



U.S. DEPARTMENT OF THE INTERIOR

**BUREAU OF LAND  
MANAGEMENT**

November 2019

# Buffalo Field Office

Record of Decision and Approved Resource Management Plan Amendment



Estimated agency total costs  
associated with developing  
and producing this EIS:  
**\$511,000**



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## ACRONYMS AND ABBREVIATIONS

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Full Phrase

BFO	Buffalo Field Office
BLM	United States Department of the Interior, Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DOI	United States Department of the Interior
EIS	environmental impact statement
NEPA	National Environmental Policy Act
NOA	notice of availability
NOI	notice of intent
RFD	reasonably foreseeable development
RMP	resource management plan
RMPA	resource management plan amendment
ROD	record of decision
SEIS	supplemental environmental impact statement
SHPO	State Historic Preservation Office
US	United States
USFWS	United States Department of the Interior, Fish and Wildlife Service

# Part I – Record of Decision

## I.1 INTRODUCTION

### I.1.1 Overview

This Buffalo Field Office Resource Management Plan (RMP) Amendment is in response to the federal district court's order in *Western Organization of Resource Councils, et al. v. Bureau of Land Management*, Civil Action No. CV 16-21-GF-BMM (D. Mont. 2017). The background and rationale for approving the attached RMP Amendment are described in this ROD. This RMP Amendment addresses BLM-administered coal leasing allocation, downstream analysis of coal, oil, and gas combustion, and justifies time horizon of the estimated global warming potential impacts for the Buffalo Field Office in order to satisfy the claims in the court order.

### I.1.2 Description of the Planning Area

The Buffalo Field Office administers approximately 800,000 acres of surface lands and 4.7-million acres of subsurface federal mineral estate in Campbell, Johnson, and Sheridan Counties in north-central Wyoming. The decision area is BLM-administered federal coal in the Buffalo Field Office. This includes approximately 4.7 million acres of subsurface federal mineral coal estate for which the BLM has the authority to determine its availability. A map of the planning area and land ownership in the Buffalo Field Office is in **Figure I-1**.

### I.1.3 The Decision

The decision is hereby made to approve the attached RMP Amendment which makes 496,314 acres of federal coal acceptable for future leasing. The BLM has determined that this RMP Amendment is the most consistent with the purposes, policies, and programs associated with implementing its legal mandates. In addition, this RMP Amendment meets the Purpose and Need by:

- Considering an alternative that would reduce the amount of recoverable coal and considers climate change impacts in making a reasoned decision on the amount of recoverable coal made available.
- Supplements the analysis of the environmental consequences of downstream combustion emissions of coal, oil, and gas open to development.
- Justifies the time horizon of the estimated global warming potential impacts—for example, 20-year or 100-year—and acknowledge the evolving science in this area.

In addressing these issues, the RMP Amendment complies with the court order in *Western Organization of Resource Councils, et al. v. BLM* (CV 16-21-GF-BMM).

The RMP Amendment allows for the conservation of resources while still providing for the expansion of existing mines and associated mining infrastructure, and provides an opportunity for future new uses of coal, such as carbon fiber development. The RMP Amendment ensures flexibility for mining in the most efficient manner such as providing options for locating infrastructure in a manner that promotes the sensible use of the resource.

This RMP Amendment was prepared in accordance with National Environmental Policy Act (NEPA) of 1969; the Council on Environmental Quality regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508); Department of Interior regulations implementing NEPA (43 CFR 46); and the requirements of the BLM's NEPA Handbook, H-1790-1. Decisions identified in this RMP Amendment are final and become effective when this ROD is signed. This decision will amend the 2015 Buffalo Field Office Approved RMP and guide coal leasing allocation decisions for the mineral estate administered by the Buffalo Field Office.

#### **1.1.4 Mitigation Measures**

This RMP Amendment does not include any new mitigation measures beyond Appendix J of the 2015 Buffalo Field Office Approved RMP.

#### **1.1.5 Plan Monitoring**

The RMP Amendment does not include any new monitoring requirements beyond Appendix X of the 2015 Buffalo Field Office Approved RMP.

### **1.2 ALTERNATIVES**

#### **1.2.1 Alternatives Considered but Eliminated from Further Study**

In addition to the alternatives considered in detailed analysis, two alternatives were considered but eliminated from further study.

##### ***No Leasing Alternative***

During scoping, several commenters suggested analyzing a no leasing of future coal alternative. The BLM considered the suggestion of closing the decision area to any future leasing of federal coal resources, even in areas where there are no identified resource conflicts; however, the BLM did not bring it forward for further analysis.

According to the BLM Land Use Planning Handbook H-1601-1, Appendix C, the primary land use plan level decision to be made regarding coal is identifying areas that are acceptable for further consideration for coal leasing and those that are not. The process undertaken in order to make these land use plan allocations is directed by 43 CFR 1610.7-1. In order to make the land use plan-level allocations regarding coal, the BLM is required to go through the coal screening process outlined in 43 CFR 3420 et. seq., versus applying a blanket no leasing alternative. During this coal screening process, the BLM analyzed all relevant resources when considering what areas to make acceptable for further consideration for coal leasing.

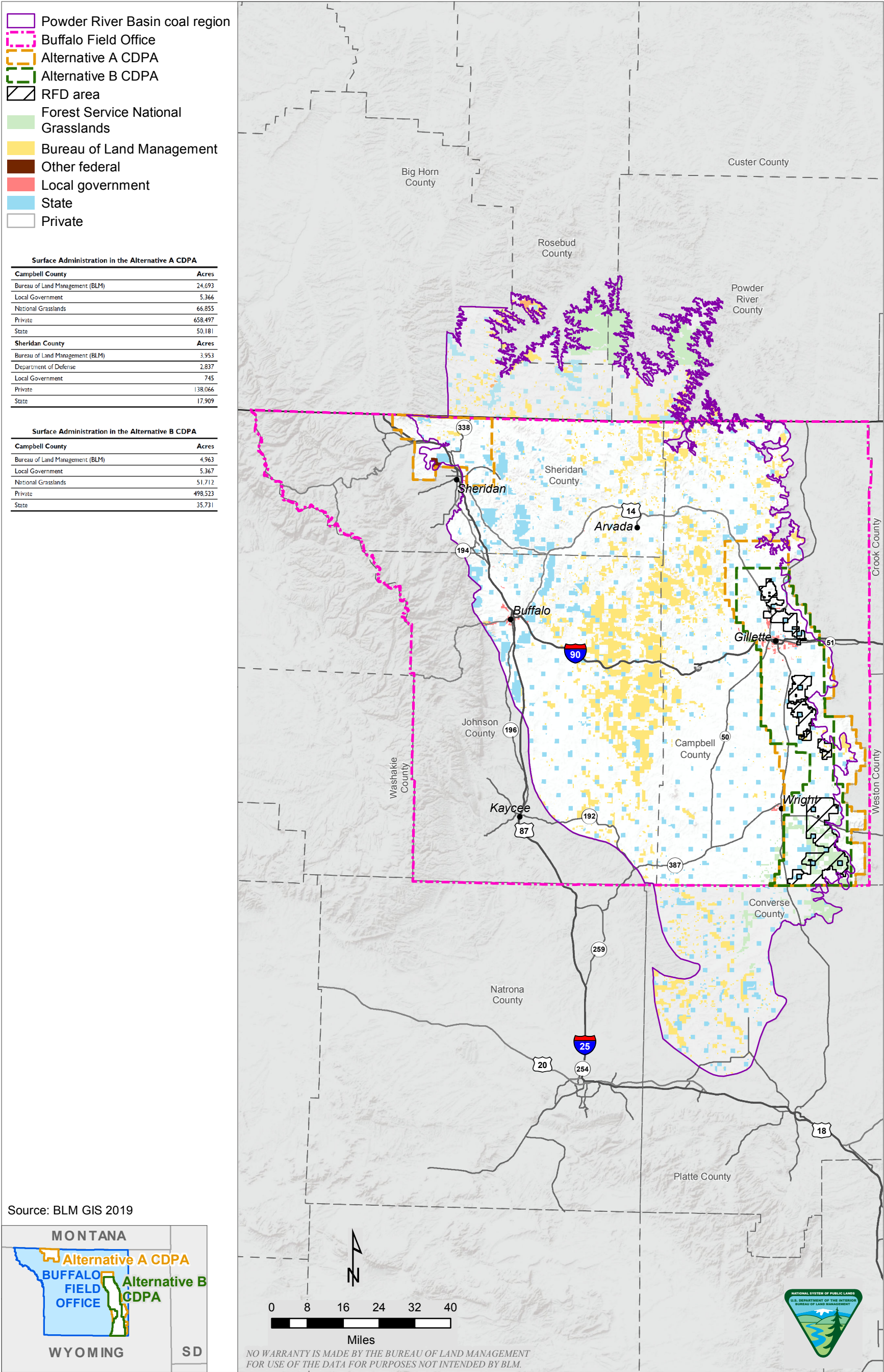
Making the entire decision area unacceptable for further consideration for coal leasing would not meet the BLM's multiple use mandate under the Federal Land Policy and Management Act, the leasing requirements under the Mineral Leasing Act of 1920, as amended, and 43 CFR 3400.2. Coal development is an authorized use of public lands and meets the BLM's multiple use objectives.

##### ***Reduced Emissions Alternative***

The BLM considered reducing air emissions, as a nexus for climate change, under the multiple-use coal screen. Previous coal development in the Buffalo Field Office and emission inventories for the 2015 Proposed Resource Management Plan/Final EIS complied with the State of Wyoming and National Ambient

Figure 1-1

Decision Area



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Air Quality Standards. Past production and the 2015 Proposed RMP/Final EIS modeling were considerably higher than the 2018 production levels and the US Energy Information Administration forecast analyzed in the Final Supplemental EIS/RMP Amendment (see Section 3.5.1, Air Resources, including Greenhouse Gases and Climate Change).

Since the 2015 Proposed RMP/Final EIS emissions met the State and Federal air quality standards, and the reasonably foreseeable development scenario for this Final Supplemental EIS/RMP Amendment was lower than the 2015 data, the BLM considered an alternative that would reduce air emissions by limiting leasing to only areas immediately adjacent to the existing coal mines. This was done to consider the consolidation of the infrastructure used in the mining and transportation of the coal. However, the Buffalo Field Office determined that the supporting infrastructure is already consolidated and highly interconnected in the eastern half of Campbell County. In addition, it is highly unlikely, in eastern Campbell County, that a new coal mine would start and new infrastructure would be constructed within the next 20 years.

Because of these factors, this alternative was dismissed. The mines and the associated infrastructure in the Buffalo Field Office are highly consolidated, well developed, and interconnected so that some areas not immediately adjacent to, but between the mines, might be needed for future leasing. This was also not considered a feasible alternative because it could not be implemented without disrupting existing mining operations.

### **1.2.2 Alternatives Analyzed in Detail**

The Final Supplemental EIS/Proposed RMP Amendment alternatives focused solely on the allocation of lands open to coal leasing in response to the federal district court's order in *Western Organization of Resource Councils v. Bureau of Land Management*, Civil Action No. 4:2016cv00021 (D. Mont. 2017). The range of alternatives meets the purpose and need for the Final Supplemental EIS/RMP Amendment and responds to issues raised during scoping. In addition, the BLM refined alternatives by updating the coal screening (**Appendix A**) and revising the reasonably foreseeable development scenario (**Appendix B**).

#### **Alternative A**

For Alternative A, the BLM brought forward all management decisions that prevented coal development in the 2015 Approved RMP/Final EIS. In addition, the BLM used information from the 2001 coal screening process (2001 RMP Update, Appendix D; BLM 2001) and updated resource data where applicable, and determined a baseline for coal acceptability for further consideration for leasing. Under Alternative A, 686,896 acres would be acceptable for coal leasing.

#### **Alternative B**

Starting with the Alternative A Coal Development Potential Area (CDPA), the BLM updated the CDPA by applying lower strip ratios and retaining higher quality coal (see **Appendix A**). The biggest change from the Alternative A CDPA is the exclusion of Sheridan County, based on changes in economic forecast since 2001. Using updated data, the BLM also evaluated lands for the unsuitability criteria, the multiple land use decisions, and consultation with qualified surface owner screens (See **Appendix A**). Under Alternative B, 455,467 acres would be acceptable for coal leasing.

#### **Approved Plan Amendment**

The BLM Field Manager recommended a modified Alternative B as the Approved Plan Amendment for allocating BLM administered coal within the Buffalo Field Office. The Approved Plan Amendment

addresses the planning issues, within the parameters of the planning criteria. It also achieves the purpose and need for amending the 2015 RMP, complies with the court order ruling, and the acreage addition to Alternative B best represents what was supported by the Wyoming Governor's Office and Campbell County.

The Approved Plan Amendment allows for the conservation of resources while still providing for the expansion of existing mines and associated infrastructure and provides an opportunity for future new uses of coal, such as carbon fiber development. BLM added 39,784 acres to Alternative B to ensure flexibility for mining in the most efficient manner such as providing options for locating infrastructure in a manner that promotes the sensible use of the resource (see **Figure 2-1**). The additional acreage was analyzed within the Alternative A CDPA. While geologic conditions indicate that this area is unlikely to be mined using current technology, the Governor's Office requested that this area be included for the reasons previously described.

### **I.3 PUBLIC INVOLVEMENT**

#### **I.3.1 Public Scoping**

The formal public scoping process for the Buffalo Field Office Supplemental EIS/ Proposed RMP Amendment began with the publication of the Notice of Intent (NOI) in the *Federal Register* on November 28, 2018 (FR Doc. 2018–25847); the BLM also posted the NOI on the ePlanning website. Additional information on public scoping can be found in the Buffalo Field Office Supplemental EIS/RMP Amendment Report, posted on the Buffalo Field Office Supplemental EIS/RMP Amendment ePlanning website <https://go.usa.gov/xP6S3>.

#### **I.3.2 Public Review of and Comment on the Draft RMP Amendment/Supplemental EIS**

On May 17, 2019, the Environmental Protection Agency published a notice of availability (NOA) in the *Federal Register* for the Buffalo Field Office Draft Supplemental EIS/Proposed RMP Amendment. This initiated the 90-day public comment period on the Draft Supplemental EIS/ Proposed RMP Amendment.

The BLM's responses to the summarized substantive comments are in Appendix I of the Proposed RMP Amendment/Final Supplemental EIS. In addition to the substantive comments that the BLM responded to in Appendix I, BLM posted all comment letters on the Buffalo Field Office Supplemental EIS/RMP Amendment ePlanning website: <https://go.usa.gov/xP6S3>.

#### **I.3.3 Governor's Consistency Review**

The Governor was afforded a 60-day consistency review period in accordance with 43 CFR 1610.3-2(e) that began on September 3, 2019. No inconsistencies were identified by the Governor.

#### **I.3.4 Protest Resolution**

The NOA for the Final Supplemental EIS/Proposed RMP Amendment initiated the 30-day protest period. The protest period ended on November 4, 2019.

