

**FINAL ENVIRONMENTAL IMPACT STATEMENT
EAGLE BUTTE WEST LBA TRACT
CAMPBELL COUNTY, WYOMING**

Lead Agency: USDI Bureau of Land Management, Casper Field Office,
Casper, WY

Cooperating Agencies: USDI Office of Surface Mining Reclamation & Enforcement
Western Region, Denver, CO

Wyoming Department of Environmental Quality
Land Quality & Air Quality Divisions, Cheyenne, WY

Wyoming State Planning Office, Cheyenne, WY

Wyoming Department of Transportation, Sheridan &
Cheyenne, WY

Campbell County Board of Commissioners, Gillette, WY

Abstract: This Final Environment Impact Statement (EIS) assesses the environmental consequences of decisions to hold a competitive, sealed-bid sale and issue a lease for a tract of federal coal located adjacent to an existing surface coal mine in Campbell County, Wyoming, subject to standard and special lease stipulations. The Eagle Butte West Lease by Application (LBA) Tract, as applied for by Foundation Coal West, includes approximately 1,397.64 acres containing approximately 238 million tons of in-place Federal coal. Foundation Coal West, the operator of the adjacent Eagle Butte Mine, proposes to mine the tract as a maintenance lease for the existing mine, if a lease sale is held and they acquire the lease.

This Final EIS describes the physical, biological, cultural, historic, and socioeconomic resources in and around the existing mine and the LBA tract. The alternatives in the Final EIS consider the impacts of leasing the tract as it was applied for; leasing a reconfigured tract in order to avoid bypassing Federal coal or to increase competitive interest in the tract, and not leasing the tract. The focus for the impact analysis was based upon resource issues and concerns identified during previous coal leasing analyses and public scoping conducted for this lease application. Potential concerns related to development include impacts to groundwater, air quality, wildlife, and nearby roads, occupied residences, a school and an airport. Cumulative impacts related to ongoing surface coal mining and other proposed development in the Powder River Basin of Wyoming are also of potential concern.

This Final EIS, in compliance with Section 7(c) of the Endangered Species Act (as amended), identifies any endangered or threatened species which are likely to be affected by the Proposed Action.

The Final EIS is open for a 30-day review period beginning on the date that the U.S. Environmental Protection Agency publishes the Notice of Availability in the *Federal Register*. Comments that are postmarked or received on or before the end of the 30-day review period will be considered in the preparation of the Record of Decision.

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**EAGLE BUTTE WEST COAL LEASE APPLICATION
FINAL ENVIROMENTAL IMPACT STATEMENT**

Prepared by

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Under the Direction of

**U.S. Department of the Interior
Bureau of Land Management
Casper Field Office
Casper, Wyoming**

and

Cooperating Agencies

**U.S. Department of Interior
Office of Surface Mining
Reclamation and Enforcement
Denver, Colorado**

**Wyoming Department of Environmental Quality
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**Wyoming State Planning Office
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**Wyoming Department of Transportation
Sheridan & Cheyenne, Wyoming**

**Campbell County Board of Commissioners
Gillette, Wyoming**

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EXECUTIVE SUMMARY

On December 28, 2001, RAG¹ filed an application with the BLM for federal coal reserves in a tract located west of and immediately adjacent to the Eagle Butte Mine in Campbell County, Wyoming, approximately three miles north of Gillette, Wyoming (Figures ES-1 and ES-2). The application, which was assigned case file number WYW155132, is referred to as the Eagle Butte West coal lease application. RAG submitted a modification to the application to the BLM, effective October 20, 2003, which decreased the size of the lease application area and increased the coal volume. As currently applied for, the Eagle Butte West LBA Tract includes approximately 1,397.64 acres and FCW estimates that it includes 238 million tons of mineable federal coal reserves.

In August 2004, RAG finalized the sale of the Eagle Butte Mine to FCW, a directly held subsidiary of Foundation Coal Corporation. In this EIS, the applicant for the Eagle Butte West LBA Tract is referred to as FCW.

This lease application was reviewed by Division of Mineral and Lands at the BLM Wyoming State Office, who determined that the application and the lands involved met the requirements of the regulations governing coal leasing on application at 43 CFR 3425.1. The PRRCT reviewed this lease application at public meetings held on May 30, 2002, in Casper, Wyoming and on April 27, 2005, in Gillette, Wyoming. At those meetings, the PRRCT recommended that the BLM continue to process the lease application.

In order to process an LBA, the BLM must evaluate the quantity, quality, maximum economic recovery, and fair market value of the federal coal and fulfill the requirements of the NEPA by evaluating the environmental consequences of leasing the federal coal.

To evaluate the environmental impacts of leasing the coal, the BLM must prepare an EA or an EIS to evaluate the site-specific and cumulative environmental and socioeconomic impacts of leasing and developing the federal coal in the application area. The BLM made a decision to prepare an EIS for this lease application. BLM does not authorize mining by issuing a lease for federal coal, but the impacts of mining the coal are considered in this EIS because it is a logical consequence of issuing a maintenance lease to an existing mine.

The EPA published a notice announcing the availability of the Draft EIS in the *Federal Register* on October 20, 2006. BLM published a Notice of Availability and Notice of Public Hearing in the *Federal Register*, also on October 20, 2006. The 60-day comment period on the Draft EIS ended on December 19, 2006. The public hearing was held on November 14, 2006, in Gillette, Wyoming. The applicant and one member of the public made statements during the hearing and eight written comments were received on the Draft EIS. The written comments are included, with agency responses, as Appendix I of the Final EIS.

¹ Refer to page xv for a list of abbreviations and acronyms used in this document.

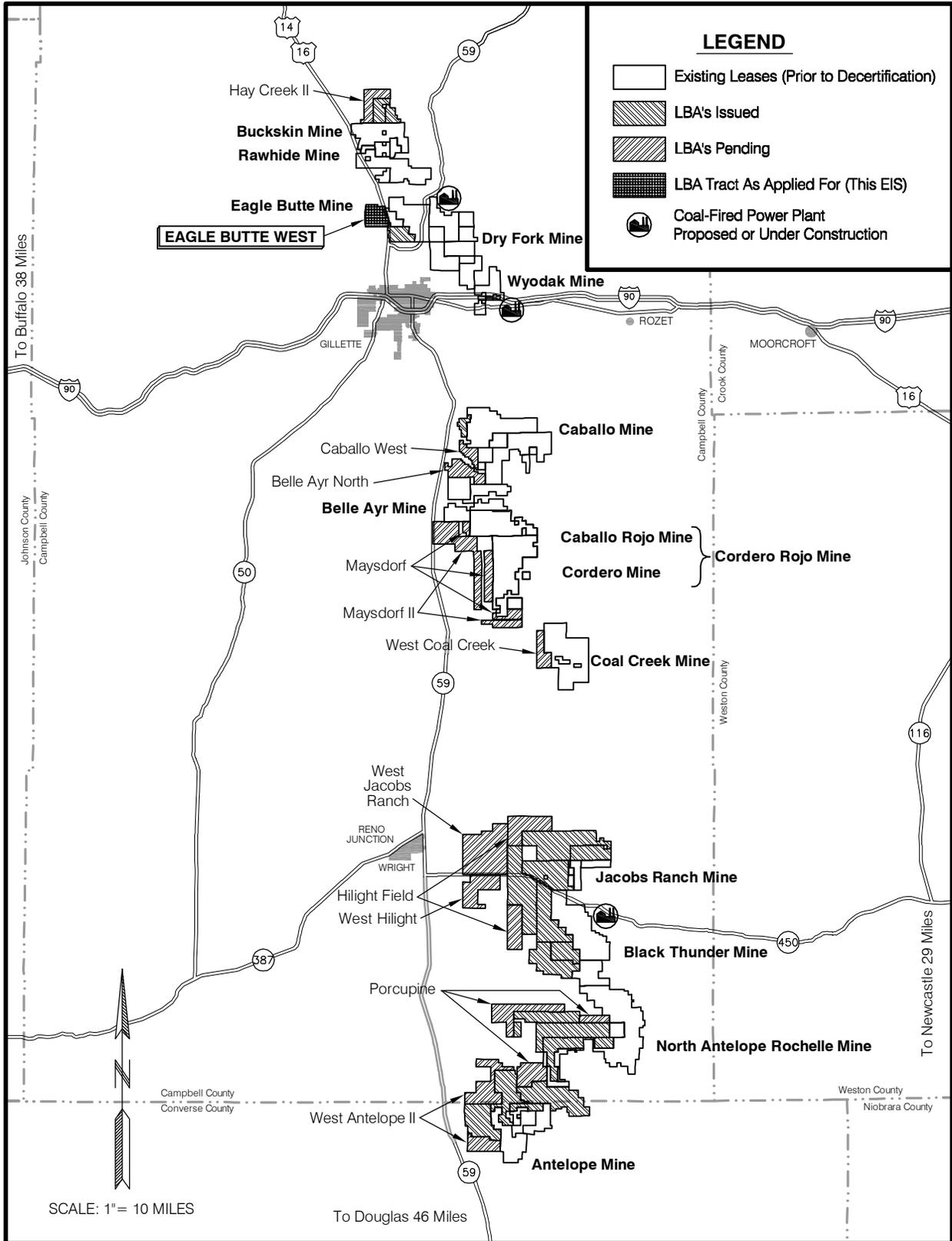


Figure ES-1. General Location Map with Federal Coal Leases and LBA Tracts.

