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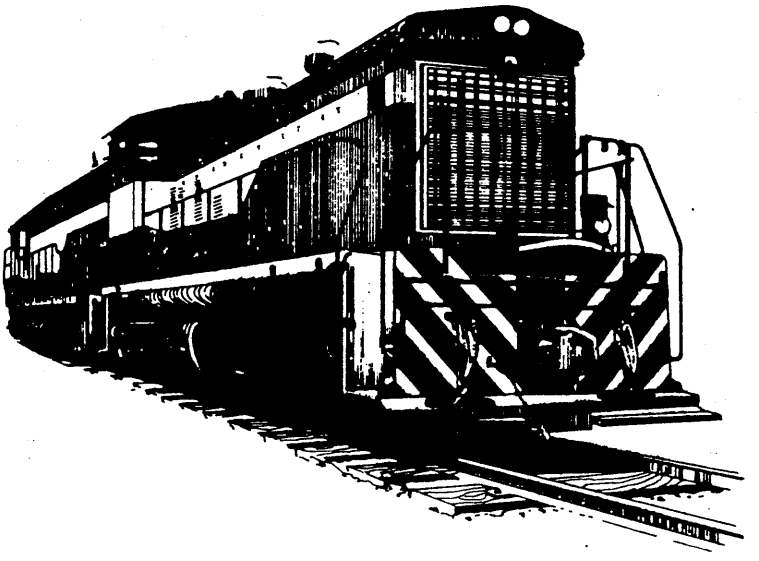
Draft
Environmental Impact Statement

Finance Docket No. 30186

Tongue River Railroad Company
—Construction and Operation—
of a line of railroad in Custer,
Rosebud, and Powder River Counties, Montana



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DRAFT ENVIRONMENTAL IMPACT STATEMENT

FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY--CONSTRUCTION AND OPERATION--OF A LINE OF RAILROAD IN CUSTER, ROSEBUD, AND POWDER RIVER COUNTIES, MONTANA

ABSTRACT

The Tongue River Railroad Company proposes to construct and operate an 89-mile rail line in southeastern Montana. The rail line, which would connect to the Burlington Northern mainline, would haul coal from proposed and potential coal mines in the area. Environmental impacts would result from construction and operation of the proposed line and from related coal mine operations. The Draft Environmental Impact Statement addresses the environmental impacts of the proposed action and reasonable alternatives to it and of the related actions.

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INTERSTATE COMMERCE COMMISSION
Washington, DC

FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY--CONSTRUCTION
AND OPERATION--OF A LINE OF RAILROAD IN
CUSTER, ROSEBUD, AND POWDER RIVER COUNTIES, MT

NOTICE TO THE PARTIES:

The Tongue River Railroad Company (TRRC) has filed an application with the Interstate Commerce Commission for a Certificate of Public Convenience and Necessity to construct and operate a common carrier railroad in Custer, Rosebud, and Powder River Counties, Montana. The subject Draft Environmental Impact Statement (DEIS) has been prepared for the proposed construction.

The Commission's Office of Transportation Analysis, Section of Energy and Environment (SEE) directed preparation of the DEIS by Historical Research Associates, a consulting firm retained by the applicant. Preparation of the DEIS was based upon an outline developed by the SEE. The SEE and the other agencies cooperating in the preparation of the DEIS have reviewed and commented upon the document during its preparation. The subject document, as modified on the basis of suggestions made by the SEE and cooperating agencies, has been adopted as the Commission's DEIS.

Parties to the proceeding and other interested persons may comment on the DEIS by submitting representations to the Section of Energy and Environment, Room 4143, Interstate Commerce Commission, Washington, D.C. 20423, on or before the comment due date shown on the DEIS cover.

Copies of the DEIS are available upon request at the same address, or phone (202) 275-0800.

AGATHA L. MERGENOVICH
Secretary

EXECUTIVE SUMMARY

The Tongue River Railroad Company (TRRC) has filed an application with the Interstate Commerce Commission (ICC) for a Certificate of Public Convenience and Necessity, authorizing the construction and operation of a new 89-mile rail line in Powder River, Custer and Rosebud Counties, Montana. The rail line would provide service to the proposed Montco Mine and other potential surface mines in the Ashland/Birney/Otter Creek area.

The ICC has deemed the preparation and issuance of a Certificate of Public Convenience and Necessity for the construction and operation of a rail line to be a major federal action subject to the reporting requirements of the National Environmental Policy Act (NEPA). This document is the Draft Environmental Impact Statement (DEIS) for the project, prepared in accordance with the requirements of NEPA. This DEIS analyzes the potential impacts of the proposed rail line, reasonable alternatives to it, and the impacts of those potential surface-mining operations considered to be related actions. The preparation of the DEIS was directed by the Section of Energy and the Environment (SEE) of the ICC with the assistance of Historical Research Associates (HRA), a Montana corporation.

Preliminary to preparation of the DEIS, a scoping and screening process was conducted by the ICC in cooperation with several federal, state and local agencies with regulatory responsibilities for, or a special interest in, the project. During this process, the following entities were designated cooperating agencies: (1) the U.S. Department of Agriculture (USDA): (2) the U.S. Army Corps of Engineers; (3) the Federal Railroad Administration; (4) the Montana Department of State Lands (DSL); (5) the Custer County Planning Board; (6) the Powder River County Commissioners; and (7) the Northern Cheyenne Indian Tribe. Public input also was solicited during this state of the process.

The intent of the scoping and screening process was two-fold. First, it was necessary, in accordance with NEPA, to identify those alternative routings and alternative modes of transportation that could be considered reasonable alternatives to the proposed railroad. Second, once again in accordance with NEPA, it was necessary to identify those issues and concerns specific to the proposal that should be included for consideration in an analysis of environmental impacts. Three alternative routes were identified as being worthy of detailed analysis in the document. Numerous issues were identified as requiring special attention and these are considered in the document.

Implications of the selection of a "No Action" Alternative also were examined during the scoping and screening process. It was determined that a "No Action" recommendation in response to the application would result in one of two scenarios. The first would assume that an

alternate mode of transporting coal from the area would be more appropriate. The second would assume that no means of transportation is selected, and that coal would not be exported from the area. Due to various environmental, economic, engineering and legal considerations examined during the process, the possible alternative modes of transportation were eliminated. As a result, for purposes of this analysis, the "No Action" Alternative, representing no development of the area's coal resources, is depicted in the baseline conditions and projections described in the DEIS.

This DEIS analyzes potential impacts based on several possible levels of production. These "coal production scenarios," designated low, medium and high, were developed using projected coal demands from available market data, landholdings, ownership patterns and lease information, as well as other industry data.

This DEIS will become part of the offical record in the proceedings before the ICC to grant or deny the Certificate of Public Convenience and Necessity to build and operate the railroad under 49 U.S.C. §10901. In addition, the DEIS is expected, at least in part, to fulfill statutory requirements of the cooperating agencies in relation to review of the proposed railroad.

Project Purpose and Need

Estimated strippable coal reserves in excess of 10 billion tons exist in the Ashland/Birney/Otter Creek area. This amount would translate into an energy equivalent greater than that produced by over 30 billion barrels of oil, or enough energy to supply nearly one-third of the nation's entire projected demand in the year 1985. This coal resource has not yet been developed.

Construction and operation of the proposed railroad would provide a means of transporting coal from the proposed Montco Mine and other potential mines in the region to a connecting point on the Burlington Northern (BN) mainline, from which it would be shipped to markets, most likely outside of Montana, downline both to the west and to the east. The project would facilitate the development of area mines by assuring a dependable and cost efficient means of coal transportation.

Market information and economic feasibility of the project are considered by the ICC separate from the EIS process. Detailed financial data will be submitted as part of the application for a Certificate of Public Convenience and Necessity and will be part of the official record in these proceedings.

Regional Environment

The environmental effects from the construction and operation of the Tongue River Railroad and the development of the related surface mines would occur primarily in Powder River, Custer and Rosebud Counties, Montana (see Fig. E-1). Generally, the impact area is a portion of the Tongue River Basin, downstream from the Tongue River

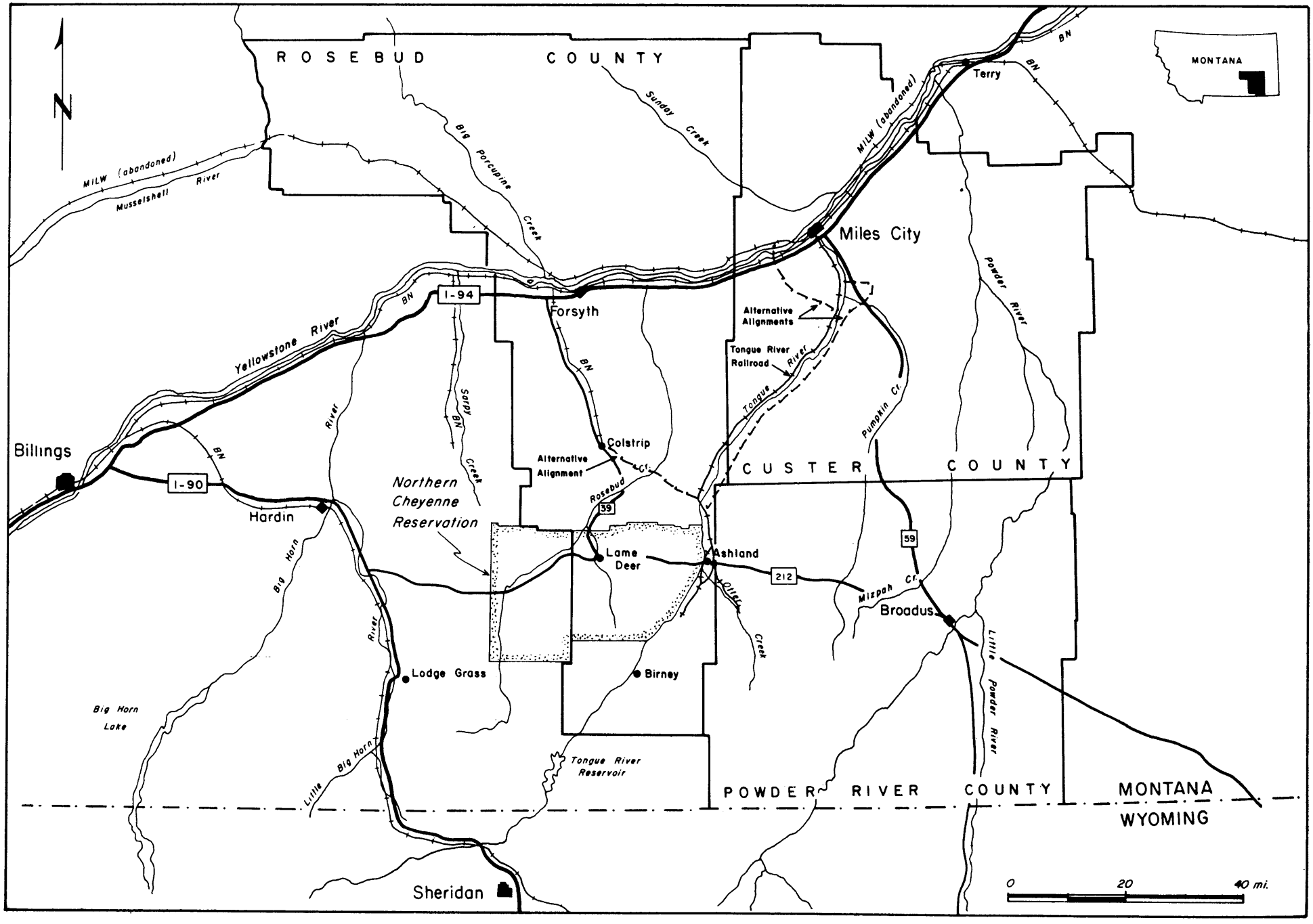

Figure E-1. TRRC Project Area / Proposed and Alternative Alignments.

Reservoir near Birney, Montana, extending northward to the confluence of the Tongue and Yellowstone Rivers at Miles City, Montana. The community of Broadus roughly coincides with the eastern extremity of the impact area, while Forsyth, Colstrip and the Northern Cheyenne Indian Reservation are situated along the western edge of the area (see Map E-1). Some analyses included in the DEIS required consideration of the entire three-county area, while some refer strictly to areas of specific physical disturbance.

The Tongue River Basin, as with the rest of southeastern Montana, is sparsely populated and semiarid with a predominantly agricultural economic base. The livestock industry dominates the agricultural scene, with most of the land being used for grazing. A small percentage of the land is devoted to crops, with an even smaller percentage under irrigation. Rosebud County ranching operations average nearly 9,000 acres in size. Ranching operations require similarly large acreages in Custer and Powder River Counties in order to remain economically viable.

The area is biotically diverse, with sufficient populations of big game animals, upland game birds, and warm water fish species to provide excellent recreational opportunities for hunters and fishermen. Vegetation in the Tongue River Basin is characteristic of the Northern Great Plains, with plant species typically being adapted to the climatic extremes that occur in the area. Plains cottonwood dominates the deciduous tree/shrub type occurring along stream and river bottoms. Moderately moist upland sites frequently support stands of ponderosa pine. Units of the Ashland Division of the Custer National Forest are within the study area.

Dryland farming and irrigated cropland tend to occur in the valley bottoms near the river. Human population concentrations also tend to occur along river bottoms, often near the confluence of a river and major tributary. Communities expected to incur impacts from the proposed railroad and related actions include: (1) Ashland, at the confluence of Otter Creek and the Tongue River; (2) Birney, at the mouth of Hanging Woman Creek on the Tongue River; (3) Broadus, near the juncture of the Powder and Little Powder Rivers; (4) Miles City, on the Yellowstone at the mouth of the Tongue River; (5) Forsyth, on the Yellowstone; and (6) Colstrip. In addition, the Northern Cheyenne Indian Reservation, bounded on the east by the Tongue River, will be subjected to some impacts from the project.

Government structure in the area is provided in several ways. Each county has a board of county commissioners and most communities have a mayor and city council in place. Where this does not occur, the local school board may provide the sole vestige of local government. The Northern Cheyenne Indian Tribe is a politically independent unit, relying on an elected tribal council for governance.

Employment in the study area is, for the most part, derived from agricultural activities. A growing dependence on energy development

is evident, however, especially in Rosebud County. Unemployment, with the exception of the Northern Cheyenne Indian Reservation, has been historically lower than that experienced on a regional or statewide basis. The Northern Cheyenne are currently experiencing unemployment at a rate of nearly 50 percent, significantly higher than nearby non-Indian communities.

Project Description and Schedule

The proposed Tongue River Railroad would involve the construction of an 89-mile rail line extending southward from Miles City, Montana, to two terminal points near the community of Ashland. The rail line would join the existing Burlington Northern Railroad at Miles City (see Map E-1).

The proposed rail line (Proposed Action) would follow the west side of the Tongue River south from Miles City, remaining about a mile from the river's nearest meanders during the first few miles of the route. This portion of the route would cross the USDA Livestock and Range Research Station (LARRS). The route continues along the west bank of the river to a point some 10 miles north of Ashland, where it crosses the river and continues south to a bifurcation point near that town. One branch would continue south and east, following the Otter Creek drainage, crossing that stream near the terminus 7.7 miles from Ashland. The other branch would follow one of two possible alignments in or around Ashland and continue to the southwest along the Tongue, remaining on the east side, to a terminus near the proposed Montco Mine, 8.9 miles from Ashland. The Ashland SE alignment would skirt the eastern edge of Ashland and cross the rugged country separating Otter Creek and the Tongue River Valley before reaching the Montco terminus. The Ashland NW alignment would enter Ashland from the north and go through the community, following the Tongue River all the way to the terminus at the Montco site.

The proposed rail line would be constructed to contemporary main-line standards, occupying an average right-of-way (ROW) width of 200 feet. The rail line would require the construction of 6 sidings and 12 bridges.

Construction would commence in 1985 and would be completed by 1989. Once in operation, the rail line could, under high coal production scenarios, be expected to handle as many as 25 trains per day. Each unit-train will consist of 105 hopper cars with a capacity of 100 tons each. Approximate cost of the proposed rail line would be $137.3 million.

Alternative Routes

Three alternative routes identified in the scoping and screening process are analyzed in detail in the DEIS. Each of these routes is identical to the proposed route from the point of the Tongue River crossing, north of Ashland to the terminal points. The alternative

alignments through Ashland are included in all routes. Construction schedules, potential capacity demands and ROW characteristics would not vary significantly by route.

The Tongue River Road Alternative Route would depart Miles City along the proposed route, and continue along that route to a point just north of Pumpkin Creek. There it crosses the Tongue River, turns south and continues along the east side of the river to join the proposed route about 10 miles north of Ashland. An additional bridge across Pumpkin Creek would be required for this route. The total length of the Tongue River route would be 88 miles, with an approximate cost of $154.4 million.

The Moon Creek Alternative Route would leave Miles City, following the old Milwaukee Road alignment to the west, crossing the Yellowstone River and following the north bank for about 8 miles. Here, the route would again cross the Yellowstone and follow the east side of Moon Creek to the divide separating the Tongue and Yellowstone River drainages. From there, the route would descend to the Tongue River Valley floor and join the proposed route about 14 miles south of Miles City. This route would cross the western edge of the LARRS. One additional bridge would be required for the Yellowstone River crossing, and one existing bridge on the Milwaukee line would require refurbishment. The total length of the Moon Creek route would be 89 miles, with an approximate cost of $148.9 million.

The Colstrip Alternative Route would leave the existing Cow Creek branch of the Burlington Northern at Colstrip, crossing Cow Creek and Rosebud Creek as it heads south and east, following the Greenleaf Creek valley to the Rosebud Creek/Tongue River divide. From there it descends into the Tongue River valley and joins the proposed route at the Tongue River crossing north of Ashland. An additional bridge across Rosebud Creek would be required for this route. With a total length of 46.1 miles, the Colstrip route would cost about $83.4 million.

Issues of Concern

The scoping and screening process led to the identification of several areas of concern to the cooperating agencies and to the public-at-large. Special attention was given to each of these concerns in conducting the environmental analysis and in preparing the DEIS.

Livestock and Range Research Station (LARRS)

The USDA is concerned about the potential impacts of rail line construction and operation on the LARRS, an agricultural research facility near Miles City. A variety of research projects are being conducted on the station, some of which may be susceptible to disturbance from railroad-related activities. Environmental factors, influenced by construction and operation of a railroad, may alter

study results and threaten the integrity of historical data bases. Additional problems could result from access restrictions and vehicle delays caused by train traffic and the disruption of irrigation systems. Three of the four possible routes traverse portions of the LARRS.

Northern Cheyenne Indian Reservation

The Northern Cheyenne Indian Tribe is concerned about impacts of the proposed railroad and related actions on the traditional culture and well-being of the tribe. Increased population near the reservation and increased travel across it are anticipated as a result of the project. It is feared that cross-cultural contact resulting from this development will serve to undermine the traditional way of life practiced by the Northern Cheyenne. There is concern that religious sites could be disturbed, tribal recreational resources could be overtaxed, and social problems exacerbated by energy development. None of the possible alignments cross the reservation, but all pass within close proximity, and mining development would take place along the eastern boundary of the reservation.

Agricultural Operations

Local residents involved in agriculture are concerned about the potential impacts to farming and ranching operations. Prominent among those concerns are:

1. Direct loss of agricultural land due to the right-of-way;
2. Loss of agricultural use due to severance of parcels;
3. Disruption of irrigation systems;
4. Access restrictions and barriers to livestock movement due to the rail line;
5. Increased livestock mortality due to vehicular and train traffic;
6. Increased trespass and vandalism problems.

Community Structure/Lifestyle

Local residents also have expressed concern over the impacts of rapid population growth on the existing rural/agricultural lifestyle of the area. This concern is linked to fears that "boomtown" impacts experienced in other energy development areas will occur here. Some residents believe that the values of the new population will conflict with their own, that crime, alcoholism and associated social ills will increase, and that the quality of life will be diminished for them.

Cumulative Hydrologic Impacts of Mining

Area residents are concerned that the development of surface mining operations will result in serious long term adverse effects on the quantity and quality of water available in the area. Some speculate that aquifers, disturbed by mining, will be permanently depleted

or destroyed, and that increased erosion and accidental discharges of waste waters will diminish water quality to the point that it is unsuitable for use. This concern is underlain by the importance of water resources in an arid environment with an agriculturally based economy.