Pursuant to the BLM's planning regulations at 43 CFR 1610.5-2, any person who participated in the BFO RMP Amendment planning process and had an interest that may be adversely affected by the BLM's planning decisions was allowed to protest proposed planning decisions within 30 days of when the NOA of the Final Supplemental EIS/Proposed RMP Amendment was published in the *Federal Register*. Note that

the BFO Proposed RMP Amendment did not contain any implementation decisions that were subject to the appeal process by procedures set out by other BLM regulations.

The BLM received four protest letters during the 30-day protest period provided for the BFO Final Supplemental EIS/Proposed RMPA. In accordance with 43 CFR 1610.5-2, Two of these letters were dismissed because the letter did not contain valid protests. The remaining two protest letters were valid and contained protest issues that required a response from the BLM.

The BLM Director's decisions on the protests are summarized in the *Director's Summary Protest Resolution Report, Buffalo Field Office Final Supplemental EIS and RMPA*, which is available on the BLM website: <https://www.blm.gov/programs/planning-and-nepa/public-participation/protest-resolution-reports>. The Director concluded that the BLM Wyoming State Director followed the applicable laws, regulations, and policies and considered all relevant resource information and public input in developing the Proposed Plan. Each protesting party was notified in writing of the Director's findings and the disposition of their protests.

The BLM Director resolved the protests without making changes to the Proposed RMP Amendment.

### **1.3.5 Consultation and Coordination**

#### **Consultation**

This RMP Amendment and ROD are within the scope of the analysis and consultations supporting the 2015 Buffalo Field Office Approved RMP for the Endangered Species Act and the National Historic Preservation Act.

The BLM initiated government-to-government consultation with 15 Native American tribes claiming cultural affiliation to, or traditional use of, the Buffalo Field Office planning area (**Table I-1**). The BLM also invited the tribes to participate in the Supplemental EIS process as cooperating agencies. The Northern Cheyenne and Rosebud Sioux tribes participated in the June 12, 2019 cooperating agency meeting. During the public comment period on the Draft Supplemental EIS/RMP Amendment, the Yankton Sioux Tribe provided feedback related to consultation and noted that they were opposed to any coal extraction. The Northern Cheyenne tribe protested the RMP Amendment with a letter submitted during the protest period as described in **Section 1.3.4**.

**Table I-1**  
**Tribes Contacted for Government-to-Government Consultation**

<b>Tribal Government</b>
Cheyenne River Sioux
Crow
Crow Creek Sioux
Eastern Shoshone
Ft. Peck/Assiniboine/Sioux
Lower Brule Sioux
Northern Arapahoe
Northern Cheyenne
Oglala Sioux
Rosebud Sioux
Santee Sioux
Sisseton-Wahpeton Oyate

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**Tribal Government**


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Spirit Lake Tribe  
 Standing Rock Sioux  
 Yankton Sioux

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**Cooperating Agencies**

The BLM is the lead agency for the Supplemental EIS/RMP Amendment. The BLM contacted 12 local, state, and federal agencies, inviting them to participate as cooperating agencies for the Supplemental EIS/RMP Amendment. As stated above, the BLM also invited the tribes to participate in the Supplemental EIS process as cooperating agencies. Ten representatives agreed to participate as designated cooperating agencies (**Table I-2**). In addition, there were other informal meetings, telephone conversations, and visits with agency representatives.

**Table I-2**  
**Cooperating Agency Participation**

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Campbell County Commission  
 Johnson County Commission  
 Sheridan County Commission  
 Campbell County Conservation District  
 Office of the Governor, Wyoming  
 Wyoming Department of Environmental Quality  
 Wyoming Department of Game and Fish  
 United States Environmental Protection Agency, Region 8  
 United States Department of the Interior, Office of Surface Mining and Reclamation  
 United States Department of the Interior, Fish and Wildlife Service

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**I.4 AVAILABILITY AND APPROVAL OF THE PLAN**

Copies of the ROD and the Buffalo RMP Amendment may be obtained by viewing or downloading the document from the BLM website at <https://go.usa.gov/xP6S3> or by obtaining an electronic file at the following locations:

Bureau of Land Management  
 Wyoming State Office  
 5353 Yellowstone Road  
 Cheyenne, WY 82009-4178

Bureau of Land Management  
 Buffalo Field Office  
 1425 Fort Street  
 Buffalo, WY 82834-2436

**Field Manager Recommendation**


Having considered a full range of alternatives, associated effects, and public input, I recommend adoption and implementation of the BLM decisions in the attached Buffalo Field Office RMP Amendment.

  
\_\_\_\_\_  
Todd D. Yeager, Buffalo Office Field Manager

Nov. 22, 2019  
\_\_\_\_\_  
Date

**District Manager Concurrence**

I concur with the adoption and implementation of the BLM decisions in the attached Buffalo RMP Amendment.

  
\_\_\_\_\_  
Kevin J. Christensen, High Plains District Manager

November 22, 2019  
\_\_\_\_\_  
Date

**State Director Approval**

I concur with the adoption and implementation of the BLM decisions in the attached Buffalo RMP Amendment.

  
\_\_\_\_\_  
Duane W. Spencer, Acting Wyoming State Director

November 22, 2019  
\_\_\_\_\_  
Date

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## Part 2 – Approved Resource Management Plan Amendment

The BFO RMP Amendment is included below and is adapted from the Proposed Plan in the Final Supplemental EIS, as described in the ROD. A component of the purpose and need for the RMP Amendment was to provide additional analysis for land use planning, specifically for screening and analyzing coal in the BFO to determine lands acceptable for further consideration for coal leasing, in response to the federal district court's order in *Western Organization of Resource Councils v. Bureau of Land Management*, Civil Action No. 4:2016cv00021 (D. Mont. 2017). This includes approximately 4.7 million acres of subsurface federal mineral coal estate for which the BLM has the authority to determine its availability (**Figure 1-1**). To determine areas acceptable for further consideration for coal leasing in the RMP Amendment, the BLM updated the coal screening (**Appendix A**) and updated the reasonably foreseeable development scenario (**Appendix B**). **Figure 2-1** shows the coal acceptability geospatial results of the four-step coal screening process for the RMP Amendment and the reasonably foreseeable development scenario area where surface disturbance is anticipated over the life of the RMP Amendment (20 years). **Table 2-1** depicts the overall coal acceptability allocation decisions for the RMP Amendment.

**Table 2-1**  
**Coal Acceptability Results for RMP Amendment<sup>1</sup>**

Location <sup>2</sup>	Acceptable (Acres)	Unacceptable (Acres)
Campbell County	495,251	26,735
Sheridan County	0	0
<b>Total</b>	<b>495,251</b>	<b>26,735</b>

Source: BLM GIS 2019

<sup>1</sup> Total volume: 52.2 tons

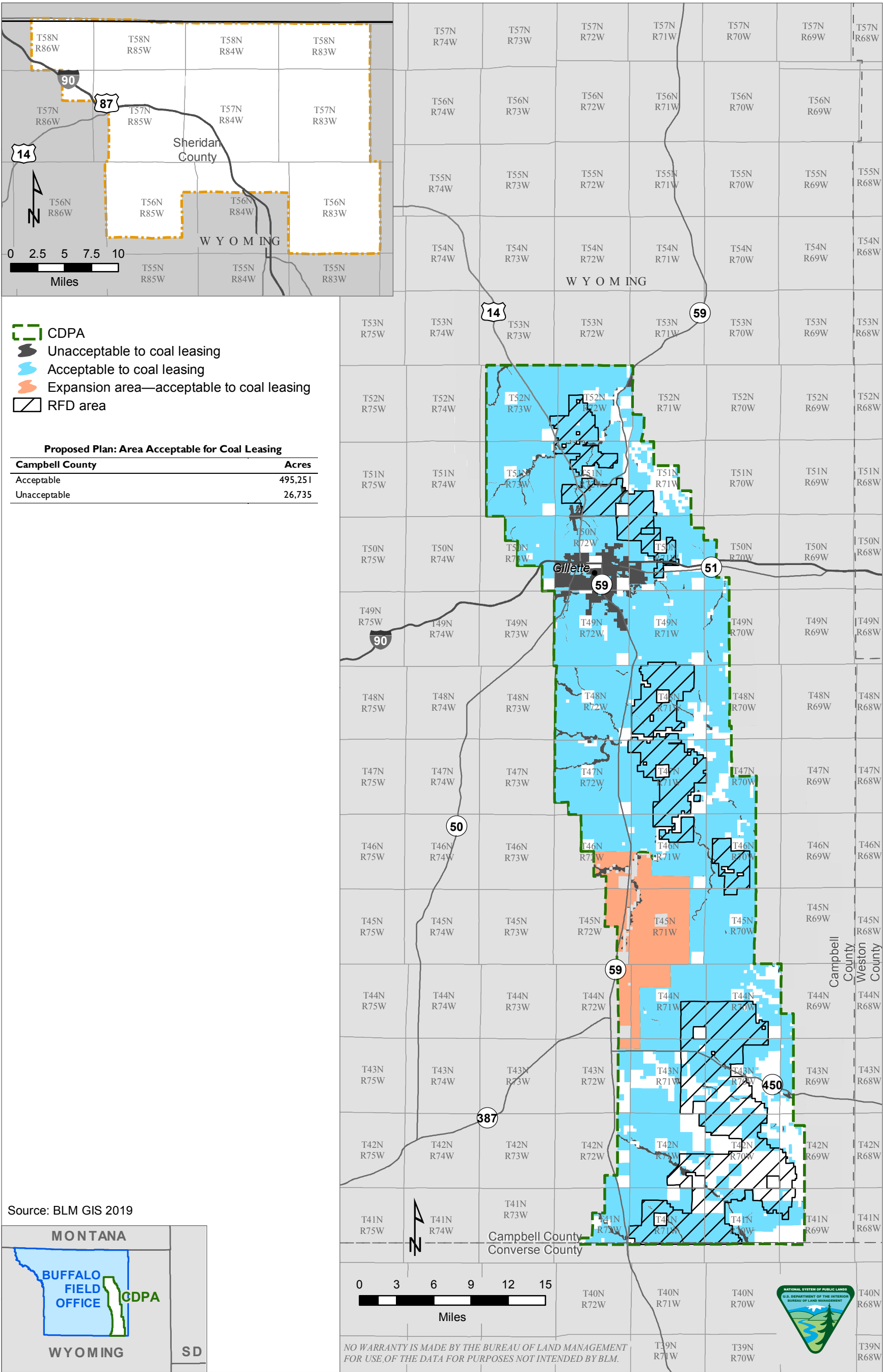
<sup>2</sup> Inside the CDPA

The RMP Amendment does not modify other resource allocation management decisions in the BFO 2015 RMP; it only modifies the decisions for allocation of BLM administered coal in the BFO. Goals, objectives, and management actions from the 2015 RMP for resources not related to the allocation of BLM administered coal remain valid and applicable to future management decisions.

Only land use plan-level decisions related to the allocation of BLM administered coal are made in this RMP Amendment; no implementation actions are included. Such actions will require further NEPA compliance and must demonstrate conformance with the RMP and this RMP Amendment.

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Figure 2-1  
Approved Plan



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# Appendix A

## Coal Screening Process

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## **ATTACHMENT**

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- I      Sample Private Landowner Letter

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## **ADDITIONAL INFORMATION**

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Responses to Landowner Letters Documented in the Decision File

# Appendix A. Coal Screening Process

## A.1 INTRODUCTION

As part of the land use planning process (regulated under 43 CFR 1600), surface management agencies are charged with screening public land resources through a series of criteria. This separates lands suitable for development of coal resources from those unsuitable, because of potential resource conflicts with coal development (43 CFR 3420.1-4(d)).

This appendix describes the screening process for coal resources undertaken by the BFO, complying with 43 CFR 3420.1-4(e)(1-4). The screening process informs potential land use decisions regarding acceptability for coal leasing under the alternatives analyzed in the BFO SEIS/RMPA.

The BLM used a coal screen developed for the 2001 RMP revision for the 2015 Proposed RMP/Final EIS, which authorizes federal coal resources in the planning area. To date, the BLM has issued 131,837 acres of BLM-administered federal coal for coal leases in the BFO planning area.

The coal screen described in this appendix provides updated information on coal potential and criteria resources in the BFO decision area since it was last screened in 2001.

## A.2 REGULATORY OVERVIEW

Federal coal resources are governed by Section 522(b) of the Surface Mining Control and Reclamation Act and the regulations at 43 CFR 3400 and 1600. One aspect of coal leasing governed under these regulations is land use planning (43 CFR 3420.1-4(d) and 1610.7-1) and the review of federal lands for suitability for coal leasing (43 CFR 3461). These regulations identify certain lands as categorically unacceptable for leasing because they contain significant values that conflict with coal development. These include components of the National Wildlife Refuge System, the National System of Trails, and incorporated cities, towns, and villages, among other entities. Other areas disqualified for leasing are critical habitat for threatened and endangered species and cultural resources listed on the National Register of Historic Places.

The regulations at 43 CFR 3420 govern the land use planning process as it pertains to coal, including the four-step screening process for identifying areas acceptable for further consideration for leasing (43 CFR 3420.1-4). Under this process, the BLM must complete the following:

- Identify coal with development potential—Lands determined to have development potential are considered acceptable for further consideration for leasing and are applied to the remaining coal screens. Lands determined to not have development potential are eliminated from further consideration for leasing.
- Apply unsuitability criteria—Lands with coal potential are assessed with procedures outlined in 43 CFR 3461. Lands with coal potential may be eliminated from further consideration from leasing if determined to be unsuitable without stipulation or exception.
- Analyze multiple use conflict—43 CFR 3420.1-4e (3) states that “multiple land use decisions shall be made which may eliminate additional coal deposits from further consideration for leasing, to protect resource values of a locally important or unique nature not included in the unsuitability criteria.” Multiple use values may include possible oil and gas development, soil, forest, wildlife, recreation, agriculture, and watershed resources. Lands with coal potential may be eliminated from further consideration for leasing where multiple uses conflict.

- Consult surface owners—This screen requires the BLM to consult with qualified surface owners whose land overlies federal coal with development potential. The BLM asks the qualified surface owners for their preference for or against offering the coal deposits under their land for lease. Lands with coal potential may be eliminated from further consideration for leasing, based on qualified surface owner preference.

The BLM will undertake additional analysis and consultation, as necessary, before it issues new leases.

### **A.3 SCREENING PROCESS OVERVIEW**

#### **A.3.1 Screen 1—Coal Development Potential**

The BLM determined the coal development potential area (CDPA) for the BFO using stripping ratios, where appropriate and available. The BLM used drill data from the Wyoming Oil and Gas Conservation Commission, where the BLM's own data were not available.

The adjustment of the CDPA is based on coal quality and stripping ratio; that is, the cost to produce. Coal quality is measured partly by the British thermal unit (BTU) range at which it burns, with higher quality coal burning hotter; that is, at a higher BTU. Mines in the northern part of the decision area produce coal that burns in the 8,200 to 8,400 BTU range, the mines in the central part of the decision area produce in the 8,400 to 8,600 BTU range, and the mines in the southern part of the decision area produce in the 8,600 to over 8,800 BTU range.

