



CHAPTER TWO
ALTERNATIVES

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ALTERNATIVE FORMULATION

The formulation and analysis of alternatives are required by the Council on Environmental Quality regulations implementing the NEPA (40 CFR 1500.2(e)) and BLM resource management planning regulations (43 CFR 1610.4-5). Each alternative represents a complete and reasonable plan to guide future management of public lands and resources. One alternative must represent no action; meaning the continuation of present management and levels of use. Together, the alternatives present a range of reasonable management opportunities which address and, in part, resolve the resource management issues.

The goal of each alternative developed is the resolution of the issues. A variety of specific management actions addressing the individual issues was identified. These management prescriptions were then grouped according to general management themes. Current management of nonissue resources and programs will continue under all alternatives considered. The specific actions geared towards the resolution of the issues, along with the current management prescriptions for nonissue resources and programs, comprise the alternatives.

Four alternative management plans were developed and analyzed in detail. These alternatives are based on the management themes of: (1) no action, or continuation of present management; (2) balance of multiple use; (3) maximization of commodity resource production; and (4) the general protection of amenity resources.

Descriptions of the management themes, alternative-specific management actions, and management guidance common to all alternatives are presented in this chapter. A comparative summary of the projected impacts under each alternative is also provided.

ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Several alternatives or portions of alternatives were considered during the formulation process but were dropped from detailed study. A brief description of the alternatives not considered in detail is provided below.

No Coal Areas Acceptable for Further Consideration for Coal Leasing

This alternative would have eliminated all of the 24 CSAs from further consideration for the leasing of federal coal. This alternative was eliminated from detailed study for four basic reasons:

- 1) Potential regional economic growth would be limited by prohibiting or obstructing the mining of coal in western North Dakota.
- 2) In some portions of the study area there are few or no significant conflicts occurring between the mining of coal and natural resources or social and economic structures.

3) National objectives of providing for reasonable and efficient energy production and achieving energy independence would not be met.

4) Federal laws and regulations would be violated by unnecessarily excluding areas of federal coal from potential leasing and development.

Disposal of All Public Lands in North Dakota

This alternative would classify all public lands for disposal. Disposals would, presumably, be accomplished through sales, Recreation and Public Purposes (R & PP) Act patents, and withdrawals to other federal agencies. This alternative was eliminated from detailed study for the following reasons:

- 1) Little management efficiency would be realized. Due to present policy, federal mineral estate would be retained. BLM mineral management responsibilities would remain for approximately 4.8 MM acres, including minerals within the jurisdiction of other Surface Management Agencies requiring a continued BLM presence in the state.
- 2) Past public comment has identified the lack of publicly-owned lands available for recreational use as a resource management concern. Disposal of all public lands in the state would be contrary to public wishes.
- 3) Legal and regulatory statutes require the protection of such resources as critical habitats of endangered species, wetlands and riparian areas, significant cultural resources, etc. Disposal of all public lands in the state would be possible only if the continued protection of these resources could be ensured through restrictive patent covenants or by transferring lands to other resource management agencies.

Intensive Management of All Public Lands

This alternative would involve increased management activity and expenditures on the scattered tracts of public lands in North Dakota. Management actions would include increased trespass abatement, fencing of some tracts, signing, wildlife improvements, etc. This alternative was eliminated from further study for the following reasons:

- 1) Frequent visits to individual tracts would be necessary to implement and monitor management activities. The scattered land pattern results in excessive transportation and travel costs. In general, the small size and scattered pattern of tracts would also preclude any economies of scale for construction projects or other management activities.
- 2) The small size (average of about 44 acres) typical of the scattered tracts limits the potential for management. Intensive management of the small tracts may have little or no beneficial effect on resources of adjacent tracts. Investments on small tracts would produce little overall benefit to surrounding areas.

No Grazing

The alternative of no grazing has been eliminated from detailed study because it was considered in detail in the North Dakota Grazing EIS (USDI 1984a). Decisions resulting from the North Dakota Grazing EIS have been incorporated into this RMP as management guidance common to all alternatives.

Designation of Areas of Critical Environmental Concern

Nominations for three Areas of Critical Environmental Concern (ACECs) were received and evaluated. Although all three tracts have outstanding resource values, it was decided that ACEC designation was not the best management approach. A brief analysis of each tract follows:

Pembina Gorge — This tract is part of the largest continuous woodland in North Dakota. It is characterized by dense oak forest, rare plant and animal species, and outstanding aesthetic values. However, because of its distance from the Dickinson District Office and because both the North Dakota Game and Fish Department (NDGFD) and the Parks and Recreation Department (NDPRD) already manage substantial acreage in the gorge, transfer of ownership, or at least management, to one of these agencies is most logical.

Douglas Alkali Wetland — This tract supports breeding piping plovers, a threatened species. However, many other BLM tracts support an equal or greater number of piping plovers. Management of these tracts must be decided on a case-by-case basis. This tract could be more efficiently managed by transfer of ownership or management to the U.S. Fish and Wildlife Service (USFWS), who has a wetland easement within one-fourth mile, or to NDGFD.

Westby Lake — This tract supports piping plovers, a California gull colony, rare plant species, and a number of native prairie bird species. This tract could be better managed by the USFWS, which manages the land adjoining the north boundary and has personnel in the area.

The suggestions for transfer of ownership or management of these tracts are not meant to exclude other agencies or organizations from expressing an interest in them. However, BLM is committed to preserving the identified values and will only transfer responsibility to an entity dedicated to proper management.

MANAGEMENT GUIDANCE COMMON TO ALL ALTERNATIVES

The following management guidance constitutes a part of all alternatives considered in detail. Management guidance common to all alternatives represents a combination of acceptable decisions from past planning efforts, management decisions that have been analyzed through program or project-specific environmental documents, and policy dealing with nonissue resources. Also included are decisions which are nondiscretionary or necessary to protect past investments. Minimum acceptable levels of com-

mitment relating to the management of public lands and resources have been established for BLM in North Dakota through guidance issued by the Montana State Office. These management actions, title "Maintenance and Operations," are not reprinted in this plan but will be followed as management guidance common to all alternatives.

Air Quality

Potential impacts to air quality will be assessed in detail during the environmental analysis of specific management proposals such as coal activity planning, oil and gas permitting, etc. There are two management actions that may involve significant impacts to air quality: the permitting of federal oil and gas development, and the leasing (and presumed mining) of federal coal. Should analysis show the potential for any action to exceed the Ambient Air Quality Standards (AAQS) and the Prevention of Significant Deterioration (PSD) standards, the BLM will advise the proper regulatory agency, the North Dakota State Department of Health (NDS DH), of this new source for their permit review.

The following specific stipulations for air quality and related safety aspects are listed as standard conditions of approval for all Applications for Permit to Drill (APDs) for oil and gas:

A gas analysis, which includes H₂S (hydrogen sulfide) content, must be made and submitted to this office within 3 months of completion of the well, and an updated analysis must be submitted annually thereafter. The analysis must also include an empirical calculation of SO₂ (sulfur dioxide) or actual analysis after flaring. A total volume of gas flared/vented/or used on-site must be included.

Flaring must be approved in writing by the BLM District Manager and be in compliance with all other provisions of Notice to Lessee-4A (NTL-4A) except as allowed in accordance with NTL-4A Part III(c).

Warning signs for H₂S must be placed at appropriate facilities.

Any unconfined gas, which exceeds 20 parts per million (ppm) H₂S gas, produced during testing or swabbing must be separated and flared. There must be a pilot light on all sour gas flares to ensure continuous ignition.

Proper breathing apparatus must be available and used when working in an H₂S environment exceeding 20 ppm.

A wind sock must be placed on the tank battery and must be visible from everywhere on the location.

Gas may be vented or flared during emergencies, well evaluation, or initial production tests for a time period of up to 30 days or the production of 50 million cubic feet (MMCF) of gas, whichever occurs first. After this period, approval from the authorized officer to flare or vent in accordance with NTL-4A must be obtained.

Should air quality data from research projects, specific environmental documents, or ongoing monitoring indicate unacceptable air quality resulting from flaring, newly completed oil and gas wells will be reviewed to determine the feasibility of hook-up to a gas gathering system. New oil and gas wells which cannot be included in a gas gathering system and must, therefore, continue to flare will be

reviewed for compliance with the AAQs. If air quality standards are being exceeded, mitigating measures such as air pollution control devices will be required and NDSHD will be notified.

Hydrology

Water resource management on public lands will be in accordance with the objectives of multiple-use and will be coordinated with all other uses and objectives. BLM policy (BLM Manual 7200.04B9) is to protect, maintain, restore, and/or enhance the quality of water on all public lands so quality of the water will be maintained equal to, or above, legal standards (Clean Water Act of 1977, Standards of Water Quality for State of North Dakota). Specifically, water quality monitoring of land-use activities shall be performed to evaluate, maintain, protect or enhance water quality on, or passing through, public lands (FLPMA).

Executive Orders (11988 and 11990) and other directives mandate the Bureau to: (1) reduce the risk of flood loss, (2) minimize the risk on human safety, health and welfare, (3) preserve the natural and beneficial values served by floodplains, and (4) minimize the loss or degradation of wetlands when acquiring, managing, or disposing of public lands and facilities.

