preparation of the Proposed RMP/Final EIS, Record of Decision, and implementation. Refer also to the BLM Desk Guide to Cooperating Agency Relationships and Coordination with Intergovernmental Partners, which is available on the internet at http://www.ntc.blm.gov/krc/uploads/623/BLM_DeskGuide_CA_Relationships_2012.pdf .	No
0276-02	NEPA	The Chapter 5 is dedicated and titled "Consultation and Coordination", yet there is nothing stating whom the BLM Coordinated with except another reference on page 741; "While no tribes became an official cooperating agency, coordination has occurred and will continue through letters, updates, and meetings".	This topic is addressed in the Collaboration section in Chapter 1 of the Proposed RMP/Final EIS. BLM coordinated with the cooperating agencies, tribes and the general public throughout the planning process during the preparation of the Draft RMP/EIS. Consultation and coordination will continue with preparation of the Proposed RMP/Final EIS, Record of Decision, and implementation. Refer also to the BLM Desk Guide to Cooperating Agency Relationships and Coordination with Intergovernmental Partners, which is available on the internet at http://www.ntc.blm.gov/krc/uploads/623/BLM_DeskGuide_CA_Relationships_2012.pdf .	No
0276-03	FLPMA	The Federal Land Policy and Management Act, 43 U.S. Section 1701, states the National Policy to be: "the national interest will be best realized if the federal/states and their resources are periodically and systematically inventoried and their present and future use is projected through a land use planning process coordinated with other federal and state planning efforts." See 43 USC Section 1701 (a)(2). 43 U.S.C. Section 1712 (c) sets forth the "criteria for development and revision of land use plans." Section 1712 (c) (9) refers to the coordinate status of a county that is engaging in land use planning. It requires the Secretary [of Interior) to "coordinate the land use inventory, planning, and management activities with the land use	A summary of the consistency review is provided in Chapter 1, Development of Alternatives, Related Plans.	No

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		planning and management programs of other federal departments and agencies and of the State and local governments within which the lands are located." Section 1712 also provides that the "Secretary shall assist in resolving, to the extent practical, inconsistencies between federal and non-federal government plans." These provisions give preference to those counties who are engaging in land-use planning. Counties with a planning program thus have preference over the general public, special interest groups, and even counties not participating in land-use planning.		
0276-05	FLPMA	Because of this requirement that the Secretary [of the Interior) "coordinate" land use, inventory, planning, and management activities with local governments, this RMP should clearly state who it has coordinated with and reasons why it has not coordinated. I insist that you "coordinated" with the Phillips County and their Land Use Plan.	Blaine, Phillips and Valley Counties and eight Montana Cooperative State Grazing Districts are cooperating agencies in the HiLine RMP planning process. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS. The Phillips County Growth Policy and Land Resource Use Plan have been added to Chapter 1, Development of Alternatives, Related Plans. The two documents have been reviewed for consistency with the Proposed RMP.	No
0276-07	Economics	The RMP fails to show or acknowledge the effects of burdensome governmental regulations, taxes and other policies have put on the local economy and population trends. RMP gives much early history of the land, but fails show population trends before 1990. Chapter 3 p. 269-271, Social p. 329-336, Environmental Justice P. 337.	The RMP/EIS provides background information on demographics and land use to assess existing conditions and develop a baseline in which potential impacts of alternative management actions can be compared.	No
0276-08	Social	This RMP provides for Environmental Justice and Social Justice only for those minorities such as Native American's and not the minorities of agricultural producers.	The Environmental Justice section of Chapter 4, Social, under Impacts Common to All Alternatives, addresses the populations indicated in Executive Order 12898 which are low-income and minority populations. Minority populations as defined by the Council on Environmental Quality (CEQ) guidance under the National Environmental Policy Act (CEQ 1997) include individuals in the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. CEQ has oversight on federal agency compliance to this executive order, thus it is appropriate to use the definition of minority populations as defined by CEQ.	Yes
0276-13	Wildlife-Greater Sage-Grouse	This RMP fails to acknowledge other factors that may impose hardships such as increase in predators. It fails to acknowledge the benefits of habitat diversification and the	Predation is often identified as a potential factor affecting sage-grouse populations, which is understandable given the suite of predators that prey on sage-grouse from egg	No

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		great adjustments wildlife make with diversification.	to adulthood (though no predators specialize on sage-grouse). Predator management has been effective on local scales for short periods, but its efficacy over broad ranges or over long timespans has not been demonstrated (Hagen 2011a). In areas of compromised habitats and high populations of synanthropic predators (predators that live near, and benefit from, an association with humans), predator control may be effective to ensure sage-grouse persistence until habitat conditions improve. (USFWS 2013; COT Report).	
0277-01	Recreation	The USDI and the BLM make special efforts to accommodate elderly and handicap persons at developed recreation sites such as parking lots, swimming sites, campgrounds, toilets and boat launches. But this DRMP gives no consideration for older Americans that have very limited ability to drag a 200 pound deer or a 90 pound antelope across a mile or more of prairie.	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, under Decisions Common to All Alternatives, Off-Highway Vehicle Use, and also under Alternative E (Preferred Alternative), OHV Area Designations. The text has been clarified under the same topic in Chapter 3 of the Proposed RMP/Final EIS in response to this comment.	Yes
0277-03	Recreation	Alternative C allows motorized cross country game retrieval in two limited geographic areas of the resource planning area. What makes these areas special? Why not cross country travel for game retrieval for all of the RMP area except for limited special management areas?	Refer to Chapter 2, OHV Use and Travel and Transportation Management, Alternative D.	No
0277-05	Recreation	Your preferred alternative E violates the intent and spirit of President Bush's E.O. 13443 which directs federal agencies" ... to facilitate the expansion and enhancement of hunting opportunities and the management of game species." We fail to see anything in Alternative E that expands hunting opportunities and does anything to increase game species.	Public access is discussed in Chapter 2, Lands and Realty under Access, Decisions Common to All Alternatives. Big game and game bird populations are managed by Montana Fish, Wildlife and Parks.	No
0277-07	Wildlife-General	Alternative E seems to focus all future wildlife activities on threatened, endangered and sensitive species even though public hunting is probably the number one use of these BLM lands. The DRMP/EIS provides almost no management direction to increase deer, elk, antelope and game bird populations which currently provide most of the public recreation use of these public lands.	Big game and game bird populations are managed by Montana Fish, Wildlife and Parks.	No
0277-08	Recreation	Why does the Draft Plan/EIS not disclose the percent of BLM land that has or doesn't have legal public access? The Draft Plan and EISRMP should also include a map of BLM land with/without legal public road access. The DRMP and EIS also does not disclose the total current recreation visitor days broken down by types of uses such as	This topic is discussed in Chapter 2 under Lands and Realty, Access and under OHV Use and Travel and Transportation Management. Sufficient data does not currently exist to produce accurate and complete legal public access maps. Public access is a priority for the BLM and is one of the resources addressed and analyzed	No

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		hunting or how those uses will change by alternative?	during travel management planning. Information on current recreational use within the planning area is available in Table 3.37 of the Proposed RMP/Final EIS. Chapter 4, Economics discusses the impacts to recreation over the range of alternatives.	
0277-09	Recreation	The American with Disabilities Act of 1990 requires that, no individual may be discriminated against with regard to full and equal enjoyment of recreation use of federal lands. By limiting the public's right to use motorized retrieval for big game retrieval you restrict their ability to hunt effectively.	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, under Decisions Common to All Alternatives, Off-Highway Vehicle Use, and also under Alternative E (Preferred Alternative), OHV Area Designations. The text has been clarified under the same topic in Chapter 3 of the Proposed RMP/Final EIS in response to this comment.	Yes
0277-11	OHV Use and Travel and Transpor-tation Mgmt	Your final RMP should include a plan to get public access to all BLM land both for administrative use and public enjoyment of public land. This is consistent with the ADA, EO-13443, and age discrimination legislation and administrative direction.	Off-road game retrieval is discussed and analyzed in Chapters 2 and 4 under OHV Use and Travel and Transportation Management, Alternatives C and D. Public access is discussed in Chapter 2, Lands and Realty, Access, Decisions Common to All Alternatives. The text in Chapter 2 Decisions Common to All Alternatives has been clarified in response to this comment.	No
0279-01	Wildlife-General	FWP acknowledges that the application of rangeland health standards in the Hi-Line Field Office generally contribute positively to sage-grouse habitat requirements. However, FWP has found that interpretation of rangeland health standards varies among Field Office within the state, leaving less certainty that meeting rangeland health standards provides sage-grouse habitat consistently across Montana. FWP encourages state-wide coordination among field offices in the interpretation and implementation of rangeland health standards.	This topic is addressed in Appendix M of the Proposed RMP/Final EIS. Specific guidance for conducting land health assessments includes identification of indicators and measurements of structure/condition/ composition of vegetation specific to achieving sage-grouse habitat objectives. The Standards for Rangeland Health and Guidelines for Livestock Grazing Management applicable to the HiLine District are located in Appendix H of the Proposed RMP/Final EIS. Additional guidance regarding rangeland health standards for all BLM Field Office in Montana is presented in Montana/Dakotas Standards for Rangeland Health and Guidelines for Livestock Grazing Management which can be accessed on the Montana BLM website at http://www.blm.gov/mt/st/en/prog/grazing.html.	No
0279-02	Fire Manage-ment and Ecology	The preferred alternative includes designating two large areas as a Category C, including the Malta Prairie Potholes and Malta Breaks. Category C is defined as "Fire is desired to manage ecosystems, but current conditions create constraints on use." The Malta Breaks area contains large blocks of Wyoming sagebrush that are critical to sage grouse. Similarly, within the Malta Prairie Potholes, there are blocks of Wyoming Big sagebrush in the "Big Bend ACEC" that are critical wintering areas for northern sage	Refer to Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, under the heading Wildfire Suppression, Fuels Management and Fire Rehabilitation for Fire and Fuels Management Best Management Practices for Sage-Grouse Conservation. Also refer to Chapter 2, Fire Management and Ecology, Alternative E (Preferred Alternative), which states: "Wildfires would be suppressed in both Category B	No

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		grouse and antelope populations. These are also some of the most northerly stands of Wyoming big sagebrush. Page 726 of the RMP document acknowledges that about 6,000 acres of grass/sage could be treated with prescribed burns. FWP recommends that no prescribed fire should be used on any Wyoming Big Sagebrush communities. If need be, these areas need to be redefined to not include big sagebrush communities or change them to Category B	and C areas. If the conditions described above change in Category C areas … Changes would be developed and implemented through coordination with state, local, tribal, and other federal agencies."	
0279-03	Wildlife-Greater Sage-Grouse	FWP requests that the BLM hold open sections of the RMP that address sage grouse conservation to allow inclusion of recommends that arise from the Governor's Sage Grouse Habitat Conservation Advisory Council. The final recommendations from this Council will be released in January, 2014.	No final document has been drafted by the Governor's Advisory Council; therefore, it cannot be incorporated into the HiLine RMP.	No
0279-05	Wildlife-General	FWP is supportive of NSO on bighorn sheep lambing areas. However, bighorn sheep lambing areas are not currently mapped. FWP recommends that all bighorn sheep habitat be designated as NSO. FWP also recommends a 20 mile buffer between occupied wild bighorn sheep habitat and BLM grazing allotments allowing sheep /goats (Alternative B).	A closed to leasing alternative is analyzed in Alternative B of the Proposed RMP/Final EIS. Refer to the revised text in Chapter 2, Wildlife, Alternative E (Preferred Alternative), General Wildlife, Bighorn Sheep that redefines the bighorn sheep management area as defined by MFWP.	No
0279-06	Fluid Minerals	FWP recommends that the fluid mineral leasing potential (Appendix E.l) be reviewed using the most recently published data; this may change the acres of CSU, NSO, and TLS, as well as the estimated acres of long term surface disturbing activities. This may also change the predicted well density. FWP supports the currently predicted well densities under Alternative E (Table 2.22). However, if the language is not already included in the document (could not locate the language), FWP would recommend a "maximum allowable" well and road density so as not to exceed the 'predicted' density.	The reasonable foreseeable development scenario (RFD) that provided the oil and gas development projections was continually updated throughout the RMP process, with the last update occurring in February 2012. The fluid mineral leasing potential would not change the acres of lease stipulations (CSU, NSO, and TLS), as these figures are a result of the RMP analysis. The BLM does not dictate well density; in fact, well density (aka well spacing) is decided by the Montana Board of Oil and Gas Conservation (MBOGC).	No
0279-07	Fluid Minerals	FWP recommends including parcel(s) adjacent to the Bears Paw Battlefield in the list of areas closed to leasing in Alternative E.	This topic is covered in Appendix E.4. Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, Alternative E (Preferred Alternative), Resource: National Park Service Bear Paw Battlefield – No Surface Occupancy. The NSO stipulation provides the same amount of surface protection.	No
0279-08	Water Resources	Water, riparian, wetland and floodplains-FWP recommends increasing controlled surface use buffer from 300 feet to 1/4 mile around riparian or wetland areas.	Montana's EPA-approved 2012 Final Water Quality Integrated Report appears to demonstrate that the proposed lease stipulations are effective at maintaining water quality. In the report, only two	No