Environmental Impacts

Construction and operation of a rail line to the Ashland/Birney/Otter Creek area would result in impacts similar in nature but varying in magnitude according to construction specifications and site-specific characteristics of each route. Construction impacts can, with exceptions, be characterized as short term, while operational impacts will continue for the life of the project.

Impacts to the area from the development of related mines will permanently alter the basic character of the Tongue River region. The impacts expected as a result of the development of surface-mining operations will not vary significantly in response to route selection for the railroad.

Land Use

Construction and operation of the proposed railroad would result in the removal of some acreage from agricultural production for the life of the project. The acreage removed would be restricted to that land required for right-of-way and for maintenance facilities. Land removed from production as a result of mining activities is technically considered a short term loss due to federal and state requirements relating to the reclamation of mined land. Total acreage out of production during any given year would be a function of the coal production level applied and site specific reclamation success. As a percentage of total agricultural land in the study area, the total out of production at any given time would be small.

In some cases, existing land uses may be subject to change due to disturbance of irrigation systems, barriers to cattle movement, displacement of some residences and loss of aesthetic or recreational values. Some ranching properties may decline in value due to the proximity of the rail line, although no data supporting this possibility have been generated.

Some impacts to research being conducted on the LARRS will occur. Impacts to agricultural land uses may be magnified on the LARRS due to the necessity of maintaining certain "constants" in a research setting. The introduction of new variables could render some tracts unsuitable for current research needs.

Social/Economic

Construction and operation of the proposed railroad and development of the related surface mines would generate a positive effect on

the economy of the study area in terms of the creation of jobs, the increase in per capita income and the long term decrease in per capita tax burden. Steady growth in mine-related employment would coincide with the continuing gradual decline in agricultural employment. A shift from the existing agricultural economic base to an industrially oriented economy would occur. Availability of agricultural labor may decline in response to more lucrative employment associated with mining.

Population growth due to immigration of railroad and mining personnel would result in sociological impacts. Changes in lifestyle and in the political and social character of communities may occur. The quality of recreational opportunities available to residents will diminish somewhat as competition for available recreational resources increases.

With the exceptions of Ashland and Birney, impacted communities should be able to assimilate increased population with a minimum of difficulty. Ashland currently does not have the community structure necessary to absorb the anticipated impacts. Similarly, Birney, a small unincorporated ranching community, is unprepared to address the potential impacts.

Some conflicts may arise as a result of increased interaction among members of the Northern Cheyenne Indian Tribe and nonmembers who commute daily across the reservation to work. Increased and unauthorized use of the already overtaxed recreational resources on the reservation by non-Indians may cause friction as well.

Transportation

Train traffic on the new line would result in traffic delays in some communities that had not previously experienced them. Increased traffic on existing lines will result in slight increases in traffic delays in Miles City, Forsyth and downline communities to the east and west.

Increased population and highway use would require that some existing highways be widened, paved, and realigned. Some bridge enhancement might also be required. Additional traffic resulting from railroad construction and operation will likely result in an increased incidence of motor vehicle accidents. Traffic across the Northern Cheyenne Indian Reservation would increase from commuter activity related to operation of potential mines in the area.

Energy

The BTU content of the coal from the mines to be served by the TRRC railroad would exceed that expended in construction and operation of the railroad and related actions by nearly 4,000 percent.

Air Quality

Temporary localized air quality impacts would occur as a result of the construction of the proposed rail line and the related mines. These impacts would largely result from dust and emissions from construction equipment.

Impacts to air quality from the operation and maintenance of the railroad and related mines would occur, largely as a result of diesel fuel emissions, but would not be likely to violate state and federal standards. Fugitive dust problems associated with traffic on unpaved roads in the Ashland area would continue and intensify as a result of increased vehicular traffic related to the railroad and to the mines.

Noise

During the construction of the proposed rail line, some residents of the area would be exposed to noise impacts from construction equipment. In some cases this may cause inconvenience, but these impacts are not expected to reach levels which might be injurious to human health.

Operation and maintenance of the railroad would subject residents to increased noise levels. It is not anticipated that the noise will become a health hazard.

Safety

Construction-related safety impacts are likely to be confined to the TRRC work force and the various construction sites. The exception to this would be traffic accidents that might occur on public roadways on the way to and from work. Such incidents may increase in proportion to increased traffic.

Some grade-crossing accidents and train derailments would occur within the project area as a result of operation of the railroad. Projections for such occurrences vary by scenario. Similar incidents would occur downline from the project area. When compared to nationwide statistics, the projected rate of occurrence of such accidents attributable to TRRC traffic would be quite low.

Soils and Geology

There will be soil loss as a result of erosion during construction of the proposed rail line and related mines. Some soils in the region may be susceptible to slumping. If this occurs along the route selected, special construction/mitigation techniques are suggested. Salinity and sodic qualities of some soils may render them unsuitable for use in reclamation of mined lands. In such cases, special handling and reclamation techniques will be necessary.

Hydrology

Temporary increases in sediment loads in area streams would result from construction of the proposed rail line. These increases are not expected to alter the suitability of the water for its current usage.

The mines to be served by the TRRC railroad would provide the greatest impact to water resources. Surface and ground water systems would be disrupted. Significant water quality changes could occur in spoils ground waters. However, the cumulative effect on normal streamflow and water quality is not expected to be great. Water impacted by the mines should remain suitable for its current usage.

Aquatic Ecology

The quality of some aquatic habitat could be degraded as a result of increased sediment loads during construction of the proposed railroad. Some habitat will be lost due to bridge construction. Proper mitigation should avoid significant impacts to important fish species. Fuel and chemical spills during operation of the railroad and related mines could cause increased mortality among fish species inhabiting reaches of the streams that are contaminated.

Terrestrial Ecology

Vegetation and wildlife habitat would be lost in varying degrees, according to the route selected and coal production scenario applied. Increased wildlife mortality due to increased human population, both accidental and as a result of increased hunting pressure, would occur. Some wildlife movement patterns would be disrupted. No threatened or endangered species have as yet been identified in the area. No threatened and endangered animal species have been identified as indigenous to the area, although some, presumably migrating, individuals have been recorded.

Cultural Resources

Several prehistoric and historic sites will likely be impacted by the construction and operation of the proposed railroad and related mines. Varying by route and coal production scenario, some sites would be destroyed, while others would be impacted by the proximity of activities relating to the railroad or mining. A number of affected sites could be eligible for the National Register of Historic Places. Proper evaluation, excavation, and analysis, as necessary, should mitigate impacts to most sites.

Aesthetics

Most of the impacts to visual resources as a result of construction and operation of the railroad are rated very low. The existing pastoral landscape at projected mining locations would be altered to reflect the new industrial land use.

Route Comparison

The analysis conducted in preparation of the subject DEIS delineates quantitative differences in potential environmental impacts by route (see Table E-1). Those potential impacts not lending themselves to strict quantification, but requiring more general qualitative consideration, also were examined. Engineering and marketing considerations also are involved in a comparison of routes (see Appendix B). Impacts anticipated from the proposed and projected surface-mining operations in the Tongue River area do not vary in response to potential routes of the rail line and are not included in this discussion.

The Proposed Rail Line provides a direct link with the existing Burlington Northern mainline at Miles City. From an engineering standpoint, this would be the most desirable route. The 0.2-percent ruling grade against load is significantly smaller than any of the alternative routes. In addition to the lowest construction costs on a per mile basis, this factor would result in long term operational fuel savings. It can be assumed, since the largest share of the anticipated market is downline to the east, that these energy savings would ultimately be reflected in lower costs to consumers and a more marketable product. Environmental impacts associated with the Proposed Rail Line are comparable to those anticipated for the Tongue River Road Alternative Route and the Moon Creek Alternative Route. In all likelihood, the single most significant potential impact would be possible disturbance to ongoing research projects on the LARRS. The Proposed Rail Line traverses 13 miles of that facility.

The Tongue River Road Alternative Route would utilize an existing transportation corridor, thereby limiting, to some extent, the necessity to sever agricultural parcels and disturb irrigation systems. It would, however, result in the loss of approximately 17 acres of prime farmland to the right-of-way. From an engineering standpoint, the route would not be as desirable as the Proposed Rail Line. The 0.85-percent ruling grade against load would result in higher construction and ultimately higher operational costs. The potential for grade-crossing accidents along the Tongue River Road Alternative Route would be higher than for any of the other alternatives. The Tongue River Road Alternative Route follows the same alignment through the LARRS as the Proposed Rail Line, and would pose the same potential for impacts to ongoing research.

The Moon Creek Alternative Route was examined primarily as a means of limiting the potential impacts to the LARRS. It traverses only 2.5 miles of the southwest corner of that facility and would not be likely to affect significantly ongoing research activities. A 1-percent ruling grade against load renders this route less favorable in terms of engineering constraints, energy efficiency, and ultimate consumer costs. The Moon Creek Alternative Route would require the construction of a railroad bridge across the Yellowstone River. None of the other routes under consideration include a Yellowstone crossing. The resulting potential for impact to aquatic resources would be greater than any of the other routes.

The Colstrip Alternative Route, by virtue of the considerably shorter distance involved, would result in proportionally fewer environmental impacts than any of the other routes under consideration. It would avoid impacts to the LARRS entirely. However, increased rail traffic in the Colstrip and Forsyth areas would result in more vehicular delays. A slightly greater percentage of construction and operation impact population would be located in Colstrip. Rail line construction activities and train operations could contribute to existing air quality problems in the vicinity. Engineering specifications call for a ruling grade against load identical to that of the Tongue River Road Alternative Route. The projected net energy balance indicates that this route would be the least efficient among the alternatives. This factor, combined with additional downline mileage to the east, is likely to result in higher costs to consumers in the Midwest market.

Conclusions

The overall environmental impact of construction and operation of a railroad to serve coal mines in the Tongue River Valley does not vary greatly among the Proposed Rail Line, the Tongue River Road and the Moon Creek Alternative Routes. The Colstrip Alternative Route, by virtue of its length, would exert quantitatively fewer environmental impacts. Engineering and marketing considerations, however, favor the Proposed Rail Line. A combination of these factors will likely determine the final routing.

The significance of site-specific impacts from railroad construction and operation is generally a function of the local importance of the resource affected. On a region-wide basis, the cumulative impacts of construction and operation would likely be of greater significance than site-specific considerations. The subject DEIS identifies and analyzes potential impacts with the greatest degree of specificity possible, while also examining the cumulative implications.

In general, the impacts anticipated from the construction and operation of a rail line would be mitigable. Where feasible, the TRRC would stipulate to whatever mitigative measures become necessary. Much of this would be included in right-of-way negotiations with individual landholders. Final design and engineering and operational policy and procedure will also be sensitive to mitigative requirements. Those impacts that cannot be mitigated include the direct loss of productive agricultural land for the right-of-way and for facilities, the increased wildlife mortality due to collisions with trains and vehicles, and the accidental loss of human life.

Impacts expected to occur as a result of mining operations in the Tongue River region would be of greater significance on a region-wide basis than those directly attributable to railroad activities. The magnitude of the anticipated development will have enduring effects on the social and economic fabric of the area. Economic dependence on agriculture will diminish and a new focus on industrial development

will ensue. Smaller communities will experience large population increases, altering their political and social structure. Utilization of natural resources will increase correspondingly, both out of economic necessity and for recreational purposes. Conflicts will occur in these areas.

Federal and state regulatory agencies require detailed analysis, mitigation, and management planning as part of the permitting process for each potential mining development. Local planning agencies and community governments are in the process of planning for potential development. In general, this process should lead to orderly management of growth and conflict resolution. The communities of Miles City, Forsyth, and Colstrip should be able to assimilate population increases and respond to associated needs and requirements with a minimum of difficulty. The community of Broadus, which will experience a major population influx, does have a formal structure capable of dealing with an increased demand for services, but it is likely to experience some difficulty. The communities of Ashland and Birney are not, at present, prepared to deal in an organized fashion with the potential impacts.

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1.0 INTRODUCTION

1.1 PURPOSE AND NEED FOR AGENCY ACTION

The subject Draft Environmental Impact Statement (DEIS) has been prepared in response to an application filed by the Tongue River Railroad Company (TRRC), pursuant to Section 10901 of the Interstate Commerce Act. The application requests authorization from the Interstate Commerce Commission (ICC) to construct and to operate a new 89-mile rail line from Miles City, Montana, to two terminal points--one 8.9 miles south of Ashland, Montana, and one 7.7 miles southeast of Ashland in the Otter Creek drainage (see Figure 1-1). The purpose of the proposed line is to provide a means of transporting to market coal from the Ashland/Birney/Otter Creek areas of southeastern Montana. As a common carrier, the TRRC may haul commodities other than coal, if an acceptable tariff can be negotiated between the affected parties.

The subject DEIS was prepared under the supervision of the ICC, acting as lead agency, and in coordination with several cooperating agencies, in accordance with the National Environmental Policy Act (NEPA). This DEIS assesses the environmental impacts of the Proposed Action (the construction and the operation of the TRRC railroad), reasonable alternatives to the proposed action, and potential surface-mining operations, which are considered to be "related actions" to the proposed rail line. The DEIS, as well as the Final Environmental Impact Statement (FEIS), will become a part of the official ICC record in the proceeding. This record will assist the decision maker in evaluating the TRRC's application.

1.2 FRAMEWORK FOR EIS PREPARATION

1.2.1 Coordination with Other Agencies' Environmental Review Requirements

The DEIS has been prepared to comply with the ICC's obligations under NEPA. The document also will fulfill, at least in part, the obligations which certain other agencies hold to conduct environmental reviews of all, or portions, of the proposed railroad. Among these agencies are the following:

(1) The Montana Department of State Lands (DSL). DSL currently is reviewing an application submitted by Montco in November, 1980, for a permit to construct and to operate a coal mine south of Ashland, Montana. Coal from the proposed Montco

Mine would be transported by the TRRC.[1] As part of its application review process, DSL has prepared a draft environmental impact statement for the proposed Montco Mine. A public hearing was held by DSL on this DEIS in June, 1982, pursuant to the requirements of the Montana Environmental Policy Act. DSL has considered the environmental impacts of transporting coal from the Montco Mine in its DEIS; it has relied, at least in part, upon information generated during preparation of the subject DEIS. The proposed rail alignment is projected to cross two sections of land owned by the State of Montana. An application for easements will be filed simultaneously with the ICC application. DSL is expected to rely upon the subject DEIS for the information necessary for this review.

(2) The City-County Planning Board, Miles City/Custer County (Custer County Planning); and Powder River County Board of Commissioners. A portion of the proposed rail line would transect Custer and Powder River Counties. As part of their comprehensive planning efforts, Custer and Powder River Counties have adopted resolutions addressing the proposed rail line and its effects on the human environment in the counties. The subject DEIS will fulfill any responsibilities or requirements of these groups in that regard.

(3) The U.S. Department of Agriculture's (USDA) Science and Education Administration. The proposed rail line would cross a portion of the USDA's Livestock and Range Research Station (LARRS), located near Miles City, Montana. The crossing of LARRS land requires an easement from the USDA. This agency expects that any environmental review requirements involved in processing the permit application will be satisfied by the subject DEIS.

(4) The U.S. Army Corps of Engineers, Omaha District. The proposed rail line would cross the Tongue River and Otter Creek, which would require Section 404 permits from the U.S. Army Corps of Engineers, under the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) and the Clean Water Act of 1977 (P.L. 95-217). Section 404 permits also will be required for areas in which more than 500 feet of stream bank are disturbed for right-of-way construction. This DEIS will satisfy the NEPA requirements of the Corps of Engineers in issuing the necessary permits.

1.2.2 Designation of Lead and Cooperating Agencies

The Council on Environmental Quality (CEQ) guidelines for the implementation of NEPA provide that, when more than one federal agency is involved in an action requiring the preparation of an EIS, a "lead agency" shall be designated to supervise the preparation of that EIS. In the early stages of planning for this EIS, the ICC contacted various federal agencies to determine the extent of their interest and

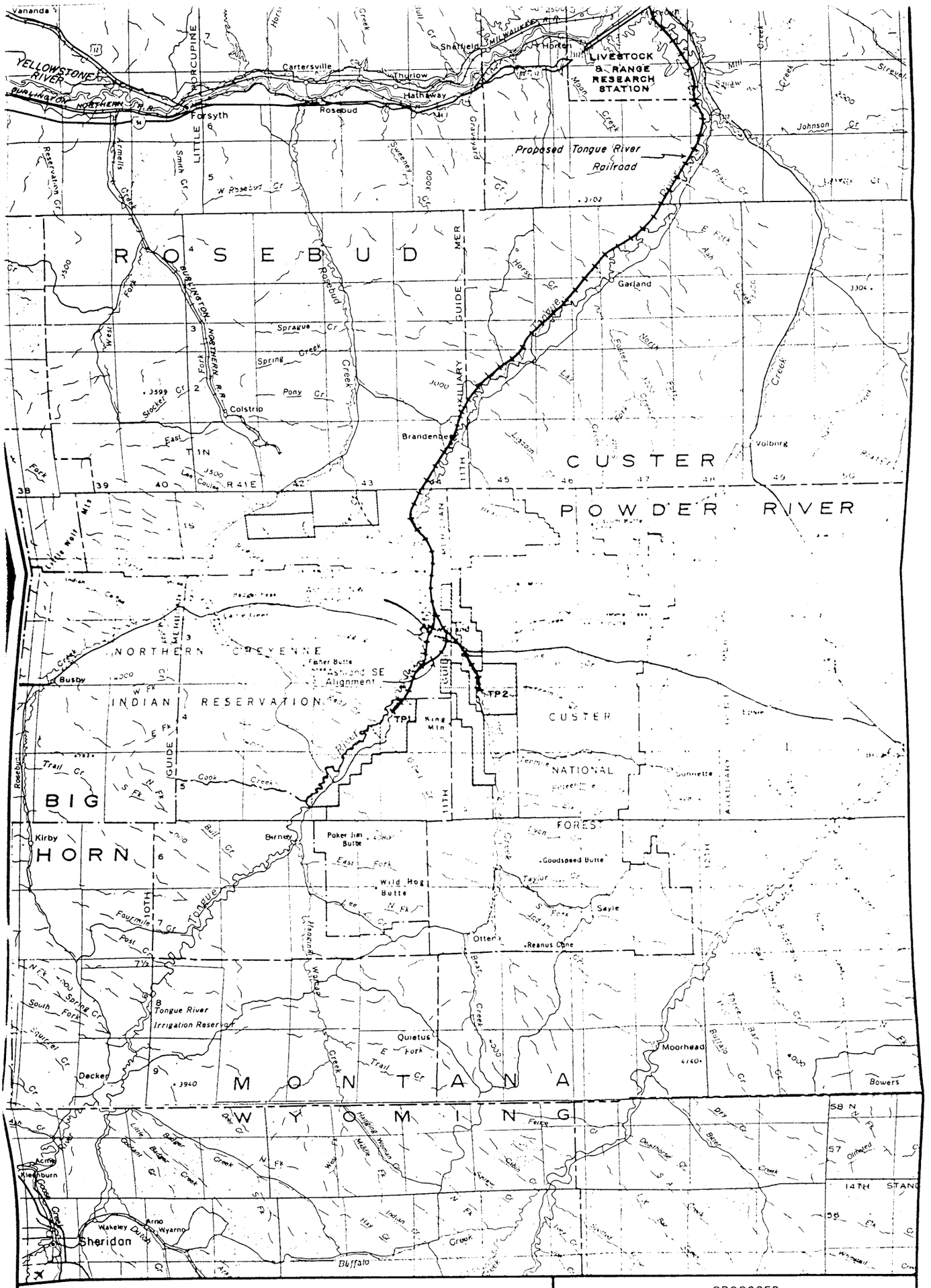


FIGURE 1.1

ROUTE OF PROPOSED TONGUE RIVER RAILROAD

Logical Mining Units

TP Terminal Point

PROPOSED

TONGUE RIVER RAILROAD

TONGUE RIVER RAILROAD COMPANY

June 1982

Prepared by IntraSearch Billings, Montana

SCALE IN MILES

6 2 0 12

their need to participate in the preparation of the EIS. All of the agencies contacted were in agreement that the ICC should serve as the lead agency in the preparation of the document.

CEQ guidelines further provide that agencies with jurisdiction by law, or with special expertise relating to the environmental issues, may be designated "cooperating agencies." The role of a cooperating agency is to assist the lead agency as it prepares the EIS, or supervises the preparation of the EIS. Because of the extent of the U.S. Army Corps of Engineers', the USDA's, and the Federal Railroad Administration's (FRA) interest in, or jurisdiction over, the proposed railroad, the ICC determined that each would serve as a cooperating agency in the preparation of the EIS.