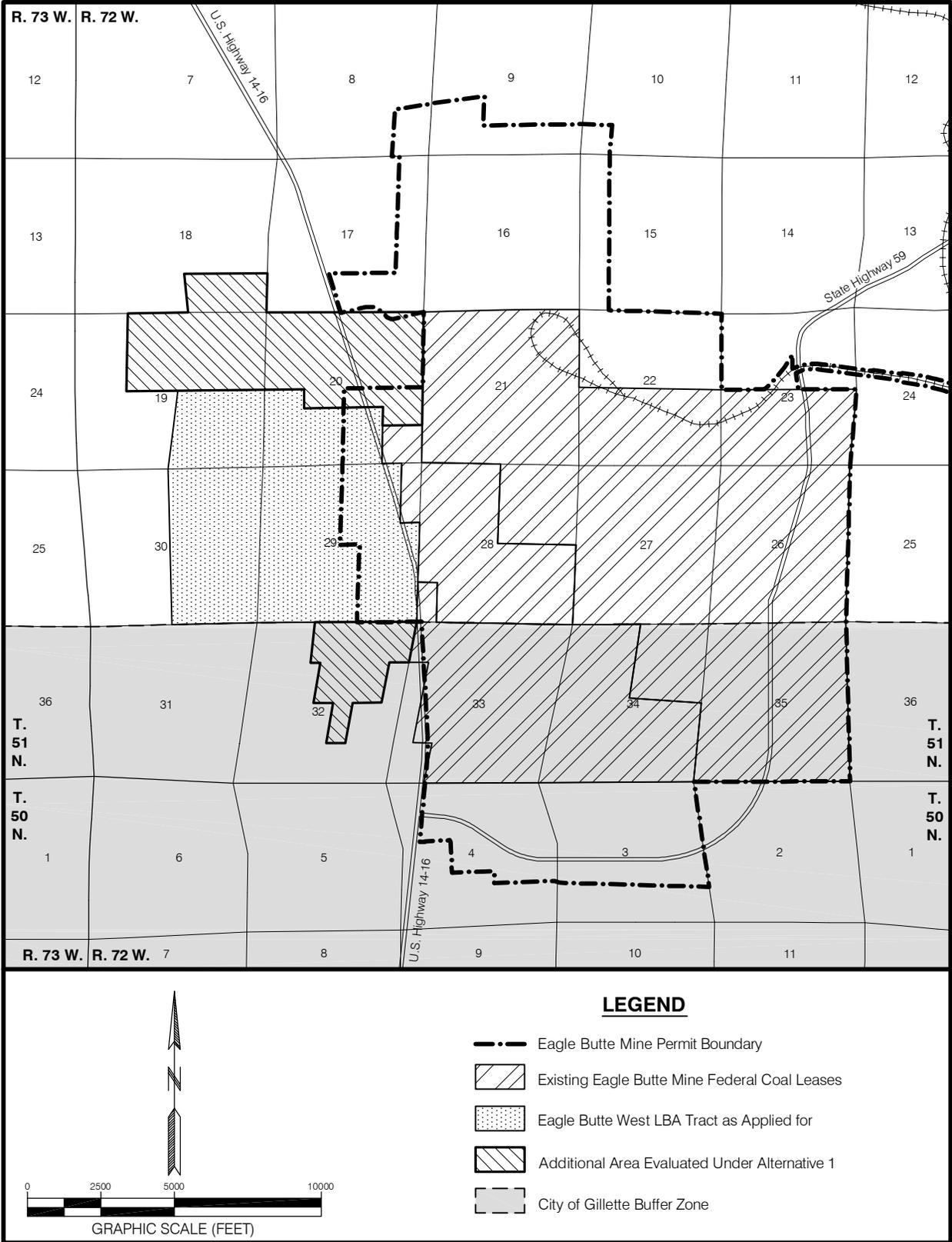


Figure ES-2. Eagle Butte West LBA Tract Alternatives.

Executive Summary

The BLM and EPA will each publish a notice of availability of the Final EIS in the *Federal Register*. After a 30-day availability period, the BLM will make a decision to hold or not to hold a competitive sealed-bid lease sale for the tract.

The LBA sale process is, by law and regulation, an open, public, competitive sealed-bid process. Bidding at a potential sale would be open to any qualified bidder. If a lease sale is held for this LBA tract, the applicant (FCW) may not be the successful high bidder. If a lease sale is held, a federal coal lease would be issued to the highest bidder at the sale if a federal sale panel determines that the high bid at that sale meets or exceeds the fair market value of the coal as determined by BLM's economic evaluation, and if the U.S. Department of Justice determines that there are no antitrust violations if a lease is issued to the high bidder at the sale.

Cooperating agencies in the preparation of this EIS include OSM, WDEQ/LQD, WDEQ/AQD, WYDOT, the Campbell County Board of Commissioners, and the Wyoming State Policy Office. Other agencies, including OSM, will also use this analysis to make decisions related to leasing and mining the federal coal in this tract.

Not all of the coal included in the Eagle Butte West LBA Tract as applied for is currently considered to be mineable. Some of the coal included in the tract is overlain by U.S. Highway 14-16. SMCRA prohibits mining within 100 ft of the outside ROW line of any public road unless the appropriate public road authority allows the road to be relocated or closed after public notice, an opportunity for a public hearing, and a finding that the interests of the affected public and landowners will be protected [30 CFR 761.11(d)]. As a result, the federal coal underlying U.S. Highway 14-16, its ROW, and the associated 100 foot buffer zone has been determined to be unsuitable for mining. FCW and WYDOT, the authorized agency, are working on a plan to relocate the highway. If the road relocation is approved, the unsuitability determination for the coal underlying U.S. Highway 14-16, the ROW, and the associated buffer zone could be reconsidered. The coal underlying the highway is included in the tract being considered for leasing because it could be mined if WYDOT determines that the road could be moved [43 CFR 3461.5(c)(2)(iii)]. If the highway is not moved, including these lands in the tract would allow recovery of all the mineable coal adjacent to and outside of the highway buffer zone and would comply with the coal leasing regulations, which do not allow leasing in less than 10-acre aliquot parts.

A Proposed Action and two alternatives to that action are analyzed in detail in this EIS.

- **Proposed Action** - The Proposed Action is to offer the Eagle Butte West LBA Tract as applied for (see Figure ES-2) at a sealed-bid competitive coal lease sale and issue a maintenance lease to the successful bidder. The lease would be subject to the standard and special lease stipulations developed for the PRB that are listed in Appendix D of the Final EIS.

The tract as applied for includes approximately 1,397.64 acres. If U.S. Highway 14-16 is moved, FCW estimates that the Eagle Butte West LBA Tract as applied for includes approximately 238 million tons of mineable coal. If Highway 14-16 is not moved, FCW estimates that the tract as applied for includes approximately 211 million tons of mineable coal.

Under the Proposed Action, FCW currently estimates that average annual production would be 25 million tons per year. The life of the existing mine would be extended by eight to nine years, depending on if Highway 14-16 is or is not moved. Employment would be about 223 persons. The surface of the Eagle Butte West LBA Tract as applied for is owned by FCW.

- **Alternative 1** - Under Alternative 1, BLM would reconfigure the Eagle Butte West LBA Tract, hold a competitive coal lease sale for the lands included in the reconfigured tract, and issue a lease to the successful bidder. Alternative 1, holding a competitive coal sale for a modified tract, is the BLM's Preferred Alternative.

BLM identified a study area for the Eagle Butte West LBA Tract in order to evaluate the potential that an alternate configuration of the tract would provide for more efficient recovery of the federal coal, increase competitive interest in the Eagle Butte West LBA Tract, and/or reduce the potential that some of the remaining unleased federal coal in this area would be bypassed in the future. The BLM study area, shown in Figure ES-2, includes the tract as applied for and unleased federal coal adjacent to the northern and southern edges of the tract as applied for. In accordance with the Leasing on Application regulation at 43 CFR 3425.1-9, BLM could increase or decrease the size of the tract as applied for under Alternative 1.