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			waterbodies in the State are listed as impaired with a probable source being "Petroleum/Natural Gas Activities." Neither waterbody is located in the planning area. Additionally, no waterbodies are listed as impaired with a similar probable source in North or South Dakota. It is important to note that not all waterbodies have been assessed to date. However, the results of the report seem to indicate that impairments due to oil and natural gas development are rare occurrences that do not justify an unsubstantiated expansion of the NSO stipulation. If the location of a proposed well would potentially threaten a sensitive resource, Onshore Oil and Gas Order Number 1, Approval of Operations allows for the movement of proposed wells by up to 660 feet, which is used frequently to protect sensitive resources. Studies cited within the RMP/EIS indicate that a 300 ft buffer maintains water quality by significantly reducing concentrations of fecal coliform, nitrogen, phosphorus, sediment, and pesticides. The 300-ft buffer provides a high level of protection by creating a buffer that extends from the boundary of the wetland or riparian area, not just the edge of the stream. There is no indication that increasing the width of the buffer to 500 ft or 750 ft would result in commensurate improvements to water quality.	
0279-09	Fluid Minerals	Raptors- FWP recommends increasing NSO buffers around active ferruginous hawk nests to one-half mile.	The suggested buffer distance is analyzed in Alternative B of the Final EIS.	No
0279-10	Wildlife-General	Sprague's Pipit- Alternative E recommends A TLS from April 15 through July 15. This timing restriction is adequate for protection during the nesting season. Due to the candidate status of this species, it would be best to have the ability to impose additional restrictions if scientific research indicates a need. Recent studies demonstrate avoidance of wells and roads by Sprague's Pipit and additional limitations on well density in Sprague's pipit habitat may be necessary in the future to prevent adverse effects to Sprague's Pipit outside the Grassland Bird Priority Area.	Refer to Chapter 2, Implementation and Monitoring, Adaptive Management (p. 24 of the Draft RMP/EIS).	No
0279-11	Fluid Minerals	Sharp-tailed Grouse- FWP recommends increasing the TLS buffer around sharp-tailed grouse leks from one-half mile to one mile.	The suggested buffer distance is analyzed in Alternative B of the Proposed RMP/Final EIS.	No
0279-12	Fluid Minerals	Greater Sage Grouse Nesting Habitat- Alternative E indicates that surface disturbing activities may be restricted or	The suggested TLS is analyzed in Alternatives A and D of the Proposed RMP/Final EIS.	No

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		prohibited. "Prior to such activities a plan to maintain functionality of greater sage-grouse habitat will be prepared by the proponent and implemented upon approval by the authorized officer." This plan allows adaptability to adjust to site-specific conditions and needs, but a minimum protection would be a TLS prohibiting surface use from March 15-June 30.		
0279-13	Wildlife-General	Elk Calving Grounds- Current management (Alternative A) includes a TLS from May 1 - June 30. Recommend maintaining this timing restriction in Alternative E.	There are currently no identified calving grounds in the HiLine planning area.	No
0279-14	Lands and Realty	FWP recommends including parcels of land smaller than 1/4 - 1/2 section in size in Category 2 if they are adjacent to other public owned land or private lands protected by perpetual conservation easements.	See Appendix F, Land Ownership Adjustments, Disposal Criteria for Alternatives B, C, and E (Preferred Alternative).	No
0280-01	Economics	A reduction of AUMs on public land would adversely affect the ranching heritage of Phillips County; which, in turn, would negatively impact the tax base of Phillips County. Page 7, issue 10 of the RMP summary states "Management must recognize the economic activities that are dependent on the land and its natural resources." We agree with this statement, as livestock grazing on public lands is crucial to the stability of the Phillips County economy, heritage and culture.	The RMP/EIS examines the economic contributions of the HiLine District's grazing program and assesses how management actions under the alternatives may affect future contributions of the grazing program to the local economy.	No
0280-04	Livestock Grazing	The BLM must remain true to their multiple-use mission by not placing wildlife above all other uses when making management decisions on public land. There is no sound science that proves that reductions in AUMs will increase sage-grouse populations.	See Chapter 2, Livestock Grazing, Decisions Common to All Alternatives.	No
0282-01	FLPMA	The Phillips County growth policy and Land Use Resource Plan is not even listed in the RMP. This indicates that the RMP was not reviewed to see if it was consistent with our policies. The Phillips County Commissioners request that we are cooperators on the step down plans such as the travel plan. We have a vested interest in the roads and should be in on the plan from the beginning. Page 1122 - "Develop a transportation management plan across ownership boundaries in greater sage grouse habitats" BLM only has jurisdiction over BLM lands not private land.	The Phillips County Growth Policy and Land Resource Use Plan have been added to Chapter 1, Development of Alternatives, Related Plans. The two documents have been reviewed for consistency with the Proposed RMP. As stated in Chapter 2, OHV Use and Travel and Transportation Management, Decisions Common to All Alternatives, under Travel Management Areas, site-specific travel management planning would follow a public process. The first paragraph under Travel Management Planning Criteria states: "Through analysis and activity-level planning, the BLM would collaborate with affected and interested parties to evaluate the designated road and trail network."	Yes

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0282-02	Wilderness Character-istics	Page 7 issue 11 asks the question "how should they (lands with wilderness characteristics) be managed to protect those values?" This question is not really answered, just that Section 202 of the FLPMA requires the BLM to rely on resource inventories in the development and revision of the land use plans including inventory information regarding wilderness characteristics. This doesn't answer how they should be managed.	This topic is discussed in Chapter 2, Wilderness Characteristics.	No
0282-05	Wildlife-General	Page 11 & 12 "How will bison be managed?, while the initiative does not mention that the Charles M Russell National Wildlife Refuge is in the early stages of considering devoted part of the refuge to bison habitat with adjoining landowners." This is not quite accurate (see attached email from CMR manager, Rick Potts).	Additional text has been added to the "Issues Considered but Not Addressed Further" in Chapter 1 of the Final RMP/EIS under the heading "How will bison be managed?" The BLM recognizes the State's role in managing native wildlife and would work cooperatively with MFWP, USFWS, other agencies, partners, and cooperators in the development of a wild bison restoration plan. At this time, the State does not have an ongoing plan to reintroduce wild bison in the planning area.	Yes
0282-06	Lands and Realty	Page 38 - "The BLM would consider opportunities to remove, bury or modify existing powerlines. Careful review should be done before considering removing powerlines. This could have a negative impact on adjoining landowners who chose to do future improvements.	See Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Decisions Common to All Alternatives, which includes the following statement: "Requests for land use authorizations (rights-of-way, leases or permits) would be analyzed and mitigation measures applied on a case-by-case basis through the environmental review process. Terms and conditions for rights-of-way, corridors, and development areas (oil and gas) would incorporate applicable BMPs, current professional practice, and recent scientific findings. All rights-of-way would comply with Streamside Management Zone restrictions and guidelines where applicable. In accordance with current policy, land use authorizations would not be issued for uses which involve the disposal or storage of materials which could contaminate the land (e.g., hazardous waste disposal sites, landfills, rifle ranges, etc.)." Requests for renewal, assignments, or amendments to existing rights-of-ways, leases, and permits would be analyzed in the same fashion.	No
0282-07	FLPMA	Under FLPMA, BLM is required to manage the public lands on the basis of multiple use and sustained yield. 43 USC § 1701(a)(7) (2006) Oil and gas development is a crucial part of the BLM's multiple use mandate and the agency must ensure that oil and gas development is not unreasonably limited in the RMP.	The BLM's multiple-use mission and the BLM's obligation to comply with the Federal Land Policy and Management Act of 1976 (FLPMA) and all other applicable laws, regulations and policies are addressed in Chapter 1 of the Proposed RMP/Final EIS.	No

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		FLPMA clearly identified mineral exploration and development as a principal or major use of the public lands. (43 U.S.C. § 1702(1)) To that end, FLPMA requires the BLM to foster and develop mineral activities, not stifle and prohibit such development.		
0283-01	NEPA	Inadequate Public Involvement. From a CEQ Memorandum [This memorandum was published in the Federal Register and appears at 48 Fed, Reg. 34263 (1983.) Ed. Note.] Guidance Regarding NEPA Regulations 40 CFR Part 1500 Memorandum. Since the key purpose of scoping is to identify the issues and alternatives for consideration, the scoping process should "end" once the issues and alternatives to be addressed in the EIS have been clearly identified. Normally this would occur during the final stages of preparing the draft EIS and before it is officially circulated for public and agency review. Your only scoping effort (newsletters are public notification, not requests for public input, dialogue or discussion = scoping) was conducted seven years ago.	This topic is discussed in the Public Participation Opportunities section of Chapter 5. Offers to conduct briefings and presentations were made in the four newsletters that were distributed to the public in 2006, 2007, 2010 and 2012. During this timeframe the BLM gave presentations to the Central Montana Resource Advisory Council, the Montana Governor's office, congressional staffers, and non-governmental organizations. Cooperating Agency meetings continued throughout the planning process. As a result of these briefings and meetings new issues (e.g., management of wilderness characteristics and sage-grouse habitat) were identified.	No
0283-02	NEPA	DRMP/EIS Appendix A. "Evaluation of the RMP will generally be conducted every five years." No definition of "evaluation" was provided. Standard practice in land management planning under FLPMA or NFMA shows 'evaluation' to include consideration of new issues, changed perspectives, and/or changed conditions (both biocentric and/or anthropocentric). You are already WAY behind yourself in staying current in NEPA/CEQ - required scoping. This is unsatisfactory from a professional land management planning standpoint. Consider the changes in Bakken development and social overflow westward, Bison relocation in the planning area, Bison grazing on BLM-managed lands to mention a few. These are all new changes since your scoping of 2006. Please justify in your Response to Comments in the FEIS 1) how such outdated public scoping is still valid, and 2) why there was nothing conducted with the public in general since?	This topic is addressed in Appendix A, Implementation and Monitoring, under the Evaluation section. The evaluation schedule has been updated in the Proposed RMP/Final EIS. Refer to the Public Participation Opportunities section of Chapter 5. Offers to conduct briefings and presentations were made in the four newsletters that were distributed to the public in 2006, 2007, 2010 and 2012. During this timeframe the BLM gave presentations to the Central Montana Resource Advisory Council, the Montana Governor's office, congressional staffers, and non-governmental organizations. Cooperating Agency meetings continued throughout the planning process. As a result of these briefings and meetings new issues (e.g., management of wilderness characteristics and sage-grouse habitat) were identified.	No
0283-03	NEPA	Instead of the clear descriptions found in the Planning Handbook (above), the Draft RMP Glossary offers:	The definitions of "goal" and "objective" are presented in the Glossary of the Proposed RMP/Final EIS. These definitions were paraphrased from the definitions	No