In addition to these federal agencies, four nonfederal agencies have been designated cooperating agencies: (1) the Montana Department of State Lands; (2) the Custer County Planning Board; (3) the Powder River County Commissioners; and (4) the Northern Cheyenne Indian Tribe. The Montana DSL and the Custer County Planning Board were designated because of their obligations to conduct an environmental review of all, or of substantial parts of, the proposed railroad. The proposed rail line also could affect the Northern Cheyenne Indian Reservation, as the line would be located in the vicinity of, but not within, the reservation. The Northern Cheyenne Indian Tribe requested designation as a cooperating agency, and it was so designated. CEQ guidelines permit the designation, if potential effects on an Indian reservation exist.

1.2.3 Relationship with Other Actions

Montco Mine

The proposed Montco Mine, described in detail in section 3.0, is related directly to the proposed rail line construction. The rail line is primarily intended for the purpose of transporting coal from the Montco Mine and from other mines that may be operated in the vicinity. Therefore, the environmental impacts of the Montco Mine are related to the proposed rail construction. These impacts will be presented in summary form in the subject DEIS, with reference to the Montco EIS being prepared by DSL.

Other Potential Coal Mines

Substantial amounts of strippable coal exist in the vicinity of the proposed rail line. The rights to some of this coal already have been acquired by mining companies (see Figure 1-1). Much of the remaining coal is owned by the federal government and some of this has been leased or is in the process of being leased for the purpose of mining. A means of transporting the coal would be requisite to the opening of other mines in the area. Therefore, the construction of the proposed rail line is directly related to the feasibility of developing new surface coal mines in the project area. The subject

DEIS addresses this issue, as well as the identifiable environmental impacts of such mining.

1.2.4 Public Participation

CEQ guidelines encourage those agencies preparing EISs to involve the public in implementing their NEPA procedures. The ICC's Section of Energy and the Environment (SEE) published locally a "Notice of Intent to Prepare an Impact Statement," in which it invited participation by the public at two "scoping" meetings. These meetings were held on August 7, 1980, at Miles City, Montana, to identify the environmental issues that the public believed should be considered in the DEIS. A number of issues were identified at the two meetings and in written submissions to the SEE received during the subsequent weeks. The issues so identified were among those topics considered by the SEE in developing the outline for this DEIS. Also considered in the development of the outline were those environmental issues related to the proposed rail line that were identified at a public workshop sponsored by the Custer County Planning Board and held in Miles City on September 15, 1980.

In November, 1980, the SEE published locally a notice soliciting suggestions from the public pertaining to those possible rail alignments to be considered in the DEIS as alternatives to the proposed alignment. The notice indicated that maps of the area would be available at two locations to enable interested members of the public to suggest alternate routes. A number of private individuals visited the Custer County Planning Office, one of the locations, to suggest alternative rail alignments. These suggested alignments then were considered by the SEE in the process of "screening" various alternatives to identify the reasonable alternative alignments that should receive detailed analysis in the DEIS (see Appendix B).

In the spring of 1981, the TRRC announced that it would modify its proposed alignment to construct a rail line into the Otter Creek drainage. A "Supplemental Notice of Intent to Prepare an Environmental Impact Statement" was published in the Federal Register on April 16, 1981. Two scoping meetings--one in Ashland, Montana, and another in Broadus, Montana--were held on June 23, 1981. The issues raised in these meetings and in a subsequent comment period were incorporated into the DEIS outline.

Finally, the public will influence the EIS through the process of submitting written comments concerning the DEIS. The FEIS then will be prepared in response to written comments regarding the DEIS and to available hearing testimony. The public also will participate in the hearing process, as public hearings are likely.

1.3 FOOTNOTE

1. Montco is a Montana partnership composed of Tongue River Resources, Inc., and Thermal Energy, a subsidiary of Washington Energy of Seattle, Washington.

2.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

2.1 IDENTIFICATION OF THE AFFECTED ENVIRONMENT

The affected geographic areas that are discussed in the subject DEIS are: (1) those areas which may incur impacts from construction/operation of the proposed rail line or its alternatives; (2) areas which may incur impacts from related actions (i.e., construction/operation of Montco and other potential TRRC-served mines); (3) areas downline of the newly constructed rail line which are likely to receive TRRC-generated traffic and incur impacts associated with the increased traffic.

The proposed rail line or its alternative routes would be located in Custer, Rosebud, and Powder River Counties (see Figure 1-1), and would serve projected coal mines in Powder River and Rosebud Counties. Therefore, Custer, Rosebud, and Powder River Counties are expected to incur the major impacts from construction and operation of a TRRC rail line and from construction and operation of TRRC-served mines. The impacted area of the three-county region is termed the "project area" in this DEIS (see Figure 2-1).

Downline routes expected to incur TRRC-generated traffic are shown in Figure 2-2. The routes include the Burlington Northern (BN) lines westbound from Miles City to Spokane, Washington, and eastbound from Miles City to Minneapolis/St. Paul and Duluth/Superior. The identification of downline routes is based on assumptions as to the location of markets for the coal, and the capacity of the existing lines to absorb the additional traffic. These assumptions, as well as the amount of traffic expected to be added to the downline routes, are discussed in greater detail in section 3.0 and in Appendix A3.0.

2.2 DESCRIPTION OF THE AFFECTED ENVIRONMENT

A brief introductory description of the affected areas of Custer, Rosebud, and Powder River Counties is provided here. Basic information is also provided on downline communities to be affected. More detailed information is provided in Appendix A.

2.2.1 Custer, Rosebud, and Powder River Counties

2.2.1.1 Topography

The various alternative rail line routes and potential TRRC-served mines would be situated in or near the Tongue River Basin, which is a

sub-basin of the Yellowstone River drainage. Elevation in the Yellowstone River Basin ranges from 1,880 feet, where the Yellowstone and Missouri Rivers converge at the Montana/North Dakota border, to over 12,000 feet, in the mountains of the Yellowstone River headwaters in Wyoming. Within the Tongue River Basin, elevation ranges from 2,350 feet, where the Tongue and Yellowstone Rivers converge near Miles City to over 13,000 feet, in the Bighorn Range of Wyoming.

Between the mouth of the Tongue River and the foothills along the Big Horn Mountains to the southwest is a plains area, featuring hilly to rugged uplands interspersed with wide, rolling valleys. Locally, the Tongue River Basin is characterized by buttes capped by porcellanite, created by burned out coal beds. The hills and buttes generally rise 200 to 500 feet above the adjacent terrain. The foothills along the Big Horn Mountains rise some 2,000 feet above the plains, while the Big Horn Mountains rise above 13,000 feet. The western boundary of the Basin is formed by the Wolf Mountains, a series of tree-studded hills as high as 5,000 feet, that run north from near the Wyoming border.

The major water feature in the basin is the Tongue River itself. Downstream from the Tongue River Reservoir, located near the Montana/Wyoming border, the Tongue is fed by numerous smaller streams including Hanging Woman Creek, Otter Creek and Pumpkin Creek. These tributaries contribute to the broken topography within the plains portion of the basin. Rosebud Creek, although it is not a tributary of the Tongue River, would be affected under one of the alternatives. From its headwaters in the Wolf Mountains, it flows in a general northeasterly direction before emptying into the Yellowstone River a few miles east of Forsyth.

2.2.1.2 Soils

Most of the soils in the Tongue River Basin and the Colstrip area originated from sedimentary parent materials. The Fort Union Formation is the predominant geologic unit in the area. This formation is largely composed of sandstone, siltstone, shale, and coal. Along major stream valleys and tributary drainages, surficial deposits of alluvium, slope wash, and stream gravels are found.[1] Soils along the proposed and alternative routes reflect largely undeveloped profiles. In an arid, cool region such as the Tongue River Basin, the process of soil formation is extremely slow, and a large portion of the soils closely reflect the geologic parent materials.

Soils from the order Entisol are most common in the region. Entisols occur both in the uplands and along the flood plain terraces. These soils exhibit little, if any, profile development. On the steeper upland slopes these soils are readily erodible, while on the more level terraces, they tend to be buried before extensive profile development can occur.[2]

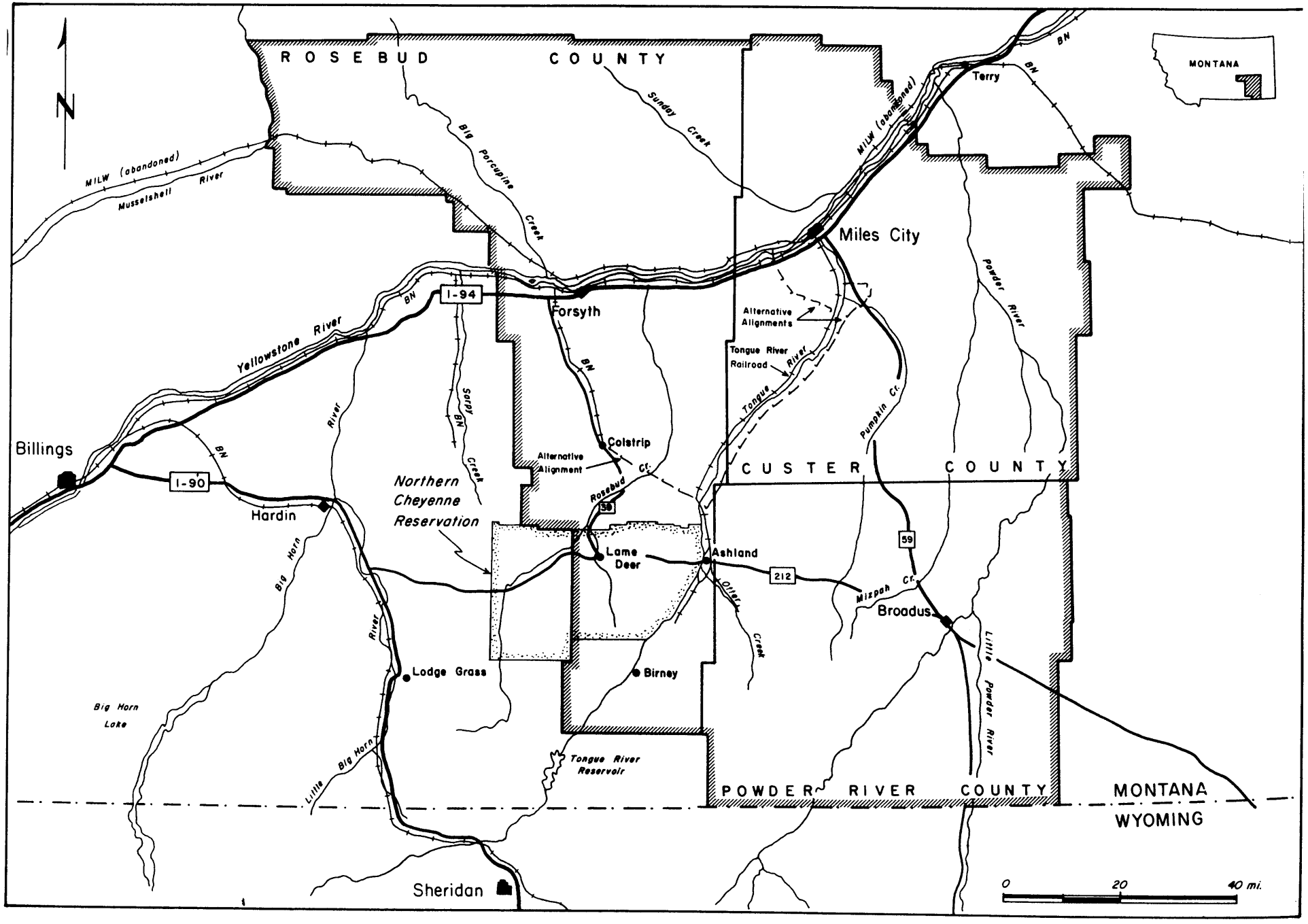


Figure 2-1. TRRC Project Area.

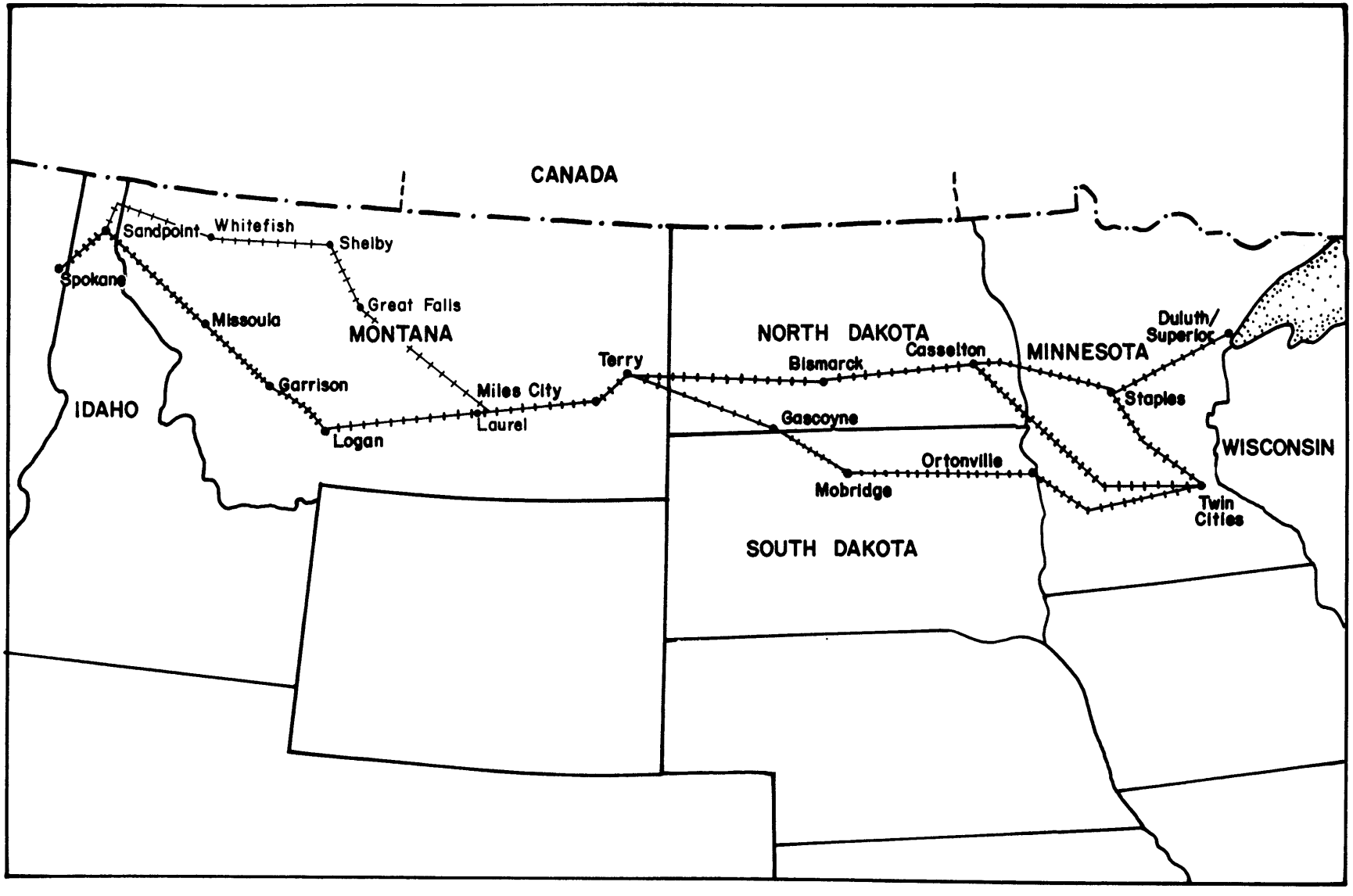


Figure 2-2. TRRC Downline Railroad Corridors

Another order of soil common to the region, Aridisol, is more developed than the Entisol in the uplands. Development of A and B horizons have taken place in many of these soils. These soils also may display accumulated soluble sodium, magnesium, and calcium salts in their upper subsurface horizons. The nature of the upper subsurface horizon is a reflection of limited water movement through the soil profile after development.[3]

Entisols and Aridisols of the uplands generally are not considered arable. However, Entisols of the deep, river bottom alluvium, deposited after periodic flooding, usually are fertile. Most of the hay and grain produced in the study area is grown in these soils.

The Mollisol, another arable soil, is fairly common in the areas of the region that have access to water but which are not subject to flooding. These soils are deep, have organic material in their surface horizon, and exhibit some clay accumulation in their subsurface horizon. These soils are most common on intermediate stream terraces where they are suitable for dryland or irrigation farming. Where these soils occur in the uplands, it is usually a result of increased availability of moisture.

Soils of the Tongue River Valley flood plain are well drained, deep, and not prone to erosion. Their texture varies among fine sandy, silty, and occasionally clay soils. Alkilinity is generally not a problem in these soils, unless locally affected by sodium. Except in extremely undesirable sodic soils, soils of the Tongue River Valley flood plain have successfully supported hay and small grain production.

Terrace soils, usually occurring immediately above the flood plain, generally have more clay in the deeper horizons than flood plain soils. Slopes seldom exceed 15 percent. These soils are deep, well drained, and moderately erodible, depending upon slope. Developing in old alluvial deposits left by the Tongue, these soils commonly are used for hayland and grazing.

Farther from the river bottoms and lower terraces, on the dissected uplands, differentiated and rapidly changing soils are found. Soil texture can vary greatly between adjacent soils. Shale, siltstone, and sandstone outcrops occur frequently. Upland soils tend to be shallow and have retained properties of their geologic origins. Erosion is a prevalent characteristic on steeper slopes. Alkalinity, when it occurs, can render these soils unsuitable for most uses. In general, short grass rangeland is the most common use of these soils.

2.2.1.3 Hydrology

The Tongue River rises in Wyoming and flows northeast through southeastern Montana, to join the Yellowstone River near Miles City, Montana. The Yellowstone River is a major tributary of the Missouri

River; the Tongue River is one of four major interstate tributaries of the Yellowstone River, which itself originates in Wyoming. Primary hydrological impacts from the proposed TRRC railroad would occur within the Tongue River Basin.[4]

The Tongue and the Yellowstone Rivers originate in mountainous areas, and most of the annual flow of each derives from seasonal snowmelt runoff.[5] Thus, as much as one-half of the annual flow occurs between May and July, and that flow volume fluctuates with the depth and the water content of the relevant mountain snowpack. In contrast, smaller tributaries of the Tongue and the Yellowstone Rivers that originate in the semiarid plains exhibit little base flow; they annually experience rapid snowmelt runoff which does not provide consistent flows. Precipitation events that fluctuate markedly, both seasonally and annually, provide the most significant portion of annual flows.

Surface water quality reflects the source of streamflow: the best quality exists in the Tongue and the Yellowstone Rivers because of their reliance on mountainous snowpack.[6] Water quality generally decreases downstream, as a result of residence time, the addition of plains origin tributaries, and irrigation uses. The chemical quality of the region's surface water is highest during periods of increased flow, precisely when the physical quality of that water is the lowest, as a result of greater concentrations of suspended sediment.

Only the Yellowstone River provides, with conventional treatment, a suitable source for municipal and domestic water. All streams in the region can provide suitable irrigation water during periods of high flow, but in low flow, the salinity hazard in many of them is moderate to high. With the exception of the Yellowstone River, the water quality classification of the area's surface water is designated "limited."[7]

The Tongue River Basin's ground water supplies derive from Quaternary (alluvium), Tertiary (Fort Union), and Upper Cretaceous (Lance) deposits. None of these sources provides high quality water, although ground water from each is used for stock and domestic supplies.[8] Only the alluvium along major streams yields sufficient water to wells to serve as an important supply source for irrigation water.

2.2.1.4 Vegetation

Vegetation in the Tongue River Basin and the Colstrip area is typical of the Northern Great Plains. The region's topography varies considerably and carries a pattern of shrubland and grassland, interspersed with coniferous forest, with deciduous trees and shrubs in drainages and bottomland areas. The principal grass species are midgrasses, with shortgrasses in less abundance.[9]

The plant species that occur in the region are adapted to extremes of winter cold and summer drought and form a vegetation community described as mixed prairie. Other floristic elements represented in the

Tongue River Basin are derived from the tallgrass prairie, the Rocky Mountain flora, and the Great Basin flora.

Vegetation in the Tongue River region has been influenced historically by grazing and other agricultural land uses. Fire and soil type also have been important factors in influencing composition. Much of the area is vegetated by native plant communities in various stages of succession; this vegetation commonly provides range grazing for cattle (see section 2.2.1.7, Figure 2-6).