To balance the cost of production and quality, and in keeping with the current pricing in the coal market, the BLM used stripping ratios of 4:1, 5:1, and 6:1 for mines in the northern, central, and southern parts of the decision area, respectively.

The BLM applied a stripping ratio of 4:1 to the area around the mines in the northern part of the decision area: the Rawhide, Eagle Butte, Wyodak, and Dry Fork mines. The BLM applied a stripping ratio of 5:1 to the area around mines in the middle part of the decision area: the Caballo, Belle Ayr, Cordero Rojo, and Coal Creek mines. Finally, The BLM applied a stripping ratio of 6:1 to the area around mines in the southern part of the decision area: the Black Thunder, School Creek, North Antelope/Rochelle and Antelope mines.

The stripping ratio is most accurate and most predictive near the western end of active mines. This is because this is where most drill data are collected, in anticipation of westward progression of mining activity. Where BLM data were sparse—notably, the east side of the Southern Mine Group—the BLM used Wyoming Oil and Gas Conservation Commission drill data to determine the availability of coal; the BLM modified the CDPA to reflect these findings. Although there is coal on the eastern boundary of the Southern Mine Group, available data suggest what is available is not economic to develop.

#### **A.3.2 Screen 2—Unsuitability Assessment**

The BLM BFO interdisciplinary team of resource specialists reviewed available data and solicited expertise from state and federal agencies to assess the applicability of each of the 20 unsuitability criteria to the decision area. **Table A-2** provides a detailed breakdown of each criterion, lands found unsuitable under each criterion, and total acreages identified and designated as unsuitable for coal development under each criterion.

For BLM-administered federal coal resources beneath state lands, the BLM will consult with the Wyoming governor's office during the governor's consistency review for the EIS, in accordance with 43 CFR 3420.1-7.

The United States Forest Service screens and makes the allocation decision for federal coal beneath the Thunder Basin National Grassland surface; the BLM consults with that agency during lease actions.

### **A.3.3 Screen 3—Evaluation of Multiple Land Use Decisions to Protect Other Resource Values and Land Uses**

Within the range of alternatives analyzed in the BFO Final SEIS/RMPA, the BLM could eliminate additional coal deposits from further consideration for leasing. The BLM would do this to protect other resource values and land uses, where they are not protected under the 20 unsuitability criteria through coordination with other government agencies and organizations. Additional coal deposits can be eliminated from further consideration for leasing through site-specific analyses completed before lease sales. Because almost all BLM-administered federal coal deposits lie beneath lands owned or administered by other entities, the BLM will consult with those entities before eliminating the federal coal deposits beneath them from further consideration for leasing.

### **A.3.4 Screen 4—Consultation with Qualified Surface Owners**

Because almost all BLM-administered federal coal deposits lie beneath lands owned or administered by other entities, the BLM will consult with those entities before eliminating the federal coal deposits beneath them from further consideration for leasing.

The BLM sent letters to all identifiable private surface owners with parcels overlying BLM-administered federal coal resources in Campbell County only (Sheridan County was removed with the coal development potential Screen 1). The BLM requested that the surface owners confirm that they are qualified to express their preference on mining federal coal resources (see 43 CFR 3400.0-5[gg][1] and [2]). The BLM also asked that the surface owners respond with their preference for or against mining by other than underground methods—that is, surface mining—on the BLM-administered federal coal resources beneath their land. A sample of the letters sent to private surface owners can be found in **Attachment I**.

In order to be a qualified surface owner in accordance with the regulations at 43 CFR 3400.0-5, the individuals must have the following characteristics:

- Hold legal or equitable title to the surface of split estate lands
- Have their principal place of residence on the land or personally conduct farming, or ranching operations on a farm or ranch unit to be affected by surface mining operations, or receive directly a significant portion of their income, if any, from such farming and ranching operations
- Have met the first two conditions for a period of at least 3 years, except for persons who gave written consent less than 3 years after they met the requirements

In computing the 3-year period, the BLM Authorized Officer should include periods during which the title was owned by a relative of such person by blood or marriage if, during such periods, the relative would have met the requirements of this section.

The BLM will verify qualified surface ownership and surface owner preference for or against mining by other than underground methods (surface mining) before issuing any lease for federal coal resources beneath privately owned parcels. No leases for surface mining will be issued without qualified surface owner consent.

## **A.4 COAL DEVELOPMENT POTENTIAL RESULTS**

Total acres of BLM administered coal with development potential for Alternative B and the Proposed Plan are tabulated under **Table A-1**. Alternative B is mapped in **Figure A-1**.

**Table A-1**  
**BLM Administered Coal Resources in the Alternative B and Proposed Plan**

<b>Federal Coal Status</b>	<b>Alternative B (acres)</b>	<b>Proposed Plan (acres)</b>
BLM Administered Coal with current federal leases	481,139	521,986
BLM Administered Coal, excluding current federal coal leases	349,302	390,149

Source: BLM GIS 2019

## **A.5 UNSUITABILITY ASSESSMENT RESULTS**

The acres designated unsuitable under each unsuitability criterion are tabulated under **Table A-2**; areas identified as unsuitable under each of the unsuitability criteria are mapped in **Figures A-2** through **A-9**. For each criterion, resources that trigger unsuitability are identified. (Note that the resources identified are not exhaustive of that type of resource in the decision area but are only those resources that overlies areas with coal potential identified under Screen 1 and that result in unsuitable designation.)

Acres are not additive across the table because of overlapping resources, such as Wilderness Study Areas, which drive unsuitability also designated as Visual Resource Management Area I and therefore subject to both Criteria 5 and 6. The Proposed Plan acreage total includes the acres identified in Alternative B and the additional acres included in the Proposed Plan.

**Table A-2**  
**Application of Unsuitability Criteria**

<b>Criterion</b>	<b>Criterion Name and Applicable Resources in the Planning Area, Including Data Sources</b>	<b>Acres Unsuitable in the Alternative B</b>	<b>Acres Unsuitable in the Proposed Plan</b>
Criterion 1	Federal lands for preservation, such as for National Parks, National Wildlife Refuges, and Wilderness Areas: Cities (13,290 acres) Source: BLM surface ownership layer	13,290 acres	13,290 acres
Criterion 2	Federal lands within rights-of-way (ROWs) or easements or surface leases for residential, commercial, industrial, or other public purposes: <ul style="list-style-type: none"> <li>Nonlinear ROWs—204 acres for the Alternative B and 206 acres for the Proposed Plan</li> <li>Linear ROWs—117 acres for the Alternative B and 193 acres for the Proposed Plan</li> </ul> Source: BLM ROWs and easements layer	321 acres	399 acres
Criterion 3	Buffer zones along road ROWs and next to communities, public schools, occupied dwellings, churches, public parks, and cemeteries: <ul style="list-style-type: none"> <li>Buildings—17,244 acres for the Alternative B and 17,411 acres for the Proposed Plan</li> <li>County roads—2,033 acres for the Alternative B and 2,251 acres for the Proposed Plan</li> <li>State highways—WY 59, WY 450 (773 acres for the Alternative B and 853 acres for the Proposed Plan)</li> <li>Interstate highways—I-90 (466 acres for the Alternative B and the Proposed Plan)</li> </ul>	21,182 acres	21,647 acres

Criterion	Criterion Name and Applicable Resources in the Planning Area, Including Data Sources	Acres Unsuitable in the Alternative B	Acres Unsuitable in the Proposed Plan
Criterion 3 (continued)	<ul style="list-style-type: none"> <li>US highway—US 16 (339 acres for the Alternative B and the Proposed Plan)</li> <li>Cemeteries—315 acres for the Alternative B and the Proposed Plan</li> <li>Agency roads—12 acres for the Alternative B and the Proposed Plan</li> </ul> <p>Sources: Campbell County building and cemetery layers; Sheridan County building layer; BLM transportation layer</p>	(see above)	(see above)
Criterion 4	Wilderness Study Areas Source: BLM wilderness study area layer	0 acres	0 acres
Criterion 5	Scenic areas Source: BLM Visual Resources Management layer	0 acres	0 acres
Criterion 6	Scientific study <sup>1</sup> Source: 2001 BLM RMP	0 acres	0 acres
Criterion 7	Historic lands and sites Source: BLM cultural layer	0 acres	0 acres
Criterion 8	Natural areas Source: BLM surface ownership	0 acres	0 acres
Criterion 9	Federally designated critical habitat for threatened and endangered species Source: USFWS critical habitat layer	0 acres	0 acres
Criterion 10	State listed threatened and endangered species <sup>2</sup>	0 acres	0 acres
Criterion 11	<p>Bald and golden eagle sites:</p> <ul style="list-style-type: none"> <li>Bald eagle nest buffers—1,670 acres for the Alternative B and Proposed Plan</li> <li>Golden eagle nest buffers—12,066 acres for the Alternative B and 15,701 acres for the Proposed Plan</li> </ul> <p>Source: BLM raptor nest layer</p>	13,736 acres	17,371 acres
Criterion 12	Bald and golden eagle roost and concentration areas Source: BLM eagle roost layer	0 acres	0 acres
Criterion 13	Falcon nesting sites Source: BLM raptor nest layer	0 acres	0 acres
Criterion 14	Migratory birds of high federal interest Source: USFWS	0 acres	0 acres
Criterion 15	<p>Habitat for species of state interest:</p> <ul style="list-style-type: none"> <li>Greater Sage-Grouse leks—1,407 acres for the Alternative B and the Proposed Plan</li> <li>Sharp-tailed grouse leks—735 acres for the Alternative B and the Proposed Plan</li> <li>Burrowing owl habitat—6,753 acres for the Alternative B and 7,959 acres for the Proposed Plan</li> <li>Elk crucial winter range—1,954 acres for the Alternative B and the Proposed Plan</li> <li>Elk calving areas—25 acres for the Alternative B and the Proposed Plan</li> </ul>	17,627 acres	20,039 acres

Criterion	Criterion Name and Applicable Resources in the Planning Area, Including Data Sources	Acres Unsuitable in the Alternative B	Acres Unsuitable in the Proposed Plan
Criterion 15 (continued)	<ul style="list-style-type: none"> <li>Swift fox habitat—6,753 acres for the Alternative B 7,959 acres for the Proposed Plan</li> </ul> Sources: WGFD big game seasonal ranges and migration corridor layers; WGFD sage-grouse and sharp-tailed grouse lek layers; WGFD sage-grouse core population and connectivity corridor layers; WGFD prairie dog layer	(see above)	(see above)
Criterion 16	100-year floodplain Source: Federal Emergency Management Agency national floodplain hazard layer	0 acres	0 acres
Criterion 17	Municipal watersheds Source: Campbell and Sheridan Counties	0 acres	0 acres
Criterion 18	Natural resource waters Source: 2001 BLM RMP	0 acres	0 acres
Criterion 19	Alluvial valley floors Source: US Office of Surface Mining, Reclamation, and Enforcement potential alluvial valley floors layer	12,202 acres	13,265 acres
Criterion 20	State proposed criteria Source: BLM Washington Office	0 acres	0 acres

Source: BLM GIS 2019

<sup>1</sup> No scientific study areas have been determined unsuitable.

<sup>2</sup> No Wyoming Endangered Species Act

## A.6 RESULTS OF MULTIPLE LAND-USE DECISIONS

In addition to the areas eliminated from further consideration for coal leasing by the unsuitability criterion under Screen 2, above, land use decisions to protect resources of high value to the public may eliminate additional coal deposits from further consideration (**Figure A-10**). No lands or resource conflicts were identified in the 2015 Proposed RMP/Final EIS that would restrict coal development beyond the areas identified under the unsuitability criteria (Screen 2). **Table A-3** includes multiple use conflicts that the BFO decided not to remove as unacceptable for further consideration for coal leasing; it also shows the rationale behind the decisions.

The BLM considered air quality when completing the multiple-use screen. Existing data and modeling done for the 2015 Proposed RMP/Final EIS showed no air quality standards were exceeded, based on the national ambient air quality standards under the Clean Air Act; therefore, the BLM did not designate the resulting geographic area as not suitable for further leasing of coal.

There is presently insufficient data for an accurate wetland assessment in the Alternative B or Proposed Plan area. Wetlands would be inventoried as part of the leasing application process, where the BLM would make a determination of unsuitability, in coordination with the US Army Corp of Engineers and the Wyoming Department of Environmental Quality.

After close review of resources and in consultation with state and federal agencies, the BLM recommended a number of resources as unsuitable for coal leasing, due to conflicts in use; therefore, the BLM eliminated them from further consideration for coal leasing under Screen 3.

**Table A-3**  
**Multiple Use Conflicts Not Recommended as Unacceptable for Coal Leasing**

Resource Topic	Resource Potentially in Conflict with Coal	Reason for not Analyzing
Soils	Soils with depths less than 50 centimeters	Scattered distribution, with limited geographic extent
	Sandy and clayey soils	Scattered distribution, with limited geographic extent
	Reclamation resistant soil chemistries	Scattered distribution, with limited geographic extent
Grazing	Livestock allotments	Allotment acreages sufficient to accommodate limited development
Solid minerals	Salable mineral pits	7 contracts in the Alternative B and 1 contract in the additional Proposed Plan; no direct conflict anticipated
	Locatable mineral plans of operations	Two free use permits in the Alternative B ; no direct conflict anticipated
	Uranium	No potential uranium areas in the Alternative B
	Wyoming Department of Environment Quality mining permits	23 permits in the Alternative B; no direct conflict anticipated
	Active mining claims	No active claims in the Alternative B
Fluid minerals	Active wells	663 wells in 27 unitized areas in the Alternative B and an additional 95 wells and 1 unit in the additional Proposed Plan; following resolution of IBLA 2018-203, the BLM determined that coal leases would suspend oil and gas activities where the two conflict.

Source: BLM GIS 2019

In sum, 933 acres were excluded from leasing under this screen for Alternative B and the Proposed Plan. Resources removed from further consideration because of their significance and potential conflict with coal development are a municipal airport (697 acres) and a special recreation management area (236 acres).

### **A.7 RESULTS OF CONSULTATION WITH QUALIFIED SURFACE OWNERS**

The BFO mailed letters to 372 private landowners who own property larger than 40 acres in the decision area. The BLM included an addressed, postage-paid envelope to encourage response. The 40-acre threshold was based on the qualification criterion that a significant portion of income should come from the parcel. Corporate landowners were included in those who were sent letters; this is because the parcels they own may likely provide significant income, even where there may not be principal residences on the property.

Letters were sent on January 30, 2019, requesting response by March 1, 2019, and requested verification of landowner qualifications, opinion on leasing federal coal beneath their surface (favor, against, and undecided), and inquiring if they have previously provided consent for surface mining (see example letter in **Attachment I**). Results are listed in **Table A-4**; landowner response letters are included in the Decision File.

There is no significant opposition to mining in the areas with the highest likelihood of coal mining. The owners objecting to mining are mostly separated from active mines or are in areas having moderate to low development potential. No areas were made unsuitable, based on landowner response. Before potential leases are delineated, surface owners would again be contacted as to their preference for or against surface coal mining, in accordance with the BLM Coal Leasing Handbook.