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		"Goal: A broad statement of a desired outcome. Goals are usually not quantifiable and may not have established time frames for achievement." "Objective: A description of a desired condition for a resource. Objectives can be quantified and measured and, where possible, have established time frames for achievement." Please clarify how your definition of "objective" differs from your definition of "goal". Most Importantly to me, please explain why all your "objective statements" in Chapter 2 are by resource, never by alternatives.	presented in the BLM Land Use Planning Handbook (H-1601-1). Objectives identify specific desired outcomes for resources. After establishing desired outcomes, the BLM identifies allowable uses (land use allocations) and management actions for different alternatives that are anticipated to achieve the goals and objectives.	
0283-04	Wildlife-General	I ask that you please look at Table 2.3, specifically "Oil and Gas Stipulations by Alternatives. Wildlife" (pgs. 45 and 46 in Chapter 2). HERE I get to compliment you! The stipulations are quantifiable, can easily be interpreted by an implementation team or effort. Whichever Alternative is selected, it is clear how to implement it on the ground. What would enhance it better is providing the Objective behind each stipulation, AND the effects. For instance: Bald Eagle, Alternative C states "NSO within 1/4 mile of bald eagle nest sites active within the last 7 years." Alternative E states "NSO within 1/2, mile of bald eagle nest sites active within the preceding breeding seasons." This is good planning decision stuff! While I am totally confident there are biological reasons for the difference, I am not seeing it readily disclosed and am unable to provide substantive comments on either Alternative's difference.	Alternative E was selected based on the Montana Bald Eagle Management Plan. Montana Bald Eagle Working Group. 2010. Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan, 1994, Montana Fish, Wildlife and Parks, Helena, Montana. From that document: Potentially disturbing activities should not occur within 1/2 mile of active and alternate nests (for territories occupied within the last five years), although some activities may produce less disturbance and recommended distances might be decreased in areas where visual buffers obstruct the direct line of sight between activities and nests, perches, and roosts.	No
0283-05	NEPA	Table 2.22 should readily display the differing effects under each of those two Alternatives' implementation of those stipulations. This should have been done for all resources as is possible. I don't see it in this document and have to wonder about adequate NEPA/CEQ- required analysis supporting the summary statements. Please provide an outcome-based objective for each resource discussion under each Alternative so that they may be compared (as required by NEPA/CEQ, FLPMA, and the Planning Handbook).	Table 2.29 at the end of Chapter 2 provides a summary comparison of the environmental consequences of implementing each alternative.	No
0283-07	NEPA	"Management Decision: A decision made by the BLM to manage public lands. Management decisions include both land use	This topic is discussed under Planning Criteria in Chapter 1 of the Proposed RMP/Final EIS.	No

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		plan decisions and implementation decisions." Please clarify that definition, because I found precious few decisions in the DRMP/DEIS at all.		
0283-08	FLPMA	You have also not provided scenarios of measurable desired outcomes that differ between the alternative for others to comment on. Most alternatives vary merely in administrative considerations at the implementation level, with no description of what is to be achieved on the ground. Without that clarity, there are no substantive impacts/effects/consequences analyses. Generally speaking, this DRMP/EIS reads much more like a standard operating procedure handbook rather than a plan with decisions that can be implemented, measured, and monitored. By not providing true planning scenarios and decisions (quantified) with adequate cumulative effects analyses, project level analysis will be daunting from a cumulative effects standpoint. With no quantifiable objectives set and analyzed at this programmatic level, tiering to that analysis is not possible (EA's tier directly up to the higher EIS). That's why good land management plans set quantifiable objectives; to facilitate implementation without having to reconsider alternative, competing objectives at the project level.	Program-specific objectives are listed in Chapter 2 of the Proposed RMP/Final EIS under the respective resource sections.	No
0283-10	Economics	Lack of Social and Economic Analysis. The following legal citation could actually be inserted as relevant to a number of my points. However, since I feel your silence on a sincere social and economic analysis is your gravest omission, I will place it here: "LAND USE PLANNING Sec. 202. [43 U.S.C. 17121 (a) The Secretary shall, with public involvement and consistent with the terms and conditions of this Act, develop, maintain, and, when appropriate, revise land use plans which pro-vide by tracts or areas for the use of the public lands. (c) In the development and revision of land use plans, the Secretary shall- (1) use and observe the principles of multiple use and sustained yield set forth in this and other applicable law; (2) use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences; (3) give priority to the designation and protection of areas of critical environmental	The HiLine RMP/EIS was prepared using widely accepted methodologies and in accordance with the BLM Land Use Planning Handbook.	No

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		concern; (4) rely, to the extent it is available, on the inventory of the public lands, their resources, and other values; (5) consider present and potential uses of the public lands; (6) consider the relative scarcity of the values involved and the availability of alternative means (including recycling) and sites for realization of those values; (7) weigh long-term benefits to the public against short-term benefits;" Ignoring direction from Chapter D in your Planning Handbook is egregious at best, and makes it impossible for you to conduct adequate analysis and disclosure of especially (2) and (7) in your DRMP/EIS. Please comply with Appendix D of the USDI BLM land Management Planning Handbook before you consider this process Final.		
0283-11	NEPA	Lack of Range of Alternatives in Many Resources Considered. A mere cursory glance at Table 2.22, (Summary Comparison of Environmental Consequences) shows that there is very little difference between any of the Alternatives since there is little to no variance in effects (sharply defining the issues). It is the variety in difference of outcomes, and the trade-offs in different impacts/effects/consequences upon resources that supply an adequate range of Alternatives. Without those difference they become what I refer to in my training sessions "Straw Alternatives". Sample resource discussions that show no range of alternatives (nor true objectives) are: Fish, Forest and Woodlands, livestock Grazing, and again Social and Economic considerations. Please comply with the requirements to show an adequate range of Alternatives so that there is some comparison disclosed. Please also openly address that by not including an Alternative that analyzes an Increase in livestock grazing, you have precluded that consideration in the future with no resource analysis to support it.	This topic is discussed in Chapter 2 of the Proposed RMP/Final EIS. Five alternatives are presented for managing the HiLine District to meet the purpose and need, the vision and management goals, and to address the issues discussed in Chapter 1.	No
0283-12	NEPA	Lack of Adequate Analysis. Again, the following are merely a non-inclusive sampling of inadequate effects disclosure: Fish- no biological effects in Table 2.22, Forest and Woodlands, Table 2.22.	Table 2.29 provides a summary comparison of the environmental consequences by alternative. The environmental, economic and social consequences of implementing each alternative are discussed in detail in	No

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		Please explain what "silvicultural treatment would address old growth" means from an effects or management decision standpoint?"	Chapter 4 of the Proposed RMP/Final EIS. Silvicultural treatments would address old growth in guidance provided through the document "Old-Growth Forest Types of the Northern Region" (USFS 1992). Managing for old growth helps to provide habitat for dependent or associated wildlife species as well as playing an important role in multiple resource management. Additionally, old growth is a critical element of the total diversity that should be found in a healthy forest landscape. Such treatments, when proposed, would be subject to appropriate environmental review.	
0283-13	Livestock Grazing	Livestock grazing- not only is there no substantive objective described, I don't see the compliance with the following excerpt from the Planning Handbook: "The land use plan needs to describe how these public lands will be managed to become as productive as feasible for livestock grazing, including a description of possible grazing management practices such as grazing systems, range improvements (including land treatments), changes in seasons of use and/or stocking rates. In addition, identify guidelines and criteria for future allotment-specific adjustments in the amount of forage available for livestock, season of use, or other grazing management practices (Joel Stamatakis, Steve Stamatakis; 98 IBLA 4 (1987))." BLM MANUAL Rel. 1-1693 Supersedes Rel. 1-166703/11/05 H-1601-1-LAND USE PLANNING HANDBOOK - (Public) Appendix C, page 15.	See Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. See also, Appendix G Livestock Allocations.	No
0283-14	NEPA	Please explain why you didn't discuss water resources in Chapter 5, livestock Grazing as those of noxious weeds, T & E Species and other resources were attempted to disclose. Please fix Tables 2.21 (Summary Comparison of Alternatives) and 2.22 so that all resources are covered in both tables. It's very sloppy.	Table 2.28 provides a summary comparison of the alternatives but does not include all the management actions included under each alternative. Table 2.29 provides a summary comparison of the environmental consequences of implementing each alternative. These summary tables are not intended to be all inclusive.	No
0283-16	NEPA	It is disturbing the BLM employees wish to refer to the millions of acres of public lands they are trusted to manage as "BLM lands". That has a wholly different connotation and possible insight of BLM's leadership's attitudes, versus referring to the "BLM-managed" (or "administered") lands. Please consider a change (global replace or similar).	Refer to Chapter 1, Background, which includes the following language: "… Under the Federal Land Policy and Management Act of 1976 (FLPMA), lands administered by the BLM are defined as public lands. However, the public generally refers to public lands as those for which title and control rests with a government (federal, state, regional, county, or municipal). For clarity throughout the document public lands administered by the BLM will be referred to as BLM lands."	No

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0283-17	NEPA	It is mentioned throughout the DRMP/DEIS that in future required environmental analyses Interdisciplinary Teams will make a determination or decision. No. Line Officers do that. "F. Line and Staff. The BLM's organization and management processes follow a line-staff concept. The managers of the three basic organizational levels exercise line management. These are the Director, Deputy Director(s) and ADs (Includes the OFA Director) at the WO level; State Director and ASD at the SO level; Field Manager (Includes National Conservation Area Manager or National Monument Manager) at the Field level. All other managers are staff managers. . 13G BLM MANUAL Rel. 1-1681 3/3/03" Please correct all references to determinations and decision making to the appropriate Line Officer.	The HiLine RMP/EIS makes reference throughout the document to decisions by the "authorized officer." This general term is used to avoid the need to minutely detail the authorization processes followed by the BLM for all management actions under its purview, an administrative process that is not germane to the HiLine RMP/EIS in particular.	No
0283-18	Air Resources	DRMP/DEIS Appendix B. "2.0 Oil and Gas Activity Assessment" It's unclear whether you are stating you are merely going to conduct a numeric inventory of wells, when the second paragraph clearly only addressed emissions. Poor organization I see no objectives, quantifiable or otherwise that a guiding planning document is to provide. Inventories are presented as merely standard operating procedure, but there is no guidance or leadership on how to proceed with the information gathered. That is the difference between an operating handbook and a legitimate FLPMA sufficient resource management plan. Please explain i.) the purpose of those inventories, and ii) how will the data be used.	The data will be used to inform BLM NEPA adequacy decisions. See Appendix B, Section 2.0.	Yes
0283-19	Air Resources	Appendix B. 'The adaptive management strategy for oil and gas resources provides the flexibility to respond to changing conditions that could not have been predicted during RMP development, as well as allow for the use of new technology and methods that may minimize or reduce impacts." i.) I think you meant to have a verb in that sentence that might have been "development" or "permit Issuance", or "surface occupancy", or something similar. ii.) Additionally, the sentence makes no	The language in Appendix B, Section 1.1 has been clarified. Adaptive management is also discussed and defined in the Implementation and Monitoring section of Chapter 2, following the Introduction.	Yes

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		sense. This is a planning document which makes decisions. Since NEPA/CEQ analyses will be required for all site-specific responses as encountered, that isn't adaptive management at all. Instead, NEPA/CEQ -required new proposed actions (for NEPA analysis before an action can be taken) will arise, as mitigation or otherwise. Using the term adaptive management does not excuse you from future environmental analyses of new proposals, unless that analysis has previously been conducted in a recent period, and there are no changed conditions. Adaptive management is only truly an option to change strategy when the 'flexible' actions have each been through a full NEPA analysis and there are no changed conditions or new information. It is then one can be flexible and switch to another previously analyzed management action. Please clarify the intent/meaning of that sentence, and your planning decision on future "flexibility to respond".		
0283-21	NEPA	Where is the reference and existence of the Specialists' Reports that support the assumptions and other statements made in this DRMP/EIS? The Bookmark and link to the Bibliography isn't functioning via Internet Explorer, but the Table of Contents shows it is only 22 pages long. Please provide Information in the body of the document as to availability and access to the Specialists' Reports.	The link to the Bibliography on the HiLine RMP website has been fixed. The impact analyses and conclusions are based on interdisciplinary team knowledge of resources within the planning area, reviews of existing literature, and information provided by other agencies, institutions, and individuals. Additional information regarding impact analyses is addressed in the Assumptions and Guidelines section under each resource in Chapter 4 of the Proposed RMP/Final EIS. Copies of the specialists' reports and other lengthy reference materials are included in the administrative record for the RMP/EIS.	No
0284-01	Vegetation	I am, however, concerned with the allowance for a full range of forest health treatments in the Sweet Grass Hills, which I understand includes the leasing for commercial logging. I am very concerned about the effects of the development of commercial logging in this very unique ecosystem and the impact on water quality and the habitat of numerous birds and mammals.	Forest health treatments are discussed in the Forests and Woodlands section in Chapters 2 and 4 of the Proposed RMP/Final EIS. An array of silvicultural treatments that mimic ecological processes would be allowed in the in the Sweet Grass Hills ACEC to reduce fuels, improve land health, and restore fire regimes.	No
0284-02	Fluid Minerals	Another part of the plan I would like to comment on concerns the portion of the plan concerning the management of oil and gas leasing north of the Missouri Breaks Monument, especially around Black Elk	Conditions of approval are developed for site-specific projects on lands that already have authorized oil and gas leases. It is at that point that the Authorized Officer prescribes the proper conditions for new	No