Ten general vegetation types have been identified for the Tongue River Valley and for the Tongue River Railroad's alternative corridors:[10]

(1) The most common vegetation type in the area is big sagebrush/grassland. Big sagebrush is the dominant shrub, with western wheatgrass, bluebunch wheatgrass, needle-and-thread, and green needlegrass being the codominants. This type generally occurs on upland slopes, breaks and mesas.
(2) The deciduous tree/shrub type, usually dominated by the plains cottonwood, occurs on the Tongue River bottomlands, side drainages, and near seeps where high moisture levels prevail throughout the growing season.
(3) The silver sagebrush/grassland type, dominated by silver sagebrush, western wheatgrass and green needlegrass, is commonly associated with drainage bottoms and river terraces.
(4) The greasewood/grassland type, dominated by greasewood and western wheatgrass, occurs on localized sites on the Tongue River flood plain and on upland sites where saline soils exist.
(5) The skunkbush sumac/grassland type occurs on steep slopes with thin, coarse soils, often in proximity to the coniferous type.
(6) The prairie vegetation type is comprised of grassland plant communities, which occur primarily on slopes, terraces, and sidehills.
(7) The pine/juniper type is dominated by Ponderosa pine and Rocky Mountain juniper, with associated grass species.
(8) The breaks type is found on steep, highly eroded slopes and is variable in vegetation composition.
(9) The agricultural types of vegetation include dry and irrigated croplands, haylands, and tame pastures.
(10) The aquatic type consists of cattails, bullrushes, wet-site sedges, horsetails, rushes and other emergent and semiemergent species.

General rangeland types of vegetation in the Tongue River Basin are classified Badlands grassland and southeastern grassland. Climate, topography, soils, and the type of forage available dictates the rangeland's carrying capacity. As yet, neither threatened nor endangered plant species have been identified in the Tongue River Valley region, although some such species might occur.[11]

2.2.1.5 Terrestrial Wildlife

There are 10 major wildlife habitat types in the region of the proposed Tongue River Railroad, which correlate to the vegetation types described for the area. The deciduous tree/shrub type and the aquatic type are both considered to be riparian habitats and are probably the most critical for wildlife. These habitats are very limited in the study area. The region potentially supports 57 species of mammals, 40 species of which have recently been recorded.[12] Viable populations of three big game species occur within the area: (1) mule deer; (2) white-tailed deer; and (3) pronghorn (see Figure 2-3).

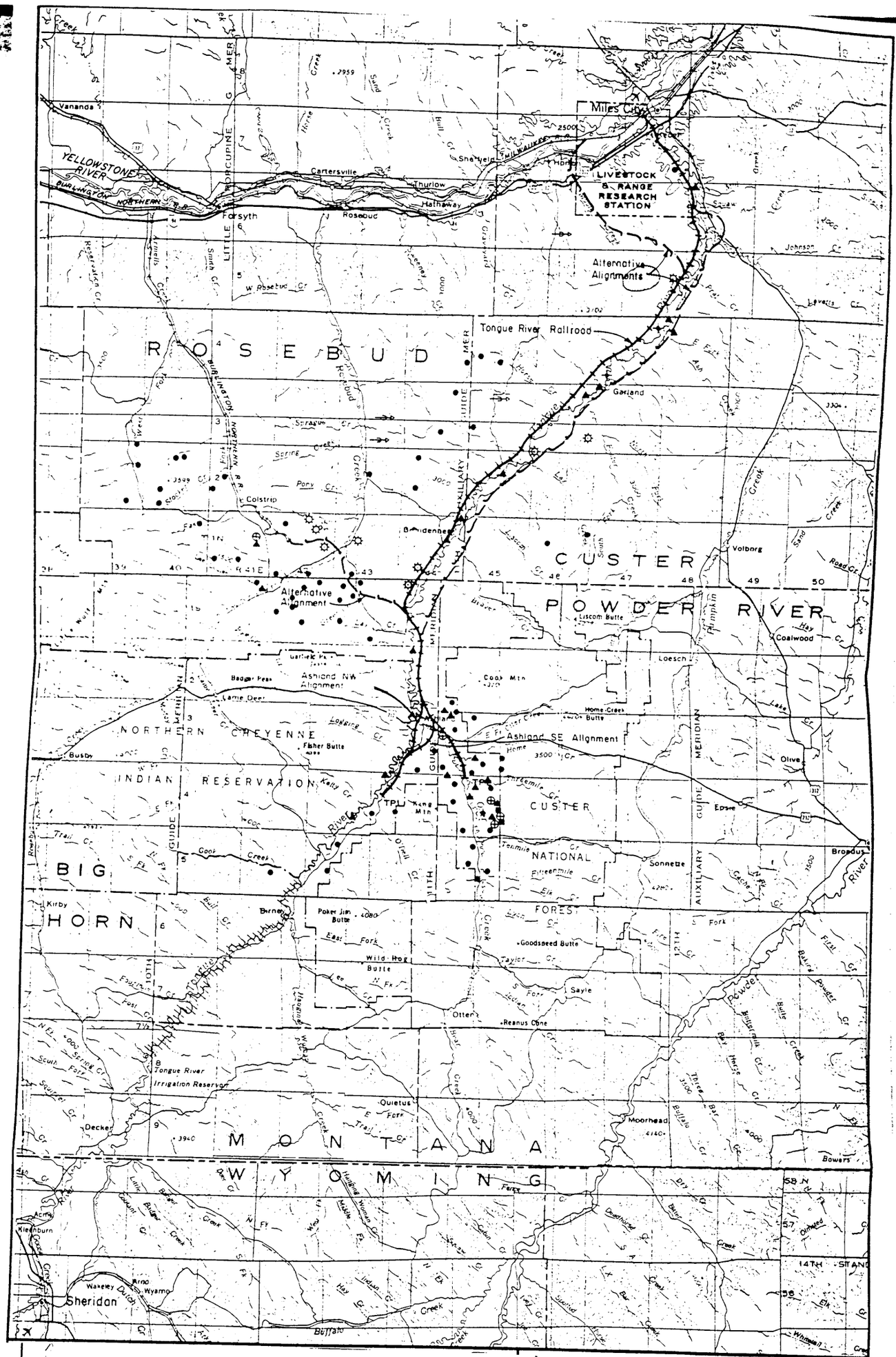
Economically important furbearers include the coyote, red fox, bobcat, raccoon, beaver, and muskrat, although other furbearers also populate the region. Only one endangered mammal--the blackfooted ferret--might exist in the project area; it has not been recorded recently along the Tongue River.[13]

About 240 species of birds potentially appear in the region, of which 176 species have been observed during recent studies. Five upland game birds occur in huntable numbers: (1) sharp-tailed grouse; (2) sage grouse; (3) ring-necked pheasant; (4) Merriam's turkey; and (5) gray partridge. Waterfowl population is limited by the lack of natural wetlands in the region, but these birds do use impoundments, rivers, and streams in the area. In the region, 24 species of raptors have been observed. As a group, raptors are abundant in southeastern Montana (see Figure 2-4).

Three endangered bird species potentially occur in the Tongue River Basin. The whooping crane migrates through eastern Montana, but no examples have been sighted in the project area since 1974. The peregrine falcon also migrates through the area; available sandstone bluffs offer potential eyries, although no active eyries were located in recent studies. Wintering bald eagles are sighted along the Tongue River between autumn and spring each year, generally in areas where open water is available below Tongue River Dam.

In addition, 18 species of reptiles and amphibians potentially occur in the region, 12 species of which have been recorded in recent studies.[14] None of these species is considered endangered.

Although numerous studies have been conducted in the region, some areas potentially affected by the railroad have not been inventoried. The most notable example is that area along the east side of the Tongue from approximately the mouth of Beaver Creek to the mouth of Pumpkin Creek, and bordered on the east by Pumpkin Creek. No wildlife inventories have been conducted in this area.



LEGEND

FIGURE 2.4

Upland Game Bird Sites

- Sharp Tailed Grouse Leks
- Sage Grouse Leks
- Sage Grouse Wintering Area
- Turkey Sighting

Raptor Sites

- Golden Eagle Nests
- Prairie Falcon Nests
- Red Tailed Hawk Nests
- Potential Nesting Cliffs
- Bald Eagle Wintering Area

Proposed Action ——— Alternative Routes TP Terminal Point

Ref. Western Technology and Engineering, Inc., 1981. Technical Report: The Effects of the Tongue River Railroad on Terrestrial Wildlife. Prepared for Tongue River Railroad Company.

WILDLIFE USE AREAS: UPLAND GAME BIRDS AND RAPTORS

TONGUE RIVER RAILROAD COMPANY

June 1982

Prepared By
IntraSearch
Billings, Montana

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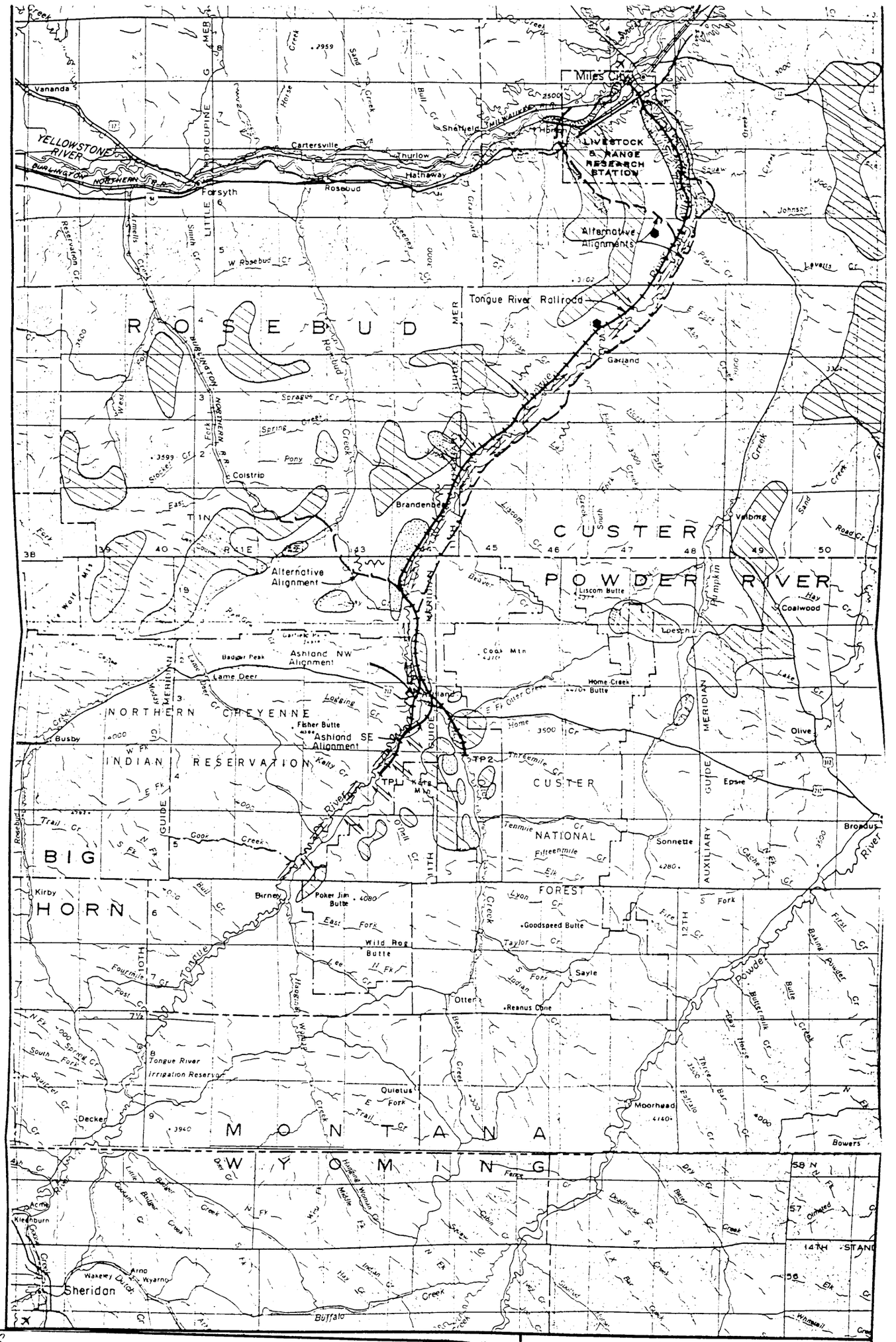

LEGEND

Big Game Winter Concentration Areas

- Mule Deer
- Additional Mule Deer Winter Range
- White Tailed Deer (Note: Entire Tongue River bottom provides important year round white tailed deer habitat.)
- Antelope
- Deer Movement
- Prairie Dog Colonies
- Proposed Action
- Alternative Routes
- TP Terminal Point

Ref: Western Technology and Engineering, Inc. 1981. Technical Report: The Effects of the Tongue River Railroad on Terrestrial Wildlife. Prepared for Tongue River Railroad Company.

FIGURE 2.3

WILDLIFE USE AREAS: BIG GAME

TONGUE RIVER RAILROAD COMPANY

June 1982

Prepared by IntraSearch Billings, Montana

SCALE IN MILES

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3 6

2.2.1.6 Aquatic Ecology

Fishery Resources

The Yellowstone and Tongue Rivers, and a number of their tributaries, provide habitat for numerous sportfish. Shovelnose sturgeon, sauger, channel catfish, Northern pike, smallmouth bass, and rainbow trout are found in both the Yellowstone and Tongue Rivers.[15] The Tongue River has been divided into five fishery zones, which have been evaluated and compared for their sport fishery potential (SF), resource value (RV), and habitat and species value (HS) (see Table 2-1 and Figure 2-5). Generally, the relative value of the fishery resource in the Tongue increases as one descends the river. The Tongue River from Pumpkin Creek to its juncture with the Yellowstone is a spawning area for shovelnose sturgeon and sauger.[16]

The Yellowstone River and the principal perennial streams in the Tongue River region provide habitat for various fishes. The Montana Department of Fish, Wildlife and Parks assigns a resource value of "2" to the reach of the Yellowstone River immediately west of Miles City. The fishery values of Rosebud, Pumpkin and Otter Creeks are equal to or lower than the values of the Tongue and Yellowstone Rivers (see Table 2-2). Fish species occuring by zone in the river are depicted in Table 2-2.

Invertebrate Fauna

Macroinvertebrates are abundant in the Tongue River and its tributaries. The invertebrate communities in these streams are similar to those in warm water streams throughout southeastern Montana. The most significant change in community structure occurs in the upper reaches of the Tongue River, where the fauna is influenced by cold water discharges from the Tongue River Dam. This influence decreases downstream and the faunal changes are more gradual. The turbidity of the lower portion of the Tongue River affects the relative abundance of certain species, with the most tolerant forms dominating.[17]

The invertebrate fauna of Rosebud, Otter, and Pumpkin Creeks is similar to that of the Tongue River. These streams have diverse macroinvertebrate community structures that are adapted to turbid environments.[18] Overall, the invertebrate communities present reflect typical warm water streams of southeastern Montana that experience changes in water quality due to run-off, precipation and irrigation drawdown.

Periphyton

Green algae Cladophora is abundant in the Tongue River during the fall, while diatom species are prevalent in the spring. Bluegreen species nostoc are the dominant periphyton in lower reaches of the Tongue, where turbidity is high. Community analysis suggests that the Tongue River is indicative of low to moderately enriched hardwater

TABLE 2-1

SUMMARY OF STREAM FISHERY EVALUATIONS FOR
STREAMS THAT MAY BE AFFECTED BY THE TRRC RAILROAD[a]

STREAM REACH	UPPER	LOWER	RV[b]	SF[b]	HS[b]
TONGUE RIVER					
Zone V[c]	Tongue River Reservoir	N. Cheyenne Reservation	3	4	3
Zone IV	S. Boundary Reservation	N. Boundary Reservation	3	4	3
Zone III	N. Boundary Reservation	Beaver Creek	2	4	2
Zone II	Beaver Creek	T & Y Dam	3	3	3
Zone I	T & Y Dam	Mouth of Tongue	2	2	2
YELLOWSTONE RIVER	Bighorn River	Cartersville Diversion Dam	2	2	2
	Cartersville Diversion Dam	Powder River	1	2	1
TONGUE RIVER TRIBUTARIES	Otter Creek (lower section)		3	5	3
	Hanging Woman Creek (lower section)		2	4	2
	Pumpkin Creek (lower section)		3	4	3
ROSEBUD CREEK	N. Boundary Reservation	Mouth	3	4	3

[a] Source: Montana Dept. of Fish, Wildlife and Parks, 1977

[b] These values represent: RV=Resource Value (highest number of SF or SH);
SF=Sport Fishery Potential;
HS=Habitat and Species Value

[c] The zone represents the approximate section equivalent to the zones presented in Figure 3 from Elser et al. (1977).

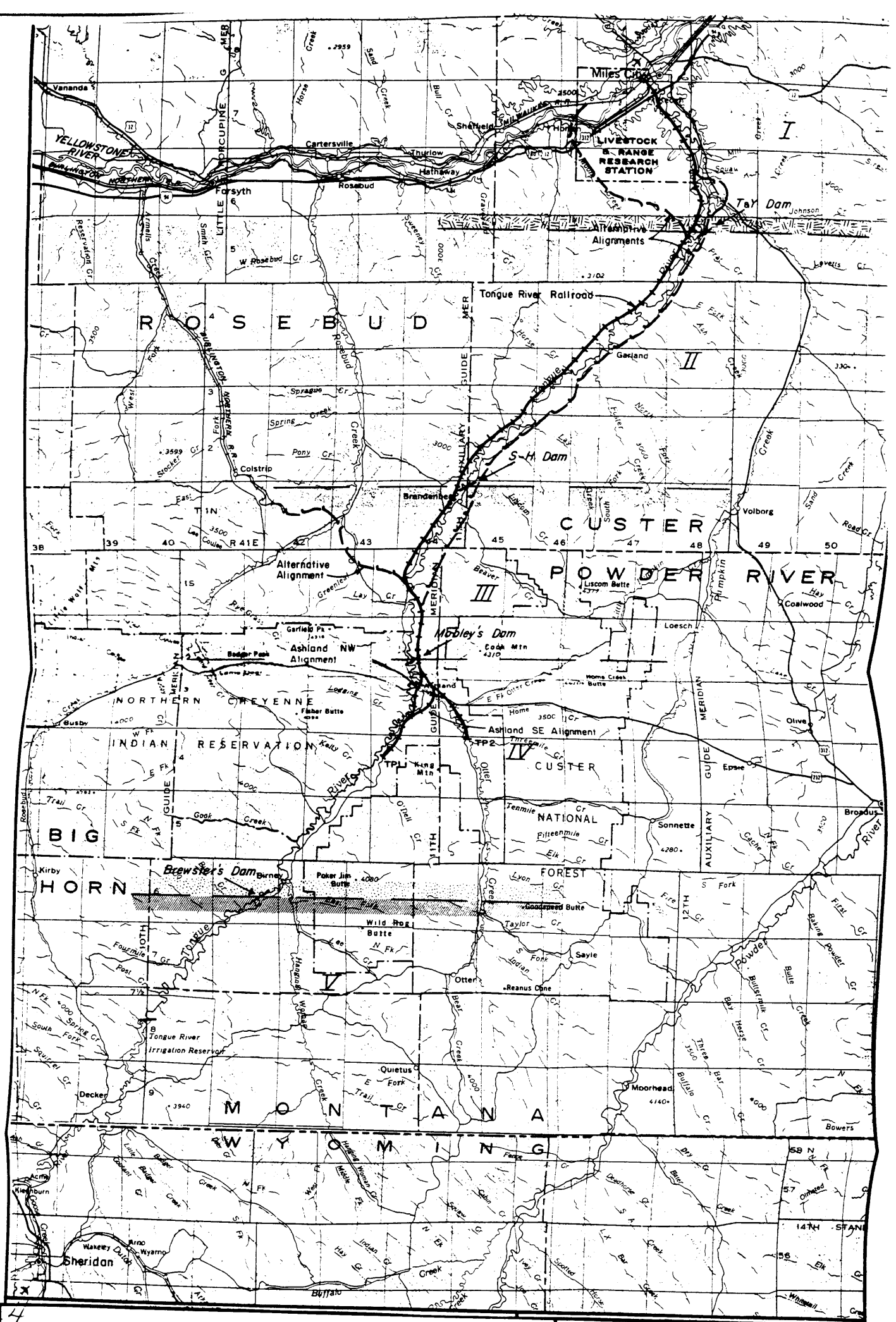

Miles City
Vananda
YELLOWSTONE RIVER
BURLINGTON NORTHERN R.R.
Cartersville
Thurlow
Hathaway
Forsyth
Rosebud
Shepherd
LIVESTOCK & RANGE RESEARCH STATION
Tay Dam
Johnson
Alternative Alignments
Tongue River Railroad
Garland
ROSEBUD
Colstrip
S-H Dam
Brandenberg
Volborg
CUSTER
POWDER RIVER
Alternative Alignment
Lascom Butte
Coalwood
Loesch
Mobley's Dam
Ashland NW Alignment
Ashland
NORTHERN CHEYENNE INDIAN RESERVATION
Busby
Fisher Butte
Ashland SE Alignment
Olive
Epsie
CUSTER NATIONAL FOREST
BIG HORN
Kirby
Brewster's Dam
Burney
Poker Jim Butte
Goodspeed Butte
Wild Rog Butte
Sonnette
Broadus
Sayle
Otter
Reanus Cone
Tongue River Irrigation Reservoir
Quietus
Decker
Moorhead
MONTANA
WYOMING
Acme
Kleenburn
Wakeley Dutch
Arno
Wyarno
Sheridan
Bowers
Buffalo
14TH STANDARD
LEGEND