**Table A-4**  
**Private Surface Owner Response within All Alternatives**

<b>Surface Owner Consultation</b>	<b>Status</b>	<b>Letter Number</b>	<b>Percent Response</b>	<b>Acres Represented</b>
Letter Delivery	Sent	372	—	977,000
	Delivered	367	99	975,000
	Returned by US Postal Service	3	1	1,520
Landowner response rate	Responses received	160	43	472,000
	Delivered without response	207	56	504,000
Landowner opinion on leasing	For	66	18	218,000
	Against	45	12	112,000
	Undecided	41	11	87,000
	Received, no response	8	2	53,000

Source: BFO 2019

## **A.8 CONCLUSION**

The information above describes the processes for and outcomes of the BLM's screening process to identify lands acceptable for further consideration for leasing, in accordance with federal regulations governing federal coal management and land use planning. The allocations resulting from this process are included in the alternatives considered in the BFO SEIS/RMPA. These allocations are intended to cover the entire coal potential area for the BLM-administered federal mineral estate in that document. This was done to allow future coal leasing decisions in these areas to proceed without a need to amend the decisions in the SEIS/RMPA. The BLM will undertake additional site-specific analyses and consultation, as necessary, before issuing new leases.

**Table A-5**  
**Coal Screening Results**

<b>Coal Screen</b>	<b>Results</b>	<b>Acres in Alternative B</b>	<b>Acres in Proposed Plan</b>
Coal screen #1	Coal development potential	481,139	521,986
Coal screen #2	No exception	24,791	25,854
	Exception	34,826	39,927
Coal screen #3	Multiple use	881	881
Coal screen #4	Consultation with landowners	0	0

Source: BLM GIS 2019

## **A.9 REFERENCE**

BLM GIS. 2019. GIS data on file with the BLM's eGIS server, used for calculations or figures related to the coal development strategy. BLM, Buffalo Field Office, Wyoming.

Figure A-1  
Unsuitability Screening Results

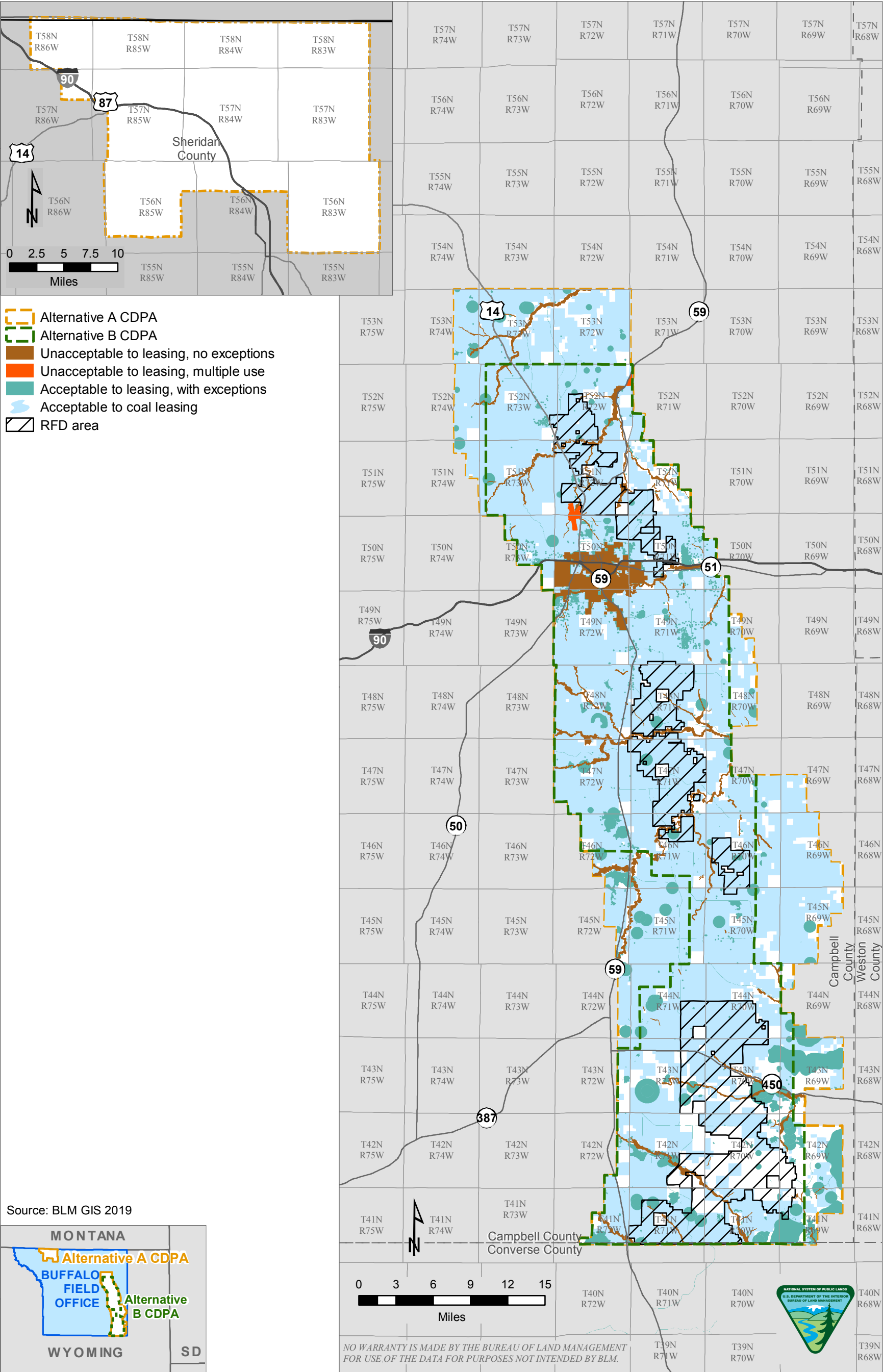


Figure A-2  
Screen 1 Coal Development Potential

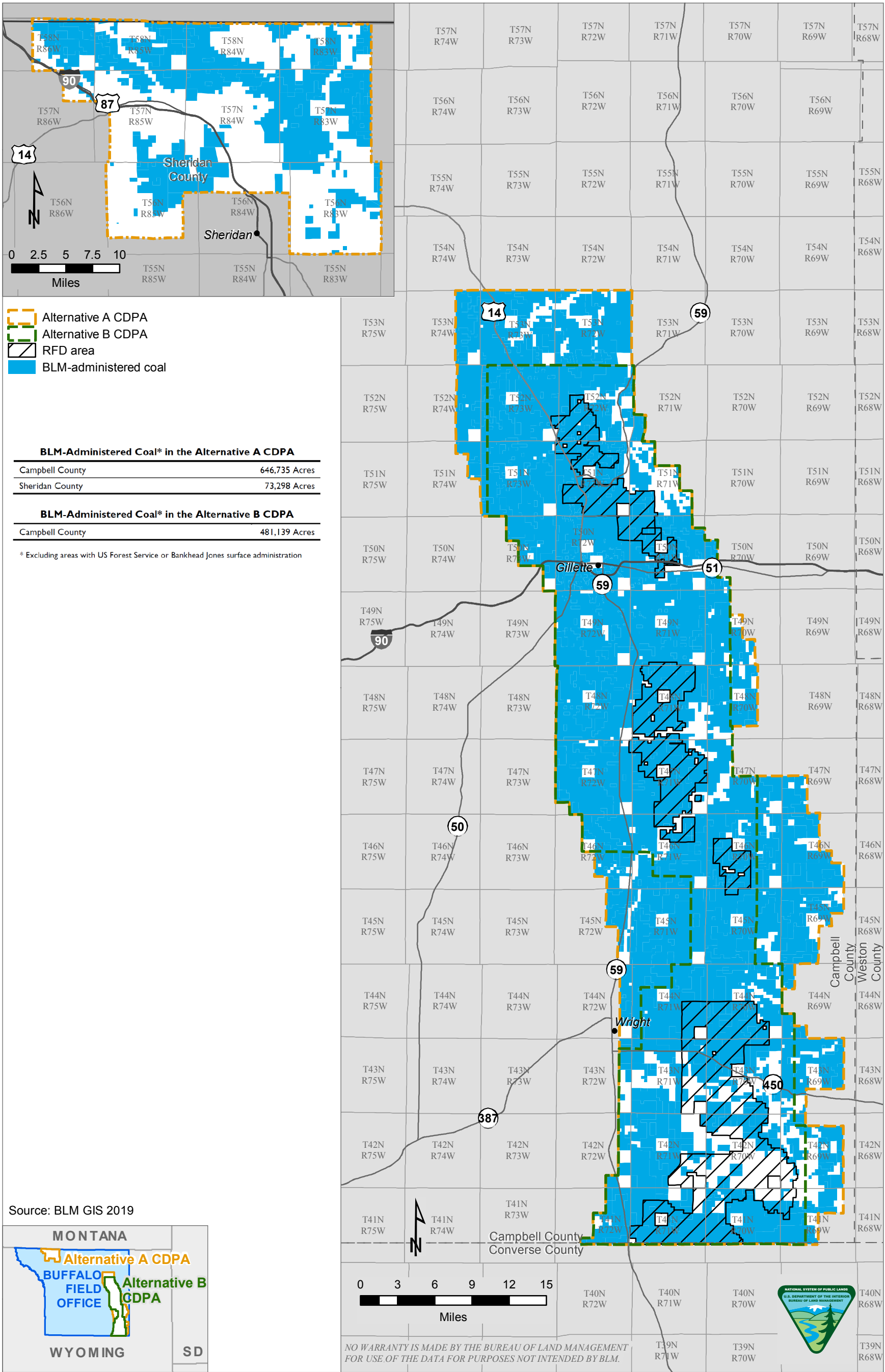


Figure A-3

Screen 2 Unsuitability Assessment:  
Criterion 2 (Unsuitable With Exceptions)—Federal Lands within Rights-of-Ways

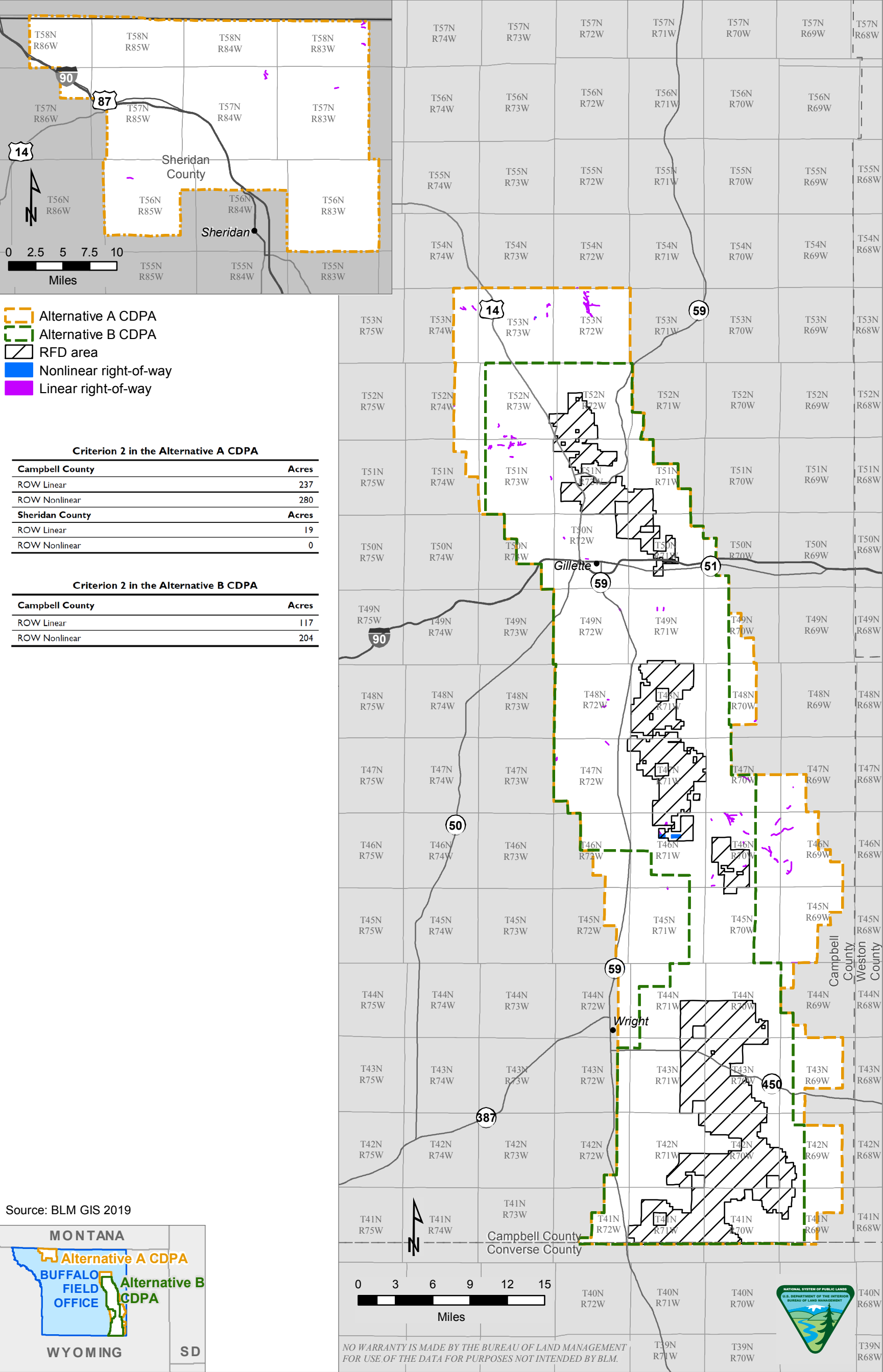


Figure A-4

Screen 2 Unsuitability Assessment:  
Criteria 1 and 3 (Unsuitable Without Exceptions)—Buffer Zones along Public Roads, Schools, Parks, and Other