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		Coulee. Please consider adding conditions of approval that potential drillers must comply with to protect the prairie lands. Please add protections that include no new roads or upgrades of existing roads, and no surface occupancy. I would also encourage the BLM to toughen standards associated with the exceptions or modifications to oil and gas leasing permits.	roads, road upgrades, and any reclamation requirements. Appendix E.2 Oil and Gas Best Management Practices (General Conditions of Approval) highlights some of the more typical Conditions of Approval.	
0286-01	Wilderness Character-istics	Currently, less than one-tenth of 1 percent of Montana's BLM lands are designated wilderness. The draft HiLine RMP acknowledges more than 386,000 acres of lands with wilderness characteristics, but it proposes to protect wilderness values on only 10,700 acres. As an agency with a multiple-use mandate, the BLM must provide a better balance between protecting wilderness characteristics and providing for other uses.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0286-02	Wilderness Character-istics	In addition to increasing the balance of lands managed for their wilderness characteristics, the management prescriptions for these lands should truly protect their wilderness characteristics from future degradation. Currently, the preferred management prescriptions for lands with wilderness characteristics do not adequately preserve their wilderness values because they permit off-road vehicles within the units. Following the good example of the Billings Field Office's management language, the preferred alternative for HiLine ought to prohibit motorized travel, particularly by off-road vehicles. Additionally, such lands should be designated as an exclusion area for rights-of-way and be managed as primitive or semi-primitive non-motorized areas. With these changes, the RMP will help ensure that wilderness characteristics are, in fact, preserved in the recommended areas.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0287-01	Economics	I believe the BLM has underestimated the cost of hampering energy development in my state while overestimating the social benefits of blocking human activity on expansive tracks of land for the sage-grouse. We are still struggling in a weak economy. Blocking oil and natural gas development would not only hurt the workers in that industry, but also drain money out of local communities, reducing wages, employment, and entrepreneurship in those areas. Reducing energy production would also lead to increased costs of utilities across the state and increased financial burdens on all Montanan households, families, and businesses.	The BLM has assessed how actions proposed under the alternatives would affect future mineral development and analyzed how changes in the anticipated level of mineral development would impact the local economy which surrounds the HiLine planning area.	No

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0288-01	Wildlife-General	While the BLM has done a good job planning for existing wildlife populations, it does not adequately address wild bison in its plan. More than 22,000 people commented on Montana's statewide bison plan, and the majority of comments suggested the best place for restoring bison is the Charles M. Russell National Wildlife Refuge and the adjacent public lands managed by BLM. BLM needs to be an active player in bison restoration.	Additional text has been added to the "Issues Considered but Not Addressed Further" in Chapter 1 of the Final RMP/EIS under the heading "How will bison be managed?" The BLM recognizes the State's role in managing native wildlife and would work cooperatively with MFWP, USFWS, other agencies, partners, and cooperators in the development of a wild bison restoration plan. At this time, the State does not have an ongoing plan to reintroduce wild bison in the planning area.	Yes
0289-01	Wildlife-General	This is to urge you to work with the Montana Fish, Wildlife & Parks to restore and conserve wild bison to the landscape encompassing parts of Charles M. Russell National Wildlife Refuge and the BLM's Hi-Line Resource Management Area.	Additional text has been added to the "Issues Considered but Not Addressed Further" in Chapter 1 of the Final RMP/EIS under the heading "How will bison be managed?" The BLM recognizes the State's role in managing native wildlife and would work cooperatively with MFWP, USFWS, other agencies, partners, and cooperators in the development of a wild bison restoration plan. At this time, the State does not have an ongoing plan to reintroduce wild bison in the planning area.	Yes
0290-01	Wilderness Character-istics	I would urge the BLM to manage the intact prairie grasslands and intact sagebrush grasslands found on pages 374-375 as "lands with wilderness characteristics." Protection of these areas would protect these sensitive habitats for generations to come.	This topic is discussed in a range of alternatives in Chapter 2 under Wilderness Characteristics. The text has been clarified in the Proposed RMP/Final EIS in response to this comment.	Yes
0290-02	Fluid Minerals	There should be a public comment process whenever the BLM makes exceptions or modifications to the No Surface Occupancy provisions in Protection Priority Areas and Areas of Critical Environmental Concern. We expect that these areas will protect sensitive wildlife and other natural resources. The public's right to comment will help the BLM make tough choices to better protect these important resources.	• The public has the opportunity to be involved in the development of waivers, exceptions, and modifications (WEMs) during the RMP process. • The public has the opportunity to be involved in the application of lease stipulations during leasing environmental assessment (EA) reviews. • At the development stage, the public has the opportunity to be involved during NEPA reviews. NEPA logs are posted on the Montana/Dakotas BLM web site for public viewing and NOS/APDs are also posted for 30 days. WEMs are applied using the best available information/data during the NEPA review and at the discretion of the Authorized Officer (AO). This process is also done in consultation with other Federal agencies, if needed (FWP, FWS, USFS, BOR, etc.)	No
0291-02	NEPA	The BLM had a duty to provide adequate public notice and the opportunity for local governments and citizens to participate in the process. 42 U.S.C.A. §§ 4321, et seq; 43 U.S.C.A. § 1712 (c)(9) & (f). The BLM failed its duty for several reasons:	This topic is discussed under the Consultation and Coordination section of Chapter 5. Seven requests were received for replacement CDs and new CDs were sent	No

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		a. The BLM did not provide adequate time for local governments and citizens to analyze a very lengthy, involved, technical document, and provide comments.[1] This needed to provide to opportunity to submit data and information that is available, provide resource related local plans and the opportunity for local consistency review of the DRMPs v. local plans and proposals for compromise, mitigation or amendment of the DRMPs or local plans. b. The BLM did not have enough copies of the plan for the local governments or citizens to be able to review and provide comment on. c. The BLM produced CD's that were defective and could not be read. d. Many of the people living in these rural Montana Counties do not have electronic access, or the requisite knowledge to be able to utilize the internet to review the plan and provide comments. [1] The Miles City DRMP was released February 1, 2013 and comments were due June 5, 2013. The HiLine DRMP was released March 22, 2013 with comments due June 20, 2013. The Billings DRMP was released March 22, 2013 and comments due June 28, 2013.	out or promptly delivered early in the public comment period. Everyone that requested a hard copy of the Draft RMP/EIS received a printed copy of the Draft RMP/EIS.	
0291-04	FLPMA	The BLM had a duty to make the DRMPs consistent with the local government-approved resource-related plans. 40 C.F.R. § 1610.3-2. The BLM failed to comply with its duty by not obtaining local plans or providing adequate opportunity for local government review of and comparison with the DRMPs.	A summary of the consistency review is provided in Chapter 1, Development of Alternatives, Related Plans.	No
0291-05	NEPA	The BLM had a duty to include in the DRMPs written discussions of any inconsistencies with and possible conflicts between the proposed action and regional, State, and local land use plans. 40 C.F.R. § 1502.16. The BLM failed to comply with its legal duty.	Refer to Chapter 1, Development of Alternatives, Related Plans.	No
0291-06	NEPA	BLM had a duty to cooperate with State and local governments to the fullest extent possible. 40 C.F.R. § 1506.2. The BLM failed to comply its legal duty in particular by denying the local governments' request for additional time for public comment and by not following required process and policies to incorporate the necessary information and analysis.	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of this Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of	No

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			many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	
0291-07	NEPA	The BLM had a duty to identify in writing any inconsistency of the DRMPs with any approved state or local plan or laws. 40 C.F.R. § 1506.2. The BLM failed to comply with its legal duty and did not propose or discuss possible amendments to or actions to mitigate or eliminate these inconsistencies.	A summary of the consistency review is provided in Chapter 1, Development of Alternatives, Related Plans.	No
0291-08	FLPMA	The BLM had a duty to cooperate with the local conservation districts. 16. U.S.C.A. § 2003. The BLM failed to comply with its legal duty.	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No
0291-09	FLPMA	The BLM had a duty to coordinate the DRMP planning with local governments. 43 U.S.C.A. § 1712. The BLM failed to comply with its legal duty.	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No
0291-10	Cultural Resources	The BLM had a duty to consider and preserve historic and cultural heritage. The BLM also was required to use all practicable important historic, cultural and natural aspects of our national heritage and maintain an environment which supports diversity and variety of individual choice. 42 U.S.C.A. § 4331(b); 40 C.F.R. § 1502.8, 1502.16, 1508.27(b)(3)(8). The BLM failed to comply with its legal duty, by not incorporating this discussion and using the special expertise of local government in doing so.	Refer to Chapter 5, Consultation and Coordination, Cooperating Agencies, which outlines county and local governments that were involved throughout the planning process.	No
0291-11	FLPMA	The BLM had a duty to carefully consider the economic impacts of the DRMPs in the local areas impacted by the plans. Laub v. United States Dep't of Interior, 342 F.3d 1080, 1087 (9th Cir. 2003). The BLM failed to comply with its legal duty, by eliminating	A summary of the consistency review is provided in Chapter 1, Development of Alternatives, Related Plans.	No

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		local government review of the drafts and consistency review with local plans and failing to provide local government with adequate time to do so.		
0291-12	FLPMA	Pursuant to the Intergovernmental Cooperation Act ("ICA") and an Executive Order, the BLM had a duty to fully consider on the record the local government/cooperating agencies' plans and policies. 31 U.S.C.A. §§ 6501- 6506; Executive Order 12373. The BLM failed to comply with its legal duty.	A summary of the consistency review is provided in Chapter 1, Development of Alternatives, Related Plans.	No
0291-13	FLPMA	The BLM had a duty to consult with local governments regarding historic property. 16 U.S.C.A. § 470. The BLM failed to comply with its legal duty.	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No
0291-14	FLPMA	The BLM had a duty to coordinate with local governments. 16 U.S.C.A. § 3451 et seq. The BLM failed to comply with its legal duty.	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No
0291-15	FLPMA	The BLM had a duty to respect the roles of state, local and tribal governments, to seek input and to harmonize the federal action with the local governments. Executive Order 12866. The BLM failed to comply with its legal duty.	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of the Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	No
0291-17	NEPA	The BLM had a duty to use the environmental analysis and proposals of	This topic is addressed in Chapter 1, Collaboration. At the onset of the HiLine	No

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		cooperating agencies with jurisdiction by law or special expertise. 40 C.F.R. § 1501.6. The BLM failed to comply with its legal duty.	RMP planning process the BLM invited entities of federal, tribal, state and county governments to collaborate with the BLM on the development of this Draft RMP/EIS by becoming cooperating agencies. The cooperating agencies provided considerable input in the development of many alternatives including the Preferred Alternative in the Proposed RMP/Final EIS.	
0292-01	Wildlife-Greater Sage-Grouse	Chapter 3. The discussion of GSG does not include any mention of the COT Report, nor the specific localized and widespread threats and Priority Areas for Conservation (PACs) discussed therein that apply specifically to the GSG population in the HiLine planning area (i.e., northern Montana). Discussion of these threats, recommended conservation objectives for addressing them, and PACS per the COT Report, are extremely relevant to Chapter 4 effects analysis and should therefore be included in Chapter 3. We also recommend that the most current GSG literature be referenced in this section, including Knick et al. (2013).	See Chapter 3, Wildlife, Wildlife Sensitive Status Species, Greater Sage-Grouse (third and fourth paragraphs) for additional text in response to this comment.	Yes
0292-04	Wildlife-Greater Sage-Grouse	Compensatory Mitigation. Compensatory mitigation requirements (for unavoidable impacts) are not explicitly discussed under any of the alternatives in the DEIS. The possibility of such mitigation is mentioned in the existing oil and gas leasing discussion in Chapter 2 under Wildlife for Alternatives B, C, and E. However, it is not presented as a requirement, nor is it discussed with respect to any other surface disturbance project type (e.g., roads, powerlines, pipelines, wind energy, mining, etc.). Similarly, the concept of compensatory mitigation is only briefly mentioned in the form of potential conservation measure choices in Appendix M under Fluid Minerals ("When additional mitigation is necessary, conduct it in the impacted priority sage-grouse habitat areas when possible or, if that is not possible, in general sage-grouse habitat with the ability to increase sage-grouse populations tied to the impacted priority areas].") and Solid Minerals ("Use off-site mitigation or purchase conservation easements with industry dollars to offset habitat losses."). It is not mentioned under Travel Management or Lands and Realty. Offsite mitigation and use of mitigation trust accounts are mentioned as a consideration for site plans in Appendix E.5 (Requirements and/or Guidelines for Wildlife Controlled Surface Use Stipulations), but are not required.	The topic is discussed in Chapter 2, Wildlife, Alternative E, Special Status Species, and Appendix M.	No