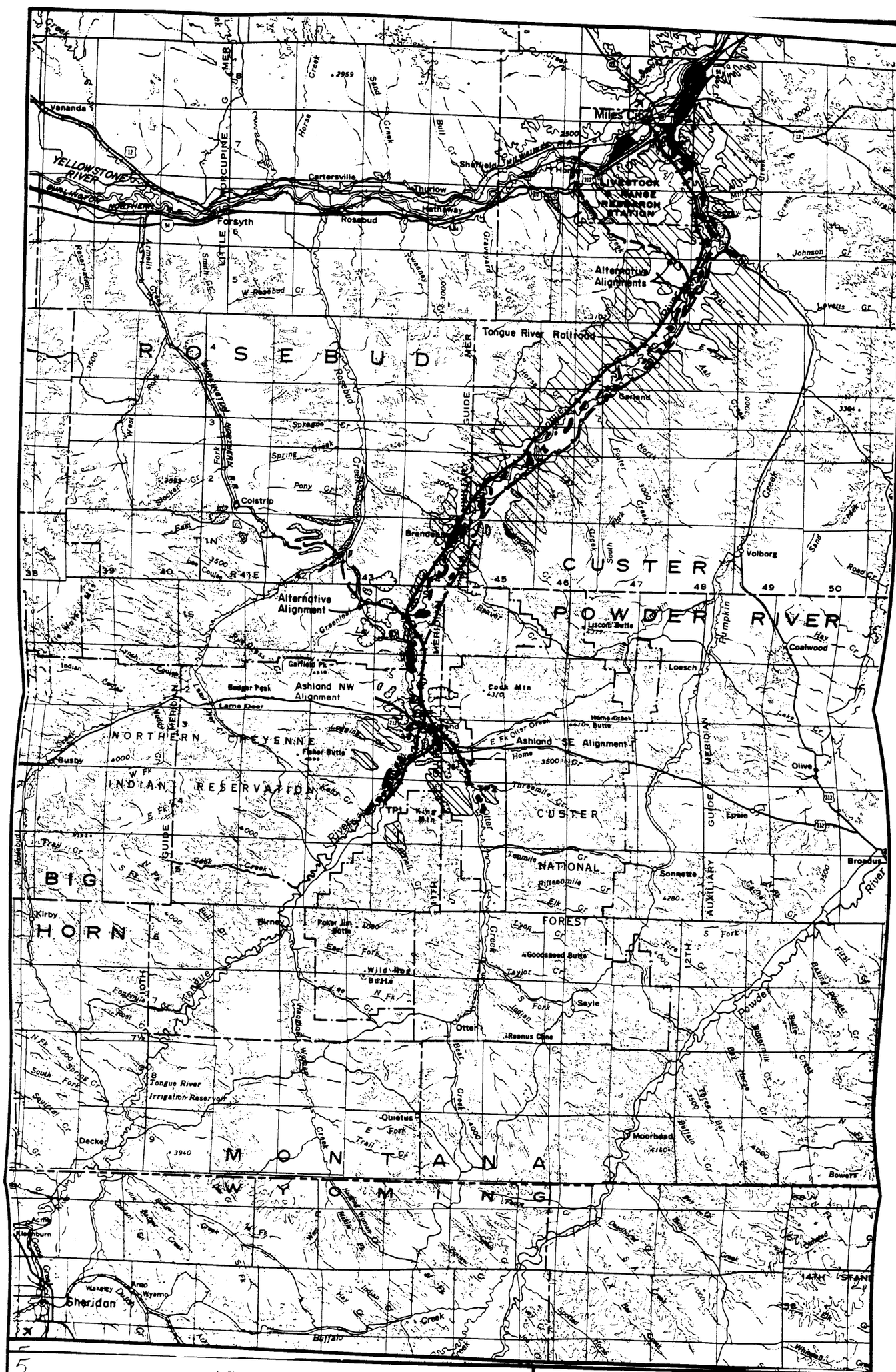
TABLE 2-2

DISTRIBUTION OF FISHES IN THE TONGUE RIVER BY ZONES
1974 AND 1975

	V	IV	III	II	I
Brown trout	*				
Whitefish	*				
Northern pike	*	*			
Yellow perch	*	*			
Black crappie	*	*			
Yellow bullhead	*	*			
Rainbow trout	*	*	*		
Rock bass	*	*	*	*	
Mountain sucker	*	*	*	*	
Pumpkinseed	*	*			*
Smallmouth bass	*	*		*	*
White crappie	*	*		*	*
River carpsucker	*	*	*	*	*
Carp	*	*	*	*	*
Stonecat	*	*	*	*	*
Shorthead redhorse	*	*	*	*	*
White sucker	*	*	*	*	*
Longnose sucker	*	*	*	*	*
Longnose dace	*	*	*	*	*
Black bullhead		*	*		
Green sunfish		*	*	*	
Channel catfish		*		*	*
Sauger		*	*	*	*
Flathead chub		*	*	*	*
Goldeye					*
Burbot					*
Walleye					*
Paddlefish					*
Shovelnose sturgeon					*
Blue sucker					*
Sturgeon chub					
TOTAL NUMBER OF SPECIES	19	22	14	15	20

NOTE: Common names of fishes used correspond to those presented by the American Fisheries Society (1970). From: Elser et al (1977)

environments, with comparable low productivity.[19] Diversity of species reflects a healthy, macroinvertebrate community, adapted to prairie stream conditions.



5

LEGEND

FIGURE 2.6

- Irrigated cropland
- Non-irrigated cropland
- Rangeland
- Mixed barren (Rangeland)
- Coniferous forest
- Urban
- Proposed Action
- Alternative Routes
- TP Terminal Point

N

LAND USE

TONGUE RIVER RAILROAD COMPANY

June 1982

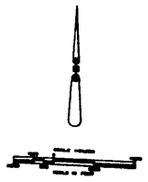
Prepared by
IntraSearch
Billings, Montana

SCALE IN MILES
6 2 0 12
3 1 6

6

FIGURE 2.7

TONGUE RIVER RAILROAD CO.
Research Plots on L.A.R.R.S.



IntraSearch

greatest population density. Twenty percent of Rosebud County's population belong to the Northern Cheyenne Indian Tribe. In Custer County, housing is principally permanent, single family dwellings, but there has been a large increase in mobile homes during the past decade.[22] Rosebud County has experienced a growth in mobile home parks largely due to energy development.[23]

TABLE 2-3

PROJECT AREA POPULATION DATA

COUNTY	POPULATION	POPULATION PER SQ. MILE	MEDIAN AGE
Custer	13,109	3.5	28.4
Rosebud	11,278	2.2	26.5
Powder River	2,520	0.8	25.1

Employment

The three counties differ somewhat in terms of employment characteristics. Agriculture is the predominant source of basic employment in Powder River County.[24] The agriculture sector also is the predominant source of basic employment in Custer County, along with the government sector. The primary basic employment in Rosebud County is related to energy development (i.e., construction and mining). The most developed trade and service sectors are found in Custer County. This employment is located predominantly in Miles City, which is the area's trade center. Employment in the tri-county area increased 50 percent between 1970 and 1980 and continues to grow, particularly in Rosebud County.[25]

The unemployment rate for the three counties is somewhat lower than the national average. However, for Northern Cheyenne Indians living on the reservation, the rate is near 50 percent. Median family income in all three counties is lower than state and national levels. Income, in per capita terms, increased over 100 percent from 1970 through 1980.[26]

The baseline forecasts that were prepared for the impact analysis suggest that the project area will experience very modest change between 1981 and 2010. Total population for the three county area is projected to increase by only 2 percent over the period. Employment will increase less than 1 percent. The only exception to this trend of slow growth will occur between 1981 and 1983. During the 3-year period, population will increase by 20 percent and employment by 22 percent, reflecting the construction of Units 3 and 4 at Colstrip. After 1983, population and employment both begin to decline. By 1986,

the area economy will stabilize at approximately 27,000 people and 12,000 jobs. As a result of the static economy beyond 1986, outmigration will occur throughout the analysis period. Personal income also will experience only modest gains, i.e., 2 percent in terms of per capita real income.

The structure of the area economy also will not change significantly, particularly after Units 3 and 4 are completed. All sectors except agriculture are expected to grow modestly. The agriculture sector is expected to continue its historical decline in employment, dropping 18 percent by 2010.

The distribution of population within the project area is expected to change somewhat as a result of variable growth rates among the counties. While the population of Rosebud County is expected to increase (by 16 percent), the populations of both Custer County and Powder River County may decline (4 percent and 28 percent, respectively). Population on the Northern Cheyenne Indian Reservation is expected to experience the largest change, an increase of 55 percent by 2010. Currently, population is distributed among the counties as follows: (1) Custer--49 percent; (2) Powder River--9 percent; and (3) Rosebud--42 percent. By 2010, Rosebud is expected to be the most populous county, accounting for 48 percent of the project-area population. Custer County and Powder River County are expected to decline to 46 percent and 7 percent, respectively. At the community level, Miles City will remain the dominant center, with over 40 percent of the project area population. The overall distribution of population by community in 2010 is not expected to differ from the 1980 distribution by more than two or three percentage points.

The projections also reveal a gradual aging of the population. The median age will rise from 27 years to 32 years. The percentage of the population of school age will decline, while the percentage of the population aged 65 years or more will increase.

Governmental Structure

Local government in the three counties is directed by three-person county commissions. Miles City, Forsyth and Broadus are the only incorporated communities in the area, and rely on a part-time mayor/city council system. All three counties have part-time or full-time planning staffs. County-wide planning documents have been prepared for all three counties.

The major source of revenue for county and city governments is the property tax. Other sources of revenue are intergovernmental transfers, and miscellaneous collections including license fees, permit fees, fines, and user charges. Intergovernmental transfers include coal severance taxes. Part of the severance taxes are administered by the Montana Coal Board, which allocates monies among areas adversely impacted by coal development.

Local services are provided by each county, with the exception of Miles City, which has its own fire and police departments. Deputy sheriffs generally are located throughout the county, as are ambulance services and volunteer fire departments. Communication and emergency service dispatching are handled jointly for police, fire, and ambulance service in each county. Miles City and Forsyth each have a private hospital, and clinics are located in Rosebud and Broadus. However, the number of physicians per capita is well below the national average. Libraries are located in Miles City, Forsyth, and Broadus. The Sagebrush Federation of Libraries visits many communities.[27]

Social welfare services are available in each of the three counties. Rosebud County workers had case loads exceeding state standards in 1982. The highest service incidence in Rosebud County involved protective service investigation and ongoing protection. Powder River County currently displays a very low incidence of demand for such services, with only one worker serving the county on a part-time basis. Reasons for this low utilization are not clear, but an increase in demand would likely require at least one full-time worker. Custer County also is currently experiencing a worker case load level that is characterized as "higher than desirable."[28]

In addition to general service government, the project area is divided into several high school and elementary school districts (kindergarten through eighth grade). In some of the smaller communities, such as Birney, the local school board provides the only existing governmental structure. Education is financed by district property taxes and by the state school-foundation program.

Recreation

The most important recreational outlets in the study area are outdoor activities and community or school events such as plays, dances and athletics. The larger communities provide some public recreational facilities, and limited commercial recreational facilities also are available.

Hunting, fishing, hiking and picnicking are the most important outdoor activities. Residents rely on developed and undeveloped recreation sites along the Tongue River and on nearby national forest lands for much of their outdoor activities. Relatively low levels of current use for these resources provide the quality of solitude, which is highly valued.

In the smaller communities, most social activities are centered around local schools. All age groups are generally involved and total family participation is common.

Northern Cheyenne Indian Reservation

The Northern Cheyenne are a culturally distinct population, residing on a reservation to the west of the Tongue River, from a point

south of the proposed Montco Mine site to a point approximately 8 miles north of Ashland. The 1980 reservation population was approximately 2,600 persons, most of whom were enrolled tribal members. Tribal government is provided by a popularly elected president and council.

Social and economic conditions on the reservation are characterized by the ongoing struggle to preserve the traditional tribal lifestyle within an external context of development, competition and growing complexity. Attendent social problems include unemployment, alcoholism, and suicide, all of which occur at rates significantly higher than the national averages.

Most jobs filled by the Cheyenne are either tribal or federal government positions. Some tribal members have found employment at nearby coal mines or at Colstrip. Historically, significant economic activities have been ranching and logging.

2.2.1.9 Transportation

Transportation systems currently serving the three county area include federal and state highways, county roads, Bureau of Indian Affairs roads on the Northern Cheyenne Indian Reservation, railroad lines, commercial flight and small craft airports, and private airfields. Figure 2-8 depicts the existing road systems and rail lines serving the area.

U.S. Interstate 94 is a major east/west route that follows the extreme northern boundary of the study area. Federal Aid Primary (FAP) 37, also known as U.S. 212, is the major transportation route to southeastern Montana, and bisects the project area from east to west, extending through Broadus, Ashland and Lame Deer. FAP 39, from Lame Deer through Colstrip to Interstate 94, west of Forsyth, is the only other heavily travelled, paved road serving the area. A paved road connects Lame Deer with Birney Day Village on the Northern Cheyenne Indian Reservation, but this road sees only comparatively light use.

Federal Aid Secondary (FAS) roads serving the area include: (1) FAS 566, from Ashland south along the Tongue River; (2) FAS 484, following the Otter Creek drainage upstream from Ashland; (3) FAS 332 from Ashland to Miles City, also known as the Tongue River Road; and (4) FAS 447, which bisects the project area north to south. These and other county and BIA roads serving the area are generally gravel or scoria surfaced, with curves and grades conforming to the existing topography. Although these roads are generally considered to be adequate for existing traffic, they can be rendered impassable by extreme weather conditions.

Traffic on some of the primary roads has increased dramatically in recent years. Even so, accident rates have remained fairly consistent with statewide averages by road classification. Table 2-4 depicts

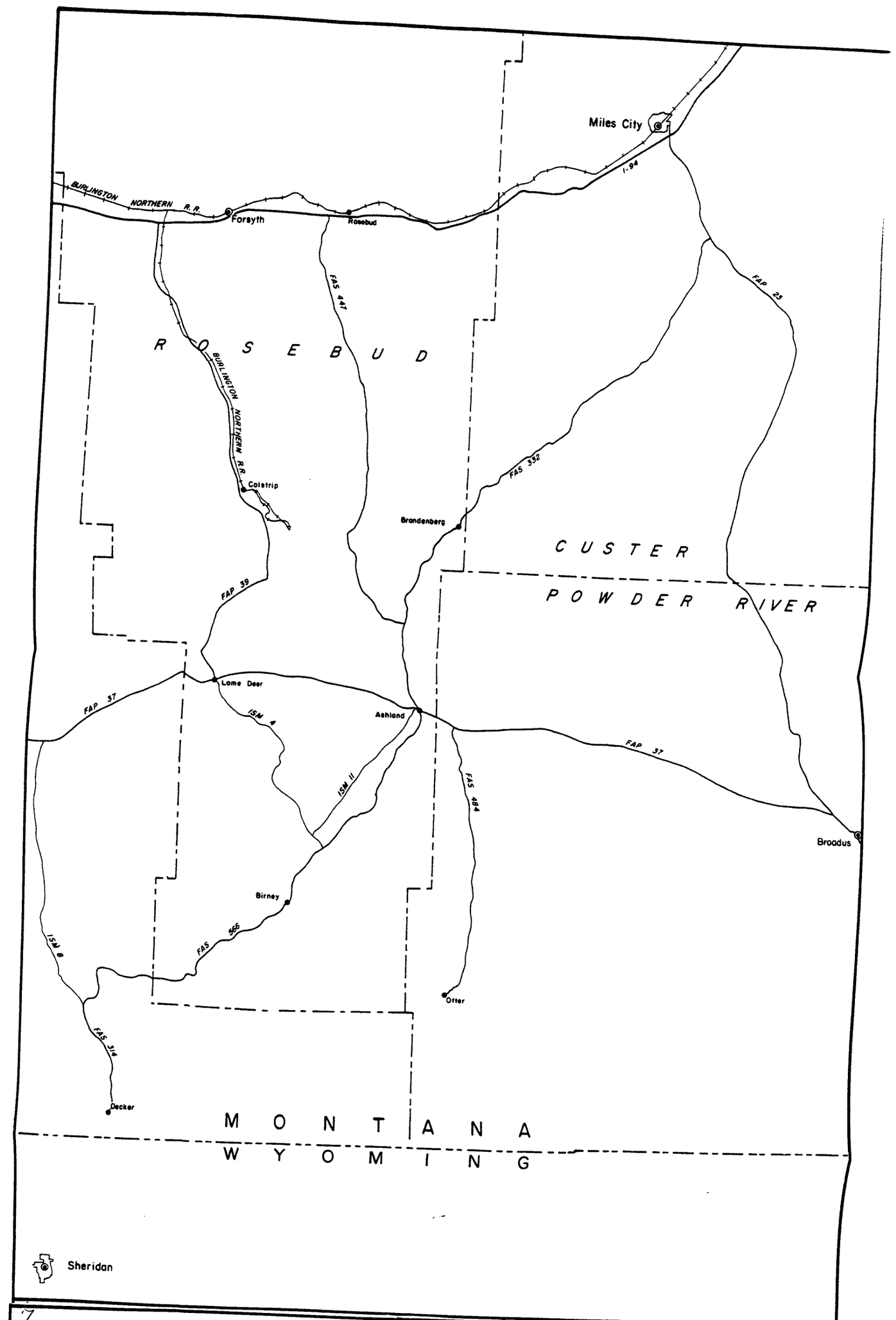


FIGURE 2.8

EXPLANATION

ISM : Indian Service Main Traffic Road

FAP : Federal Aide Primary

FAS : Federal Aide Secondary

I-94 : U.S. Interstate

N

ROAD SYSTEMS AND RAILLINES IN THE TRRC PROJECT AREA

SCALE IN MILES

6 0 12

mean average daily traffic (ADT) and accident statistics for selected road segments during a recent analysis period.

TABLE 2-4

TRAFFIC STATISTICS FOR SELECTED SEGMENTS OF AREA ROADS[a]

ROAD SEGMENT	MEAN ADHT[b] FOR 1976-1980	TOTAL NUMBER ACCIDENTS	INJURIES	FATALITIES	ACCIDENT RATE[c]
FAP 37					
Jct. I-90 to Lame Deer	1,116	155	60	13	1.81
Lame Deer to Jct. FAS 566	1,027	90	57	6	2.37
Jct. FAS 566 to Broadus	612	81	48	2	1.76
FAP 39					
Jct. I-94 to Colstrip	879	101	54	5	2.21
Colstrip to Lame Deer	456	52	35	6	2.75

[a] Source: Montana Department of Highways, Highway Information System, unpublished printout

[b] Mean ADT = $\left(\sum_{E=1976}^{1980} ADT_i\right)/5$

ADHT = Average Daily Highway Traffic

[c] Accident rate = number of accidents per million vehicle miles

The Burlington Northern mainline follows the Yellowstone Valley, through Miles City and Forsyth along the northern edge of the project area. A branchline leaves the mainline at Nichols and heads south to serve the Colstrip area. Commercial airline service is available in Miles City, with charter services available to several smaller airports. Numerous private airstrips also are located in the area.