The BLM's preferred tract configuration is to add approximately 30 acres, shown in Figure ES-3, to the northeast corner of the tract as applied for. As shown in Figure ES-4, there are occupied residences and an elementary school located in the BLM study area in the north half of Section 20, T.51N., R.72W. Most of the coal included in BLM's proposed addition to the tract would not be recoverable due to setback distances from the occupied dwellings and school that are required by WDEQ/LQD for conducting blasting operations. However, including this coal in the tract would potentially allow more efficient recovery of the coal up to the required setback distances.

The modified tract under the BLM's preferred tract configuration includes approximately 1,427.77 acres. If U.S. Highway 14-16 is moved, FCW estimates that the Eagle Butte West LBA Tract under the BLM's preferred tract configuration includes approximately 241 million tons of mineable coal. If Highway 14-16 is not moved, FCW estimates that the

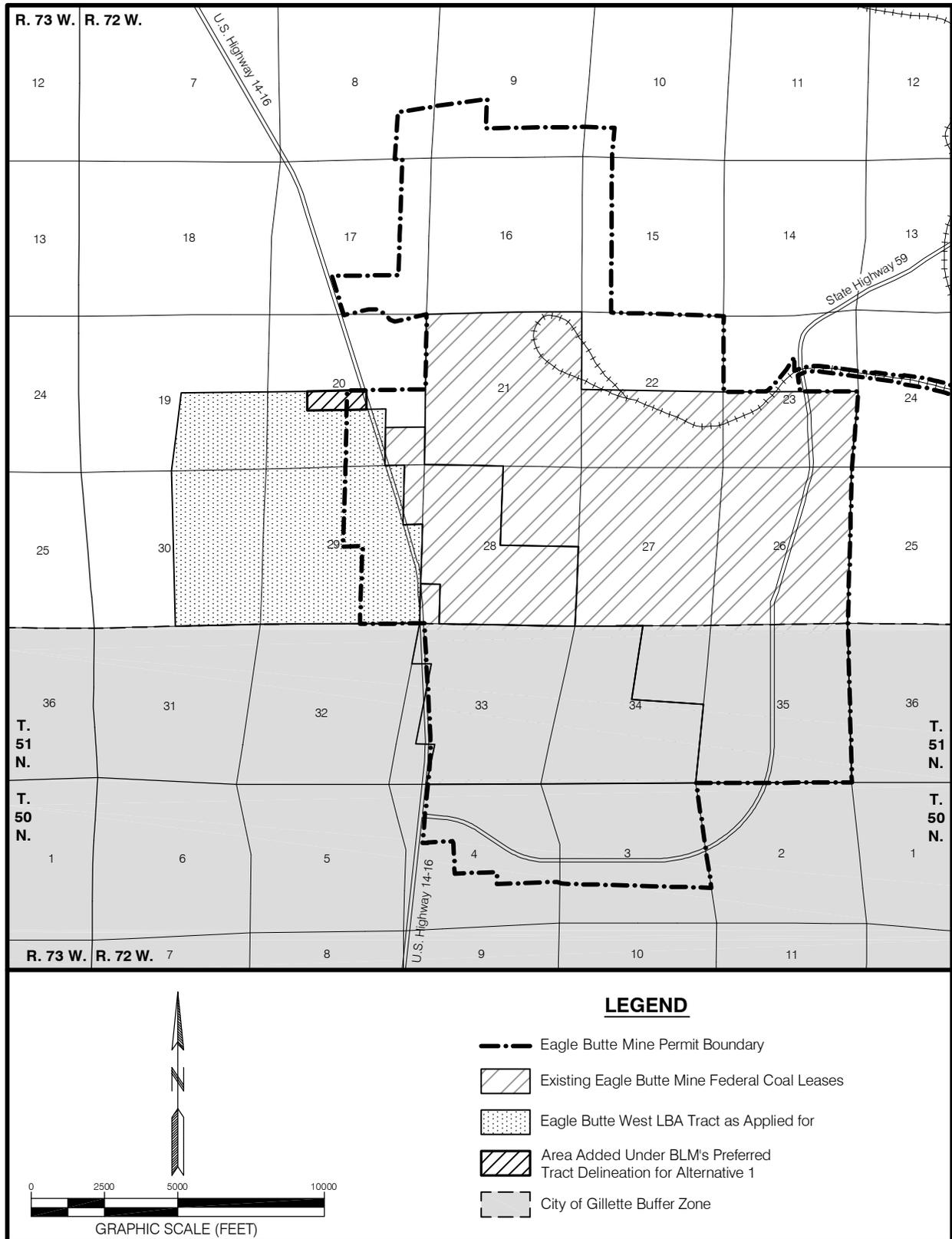


Figure ES-3. Eagle Butte West LBA Preferred Alternative Tract Configuration.

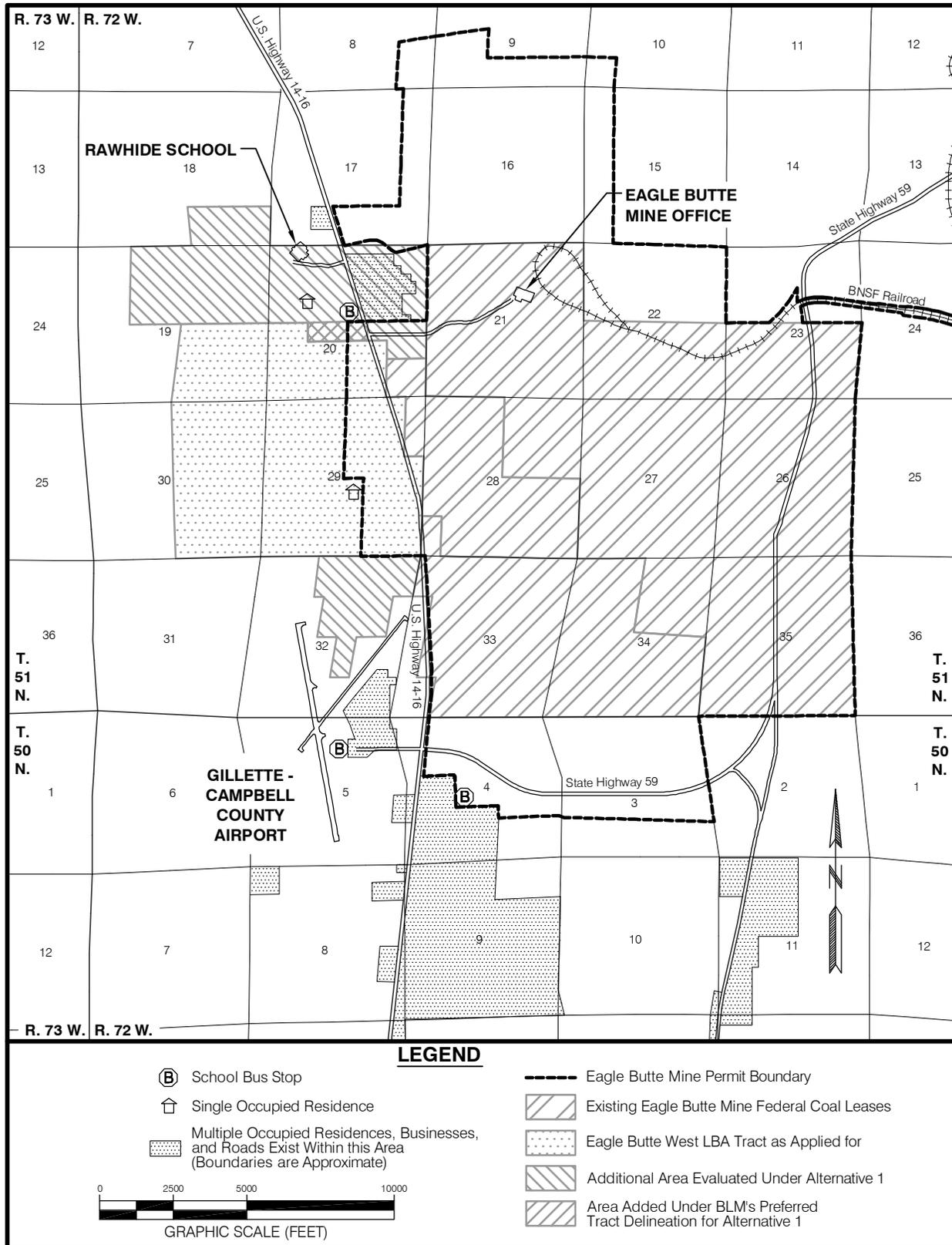


Figure ES-4. Residences, School Bus Stops, Public Roads, and other Publicly Accessible Facilities Within and Adjacent to the Eagle Butte West LBA Tract.

tract under the BLM's preferred tract configuration includes approximately 214 million tons of mineable coal.