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		A consistent GSG compensatory mitigation approach across all surface disturbance related programs should be included, within Appendix M or otherwise, in this RMP. This would also facilitate consistency across BLM planning efforts in the Montana/Dakotas area, as stated in Appendix M: "The guidelines are primarily included to provide consistency within the Montana/Dakotas BLM in how management practices and requirements are identified and applied to avoid and mitigate environmental impacts and resource and land use conflicts in greater sage-grouse habitat." As you are aware, the Miles City Field Office DEIS/RMP has proposed compensatory mitigation as a component of action alternatives. Also, as we noted in our May 15, 2012 comments to BLM on the pre-draft EIS, "...a discussion of compensatory mitigation ratios should also be provided Related to mitigation, we encourage BLM to explore and evaluate options for implementing any required compensatory mitigation within portions of the proposed Restoration Priority Area, as appropriate; possibly as an additional alternative component."		
0292-06	Wildlife-Greater Sage-Grouse	Core Areas. The proposed PPAs/PAs (Alternatives B, C, and E) appear to be inclusive of all Montana Fish, Wildlife and Parks (FWP) mapped sage-grouse core areas and COT Report PACs in the Planning Area (FWP core areas and PACs are identical), which we support. However, to ensure this is the case, we recommend that these areas be explicitly compared with core/PAC areas, on maps and in text. We also recommend that GH and RAs are included on these maps to facilitate effects analysis and understanding of where conservation measures specific to these areas would be applied. We recommend that PPAs/PAs be inclusive of all core areas/PACs, or that clear rationale be provided as to how these proposed areas are consistent with the core area / PAC mapping and protection intent.	Map 2.18 has been changed to show Core vs. Priority Habitat.	Yes
0292-07	Wildlife-Greater Sage-Grouse	Monitoring. It is unclear from the GSG Monitoring section in Appendix R as to when implementation and effectiveness monitoring would be conducted, and what methodology would be employed. This appendix should reference and adhere to the recently developed 2013 Draft U.S. BLM and USFS Greater Sage-grouse Monitoring Framework (and the final Framework, when completed).	This topic is discussed in Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, under Livestock Grazing.	No

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0292-08	Wildlife-Greater Sage-Grouse	Adaptive Management. We did not find detailed discussion of, nor a proposed approach for, adaptive management application in the DEIS. The ability to adaptively manage and adjust action elements and conservation measures based on monitoring results is an extremely important component of GSG conservation across the programs addressed in the RMP, and should be included in the DEIS.	This topic is discussed in Chapter 2, Implementation and Monitoring.	No
0292-09	Fire Manage-ment and Ecology	Invasive Plant/Fire Complex. One of the most critical challenges facing conservation of the GSG is the invasive plant/fire complex that can eliminate valuable habitat in a short time. The invasive plant/fire complex is the subject of many research and management efforts that attempt to develop improved habitat management and fire response tools. These wide-spread efforts are not highly coordinated/integrated, nor is there a central repository for new and effective techniques and opportunities. The Service has funded WAFWA to compile and coordinate existing information and management efforts to ascertain work currently being performed to address this threat. WAFWA will develop a report documenting the current work and develop a set of concise, prioritized and integrated actions that land managers and policy makers can take to effectively preclude the dominance of invasive species and reduce their influence on the fire cycle in sagebrush ecosystems. Additionally, in the coming weeks the Service will coordinate with the National Interagency Fire Center (NIFC) and prepare additional guidance regarding this threat and the specificity sought in conjunction with proposed conservation and management measures in RMPs and similar documents. In coordination with the Service, we request that BLM incorporate such additional guidance into the RMP/DEIS as it becomes available.	Report/guidance is not currently available per Tate Fischer, Acting Division Chief for Fire Planning, Fuels & Community Assistance, BLM – NIFC. "The report/guidance has not yet been published nor do I believe it is available yet in draft….We understand the compressed timelines everyone is under and intend to do our best sharing any updated information as it becomes available." Email transmission dated 9/19/2013. Once guidance becomes available, it would be incorporated into all RMPs as an amendment (per Montana State Office Fire Planning Staff).	No
0292-10	Wildlife-Greater Sage-Grouse	Functionality. Some proposed actions in the DEIS are conditioned such that they would not impact the "functionality" of GSG habitat, or would be allowed if they "improved or maintained" GSG habitat. However, no definitions, criteria/standards, or assessment methodologies are provided for these terms. We recommend that such definitions, criteria/standards, and proposed assessment methodologies be provided.	This topic is discussed in Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat, under Livestock Grazing.	No
0292-11	Wildlife-Greater Sage-	Chapter 2, All Programs: All alternatives and programs to which Appendix M pertains should specifically reference adherence to	This topic is discussed in Appendix M, Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat,	No

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	Grouse	applicable measures in Appendix M. Fluid Minerals, Noxious Weeds, OHV/Travel Management (for new projects), Recreation, Renewable Energy (including wind), Water Resources, and Salable Minerals do not reference Appendix M in the DEIS, but should. Discussions for all programs should reference all applicable BMP appendices clearly and consistently; currently there is inconsistency between programs as to which BMP appendices are mentioned. Further, we did not note any reference to, or inclusion of BMPs for water development construction to minimize the potential for West Nile Virus (and such measures were not included in Appendix M). We recommend that such measures be included in the document.	under Fluid Minerals, Best Management Practices for Fluid Mineral Development, Operations; and in Chapter 2, Vegetation – Rangelands.	
0292-12	Livestock Grazing	Chapter 2, Livestock Grazing: A timetable for the development and incorporation of GSG objectives into rangeland health standards for Alternatives B, C, and E should be provided.	See Chapter 2, Livestock Grazing, Alternative E (Preferred Alternative).	No
0292-13	OHV Use and Travel and Transpor-tation Mgmt	Chapter 2, OHV Use and Travel and Transportation Management: Existing travel is limited to existing roads/trails, and we support the high prioritization of PPAs/PAs in future travel planning under Alternatives B and E. However, we recommend that an interim plan be implemented between now and when the Comprehensive Travel and Transportation Management (CTTM) plan is developed to address new roads, re-alignments, etc. five years from when the Record of Decision is signed. The interim plan should address avoidance, minimization, and compensatory mitigation to offset impacts. Infrastructure has been identified in the COT Report as a widespread threat in the planning area.	This topic is discussed in Chapter 2, OHV Use and Travel and Transportation Management, Travel Management Areas, and Chapter 2, Wildlife, Special Status Species.	No
0292-14	Wildlife-Greater Sage-Grouse	Chapter 2, Renewable Energy: It is unclear as to whether Wind Energy would be considered avoidance areas in GH (and RAs) under Alternatives B, C, and/or E. This should be explicitly clarified. Also, we recommend reference (and wind energy project adherence) to the March 2012 Service Land-based Wind Energy Guidelines.	Refer to Chapter 2, Renewable Energy Resources, Decisions Common to All Alternatives, Wind; Table 2.19; and Map 2.11 at the end of Chapter 2.	Yes
0292-16	Vegetation	Chapter 2, Vegetation - Riparian and Wetland: Under Alternatives B and E, riparian areas with unique values are not referenced in Appendix M under ROW as indicated here. Such text should be added to Appendix M.	See revisions made in Chapter 2, Vegetation – Riparian and Wetland, Alternatives B and E (Preferred Alternative), first paragraph.	Yes
0292-21	Wildlife-Greater	Best Management Practices (BMPs). The GSG mitigation measures and conservation	The language is accurate as written.	No

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	Sage-Grouse	actions in Appendix M contain many measures of potential conservation benefit to GSG. However, we found the intended applicability of these measures to be unclear for a variety of reasons: The first sentence states, "These Mitigation Measures and Conservation Actions for Greater Sage-Grouse Habitat are a compilation of management strategies and project design features employed by the BLM to mitigate impacts from surface disturbance in priority and general sage-grouse habitat in order to meet the goals and objectives set forth in the BLM National Sage-grouse Conservation Strategy and in individual land use plans." It is our understanding that "priority habitat" as referenced here only includes protection priority areas (PPAs) / priority areas (PAs) and not "priority habitats" as defined in the DEIS glossary itself. Clear definitions as to what constitutes priority habitat in Appendix M should be provided.		
0292-22	Wildlife-Greater Sage-Grouse	Many of the "decisions common to all alternatives" in Chapter 2 that reference Appendix M include Alternative A (existing management), which by definition does not include mapped or assigned PPAs/PAs, restoration areas (RAs), or general habitat (GH). Consequently, contrary to Chapter 2, none of these BMPs would technically apply to Alternative A. Similarly, we assume that only measures for GH would apply to Alternative D, as D would not include PPAs/PAs, but this was not clearly stated. This should all be clarified in Appendix M and Chapter 2.	The text has been revised to delete references to Appendix M under Decisions Common to All Alternatives in various resource sections.	Yes
0292-23	Wildlife-Greater Sage-Grouse	Restoration Areas are not included in Appendix M. It is not clear whether these areas would be treated as GH or in some other way. This should be clarified.	This topic is addressed in Chapter 2, Wildlife, Alternative E, Greater Sage-Grouse Restoration Area.	No
0292-24	Wildlife-Greater Sage-Grouse	Measures for stand-alone pipeline and cell towers projects were not included in Appendix M and we recommend that they be included.	Pipelines are addressed in Appendix M. Communication towers are addressed in Chapter 2, Lands and Realty, Facilities.	No
0292-25	Wildlife-Greater Sage-Grouse	It is unclear how (or if) wind energy projects would be addressed in Appendix M. This should be clarified.	The Grassland Bird/Greater Sage-Grouse Priority Habitat Management Areas and Greater Sage-Grouse Protection Priority Habitat Management Area are exclusion areas for wind energy development. Refer to Chapter 2, Renewable Energy Resources, Table 2.19 under Wildlife, Alternative E (Preferred Alternative).	No
0292-27	Wildlife-Greater	It is stated in Appendix M that "Those resource activities or programs currently	The following language has been added to Appendix M after the quoted statement:	Yes

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	Sage-Grouse	without a standardized set of permit or operation stipulations can use the mitigation measures and conservation actions for greater sage-grouse as stipulations or as conditions of approval, or as a baseline for developing specific stipulations for a given activity or program." This implies that Appendix M would not be applied if a "standardized" set of stipulations existed, potentially regardless of their effectiveness and consistency with RMP purpose, need, goals, and objectives, which would be of high concern to the Service. Please clarify how this issue would be addressed to ensure that proposed projects would be required to meet the RMP GSG purpose, need, goals, and objectives.	"Resource activities or programs with a standardized set of permit or operation stipulations will also use Mitigation Measures and Conservation Actions For Greater Sage-Grouse Habitat."	
0292-30	Wildlife-Greater Sage-Grouse	Chapter 4, Wildlife: The analysis under Alternative E includes proposed sagebrush enhancement north of the Milk River. However, while included under Alternatives B and C, this is excluded from the discussion of Alternative E in Chapter 2. Please clarify which chapter is correct, and whether such enhancement is included under Alternative E.	Language has been added to Chapter 2, Wildlife, Alternative E, General Greater Sage-Grouse Habitat Areas, concerning sagebrush enhancement north of the Milk River.	Yes
0292-31	Wildlife-Greater Sage-Grouse	Chapter 2, Wildlife: The rationale for all proposed GSG distance buffers in various alternatives should be provided and discussed.	The assortment of distance buffers were utilized to provide a range of alternatives for analysis. Additional discussion and rationale for lek buffers is included in Appendix M.5	No
0292-32	Wildlife-Greater Sage-Grouse	Chapter 2, Wildlife: For Alternatives B, C, and E, it is unclear what is meant by proponents being "encouraged" to use designated ROW corridors. We recommend that proponents be required to clearly rationalize why designated corridors cannot be used. This should include an analysis of effects to GSG and required mitigation.	Refer to Chapter 2, Lands and Realty, Rights-of-Way, Leases and Permits, Alternatives B, C and E. New right-of-way facilities would be located within or adjacent to existing rights-of-way, or corridors, to the extent practical, in order to minimize adverse environmental impacts and the proliferation of separate rights-of-way. New rights-of-way would include appropriate BMPs and mitigation (Appendix C and Appendix M). The latest version of Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012) and the BMPs established by the BLM Wind Energy Development Programmatic EIS and Record of Decision (BLM 2006c) would be implemented in the construction and operation of right-of-way facilities.	Yes
0292-33	Wildlife-Greater Sage-Grouse	Chapter 2, Wildlife: We are unsure why GSG habitat fragmentation minimization in GH is only proposed under Alternatives C and D, and not also under B and E. Please clarify.	The following language has been added to Chapter 2, Wildlife, Alternative B, under General Greater Sage-Grouse Habitat Areas: "Fragmentation of large intact blocks of habitat for special status species would be minimized, particularly in habitat protection areas for Greater Sage-Grouse and grassland	Yes