The Clean Water Act of 1977 requires the BLM to participate with state and other federal agencies in water quality planning, Section 208, to prevent degradation of water quality, and to implement Best Management Practices (BMPs) to the extent practical under the National Nonpoint Source Policy. Because sediment is by far the largest single nonpoint source pollutant derived from public lands in North Dakota, the BLM's approach to BMPs for sediment reduction will meet multiple-use objectives while still providing an acceptable level of water quality protection.

Minerals

Application of Coal Screens

The federal coal planning process (Appendix A) involves the use of four screens during the development of land use plans: (1) the identification of areas with coal development potential, (2) the application of twenty criteria to identify areas unsuitable for surface mining, (3) multiple-use trade-off decisions, and (4) consultation with surface owners to determine opposition to surface mining of federal coal. Three of these screens, coal development potential, unsuitability criteria, and surface owner consultation are not subject to alternative methods of application. The application of these three screens is the same for all alternatives. However, alternatives have been developed for the multiple-use tradeoff screen. The specific factors involved in the application of all four coal screens are presented in Appendices B through E.

The identification of areas with coal development potential was based on information obtained from U.S. Geological Survey (USGS) exploration drilling and information provided by industry. Identified areas are based only on available coal resource information and may not represent the absolute boundaries of the coal resource.

The twenty unsuitability criteria, and corresponding exemptions and exceptions, were applied to all areas with identified coal development potential. In Alternative A, nine of the criteria were found to apply. Eight of the criteria applied in Alternatives B, C, and D. The application of the unsuitability criteria is presented in Appendix C.

Consultation with qualified surface owners to identify their preferences towards the surface mining of coal was conducted for all areas having potential for coal development except for those portions of the CSAs that were excluded from consideration early in the process due to obvious multiple use conflicts. Areas of significant surface owner opposition were excluded from further consideration. The methods used to consult with qualified surface owners and the results of consultation are presented in Appendix E.

Specific coal lease areas will be analyzed in detail during activity level planning or in response to applications for lease. Documentation of NEPA compliance will be completed for all tracts prior to lease offering. Cumulative impacts of coal leasing and subsequent mining will also be addressed at this stage. At the time of site-specific analysis resources such as air quality and cultural resources, which could not be analyzed in detail during land use planning, will be fully assessed.

Other Coal Management Actions

Other coal management actions such as review and approval of exploration plans (43 CFR 3482 and 3484) and the processing of emergency leases (43 CFR 3425.1-4) will be conducted in response to applications in accordance with the appropriate coal management regulations.

Oil and Gas

The oil and gas leasing program will be administered by the BLM Montana State Office (MSO). All areas to be leased that fall within identified resource concern areas (Map K-1) will be forwarded to the Dickinson District Office for the determination of appropriate stipulations (Appendix K). Lease applications for locations outside of resource concern areas would be reviewed and processed entirely by the state office.

APDs and Sundry Notices received will be processed according to the terms and stipulations of the lease. Additional stipulations required to protect sensitive resources or human health may be added as conditions of approval of the APD. All APDs and Sundry Notices will be analyzed in accordance with NEPA and corresponding regulations of the Council on Environmental Quality. Appendix P provides a description of APD processing procedures.

Priority for inspection of wells is determined by levels of production, past lease compliance records and health and safety considerations. Priority wells are reviewed for violations of health and safety requirements, environmental protection, and possible royalty loss due to operator negligence in construction of production facilities or reporting of produced/sold hydrocarbons. Operations violating lease stipulations and the conditions of approval stated in the APD are issued either Incidence of Noncompliance statements or written orders to correct noncompliance. Fines and recommendations for back payments of federal royalties are imposed at this time.

The potential for drainage of federal hydrocarbons will be assessed. If a case of drainage is suspected, the lessee of the offending tract will be notified. Following a complete review of reservoir information, a determination of "no drainage" or a demand to protect the federal minerals is made. Minerals could be protected through the development of a protective well, the payment of compensatory royalties, the development of Communitization Agreements, or the recommendation for, and subsequent commitment of, the offending lands to a Participating Area or Unit Agreement. If the affected minerals are not leased the BLM MSO

will offer the tract for lease with a stipulation addressing the drainage and necessary protection.

Other Minerals

Applications for saleable minerals (sand, gravel, scoria, etc.) will continue to be processed as received. Individual applications will be reviewed through the NEPA process. Activities will be monitored and cases of unauthorized uses will be resolved.

Lease applications for sodium and potassium will be processed as received. Site specific decisions regarding lease issuance will be based on an interdisciplinary review of each proposal. These leases and the activities will be regulated by 43 CFR 3500.

All public lands are open to mineral entry for locatable minerals except where withdrawn to protect resource values and uses. Mining activities will be regulated under 43 CFR 3809 to prevent undue degradation of surface resources and to ensure reasonable reclamation of disturbed sites.

Range and Vegetation Management

Range and vegetation management for BLM lands in North Dakota were analyzed in detail in the North Dakota Grazing EIS (USDI 1984a).

All the allotments in the district were reviewed for placement in one of three categories: Maintain (M), Improve (I), Custodial (C). "M" category allotments have a satisfactory range condition, high production potential and are nearing the potential, no serious resource conflicts, opportunities for a return on public investments and are being properly managed. "I" category allotments have an unsatisfactory range condition, a moderate to high production potential and are producing at low to moderate levels, serious resource conflicts, opportunities for a return on public investments and appears to be improperly managed. "C" category allotments are those on which range condition is not a factor, have low production potential and are producing near the potential, limited resource conflicts, have no opportunities for a return on public investments or opportunities which are constrained by technological or economic factors and under satisfactory management.

Three allotments, addressed in Allotment Management Plans (AMPs), are in the "M" category. There are no allotments in the "I" category. The remaining 94 allotments are in the "C" category.

Management decisions for range and vegetation were presented in a Record of Decision issued March 1985 (USDI 1985b). Those decisions are carried forward in this land use plan.

1) Continue authorized livestock use at current levels for all allotments. Authorized use for allotments will adhere to the AMP. Custodial allotments could be leased year long, however season of use would be determined by use of the adjoining private range.

2) Maintenance category allotments will receive priority over Custodial category allotments for actions including monitoring, evaluation, and range improvements.

3) The BLM will join in a cooperative effort to control leafy spurge on approximately eight allotments in McHenry County. The BLM will participate where control is taking place on adjoining private lands.

4) Lease renewals and transfers for lands identified for disposal will be for two years or less, and unleased lands suitable for grazing will be leased using nonrenewable grazing leases.

5) The range improvement program will be directed towards AMP allotments and allotments needing leafy spurge control. Any new projects will be analyzed for efficiency and feasibility based on resource needs, benefit-cost ratio, and user participation.

6) Monitoring will be done to determine if management objectives are being met, what changes are taking place, what adjustments are needed, and to ensure protection of the vegetation, wildlife habitat, and watershed. Minimum monitoring requirements for AMP allotments will include annual assessment of actual use, utilization, and climate; and periodic range condition and trend transects as determined by the District monitoring plan. Approximately 20 percent of the custodial allotments and all the AMPs will be inspected each year. Minimum monitoring will include taking photos, estimating of range condition, trend, utilization and identifying unauthorized uses.

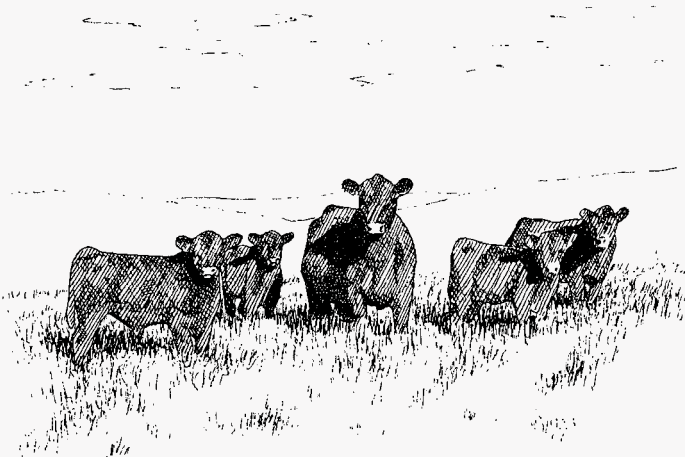
In addition to the decisions following the North Dakota Grazing EIS, several management policies towards riparian vegetation will continue under all alternatives. Activity plans will be developed as needed under all alternatives. Monitoring of riparian areas to measure accomplishment of management objectives would take place under all alternatives.

AMPs or coordinated resource activity plans may be developed on areas acquired through land base adjustments.

Wildlife Habitat Management

Habitat condition goals and specific management or habitat improvement projects will be developed as necessary. Wildlife habitat management prescriptions will be part of coordinated resource management plans (CRMP) or other activity plans whether initiated by wildlife, range, watershed, or other resources. The need for wildlife habitat management prescriptions is currently foreseen for pronghorn and sage grouse in Big Gumbo area and for elk in the Lost Bridge area. Plans will be developed for these species when inventory of seasonal use areas is more complete. Plans will be developed in cooperation with the NDGFD and USFWS when appropriate.

The goal of the Dickinson District's riparian habitat management program (HMP) is to have management plans



implemented on all manageable riparian areas by the year 2001. An extensive inventory of riparian habitat was completed in 1986. A list of tracts known or suspected to have riparian habitat is available in the Dickinson District Office.

These tracts will be prioritized and then evaluated for ecological condition, potential, and suitability for management by 1995. Those lands that are not manageable by BLM due to small size or distant locations may be transferred to another federal agency, managed by a state agency under a cooperative management agreement, exchange for similar, more manageable, habitat, or sold. The dispose/retain classifications in Appendix Q may be changed as a result of the evaluations.