Under this alternative, the modified tract would be subject to the standard and special lease stipulations developed for the PRB and for this tract (Appendix D in the FEIS). The projected rate of production and employment would be similar to the Proposed Action. The life of the existing mine would be extended by eight to nine years, depending on if Highway 14-16 is or is not moved.

Alternative 2 - Under this alternative, the LBA tract would not be leased, but the existing leases at the adjacent Eagle Butte Mine would be developed according to the existing approved mining plan. Under the No Action Alternative, the Eagle Butte Mine would mine its remaining leased coal reserves in approximately 14 years at an average annual production rate of 25 million tons per year and average employment would be 223 persons. Rejection of the lease application would not preclude an application to lease the tract in the future.

The analysis in this EIS assumes that FCW would be the successful bidder on the Eagle Butte West LBA Tract if a sale is held, and that it would be mined as a maintenance tract for the Eagle Butte Mine.

Tables ES-1 and ES-2 summarize estimated coal production, surface disturbance, and mine life for the Eagle Butte Mine. Table ES-1 summarizes the situation if Highway 14-16 is moved and Table ES-2 assumes that the highway is not moved. The environmental impacts of mining the LBA tract would be similar under the Proposed Action and under the BLM's preferred tract configuration for Alternative 1. The following discussion assumes that Highway 14-16 is not moved.

Other alternatives that were considered but not analyzed in detail include holding a competitive coal lease sale and issuing a lease to the successful bidder (not the applicant) for the purpose of developing a new stand-alone mine, and delaying the sale of the Eagle Butte West LBA Tract as applied for to increase the benefit to the public afforded by higher coal prices and/or to allow more complete recovery of the potential CBNG resources in the tract prior to mining.

Critical elements of the human environment (BLM 1988) that could be affected by the proposed project include air quality, cultural resources, Native American religious concerns, T&E plant and animal species, migratory birds, hazardous or solid waste, water quality, wetlands/riparian zones, environmental justice, and invasive nonnative species. Five critical elements (areas of critical environmental concern, prime and unique farmland, floodplains, wild and scenic rivers, and wilderness) are not present in the project area and are not addressed further. In addition to the critical elements that are potentially present in the project area, the EIS discusses the status and potential effects of

Table ES-1. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Eagle Butte West LBA Tract and Eagle Butte Mine – Assuming Highway 14-16 is Moved and the Underlying Coal is Recovered.

Item	No Action Alternative (Existing Eagle Butte Mine)	Added by Proposed Action	Added by Alternative 1 (Preferred Tract Configuration)
In-Place Coal (as of 1/1/06)	374.0 mmt	238.0 mmt	243.7 mmt
Mineable Coal (as of 1/1/06)	354.0 mmt	238.0 mmt	241.2 mmt
Recoverable Coal (as of 1/1/06) ¹	340.0 mmt	228.0 mmt	231.1 mmt
Coal Mined Through 2005	420.4 mmt	--	--
Lease Area ²	4,884.0 ac	1,397.6 ac	1,427.8 ac
Total Area To Be Disturbed ²	6,076.0 ac	2,460.0 ac	2,460.0 ac
Permit Area ²	7,471.0 ac	2,460.0 ac	2,460.0 ac
Average Annual Post-2005 Coal Production	25.0 mmt	0 mmt	0 mmt
Remaining Life of Mine (post-2005)	13.6 yrs	9.1 yrs	9.2 yrs
Average Number of Employees	223	0	0
Total Projected State Revenues (post-2005) ³	\$ 384.4 million	\$ 293.5 – \$ 373.2 million	\$ 297.4 – \$ 378.2 million
Total Projected Federal Revenues (post-2005) ⁴	\$ 261.6 million	\$ 211.1 – \$ 290.9 million	\$ 214.0 – \$ 294.8 million

¹ Assumes 96 percent recovery of mineable coal. The estimated tons of recoverable coal added under the Proposed Action and Alternative 1 are based on the assumptions that the coal beneath the north half of Section 20 (under Alternative 1) would not be mined, and that the coal beneath U.S. Highway 14-16 ROW and associated buffer zone would be mined.

² The lease area includes federal coal leases only and does not include state coal within the permit boundary. The disturbed area exceeds the leased area (total federal and state) because of the need for highwall reduction, topsoil removal, and other mine support activities outside the lease boundaries. The permit area is larger than the leased or disturbed area to assure that all disturbed lands are within the permit boundary and to allow an easily defined legal land description.

³ Revenues to the State of Wyoming include income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments, bonus bids, and AML fees. State revenues are based on \$5.80 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus federal's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus federal's 50 percent share, plus bonus payment on LBA leased coal of \$0.30 to \$0.97 per ton (based on the range of bonus payments for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share, plus \$0.023 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$0.26 per ton estimate for Ad Valorem taxes × amount of recoverable coal, plus \$0.31 per ton estimate for severance taxes × amount of recoverable coal.

⁴ Federal revenues are based on \$5.80 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus state's 50 percent share, plus \$5.80 per ton (for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.0 percent, plus bonus payment on LBA leased coal of \$0.30 to \$0.97 per ton (based on the range of bonus payments for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share.

Executive Summary

Table ES-2. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Eagle Butte West LBA Tract and Eagle Butte Mine – Assuming Highway 14-16 is Not Moved and the Underlying Coal is Not Recovered.

Item	No Action Alternative (Existing Eagle Butte Mine)	Added by Proposed Action	Added by Alternative 1 (Preferred Tract Configuration)
In-Place Coal (as of 1/1/06)	374.0 mmt	238.0 mmt	243.7 mmt
Mineable Coal (as of 1/1/06)	354.0 mmt	211.0 mmt	214.2 mmt
Recoverable Coal (as of 1/1/06) ¹	340.0 mmt	203.0 mmt	206.1 mmt
Coal Mined Through 2005	420.4 mmt	--	--
Lease Area ²	4,884.0 ac	1,397.6 ac	1,427.8 ac
Total Area To Be Disturbed ²	6,076.0 ac	2,395.0 ac	2,415.0 ac
Permit Area ²	7,471.0 ac	2,460.0 ac	2,460.0 ac
Average Annual Post-2005 Coal Production	25.0 mmt	0 mmt	0 mmt
Remaining Life of Mine (post-2005)	13.6 yrs	8.1 yrs	8.2 yrs
Average Number of Employees	223	0	0
Total Projected State Revenues (post-2005) ³	\$ 384.4 million	\$ 261.1 - \$ 331.8 million	\$ 264.2 - \$ 336.0 million
Total Projected Federal Revenues (post-2005) ⁴	\$ 261.6 million	\$ 187.9 - \$ 258.5 million	\$ 190.7 - \$ 262.5 million

¹ Assumes 96 percent recovery of mineable coal. The estimated tons of recoverable coal added under the Proposed Action and Alternative 1 are based on the assumptions that the north half of Section 20 (under Alternative 1) would not be mined, and the coal beneath the U.S. Highway 14-16 ROW and associated buffer zone would not be mined.

² The lease area includes federal coal leases only and does not include state coal within the permit boundary. The disturbed area exceeds the leased area (total federal and state) because of the need for highwall reduction, topsoil removal, and other mine support activities outside the lease boundaries. The permit area is larger than the leased or disturbed area to assure that all disturbed lands are within the permit boundary and to allow an easily defined legal land description.

³ Revenues to the State of Wyoming include income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments, bonus bids, and AML fees. State revenues are based on \$5.80 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus federal's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus federal's 50 percent share, plus bonus payment on LBA leased coal of \$0.30 to \$0.97 per ton (based on the range of bonus payments for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share, plus \$0.023 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$0.26 per ton estimate for Ad Valorem taxes × amount of recoverable coal, plus \$0.31 per ton estimate for severance taxes × amount of recoverable coal.

⁴ Federal revenues are based on \$5.80 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus state's 50 percent share, plus \$5.80 per ton (for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.0 percent, plus bonus payment on LBA leased coal of \$0.30 to \$0.97 per ton (based on the range of bonus payments for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share.

the project on topography and physiography, geology, mineral resources, soils, water availability and quality, AVFs, vegetation, wildlife, land use and recreation, paleontological resources, visual resources, noise, transportation resources, and socioeconomics.