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			birds." The same language has been moved in Alternative E from under the Special Status Species heading to General Greater Sage-Grouse Habitat Areas.	
0292-34	Wildlife-Greater Sage-Grouse	Chapter 2, Wildlife: We recommend that agricultural conversion of sagebrush on BLM-administered surface lands be specifically prohibited for one or more alternatives in the DEIS and Appendix M, or clearly explained if this is already the case.	Agricultural conversion is addressed in the Lands and Realty section of Chapter 2. PHMA and GHMA will generally be retained in federal management, unless disposal of the lands will provide a net conservation gain to the Greater Sage-Grouse. PHMA and GHMA will be managed according to the guidance provided in Chapter 2, Greater Sage-Grouse Habitat Management.	No
0292-35	Wildlife-Greater Sage-Grouse	Chapter 4, Wildlife: The analysis discussion of Alternatives C and E for Fluid Minerals is inconsistent with how those alternative components were presented in Chapter 2, appearing to be switched in Chapter 4. In Chapter 2, a Controlled Surface Use (1 well/mile^2) was proposed in PPA/PA for Alternative C, and a No Surface Occupancy approach was proposed for Alternative E. In the Chapter 4 analysis, these were reversed. This confounds the alternatives analysis and should be corrected.	The analysis discussion of Alternatives C and E in Chapter 4 has been corrected.	Yes
0292-36	Wildlife-Greater Sage-Grouse	Chapter 4, Wildlife: Alternative B includes an objective for remaining under 3% anthropogenic disturbance in GSG habitat. However, the analysis does not address this objective, or how the proposed alternative components (including application of Appendix M) would be applied to achieve this objective. Further, it does not address how the net result of compliance with this objective compares with the impacts to GSG potentially resulting from other alternatives. This analysis should be included in order to truly consider and compare the effects of the "NTT Alternative".	Two appendices were added to the Proposed RMP/Final EIS that address this comment. Appendix M.8, Greater Sage-Grouse Disturbance Caps explains the application of the disturbance cap and Appendix M.9, Greater Sage-Grouse Cumulative Effects Analysis – Management Zone I provides an analysis of the effects of implementing the disturbance cap at the management zone scale.	Yes
0292-37	Wildlife-Greater Sage-Grouse	Chapter 4, Wildlife: The PPA/PA PAC/core area approach is not mentioned or included in the analysis context under any of the alternatives, nor is GH. This approach is the crux of the rangewide GSG conservation strategy and needs to be included in the effects analysis. Specifically, how would alternative implementation affect and address threats to PACs and other GSG habitat (e.g., GH), and how would these impacts in turn affect local GSG populations? Further, the proposed RA is not mentioned nor analyzed under Alternative E. We also recommend adding discussion/analysis addressing the potential (if any) for RA and/or GH to be at some point designated as PPA / PA due to habitat	The topic is discussed in Chapter 4.	No

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		improvement, etc.		
0292-38	Wildlife-Greater Sage-Grouse	Chapter 4, Wildlife: The analyses for Alternatives B, C, and E do not include discussion of how incorporation of GSG objectives into rangeland health standards would affect GSG under these alternatives. This analysis should be added.	Refer to Chapter 4, Wildlife, Impacts Common to All Alternatives, *Livestock Grazing and Vegetation – Rangeland*. The Final EIS also includes additional guidance for incorporating Greater Sage-grouse decisions into grazing authorizations. Additional analysis to address the impacts of newly added Greater Sage-Grouse habitat management strategies was added to Chapter 4, Wildlife, Impacts under Alternative E.	Yes
0295-01	Air Resources	BLM conducted near-field modeling to disclose potential impacts to the National Ambient Air Quality Standards (NAAQS) in the HiLine planning area. However, it appears that the 3-hr SO2 NAAQS analysis was omitted from the near-field modeling runs for the Draft RMP/EIS although it was included in the modeling protocol agreed to through the AQTW. While there may not be an impact concern given that the 1-hr, 24-hr and annual SO2 results demonstrate compliance with the NAAQS, we recommend that compliance with the 3-hr SO2 NAAQS also be demonstrated.	Modeling results for the 3-hr SO2 standard were added to Chapter 4, Air Resources, Near-Field Criteria Air Pollutant Concentrations.	Yes
0295-02	Air Resources	The Air Resources Technical Support Document (ARTSD), p. 6, states that Tier 4 emission standards were assumed in the Draft RMP/EIS near-field modeling analysis in order to demonstrate compliance with the 1-hr NO_2 NAAQS. We note that the ARMP, Section 6.1, initial mitigation requirement for diesel drill rig engines >200 hp to meet Tier 4 emission standards for non-road diesel engines indicates that "oil and gas operators may use drill rig engines that exceed Tier 4 emission standards if modeling demonstrates compliance with the NAAQS and protection of AQRVs." We assume that this caveat means that additional near-field modeling will be required at the project-level if higher-emitting engines will be used. We recommend the Final RMP/EIS and ROD include this commitment.	See the discussion in Appendix B, Section 6.1. Text has been modified to state that modeling or monitoring may be used to demonstrate compliance if non-Tier 4 engines are used. Demonstrations may be made at the project level or at a programmatic level.	Yes
0295-03	Air Resources	We also note an inconsistency between the ARMP and Draft RMP/EIS Chapter 4, Environmental Consequences. The ARMP Section 6.1 includes an initial mitigation measures list which does not include a requirement for drill and completion engines >750 hp to meet Tier 4 generator set emission standards even though this was the emission rate used in the near-field modeling exercise (see the ARTSD, p. F-13,	In response to an earlier EPA request under the MOU that larger drill rig and completion engines be modeled, the BLM modeled the largest engines expected to be operating in the planning area. Based on research and discussions with BLM fluid mineral staff, the BLM determined that these largest engines are generator set engines. Smaller non-generator set engines may be used for some wells. At the planning stage, the BLM	No

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		for modeled drill rig emission calculations). Both the Draft RMP/EIS Chapter 4 (p. 418) and the ARTSD (p. 6) reference this assumption. Based on conversations between our staffs, we understand that BLM's near-field modeling analysis included the Tier 4 generator set emission rate for engines >750 hp in order to be representative of what is currently happening in the field (based on BLM experience), and that BLM does not believe requiring Tier 4 generator set emission standards for engines >750 hp is necessary to demonstrate compliance with the 1-hour NO_2 NAAQS. To disclose BLM's intent, we recommend that the Final RMP/EIS include the following: • Clarification regarding which mitigation measures were necessary to ensure compliance with the NAAQS; and • An explanation as to why BLM believes requiring drill and completion engines >750 hp to meet Tier 4 generator set emission standards is not necessary to demonstrate compliance with the 1-hour NO_2 NAAQS.	cannot model every size/type engine combination that could conceivably be used. The BLM's approach is reasonable, but conservative, and predicts compliance with the NAAQS. Both generator set and non-generator set engines are subject to EPA's non-road diesel engine regulations. The BLM is requiring drill rig and completion engines to meet the most stringent EPA emission standards for both generator set and non-generator set engines, with the exception that future modeling or monitoring may demonstrate that the use of non-Tier 4 engines may be used if modeling or monitoring demonstrate adequate air quality protection.	
0295-04	Air Resources	The ARMP Section 6.2.1 Monitoring-Based Thresholds Before PGM Completion, indicates that prior to completion of the photochemical grid modeling (PGM) analysis, monitoring-based thresholds for determining enhanced mitigation would be based on evaluation of monitored exceedances of the NAAQS. In the discussion of modeling-based thresholds for evaluating enhanced mitigation (Section 6.3.1), it is stated that "potential future impacts" on NAAQS or Montana Ambient Air Quality Standards (MAAQS) will be considered. To provide clarity regarding the trigger and consistency within the ARMP, we recommend replacing this language with "NAAQS or MAAQS exceedances" predicted via future PGM.	Future PGM will assess cumulative impacts. Consideration of future mitigation will be triggered only if modeling predicts violations of NAAQS or MAAQS. Monitoring-based exceedance data is more reliable than model-predicted exceedances, particularly with regard to photochemical grid modeling, which includes input data spanning 48 states. Any exceedances predicted by PGM will be assessed in the context of monitored data and air resource trends.	No
0295-05	Air Resources	We recommend the following edits to the Draft ARMP to clarify terminology and/or to reflect recent discussions of the AQTW: • ARMP pp. 828-830: We understand that BLM intends to run the PGM to cover the full 20 year planning cycle of the RMP rather than performing an initial PGM run followed by periodic reassessments as described in Section 5.1.2 on p. 830. We recommend revising the text to clarify this point. In addition, we recommend revising Table B.4. to include time in the schedule for the AQTW to review results from emissions modeling.	Suggested clarifications have been addressed in Appendix B.	Yes

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		• Section 6.2.4 does not include a timeline for implementation of enhanced mitigation after the PGM is completed. We recommend a 1-year timeline for implementation of measures after selection of enhanced mitigation, similar to the timeline provided for implementation of enhanced mitigation measures prior to PGM completion (see Section 6.2.2: "Selected mitigation measures would be implemented within 1 year after the BLM decision to apply additional mitigation").		
0295-06	Air Resources	It is important that the emissions controls and mitigation measures used to develop the emissions inventory be included as required mitigation measures for activities under the RMP. The alternative-specific emissions inventory includes a 50% or 75% control efficiency of gravel or scoria surfacing for calculating dust emissions. The ARTSD, p. 6, identifies assumptions used in this emissions inventory, including a 50% fugitive dust control efficiency for dust suppression but no mention of this 50% or 75% control with gravel or scoria. If 50% to 75% surfacing control due to the use of gravel/scoria was used in the near-field modeling, then we recommend that this control efficiency be added to the identified assumptions on p. 6 of the ARTSD and that gravel/scoria surfacing be added to the initial mitigation list of the ARMP, Section 6.1. In addition, we have a few recommendations for clarification of the TSD, as follows:· • p. 17 - Figure 1 illustrates the well pad and receptor layout for PM10 and PM2.5 modeling. Please clarify whether this same receptor layout was used for the other criteria pollutants. • pp. 21-22 - Predicted criteria air pollutant concentrations were compared to the NAAQS, MAAQS, and Prevention of Significant Deterioration increments. For disclosure purposes, we recommend the annual comparisons for the NAAQS and MAAQS be discussed in this paragraph.	The AERMOD emission inventory was based on a 50% fugitive dust control efficiency, which is a conservative estimate. The suggested change regarding receptor layout was incorporated into Chapter 4, Air Resources, Near-Field Criteria Air Pollutant Concentrations. Annual comparisons to the NAAQS and MAAQS were provided in this section for those pollutants with annual averaging times.	Yes
0295-07	Water Resources	The EPA recommends that the Final RMP/EIS be updated to reference Montana's 2012 Clean Water Act (CWA) Section 303 (d) Impaired Waters List, as approved by the EPA, and discuss water quality trends observed between 2010 and 2012 to more fully describe current conditions in, and downstream of, the planning area. A map showing all impaired water bodies within the planning area, as well as impaired waters	See updates to Chapter 3, Water Resources, Surface Water (Quality); and Table 3.54, 3.55, and 3.56. The BLM does not have a finalized map of existing lentic areas that meets the standard of the HiLine RMP/EIS. Wetland and standing water inventorying efforts are still being conducted by multiple state and federal agencies.	Yes