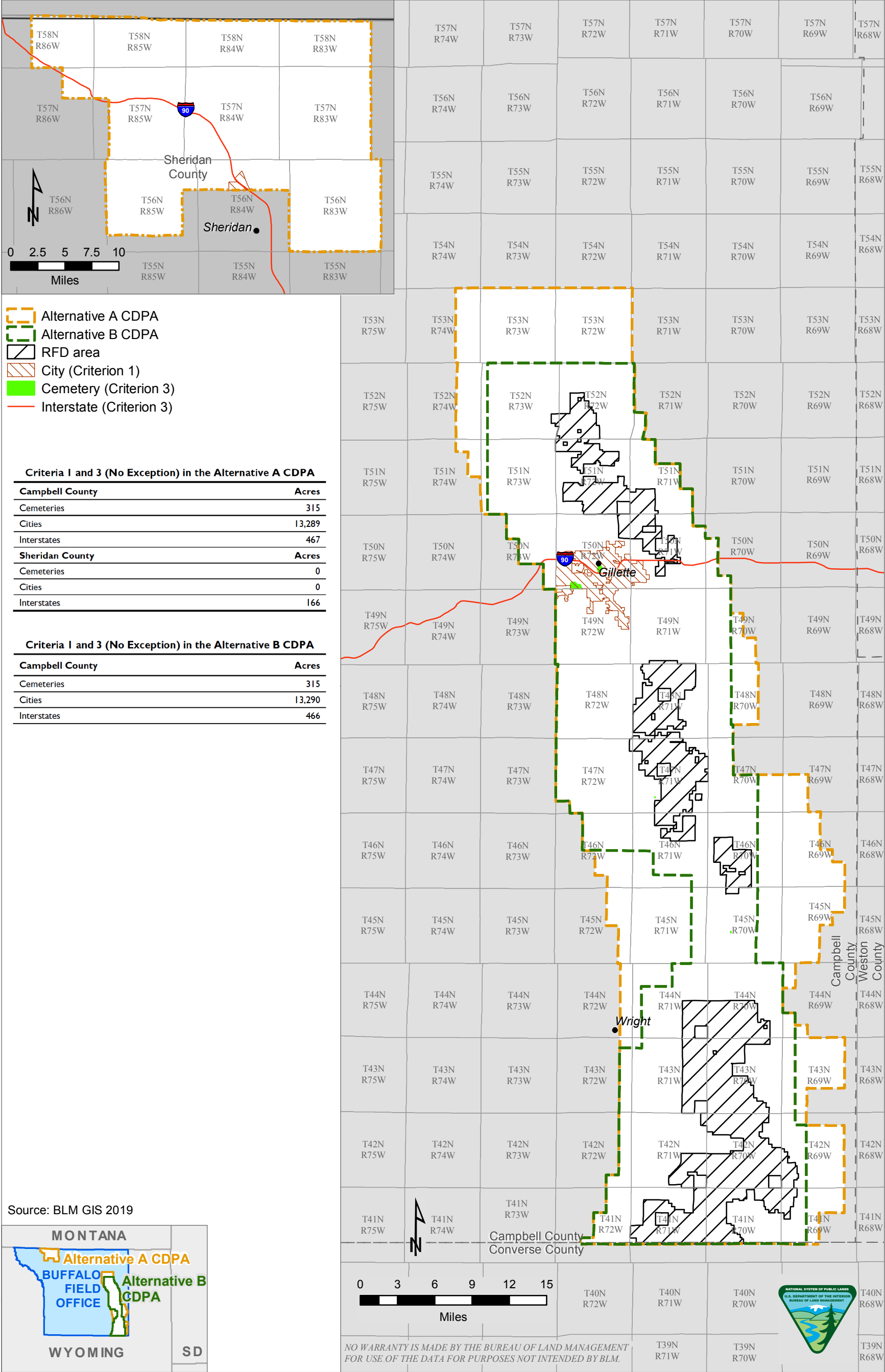


Figure A-5  
Screen 2 Unsuitability Assessment:  
Criterion 3 (Unsuitable With Exceptions)—Buffer Zones along Public Roads, Schools, Parks, and Other

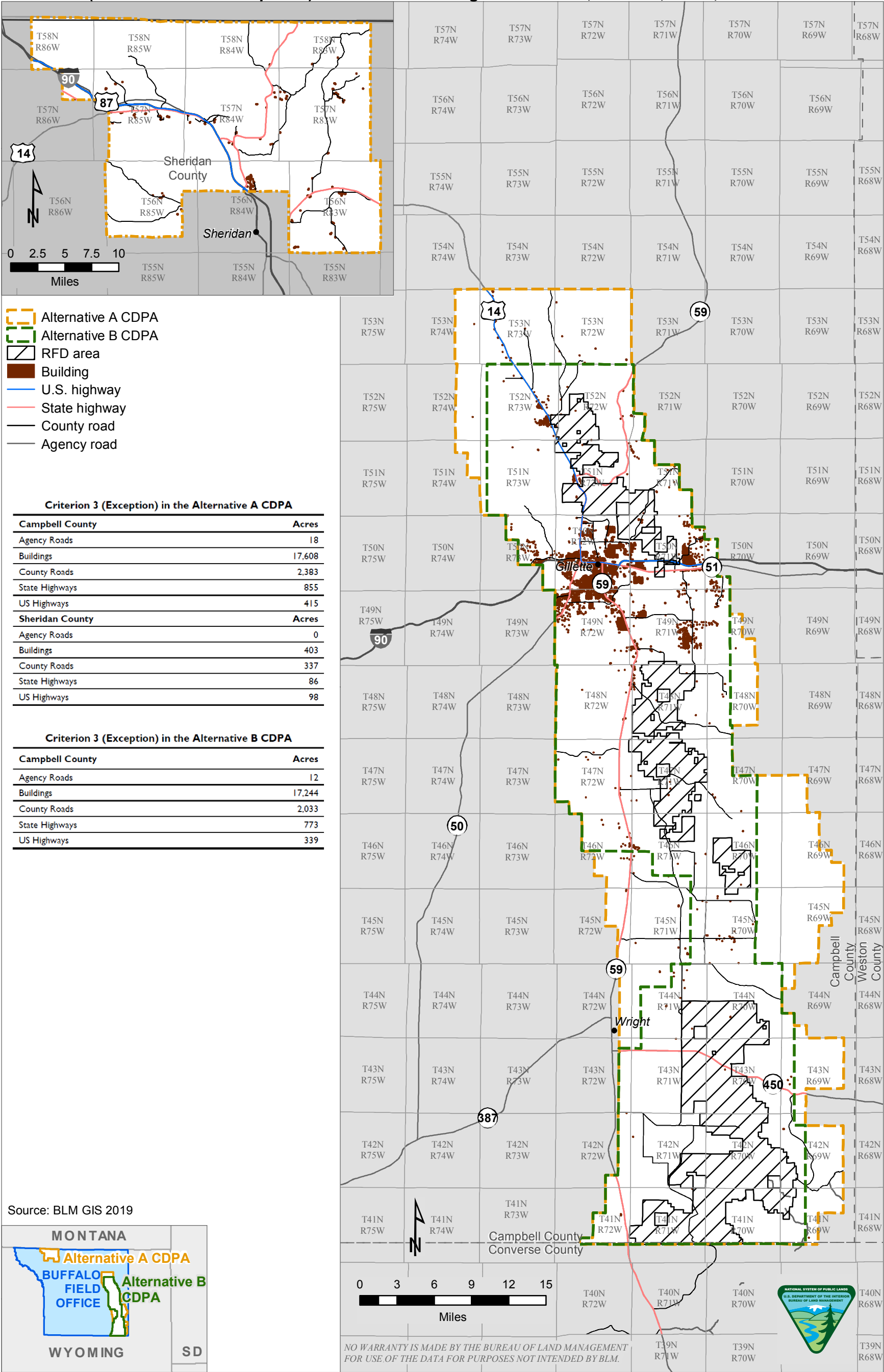
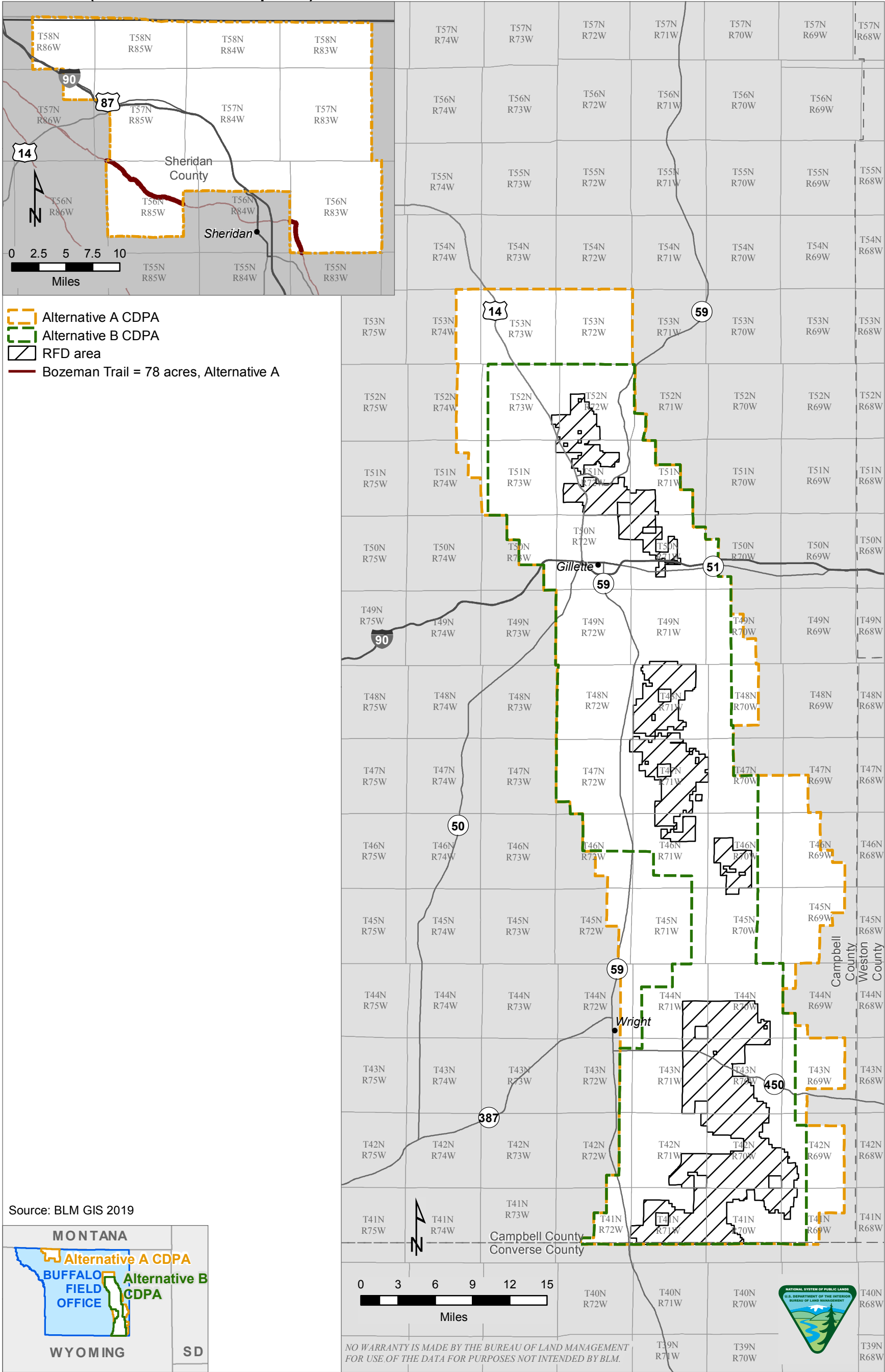


Figure A-6  
Screen 2 Unsuitability Assessment:  
Criterion 7 (Unsuitable With Exceptions)—Historic Lands and Sites



### Figure A-7

### Screen 2 Unsuitability Assessment:

### Criterion 11 (Unsuitable With Exceptions)—Bald and Golden Eagle Sites

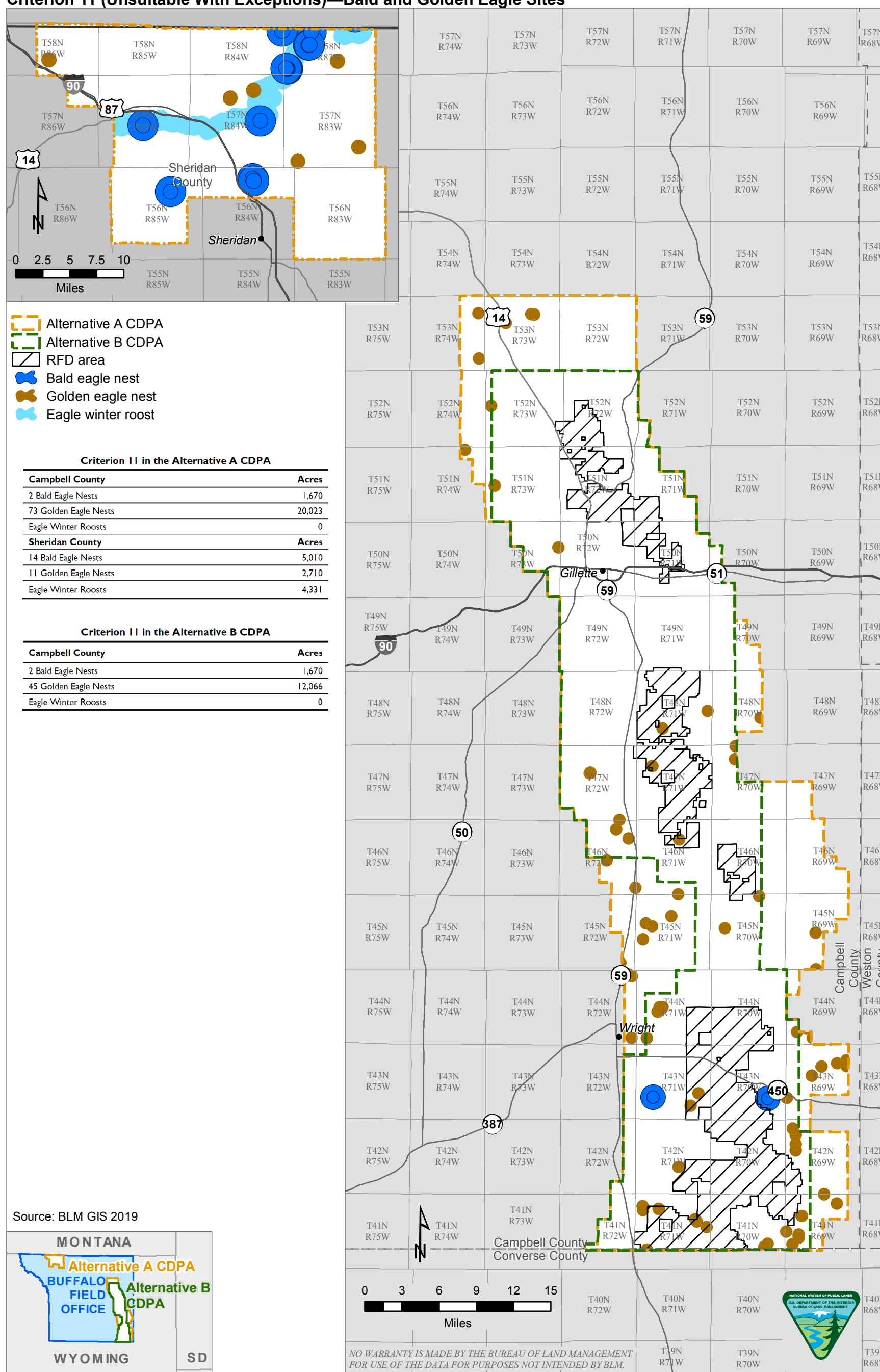


Figure A-8  
Screen 2 Unsuitability Assessment:  
Criterion 15 (Unsuitable With Exceptions)—Habitat for Species of State Interest