The project area is located in the PRB, a part of the Northern Great Plains that includes most of northeastern Wyoming. The Eagle Butte West LBA Tract is located in the eastern part of the PRB, in an area consisting primarily of a dissected rolling upland plain with low relief, broken by low red-capped buttes, mesas, hills, and ridges. Elevations range from about 4,240 ft to 4,560 ft above sea level, slopes range from flat to around 40 percent, and 73 percent of the surface has a slope of five percent or less.

At the Eagle Butte Mine, there are two mineable coal seams, which are locally referred to as the Roland (upper seam) and Smith (lower seam). The two seams are separated by a shale parting of variable thickness. The mineable coal seams are referred to as the Anderson and Canyon, Wyodak-Anderson, and Wyodak coal beds at other mines in the eastern PRB. Mining would remove an average of 325 feet of overburden, eight feet of interburden, and 110 feet of coal under the Proposed Action and the BLM's preferred tract configuration for Alternative 1.

The existing topography on the LBA tract would be substantially changed during mining. A highwall with a vertical height equal to overburden plus coal thickness would exist in the active pits. Following reclamation, the average surface elevation would be lower due to removal of the coal. The reclaimed land surface would approximate premining contours and the basic drainage network would be retained; however, the reclaimed surface would contain fewer and gentler topographic features. This could contribute to reduced habitat diversity and wildlife carrying capacity on the LBA tract. These topographic changes would not conflict with regional land use, and the postmining topography would adequately support anticipated postmining land use.

The geology from the base of the coal to the land surface would be subject to considerable permanent change on the LBA tract under the Proposed Action or the BLM's preferred tract configuration for Alternative 1. The coal would be permanently removed and the replaced overburden would be a relatively homogeneous mixture compared to the premining layered overburden. Development of other minerals potentially present on the Eagle Butte West LBA Tract could not occur during mining, but could occur after mining.

There are currently no producing conventional oil wells on the tract as applied for or the BLM's preferred tract configuration under Alternative 1. If any conventional wells are drilled prior to mining, they would have to be plugged and abandoned during mining but could be recompleted after mining if the remaining reserves justify the expense of the recompletion.

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Extensive development of CBNG in the Roland-Smith/Wyodak-Anderson coal zone has occurred in the vicinity of the Eagle Butte West LBA Tract, beginning in the late 1980s. WOGCC records show that as of May 19, 2006, 68 wells had been drilled for CBNG production and 19 wells were capable of producing from the main coal beds in the BLM study area (the Eagle Butte West LBA Tract as applied for and the additional area evaluated under Alternative 1) (WOGCC 2006). Extensive CBNG development has also occurred immediately north, west, and south of the LBA tract. There has been little recent interest in drilling additional wells in this area. CBNG resources that are not recovered prior to mining would be vented to the atmosphere and irretrievably lost when the coal is removed. BLM's policy is to optimize recovery of both resources, ensure the public receives a reasonable return, and encourage agreements between lessees or use BLM authority to minimize loss of publicly owned resources.

No significant or unique paleontological resources have been recorded in the general analysis area.

Moderately adverse short-term impacts to air quality would be extended onto the Eagle Butte West LBA Tract during the time it is mined if a lease is issued. Modeling for the current Eagle Butte Mine permit predicted no exceedances of the annual PM₁₀ NAAQS at a 35-mmtpy production rate and there have been no exceedances of the 24-hour and annual PM₁₀ NAAQS. Figure ES-5 shows the maximum modeled PM₁₀ and NO_x concentrations at the Eagle Butte Mine for 2006. If the Eagle Butte Mine acquires and mines the Eagle Butte West LBA Tract, the mine estimates that the average annual rate of production would be 25 mmtpy, and that mine life would be extended for about eight to nine additional years. There would be an increase in overburden thickness but fugitive dust emissions would be expected to remain within daily and annual NAAQS limits.

Low-lying, gaseous orange clouds containing NO_x that can be transported by wind sometimes form from overburden blasting prior to coal removal. Exposure to NO_x can cause adverse health effects. EPA has expressed concerns that NO_x levels in some blasting clouds may be sufficiently high at times to cause human health effects.

Prior to 2001, WDEQ received reports of public exposure to blasting clouds from blasts at the Eagle Butte Mine from residents in the area of the mine (Emme 2007). Nearby residents brought concerns about blasting practices at the Eagle Butte Mine to the EQC several times, which resulted in the inclusion of conditions regulating blasting operations in the mine's WDEQ/LQD mine permit. Control measures to limit public exposure to NO₂ from blasting are in place and being implemented at the Eagle Butte Mine. Since these control measures were implemented, WDEQ/LQD has received one report of an orange-tinged blasting cloud at the mine, but no visible NO_x fumes left the mine permit area during that incident (Emme 2007).

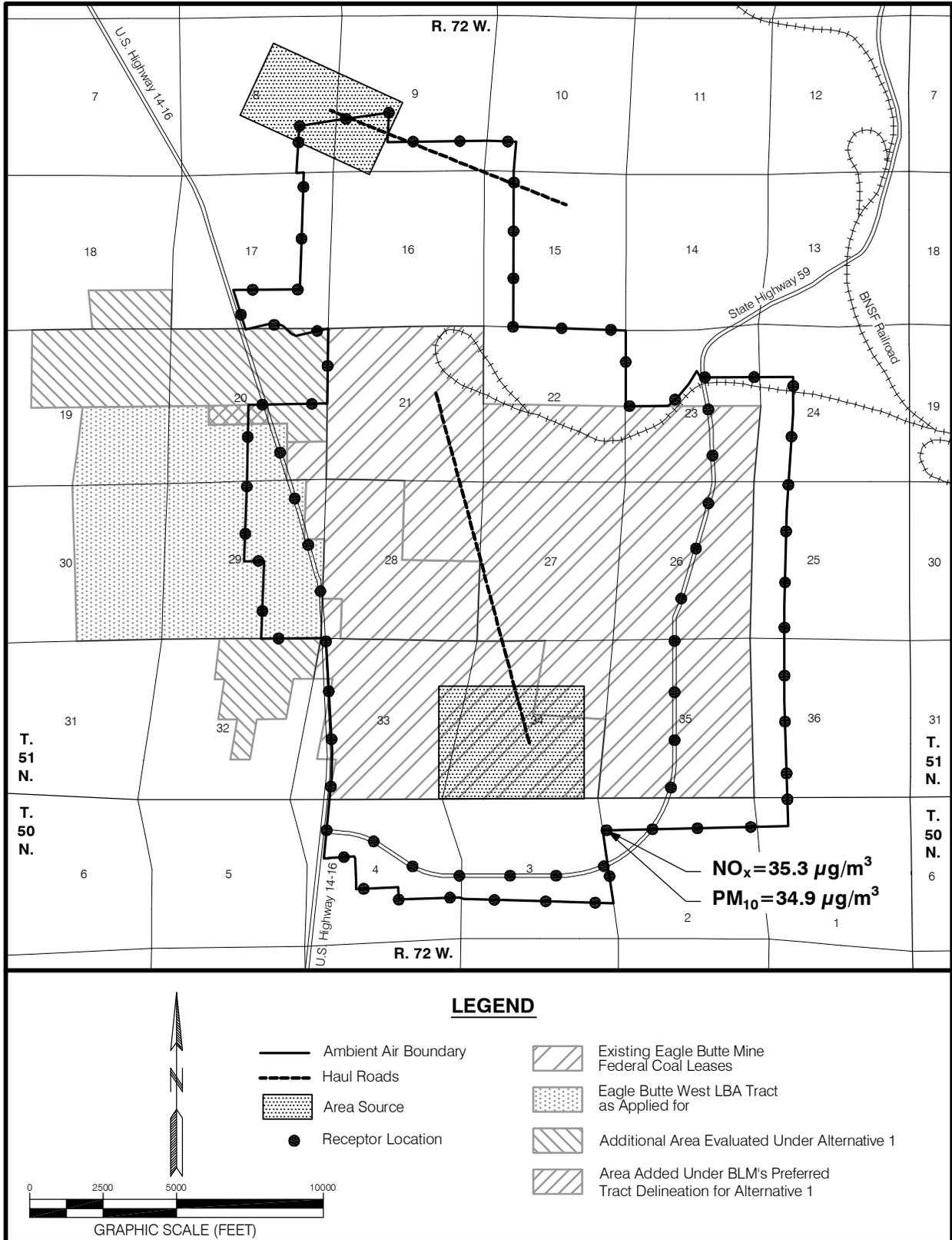


Figure ES-5. Maximum Modeled PM₁₀ and NO_x Concentrations at the Eagle Butte Mine Ambient Air Boundary for the Year 2006.