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		downstream of the planning area, would be a useful tool in the Final RMP/EIS to convey the latest available information regarding existing water quality. For ease of identification, we suggest adding water body segment ID numbers to the table of CWA Section 303(d) waters in the Water Appendix. In addition, if MDEQ has not assessed the water quality in all water bodies within the planning area, then we recommend that the Final RMP/EIS list such water bodies and indicate that the water quality condition has not yet been assessed by MDEQ.	Even if more than several maps were included within the RMP to cover all eight counties within the HiLine District, maps of streams would not provide a great deal of insight for the reader due to the size of the streams segments managed and the scale of the acreage. BLM surface ownership and water related maps for the RMP are included at the following locations: Chapter 1, Planning Area, Figure 1.1; and Chapter 3, Water Resources, Figures 3.15, 3.16 and 3.17.	
0295-08	Water Resources	EPA has approved the following tribes within and adjacent to the planning area, for treatment as a State for purposes of the Clean Water Act (CWA) Section 303 water quality standards program: Confederated Salish and Kootenai Tribes (Flathead Reservation), Assiniboine and Sioux Tribes (Fort Peck Reservation) and the Blackfeet Tribe (Blackfeet Reservation). The Confederated Salish and Kootenai Tribes and the Assiniboine and Sioux Tribes have EPA-approved water quality standards in place. The Blackfeet Tribe and the Chippewa Cree Tribe (Rocky Boy Reservation) have tribally adopted standards that are not yet approved by EPA. The EPA recommends that BLM disclose water quality standards for these tribes and that water quality impairments for these tribes and reservations be included in Chapter 3 along with the state impaired water bodies.	Inclusion of the standards is not desirable at this time as they have not been approved by the EPA for the Blackfeet Tribe. See the added reference to the water quality standards up and coming on Tribal Lands in Chapter 3, Water Resources, Factors Affecting Water Quality, Surface Water (Quality), last paragraph.	Yes
0295-09	Soil Resources	Erosion and Sedimentation: Sediment loading has already caused impairment of numerous water bodies in the planning area. Because future activities that may be authorized under this RMP, including oil and gas development, livestock grazing and use of off highway vehicles would result in new surface disturbance that may contribute to erosion, it is important that the Final RMP/EIS include additional information about this concern. The oil and gas activity predicted in Preferred Alternative E will involve an estimate surface disturbance of approximately 2,055 acres, mostly in the Milk River basin. Erodible soils represent a significant nonpoint source in the planning area. For this reason, we recommend the Final RMP/EIS include a map depicting areas of steep slopes and fragile or erodible soils and proximity to surface waters. Depending on a host of variables including soil characteristics, industrial operations and topography, associated runoff could	The Water and Wind Erosion Hazard Internet Map (Map W.11) has been modified by adding a surface water layer for the Proposed RMP/Final EIS. Detailed erosion modeling at the RMP scale would not provide meaningful analysis. The erosion rates predicted would be very crude due to the lack of site-specific input values needed for erosion modeling. Generalized modeling using the WEPP model can be found in the Proposed RMP/Final EIS, Chapter 3, Soil Resources. At the time any site-specific project were proposed, appropriate environmental review would occur, including, if and as appropriate, additional modeling.	Yes

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		introduce sediments as well as salts, selenium, heavy metals, and other pollutants into the surface waters. To fully disclose and, if necessary, mitigate the potential impacts of soil disturbance, we recommend that the Final RMP/EIS include an estimate of erosions rates, by alternative, in areas where fragile or erodible soils are present. For example, the Wyoming BLM's Bighorn Basin Draft RMP/EIS estimated erosion rates based on projected amount of surface disturbance, types of surface disturbance and general characteristics of the basin (erodible soils, slopes, etc.). Erosion rates were calculated using the Water Erosion Prediction Project model (WEPP), a web-based interface designed by the U.S. Department of Agriculture, Agricultural Research Service, which can be accessed at http://ars.usda.gov/Research/docs.htm?docid=10621. We recommend that the BLM consider using this model or another appropriate model.		
0295-10	Water Resources	Adaptive Management: We support BLM's intent to accomplish 5 year monitoring. To maximize the utility of this planned monitoring effort, we suggest the Final RMP/EIS include a commitment to use monitoring results to modify management strategies as necessary, and examples of thresholds that would trigger changes in management strategies.	The HiLine RMP/EIS includes a commitment by the BLM to use monitoring results to modify management strategies. Thresholds that trigger changes in management strategies for water resources include the Properly Functioning Condition method. Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern.	No
0295-11	Water Resources	Oil and Gas Leasing Stipulations to Protect Water Resources: Contaminants from surface events such as spills, pit and pipeline leaks, and nonpoint source runoff from surface disturbance have the potential to enter and impact surface water resources if these events occur in close proximity to water bodies. If surface activities are set back from the immediate vicinity of surface water, wetlands, and designated source water protection zones, this provides an opportunity for accidental releases to be detected and remediated before impacts reach water resources. If accidental releases are not detected, the setback provides a safety factor and some possibility of natural attenuation occurring. Setbacks also help prevent nonpoint source pollutants such as	See changes in Chapter 2, Vegetation – Riparian and Wetland, Decisions Common to All Alternatives. Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under Alternative E (Preferred Alternative), includes changes to stipulations for Water, Riparian, Wetland, and Floodplains resources, along with Source Water Protection Areas. Also see changes to Chapter 4, Fluid Minerals, Impacts Common to All Alternatives, Vegetation – Riparian and Wetland. Additionally, Montana's EPA-approved	Yes

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		sediments from impacts in surface waters. The Preferred Alternative includes water resources protections through oil and gas leasing stipulations. Specifically, the Preferred Alternative proposes the following two NSO stipulations: "Surface occupancy and use is prohibited within perennial or intermittent streams (as indicated by obligate wetland species or hydric soils); lakes, ponds and reservoirs; and floodplains; "and "Surface occupancy and use are prohibited within riparian and wetland areas." In addition, a Controlled Surface Use (CSU) stipulation is proposed to ensure that special operating procedures are required within 300 feet of riparian or wetland areas. We have several comments and recommendations regarding the wording of the NSO stipulations, as follows: • We recommend removing the exceptions clause from the NSO stipulations given the importance of preventing disturbance within water bodies and wetland areas. In reviewing numerous oil and gas leasing stipulations contained in other BLM EISs, we have not seen an exception process to allow for drilling within water bodies or wetlands. It is our understanding that a "no exceptions approach" of a water body or wetland is BLM's standard procedure. • The use of "obligate wetland species or hydric soils "as indicators for intermittent streams results in an unnecessarily narrow definition of intermittent stream that would likely result in excluding many of these streams from protection. We recommend removing this clause from the NSO stipulation. • Since the Draft RMP/EIS identifies 3,464 of stream miles in the planning area as perennial, intermittent or ephemeral, we recommend including ephemeral streams in the list of water resources to be protected by the NSO stipulation. • We recommend clarifying the NSO language to be applicable to "100-year floodplains" in order to provide certainty for operators. In addition, the EPA recommends BLM consider revising the 300 feet CSU setback for riparian and a wetland areas to a 500 foot NSO setback for perennial, intermittent and ephemeral streams, lakes, ponds, reservoirs, riparian and wetland areas. We note that	2012 Final Water Quality Integrated Report appears to demonstrate that the proposed lease stipulations are effective at maintaining water quality. In the report, only two waterbodies in the State are listed as impaired with a probable source being "Petroleum/Natural Gas Activities." Neither waterbody is located in the planning area. Additionally, no waterbodies are listed as impaired with a similar probable source in North or South Dakota. It is important to note that not all waterbodies have been assessed to date. However, the results of the report seem to indicate that impairments due to oil and natural gas development are rare occurrences that do not justify an unsubstantiated expansion of the NSO stipulation. If the location of a proposed well would potentially threaten a sensitive resource, Onshore Oil and Gas Order Number 1, Approval of Operations allows for the movement of proposed wells by up to 660 feet, which is used frequently to protect sensitive resources. Studies cited within the Proposed RMP and Final EIS indicate that a 300 ft. buffer maintains water quality by significantly reducing concentrations of fecal coliform, nitrogen, phosphorus, sediment, and pesticides. The 300-ft buffer provides a high level of protection by creating a buffer that extends from the boundary of the wetland or riparian area, not just the edge of the stream.	

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		several other BLM Field Offices and land management agencies have required a 500 foot setback to minimize potential deterioration of water quality and to maintain natural hydrologic function of stream channels, stream banks, floodplains, and riparian communities (e.g., see Grand Junction Field Office, NSO-1, Major River Corridors; NSO-2, Streams/Springs Possessing Lotic Riparian Characteristics). We also recommend adding "springs" to the list of water resources protected by these stipulations in order to maintain proper function of these susceptible resources (e.g., see Grand junction Field office, NSO-4, Lentic Riparian Areas, which includes springs, seeps and fens). Further, given the large number of water bodies in the HiLine planning area that are impaired due to sedimentation and/or alteration in stream-side vegetative cover, we recommend a 750-foot NSO buffer for these impaired waters located in areas of high development potential.		
0295-12	Water Resources	Grazing: Grazing has the potential to adversely impact water resources, including surface and ground waters, wetlands, streams, springs and riparian areas. BLM's Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the BLM for Montana and the Dakotas underwent NEPA analysis in 1997. All allotments in the planning area have been assessed for Rangeland Health Standards. We understand that environmental assessments are prepared to assess the effects of alternatives developed to ensure that Rangeland Health Standards are met through grazing allotment goals and objectives. If livestock grazing levels or practices are a significant factor in failing to meet Rangeland Health Standards, the BLM has committed to take action no later than the start of the next grazing year to initiate progress toward meeting the Standards. Since such action must be taken quickly, we recommend that the Final RMP/EIS include a list of potential measures that could be implemented at the project level to meet Rangeland Health Standards. This list could include measures that the HiLine has taken in the past, as well as the following suggestions: • Require special protections for high quality wetland resources such as springs	Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern. Best Management Practices (BMPs) are identified in Chapter 4, Water Resources, Impacts Common to All Alternatives, Livestock Grazing. Additional references and guidance for BMP implementation is included in Chapter 2, 3, and 4 under Livestock Grazing and are extensively referenced and discussed in Appendix E for Oil and Gas Activity. Appendix C contains a discussion of BMPs for multiple Water Resource-related BMP topic discussion sources and lists such sources. BMPs can also be found in Appendix A of the 2012 Montana Nonpoint Source Management Plan. See changes made to Chapter 2, Vegetation – Riparian and Wetland, Impacts Common to All Alternatives, third paragraph. Many of the potential measures you suggest are already identified in the livestock grazing guidelines listed in Appendix H.	Yes

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		and fens. Such protections might include development of alternative water sources, fencing to exclude livestock from a spring source, and redirection of spring water to a trough for watering; • To avoid possible infiltration of groundwater with contaminants resulting from congregation of livestock, require adequate separation between a livestock water well and the water trough or tank; • Specify steps to protect and/or repair any existing exclusions and upland water developments, and develop new range improvements to protect water resources; • Monitor impacts from grazing adjacent to high value water resources; • Adjust the timing of grazing by delaying Spring turnout, increasing rotation, and focusing grazing on areas less intensely used in the previous year; • Develop a monitoring plan and schedule to assess effectiveness of range improvements in protecting aquatic resources; and • Use monitoring results to modify management strategies as necessary; and designated timeframes for completion of necessary management modifications.		
0295-13	Water Resources	Characterization: Source water protection is a key issue in areas with oil and gas development. In order to ensure that public drinking water supply sources (e.g., surface water sources, including groundwater under the direct influence of surface water (GWUDISW) sources, and groundwater sources) are protected from potential impacts associated with BLM-authorized activities in the planning area, it is important to identify where these sources are located. Therefore, the EPA recommends that the Final RMP/EIS include a map delineating source water protection areas for public water supply wells. Please see enclosure 1 for a map of the Public Water Supply Inventory Regions in the HiLine planning area as prepared by MDEQ (contact Joe Meek, MDEQ, via the contact information below to enquire about the zones and how to get the GIS layers). We also recommend BLM identify reservoirs that are drinking water sources. Once these resources are identified, we recommend that the document include an analysis of the potential impacts to drinking water sources. As part of this analysis, the EPA recommends that existing water quality standards applicable to the affected water body segments be presented to help illustrate whether existing uses will	The location of source water protection areas is not published in the RMP/EIS due to their susceptibility to deliberate contamination (e.g., acts of terrorism). The location of these resources would be used for impact analysis on a project-specific basis. Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under Alternative E (Preferred Alternative), includes changes to stipulations for Source Water Protection Areas: Surface occupancy and use is prohibited within State-designated Source Water Protection Areas (NSO). The authorized officer may not grant exceptions to this stipulation. The objective is to protect human health by minimizing the potential contamination of public water systems. Source water is untreated water from streams, rivers, lakes, or aquifers used to supply public water systems. Ensuring that source water is protected from contamination can reduce the costs of treatment and risks to public	Yes

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		be protected and water quality standards met.	health. This stipulation would protect the State-designated Source Water Protection Areas that protect public water systems from potential contamination.	