For those tracts that are manageable our objectives will be to maintain areas that are currently in satisfactory condition and rehabilitate areas that are in unsatisfactory condition. Areas with exceptional resource values or potential will have the highest priority for protection or enhancement.

Where land use or activity plans are currently in place, such as AMPs in the Big Gumbo area, plans will be adjusted as necessary to ensure that adequate quantifiable riparian objectives are present. All new plans will include such objectives where applicable.

All rights-of-way, leases, and permits will have the following stipulation under the preferred alternative where applicable.

No disturbance of riparian vegetation will be allowed except for essential road and utility crossings. Construction and rehabilitation in riparian areas will conform to the provisions of BLM Manual Handbook H-2801-1, Right-of-Way Plans of Development and Grants.

Cooperative management agreements with resource management agencies or special interest groups concerned with habitat management will be pursued when high importance habitats which cannot be intensively managed or fully protected by the BLM are encountered. Cooperative agreements will establish the management objectives and roles and responsibilities of the BLM and cooperating agency or group.

Monitoring of riparian and other wildlife habitats on public lands will continue to assess management effectiveness, need for the development of activity plans, and general trend of habitat condition.

All future management actions will be subject to the requirements of the Endangered Species Act (1973, as amended) on a case-by-case basis.

Lands and Realty

Unauthorized uses of public land will be resolved either through termination, cooperative agreement authorized by the Sikes Act, authorization by lease or permit, exchange (including exchange with the State) or sale.

New cases of unauthorized use will be resolved immediately. Permits may be issued to provide short-term authorization, unless the situation warrants immediate cessation of the use and restoration of the land. Highest priority will be given to abatement of the following unauthorized uses: (1) new unauthorized activities or uses where prompt action can minimize damage to public resources and associated costs, (2) cases where delay may

be detrimental to authorized users, (3) cases involving special areas, sensitive ecosystems, and resources of national significance, (4) cases involving malicious or criminal activities, and (5) unauthorized landfills and dumpsites where there is a potential for hazardous waste dumping.

Trespass agricultural use of public lands will be authorized in the following situations: (1) until disposition or reclamation of the land has occurred, (2) where the acreage is small, causes low impact and is incidental to similar uses on adjacent land, and (3) where agricultural use will benefit public values. In light of these criteria public land with agricultural potential (small, scattered parcels) will be considered for agricultural use on a case-by-case basis.

Patents for Color-of-Title or other entry will be issued when appropriate. Other title resolution cases, e.g., disclaimers of interest and right-of-way abandonments, will be processed.

Right-of-way applications will be considered on a case-by-case basis. Areas containing resources or uses that would be impacted and difficult or impossible to mitigate will be avoided. Areas to be avoided include:

- 1) Areas having potential for recreational development,
- 2) Environmentally sensitive areas such as crucial wildlife habitats, wetlands, slump areas, and extensive wooded areas,
- 3) Areas containing significant archaeological, historical, or paleontological values,
- 4) Areas with specific visual objectives — adjacent to established parks, adjacent to the Little Missouri Scenic River, and
- 5) Areas with high potential for coal mining.

Future facilities will be located within or adjacent to existing rights-of-way when possible and when environmental conditions permit. The designation of utility corridors across public land is not practical because of the relatively small areas of control or influence designation would have. Official corridors will be established if changes in conditions such as public land pattern or right-of-way uses warrant.

The North Dakota Public Service Commission (NDPSC) has siting authority for energy conversion facilities and major transmission lines in the state. The District will present concerns addressing potential impacts of siting on important public land and mineral resources at all opportunities afforded by the NDPSC. Concerns will also be presented at all opportunities to the North Dakota Transportation Division during their review of proposed railroad abandonments.

Other legitimate uses of public land may be authorized on a case-by-case basis by permits, leases, and easements.

Patents may contain easements which assure access for use of public land, by the public. An easement may be used to preserve important resources such as archaeological or historical sites or habitat of threatened or endangered animal species on public and adjacent private land if it is determined to be in the public interest.

Private exchange and exchange pooling are preferred to sales as methods of disposal. The mineral estate will be exchanged with the surface estate if the land does not contain known minerals. Sales of public land may take place under the criteria presented in Section 203 of FLPMA

and the criteria identified through the land use plan. Sale of the mineral estate will take place as provided for in Section 209 of FLPMA. Sanitary landfill sites will be considered for sale to present lessees. Should the need arise, public land will be considered on a case-by-case basis for exchange or sale for solid and hazardous waste disposal/transfer.

Only federal coal determined to be acceptable for further consideration for leasing will be considered for coal exchanges. Federal coal considered for exchange will be located in the same state as the coal offered in exchange by a proponent. Exchange of other minerals (leasable and salable) will be considered on a case-by-case basis.

North Dakota is not included under the withdrawal review requirements of FLPMA; therefore, the District does not receive funding to conduct withdrawal review on a portion of the approximately 330,800 acres of withdrawn lands (Appendix J). There is a need for withdrawal review because some may no longer be needed or may not be fulfilling the intended purpose of the withdrawal. Withdrawals not needed should be revoked and the jurisdiction of the land returned to the BLM. Specific uses could be authorized by issuing rights-of-way to or by entering into cooperative agreements with other federal agencies instead of withdrawing the land from the public land base.

Land classifications under the Classification and Multiple Use (C & MU) Act on approximately 8000 acres (Appendix J) will be evaluated. They will be terminated after Civil Action No. 85-2238, National Wildlife Federation (NWF) versus Robert Burford et al. is resolved. Protection of historical, archaeological or other values present will be afforded by a subsequent FLPMA Section 204 withdrawal or other mechanism, e.g., cooperative agreement.

The management of lands and minerals returned to BLM administration through withdrawal revocation, acquisition through gifts or exchanges and lands returned to BLM administration by R & PP patent reversions will be guided by the objectives, resource allocations and decisions given in this plan. Disposal of lands returned to BLM administration through withdrawal review and R & PP patent reversions will be addressed on a case-by-case basis.

Construction of new roads and reconstructions of all or portions of existing roads will be in a manner minimizing surface disturbance. There will be a limit of one main road to each facility. Even distribution of year around access will be sought while minimizing networks of interconnecting roads. Guidelines and stipulations given in leases and other authorizations, "Surface Operating Standards for Oil and Gas Exploration and Development" and BLM Manual Handbook H-2801-1 will be followed. As areas of oil and gas development diminish in intensity and size, the need for retaining main roads and abandoning spur roads will be addressed in an activity plan. Transportation plans will be assembled for consolidated areas when the need arises.

Recreation and Visual Resources

The public lands in North Dakota will be managed as an extensive recreation management area for dispersed, non-developed activities, e.g., hunting or trail activities. Management of public lands will identify potential recreational opportunities and protect them where practical.

Visual resources will continue to be evaluated as a part of activity planning and environmental analysis.

Blocks of public land will be signed to identify public access. When possible, directional and informational signs will be installed along public roads providing access to blocked areas of public land. Signing will be done in cooperation with the proper state and county highway departments. All signs will be maintained annually.

Cultural Resources

Cultural resources in the district will be managed under the goals of: (1) protecting and preserving representative samples of the full array of cultural resources to the benefit of scientific and socio-cultural use by present and future generations, (2) ensuring cultural resources are given full consideration in all land use planning and management decisions, (3) managing cultural resources so scientific and socio-cultural values are not diminished, but rather maintained and enhanced, and (4) ensuring the Bureau's undertakings avoid inadvertent damage to cultural resources, both federal and nonfederal.

All BLM actions which may potentially affect cultural resources must comply with the National Historic Preservation Act of 1966 as amended and as implemented by 36 CFR 800. This legislation and regulation (called Section 106 process) require the following steps be taken before initiation of BLM action.



Prior to any federal undertaking, cultural resources eligible to or listed on the National Register of Historic Places (NRHP) must be identified. Cultural resources identified within the project area and potentially affected by a BLM action are evaluated in consultation with the State Historic Preservation Officer (SHPO). Agreement between the agency and SHPO on eligibility constitutes consensus, permitting the compliance process to proceed. Once consensus exists, the nature of the effect on historic properties is determined. One of the three following determinations are made: (1) No effect — the agency, in consultation with

SHPO, determines the federal undertaking will not impact eligible cultural resources. (2) No adverse effect — the agency in consultation with the SHPO determines there will be an effect but the effect will not be adverse. The agency submits to the Advisory Council on Historic Preservation (ACHP) a report which describes the nature of the undertaking and a justification for a determination of no adverse effect. The ACHP may concur, object with conditions (project may proceed if conditions are met) or object (in this case a consultation process is initiated among ACHP, the agency and SHPO). (3) Adverse effect — when the agency determines the effect on cultural resources will be adverse, the agency, SHPO, and the ACHP consider ways to avoid or mitigate the impact of the federal undertaking on cultural resources. Measures considered during consultation may include preservation of the cultural resource, restoration (restoring, repairing) of the cultural resource, documentation (photographs, drawings, and histories of buildings and structures), reducing the magnitude of the undertaking, redesigning the project, and data recovery (refers to archaeological sites where data may be recovered through controlled excavation). Once the consulting parties agree on the measures to avoid or mitigate the impact to eligible cultural resources by the federal undertaking, and the conditions or stipulations have been met, the project may proceed.