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Public exposure to emissions caused by surface mining operations is most likely to affect travelers on publicly accessible roads and highways that pass through and near the area of the mining operations and occupants of dwellings or businesses near the area of mining operations. The Eagle Butte Mine is three miles north of the City of Gillette, and there are occupied residences, school bus stops, U.S. Highway 14-16 and other public roads, Rawhide Elementary School, the Gillette-Campbell County Airport, and other publicly-accessible facilities in the vicinity of the Eagle Butte West LBA Tract (Figure ES-4). The density of residences and publicly-accessible businesses increases to the south, toward Gillette.

Mining would disturb the coal aquifer and the aquifers in the overburden above the coal within the Eagle Butte West LBA Tract. The coal aquifer and any water-bearing strata in the overburden would be removed and replaced with unconsolidated backfill. The area of drawdown in the areally-continuous coal aquifer related to mining operations at the Eagle Butte Mine would be expected to increase roughly in proportion to the increase in area affected by mining. Figure ES-6 shows the projected life-of-mine drawdown that would result from currently approved mining on the existing leases with the addition of the Eagle Butte West LBA Tract. The area of drawdown in the discontinuous overburden aquifers would be smaller. The data available indicate that, after reclamation, the hydraulic properties of the backfill would be comparable to the properties of the premining overburden and coal aquifers. TDS levels in groundwater from the backfill could initially be expected to be higher than in the premining overburden and coal aquifers, but would be expected to meet Wyoming Class III standards for use as livestock water.

Mining would not directly disturb aquifers below the coal. FCW has two water supply wells completed in aquifers below the coal and these wells would be used to supply water for a longer period of time if the Eagle Butte West LBA Tract is leased.

Little Rawhide Creek and its tributary, Prong Draw, drain the Eagle Butte West LBA Tract. Little Rawhide Creek is currently diverted from its natural channel as a result of mining within the existing Eagle Butte Mine permit area. The creek would also be diverted during mining of the LBA tract, but would be restored during reclamation. After mining and reclamation are complete, surface water flow, quality, and sediment discharge would approximate premining conditions.

Surface water quality varies with flow and/or season. Changes in runoff characteristics and sediment discharges would occur during mining of the LBA tract, and erosion rates could reach high values on the disturbed areas as a result of vegetation removal. However, state and federal regulations require that surface runoff from mined lands be treated to meet effluent standards, so sediment would be deposited in ponds or other sediment-control devices within the mine permit area.

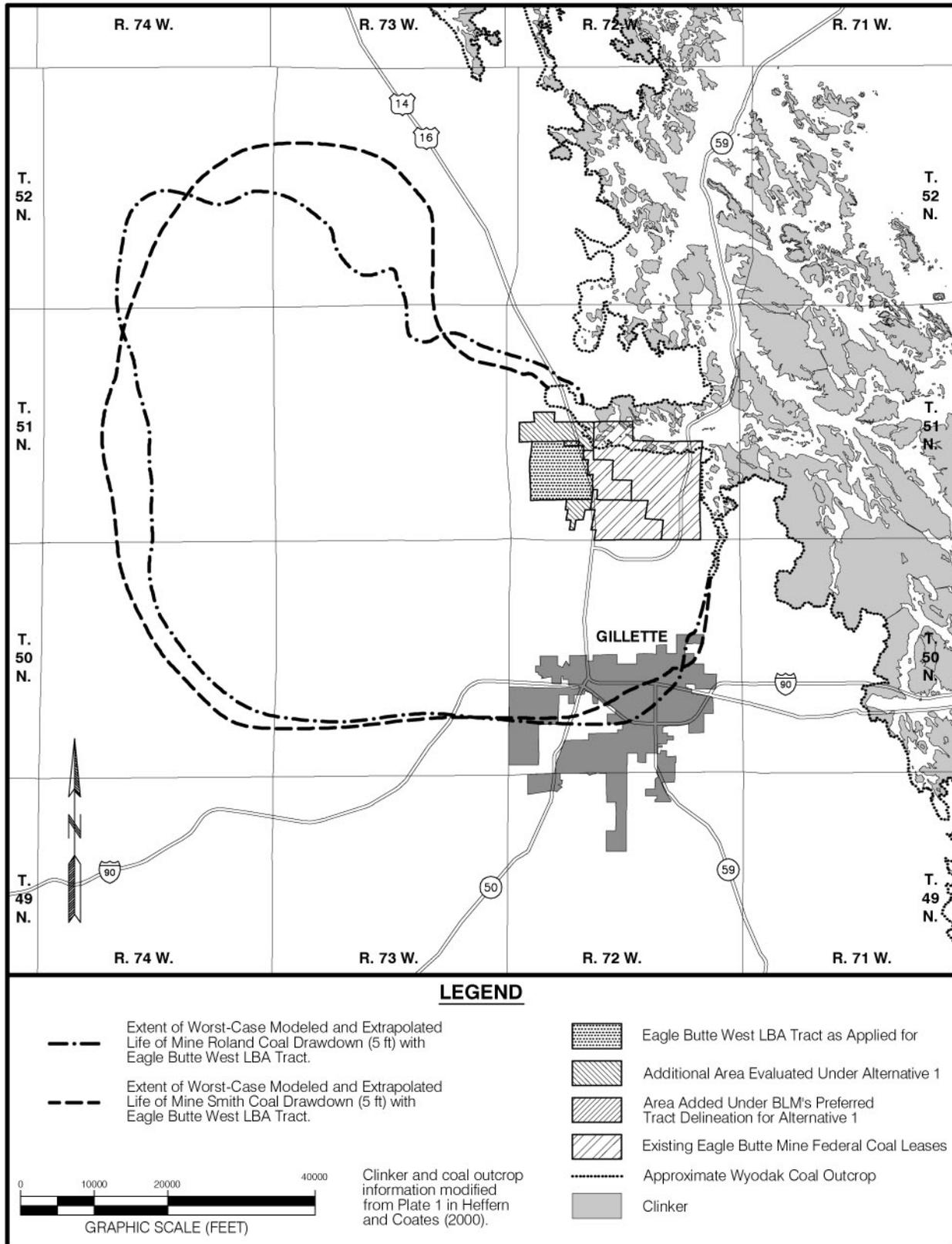


Figure ES-6. Life of Mine Drawdown Map, Resulting from Currently Approved Mining With Addition of the Eagle Butte West LBA Tract.

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The reach of Little Rawhide Creek within the LBA tract has been investigated for the presence of AVFs and has been declared an AVF non-significant to farming by the WDEQ/LQD as part of the mine permitting process for the purpose of recovering coal in the mine's existing leases. Approximately 83 acres of declared AVF lie within the Eagle Butte West LBA Tract as applied for, and an additional 45 acres of declared AVF lie within the additional area evaluated under Alternative 1.

A preliminary wetlands inventory, based on USFWS NWI mapping and vegetation mapping in the field, was conducted in 2004. The wetland analysis area includes the BLM study area for the Eagle Butte West LBA Tract (the tract as applied for and the additional lands evaluated under Alternative 1) and a ¼-mile disturbance buffer around the tract sufficient to mine and reclaim the tract as a part of the existing Eagle Butte Mine operation. Within the entire wetland analysis area, the preliminary inventory identified approximately 37.5 acres of jurisdictional wetlands that occur along the watercourses of Little Rawhide Creek and its tributaries. Existing wetlands located in the LBA tract would be destroyed by mining operations. Jurisdictional wetlands that are disturbed by mining must be replaced during the reclamation process.

Consequences to soil resources from mining the LBA tract would include changes in the physical, biological, and chemical properties. Following reclamation, the soils would be unlike premining soils in texture, structure, color, accumulation of clays, organic matter, microbial populations, and chemical composition. The replaced topsoil would be more uniform in type, thickness, and texture. It would be adequate in quantity and quality to support planned postmining land uses (i.e., wildlife habitat and rangeland).

The predominant vegetation types, in terms of total acres of occurrence in the vegetation analysis area are agricultural pasture 1 (36.1 percent), sagebrush grassland (27.6 percent), and agricultural pasture 2 (11.9 percent). Common plant species on these types include crested wheatgrass, smooth brome, needleandthread, threadleaf sedge, Sandberg bluegrass, western wheatgrass, cheatgrass brome, silver sagebrush, and Wyoming big sagebrush. Mining would progressively remove this native vegetation. Reclamation and revegetation of mined areas would occur contemporaneously with mining on adjacent lands. Reestablished vegetation would be dominated by species mandated in the reclamation seed mixtures, which are approved by the WDEQ/LQD. The majority of these species would be native to the LBA tract. Initially, the reclaimed land would be dominated by grassland vegetation, which would be less diverse than the premining vegetation. Estimates for the time it would take to restore sagebrush to premining density levels range from 20 to 100 years. An indirect long-term impact associated with this vegetative change would potentially be a decrease in available habitat for shrub dependent species. However, a diverse, productive, and permanent vegetative cover would be established on the LBA tract within about 10 years following reclamation, prior to release of the final reclamation bond. The decrease in plant diversity would not seriously affect the potential productivity of the

reclaimed areas, and the proposed postmining land uses (wildlife habitat and rangeland) should be achieved even with the changes in vegetation composition and diversity. The reclamation plans for the LBA tract would also include steps to control invasion by weedy (invasive, nonnative) plant species.