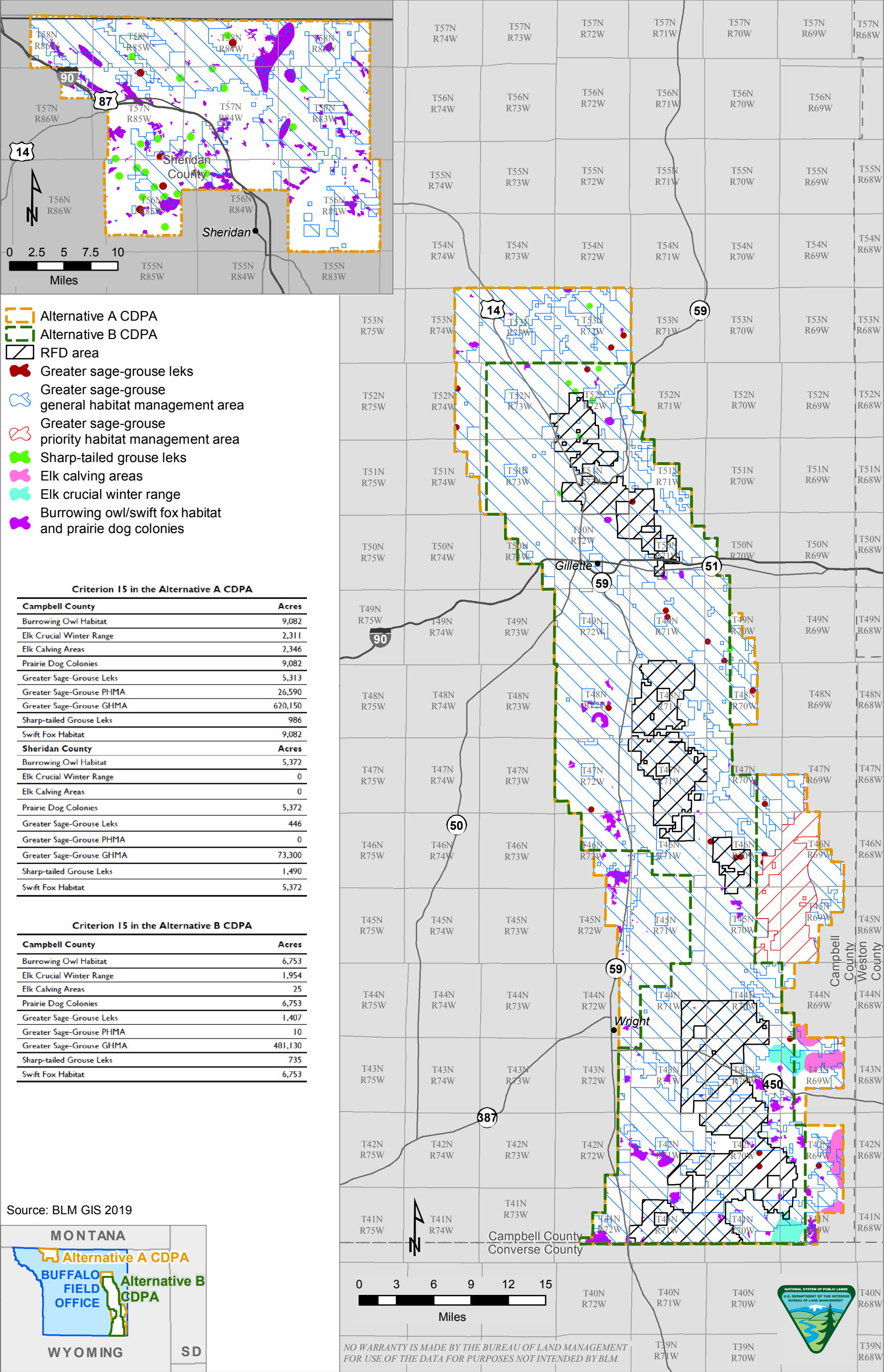


Figure A-9  
Screen 2 Unsuitability Assessment:  
Criterion 19 (Unsuitable Without Exceptions)—Alluvial Valley Floors

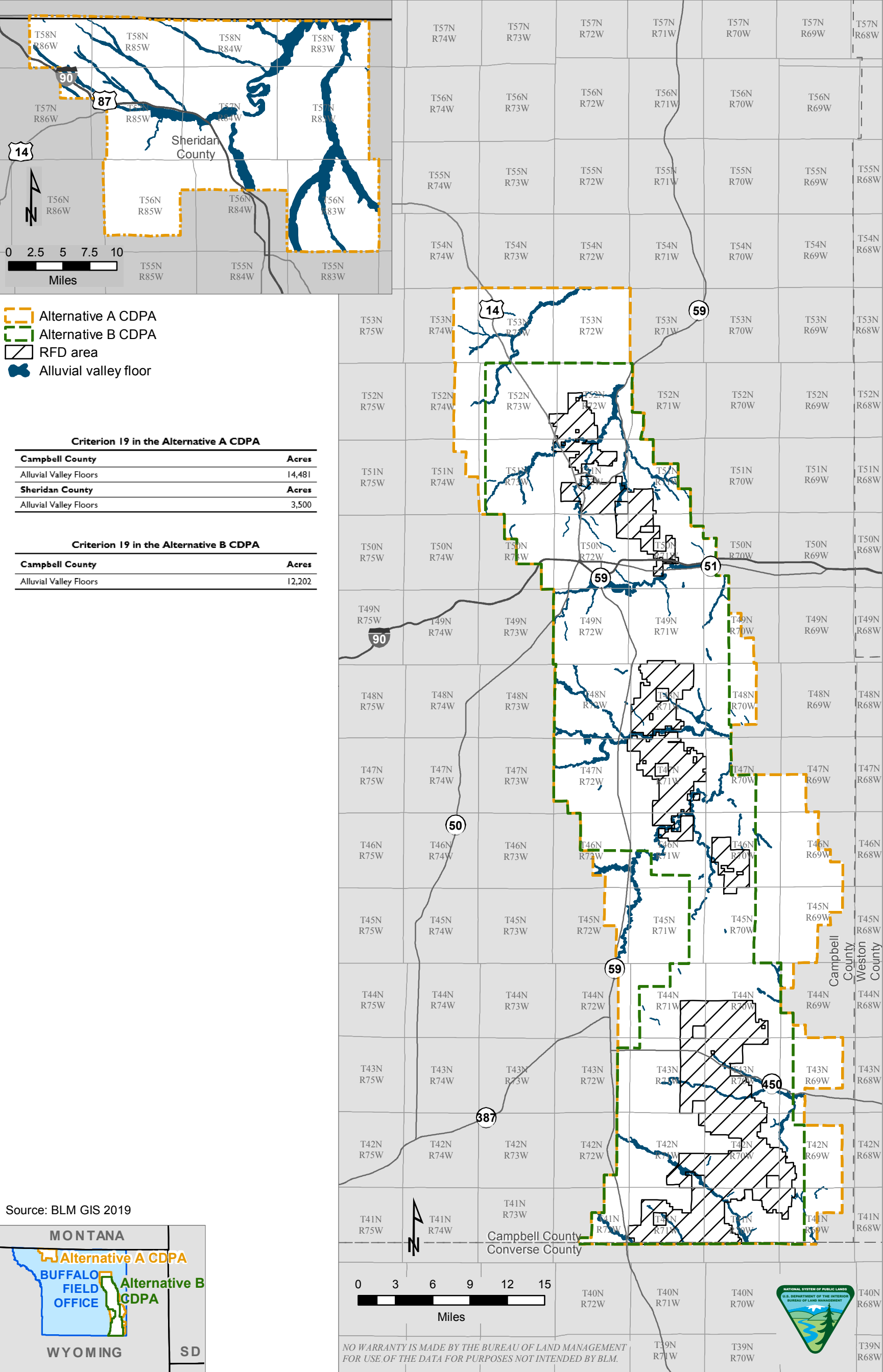
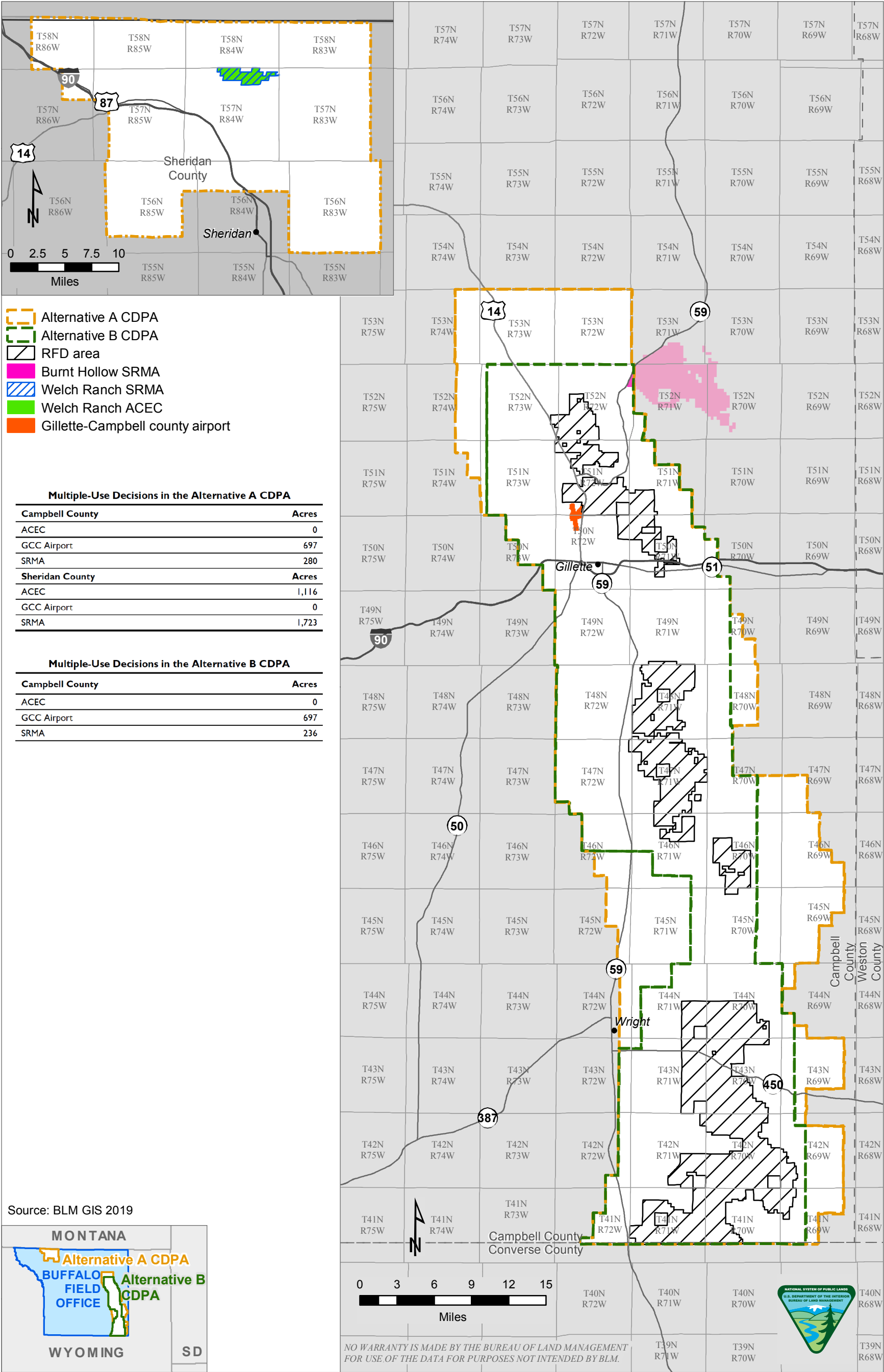


Figure A-10  
Screen 3 Multiple-Use Decisions (Unacceptable for Leasing)



**Attachment I**  
**Sample Private Landowner Letter**

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# United States Department of the Interior

BUREAU OF LAND MANAGEMENT  
Buffalo Field Office  
1425 Fort Street  
Buffalo, WY 82834



In Reply Refer To:  
1610

January 30, 2019

RE: Surface Owner Consultation Coal Screen – Supplemental Environmental Impact Statement to the Approved Resource Management Plan for the Buffalo Field Office.

Dear Surface Owner:

On November 28, 2018, the Bureau of Land Management (BLM) published a Notice of Intent (NOI) for a potential amendment to the Approved Resource Management Plan (RMP) for the Buffalo Field Office and to prepare an associated Supplemental Environmental Impact Statement (SEIS). This potential amendment and associated SEIS is in response to a United States Montana District Court opinion and order (Western Organization of Resource Councils, et al vs BLM; CV 16-21-GF-BMM; 3/23/2018 and 7/31/2018).

In response to the order, the BLM is re-evaluating the four coal screens in accordance with 43 CFR 3420.1-4(e). The coal screens include: identification of coal development potential, 20 unsuitability criteria, multiple use conflicts, and surface owner consultation. The BLM has identified your private lands, which overlie federal coal deposits, as lands determined to have potential for coal development.

In accordance with 43 CFR 3420.1-4(e)(4)(i), BLM requests you notify the Buffalo Field Office in writing by **March 1, 2019** on the following information:

1. If you are a surface owner for lands within the coal development potential area identified on the attached map.
2. Your preference for or against mining by other than underground mining techniques on Enclosure 1.
3. Any additional information on your lands that would be beneficial in determining the suitability or unsuitability for coal leasing.

To facilitate this request, the BLM has enclosed a document, Enclosure 1, with the appropriate information being requested. Please use Enclosure 1 to notify the Buffalo Field Office on the points listed above, and return it by using the enclosed envelope by **March 1, 2019**.

Any views provided through this request may be used in the completion of the SEIS and may be available for public review. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold, from public view, your personal identifying information, we

cannot guarantee that we will be able to do so. All submissions from organizations, from businesses, and from individuals identifying themselves as representatives of organizations or businesses, will be available for public review.

Because this is a planning document, lands considered under this SEIS would be analyzed to determine if they are acceptable for further considerations for coal leasing or unacceptable for further considerations for coal leasing. Leasing decisions would be considered under separate NEPA reviews when an application for leasing is submitted to the BLM. Therefore, the BLM would not be making leasing decisions at this time.

After review of the surface owner consultation responses, the SEIS will be prepared. BLM plans to have the SEIS available for public comment in spring 2019. The SEIS will be posted on the BLM e-Planning website, <https://go.usa.gov/xP6S3> or <https://eplanning.blm.gov>; where the project webpage can be found by conducting a land use plan text search for Wyoming, Buffalo Field Office. Updated information, and associated documents, are also posted on the e-Planning project website.

We look forward to hearing from you on this project. If you have any questions, please contact Tom Bills, Planning and Environmental Coordinator, at (307) 684-1133.

Sincerely,

A handwritten signature in blue ink, appearing to read "Todd D. Yeager", is written over a horizontal line.

Todd D. Yeager  
Field Manager

Enclosure 1 – Documentation of Surface Owner Consultation  
Map – BLM Coal Development Potential Area, Campbell County

**Enclosure 1.**

Please returned to the Buffalo Field Office by March 1, 2019.

**Please Check One:**

☐ I am authorized to express my views as a qualified surface owner in accordance with 43 CFR 3400.0-5(gg), having met the following requirements; I hold legal or equitable title of this land surface. I have my principal residence on this land, or I personally farm or ranch on this land, or I receive a significant portion of my income from farm or ranch operations on this land. I have met the requirements since \_\_\_\_\_.