Mitigation or avoidance of adverse effects to eligible cultural resources may not be possible in all cases. Further, if the federal undertaking is of great public benefit, in relation to the significance of the cultural resources, damage to or destruction of cultural resources may be considered an acceptable loss.

If a historic property is discovered during the course of a project that was not previously identified, the contractor must contact the BLM. If the cultural resource is determined to be eligible through consultation with the SHPO, the agency is directed, by the Archaeological and Historic Preservation Act of 1974, to notify the Secretary of Interior, in writing, describing the project and the nature of the cultural resource. The agency may request the Secretary to undertake or fund the recovery, protection, and preservation of the data, or it may request the developer to hire qualified cultural resource specialists to undertake such activities. The Secretary determines if the significance of the resource, the effect on the resource by the project, and any proposed mitigation warrants ACHP consideration. In most cases, however, once the cultural resource has been determined eligible, the agency usually will proceed with Section 106 review.

All persons conducting cultural resource fieldwork on public lands in the District are required to obtain a Cultural Resource Use Permit from the MSO in Billings. These permits are granted under the authority of the Archaeological Resources Protection Act of 1979 (ARPA), FLPMA, Antiquities Act of 1906, and 43 CFR Parts 3, 4, 7, and 2920.

District Managers are responsible for authorizing and monitoring specific field work proposed and conducted under any cultural resources use permit. This is accomplished by the permittee submitting a Fieldwork Authorization request to the District Manager. Once approved the permittee may proceed with the fieldwork.

Activity plans may be development for significant cultural resources located on public lands. Consideration of cultural resources will also be included in other activity plans such as AMPs or CRMPs.

Paleontological Resources

The Antiquities Act of 1906 extends protection to paleontological resources of significant scientific interest. This Act authorizes the Bureau (in this case, the MSO of the BLM) to issue permits to qualified paleontologists to conduct work on public lands. Currently, the authority is limited to vertebrate fossils, but if significant invertebrate or plant fossils are located on public land the authority could be extended to cover those resources.

Paleontological resources will be considered on a case-by-case basis prior to a federal action. If paleontological resources are discovered during construction the contractor must report these findings to the BLM. A subsequent evaluation and management decision will be made concerning the disposition of the resources. Management plans may then be formulated which protect resources of scientific interest.

Fire Management

Wildfires on public lands will be controlled. Cooperative agreements with county governments for the control of fires on public lands will be established. Permittees, lessees, and contractors will be required to control fires on public land included in their operations.

Prescribed burn plans and assessments will be prepared as needed for vegetation manipulation and made available to county governments, permittees, and adjacent landowners for review.

Areas of Critical Environmental Concern

There have been no ACECs identified on public lands in the District. If areas of public land containing critical resource values are identified, each area will be reviewed in coordination with appropriate state or federal agencies to determine levels of protection necessary. ACEC designation will be made when critical resource values cannot be protected through other management actions.

ALTERNATIVES CONSIDERED IN DETAIL

Four alternatives were considered in detail. These alternatives were based on the general themes of no action or continuation of present management (Alternative A), maximization of commodity resource production (Alternative B), a balance of multiple uses (Alternative C), and protection of amenity resources (Alternative D). Each of the four alternatives, in combination with Management Guidance Common to All Alternatives, represents a comprehensive plan for managing public lands and minerals in North Dakota. Table 2-1 presents a summary of the major resource allocations and management actions under each alternative.

**TABLE 2-1
SUMMARY OF ALTERNATIVES**

ISSUE	MANAGEMENT OBJECTIVES	RESOURCE ALLOCATIONS AND MANAGEMENT ACTIONS			
		Alternative A	Alternative B	Alternative C	Alternative D
Coal Leasing	To encourage orderly development of the federal coal resource while avoiding unnecessary impacts to other resources and land uses	391,179 acres are acceptable for further consideration for the leasing or exchange of coal	597,016 acres are acceptable for further consideration for the leasing or exchange of coal 151,577 acres included in the area acceptable with special stipulations	571,388 acres are acceptable for further consideration for the leasing or exchange of coal 161,788 acres included in the area acceptable with special stipulations	484,592 acres are acceptable for further consideration for the leasing or exchange of coal 110,120 acres included in the area acceptable with special stipulations
Land Pattern Adjustment	To achieve a land pattern which allows efficient management of multiple uses, and ensures adequate protection of important resource values	9,580 acres identified for disposal or exchange Preferred acquisition areas are lands adjacent to the Big Gumbo and Lost Bridge areas	38,848 acres identified for disposal or exchange Exchanges would be made to acquire lands adjacent to the Big Gumbo and Lost Bridge areas	22,819 acres identified for disposal or exchange 11,844 acres identified for exchange only Exchanges would be made to acquire lands within the Big Gumbo and Lost Bridge consolidation areas and lands adjacent to isolated retention tracts when manageability or resource values can be enhanced	No public lands would be offered for exchange or disposal Outside applications would be reviewed on a case-by-case basis
Oil and Gas Leasing	To encourage development of the federal oil and gas resource while avoiding unnecessary impacts to other resources and land uses	Special lease stipulations applied to all new leases on 29,136 acres All future leases on the remaining 431,258 acres will include Montana BLM Standard Stipulations	Future leases on 460,394 acres will include Montana BLM Standard Stipulations only	Special lease stipulations applied to all new leases on 206,117 acres All future leases on the remaining 254,277 acres will include Montana BLM Standard Stipulations	Special lease stipulations applied to all new leases on 106,620 acres All future leases on the remaining 254,277 acres will include Montana BLM Standard Stipulations There would be no future leasing on 99,497 acres
Off-Road Vehicle Use Designations	To provide sufficient off-road recreation opportunities while preventing unnecessary impacts to other resources	No off-road vehicle use designations; all areas open to use	All areas designated open to off-road vehicle use	22,164 acres in the Big Gumbo area limited to maintained roads March 1 through June 1; open to off-road vehicle use remainder of year All other lands designated open to off-road vehicle use	22,164 acres in the Big Gumbo area limited to maintained roads March 1 through June 1; limited to roads and trails remainder of year All other lands designated open to off-road vehicle use

ALTERNATIVE A—NO ACTION OR CONTINUATION OF PRESENT MANAGEMENT

This alternative would continue present management in accordance with the four existing MFPs, decisions based on the North Dakota Grazing EIS, North Dakota Oil and Gas EA, other programmatic environmental documents, and present BLM policy and management direction.

Coal Leasing

A total of 607,131 acres located in 18 CSAs were identified as having coal development potential. The 18 CSAs contain an estimated 12,168 MM tons of minable federal coal. Application of the unsuitability criteria eliminated 151,568 acres from further study. An additional 45,272 acres were dropped from further consideration under the application of the multiple use screen. A total of 1,559 landowners were consulted regarding their preference towards surface mining of federal coal. The surface owner consultation screen dropped 19,112 acres from further consideration due to significant surface owner opposition to mining (Appendices B through G).

The application of the four coal screens resulted in a total of 215,952 acres, containing an estimated 4512 MM tons of minable federal coal, being excluded from further consideration. A total of 391,179 acres of federal coal (7656 MM tons) would be acceptable for further consideration during activity planning, response to application, or for exchange. After the application of all screens, 13 CSAs contain sufficient federal coal tonnage to support a typical new mine and facility.

Multiple-use tradeoffs excluded from further consideration include concentrations of slopes exceeding 30 percent, buffer zones for lakes, wildlife refuge watersheds, experiment stations, municipal watersheds, and buried valley aquifers, portions of the eligible Knife River Flint Quarry National Register District and all of A.C. Townley Homestead, and major oil and gas fields (Appendix D).

Land Pattern Adjustment

A total of 9,580 acres located in the Southwest, McKenzie-Williams and West-Central North Dakota MFP areas were identified for disposal. Land pattern review criteria are presented in Appendix N. The theme of this alternative is to continue the present practice of retaining manageable areas with high resource values, broad multiple-use values, or potential for further consolidation through acquisition of adjacent lands.

The primary method of disposal would be through exchange. Target areas for exchange would be adjacent to the Big Gumbo and Lost Bridge areas and contiguous to high resource value retention tracts. Lands identified for disposal would also be available for transfer to other federal agencies, R & PP Act patents, and sales.

Oil and Gas Leasing

Special lease review areas or stipulations would be established for approximately 29,136 acres of federal oil and gas. A review area and stipulations would be used, when necessary to protect nesting Golden Eagles on 28,040 acres. Spe-

cial lease stipulations would be used in addition to Montana BLM Standard Stipulations. No Surface Occupancy would be applied to 1,096 acres to protect floodplains, native prairie, and wetlands. The remaining 431,258 acres of federal oil and gas located under BLM or private surface would fall under Montana BLM standard lease stipulations.

Much of the federal oil and gas considered in this plan is presently under lease. Should these leases expire or otherwise terminate, parcels falling within the identified special review areas will be analyzed in greater detail to determine the need for the special stipulations presented in Appendix N. No new stipulations will be placed on existing leases.

The following tabulation shows the general categories of stipulations that would be added to leases and acreages of federal oil and gas affected.

Stipulation Category	Low or No Oil/Gas Potential	Moderate Oil/Gas Potential	High Oil/Gas Potential	Unknown Oil/Gas Potential	Total
	(acres)	(acres)	(acres)	(acres)	(acres)
Open	— ¹	— ¹	— ¹	— ¹	431,258
Open with no surface occupancy or seasonal restrictions	0	0	28,040	1,096	29,136
Closed	0	0	0	0	0

¹Acreage not available by category.