Direct impacts of surface coal mining on wildlife occur during mining and are short term. They include road kills by mine-related traffic, direct losses of less mobile wildlife species, restrictions on wildlife movement created by fences, spoil piles and pits, displacement of wildlife from existing habitat in areas of active mining (including abandonment of nests or nesting and breeding habitat for birds), increased competition between animals in areas adjacent to mining operations, and increased noise, dust, and human presence. Habitat for aquatic species would also be lost during mining operations. Indirect impacts are longer term and include alterations in topography and vegetative cover following reclamation, which may decrease wildlife carrying capacity and habitat diversity. The Eagle Butte West LBA Tract does not include any unique or crucial big game habitat, and habitat disturbance would be incremental, with reclamation progressing as new disturbance occurs. There are two sage grouse leks within the wildlife study area that have been active within the last five years. In the long term, following reclamation, carrying capacity and habitat diversity may be reduced due to gentler topography, less diverse vegetative cover, and reduction in sagebrush density.

At this time, T&E plant and animal species that could be present on the tract include the Ute ladies'-tresses orchid, bald eagle, and black-footed ferret. However, the USFWS published a notice in the *Federal Register* removing the bald eagle in the lower 48 states from the list of endangered and threatened wildlife on July 9, 2007. The effective date for this action will be August 8, 2007. The bald eagle will continue to be protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act after delisting.

Areas of suitable habitat for the Ute ladies'-tresses orchid within the Eagle Butte West LBA Tract and adjacent study area were surveyed by Habitat Management, Inc. in August and September 2004 and in August 2005, and no individuals were located. Bald eagles are relatively common winter residents and migrants in northeastern Wyoming's PRB. During 2004, qualified biologists with TWC conducted searches for bald eagle winter roosts and potential nesting habitat within the BLM study area for the LBA tract (the tract as applied for and the additional area evaluated under Alternative 1) and a one-mile perimeter. No bald eagles, roosts, or potential nesting habitat were observed at that time. Over time, individual eagles have infrequently been seen during winter foraging within the one-mile survey area or perched in the cottonwood trees on the tract. Bald eagle foraging habitat would be lost on the tract during mining and before final reclamation. The black-footed ferret is a nocturnally active mammal that depends almost entirely upon the prairie dog for its survival. No black-tailed prairie dog colonies are currently present on the BLM study area for the Eagle Butte West LBA Tract. One small town

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(approximately one acre in size) is located approximately one mile north of the northern edge of the BLM study area.

Active mining would preclude other land uses. Recreational and grazing use of the LBA tract would be severely limited during mining. Oil and gas development would be curtailed and CBNG that is not recovered prior to mining would be vented and irretrievably lost as the coal is removed. The surface of the tract as applied for and the BLM's preferred tract configuration under Alternative 1 is owned by FCW.

Within 10 years after initiation of each reclamation phase, rangeland and wildlife use would return to near premining levels. The cumulative impacts of energy development (coal mining, oil and gas) in the PRB are and will continue to contribute to a reduction in hunting opportunities for some animals (pronghorn, mule deer, and sage-grouse).

The Eagle Butte West LBA Tract has been surveyed for cultural resources at the Class III level. A total of 17 cultural sites (nine re-recorded and eight new) were documented in the survey area. Twelve isolated finds were also recorded. Of the 17 cultural sites, nine are prehistoric, five are historic, and three are multi-component. All cultural sites are protected from disturbance until consultation with SHPO is completed and agreement regarding NRHP eligibility is reached.

No sites of Native American religious or cultural importance have been identified on the LBA tract. If such sites or localities are identified at a later date, appropriate action must be taken to address concerns related to those sites.

U.S. Highway 14-16 crosses the eastern portion of the tract; however, FCW and WYDOT are working on a plan to relocate the highway, as discussed above. It is likely that some mining activities on the LBA tract would be visible from this major travel route whether it is moved or remains in its current location. Mining would affect landscapes classified by BLM as VRM Class V, and the landscape character would not be significantly changed following reclamation. No unique visual resources have been identified on or near the LBA tract.

There are occupied dwellings, businesses, the Rawhide Elementary School, and the airport located in the vicinity of the Eagle Butte West LBA Tract (Figure ES-4). These facilities would experience an adverse noise impact if mining activities (particularly blasting) occur within 2,500 ft of them under either the Proposed Action or the BLM's preferred tract configuration for Alternative 1.

Leasing the Eagle Butte West LBA Tract would extend the length of time that coal is shipped from the permitted Eagle Butte Mine, which would extend the length of time that coal transportation facilities would be required under the Proposed Action or under the BLM's preferred tract configuration for Alternative 1. Vehicular traffic to and from the mine would continue for an

additional eight years. As discussed above, not all of the coal included in the Eagle Butte West LBA Tract is mineable. U.S. Highway 14-16 overlies some of the coal included in the tract under both the Proposed Action and the BLM's preferred tract configuration for Alternative 1. FCW and WYDOT are working on a plan to relocate the highway, so that the coal underlying the highway ROW can be recovered. Mining the Eagle Butte West LBA Tract as applied for would not bring FCW's operations any closer to the Gillette-Campbell County Airport than they currently are; however, mining activities would continue at existing levels for an additional eight years. Depending upon the location of the final coal lease boundary that is selected by the BLM, a proposed airport expansion would potentially be delayed by eight or more years. Active pipelines and utility lines would have to be relocated in accordance with previous agreements, or agreements would have to be negotiated for their removal or relocation.

Royalty and bonus payments for the coal in the LBA tract would be collected by the federal government and split with the state. Assuming an average coal price of \$5.80 per ton recovered and a potential range of bonus payments of 30 to 97 cents per ton, the potential additional federal revenues would range from approximately \$188 to \$263 million, depending on the alternative selected and the bonus price at the time the coal is leased. The potential additional revenue to the State of Wyoming would range from \$261 to \$336 million, depending on the alternative selected and the bonus price at the time the coal is leased. Mine life and employment at current levels would be extended by about eight years at the Eagle Butte Mine.

With regard to Environmental Justice issues, it was determined that potentially adverse impacts do not disproportionately affect minorities, low-income groups or Native American tribes or groups. No tribal lands or Native American communities are included in this area, and no Native American treaty rights or Native American trust resources are known to exist for this area.

Under the No Action Alternative, the coal lease application would be rejected and the area contained in the application would not be offered for lease at this time. The tract could be nominated for lease again in the future. Under the No Action Alternative, the impacts described in the preceding paragraphs to topography and physiology, geology and minerals, soils, air quality, water resources, AVFs, wetlands, vegetation, wildlife, T&E species, land use and recreation, cultural resources, Native American concerns, paleontological resources, visual resources, noise, transportation, and socioeconomics would occur on the existing Eagle Butte Mine coal leases, but these impacts would not be extended onto the Eagle Butte West LBA Tract.

If impacts are identified during the leasing process that are not mitigated by existing required mitigation measures, BLM can include additional mitigation measures, in the form of stipulations on the new lease, within the limits of its regulatory authority. BLM has not identified additional special stipulations

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that should be added to the BLM lease or areas where additional or increased monitoring measures are recommended.

Cumulative impacts result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor, but collectively significant, actions occurring over time.

Since decertification of the Powder River Federal Coal Region in 1990, 17 coal leases containing more than five billion tons of federal coal have been issued following competitive sealed-bid sales. Three exchanges of federal coal in the Wyoming portion of the Powder River Federal Coal Region have also been completed. Twelve coal lease applications, including the Eagle Butte West application, are currently pending. The pending LBA applications contain over 4.4 billion tons of coal.

Currently, BLM is completing a regional technical study, called the PRB Coal Review, to help evaluate the cumulative impacts of coal and other mineral development in the PRB. The study evaluates current conditions as of a baseline year (2003) and projects development levels and potential associated cumulative impacts related to coal and coal-related development, oil and gas and oil- and gas-related development, and other development through 2020. Due to variables associated with future coal production, two projected coal production scenarios (representing an upper and a lower production level) were developed. The projected development levels are based on projected demand and coal market forecasts and include production at the Eagle Butte Mine during the baseline year and projected production for the mine for 2010, 2015, and 2020.