☐ I do not meet the requirements for a qualified surface owner in accordance with 43 CFR 3400.0-5(gg). Please explain below.

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Please identify your view(s) on leasing as listed below by aliquot or group of land description also listed below. Multiple views can be identified by aliquot or group land description(s). Provide additional information on the reserve side.

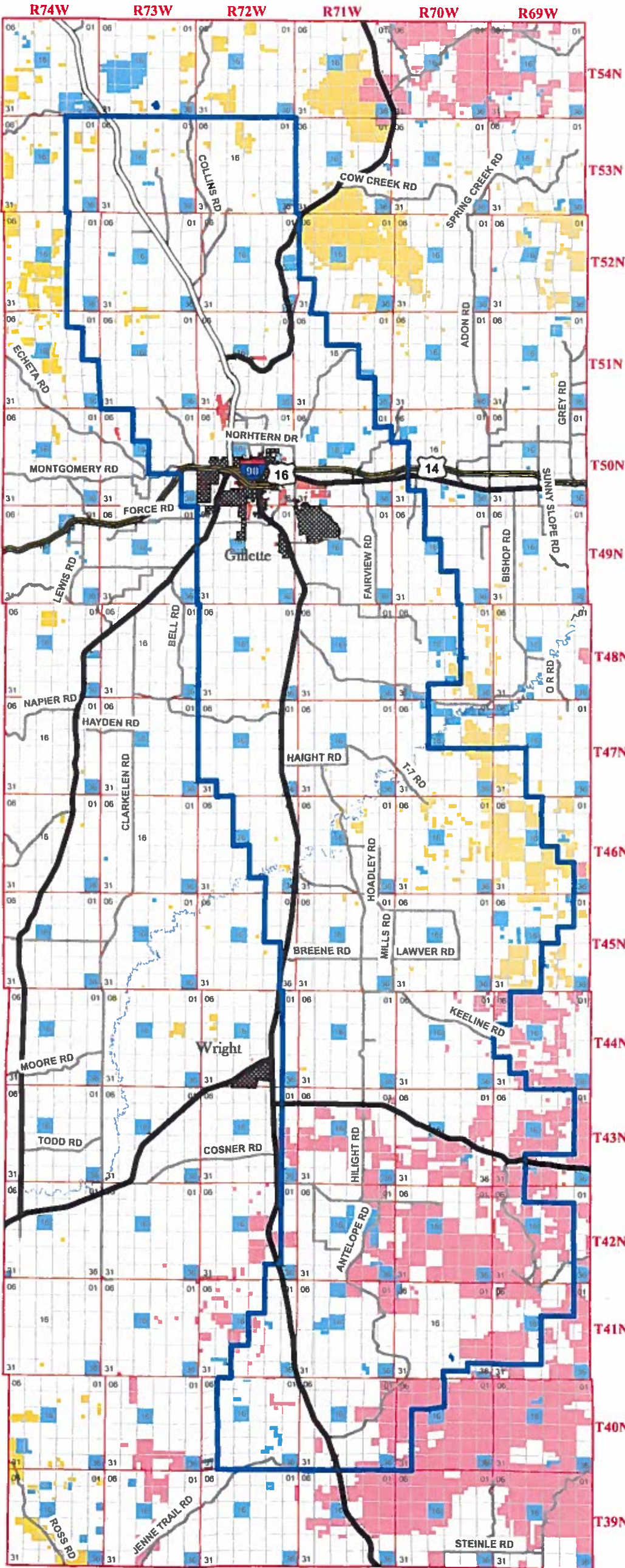
1. I am in favor of leasing of federal coal on these lands. \_\_\_\_\_
2. I am against leasing of federal coal on these lands. \_\_\_\_\_
3. I am undecided in favor or opposed to federal coal leasing on these lands. \_\_\_\_\_
4. I have already given written consent for surface mining of federal coal on these lands. \_\_\_\_\_

*Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold, from public view, your personal identifying information, we cannot guarantee that we will be able to do so. All submissions from organizations, from businesses, and from individuals identifying themselves as representatives of organizations or businesses, will be available for public review.*

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**BLM  
Coal Development Potential  
Boundary**

- CDP Boundary
- Thunder Basin National Grasslands
- Bureau of Land Management
- Local Government
- State
- Water



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# Appendix B

Reasonably Foreseeable Development

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# Appendix B. Reasonably Foreseeable Development

## B.1 INTRODUCTION

The US Geological Survey estimated in 2013 that the entire Powder River Basin (PRB) had approximately 162 billion tons of technically recoverable coal and approximately 25 billion tons of economically recoverable coal, depending on price (Scott and Luppens 2013). Most of the easily accessible reserves are federally administered coal resources in the southern PRB, administered by the BFO in Wyoming. Since 1985, approximately 10.8 billion tons of coal in the planning area were under consideration for leasing on both federal and non-federal coal estates; however, only a portion of all coal estates in the planning area have actually been leased. The CDPA in the 2015 Proposed RMP/Final EIS identified coal resources with economic potential for development. This area with development potential included 686,896 acres, or 15 percent of the 4.7-million acres of federal coal estate that the BFO administers, and 73.8 billion short tons of coal.

The BFO conducted a coal screening in 2001 and the identified CDPA was carried forward in the 2015 RMP. As part of this SEIS, the BFO reapplied coal screens and conducted a new unsuitability assessment to identify lands in Campbell and Sheridan Counties that are acceptable for further consideration for leasing (**Appendix A**). The new coal screening brought forward 455,467 acres and 52.2 million short tons (MMSt) of coal for further leasing consideration. While this coal screen identified areas with potential to develop, not all coal resources will be leased or developed over the next 20 years; thus, a reasonably foreseeable development (RFD) scenario was developed to project coal development in the CDPA between 2019 and 2038.

In the RFD developed for this SEIS, the BLM analyzed energy market projections developed by the US Energy Information Administration (EIA and publicly released as part the Annual Energy Outlook 2019 (EIA 2019a). Modelers at EIA produced these forecasts using the National Energy Modeling System (NEMS) model. It is an integrated model of the US energy system linked to a macroeconomic model developed and maintained by the Office of Energy Analysis within the EIA; however, modelers at EIA did not modify the underlying assumptions used in the NEMS run for the Annual Energy Outlook 2019 or support a separate NEMS run for this analysis.

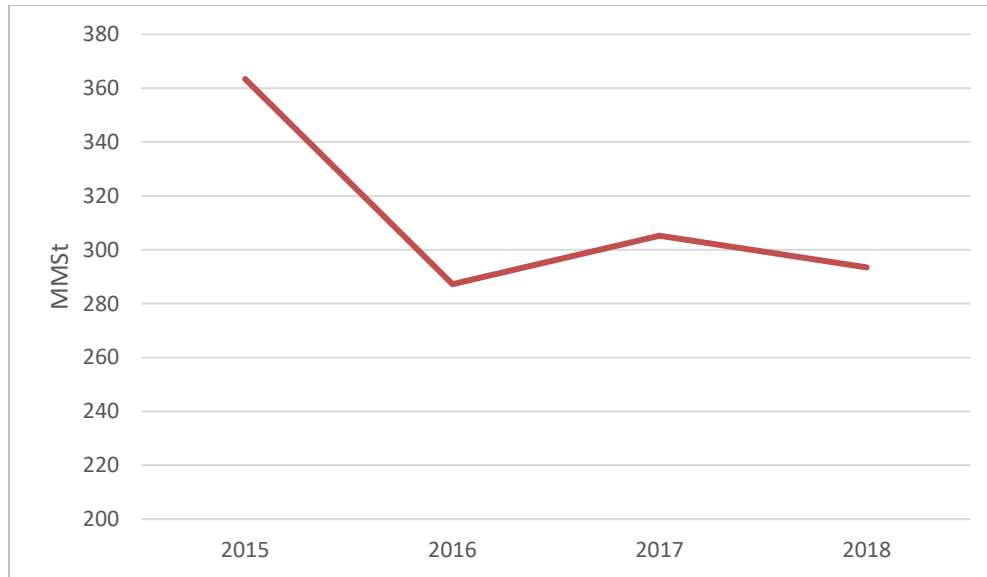
All forecasts developed for the Annual Energy Outlook are modeled projections of what *may* happen, given certain assumptions and methods, and not predictions of what *will* happen (EIA 2019a). Detailed information on the underlying assumptions used in the modeling for AEO 2019 are available online at <https://www.eia.gov/outlooks/aeo/assumptions/>.

## B.2 PRODUCTION TRENDS SINCE 2015

The PRB continues to be the largest coal-producing region in the United States. Coal from the southern PRB in Wyoming is used almost exclusively for domestic electric power generation, and its overall share of the domestic market has been growing. This is largely attributable to its low sulfur content, which enables power plants and other emitters to reduce costs associated with pollution controls, and because its thick coal seams and low stripping ratios allow producers to keep costs low. In 2018, coal accounted for approximately 28 percent of US electric generation, and Wyoming PRB coal accounted for nearly 40 percent of total US coal (EIA 2019a).

Since the Record of Decision (ROD) for the BFO RMP was signed in 2015, production by the 12 coal mines operating in the BFO has been declining. In 2015, these mines collectively produced 363.4 MMSt from recoverable reserves of federal and non-federal coal; however, their production dropped by nearly 76.2 MMSt to 287.2 MMSt in total in 2016. While production slightly recovered in 2017, rising to 305.3 MMSt, production fell another 11.8 MMSt to 293.4 MMSt in 2018 (**Figure B-1**).

**Figure B-1: Annual Production in the Southern Powder River Basin (2015–2018)**



Source: MSHA 2019

Although the BLM accounts for only 1 percent of surface ownership in the Wyoming's PRB, federal coal resources are estimated to account for approximately 90 percent of all coal estate in the BFO. Based on coal estate ownership, 264.1 MMSt of federal coal was estimated to have been produced across the 12 mines in 2018. As of February 2019, these mines held 131,837 acres of coal estate and 15.1 billion short tons of federal coal under lease. Most of this was under lease by the three most southern mines, where coal is of higher quality and better able to command a price premium. Although production by these mines accounted for 66 percent of total production in the southern PRB in 2018, these mines operated well below the full capacity determined by their Wyoming DEQ permits (**Table B-1**).

**Table B-1**  
**Remaining Mining Life Based on 2018 Production**

Location	Number of Mines	Average Remaining Mine Life	Share of Total Production	Average Capacity Utilization
Northern Mines	5	22.1	13.1%	37%
Central Mines	4	18.0	20.3%	34%
Southern Mines	3	17.6	66.6%	51%

Source: BLM 2019, MSHA 2019

Based on capacity utilization (i.e., annual production as a percent of maximum permitted production under Wyoming DEQ permits) and recoverable reserves held under existing federal leases in 2018, the 12 operating mines are projected to have sufficient reserves, on average, to continue producing for another 20 years (BLM 2019). Mines collectively in these regions have sufficient reserves to support long-term

operations; however, some of the central and southern mines are beginning to run low on remaining recoverable reserves, and the mine operators could submit applications to lease additional tracts within the next 20 years.

### **B.3 FORECAST PRODUCTION TRENDS**

Energy market projections are subject to a high level of uncertainty because of the many factors that can influence them over time, including changes in demographics, economic growth, technological advances, and environmental regulations (EIA 2019a). Since coal plays a vital role in worldwide energy markets, forecasts for coal demand and production are also subject to a high level of uncertainty. This is because of the many factors that influence consumption rates, including coal's share of the domestic electricity generation fuel mix and delivered coal prices relative to alternative fuel sources.

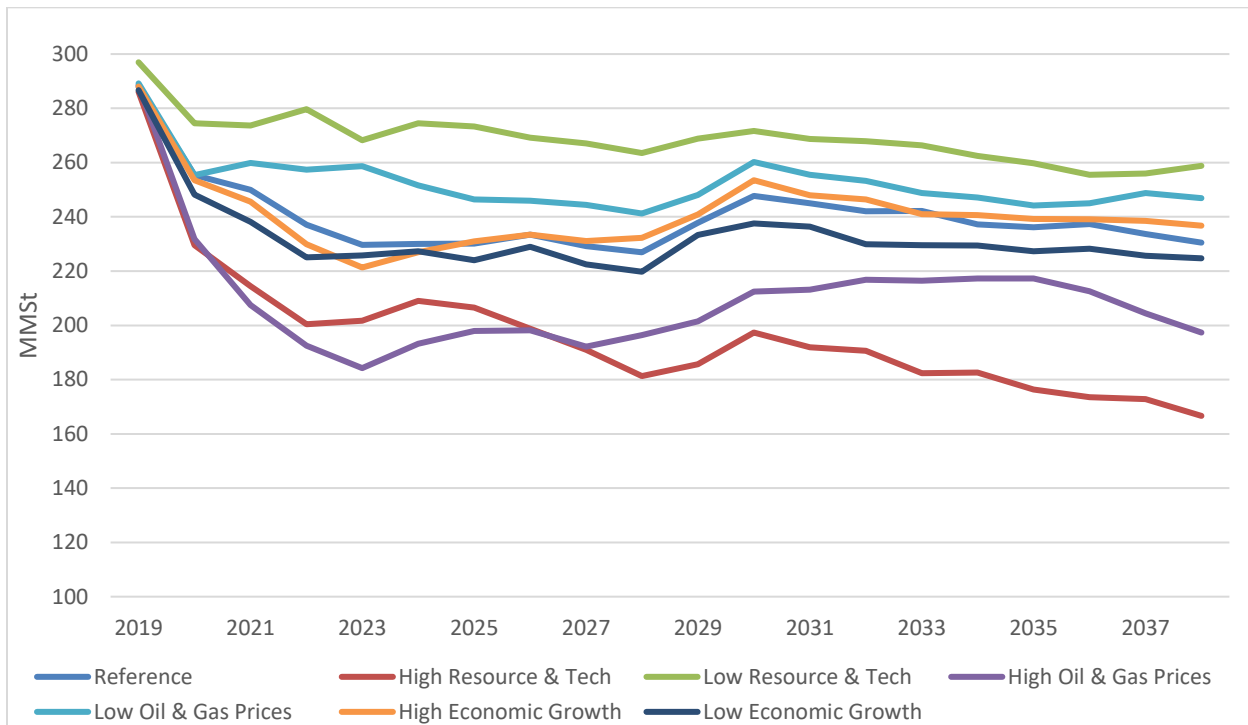
As discussed in the Wright Area Remand Final EA (BLM 2019), supply and demand in the context of the electric power system does not easily conform to the norms of the general supply and demand model of other commodities. This is due to 1) limited storage capacity, which requires production and supply on demand, 2) utilities in the traditional vertically integrated system operating as monopolies in a geographic region, and 3) other nonmarket mechanisms, such as spot market price caps, operating reserve requirements, non-price rationing protocols, and administrative protocols for managing system emergencies (BLM 2019).

Forecast fluctuations in annual production over the next 20 years will largely be attributable to trends in the domestic coal market, changes in the domestic electricity generation fuel mix, and demand in export markets. Between 2019 and 2038, production in the Wyoming Powder River Basin is anticipated to fall by approximately 1 percent on annual average. As shown in **Figure B-2**, AEO 2019 projections show that coal production is likely to decline through 2023, followed by a short period of growth between 2028 and 2030, and then declining again through 2038. Forecasts influencing trends in the coal market are further discussed below.