2.2.1.10 Climate and Air Quality

The temperature and precipitation trends of the Tongue River Basin are typical of a semiarid climate. The region is characterized by cool/moist springs, warm/dry summers, and cold/moist winters. Winters are influenced by high pressure, arctic cold air masses from Canada, and by moist air masses from the northern Pacific region. Spring and summer precipitation usually is the result of moist air from the Gulf of Mexico flowing northward and being cooled as it rises across the High Plains.

Precipitation in the region varies considerably from month to month. Mean annual precipitation levels range from approximately 12

inches at the lower elevations to 15-16 inches at the higher elevations. Approximately one-half of the annual precipitation occurs during the period from April to June. A large portion of this precipitation occurs as thunderstorms. The highest 24-hour precipitation amount at Miles City was 3.74 inches in May, 1908. Precipitation data collected from August, 1979, to July, 1980, at the proposed Montco coal mine, show the wettest months to be May and June and the driest month to be August. The total rainfall during the 1-year measuring period was 8.01 inches.[29]

Large annual temperature variations are experienced in the region. The mean annual temperature in the region is about 45° Farenheit (F). Temperatures at Miles City have ranged from a low of 49° F in February to a high of 111° F in July. Mean monthly temperatures at Colstrip reach their lowest in January, about 8° F, and their highest in July, about 90° F. The minimum and maximum temperatures recorded at the Montco meteorological station were -22° F (December 16, 1980) and 102.2° F (July 23, 1980).

Winds in the project area tend to blow from the northwest in fall and winter, from the west in spring, and from the southwest in summer, although nearer the Tongue River, winds are influenced by the orientation of the Tongue River Valley. There are large diurnal and seasonal changes in mixing height in the Tongue River region. The mixing heights generally are lower in the mornings and much higher in the afternoons. The morning mixing heights increase slightly in the spring, whereas the afternoon mixing heights are lowest in winter and considerably higher in spring and sumer. This is an important factor in determining pollutant dispersion rates.

Air quality in the Tongue River region generally is excellent. The only major point source in the area is the coal-fired electrical generation facility at Colstrip. There are a considerable number of area sources of emissions. Most of the area is Class II under the Prevention of Significant Deterioration (PSD) regulations. However, the Northern Cheyenne Indian Reservation is designated Class I. Of the various air pollutants for which federal and state emission standards exist, only emissions of Total Suspended Particulates (TSP) and sulfuir dioxide (SO_2) have actually been measured in the region. Table 2-5 provides the state and federal ambient air quality standards.

Most TSP concentrations in the region are well below federal and state standards. However, on occasion, both the federal and state 24-hour TSP standards are exceeded, generally due to fugitive dust from industrial sources. In addition, the federal and state annual TSP standards were exceeded in 1977 at Colstrip, which is a Nonattainment Area for TSP, and at Ashland in 1980. The Ashland site is located in the center of the small rural town and locally poor air quality is influenced heavily by local unpaved roads.[30]

TABLE 2-5

AMBIENT AIR QUALITY STANDARDS (AAQS)[a]

POLLUTANT	AVERAGING TIME	MONTANA	FEDERAL PRIMARY[b]	FEDERAL SECONDARY[c]
Total Suspended Particulate	annual	75 ug/m^3[c]	75 ug/m^3[d]	60 ug/m^3[d]
	24 hours	200 ug/m^3[e]	260 ug/m^3	150 ug/m^3[d]
Sulfur Dioxide	1 hour	0.50 ppm[f]	---[i]	---
	3 hours	---	---	0.5 ppm
	24 hours	0.10 ppm[e]	0.14 ppm	---
	annual	0.02 ppm[g]	0.03 ppm	---
Carbon Monoxide	1 hour	23 ppm[g]	35 ppm	35 ppm
	8 hours	9 ppm[g]	9 ppm	9 ppm
Lead	90 days	1.5 ug/m^3[g]	1.5 ug/m^3	1.5 ug/m^3
Nitrogen Dioxide	1 hour	0.30 ppm[e]		
	annual	0.05 ppm[g]	0.05 ppm[g]	0.05 ppm[g]
Settled Particulate	30 days	10 ug/m^3[g]	---	---
Nonmethane Hydrocarbons[g]	3 hours (6-9 a.m.)	---	0.24 ppm	0.24 ppm
Photochemical Oxidants (ozone)	1 hour	0.10 ppm[e]	0.12 ppm	0.12 ppm

[a] Source: Montana Department of State Lands, Montco EIS
[b] Federal ambient air quality standards with averaging time less than 1 year are not to be exceeded more than once per year
[c] Arithmetic average; not to be exceeded
[d] Geometric mean; not to be exceeded
[e] Not to be exceeded more than once per year
[f] Not to be exceeded more than 18 times in any 12 consecutive months
[g] Not to be exceeded
[h] Set as a guide to achieve photochemical oxidant standards
[i] Indicates no standard

Limited hourly SO_2 measurements have been made downwind of the Colstrip units. These concentrations are below the applicable standards for SO_2. Visibility measurements were made at the Montco site from May, 1979, to August, 1980. The average visibility was 100 miles. Another study has estimated the maximum visibility at Colstrip at 350 miles.[31]

2.2.1.11 Noise

The project area has been divided into two distinct subareas for the purpose of assessing ambient noise levels. The first is the rural, predominantly agricultural portion, where noise level is a function primarily of wind, birds and insects, agricultural equipment, and traffic on public roads. The second subarea is the urban portion of the counties, in which more intensive residential, industrial, and commercial activities occur.

Ambient noise levels in the rural subareas, isolated from public roads and agricultural machinery, range from 20 to 40 dBA.[32] Rural locations in closer proximity to public roads and agricultural equipment operations approach 75 dBA. An example of the high range would be a passing farm truck recorded at a distance of about 100 feet.

In the urban portion of the counties, ambient noise levels range from 45 to 75 dBA in commercial and industrial areas, depending on the time of day and on proximity to activity centers and streets. In less dense, residential areas, the range is somewhat lower--40 to 65 dBA. Along rail lines, noise levels range from 60 to 95 dBA at 100 feet as trains pass. The higher end of the range is associated with train whistles; the average noise level during the period of unit coal train operation is 75 dBA.

2.2.1.12 Cultural Resources

The route of the proposed rail line and the alternative routes traverse the Northwestern Plains subarea of the Great Plains Culture area. The cultural sequence formulated and modified for the Northwestern Plains generally is applied to eastern Montana. Seven successive phases of possible human inhabitation of the area have been identified.[33]

The Paleo-Indian phase (9500-5500 BC) is identified by large spearpoints, found in significant variations in plains sites. Foothills habitation sites of the Early Plains Archaic phase (6000-3000 BC) are identified by large, side-notched points. Significant population increases and a change to a seasonally oriented subsistence pattern are suggested in remains identified from the Middle Plains Archaic phase (3000-500 BC). These remains include the McKean projectile point complex, vegetal processing artifacts, buffalo jump sites, stone circles, storage cists and hearths. Remains from the Late Plains Archaic phase (1000 BC-AD 500) are similar to the preceeding phase with the exception of the appearance of a true corner-notched projectile point. The Late Prehistoric phase (AD 500-1700) is typified by small, side-notched, corner-notched, tri-notched, and serrated points--indicating adoption of the bow and arrow, and ceramic pieces representative of two distinct traditions.

The presence of Caucasian artifacts, with no historical documentation, distinguishes the Protohistoric phase (AD 1700-1800). Remains indicative of the diffusion of horses and firearms, and suggesting a correlative shift in hunting, trading and settlement patterns, are typical.

The Historic phase (AD 1800-AD 1930) is typified by the decline in dominance of the region by the Plains tribes and the ultimate subjugation of those tribes, including the Northern Cheyenne. The development of the open range livestock industry coincided with the decline in Native American dominance. The role of the U.S. Army was integral to this period. Railroad development and homesteading, hastened by federal land legislation, encouraged the establishment of private land holdings in the region. The creation of the Northern Cheyenne Indian Reservation established a permanent cultural enclave in that portion of the Tongue River Basin. Remains of this period are manifested severally in structures, battle sites, campsites, transportation corridors, and mining developments, as well as in traditions and culture maintained by the Northern Cheyenne Tribe.

Extant examples of these seven phases of inhabitation are most common from the Historic phase. The Late Plains Archaic phase is best representative of prehistoric inhabitation of the region. Examples of sites indicative of this period include: (1) lithic procurement areas; (2) porcellanite workshops; (3) lithic workshops; (4) campsites; and (5) various sites representing specific extractive or ceremonial activities, e.g., bison kill sites, rock art sites, eagle-catching pits, etc.

2.2.1.13 Aesthetic Resources

The Tongue River Railroad project area lies within a subregion, or landscape character type, delineated by the U.S. Forest Service as the Rocky Mountain Foreland Subregion. It encompasses a variety of landforms, including cultivated and grazed prairies, plateau surfaces, hills, plains, and dissected mountains. Natural water forms are not abundant in the subregion.

The following landscape character subtypes have been identified within the Rocky Mountain Foreland for the Tongue River Railroad project area:

(1) Tongue River and creek flood plains
(2) Yellowstone River flood plain
(3) shrub/grassland prairie
(4) ponderosa pine/upland slopes and mesas
(5) developed rural community
(6) developed urban
(7) developed heavy-industrial/urban

The subtypes are used to identify portions of major character types having different degrees of visual diversity. Termed "variety

classes," the degrees of visual diversity provide a means to measure scenic quality.[34]

Not only are aesthetic resources defined as general landscapes having natural scenic values (as discussed above), but they also are defined as visually Sensitive Use Areas (SUA), where the maintenance of the surrounding visual environment is important to people's enjoyment or use of an area. The major categories of SUAs in the Tongue River Railroad project area are:

(1) Existing residential areas, such as Miles City and Ashland
(2) Planned residential areas, such as Tranel Subdivision, Snodgrass Subdivision, Tongue River Estates, and Trussler Subdivision
(3) Parks and recreation areas, such as Branum Lake, Twelve Mile Dam, Spotted Eagle Recreation Area, Eastern Montana Fairgrounds, art center/campground, designated open space, golf course, and potential Tongue River Recreation Area
(4) Transportation corridors, such as U.S. Highway 94, U.S. Highway 10, State Highway 312, State Highway 212, FAS 566, FAS 477, FAS 332, and King Creek Road

2.2.2 Downline Routes

Approximately 323 communities are located within the downline corridors shown in Figure 2-2 (see Table 2-6). While they range in size from 5 to more than 750,000 persons, the vast majority of them are small. More than half of the communities are divided by the rail line. This situation is characterized by residential areas situated on either side of a mainline and a commercial area located on a single side.

TABLE 2-6

SUMMARY CHARACTERISTICS OF ALL DOWNLINE COMMUNITIES[a]

POPULATION	DIVIDED BY MAINLINE	NOT DIVIDED BY MAINLINE	TOTAL COMMUNITIES
0-99	51	55	106
100-999	59	64	123
1,000-49,999	67	22	89
50,000 and above	5	0	5
TOTAL	182	141	323

[a] Communities that are not divided are those located entirely on one side of a rail line and communities with 10 percent or less of the population separated from the remainder of the community by a rail line.

2.3 FOOTNOTES

1. A literature review of published and unpublished information on soils was the basic methodology employed, although some field work was undertaken. Refer to: W.J. Mapel and V.E. Swanson, "Summary of Natural Resources and Conservation, Water Resources Division, "The Adequacy of Montana's Regulatory Framework for Water Quality Control," Yellowstone Impact Study Technical Report No. 4, prepared for the Old West Regional Commission, July, 1977.

2. U.S. Department of the Interior, U.S. Geological Survey and Montana Department of State Lands, Final Environmental Statement, Proposed Mining and Reclamation Plan, Spring Creek Mine, Big Horn County, 1979, pp. II-20 through II-23; U.S. Department of the Interior, U.S. Geological Survey and Montana Department of State Lands, Draft Regional Environmental Impact Statement, Northern Powder River Basin Coal, Montana, 1979, p. II-50.

3. Ibid.

4. The other three interstate tributaries are the Clark's Fork, the Big Horn, and the Powder River. One alternate corridor, the Colstrip alternative route, involves the Rosebud Creek watershed.

5. Streamflow records and data can be obtained from the following sources: U.S. Department of the Interior, U.S. Geological Survey, Annual Peak Discharges from Small Drainage Areas in Montana through September 1974; U.S. Department of the Interior, Geological Survey, Water Resources Data for Montana, Part I, Surface Water Records, Years 1966-1979; Missouri Basin Inter-Agency Committee, "The Missouri River Basin Comprehensive Framework Study Monthly Streamflow Tables and Depletion Estimates," May 1966; National Commission on Water Quality, Report to the Congress, Draft Final Report (Washington, DC: U.S. Government Printing Office, 1975); Montco, Inc., "Application for Mining Permit," various volumes, submitted to Montana Department of State Lands, 1980; Jason Whiteman, Thomas J. Osborn, and Charles B. Andrews, "Hydrologic Data from the Northern Cheyenne Reservation," February, 1980; and U.S. Department of the Interior, Bureau of Reclamation, Design of Small Dams (partial revision), Water Resources Technical Publication (Washington, DC: U.S. Government Printing Office, 1977).

6. The large amount of surface water quality data available for various locations in the basin is not statistically analyzed in this report. However, the information utilized include: Yellowstone-Tongue Area-wide Planning Organization, "A Water Quality Plan for Southeast Montana," March 1978; National Commission on Water Quality, 1975; Yellowstone-Tongue Area-wide Planning Organization and Montana Testing Lab, Inc., "A Water Quality Management Project"; Monco, Inc., "Application for Mining Permit," various volumes, submitted to Montana Department of State Lands, 1980; Montana Department of Natural Resources and Conservation, Water Resources Division, Yellowstone River

Basin Water Resources Situation Report, 1975; Montana Department of Natural Resources and Conservation, Water Resources Division, "The Adequacy of Montana's Regulatory Framework for Water Quality Control," Yellowstone Impact Study Technical Report No. 4, prepared for the Old West Regional Commission, July, 1977.

7. The designation of limited water quality indicates that present water quality is below state standards and specified criteria will not be achieved with the application of best practicable wastewater treatment and/or secondary treatment for all point source discharges. Refer to Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500). The Yellowstone-Tongue Area-wide Planning Organization has determined that all waters within the 208 planning area are designated "water quality limited."

8. See Appendix A for further explanation of the deposits, along with aquifer characteristics and ground water quality. Sources of information are: M.R. Miller, W.M. Bermel, R.N. Bergantino, J.L. Sonderegger, P.M. Dorbeck, and F.A. Schmidt, Compilation of Hydrogeological Data for Southeast Montana, Montana College of Mineral Science and Technology, 1977; Montco, Inc., "Application for Mining Permit," various volumes, submitted to Montana Department of State Lands, 1980.

9. The vegetation in the Tongue River Basin has been mapped and described in a general manner by A.W. Kuchler, "Potential Natural Vegetation of the Conterminous United States," (Map, 2nd edition), American Geographical Society Special Publication 36, 1975; R.L. Ross and H.E. Hunter, Climax Vegetation of Montana (Bozeman: U.S. Department of Agriculture, Soil Conservation Service, 1976); G.F. Payne, "Vegetative Rangeland Types in Montana," Agricultural Experiment Station Bulletin 671, Bozeman, Montana, 1973; M.S. Morris, "An Ecological Basis for the Classification of Montana Grasslands," Proceedings of Montana Academy of Sciences, Vol. 6 (1946), pp. 41-44; M.S. Morris, "Natural Vegetation of Montana," map adapted from U.S. Forest Service and other sources (Missoula: University of Montana, School of Forestry, 1964).

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10. The identification of the general vegetation types were based on the following detailed studies: Western Technology and Engineering, Inc., "Vegetation Analysis of the Pine Hills Area, Southeastern Montana," Technical Report, 1980; L. Dean Culwell, "Vegetation Communities of the Coal Creek Study Area, Powder River County, Montana, 1978," Technical Report by Western Technology and Engineering, Inc. for Coal Creek Company, 1979; U.S. Department of Agriculture, Soil Conservation Service, National Handbook for Range-Related Grazing Lands, 1971; Olson-Elliott and Associates, "Vegetation Inventory and Analysis of the Montco Vegetation Study Area," Helena, Montana, 1980; VTN Environmental Consultants, "Vegetation, Spring Creek Project," Technical Report for Northern Energy Resources Company, Sheridan, WY (n.d); L. Dean Culwell, "Vegetation Analysis, Pearl Area, Montana, 1976," Technical Report by Western Technology and Engineering, Inc., for Shell Oil Company, 1977; L. Dean Culwell and P.J. Farmer, "Preliminary Range Resource Analysis, Proposed Railroad Right-of-Way, Young's Creek Study Area: Addendum to July, 1975 Study," Technical Report by Montana Testing Laboratories, Inc. for Shell Oil Company, 1976, and Addendum to July 1975 study, 1976; Ecological Consulting Service, "1975 Mining Permit Requirements for Wildlife and Vegetation, Areas A1 and E2," Technical Report for Western Energy Company, Project Number 82-23-A, 1974; Ecological Consulting Services, "Annual Vegetation Description Condition and Production Report, Mining Areas A, B, an E," Technical Report for Western Energy Company, Project 142-83-A, 1976; Ecological Consulting Service, "Vegetation Report for Mining Area C," Technical Report for Western Energy Company, Project 194-83-A, 1978.

11. G.F. Payne, "Vegetation Rangeland Types in Montana," Agricultural Experiment Station Bulletin 671, Bozeman, Montana, 1973; Olson-Elliott and Associates, Vegetation Inventory and Analysis of the Montco Vegetation Study Area, Helena, Montana, 1980.

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28. Personal communication from Dallas Owens, Sociologist, Montana Department of State Lands EIS team, 19 November 1982.

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32. Noise levels are based on measurements taken at selected project locations, January 26 through February 2, 1980. The recorded levels are consistent with those found in previous analyses, such as U.S. Department of Transportation, Proposed Final Environmental Impact Statement, Coal Line Project (Washington, DC: May 19, 1980), p. II-23; U.S. Department of the Interior, Bureau of Land Management, Green River--Hams Fork Final Environmental Impact Statement, Vol. I (Washington, DC: Feburary 29, 1980), p. 121.

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3.0 DESCRIPTION OF THE PROPOSED ACTION, ALTERNATIVES TO IT, AND RELATED ACTIONS

3.1. PROPOSED ACTION

3.1.1. Construction

The Tongue River Railroad Company (TRRC) proposes to construct an 89-mile rail line from Miles City, Montana, to two terminal points--one in Rosebud County, Montana, and one in Powder River County, Montana. The rail line would begin at Miles City, where it would be tied in to the existing Burlington Northern mainline. From Miles City, the route would bear south along the west side of the Tongue River to a point approximately 10 miles north of Ashland, Montana. There, the route crosses the Tongue River and continues to the south, along the east side of the valley. Near Ashland, the rail line would divide, with one branch following the Otter Creek drainage to the southeast, and the other continuing to the south along the Tongue River. The terminal points would be located 7.7 miles southeast of Ashland in the Otter Creek drainage, and 8.9 miles south of Ashland at the proposed Montco Mine site along the Tongue River (see Figure 3-1).

For the first few miles of the route, the rail line would remain approximately 1 mile from the nearest meanders of the Tongue River. This portion of the route would cross the U.S. Department of Agriculture's (USDA) Livestock and Range Research Station (LARRS).

The bifurcation near Ashland would occur at one of two possible locations. A bifurcation east of Ashland would result in the Ashland SE Alignment, which would cut to the southwest across U.S. Highway 212 and Otter Creek, continuing for approximately 3 miles into the Tongue River Valley. The Ashland SE Alignment would not enter the community of Ashland. The Ashland NW Alignment would result from a bifurcation north of Ashland. This alignment would continue south, close to the river, crossing Otter Creek near its mouth and passing through the community of Ashland before heading on to the south along the Tongue River.

The Ashland NW Alignment is submitted as a means of avoiding a large cut and fill associated with construction of the Ashland SE Alignment. Neither of these alignments would affect the route to the terminus in the Otter Creek drainage.

The proposed TRRC railroad would be constructed to contemporary mainline standards including the use of 132-pound continuous-welded rail (cwr), treated ties, and crushed ballast. The rail would be

placed on a prepared grade and would occupy an average right-of-way of 200 feet. (The actual right-of-way width would vary, depending upon the size of cuts and fills). Specific calculations for the right-of-way for each alternative, by station, are presented in an engineering report which was prepared by IntraSearch, of Billings, Montana. Six sidings would be constructed for the proposed railroad: one at the Miles City Interchange Yard; four at specific points along the rail line; one at the Montco Mine site. Four passing sidings would be 15,000 feet in length. Each passing siding would include a shorter, "set-out" siding to be used for temporary railcar storage. The final location of the sidings would depend upon topographic characteristics and geometric parameters of the main track.