Off-Road Vehicle Use Designations

Previous MFP decisions did not designate public lands as open or closed. Under existing management, however, all public land is open to ORV use. Emergency closures may be made when necessary.

ALTERNATIVE B

This alternative is based on the themes of maximizing commodity resource production, consolidating land pattern to improve management efficiency and maximizing opportunities for ORV travel and recreation.

Coal Leasing

A total of 1,009,648 acres located in 24 CSAs were identified as having coal development potential. The 24 CSAs contain an estimated 17,750 MM tons of minable federal coal. Application of the unsuitability criteria eliminated 193,382 acres from further study. An additional 128,833 acres were dropped from further consideration under the application of the multiple-use screen. A total of 3,403 landowners were consulted regarding their preference towards surface mining of federal coal. The surface owner consultation screen dropped 90,417 acres from further consideration due to significant surface owner opposition to mining (Appendices B through G).

The application of the four coal screens resulted in 412,632 acres, containing an estimated 6,778 MM tons of minable federal coal, being excluded from further consideration. Under this alternative 597,016 acres of federal coal (10,972 MM tons) would be acceptable for further consideration during activity planning and/or response to application. Of this, 151,577 acres would be acceptable with special

stipulations (Appendix F). Sixteen CSAs contain federal coal of sufficient tonnage to support a typical new mine and facility after the application of all coal screens.

Areas excluded from consideration due to multiple use conflicts include: regionally or nationally important cultural resources, major oil and gas fields, major utility and transportation facilities, intensive public use or development areas, and areas exceeding the established threshold of regionally significant wildlife habitats (Appendix D).

Land Pattern Adjustment

A total of 38,848 acres would be open for consideration for repositioning subject to a case-by-case assessment to determine if there are any resources or other factors present that would preclude disposal. Land pattern review criteria are presented in Appendix N. All public lands located not in proximity to the Big Gumbo and Lost Bridge areas would be available for disposal (Maps 2-1 and 2-2). Land ownership in those areas would be consolidated to improve manageability and enhance existing resource values.

The primary means of disposal would be through exchange for lands contiguous to the Big Gumbo or Lost Bridge areas. Tracts falling outside of the two consolidated blocks containing moderate to high resource values would be available for transfer to other federal agencies that due to proximity, budget, or management policy, would be better able to manage the tracts. When exchange or transfer is not feasible, the tracts would be available for sale, R & PP patent, or other means of disposal.

Private groups or state agencies able to manage and preserve special resource values could be identified as designated bidders in circumstances where unmanageable tracts contain high resource values and private groups or agencies have expressed interest.

Protective covenants in patents would be used as a last resort when necessary to protect high value resources located on unmanageable tracts offered for disposal. However, protective covenants would be the least desirable method of preserving resource values. Additionally, protective covenants would only be employed when they contain wording consistent with county zoning or state law; thereby compliance/enforcement would be provided by local government officials.

Oil and Gas Leasing

No special lease review areas or lease stipulations would be designated. Future leases on any of the 460,394 acres of federal oil and gas considered in this plan would be issued under the Montana BLM standard lease stipulations (Appendix K).

Off-Road Vehicle Use Designations

All 67,520 acres of public lands would be designated as open for ORV use. No special use restrictions would be identified. No ORV travel restrictions would be imposed on authorized actions such as mineral development, or live-stock grazing. Emergency closures may be made when necessary.

ALTERNATIVE C—PREFERRED

This alternative is based on the general theme of balanced multiple use. The management actions are intended to maximize production of mineral resources and opportunities for ORV recreation, and to consolidate surface lands into a manageable pattern. Along with these goals, all actions are to protect high resource values as determined by BLM and other state and federal resource management agencies, as well as meet all legal requirements.

Coal Leasing

A total of 1,009,648 acres located in 24 CSAs was identified as having coal development potential. The 24 CSAs contain an estimated 17,750 MM tons of minable federal coal. Application of the unsuitability criteria eliminated 193,382 acres from further study. An additional 156,235 acres were dropped from further consideration under the application of the multiple-use screen. A total of 3,403 landowners were consulted regarding their preference towards surface mining of federal coal. The surface owner consultation screen eliminated 88,643 acres from further consideration due to significant surface owner opposition to mining (Appendices B through G).

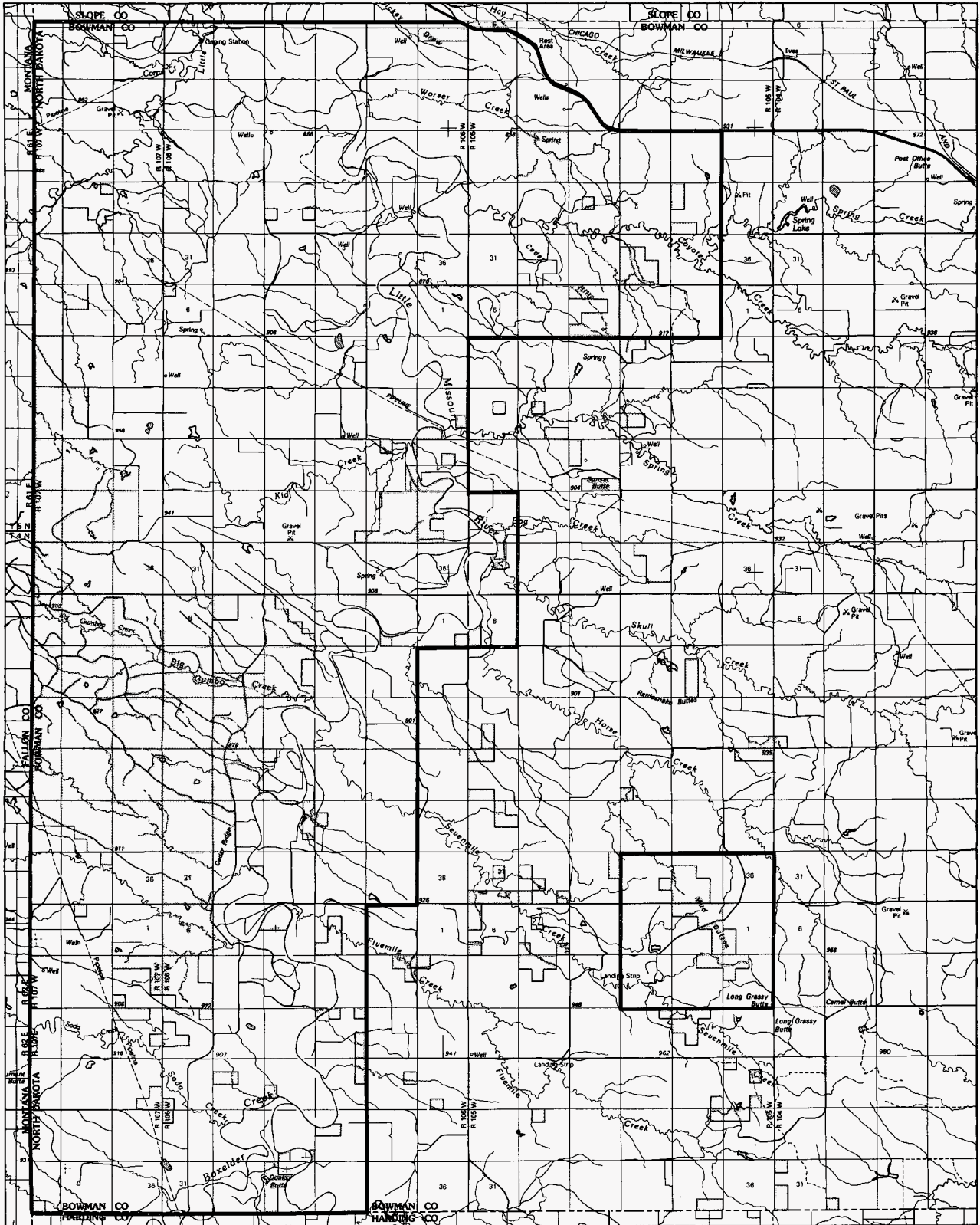
The application of the four coal screens resulted in 438,260 acres, containing an estimated 7,217 MM tons of minable federal coal, being excluded from further consideration. Under this alternative, 571,388 acres of federal coal (10,533 MM tons) would be acceptable for further consideration during activity planning, response to application, or for exchange. Of this, 161,788 acres would be acceptable with special stipulations (Appendix F). Fifteen CSAs contain federal coal of sufficient tonnage to support a typical new mine and facility after the application of all coal screens.

Multiple-use tradeoffs excluded from further consideration include concentrations of slopes exceeding 30 percent, cultural resources of regional or national significance, major utility or transportation systems, intensive public use or development areas, municipal watersheds, and areas exceeding the established threshold of regionally important wildlife habitats (Appendix D).

Land Pattern Adjustment

A total of 22,819 acres were identified for disposal subject to a case-by-case assessment to determine if there are any resources or other factors present that would preclude disposal. Land pattern review criteria are presented in Appendix N. All lands outside of Big Gumbo and Lost Bridge consolidation areas and manageable tracts containing no high value resources would be available for disposal (Maps 2-1 and 2-2). An additional 11,844 acres within the consolidation areas were identified for exchange only. Isolated parcels within the consolidation areas would only be available for exchange for lands within either consolidation area. The objectives of land pattern adjustment are to provide units large enough to be intensively managed, easily identified by the public and to consolidate ownership in areas with large blocks of public land.