The Wyoming portion of the PRB is the primary focus of the PRB Coal Review, but the Montana portion of the PRB is included in some studies. A series of reports has been prepared or are being prepared to present the result of the PRB Coal Review studies. The results of the PRB Coal Review studies that have been completed are summarized in Section 4.0 of the EIS.

Cumulative impacts vary by resource, with potential impacts to air quality, groundwater quantity, wildlife habitat, and socioeconomics generally being the greatest concerns.

The PRB Coal Review air quality study documents the modeled air quality impact of existing operations during 2002 and of projected development activities in 2010. The model was used to evaluate impacts of existing and projected source emissions on several source groups, including near-field receptors in Wyoming and Montana, receptors in nearby federally designated "Class I" areas, and receptors at "Class II" sensitive areas. The EPA guideline CALPUFF model system was used for the modeling analysis.

The existing regional air quality conditions are generally very good, but the modeling showed some substantial impacts at some receptors for both the baseline year 2002 and the projected development activities in 2010. Table ES-3 presents the maximum modeled impacts on ambient air quality at the near-field receptors in Wyoming and Montana for 2002 and for the 2010 upper and lower coal development scenarios. Table ES-4 lists the projected modeled visibility impacts for 2002 for all analyzed Class I and sensitive Class II areas. For the upper and lower coal production scenarios, it shows the number of additional days that the impacts were projected to be greater than 1.0 dv (10 percent in extinction) for each site in 2010.

The PRB Coal Review groundwater and surface water studies are in progress, but a number of modeling analyses have previously been conducted to help predict the impacts of surface coal mining on groundwater resources in the PRB. In addition, each mine must monitor groundwater levels in the coal and underlying and overlying aquifers and assess the probable hydrologic consequences of mining as part of the mine permitting process. The monitoring programs track the extent of groundwater drawdown propagation to the west and the extent of recharge and quality of the water in the backfill areas of the mines. The monitoring data indicate that recharge is occurring in the backfill and that water from the backfill will generally be acceptable for premining uses, which is primarily livestock watering. Modeling and monitoring indicate that the groundwater drawdown impacts of coal mining and CBNG development are overlapping.

The PRB Coal Review studies include an evaluation of the impacts to wildlife and aquatic species as of 2003 and an evaluation of the projected levels of disturbance in the PRB in 2010, 2015, and 2020, based on the projected development levels in those years. As discussed above, impacts to wildlife and fisheries can be classified as short-term and long-term. Short-term impacts are related to habitat disturbance during project development and operation. Long-term impacts result from changes in habitat after reclamation is completed. Habitat fragmentation can result from activities such as roads, well pads, mines, pipelines, and electrical power lines, as well as increased noise, elevated human presence, dispersal of noxious and invasive weed species, and dust from unpaved road traffic.

The PRB Coal Review used the REMI Policy Insight regional economic model to project cumulative employment and population levels and associated impacts in the PRB for the upper and lower coal production scenarios in 2010, 2015, and 2020. Table ES-5 presents the recent and projected population levels for the counties included in the PRB Coal Review socioeconomic analysis.

This EIS presents the BLM's analysis of environmental impacts under authority of the NEPA and associated rules and guidelines. The BLM will use this analysis to make a leasing decision. The decision to lease these lands is a necessary requisite for mining, but is not in itself the enabling action that will allow mining. The most detailed analysis prior to mine development would

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Table ES-3. Projected Maximum Potential Near-field Impacts ($\mu\text{g}/\text{m}^3$).

Pollutant	Averaging Time	Base Year (2002) Impacts	2010 Lower Development Scenario Impacts	2010 Upper Development Scenario Impacts	Wyoming		Montana		PSD Class II Increments ²
					AAQS	NAAQS	AAQS	AAQS	
Wyoming Near-field									
NO ₂	Annual	37.3	42.4	49.0	100	100	--	--	25
SO ₂	Annual	3.9	4.8	5.6	80	60	--	--	20
		14.5	33.5	34.8	365	260	--	--	91
		37.9	148.0	154.2	1,300	1,300	--	--	512
PM ₁₀	Annual	42.7	49.0	56.6	-- ³	50	--	--	17
		335.5	378.8	439.9	150	150	--	--	30
Montana Near-field									
NO ₂	Annual	8.85	11.3	11.8	100	--	100	100	25
		365.8	415.9	519.5	--	--	564	564	--
SO ₂	Annual	1.3	2.3	2.7	80	--	80	80	20
		18.9	19.5	20.4	365	--	365	365	91
		74.7	76.4	79.8	1,300	--	1,300	1,300	512
1-hour		240.7	246.4	257.3	--	--	1,300	1,300	--
PM ₁₀	Annual	19.6	22.5	27.7	-- ³	--	50	50	17
		175.8	200.0	247.7	150	--	150	150	30

¹ No standard or increment.

² All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment from Consumption Analysis.

³ On September 21, 2006, the EPA announced final revisions to the NAAQS for particulate matter, which took effect December 18, 2006. The revision revoked the annual PM₁₀ standard of 50 $\mu\text{g}/\text{m}^3$. The revisions retained the 24-hour PM₁₀ standard. The State of Wyoming will enter into rulemaking to revise the Wyoming Ambient Air Quality Standards. See additional discussion in Chapter 3, Section 3.4.2.1.

Bold values indicate projected exceedances of AAQS.
Source: PRB Coal Review Task 3A Report (BLM 2006b)

Table ES-4. Modeled Change in Visibility Impacts at Class I and Sensitive Class II Areas.

Location	2002	2010 Lower Development Scenario	2010 Upper Development Scenario
	No. of Days >10%	Change in No. of Days > 10%	Change in No. of Days > 10%
Federally and Tribally Designated Class I Areas			
Badlands National Park ¹	238	19	26
Bob Marshall WA	12	2	4
Bridger WA	47	4	7
Fitzpatrick WA	42	3	5
Fort Peck Indian Reservation	69	8	9
Gates of the Mountain WA	14	6	7
Grand Teton National Park	26	2	5
North Absaroka WA	47	6	6
North Cheyenne Indian Reservation	305	5	10
Red Rock Lakes	16	3	5
Scapegoat WA	14	4	4
Teton WA	40	4	5
Theodore Roosevelt National Park	98	15	22
UL Bend WA	49	4	5
Washakie WA	53	2	3
Wind Cave National Park	261	11	15
Yellowstone National Park	42	7	8
Sensitive Class II Areas			
Absaroka Beartooth WA	53	3	5
Agate Fossil Beds National Monument	199	26	30
Big Horn Canyon National Rec. Area	108	7	8
Black Elk WA	263	16	22
Cloud Peak WA	137	8	8
Crow Indian Reservation	284	10	15
Devils Tower National Monument	279	15	21
Fort Belknap Indian Reservation	46	3	4
Fort Laramie National Historic Site	153	27	30
Jedediah Smith WA	23	1	2
Jewel Cave National Monument	267	14	18
Lee Metcalf WA	25	2	4
Mount Naomi WA	8	6	8
Mount Rushmore National Monument	248	19	25
Popo Agie WA	47	7	8
Soldier Creek WA	223	23	29
Wellsville Mountain WA	6	5	7
Wind River Indian Reservation	66	12	15

¹ The U.S. Congress designated the Wilderness Area portion of Badlands National Park as a mandatory Federal PSD Class I area. The remainder of Badlands National Park is a PSD Class II area.

Source: PRB Coal Review Task 3A Report (BLM 2006a)

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Table ES-5. Recent and Projected PRB Population.

Year	Campbell County	Converse County	Crook County	Johnson County	Sheridan County	Weston County	Total Study Area
Census							
2000	33,698	12,104	5,895	7,108	26,606	6,642	92,053
2003	36,438	12,314	5,986	7,554	27,115	6,671	96,078
Lower Coal Production Scenario							
2010	45,925	13,103	6,542	8,389	28,459	7,108	109,526
2015	48,905	13,671	6,759	8,867	30,016	7,174	115,392
2020	50,995	14,193	6,989	9,326	31,467	7,208	120,178
Upper Coal Production Scenario							
2010	47,662	13,160	6,570	8,424	28,579	7,137	111,532
2015	51,558	13,763	6,802	8,924	30,214	7,219	118,480
2020	54,943	14,313	7,045	9,403	31,733	7,266	124,703

Source: U.S. Census Bureau 2005 (2000 and 2003 data)

occur after the lease is issued, when the lessee files an application for a surface mining permit and mining plan approval, supported by extensive proposed mining and reclamation plans, to the WDEQ/LQD.