Communication and signaling facilities along the railroad right-of-way would consist of four microwave towers, linked to a centralized traffic control board (CTC) in Miles City, and a 2,400-volt, single phase transmission line, which would supply power to the signaling and detection devices. The transmission line would consist of a "hot" top wire, a neutral middle wire, and a bottom wire for communications. The pole ground wire will be gapped to reduce impacts to wildlife. The power poles would not require crossarms.

In addition to the microwave and power transmission facilities, the right-of-way would include an unimproved, single lane dirt road located adjacent to one side of the track. This road would be located within the sub-ballasted area and would provide access to the track for maintenance crews (see Figure 3-2).

The proposed TRRC development plan requires the purchase or the lease and rehabilitation of certain facilities within the abandoned Milwaukee Interchange Yard at Miles City. Existing facilities at the yard include a locomotive repair shop, a car repair shop, a fueling facility, a sanding facility, a yard air system, office space, welfare facilities, and space for signal and communication equipment. These facilities are functional, given some rehabilitative work.

Should a successful arrangement to lease or purchase necessary facilities from the Milwaukee Road not be possible, a new interchange yard would be constructed. A suitable site for this facility, should it be necessary, has been located approximately 4 miles east of Miles City. There also is the possibility of locating the site southwest of the city, near the Burlington Northern tracks. The new yard would encompass 60 acres and would consist of the same types of facilities currently available at the Milwaukee Road Interchange Yard. Initially, four 7,500-foot arrival and departure tracks would be constructed. (Two to four additional tracks might be added later, with an expansion of the railroad.) Additional service tracks in the shop and fueling areas also would be necessary. The western end and eastern ends of the yard would connect to the BN's mainline.

The TRRC also proposes to construct a maintenance of way/signal and communications shop at Ashland, Montana. This facility would con-

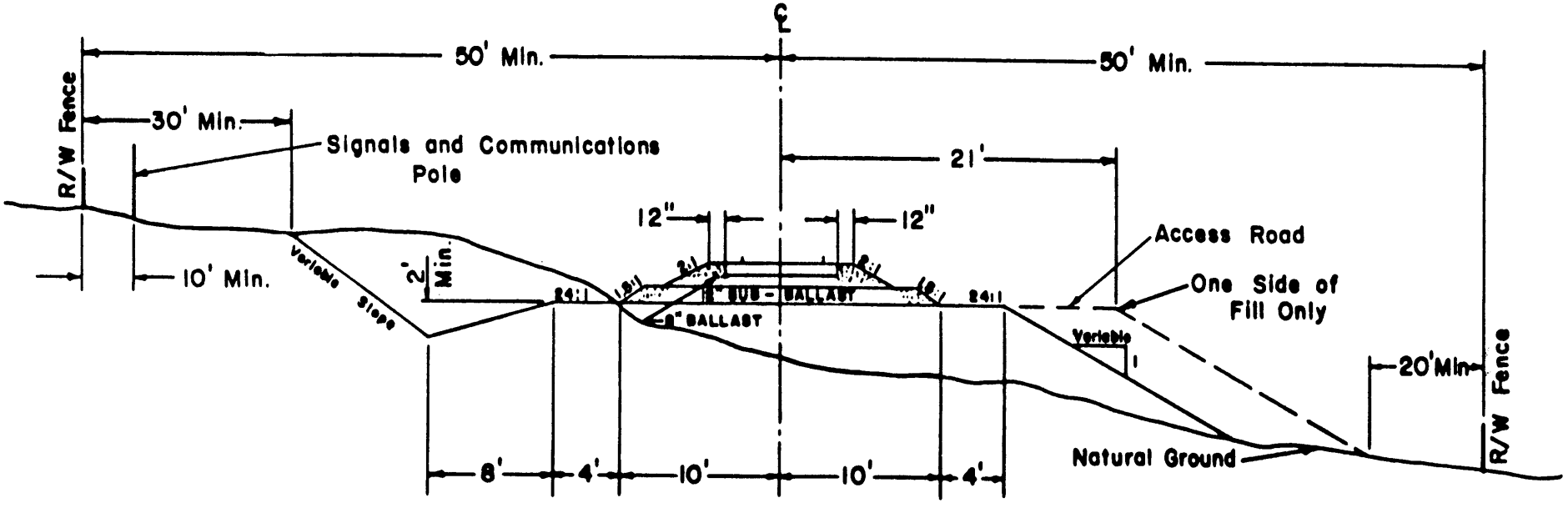


Figure 3.2 **TYPICAL CUT / FILL SECTION**

T R Railroad Co.
9-20-82

SCALE: NONE

sist of a 48-foot by 48-foot pre-engineered building that would house a section gang and a signal maintainer. The total facility would occupy approximately 2 acres.

The first task in constructing the TRRC railroad would be the acquisition of right-of-way. Once the right-of-way is secured, a general contractor, who may contract portions of the work to subcontractors, would begin construction of the mainline and sidings. Work would begin on the proposed rail line with an initial clearing of the right-of-way. The contractor would fence the right-of-way and would clear and grade the track area in 5- or 6-mile segments. Clearing of the right-of-way would be minimized, with such activity confined generally to the actual track area.

Bridges and culverts would be located once the initial clearing is completed. Culverts would be asbestos-bonded, bituminous-coated, corrugated metal pipe and would range in diameter from 24 inches to 204 inches. Each would be of a sufficient diameter to withstand a 100-year flood event. The proposed railroad would require 12 bridges --to cross four county roads, U.S. 10 at Miles City, Interstate 94 at Miles City, U.S. 212 at two points near Ashland, the Tongue River, Paddy Fay Creek, and Otter Creek at two points. These bridges would be greater than 100 feet in length (see Figures 3-3 and 3-4). Numerous cattle passes also would be located at established roads and stock trails. Additional livestock crossings would be constructed, depending on right-of-way negotiations with landowners. All stream bridges would be designed to withstand a 100-year flood occurrence.

Grading of the trackbed would commence with the removal and storage of topsoil. Excavation from cut areas would be accomplished by using either scrapers, front-end loaders, power shovels, or draglines. Blasting in the right-of-way is not anticipated. Material from cut areas would be transported by scrapers to fill areas for placement. The TRRC anticipates using much of the cut material for fill. However, some additional sub-ballast may be necessary. This material would be secured either from established borrow pits in the Yellowstone Valley or from one of four new, local, 5-acre borrow areas.

During grading activities, trucks would distribute water along the graded area, both to control dust and to aid in soil compaction. Acquisition of water for this operation would be negotiated with adjacent landowners. After completion of the grading operation, topsoil would be distributed upon the side slopes. The areas would be seeded and mulched, and silt fences, plastic netting, and other silt control devices would be applied where necessary. Work crews would clear the work area of debris and trash following the seeding of these side slopes. The revegetation of borrow areas, maintenance yards, and disturbed areas within the right-of-way would begin at this time.

Completion of the grading and the railbed preparation would be followed by the laying of track. Pre-plated ties and other track material would be distributed along the roadbed by truck. Crews would

space the ties at that time. A work train, moving in reverse, would lay welded track along the roadbed, beginning in Miles City and moving south. Passing tracks and sidings would be constructed in a similar manner.

Either construction or rehabilitation of the interchange yard at Miles City and construction of the maintenance facility at Ashland would occur simultaneously with the installation of the main track. Signal and communication facilities would be constructed after the completion of the track-laying work. The last construction activity would be the placement of ballast along the mainline, siding, and passing tracks. The final cleanup of the area would commence following the distribution of the ballast.

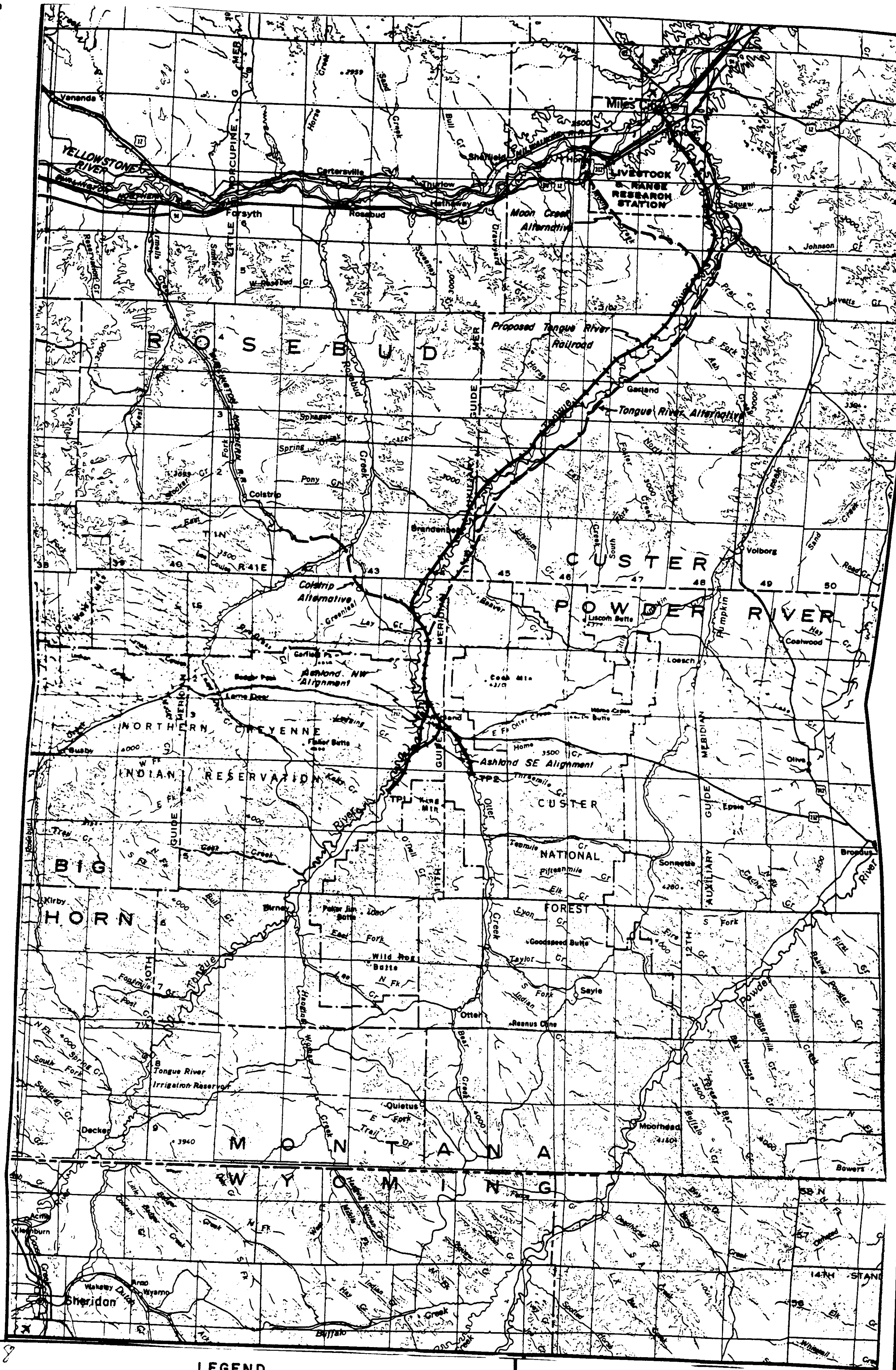
The construction of the TRRC railroad line would begin in 1985 and continue until 1989. The construction season would be limited to 7 months, generally excluding the winter months. The line to Terminal Point #1 (TP1), the Montco Mine, would be completed in 1987. The line to Terminal Point #2 (TP2), on Otter Creek, would be completed in 1989. Rail traffic over the proposed rail line would begin in 1987 and would grow steadily in the ensuing years.

Many of the tasks involved in constructing the proposed railroad would be pursued concurrently. An estimated maximum of 570 persons would be involved in the construction project during times of greatest activity. Construction workers would live either in Miles City or in one of five construction camps of approximately 40 acres each, which would be located at points along the mainline. These areas would be situated outside of the right-of-way, and their specific locations would depend upon landowner negotiations. Each construction area would provide parking for equipment, fueling and maintenance facilities, materials storage, and space for workers' mobile homes. The mobile homes would be self-contained units and would not require water or sewage facilities.

3.1.2. Operation

As a common carrier, the TRRC may transport various commodities, but the predominant commodity would be coal. Each coal train operated by the TRRC would consist of 2 3,000-horsepower diesel locomotives, 105 coal hopper cars, and 1 caboose. The locomotives would be owned or leased by the TRRC; coal shippers or receivers would own the cars.[1] Each car would carry 96 tons of coal, resulting in each train carrying a 10,080-net-ton load. The trains would be operated 24 hours a day, 350 days a year. Train frequency would depend upon the amount of coal to be shipped.

The trains would be operated by three-person crews, and Miles City would be the terminal location for these crews. The number of necessary crews would depend upon the number of trains operating. For example, with 10 loaded trains per day, 14 crews would be required. In addition to these train crews, about 55 other operating personnel



LEGEND

FIGURE 3.1

Proposed Action

Alternative Routes

TP Terminal Point

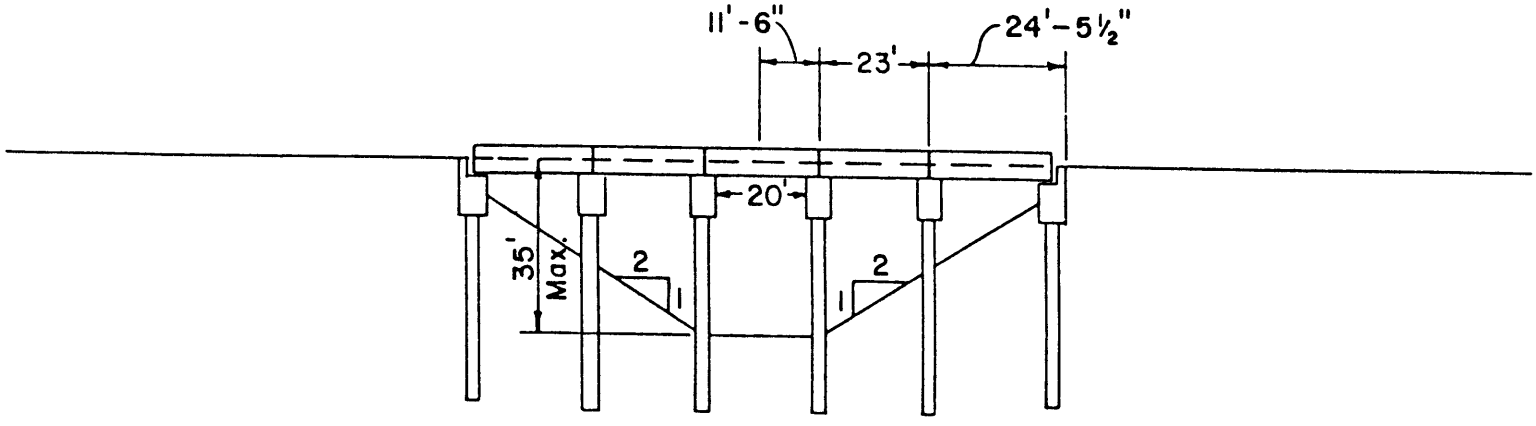
PROPOSED TONGUE RIVER RAILROAD AND ALTERNATIVES

TONGUE RIVER RAILROAD COMPANY

June 1982

Prepared by intraSearch Billings, Montana

SCALE IN MILES



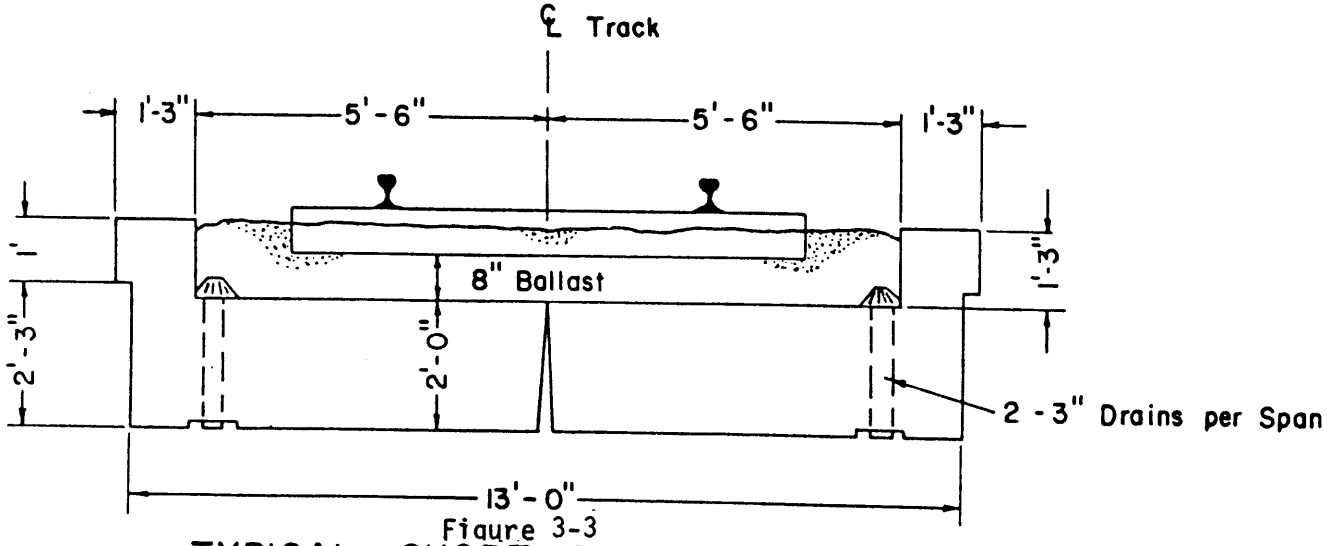


Figure 3-3

TYPICAL SHORT SPAN BRIDGE

AREA STANDARD PRECAST CONCRETE TRESTLE

(E 72 LOADING)

(CONCRETE PILES, CAPS, BEAMS)

FOR CREEK CROSSINGS

T R Railroad Co.
2-17-81

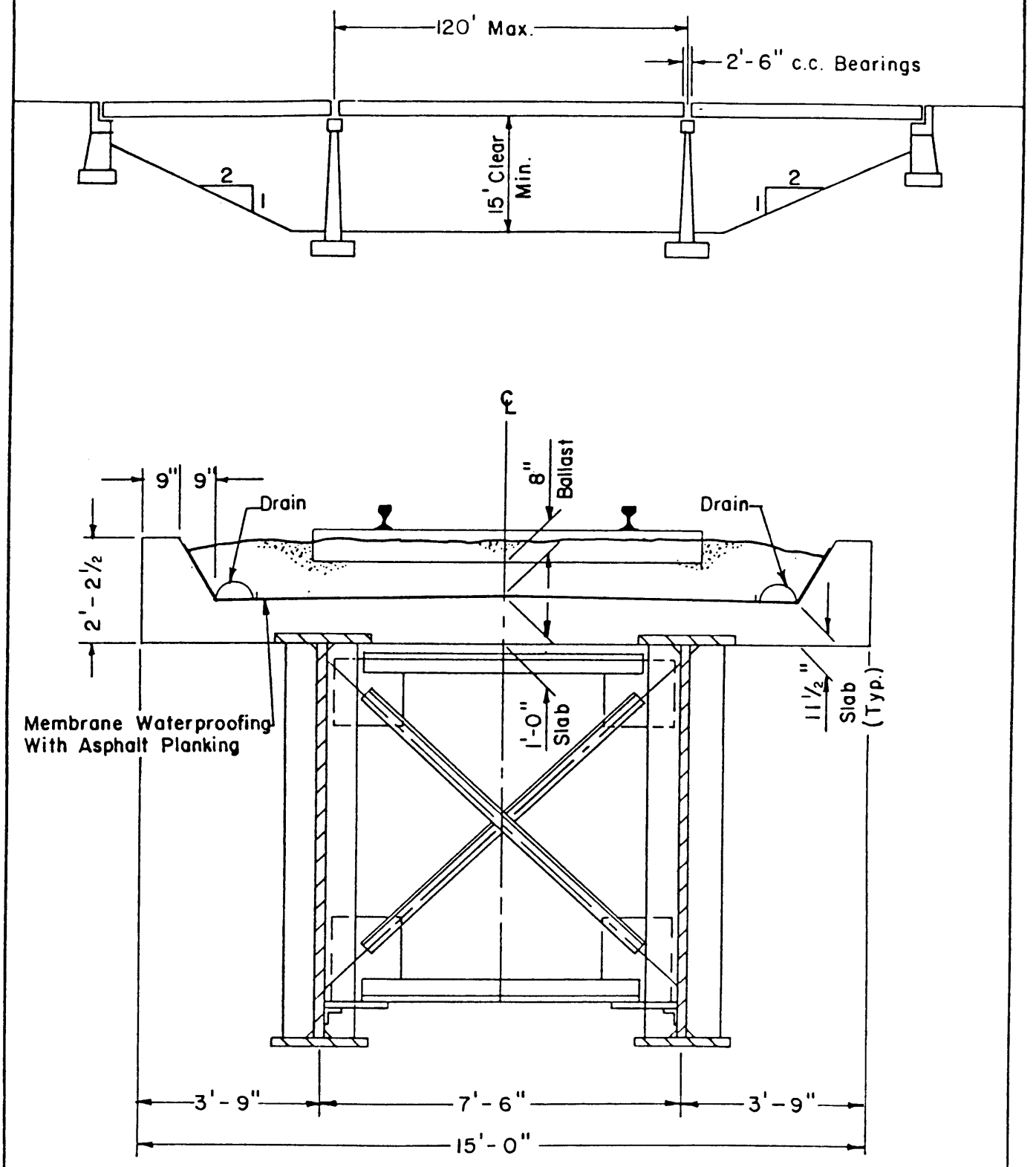


Figure 3-4

TYPICAL LONG SPAN BRIDGE

FOR RIVER CROSSING AND PUBLIC ROAD CROSSINGS

T R Railroad Co.
2-17-81

would be employed. Most of these persons (43) would be located at the TRRC's Miles City office; others would be located at the Ashland facilities. After being loaded, the trains would travel to a yard located in Miles City. In the yard, the trains would be transferred to the Burlington Northern, Inc. for transport downline. TRRC crews and locomotives would return empty cars to the mine sites. The maximum allowable speed for the trains would be 40 miles per hour (mph). The average speed, excluding delay time in sidings for train meets, would be 37 mph for loaded trains and 38 mph for empty trains.