The primary means of adjusting the land pattern would be through exchange for lands within or adjacent to the Big Gumbo or Lost Bridge Consolidation areas, or lands contiguous to tracts retained for manageable resource values.



T 132 N

T 131 N

T 130 N

T 129 N

R106W

R105W

R104W

Big Gumbo and Vicinity

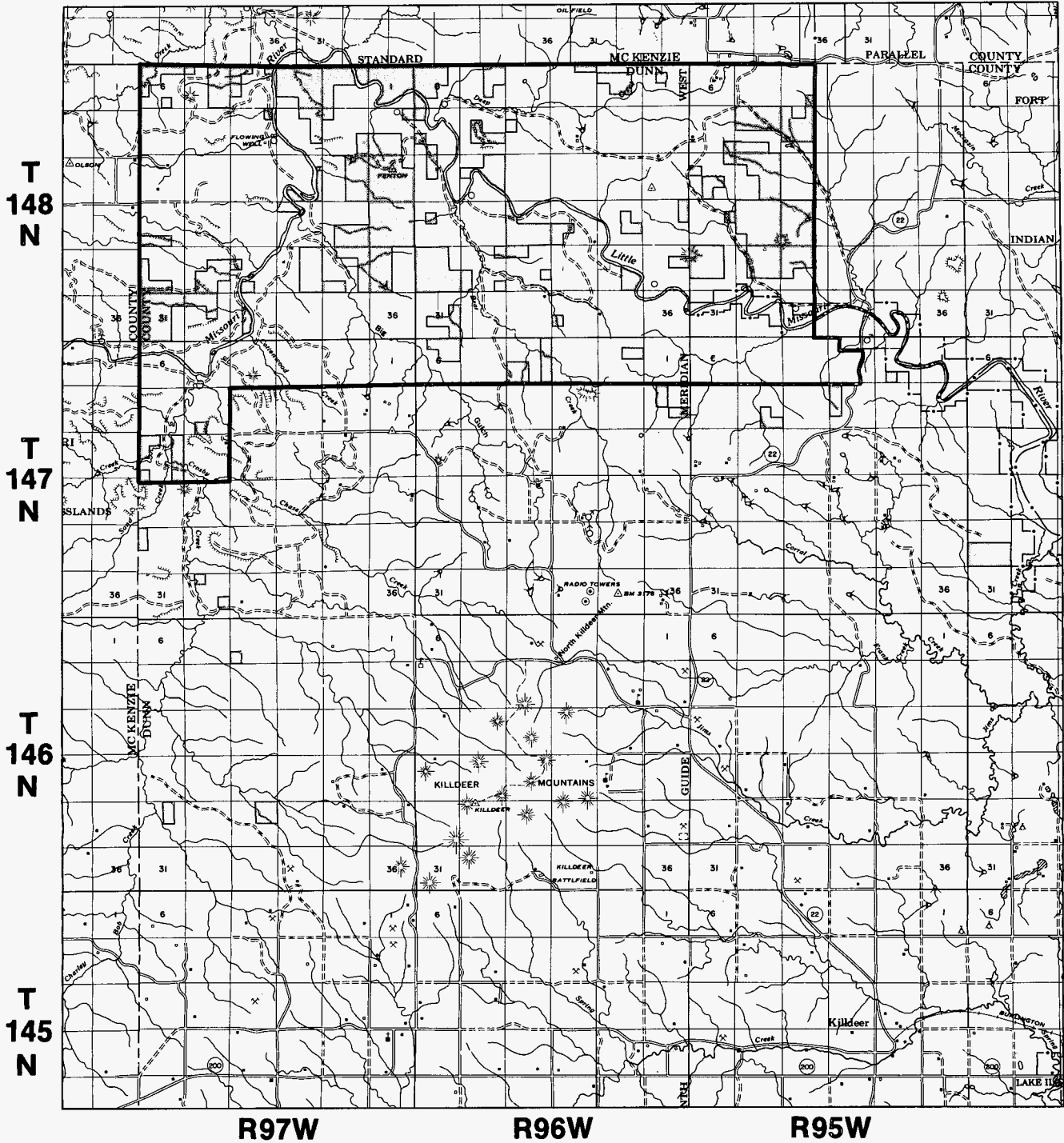


Public lands



Consolidation area boundary — Alternative C only

Map 2-1.



Lost Bridge and Vicinity



Public lands



Consolidation area boundary — Alternative C only

Map 2-2.

Unmanageable tracts containing high resource values would be available for transfer to other federal agencies that due to proximity, budget, or management policy, would be better able to manage the tracts. When exchange or transfer is not feasible, the tracts would be available for sale, and R & PP patent.

Private groups able to manage and preserve special resource values could be identified as designated bidders in circumstances where unmanageable tracts contain high resource values and private groups have expressed interest.

Protective covenants in patents would be used when necessary to protect high value resources located on unmanageable tracts offered for disposal. However, protective covenants would be the least desirable method of preserving resource values. Protective covenants would be used when they are consistent with county zoning or state law. Compliance/enforcement would thereby be provided by local government officials.

Oil and Gas Leasing

Special lease review areas or stipulations would be established for approximately 206,117 acres of federal oil and gas. These stipulations and review areas would be used, when necessary, to protect wetlands, riparian areas, sage grouse leks, elk and bighorn sheep range, raptors, and the Fort Union Trading Post National Historic Site. Special lease stipulations would be used in addition to the Montana BLM standard lease stipulations. The remaining 254,277 acres of federal oil and gas located under BLM or private surface would fall under Montana BLM standard lease stipulations.

Much of the federal oil and gas considered in this plan is presently under lease. Should these leases expire or otherwise terminate, parcels falling within the identified special review areas will be analyzed in greater detail to determine the need for the special stipulations presented in Appendix K. No new stipulations will be placed on existing leases.

The following tabulation shows the general categories of stipulations that would be added to leases and acreages of federal oil and gas affected.

Stipulation Category	Low or No Oil/Gas Potential	Moderate Oil/Gas Potential	High Oil/Gas Potential	Unknown Oil/Gas Potential	Total
	(acres)	(acres)	(acres)	(acres)	(acres)
Open with no special stipulations	— ¹	— ¹	— ¹	1 ¹	254,277
Open with no surface occupancy or seasonal restrictions	0	103,326	37,020	65,771	206,117
Closed to leasing	0	0	0	0	0

¹ Acreage not available by category.

Off-Road Vehicle Use Designations

A total of 22,164 acres of public land is designated as a seasonally restricted area for off-road travel, and 45,356 acres open to ORV use. ORV use within the Big Gumbo area would be restricted to maintained roads during the period of March 1 through June 1. Travel necessary for

emergency, scientific, and maintenance purposes would be excluded from restrictions.

Off-road travel restrictions were developed to protect fragile vegetation and soils during spring thaw when the risk of impacts is greatest. ORV travel stipulations would be incorporated in all future oil and gas leases. Emergency closures may be implemented when needed.

ALTERNATIVE D

This alternative is based on the general theme of protection of amenity values. The protection of values such as cultural resources, wildlife habitats, and recreational opportunities is favored over potentially conflicting uses or actions such as the development of mineral resources or the disposal of public lands. The management actions allow for levels of resource use which do not result in significant long-term adverse impacts.

Coal Leasing

A total of 1,009,648 acres located in 24 CSAs was identified as having coal development potential. The 24 CSAs contain an estimated 17,750 MM tons of minable federal coal. Application of the unsuitability criteria eliminated 193,382 acres from further study. An additional 257,779 acres were excluded from further consideration under the application of the multiple-use screen. A total of 3,403 landowners were consulted regarding their preference towards surface mining of federal coal. The surface owner consultation screen excluded 73,895 acres from further consideration due to significant surface owner opposition to mining (Appendices B through G).

The application of the four coal screens resulted in 525,056 acres, containing an estimated 8,517 MM tons of recoverable federal coal, being excluded from further consideration. Under this alternative, 484,592 acres of federal coal (9,233 MM tons) would be acceptable for further consideration during activity planning, response to application, or for exchange. Of this, 110,120 acres would be acceptable with special stipulations (Appendix F). Fourteen CSAs containing blocks of federal coal with sufficient tonnage to support a typical new mine and facility remain in the area found acceptable for further consideration.

Areas excluded from consideration due to multiple use conflicts include: concentrations of slopes exceeding 15 percent, regionally or nationally significant cultural resources, major oil and gas fields, major utility and transportation facilities, intensive public use or development areas, municipal watersheds, buried-valley aquifers, and areas exceeding the established threshold of regionally significant wildlife habitats (Appendix D).

Land Pattern Adjustment

No lands were identified for disposal. Land pattern review criteria are presented in Appendix N. All public lands in North Dakota would be retained except for disposals in response to outside applications. Based on the number of cases processed in the past ten years, few applications would be received for R & PPs, withdrawals, and Color-of-Title patents. Each application or request would be reviewed through an appropriate environmental analysis and land report.

Oil and Gas Leasing

Special lease review areas or stipulations would be established for approximately 106,620 acres of federal oil and gas. These stipulations and review areas would be used, when necessary, to protect wetlands, riparian areas, sage grouse leks, elk and bighorn sheep range, raptors, and the Fort Union Trading Post National Historic Site. Special lease stipulations would be used in addition to the Montana BLM standard lease stipulations.