0295-14	Water Resources	Public Drinking Water Supply Source Mitigation: Groundwater is the primary source of drinking water in the planning area. We note that surface and groundwater quality in the north central part of Montana is high in total dissolved solids and other salts, diminishing the usability of the water.
		
		The EPA recommends the following NSO language to help protect these public drinking water supply sources from potential impacts associated with oil and gas leasing:
		
		Municipal Supply Watersheds[1] - NSO within any of the following areas, as deemed appropriate by the BLM:
		
		• The entire watershed; or
		• Local Source Water Protection Planning Areas where delineated in a Source Water Protection Plan; or
		• Surface Water Spill Response Region or Groundwater Inventory Region defined by Source Water Assessments that have been delineated or evaluated by the State.
		  o Surface Water Spill Response Regions are 1/2-mile-wide zones (on both sides of rivers or streams, upstream of drinking water intakes. They include the water body with the surface water intake and significant tributaries, for 10 miles upstream of the drinking water intake. For lakes and reservoirs, they include a 1/2-mile-wide zone around the water body.
		  o Groundwater Inventory Regions are based on a three-year time of travel or a fixed radius of 1,000 feet (concentric buffer) around the public water supply well.
		
		For surface water sources, if the Municipal Supply Watersheds NSO stipulation is not deemed feasible by the BLM, then at a minimum we recommend a 1,000-foot NSO or CSU setback on both sides of the river or stream, for 10 miles upstream of the intake. For lakes and reservoirs, this would include a 1,000-foot NSO or CSU setback around the water body.
		
		For groundwater and GWUDISW sources, if the Municipal Supply Watersheds NSO stipulation is not deemed feasible by the
			Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under Alternative E (Preferred Alternative), includes stipulations for Source Water Protection Areas:
			
			Surface occupancy and use is prohibited within State-designated Source Water Protection Areas. (NSO)
			
			The authorized officer may not grant exceptions to this stipulation.
			
			The objective is to protect human health by minimizing the potential contamination of public water systems. Source water is untreated water from streams, rivers, lakes, or aquifers used to supply public water systems. Ensuring that source water is protected from contamination can reduce the costs of treatment and risks to public health. This stipulation would protect the State-designated Source Water Protection Areas that protect public water systems from potential contamination.
			
			Additionally, stipulations for Water, Wetland, Riparian, and Floodplains resources have been adjusted and are available in Appendix E.4, Oil and Gas Stipulations and Exception, Modification, and Waiver Criteria, under Alternative E (Preferred Alternative).
			
			Montana's EPA-approved 2012 Final Water Quality Integrated Report appears to demonstrate that the proposed lease stipulations are effective at maintaining water quality. In the report, only two waterbodies in the State are listed as impaired with a probable source being "Petroleum/Natural Gas Activities." Neither waterbody is located in the planning area. Additionally, no waterbodies are listed as impaired with a similar probable source in North or South Dakota. It is important to note that not all waterbodies have been assessed to date. However, the results of the report seem to indicate that impairments due to oil and natural gas development are rare occurrences that do not justify an unsubstantiated expansion of the NSO stipulation. If the location of a proposed well would potentially threaten a sensitive
				Yes

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		BLM, we recommend a minimum 1,000-foot CSU concentric buffer for these sources. We make this recommendation based on consultation with Joe Meek, the Source Water Protection Program Manager with the MDEQ. He may be contacted for additional information at 406-444-4806, or jmeek@mt.gov. The EPA also recommends the BLM include a commitment in the Final RMP/EIS and ROD to provide notice to lessees regarding these important areas in the HiLine. Lease notices for drilling within Source Water Protection Zones of public water supplies are now being used for all wells drilled under BLM authority in Utah. [1] Forest Service Manual (FSM2542) defines Municipal Supply Watersheds to include: "surface supply watersheds, sole source aquifers, and the protection zones around wells and springs." In Montana, protection zones arc known as Inventory Regions.	resource, Onshore Oil and Gas Order Number 1, Approval of Operations allows for the movement of proposed wells by up to 660 feet, which is used frequently to protect sensitive resources. Studies cited within the Proposed RMP and Final EIS indicate that a 300 ft. buffer maintains water quality by significantly reducing concentrations of fecal coliform, nitrogen, phosphorus, sediment, and pesticides. The 300-ft buffer provides a high level of protection by creating a buffer that extends from the boundary of the wetland or riparian area, not just the edge of the stream. Please see Appendix E.1, Oil and Gas Operations, Drilling Permit Process, Permitting, Paragraph 4. The public is notified during the leasing process and NEPA (site-specific EA) process.	
0295-15	Water Resources	The Draft RMP/EIS indicates that 82 springs have been identified in the HiLine planning area. Springs often contain rare or unique plant and animal species in addition to being important contributors to hydrologic function. Therefore, the EPA recommends that the RMP include a commitment for further analysis of springs at the project level, including evaluation of function or condition prior to authorizing any activities in these areas. To ensure that springs, as well as perennial seeps and wetlands, are identified to facilitate their protection, we recommend delineation and marking of perennial seeps, springs and wetlands on maps and on the ground before development. We also recommend including a list of potential mitigation measures that may be applicable at the project level for oil and gas construction, drilling and production activities to prevent adverse impacts to these aquatic resources. These could include silt fences, detention ponds and other stormwater control measures. Other potential mitigation measures, including oil and gas leasing stipulations and measures to protect water resources from grazing impacts, are discussed above under Surface Water Mitigation.	See changes to Chapter 2, Water Resources, Decisions Common to All Alternatives, second paragraph. The definition of intermittent streams presented in Chapter 3, Water Resources, presents the concept that springs are often conterminous with intermittent streams, and are therefore jurisdictionally wet areas. Also see changes to Chapter 4, Fluid Minerals, Impacts Common to All Alternatives, Vegetation – Riparian and Wetland. Guidance for implementing site-specific livestock grazing management (i.e., terms and conditions) is discussed under Chapter 2, Livestock Grazing, Decisions Common to All Alternatives. Any and all potential measures could, and where appropriate or necessary, would be considered at the site-specific level to address any particular and unique resource need or concern. Many of the potential measures you suggest are already identified in the livestock grazing guidelines listed in Appendix H.	Yes
0295-16	Water Resources	Given the large number of oil and gas wells estimated for the planning area and the well documented water shortages and	Water production is discussed in the RMP under Alternative E, Fluid Minerals, Production Operations, Water Production.	Yes

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		impairments in the Milk River Basin, water demand associated with the drilling and completion of these wells is an important consideration that will benefit from careful analysis and disclosure.[2] The EPA recommends the Final RMP/EIS analyze the following: • Estimated water demand for the anticipated oil and gas development in the planning area; • Possible sources of this water; and • Potential impacts of the water withdrawals (i.e., drawdown of aquifer water levels, reductions in stream flow and associated water quality, and impacts on aquatic life, wetlands, and other aquatic resources). In addition, the EPA recommends the Final RMP/EIS analyze and disclose how flow back and produced water will be manage, including: • Estimated volumes of produced water; • Options and potential discharge locations for managing the produces water (i.e., UIC wells, evaporation ponds, and surface discharges); • Possible target injection formations, formation characteristics and depth of any UIC wells; and • Potential impacts of produced water management. Given the increase in rate of development expected in the HiLine planning area, the EPA recommends BLM encourage operators to consider recycling produced water for use in well drilling and stimulation, thereby alleviating the need for water withdrawals and for produced water management/disposal facilities and minimizing the associated impacts. [2]http://www.usbr.gov/WaterSMART/bsp/docs/finalreport/Milk-StMary TechnicalReport.pdf	Also see Appendix E.1, Oil and Gas Operations, Drilling Permit Process, and Reasonably Foreseeable Development Scenarios for Resource Management Plan Alternatives. See changes to Chapter 2, Water Resources, Decisions Common to All Alternatives, last paragraph; Chapter 3, Water Resources, Factors Affecting Water Quality, Groundwater (Quality); and Chapter 3, Water Resources, Water Rights, last paragraph.	
0295-17	Water Resources	The EPA recommends that BLM require all BLM-authorized oil and gas multi-well projects to conduct groundwater and surface water monitoring, similar to RMP requirements included by other BLM Field Offices, e.g., White River, Grand Junction in Colorado and the Uinta Basin in Utah. Specifically, we recommend explaining how water quality monitoring in the planning area will occur prior to, during, and after such development to detect impacts to both	See Appendix E.1, Oil and Gas Operations, Drilling Permit Process, Permitting, fourth paragraph. Adherence to 43 CFR §3160; Onshore Oil and Gas Orders No.1, No. 2, and No. 7; and The Gold Book would serve to protect water quality through practices and programs that include compliance monitoring.	No

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		surface water and groundwater resources, including private wells. The BLM's White River Field Office in Colorado is currently working with the EPA to draft a long-term monitoring plan for groundwater and surface water resources. A recent example of a water quality monitoring plan is the "Long-Term Plan for Monitoring of Water Resources" developed by BLM for the Gasco Energy Inc. Uinta Basin Natural Gas Development Project Final EIS[3]. Additional references that may be helpful include: • State of Montana monitoring strategy (see http://www.deq.mt,gov/wqinfo/monitoring/default.mcpx.) and the Bureau of Land Management, "Regional Framework for Water-Resources Monitoring Related to Energy Exploration and Development" dated September 30, 2007. • National Ground Water Association's Water Wells in Proximity to Natural Gas or Oil Development Brief[4] provides information on the importance of baseline sampling for private wells and types of analysis recommended. [3]http://www.blm.gov/pgdata/etc/medialibiblm/ut/vemalfo/planning/gascoeis/gascofolder6.Par.10452.File.dat/28Gasco%20Appendix%200.%20Long-term%20Wate0/020Monitoring%20Plan.pdf. [4]http://region8water.colostate.edu/PDFs/Water Wells inproximityNGWA2011.pdf.		
0295-18	Social	The following reservations occupy land in the planning area: Flathead, Rocky Boy, Ft. Peck, Ft. Belknap and Blackfeet. Conversations with the HiLine Field Office indicate that consultation with these the tribes on these reservations has occurred. We recommend that a summary of all consultations be included in the Final RMP/EIS. We further recommend that Chapter 5: Environmental Consequences disclose impacts to these populations. If there are disproportionate impacts, additional environmental justice analysis may be warranted at the project-level stage of NEPA given the demographics of the area and the potential impacts from oil and gas development if future projects are located in close proximity to these populations.	See Chapter 4, Social, Impacts Common to All Alternatives, Environmental Justice, which states, in part, that during the course of this analysis, no alternative considered would result in any identifiable disproportionate effects specific to any minority or low income population or community. Also see Chapter 5, Consultation and Coordination, Table 5.3, Meetings with Tribal Governments/Officials on the HiLine RMP.	No
0295-19	Air Resources	Pursuant to draft Council on Environmental Quality (CEQ) guidance and Executive Order 13514, BLM has included an analysis	Particularly at this planning stage of resource management, especially when lands may not yet have been leased, much	No

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		and disclosure of greenhouse gas (GHG) emissions and climate change. We note that the GHG emissions inventory does not include oil and gas emissions from "downstream activities" such as refining that will occur outside the planning area. Because information on "downstream" indirect GHG emissions from activities may be of interest to the public in obtaining a complete picture of the GHG emissions associated with BLM-authorized activity in the planning area, it may be helpful to estimate and disclose them.	less developed, or even when they have been leased, but not yet developed, the BLM does not have sufficient information to estimate GHG emissions from downstream activities. Furthermore, at the planning stage, there is typically little or no information regarding what or how much of the resource may be produced, much less the fate of any produced resource, or the environmental controls on any refineries.	

Shed Antlers on BLM Elk Winter Range in the Little Rocky Mountains Photo by Brian Hockett