Coal volumes to be transported by the TRRC and the number of trains required by volume are presented in Table 3-1. The data represent three possible scenarios of coal development.[2] Actual train traffic would vary by scenario. Projections indicate that one-third of the coal will be destined for locations in Oregon and Washington, and two-thirds for locations in South Dakota, Minnesota, Wisconsin, New York, and Pennsylvania. There are two routing alternatives that represent the possible distribution of TRRC trains among the downline corridors (see Figure 2-1). The routing of trains beyond Spokane, Duluth/Superior, and the Minneapolis/St. Paul area (Twin Cities) has not been designated, due to the uncertainty of ultimate destinations and routing, given the several available alternatives.

TABLE 3-1

TRAIN VOLUMES BY COAL PRODUCTION SCENARIO

		COAL PRODUCTION SCENARIO		
YEAR	TRAIN VOLUMES	LOW	MEDIUM	HIGH
1986	Coal Production[a]	2	2	2
	Trains/Day[b]	1	1	1
1991	Coal Production	7	9	12
	Trains/Day	4	5	7
1996	Coal Production	13	15	17
	Trains/Day	7	8	10
2001	Coal Production	18	25	34
	Trains/Day	10	14	19
2006	Coal Production	22	31	44
	Trains/Day	12	18	25
2011	Coal Production	33	38	44
	Trains/Day	19	22	25

[a] Measured in millions of tons [b] Measured in number of round trips

3.1.3. Maintenance

Two maintenance crews, one headquartered in Miles City and the other stationed in Ashland, would service the proposed TRRC railroad. Each five-person crew would perform daily maintenance chores, such as repairing the roadbed, replacing broken rails and defective ties, and cleaning, oiling, and adjusting switches. The maintenance crews also would control vegetation along the track area, either by mechanical means or by applying herbicides. Chemicals to be used in controlling trackside weeds would be only those approved by the appropriate state agencies. Applicable state licensing procedures would be followed.

3.2. TONGUE RIVER ROAD ALTERNATIVE

3.2.1. Construction

The 88-mile-long Tongue River Road alternative route would follow the alignment of the proposed rail line south through the Livestock and Range Research Station. It would cross to the east side of the Tongue River near the mouth of Pumpkin Creek and then would proceed south, paralleling the Tongue River Road. It would rejoin the route of the proposed rail line approximately 9 miles north of Ashland and would follow that alignment to the two terminus points. Either of the Ashland alignments discussed in section 3.3.1 could be included in this route (see Figure 3-1).

The construction of a rail line along the Tongue River Road would resemble that along the proposed route. More rugged topography along the Tongue River Road would dictate larger cuts and fills and a greater right-of-way width at certain points than would the proposed ROW. In addition, construction of the Tongue River Road alternative route would destroy some of the existing county road and would necessitate its relocation. The construction procedures, the sequence of activity, and the number of personnel needed to build the railroad along this alternative route would not differ significantly from those elements of the proposed rail line.

3.2.2. Operation

The operational characteristics for a railroad along the Tongue River Road would be similar to those of the proposed railroad. The destination points for coal would be the same for both lines. The average train speeds on the Tongue River Road line would be 36 mph for a loaded train and 39 mph for an empty train. The significant difference between the operation of a railroad on the Tongue River Road route and of one on the proposed rail line would be the necessary addition of two locomotives on the alternative. The rough topography encountered on the alternative alignment would require the use of four locomotives per train over most of the line.

3.2.3. Maintenance

Maintenance requirements for a railroad along the Tongue River Road would be the same as those requirements for the proposed railroad. Greater grade and curvature specifications on the Tongue River Road line would necessitate more frequent maintenance.

3.3. MOON CREEK ALTERNATIVE

3.3.1. Construction

The Moon Creek alternative route leaves the abandoned Milwaukee Road rail line 7 miles west of Miles City. This alternative would cross the Yellowstone River at that point and climb from the Yellowstone River valley, heading southeastward toward the Tongue River. The Moon Creek route would extend along the east side of Moon Creek, running through the Livestock and Range Research Station, and join the proposed rail line approximately 14 miles south of Miles City. Either of the Ashland alignments discussed in section 3.1.1 could be included in this route (see Figure 3-1).

The Moon Creek route would require the construction of a new, super span bridge across the Yellowstone River. It also would require the purchase and the rehabilitation of 7 miles of abandoned Milwaukee Road right-of-way west of Miles City and an existing bridge across the Yellowstone River near Miles City.

The construction of a rail line along Moon Creek would resemble that along the proposed alignment. Yet, the more rugged topography along the Moon Creek route would require larger cuts and fills and a greater right-of-way width at certain points than would the proposed rail line. The construction procedures, the sequence of activity, and the number of personnel needed to build the railroad along this alternative route would not differ significantly from those elements of the proposed rail line.

3.3.2. Operation

The operational characteristics for a railroad along the Moon Creek route would be similar to those for the proposed railroad. The destination points for coal would be the same for both lines. The average train speeds on the Moon Creek line would be 36 mph for a loaded train and 39 mph for an empty train. The significant difference between the operation of a railroad on the Moon Creek route and of one on the proposed rail line would be the necessary addition of three locomotives on the alternative line. The rough topography encountered on the Moon Creek route would require the use of five locomotives per train over most of the line.

3.3.3. Maintenance

Maintenance requirements for a railroad along the Moon Creek route would be the same as those requirements for the proposed railroad. Greater grade and curvature specifications on the Moon Creek line would necessitate more frequent maintenance.

3.4. COLSTRIP ALTERNATIVE

3.4.1. Construction

The Colstrip alternative route would begin at the Burlington Northern spur line at Colstrip and would extend approximately 47 miles southeastward to the two terminus points at the proposed Montco Mine site and on Otter Creek. The line would cross Rosebud Creek and extend up the Greenleaf Valley to the Rosebud Creek/Tongue River divide. There it would descend into the Tongue River Valley. Either of the Ashland alignments discussed in section 3.1.1 could be included in this route (see Figure 3-1).

The construction of a rail line along the Colstrip route would resemble that along the proposed alignment. The more rugged topography along the Colstrip route, however, would require larger cuts and fills and a greater right-of-way width at certain points than would the proposed rail line. Moreover, the large cuts required on the Colstrip route probably would necessitate some blasting. The shorter length of the Colstrip route would require a maximum of 358 construction workers, located at two or three construction camps. Construction procedures and the sequence of activity would not differ significantly from those elements of the proposed railroad.

3.4.2 Operation

The operational characteristics for a railroad along the Colstrip route would be similar to those of the proposed rail line. The Colstrip route would not require an interchange yard at Miles City. Rather, it would use the existing facilities at Colstrip to transfer trains before proceeding downline. The Colstrip route would require TRRC trains to travel farther west than would the other routes, and would, therefore, increase the length of the trip to Miles City. It would, however, shorten the total distance traveled by trains going downline to the west. The average train speeds on the Colstrip line would be 26 mph for a loaded train and 39 mph for an empty train. The significant difference between the operation of a railroad on the Colstrip route and of one on the proposed rail line would be the required addition of two locomotives on the alternative line. The rough topography presented by the Colstrip alternative route would necessitate the use of four locomotives per train over most of the line.

3.4.3 Maintenance

Maintenance requirements for a railroad along the Colstrip route would be the same as those requirements for the proposed railroad. Greater grade and curvature specifications on the Colstrip line might necessitate more frequent maintenance.

3.5. RELATED ACTIONS

3.5.1. Proposed Montco Mine

Montco, a Montana partnership composed of Thermal Energy, Inc., and Tongue River Resources, Inc., proposes to open a new coal strip mine in the Tongue River Valley in Rosebud County, Montana (see Figure 3-5). The 10,171-acre mine plan area would produce 186 million tons of coal over a 24-year period at a maximum rate of 12 million tons per year. In November, 1980, Montco applied to the Montana Department of State Lands for a permit to mine coal. The Department has evaluated that application and has prepared a Draft Environmental Impact Statement, which is summarized in Appendix C.

The Montco Mine plan area is divided into five mining units and a facilities area. The facilities area and the North King Mining Unit (NKMU) are covered in the current permit application. The facilities area would occupy approximately 115 acres and would be used for roughly 22 years. The NKMU would occupy approximately 1,159 acres of land and would have an estimated life of 11 years. The Montco Mine plan anticipates a truck and shovel type operation.

The Tongue River Railroad Company mainline would extend through the Montco Mine site. Montco plans to construct a spur and loop within the TRRC corridor.

3.5.2. Other Potential Coal Mines

In addition to the Montco Mine, the TRRC railroad line could serve four additional, potential mine sites in the Ashland/Birney/Otter Creek area (see Figure 3-5). Each of these sites is hypothetical, since no mine plans have been filed for any area. The locations for these possible mines were identified from information in the Bureau of Land Management's (BLM) Final Environmental Impact Statement (FEIS): Coal (June, 1981), from Montana Department of State Lands data, and from data in TRRC reports (see a summary of the BLM FEIS in Appendix D).

An estimated 38 million tons of coal could be produced annually and transported by the TRRC if the Montco Mine and the four mines were operating at full capacity. This medium scenario for potential coal production in the TRRC service area would not be attained until the year 2011. For the purposes of comparative impact assessment, higher

and lower annual production totals, of 44 million tons and 33 million tons, were developed. Table 3-2 presents the projected levels of coal production under the three scenarios.

Train traffic on the proposed TRRC rail line would begin in 1985 and would develop steadily through the year 2011. Under the medium scenario of coal production, 22 TRRC train round trips would occur daily on the TRRC line by 2011. This number would decrease slightly (19) under the low production scenario and increase slightly (25) under the high production scenario (see Table 3-1).

TABLE 3-2

PROJECTED COAL PRODUCTION (MMT)[a]

YEAR	MONTCO	#2	#3	#4	#5	TOTALS
			LOW PRODUCTION SCENARIO			
1984	C[b]					
1985	C					
1986	1					1
1987	2					2
1988	4					4
1989	6					6
1990	6					6
1991	6					6
1992	9					9
1993	12					12
1994	12					12
1995	12					12
1996	12	1				13
1997	12	2				14
1998	12	4				16
1999	12	6				18
2000	12	6				18
2001	12	6				18
2002	12	7	1			20
2003	12	9	2	1		24
2004	10	9	4	2		25
2005	6	9	6	4		25
2006	-0-	9	7	6		22
2007		9	8	7	1	25
2008		9	8	8	2	27
2009		9	8	8	4	29
2010		9	8	8	6	31
2011		9	8	8	8	33

[a] MMT = millions of tons

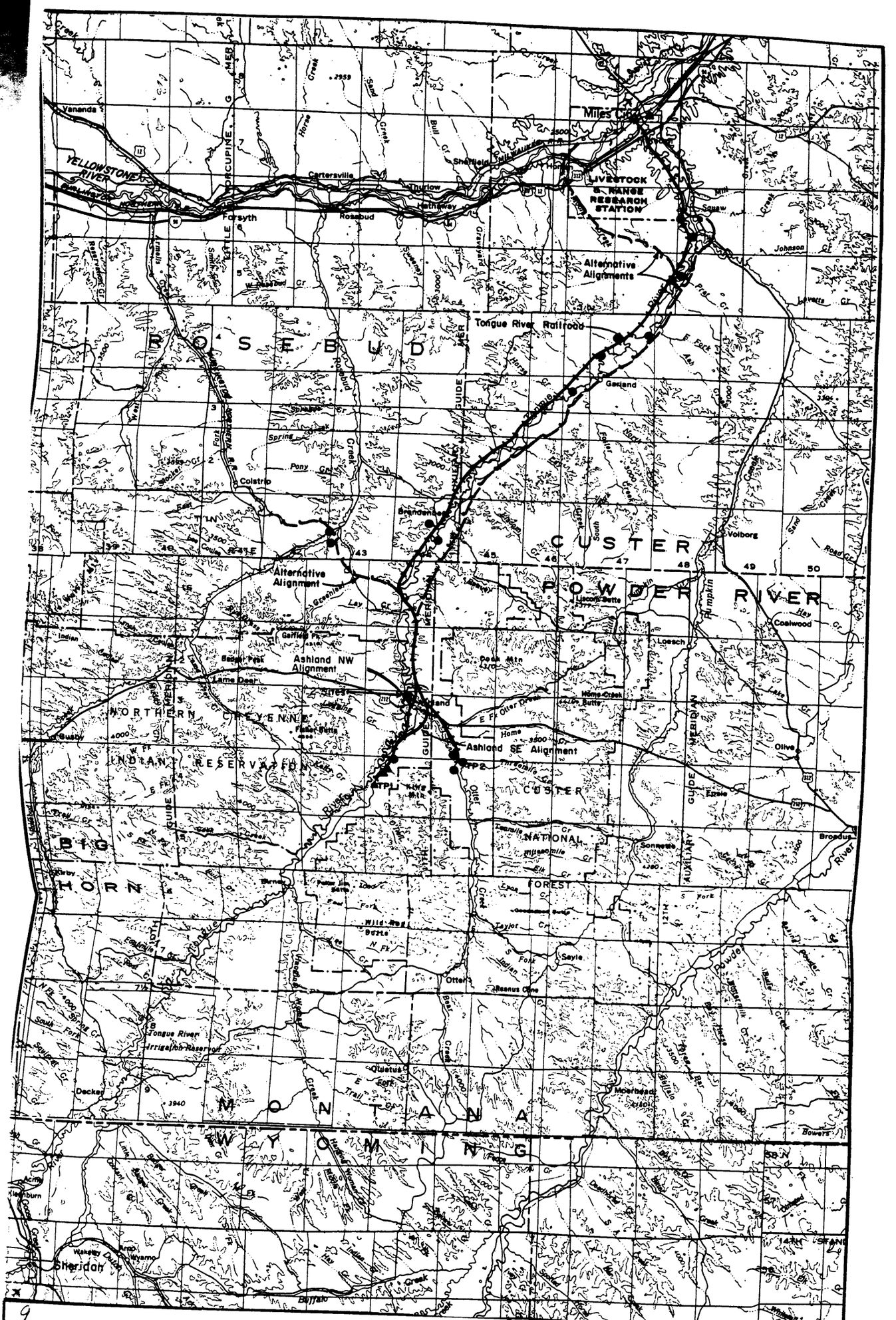
[b] C = Construction

TABLE 3-2. PROJECTED COAL PRODUCTION (continued)

YEAR	MONTCO	#2	#3	#4	#5	TOTALS
			MEDIUM PRODUCTION SCENARIO			
1984	C					
1985	C					
1986	1					1
1987	2					2
1988	4					4
1989	6					6
1990	6					6
1991	6					6
1992	9					9
1993	12					12
1994	12					12
1995	12	1				13
1996	12	3				15
1997	12	4				16
1998	12	4				16
1999	12	6	1			19
2000	12	6	3	1		22
2001	12	6	4	3		25
2002	12	8	6	4		30
2003	12	10	6	6		34
2004	12	10	6	6		34
2005	8	10	8	6	1	33
2006	-0-	10	10	8	3	31
2007		10	10	9	4	33
2008		10	10	9	6	35
2009		10	10	9	6	35
2010		10	10	9	8	37
2011		10	10	9	9	38

TABLE 3-2. PROJECTED COAL PRODUCTION (continued)

YEAR	MONTCO	#2	#3	#4	#5	TOTALS
			HIGH PRODUCTION SCENARIO			
1984	C					
1985	C					
1986	1					1
1987	2					2
1988	4					4
1989	6					6
1990	6	1				7
1991	6	3				9
1992	9	4				13
1993	12	4				16
1994	12	4				16
1995	12	4				16
1996	12	4	1			17
1997	12	6	2			20
1998	12	6	4			22
1999	12	6	6			24
2000	12	12	6	1	1	32
2001	12	12	6	2	2	34
2002	12	12	12	4	4	44
2003	12	12	12	6	6	48
2004	12	12	12	6	6	48
2005	8	12	12	8	8	48
2006	-0-	12	12	10	10	44
2007		12	12	10	10	44
2008		12	12	10	10	44
2009		12	12	10	10	44
2010		12	12	10	10	44
2011		12	12	10	10	44



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This is the wrong figure
it should be 3.5 showing four additional potential mine sites

3.6. FOOTNOTES

1. Peat, Marwick, Mitchell and Company, consultant to the TRRC, provided all operating data with the exception of employment figures and facility locations. Train speeds and delays were calculated by Peat, Marwick, Mitchell and Company, with a train performance calculator. Data on employment and facility locations was provided by Sverdrup and Parcel, also consultant to the TRRC.

2. The coal production scenarios were developed from information provided by Peat, Marwick, Mitchell and Company, Ernst and Whinney (consultants to the TRRC), the Montana Department of State Lands, and the Interstate Commerce Commission. The tonnage forecasts represent a synthesis of available regional coal production estimates, current and projected utility plant consumption, individual mine production capability, and regional distribution patterns. The development schedules for the five TRRC-served coal mines reflect: (1) the proposed Montco development schedule; and (2) an extrapolation of the Montco Mine schedule to four hypothetical mines in the Ashland/Birney/Otter Creek area.

The Tongue River Railroad Company originally anticipated the construction of an 80-mile-long railroad from Miles City to the proposed Montco Mine site south of Ashland, Montana. The schedules predict a 12-million-ton/year mine at Montco and two 10-million-ton/year mines in the Otter Creek drainage. The balance of the projected coal from the area would come from two 9-million-ton/year mines north and northwest of Otter Creek. The nature of mine development in the Tongue River region is extremely speculative. Therefore, low and high scenarios of coal demand and production were developed for the impact assessment. These schedules predict maximum yearly production from the area at 33 million and at 44 million tons/year, respectively.

TRRC now proposes the construction of the rail line to two terminal points (TP): the Montco Mine site (TP #1) and a point 7.7 miles southeast of Ashland in the Otter Creek drainage (TP #2). Construction would occur between 1983 and 1987. The Otter Creek line would be available to service the construction of a potential mine in that area in the year 1988. Scoping meetings were held on lines to both terminal points in August, 1980 and June, 1981.

The construction of the proposed TRRC railroad and the anticipated tonnage demand from the TRRC-related mines fall between the medium and high production scenarios. Therefore, socioeconomic aspects of this DEIS focus on the potential impacts from operation of the railroad with a medium and a high coal production scenario for the five mines. Where necessary, detailed tables are presented for both levels of coal production. The low scenario generally is presented as a percentage of the medium production scenario.