Up to 99,497 acres of federal oil and gas would be closed to leasing for the protection of nesting golden eagles, prairie falcons, ferruginous hawks, sage grouse, seasonal use areas of elk and bighorn sheep, and riparian habitat. The remaining areas of federal oil and gas located under BLM or private surface would fall under Montana BLM standard lease stipulations.

Special review and lease stipulation areas would be the same as under Alternative C. However, lease stipulations would generally be more restrictive under this alternative.

Much of the federal oil and gas considered in this plan is presently under lease. Should these leases expire or otherwise terminate, parcels falling within the identified special review areas will be analyzed in greater detail to determine the need for the special stipulations presented in Appendix K. No new stipulations will be placed on existing leases. No new oil and gas leases would be issued in the 99,497 acres identified as closed to leasing.

The following tabulation shows the general categories of stipulations that would be added to leases and acreages of federal oil and gas affected.

Stipulation Category	Low or No Oil/Gas Potential	Moderate Oil/Gas Potential	High Oil/Gas Potential	Unknown Oil/Gas Potential	Total
	(acres)	(acres)	(acres)	(acres)	(acres)
Open	— ¹	— ¹	— ¹	— ¹	254,277
Open with no surface occupancy or seasonal restrictions	0	7,559	33,290	65,771	106,620
Closed to leasing	0	70,036	29,461	0	99,497

¹Acreage not available by category.

Off-Road Vehicle Use Designations

This alternative would limit ORV use on the 22,164 acres in the Big Gumbo area to existing roads and trails. In addition, travel in the Big Gumbo area would be limited to maintained roads during the period of March 1 through June 1. Trails, as identified through monitoring, causing unnecessary damage to soils and vegetation would be closed to all travel. Scientific, maintenance, and emergency uses would be excluded from restriction. All other surface lands would be designated as open for ORV travel.

Off-road travel restrictions were developed for the Big Gumbo area to protect fragile vegetation and soils where current or potential ORV conflicts exist. Emergency closures may be made in all areas when needed.

SUMMARY OF ENVIRONMENTAL IMPACTS

The projected impacts of implementing each of the four alternatives are summarized in Table 2-2. Detailed discussions of impacts are presented in Chapter Four.

SELECTION OF THE PREFERRED ALTERNATIVE

In selecting the preferred management plan each alternative was reviewed for:

- 1) effectiveness in resolving planning issues,
- 2) conformance with the guidance established by the planning criteria, and
- 3) avoidance of unnecessary impacts to the human environment.

Alternative C was selected and refined as the preferred management plan. This alternative represents a balanced management strategy for public lands and minerals in North Dakota. The rationale for selecting Alternative C as the preferred management plan is presented below by resource issue.

Coal Leasing

Alternative C effectively applies the four coal planning screens to federal coal in the state. The application of the screens is complete except for the preliminary determinations of alluvial valley floors (AVFs). Multiple-use trade-offs made in respect to coal respond to concerns raised by the public that have been incorporated in the planning criteria. This alternative allows 571,388 acres of federal coal to go forward as acceptable for further consideration for coal leasing.

Coal acceptable for further consideration is located in 24 CSAs throughout the western half of the state and could support new mines and facilities in up to 15 CSAs. Alternative C finds greater federal coal acreage acceptable for further consideration in more CSAs than under current management. At the same time, Alternative C provides increased protection to resources such as wildlife habitat and erodible soils.

Land Pattern Adjustment

Alternative C establishes specific management direction for the land pattern adjustment program through identification of a set of site-specific review criteria, an initial classification of all public lands in the state, and the identification of two primary land consolidation areas. This alternative allows the flexibility necessary to effect a large scale repositioning of public lands while firmly establishing the goals and restrictions of land pattern adjustment. Alternative C expands land pattern adjustment opportunities under present management by including all public lands in the state.

Oil and Gas Leasing

Alternative C identifies special stipulations necessary to protect resource values identified in the planning criteria while continuing to allow development of most federal oil and gas in the state. The special stipulations identified generally represent the minimum restriction necessary to protect sensitive resources. Identification of special stipulations prior to lease offering and, especially, APD approval, ensures that both operators and BLM recognize the presence of potential conflicts. Identifying possible restrictions at this stage also facilitates long-range planning by industry.

Off-Road Vehicle Use Designations

Alternative C fulfills the need for ORV travel restrictions as mandated by EO 11644. ORV travel would be essentially unrestricted on public lands. Seasonal restrictions in the Big Gumbo area are prescribed to protect fragile soils and vegetation during wet periods. These seasonal restrictions address the resource concerns in the planning criteria while having minimal impact on ORV users. There is presently little evidence of either significant demand for ORV opportunities or adverse impacts resulting from ORV use. However, this alternative would effectively accommodate any foreseeable increase in demand while avoiding unnecessary resource protection.

**TABLE 2-2
SUMMARY OF ENVIRONMENTAL IMPACTS**

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Air Quality	<p>Mining would increase particulates. New facilities on up to 13 CSAs would increase pollution.</p> <p>Oil and gas development on up to 460,394 acres would continue to create offensive odors and potential health problems through increasing H₂S and SO₂ releases.</p>	<p>Same impacts occurring on up to 16 CSAs.</p> <p>Same oil- and gas-related impacts as Alternative A.</p>	<p>Same impacts occurring on up to 15 CSAs.</p> <p>Same oil- and gas-related impacts as Alternative A.</p>	<p>Same impacts occurring on up to 14 CSAs.</p> <p>Same oil- and gas-related impacts as Alternative A occurring as a result of development of up to 360,897 acres.</p>
Minerals				
Coal	<p>Up to 391,179 acres of federal coal would presumably be mined. New mines and facilities could be supported by federal coal on 13 CSAs.</p>	<p>Up to 597,016 acres of federal coal would presumably be mined. New mines and facilities could be supported by federal coal on 16 CSAs.</p>	<p>Up to 571,388 acres of federal coal would presumably be mined. New mines and facilities could be supported by federal coal on 15 CSAs.</p>	<p>Up to 484,592 acres of federal coal would presumably be mined. New mines and facilities could be supported by federal coal on 14 CSAs.</p>
Oil and Gas	<p>Special stipulations on 29,136 acres would have long-term effects through increased development costs.</p> <p>Disposal of up to 9,580 acres of public lands would complicate administration of leases.</p>	<p>Disposal of up to 38,848 acres of public lands would complicate administration of leases.</p>	<p>Special stipulations on 206,117 acres would have long-term effects through increased development costs.</p> <p>Disposal or exchange of up to 334,663 acres of public lands would complicate administration of leases.</p>	<p>Special stipulations on 106,620 acres would have long-term effects through increased development costs.</p> <p>Closure of 99,497 acres to leasing would result in foregone development of the federal oil and gas.</p>
Other Minerals	<p>Construction materials would be lost in the long term following mining of up to 391,179 acres of federal coal.</p> <p>Disposal of up to 9,580 acres of public lands would complicate future mineral management.</p>	<p>Same impacts as Alternative A occurring on up to 597,016 acres of coal and up to 38,848 acres of public lands.</p>	<p>Same impacts as Alternative A occurring on up to 571,388 acres of coal and up to 34,663 acres of public lands.</p>	<p>Same impacts as Alternative A occurring on up to 484,592 acres of coal.</p>
Soils	<p>Coal mining on up to 391,179 acres would cause short-term soil erosion, compaction, instability, and loss of productivity. Long-term erosion would occur on up to 2,793 acres of steep slopes acceptable for further consideration.</p> <p>Continuation of current range management would decrease erosion in the long term.</p> <p>ORV use would perpetuate minor erosion and compaction problems.</p> <p>Continued application of Montana BLM oil and gas lease stipulations would minimize impacts to soil.</p>	<p>Same coal-related impacts as Alternative A occurring on up to 597,016 acres, except long-term erosion would occur on up to 79,478 acres of steep slopes.</p> <p>Other impacts same as Alternative A.</p>	<p>Same coal-related impacts as Alternative A occurring on up to 571,388 acres except no steep slopes would be acceptable for further consideration.</p> <p>Continuation of current range management would decrease erosion in the long term.</p> <p>Limitations on ORV use would minimize erosion and compaction on 22,164 acres.</p> <p>Other impacts same as Alternative A.</p>	<p>Same coal-related impacts as Alternative A occurring on up to 484,592 acres, except no slopes over 15 percent would be acceptable for further consideration.</p> <p>There would be no impacts to soils on up to 99,497 acres of oil and gas closed to future leasing.</p> <p>Other impacts same as Alternative C.</p>

TABLE 2-2 (continued)
SUMMARY OF ENVIRONMENTAL IMPACTS

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Hydrology	Coal mining on up to 391,179 acres would cause short-term erosion and disrupt infiltration with resulting decrease in ground water recharge.	Same coal-related impacts as Alternative A occurring on up to 597,016 acres.	Same coal-related impacts as Alternative A occurring on up to 571,388 acres except buried-valley aquifers would be protected on 12,318 acres.	Same coal-related impacts as Alternative A on up to 484,592 acres.
	Springs, seeps and shallow wells may become dry or have lower levels for the long term. Shallow ground water quality and quantity may drop in the short- and long-term.			
	Land pattern adjustment of up to 9,580 acres would improve manageability allowing reductions in water yields, improvement in water quality and a decrease in erosion and sedimentation in the long term.	Same impacts related to land pattern adjustment as Alternative A occurring on up to 38,848 acres.	Same impacts related to land pattern adjustment as Alternative A occurring on up to 34,663 acres.	No land pattern adjustment under this alternative.
	Oil and gas activity would cause short-term increases in erosion and sedimentation on individual well locations. There may also be long-term decreases in water quantity and degradation of water quality.	Other impacts same as Alternative A.	Limitations on ORV use would reduce water degradation on 22,164 acres.	Limitations of ORV use on 22,164 acres would minimize impacts to water resources.
Vegetation	Coal mining on up to 391,179 acres would cause a short-term loss in vegetative productivity and a long-term loss in species diversity.	Same coal-related impacts as Alternative A occurring on up to 597,016 acres.	Same coal-related impacts as Alternative A occurring on up to 571,388 acres.	Same coal-related impacts as Alternative A occurring on up to 484,592 acres.
	Continuation of current range management would increase total vegetative production by about 6.5 percent in the long term.	Other impacts same as Alternative A.		
	ORV use would cause minor vegetative loss in the short and sometimes long term.		Limitations on ORV use would minimize short- and long-term vegetative loss on 22,164 acres.	
	Oil and gas activity would cause both short- and long-term loss of vegetative productivity on individual well locations.		Other impacts same as Alternative A.	Vegetation would not be affected by development of future oil and gas leases on the 99,497 acres closed to leasing. Other impacts same as Alternative C.