#### **B.3.1 Domestic Market**

Coal produced in the US is generally used in coal-fired power plants to generate electricity; however, low natural gas prices have decreased the competitiveness of coal as a fuel source for electricity generation and caused coal's share of the domestic electricity generation fuel mix to decline. Between 2019 and 2038 coal's share of the electricity generation fuel mix is expected to decline, from about 28 to 17 percent, while renewables grow from 18 percent to about 26 percent, and natural gas grows from 34 percent to about 38 percent, under the reference case (EIA 2019a). And under all AEO 2019 cases, coal's projected share of the electricity generation fuel mix is expected to decline between 2019 and 2038. This would be the case as falling prices for natural gas and renewable energy continue to increase making them competitive fuel source substitutes. The reduced competitiveness of coal-fired energy generation is projected to lead to the retirements of inefficient coal-fired power plants and increasing investment and development of combined-cycle natural gas power generators through 2025 (EIA 2019a).

The projected lower energy demand of coal, coupled with the retirement of inefficient coal-fired power plants, is expected to reduce US coal production. AEO 2019 projects domestic coal production to decrease through 2035, from 762 million short tons in 2018 to 608 million short tons in 2035, before stabilizing around 600 million short tons through the remainder of the analysis period (EIA 2019a). The western coal region, which includes the PRB, is projected to decline by 85 million short tons from 2018 through 2035 (EIA 2019a).

**Figure B-2: Annual Coal Production in Wyoming Powder River Basin (2019–2038)**

Source: EIA 2019a

### B.3.2 Export Market and Global Demand

Global markets are difficult to predict, as the factors that affect domestic market demand also occur in the global market and are coupled with trade barriers, transportation costs, and relative intensity of exchange rates.

The Asia Pacific region drives both supply and demand in the global coal market. This region has the most proven coal reserves, primarily in Australia, China, and India, and these reserves account for approximately 41 percent of the global total (Spencer 2018). In addition to being some of the world's largest coal producers, China and India are also the two largest consumers. In 2017, China consumed 1,892 million metric tons,<sup>1</sup> while India consumed another 424 million metric tons. This accounted for 50.7 percent and 11.4 percent of global consumption (IEA 2019; BP 2018). As such, the Asia Pacific region also dominates the global import/export market. In 2016, China (256 Million tons [Mt]), India (191 Mt), and Japan (190 Mt) ranked as the top coal importers, while Australia (392 Mt), Indonesia (370 Mt), and Russia (166 Mt) ranked as the top coal exporters (BGR 2017).

Given the type and quality of US coal, US exports are primarily used to support the global power sector. While there has been growth in global power generation, this growth has been driven primarily by efforts in Europe for renewable energy (Spencer 2018). The global market for coal has remained relatively stable, accounting for 89.1 percent of world energy resources (BGR 2017). Although global market demand for coal is expected to grow between 2019 and 2038 as coal-fired generation in China and India increases, US exports are expected to remain stable over the same period (IEA 2019; EIA 2018).

<sup>1</sup> While the US measures coal volumes in short tons, countries that use the metric system measure coal in metric tons. One metric ton is equivalent to 1.1 short tons, so 1 million metric tons would be equal to 1.1 MMSt.

#### **B.4 REASONABLY FORESEEABLE DEVELOPMENT**

The reasonably foreseeable development of federal coal in the BFO was projected from publicly available data produced by the EIA as part of the Annual Energy Outlook 2019 report (EIA 2019a). Modelers at the EIA produced the AEO 2019 forecasts using the NEMS model. This is an integrated model of the US energy system linked to a macroeconomic model developed and maintained by the Office of Energy Analysis within the EIA.

To account for the uncertainty inherent to energy markets, modelers at the EIA have developed a reference case and six side cases (high or low oil price, high or low oil and gas resource and technology, and high or low economic growth) that are modeled in NEMS. Forecasts under the high oil and gas resource and technology scenarios do consider how new technologies, such as carbon fiber and coal to liquid or gas, may affect resource consumption over time, even though these technologies are highly speculative. As national aggregation is not sufficient to account for the physical and economic characteristics unique to geographical producing regions (Stevens et al 1979), the NEMS takes a regional approach to account for these differences (EIA 2019a).

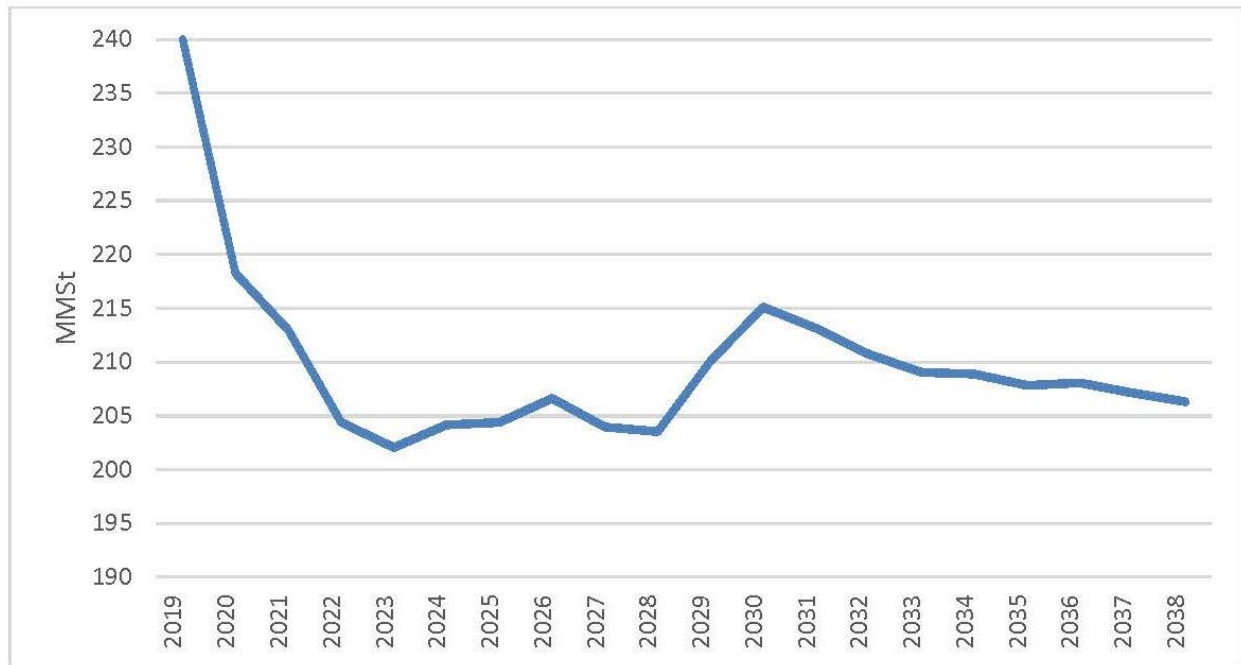
As part of EIA's analysis, projections for low sulfur and medium sulfur sub-bituminous coal in the Wyoming Powder River Basin under the seven scenarios have been developed and made publicly available online at [eia.gov](http://eia.gov). The BLM analyzed coal production forecasts across the seven AEO 2019 scenarios. It developed reasonably foreseeable development scenarios for resources in Campbell and Sheridan Counties by averaging annual production forecasts under the high and low economic growth scenarios. This was done because averaging results from these scenarios yielded estimates closest to 2018 production, as reported by the Mine Safety Health Administration. Under this RFD, 243.9 MMSt of coal was projected to be produced on annual average between 2019 and 2038 in Wyoming's PRB.

An RFD for federal coal resources administered by the BFO was further developed, based on projections for low-sulfur sub-bituminous coal and the proportion of total coal resources under federal ownership. Since 90 percent of the region's coal resources are administered by the BLM, this RFD assumed that 90 percent of all low-sulfur sub-bituminous coal production in the Wyoming PRB would be produced from federal coal in the CDPA.

On annual average, 213 MMSt of federal coal is projected to be produced between 2019 and 2038. As shown below in **Figure B-3**, federal coal production is forecast to steeply decline over the next 4 years. Production will stabilize until 2028 and will pick up until it peaks in 2030. Between 2030 and 2038, production is forecast to steadily decline. In total, 4.2 billion short tons of federal coal are projected to be produced and 36,620 acres will be disturbed in the CDPA over the next 20 years under the RFD developed from the EIA AEO 2019 coal production projections for the region.

Although two new mines in Sheridan County have been proposed, their proposed locations would make it highly unlikely for either one to lease or produce federal minerals within the next 20 years. The Brooks Mine has been proposed but not permitted by the State of Wyoming for the development of carbon fiber. Information submitted to the State of Wyoming in support of a permit indicates that there would be no federal minerals within the proposed mine boundary.

Youngs Creek Mine does have a State of Wyoming permit issued in 1977; however, there has been no commercial development of the coal resources. The BLM has not received any formal or informal leasing requests for federal coal related to this mine.

**Figure B-3: RFD for Federal Coal in the Southern Powder River Basin (2019–2038)**

Until commercial development plans are conceptualized and a leasing request is submitted, the BLM is unable to consider either mine in the RFD for federal coal. This is due to the unknown estimated production potential and resource constraints that could limit production; thus, the RFD assumes all federal production between 2019 and 2038 will occur at the 12 mines currently operating in Campbell County.

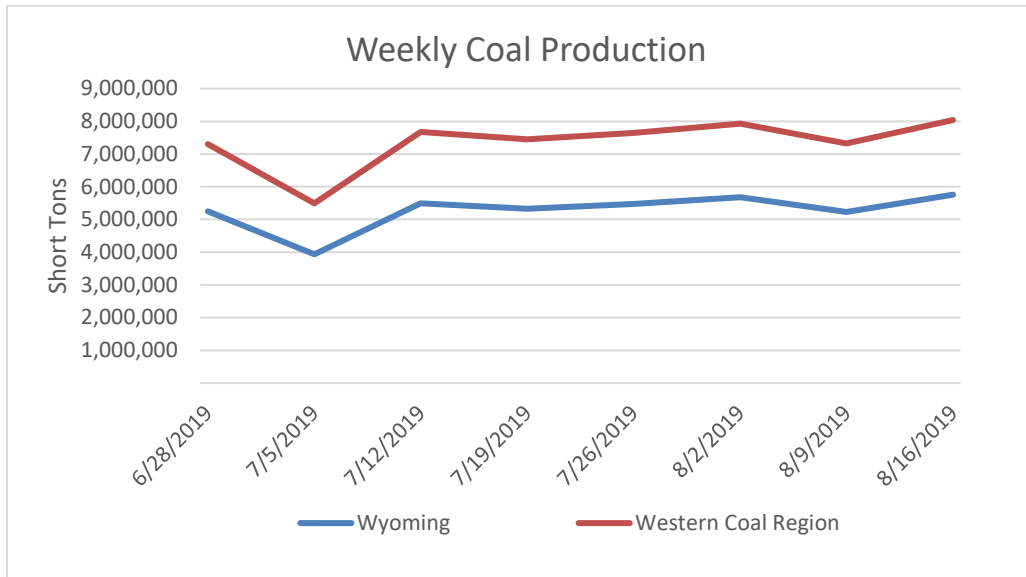
As discussed in Appendix A, updated coal screening identified a greater number of acres as being unsuitable for future consideration for coal leasing than the coal screen developed for the 2001 RMP revision; however, these proposed changes to the CDPA boundary are unlikely to affect reasonably foreseeable development within the CDPA over the next 20 years. This is because the additional tracts excluded through the updated coal screen were not leased by a mine operating in the CDPA or next to any recoverable reserves mines currently held under an existing lease. For these reasons, reasonably foreseeable development in the CDPA is anticipated to be the same under both alternatives.

Increases or decreases in production levels over the next 20 years could extend or shorten the remaining life of operating mines as reserves are recovered at faster or slower rates. As the rate at which reserves are recovered changes, mine operators will reassess their operation plans and will determine whether more reserves will need to be leased. As lease by applications are received, the BLM will continue to consider future tracts in the CDPA for leasing.

Although highly speculative at this time, some mine operators could decide to halt operations if demand and pricing remain weak and the recoverable reserves held through their existing leases begin to run low. If mines in the northern or central part of the southern PRB were to close, unused capacity across the three southern mines would be sufficient to absorb the closing mines' market shares by increasing production. In this manner, overall production of low-sulfur sub-bituminous coal from the PRB would be unlikely to be affected by future mine closures, although the distribution of production across operating mines could change. Recent closures of 2 mines operating in the BFO have supported this assumption. Production

(Figure B-4) and prices (Figure B-5) for PRB coal has remained stable since the mines were shuttered on July 1, 2019. These data bolster the RFD's assumption that underused capacity across mines producing higher quality coal is sufficient to offset production declines at other PRB mines, without disrupting the overall supply of PRB coal.

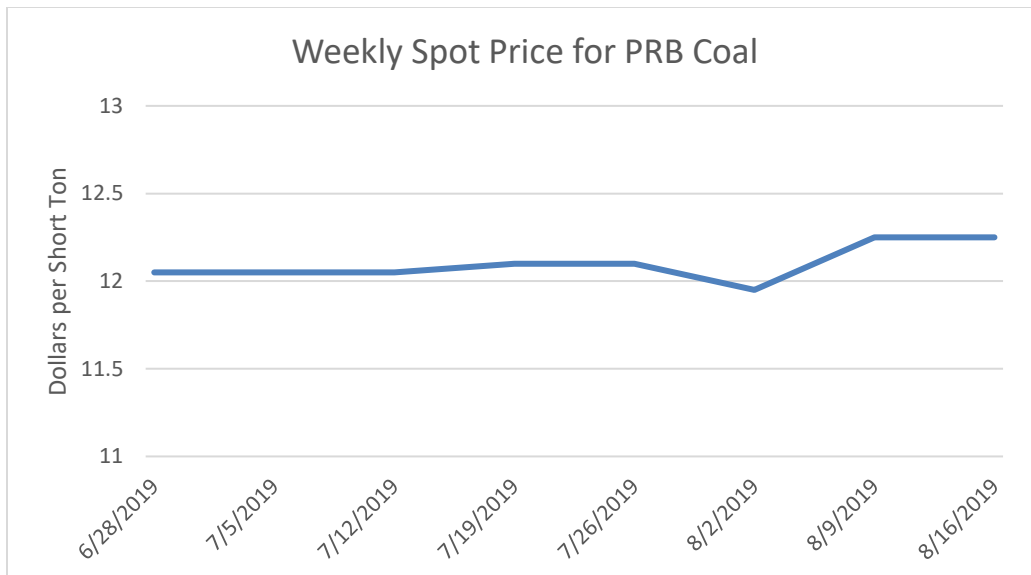
**Figure B-4: Weekly Coal Production<sup>1</sup>**



Source: EIA 2019b

<sup>1</sup> Weekly coal production for the PRB is not reported separately from statewide or coal producing region totals.

**Figure B-5: Weekly Spot Prices for Powder River Basin Coal**



Source: EIA 2019c

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