TABLE 2-2 (continued)
SUMMARY OF ENVIRONMENTAL IMPACTS

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Wildlife	Coal mining on up to 391,179 acres would cause the short- and long-term loss of local wildlife populations and habitat including 47,373 acres of woody draws.	Same coal-related impacts as Alternative A occurring on up to 597,016 acres including 29,387 acres of woody draws. Special stipulations on 151,577 acres would ensure restoration of important habitats.	Same coal-related impacts as Alternative A occurring on up to 571,388 acres including 16,771 acres of woody draws. Special stipulations on 149,470 acres would ensure restoration of important habitat.	Same coal-related impacts as Alternative A occurring on up to 484,592 including 6,117 acres of woody draws. Special stipulations on 110,120 acres would ensure restoration of important habitats.
	Land pattern adjustment on up to 9,580 acres would promote opportunities for habitat enhancement in the long term.	Same impacts related to land pattern adjustment as Alternative A occurring on up to 38,848 acres.	Same impacts related to land pattern adjustment as Alternative A occurring on up to 34,663 acres.	No land pattern adjustments under this alternative; reduced opportunity for habitat enhancement.
	ORV use would cause localized loss of wildlife habitat which may reduce wildlife populations in the long term.	ORV impacts same as Alternative A.	Limitations on ORV use would minimize short- and long-term impacts to wildlife habitats and populations on 22,164 acres.	Same ORV impacts as Alternative C.
	Special stipulations on new oil and gas leases applied in addition to Montana BLM standard stipulations on 29,136 acres would provide long-term protection to key species. Significant long-term losses are expected on 178,077 acres.	Montana BLM Standard Oil and Gas Stipulations applied to 460,394 acres would have long-term adverse impacts on key wildlife species and habitats.	Special stipulations on new oil and gas leases applied in addition to Montana BLM Standard Stipulations on 206,117 acres would protect key wildlife species and habitats.	Special stipulations on new oil and gas leases applied in addition to Montana BLM Standard Stipulations on 106,620 acres would protect key wildlife species and habitats. Wildlife resource would be protected from development of future oil and gas leases on the 99,497 acres closed to leasing.
Agriculture	Coal mining would cause the short-term loss of crop production on 274,000 acres. Individual farmers could have some of their operation out of production for the life of the mine.	Same coal-related impacts as Alternative A occurring on up to 384,000 acres of cropland.	Same coal-related impacts as Alternative A occurring on up to 381,000 acres of cropland.	Same coal-related impacts as Alternative A occurring on up to 332,000 acres of cropland.
	Land pattern adjustment on up to 9,580 acres would enhance opportunities for greater range production and livestock use.	Same impacts related to land pattern adjustment as Alternative A occurring on up to 38,848 acres.	Same impacts related to land pattern adjustment as Alternative A occurring on up to 34,663 acres.	No land pattern adjustment under this alternative.
	Sale of scattered tracts may disrupt individual lessee's livestock operations over the short term.	Other impacts same as Alternative A.	Other impacts same as Alternative A.	Other impacts same as Alternative A.
Lands and Realty	Removing land classifications on about 8,000 acres would increase the public land acreage in multiple-use in the long term. The sale/exchange of up to 9,580 acres would mean the long-term loss of these lands to the public land base.	Impacts the same as Alternative A except up to 38,848 acres would be available for sale or exchange.	Impacts the same as Alternative A except up to 34,663 acres would be available for repositioning.	Impacts the same as Alternative A except no lands would be repositioned by sales or exchanges.

TABLE 2-2 (continued)
SUMMARY OF ENVIRONMENTAL IMPACTS

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Recreation and Visual Resources	Coal mining on up to 391,179 acres would cause the short-term loss of recreational resources.	Same coal-related impacts as Alternative A occurring on up to 597,016 acres.	Same coal-related impacts as Alternative A occurring on up to 571,388 acres.	Same coal-related impacts as Alternative A occurring on up to 484,592 acres.
	There would be a long-term increase in recreational demands in areas being mined due to influx of population.	Other impacts same as Alternative A.		Other impacts same as Alternative C.
	There would be long-term visual intrusions caused by mining operations.			
	Pooling of public lands would increase recreational opportunities in the long term.			
	Recreational opportunities would be enhanced in the long term by unrestricted ORV designation.		Limitations on ORV use would only slightly limit recreation activities on 22,164 acres.	
	Oil and gas development would limit hunting and decrease recreational quality while increasing pressure on adjacent areas in the long term.		Other impacts same as Alternative A.	
	Road development due to oil and gas activity would enhance access in the long term.			
Oil and gas facilities would be a long-term visual intrusion.				
Cultural Resources	Coal mining on up to 391,179 acres could adversely affect an estimated 156-782 sites eligible for listing on the NRHP.	Coal mining on up to 597,016 acres could adversely affect an estimated 239-1194 sites eligible for listing on the NRHP.	Coal mining on up to 571,388 acres could adversely affect an estimated 229-1143 sites eligible for listing on the NRHP.	Coal mining on up to 484,592 acres could adversely affect an estimated 194-969 sites eligible for listing on the NRHP.
	Land pattern adjustment on up to 9,580 acres would affect an estimated 77 cultural resources.	Land pattern adjustment on up to 38,848 acres would affect an estimated 311 cultural resources.	Land pattern adjustment on up to 34,663 acres would affect an estimated 277 cultural resources.	No land pattern adjustment.
	Unrestricted ORV use on public lands would cause minor vehicle damage and unauthorized collections to cultural resources in the long term.	Other impacts same as Alternative A.	Seasonal limitations of ORV use on 22,164 acres would reduce impacts to cultural resources.	Limitations of ORV use to roads and trails on 22,164 acres would minimize impacts to cultural resources.
	Impacts to cultural resources resulting from oil and gas development would be slight.		Other impacts same as Alternative A.	Cultural resources would not be affected by development of future oil and gas leases on the 99,497 acres closed to leasing.

TABLE 2-2 (continued)
SUMMARY OF ENVIRONMENTAL IMPACTS

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Paleontology	Coal mining on up to 391,179 acres potentially affecting 10 known sites over federal coal.	Coal mining on up to 597,016 acres potentially affecting 11 known sites over federal coal.	Coal mining on up to 571,388 acres potentially affecting 11 known sites over federal coal.	Coal mining on up to 484,592 acres potentially affecting 11 known sites over federal coal.
	Land pattern adjustment would mean the loss of an undetermined number of fossil sites if not discovered before sale.	Other impacts same as Alternative A.		No land pattern adjustment.
	Unrestricted ORV use may cause minor impacts from fossil prospecting.		Limitations on ORV use would minimize impacts from fossil prospecting on 22,164 acres.	Same ORV impacts as Alternative C.
	Impacts slight under continued application of Montana BLM standard stipulations for oil and gas.		Other impacts same as Alternative A.	Paleontological resources would be protected from development of future oil and gas leases on the 99,497 acres closed to leasing.
Economic and Social Condition	Individual mines and facilities on up to 13 CSAs would result in: short-term direct and indirect employment of 2,500 persons, long-term employment of 1,150 persons, short-term in-migration of 2,000 persons, long-term in-migration of 1,100 persons, stressed infrastructure in short term, and foregone agricultural production.	Impacts same as Alternative A occurring on up to 16 CSAs.	Impacts same as Alternative A occurring on up to 15 CSAs.	Impacts same as Alternative A occurring on up to 14 CSAs except for loss of severance taxes on potential production of oil and gas on 99,497 acres closed to leasing.
	Long-term coal severance taxes would increase 23 percent over 1985 payments. Coal conversion taxes would increase 31 percent over 1985.			
	Social impacts of coal development would include: lessened familiarity between residents, greater diversity in lifestyles, changes in business transactions, threatened livelihood, and threatened quality of environment.			
	Social impacts would generally decrease in long term. Residents of Fort Berthold and Standing Rock Indian Reservations would experience social impacts similar to those above.			

TABLE 2-2 (continued)
SUMMARY OF ENVIRONMENTAL IMPACTS

Resource	Alternative A	Alternative B	Alternative C	Alternative D
	Oil and gas exploration and development would continue to provide local employment. Severance taxes would benefit state government and mitigation of energy development impacts.			